ETSI TS 134 123-1 V10.3.1 (2013-02)



Universal Mobile Telecommunications System (UMTS);
User Equipment (UE) conformance specification;
Part 1: Protocol conformance specification
(3GPP TS 34.123-1 version 10.3.1 Release 10)



Reference
RTS/TSGR-0534123-1va31

Keywords
UMTS

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Important notice

Individual copies of the present document can be downloaded from:
http://www.etsi.org

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at
http://portal.etsi.org/tb/status/status.asp

If you find errors in the present document, please send your comment to one of the following services:
http://portal.etsi.org/chaircor/ETSI_support.asp

Copyright Notification

No part may be reproduced except as authorized by written permission.
The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2013.
All rights reserved.

DECT™, **PLUGTESTS**™, **UMTS**™ and the ETSI logo are Trade Marks of ETSI registered for the benefit of its Members.
3GPP™ and **LTE**™ are Trade Marks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.
GSM® and the GSM logo are Trade Marks registered and owned by the GSM Association.

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (http://ipr.etsi.org).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Foreword

This Technical Specification (TS) has been produced by ETSI 3rd Generation Partnership Project (3GPP).

The present document may refer to technical specifications or reports using their 3GPP identities, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under http://webapp.etsi.org/key/queryform.asp.

Contents

Intellectual Property Rights 2
Foreword 2
Foreword 68
Introduction 68
1 Scope 69
2 References 70
3 Definitions and abbreviations 73
3.1 Definitions 73
3.2 Abbreviations 73
4 Overview 73
4.1 Test Methodology 73
4.1.1 Testing of optional functions and procedures 73
4.1.2 Test interfaces and facilities 73
4.2 Implicit Testing 73
5 Reference Conditions 73
5.1 Generic setup procedures 73
6 Idle mode operations 75
6.1 In a pure 3G environment 81
6.1.1 PLMN selection 81
6.1.1.1 PLMN selection of RPLMN, HPLMN, UPLMN and OPLMN; Manual mode 81
6.1.1.2 PLMN selection of "Other PLMN / access technology combinations"; Manual mode 83
6.1.1.3 PLMN selection; independence of RF level and preferred PLMN; Manual mode 86
6.1.1.4 PLMN selection of RPLMN, HPLMN, UPLMN and OPLMN; Automatic mode 89
6.1.1.5 PLMN selection of "Other PLMN / access technology combinations"; Automatic mode 91
6.1.1.6 Void 93
6.1.1.7 Cell reselection of ePLMN in manual mode 93
6.1.1.8 PLMN selection in shared network environment, Automatic mode 95
6.1.1.9 PLMN selection in shared network environment, Manual Mode 98
6.1.1.10 Presentation of additional information during PLMN selection; Manual mode 102
6.1.1.11 Void 104
6.1.1.12 Displaying EHPLMNs in manual mode 104
6.1.1.13 PLMN selection of RPLMN or (E)HPLMN; Automatic mode 107
6.1.1.14 Network selection mode at switch-on 110
6.1.1.15 Exception in manual network selection mode when HPLMN is available at power-on 113
6.1.2 Cell selection and reselection 117
6.1.2.1 Cell reselection 117
6.1.2.1a Cell reselection for inter-band operation 120
6.1.2.1b Cell reselection for inter-band operation(LCR TDD band a-f) 121
6.1.2.2 Cell reselection using Qhyst, Qoffset and Treselection 122
6.1.2.3 HCS Cell reselection 126
6.1.2.4 HCS Cell reselection using reselection timing parameters for the H criterion 128
6.1.2.5 HCS Cell reselection using reselection timing parameters for the R criterion 131
6.1.2.6 Emergency calls 135
6.1.2.7 Void 137
6.1.2.8 Cell reselection: Equivalent PLMN 137
6.1.2.9 Void 141
6.1.2.9a Cell reselection using cell status and cell reservations – Type “A” USIM 141
6.1.2.9b Cell reselection using cell status and cell reservations – Type “B” USIM 144
6.1.2.10 HCS inter-frequency cell reselection 145
6.1.2.10a HCS inter-frequency cell reselection for inter-band operation 148
6.1.2.11 Cell reselection in shared network environment 148

6.1.2.12 Cell reselection based on absolute priority in SIB19 152
6.1.3 MBSFN Cluster selection and reselection 159
6.1.3.1 MBSFN only service recognition 159
6.1.3.2 Suitable PLMN selection; MBSFN Frequency List present (unicast carrier) 164
6.1.3.3 Suitable PLMN search; MBSFN Frequency List not present (unicast carrier) 170
6.1.3.4 Cell reservations and access restrictions; Normal access class only 176
6.1.3.5 Cell reservations and access restrictions; Operator access class 181
6.1.3.6 Cell reservations and access restrictions; Home country services access class 188
6.1.3.7 Inter frequency neighbour reselection / Service activation 190
6.1.3.8 Inter frequency neighbour reselection / Activation of higher priority service 194
6.2 Multi-mode environment (2G/3G case) 199
6.2.1 PLMN and RAT selection 199
6.2.1.1 Selection of the correct PLMN and associated RAT 199
6.2.1.2 Selection of RAT for HPLMN; Manual mode 201
6.2.1.3 Selection of RAT for UPLMN; Manual mode 207
6.2.1.4 Selection of RAT for OPLMN; Manual mode 209
6.2.1.5 Selection of "Other PLMN / access technology combinations"; Manual mode 211
6.2.1.6 Selection of RAT for HPLMN; Automatic mode 214
6.2.1.7 Selection of RAT for UPLMN; Automatic mode 216
6.2.1.8 Selection of RAT for OPLMN; Automatic mode 219
6.2.1.8a Selection of RAT for OPLMN; Different ITU regions 221
6.2.1.9 Selection of "Other PLMN / access technology combinations"; Automatic mode 232
6.2.1.10 Void 234
6.2.1.11 Selection of PLMN and RAT in shared network environment, Manual Mode 234
6.2.2 Cell selection and reselection 238
6.2.2.1 Cell reselection if cell becomes barred or S<0; UTRAN to GSM 238
6.2.2.1a Cell reselection if cell becomes barred or S<0; UTRAN(1.28Mcps TDD) to GSM 240
6.2.2.2 Cell reselection if cell becomes barred or C1<0; GSM to UTRAN 243
6.2.2.2a Cell reselection if cell becomes barred or C1<0; GSM to UTRAN (1.28 Mcps TDD) 246
6.2.2.3 Cell reselection timings; GSM to UTRAN 249
6.2.2.3a Cell reselection timings; GSM to UTRAN (1.28 Mcps TDD) 253
6.2.2.4 Cell reselection in multi-mode shared network environment 258
6.2.2.5 Cell reselection using SIB18; UTRAN to GSM 262
6.2.2.5a Cell reselection using SIB18; UTRAN(1.28Mcps TDD) to GSM 266
6.2.2.6 Cell reselection based on Absolute Priorities(both High priority and Low priority reselection) in SIB19; UTRAN to GSM 270
6.3 HNB Environment 277
6.3.1 CSG Selection 277
6.3.1.1 Manual CSG ID Selection 277
6.3.1.2 UE in automatic network selection mode to select a suitable CSG cell 278
6.3.1.3 Manual CSG ID Selection across PLMNs 280
6.3.1.4 Suitable Cell checking for reselection to the CSG Cell 282
6.3.2 Reselection from a non-CSG cell to an allowed CSG cell 287
6.3.2.1 Intra-frequency cell reselection from a non-CSG cell to an allowed CSG cell 287
6.3.2.2 Inter-frequency cell reselection from a non-CSG cell to an allowed CSG cell 290
6.3.2.3 Inter-RAT Cell Reselection / from GSM_Idle / GPRS Packet_Idle to a UTRA idle CSG cell 292
6.3.3 Reselection from CSG Cell to CSG Cell 295
6.3.3.1 Intra frequency CSG Cell Reselection / UE is in Idle, Cell_PCH and URA_PCH states 295
6.3.3.2 Inter frequency CSG Cell Reselection / UE is in Idle, Cell_PCH and URA_PCH states 297
6.3.4 Cell Reselection with Hybrid Cells 299
6.3.4.1 Inter-frequency Cell Reselection with Hybrid Cells 299
6.3.4.2 Cell Reselection with Hybrid Cells for non-member UEs 301

7 Layer 2 303
7.1 MAC 303
7.1.1 Mapping between logical channels and transport channels 303
7.1.1.1 CCCH mapped to RACH/FACH / Invalid TCTF 303
7.1.1.2 DTCH or DCCH mapped to RACH/FACH / Invalid TCTF 309
7.1.1.3 DTCH or DCCH mapped to RACH/FACH / Invalid C/T Field 314
7.1.1.4 DTCH or DCCH mapped to RACH/FACH / Invalid UE ID Type Field 316
7.1.1.5 DTCH or DCCH mapped to RACH/FACH / Incorrect UE ID 318
7.1.1.6 DTCH or DCCH mapped to DSCH or USCH 320

7.1.1.7 DTCH or DCCH mapped to CPCH 323
7.1.1.8 DTCH or DCCH mapped to DCH / Invalid C/T Field 326
7.1.1.9 MTCH mapped to FACH / Invalid TCTF (TDD MBSFN) 330
7.1.1.9a MTCH mapped to FACH / Invalid TCTF (3.84 Mcps TDD IMB) 339
7.1.1.10 MTCH mapped to FACH / Invalid MBMS-Id (TDD MBSFN) 345
7.1.1.10a MTCH mapped to FACH / Invalid MBMS-Id (3.84 Mcps TDD IMB) 354
7.1.2 RACH/FACH procedures 359
7.1.2.1 Selection and control of Power Level 359
7.1.2.1.1 Void 359
7.1.2.1.2 Selection and control of Power Level (3,84 Mcps TDD option) 359
7.1.2.1.3 Void 359
7.1.2.2 Correct application of Dynamic Persistence 359
7.1.2.2.1 Void 359
7.1.2.2.2 Correct application of Dynamic Persistence (3.84 Mcps TDD option) 359
7.1.2.2.3 Void 359
7.1.2.3 Correct Selection of RACH parameters 359
7.1.2.3.1 Correct Selection of RACH parameters (FDD) 359
7.1.2.3.2 Correct Selection of RACH parameters (3.84 Mcps TDD option) 364
7.1.2.3.3 Correct Selection of RACH parameters (1.28 Mcps TDD option) 364
7.1.2.4 Correct Detection and Response to FPACH (1.28 Mcps TDD option) 365
7.1.2.4a Access Service class selection for RACH transmission 368
7.1.2.5 Void 377
7.1.3 Priority handling between data flows of one UE 377
7.1.3.1 Priority handling between data flows of one UE 377
7.1.3.2 TFC Selection 379
7.1.4 Control of CPCH transmissions. 388
7.1.4.1 Control of CPCH transmissions for FDD 388
7.1.5 HS-DSCH MAC-hs 394
7.1.5.1 MAC-hs reordering and stall avoidance 394
7.1.5.2 MAC-hs priority queue handling 398
7.1.5.3 MAC-hs PDU header handling 399
7.1.5.4 MAC-hs retransmissions 402
7.1.5.5 MAC-hs reset 405
7.1.5.6 MAC-hs transport block size selection 407
7.1.5.6a MAC-hs transport block size selection (1.28 Mcps TDD) 416
7.1.5.7 MAC-hs transport block size selection (3.84 Mcps TDD) 422
7.1.5.8 MAC-hs transport block size selection (7.68 Mcps TDD) 428
7.1.5.9 MAC-hs data transmission with enhanced TS0 (1.28 Mcps TDD) 434
7.1.5a HS-DSCH MAC-ehs 436
7.1.5a.1 MAC-ehs multiplexing / multiple logical channels on same queue 436
7.1.5a.2 MAC-ehs multiplexing / multiple logical channels on multiple queues 438
7.1.5a.3 MAC-ehs segmentation / UE handling of partial and full PDUs 439
7.1.5a.4 MAC-ehs reordering and stall avoidance 443
7.1.5a.5 MAC-ehs transport block size selection 449
7.1.5a.5.1 Generic test procedure for the MAC-ehs transport block size selection test cases 449
7.1.5a.5.2 MAC-ehs transport block size selection / QPSK and 16QAM 455
7.1.5a.5.3 MAC-ehs transport block size selection / 64QAM 463
7.1.5a.5.4 MAC-ehs transport block size selection (1.28Mcps TDD) 463
7.1.5a.6 UE Identification on HS-PDSCH in CELL_FACH 470
7.1.5a.7 HARQ retransmissions without ACK/NACK signalling in CELL_FACH 472
7.1.5a.8 HARQ retransmissions without ACK/NACK signalling in CELL_FACH when Dedicated H-RNTI is not allocated (1.28 Mcps TDD) 474
7.1.5a.9 HARQ retransmissions with ACK/NACK signalling in CELL_FACH when Dedicated H-RNTI is allocated (1.28 Mcps TDD) 476
7.1.5a.10 MAC-ehs data transmission with enhanced TS0 (1.28 Mcps TDD) 478
7.1.5b HS-SCCH Less Operation 479
7.1.5b.1 HARQ procedure for HS-SCCH less operation 479
7.1.5c HS-DSCH SPS Operation 484
7.1.5c.1 HARQ procedure for HS-DSCH SPS operation 484
7.1.6 E-DCH MAC-es/e 488
7.1.6.1 MAC-es/e multiplexing 488
7.1.6.1.1 MAC-es/e multiplexing without RRC restrictions 488

7.1.6.1.2 MAC-es/e multiplexing with RRC restrictions 490
7.1.6.1.3 Correct settings of MAC-es/e header fields....492
7.1.6.2 MAC-es/e – Scheduling 494
7.1.6.2.1 Correct settings of MAC-es/e scheduling information 494
7.1.6.2.2 Happy bit setting....499
7.1.6.2.3 MAC-es/e non-scheduled transmissions....502
7.1.6.2.4 MAC-es/e correct handling of scheduled transmissions when absolute grant varies 505
7.1.6.2.5 MAC-es/e de-activation and re-activation of HARQ processes 508
7.1.6.2.6 MAC-es/e correct handling of relative grants....510
7.1.6.2.7 MAC-es/e correct handling of absolute grants on Primary and Secondary E-RNTI....516
7.1.6.2.8 MAC-es/e combined non-scheduled and scheduled transmissions 519
7.1.6.2.9 MAC-es/e Correct handling of HARQ profile power offsets 524
7.1.6.2.9a MAC-es/e Correct handling of HARQ profile (1.28Mcps TDD)....528
7.1.6.2.10 MAC-es/e Correct handling of minimum set of E-TFCI....531
7.1.6.2.10a Smallest E-TFC (1.28Mcps TDD)....535
7.1.6.2.11 MAC-es/e correct handling of absolute and relative grants in discontinuous downlink reception operation 539
7.1.6.2.12 MAC-es/e correct handling scheduling information transmission (for different UpPCH shifting setting, for 1.28Mcps TDD only) 547
7.1.6.3 MAC-es/e- E-TFC selection....551
7.1.6.3.1 MAC-es/e E-TFC priority 551
7.1.6.3.2 MAC-es/e transport block size selection/ UL QPSK....553
7.1.6.3.2a MAC-es/e transport block size selection/UL 16QAM....563
7.1.6.3.3 Impact on E-TFCI selection on MAC at UE for UL DRX at Node B/ MAC Inactivity Threshold>1....571
7.1.6.3.4 Impact on E-TFCI selection on MAC at UE for UL DRX at Node B/ MAC Inactivity Threshold =1....573
7.1.6.3.5 MAC-es/e transport block size selection(1.28Mcps TDD)....575
7.1.6.4 MAC-es/e - E-DCH retransmissions....580
7.1.6.4.1 MAC-es/e process handling....580
7.1.6.4.2 MAC-es/e maximum number of retransmissions 583
7.1.6.4.3 MAC-es/e Correct handling of MAC-es/e reset 586
7.1.6a E-DCH MAC-es/e for 3.84 and 7.68Mcps TDD 588
7.1.6a.1 MAC-es/e multiplexing....588
7.1.6a.1.1 MAC-es/e multiplexing without RRC restrictions 588
7.1.6a.1.2 MAC-es/e multiplexing with RRC restrictions 590
7.1.6a.1.3 Correct settings of MAC-es/e header fields....592
7.1.6a.2 MAC-es/e – Scheduling 595
7.1.6a.2.1 Correct settings of MAC-es/e scheduling information 595
7.1.6a.2.2 Correct settings of MAC-es/e scheduling information when scheduling delay timer expires....598
7.1.6a.2.3 MAC-es/e correct handling of scheduled transmissions....600
7.1.6a.2.4 MAC-es/e combined non-scheduled and scheduled transmissions 603
7.1.6a.2.5 MAC-es/e Correct handling of HARQ profile power offsets 605
7.1.6a.3 MAC-es/e- E-TFC selection....609
7.1.6a.3.1 MAC-es/e E-TFC priority 609
7.1.6a.3.2 MAC-es/e transport block size selection/ UL QPSK....611
7.1.6a.4 MAC-es/e - E-DCH retransmissions....623
7.1.6a.4.1 MAC-es/e process handling....623
7.1.6a.4.2 MAC-es/e maximum number of retransmissions 626
7.1.7 E-DCH MAC-i/is....629
7.1.7.1 MAC-i/is multiplexing (multiple PDUs from different LC in one TTI) 629
7.1.7.2 MAC-i/is segmentation / Correct Usage of Segmentation Status Field 631
7.1.7.3 Correct settings of MAC-i/is header fields....635
7.1.7.4 MAC-is/i transport block size selection/ UL QPSK....640
7.1.7.5 MAC-is/i transport block size selection/ UL 16QAM 648
7.1.7.6 MAC-is/i transport block size selection (1.28Mcps TDD)....655
7.1.8 E-DCH MAC-is/i for RACH procedure 658
7.1.8.1 Release of common E-DCH resource when maximum resource allocation for E-DCH expires or uplink transmission ends for CCCH transmission....658
7.1.8.2 Activation of HS-DPCCH based on the received SIB5/SIB5bis information....663
7.1.8.3 DTCH/DCCH transmission - implicit common E-DCH resource release without receiving E-AGCH 666

7.1.8.4 DTCH/DCCH transmission – explicit common E-DCH resource release by E-AGCH 669
7.1.8.5 RACH procedure with both normal AIs and extended AIs (using E-AICH). 672
7.1.8.6 DTCH/DCCH transmission - Implicit release with E-DCH transmission continuation backoff - Timer Based 677
7.1.8.6a DTCH/DCCH transmission - Implicit release with E-DCH transmission continuation backoff value set to “0” 681
7.1.8.7 Physical Channel Failure for EUL in CELL-FACH during initial access preamble 685
7.1.8.8 Radio Link Failure for Enhanced UL in CELL-FACH with DTCH/DCCH active 688
7.1.8.9 CCCH transmission E-DCH access, the UL transmission within the Scheduling Windows 690
7.1.8.10 DTCH/DCCH transmission with E-RUCCH access for dedicated control signalling or dedicated user data when dedicated E-RNTI is allocated 693
7.1.9 E-DCH MAC-is/i for Dual-Cell HSUPA 695
7.1.9.1 MAC-i/is multiplexing for Dual-Cell HSUPA 695
7.1.9.2 Happy bit setting and SI handling for Dual-Cell HSUPA 698
7.1.9.3 Void 704
7.1.9.4 Void 704
7.1.9.5 Deactivation and activation of secondary uplink frequency using HS-SCCH orders 704
7.2 RLC testing 708
7.2.0 General 708
7.2.0.1 Radio bearer setup 708
7.2.1 Transparent mode 709
7.2.1.1 Segmentation and reassembly 709
7.2.2 Unacknowledged mode 709
7.2.2.1 General information for UM tests 709
7.2.2.2 Segmentation and reassembly / Selection of 7 or 15 bit "Length Indicators" 709
7.2.2.3 Segmentation and reassembly / 7-bit "Length Indicators" / Padding 711
7.2.2.4 Segmentation and Reassembly / 7-bit "Length Indicators" / LI = 0 713
7.2.2.5 Reassembly / 7-bit "Length Indicators" / Invalid LI value 714
7.2.2.6 Reassembly / 7-bit "Length Indicators" / LI value > PDU size 716
7.2.2.7 Reassembly / 7-bit "Length Indicators" / First data octet LI 717
7.2.2.8 Segmentation and reassembly / 15-bit "Length Indicators" / Padding 718
7.2.2.9 Segmentation and Reassembly / 15-bit "Length Indicators" / LI = 0 720
7.2.2.10 Segmentation and reassembly / 15-bit "Length Indicators" / One octet short LI 721
7.2.2.11 Reassembly / 15-bit "Length Indicators" / Invalid LI value 722
7.2.2.12 Reassembly / 15-bit "Length Indicators" / LI value > PDU size 724
7.2.2.13 Reassembly / 15-bit "Length Indicators" / First data octet LI 725
7.2.2.14 Flexible handling of RLC PDU sizes for UM RLC in downlink 726
7.2.2.15 Flexible handling of RLC PDU sizes for UM RLC in uplink 728
7.2.2a Unacknowledged mode (TDD MBSFN) (non-IMB) 731
7.2.2a.1 P-T-M Radio bearer setup 731
7.2.2a.2 Reassembly / 7-bit "Length Indicators" / Invalid LI value (TDD MBSFN) 733
7.2.2a.3 Reassembly / 7-bit "Length Indicators" / LI value > PDU size (TDD MBSFN) 734
7.2.2a.4 Reassembly / 7-bit "Length Indicators" / First data octet LI (TDD MBSFN) 736
7.2.2a.5 Reassembly / 15-bit "Length Indicators" / Invalid LI value (TDD MBSFN) 738
7.2.2a.6 Reassembly / 15-bit "Length Indicators" / LI value > PDU size (TDD MBSFN) 740
7.2.2a.7 Reassembly / 15-bit "Length Indicators" / First data octet LI (TDD MBSFN) 741
7.2.2b Unacknowledged mode (MBSFN IMB) 743
7.2.2b.1 P-T-M Radio bearer setup 743
7.2.2b.2 Reassembly / 7-bit "Length Indicators" / Invalid LI value (MBSFN IMB) 744
7.2.2b.3 Reassembly / 7-bit "Length Indicators" / LI value > PDU size (MBSFN IMB) 746
7.2.2b.4 Reassembly / 7-bit "Length Indicators" / First data octet LI (MBSFN IMB) 747
7.2.2b.5 Reassembly / 15-bit "Length Indicators" / Invalid LI value (MBSFN IMB) 749
7.2.2b.6 Reassembly / 15-bit "Length Indicators" / LI value > PDU size (MBSFN IMB) 751
7.2.2b.7 Reassembly / 15-bit "Length Indicators" / First data octet LI (MBSFN IMB) 752
7.2.3 Acknowledged mode 754
7.2.3.1 General information for AM tests 754
7.2.3.2 Segmentation and reassembly / Selection of 7 or 15 bit Length Indicators 755
7.2.3.3 Segmentation and Reassembly / 7-bit "Length Indicators" / Padding or Piggy-backed Status 756
7.2.3.4 Segmentation and Reassembly / 7-bit "Length Indicators" / LI = 0 758
7.2.3.5 Reassembly / 7-bit "Length Indicators" / Reserved LI value 760
7.2.3.6 Reassembly / 7-bit "Length Indicators" / LI value > PDU size 762
7.2.3.7 Segmentation and Reassembly / 15-bit "Length Indicators" / Padding or Piggy-backed Status 763

7.2.3.8 Segmentation and Reassembly / 15-bit "Length Indicators" / LI = 0 765
7.2.3.9 Segmentation and reassembly / 15-bit "Length Indicators" / One octet short LI 766
7.2.3.10 Reassembly / 15-bit "Length Indicators" / Reserved LI value 767
7.2.3.11 Reassembly / 15-bit "Length Indicators" / LI value > PDU size 769
7.2.3.12 Correct use of Sequence Numbering 770
7.2.3.13 Control of Transmit Window 772
7.2.3.14 Control of Receive Window 776
7.2.3.15 Polling for status / Last PDU in transmission queue 778
7.2.3.16 Polling for status / Last PDU in retransmission queue 780
7.2.3.17 Polling for status / Poll every Poll_PDU PDUs 782
7.2.3.18 Polling for status / Poll every Poll_SDU SDUs 784
7.2.3.19 Polling for status / Timer triggered polling (Timer_Poll_Periodic) 786
7.2.3.20 Polling for status / Polling on Poll_Window% of transmission window 788
7.2.3.21 Polling for status / Operation of Timer_Poll timer / Timer expiry 790
7.2.3.22 Polling for status / Operation of Timer_Poll timer / Stopping Timer_Poll timer 792
7.2.3.23 Polling for status / Operation of Timer_Poll timer / Restart of the Timer_Poll timer 795
7.2.3.24 Polling for status / Operation of timer Timer_Poll_Prohibit 797
7.2.3.25 Receiver Status Triggers / Detection of missing PDUs 799
7.2.3.26 Receiver Status Triggers / Operation of timer Timer_Status_Periodic 801
7.2.3.27 Receiver Status Triggers / Operation of timer Timer_Status_Prohibit 802
7.2.3.28 Status reporting / Abnormal conditions / Reception of LIST SUFI with Length set to zero 804
7.2.3.29 Timer based discard, with explicit signalling / Expiry of Timer_Discard 806
7.2.3.29a Timer based discard, with explicit signalling / Expiry of Timer_Discard when Timer_STATUS_prohibit is active 808
7.2.3.30 Timer based discard, with explicit signalling / Obsolete MRW_ACK 809
7.2.3.31 Timer based discard, with explicit signalling / Failure of MRW procedure 811
7.2.3.32 SDU discard after MaxDAT-1 number of transmissions 813
7.2.3.33 Operation of the RLC Reset procedure / UE Originated 815
7.2.3.34 Operation of the RLC Reset procedure / UE Terminated 819
7.2.3.35 Reconfiguration of RLC parameters by upper layers 821
7.2.3.36 Flexible handling of RLC PDU sizes for AM RLC 824
7.2.3.37 RLC PDU Size Adaptation in Uplink 827
7.2.3.38 Flexible handling of RLC PDU sizes for AM RLC in uplink 828
7.2.4 MBMS 830
7.2.4.1 Void 830
7.2.4.2 MTCH duplicate avoidance and reordering / MBMS Broadcast Service 830
7.2.4.2a MTCH duplicate avoidance and reordering / MBSFN (FDD) 834
7.2.4.2b-l Void 838
7.2.4.2m MTCH duplicate avoidance and reordering / MBMS Multicast Service 838
7.2.4.3 MCCH Out Of Sequence Delivery handling / MBMS Broadcast Service 839
7.2.4.3a MCCH Out Of Sequence Delivery handling / MBSFN (FDD) 842
7.2.4.3b-l Void 846
7.2.4.3m MCCH Out Of Sequence Delivery handling / MBMS Multicast Service 846
7.2.4.3n-r Void 847
7.2.4.3s MCCH Out Of Sequence Delivery handling / MBMS Broadcast Service (TDD MBSFN) (non-IMB) 847
7.2.4.3t MCCH Out Of Sequence Delivery handling / MBMS Broadcast Service (IMB) 857
7.3 PDCP 862
7.3.1 General 862
7.3.1.1 General assumptions 862
7.3.1.2 Common Test sequences and Default message contents for PDCP 863
7.3.1.2.1 Common Test sequences for PDCP 863
7.3.1.2.2 Default PDCP Message Contents 867
7.3.2 IP Header Compression and PID assignment 869
7.3.2.1 UE in RLC AM 869
7.3.2.1.1 Transmission of uncompressed Header 869
7.3.2.1.2 Transmission of compressed Header 877
7.3.2.2 UE in RLC UM 885
7.3.2.2.1 Transmission of uncompressed Header 885
7.3.2.2.2 Transmission of compressed Header 893
7.3.2.2.3 Extension of used compression methods 900
7.3.2.2.4 Compression type used for different entities 906

7.3.2.2.5 Reception of not defined PID values 912
7.3.3 PDCP sequence numbering when lossless SRNS Relocation 916
7.3.3.1 Data transmission if lossless SRNS Relocation is supported 916
7.3.3.2 Synchronisation of PDCP sequence numbers 921
7.3.3.3 PDCP Sequence Numbering and Data Forwarding..... - Reception of reserved PDU type 927
7.3.3.4 PDCP Sequence Number synchronization – Reception of invalid next expected receive Sequence Number 927
7.3.3.5 UTRAN MOBILITY INFORMATION: Lossless SRNS relocation in CELL_FACH (without pending of ciphering) 927
7.3.3.6 Cell Update: Lossless SRNS relocation in CELL_FACH (without pending of ciphering) 935
7.3.3.7 URA Update: Lossless SRNS relocation in CELL_FACH (without pending of ciphering) 944
7.3.3.8 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (Lossless SRNS relocation) (without pending of ciphering) 952
7.3.3.9 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Lossless SRNS relocation) (without pending of ciphering) 964
7.3.3.10 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (Lossless SRNS relocation) (without pending of ciphering) 977
7.3.3.11 Transport Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Lossless SRNS relocation) (without pending of ciphering) 985
7.3.4 PDCP configuration testing 993
7.3.4.1 PDCP configuration behaviour while RRC Radio bearer setup procedure 993
7.3.4.2 PDCP configuration behaviour while RRC Radio bearer release procedure 993
7.3.4.3 PDCP configuration behaviour while RRC Cell Update procedure 993
7.3.4.4 PDCP configuration behaviour for an invalid RRC configuration 993
7.3.5 PDCP RoHC testing 993
7.3.5.1 General 993
7.3.5.1.1 Preamble for extended RoHC conformance testing 993
7.3.5.2 Compression / Decompression of a UDP/RTP/IPv6 header flow 994
7.3.5.2.1 UDP/RTP/IPv6 Unacknowledged - unidirectional Mode (U-Mode) 994
7.3.5.2.2 UDP/RTP/IPv6 Unacknowledged - Normal U-mode Transmission (without ack) 994
7.3.5.2.3 UDP/RTP/IPv6 Unacknowledged - Bi-directional Optimistic Mode (O-Mode) 994
7.3.5.2.4 UDP/RTP/IPv6 Unacknowledged - Bi-directional Reliable Mode (R-Mode) 994
7.3.5.2.5 UDP/RTP/IPv6 Unacknowledged - Transition Mode 995
7.3.5.2.6 UDP/RTP/IPv6 Unacknowledged - Flow Parameters 995
7.3.5.2.7 UDP/RTP/IPv6 Acknowledged - unidirectional Mode (U-Mode) 995
7.3.5.2.8 UDP/RTP/IPv6 Acknowledged - Normal U-mode Transmission (without ack) using the UE as compressor 995
7.3.5.2.9 UDP/RTP/IPv6 Acknowledged - Bi-directional Optimistic Mode (O-Mode) 995
7.3.5.2.10 UDP/RTP/IPv6 Acknowledged - Bi-directional Reliable Mode (R-Mode) 995
7.3.5.2.11 UDP/RTP/IPv6 Acknowledged - Transition Mode 995
7.3.5.2.12 UDP/RTP/IPv6 Acknowledged - Flow Parameters 995
7.3.5.3 ROHC Profile 2,3 and 4. Compression / Decompression of a UDP/IPv6 or ESP/IPv6 or IPv6 header flow 995
7.3.5.3.1 UDP/IPv6 or ESP/IPv6 or IPv6 Unacknowledged - unidirectional Mode (U-Mode) 995
7.3.5.3.2 UDP/IPv6 or ESP/IPv6 or IPv6 Unacknowledged - Normal U-mode Transmission (without ack) 995
7.3.6 PDCP RoHC performance testing 999
7.3.6.1 General 999
7.3.6.1.1 Generic ROHC performance test procedure 999
7.3.6.2 Base test of ROHC RTP O-mode compressor 1000
7.3.6.3 Base test of ROHC RTP R-mode compressor 1004
7.3.6.4 Re-establishment of TS function after DTX in O-mode 1009
7.3.6.5 Re-establishment of TS function after DTX in R-mode 1012
7.3.6.6 Compressor response to single lost packets in O-mode 1016
7.3.6.7 Compressor response to single lost packets in R-mode 1017
7.3.6.8 TS function during DTX with varying delta in O-mode 1017
7.3.6.9 TS function during DTX with varying delta in R-mode 1021
7.3.6.10 SRNS relocation for ROHC RTP O-mode compressor 1025
7.3.7 PDCP AMR Data PDU testing 1030
7.3.7.1 PDCP AMR Data PDU testing 1030
7.3.7.2 PDCP Unrecoverable Error Detection 1034
7.4 BMC 1043

7.4.1 BMC RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH 1043
7.4.1.1 Transport channel parameters of BMC RAB and SRBs for CCCH, SRB for DCCH, and SRB for BCCH 1043
7.4.1.2 TFCS 1043
7.4.1.3 Physical channel parameters 1043
7.4.2 General BMC message reception 1044
7.4.2.1 UE in RRC Idle mode 1044
7.4.2.2 UE in RRC Connected mode, state CELL_PCH 1046
7.4.2.3 UE in RRC Connected mode, state URA_PCH 1048
7.4.2.4 UE in RRC Idle mode (ANSI-41 CB data) 1051
7.4.2.5 UE in RRC Connected mode, state CELL_PCH (ANSI-41 CB data) 1053
7.4.2.6 UE in RRC Connected mode, state URA_PCH (ANSI-41 CB data) 1056
7.4.3 BMC message reception procedure 1058
7.4.3.1 Reception of certain CBS message types 1058

8 Radio Resource Control RRC 1064
8.1 RRC Connection Management Procedure 1064
8.1.1 Paging 1064
8.1.1.1 Paging for Connection in idle mode 1064
8.1.1.2 Paging for Connection in connected mode (CELL_PCH) 1068
8.1.1.3 Paging for Connection in connected mode (URA_PCH) 1071
8.1.1.4 Paging for notification of BCCH modification in idle mode 1074
8.1.1.5 Paging for notification of BCCH modification in connected mode (CELL_PCH) 1078
8.1.1.5a Paging on HS-DSCH for notification of BCCH modification in CELL_PCH 1082
8.1.1.5b Paging on HS-DSCH for notification of BCCH modification in CELL_PCH (1.28Mcps TDD) 1085
8.1.1.6 Paging for notification of BCCH modification in connected mode (URA_PCH) 1089
8.1.1.6a Paging for notification of synchronised BCCH modification in idle mode using BCCH modification time 1093
8.1.1.7 Paging for Connection in connected mode (CELL_DCH) 1098
8.1.1.8 Paging for Connection in connected mode (CELL_FACH) 1101
8.1.1.9 Paging for Connection in idle mode (multiple paging records) 1104
8.1.1.10 Paging for Connection in connected mode (URA_PCH, multiple paging records) 1110
8.1.1.11 Paging for Connection in idle mode (Shared Network Environment) 1116
8.1.1.12 Paging for Connection in connected mode (CELL_PCH) without HS-SCCH 1121
8.1.1.12a Paging for Connection in connected mode (CELL_PCH) without legacy PCH configured (1.28Mcps TDD) 1126
8.1.1.13 ETWS primary and secondary notification without security reception via S-CCPCH in idle mode, URA_PCH and CELL_PCH state / CELL_FACH state 1132
8.1.1.14 Void 1143
8.1.1.15 Void 1143
8.1.1.16 Void 1143
8.1.1.17 Void 1143
8.1.1.18 Void 1143
8.1.1.19 ETWS primary and secondary notification / Cell reselection 1143
8.1.2 RRC Connection Establishment 1150
8.1.2.1 RRC Connection Establishment in CELL_DCH state: Success 1150
8.1.2.1a RRC Connection Establishment in CELL_DCH state: Success (TDD Only) 1154
8.1.2.2 RRC Connection Establishment: Success after T300 timeout 1159
8.1.2.3 RRC Connection Establishment: Failure (V300 is greater than N300) 1177
8.1.2.4 RRC Connection Establishment: Reject ("wait time" is not equal to 0) 1179
8.1.2.5 RRC Connection Establishment: Reject ("wait time" is not equal to 0 and V300 is greater than N300) 1183
8.1.2.6 RRC Connection Establishment: Reject ("wait time" is set to 0) 1186
8.1.2.7 RRC Connection Establishment in CELL_FACH state: Success 1188
8.1.2.8 Void 1192
8.1.2.9 RRC Connection Establishment: Success after Physical channel failure and Failure after Invalid configuration 1192
8.1.2.10 RRC connection establishment in CELL_DCH on another frequency 1198
8.1.2.10a RRC connection establishment in CELL_DCH on another frequency in a different frequency band 1201
8.1.2.10b RRC connection establishment in CELL_DCH on another frequency in a different frequency band (TDD a-f band) 1202

8.1.2.11 RRC Connection Establishment in FACH state (Frequency modification): Success....1202
8.1.2.12 RRC Connection Establishment: Reject with interRATInfo is set to GSM....1207
8.1.2.13 RRC Connection Establishment: Reject with InterRATInfo is set to GSM and selection to the designated system fails....1209
8.1.2.14 RRC Connection Establishment using the default configuration for 3.4 kbps signalling bearers....1211
8.1.2.15 RRC Connection Establishment using the default configuration for 13.6 kbps signalling bearers....1214
8.1.2.16 RRC Connection Establishment / Domain Specific Access Control: Success....1216
8.1.2.17 RRC Connection Establishment for transition from Idle Mode to CELL_DCH: Success (start of E-DCH transmission)....1222
8.1.2.18 RRC Connection Establishment using the default configuration for HS-DSCH / E-DCH signalling bearers....1231
8.1.2.19 RRC Connection Establishment for transition from Idle Mode to CELL_DCH: Success (start of discontinuous uplink transmission and downlink reception)....1234
8.1.2.20 RRC Connection Establishment for transition from Idle Mode to CELL_FACH: Success (Start of HS-DSCH Reception)....1237
8.1.2.21 RRC Connection Establishment: Reject with Frequency Info set to the same frequency band – Successful case....1242
8.1.2.21a RRC Connection Establishment: Reject with Frequency Info set to a different frequency band – Successful case....1247
8.1.2.22 RRC Connection Establishment: Reject with Frequency Info set to the same frequency band – Unsuccessful case....1248
8.1.2.22a RRC Connection Establishment: Reject with Frequency Info set to a different frequency band – Unsuccessful case....1253
8.1.2.23 Void....1254
8.1.2.23a Void....1254
8.1.2.24 Void....1254
8.1.2.24a Void....1254
8.1.2.25 RRC Connection Establishment for transition from Idle Mode to CELL_FACH: Success (Start of E-DCH and HS-DSCH Reception)....1254
8.1.2.26 RRC Connection Establishment / Paging Permission with Access Control: Success....1260
8.1.2.27 RRC Connection Establishment using the default configuration#23 for HS-DSCH / E-DCH signalling bearers....1267
8.1.2.27.1 Definition....1267
8.1.2.27.2 Conformance requirement....1267
8.1.2.27.3 Test purpose....1268
8.1.2.27.4 Method of test....1268
8.1.2.27.5 Test requirement....1269
8.1.3 RRC Connection Release....1270
8.1.3.1 RRC Connection Release in CELL_DCH state: Success....1270
8.1.3.2 RRC Connection Release using on DCCH in CELL_FACH state: Success....1272
8.1.3.3 RRC Connection Release using on CCCH in CELL_FACH state: Success....1273
8.1.3.4 RRC Connection Release in CELL_FACH state: Failure....1275
8.1.3.5 RRC Connection Release in CELL_FACH state: Invalid message....1277
8.1.3.6 RRC Connection Release in CELL_DCH state (Frequency modification): Success....1279
8.1.3.7 RRC Connection Release in CELL_FACH state (Frequency modification): Success....1283
8.1.3.8 Void....1286
8.1.3.9 RRC Connection Release in CELL_DCH state (Network Authentication Failure): Success....1286
8.1.4 Void....1291
8.1.5 UE capability....1291
8.1.5.1 UE Capability in CELL_DCH state: Success....1291
8.1.5.2 UE Capability in CELL_DCH state: Success after T304 timeout....1296
8.1.5.3 UE Capability in CELL_DCH state: Failure (After N304 re-transmissions)....1298
8.1.5.4 UE Capability in CELL_FACH state: Success....1303
8.1.5.5 UE Capability in CELL_FACH state: Success after T304 timeout....1307
8.1.5.6 UE Capability Information/ Reporting Of InterRAT Specific UE RadioAccessCapability....1309
8.1.5.7 UE Capability Information / Audit of UE Capabilities....1311
8.1.6 Direct Transfer....1327
8.1.6.1 Direct Transfer in CELL DCH state (invalid message reception and no signalling connection exists)....1327
8.1.6.2 Direct Transfer in CELL FACH state (invalid message reception and no signalling connection exists)....1330

8.1.6.3 Measurement Report on INITIAL DIRECT TRANSFER message and UPLINK DIRECT TRANSFER message 1332
8.1.6.4 UPLINK Direct Transfer (RLC re-establishment) 1339
8.1.6.5 Initial Direct Transfer: Inclusion of establishment cause 1344
8.1.7 Security mode command 1345
8.1.7.1 Security mode command in CELL_DCH state (CS Domain) 1345
8.1.7.1b Security mode command in CELL_DCH state (PS Domain) 1350
8.1.7.1c Security mode control in CELL_DCH state (CN Domain switch and new keys at RRC message sequence number wrap around) 1357
8.1.7.1d Security mode control in CELL_DCH state interrupted by a cell update 1363
8.1.7.2 Security mode command in CELL_FACH state 1369
8.1.7.3 Security mode command in CELL_DCH state (UEA2/UIA2, CS Domain) 1373
8.1.7.3b Security mode command in CELL_DCH state (UEA2/UIA2, PS Domain) 1374
8.1.7.3c Security mode control in CELL_DCH state (UEA2/UIA2, CN Domain switch and new keys at RRC message sequence number wrap around) 1375
8.1.7.3d Security mode control in CELL_DCH state interrupted by a cell update (UEA2/UIA2) 1376
8.1.7.4 Security mode command in CELL_FACH state (UEA2/UIA2) 1377
8.1.8 Counter check 1378
8.1.8.1 Counter check in CELL_DCH state, with symmetric RAB 1378
8.1.8.2 Counter check in CELL_FACH state 1382
8.1.8.3 Counter check in CELL_DCH state, with asymmetric RAB 1386
8.1.9 Signalling Connection Release Indication 1396
8.1.9a Signalling Connection Release Indication (RLC re-establishment): CS signalling connection release 1398
8.1.9b Signalling Connection Release Indication (RLC re-establishment): PS signalling connection release 1401
8.1.9c Signalling Connection Release Indication in Cell_FACH/Cell_DCH state when the upper layers of the UE indicate that there is no more PS data for a prolonged period 1404
8.1.9d No Signalling connection release indication in CELL_DCH state when the upper layers of the UE indicate that there is no more PS data for a prolonged period, CS connection exists 1407
8.1.9e Signalling Connection Release Indication in CELL_PCH state when the upper layers of the UE indicate that there is no more PS data for a prolonged period 1411
8.1.10 Broadcast of system information 1414
8.1.10.1 Dynamic change of segmentation, concatenation & scheduling and handling of unsupported information blocks 1414
8.1.10.2 BCCH Mapping on HS-DSCH for Transmitting System Information Change Indication 1439
8.1.10.3 BCCH Mapping on HS-DSCH for Transmitting System Information Change Indication (1.28Mcps TDD) 1444
8.1.11 Signalling Connection Release (Invalid configuration) 1449
8.1.12 Integrity Protection 1453
8.2 Radio Bearer control procedure 1457
8.2.1 Radio Bearer Establishment 1457
8.2.1.1 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success 1457
8.2.1.1a Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (TDD Only) 1458
8.2.1.2 Void 1460
8.2.1.3 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Failure (Unsupported configuration) 1460
8.2.1.4 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Failure (Physical channel Failure and successful reversion to old configuration) 1463
8.2.1.4a Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (start of MIMO operation for 1.28Mcps TDD only) 1467
8.2.1.4b Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (start of SPS operation) 1469
8.2.1.4c Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (start of Control Channel DRX operation) 1471
8.2.1.5 Void 1473
8.2.1.6 Void 1473
8.2.1.7 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Failure (Invalid message reception and Invalid configuration) 1473
8.2.1.8 Radio Bearer Establishment for transition from CELL_DCH to CELL_FACH: Success 1478
8.2.1.9 Radio Bearer Establishment for transition from CELL_DCH to CELL_FACH: Success (Cell re-selection) 1480
8.2.1.10 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Success 1482

8.2.1.10a Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Success (TDD Only) 1484
8.2.1.11 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Failure (Unsupported configuration) 1486
8.2.1.12 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Failure (Physical channel Failure and successful reversion to old configuration) 1489
8.2.1.13 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Failure (Physical channel Failure and cell reselection) 1492
8.2.1.14 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Failure (Incompatible simultaneous reconfiguration) 1497
8.2.1.15 Void 1500
8.2.1.16 Radio Bearer Establishment for transition from CELL_FACH to CELL_FACH: Success 1500
8.2.1.17 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: success (Subsequently received) 1502
8.2.1.18 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Success (Subsequently received) 1504
8.2.1.19 Void 1507
8.2.1.20 Void 1507
8.2.1.21 Void 1507
8.2.1.22 Radio Bearer Establishment for transition from CELL_DCH to CELL_FACH (Frequency modification): Success 1507
8.2.1.23 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH (Frequency modification): Success 1510
8.2.1.24 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH (Frequency modification): Success 1513
8.2.1.24a Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH (Inter band handover): Success 1515
8.2.1.24b Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH (Inter band handover): Success(TDD a-f band) 1516
8.2.1.25 Radio Bearer Establishment for transition from CELL_FACH to CELL_FACH (Frequency modification): Success 1517
8.2.1.26 Void 1520
8.2.1.27 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (two radio links, start of HS-DSCH reception) 1520
8.2.1.27a Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (start of HS-DSCH reception) 1527
8.2.1.27b Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (start of HS-DSCH reception) (TDD only) 1530
8.2.1.27c Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (inter-band frequency hard handover, start of HS-DSCH reception, LCR TDD band a-f) 1534
8.2.1.27d Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (start of HS-DSCH reception) (In a different frequency band) 1538
8.2.1.28 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (RB mapping for both DL DCH and HS-DSCH in cell without HS-DSCH support) 1539
8.2.1.29 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialized hard handover to another frequency, uplink TFCS restriction and start of HS-DSCH reception) 1545
8.2.1.30 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialised hard handover to another frequency, start of HS-DSCH reception) 1551
8.2.1.31 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Success (start of HS-DSCH reception) 1558
8.2.1.32 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Success (start of HS-DSCH reception with frequency modification) 1563
8.2.1.33 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (Unsynchronised RL Reconfiguration) 1570
8.2.1.34 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (Unsynchronised RL Reconfiguration with frequency modification) 1573
8.2.1.34a Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (Unsynchronised RL Reconfiguration with inter band handover) 1575
8.2.1.34b Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (Unsynchronised RL Reconfiguration with inter band handover)(TDD a-f band) 1576

8.2.1.35 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (start of E-DCH transmission) 1577
8.2.1.35a Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (start of E-DCH transmission, in the multi-frequency network environment, for 1.28 Mcps TDD only) 1586
8.2.1.36 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (hard handover to another frequency, start of E-DCH transmission) 1596
8.2.1.36a Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH using F-DPCH: Success (hard handover to another frequency, start of E-DCH transmission, F-DPCH configured) 1606
8.2.1.36b Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (hard handover to another frequency in the multi-frequency network environment, start of E-DCH transmission, for 1.28Mcps TDD only) 1607
8.2.1.37 Void 1618
8.2.1.38 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (start of discontinuous uplink transmission) 1618
8.2.1.39 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (start of HS-SCCH less operation) 1622
8.2.1.40 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (hard handover to another frequency, start of discontinuous uplink transmission) 1625
8.2.1.41 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (UL DPCCH slot format #4) 1629
8.2.1.42 Radio Bearer Establishment for transition from CELL_FACH (Enhanced UL/DL) to CELL_DCH : Success (with ongoing HS-DSCH reception and E-DCH transmission) 1630
8.2.1.43 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (start of E-DCH transmission with enhanced TS0) (1.28 Mcps TDD) 1632
8.2.1.44 Radio Bearer Establishment for transition between CELL_DCH & CELL_DCH with SRB on R99: Successful Activation of 3C-HSDPA and 4C-HSDPA for different bands 1634
8.2.1.44.1 Definition and applicability 1634
8.2.1.44.2 Conformance requirement 1634
8.2.1.44.3 Test purpose 1637
8.2.1.44.4 Method of test 1637
8.2.1.44.5 Test requirements 1640
8.2.2 Radio Bearer Reconfiguration 1640
8.2.2.1 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success 1640
8.2.2.1a Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (TDD Only) 1651
8.2.2.2 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Failure (Unsupported configuration) 1662
8.2.2.3 Void 1665
8.2.2.4 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Failure (Physical channel failure and cell reselection) 1665
8.2.2.5 Void 1670
8.2.2.6 Void 1670
8.2.2.7 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (Continue and stop) 1670
8.2.2.8 Radio Bearer Reconfiguration from CELL_DCH to CELL_FACH: Success 1673
8.2.2.9 Radio Bearer Reconfiguration from CELL_DCH to CELL_FACH: Success (Cell re-selection) 1677
8.2.2.10 Radio Bearer Reconfiguration: from CELL_FACH to CELL_DCH including modification of previously signalled CELL_DCH configuration: Success 1682
8.2.2.11 Radio Bearer Reconfiguration from CELL_FACH to CELL_DCH: Failure (Unsupported configuration) 1686
8.2.2.11a Radio Bearer Reconfiguration from CELL_FACH to CELL_DCH: Failure (Unsupported configuration) (1.28 Mcps TDD Only) 1688
8.2.2.12 Void 1690
8.2.2.13 Void 1690
8.2.2.14 Void 1690
8.2.2.15 Void 1690
8.2.2.16 Void 1690
8.2.2.17 Radio Bearer Reconfiguration from CELL_FACH to CELL_FACH: Success 1690
8.2.2.18 Radio Bearer Reconfiguration from CELL_FACH to CELL_FACH: Success (Cell re-selection) 1694
8.2.2.19 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (Subsequently received) 1699
8.2.2.20 Void 1713
8.2.2.21 Void 1713
8.2.2.22 Void 1713

8.2.2.23 Radio Bearer Reconfiguration from CELL_FACH to CELL_PCH: Success 1713
8.2.2.24 Void 1717
8.2.2.25 Void 1717
8.2.2.26 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (Incompatible Simultaneous Reconfiguration) 1717
8.2.2.27 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH (Frequency modification): Success 1721
8.2.2.28 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_FACH (Transport channel type switching with frequency modification): Success 1723
8.2.2.29 Void 1726
8.2.2.30 Void 1726
8.2.2.31 Radio Bearer Reconfiguration for transition from CELL_FACH to CELL_DCH (Frequency modification): Success 1726
8.2.2.32 Radio Bearer Reconfiguration for transition from CELL_FACH to CELL_FACH (Frequency modification): Success 1729
8.2.2.33 Void 1732
8.2.2.34 Radio Bearer Reconfiguration for transition from CELL_FACH to URA_PCH (Frequency modification): Success 1732
8.2.2.35 Radio Bearer Reconfiguration from CELL_DCH to CELL_FACH: Successful channel switching with multiple PS RABs established 1736
8.2.2.36 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Start and stop of HS-DSCH reception) 1748
8.2.2.36a Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Start and stop of HS-DSCH reception) (TDD only) 1760
8.2.2.36b Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success ((inter-band frequency hard handover, Start and stop of HS-DSCH reception, LCR TDD band a-f)) 1765
8.2.2.36c Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Start and stop of HS-DSCH reception)(In a different frequency band) 1773
8.2.2.37 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_FACH and from CELL_FACH to CELL_DCH: Success (start and stop of HS-DSCH reception) 1774
8.2.2.38 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (with active HS-DSCH reception) 1787
8.2.2.39 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialised hard handover to another frequency, start and stop of HS-DSCH reception) 1791
8.2.2.40 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_FACH and from CELL_FACH to CELL_DCH: Success (frequency modification, start and stop of HS-DSCH reception) 1800
8.2.2.41 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Start and stop of HS-DSCH reception, during an active CS bearer) 1816
8.2.2.42 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialised hard handover to another frequency, start and stop of HS-DSCH reception, during an active CS bearer) 1823
8.2.2.43 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Seamless SRNS relocation, without pending of ciphering, frequency modification) 1834
8.2.2.43a Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Seamless SRNS relocation, UEA2/UIA2, without pending of ciphering, frequency modification) 1858
8.2.2.43b Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Seamless SRNS relocation, change of ciphering and integrity protection algorithms, frequency modification) 1859
8.2.2.44 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (With active E-DCH transmission) 1877
8.2.2.44a Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (With active E-DCH transmission, F-DPCH configured) 1882
8.2.2.45 Radio Bearer Reconfiguration for transition from CELL_FACH to CELL_DCH and CELL_DCH to CELL_FACH: Success (start and stop of E-DCH transmission) 1883
8.2.2.45a Radio Bearer Reconfiguration for transition from CELL_FACH to CELL_DCH and CELL_DCH to CELL_FACH: Success (start and stop of E-DCH transmission, in the multi-frequency network environment, for 1.28Mcps TDD only) 1903
8.2.2.46 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (hard handover to another frequency, start and stop of E-DCH transmission) 1921

8.2.2.46a Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH Success (inter-band frequency hard handover, start and stop of E-DCH transmission, LCR TDD band a-f) 1941
8.2.2.47 Radio Bearer Reconfiguration for transition from CELL_FACH to CELL_DCH and CELL_DCH to CELL_FACH: Success (frequency modification, start and stop of E-DCH transmission) 1951
8.2.2.47a Radio Bearer Reconfiguration for transition from CELL_FACH to CELL_DCH and CELL_DCH to CELL_FACH: Success (frequency modification, start and stop of E-DCH transmission, F-DPCH Configured) 1984
8.2.2.47b Radio Bearer Reconfiguration for transition from CELL_FACH to CELL_DCH and CELL_DCH to CELL_FACH: Success (frequency modification in the multi-frequency network environment, start and stop of E-DCH transmission, for 1.28Mcps TDD only) 1992
8.2.2.48 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Start and stop of E-DCH transmission) 2011
8.2.2.49 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_PCH: Success (stop of E-DCH transmission) 2030
8.2.2.50 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (from speech to speech plus PS data with modification of downlink spreading factor) 2042
8.2.2.51 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (With active discontinuous uplink transmission) 2047
8.2.2.52 Radio Bearer Reconfiguration for transition from CELL_FACH to CELL_DCH and CELL_DCH to CELL_FACH: Success (start and stop of discontinuous uplink transmission) 2051
8.2.2.53 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (hard handover to another frequency, start and stop of discontinuous uplink transmission) 2062
8.2.2.54 Radio Bearer Reconfiguration for transition from CELL_FACH to CELL_DCH and CELL_DCH to CELL_FACH: Success (frequency modification, start and stop of discontinuous uplink transmission) 2074
8.2.2.55 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Start and stop of discontinuous uplink transmission) 2086
8.2.2.56 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_PCH: Success (stop of discontinuous uplink transmission) 2097
8.2.2.57 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (Reconfiguration between fixed and flexible AM RLC, Serving HS-DSCH cell change between MAC-hs and MAC-ehs) 2103
8.2.2.57a Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (Reconfiguration between fixed and flexible AM RLC, Serving HS-DSCH cell change between MAC-hs and MAC-ehs) with SRBs mapped on E-DCH/DCH 2130
8.2.2.58 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Reconfigurations between CS voice over DCH and CS voice over HSPA) 2146
8.2.2.59 Radio Bearer Reconfiguration from Cell FACH (Cell supporting HS-DSCH in Cell FACH) to CELL_FACH(Cell not supporting HS-DSCH in Cell FACH): Success (Cell re-selection) 2152
8.2.2.59a Radio Bearer Reconfiguration from Cell FACH (Cell supporting E-DCH and HS-DSCH in Cell FACH) to CELL_FACH(Cell not supporting E-DCH and HS-DSCH in Cell FACH): Success (Cell re-selection)(1.28Mcps TDD only) 2159
8.2.2.60 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_FACH and CELL_FACH to CELL_DCH: Success (with HS-DSCH reception in Enhanced FACH DL) 2166
8.2.2.60a Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_FACH and CELL_FACH to CELL_DCH: Success (with ongoing E-DCH transmission and HS-DSCH reception) (1.28Mcps TDD only) 2175
8.2.2.61 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (Reconfiguration between fixed and flexible AM RLC, Serving E-DCH cell change between MAC-e/es and MAC-i/is) 2187
8.2.2.62 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (activation and deactivation of MIMO) 2201
8.2.2.63 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (activation and de-activation of 64QAM) 2207
8.2.2.63a Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH with SRBs on E-DCH/DCH : Success (activation and de-activation of 64QAM) 2210
8.2.2.64 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (simultaneous activation and deactivation of 64QAM and MIMO) 2213
8.2.2.65 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_FACH (Enhanced UL/DL) Success 2218

8.2.2.66 Radio Bearer Reconfiguration for transition from CELL_FACH to CELL_DCH and CELL_DCH to CELL_FACH: Success (start and stop of SPS operation) 2224
8.2.2.67 Radio Bearer Reconfiguration for transition from CELL_FACH to CELL_DCH and CELL_DCH to CELL_FACH: Success (start and stop of Control Channel DRX operation) 2233
8.2.2.68 Radio Bearer Reconfiguration for transition between CELL_FACH & CELL_DCH: Success (simultaneous activation and deactivation of Dual-Cell and MIMO) 2240
8.2.2.69 Radio Bearer Reconfiguration for transition between CELL_FACH & CELL_DCH: Success (simultaneous activation and deactivation of Dual-Cell, MIMO and 64QAM) 2249
8.2.2.70 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH with PCI Restrictions and S-CPICH Power Offset IEs: Success (64QAM +MIMO) 2259
8.2.2.71 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH with PCI Restrictions and S-CPICH Power Offset IEs: Success (16QAM +MIMO) 2269
8.2.2.72 Radio Bearer Reconfiguration for S-CPICH based MIMO with DPCH in STTD: (16QAM +MIMO) 2278
8.2.2.73 FFS 2285
8.2.2.74 Radio Bearer Reconfiguration for transition between CELL_FACH & CELL_DCH: Success Activation and Deactivation of Dual-Cell for different band. 2285
8.2.2.75 Radio Bearer Reconfiguration for transition between CELL_FACH & CELL_DCH: Success Activation and Deactivation of Dual-Cell for different bands and 64QAM 2294
8.2.2.76 Radio Bearer Reconfiguration for transition between CELL_FACH and CELL_DCH: Success (start and stop Dual-Cell HSUPA (QPSK) and Dual-Cell HSDPA (16QAM) operation) 2302
8.2.2.77 Radio Bearer Reconfiguration for transition between CELL_FACH and CELL_DCH: Success (Dual-Cell HSUPA (QPSK) and Dual-Cell HSDPA (64QAM)) 2310
8.2.2.78 Radio Bearer Reconfiguration for transition between CELL_FACH and CELL_DCH: Success (start and stop Dual-Cell HSUPA (16QAM) and Dual-Cell HSDPA (16QAM) operation) 2319
8.2.2.79 Radio Bearer Reconfiguration for transition between CELL_FACH & CELL_DCH: Success (simultaneous activation and deactivation of 3C-HSDPA or 4C-HSDPA, MIMO and 64QAM) 2328
8.2.2.80 Radio Bearer Reconfiguration for transition between CELL_FACH & CELL_DCH: Successful Activation and Deactivation of 3C-HSDPA and 4C-HSDPA for different bands and 64 QAM 2358
8.2.2.83 Radio Bearer Establishment/Reconfiguration for transition between CELL_DCH & CELL_DCH with SRB on HS & EUL: Successful Activation and Deactivation of 3C-HSDPA and 4C-HSDPA for different bands 2385
8.2.2.84 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH and from CELL_DCH to CELL_FACH: Success (Seamless SRNS relocation, without pending of ciphering, frequency modification, Default radio configuration for Cell_FACH) 2402
8.2.3 Radio Bearer Release 2408
8.2.3.1 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success 2408
8.2.3.1a Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (TDD Only) 2410
8.2.3.2 Void 2412
8.2.3.3 Void 2412
8.2.3.4 Void 2412
8.2.3.5 Void 2412
8.2.3.6 Void 2412
8.2.3.7 Radio Bearer Release for transition from CELL_DCH to CELL_FACH: Success 2412
8.2.3.8 Radio Bearer Release for transition from CELL_DCH to CELL_FACH: Success (Cell re-selection) 2415
8.2.3.9 Radio Bearer Release for transition from CELL_FACH to CELL_DCH: Success 2418
8.2.3.10 Void 2420
8.2.3.11 Radio Bearer Release for transition from CELL_FACH to CELL_DCH: Failure (Physical channel failure and successful reversion to old configuration) 2420
8.2.3.12 Void 2423
8.2.3.13 Void 2423
8.2.3.14 Void 2423
8.2.3.15 Radio Bearer Release for transition from CELL_FACH to CELL_FACH: Success 2423
8.2.3.16 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (Subsequently received) 2427
8.2.3.17 Radio Bearer Release for transition from CELL_FACH to CELL_DCH: Success (Subsequently received) 2429
8.2.3.18 Radio Bearer Release from CELL_DCH to CELL_PCH: Success 2432
8.2.3.19 Radio Bearer Release from CELL_DCH to URA_PCH: Success 2435
8.2.3.20 Radio Bearer Release for transition from CELL_DCH to CELL_FACH (Frequency modification): Success 2437

8.2.3.21 Radio Bearer Release from CELL_DCH to CELL_PCH (Frequency modification): Success 2440
8.2.3.22 Radio Bearer Release for transition from CELL_FACH to CELL_PCH: Success 2444
8.2.3.23 Radio Bearer Release for transition from CELL_FACH to URA_PCH: Success 2446
8.2.3.24 Radio Bearer Release for transition from CELL_DCH to CELL_DCH (Frequency modification): Success 2448
8.2.3.25 Radio Bearer Release for transition from CELL_DCH to URA_PCH (Frequency modification): Success 2450
8.2.3.26 Radio Bearer Release for transition from CELL_FACH to CELL_PCH (Frequency modification): Success 2454
8.2.3.27 Radio Bearer Release for transition from CELL_FACH to URA_PCH (Frequency modification): Success 2456
8.2.3.28 Radio Bearer Release for transition from CELL_FACH to CELL_FACH (Frequency modification): Success 2459
8.2.3.29 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Associated with signalling connection release during simultaneous PS and CS call 2462
8.2.3.30 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (stop of HS-DSCH reception) 2465
8.2.3.30a Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (stop of HS-DSCH reception) (In a different frequency band) 2467
8.2.3.31 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (With active HS-DSCH reception) 2468
8.2.3.31a Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (With active HS-DSCH reception) (TDD only) 2471
8.2.3.32 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialised hard handover to another frequency, with active HS-DSCH reception) 2474
8.2.3.33 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (stop of HS-DSCH reception with frequency modification) 2480
8.2.3.34 Radio Bearer Release for transition from CELL_DCH to CELL_FACH: Success (stop of HS-DSCH reception with frequency modification) 2483
8.2.3.35 Radio Bearer Release for transition from CELL_DCH to CELL_PCH: Success (stop of HS-DSCH reception) 2485
8.2.3.36 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (frequency modification, stop of E-DCH transmission) 2488
8.2.3.36a Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (frequency modification, stop of E-DCH transmission, in the multi-frequency network environment, for 1.28Mcps TDD only) 2499
8.2.3.37 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (frequency modification, stop of discontinuous uplink transmission) 2506
8.2.4 Transport channel reconfiguration 2511
8.2.4.1 Transport channel reconfiguration (Timing re-initialised hard handover with transmission rate modification) from CELL_DCH to CELL_DCH: Success 2511
8.2.4.1a Transport channel reconfiguration (Transmission Rate Modification) from CELL_DCH to CELL_DCH of the same cell: Success 2515
8.2.4.2 Void 2519
8.2.4.3 Transport channel reconfiguration from CELL_DCH to CELL_DCH: Failure (Physical channel failure and reversion to old configuration) 2519
8.2.4.4 Transport channel reconfiguration from CELL_DCH to CELL_DCH: Failure (Physical channel failure and cell reselection) 2523
8.2.4.4a Transport channel reconfiguration from CELL_DCH to CELL_DCH: Failure (Physical channel failure and cell reselection) (1.28 Mcps TDD Only) 2527
8.2.4.5 Void 2533
8.2.4.6 Void 2533
8.2.4.7 Void 2533
8.2.4.8 Void 2533
8.2.4.9 Void 2533
8.2.4.10 Transport channel reconfiguration from CELL_FACH to CELL_DCH: Success 2533
8.2.4.10a Transport channel reconfiguration from CELL_FACH to CELL_DCH: Success(1.28 Mcps TDD Only) 2535
8.2.4.11 Void 2538
8.2.4.12 Void 2538
8.2.4.13 Void 2538
8.2.4.14 Void 2538

8.2.4.15 Void....2538
8.2.4.16 Void....2538
8.2.4.17 Void....2538
8.2.4.18 Transport Channel Reconfiguration from CELL_DCH to CELL_DCH: Success (Subsequently received)....2538
8.2.4.19 Transport Channel Reconfiguration from CELL_FACH to CELL_DCH: Success (Subsequently received)....2541
8.2.4.20 Void....2543
8.2.4.21 Void....2543
8.2.4.22 Void....2543
8.2.4.23 Void....2543
8.2.4.24 Transport channel reconfiguration from CELL_DCH to CELL_DCH: Success with uplink transmission rate modification....2543
8.2.4.25 Transport channel reconfiguration from CELL_FACH to CELL_DCH (Frequency modification): Success....2547
8.2.4.26 Void....2549
8.2.4.27 Void....2549
8.2.4.28 Void....2549
8.2.4.29 Transport Channel Reconfiguration for transition from CELL_DCH to CELL_DCH (Frequency modification): Success....2549
8.2.4.30 Void....2552
8.2.4.31 Void....2552
8.2.4.32 Void....2552
8.2.4.33 Void....2552
8.2.4.34 Void....2552
8.2.4.35 Void....2552
8.2.4.36 Transport Channel Reconfiguration from CELL_DCH to CELL_DCH: Success (with active HS-DSCH reception, not changing the value of TTI during UL rate modification)....2552
8.2.4.36a Transport Channel Reconfiguration from CELL_DCH to CELL_DCH: Success (with active HS-DSCH reception, not changing the value of TTI during UL rate modification) (TDD)....2560
8.2.4.36b Transport Channel Reconfiguration from CELL_DCH to CELL_DCH: Success (with active HS-DSCH reception, not changing the value of TTI during UL rate modification) (In a different frequency band)....2565
8.2.4.36c Transport Channel Reconfiguration from CELL_DCH to CELL_DCH: Success (inter-band frequency hard handover,,with active HS-DSCH reception, not changing the value of TTI during UL rate modification, LCR TDD band a-f)....2566
8.2.5 Transport format combination control....2568
8.2.5.1 Void....2568
8.2.5.2 Void....2569
8.2.5.3 Void....2569
8.2.5.4 Transport format combination control in CELL_DCH: Failure (Invalid configuration)....2569
8.2.6 Physical channel reconfiguration....2572
8.2.6.1 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (code modification): Success....2572
8.2.6.1a Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (code modification): Success (1.28 Mcps TDD Only)....2575
8.2.6.2 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (code modification): Failure (Unsupported configuration)....2578
8.2.6.3 Void....2581
8.2.6.4 Void....2581
8.2.6.5 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (code modification): Failure (Incompatible simultaneous reconfiguration)....2581
8.2.6.6 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (code modification): Failure (Invalid message reception and Invalid configuration)....2584
8.2.6.7 Physical channel reconfiguration for transition from CELL_DCH to CELL_FACH: Success....2589
8.2.6.8 Physical channel reconfiguration for transition from CELL_DCH to CELL_FACH: Success (Cell re-selection)....2590
8.2.6.9 Physical channel reconfiguration for transition from CELL_FACH to CELL_DCH: Success....2594
8.2.6.9a Physical channel reconfiguration for transition from CELL_FACH to CELL_DCH: Success(1.28 Mcps TDD Only)....2596
8.2.6.10 Void....2598

8.2.6.11 Physical channel reconfiguration for transition from CELL_FACH to CELL_DCH: Failure (Physical channel failure and successful reversion to old configuration) 2598
8.2.6.12 Physical channel reconfiguration for transition from CELL_FACH to CELL_DCH: Failure (Physical channel failure and cell update) 2602
8.2.6.13 Void 2606
8.2.6.14 Physical channel reconfiguration for transition from CELL_FACH to CELL_DCH: Failure (Invalid message reception and Invalid configuration) 2606
8.2.6.15 Void 2611
8.2.6.16 Void 2611
8.2.6.17 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (code modification): Success (Subsequently received) 2611
8.2.6.18 Physical channel reconfiguration for transition from CELL_FACH to CELL_DCH: Success (Subsequently received) 2613
8.2.6.19 Physical Channel Reconfiguration from CELL_DCH to CELL_PCH: Success 2616
8.2.6.20 Physical Channel Reconfiguration from CELL_DCH to URA_PCH: Success 2619
8.2.6.21 Physical Channel Reconfiguration from CELL_FACH to URA_PCH: Success 2622
8.2.6.22 Physical Channel Reconfiguration from CELL_FACH to CELL_PCH: Success 2623
8.2.6.23 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (Hard handover to another frequency with timing maintain): Success 2625
8.2.6.24 Void 2627
8.2.6.25 Physical channel reconfiguration for transition from CELL_DCH to CELL_FACH (Frequency modification): Success 2627
8.2.6.26 Physical Channel Reconfiguration from CELL_DCH to CELL_PCH (Frequency modification): Success 2630
8.2.6.27 Physical channel reconfiguration from CELL_FACH to CELL_PCH: Success 2634
8.2.6.28 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (Downlink channelisation code modification): Success 2636
8.2.6.29 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (Compressed mode initiation): Success 2638
8.2.6.30 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (Modify active set cell): Success 2644
8.2.6.31 Physical channel reconfiguration transition from CELL_FACH to URA_PCH: Success 2646
8.2.6.32 Physical channel reconfiguration for transition from CELL_DCH to URA_PCH (Frequency band modification): Success 2648
8.2.6.33 Physical channel reconfiguration for transition from CELL_FACH to CELL_DCH (Frequency band modification): Success 2651
8.2.6.34 Physical channel reconfiguration from CELL_FACH to CELL_PCH (Frequency band modification): Success 2653
8.2.6.35 Physical channel reconfiguration for transition from CELL_FACH to URA_PCH (Frequency band modification): Success 2657
8.2.6.36 Physical channel reconfiguration for transition from CELL_FACH to CELL_FACH (Frequency band modification): Success 2659
8.2.6.37 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (Hard handover to another frequency with timing re-initialised) 2662
8.2.6.37a Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (Hard handover to another frequency with timing re-initialised) (1.28 Mcps TDD) 2684
8.2.6.37b Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (Hard handover to another frequency band cell with timing re-initialised) 2695
8.2.6.37c Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (Hard handover to another frequency with timing re-initialised) (1.28 Mcps TDD) (TDD a-f band) 2696
8.2.6.38 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (Hard handover to another frequency with timing re-initialised): Failure (Physical channel failure and reversion to old channel) 2697
8.2.6.39 Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Seamless SRNS relocation) (without pending of ciphering) 2711
8.2.6.39a Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (serving HS-DSCH cell change without MAC-hs reset) 2718
8.2.6.39b Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (serving HS-DSCH cell change with MAC-hs reset) 2737
8.2.6.39c Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (serving HS-DSCH cell change without MAC-hs reset) (TDD) 2757

8.2.6.39d Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (serving HS-DSCH cell change with MAC-hs reset) (1.28 Mcps TDD) 2764
8.2.6.40 Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Two radio links, change of HS-PDSCH configuration) 2770
8.2.6.40a Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (change of HS-PDSCH configuration) 2776
8.2.6.41 Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialised hard handover to another frequency, signalling only) 2780
8.2.6.42 Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialized hard handover to another frequency, Serving HS-DSCH cell change) 2783
8.2.6.42a Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialized hard handover to another frequency, Serving HS-DSCH cell change) (Cells belong to different frequency bands for LCR TDD) 2795
8.2.6.43 Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Seamless SRNS relocation with pending of ciphering) 2796
8.2.6.44 Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Failure (Radio link failure in new configuration) 2804
8.2.6.45 Physical Channel Reconfiguration for transition from CELL_DCH to URA_PCH: Failure (Radio link failure in old configuration) 2811
8.2.6.46 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (Hard handover to another frequency with timing re-initialised. Serving HS-DSCH cell change): Failure (Physical channel failure and reversion to old channel) 2813
8.2.6.47 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (Compressed mode initiation, with active HS-DSCH reception): Success 2821
8.2.6.48 Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialized hard handover to another frequency, serving HS-DSCH cell change, compressed mode) 2827
8.2.6.48a Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialized hard handover to another frequency, serving HS-DSCH cell change, with measurement report) for 3.84 Mcps TDD 2835
8.2.6.49 Physical Channel Reconfiguration from CELL_DCH to URA_PCH: Success (stop of HS-DSCH reception) 2841
8.2.6.50 Physical Channel Reconfiguration for transition from CELL_DCH to URA_PCH: Success (frequency modification, stop of E-DCH transmission) 2845
8.2.6.51 Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (serving E-DCH cell change) 2849
8.2.6.52 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialized hard handover to another frequency, Serving E-DCH cell change, compressed mode) 2873
8.2.6.53 Void 2888
8.2.6.54 Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Failure (Timing re-initialized hard handover, Serving E-DCH cell change, physical channel failure and reversion to old channel) 2888
8.2.6.54a Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Failure (Timing re-initialized hard handover, Serving E-DCH and HS-DSCH cell change with MIMO activated, physical channel failure and reversion to old channel) 2895
8.2.6.54b Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Failure (Timing re-initialized hard handover, Serving E-DCH and HS-DSCH cell change with MIMO and 64QAM activated, physical channel failure and reversion to old channel) 2900
8.2.6.54c Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Failure (Timing re-initialized hard handover, Serving E-DCH cell change, physical channel failure and reversion to old channel, in the multi-frequency network environment, for 1.28Mcps TDD only) 2905
8.2.6.55 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Start of discontinuous uplink transmission and downlink reception) 2909
8.2.6.56 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Start of HS-SCCH less operation) 2913
8.2.6.57 Physical Channel Reconfiguration for transition from CELL_DCH to URA_PCH: Success (frequency modification, stop of discontinuous uplink transmission) 2915
8.2.6.58 Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (serving E-DCH cell change with discontinuous uplink transmission) 2919

8.2.6.59 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialized hard handover to another frequency, Serving E-DCH cell change with discontinuous uplink transmission) 2934
8.2.6.60 Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Failure (Timing re-initialised hard handover, Serving E-DCH cell change with discontinuous uplink transmission, physical channel failure and reversion to old channel) 2944
8.2.6.61 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH: Success (CQI reporting reduction) 2948
8.2.6.62 Physical Channel Reconfiguration from CELL_DCH to CELL_DCH: Success (activation and de-activation of 64QAM) 2952
8.2.6.62a Physical Channel Reconfiguration from CELL_DCH to CELL_DCH: Success (activation and de-activation of 64QAM) with SRBs mapped in E-DCH/DCH 2955
8.2.6.63 Physical Channel Reconfiguration from CELL_DCH to CELL_DCH: Success (Timing re-initialised hard handover to another frequency, Serving HS-DSCH cell change with MIMO enabled) 2958
8.2.6.64 Physical channel reconfigurations for transition from CELL_DCH to CELL_DCH (activation and de-activation of UL 16QAM): Success 2963
8.2.6.65 Physical Channel Reconfiguration from CELL_DCH to CELL_DCH: Success (Timing re-initialised hard handover to another frequency, Serving HS-DSCH cell change with 64QAM and MIMO enabled) 2968
8.2.6.66 Physical Channel Reconfiguration from CELL_PCH to CELL_FACH: Success (autonomous transitions without cell update procedure) 2975
8.2.6.67 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Start of SPS operation without initial SPS resource) (1.28 Mcps TDD) 2981
8.2.6.68 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Start of SPS operation with initial SPS resource) (1.28 Mcps TDD) 2985
8.2.6.69 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Start of Control Channel DRX operation) (1.28 Mcps TDD) 2990
8.2.7 Physical Shared Channel Allocation [TDD only] 2992
8.2.8 PUSCH capacity request [TDD only] 2992
8.2.9 Void 2992
8.3 RRC connection mobility procedure 2993
8.3.1 Cell Update 2993
8.3.1.1 Cell Update: cell reselection in CELL_FACH 2993
8.3.1.1a Cell Update: cell reselection in CELL_FACH (Cells belong to different frequency bands) 3005
8.3.1.1b Cell Update: cell reselection in CELL_FACH(TDD) 3007
8.3.1.1c Cell Update: cell reselection in CELL_FACH (Cells belong to different frequency bands for LCR TDD) 3020
8.3.1.2 Cell Update: cell reselection in CELL_PCH 3022
8.3.1.3 Cell Update: periodical cell update in CELL_FACH 3026
8.3.1.3a Cell Update: periodical cell update in CELL_FACH (1.28 Mcps TDD Only) 3033
8.3.1.4 Cell Update: periodical cell update in CELL_PCH 3041
8.3.1.5 Cell Update: UL data transmission in URA_PCH 3046
8.3.1.6 Cell Update: UL data transmission in CELL_PCH 3049
8.3.1.7 Void 3052
8.3.1.8 Void 3052
8.3.1.9 Cell Update: re-entering of service area after T305 expiry and being out of service area 3052
8.3.1.10 Cell Update: expiry of T307 after T305 expiry and being out of service area 3056
8.3.1.11 Cell Update: Success after T302 time-out 3058
8.3.1.12 Cell Update: Failure (After Maximum Re-transmissions) 3060
8.3.1.13 Cell Update: Reception of Invalid CELL UPDATE CONFIRM Message 3063
8.3.1.14 Cell Update: Incompatible simultaneous reconfiguration 3065
8.3.1.15 Cell Update: Unrecoverable error in Acknowledged Mode RLC SRB 3068
8.3.1.16 Void 3074
8.3.1.17 Cell Update: Failure (UTRAN initiate an RRC connection release procedure on CCCH) 3074
8.3.1.18 Cell Update: Radio Link Failure (T314>0, T315=0), CS RAB established 3076
8.3.1.19 Void 3082
8.3.1.20 Cell Update: Reception of CELL UPDATE CONFIRM Message that causes invalid configuration 3082
8.3.1.21 Cell Update: Cell reselection to cell of another PLMN belonging to the equivalent PLMN list 3084
8.3.1.22 Cell update: Restricted cell reselection to a cell belonging to forbidden LA list (Cell_FACH) 3088
8.3.1.23 Cell Update: HCS cell reselection in CELL_FACH 3092

8.3.1.24 Cell Update: HCS cell reselection in CELL_PCH 3109
8.3.1.25 CELL UPDATE: Radio Link Failure (T314=0, T315=0) 3127
8.3.1.26 Cell Update: Radio Link Failure (T314>0, T315=0), PS RAB established 3129
8.3.1.27 Cell Update: Radio Link Failure (T314=0, T315>0), CS RAB 3135
8.3.1.28 Cell Update: Radio Link Failure (T314=0, T315>0), PS RAB 3137
8.3.1.29 Cell Update: Radio Link Failure (T314>0, T315>0), CS RAB 3141
8.3.1.30 Cell Update: Radio Link Failure (T314>0, T315>0), PS RAB 3144
8.3.1.31 Cell Update: re-entering of service area from URA_PCH after T316 expiry but before T317 expiry 3151
8.3.1.32 Cell Update: Transition from URA_PCH to CELL_DCH, start of HS-DSCH reception 3155
8.3.1.32a Cell Update: Transition from URA_PCH to CELL_DCH, start of HS-DSCH reception (Carriers belong to different frequency band for LCR TDD) 3160
8.3.1.33 Cell Update: Transition from CELL_PCH to CELL_DCH, start of HS-DSCH reception, frequency modification 3161
8.3.1.33a Cell Update: Transition from CELL_PCH to CELL_DCH, start of HS-DSCH reception, frequency modification(TDD) 3172
8.3.1.34 Cell Update: Transition from CELL_DCH to CELL_FACH, stop of HS-DSCH reception 3179
8.3.1.35 Cell Update: Transition from CELL_DCH to CELL_DCH, with active HS-DSCH reception 3187
8.3.1.36 Cell Update: Transition from CELL_DCH to CELL_FACH (stop of HS-DSCH reception with frequency modification) 3191
8.3.1.37 Cell Update: Transition from CELL_DCH to CELL_DCH (with active HS-DSCH reception and frequency modification) 3199
8.3.1.38 Cell Update: state specific handling of Treselection and Qhyst for cell reselection in CELL_FACH 3205
8.3.1.39 Cell Update: state specific handling of Treselection and Qhyst for cell reselection in CELL_PCH. 3208
8.3.1.40 Cell update: Transition from CELL_PCH to CELL_DCH, inclusion of establishment cause 3212
8.3.1.41 Cell Update: Transition from URA_PCH to CELL_DCH: Success (start of E-DCH transmission) 3215
8.3.1.41a Cell Update: Transition from URA_PCH to CELL_DCH: Success (start of E-DCH transmission, in the multi-frequency network environment, for 1.28Mcps TDD only) 3224
8.3.1.42 Cell Update: Transition from CELL_PCH to CELL_DCH: Success (frequency modification, start of E-DCH transmission) 3232
8.3.1.42a Cell Update: Transition from CELL_PCH to CELL_DCH: Success (frequency modification, start of E-DCH transmission, F-DPCH Configured) 3270
8.3.1.42b Cell Update: Transition from CELL_PCH to CELL_DCH: Success (frequency modification, start of E-DCH transmission in the multi-frequency network environment, for 1.28Mcps TDD only) 3280
8.3.1.43 Cell Update: Radio Link Failure, with active E-DCH transmission 3297
8.3.1.44 Cell Update: Transition from CELL_PCH to CELL_DCH: Success (frequency modification, start of discontinuous uplink transmission) 3308
8.3.1.45 Cell Update: Radio Link Failure, with active discontinuous uplink transmission 3324
8.3.1.46 Cell Update: Transition from URA_PCH to CELL_DCH: Success (start of discontinuous uplink transmission) 3332
8.3.1.47 Cell Update: cell reselection in CELL_FACH (Reselection between cell not supporting HS-PDSCH in CELL_FACH and cell supporting HS-PDSCH is CELL_FACH) 3341
8.3.1.48 Cell Update: Radio Link Failure, UM RLC Re-establishment 3351
8.3.1.49 Cell Update: Intra Frequency cell reselection in Enhanced CELL_FACH with DRX configured 3362
8.3.1.49a Cell Update: Inter Frequency cell reselection in Enhanced CELL_FACH with DRX configured 3367
8.3.1.50 Cell Update: Cell reselection in CELL_FACH when common E-DCH resource is released 3372
8.3.1.51 Cell Update: Cell reselection in CELL_FACH (Reselection between cell not supporting HS-PDSCH and E-DCH in CELL_FACH and cell supporting HS-PDSCH and E-DCH in CELL_FACH) 3376
8.3.1.52 Cell Update: Inter Frequency cell reselection in CELL_FACH based on absolute priority 3387
8.3.1.53 Cell Update: Absolute priority based cell reselection failure to inter-frequency cell for which no priority or no threshold is assigned 3393
8.3.1.54 Cell Update: Absolute priority based cell reselection when more than one cell meets the criterion. 3401
8.3.2 URA Update 3407
8.3.2.1 URA Update: Change of URA 3407
8.3.2.1a URA Update: Change of URA (Cells belong to different frequency bands) 3413
8.3.2.1b URA Update: Change of URA (Cells belong to different frequency bands for LCR TDD) 3414
8.3.2.2 URA Update: Periodical URA update and Reception of Invalid message 3416
8.3.2.3 Void 3418

8.3.2.4 URA Update: loss of service after expiry of timers T307 and T305 3418
8.3.2.5 URA Update: Success after Confirmation error of URA-ID list 3421
8.3.2.6 URA Update: Failure (V302 is greater than N302: Confirmation error of URA-ID list) 3424
8.3.2.7 URA Update: Success after T302 timeout 3427
8.3.2.8 Void 3429
8.3.2.9 URA Update: Failure (UTRAN initiate an RRC connection release procedure on CCCH) 3429
8.3.2.10 URA Update: Reception of URA UPDATE CONFIRM message that causes invalid configuration 3431
8.3.2.11 URA Update: Cell reselection to cell of another PLMN belonging to the equivalent PLMN list 3433
8.3.2.12 Restricted cell reselection to a cell belonging to forbidden LA list (URA_PCH) 3436
8.3.2.13 URA Update: Change of URA due to HCS Cell Reselection 3438
8.3.3 UTRAN Mobility Information 3452
8.3.3.1 UTRAN Mobility Information: Success 3452
8.3.3.2 UTRAN Mobility Information: Failure (Invalid message reception) 3455
8.3.3.3 UTRAN MOBILITY INFORMATION: Seamless SRNS relocation in CELL_DCH (without pending of ciphering) 3458
8.3.3.4 UTRAN Mobility Information: Shared Network 3465
8.3.4 Active set update in soft handover (FDD) 3468
8.3.4.1 Active set update in soft handover: Radio Link addition 3468
8.3.4.2 Active set update in soft handover: Radio Link removal 3475
8.3.4.3 Active set update in soft handover: Combined radio link addition and removal 3482
8.3.4.4 Active set update in soft handover: Invalid Configuration 3492
8.3.4.5 Active set update in soft handover: Reception of an ACTIVE SET UPDATE message in wrong state 3495
8.3.4.6 Void 3498
8.3.4.7 Active set update in soft handover: Invalid Message Reception 3498
8.3.4.8 Active set update in soft handover: Radio Link addition in multiple radio link environment 3502
8.3.4.9 Active set update in soft handover: Radio Link removal (stop of HS-PDSCH reception) 3518
8.3.4.10 Active set update in soft handover: Radio Link addition and serving HS-DSCH / E-DCH cell change 3524
8.3.4.11 Active set update in soft handover: Radio Link addition/removal and serving HS-DSCH / E-DCH cell change, with discontinuous uplink transmission 3530
8.3.4.12 Active set update in soft handover: Radio Link addition/removal (stop and start of UL 16QAM) 3541
8.3.4.13 Active set update in soft handover: Radio Link addition/removal and serving HS-DSCH / E-DCH cell change, with activation/deactivation of 64QAM 3554
8.3.4.13a Active set update in soft handover: Radio Link addition/removal and serving HS-DSCH/E-DCH cell change, with activation/deactivation of 64QAM with SRBs mapped to E-DCH/DCH 3561
8.3.4.14 Active Set Update in Soft Handover: Radio Link addition/removal and serving HS-DSCH / E-DCH cell change with activation/deactivation of MIMO 3568
8.3.4.14a Active Set Update in Soft Handover: Radio Link addition/removal and serving HS-DSCH / E-DCH cell change with activation/deactivation of MIMO with SRBs mapped on E-DCH/DCH 3586
8.3.4.15 Active set update: Dual Cell (DC) Activation by Serving Cell Change from non DC-HSDPA capable cell to DC-HSDPA capable cell 3601
8.3.4.15a Active set update: Dual Cell (DC) Activation by Serving Cell Change from non DC-HSDPA capable cell to DC-HSDPA capable cell with SRB mapped on E-DCH/DCH 3607
8.3.4.16 Active set update: Dual Cell (DC) Activation by Serving Cell Change from DC-HSDPA capable cell to non DC-HSDPA capable cell 3614
8.3.4.16a Active set update: Dual Cell (DC) Activation by Serving Cell Change from DC-HSDPA capable cell to non DC-HSDPA capable cell with SRB mapped on E-DCH/DCH 3620
8.3.4.17 Active Set Update in Soft Handover: Radio Link addition/removal and serving HS-DSCH / E-DCH cell change with simultaneous activation/deactivation of 64QAM and MIMO 3626
8.3.4.18 Test procedure for enhanced serving HS-DSCH cell change: serving HS-DSCH / E-DCH cell change, with discontinuous uplink transmission and downlink reception 3644
8.3.4.19 Active set update: Dual Cell (DC) and MIMO Activation by Serving Cell Change from non-DC-HSDPA capable cell to DC-HSDPA capable cell 3654
8.3.4.19a Void 3663
8.3.4.20 Active set update in soft handover: Radio Link addition/removal on the secondary E-DCH active set 3663
8.3.4.21 Active Set Update: MIMO Activation by Serving cell changes with and without PCI Restrictions and S-CPICH Power Offsets (16QAM + MIMO) 3676

8.3.4.22 Active set update: Dual Cell (DC) Activation by Serving Cell Change from non DC-HSDPA capable cell to DC-HSDPA capable cell with discontinuous uplink transmission and downlink reception 3685
8.3.5 Hard Handover 3694
8.3.6 Inter-system hard handover from GSM to UTRAN 3694
8.3.7 Inter-system hard handover from UTRAN to GSM 3694
8.3.7.1 Inter system handover from UTRAN/To GSM/Speech/Success 3698
8.3.7.1a Inter system handover from UTRAN/To GSM/Speech/Success with A5/3 ciphering 3702
8.3.7.1b Inter system handover from UTRAN/To GSM/Speech/Success with UEA2/UIA2 and A5/3 ciphering 3702
8.3.7.2 Inter system handover from UTRAN/To GSM/Data/Same data rate/Success 3703
8.3.7.2a Inter system handover from UTRAN/To GSM/Data/Same data rate/Extended Rates/Success 3706
8.3.7.3 Inter system handover from UTRAN/To GSM/Data/Data rate down grading/Success 3710
8.3.7.3a Inter system handover from UTRAN/To GSM/Data/Data rate down grading/Extended Rates/Success 3713
8.3.7.4 Inter system handover from UTRAN/To GSM/Speech/Establishment/Success 3716
8.3.7.5 Inter system handover from UTRAN/To GSM/Speech/Failure 3719
8.3.7.6 Inter system handover from UTRAN/To GSM/Speech/Failure (L2 Establishment) 3725
8.3.7.7 Inter system handover from UTRAN/To GSM/Speech/Failure (L1 Synchronization) 3727
8.3.7.8 Inter system handover from UTRAN/To GSM/Speech/Failure (Invalid Inter-RAT message) 3729
8.3.7.9 Inter system handover from UTRAN/To GSM/Speech/Failure (Unsupported configuration) 3731
8.3.7.10 Inter system handover from UTRAN/To GSM/Speech/Failure (Reception by UE in CELL_FACH) 3733
8.3.7.11 Inter system handover from UTRAN/To GSM/Speech/Failure (Invalid message reception) 3735
8.3.7.12 Inter system handover from UTRAN/To GSM/Speech/Failure (Physical channel Failure and Reversion Failure) 3737
8.3.7.13 Inter system handover from UTRAN/To GSM/ success / call under establishment 3744
8.3.7.14 Inter system handover from UTRAN/To GSM/Speech/Success (stop of HS-DSCH reception) 3747
8.3.7.15 Inter system handover from UTRAN/To GSM/Speech/Failure(stop of HS-DSCH reception) 3756
8.3.7.16 Inter system handover from UTRAN/To GSM/Simultaneous CS and PS domain services/Success/TBF Establishment Success 3758
8.3.7.17 Inter system handover from UTRAN/To GSM/DTM Support/Simultaneous CS and PS domain services/Success 3762
8.3.8 Inter system cell reselection to UTRAN 3765
8.3.9 Inter system cell reselection from UTRAN 3766
8.3.9.1 Cell reselection if cell becomes barred or S<0; UTRAN to GPRS (CELL_FACH) 3771
8.3.9.1a Cell reselection if cell becomes barred or S<0; UTRAN to GPRS (CELL_FACH), 1.28Mcps TDD 3774
8.3.9.2 Cell reselection if cell becomes barred or S<0; UTRAN to GPRS (URA_PCH) 3777
8.3.9.2a Cell reselection if cell becomes barred or S<0; UTRAN to GPRS (URA_PCH), 1.28Mcps TDD 3779
8.3.9.3 Cell reselection if cell rank changes; UTRAN to GPRS (UE in CELL_FACH fails to complete an inter-RAT cell reselection) 3781
8.3.9.4 Cell reselection if S<0; UTRAN to GPRS (UE in CELL_PCH fails to complete an inter-RAT cell reselection) 3784
8.3.9.4a Cell reselection if S<0; UTRAN to GPRS (UE in CELL_PCH fails to complete an inter-RAT cell reselection), 1.28Mcps TDD 3785
8.3.9.5 Successful Cell Reselection with RAU – Q_{offset} value modification; UTRAN to GPRS (CELL_FACH) 3787
8.3.9.5a Successful Cell Reselection with RAU – Q_{offset} value modification; UTRAN to GPRS (CELL_FACH), 1.28Mcps TDD 3790
8.3.10 Void 3792
8.3.11 Inter-RAT cell change order from UTRAN 3792
8.3.11.1 Inter-RAT cell change order from UTRAN/To GPRS/CELL_DCH/Success 3792
8.3.11.1a Inter-RAT cell change order from UTRAN/To GPRS/CELL_DCH/Success with UEA2/UIA2, GEA2 ciphering 3795
8.3.11.1b Inter-RAT cell change order from UTRAN/To GPRS/CELL_DCH/Success with UEA2/UIA2 and GEA3 ciphering 3795
8.3.11.2 Inter-RAT cell change order from UTRAN/To GPRS/CELL_FACH/Success 3796
8.3.11.3 Inter-RAT cell change order from UTRAN/To GPRS/CELL_DCH/Failure (T309 expiry) 3798
8.3.11.4 Inter-RAT cell change order from UTRAN/To GPRS/CELL_DCH/Failure (Physical channel Failure and Reversion Failure) 3801
8.3.11.5 Inter-RAT cell change order from UTRAN/To GPRS/CELL_FACH/Failure (T309 expiry) 3809

8.3.11.6 Inter-RAT cell change order from UTRAN/To GPRS/CELL_FACH/Failure (Physical channel Failure and Reversion Failure) 3811
8.3.11.7 Inter-RAT cell change order from UTRAN/To GPRS/ Failure (Unsupported configuration) 3815
8.3.11.8 Inter-RAT cell change order from UTRAN/To GPRS/ Failure (Invalid Inter-RAT message) 3817
8.3.11.9 Inter-RAT Cell Change Order from UTRAN to GPRS/CELL_DCH/Success (stop of HS-DSCH reception) 3818
8.3.11.10 Inter-RAT Cell Change Order from UTRAN to GPRS/CELL_DCH/Failure (Physical channel Failure) 3822
8.3.11.11 Inter-RAT cell change order from UTRAN/To GPRS/CELL_FACH/No RAB established/Success 3825
8.3.11.12 Inter-RAT cell change order from UTRAN/To GPRS/CELL_DCH/Network Assisted Cell Change/Success 3827
8.3.11.13 Inter-RAT cell change order from UTRAN/To GPRS/CELL_DCH/Network Assisted Cell Change with Invalid SI/Success 3829
8.3.11.14 Inter-RAT Cell Change Order from UTRAN to GPRS/CELL_DCH/Success (stop of E-DCH transmission) 3832
8.3.11.15 Inter-RAT Cell Change Order from UTRAN to GPRS/CELL_DCH/Success (stop of discontinuous uplink transmission) 3834
8.3.11.16 Inter-RAT Cell Change Order from UTRAN to GPRS/ MIMO (Success: with PCI Restrictions and S-CPICH Power Offset) 3837
8.3.11.17 Inter-RAT Cell Change Order from UTRAN to GPRS/MIMO for S-CPICH based MIMO with DPCH in STTD (Failure;physical channel failure) 3846
8.3.11.18 Inter-RAT Cell Change Order from UTRAN to GPRS/ MIMO (Failure; with PCI Restrictions and S-CPICH Power Offset) 3852
8.3.12 Handover to CSG/Hybrid Cell 3859
8.3.12.1 Inter-frequency inbound handover to UMTS CSG cell without reporting proximity indication 3859
8.3.12.2 Inter-frequency inbound handover to UMTS CSG cell 3869
8.3.12.3 Inter-frequency inbound handover to UMTS CSG cell with non-member UE 3877
8.3.12.4 Intra-frequency inbound handover to UMTS CSG cell without specifying PSCs for SI Acquisition 3885
8.3.12.5 Intra-frequency inbound handover to UMTS CSG cell without reporting proximity indication 3892
8.3.12.6 Intra-frequency inbound handover to UMTS CSG cell 3898
8.3.12.7 Intra-frequency Measurements for UMTS CSG Cell for Non-member UE 3905
8.3.12.8 Intra-frequency Inbound Handover to UMTS Hybrid Cell 3910
8.3.12.9 Intra-frequency Inbound Handover to UMTS Hybrid Cell for Non-member UE 3912
8.3.12.10 Intra-frequency inbound handover to UMTS non-CSG cell 3918
8.3.12.11 Inter-frequency inbound handover to UMTS non-CSG cell 3924
8.3.12.13 Membership checking for handover to the CSG Cell 3932
8.4 Measurement procedure 3940
8.4.1 Measurement Control and Report 3940
8.4.1.1 Measurement Control and Report: Intra-frequency measurement for transition from idle mode to CELL_DCH state (FDD) 3940
8.4.1.1a Measurement Control and Report: Intra-frequency measurement for transition from idle mode to CELL_DCH state (TDD) 3954
8.4.1.2 Measurement Control and Report: Inter-frequency measurement for transition from idle mode to CELL_DCH state (FDD) 3965
8.4.1.2a Measurement Control and Report: Inter-frequency measurement for transition from idle mode to CELL_DCH state (TDD) 3978
8.4.1.2b Measurement Control and Report: Inter-band measurement for transition from idle mode to CELL_DCH state (FDD) 3986
8.4.1.2c Measurement Control and Report: Inter-frequency measurement for transition from idle mode to CELL_DCH state (Cells belong to different frequency bands for LCR TDD) 3987
8.4.1.3 Measurement Control and Report: Intra-frequency measurement for transition from idle mode to CELL_FACH state (FDD) 3988
8.4.1.3a Measurement Control and Report: Intra-frequency measurement for transition from idle mode to CELL_FACH state (TDD) 3994
8.4.1.4 Measurement Control and Report: Inter-frequency measurement for transition from idle mode to CELL_FACH state (FDD) 4000
8.4.1.4a Measurement Control and Report: Inter-frequency measurement for transition from idle mode to CELL_FACH state (TDD) 4003
8.4.1.5 Measurement Control and Report: Intra-frequency measurement for transition from CELL_DCH to CELL_FACH state (FDD) 4006

8.4.1.5a Measurement Control and Report: Intra-frequency measurement for transition from CELL_DCH to CELL_FACH state (TDD) 4017
8.4.1.6 Measurement Control and Report: Inter-frequency measurement for transition from CELL_DCH to CELL_FACH state (FDD) 4027
8.4.1.6a Measurement Control and Report: Inter-frequency measurement for transition from CELL_DCH to CELL_FACH state (TDD) 4034
8.4.1.7 Measurement Control and Report: Intra-frequency measurement for transition from CELL_FACH to CELL_DCH state (FDD) 4040
8.4.1.7a Measurement Control and Report: Intra-frequency measurement for transition from CELL_FACH to CELL_DCH state (TDD) 4062
8.4.1.8 Measurement Control and Report: Inter-frequency measurement for transition from CELL_FACH to CELL_DCH state (FDD) 4085
8.4.1.8a Measurement Control and Report: Inter-frequency measurement for transition from CELL_FACH to CELL_DCH state (TDD) 4098
8.4.1.9 Measurement Control and Report: Unsupported measurement in the UE 4105
8.4.1.10 Measurement Control and Report: Failure (Invalid Message Reception) 4109
8.4.1.11 Void 4111
8.4.1.12 Void 4111
8.4.1.13 Void 4111
8.4.1.14 Measurement Control and Report: Cell forbidden to affect reporting range (FDD) 4111
8.4.1.15 Measurement Control and Report: Configuration Incomplete 4125
8.4.1.16 Measurement Control and Report: Traffic volume measurement for transition from idle mode to CELL_FACH state 4136
8.4.1.17 Measurement Control and Report: Traffic volume measurement for transition from idle mode to CELL_DCH state 4143
8.4.1.18 Measurement Control and Report: Traffic volume measurement for transition from CELL_FACH state to CELL_DCH state 4149
8.4.1.18a Measurement Control and Report: Traffic volume measurement for transition from Enhanced CELL_FACH state (common E-DCH in UL and HS-DSCH DL) to CELL_DCH state 4159
8.4.1.19 Measurement Control and Report: Traffic volume measurement for transition from CELL_DCH to CELL_FACH state 4172
8.4.1.20 Void 4181
8.4.1.21 Void 4181
8.4.1.22 Measurement Control and Report: Quality measurements 4181
8.4.1.23 Measurement Control and Report: Intra-frequency measurement for events 1C and 1D 4184
8.4.1.24 Measurement Control and Report: Inter-frequency measurement for event 2A 4194
8.4.1.24a Measurement Control and Report: Inter-band measurement for event 2A 4206
8.4.1.25 Measurement Control and Report: Inter-frequency measurement for events 2B and 2E 4207
8.4.1.25a Measurement Control and Report: Inter-band measurement for events 2B and 2E 4223
8.4.1.26 Measurement Control and Report: Measurement for events 2D and 2F 4224
8.4.1.27 Measurement Control and Report: UE internal measurement for events 6A and 6B 4233
8.4.1.28 Measurement Control and Report: UE internal measurement for events 6F (FDD) and 6G 4236
8.4.1.28a Measurement Control and Report: UE internal measurement for event 6F (1.28 Mcps TDD) 4242
8.4.1.29 Measurement Control and Report: Event based Traffic Volume measurement in CELL_FACH state. 4244
8.4.1.30 Measurement Control and Report: Event based Traffic Volume measurement in CELL_DCH state. 4261
8.4.1.31 Measurement Control and Report: Inter-RAT measurement in CELL_DCH state 4266
8.4.1.32 Void 4279
8.4.1.33 Measurement Control and Report: Inter-RAT measurement, event 3a 4279
8.4.1.34 Measurement Control and Report: Inter-RAT measurement, event 3b 4290
8.4.1.35 Measurement Control and Report: Inter-RAT measurement, event 3c 4305
8.4.1.36 Measurement Control and Report: Inter-RAT measurement, event 3d 4315
8.4.1.37 Measurement Control and Report: UE internal measurement, event 6c 4328
8.4.1.38 Measurement Control and Report: UE internal measurement, event 6d 4332
8.4.1.39 Measurement Control and Report: UE internal measurement, event 6e 4337
8.4.1.40 Measurement Control and Report: Inter-RAT measurement, event 3C, in CELL_DCH state using sparse compressed mode pattern 4341
8.4.1.41 Measurement Control and Report: Additional Measurements list 4349
8.4.1.42 Measurement Control and Report: Change of Compressed Mode Method 4358
8.4.1.43 Measurement Control and Report: Compressed Mode Reconfiguration 4375
8.4.1.44 Measurement Control and Report: Intra-frequency measurement for events 1H and 1I (TDD) 4394

8.4.1.45 Measurement Control and Report: Intra-frequency measurement for event 1G (TDD) 4401
8.4.1.46 Void....4409
8.4.1.47 Measurement Control and Report: Event triggered periodic measurement for event 1B (FDD)....4409
8.4.1.48 Measurement Control and Report: Combined Inter-frequency measurement for event 2b and Inter-RAT measurement, event 3a (FDD)....4420
8.4.1.48a Measurement Control and Report: Combined Inter-frequency measurement for event 2b and Inter-RAT measurement, event 3a (TDD) 4433
8.4.1.49 Measurement Control and Report: Intra-frequency measurement for event 1J....4443
8.4.1.50 Measurement reporting when moving from CELL_PCH to CELL_FACH....4453
8.4.1.51 Measurement Control and Report: Inter-frequency measurement for events 2C for CSG cells 4459
8.4.1.52 Measurement Control and Report: Inter-frequency measurement for events 2B for CSG cells 4468
8.5 MBMS Specific Procedures 4478
8.5.1 MBMS Session Start....4478
8.5.1.1 MBMS PTP Session Start at MCCH Acquisition in Idle mode / MBMS Selected Service....4478
8.5.1.1m MBMS PTP Session Start at MCCH Acquisition in Idle mode / MBMS Multicast Service 4486
8.5.1.2 MBMS PTP Session Start at MCCH Notification in CELL_PCH / MBMS Selected Service 4487
8.5.1.2m MBMS PTP Session Start at MCCH Notification in CELL_PCH / MBMS Multicast Service....4491
8.5.1.3 MBMS PTM Session Start at MCCH Acquisition in CELL_FACH state / MBMS Broadcast Service....4492
8.5.1.3m MBMS PTM Session Start at MCCH Acquisition in CELL_FACH state / MBMS Multicast Service....4495
8.5.1.4 MBMS PTM Session Start at MCCH Notification in CELL_DCH state / MBMS Broadcast Service....4495
8.5.1.4m MBMS PTM Session Start at MCCH Notification in CELL_DCH state / MBMS Multicast Service....4508
8.5.1.5 MBMS PTM Session Start at MCCH Acquisition in CELL_DCH (for a non-MBMS service) when entering into an MBMS cell (UE capable of MBMS p-t-m reception in CELL_DCH) / MBMS Broadcast Service....4508
8.5.1.5m MBMS PTM Session Start at MCCH Acquisition in CELL_DCH (for a non-MBMS service) when entering into an MBMS cell (UE capable of MBMS p-t-m reception in CELL_DCH) / MBMS Multicast Service....4512
8.5.1.6 Void....4513
8.5.1.6m Void....4513
8.5.1.7 Void....4513
8.5.1.7m Void....4513
8.5.1.8 Void....4513
8.5.1.9 MBMS PTM Session Start at MCCH Notification in Idle Mode / MBMS Broadcast Service....4513
8.5.1.9m MBMS PTM Session Start at MCCH Notification in Idle Mode / MBMS Multicast Service....4517
8.5.1.10 Void....4518
8.5.1.11 MBMS PTP Session Start at MCCH Notification in Idle Mode / MBMS Selected Service....4518
8.5.1.11m MBMS PTP Session Start at MCCH Notification in Idle Mode / MBMS Multicast Service 4522
8.5.1.12 MBMS PTP Session Start at MCCH Notification in URA_PCH / MBMS Selected Service 4523
8.5.1.12m MBMS PTP Session Start at MCCH Notification in URA_PCH / MBMS Multicast Service 4528
8.5.1.13 MBMS PTP Session Start at MCCH Notification in CELL_FACH / MBMS Selected Service....4529
8.5.1.13m MBMS PTP Session Start at MCCH Notification in CELL_FACH / MBMS Multicast Service....4533
8.5.1.14 MBMS PTM Session Start at MCCH Acquisition / MBSFN mode 4534
8.5.1.15 MBMS PTM Session Start at MCCH Notification / MBSFN mode....4538
8.5.2 MBMS Session Reconfiguration 4543
8.5.2.1 MBMS PTP Session Reconfiguration – Change of Activated Service / MBMS Selected Service...4543
8.5.2.1m MBMS PTM Session Reconfiguration - Change of Activated Service / MBSFN mode (FDD)....4549
8.5.2.2 MBMS PTM Session Reconfiguration – Transfer Mode Change to PTP / MBMS Selected Service....4554
8.5.2.2m MBMS PTM Session Reconfiguration - Transfer Mode Change to PTP / MBMS Multicast Service....4559
8.5.2.3 MBMS PTP Session Reconfiguration - Transfer mode change to PTM / MBMS Selected Service 4560
8.5.2.3m MBMS PTP Session Reconfiguration - Transfer mode change to PTM / MBMS Multicast Service....4565
8.5.2.4 MBMS PTM Session Reconfiguration – MTCH data rate change / MBMS Broadcast Service....4567
8.5.2.4m MBMS PTM Session Reconfiguration – MTCH data rate change / MBMS Multicast Service 4571
8.5.2.5 MBMS PTM Session Reconfiguration - MTCH Data Rate Change / MBSFN mode....4572
8.5.3 MBMS Frequency Layer Convergence and Dispersion 4577

8.5.3.1 MBMS Session Start (Frequency Layer Convergence)/Session Stop (Frequency Layer Dispersion) in Idle mode / MBMS Selected Service....4577
8.5.3.1m MBMS Session Start (Frequency Layer Convergence)/Session Stop (Frequency Layer Dispersion) in Idle mode / MBMS Multicast Service....4584
8.5.3.2 MBMS Session Start (Frequency Layer Convergence)/Session Stop (Frequency Layer Dispersion) in CELL_PCH / MBMS Broadcast Service....4584
8.5.3.2m MBMS Session Start (Frequency Layer Convergence)/Session Stop (Frequency Layer Dispersion) in CELL_PCH / MBMS Multicast Service....4590
8.5.3.3 MBMS Session Start (Frequency Layer Convergence)/Session Stop (Frequency Layer Dispersion) in CELL_FACH / MBMS Broadcast Service....4591
8.5.3.3m MBMS Session Start (Frequency Layer Convergence)/Session Stop (Frequency Layer Dispersion) in CELL_FACH / MBMS Multicast Service....4599
8.5.3.4 MBMS Session Stop with Frequency Layer Dispersion - no previous frequency layer available (Idle Mode) / MBMS Broadcast Service....4600
8.5.3.4m MBMS Session Stop with Frequency Layer Dispersion - no previous frequency layer available (Idle Mode) / MBMS Multicast Service....4603
8.5.3.5 MBMS Session Stop with Frequency Layer Dispersion - no previous frequency layer available (URA_PCH) / MBMS Broadcast Service....4604
8.5.3.5m MBMS Session Stop with Frequency Layer Dispersion - no previous frequency layer available (URA_PCH) / MBMS Multicast Service....4608
8.5.3.6 MBMS Session Stop with Frequency Layer Dispersion - no previous frequency layer available (CELL_FACH) / MBMS Broadcast Service....4609
8.5.3.6m MBMS Session Stop with Frequency Layer Dispersion - no previous frequency layer available (CELL_FACH) / MBMS Multicast Service....4613
8.5.4 MBMS Modification Request....4613
8.5.4.1 Transmission of the MBMS Selected Services Information when entering RRC connected mode and CELL_DCH state / MBMS Selected Service....4613
8.5.4.2 Modification of the MBMS Selected Services list whilst in URA_PCH & Cell_FACH / MBMS Selected Service....4616
8.5.4.3 Testing of the MBMS Selected Services indication from the network whilst in CELL_DCH / MBMS Selected Service....4620
8.5.5 MBMS Counting....4623
8.5.5.1 MBMS Counting in Idle Mode / MBMS Selected Service....4623
8.5.5.1m MBMS Counting in Idle Mode / MBMS Multicast Service....4626
8.5.5.2 MBMS Counting in CELL_FACH / MBMS Selected Service....4628
8.5.5.2m MBMS Counting in CELL_FACH / MBMS Multicast Service....4632
8.5.5.3 MBMS No Counting in CELL_DCH / MBMS Selected Service....4634
8.5.5.3m MBMS No Counting in CELL_DCH / MBMS Multicast Service....4637
8.5.5.4 MBMS Counting in CELL_PCH / MBMS Selected Service....4638
8.5.5.4m MBMS Counting in CELL_PCH / MBMS Multicast Service....4642
8.5.5.5 Void....4644
8.5.5.6 Void....4644
8.5.5.7 RRC Connection establishment for MBMS Counting :Success after T318 Timeout/ MBMS Selected Service....4644
8.5.5.7m RRC Connection establishment for MBMS Counting :Success after T318 Timeout / MBMS Multicast Service....4649
8.5.5.8 RRC Connection establishment for MBMS Counting :Success after MAC Layer Failure Indication/ MBMS Selected Service....4650
8.5.5.8m RRC Connection establishment for MBMS Counting :Success after MAC Layer Failure Indication / MBMS Multicast Service....4655
8.5.6 MBMS Controlling Cell Change....4656
8.5.6.1 MBMS Controlling Cell Change - Idle mode - Frequency Layer Convergence – HCS Not Used / MBMS Selected Service....4656
8.5.6.1m MBMS Controlling Cell Change - Idle mode - Frequency Layer Convergence – HCS Not Used / MBMS Multicast Service....4661
8.5.6.2 MBMS Controlling Cell Change in CELL_FACH during ongoing session / MBMS Broadcast Service....4662
8.5.6.2m MBMS Controlling Cell Change in CELL_FACH during ongoing session / MBMS Multicast Service....4667
8.5.6.3 MBMS Controlling Cell Change in CELL_PCH during ongoing session / MBMS Broadcast Service....4668

8.5.6.3m MBMS Controlling Cell Change in CELL_PCH during ongoing session / MBMS Multicast Service....4675
8.5.6.4 MBMS Controlling Cell Change - Idle mode - Frequency Layer Convergence – With HCS / MBMS Selected Service....4675
8.5.6.4m MBMS Controlling Cell Change - Idle mode - Frequency Layer Convergence – With HCS / MBMS Multicast Service....4683
8.5.6.5 MBMS Controlling Cell Change in CELL_DCH during ongoing session / MBMS Broadcast Service....4684
8.5.6.5m MBMS Controlling Cell Change in CELL_DCH during ongoing session / MBMS Multicast Service....4689
8.5.7 MBSFN Specific Procedures (FDD/TDD)....4690
8.5.7.1 Cell Update: cell reselection in CELL_PCH (unicast carrier) during ongoing MBMS session in MBSFN mode....4690
8.5.7.2 Re-acquire MCCH - modified MBSFN inter frequency neighbour list / All MBSFN services notified....4695
8.5.7.3 Re-acquire MCCH - modified MBSFN inter frequency neighbour list / MBSFN services not notified....4706
8.5.7.4 MBSFN TDM Information / TDM services de-multiplexing....4717
8.5.7.5 MBSFN Session Reconfiguration / Change of MBSFN Cluster frequency on notification via MCCH (FDD)....4722
8.6.2.2 Logged MDT / Intra-frequency measurement, logging and reporting / CELL_PCH....4727
8.6.2.3 Logged MDT / Inter-frequency measurement, logging and reporting / URA_PCH....4734
8.6.2.4 Logged MDT / Intra-frequency measurement, logging and reporting / Idle mode / Limiting area scope....4740
8.6.2.5 Logged MDT / Release of logged MDT measurement configuration / Expire of duration timer....4751
8.6.2.6 Logged MDT / Release of logged MDT measurement configuration / Reception of new logged measurement configuration, Detach or UE power off....4758
8.6.2.7 Logged MDT / Maintaining logged measurement configuration / UE state transitions and mobility....4764
8.7 Automatic Neighbour Relation (ANR) for UTRAN....4773
8.7.1 Intra-UTRAN....4773
8.7.1.1 Intra-UTRA / Intra-frequency ANR measurement, logging and reporting in IDLE Mode / RSCP Absolute Threshold (FDD)....4773
8.7.1.1a Intra-UTRA / Intra-frequency ANR measurement, logging and reporting in IDLE Mode / RSCP Absolute Threshold (TDD)....4778
8.7.1.2 Intra-UTRA / Intra-frequency ANR measurement, logging and reporting in Cell_PCH / Ec/N0 Absolute Threshold (FDD)....4784
8.7.1.2a Intra-UTRA / Intra-frequency ANR measurement, logging and reporting in CELL_PCH (TDD)....4789
8.7.1.3 Intra-UTRA / Inter-frequency ANR measurement, logging and reporting in URA_PCH / RSCP Relative Threshold (FDD)....4793
8.7.1.3a Intra-UTRA / Inter-frequency ANR measurement, logging and reporting in URA_PCH / RSCP Relative Threshold (TDD)....4798
8.7.1.4 Intra-UTRA / Inter-frequency and Intra-frequency ANR measurement, logging and reporting in IDLE Mode / Ec/N0 Relative Threshold / T327 Expiry / Max Number of ANR Logged Items (FDD)....4803
8.7.1.4a Intra-UTRA / Inter-frequency and Intra-frequency ANR measurement, logging and reporting in IDLE Mode / T327 Expiry / Max Number of ANR Logged Items (TDD)....4810
8.7.1.5 Intra-UTRA / Re-configuration of ANR measurements (FDD)....4817
8.7.1.5a Intra-UTRA / Re-configuration of ANR measurements (TDD)....4823
8.7.2 Inter-RAT....4829
8.7.2.1 Inter-RAT/ ANR measurement, logging and reporting / GERAN cell (FDD)....4829
8.7.2.1a Inter-RAT/ ANR measurement, logging and reporting / GERAN cell (TDD)....4834

9 Elementary procedures of mobility management....4840
9.1 TMSI reallocation....4840
9.2 Authentication....4843
9.2.1 Authentication accepted....4843
9.2.2 Authentication rejected by the network....4844
9.2.3 Authentication rejected by the UE (MAC code failure)....4848
9.2.4 Authentication rejected by the UE (SQN failure)....4850
9.2.5 Authentication rejected by the UE / fraudulent network....4852
9.3 Identification....4855

9.3.1 General Identification 4855
9.3.2 Handling of IMSI shorter than the maximum length 4857
9.4 Location updating 4860
9.4.1 Location updating / accepted 4860
9.4.2 Location updating / rejected 4863
9.4.2.1 Location updating / rejected / IMSI invalid 4863
9.4.2.2 Location updating / rejected / PLMN not allowed 4867
9.4.2.3 Location updating / rejected / location area not allowed 4872
9.4.2.4 Location updating / rejected / roaming not allowed in this location area 4876
9.4.2.5 Location updating / rejected / No Suitable Cells In Location Area 4885
9.4.2.6 Location updating / rejected / Not authorized for this CSG 4886
9.4.3 Location updating / abnormal cases 4888
9.4.3.1 Void 4888
9.4.3.2 Location updating / abnormal cases / attempt counter less or equal to 4, LAI different 4888
9.4.3.3 Location updating / abnormal cases / attempt counter equal to 4 4895
9.4.3.4 Location updating / abnormal cases / attempt counter less or equal to 4, stored LAI equal to broadcast LAI 4905
9.4.3.5 Location updating / abnormal cases / Failure due to non-integrity protection 4915
9.4.3.6 Location updating /abnormal cases / CS domain is changed from barred to unbarred because of domain specific access control 4917
9.4.4 Location updating / release / expiry of T3240 4919
9.4.5 Location updating / periodic 4921
9.4.5.1 Location updating / periodic spread 4921
9.4.5.2 Location updating / periodic normal / test 1 4923
9.4.5.3 Location updating / periodic normal / test 2 4925
9.4.5.4 Location updating / periodic search for HPLMN or higher priority PLMN when in VPLMN 4927
9.4.5.4.1 Location updating / periodic search for HPLMN or higher priority PLMN / UE waits time T 4927
9.4.5.4.2 Location updating / periodic search for HPLMN or higher priority PLMN / UE in manual mode 4930
9.4.5.4.3 Location updating / periodic search for HPLMN or higher priority PLMN / UE waits at least two minutes and at most T minutes 4931
9.4.5.4.4 Location updating/periodic search of the higher priority PLMN, VPLMN in a foreign country – higher priority/UE is in automatic mode. 4933
9.4.5.4.5 Location updating/periodic search of the higher priority PLMN, VPLMN in a foreign country – lower priority/UE is in automatic mode. 4935
9.4.5.4.6 Location updating/periodic search of the higher priority PLMN, VPLMN in a foreign country – List of EPLMN contain HPLMN /UE is in automatic mode. 4937
9.4.6 Location updating / interworking of attach and periodic 4939
9.4.7 Location Updating / accept with replacement or deletion of Equivalent PLMN list 4942
9.4.8 Location Updating after UE power off 4945
9.4.9 Location Updating / Accept, Interaction between Equivalent PLMNs and Forbidden PLMNs. 4947
9.5 MM connection 4949
9.5.1 Introduction 4949
9.5.2 MM connection / establishment in security mode 4949
9.5.3 Void 4951
9.5.4 MM connection / establishment rejected 4951
9.5.5 MM connection / establishment rejected cause 4 4952
9.5.6 MM connection / expiry T3230 4954
9.5.7 MM connection / abortion by the network 4956
9.5.7.1 MM connection / abortion by the network / cause #6 4956
9.5.7.2 MM connection / abortion by the network / cause not equal to #6 4959
9.5.8 MM connection / follow-on request pending 4960
9.5.8.1 MM connection / follow-on request pending / test 1 4960
9.5.8.2 MM connection / follow-on request pending / test 2 4962
9.5.8.3 MM connection / follow-on request pending / test 3 4963
9.5.9 MM connection / abnormal cases / CS domain barred because of domain specific access control 4965

10 Circuit Switched Call Control (CC) 4967
10.1 Circuit switched Call Control (CC) state machine verification 4967
10.1.1 General on CC state machine verification 4967
10.1.2 Establishment of an outgoing call 4968
10.1.2.1 Outgoing call / U0 null state 4970

10.1.2.1.1 Outgoing call / U0 null state / MM connection requested 4970
10.1.2.2 Outgoing call / U0.1 MM connection pending 4971
10.1.2.2.1 Outgoing call / U0.1 MM connection pending / CM service rejected 4971
10.1.2.2.2 Outgoing call / U0.1 MM connection pending / CM service accepted 4972
10.1.2.2.3 Outgoing call / U0.1 MM connection pending / lower layer failure 4973
10.1.2.3 Outgoing call / U1 call initiated 4975
10.1.2.3.1 Outgoing call / U1 call initiated / receiving CALL PROCEEDING 4975
10.1.2.3.2 Outgoing call / U1 call initiated / rejecting with RELEASE COMPLETE 4976
10.1.2.3.3 Outgoing call / U1 call initiated / T303 expiry 4977
10.1.2.3.4 Outgoing call / U1 call initiated / lower layer failure 4979
10.1.2.3.5 Outgoing call / U1 call initiated / receiving ALERTING 4980
10.1.2.3.6 Outgoing call / U1 call initiated / entering state U10 4981
10.1.2.3.7 Outgoing call / U1 call initiated / unknown message received 4982
10.1.2.4 Outgoing call / U3 Mobile originating call proceeding 4983
10.1.2.4.1 Outgoing call / U3 Mobile originating call proceeding / ALERTING received 4983
10.1.2.4.2 Outgoing call / U3 Mobile originating call proceeding / CONNECT received 4984
10.1.2.4.3 Outgoing call / U3 Mobile originating call proceeding / PROGRESS received without in band information 4986
10.1.2.4.4 Outgoing call / U3 Mobile originating call proceeding / PROGRESS with in band information 4987
10.1.2.4.5 Outgoing call / U3 Mobile originating call proceeding / DISCONNECT with in band tones 4989
10.1.2.4.6 Outgoing call / U3 Mobile originating call proceeding / DISCONNECT without in band tones 4991
10.1.2.4.7 Outgoing call / U3 Mobile originating call proceeding / RELEASE received 4993
10.1.2.4.8 Outgoing call / U3 Mobile originating call proceeding / termination requested by the user 4994
10.1.2.4.9 Outgoing call / U3 Mobile originating call proceeding / traffic channel allocation 4995
10.1.2.4.10 Outgoing call / U3 Mobile originating call proceeding / timer T310 time-out 4996
10.1.2.4.11 Outgoing call / U3 Mobile originating call proceeding / lower layer failure 4997
10.1.2.4.12 Outgoing call / U3 Mobile originating call proceeding / unknown message received 4999
10.1.2.4.13 Outgoing call / U3 Mobile originating call proceeding / Internal alerting indication 5000
10.1.2.5 Outgoing call / U4 call delivered 5002
10.1.2.5.1 Outgoing call / U4 call delivered / CONNECT received 5002
10.1.2.5.2 Outgoing call / U4 call delivered / termination requested by the user 5003
10.1.2.5.3 Outgoing call / U4 call delivered / DISCONNECT with in band tones 5004
10.1.2.5.4 Outgoing call / U4 call delivered / DISCONNECT without in band tones 5006
10.1.2.5.5 Outgoing call / U4 call delivered / RELEASE received 5007
10.1.2.5.6 Outgoing call / U4 call delivered / lower layer failure 5009
10.1.2.5.7 Outgoing call / U4 call delivered / traffic channel allocation 5010
10.1.2.5.8 Outgoing call / U4 call delivered / unknown message received 5011
10.1.2.6 U10 active 5012
10.1.2.6.1 U10 active / termination requested by the user 5012
10.1.2.6.2 U10 active / RELEASE received 5013
10.1.2.6.3 U10 active / DISCONNECT with in band tones 5014
10.1.2.6.4 U10 active / DISCONNECT without in band tones 5016
10.1.2.6.5 U10 active / RELEASE COMPLETE received 5018
10.1.2.6.6 U10 active / SETUP received 5019
10.1.2.7 U11 disconnect request 5020
10.1.2.7.1 U11 disconnect request / clear collision 5020
10.1.2.7.2 U11 disconnect request / RELEASE received 5022
10.1.2.7.3 U11 disconnect request / timer T305 time-out 5023
10.1.2.7.4 U11 disconnect request / lower layer failure 5024
10.1.2.7.5 U11 disconnect request / unknown message received 5025
10.1.2.8 U12 disconnect indication 5026
10.1.2.8.1 U12 disconnect indication / call releasing requested by the user 5026
10.1.2.8.2 U12 disconnect indication / RELEASE received 5028
10.1.2.8.3 U12 disconnect indication / lower layer failure 5029
10.1.2.8.4 U12 disconnect indication / unknown message received 5030
10.1.2.9 Outgoing call / U19 release request 5031
10.1.2.9.1 Outgoing call / U19 release request / timer T308 time-out 5031
10.1.2.9.2 Outgoing call / U19 release request / 2nd timer T308 time-out 5032
10.1.2.9.3 Outgoing call / U19 release request / RELEASE received 5034
10.1.2.9.4 Outgoing call / U19 release request / RELEASE COMPLETE received 5035

10.1.2.9.5 Outgoing call / U19 release request / lower layer failure 5036
10.1.3 Establishment of an incoming call / Initial conditions 5037
10.1.3.1 Incoming call / U0 null state 5039
10.1.3.1.1 Incoming call / U0 null state / SETUP received with a non supported bearer capability 5039
10.1.3.2 Incoming call / U6 call present 5041
10.1.3.2.1 Incoming call / U6 call present / automatic call rejection 5041
10.1.3.3 Incoming call / U9 mobile terminating call confirmed 5042
10.1.3.3.1 Incoming call / U9 mobile terminating call confirmed / alerting or immediate connecting 5042
10.1.3.3.2 Incoming call / U9 mobile terminating call confirmed / DTCH assignment 5044
10.1.3.3.3 Void 5045
10.1.3.3.4 Incoming call / U9 mobile terminating call confirmed / DISCONNECT received 5045
10.1.3.3.5 Incoming call / U9 mobile terminating call confirmed / RELEASE received 5047
10.1.3.3.6 Incoming call / U9 mobile terminating call confirmed / lower layer failure 5048
10.1.3.3.7 Incoming call / U9 mobile terminating call confirmed / unknown message received 5049
10.1.3.4 Incoming call / U7 call received 5051
10.1.3.4.1 Incoming call / U7 call received / call accepted 5051
10.1.3.4.2 Incoming call / U7 call received / termination requested by the user 5052
10.1.3.4.3 Incoming call / U7 call received / DISCONNECT received 5053
10.1.3.4.4 Incoming call / U7 call received / RELEASE received 5055
10.1.3.4.5 Incoming call / U7 call received / lower layer failure 5056
10.1.3.4.6 Incoming call / U7 call received / unknown message received 5057
10.1.3.4.7 Incoming call / U7 call received / DTCH assignment 5058
10.1.3.4.8 Incoming call / U7 call received / RELEASE COMPLETE received 5059
10.1.3.5 Incoming call / U8 connect request 5061
10.1.3.5.1 Incoming call / U8 connect request / CONNECT acknowledged 5061
10.1.3.5.2 Incoming call / U8 connect request / timer T313 time-out 5062
10.1.3.5.3 Incoming call / U8 connect request / termination requested by the user 5063
10.1.3.5.4 Incoming call / U8 connect request / DISCONNECT received with in-band information 5064
10.1.3.5.5 Incoming call / U8 connect request / DISCONNECT received without in-band information 5066
10.1.3.5.6 Incoming call / U8 connect request / RELEASE received 5068
10.1.3.5.7 Incoming call / U8 connect request / lower layer failure 5069
10.1.3.5.8 Incoming call / U8 connect request / DTCH assignment 5070
10.1.3.5.9 Incoming call / U8 connect request / unknown message received 5071
10.1.4 In call functions 5072
10.1.4.1 In-call functions / DTMF information transfer 5072
10.1.4.1.1 In-call functions / DTMF information transfer / basic procedures 5072
10.1.4.2 In-call functions / user notification 5074
10.1.4.2.1 In-call functions / User notification / UE terminated 5074
10.1.4.3 In-call functions / channel changes 5075
10.1.4.3.1 In-call functions / channel changes / a successful channel change in active state/ Hard handover 5075
10.1.4.3.2 In-call functions / channel changes / an unsuccessful channel change in active mode/Hard handover 5076
10.1.4.4 In-call functions / UE terminated in-call modification 5078
10.1.4.4.1 In-call functions / UE terminated in-call modification / modify when new mode is not supported 5078
10.1.4.5 In-call functions / UE originated in-call modification 5078
10.1.4.5.1 In-call functions / UE originated in-call modification / a successful case of modifying 5078
10.1.4.5.2 In-call functions / UE originated in-call modification / modify rejected 5078
10.1.4.5.3 In-call functions / UE originated in-call modification / an abnormal case of acceptance 5078
10.1.4.5.4 In-call functions / UE originated in-call modification / an abnormal case of rejection 5078
10.1.4.5.5 In-call functions / UE originated in-call modification / time-out of timer T323 5078
10.1.4.5.6 In-call functions / UE originated in-call modification / a successful channel change in state mobile originating modify 5078
10.1.4.5.7 In-call functions / UE originated in-call modification / an unsuccessful channel change in state mobile originating modify 5078
10.1.4.5.8 In-call functions / UE originated in-call modification / unknown message received 5078
10.1.4.5.9 In-call functions / UE originated in-call modification / a release complete received 5078
10.2 Call Re-establishment 5079
10.2.1 Void 5079
10.3 User to user signalling 5079

11 Session Management Procedures 5081
11.1 PDP context activation 5081
11.1.1 Initiated by the UE 5081
11.1.1.1 Attach initiated by context activation/QoS Offered by Network is the QoS Requested 5081
11.1.1.1a Attach initiated by context activation/QoS Offered by Network is the QoS Requested/Correct handling of QoS extensions for rates above 8640 kbps 5084
11.1.1.2 QoS offered by the network is a lower QoS 5088
11.1.1.2.1 Void 5088
11.1.1.2.2 Void 5088
11.1.2 PDP context activation requested by the network, successful and unsuccessful 5088
11.1.3 Abnormal Cases 5092
11.1.3.1 T3380 Expiry 5092
11.1.3.2 Collision of UE initiated and network requested PDP context activation 5093
11.1.3.3 Network initiated PDP context activation request for an already activated PDP context (on the UE side) 5096
11.1.4 Secondary PDP context activation procedures 5098
11.1.4.1 Successful Secondary PDP Context Activation Procedure Initiated by the UE 5098
11.1.4.1.1 QoS Offered by Network is the QoS Requested 5098
11.1.4.1.2 QoS Offered by Network is a lower QoS 5101
11.1.4.2 Unsuccessful Secondary PDP Context Activation Procedure Initiated by the UE 5103
11.1.4.3 Abnormal cases 5104
11.1.4.3.1 T3380 Expiry 5104
11.1.5 Secondary PDP context activation procedures initiated by network 5107
11.1.5.1 Successful Secondary PDP Context Activation Procedure Initiated by the Network 5107
11.1.5.2 Successful Secondary PDP Context Activation, Deactivation and Re-activation Initiated by the Network 5111
11.2 PDP context modification procedure 5122
11.2.1 Network initiated PDP context modification 5122
11.2.1a Network initiated PDP context modification / Adding and deleting filters to TFT of a secondary PDP context 5123
11.2.1b Network initiated PDP context modification / Adding filters to TFT of the Primary PDP context 5132
11.2.2 UE initiated PDP context modification 5141
11.2.2.1 UE initiated PDP Context Modification accepted by network 5141
11.2.2.2 UE initiated PDP Context Modification not accepted by the network 5142
11.2.3 Abnormal cases 5144
11.2.3.1 T3381 Expiry 5144
11.2.3.2 Collision of UE and network initiated PDP context modification procedures 5146
11.3 PDP context deactivation procedures 5148
11.3.1 PDP context deactivation initiated by the UE 5148
11.3.2 PDP context deactivation initiated by the network 5151
11.3.2a PDP context deactivation initiated by the network / secondary PDP context active / deactivation of primary PDP context 5153
11.3.3 Abnormal cases 5156
11.3.3.1 T3390 Expiry 5156
11.3.3.2 Collision of UE and network initiated PDP context deactivation requests 5159
11.4 Unknown or Unforeseen Transaction Identifier/Non-semantical Mandatory Information Element Errors 5160
11.4.1 Error cases 5160
11.5 MBMS Context Activation 5164
11.5.1m MBMS Context Activation requested by the network, Successful and Unsuccessful procedure / MBMS Multicast Service 5164
11.5.2m Abnormal Cases 5167
11.5.2.1m T3380 Expiry / MBMS Multicast Service 5167
11.5.2.2m Network initiated MBMS context activation request for an already activated context (on the UE side) / MBMS Multicast Service 5168
11.6 MBMS Context deactivation 5170
11.6.1m MBMS Context deactivation requested by the network, Successful / MBMS Multicast Service 5170
11.6.2 Void 5174
11.6.3 Void 5174
11.7m Network Feature Support IE for MBMS / MBMS Multicast Service 5174
11.8 MBMS Service Request 5178
11.8.1m MBMS Service request procedure not accepted by the network / MBMS Multicast Service 5178
11.8.2 MBMS Service Request procedure collision with Routing Area Update/ MBMS Selected Service 5180

11.8.2m MBMS Service Request procedure collision with Routing Area Update / MBMS Multicast Service ...5183
11.9 UE routing of uplink packets ...5184
11.9.1 UE routing of uplink packets ...5184

12 Elementary procedure for Packet Switched Mobility Management ...5206
12.1 Applicability, default conditions and default messages ...5206
12.2 PS attach procedure ...5207
12.2.1 Normal PS attach ...5207
12.2.1.1 PS attach / accepted ...5207
12.2.1.2 PS attach / rejected / IMSI invalid / illegal UE ...5211
12.2.1.3 PS attach / rejected / IMSI invalid / PS services not allowed ...5214
12.2.1.4 PS attach / rejected / PLMN not allowed ...5217
12.2.1.5a PS attach / rejected / roaming not allowed in this location area ...5222
12.2.1.5b PS attach / rejected / No Suitable Cells In Location Area ...5234
12.2.1.5c PS attach / rejected / Location area not allowed ...5237
12.2.1.5d PS attach / rejected / PS services not allowed in this PLMN ...5240
12.2.1.5e PS attach / rejected / Not authorized for this CSG ...5244
12.2.1.6 PS attach / abnormal cases / access barred due to access class control ...5247
12.2.1.7 PS attach / abnormal cases / change of routing area ...5251
12.2.1.8 PS attach / abnormal cases / power off ...5253
12.2.1.9 PS attach / abnormal cases / PS detach procedure collision ...5254
12.2.1.10 PS attach / abnormal cases / Failure due to non-integrity protection ...5257
12.2.1.11 PS attach / accepted / follow-on request pending indicator set ...5259
12.2.1.12 PS attach / abnormal cases / access barred due to domain specific access restriction for PS domain ...5262
12.2.2 Combined PS attach ...5264
12.2.2.1 Combined PS attach / PS and non-PS attach accepted ...5264
12.2.2.2 Combined PS attach / PS only attach accepted ...5269
12.2.2.3 Combined PS attach / PS attach while IMSI attach ...5276
12.2.2.4 Combined PS attach / rejected / IMSI invalid / illegal ME ...5278
12.2.2.5 Combined PS attach / rejected / PS services and non-PS services not allowed ...5281
12.2.2.6 Combined PS attach / rejected / PS services not allowed ...5284
12.2.2.7a Combined PS attach / rejected / location area not allowed ...5287
12.2.2.7b Combined PS attach / rejected / No Suitable Cells In Location Area ...5292
12.2.2.7c Combined PS attach / rejected / Roaming not allowed in this location area ...5295
12.2.2.7d Combined PS attach / rejected / PS services not allowed in this PLMN ...5298
12.2.2.7e Combined PS attach / rejected / Not authorized for this CSG ...5301
12.2.2.8 Combined PS attach / abnormal cases / attempt counter check / miscellaneous reject causes ...5304
12.2.2.9 Combined PS attach / abnormal cases / PS detach procedure collision ...5308
12.2.2.10 Combined PS attach / abnormal cases / access barred due to paging permission with access control ...5310
12.3 PS detach procedure ...5312
12.3.1 UE initiated PS detach procedure ...5312
12.3.1.1 PS detach / power off / accepted ...5312
12.3.1.2 PS detach / accepted ...5315
12.3.1.3 PS detach / abnormal cases / attempt counter check / procedure timeout ...5317
12.3.1.4 PS detach / abnormal cases / GMM common procedure collision ...5320
12.3.1.5 PS detach / power off / accepted / PS/IMSI detach ...5323
12.3.1.6 PS detach / accepted / PS/IMSI detach ...5325
12.3.1.7 PS detach / accepted / IMSI detach ...5327
12.3.1.8 PS detach / abnormal cases / change of cell into new routing area ...5329
12.3.1.9 PS detach / abnormal cases / PS detach procedure collision ...5332
12.3.1.10 UE initiated detach/abnormal case/ Not authorized for this CSG ...5334
12.3.2 Network initiated PS detach procedure ...5337
12.3.2.1 PS detach / re-attach not required / accepted ...5337
12.3.2.2 PS detach / rejected / IMSI invalid / PS services not allowed ...5339
12.3.2.3 PS detach / IMSI detach / accepted ...5341
12.3.2.4 PS detach / re-attach requested / accepted ...5344
12.3.2.5 PS detach / rejected / location area not allowed ...5346
12.3.2.6 PS detach / rejected / No Suitable Cells In Location Area ...5351
12.3.2.7 PS detach / rejected / Roaming not allowed in this location area ...5354
12.3.2.8 PS detach / rejected / PS services not allowed in this PLMN ...5359

12.4 Routing area updating procedure....5365
12.4.1 Normal routing area updating....5365
12.4.1.1a Routing area updating / accepted....5365
12.4.1.1b Routing area updating / accepted / Signalling connection re-establishment....5370
12.4.1.1c Void....5372
12.4.1.1dm Handling of MBMS context status information in ROUTING AREA UPDATE procedure/ MBMS Multicast Service....5372
12.4.1.2 Routing area updating / rejected / IMSI invalid / illegal ME....5375
12.4.1.3 Routing area updating / rejected / UE identity cannot be derived by the network....5378
12.4.1.4a Routing area updating / rejected / location area not allowed....5381
12.4.1.4b Routing area updating / rejected / No Suitable Cells In Location Area....5386
12.4.1.4c Routing area updating / rejected / PS services not allowed in this PLMN....5389
12.4.1.4d Routing area updating / rejected / Roaming not allowed in this location area....5394
12.4.1.4e Routing area updating / rejected / Not authorized for this CSG....5402
12.4.1.5 Routing area updating / abnormal cases / attempt counter check / miscellaneous reject causes....5405
12.4.1.6 Routing area updating / abnormal cases / change of cell into new routing area....5409
12.4.1.7 Void....5411
12.4.1.8 Routing area updating / abnormal cases / P-TMSI reallocation procedure collision....5411
12.4.2 Combined routing area updating....5414
12.4.2.1 Combined routing area updating / combined RA/LA accepted....5414
12.4.2.2 Combined routing area updating / UE in CS operation at change of RA....5418
12.4.2.3 Combined routing area updating / RA only accepted....5420
12.4.2.3a Void....5428
12.4.2.4 Combined routing area updating / rejected / PLMN not allowed....5428
12.4.2.5a Combined routing area updating / rejected / roaming not allowed in this location area....5432
12.4.2.5b Combined routing area updating / rejected / No Suitable Cells In Location Area....5440
12.4.2.5c Combined routing area updating / rejected / Location area not allowed....5444
12.4.2.5d Combined routing area updating / rejected / PS services not allowed in this PLMN....5446
12.4.2.5e Combined routing area updating / rejected / Not authorized for this CSG....5449
12.4.2.6 Combined routing area updating / abnormal cases / access barred due to access class control....5452
12.4.2.7 Combined routing area updating / abnormal cases / attempt counter check / procedure timeout....5457
12.4.2.8 Combined routing area updating / abnormal cases / change of cell into new routing area....5461
12.4.2.9 Void....5464
12.4.2.10 Combined routing area updating / abnormal cases / PS detach procedure collision....5464
12.4.2.11 Combined routing area updating / abnormal cases / access barred due to domain specific access restriction for CS domain....5468
12.4.2.12 Combined routing area updating / abnormal cases / access barred due to domain specific access restriction for PS domain....5471
12.4.3 Periodic routing area updating....5474
12.4.3.1 Periodic routing area updating / accepted....5474
12.4.3.2 Periodic routing area updating / accepted / T3312 default value....5476
12.4.3.3 Periodic routing area updating / no cell available / network mode I....5477
12.4.3.4 Periodic routing area updating / no cell available....5480
12.5 P-TMSI reallocation....5482
12.6 PS authentication....5484
12.6.1 Test of authentication....5484
12.6.1.1 Authentication accepted....5484
12.6.1.2 Authentication rejected by the network....5487
12.6.1.3 Authentication rejected by the UE....5490
12.6.1.3.1 GMM cause 'MAC failure'....5490
12.6.1.3.2 GMM cause 'Synch failure'....5493
12.6.1.3.3 Authentication rejected by the UE / fraudulent network....5496
12.6.2 Void....5500
12.7 Identification procedure....5500
12.7.1 General Identification....5500
12.8 GMM READY timer handling....5503
12.9 Service Request procedure (UMTS Only)....5506
12.9.1 Service Request Initiated by UE Procedure....5506
12.9.2 Service Request Initiated by Network Procedure....5508
12.9.3 Service Request / rejected / Illegal MS....5510
12.9.4 Service Request / rejected / PS services not allowed....5514
12.9.5 Service Request / rejected / MS identity cannot be derived by the network....5518

12.9.6 Service Request / rejected / PLMN not allowed 5521
12.9.7a Service Request / rejected / No PDP context activated 5524
12.9.7b Service Request / rejected / No Suitable Cells In Location Area 5527
12.9.7c Service Request / rejected / Roaming not allowed in this location area 5530
12.9.7d Service Request / rejected / Not authorized for this CSG 5533
12.9.8 Service Request / Abnormal cases / Access barred due to access class control 5536
12.9.9 Service Request / Abnormal cases / Routing area update procedure is triggered 5538
12.9.10 Service Request / Abnormal cases / Power off 5542
12.9.11 Service Request / Abnormal cases / Service request procedure collision 5544
12.9.12 Service Request / RAB re-establishment / UE initiated / Single PDP context 5546
12.9.13 Service Request / RAB re-establishment / UE initiated / multiple PDP contexts 5549
12.9.14 Service Request / RAB re-establishment / Network initiated / single PDP context 5551
12.9.15 Service Request / abnormal cases / access barred due to domain specific access restriction for PS domain 5552
12.9.16 MBMS SERVICE REQUEST / counting / MBMS Selected Service 5555
12.9.16m MBMS SERVICE REQUEST / counting / MBMS Multicast Service 5557
12.9.17 MBMS SERVICE REQUEST / point to point RBs / MBMS Selected Service 5558
12.9.17m MBMS SERVICE REQUEST / point to point RBs / MBMS Multicast Service 5560
12.9.18m Handling of MBMS context status information in SERVICE REQUEST and SERVICE ACCEPT messages / MBMS Multicast Service 5561

13 General Tests 5563
13.1 Emergency call / general 5563
13.2 Emergency call 5564
13.2.1 Emergency call / with USIM 5564
13.2.1.1 Emergency call / with USIM / accept case 5564
13.2.2 Emergency call / without USIM 5566
13.2.2.1 Emergency call / without USIM / accept case 5566
13.2.2.2 Emergency call / without USIM / reject case 5568
13.3 eCall Emergency Call Procedures 5570
13.3.1 eCall / with USIM 5570
13.3.1.1 Void 5571
13.3.1.2 Test eCall using eCall capable UE with eCall only subscription 5571
13.3.1.3 Manually initiated eCall using eCall capable UE with “eCall only” subscription on USIM 5573
13.3.1.4 Reconfiguration eCall using eCall capable UE with an ‘eCall only’ subscription on USIM 5576
13.3.1.5 Manually initiated eCall using eCall capable UE with eCall and non eCall subscriptions on USIM 5579
13.3.1.6 eCall Inactivity State after T3242 expires 5581
13.3.1.7 Automatically initiated eCall 5585
13.3.1.8 Void 5588
13.3.1.9 Void 5588
13.3.1.10 eCall Inactivity State after T3243 expires 5588
13.4 Emergency calls over IMS 5591
13.4.1 Emergency bearer services over IMS / NORMAL-SERVICE / Success 5591
13.4.2 Emergency bearer services over IMS / LIMITTED-SERVICE / Success 5593
13.4.3 Emergency bearer services over IMS / NO-IMSI / Success 5595
13.4.4 Emergency bearer services over IMS / NORMAL-SERVICE / Authentication not accepted by the UE and Timer 3318 expires 5598
13.4.5 Authentication not accepted by the UE / Synch failure / Authentication not accepted by the UE and Timer 3320 expires 5599
13.4.6 Handling of Local Emergency Numbers List provided during Attach procedure 5601
13.4.7 UE has PDN connection only for emergency bearer services / Normal routing area update / Accepted / Handling of the equivalent PLMNs list when PLMN is member of the "forbidden PLMN" list 5605
13.4.8 Handling of Local Emergency Numbers List provided during normal Routing area update procedure 5608
13.4.9 Attach for emergency bearer services / Rejected / No suitable cells in location area / Emergency call using the CS domain 5612
13.4.10 Emergency bearer services / CSG cell / LIMITED-SERVICE / Attach / Security mode control procedure without prior authentication / PDN connect / Service request / PDN disconnect / Detach upon UE switched off / Temporary storage of GMM information 5614

14 Interoperability Radio Bearer Tests 5618

14.1 General information for interoperability radio bearer tests 5618
14.1.1 Generic radio bearer test procedure for single RB configurations 5618
14.1.1a Generic radio bearer test procedure for standalone AMR RB configurations using SRB#5 for TFC control 5621
14.1.2 Generic test procedure for testing multi-RB combinations and simultaneous signalling 5622
14.1.2a Generic test procedure for testing multi-RB combinations and simultaneous signalling in case of DSCH 5627
14.1.3 General information interoperability radio bearer tests for HS-DSCH 5635
14.1.3.1 HS-DSCH radio bearer test parameters 5635
14.1.3.2 Selecting TFRC test points 5637
14.1.3.2.1 Principle for non-enhanced Layer 2 5637
14.1.3.2.1a Principle for enhanced Layer 2 5638
14.1.3.3 TFRC test points for MAC-d PDU size=336 5638
14.1.3.4 TFRC test points for MAC-d PDU size=656 5647
14.1.3.4b TB test points for enhanced Layer 2 5653
14.1.3.4b.1 TFRC test points for MAC-ehs and QPSK with fixed MAC-d PDU size=336 5653
14.1.3.4b.2 TFRC test points for MAC-ehs and fixed MAC-d PDU size=656 or flexible MAC-d PDU size; or for radio bearer combinations with mix of fixed and flexible MAC-d PDU sizes 5658
14.1.3.5 Generic test procedure for HS-DSCH radio bearer combinations with non-enhanced Layer 2 5675
14.1.3.5a Generic test procedure for HS-DSCH radio bearer combinations with enhanced Layer 2 5678
14.1.3.6 Generic test procedure for HS-DSCH radio bearer combinations with AMR RB configurations using SRB#5 for TFC control 5684
14.1.4 General information interoperability radio bearer tests for E-DCH and HS-DSCH combinations 5688
14.1.4.1 Generic test procedure for HS-DSCH and E-DCH radio bearer combinations 5688
14.1.4.1a Generic test procedure for HS-DSCH and E-DCH radio bearer combinations with downlink enhanced Layer 2 5691
14.1.4.1b Generic test procedure for HS-DSCH and E-DCH radio bearer combinations with downlink and uplink enhanced Layer 2 5692
14.1.4.1c Generic test procedure for Dual-Cell HS-DSCH and Dual-Cell E-DCH radio bearer combinations 5692
14.1.4.2 Generic test procedure for HS-DSCH and E-DCH radio bearer combinations with AMR RB configurations using SRB#5 for TFC control 5695
14.1.4.3 Generic test procedure for HS-DSCH and E-DCH radio bearer combinations for enhanced uplink in CELL_FACH 5699
14.1.5 Generic test procedure for radio bearers on MTCH 5702
14.1.5m Generic test procedure for radio bearers on MTCH in MBSFN Mode 5704
14.1.6 Generic test procedure for MBMS PTP radio bearers for HS-DSCH combinations 5707
14.2 Combinations on DPCH 5710
14.2.1 Stand-alone UL:1.7 DL:1.7 kbps SRBs for DCCH 5710
14.2.2 Stand-alone UL:3.4 DL:3.4 kbps SRBs for DCCH 5711
14.2.3 Stand-alone UL:13.6 DL:13.6 kbps SRBs for DCCH 5711
14.2.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 5711
14.2.4a Conversational / speech / UL:(12.2 7.95 5.9 4.75) DL:(12.2 7.95 5.9 4.75) kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 5713
14.2.4b Conversational / speech / UL:(12.2 7.4 5.9 4.75) DL:(12.2 7.4 5.9 4.75) kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH + DL:0.15 kbps SRB#5 for DCCH 5716
14.2.5 Conversational / speech / UL:10.2 DL:10.2 kbps / CS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH 5718
14.2.5a Conversational / speech / UL:(10.2, 6.7, 5.9, 4.75) DL:(10.2, 6.7, 5.9, 4.75) kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH. 5720
14.2.6 Conversational / speech / UL:7.95 DL:7.95 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 5723
14.2.7 Conversational / speech / UL:7.4 DL:7.4 kbps / CS RAB+ UL:3.4 DL:3.4 kbps SRBs for DCCH 5724
14.2.7a Conversational / speech / UL:(7.4, 6.7, 5.9, 4.75) DL:(7.4, 6.7, 5.9, 4.75) kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH. 5726
14.2.8 Conversational / speech / UL:6.7 DL:6.7 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 5729
14.2.9 Conversational / speech / UL:5.9 DL:5.9 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 5730
14.2.10 Conversational / speech / UL:5.15 DL:5.15 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 5732
14.2.11 Conversational / speech / UL:4.75 DL:4.75 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 5734
14.2.12 Conversational / unknown / UL:28.8 DL:28.8 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 5735
14.2.13 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 5737
14.2.13.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI 5737
14.2.13.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI 5739

14.2.14 Conversational / unknown / UL:32 DL:32 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....5741
14.2.14.1 Conversational / unknown / UL:32 DL:32 kbps / CS RAB / 20 ms TTI 5741
14.2.14.2 Conversational / unknown / UL:32 DL:32 kbps / CS RAB / 40 ms TTI 5742
14.2.15 Streaming / unknown / UL:14.4/DL:14.4 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 5744
14.2.16 Streaming / unknown / UL:28.8/DL:28.8 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 5745
14.2.17 Streaming / unknown / UL:57.6/DL:57.6 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 5747
14.2.18 Void 5750
14.2.19 Void 5750
14.2.20 Void 5750
14.2.21 Void 5750
14.2.22 Void 5750
14.2.23 Interactive or background / UL:32 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 5750
14.2.23.1 Interactive or background / UL:32 DL:8 kbps / PS RAB / (TC,10 ms TTI)....5750
14.2.23.2 Interactive or background / UL:32 DL:8 kbps / PS RAB / (TC, 20 ms TTI)....5751
14.2.23.3 Interactive or background / UL:32 DL:8 kbps / PS RAB / (CC, 10 ms TTI)....5753
14.2.23.4 Interactive or background / UL:32 DL:8 kbps / PS RAB / (CC, 20 ms TTI)....5753
14.2.23a Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH. 5753
14.2.23a.1 Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / CC 5753
14.2.23a.2 Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / TC 5754
14.2.23b Interactive or background / UL:16 DL:16 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH. 5754
14.2.23c Interactive or background / UL:32 DL:32 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH. 5756
14.2.23d Interactive or background / UL:32 DL:32 kbps / PS RAB (20 ms TTI) + UL:3.4 DL:3.4 kbps SRBs for DCCH....5758
14.2.24 Void 5760
14.2.25 Interactive or background / UL:32 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 5760
14.2.25.1 Interactive or background / UL:32 DL: 64 kbps / PS RAB / (TC, 10 ms TTI)....5760
14.2.25.2 Interactive or background / UL:32 DL: 64 kbps / PS RAB / (TC, 20 ms TTI)....5761
14.2.25.3 Interactive or background / UL:32 DL:64 kbps / PS RAB / (CC, 10 ms TTI)....5763
14.2.25.4 Interactive or background / UL:32 DL:64 kbps / PS RAB / (CC, 20 ms TTI)....5763
14.2.26 Interactive or background / UL:64 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 5764
14.2.27 Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH ...5766
14.2.28 Interactive or background / UL:128 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH .5768
14.2.29 Interactive or background / UL:64 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH ..5770
14.2.30 Interactive or background / UL:144 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH 5772
14.2.31 Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH ..5774
14.2.31.1 Interactive or background / UL:64 DL:256 kbps / PS RAB / 10 ms TTI....5774
14.2.31.2 Interactive or background / UL:64 DL:256 kbps / PS RAB / 20 ms TTI....5776
14.2.32 Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH ..5779
14.2.32.1 Interactive or background / UL:64 DL:384 kbps / PS RAB / 10 ms TTI....5779
14.2.32.2 Interactive or background / UL:64 DL:384 kbps / PS RAB / 20 ms TTI....5781
14.2.33 Interactive or background / UL:128 DL:384 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH 5784
14.2.33.1 Interactive or background / UL:128 DL:384 kbps / PS RAB / 10 ms TTI....5784
14.2.33.2 Interactive or background / UL:128 DL:384 kbps / PS RAB / 20 ms TTI....5786
14.2.34 Interactive or background / UL:384 DL:384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH .5789
14.2.34.1 Interactive or background / UL:384 DL:384 kbps / PS RAB / 10 ms TTI....5789
14.2.34.2 Interactive or background / UL:384 DL:384 kbps / PS RAB / 20 ms TTI....5791
14.2.35 Interactive or background / UL:64 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH .5794
14.2.35.1 Interactive or background / UL:64 DL:2048 kbps / PS RAB / 10 ms TTI....5794
14.2.35.2 Interactive or background / UL:64 DL:2048 kbps / PS RAB / 20 ms TTI....5797
14.2.36 Void 5802
14.2.37 Void 5802
14.2.38 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....5802
14.2.38.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:8 kbps / PS RAB / (TC, 20 ms TTI) 5802
14.2.38.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:8 kbps / PS RAB / (TC, 10 ms TTI) 5805
14.2.38.3 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:8 kbps / PS RAB / (CC, 20 ms TTI) 5808

14.2.38.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:8 kbps / PS RAB / (CC, 10 ms TTI) 5808
14.2.38a Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:0 DL:0 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH. 5808
14.2.38b Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH. 5810
14.2.38c Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:32 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH. 5812
14.2.38d Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH. 5817
14.2.38e Conversational / speech / UL:(12.2 7.95 5.9 4.75) DL:(12.2 7.95 5.9 4.75) kbps / CS RAB + Interactive or background / UL:0 DL:0 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH. 5822
14.2.38f Conversational / speech / UL:(12.2 7.95 5.9 4.75) DL:(12.2 7.95 5.9 4.75) kbps / CS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH. 5825
14.2.38g Conversational / speech / UL:(12.2 7.95 5.9 4.75) DL:(12.2 7.95 5.9 4.75) kbps / CS RAB + Interactive or background / UL:16 DL:16 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH. 5830
14.2.38h Conversational / speech / UL:(12.2 7.95 5.9 4.75) DL:(12.2 7.95 5.9 4.75) kbps / CS RAB + Interactive or background / UL:32 DL:32 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH. 5837
14.2.38i Conversational / speech / UL:(12.2 7.95 5.9 4.75) DL:(12.2 7.95 5.9 4.75) kbps / CS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH. 5845
14.2.38j Conversational / speech / UL:(12.2 7.95 5.9 4.75) DL:(12.2 7.95 5.9 4.75) kbps / CS RAB + Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH. .. 5855
14.2.39 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:64 kbps / PS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH 5866
14.2.39.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:64 kbps / PS RAB / (TC, 10 ms TTI) 5866
14.2.39.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:64 kbps / PS RAB / (TC, 20 ms TTI) 5871
14.2.39.3 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:64 kbps / PS RAB / (CC, 10 ms TTI) 5877
14.2.39.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:64 kbps / PS RAB / (CC, 20 ms TTI) 5877
14.2.40 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH 5877
14.2.41 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 5882
14.2.42 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 5888
14.2.42.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:256 kbps / PS RAB / 10 ms TTI 5888
14.2.42.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:256 kbps / PS RAB / 20 ms TTI 5894
14.2.43 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 5901
14.2.43.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:384 kbps / PS RAB / 10 ms TTI 5901
14.2.43.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:384 kbps / PS RAB / 20 ms TTI 5907
14.2.44 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:128 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 5916
14.2.44.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:128 DL:2048 kbps / PS RAB / 10 ms TTI 5916
14.2.44.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:128 DL:2048 kbps / PS RAB / 20 ms TTI 5927
14.2.45 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / unknown / UL:57.6 DL:57.6 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 5942
14.2.46 Void 5947
14.2.47 Void 5947
14.2.48 Void 5947
14.2.49 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 5947

14.2.49.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI....5947
14.2.49.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI....5950
14.2.49a Conversational / speech / UL:(12.2 7.95 5.9 4.75) DL(12.2 7.95 5.9 4.75) kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH (20ms TTI)....5953
14.2.49a.1 Conversational / speech / UL:(12.2 7.95 5.9 4.75) DL(12.2 7.95 5.9 4.75) kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH (40ms TTI)....5958
14.2.50 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....5963
14.2.50.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 20 ms TTI....5963
14.2.50.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 40 ms TTI....5966
14.2.51 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....5968
14.2.51.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI + Interactive or background / UL:64 DL:64 kbps / PS RAB....5968
14.2.51.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI + Interactive or background / UL:64 DL:64 kbps / PS RAB....5971
14.2.51a Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or Background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....5975
14.2.51a.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI + Interactive or background / UL:8 DL:8 kbps / PS RAB....5975
14.2.51a.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI + Interactive or background / UL:8 DL:8 kbps / PS RAB....5978
14.2.51b Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or Background / UL:16 DL:64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....5980
14.2.51b.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI + Interactive or background / UL:16 DL:64 kbps / PS RAB....5980
14.2.51b.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI + Interactive or background / UL:16 DL:64 kbps / PS RAB....5985
14.2.52 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....5988
14.2.52.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI + Interactive or background / UL:64 DL:128 kbps / PS RAB....5988
14.2.52.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI + Interactive or background / UL:64 DL:128 kbps / PS RAB....5992
14.2.53 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:128 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....5996
14.2.53.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI + Interactive or background / UL:128 DL:128 kbps / PS RAB....5996
14.2.53.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI + Interactive or background / UL:128 DL:128 kbps / PS RAB....6000
14.2.54 Void....6004
14.2.55 Void....6004
14.2.56 Interactive or background / UL:8 DL:8 kbps / PS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6004
14.2.57 Interactive or background / UL:64 DL:64 kbps / PS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6006
14.2.58 Streaming / unknown / UL:16 DL:64 kbps / PS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6010
14.2.58a Streaming / unknown / UL:16 DL:128 kbps / PS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6014
14.2.59 Void....6021
14.2.60 Void....6021
14.2.61 Void....6021
14.2.63 Interactive or background / UL:64 DL:768 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6024
14.2.63.1 Interactive or background / UL:64 DL:768 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH/ 10 ms TTI....6024

14.2.63.2 Interactive or background / UL:64 DL:768 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH / 20 ms TTI....6027
14.3 Combinations on PDSCH and DPCH....6031
14.3.1 Void....6031
14.3.2 Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH....6031
14.3.2.1 Interactive or background / UL:64 DL:384 kbps / PS RAB / 10 ms TTI....6031
14.3.2.2 Interactive or background / UL:64 DL:384 kbps / PS RAB / 20 ms TTI....6033
14.3.3 Interactive or background / UL:64 DL:2048 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH....6035
14.3.3.1 Interactive or background / UL:64 DL:2048 kbps / PS RAB / 10 ms TTI....6035
14.3.3.2 Interactive or background / UL:64 DL:2048 kbps / PS RAB / 20 ms TTI....6038
14.3.4 Void....6043
14.3.5 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6043
14.3.5.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 10 ms TTI....6043
14.3.5.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 20 ms TTI....6048
14.3.6 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6054
14.3.6.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 10 ms TTI....6054
14.3.6.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 10 ms TTI....6061
14.4 Combinations on SCCPCH....6070
14.4.1 Stand-alone signalling RB for PCCH....6070
14.4.2 Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH....6070
14.4.2.1 One SCCPCH: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH....6071
14.4.2.2 Two SCCPCHs: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH....6072
14.4.2.3 One SCCPCH/connected mode: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH....6073
14.4.2a Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH....6075
14.4.2a.1 One SCCPCH: Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH....6078
14.4.2a.2 Two SCCPCHs: Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH....6079
14.4.2a.3 One SCCPCH/connected mode: Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH....6081
14.4.3 Interactive/Background 32 kbps RAB + SRBs for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH....6082
14.4.4 RB for CTCH + SRB for CCCH +SRB for BCCH....6084
14.4.5 64.8kbps RB for MTCH with 80 ms TTI / MBMS Broadcast Service....6086
14.4.5m 64.8kbps RB for MTCH with 80 ms TTI / MBMS Multicast Service....6088
14.4.5n 64.8kbps RB for MTCH with 80 ms TTI / MBMS Multicast Service in MBSFN mode....6088
14.4.6 129.6 kbps RB for MTCH with 80 ms TTI / MBMS Broadcast Service....6089
14.4.6m 129.6 kbps RB for MTCH with 80 ms TTI / MBMS Multicast Service....6091
14.4.6n 129.6 kbps RB for MTCH with 80 ms TTI / MBMS Broadcast Service in MBSFN mode....6092
14.4.7 259.2 kbps RB for MTCH with 40 ms TTI / MBMS Broadcast Service....6093
14.4.7m 259.2 kbps RB for MTCH with 40 ms TTI / MBMS Multicast Service....6095
14.4.7n 259.2 kbps RB for MTCH with 40 ms TTI / MBMS Broadcast Service in MBSFN mode....6095
14.5 Combinations on PRACH....6096
14.5.1 Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH....6096
14.5.2 Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH....6096
14.5.3 Interactive/Background / UL:32 DL: [max bit rate depending on UE category] with fixed RLC and MAC-ehs / PS RAB + SRBs for DCCH on RACH and SRB with fixed RLC and MAC-ehs on HS-DSCH / DL:QPSK....6096
14.6 Combinations on DPCH and HS-PDSCH....6099
14.6.1 Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6099

14.6.1a Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6105
14.6.1b Interactive or background / UL:64 DL: [max bit rate depending on UE category] with Fixed RLC and MAC-ehs PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: QPSK and 16QAM....6108
14.6.1c Interactive or background / UL:64 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: 64QAM 6111
14.6.1d Interactive or background / UL:64 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: QPSK, 16QAM and MIMO 6114
14.6.1e Interactive or background / UL:64 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: 64QAM and MIMO 6116
14.6.1f Interactive or background / UL:64 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: QPSK, 16QAM and Dual-Cell 6118
14.6.1g Interactive or background / UL:64 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: 64QAM and Dual-Cell 6120
14.6.1h Interactive or background / UL:64 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: 16QAM, Dual-Cell and MIMO 6122
14.6.1i Interactive or background / UL:64 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: 64QAM, Dual-Cell and MIMO 6124
14.6.2 Interactive or background / UL:384 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6126
14.6.3 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6128
14.6.3a Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL: 64 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6133
14.6.4 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6137
14.6.4a Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6142
14.6.5 Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6147
14.6.5a Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6151
14.6.6 Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] kbps / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6155
14.6.6a Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: QPSK and 16QAM....6162
14.6.6b Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: 64QAM....6169
14.6.6c Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: QPSK, 16QAM and MIMO....6177
14.6.6d Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: 64QAM and MIMO....6183
14.6.6e Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: QPSK, 16QAM and Dual-Cell 6187

14.6.6f Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: 64QAM and Dual-Cell 6191
14.6.6g Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: combination of 16QAM, Dual-Carrier and MIMO 6195
14.6.6h Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: combination of 64QAM, Dual-Carrier and MIMO 6199
14.6.7 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] kbps / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6202
14.6.8 Conversational / speech / UL:(12.65 8.85 6.6) DL:(12.65 8.85 6.6) kbps / CS RAB + Interactive or Background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB+ UL:3.4 DL:3.4 kbps SRBs for DCCH + DL:0.15 kbps SRB#5 for DCCH 6210
14.6.9 Streaming MBMS PTP / unknown / UL:16 DL: [max bit rate depending on UE category] kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / MBMS Selected Service....6215
14.6.9m Streaming MBMS PTP / unknown / UL:16 DL: [max bit rate depending on UE category] kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / MBMS Multicast Service 6217
14.6.10 Streaming MBMS PTP / unknown / UL:16 DL: [max bit rate depending on UE category] kbps / PS RAB + Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / MBMS Selected Service 6217
14.6.10m Streaming MBMS PTP / unknown / UL:16 DL: [max bit rate depending on UE category] kbps / PS RAB + Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / MBMS Multicast Service 6221
14.7 Combinations on DPCH, HS-PDSCH and E-DPDCH....6222
14.7.1 Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH on DCH 6222
14.7.1a Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL: [max bit rate depending on UE category and TTI] DL:3.4 kbps SRBs for DCCH on E-DCH and DL DCH/ UL 16QAM 6224
14.7.2 Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:[max bit rate depending on UE category and TTI] DL:3.4 kbps SRBs for DCCH on E-DCH and DL DCH 6225
14.7.3 Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH ..6226
14.7.3a Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] with Flexible RLC, MAC-ehs and MAC-i/is / PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH with MAC-ehs and MAC-i/is 6226
14.7.3b Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] with Flexible RLC, MAC-ehs and MAC-i/is / PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH with MAC-ehs and MAC-i/is / UL: QPSK and Dual-Cell DL: 16QAM and Dual-Cell....6228
14.7.3c Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] with Flexible RLC, MAC-ehs and MAC-i/is / PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH with MAC-ehs and MAC-i/is / UL: 16QAM and Dual-Cell DL: 16QAM and Dual-Cell....6230
14.7.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6231

14.7.5 Streaming or interactive or background / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB + Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:[max bit rate depending on UE category and TTI] DL:3.4 kbps SRBs for DCCH on E-DCH and DL DCH 6235
14.7.6 Conversational / unknown or speech / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB + Streaming or Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:[max bit rate depending on UE category and TTI] DL: :[max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH 6237
14.7.6a Conversational / unknown or speech / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB + Streaming or Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:[max bit rate depending on UE category and TTI] DL: :[max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH/ UL 16QAM 6240
14.7.6b Conversational / unknown or speech / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps with Flexible RLC and MAC-ehs / PS RAB + Streaming or Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB + UL:[max bit rate depending on UE category and TTI] DL: :[max bit rate depending on UE category] SRBs for DCCH on E-DCH and SRBs with Fixed RLC and MAC-ehs on HS-DSCH / UL: QPSK and DL: QPSK 6243
14.7.6c Conversational / unknown or speech / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps with Flexible RLC, MAC-ehs and MAC-i/is / PS RAB + Streaming or Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] with Fixed RLC, MAC-ehs and MAC-i/is / PS RAB + UL:[max bit rate depending on UE category and TTI] DL: :[max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH with MAC-ehs and MAC-i/is / UL: QPSK and DL: QPSK 6246
14.7.7 Conversational / unknown or speech / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB + Streaming or Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + Streaming or Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:[max bit rate depending on UE category and TTI] DL: :[max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH 6249
14.7.8 Conversational / speech / UL:(12.65 8.85 6.6) DL:(12.65 8.85 6.6) kbps / CS RAB + Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH + DL:0.15 kbps SRB#5 for DCCH 6254
14.7.9 Conversational / speech / UL:(12.2, 7.95, 5.9, 4.75) kbps DL: (12.2, 7.95, 5.9, 4.75) kbps / CS RAB on E-DCH and HS-DSCH + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH 6258
14.7.10 Conversational / speech / UL:(12.65, 8.85, 6.6) kbps DL: (12.65, 8.85, 6.6) kbps / CS RAB on E-DCH and HS-DSCH + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH 6260
14.7.11 Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH for enhanced uplink/downlink in CELL_FACH 6262
14.7.11a Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on common E-DCH and HS-DSCH for enhanced CELL_FACH with DRX configured 6263

15 Supplementary Services 6266

16 Short message service (SMS) 6267
16.1 Short message service point to point on CS mode 6267
16.1.1 SMS mobile terminated 6267
16.1.2 SMS mobile originated 6273
16.1.3 Test of memory full condition and memory available notification: 6276

16.1.4 Test of the status report capabilities and of SMS-COMMAND: 6280
16.1.5 Test of message class 0 to 3 6283
16.1.5.1 Short message class 0 6283
16.1.5.2 Test of class 1 short messages 6285
16.1.5.3 Test of class 2 short messages 6286
16.1.5.4 Test of class 3 short messages 6289
16.1.6 Test of short message type 0 (R99 and REL-4 UE) 6289
16.1.6a Test of short message type 0 (≥ REL-5 UE) 6291
16.1.7 Test of the replace mechanism for SM type 1-7 6294
16.1.8 Test of the reply path scheme 6296
16.1.9 Multiple SMS mobile originated 6299
16.1.9.1 UE in idle mode 6299
16.1.9.2 UE in active mode 6303
16.1.10 Test of capabilities of simultaneously receiving a short message whilst sending a mobile originated short message 6306
16.2 Short message service point to point on PS mode 6307
16.2.1 SMS mobile terminated 6307
16.2.2 SMS mobile originated 6314
16.2.3 Test of memory full condition and memory available notification: 6317
16.2.4 Test of the status report capabilities and of SMS-COMMAND: 6321
16.2.5 Test of message class 0 to 3 6324
16.2.5.1 Short message class 0 6324
16.2.5.2 Test of class 1 short messages 6326
16.2.5.3 Test of class 2 short messages 6328
16.2.5.4 Test of class 3 short messages 6330
16.2.6 Test of short message type 0 (R99 and REL-4 UE) 6330
16.2.6a Test of short message type 0 (≥ REL-5 UE) 6332
16.2.7 Test of the replace mechanism for SM type 1-7 6335
16.2.8 Test of the reply path scheme 6338
16.2.9 Multiple SMS mobile originated 6341
16.2.9.1 UE in idle mode 6341
16.2.9.2 UE in active mode 6341
16.2.10 Test of capabilities of simultaneously receiving a short message whilst sending a mobile originated short message 6341
16.3 Short message service cell broadcast 6342
16.3a Short message service cell broadcast Discontinuous Reception (DRX) 6345
16.4 Default message contents: 6349
16.4.1 Default message contents for SM-CP protocol 6349
16.4.2 Default message contents for SM-RP protocol 6350
16.4.3 Default message contents for SM-TP protocol 6350

17 Specific features 6351
17.1 Test of autocalling restrictions 6351
17.1.1 General 6351
17.1.2 Constraining the access to a single number (TS 22.001 category 3) 6352
17.1.3 Constraining the access to a single number (TS 22.001 categories 1 and 2) 6354
17.1.4 Behaviour of the UE when its list of blacklisted numbers is full 6355
17.2 Location Services 6356
17.2.1 Void 6356
17.2.2 Assisted GPS Network Induced Tests 6356
17.2.2.1 LCS Network Induced location request/ UE-Based GPS/ Emergency Call / with USIM 6356
17.2.2.2 LCS Network Induced location request/ UE-Based GPS/ Emergency Call / without USIM 6356
17.2.2.3 LCS Network induced location request/ UE-Assisted GPS/ Emergency call/ With USIM 6357
17.2.2.4 LCS Network induced location request/ UE-Assisted GPS/ Emergency call/ Without USIM 6357
17.2.3 Assisted GPS Mobile Originated Tests 6357
17.2.3.1 Void 6357
17.2.3.2 LCS Mobile originated location request/ UE-Based GPS/ Position estimate request/ Success 6357
17.2.3.3 LCS Mobile originated location request/ UE-Based or UE-Assisted GPS/ Assistance data request/ Success 6357
17.2.3.4 LCS Mobile originated location request/ UE-Assisted GPS/ Position Estimate/ Success 6357
17.2.3.5 Void 6357
17.2.3.6 LCS Mobile originated location request/ UE-Based GPS/ Transfer to third party/ Success 6357

17.2.3.7 LCS Mobile originated location request/ UE-Assisted GPS/ Transfer to third party/ Success 6357
17.2.3.8 LCS Mobile originated location request/ UE-Based or UE-Assisted GPS/ Assistance data request/ Failure 6357
17.2.3.9 LCS Mobile originated location request/ UE-Based GPS/ Position estimate request/ Failure 6357
17.2.4 Assisted GPS Mobile Terminated Tests 6358
17.2.4.1 LCS Mobile terminated location request/ UE-Based GPS 6358
17.2.4.2 LCS Mobile-terminated location request/UE-Based GPS/ Request for additional assistance data/ Success 6358
17.2.4.3 LCS Mobile-terminated location request/UE-Based GPS/ Failure – Not Enough Satellites 6358
17.2.4.4 LCS Mobile terminated location request/ UE-Assisted GPS/ Success 6358
17.2.4.5 LCS Mobile terminated location request/ UE-Assisted GPS/ Request for additional assistance data/ Success 6358
17.2.4.6 LCS Mobile terminated location request/ UE-Based GPS/ Privacy Verification/ Location Allowed if No Response 6358
17.2.4.7 LCS Mobile terminated location request/ UE-Based GPS/ Privacy Verification/ Location Not Allowed if No Response 6358
17.2.4.8 LCS Mobile terminated location request/ UE-Assisted GPS/ Privacy Verification/ Location Allowed if No Response 6358
17.2.4.9 LCS Mobile terminated location request/ UE-Assisted GPS/ Privacy Verification/ Location Not Allowed if No Response 6358
17.2.4.10 LCS Mobile terminated location request/ UE-Based or UE-Assisted GPS/ Configuration Incomplete 6358
17.2.5 Void 6359
17.2.6 Void 6359
17.2.7 Void 6359
17.3 Mobility between 3GPP WLAN Interworking and 3GPP Systems 6359
17.3.1 Discovery of the Home Agent via DNS 6359
17.3.2 Discovery of the Home Agent address and Home Network Prefix during PDP context activation procedure 6361
17.3.3 Void 6364
17.3.4 Security association establishment 6364
17.3.5 Registration of a new IPv6 CoA (Binding Update/Acknowledgment procedure in IPv6 network) 6374
17.3.6 Registration of a new IPv4 CoA (Binding Update/Acknowledgment procedure in IPv4 network) 6378
17.3.7 Re-registration of IPv6 CoA 6381
17.3.8 Re-registration of Ipv4 CoA 6383
17.3.9 Return to home link 6385
17.3.10 Security association establishment 6387
17.3.11 Termination of protection of DSMIPv6 tunnel traffic by Home Agent 6392
17.3.12 Dual-Stack Mobile IPv6 detach in IPv6 network 6395
17.3.13 Dual-Stack Mobile IPv6 detach in IPv4 network 6397

18 Multi-Layer Functional Tests 6401
18.1 Radio Bearer Tests for 1.28 Mcps TDD option 6401
18.1.1 General information for radio bearer tests (1.28 Mcps TDD) 6401
18.1.1.1 Generic radio bearer test procedure for Single RB configuration 6401
18.1.1.2 Generic test procedure for testing multi-RB configuration and simultaneous signalling 6401
18.1.1.3 Generic test procedure radio bearers on MTCH 6401
18.1.1.4 General information interoperability radio bearer tests for E-DCH and HS-DSCH combinations 6401
18.1.1.5 Generic test procedure for radio bearers on MBSFN MTCH 6401
18.1.1.6 Generic test procedure for HS-DSCH radio bearer combinations with non-enhanced Layer 2 6401
18.1.1.6a General information interoperability radio bearer tests for HS-DSCH 6402
18.1.1.6a.1 HS-DSCH radio bearer test parameters 6402
18.1.1.6a.2 Selecting TFRC test points 6403
18.1.1.6a.2.1 Principle for non-enhanced Layer 2 6403
18.1.1.6a.2.1a Principle for enhanced Layer 2 6405
18.1.1.6a.3 TFRC test points for MAC-d PDU size=336 6405
18.1.1.6a.4 TFRC test points for MAC-d PDU size=656 6411
18.1.1.6a.5 TFRC test points for MAC-ehs with fixed MAC-d PDU size=336 6415
18.1.1.6a.6 TFRC test points for MAC-ehs with fixed MAC-d PDU size=656 6431
18.1.1.7 Generic test procedure for HS-DSCH radio bearer combinations with enhanced Layer 2 6439
18.1.1.8 Generic test procedure for HS-DSCH and E-DCH radio bearer combinations with downlink and uplink enhanced Layer 2 6439

18.1.1.9 Generic test procedure for HS-DSCH and E-DCH radio bearer combinations for enhanced uplink in CELL_FACH 6439
18.1.2 Combinations on DPCH 6440
18.1.2.1 Stand-alone UL:1.7 DL:1.7 kbps SRBs for DCCH 6440
18.1.2.2 Stand-alone UL:3.4 DL:3.4 kbps SRBs for DCCH 6440
18.1.2.3 Stand-alone UL:13.6 DL:13.6 kbps SRBs for DCCH 6440
18.1.2.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6440
18.1.2.4a Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH(TDD) 6442
18.1.2.5 Conversational / speech / UL:10.2 DL:10.2 kbps / CS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH 6443
18.1.2.6 Conversational / speech / UL:7.95 DL:7.95 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6445
18.1.2.7 Conversational / speech / UL:7.4 DL:7.4 kbps / CS RAB+ UL:3.4 DL:3.4 kbps SRBs for DCCH . 6446
18.1.2.8 Conversational / speech / UL:6.7 DL:6.7 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6448
18.1.2.9 Conversational / speech / UL:5.9 DL:5.9 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6449
18.1.2.10 Conversational / speech / UL:5.15 DL:5.15 kbps / CS RAB + UL:1.7 DL:1.7 kbps SRBs for DCCH 6451
18.1.2.11 Conversational / speech / UL:4.75 DL:4.75 kbps / CS RAB + UL:1.7 DL:1.7 kbps SRBs for DCCH 6452
18.1.2.12 Conversational / unknown / UL:28.8 DL:28.8 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6454
18.1.2.13 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6455
18.1.2.13.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI 6455
18.1.2.13.1a Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI(TDD) 6457
18.1.2.13.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI 6458
18.1.2.14 Conversational / unknown / UL:32 DL:32 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6460
18.1.2.14.1 Conversational / unknown / UL:32 DL:32 kbps / CS RAB / 20 ms TTI 6460
18.1.2.14.2 Conversational / unknown / UL:32 DL:32 kbps / CS RAB / 40 ms TTI 6461
18.1.2.15 Streaming / unknown / UL:14.4/DL:14.4 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6463
18.1.2.16 Streaming / unknown / UL:28.8/DL:28.8 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6464
18.1.2.17 Streaming / unknown / UL:57.6/DL:57.6 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6466
18.1.2.18 Streaming / unknown / UL:0 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6469
18.1.2.19 Streaming / unknown / UL:64 DL:0 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6470
18.1.2.20 Void 6473
18.1.2.21 Void 6473
18.1.2.22 Void 6473
18.1.2.23 Interactive or background / UL:32 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH . 6473
18.1.2.23.1 Interactive or background / UL:32 DL:8 kbps / PS RAB / (TC,10 ms TTI) 6473
18.1.2.23.2 Interactive or background / UL:32 DL:8 kbps / PS RAB / (TC, 20 ms TTI) 6474
18.1.2.23.3 Interactive or background / UL:32 DL:8 kbps / PS RAB / (CC, 10 ms TTI) 6475
18.1.2.23.4 Interactive or background / UL:32 DL:8 kbps / PS RAB / (CC, 20 ms TTI) 6475
18.1.2.24 Interactive or background / UL:64 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH . 6476
18.1.2.24.1 Interactive or background / UL:64 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / TC 6476
18.1.2.24.2 Interactive or background / UL:64 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / CC 6477
18.1.2.25 Interactive or background / UL:32 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6477
18.1.2.25.1 Interactive or background / UL:32 DL: 64 kbps / PS RAB / (TC, 10 ms TTI) 6477
18.1.2.25.2 Interactive or background / UL:32 DL: 64 kbps / PS RAB / (TC, 20 ms TTI) 6479
18.1.2.25.3 Interactive or background / UL:32 DL:64 kbps / PS RAB / (CC, 10 ms TTI) 6481
18.1.2.25.4 Interactive or background / UL:32 DL:64 kbps / PS RAB / (CC, 20 ms TTI) 6481
18.1.2.26 Interactive or background / UL:64 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6481

18.1.2.27 Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6483
18.1.2.28 Interactive or background / UL:128 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6485
18.1.2.29 Interactive or background / UL:64 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH 6487
18.1.2.30 Interactive or background / UL:144 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH 6489
18.1.2.31 Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH 6491
18.1.2.31.1 Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH/ 10 ms TTI 6491
18.1.2.31.2 Interactive or background / UL:64 DL:256 kbps / PS RAB / 20 ms TTI 6493
18.1.2.32 Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH 6495
18.1.2.32.1 Interactive or background / UL:64 DL:384 kbps / PS RAB / 10 ms TTI 6495
18.1.2.32.2 Interactive or background / UL:64 DL:384 kbps / PS RAB / 20 ms TTI 6497
18.1.2.33 Interactive or background / UL:128 DL:384 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH 6500
18.1.2.33.1 Interactive or background / UL:128 DL:384 kbps / PS RAB / 10 ms TTI 6500
18.1.2.33.2 Interactive or background / UL:128 DL:384 kbps / PS RAB / 20 ms TTI 6502
18.1.2.34 Interactive or background / UL:384 DL:384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6504
18.1.2.34.1 Interactive or background / UL:384 DL:384 kbps / PS RAB / 10 ms TTI 6504
18.1.2.34.2 Interactive or background / UL:384 DL:384 kbps / PS RAB / 20 ms TTI 6506
18.1.2.35 Interactive or background / UL:64 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6509
18.1.2.35.1 Interactive or background / UL:64 DL:2048 kbps / PS RAB / 10 ms TTI 6509
18.1.2.35.2 Interactive or background / UL:64 DL:2048 kbps / PS RAB / 20 ms TTI 6512
18.1.2.36 Interactive or background / UL:128 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6515
18.1.2.36.1 Interactive or background / UL:128 DL:2048 kbps / PS RAB / 10 ms TTI 6515
18.1.2.36.2 Interactive or background / UL:128 DL:2048 kbps / PS RAB / 20 ms TTI 6518
18.1.2.37 Interactive or background / UL:384 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6521
18.1.2.37.1 Interactive or background / UL:384 DL:2048 kbps / PS RAB / 10 ms TTI 6521
18.1.2.37.2 Interactive or background / UL:384 DL:2048 kbps / PS RAB / 20 ms TTI 6524
18.1.2.38 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6528
18.1.2.38.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:8 kbps / PS RAB / (TC, 20 ms TTI) 6528
18.1.2.38.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:8 kbps / PS RAB / (TC, 10 ms TTI) 6531
18.1.2.38.3 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:8 kbps / PS RAB / (CC, 20 ms TTI) 6533
18.1.2.38.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:8 kbps / PS RAB / (CC, 10 ms TTI) 6533
18.1.2.39 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:64 kbps / PS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH 6533
18.1.2.39.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:64 kbps / PS RAB / (TC, 10 ms TTI) 6533
18.1.2.39.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:64 kbps / PS RAB / (TC, 20 ms TTI) 6538
18.1.2.39.3 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:64 kbps / PS RAB / (CC, 10 ms TTI) 6543
18.1.2.39.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:64 kbps / PS RAB / (CC, 20 ms TTI) 6543
18.1.2.40 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH 6543
18.1.2.41 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6548

18.1.2.42 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6552
18.1.2.42.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:256 kbps / PS RAB / 10 ms TTI 6552
18.1.2.42.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:256 kbps / PS RAB / 20 ms TTI 6557
18.1.2.43 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6563
18.1.2.43.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:384 kbps / PS RAB / 10 ms TTI 6563
18.1.2.43.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:384 kbps / PS RAB / 20 ms TTI 6569
18.1.2.44 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:128 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6576
18.1.2.44.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:128 DL:2048 kbps / PS RAB / 10 ms TTI 6576
18.1.2.44.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:128 DL:2048 kbps / PS RAB / 20 ms TTI 6584
18.1.2.45 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / unknown / UL:57.6 DL:57.6 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6597
18.1.2.46 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / unknown / UL:0 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6602
18.1.2.47 Void 6606
18.1.2.48 Void 6606
18.1.2.49 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6606
18.1.2.49.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI 6606
18.1.2.49.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI 6609
18.1.2.50 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6611
18.1.2.50.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 20 ms TTI 6611
18.1.2.50.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 40 ms TTI 6613
18.1.2.51 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6615
18.1.2.51.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI + Interactive or background / UL:64 DL:64 kbps / PS RAB 6615
18.1.2.51.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI + Interactive or background / UL:64 DL:64 kbps / PS RAB 6619
18.1.2.52 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6622
18.1.2.52.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI + Interactive or background / UL:64 DL:128 kbps / PS RAB 6622
18.1.2.52.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI + Interactive or background / UL:64 DL:128 kbps / PS RAB 6626
18.1.2.53 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:128 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6630
18.1.2.53.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI + Interactive or background / UL:128 DL:128 kbps / PS RAB 6630
18.1.2.53.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI + Interactive or background / UL:128 DL:128 kbps / PS RAB 6633
18.1.2.54 Interactive or background / UL:64 DL:128 kbps / PS RAB + Streaming / unknown / UL:0 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6637
18.1.2.55 Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6643
18.1.2.56 Interactive or background / UL:16 DL: 16 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6644
18.1.2.57 Interactive or background / UL:32 DL: 32 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6645

18.1.2.58 Interactive or background / UL:256 DL:64 kbps / PS RAB / 20 ms TTI+ UL:3.4 DL:3.4 kbps SRBs for DCCH 6647
18.1.2.59 Streaming / unknown / UL:16 DL:32 kbps / PS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6649
18.1.2.60 Streaming / unknown / UL:16 DL:64 kbps / PS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6651
18.1.2.61 Streaming / unknown / UL:16 DL:128 kbps / PS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6654
18.1.2.62 Streaming / unknown / UL:32 DL:256 kbps / PS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6657
18.1.2.63 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:0 DL:0 kbps / PS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH 6661
18.1.2.64 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH 6662
18.1.2.65 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:32 kbps / PS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH 6665
18.1.2.66 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:128 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6669
18.1.2.67 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6674
18.1.2.68 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6679
18.1.2.69 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / unknown / UL:16 DL:64 kbps / PS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6681
18.1.2.70 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / unknown / UL:16 DL:128 kbps / PS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6688
18.1.2.71 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / unknown / UL:128 DL:64 kbps / PS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6697
18.1.2.72 Interactive or background / UL:64 DL:64 kbps / PS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6704
18.1.2.73 Interactive or background / UL:64 DL:64 kbps / PS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6709
18.1.3 Combinations on SCCPCH 6712
18.1.3.1 Stand-alone signalling RB for PCCH 6712
18.1.3.2 Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH 6712
18.1.3.2.1 One SCCPCH: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH 6712
18.1.3.2.2 Two SCCPCHs: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH 6713
18.1.3.2.3 One SCCPCH/connected mode: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH 6715
18.1.3.3 Interactive/Background UL:12.8 DL:32 kbps RAB + SRBs for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH 6716
18.1.3.4 64.8kbps RB for MTCH with 40 ms TTI 6717
18.1.3.5 129.6 kbps RB for MTCH with 40 ms TTI 6719
18.1.3.6 259.2 kbps RB for MTCH with 40 ms TTI 6720
18.1.3.7 128kbps RB for MBSFN MTCH with 40 ms TTI 6722
18.1.3.8 192kbps RB for MBSFN MTCH with 40 ms TTI 6723
18.1.3.9 384kbps RB for MBSFN MTCH with 40 ms TTI 6724
18.1.4 Combinations on PRACH 6725
18.1.4.1 Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH 6725
18.1.5 Combinations on DPCH and HS-PDSCH 6725
18.1.5.1 Interactive or background / UL:8 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5) 6725
18.1.5.1a Interactive or background / UL:8 (multiframe) DL: [max bit rate depending on UE category] / PS RAB+ UL:3.4 DL:3.4 kbps SRBs for DCCH (multiframe) (REL-5) 6731

18.1.5.1b Interactive or background / UL:8 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (64QAM) 6734
18.1.5.2 Interactive or background / UL:16 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5) 6742
18.1.5.2a Interactive or background / UL:16(multiframe) DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH(multiframe) (REL-5) 6745
18.1.5.3 Interactive or background / UL:32 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5) 6747
18.1.5.3a Interactive or background / UL:32(multiframe) DL: [max bit rate depending on UE category] / PS RAB +UL:3.4 DL:3.4 kbps SRBs for DCCH(multiframe) (REL-5) 6749
18.1.5.4 Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5) 6751
18.1.5.5 Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5) 6754
18.1.5.6 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5) 6757
18.1.5.7 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5) 6762
18.1.5.8 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6767
18.1.5.9 Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5) 6772
18.1.5.10 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:384 DL:[max bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5) 6774
18.1.5.11 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5) 6780
18.1.5.12 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / UL:64 DL: [max bit rate depending on UE category] / PS RAB + Interactive or background / UL:8 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5) 6785
18.1.5.13 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / UL:16 DL: [max bit rate depending on UE category] / PS RAB + Interactive or background / UL:8 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5) 6791
18.1.5.14 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / UL:32 DL: [max bit rate depending on UE category] / PS RAB + Interactive or background / UL:8 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5) 6795
18.1.5.15 Streaming / UL:64 DL: [max bit rate depending on UE category] / PS RAB + Interactive or background / UL:8 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5) 6800
18.1.5.16 Streaming / UL:32 DL: [max bit rate depending on UE category] / PS RAB + Interactive or background / UL:8 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5) 6803
18.1.5.17 Streaming / UL:16 DL: [max bit rate depending on UE category] / PS RAB + Interactive or background / UL:8 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5) 6807
18.1.6 Combinations on DPCH, HS-PDSCH and E-DPDCH 6810
18.1.6.1 Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH on DCH 6810
18.1.6.1a Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH on DCH/ UL 16QAM 6812
18.1.6.1b Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (MIMO) 6813
18.1.6.1c Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (64QAM+MIMO) 6816

18.1.6.2 Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:[max bit rate depending on UE category and TTI] DL:3.4 kbps SRBs for DCCH on E-DCH and DL DCH....6818
18.1.6.3 Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH....6818
18.1.6.3a Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] with Flexible RLC, MAC-ehs and MAC-i/is / PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH with MAC-ehs and MAC-i/is....6818
18.1.6.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6821
18.1.6.5 Streaming or interactive or background / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB + Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:[max bit rate depending on UE category and TTI] DL:3.4 kbps SRBs for DCCH on E-DCH and DL DCH....6824
18.1.6.6 Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6825
18.1.6.7 Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6828
18.1.6.8 Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6830
18.1.6.9 Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 32 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6832
18.1.6.10 Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 64 kbps / PS RAB + Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6834
18.1.6.11 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6836
18.1.6.12 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6841
18.1.6.13 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 64 kbps / PS RAB + Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6844
18.1.6.14 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / UL: [max bit rate depending on UE category and TTI] DL: 64 kbps / PS RAB + Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6849
18.1.6.15 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / UL: [max bit rate depending on UE category and TTI] DL: 32 kbps / PS RAB + Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6856
18.1.6.16 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / UL: [max bit rate depending on UE category and TTI] DL: 16 kbps / PS RAB + Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6861
18.1.6.17 Streaming / UL: [max bit rate depending on UE category and TTI] DL: 64 kbps / PS RAB + Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6865
18.1.6.18 Streaming / UL: [max bit rate depending on UE category and TTI] DL: 32 kbps / PS RAB + Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6867
18.1.6.19 Streaming / UL: [max bit rate depending on UE category and TTI] DL: 16 kbps / PS RAB + Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....6870

18.1.6.20 Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH for enhanced uplink/downlink in CELL_FACH 6872
18.1.6.20a Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on common E-DCH and HS-DSCH for enhanced CELL_FACH with DRX configured....6873
18.1.6.21 Conversational / unknown or speech / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps with Flexible RLC and MAC-ehs / PS RAB + Streaming or Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB + UL:[max bit rate depending on UE category and TTI] DL: :[max bit rate depending on UE category] SRBs for DCCH on E-DCH and SRBs with Fixed RLC and MAC-ehs on HS-DSCH / UL: QPSK and DL: QPSK....6876
18.1.6.22 Conversational / unknown or speech / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps with Flexible RLC, MAC-ehs and MAC-i/is / PS RAB + Streaming or Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] with Fixed RLC, MAC-ehs and MAC-i/is / PS RAB + UL:[max bit rate depending on UE category and TTI] DL: :[max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH with MAC-ehs and MAC-i/is / UL: QPSK and DL: QPSK 6878
18.2 Radio Bearer Tests for 3.84 Mcps TDD option....6882
18.2.1 General information for radio bearer tests (3.84 Mcps TDD)....6882
18.2.1.1 Generic radio bearer test procedure for Single RB configuration 6882
18.2.1.2 Generic test procedure for testing multi-RB configuration and simultaneous signalling....6882
18.2.1.2a Generic test procedure for testing multi-RB combinations and simultaneous signalling in case of DSCH....6882
18.2.1.3 Generic test procedure for testing Single Speech Radio Bearers on USCH/DSCH channels and multiple radio configuration signalling on RACH/FACH 6889
18.2.1.4 General information interoperability radio bearer tests for HS-DSCH 6893
18.2.1.4.1 HS-DSCH radio bearer test parameters....6893
18.2.1.4.2 Selecting TFRC test points....6893
18.2.1.4.3 TFRC test points for MAC-d PDU size=336 6895
18.2.1.4.4 TFRC test points for MAC-d PDU size=656 6935
18.2.1.5 Generic test procedure for radio bearers on MTCH....6957
18.2.1.6 Generic test procedure for radio bearers on MBSFN MTCH 6957
18.2.1.7 General information for interoperability radio bearer tests for E-DCH and HS-DSCH combinations....6959
18.2.1.7.1 Generic test procedure for HS-DSCH and E-DCH radio bearer combinations....6959
18.2.2 Combinations on DPCH 6962
18.2.2.1 Stand-alone UL:1.7 DL:1.7 kbps SRBs for DCCH....6962
18.2.2.1a Stand-alone UL:1.7 DL:1.7 kbps SRBs for DCCH (multiframe) 6962
18.2.2.2 Stand-alone UL:3.4 DL:3.4 kbps SRBs for DCCH....6962
18.2.2.3 Stand-alone UL:13.6 DL:13.6 kbps SRBs for DCCH....6963
18.2.2.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6963
18.2.2.4a Conversational / speech / UL:(12.2 7.95 5.9 4.75) DL:(12.2 7.95 5.9 4.75) kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.....6964
18.2.2.5 Conversational / speech / UL:10.2 DL:10.2 kbps / CS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH 6967
18.2.2.5a Conversational / speech / UL:(10.2, 6.7, 5.9, 4.75) DL:(10.2, 6.7, 5.9, 4.75) kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.....6968
18.2.2.6 Conversational / speech / UL:7.95 DL:7.95 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6971
18.2.2.7 Conversational / speech / UL:7.4 DL:7.4 kbps / CS RAB+ UL:3.4 DL:3.4 kbps SRBs for DCCH .6972
18.2.2.7a Conversational / speech / UL:(7.4, 6.7, 5.9, 4.75) DL:(7.4, 6.7, 5.9, 4.75) kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.....6974
18.2.2.8 Conversational / speech / UL:6.7 DL:6.7 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6976
18.2.2.9 Conversational / speech / UL:5.9 DL:5.9 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6977
18.2.2.10 Conversational / speech / UL:5.15 DL:5.15 kbps / CS RAB + UL:1.7 DL:1.7 kbps SRBs for DCCH 6979

18.2.2.11 Conversational / speech / UL:4.75 DL:4.75 kbps / CS RAB + UL:1.7 DL:1.7 kbps SRBs for DCCH 6980
18.2.2.12 Conversational / unknown / UL:28.8 DL:28.8 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6982
18.2.2.13 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6983
18.2.2.14 Conversational / unknown / UL:32 DL:32 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6985
18.2.2.15 Streaming / unknown / UL:14.4/DL:14.4 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6986
18.2.2.16 Streaming / unknown / UL:28.8/DL:28.8 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6988
18.2.2.17 Streaming / unknown / UL:57.6/DL:57.6 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 6989
18.2.2.18 Void....6992
18.2.2.19 Void....6992
18.2.2.20 Void....6992
18.2.2.21 Void....6992
18.2.2.22 Void....6992
18.2.2.23 Interactive or background / UL:32 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH .6992
18.2.2.23.1 Interactive or background / UL:32 DL:8 kbps / PS RAB / (Payload size 320) 6992
18.2.2.23.2 Interactive or background / UL:32 DL:8 kbps / PS RAB / Payload size 128....6993
18.2.2.23a Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH. ..6995
18.2.2.23a.1 Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 40 ms TTI....6995
18.2.2.23a.2 Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 80 ms TTI....6996
18.2.2.23b Interactive or background / UL:16 DL:16 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH. 6996
18.2.2.23b.1 Interactive or background / UL:16 DL:16 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload size 320.....6996
18.2.2.23b.2 Interactive or background / UL:16 DL:16 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload size 128.....6998
18.2.2.23c Interactive or background / UL:32 DL:32 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH. 6999
18.2.2.23c.1 Interactive or background / UL:32 DL:32 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload size 320.....6999
18.2.2.23c.2 Interactive or background / UL:32 DL:32 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload size 128.....7001
18.2.2.23d Interactive or background / UL:32 DL:32 kbps / PS RAB (20 ms TTI) + UL:3.4 DL:3.4 kbps SRBs for DCCH.....7004
18.2.2.23d.1 Interactive or background / UL:32 DL:32 kbps / PS RAB (20 ms TTI) + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload size 320. 7004
18.2.2.23d.2 Interactive or background / UL:32 DL:32 kbps / PS RAB (20 ms TTI) + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload size 128. 7005
18.2.2.24 Void....7007
18.2.2.25 Interactive or background / UL:32 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 7007
18.2.2.25.1 Interactive or background / UL:32 DL: 64 kbps / PS RAB / Payload size 320 7007
18.2.2.25.2 Interactive or background / UL:32 DL: 64 kbps / PS RAB / Payload 128 7009
18.2.2.26 Interactive or background / UL:64 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 7011
18.2.2.26.1 Interactive or background / UL:64 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload 320, Physical Configuration 1 7011
18.2.2.26.2 Interactive or background / UL:64 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload 128, Physical Configuration 2 7013
18.2.2.27 Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 7016
18.2.2.27.1 Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload 320, Physical Configuration 1 7016
18.2.2.27.2 Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload 128, Physical Configuration 2 7018

18.2.2.28 Interactive or background / UL:128 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 7021
18.2.2.28.1 Interactive or background / UL:128 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload 320, Physical Configuration 1 7021
18.2.2.28.2 Interactive or background / UL:128 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload 128, Physical Configuration 2 7023
18.2.2.29 Interactive or background / UL:64 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH 7026
18.2.2.29.1 Interactive or background / UL:64 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH / Payload 320 7026
18.2.2.29.2 Interactive or background / UL:64 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH / Payload 128, Physical Configuration 2 7028
18.2.2.30 Interactive or background / UL:144 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH 7031
18.2.2.30.1 Interactive or background / UL:144 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH / Payload 320, TTI 20 ms 7031
18.2.2.30.2 Interactive or background / UL:144 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH / Payload 128, TTI 40 ms 7033
18.2.2.31 Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH 7035
18.2.2.31.1 Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH/ Payload 320, 10 ms TTI Down Link, Physical Configuration 1 7035
18.2.2.31.2 Interactive or background / UL:64 DL:256 kbps / PS RAB / Payload 128, 20 ms TTI Down Link, Physical Configuration 2 7037
18.2.2.32 Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH 7040
18.2.2.32.1 Interactive or background / UL:64 DL:384 kbps / PS RAB / Payload 320, 10 ms TTI Down Link, Physical Configuration 1 7040
18.2.2.32.2 Interactive or background / UL:64 DL:384 kbps / PS RAB / Payload 128, 20 ms TTI Down Link, Physical Configuration 2 7043
18.2.2.33 Interactive or background / UL:128 DL:384 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH 7046
18.2.2.33.1 Interactive or background / UL:128 DL:384 kbps / PS RAB / Payload 320, 10 ms TTI Down Link, Physical Configuration 1 7046
18.2.2.33.2 Interactive or background / UL:128 DL:384 kbps / PS RAB / Payload 128, 20 ms TTI Down Link, Physical Configuration 2 7048
18.2.2.34 Interactive or background / UL:384 DL:384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 7052
18.2.2.34.1 Interactive or background / UL:384 DL:384 kbps / PS RAB / 10 ms TTI, Physical Configuration 1 7052
18.2.2.34.2 Interactive or background / UL:384 DL:384 kbps / PS RAB / 20 ms TTI, Physical Configuration 2 7055
18.2.2.35 Interactive or background / UL:64 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 7058
18.2.2.35.1 Interactive or background / UL:64 DL:2048 kbps / PS RAB / Payload 320, 10 ms TTI Down Link, Physical Configuration 1 7058
18.2.2.35.2 Interactive or background / UL:64 DL:2048 kbps / PS RAB / Payload 128, 20 ms TTI Down Link, Physical Configuration 2 7061
18.2.2.36 Void 7065
18.2.2.37 Void 7065
18.2.3 Combinations on PDSCH, SCCPCH, PUSCH and PRACH 7066
18.2.3.1 Interactive or background / UL: 64 DL: 256 kbps / PS RAB + UL: 3.4/16.8 DL: 3.4/33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7066
18.2.3.1.1 Interactive or background / UL: 64(payload 320) DL: 256 kbps (10 ms TTI) / PS RAB + UL: 3.4/16.8 DL: 3.4/33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7066
18.2.3.1.2 Interactive or background / UL: 64(145 bit TBS – 20 ms TTI) DL: 256 kbps (337 bit TBS – 10 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7071
18.2.3.1.3 Interactive or background / UL: 64(337 bit TBS – 20 ms TTI) DL: 256 kbps (337 bit TBS – 20 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7074

18.2.3.1.4 Interactive or background / UL: 64(145 bit TBS – 20 ms TTI) DL: 256 kbps (337 bit TBS – 20 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH 64 kbps + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7078
18.2.3.2 Interactive or background / UL: 64 DL: 384 kbps / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7081
18.2.3.2.1 Interactive or background / UL: 64(337 bit TBS – 20 ms TTI) DL: 384 kbps (337 bit TBS – 10 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7081
18.2.3.2.2 Interactive or background / UL: 64(145 bit TBS – 20 ms TTI) DL: 384 kbps / PS RAB/10 ms TTI/145 bits TBS (337 bit TBS – 10 ms TTI) + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7085
18.2.3.2.3 Interactive or background / UL: 64 (337 bit TBS – 20 ms TTI) DL: 384 kbps (337 bit TBS – 20 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7088
18.2.3.2.4 Interactive or background / UL: 64 (145 bit TBS – 20 ms TTI) DL: 384 kbps (337 bit TBS – 20 ms TTI) / PS RAB+ UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7092
18.2.3.3 Interactive or background / UL: 64 DL: 2048 kbps/ PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7095
18.2.3.3.1 Interactive or background / UL: 64 (337 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 10 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7095
18.2.3.3.2 Interactive or background / UL: 64(145 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 10 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7100
18.2.3.3.3 Interactive or background / UL: 64 (337 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 20 ms TTI) / PS RAB+ UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7104
18.2.3.3.4 Interactive or background / UL: 64(145 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 20 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7111
18.2.3.4 Interactive or background / UL: 384 DL: 2048 kbps / PS RAB + UL: 3.4 DL: 16.8 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7116
18.2.3.4.1 Interactive or background / UL: 384 DL (337 bit TBS – 20 ms TTI): 2048 kbps (657 bit TBS – 10 ms TTI) / PS RAB+ UL: 3.4 DL: 16.8 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7116
18.2.3.4.2 Interactive or background / UL: 384(145 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 10 ms TTI) / PS RAB + UL: 3.4 DL: 16.8 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7120
18.2.3.4.3 Interactive or background / UL: 384 (337 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 20 ms TTI) / PS RAB + UL: 3.4 DL: 16.8 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7124
18.2.3.4.4 Interactive or background / UL: 384(145 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 20 ms TTI) / PS RAB + UL: 3.4 DL: 16.8 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7130
18.2.4 Combinations on PDSCH, SCCPCH, DPCH, PUSCH and PRACH 7135
18.2.4.1 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 DL: 256 kbps / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7135
18.2.4.1.1 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 kbps (320 bit payload – 20 ms TTI) DL: 256 kbps (320 bit payload – 10 ms TTI) / PS RAB/ + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7135
18.2.4.1.2 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(128 bit payload - 20 ms TTI) DL: 256 kbps (320 bit payload – 10 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7140
18.2.4.1.3 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(320 bit payload – 20 ms TTI) DL: 256 kbps (320 bit payload – 20 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7144

18.2.4.1.4 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(128 bit payload - 20 ms TTI) DL: 256 kbps (320 bit payload – 20 ms TTI)/ PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7150
18.2.4.2 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 DL: 384 kbps / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH+ DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7155
18.2.4.2.1 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 (320 bit payload – 20 ms TTI) DL: 384 kbps (320 bit payload – 10 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7155
18.2.4.2.2 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 (128 bit payload - 20 ms TTI) DL: 384 kbps (320 bit payload – 10 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7159
18.2.4.2.3 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(320 bit payload – 20 ms TTI) DL: 384 kbps (320 bit payload – 20 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7164
18.2.4.2.4 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(128 bit payload - 20 ms TTI) DL: 384 kbps (320 bit payload – 20 ms TTI)/ PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7169
18.2.4.3 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 DL: 2048 kbps / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7174
18.2.4.3.1 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(320 bit payload – 20 ms TTI) DL: 2048 kbps (640 bit payload - 10 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7174
18.2.4.3.2 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 (128 bit payload - 20 ms TTI) DL: 2048 kbps (640 bit payload - 10 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7181
18.2.4.3.3 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(320 bit payload – 20 ms TTI) DL: 2048 kbps (640 bit payload - 20 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7187
18.2.4.3.4 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(128 bit payload - 20 ms TTI) DL: 2048 kbps (640 bit payload - 20 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7196
18.2.5 Combinations on SCCPCH 7204
18.2.5.1 Stand-alone signalling RB for PCCH 7204
18.2.5.1.1 Stand-alone signalling RB for PCCH at 12 kbps 7204
18.2.5.1.2 Stand-alone signalling RB for PCCH at 8 kbps 7205
18.2.5.2 Interactive/Background PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH 7206
18.2.5.2.1 One SCCPCH: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH 7206
18.2.5.2.2 Two SCCPCHs: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH 7208
18.2.5.2.3 One SCCPCH/connected mode: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH 7209
18.2.5.2a Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH 7210
18.2.5.2a.1 One SCCPCH: Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH 7214
18.2.5.2a.2 Two SCCPCHs: Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH 7215
18.2.5.2a.3 One SCCPCH/connected mode: Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH 7217

18.2.5.2b SRBs for CCCH + SRB for DCCH + SRB for BCCH....7219
18.2.5.3 Interactive/Background RAB + SRBs for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH....7220
18.2.5.3.1 Interactive/Background 32 kbps RAB + SRBs for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH....7220
18.2.5.3.2 Interactive/Background 16 kbps RAB + SRBs for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH....7222
18.2.5.3a SRBs for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH....7223
18.2.5.3a.1 SRBs for PCCH at 12 kbps + SRB for CCCH + SRB for DCCH + SRB for BCCH at 32 kbps....7223
18.2.5.3a.2 SRBs for PCCH at 8 kbps kbps + SRB for CCCH + SRB for DCCH + SRB for BCCH at 16 kbps....7224
18.2.5.4 RB for CTCH + SRB for CCCH +SRB for BCCH....7225
18.2.5.5 64.8kbps RB for MTCH with 80 ms TTI....7227
18.2.5.5.1 Conformance Requirement....7227
18.2.5.6 129.6 kbps RB for MTCH with 80 ms TTI....7229
18.2.5.7 259.2 kbps RB for MTCH with 40 ms TTI....7230
18.2.5.8 124.4kbps RB for MBSFN MTCH with 80 ms TTI....7232
18.2.5.9 320.4kbps RB for MBSFN MTCH with 80 ms TTI....7233
18.2.5.10 497.6kbps RB for MBSFN MTCH with 80 ms TTI....7234
18.2.5a Combinations on SCCPCH type 2....7235
18.2.5a.1 124.4kbps RB for MBSFN MTCH with 80 ms TTI....7235
18.2.5a.1.1 Conformance Requirement....7235
18.2.5a.1.2 Test purpose....7236
18.2.5a.1.3 Method of Test....7236
18.2.5a.1.4 Test Requirements....7236
18.2.5a.2 320.4kbps RB for MBSFN MTCH with 80 ms TTI....7236
18.2.5a.2.1 Conformance Requirement....7236
18.2.5a.2.2 Test purpose....7237
18.2.5a.2.3 Method of Test....7237
18.2.5a.2.4 Test Requirements....7237
18.2.5a.3 497.6kbps RB for MBSFN MTCH with 80 ms TTI....7238
18.2.5a.3.1 Conformance Requirement....7238
18.2.5a.3.2 Test purpose....7238
18.2.5a.3.3 Method of Test....7238
18.2.5a.3.4 Test Requirements....7239
18.2.6 Combinations on PRACH....7239
18.2.6.1 SRB for CCCH + SRB for DCCH....7239
18.2.6.2 Interactive/Background 12.8 kbps PS RAB + SRB for CCCH + SRB for DCCH....7239
18.2.6.3 Interactive/Background 12.8 kbps PS RAB + Interactive/Background 12.8 kbps PS RAB + SRB for CCCH + SRB for DCCH....7239
18.2.7 Combinations on DPCH and HS-PDSCH....7240
18.2.7.1 Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....7240
18.2.7.1.1 Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB, UL 336bit block size....7240
18.2.7.1.2 Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB, UL 144bit block size....7245
18.2.7.2 Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....7248
18.2.7.2.1 Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB, UL 336bit block size....7248
18.2.7.2.2 Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB, UL 144bit block size....7251
18.2.7.3 Interactive or background / UL:384 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....7254
18.2.7.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....7257
18.2.7.5 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL: 64 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....7262
18.2.7.5.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL: 64 DL:[Bit rate depending on the UE category] / PS RAB, UL 336bit block size....7262

18.2.7.5.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL: 64 DL:[Bit rate depending on the UE category] / PS RAB, UL 144bit block size....7266
18.2.7.6 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....7270
18.2.7.7 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....7274
18.2.7.7.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB, UL 336bit block size 7274
18.2.7.7.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB, UL 144bit block size 7279
18.2.7.8 Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....7283
18.2.7.9 Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....7287
18.2.7.9.1 Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB, UL 340bit block size 7287
18.2.7.9.1 Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB, UL 148bit block size 7291
18.2.7.10 Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] kbps / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....7295
18.2.7.10.1 Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] kbps / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB, UL 336bit block size....7295
18.2.7.10.2 Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] kbps / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB, UL 144bit block size....7300
18.2.8 Combinations on DPCH, HS-DSCH and E-PUCH 7305
18.2.8.1 Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH on DCH 7305
18.2.8.2 Void....7307
18.2.8.3 Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH....7307
18.2.8.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....7307
18.2.8.5 Streaming or interactive or background / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB + Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:[max bit rate depending on UE category and TTI] DL:3.4 kbps SRBs for DCCH on E-DCH and DL DCH 7311
18.3 Radio Bearer Tests for 7.68 Mcps TDD option....7313
18.3.1 General information for radio bearer tests (7.68 Mcps TDD)....7313
18.3.1.1 Generic radio bearer test procedure for Single RB configuration 7313
18.3.1.2 Generic test procedure for testing multi-RB configuration and simultaneous signalling....7313
18.3.1.2a Generic test procedure for testing multi-RB combinations and simultaneous signalling in case of DSCH 7313
18.3.1.3 Generic test procedure for testing Single Speech Radio Bearers on USCH/DSCH channels and multiple radio configuration signalling on RACH/FACH 7320
18.3.1.4 General information interoperability radio bearer tests for HS-DSCH 7324
18.3.1.4.1 HS-DSCH radio bearer test parameters 7324
18.3.1.4.2 Selecting TFRC test points 7324
18.3.1.4.3 TFRC test points for MAC-d PDU size=336 7326
18.3.1.4.4 TFRC test points for MAC-d PDU size=656 7410
18.3.1.5 Generic test procedure radio bearers on MTCH....7456

18.3.1.6 Generic test procedure for radio bearers on MBSFN MTCH 7456
18.3.1.7 General information for interoperability radio bearer tests for E-DCH and HS-DSCH combinations 7458
18.3.1.7.1 Generic test procedure for HS-DSCH and E-DCH radio bearer combinations 7458
18.3.2 Combinations on DPCH 7461
18.3.2.1 Stand-alone UL:1.7 DL:1.7 kbps SRBs for DCCH 7461
18.3.2.1a Stand-alone UL:1.7 DL:1.7 kbps SRBs for DCCH (multiframe) 7461
18.3.2.2 Stand-alone UL:3.4 DL:3.4 kbps SRBs for DCCH 7461
18.3.2.3 Stand-alone UL:13.6 DL:13.6 kbps SRBs for DCCH 7461
18.3.2.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 7462
18.3.2.4a Conversational / speech / UL:(12.2 7.95 5.9 4.75) DL:(12.2 7.95 5.9 4.75) kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH. 7463
18.3.2.5 Conversational / speech / UL:10.2 DL:10.2 kbps / CS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH 7466
18.3.2.5a Conversational / speech / UL:(10.2, 6.7, 5.9, 4.75) DL:(10.2, 6.7, 5.9, 4.75) kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH. 7467
18.3.2.6 Conversational / speech / UL:7.95 DL:7.95 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 7470
18.3.2.7 Conversational / speech / UL:7.4 DL:7.4 kbps / CS RAB+ UL:3.4 DL:3.4 kbps SRBs for DCCH . 7471
18.3.2.7a Conversational / speech / UL:(7.4, 6.7, 5.9, 4.75) DL:(7.4, 6.7, 5.9, 4.75) kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH. 7473
18.3.2.8 Conversational / speech / UL:6.7 DL:6.7 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 7476
18.3.2.9 Conversational / speech / UL:5.9 DL:5.9 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 7477
18.3.2.10 Conversational / speech / UL:5.15 DL:5.15 kbps / CS RAB + UL:1.7 DL:1.7 kbps SRBs for DCCH 7479
18.3.2.11 Conversational / speech / UL:4.75 DL:4.75 kbps / CS RAB + UL:1.7 DL:1.7 kbps SRBs for DCCH 7480
18.3.2.12 Conversational / unknown / UL:28.8 DL:28.8 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 7482
18.3.2.13 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 7483
18.3.2.13.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 20ms TTI 7483
18.3.2.13.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 40ms TTI 7485
18.3.2.14 Conversational / unknown / UL:32 DL:32 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 7487
18.3.2.14.1 Conversational / unknown / UL:32 DL:32 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 20ms TTI 7487
18.3.2.14.1 Conversational / unknown / UL:32 DL:32 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 40ms TTI 7488
18.3.2.15 Streaming / unknown / UL:14.4/DL:14.4 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 7489
18.3.2.16 Streaming / unknown / UL:28.8/DL:28.8 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 7491
18.3.2.17 Streaming / unknown / UL:57.6/DL:57.6 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 7492
18.3.2.18 Void 7495
18.3.2.19 Void 7495
18.3.2.20 Void 7495
18.3.2.21 Void 7495
18.3.2.22 Void 7495
18.3.2.23 Interactive or background / UL:32 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH . 7495
18.3.2.23.1 Interactive or background / UL:32 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / (PS RAB payload size 320) 7495
18.3.2.23.2 Interactive or background / UL:32 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / (PS RAB payload size 128) 7496
18.3.2.23a Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH. .. 7498
18.3.2.23a.1 Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 40 ms TTI 7498

18.3.2.23a.2 Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 80 ms TTI 7499
18.3.2.23b Interactive or background / UL:16 DL:16 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH. 7499
18.3.2.23b.1 Interactive or background / UL:16 DL:16 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload size 320. 7499
18.3.2.23b.2 Interactive or background / UL:16 DL:16 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload size 128. 7501
18.3.2.23c Interactive or background / UL:32 DL:32 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH. 7502
18.3.2.23c.1 Interactive or background / UL:32 DL:32 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload size 320. 7502
18.3.2.23c.2 Interactive or background / UL:32 DL:32 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload size 128. 7504
18.3.2.23d Interactive or background / UL:32 DL:32 kbps / PS RAB (20 ms TTI) + UL:3.4 DL:3.4 kbps SRBs for DCCH. 7507
18.3.2.23d.1 Interactive or background / UL:32 DL:32 kbps / PS RAB (20 ms TTI) + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload size 320. 7507
18.3.2.23d.2 Interactive or background / UL:32 DL:32 kbps / PS RAB (20 ms TTI) + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload size 128. 7508
18.3.2.24 Void 7510
18.3.2.25 Interactive or background / UL:32 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 7510
18.3.2.25.1 Interactive or background / UL:32 DL: 64 kbps / PS RAB+ UL:3.4 DL:3.4 kbps SRBs for DCCH / (PS RAB payload size 320) 7510
18.3.2.25.2 Interactive or background / UL:32 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / (PS RAB payload 128) 7512
18.3.2.26 Interactive or background / UL:64 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 7514
18.3.2.26.1 Interactive or background / UL:64 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload 320, Physical Configuration 1 7514
18.3.2.26.2 Interactive or background / UL:64 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload 128, Physical Configuration 2 7516
18.3.2.27 Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 7519
18.3.2.27.1 Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload 320, Physical Configuration 1 7519
18.3.2.27.2 Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload 128, Physical Configuration 2 7521
18.3.2.28 Interactive or background / UL:128 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 7524
18.3.2.28.1 Interactive or background / UL:128 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload 320, Physical Configuration 1 7524
18.3.2.28.2 Interactive or background / UL:128 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload 128, Physical Configuration 2 7526
18.3.2.29 Interactive or background / UL:64 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH 7529
18.3.2.29.1 Interactive or background / UL:64 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH / Payload 320, Physical Configuration 1 7529
18.3.2.29.2 Interactive or background / UL:64 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH / Payload 128, Physical Configuration 2 7531
18.3.2.30 Interactive or background / UL:144 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH 7534
18.3.2.30.1 Interactive or background / UL:144 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH / Payload 320, TTI 20 ms 7534
18.3.2.30.2 Interactive or background / UL:144 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH / Payload 128, TTI 40 ms 7536
18.3.2.31 Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH 7538
18.3.2.31.1 Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH/ Payload 320, 10 ms TTI Down Link, Physical Configuration 1 7538

18.3.2.31.2 Interactive or background / UL:64 DL:256 kbps / PS RAB / Payload 128, 20 ms TTI Down Link, Physical Configuration 2 7540
18.3.2.32 Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH 7543
18.3.2.32.1 Interactive or background / UL:64 DL:384 kbps / PS RAB / Payload 320, 10 ms TTI Down Link, Physical Configuration 1 7543
18.3.2.32.2 Interactive or background / UL:64 DL:384 kbps / PS RAB / Payload 128, 20 ms TTI Down Link, Physical Configuration 2 7546
18.3.2.33 Interactive or background / UL:128 DL:384 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH 7549
18.3.2.33.1 Interactive or background / UL:128 DL:384 kbps / PS RAB / Payload 320, 10 ms TTI Down Link, Physical Configuration 1 7549
18.3.2.33.2 Interactive or background / UL:128 DL:384 kbps / PS RAB / Payload 128, 20 ms TTI Down Link, Physical Configuration 2 7551
18.3.2.34 Interactive or background / UL:384 DL:384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 7555
18.3.2.34.1 Interactive or background / UL:384 DL:384 kbps / PS RAB / 10 ms TTI, Physical Configuration 1 7555
18.3.2.34.2 Interactive or background / UL:384 DL:384 kbps / PS RAB / 20 ms TTI, Physical Configuration 2 7558
18.3.2.35 Interactive or background / UL:64 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 7561
18.3.2.35.1 Interactive or background / UL:64 DL:2048 kbps / PS RAB / Payload 320, 10 ms TTI Down Link, Physical Configuration 1 7561
18.3.2.35.2 Interactive or background / UL:64 DL:2048 kbps / PS RAB / Payload 128, 20 ms TTI Down Link, Physical Configuration 2 7564
18.3.2.36 Void 7568
18.3.2.37 Void 7568
18.3.3 Combinations on PDSCH, SCCPCH, PUSCH and PRACH 7569
18.3.3.1 Interactive or background / UL: 64 DL: 256 kbps / PS RAB + UL: 3.4/16.8 DL: 3.4/33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7569
18.3.3.1.1 Interactive or background / UL: 64(payload 320) DL: 256 kbps (10 ms TTI) / PS RAB + UL: 3.4/16.8 DL: 3.4/33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7569
18.3.3.1.2 Interactive or background / UL: 64(145 bit TBS – 20 ms TTI) DL: 256 kbps (337 bit TBS – 10 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7574
18.3.3.1.3 Interactive or background / UL: 64(337 bit TBS – 20 ms TTI) DL: 256 kbps (337 bit TBS – 20 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7577
18.3.3.1.4 Interactive or background / UL: 64(145 bit TBS – 20 ms TTI) DL: 256 kbps (337 bit TBS – 20 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH 64 kbps + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7580
18.3.3.2 Interactive or background / UL: 64 DL: 384 kbps / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7583
18.3.3.2.1 Interactive or background / UL: 64(337 bit TBS – 20 ms TTI) DL: 384 kbps (337 bit TBS – 10 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7583
18.3.3.2.2 Interactive or background / UL: 64(145 bit TBS – 20 ms TTI) DL: 384 kbps / PS RAB/10 ms TTI/145 bits TBS (337 bit TBS – 10 ms TTI) + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7586
18.3.3.2.3 Interactive or background / UL: 64 (337 bit TBS – 20 ms TTI) DL: 384 kbps (337 bit TBS – 20 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7589
18.3.3.2.4 Interactive or background / UL: 64 (145 bit TBS – 20 ms TTI) DL: 384 kbps (337 bit TBS – 20 ms TTI) / PS RAB+ UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7593
18.3.3.3 Interactive or background / UL: 64 DL: 2048 kbps/ PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7598
18.3.3.3.1 Interactive or background / UL: 64 (337 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 10 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7598

18.3.3.3.2 Interactive or background / UL: 64(145 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 10 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7604
18.3.3.3.3 Interactive or background / UL: 64 (337 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 20 ms TTI) / PS RAB+ UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7608
18.3.3.3.4 Interactive or background / UL: 64(145 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 20 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7614
18.3.3.4 Interactive or background / UL: 384 DL: 2048 kbps / PS RAB + UL: 3.4 DL: 16.8 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7619
18.3.3.4.1 Interactive or background / UL: 384 DL (337 bit TBS – 20 ms TTI): 2048 kbps (657 bit TBS – 10 ms TTI) / PS RAB+ UL: 3.4 DL: 16.8 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7619
18.3.3.4.2 Interactive or background / UL: 384(145 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 10 ms TTI) / PS RAB + UL: 3.4 DL: 16.8 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7623
18.3.3.4.3 Interactive or background / UL: 384 (337 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 20 ms TTI) / PS RAB + UL: 3.4 DL: 16.8 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7627
18.3.3.4.4 Interactive or background / UL: 384(145 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 20 ms TTI) / PS RAB + UL: 3.4 DL: 16.8 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH 7632
18.3.4 Combinations on PDSCH, SCCPCH, DPCH, PUSCH and PRACH 7637
18.3.4.1 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 DL: 256 kbps / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7637
18.3.4.1.1 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 kbps (320 bit payload – 20 ms TTI) DL: 256 kbps (320 bit payload – 10 ms TTI) / PS RAB/ + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7637
18.3.4.1.2 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(128 bit payload - 20 ms TTI) DL: 256 kbps (320 bit payload – 10 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7642
18.3.4.1.3 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(320 bit payload – 20 ms TTI) DL: 256 kbps (320 bit payload – 20 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7646
18.3.4.1.4 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(128 bit payload - 20 ms TTI) DL: 256 kbps (320 bit payload – 20 ms TTI)/ PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7652
18.3.4.2 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 DL: 384 kbps / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH+ DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7657
18.3.4.2.1 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 (320 bit payload – 20 ms TTI) DL: 384 kbps (320 bit payload – 10 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7657
18.3.4.2.2 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 (128 bit payload - 20 ms TTI) DL: 384 kbps (320 bit payload – 10 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7661
18.3.4.2.3 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(320 bit payload – 20 ms TTI) DL: 384 kbps (320 bit payload – 20 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7666
18.3.4.2.4 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(128 bit payload - 20 ms TTI) DL: 384 kbps (320 bit payload – 20 ms TTI)/ PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7671

18.3.4.3 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 DL: 2048 kbps / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7676
18.3.4.3.1 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(320 bit payload – 20 ms TTI) DL: 2048 kbps (640 bit payload - 10 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7676
18.3.4.3.2 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 (128 bit payload - 20 ms TTI) DL: 2048 kbps (640 bit payload - 10 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7683
18.3.4.3.3 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(320 bit payload – 20 ms TTI) DL: 2048 kbps (640 bit payload - 20 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7689
18.3.4.3.4 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(128 bit payload - 20 ms TTI) DL: 2048 kbps (640 bit payload - 20 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH 7698
18.3.5 Combinations on SCCPCH 7706
18.3.5.1 Stand-alone signalling RB for PCCH 7706
18.3.5.1.1 Stand-alone signalling RB for PCCH at 12 kbps 7706
18.3.5.1.2 Stand-alone signalling RB for PCCH at 8 kbps 7707
18.3.5.2 Interactive/Background PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH 7708
18.3.5.2.1 One SCCPCH: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH 7708
18.3.5.2.2 Two SCCPCHs: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH 7710
18.3.5.2.3 One SCCPCH/connected mode: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH 7711
18.3.5.2a Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH 7712
18.3.5.2a.1 One SCCPCH: Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH 7716
18.3.5.2a.2 Two SCCPCHs: Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH 7717
18.3.5.2a.3 One SCCPCH/connected mode: Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH 7719
18.3.5.2b SRBs for CCCH + SRB for DCCH + SRB for BCCH 7721
18.3.5.3 Interactive/Background RAB + SRBs for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH 7722
18.3.5.3.1 Interactive/Background 32 kbps RAB + SRBs for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH 7722
18.3.5.3.2 Interactive/Background 16 kbps RAB + SRBs for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH 7724
18.3.5.3a SRBs for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH 7725
18.3.5.3a.1 SRBs for PCCH at 12 kbps + SRB for CCCH + SRB for DCCH + SRB for BCCH at 32 kbps. 7725
18.3.5.3a.2 SRBs for PCCH at 8 kbps kbps + SRB for CCCH + SRB for DCCH + SRB for BCCH at 16 kbps 7726
18.3.5.4 RB for CTCH + SRB for CCCH +SRB for BCCH. 7727
18.3.5.5 64.8kbps RB for MTCH with 80 ms TTI 7729
18.3.5.5.1 Conformance Requirement 7729
18.3.5.6 129.6 kbps RB for MTCH with 80 ms TTI 7731
18.3.5.7 259.2 kbps RB for MTCH with 40 ms TTI 7732
18.3.5.8 124.4kbps RB for MBSFN MTCH with 80 ms TTI 7734
18.3.5.9 320.4 kbps RB for MBSFN MTCH with 80 ms TTI 7735
18.3.5.9.2 Test purpose 7735
18.3.5.10 497.6 kbps RB for MBSFN MTCH with 80 ms TTI 7736
18.3.6 Combinations on PRACH 7737
18.3.6.1 SRB for CCCH + SRB for DCCH 7737
18.3.6.2 Interactive/Background 12.8 kbps PS RAB + SRB for CCCH + SRB for DCCH 7737

18.3.6.3 Interactive/Background 12.8 kbps PS RAB + Interactive/Background 12.8 kbps PS RAB + SRB for CCCH + SRB for DCCH....7738
18.3.7 Combinations on DPCH and HS-PDSCH....7738
18.3.7.1 Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....7738
18.3.7.1.1 Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB, UL 336bit block size....7738
18.3.7.1.2 Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB, UL 144bit block size....7743
18.3.7.2 Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....7746
18.3.7.2.1 Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB, UL 336bit block size....7746
18.3.7.2.2 Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB, UL 144bit block size....7749
18.3.7.3 Interactive or background / UL:384 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....7752
18.3.7.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....7755
18.3.7.5 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL: 64 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....7760
18.3.7.5.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL: 64 DL:[Bit rate depending on the UE category] / PS RAB, UL 336bit block size....7760
18.3.7.5.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL: 64 DL:[Bit rate depending on the UE category] / PS RAB, UL 144bit block size....7764
18.3.7.6 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....7768
18.3.7.7 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....7772
18.3.7.7.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB, UL 336bit block size....7772
18.3.7.7.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB, UL 144bit block size....7777
18.3.7.8 Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....7781
18.3.7.9 Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....7785
18.3.7.9.1 Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB, UL 340bit block size....7785
18.3.7.9.1 Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB, UL 148bit block size....7789
18.3.7.10 Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] kbps / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH....7793
18.3.7.10.1 Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] kbps / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB, UL 336bit block size....7793
18.3.7.10.2 Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] kbps / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB, UL 144bit block size....7798
18.3.8 Combinations on DPCH, HS-DSCH and E-PUCH....7803
18.3.8.1 Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH on DCH....7803

18.3.8.3 Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH 7805
18.3.8.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH 7805
18.3.8.5 Streaming or interactive or background / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB + Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:[max bit rate depending on UE category and TTI] DL:3.4 kbps SRBs for DCCH on E-DCH and DL DCH 7809

Annex A (normative): Default RRC Message Contents 7811

Annex B (informative): Void 7812

Annex C (normative): Generic Test Procedures to Check UE's State 7813
C.1 Verify that UE is in Idle Mode State 7813
C.2 Verify that UE is in CELL_FACH State 7815
C.3 Verify that UE is in CELL_DCH State 7816
C.4 Verify that UE is in CELL_PCH State 7817
C.5 Verify that UE is in URA_PCH State 7819

Annex D (normative): Generic procedure to use before and following inter-RAT handover/cell change order signalling test cases 7822
D.1 Preamble for UTRAN to GERAN test cases 7822
D.2 Postamble to be used following for inter-RAT handover / cell change order test cases 7822
D.2.1 UTRAN to GERAN handover in CS 7822
D.2.2 UTRAN to GERAN handover in CS+PS 7823
D.2.3 UTRAN to GERAN cell change in PS (in PMM-CONNECTED) 7823

Annex E (informative): Change history 7824

History 7912

Foreword

This Technical Specification (TS) has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

x the first digit:

1 presented to TSG for information;

2 presented to TSG for approval;

3 or greater indicates TSG approved document under change control.

y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

z the third digit is incremented when editorial only changes have been incorporated in the document.

Introduction

The present document is the first part of a multi-part conformance specification valid for 3GPP Release 1999, 3GPP Release 4 and 3GPP Release 5. 3GPP TS 34.123-2 [11] contains a pro-forma for the Implementation Conformance Statement (ICS) and an applicability table, indicating the release from which each test case is applicable. 3GPP TS 34.123-3 [12] contains a detailed and executable description of the test cases written in a standard testing language, TTCN, as defined in ISO/IEC 9646.

For at least a minimum set of services, the prose descriptions of test cases will have a matching detailed test case implemented in TTCN [12].

For Release 1999, the minimum set of services is defined as:

- voice calls;
- emergency calls;
- SMS (both Point-to-point and Cell broadcast);
- Circuit Switched data at up to 64 k bits/second;
- fax;

including the underlying layers to support these services.

Release 1999 will also include the areas:

- auto-calling restrictions.

The present document may contain descriptions of tests for additional services, but these tests may not have matching TTCN test cases.

The present document will not contain any tests on the USIM, or the interface between the UE and the USIM. These tests are documented elsewhere.

1 Scope

The present document specifies the protocol conformance testing for the 3rd Generation User Equipment (UE).

This is the first part of a multi-part test specification. The following information can be found in this part:

- the overall test structure;
- the test configurations;
- the conformance requirement and reference to the core specifications;
- the test purposes; and
- a brief description of the test procedure, the specific test requirements and short message exchange table.

The following information relevant to testing can be found in accompanying specifications:

- the default setting of the test parameters [9];
- the applicability of each test case [11].

A detailed description of the expected sequence of messages can be found in the 3rd part of this test specification.

The Implementation Conformance Statement (ICS) pro-forma can be found in the 2nd part of the present document.

The present document is valid for UE implemented according to 3GPP Release 1999, 3GPP Release 4 or 3GPP Release 5.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document in the same Release as the present document.
  - For a Release 1999 UE, references to 3GPP documents are to version 3.x.y, when available.
  - For a Release 4 UE, references to 3GPP documents are to version 4.x.y, when available.
  - For a Release 5 UE, references to 3GPP documents are to version 5.x.y, when available.
  - For a Release 6 UE, references to 3GPP documents are to version 6.x.y, when available.
  - For a Release 7 UE, references to 3GPP documents are to version 7.x.y, when available.
  - For a Release 8 UE, references to 3GPP documents are to version 8.x.y, when available.
  - For a Release 9 UE, references to 3GPP documents are to version 9.x.y, when available.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 23.003: "Numbering, Addressing and Identification".

[3] 3GPP TS 23.122: "Non-Access-Stratum functions related to Mobile Station (MS) in idle mode".

[4] 3GPP TS 24.008: "Mobile Radio Interface Layer 3 specification; Core Network Protocols; Stage 3".

[5] 3GPP TS 25.214: "Physical layer procedures (FDD)".

[6] 3GPP TS 25.321: "MAC protocol specification".

[7] 3GPP TS 25.322: "RLC protocol specification".

[8] 3GPP TS 25.331: "RRC Protocol Specification".

[9] 3GPP TS 34.108: "Common Test Environments for User Equipment (UE) Conformance Testing".

[10] 3GPP TS 34.109: "Terminal logical test interface; Special conformance testing functions".

[11] 3GPP TS 34.123-2: "User Equipment (UE) conformance specification; Part 2: Implementation Conformance Statement (ICS) proforma specification".

[12] 3GPP TS 34.123-3: "User Equipment (UE) conformance specification; Part 3: Abstract Test Suites (ATS)".

[13] 3GPP TS 51.010-1: "Mobile Station (MS) conformance specification; Part 1: Conformance specification ".

[14] ISO/IEC 9646 (all parts): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework".

[15] 3GPP TS 25.304: "UE Procedures in Idle Mode and Procedures for Cell Reselection in Connected Mode".

[16] 3GPP TS 34.121: "Terminal Conformance Specification; Radio Transmission and Reception (FDD)".

[17] 3GPP TS 34.122: "Terminal Conformance Specification; Radio Transmission and Reception (TDD)".

[18] 3GPP TS 31.102: "Characteristics of the USIM Application".

[19] 3GPP TS 25.224: "Physical Layer Procedures (TDD)".

[20] 3GPP TS 25.215: "Physical layer - Measurements (FDD)".

[21] 3GPP TS 25.101: "UE Radio Transmission and Reception (FDD)".

[22] 3GPP TS 25.123: "Requirements for support of radio resource management (TDD)".

[23] 3GPP TS 25.133: "Requirements for Support of Radio Resource Management (FDD)".

[24] 3GPP TS 03.22: "Functions related to Mobile Station (MS) in idle mode and group receive mode".

[25] 3GPP TS 04.18: "Mobile radio interface layer 3 specification; Radio Resource Control Protocol".

[26] 3GPP TS 05.08: "Radio Subsystem Link Control".

[27] 3GPP TS 22.001: "Principles of circuit telecommunication services supported by a Public Land Mobile Network (PLMN)".

[28] 3GPP TS 24.007: "Mobile radio interface signalling layer 3; General aspects".

[29] 3GPP TS 25.211: "Physical channels and mapping of transport channels onto physical channels (FDD)".

[30] 3GPP TS 25.323: "Packet Data Convergence Protocol (PDCP) Specification".

[31] 3GPP TS 33.102: "3G Security; Security Architecture".

[32] 3GPP TS 23.060: "General Packet Radio Service (GPRS) Service description; Stage 2".

[33] Void.

[34] 3GPP TS 23.040: "Technical realization of the Short Message Service (SMS)".

[35] 3GPP TS 23.038: "Alphabets and language-specific information".

[36] 3GPP TS 24.011: "Point-to-Point (PP) Short Message Service (SMS) support on mobile radio interface".

[37] 3GPP TS 25.324: "Broadcast/Multicast Control BMC".

[38] 3GPP TS 23.041: "Technical realization of Cell Broadcast Service (CBS)".

[39] RFC 2507: "IP Header Compression".

[40] RFC 3095: "RObust Header Compression (ROHC): Framework and four profiles: RTP, UDP, ESP, and uncompressed".

[41] RFC 4815: "RObust Header Compression (ROHC): Corrections and Clarifications to RFC 3095".

[42] 3GPP TS 23.228: “IP Multimedia Subsystem (IMS)”.

[43] 3GPP TS 22.246: “Multimedia Broadcast/Multicast Service (MBMS) user services; Stage 1”

[44] 3GPP TS 23.246: “Multimedia Broadcast/Multicast Service (MBMS); Architecture and functional description”

[45] 3GPP TS 51.010-2: “Mobile Station (MS) conformance specification; Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification”

[46] 3GPP TS 36.523-2: “Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access (E-UTRAN); User Equipment (UE) conformance specification; Part 2: Implementation Conformance Statement (ICS) proforma specification”

[47] 3GPP TS 36.523-3: “Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access (E-UTRAN); User Equipment (UE) conformance specification; Part 3: Test Suites”

[48] Void

[49] 3GPP TS 37.571-2: "User Equipment (UE) conformance specification for UE positioning; Part 2: Protocol conformance".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 apply, unless specified below:

example: text used to clarify abstract rules by applying them literally

Floor: Floor(x) is the largest integer smaller than or equal to x.

Ceil: Ceil (x) is the smallest integer larger than or equal to x.

3.2 Abbreviations

For the purposes of the present document, the abbreviations specified in TR 21.905 apply, with any additional abbreviations specified below:

SS System Simulator

4 Overview

4.1 Test Methodology

4.1.1 Testing of optional functions and procedures

Any function or procedure which is optional, as indicated in the present document may be subject to a conformance test if it is implemented in the UE.

A declaration by the apparatus supplier (ICS) is used to determine whether an optional function/procedure has been implemented.

4.1.2 Test interfaces and facilities

Detailed descriptions of the UE test interfaces and special facilities for testing are provided in [10].

4.2 Implicit Testing

For some 3GPP signalling and protocol features conformance is not verified explicitly in the present document. This does not imply that correct functioning of these features is not essential, but that these are implicitly tested to a sufficient degree in other tests.

5 Reference Conditions

The reference environments used by all signalling and protocol tests are specified in TS 34.108. Where a test requires an environment that is different, this will be specified in the test itself.

5.1 Generic setup procedures

A set of basic generic procedures for radio resource signalling, and generic setup procedures for layer 3 NAS signalling are described in TS 34.108 clause 7. These procedures are used in numerous test cases throughout the present document.

6 Idle mode operations

In the following paragraphs some explanatory text is given concerning the nature of the tests in this clause and the general behaviour of the SS is described.

Since the conformance requirements of most of the tests in this clause cannot be tested explicitly, testing is done implicitly by testing the UE behaviour from its responses to the SS.

In some cases, a test is performed in multiple stages in order that the requirements can be tested within the above constraints.

For any UE all the carriers are in its supported band(s) of operation.

Unless otherwise stated in the method of test, in all of the tests of this clause:

- the default values of the system information data fields given in TS 34.108 are used;
- the UE is equipped with a USIM containing default values. The USIM is in the idle updated state in the default location area with a TMSI assigned at the beginning of each test;
- default cell numbering as defined in TS 34.108 clause 6.1 have been used in the cell selection and re-selection test cases;
- the cells shall be configured such that Squal>0 (FDD only) and Srxlev>0 while applying Qqualmin (FDD only) and Qrxlevmin in table 6.1. In addition, for an FDD cell, the measured primary CPICH RSCP value shall be greater than or equal to -95 dBm (definition of High Quality cell, see TS 25.304, clause 5.1.2.2). In addition, for a TDD cell, the measured P-CCPCH RSCP shall be greater than or equal to –84 dBm (definition of High Quality cell, see TS 25.304, clause 5.1.2.2).

Three different methods A, B and C are applied in the tests:

Method A:

- the SS is continuously paging the UE on all cells at the start of the test and does not respond to RACH requests from the UE (which causes a cell reselection). Where a test specifies that the UE is not paged on a particular cell, only idle paging is transmitted. This method is similar to the one used in TS 51.010-1, clause 20.

Method B:

- the SS is continuously paging the UE on all cells at the start of the test and responds to RACH requests from the UE with an IMMEDIATE ASSIGNMENT REJECT (GERAN cell) or RRC CONNECTION REJECT (UTRAN cell) message which causes the UE to return to Idle mode. Where a test specifies that the UE is not paged in a particular cell, only idle paging is transmitted.

Method C:

- no continuously paging as in method A or B. Normal response to RACH requests so Location Updating and Calls can be done.

In case a test specifies that UE shall read System Information on BCCH while camped on a UTRAN cell, SS shall notify UE on the BCCH modification by sending a PAGING TYPE 1 message to UE. This message shall contain IE BCCH Modification Info with the following settings:

Information Element	Value/remark
BCCH modification info	
MIB Value Tag	Set to the same value as the value tag of the MIB after the BCCH modification
BCCH Modification time	Not present

Table 6.1: Default values of the system information fields

Parameter	Setting
IMSI attach/detach	Method A, B: Not allowed Method C: Allowed
Intra-frequency cell re-selection indicator	Set to allowed if IE Cell Barred is set to barred; otherwise this IE Not Present
Cell_selection_and_reselection_quality_measure	CPICH RSCP (FDD)
Qqualmin (FDD only)	-24 dB
Qrxlevmin (FDD)	-115 dBm
Qrxlevmin (TDD)	-103 dBm
DRX cycle length	1,28 s

For a UE camping in a FDD cell, CPICH_Ec/Io and SCH_Ec/Io shall fulfil requirements in TS 25.133, clause 8.1.2.2.1: The UE is able to identify a new detectable cell belonging to the monitored set within $T_{identify\ intra}$ when CPICH Ec/Io $\geq$ -20 dB and SCH_Ec/Io $\geq$ -20 dB.

For a UE camping in a TDD cell, the UE shall be able to identify a new detectable cell belonging to the monitored set within $T_{identify\ intra}$ when fulfil requirements in TS 25.123, clause 8.1.2.2 for TDD 3.84 Mcps option and 8.1A.2.2 for TDD 1.28 Mcps option.

It is a UE option whether to indicate access technologies to the user (TS 23.122, clause 4.4.3.1.2). Therefore, for combined UTRAN/GSM tests, it is indicated in parentheses which access technology shall be indicated to the user if the UE has this capability.

If a parameter is indicated with a *, it means that the parameter is calculated internally in the UE and is only shown for clarification of the test procedure.

The PLMN numbers indicated in table 6.2 are used in test cases to associate a cell with an MCC and MNC for that cell. If no PLMN is explicitly specified, the default value is PLMN 1.

Table 6.2: Location Area Information (LAI) in System Information type 3 messages broadcast on the BCCH (GSM) or System Information Block Type 1 broadcast on the BCH (UMTS)

PLMN	MCC1	MCC2	MCC3	MNC1	MNC2	MNC3	LAC
1	0	0	1	0	1	Not present	x
2	0	0	2	1	1	Not present	x
3	0	0	3	2	1	Not present	x
4	0	0	4	3	1	Not present	x
5	0	0	5	4	1	Not present	x
6	0	0	6	5	1	Not present	x
7	0	0	7	6	1	Not present	x
8	0	0	8	7	1	Not present	x
9	0	0	9	0	2	Not present	x
10	0	1	0	1	2	Not present	x
11	0	1	1	2	2	Not present	x
12	0	1	2	3	2	Not present	x
NOTE: 'x' denotes any value.							

NOTE: '3rd digit of MNC value is equal to '1' for test cases 6.2.1.2a.1 and TC 6.2.1.8a.2 and 6.2.1.8a.3 if PLMN's are used for ITU region 2.

References: TS 23.122, annex A and TS 23.003, clause 2.

The FDD frequency bands used in different ITU regions are indicated in table 6.2A. These frequency bands may be selected in dependency of the ITU regions in the initial conditions of each test case.

Table 6.2A: FDD frequency bands used in different ITU regions

Operating FDD Band	FDD Frequency used in ITU region (Note)
I	1/3
II	2
III	1
IV	2
V	2/3
VI	3
VII	1
VIII	1
IX	3
X	2
XI	3
XII	2
XIII	2
XIV	2
XIX	3
XX	1
XXI	3
XXII	1

NOTE: The FDD frequency bands used in ITU region 3 for the selection of RAT for PLMNs between frequency bands of different ITU regions are FFS.

The GSM frequency bands used in different ITU regions are indicated in table 6.2B. These frequency bands may be selected according to the requirement mentioned in the initial conditions of each test case.

Table 6.2B: GSM frequency bands used in different ITU regions

Operating GSM Band	GSM Frequency used in ITU region (Note)
GSM 850	2
GSM 900	1
DCS 1 800	1
PCS 1 900	2

NOTE: The GSM frequency bands used in ITU region 3 for the selection of RAT for PLMNs between frequency bands of different ITU regions are FFS.

The test channel numbers indicated in tables 6.3, 6.3B, 6.4, 6.4a, 6.5, 6.6 and 6.7 are used in test cases to associate a cell with a frequency for that cell. The frequencies for GSM and DCS cells in table 6.5, 6.6 and 6.7 are identical to those used in TS 51.010-1, clause 26.3.1. The RF signal levels are given in table 6.5, 6.6 and 6.7 for GSM cells, in table 6.3 and 6.3B for UTRAN FDD cells, in table 6.4 for UTRAN TDD cells 3.84 Mcps option and in table 6.4a for UTRAN TDD cells 1.28 Mcps option. If no channel is explicitly specified, the default value is Test Channel 1.

NOTE: The following list contains the test case(s) which simultaneously configure(s) 4 or more than 4 channels and make(s) use of these tables: test 9.4.5.4.1.

Table 6.3: UTRA (FDD) test frequencies

Test Channel:	1	2	3	4	Unit
RF signal level	-60	-65	-70	-75	CPICH_Ec dBm / 3.84 MHz
Band I	9 613	9 663	9 713	9 763	Uplink UARFCN
Band II	9 263	9 313	9 363	9 413	Uplink UARFCN
Band III	938	988	1 038	1 088	Uplink UARFCN
Band IV	1 313	1 363	1 413	1 463	Uplink UARFCN
Band V (*)	4 133	4 158	4 183	4 208	Uplink UARFCN
Band VI (*)	812	837	Void	Void	Uplink UARFCN
Band VII	2 013	2 063	2 113	2 163	Uplink UARFCN
Band VIII (**)	2 713	2 763	2 813	2 862	Uplink UARFCN
Band IX	8 762	8 812	8 862	8 912	Uplink UARFCN
Band X	2888	2938	2988	3038	Uplink UARFCN
Band XI (*)	3487	3512	3537	3562	Uplink UARFCN
Band XII (*)	3613	3638	3663	Void	Uplink UARFCN
Band XIII (*)	3842	3867	Void	Void	Uplink UARFCN
Band XIV (*)	3942	3967	Void	Void	Uplink UARFCN
Band XIX (*)	387	412	437	Void	Uplink UARFCN
Band XX (*)	4288	4338	4388	Void	Uplink UARFCN
Band XXI (*)	462	487	512	Void	Uplink UARFCN
Band XXII	4438	4488	4538	4588	Uplink UARFCN
Band XXV	4488	4538	4588	4638	Uplink UARFCN

NOTE: Bands marked with (*) use a 5 MHz spacing between test channels because the total available bandwidth is limited. Other bands use a 10 MHz spacing between test channels. For Band VIII (**) test channel 4 is only 9.8 MHz separated from test channel 3. Test cases which use more than the currently defined test channels in Table 6.3 can not be executed and are not applicable for Band VI, XII, XIII, XIV, XIX and XXI.

Table 6.3A: Void

NOTE: The following list in table 6.3B is used for test cases in section 6.2.1.8a which verify the selection of RAT for OPLMN between frequency bands of different ITU regions. Test Channel combinations defined for single FDD frequency band (e.g. Band I) are used if the UE supports only one FDD frequency band within one ITU region (e.g. UE supports only FDD I for ITU region 1 and FDD II for ITU region 2).

Table 6.3B: UTRA (FDD) test frequencies and levels for test cases which verify the selection of RAT for PLMN between frequency bands of different ITU regions

Test Channel:	1	2	3	4	Unit
RF signal level	-60	-65	-70	-75	CPICH_Ec dBm / 3.84 MHz
Band I	9613	9663	9613	9663	Uplink UARFCN
Band II	9263	9313	9263	9313	Uplink UARFCN
Band III	FFS	FFS	FFS	FFS	Uplink UARFCN
Band IV	1313	1363	1313	1363	Uplink UARFCN
Band V (*)	4133	4158	4133	4158	Uplink UARFCN
Band VI	FFS	FFS	FFS	FFS	Uplink UARFCN
Band VII	FFS	FFS	FFS	FFS	Uplink UARFCN
Band VIII (**)	2713	2763	2713	2763	Uplink UARFCN
Band IX	FFS	FFS	FFS	FFS	Uplink UARFCN
Band X	FFS	FFS	FFS	FFS	Uplink UARFCN
Band XI	FFS	FFS	FFS	FFS	Uplink UARFCN
Band XII	FFS	FFS	FFS	FFS	Uplink UARFCN
Band XIII	FFS	FFS	FFS	FFS	Uplink UARFCN
Band XIV	FFS	FFS	FFS	FFS	Uplink UARFCN
Band XIX	FFS	FFS	FFS	FFS	Uplink UARFCN
Band XX	FFS	FFS	FFS	FFS	Uplink UARFCN
Band XXI	FFS	FFS	FFS	FFS	Uplink UARFCN
Band XXII	FFS	FFS	FFS	FFS	Uplink UARFCN
Band I / VIII	9613	2713	2713	9613	Uplink UARFCN
Band II / IV	9263	1313	1313	9263	Uplink UARFCN
Band II / V	9263	4133	4133	9263	Uplink UARFCN
Band V / IV	4133	1313	1313	4133	Uplink UARFCN

NOTE: Bands marked with (*) use a 5 MHz spacing between test channels because the total available bandwidth is limited. Other bands use a 10 MHz spacing between test channels. For Band VIII (**) test channel 4 is only 9.8 MHz separated from test channel 3.

References: TS 34.108, clause 5.1.1 and TS 34.121, clause 4.

Table 6.4: UTRA TDD test frequencies (3.84 Mcps option)

	Band a		Band b		Band c	
Test Channel	**P-CCPCH_ RSCP [dBm]**	**UARFCN**	**P-CCPCH_ RSCP [dBm]**	**UARFCN**	**P-CCPCH_ RSCP [dBm]**	**UARFCN**
1	-54	9 513	-54	9 263	-54	9563
2	-59	9 550	-59	9 400	-59	9577
3	-64	9 587	-64	9 537	-64	9591
4	-69	10 063	-69	9 663	-69	9605
5	-74	10 087	-74	9 800	-74	9619
6	-79	10 112	-79	9 937	-79	9637

Table 6.4a: UTRA TDD test frequencies (1.28 Mcps option)

	Band a		Band b		Band c	
Test Channel	**P-CCPCH_ RSCP [dBm]**	**UARFCN**	**P-CCPCH_ RSCP [dBm]**	**UARFCN**	**P-CCPCH_ RSCP [dBm]**	**UARFCN**
1	-54	9 505	-54	9 255	-54	9555
2	-59	9 550	-59	9 400	-59	9573
3	-64	9 595	-64	9 545	-64	9591
4	-69	10 055	-69	9 655	-69	9608
5	-74	10 088	-74	9 800	-74	9626
6	-79	10 120	-79	9 945	-79	9645

References: TS 34.108, clause 5.1.2 and TS 34.122, clause 4.

Table 6.5: GSM/DCS test frequencies and levels

Test Channel:	1	2	3	Unit
RF signal level	+65 / -48	+63 / -50	+61 / -52	dBμVemf( ) / dBm
GSM 450	259	261	267	BCCH ARFCN
DCS 480	306	308	314	BCCH ARFCN
GSM 710/ GSM 750/ T-GSM 810	441	452	461	BCCH ARFCN
GSM 850	251	224	212	BCCH ARFCN
GSM 900	1	7	39	BCCH ARFCN
DCS 1800	885	830	703	BCCH ARFCN
PCS 1900	800	703	610	BCCH ARFCN
Multiband 450/900	1	261	267	BCCH ARFCN
Multiband 480/900	1	308	314	BCCH ARFCN
Multiband 450/1800	885	261	267	BCCH ARFCN
Multiband 480/1800	885	308	314	BCCH ARFCN
Multiband 900/1800	885	7	39	BCCH ARFCN

NOTE: The test channels using GSM/DCS test frequencies defined in Table 6.5 are also used in interRAT measurement test cases of section 8.4.

For GSM 710 and T-GSM 810 Bands, ARFCNs are defined using Dynamic Mapping. The information about dynamic mapping is provided by System Information type 15 and the required parameters are defined in 3GPP 51.010-1[13], Table 20.1d.

The following list in table 6.6 is used for test cases which verify the selection of RAT for PLMN between frequency bands of different ITU regions when FDD frequency band of ITU region 2 is configured. Test Channel combinations of one, two or three GSM frequency bands are used if the UE supports only one, two or three GSM frequency bands.

Table 6.6: GSM/DCS test frequencies and levels for test cases which verify the selection of RAT for PLMN between frequency bands of different ITU regions when FDD frequency band of ITU region 2 is configured

Test Channel:	1	2	3	Unit
RF signal level	+65 / -48	+63 / -50	+61 / -52	dBμVemf( ) / dBm
GSM 900	65	66	65	BCCH ARFCN
GSM 1800	520	522	520	BCCH ARFCN
GSM 900 / 1800	520	66	520	BCCH ARFCN
GSM 900 / 850	215	65	66	BCCH ARFCN
GSM 900 / 1900	702	65	66	BCCH ARFCN
GSM 1800 / 850	215	520	522	BCCH ARFCN
GSM 1800 / 1900	522 (GSM 1800)	520 (GSM 1800)	522 (GSM 1800)	BCCH ARFCN
GSM 900 / 1800 / 850	215	65	520	BCCH ARFCN
GSM 900 / 850 / 1900	702	65	66	BCCH ARFCN
GSM 900 / 1800 / 1900	702 (GSM 1900)	65	520 (GSM 1800)	BCCH ARFCN
GSM 1800 / 850 / 1900	215	520 (GSM 1800)	522 (GSM 1800)	BCCH ARFCN
GSM 900 / 1800 / 850 / 1900	702 (GSM 1900)	65	520 (GSM 1800)	BCCH ARFCN

The following list in table 6.7 is used for test cases which verify the selection of RAT for PLMN between frequency bands of different ITU regions when FDD frequency band of ITU region 1 is configured. Test Channel combinations of one, two or three GSM frequency bands are used if the UE supports only one, two or three GSM frequency bands.

Table 6.7: GSM/DCS test frequencies and levels for test cases which verify the selection of RAT for PLMN between frequency bands of different ITU regions when FDD frequency band of ITU region 1 is configured

Test Channel:	1	2	3	Unit
RF signal level	+65 / -48	+63 / -50	+61 / -52	dBµVemf( ) / dBm
GSM 850	215	217	215	BCCH ARFCN
GSM 1900	702	704	702	BCCH ARFCN
GSM 850 / 1900	215	704	215	BCCH ARFCN
GSM 850 / 900	65	215	217	BCCH ARFCN
GSM_850 / 1800	520	215	217	BCCH ARFCN
GSM_1900 / 900	65	702	704	BCCH ARFCN
GSM_1900 / 1800	704 (GSM 1900)	702 (GSM 1900)	704 (GSM 1900)	BCCH ARFCN
GSM 850 / 1900 / 900	65	702	215	BCCH ARFCN
GSM 850 / 900 / 1800	65	215	217	BCCH ARFCN
GSM_850 / 1900 / 1800	215	702 (GSM 1900)	215	BCCH ARFCN
GSM 1900 / 900 / 1800	65	702	704	BCCH ARFCN
GSM 850 / 1900 / 900 / 1800	65	702	215	BCCH ARFCN

6.1 In a pure 3G environment

6.1.1 PLMN selection

6.1.1.1 PLMN selection of RPLMN, HPLMN, UPLMN and OPLMN; Manual mode

6.1.1.1.1 Definition

Test to verify that the UE can present the available PLMNs in priority order to the user when asked to do so in manual mode and that the displayed PLMNs can be selected / reselected by the user. If available, the RPLMN shall be selected at switch-on, otherwise the displayed list shall include in priority order HPLMN, User-PLMN and Operator-PLMN. The last priority in the list is "Other PLMN/access technology combinations" which is not included in this test.

Only UTRAN cells and a UE equipped with a USIM with Radio Access Technology fields set to UTRAN are considered.

6.1.1.1.2 Conformance requirement

1. At switch on, or following recovery from lack of coverage, the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see TS 23.122, clause 4.5.2) attempts to perform a Location Registration.

   If successful registration is achieved, the MS indicates the selected PLMN.

   If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows either Automatic or Manual Network Selection Mode Procedure depending on its operating mode.

2. Manual Network Selection Mode Procedure:

   The MS indicates whether there are any PLMNs, which are available using all supported access technologies. This includes PLMNs in the "forbidden PLMNs" list and PLMNs which only offer services not supported by the MS.

   If displayed, PLMNs meeting the criteria above are presented in the following order:

   2.1HPLMN;

   2.2PLMNs contained in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

2.3 PLMNs contained in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

2.4 Other PLMN/access technology combinations with received high quality signal in random order;

2.5 Other PLMN/access technology combinations in order of decreasing signal quality.

The user may select his desired PLMN and the MS then initiates registration on this PLMN using the access technology chosen by the user for that PLMN or using the highest priority available access technology for that PLMN, if the associated access technologies have a priority order. (This may take place at any time during the presentation of PLMNs). For such a registration, the MS shall ignore the contents of the "forbidden LAs for roaming", "forbidden LAs for regional provision of service", "forbidden PLMNs for GPRS service" and "forbidden PLMNs" lists.

If the user does not select a PLMN, the selected PLMN shall be the one that was selected before the PLMN selection procedure started. If no such PLMN was selected or that PLMN is no longer available, then the MS shall attempt to camp on any acceptable cell and enter the limited service state.

3. If a "PLMN not allowed" message is received by an MS in response to an LR request from a VPLMN, that VPLMN is added to a list of "forbidden PLMNs" in the SIM and thereafter that VPLMN will not be accessed by the MS when in automatic mode. A PLMN is removed from the "forbidden PLMNs" list if, after a subsequent manual selection of that PLMN, there is a successful LR. This list is retained when the MS is switched off or the SIM is removed. The HPLMN shall not be stored on the list of "forbidden PLMNs".

References

1. TS 23.122, clause 4.4.3.1;
2. TS 23.122, clause 4.4.3.1.2;
3. TS 23.122, clause 3.1.

NOTE: TS 31.102 defines the USIM fields.

6.1.1.1.3 Test purpose

1. To verify that if available, the RPLMN is selected at switch-on.
2. To verify that in Manual Network Selection Mode Procedure, the UE presents the HPLMN, UPLMN and OPLMN in a prioritized order.

6.1.1.1.4 Method of test

Initial conditions

The UE is in manual PLMN selection mode.

Cell levels are from table 6.3. (FDD).

All Radio Access Technology USIM fields and cells are UTRAN.

Cell	CPICH_ Ec [dBm/3.84 MHz] (FDD)	P-CCPCH_ RSCP [dBm] (TDD)	Test Channel	PLMN
Cell 1	-60	-54	1	PLMN 1
Cell 2	-65	-59	2	PLMN 2
Cell 4	-75	-69	3	PLMN 4
Cell 5	-80	-74	4	PLMN 5

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN
EF_{LOCI}		PLMN 1
$EF_{PLMNwAcT}$	1st	PLMN 4
$EF_{OPLMNwAcT}$	1st	PLMN 5

The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN2.

Test procedure

Method C is applied.

a) The SS activates 4 cells and monitors the cells for random access requests from the UE.

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) Cell 1 is switched off.

e) PLMN 4 shall be selected when the PLMN list is presented.

f) The SS waits for random access requests from the UE.

g) Cell 4 is switched off.

h) Void

i) PLMN 5 shall be selected (the list is already available).

j) The SS waits for random access requests from the UE.

k) Cell 5 is switched off.

l) PLMN 2 shall be selected when the PLMN list is presented.

m) The SS waits for random access requests from the UE.

n) Cell 2 is switched off.

6.1.1.1.5 Test Requirements

1) In step c), the response from the UE shall be on Cell 1. The displayed PLMN shall be PLMN 1.

2) In step e), the list shall be presented. The priority shall be as follows: PLMN 2, PLMN 4 and PLMN 5.

3) In step f), the response from the UE shall be on Cell 4. The displayed PLMN shall be PLMN 4.

4) In step j), the response from the UE shall be on Cell 5. The displayed PLMN shall be PLMN 5.

5) In step l), the list shall be presented. The priority shall be as follows: PLMN 2.

6) In step m), the response from the UE shall be on Cell 2. The displayed PLMN shall be PLMN 2.

6.1.1.2 PLMN selection of "Other PLMN / access technology combinations"; Manual mode

6.1.1.2.1 Definition

Test to verify that the UE can present the available high quality signal PLMNs in random order to the user when asked to do so in manual mode and that the displayed PLMNs can be selected / reselected by the user. Forbidden PLMNs shall also be displayed in the list.

Only UTRAN cells and a UE equipped with a USIM with Radio Access Technology fields set to UTRAN are considered.

6.1.1.2.2 Conformance requirement

1. At switch on, or following recovery from lack of coverage, the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see TS 23.122, clause 4.5.2) attempts to perform a Location Registration.

   If successful registration is achieved, the MS indicates the selected PLMN.

   If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows either Automatic or Manual Network Selection Mode Procedure depending on its operating mode.

2. Manual Network Selection Mode Procedure:

   The MS indicates whether there are any PLMNs, which are available using all supported access technologies. This includes PLMNs in the "forbidden PLMNs" list and PLMNs which only offer services not supported by the MS.

   If displayed, PLMNs meeting the criteria above are presented in the following order:

   2.1 HPLMN;

   2.2 PLMNs contained in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   2.3 PLMNs contained in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   2.4 Other PLMN/access technology combinations with received high quality signal in random order;

   2.5 Other PLMN/access technology combinations in order of decreasing signal quality.

   In 2.5, the MS shall order the PLMN/access technology combinations in order of decreasing signal quality within each access technology. The order between PLMN/access technology combinations with different access technologies is an MS implementation issue.

   The user may select his desired PLMN and the MS then initiates registration on this PLMN using the access technology chosen by the user for that PLMN or using the highest priority available access technology for that PLMN, if the associated access technologies have a priority order. (This may take place at any time during the presentation of PLMNs). For such a registration, the MS shall ignore the contents of the "forbidden LAs for roaming", "forbidden LAs for regional provision of service", "forbidden PLMNs for GPRS service" and "forbidden PLMNs" lists.

   If the user does not select a PLMN, the selected PLMN shall be the one that was selected before the PLMN selection procedure started. If no such PLMN was selected or that PLMN is no longer available, then the MS shall attempt to camp on any acceptable cell and enter the limited service state.

3. If a "PLMN not allowed" message is received by an MS in response to an LR request from a VPLMN, that VPLMN is added to a list of "forbidden PLMNs" in the SIM and thereafter that VPLMN will not be accessed by the MS when in automatic mode. A PLMN is removed from the "forbidden PLMNs" list if, after a subsequent manual selection of that PLMN, there is a successful LR. This list is retained when the MS is switched off or the SIM is removed. The HPLMN shall not be stored on the list of "forbidden PLMNs".

4. The UE shall scan all RF channels in the UTRA band according to its capabilities to find available PLMNs. On each carrier, the UE shall search for the strongest cell according to the cell search procedures (for FDD, see TS 25.214, and TDD, see TS 25.224) and read its system information, in order to find out which PLMN the cell belongs to. If the UE can read the PLMN identity, the found PLMN shall be reported to the NAS as a high quality PLMN (but without the RSCP value), provided that the following high quality criterion is fulfilled:

   - For an FDD cell, the measured primary CPICH RSCP value shall be greater than or equal to -95 dBm.

   - For a TDD cell, the measured P-CCPCH RSCP shall be greater than or equal to –84 dBm.

Found PLMNs that do not satisfy the high quality criterion, but for which the UE has been able to read the PLMN identities are reported to the NAS together with the CPICH RSCP value for UTRA FDD cells and P-CCPCH RSCP for UTRA TDD cells.

References

1. TS 23.122, clause 4.4.3.1.
2. TS 23.122, clause 4.4.3.1.2.
3. TS 23.122, clause 3.1.
4. TS 25.304, clause 5.1.2.2.

NOTE: TS 31.102 defines the USIM fields.

6.1.1.2.3 Test purpose

1. To verify that in Manual Network Selection Mode Procedure, the UE presents "Other PLMN/access technology combinations" in a random order according to conformance requirement 2.4. UE requirement on measurement accuracy for PLMN selection is not specified in core specifications. Therefore, the ordering of PLMNs according to conformance requirement 2.5 is not tested.
2. To verify that forbidden PLMNs are also displayed in the list.

6.1.1.2.4 Method of test

Initial conditions

The UE is in manual PLMN selection mode.

All Radio Access Technology USIM fields and cells are UTRAN.

Cell	CPICH_Ec [dBm/3.84 MHz] (FDD)	P-CCPCH_ RSCP [dBm] (TDD)	High Quality signal	Test Channel	PLMN
Cell 1	-85	-74	Yes	1	PLMN 6
Cell 2	-80	-69	Yes	2	PLMN 7
Cell 3	-80	-69	Yes	3	PLMN 8
Cell 4	-80	-69	Yes	4	PLMN 10

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN
EF_{LOCI}		PLMN 6
EF_{FPLMN}	PLMN 10	

Test procedure

Method C is applied.

a) The SS activates cells 1-4 and monitors the cells for random access requests from the UE.

b) The UE is switched on.

c) PLMN 6 shall be selected when the PLMN list is presented.

d) The SS waits for random access requests from the UE.

e) Cell 1 is switched off.

f) PLMN 7 shall be selected when the PLMN list is presented.

g) The SS waits for random access requests from the UE.

h) Cell 2 is switched off.

i) PLMN 8 shall be selected when the PLMN list is presented.

j) The SS waits for random access requests from the UE.

k) Cell 3 is switched off.

l) PLMN 10 shall be selected when the PLMN list is presented. The SS shall accept the Registration Request from the UE.

m) Cell 4 is switched off.

6.1.1.2.5 Test Requirements

1) In step c), the list shall be presented. The priority shall be as follows: PLMN 6 followed by PLMN 7, PLMN 8 and PLMN 10 in random order.

2) In step d), the response from the UE shall be on Cell 1. The displayed PLMN shall be PLMN 6.

3) In step f), the list shall be presented. The priority shall be as follows: PLMN 7, PLMN 8 and PLMN 10 in random order.

4) In step g), the response from the UE shall be on Cell 2. The displayed PLMN shall be PLMN 7.

5) In step i), the list shall be presented. The priority shall be as follows: PLMN 8 and PLMN 10 in random order.

6) In step j), the response from the UE shall be on Cell 3. The displayed PLMN shall be PLMN 8.

7) In step l), the list shall be presented containing only PLMN 10. The UE shall perform successful registration on Cell 4.

8) After step m), the UE shall inform that no network is available.

6.1.1.3 PLMN selection; independence of RF level and preferred PLMN; Manual mode

6.1.1.3.1 Definition

Test to verify that in Manual Network Selection Mode, the UE is able to obtain normal service on a PLMN which is neither the better nor a preferred PLMN and that it tries to obtain service on a VPLMN if and only if the user selects it manually.

6.1.1.3.2 Conformance requirement

1. At switch on, or following recovery from lack of coverage, the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see TS 23.122, clause 4.5.2) attempts to perform a Location Registration.

   If successful registration is achieved, the MS indicates the selected PLMN.

   If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows either Automatic or Manual Network Selection Mode Procedure depending on its operating mode.

2. Manual Network Selection Mode Procedure:

   The MS indicates whether there are any PLMNs, which are available using all supported access technologies. This includes PLMNs in the "forbidden PLMNs" list and PLMNs which only offer services not supported by the MS.

If displayed, PLMNs meeting the criteria above are presented in the following order:

2.1HPLMN;

2.2PLMNs contained in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

2.3PLMNs contained in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

2.4Other PLMN/access technology combinations with received high quality signal in random order;

2.5Other PLMN/access technology combinations in order of decreasing signal quality.

The user may select his desired PLMN and the MS then initiates registration on this PLMN using the access technology chosen by the user for that PLMN or using the highest priority available access technology for that PLMN, if the associated access technologies have a priority order. (This may take place at any time during the presentation of PLMNs). For such a registration, the MS shall ignore the contents of the "forbidden LAs for roaming", "forbidden LAs for regional provision of service", "forbidden PLMNs for GPRS service" and "forbidden PLMNs" lists.

If the user does not select a PLMN, the selected PLMN shall be the one that was selected before the PLMN selection procedure started. If no such PLMN was selected or that PLMN is no longer available, then the MS shall attempt to camp on any acceptable cell and enter the limited service state.

References

1. TS 23.122, clause 4.4.3.1.
2. TS 23.122, clause 4.4.3.1.2

NOTE: TS 31.102 defines the USIM fields.

6.1.1.3.3 Test purpose

1. To verify that the selected PLMN at switch-on is the HPLMN.
2. To verify that in Manual Network Selection Mode Procedure the UE tries to obtain service on a VPLMN if and only if the user selects it manually.
3. To verify that the UE is able to obtain normal service on a PLMN which is neither the better nor a preferred PLMN.

6.1.1.3.4 Method of test

Initial conditions

The UE is in manual PLMN selection mode.

"IMSI attach" flag in the BCCH is set to allowed.

For FDD only:

Step a-d:

Parameter	Unit	Cell 1	Cell 2	Cell 3
Test Channel		1	2	3
CPICH_Ec	dBm/3.84 MHz	-60	-70	OFF
PLMN		1	2	3

Step e-f:

CPICH_Ec	dBm/3.84 MHz	-60 -> OFF	-70	OFF

Step g-h:

CPICH_Ec	dBm/3.84 MHz	OFF	-70	OFF -> -60

Step i-l:

CPICH_Ec	dBm/3.84 MHz	OFF	-70 -> OFF	-60

For TDD only:

Step a-d:

Parameter	Unit	Cell 1	Cell 2	Cell 3
Test Channel		1	2	3
P-CCPCH RSCP	dBm	-69	-74	OFF
PLMN		1	2	3

Step e-f:

P-CCPCH RSCP		-69 -> OFF	-74	OFF

Step g-h:

P-CCPCH RSCP		OFF	-74	OFF -> -69

Step k-l:

P-CCPCH RSCP		OFF	-74 -> OFF	-69

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN
EF_{LOCI}		
$EF_{PLMNwAcT}$	1st	PLMN 3

The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN1.

Test procedure

Method C is applied.

a) The SS activates cells 1 and 2.

b) The UE is switched on.

c) PLMN 1 is selected manually.

d) The SS waits for random access requests from the UE. A complete Location Update is done.

e) Cell 1 is switched off.

f) The SS waits to see if there is any random access request from the UE.

g) Cell 3 is switched on.

h) The SS waits to see if there is any random access request from the UE.

i) PLMN 2 is selected manually.

j) The SS waits for random access requests from the UE. A complete Location Update is done.

k) Cell 2 is switched off.

l) The SS waits to see if there is any random access request from the UE.

6.1.1.3.5 Test Requirements

1) In step d), there shall be a response on Cell 1. The selected PLMN shall be PLMN 1.

2) In step f), there shall be no response from the UE within 2 min.

3) In step h), there shall be no response from the UE within 2 min.

4) In step j), there shall be a response on Cell 2. The selected PLMN shall be PLMN 2.

5) In step l), there shall be no response from the UE within 2 min.

6.1.1.4 PLMN selection of RPLMN, HPLMN, UPLMN and OPLMN; Automatic mode

6.1.1.4.1 Definition

Test to verify that in Automatic Network Selection Mode, the UE selects PLMNs in a prioritized order. If available, the RPLMN shall be selected at switch-on, otherwise the list shall include in priority order HPLMN, User-PLMN and Operator-PLMN. The last priority in the list is "Other PLMN/access technology combinations" which is not included in this test.

Only UTRAN cells and a UE equipped with a USIM with Radio Access Technology fields set to UTRAN are considered.

6.1.1.4.2 Conformance requirement

1. At switch on, or following recovery from lack of coverage, the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see TS 23.122, clause 4.5.2) attempts to perform a Location Registration.

   If successful registration is achieved, the MS indicates the selected PLMN.

   If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows either Automatic or Manual Network Selection Mode Procedure depending on its operating mode.

2. Automatic Network Selection Mode Procedure:

   The MS selects and attempts registration on other PLMNs, if available and allowable in the following order:

   2.1 HPLMN (if not previously selected);

   2.2 Each PLMN in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   2.3 Each PLMN in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   2.4 Other PLMN/access technology combinations with received high quality signal in random order;

   2.5 Other PLMN/access technology combinations in order of decreasing signal quality.

   If successful registration is achieved, the MS indicates the selected PLMN.

If registration cannot be achieved because no PLMNs are available and allowable, the MS indicates "no service" to the user, waits until a new PLMN is available and allowable and then repeats the procedure.

If there were one or more PLMNs which were available and allowable, but an LR failure made registration on those PLMNs unsuccessful or an entry in the "forbidden LAs for regional provision of service" list prevented a registration attempt, the MS selects the first such PLMN again and enters a limited service state.

3. If a "PLMN not allowed" message is received by an MS in response to an LR request from a VPLMN, that VPLMN is added to a list of "forbidden PLMNs" in the SIM and thereafter that VPLMN will not be accessed by the MS when in automatic mode. A PLMN is removed from the "forbidden PLMNs" list if, after a subsequent manual selection of that PLMN, there is a successful LR. This list is retained when the MS is switched off or the SIM is removed. The HPLMN shall not be stored on the list of "forbidden PLMNs".

References

1. TS 23.122, clause 4.4.3.1.
2. TS 23.122, clause 4.4.3.1.1.
3. TS 23.122, clause 3.1.

NOTE: TS 31.102 defines the USIM fields.

6.1.1.4.3 Test purpose

1. To verify that if available, the RPLMN is selected at switch-on.
2. To verify that in Automatic Network Selection Mode Procedure, the UE selects the RPLMN, HPLMN, UPLMN and OPLMN in a prioritized order.

6.1.1.4.4 Method of test

Initial conditions

The UE is in automatic PLMN selection mode.

"IMSI attach" flag in the BCCH is set to allowed.

Cell levels are from table 6.3 (FDD).

All Radio Access Technology USIM fields and cells are UTRAN.

In the System Information broadcast in each cell, the neighbouring cell list does not contain any cell belonging to the other PLMN's.

Cell	CPICH_ Ec [dBm/3.84 MHz] (FDD)	P-CCPCH_ RSCP [dBm] (TDD)	Test Channel	PLMN
Cell 1	-60	-54	1	PLMN 2
Cell 2	-65	-59	2	PLMN 1
Cell 4	-75	-69	3	PLMN 4
Cell 5	-80	-74	4	PLMN 5

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN
$EF_{PLMNwAcT}$	1st	PLMN 4
$EF_{OPLMNwAcT}$	1st	PLMN 5

The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN1.

UE is previously registered on PLMN2, before switched off.

Test procedure

Method C is applied.

a) The SS activates 4 cells and monitors the cells for random access requests from the UE.

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) Cell 1 is switched off.

e) The SS waits for random access requests from the UE.

f) Cell 2 is switched off.

g) The SS waits for random access requests from the UE.

i) Cell 4 is switched off.

j) The SS waits for random access requests from the UE.

k) Cell 5 is switched off.

6.1.1.4.5 Test Requirements

1) In step c), the response from the UE shall be on Cell 1. The displayed PLMN shall be PLMN 2.

2) In step e), the response from the UE shall be on Cell 2. The displayed PLMN shall be PLMN 1.

3) In step g), the response from the UE shall be on Cell 4. The displayed PLMN shall be PLMN 4.

4) In step j), the response from the UE shall be on Cell 5. The displayed PLMN shall be PLMN 5.

6.1.1.5 PLMN selection of "Other PLMN / access technology combinations"; Automatic mode

6.1.1.5.1 Definition

Test to verify that in Automatic Network Selection Mode, the UE selects high quality signal PLMNs in a random order.

Only UTRAN cells and a UE equipped with a USIM with Radio Access Technology fields set to UTRAN are considered.

6.1.1.5.2 Conformance requirement

1. At switch on, or following recovery from lack of coverage, the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see TS 23.122, clause 4.5.2) attempts to perform a Location Registration.

   If successful registration is achieved, the MS indicates the selected PLMN.

   If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows either Automatic or Manual Network Selection Mode Procedure depending on its operating mode.

2. Automatic Network Selection Mode Procedure:

   The MS selects and attempts registration on other PLMNs, if available and allowable in the following order:

   2.1 HPLMN (if not previously selected);

   2.2 Each PLMN in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

2.3 Each PLMN in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

2.4 Other PLMN/access technology combinations with received high quality signal in random order;

2.5 Other PLMN/access technology combinations in order of decreasing signal quality.

In 2.5, the MS shall order the PLMN/access technology combinations in order of decreasing signal quality within each access technology. The order between PLMN/access technology combinations with different access technologies is an MS implementation issue.

If successful registration is achieved, the MS indicates the selected PLMN.

If registration cannot be achieved because no PLMNs are available and allowable, the MS indicates "no service" to the user, waits until a new PLMN is available and allowable and then repeats the procedure.

If there were one or more PLMNs which were available and allowable, but an LR failure made registration on those PLMNs unsuccessful or an entry in the "forbidden LAs for regional provision of service" list prevented a registration attempt, the MS selects the first such PLMN again and enters a limited service state.

3. If a "PLMN not allowed" message is received by an MS in response to an LR request from a VPLMN, that VPLMN is added to a list of "forbidden PLMNs" in the SIM and thereafter that VPLMN will not be accessed by the MS when in automatic mode. A PLMN is removed from the "forbidden PLMNs" list if, after a subsequent manual selection of that PLMN, there is a successful LR. This list is retained when the MS is switched off or the SIM is removed. The HPLMN shall not be stored on the list of "forbidden PLMNs".

4. The UE shall scan all RF channels in the UTRA band according to its capabilities to find available PLMNs. On each carrier, the UE shall search for the strongest cell according to the cell search procedures (for FDD, see TS 25.214, and TDD, see TS 25.224) and read its system information, in order to find out which PLMN the cell belongs to. If the UE can read the PLMN identity, the found PLMN shall be reported to the NAS as a high quality PLMN (but without the RSCP value), provided that the following high quality criterion is fulfilled:

   - For an FDD cell, the measured primary CPICH RSCP value shall be greater than or equal to -95 dBm.
   - For a TDD cell, the measured P-CCPCH RSCP shall be greater than or equal to –84 dBm.

   Found PLMNs that do not satisfy the high quality criterion, but for which the UE has been able to read the PLMN identities are reported to the NAS together with the CPICH RSCP value for UTRA FDD cells and P-CCPCH RSCP for UTRA TDD cells.

References

1. TS 23.122, clause 4.4.3.1.
2. TS 23.122, clause 4.4.3.1.1.
3. TS 23.122, clause 3.1.
4. TS 25.304, clause 5.1.2.2.

NOTE: TS 31.102 defines the USIM fields.

6.1.1.5.3 Test purpose

1. To verify that in Automatic Network Selection Mode Procedure, the UE selects "Other PLMN/access technology combinations" in a random order according to conformance requirement 2.4. UE requirement on measurement accuracy for PLMN selection is not specified in core specifications. Therefore, the ordering of PLMNs according to conformance requirement 2.5 is not tested.

6.1.1.5.4 Method of test

Initial conditions

The UE is in automatic PLMN selection mode.

All Radio Access Technology USIM fields and cells are UTRAN.

Cell	CPICH_Ec [dBm/3.84 MHz] (FDD)	P-CCPCH_ RSCP [dBm] (TDD)	High Quality signal	Test Channel	PLMN
Cell 1	-85	-74	Yes	1	PLMN 6
Cell 2	-80	-69	Yes	2	PLMN 7
Cell 3	-80	-69	Yes	3	PLMN 8

UE is previously registered on PLMN6, before switched off.

Test procedure

Method C is applied.

a) The SS activates cells 1-3 and monitors the cells for random access requests from the UE.

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) Cell 1 is switched off.

e) The SS waits for random access requests from the UE.

f) The cell associated to the currently shown PLMN shall be switched off.

g) The SS waits for random access requests from the UE.

6.1.1.5.5 Test Requirements

1) In step c), the response from the UE shall be on Cell 1. The displayed PLMN shall be PLMN 6.

2) In step e), the response from the UE shall be on either Cell 2 or 3. The displayed PLMN shall be the one associated with the cell on which the response was received.

3) In step g), the response from the UE shall be on either Cell 2 or 3 (excluding the cell in step 2). The displayed PLMN shall be the one associated with the cell on which the response was received.

6.1.1.6 Void

6.1.1.7 Cell reselection of ePLMN in manual mode

6.1.1.7.1 Definition

Test to verify that the UE shall be able to reselect to a cell of another PLMN declared as equivalent PLMN to the registered PLMN in the manual mode.

6.1.1.7.2 Conformance requirement

B) Manual network selection mode

Once the UE has registered on a PLMN selected by the user, the UE shall not automatically register on a different PLMN unless:

i) The new PLMN is declared as an equivalent PLMN by the registered PLMN;

or,

ii) The user selects automatic mode.

References:

TS 22.011 clause 3.2.2.2B

6.1.1.7.3 Test purpose

To verify that in Manual Network Selection Mode Procedure, the UE can perform cell reselection to an equivalent PLMN.

6.1.1.7.4 Method of test

Initial conditions

The UE is in manual PLMN selection mode and has successfully selected a PLMN in manual PLMN selection mode.

Cell_selection_and_reselection_quality_measure is CPICH_RSCP (FDD).

All Radio Access Technology USIM fields and cells are UTRAN.

Each cell shall include the other cells as neighbouring cells in System Information Block Type 11.

Cell	CPICH_Ec [dBm/3.84 MHz] (FDD)	P-CCPCH_ RSCP [dBm] (TDD)	Test Channel	PLMN
Cell 1	-78	-69	1	PLMN 1
Cell 4	-62	-54	2	PLMN 2
Cell7	-68	-64	3	PLMN 3

Values of the system information fields applicable for this test case to fulfil the criteria of Cell Reselection

Parameter	Setting
IMSI attach/detach	Method A, B: Not allowed Method C: Allowed
Cell_selection_and_reselection_quality_measure	CPICH RSCP (FDD)
Qqualmin (FDD only)	-16 dB
Qrxlevmin (FDD)	-115 dBm
Qrxlevmin (TDD)	-103 dBm
DRX cycle length	1,28 s

PLMN1 is the HPLMN.

UE is previously registered on PLMN1, before switched off.

Test procedure

a) The SS activates cells 1.

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) A Location Update Accept message shall be sent on reception of a Location Update message from the UE. The Location Update Accept message shall include PLMN3 in the equivalent PLMN list. For a UE that supports both CS and PS domain or PS domain only, the Location Updating procedure could be replaced by the appropriate GMM registration procedure. In these cases, the GMM Attach Accept message shall include PLMN3 in the equivalent PLMN list.

e) Cell 4 and 7 are activated.

6.1.1.7.5 Test Requirements

1) In step c), the response from the UE shall be on Cell 1. The displayed PLMN shall be PLMN 1.

2) In step e), the UE shall perform a cell reselection and Location Update or Routing Area Update to PLMN 3, which is equivalent to PLMN1.

6.1.1.8 PLMN selection in shared network environment, Automatic mode

6.1.1.8.1 Definition

Test to verify that when operating in automatic PLMN selection mode in shared network environment, the UE selects PLMNs in a prioritized order according to TS 23.122. Forbidden PLMNs shall not be selected. RPLMN shall be selected at switch-on, otherwise the list shall include in priority order HPLMN, User-PLMN and Operator-PLMN. The last priority in the list is "Other PLMN/access technology combinations" which is not included in this test.

Only UTRAN cells and a UE equipped with a USIM with Radio Access Technology fields set to UTRAN are considered.

6.1.1.8.2 Conformance requirement

1. At switch on, or following recovery from lack of coverage, the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see TS 23.122, clause 4.5.2) attempts to perform a Location Registration.

   If successful registration is achieved, the MS indicates the selected PLMN.

   If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows either Automatic or Manual Network Selection Mode Procedure depending on its operating mode.

2. Automatic Network Selection Mode Procedure:

   The MS selects and attempts registration on other PLMNs, if available and allowable in the following order:

   2.1 HPLMN (if not previously selected);

   2.2 Each PLMN in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   2.3 Each PLMN in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   2.4 Other PLMN/access technology combinations with received high quality signal in random order;

   2.5 Other PLMN/access technology combinations in order of decreasing signal quality.

   If successful registration is achieved, the MS indicates the selected PLMN.

   If registration cannot be achieved because no PLMNs are available and allowable, the MS indicates "no service" to the user, waits until a new PLMN is available and allowable and then repeats the procedure.

   If there were one or more PLMNs which were available and allowable, but an LR failure made registration on those PLMNs unsuccessful or an entry in the "forbidden LAs for regional provision of service" list prevented a registration attempt, the MS selects the first such PLMN again and enters a limited service state.

3. If a "PLMN not allowed" message is received by an MS in response to an LR request from a VPLMN, that VPLMN is added to a list of "forbidden PLMNs" in the SIM and thereafter that VPLMN will not be accessed by the MS when in automatic mode. A PLMN is removed from the "forbidden PLMNs" list if, after a subsequent manual selection of that PLMN, there is a successful LR. This list is retained when the MS is switched off or the SIM is removed. The HPLMN shall not be stored on the list of "forbidden PLMNs".

References

1. TS 23.122, clause 4.4.3.1.
2. TS 23.122, clause 4.4.3.1.1.
3. TS 23.122, clause 3.1.

NOTE: TS 31.102 defines the USIM fields.

6.1.1.8.3 Test purpose

1. To verify that if available, the RPLMN is selected at switch-on.
2. To verify that in Automatic Network Selection Mode, the UE selects the RPLMN, HPLMN, UPLMN and OPLMN in a prioritized order.
3. To verify that forbidden PLMNs are not selected.

For all paragraphs above, it is verified that the UE behaves in accordance with the core specification TS 23.122 when operating in shared network environment. Independence of RF level is also implicitly tested.

6.1.1.8.4 Method of test

Initial conditions

System Simulator:

Cell levels are from table 6.3 (Band I).

Cell	CPICH_ Ec [dBm/3.84 MHz] (FDD)	Test Channel
Cell 1	-65	1
Cell 3	-70	2
Cell 5	-80	3
Cell 6	-85	4

The reference system configuration from TS 34.108 clause 6.1 is used in all cells, with modifications in the Master Information Block according to the table below.

- MIB value tag	Set to (Current MIB value tag + 1)
- Supported PLMN types	
- PLMN type	GSM-MAP
- PLMN identity	
- MCC digit	See table below
- MNC digit	See table below
- Multiple PLMN List	
- MIB PLMN Identity	See table below
- Multiple PLMNs (1)	
- MCC	See table below
- MNC	See table below
- Multiple PLMNs (2)	
- MCC	See table below
- MNC	See table below

The MIB PLMN Identity, PLMN codes and LAC broadcasted on the BCCH in each cell shall be configured as defined in the table below.

Cell	MIB	PLMN Identity		Multiple PLMNs (1)		Multiple PLMNs (2)		LAC
	PLMN Identity	MCC digits	MNC digits	MCC digits	MNC digits	MCC digits	MNC digits	
1	FALSE	PLMN 5	PLMN 5	PLMN 10	PLMN 10	PLMN 6	PLMN 6	X
3	TRUE	PLMN 5	PLMN 5	-	PLMN 9	-	PLMN 7	X
5	FALSE	PLMN 5	PLMN 5	-	PLMN 1	-	PLMN 7	X
6	FALSE	PLMN 5	PLMN 5	-	PLMN 1	-	PLMN 2	X
NOTE: the "–" (dash) denotes "not present", and "X" denotes "any value"								

The definition of each PLMN code is found in table below.

PLMN	MCC digit			MNC digit		
	1	2	3	1	2	3
1	0	0	1	0	1	-
2	0	0	1	0	2	-
3	0	0	1	0	3	-
4	0	0	1	0	4	-
5	0	0	1	0	5	-
6	0	0	1	0	6	-
7	0	0	1	0	7	-
8	0	0	1	0	8	-
9	0	0	1	0	9	-
10	0	0	2	1	0	-

NOTE: "–" (dash) denotes "not present"

UE:

The UE is in automatic PLMN selection mode, and equipped with a USIM containing default values except for those listed below. All Radio Access Technology USIM fields are UTRAN.

USIM field	Priority	PLMN
$EF_{PLMNwAcT}$	1st	PLMN 7
$EF_{OPLMNwAcT}$	1st	PLMN 5
	2nd	PLMN 6
EF_{FPLMN}	PLMN 7	

The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN1.

UE is previously registered on PLMN2, before switched off.

Test procedure:

Method C is applied.

a) The SS activates all cells and monitors the cells for random access requests from the UE

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) Cell 6 is switched off.

e) The SS waits for random access requests from the UE.

f) Cell 5 is switched off.

g) The SS waits for random access requests from the UE.

h) Cell 3 is switched off.

i) The SS waits for random access requests from the UE.

j) Cell 1 is switched off.

6.1.1.8.5 Test Requirements

1) In step c), the response from the UE shall be on Cell 6. The displayed PLMN shall be PLMN 2.

2) In step e), the response from the UE shall be on Cell 5. The displayed PLMN shall be PLMN 1.

3) In step g), the response from the UE shall be on Cell 3. The displayed PLMN shall be PLMN 5.

4) In step i), the response from the UE shall be on Cell 1. The displayed PLMN shall be PLMN 6.

5) After step j), the UE shall inform that no service or no network is available.

6.1.1.9 PLMN selection in shared network environment, Manual Mode

6.1.1.9.1 Definition

Test to verify that the UE can present the available PLMNs in priority order to the user when asked to do so in manual mode and that the displayed PLMNs can be selected / reselected by the user. The test is performed in shared network environment. All PLMNs shall be displayed in the list, including forbidden PLMNs and PLMNs in the “Multiple PLMN list”. If available, the RPLMN shall be selected at switch-on, otherwise the displayed list shall include in priority order HPLMN, User-PLMN, Operator-PLMN and "Other PLMN/access technology combinations. Only UTRAN cells and a UE equipped with a USIM with Radio Access Technology fields set to UTRAN are considered.

6.1.1.9.2 Conformance requirement

1. At switch on or recovery from lack of coverage

   At switch on, or following recovery from lack of coverage, the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see clause 4.5.2) attempts to perform a Location Registration.

   EXCEPTION: In A/Gb mode an MS with voice capability, shall not search for CPBCCH carriers. In A/Gb mode an MS not supporting packet services shall not search for CPBCCH carriers.

   If successful registration is achieved, the MS indicates the selected PLMN.

   If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows one of the following two procedures depending on its operating mode.

   EXCEPTION: If registration is not possible on recovery from lack of coverage due to the registered PLMN being unavailable, a MS attached to GPRS services may, optionally, continue looking for the registered PLMN for an implementation dependent time.

   NOTE: A MS attached to GPRS services should use the above exception only if one or more PDP contexts are currently active.

2. Manual Network Selection Mode Procedure:

   The MS indicates whether there are any PLMNs, which are available using all supported access technologies. This includes PLMNs in the "forbidden PLMNs" list and PLMNs which only offer services not supported by the MS. An MS which supports GSM COMPACT shall also indicate GSM COMPACT PLMNs (which use PBCCH).

   If displayed, PLMNs meeting the criteria above are presented in the following order:

   i)- HPLMN;

   ii)- PLMN/access technology combinations contained in the " User Controlled PLMN Selector with Access Technology " data file in the SIM (in priority order);

   iii)- PLMN/access technology combinations contained in the "Operator Controlled PLMN Selector with Access Technology" data file in the SIM (in priority order);

iv)- other PLMN/access technology combinations with received high quality signal in random order;

v)- other PLMN/access technology combinations in order of decreasing signal quality.

In ii and iii, an MS using a SIM without access technology information storage (i.e. the "User Controlled PLMN Selector with Access Technology" and the "Operator Controlled PLMN Selector with Access Technology" data files are not present) shall instead present the PLMNs contained in the "PLMN Selector" data file in the SIM (in priority order).

In v, requirement h) in clause 4.4.3.1.1 applies.

In GSM COMPACT, the non support of voice services shall be indicated to the user.

The user may select his desired PLMN and the MS then initiates registration on this PLMN using the access technology chosen by the user for that PLMN or using the highest priority available access technology for that PLMN, if the associated access technologies have a priority order. (This may take place at any time during the presentation of PLMNs). For such a registration, the MS shall ignore the contents of the "forbidden LAs for roaming", "forbidden LAs for regional provision of service", "forbidden PLMNs for GPRS service" and "forbidden PLMNs" lists.

Once the UE has registered on a PLMN selected by the user, the UE shall not automatically register on a different PLMN unless:

i) the new PLMN is declared as an equivalent PLMN by the registered PLMN; or

ii) the user selects automatic mode.

NOTE 1: It is an MS implementation option whether to indicate access technologies to the user. If the MS does display access technologies, then the access technology used should be the access technology chosen by the user for that PLMN. If the MS does not display access technologies, then the access technology chosen for a particular PLMN should be the highest priority available access technology for that PLMN, if the associated access technologies have a priority order.

If the user does not select a PLMN, the selected PLMN shall be the one that was selected before the PLMN selection procedure started. If no such PLMN was selected or that PLMN is no longer available, then the MS shall attempt to camp on any acceptable cell and enter the limited service state.

NOTE 2: High quality signal is defined in the appropriate AS specification.

3. If a "PLMN not allowed" message is received by an MS in response to an LR request from a VPLMN, that VPLMN is added to a list of "forbidden PLMNs" in the SIM and thereafter that VPLMN will not be accessed by the MS when in automatic mode. A PLMN is removed from the "forbidden PLMNs" list if, after a subsequent manual selection of that PLMN, there is a successful LR. This list is retained when the MS is switched off or the SIM is removed. The HPLMN shall not be stored on the list of "forbidden PLMNs".

References

1. TS 23.122, clause 4.4.3.1
2. TS 23.122, clause 4.4.3.1.2
3. TS 23.122, clause 3.1.

NOTE: TS 31.102 defines the USIM fields.

6.1.1.9.3 Test purpose

1. To verify that all PLMNs broadcasted in the IEs “Multiple PLMN list” are displayed to the user in Manual Selection Mode, even if present in the “forbidden PLMNs” list on the USIM.
2. To verify that the PLMN in the IE “PLMN Identity” is displayed/not displayed according to the value of the IE “MIB PLMN Identity”.
3. To verify that it is possible to select any PLMN on the displayed list, and that the UE subsequently attempts to register on the selected PLMN.

4. To verify that the UE in general behaves according to TS 23.122 in Shared Network environment (Manual Mode).

6.1.1.9.4 Method of test

Initial conditions

Cell levels are from table 6.3. (FDD).

Cell	CPICH_ Ec [dBm/3.84 MHz] (FDD)	Test Channel
Cell 1	-85	1
Cell 2	-80	2
Cell 3	-75	3
Cell 4	-70	4

The reference system configuration from TS 34.108 clause 6.1 is used in all cells, with the following modifications:

Master Information Block

- MIB value tag	Set to (Current MIB value tag + 1)
- Supported PLMN types	
- PLMN type	GSM-MAP
- PLMN identity	
- MCC digit	See table below
- MNC digit	See table below
- Multiple PLMN List	
- MIB PLMN Identity	See table below
- Multiple PLMNs (1)	
- MCC	See table below
- MNC	See table below
- Multiple PLMNs (2)	
- MCC	See table below
- MNC	See table below

The MIB PLMN Identity and PLMN codes broadcasted on the BCCH in each cell shall be configured as defined in the table below.

Cell	MIB PLMN Identity	PLMN Identity		Multiple PLMNs (1)		Multiple PLMNs (2)	
		MCC digits	MNC digits	MCC digits	MNC digits	MCC digits	MNC digits
1	FALSE	PLMN 3	PLMN 3	-	PLMN 2	-	PLMN 4
2	FALSE	PLMN 4	PLMN 4	-	PLMN 3	-	PLMN 1
3	FALSE	PLMN 5	PLMN 5	-	PLMN 3	-	PLMN 4
4	TRUE	PLMN 4	PLMN 4	PLMN 5	PLMN 5	PLMN 6	PLMN 6

The definition of each PLMN code is found in table below.

PLMN	MCC digit			MNC digit		
	1	2	3	1	2	3
1	0	0	1	0	1	-
2	0	0	1	0	2	-
3	0	0	1	0	3	-
4	0	0	1	0	4	-
5	0	0	1	0	5	-
6	0	0	2	0	6	-

NOTE: "–" (dash) denotes "not present"

The UE is in manual PLMN selection mode and equipped with a USIM containing default values except for those listed below. The UE has successfully selected a PLMN in manual PLMN selection mode. All Radio Access Technology USIM fields are set to UTRAN. The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN1.

USIM field	Priority	PLMN
$EF_{PLMNwAcT}$	1st	PLMN 3
$EF_{OPLMNwAcT}$	1st	PLMN 4
	2nd	PLMN 5
EF_{FPLMN}	PLMN 5	

UE is previously registered on PLMN2, before switched off.

Test procedure

Method C is applied.

a) The SS activates cells 1-4 and monitors the cells for random access requests from the UE.

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) Cell 1 is switched off.

e) PLMN 1 (HPLMN) shall be selected when the PLMN list is presented.

f) The SS waits for random access requests from the UE.

g) Cell 2 is switched off.

h) PLMN 3 shall be selected when the PLMN list is presented.

i) The SS waits for random access requests from the UE.

j) Cell 3 is switched off.

k) PLMN 5 shall be selected when the PLMN list is presented.

l) The SS waits for random access requests from the UE.

m) Cell 4 is switched off.

6.1.1.9.5 Test Requirements

1) In step c), the response from the UE shall be on Cell 1. The displayed PLMN shall be PLMN 2.

2) In step e), the list shall be presented. The priority shall be as follows: PLMN 1, PLMN 3, PLMN 4, PLMN 5, PLMN 6.

3) In step f), the response from the UE shall be on Cell 2. The displayed PLMN shall be PLMN 1.

4) In step h), the list shall be presented. The priority shall be as follows: PLMN 3, PLMN 4, PLMN 5, PLMN 6.

6) In step i), the response from the UE shall be on Cell 3. The displayed PLMN shall be PLMN 3.

7) In step k), the list shall be presented. The priority shall be as follows: PLMN 4, PLMN 5, PLMN 6.

8) In step l), the response from the UE shall be on Cell 4. The displayed PLMN shall be PLMN 5.

9) After step m), the UE shall inform that no network belonging to PLMN 1 to 6 is available.

6.1.1.10 Presentation of additional information during PLMN selection; Manual mode

6.1.1.10.1 Definition

Test to verify that in Manual Network Selection Mode, the UE displays additional information about the available PLMNs.

6.1.1.10.2 Conformance requirement

The HPLMN may provide on the SIM additional information on the available PLMNs. If this information is provided then the MS shall indicate it to the user. This information, provided as free text may include:

- preferred partner,
- roaming agreement status,
- supported services

Furthermore, the MS may indicate whether the available PLMNs are present on the EHPLMN list, the Forbidden list, the User Controlled PLMN List or the Operator Controlled PLMN List. The MS may also indicate that the PLMN is not present on any of these lists.

References

1. TS 23.122, clause 4.4.3.1.2.

NOTE: TS 31.102 defines the USIM fields.

6.1.1.10.3 Test purpose

To verify that in manual network selection mode if additional information is available on the SIM/USIM about the available PLMNs that information is displayed to the user.

6.1.1.10.4 Method of test

Initial conditions

The UE is in automatic PLMN selection mode.

"IMSI attach" flag in the BCCH is set to allowed.

Cell levels are from table 6.3 for FDD and from table 6.4 for TDD.

All Radio Access Technology USIM fields and cells are UTRAN.

In the System Information broadcast in each cell, the neighbouring cell list does not contain any cell belonging to the other PLMN's.

Cell	CPICH_ Ec [dBm/3.84 MHz] (FDD)	P-CCPCH_ RSCP [dBm] (TDD)	Test Channel	PLMN
Cell 1	-60	-54	1	PLMN 1
Cell 2	-65	-59	2	PLMN 2
Cell 4	-75	-69	3	PLMN 4
Cell 5	-80	-74	4	PLMN 5

UE is previously registered on PLMN1 before switched off.

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN
$EF_{PLMNwAcT}$	1st	PLMN 2
$EF_{OPLMNwAcT}$	1st	PLMN 5
EF_{FPLMN}	1st	PLMN 4

Contents of EF_{OPL}:

Location Area Identity	PLMN Network Name Record Identifier
MCC and MNC of PLMN1+all LAC*	1
MCC and MNC of PLMN2+all LAC*	2
MCC and MNC of PLMN4+all LAC*	3
MCC and MNC of PLMN5+all LAC*	4
*A value of '0000' stored in bytes 4 to 5 and a value of 'FFFE' stored in bytes 6 to 7 shall be used to indicate the entire range of LACs for the given PLMN.	

Contents of EF_{PNN}:

Record order	Full name for network	Short name for network	PLMN Additional Information
1st	Test network PLMN1	PLMN1	PLMN1 offers voice call, SMS and PS data services.
2nd	Test network PLMN2	PLMN2	PLMN2 offers voice call services.
3rd	Test network PLMN4	PLMN4	[field is empty]
4th	Test network PLMN5	PLMN5	PLMN5 offers PS data services.

The EF_{EHPLMN} list is empty.

The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN1.

Related ICS/IXIT statements

Indicating whether a PLMN is present on a PLMN list stored on the USIM Yes/No

Test procedure

Method C is applied.

a) The SS activates all 4 cells and monitors the cells for random access requests from the UE.

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) The UE is switched to manual network selection mode and it is made to display the available PLMNs

e) The user selects PLMN2

f) The SS waits for random access requests from the UE.

6.1.1.10.5 Test Requirements

1) In step c), the response from the UE shall be on Cell 1. The displayed PLMN shall be PLMN 1.

2) In step d) the UE shall indicate:
- For PLMN1 the UE shall indicate that “PLMN1 offers voice call, SMS and PS data services.”.
- For PLMN2 the UE shall indicate that “PLMN2 offers voice call services.”.
If the UE supports “Indicating whether a PLMN is present on a PLMN list stored on the USIM” the UE shall

indicate that PLMN2 is present on the User Controlled PLMN List.
- If the UE supports “Indicating whether a PLMN is present on a PLMN list stored on the USIM” the UE shall indicate that PLMN4 is present on the Forbidden list.
-For PLMN5 the UE shall indicating that “PLMN5 offers PS data services.”.
If the UE supports “Indicating whether a PLMN is present on a PLMN list stored on the USIM” the UE shall indicate that PLMN5 is present on the Operator Controlled PLMN List.

3) In step f), the response from the UE shall be on Cell 2. The displayed PLMN shall be PLMN 2.

6.1.1.11 Void

6.1.1.12 Displaying EHPLMNs in manual mode

6.1.1.12.1 Definition

Test to verify that in Manual Network Selection Mode, the UE is able to display HPLMN and EHPLMNs in the correct order according to the parameters provided by the USIM.

6.1.1.12.2 Conformance requirement

1. The MS indicates whether there are any PLMNs, which are available using all supported access technologies. This includes PLMNs in the "forbidden PLMNs" list and PLMNs which only offer services not supported by the MS. An MS which supports GSM COMPACT shall also indicate GSM COMPACT PLMNs (which use PBCCH).

If displayed, PLMNs meeting the criteria above are presented in the following order:

i)- either the HPLMN (if the EHPLMN list is not present or is empty) or, if one or more of the EHPLMNs are available then based on an optional data field on the SIM either only the highest priority available EHPLMN is to be presented to the user or all available EHPLMNs are presented to the user in priority order. If the data field is not present on the SIM, then only the highest priority available EHPLMN is presented;

…

2. If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows one of the following two procedures depending on its PLMN selection operating mode. At switch on, if the MS provides the optional feature of user preferred PLMN selection operating mode at switch on then this operating mode shall be used.

EXCEPTION: At switch on, if the MS is in manual mode and neither registered PLMN nor PLMN that is equivalent to it is available but EHPLMN is available, then instead of performing the manual network selection mode procedure of clause 4.4.3.1.2 the MS may select and attempt registration on the highest priority EHPLMN. If the EHPLMN list is not available or is empty and the HPLMN is available, then the MS may select and attempt registration on the HPLMN. The MS shall remain in manual mode.

NOTE 1: If successful registration is achieved, then the current serving PLMN becomes the registered PLMN and the MS does not store the previous registered PLMN for later use.

References

1. TS 23.122, clause 4.4.3.1.2

2. TS 23.122, clause 4.4.3.1

NOTE: TS 31.102 defines the USIM fields.

6.1.1.12.3 Test purpose

1. To confirm that if the EF_{EHPLMN} (Equivalent HPLMN) data field on the USIM is present but there are no EHPLMNs available, only the HPLMN is displayed.

2. To confirm that if EHPLMNs are available and the EF_{EHPLMN} (Equivalent HPLMN) data field on the USIM is present then depending on the USIM settings of $EF_{EHPLMNPI}$ (Equivalent HPLMN Presentation Indication) either all available EHPLMNs are displayed in priority order or only the highest priority EHPLMN is displayed.

3. To confirm that if EHPLMNs are available but the $EF_{EHPLMNPI}$ (Equivalent HPLMN Presentation Indication) data field on the USIM is not present, only the highest priority EHPLMN is displayed.

6.1.1.12.4 Method of test

Initial conditions

The UE is in manual PLMN selection mode.

Cell levels are from table 6.3 for FDD and from table 6.4 for TDD.

All Radio Access Technology USIM fields and cells are UTRAN.

In the System Information broadcast in each cell, the neighbouring cell list does not contain any cell belonging to the other PLMN's.

Steps a) – d)

Cell	CPICH_ Ec [dBm/3.84 MHz] (FDD)	P-CCPCH_ RSCP [dBm] (TDD)	Test Channel	PLMN
Cell 1	off	off	1	PLMN 3
Cell 2	off	off	2	PLMN 2
Cell 3	-70	-64	3	PLMN 1
Cell 4	off	off	4	PLMN 4

Steps e) – t)

Cell	CPICH_ Ec [dBm/3.84 MHz] (FDD)	P-CCPCH_ RSCP [dBm] (TDD)	Test Channel	PLMN
Cell 1	-60	-54	1	PLMN 3
Cell 2	-65	-59	2	PLMN 2
Cell 3	-70	-64	3	PLMN 1
Cell 4	-75	-69	4	PLMN 4

The UE is equipped with a USIM A containing default values except for those listed below (steps a – h).

USIM field	Priority	PLMN
EF_{EHPLMN}	1st	PLMN 4
	2nd	PLMN 2
	3rd	PLMN 1
EF_{UST}	Service n°71 Equivalent HPLMN and Service n°73 Equivalent HPLMN Presentation Indication available	
$EF_{EHPLMNPI}$	'02' - Display all the available EHPLMNs	

The UE is equipped with a USIM B containing default values except for those listed below (steps i – l).

USIM field	Priority	PLMN
EF_{EHPLMN}	1st	PLMN 2
	2nd	PLMN 3
	3rd	PLMN 1
EF_{UST}	Service n°71 Equivalent HPLMN and Service n°73 Equivalent HPLMN Presentation Indication available	
$EF_{EHPLMNPI}$	'01' - Display the highest-priority available EHPLMN only	

The UE is equipped with a USIM C containing default values except for those listed below (steps m – o).

USIM field	Priority	PLMN
EF_{EHPLMN}	1st	PLMN 3
	2nd	PLMN 4
	3rd	PLMN 1
EF_{UST}	Service n°71 Equivalent HPLMN available	
$EF_{EHPLMNPI}$	Not present	

The HPLMN (MCC+MNC) of the IMSI for USIM is set to PLMN 1 (steps a – p).

UE is previously registered on PLMN5, before switched off.

Related ICS/IXIT statement(s)

UE supporting Exception to manual network selection mode at switch-on yes/no

Test procedure

Method C is applied.

a) The SS activates Cell 3 and monitors the cell for random access requests from the UE.

b) The UE is switched on, equipped with USIM A.

c) The SS waits to see if there are any random access requests from the UE. The UE is made to display the available PLMNs. If not yet selected, the UE is made to select the available PLMN.

d) The SS waits for random access requests from the UE, if not done in step c).

e) The SS activates all 4 cells and monitors the cells for random access requests from the UE.

f) The UE is made to display the available PLMNs. The UE is made to select the highest priority EHPLMN.

g) The SS waits for random access requests from the UE.

h) The UE is switched off.

i) The UE is equipped with USIM B, switched on and made to register to PLMN5, switched off, then switched on again.

j) The SS waits to see if there are any random access requests from the UE. The UE is made to display the available PLMNs. If not yet selected, the UE is made to select the displayed EHPLMN.

k) The SS waits for random access requests from the UE, if not done in step j).

l) The UE is switched off.

m) The UE is equipped with USIM C, switched on and made to register to PLMN5, switched off, and switched on again.

n) The SS waits to see if there are any random access requests from the UE. The UE is made to display the available PLMNs. If not yet selected, the UE is made to select the displayed EHPLMN.

o) The SS waits for random access requests from the UE, if not done in step n).

p) The UE is switched off.

6.1.1.12.5 Test Requirements

1) In step c), the UE shall indicate that only PLMN 1 is available.

2) If UE supports "Exception to manual network selection mode at switch-on" the response from UE shall come in step c) otherwise the response from UE shall come in step d). In both cases, the response from the UE shall be on Cell 3. The displayed PLMN shall be PLMN 1.

3) In step f), the UE shall indicate that PLMN 4, PLMN 2, PLMN 1 and PLMN 3 (non-EHPLMN) are available in this priority order.

4) In step g), the response from the UE shall be on Cell 4. The displayed PLMN shall be PLMN 4.

5) In step j), the UE shall indicate that PLMN 2 and PLMN 4 (non-EHPLMN) are available in this priority order.

6) If UE supports "Exception to manual network selection mode at switch-on" the response from UE shall come in step j) otherwise the response from UE shall come in step k). In both cases, the response from the UE shall be on Cell 2. The displayed PLMN shall be PLMN 2.

7) In step n), the UE shall indicate that PLMN 3 and PLMN 2 (non-EHPLMN) are available in this priority order.

8) If UE supports "Exception to manual network selection mode at switch-on" the response from UE shall come in step n) otherwise the response from UE shall come in step o). In both cases, the response from the UE shall be on Cell 1. The displayed PLMN shall be PLMN 3.

6.1.1.13 PLMN selection of RPLMN or (E)HPLMN; Automatic mode

6.1.1.13.1 Definition

Test to verify that in Automatic Network Selection Mode, the UE selects PLMNs in the correct order according to the setting of $EF_{LRPLMNSI}$. If $EF_{LRPLMNSI}$ is available and the field is set to "01", at switch-on the UE shall select the HPLMN (if EHPLMN list is empty or not present), or the highest priority EHPLMN among the available ones, in priority over the last RPLMN. If $EF_{LRPLMNSI}$ is set to "00" the last RPLMN shall be selected at switch-on.

6.1.1.13.2 Conformance requirement

1. Equivalent HPLMN list: To allow provision for multiple HPLMN codes, PLMN codes that are present within this list shall replace the HPLMN code derived from the IMSI for PLMN selection purposes. This list is stored on the USIM and is known as the EHPLMN list. The EHPLMN list may also contain the HPLMN code derived from the IMSI. If the HPLMN code derived from the IMSI is not present in the EHPLMN list then it shall be treated as a Visited PLMN for PLMN selection purposes.

2. At switch on, or following recovery from lack of coverage, the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see TS 23.122, clause 4.5.2) attempts to perform a Location Registration.

   EXCEPTION: As an alternative option to this, if the MS is in automatic network selection mode and it finds coverage of an EHPLMN, the MS may register to the highest priority EHPLMN available and not return to the registered PLMN. If the EHPLMN list is not present or is empty, and the HPLMN is available, the MS may register on the HPLMN and not return to the registered PLMN. The operator shall be able to control by SIM configuration whether an MS that supports this option shall perform this alternative behaviour.

   If successful registration is achieved, the MS indicates the selected PLMN.

   If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows one of the following two procedures depending on its PLMN selection

operating mode. At switch on, if the MS provides the optional feature of user preferred PLMN selection operating mode at switch on then this operating mode shall be used.

3. Automatic Network Selection Mode Procedure:

   The MS selects and attempts registration on other PLMNs, if available and allowable in the following order:

   i) either the HPLMN (if the EHPLMN list is not present or is empty) or the highest priority EHPLMN that is available (if the EHPLMN list is present) ;

   ii) Each PLMN/access technology combination in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   iii) Each PLMN/access technology combination in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   iv) Other PLMN/access technology combinations with received high quality signal in random order;

   v) Other PLMN/access technology combinations in order of decreasing signal quality.

   ...

   If successful registration is achieved, the MS indicates the selected PLMN.

   If registration cannot be achieved because no PLMNs are available and allowable, the MS indicates "no service" to the user, waits until a new PLMN is available and allowable and then repeats the procedure.

   If there were one or more PLMNs which were available and allowable, but an LR failure made registration on those PLMNs unsuccessful or an entry in any of the lists "forbidden LAs for roaming", or "forbidden LAs for regional provision of service" prevented a registration attempt, the MS selects the first such PLMN again and enters a limited service state.

References

1. TS 23.122, clause 1.2
2. TS 23.122, clause 4.4.3.1.
3. TS 23.122, clause 4.4.3.1.1.

NOTE: TS 31.102 defines the USIM fields.

6.1.1.13.3 Test purpose

1. To verify that the highest priority EHPLMN among the available ones is selected at switch-on, if and only if $EF_{LRPLMNSI}$ = “01”.
2. The UE indicates the correct PLMN to the User when an EHPLMN is selected.

6.1.1.13.4 Method of test

Initial conditions

The UE is in automatic PLMN selection mode.

"IMSI attach" flag in the BCCH is set to allowed.

Cell levels are from table 6.3 for FDD and from table 6.4 for TDD.

All Radio Access Technology USIM fields and cells are UTRAN.

In the System Information broadcast in each cell, the neighbouring cell list does not contain any cell belonging to the other PLMN’s.

Steps a) – d) and i)-k)

Cell	CPICH_ Ec [dBm/3.84 MHz] (FDD)	P-CCPCH_ RSCP [dBm] (TDD)	Test Channel	PLMN
Cell 1	-60	-54	1	PLMN 2
Cell 2	-65	-59	2	PLMN 1
Cell 4	-75	-69	3	PLMN 4
Cell 5	-80	-74	4	PLMN 5

Steps e) – h)

Cell	CPICH_ Ec [dBm/3.84 MHz] (FDD)	P-CCPCH_ RSCP [dBm] (TDD)	Test Channel	PLMN
Cell 1	-60	-54	1	PLMN 2
Cell 2	off	off	2	PLMN 1
Cell 4	off	off	3	PLMN 4
Cell 5	off	off	4	PLMN 5

The UE is equipped with a USIM containing default values except for those listed below.

USIM A

USIM field	LRPLMNSI
$EF_{LRPLMNSI}$	01

USIM B

USIM field	LRPLMNSI
$EF_{LRPLMNSI}$	00

USIM A & USIM B

EF_{SPN} is not present.

Contents of EF_{EHPLMN}

Priority	PLMN
1st	PLMN 5
2nd	PLMN 4

Contents of record 1 of EF_{OPL}

Location Area Identity/Tracking Area Identity	PLMN Network Name Record Identifier
PLMN 1 (see Note 1)	record 1
PLMN 4 (see Note 1)	record 1
PLMN 5 (see Note 1)	record 1

Note 1: The entire range of LACs/TACs for each PLMN shall be coded as per 31.102.

Contents of record 1 of EF_{PNN}

Full name for network contents	Short name for network contents	PLMN Additional Information
Test Home PLMN	THPLMN	Not present

The HPLMN (MCC+MNC) of the IMSI for USIM A and USIM B is set to PLMN1.

UE with USIM A is previously registered on PLMN2, before switched off.

Related ICS/IXIT statement(s)

UEs supporting Last RPLMN feature yes/no

Test procedure

Method C is applied.

a) The SS activates all 4 cells and monitors the cells for random access requests from the UE.

b) The UE is switched on with a USIM setting according to USIM-A inserted.

c) The SS waits for random access requests from the UE.

d) The UE is switched off and a USIM with settings according to USIM B is inserted.

e) The SS deactivates cells 2, 4 and 5 and monitors cell 1 for random access requests from the UE.

f) The UE is switched on.

g) The SS waits for random access requests from the UE.

h) The UE is switched off.

i) The SS activates all 4 cells and monitors the cells for random access requests from the UE.

j) The UE is switched on.

k) The SS waits for random access requests from the UE.

6.1.1.13.5 Test Requirements

1) In step c), the response from the UE shall be on Cell 5. The displayed PLMN shall be Test Home PLMN or THPLMN.

2) In step g), the response from the UE shall be on Cell 1 and the UE shall indicate PLMN2.

3) In step k), the response from the UE shall be on Cell 1 and the UE shall indicate PLMN2.

6.1.1.14 Network selection mode at switch-on

6.1.1.14.1 Definition

Test to verify that the UE uses the optional feature of user preferred PLMN selection operating mode at switch on.

6.1.1.14.2 Conformance requirement

1. If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows one of the following two procedures depending on its PLMN selection operating mode. At switch on, if the MS provides the optional feature of user preferred PLMN selection operating mode at switch on then this operating mode shall be used.

2. The UE shall support both manual and automatic network selection mechanisms (modes). The UE shall select the last mode used, as the default mode, at every switch-on.

   As an optional feature of the ME, the user shall be able to set a preference in the ME for the mode that shall be used at switch on. If set then the ME shall select this preference rather than the default mode.

   NOTE: By defaulting to the last mode used, e.g. manual network selection, the undesired automatic selection of an adjacent PLMN instead of the desired HPLMN in border areas, can be avoided at switch-on.

The user shall be given the opportunity to change mode at any time.

Except as defined below, the MMI shall be at the discretion of the UE manufacturer.

The UE shall contain display functions by which Available PLMNs and the Selected PLMN can be indicated.

In order not to confuse the user, the same definitions of PLMN names shall be applied consistently both in registered mode and in the list presented to the user when in manual mode.

In shared networks a radio access network can be part of more than one PLMN. This shall be transparent to the user, i.e. the UE shall be able to indicate those PLMNs to the user, and the UE shall support network selection among those PLMNs, as in non-shared networks.

3. Manual Network Selection Mode Procedure:

The MS indicates whether there are any PLMNs, which are available using all supported access technologies. This includes PLMNs in the "forbidden PLMNs" list and PLMNs which only offer services not supported by the MS. An MS which supports GSM COMPACT shall also indicate GSM COMPACT PLMNs (which use PBCCH).

If displayed, PLMNs meeting the criteria above are presented in the following order:

i)- either the HPLMN (if the EHPLMN list is not present or is empty) or, if one or more of the EHPLMNs are available then based on an optional data field on the SIM either only the highest priority available EHPLMN is to be presented to the user or all available EHPLMNs are presented to the user in priority order. If the data field is not present on the SIM, then only the highest priority available EHPLMN is presented;

ii)- PLMN/access technology combinations contained in the " User Controlled PLMN Selector with Access Technology " data file in the SIM (in priority order);

iii)- PLMN/access technology combinations contained in the "Operator Controlled PLMN Selector with Access Technology" data file in the SIM (in priority order);

iv)- other PLMN/access technology combinations with received high quality signal in random order;

v)- other PLMN/access technology combinations in order of decreasing signal quality.

…

The user may select his desired PLMN and the MS then initiates registration on this PLMN using the access technology chosen by the user for that PLMN or using the highest priority available access technology for that PLMN, if the associated access technologies have a priority order. (This may take place at any time during the presentation of PLMNs). For such a registration, the MS shall ignore the contents of the "forbidden LAs for roaming", "forbidden TAs for roaming", "forbidden LAs for regional provision of service", "forbidden TAs for regional provision of service", "forbidden PLMNs for GPRS service" and "forbidden PLMNs" lists.

…

If the user does not select a PLMN, the selected PLMN shall be the one that was selected before the PLMN selection procedure started. If no such PLMN was selected or that PLMN is no longer available, then the MS shall attempt to camp on any acceptable cell and enter the limited service state.

4. Automatic Network Selection Mode Procedure:

The MS selects and attempts registration on other PLMNs, if available and allowable in the following order:

i) either the HPLMN (if the EHPLMN list is not present or is empty) or the highest priority EHPLMN that is available (if the EHPLMN list is present) ;

ii) each PLMN/access technology combination in the "User Controlled PLMN Selector with Access Technology" data file in the SIM (in priority order);

iii) each PLMN/access technology combination in the "Operator Controlled PLMN Selector with Access Technology" data file in the SIM (in priority order);

iv) other PLMN/access technology combinations with received high quality signal in random order;

v) other PLMN/access technology combinations in order of decreasing signal quality.

….

If successful registration is achieved, the MS indicates the selected PLMN.

If registration cannot be achieved because no PLMNs are available and allowable, the MS indicates "no service" to the user, waits until a new PLMN is available and allowable and then repeats the procedure.

If there were one or more PLMNs which were available and allowable, but an LR failure made registration on those PLMNs unsuccessful or an entry in the "forbidden LAs for regional provision of service" list prevented a registration attempt, the MS selects the first such PLMN again and enters a limited service state.

References

1. TS 23.122, clause 4.4.3.1
2. TS 22.011, clause 3.2.1
3. TS 23.122, clause 4.4.3.1.2
4. TS 23.122, clause 4.4.3.1.1

NOTE: TS 31.102 defines the USIM fields.

6.1.1.14.3 Test purpose

1. To verify that the user is allowed to configure what network selection mode should be used at switch-on.
2. To verify that this information is not stored on the USIM.

6.1.1.14.4 Method of test

Initial conditions

"IMSI attach" flag in the BCCH is set to allowed.

Cell levels are from table 6.3 for FDD and from table 6.4 for TDD.

All Radio Access Technology USIM fields and cells are UTRAN.

In the System Information broadcast in each cell, the neighbouring cell list does not contain any cell belonging to the other PLMN's.

The UE is in manual PLMN selection mode.

UE is previously registered on PLMN2, before switched off.

The user sets the optional feature "PLMN selection operation mode at switch on" to automatic network selection.

All Radio Access Technology USIM fields and cells are UTRAN.

Steps a) – e)

Cell	CPICH_ Ec [dBm/3.84 MHz] (FDD)	P-CCPCH_ RSCP [dBm] (TDD)	Test Channel	PLMN
Cell 4	-75	-69	1	PLMN 4
Cell 5	-80	-74	2	PLMN 5

Steps f) – h)

Cell	CPICH_ Ec [dBm/3.84 MHz] (FDD)	P-CCPCH_ RSCP [dBm] (TDD)	Test Channel	PLMN
Cell 4	OFF	OFF	1	PLMN 4
Cell 5	-80	-74	2	PLMN 5

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN
$EF_{PLMNwAcT}$	1st	PLMN 4
$EF_{OPLMNwAcT}$	1st	PLMN 5

The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN1.

Related ICS/IXIT statement(s)

- UEs supporting NW selection mode at switch-on yes/no

Test procedure

Method C is applied.

a) The SS activates both the cells Cell 4 and Cell 5, and monitors the cells for random access requests from the UE.

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) The UE is set to automatic NW selection mode, the optional feature “PLMN selection operation mode at switch on” is set to manual NW selection.

e) The UE is switched off

f) The SS deactivates cell 4 and monitors the cells for random access request from the UE.

g) The UE is switched on

h) The SS waits for random access requests from the UE.

6.1.1.14.5 Test Requirements

1) In step c), the response from the UE shall be on Cell 4. The displayed PLMN shall be PLMN4.

2) In step h), The UE does not send a response on any cell.

6.1.1.15 Exception in manual network selection mode when HPLMN is available at power-on

6.1.1.15.1 Definition

Test to verify that UE in Manual Network Selection Mode at switch on, when neither the RPLMN nor any equivalent PLMN to the RPLMN is available then the UE may optional select the highest priority PLMN in the EHPLMN list or select the HPLMN if EHPLMN list is not available or empty.

6.1.1.15.2 Conformance requirement

1. Equivalent HPLMN list: To allow provision for multiple HPLMN codes, PLMN codes that are present within this list shall replace the HPLMN code derived from the IMSI for PLMN selection purposes. This list is stored on the USIM and is known as the EHPLMN list. The EHPLMN list may also contain the HPLMN code derived from the IMSI. If the HPLMN code derived from the IMSI is not present in the EHPLMN list then it shall be treated as a Visited PLMN for PLMN selection purposes.

2. At switch on, or following recovery from lack of coverage, the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see clause 4.5.2) attempts to perform a Location Registration.

   …

   If successful registration is achieved, the MS indicates the selected PLMN.

   If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows one of the following two procedures depending on its PLMN selection operating mode. At switch on, if the MS provides the optional feature of user preferred PLMN selection operating mode at switch on then this operating mode shall be used.

   EXCEPTION: At switch on, if the MS is in manual mode and neither registered PLMN nor PLMN that is equivalent to it is available but EHPLMN is available, then instead of performing the manual network selection mode procedure of clause 4.4.3.1.2 the MS may select and attempt registration on the highest priority EHPLMN. If the EHPLMN list is not available or is empty and the HPLMN is available, then the MS may select and attempt registration on the HPLMN. The MS shall remain in manual mode.

NOTE 1: If successful registration is achieved, then the current serving PLMN becomes the registered PLMN and the MS does not store the previous registered PLMN for later use.

3. Manual Network Selection Mode Procedure:

   The MS indicates whether there are any PLMNs, which are available using all supported access technologies. This includes PLMNs in the "forbidden PLMNs" list and PLMNs which only offer services not supported by the MS. An MS which supports GSM COMPACT shall also indicate GSM COMPACT PLMNs (which use PBCCH).

   If displayed, PLMNs meeting the criteria above are presented in the following order:

   i)- either the HPLMN (if the EHPLMN list is not present or is empty) or, if one or more of the EHPLMNs are available then based on an optional data field on the SIM either only the highest priority available EHPLMN is to be presented to the user or all available EHPLMNs are presented to the user in priority order. If the data field is not present on the SIM, then only the highest priority available EHPLMN is presented;

   ii)- PLMN/access technology combinations contained in the " User Controlled PLMN Selector with Access Technology " data file in the SIM (in priority order);

   iii)- PLMN/access technology combinations contained in the "Operator Controlled PLMN Selector with Access Technology" data file in the SIM (in priority order);

   iv)- other PLMN/access technology combinations with received high quality signal in random order;

   v)- other PLMN/access technology combinations in order of decreasing signal quality.

   In ii and iii, an MS using a SIM without access technology information storage (i.e. the "User Controlled PLMN Selector with Access Technology" and the "Operator Controlled PLMN Selector with Access Technology" data files are not present) shall instead present the PLMNs contained in the "PLMN Selector" data file in the SIM (in priority order).

   In v, requirement h) in clause 4.4.3.1.1 applies.

   In GSM COMPACT, the non support of voice services shall be indicated to the user.

   The HPLMN may provide on the SIM additional information on the available PLMNs. If this information is provided then the MS shall indicate it to the user. This information, provided as free text may include:

   - preferred partner,
   - roaming agreement status,
   - supported services

Furthermore, the MS may indicate whether the available PLMNs are present on the EHPLMN list, the Forbidden list, the User Controlled PLMN List or the Operator Controlled PLMN List. The MS may also indicate that the PLMN is not present on any of these lists.

The user may select his desired PLMN and the MS then initiates registration on this PLMN using the access technology chosen by the user for that PLMN or using the highest priority available access technology for that PLMN, if the associated access technologies have a priority order. (This may take place at any time during the presentation of PLMNs). For such a registration, the MS shall ignore the contents of the "forbidden LAs for roaming", "forbidden LAs for regional provision of service", "forbidden PLMNs for GPRS service" and "forbidden PLMNs" lists.

Once the UE has registered on a PLMN selected by the user, the UE shall not automatically register on a different PLMN unless:

i) the new PLMN is declared as an equivalent PLMN by the registered PLMN; or

ii) the user selects automatic mode.

NOTE 1: It is an MS implementation option whether to indicate access technologies to the user. If the MS does display access technologies, then the access technology used should be the access technology chosen by the user for that PLMN. If the MS does not display access technologies, then the access technology chosen for a particular PLMN should be the highest priority available access technology for that PLMN, if the associated access technologies have a priority order.

If the user does not select a PLMN, the selected PLMN shall be the one that was selected before the PLMN selection procedure started. If no such PLMN was selected or that PLMN is no longer available, then the MS shall attempt to camp on any acceptable cell and enter the limited service state.

NOTE 2: High quality signal is defined in the appropriate AS specification.

References

1. TS 23.122, clause 1.2
2. TS 23.122, clause 4.4.3.1.
3. TS 23.122, clause 4.4.3.1.2.

NOTE: TS 31.102 defines the USIM fields.

6.1.1.15.3 Test purpose

1. To verify that a UE supporting the exception to manual network selection mode when HPLMN is available at power-on selects the highest priority available EHPLMN at switch on when the RPLMN or a PLMN equivalent to it is not available at switch-on.
2. To verify that a UE supporting the exception to manual network selection procedure mode when HPLMN is available at power-on selects the HPLMN when neither the RPLMN (or a PLMN equivalent to it) nor EHPLMNs are available (or EHPLMN list is empty).

6.1.1.15.4 Method of test

Initial conditions

The UE is in manual PLMN selection mode.

UE is previously registered on PLMN2, before switched off.

"IMSI attach" flag in the BCCH is set to allowed.

Cell levels are from table 6.3 for FDD and from table 6.4 for TDD.

All Radio Access Technology USIM fields and cells are UTRAN.

In the System Information broadcast in each cell, the neighbouring cell list does not contain any cell belonging to the other PLMN's.

Steps a) – d) and steps i) – l)

Cell	CPICH_ Ec [dBm/3.84 MHz] (FDD)	P-CCPCH_ RSCP [dBm] (TDD)	Test Channel	PLMN
Cell 1	-60	-54	1	PLMN 2
Cell 2	OFF	OFF	2	PLMN 1
Cell 4	OFF	OFF	3	PLMN 4
Cell 5	OFF	OFF	4	PLMN 5

Steps e) – h) and steps m) – o)

Cell	CPICH_ Ec [dBm/3.84 MHz] (FDD)	P-CCPCH_ RSCP [dBm] (TDD)	Test Channel	PLMN
Cell 1	OFF	OFF	1	PLMN 2
Cell 2	-65	-59	2	PLMN 1
Cell 4	-75	-69	3	PLMN 4
Cell 5	-80	-74	4	PLMN 5

The UE is equipped with a USIM containing default values except for those listed below.

USIM A

USIM field	Priority	PLMN
EF_{EHPLMN}	1st	PLMN 5
EF_{EHPLMN}	2nd	PLMN 4

USIM B

- EF_{EHPLMN} not present

USIM A and USIM B

- The HPLMN (MCC+MNC) of the IMSI set to PLMN1.

UE is switched off.

Related ICS/IXIT statement(s)

- UEs supporting NW selection mode at switch-on yes/no

Test procedure

Method C is applied.

a) The SS activates Cell 1 and monitors the cell for random access requests from the UE.

b) The UE is switched on with a USIM setting according to USIM-A inserted.

c) The SS waits for random access requests from the UE. See note 1.

d) The UE is switched off.

e) The SS deactivate Cell 1and activates Cell 2, Cell 4 and Cell 5 and monitors the cells for random access requests from the UE.

f) The UE is switched on.

g) The SS waits for random access requests from the UE. See Note 2.

h) The UE is switched off and a USIM with settings according to USIM B is inserted.

i) The SS activates Cell 1and deactivates Cell 2, Cell 4 and Cell 5 and monitors the cells for random access requests from the UE.

j) The UE is switched on.

k) The UE is made to register to PLMN 2. See note 1.

l) The UE is switched off.

m) The SS deactivate Cell 1and activates Cell 2, Cell 4 and Cell 5 and monitors the cells for random access requests from the UE.

n) The UE is switched on.

o) The SS waits for random access requests from the UE. See note 3.

NOTE 1. UE is expected to register on Cell 1 and set the previously registered PLMN on the USIM to PLMN2.

NOTE 2. As previously registered PLMN2 is not available and list of EHPLMN exists then UE is expected to send random access requests on the cell belonging to the highest priority PLMN (PLMN5) on the EHPLMN list.

NOTE 3. As previously registered PLMN2 is not available and EHPLMN list does not exist then UE is expected to send random access requests on the cell belonging to the HPLMN (PLMN1).

6.1.1.15.5 Test Requirements

1) In step c), the response from the UE shall be on Cell 1. The displayed PLMN shall be PLMN2.

2) In step g), the response from the UE shall be on Cell 5. The displayed PLMN shall be PLMN5 (highest priority PLMN in EHPLMN list).

3) In step k), the response from the UE shall be on Cell 1. The displayed PLMN shall be PLMN2.

4) In step o), the response from the UE shall be on Cell 2. The displayed PLMN shall be PLMN1 (HPLMN).

6.1.2 Cell selection and reselection

6.1.2.1 Cell reselection

6.1.2.1.1 Definition

Test to verify that the UE performs the cell reselection correctly for intra/inter-frequency cells if the serving cell becomes barred or S<0.

6.1.2.1.2 Conformance requirement

1. When camped on a cell, the UE shall regularly search for a better cell according to the cell reselection criteria. If a better cell is found, that cell is selected. The change of cell may imply a change of RAT.

2. A "suitable cell" is a cell on which the UE may camp on to obtain normal service. Such a cell shall fulfil all the following requirements.

   2.1 The cell is part of the selected PLMN or of a PLMN considered as equivalent by the UE according to the information provided by the NAS.

   2.2 The cell is not barred.

   2.3 The cell is not part of the list of "forbidden LAs for roaming".

2.4 The cell selection criteria are fulfilled.

3. When camped normally, the UE shall execute the cell reselection evaluation process on the following occasions/triggers:

   3.1 UE internal triggers, so as to meet performance as specified in TS 25.133 for FDD mode and in TS 25.123 for TDD mode.

   3.2 When information on the BCCH used for the cell reselection evaluation procedure has been modified.

4. Cell Reselection Criteria:

   4.1 The UE shall perform ranking of all cells that fulfil the S criterion.

   4.2 The cells shall be ranked according to the R criteria, deriving Qmeas,n and Qmeas,s and calculating the R values using CPICH RSCP, P-CCPCH RSCP and the averaged received signal level as specified in TS 25.133 and TS 25.123 for FDD, TDD and GSM cells, respectively.

   The offset $Qoffset1_{s,n}$ is used for $Qoffset_{s,n}$ to calculate R_n, the hysteresis $Qhyst1_s$ is used for $Qhyst_s$ to calculate R_s.

   If the usage of HCS is indicated in system information, $TEMP\_OFFSET1_n$ is used for $TEMP\_OFFSET_n$ to calculate TO_n. If it is indicated in system information that HCS is not used, $TEMP\_OFFSET_n$ is not applied when calculating R_n. The best ranked cell is the cell with the highest R value.

   If a TDD cell is ranked as the best cell, the UE shall perform cell re-selection to that TDD cell.

   If an FDD cell is ranked as the best cell and the quality measure for cell selection and re-selection is set to CPICH RSCP, the UE shall perform cell re-selection to that FDD cell.

   4.3 In all cases, the UE shall reselect the new cell, only if the following conditions are met:

   - the new cell is better ranked than the serving cell during a time interval Treselection.
   - more than 1 second has elapsed since the UE camped on the current serving cell.

5. When cell status "barred" is indicated, the UE shall select another cell according to the following rule:

   5.1 If the "Intra-frequency cell re-selection indicator" IE in Cell Access Restriction IE is set to value "allowed", the UE may select another cell on the same frequency if selection/re-selection criteria are fulfilled.

   - If the UE is camping on another cell, the UE shall exclude the barred cell from the neighbouring cell list until the expiry of a time interval T_{barred}. The time interval T_{barred} is sent via system information in a barred cell together with Cell status information in the Cell Access Restriction IE.
   - If the UE does not select another cell, and the barred cell remains to be the "best" one, the UE shall after expiry of the time interval T_{barred} again check whether the status of the barred cell has changed.

   5.2 If the "Intra-frequency cell re-selection indicator" IE is set to "not allowed" the UE shall not re-select a cell on the same frequency as the barred cell. For emergency call, the Intra-frequency cell re-selection indicator IE" shall be ignored, i.e. even if it is set to "not allowed" the UE may select another intra-frequency cell.

References

1. TS 25.304, clause 5.2.1.
2. TS 25.304, clause 4.3.
3. TS 25.304, clause 5.2.5.1.
4. TS 25.304, clause 5.2.6.1.4.
5. TS 25.304, clause 5.3.1.1.

6.1.2.1.3 Test purpose

1. To verify that the UE performs cell reselection on the following occasions:

   1.1 Serving cell becomes barred;

   1.2 S<0 for serving cell.

2. To verify conformance requirement 5.

NOTE: Reselection triggered by the cell becoming a part of a forbidden registration area is tested in clause 9.4.2.3 and clause 9.4.2.4.

6.1.2.1.4 Method of test

Initial conditions

Treselection, Qhyst, Qoffset, TEMP_OFFSET and PENALTY_TIME are not used, so the cell-ranking criterion R equals CPICH_RSCP for FDD cells, and P-CCPCH RSCP for TDD cells.

Step a-c (FDD):

Parameter	Unit	Cell 1	Cell 2	Cell 4
Test Channel		1	1	2
LAC		0001	0002	0003
CPICH_Ec	dBm/3.84 MHz	-60	-67	-80
Qrxlevmin	dBm	-115	-115	-115
Qqualmin	dB	-16	-16	-16
Srxlev*	dBm	55	48	35
CellBarred		Not barred	Not barred	Not barred

Step a-c (TDD):

Parameter	Unit	Cell 1	Cell 2	Cell 4
P-CCPCH RSCP	dBm	-69	-74	-79
Qrxlevmin	dBm	-103	-103	-103
Srxlev*	dB	34	29	24

Step d-f:

CellBarred		Not barred -> Barred	Not barred	Not barred
Intra-frequency cell re-selection indicator		Not allowed		
Tbarred		10s		

Step g-h:

Intra-frequency cell re-selection indicator		Not Allowed -> Allowed		

Step i-k:

Parameter	Unit	Cell 1	Cell 2	Cell 4
CellBarred		Barred -> Not barred	Not barred	Not barred

Step l-m (FDD):

Qrxlevmin	dBm	-115 -> -51	-115	-115
Qqualmin	dB	-16	-16	-16
Srxlev*	dBm	55 -> -9	48	35

Step l-m (TDD):

Qrxlevmin		-103 -> -59	-103	-103
Srxlev*		34 -> -10	29	24

Test procedure

Method C is applied.

a) The SS activates Cell 1, 2 and 4 and monitors them for random access requests from the UE.

b) The UE is switched on.

c) The SS waits to see if there are any random access requests from the UE.

d) The SS sets Cell 1 to be barred. The SS notifies UE of the BCCH modification.

e) The SS waits to see if there are any random access requests from the UE.

f) The SS sets "Intra-frequency cell re-selection indicator" to "Allowed". The SS notifies UE of the BCCH modification.

g) The SS waits to see if there are any random access requests from the UE.

h) The UE is switched off.

i) The SS sets Cell 1 to be not barred.

j) The UE is switched on.

k) The SS waits to see if there are any random access requests from the UE.

l) For FDD cell, Qrxlevmin is increased to -51 dBm, so S will become negative.
For TDD cell, Qrxlevmin is increased to -59 dBm, so S will become negative.
The SS notifies UE of the BCCH modification

m) The SS waits for random access requests from the UE.

6.1.2.1.5 Test requirements

1) In step c), after the UE has responded on Cell 1, it shall not respond on any other cell within 1 min.

2) In step e), the UE shall respond on Cell 4.

3) In step g), the UE shall respond on Cell 2.

4) In step k), after the UE has responded on Cell 1, it shall not respond on any other cell within 1 min.

5) In step m), the UE shall respond on Cell 2.

6.1.2.1a Cell reselection for inter-band operation

6.1.2.1a.1 Definition

This test case is identical to test case 6.1.2.1 except that the cell to be reselected is on a different frequency band.

6.1.2.1a.2 Conformance requirement

Same conformance requirement as in clause 6.1.2.1.2.

6.1.2.1a.3 Test purpose

Same test purpose as in clause 6.1.2.1.3 except that the cell to be reselected is on a different frequency band.

6.1.2.1a.4 Method of test

Initial conditions

Same initial conditions as in clause 6.1.2.1.4 except that cells 1and 2 use test channel 1 as specified in Table 6.3 for the primary band and that cell 4 uses test channel 2 as specified in Table 6.3 for the secondary band. Primary and secondary bands are selected according to PIXIT parameters.

Related ICS/IXIT statement(s)

- UE supports multiple bands simultaneously yes/no

Test procedure

Same test procedure as in clause 6.1.2.1.4.

NOTE: If the UE supports more than 2 frequency bands, the test may be executed for various band combinations.

6.1.2.1a.5 Test requirements

Same test requirement as in clause 6.1.2.1.5.

6.1.2.1b Cell reselection for inter-band operation(LCR TDD band a-f)

6.1.2.1b.1 Definition

This test case is identical to test case 6.1.2.1 except that the cell to be reselected is on a different frequency band.

6.1.2.1b.2 Conformance requirement

Same conformance requirement as in clause 6.1.2.1.2.

6.1.2.1b.3 Test purpose

Same test purpose as in clause 6.1.2.1.3 except that the cell to be reselected is on a different frequency band.

6.1.2.1b.4 Method of test

Initial conditions

Same initial conditions as in clause 6.1.2.1.4 except that cells 1and 2 use test channel 1 as specified in Table 6.1.2.1b.4-1 below for the band a and that cell 4 uses test channel 2 as specified in Table 6.1.2.1b.4-1 for the secondary band. Primary and secondary bands are selected according to PIXIT parameters

6.1.2.1b.4-1 UTRA TDD test frequencies (1.28 Mcps option)

	Band a		Band f	
Test Channel	P-CCPCH_ RSCP [dBm]	UARFCN	P-CCPCH_ RSCP [dBm]	UARFCN
1	-54	9 505	-54	9404
2	-59	9 550	-59	9500
3	-64	9 595	-64	9596
4	-69	10 055	-69	
5	-74	10 088	-74	
6	-79	10 120	-79	

.

Related ICS/IXIT statement(s)

- UE supports multiple bands simultaneously yes/no

Test procedure

Same test procedure as in clause 6.1.2.1.4.

NOTE: If the UE supports more than 2 frequency bands, the test may be executed for various band combinations.

6.1.2.1b.5 Test requirements

Same test requirement as in clause 6.1.2.1.5.

6.1.2.2 Cell reselection using Qhyst, Qoffset and Treselection

6.1.2.2.1 Definition

Test to verify that the UE performs the cell reselection correctly if system information parameters Qoffset, Qhyst and Treselection are applied for non-hierarchical cell structures. TEMP_OFFSET and PENALTY_TIME are only applicable when HCS is applied and are tested in clauses 6.1.2.4 and 6.1.2.5.

6.1.2.2.2 Conformance requirement

1. When camped normally, the UE shall execute the cell reselection evaluation process on the following occasions/triggers:

   1.1 UE internal triggers, so as to meet performance as specified in TS 25.133 for FDD mode and in TS 25.123 for TDD mode.

   1.2 When information on the BCCH used for the cell reselection evaluation procedure has been modified.

2. Cell Reselection Criteria:

   2.1 The UE shall perform ranking of all cells that fulfil the S criterion.

   2.2 The cells shall be ranked according to the R criteria, deriving Qmeas,n and Qmeas,s and calculating the R values using CPICH RSCP, P-CCPCH RSCP and the averaged received signal level as specified in TS 25.133 and TS 25.123 for FDD, TDD and GSM cells, respectively.

   The offset $Qoffset1_{s,n}$ is used for $Qoffset_{s,n}$ to calculate R_n, the hysteresis $Qhyst1_s$ is used for $Qhyst_s$ to calculate R_s.

   If the usage of HCS is indicated in system information, $TEMP\_OFFSET1_n$ is used for $TEMP\_OFFSET_n$ to calculate TO_n. If it is indicated in system information that HCS is not used, $TEMP\_OFFSET_n$ is not applied when calculating R_n. The best ranked cell is the cell with the highest R value.

   If a TDD cell is ranked as the best cell, the UE shall perform cell re-selection to that TDD cell.

If an FDD cell is ranked as the best cell and the quality measure for cell selection and re-selection is set to CPICH RSCP, the UE shall perform cell re-selection to that FDD cell.

2.3 In all cases, the UE shall reselect the new cell, only if the following conditions are met:

- the new cell is better ranked than the serving cell during a time interval Treselection.
- more than 1 second has elapsed since the UE camped on the current serving cell.

References

1. TS 25.304, clause 5.2.5.1.
2. TS 25.304, clause 5.2.6.1.4.

6.1.2.2.3 Test purpose

1. To verify that the UE calculates R from Qhyst and Qoffset and that the modification of these parameters on the BCCH triggers the cell reselection evaluation process. TEMP_OFFSET and PENALTY_TIME are not applied.
2. To verify that the UE reselects the new cell, if the cell reselection criteria are fulfilled during a time interval Treselection.

6.1.2.2.4 Method of test

Initial conditions

For FDD only:

Step a-c:

Parameter	Unit	Cell 1	Cell 2
Test channel		1	1
LAC		0001	0002
CPICH_Ec	dBm/3.84 MHz	-60	-66
$Qhyst1_s$	dB	20	0
R_s*	dB	-40	-66
R_n*	dB	-66	-60

Step d-e:

CPICH_Ec	dBm/3.84 MHz	-60 -> -66	-66 -> -60
R_s*	dB	-40 -> -46	-66 -> -60
R_n*	dB	-66 -> -60	-60 -> -66

Step f-g:

$Qhyst1_s$	dB	20 -> 0	0
R_s*	dB	-46 -> -66	-60
R_n*	dB	-60	-66

Step h-j:

CPICH_Ec	dBm/3.84 MHz	-66 -> -60	-60 -> -66
$Qoffset1_{s,n}$	dBm	0 -> 20	0
R_s*	dBm	-66 -> -60	-60 -> -66
R_n*	dBm	-60 -> -86	-66 -> -60

Step k-l:

CPICH_Ec	dBm/3.84 MHz	-60 -> -66	-66 -> -60
R_s*	dB	-60 -> -66	-66 -> -60
R_n*	dB	-86 -> -80	-60 -> -66

Step m-n:

$Qoffset1_{s,n}$	dB	20 -> 0	0
R_s*	dB	-66	-60
R_n*	dB	-80 -> -60	-66

Step o-p:

$Treselection_s$	s	30	0

For TDD only:

Step a-c:

Parameter	**Unit**	**Cell 1**	**Cell 2**
P-CCPCH RSCP	dBm	-69	-79
$Qhyst1_s$	dB	10	0
R_s*	dB	-59	-79
R_n*	dB	-79	-69

Step d-e:

P-CCPCH RSCP	dBm	-69 -> -79	-79 -> -69
$Qhyst1_s$	dB	10 ->15	0
R_s*	dB	-59 -> -64	-79 ->-69
R_n*	dB	-79 -> -69	-69 ->-79

Step f-g:

$Qhyst1_s$	dB	15 -> 0	0
R_s*	dB	-64 -> -79	-69
R_n*	dB	-69	-79

Step h-j:

P-CCPCH RSCP	dBm	-79 -> -69	-69 ->-79
$Qoffset1_{s,n}$	dB	0 -> 10	0
R_s*	dB	- 79 ->-69	-69 ->-79
R_n*	dB	- 69 -> -79	-79 ->-69

Step k-l:

P-CCPCH RSCP	dBm	-69 -> -79	-79 -> -69
R_s*	dB	-69 -> -79	-79 -> -69
R_n*	dB	-79 -> -89	-69 -> -79

Step m-n:

$Qoffset1_{s,n}$	dB	10 -> 0	0
R_s*	dB	-79	-69
R_n*	dB	-89 -> -79	-79

Step o-p:

$Treselection_s$	s	0 -> 30	0

Test procedure

Method C is applied.

a) The SS activates Cell 1 and 2 and monitors them for random access requests from the UE.

b) The UE is switched on.

c) The SS waits to see if there are any random access requests from the UE.

d) The SS changes the level of Cell 1 and 2 and waits for 10 s (TS 25.133, A.4.2.1.2 for FDD mode and TS 25.123, A.4.2.1.2 for TDD mode).

e) The SS waits to see if there are any random access requests from the UE.

f) The SS resets Qhyst for Cell 1 and notifies UE of the BCCH modification.

g) The SS waits for random access requests from the UE.

h) The UE is switched off. The SS changes the level of Cell 1 and Cell 2. The SS changes Qoffset in Cell 1.

i) The UE is switched on.

j) The SS waits to see if there are any random access requests from the UE.

k) The SS changes the level of Cell 1 and 2 and waits for 10 s (TS 25.133, clause A.4.2.1.2 for FDD mode and TS 25.123, clause A.4.2.1.2 for TDD mode).

l) The SS waits to see if there are any random access requests from the UE.

m) The SS resets Qoffset for Cell 1, and notifies UE of the BCCH modification.

n) The SS waits for random access requests from the UE.

o) Step h-n) is repeated except that Treselection is 30 s

6.1.2.2.5 Test Requirements

1) In step c), after the UE has responded on Cell 1, it shall not respond on any other cell within 1 min.

2) In step e), there shall not be any random access requests on any cell.

3) In step g), the UE shall respond on Cell 2.

4) In step j), the UE shall select a cell to camp on. In case the UE has selected Cell 2, it shall make a reselection to Cell 1 within 10s (TS 25.133, clause A.4.2.1.2 for FDD mode and TS 25.123, clause A.4.2.1.2 for TDD mode).

5) In step l), there shall not be any random access requests on any cell.

6) In step n), the UE shall respond on Cell 2.

7) In step o), the UE shall respond as in previous steps except that when reselecting to Cell 2, there shall be no response from the UE on Cell 2 within 28 s of notifying UE on the BCCH modification, but the UE shall respond on Cell 2 within 35 s.

NOTE: Minimum time set by Treselection – 2 s tolerance. Maximum time set by Treselection + 1 280 msec. for DRX cycle + 1280 ms for system information block type scheduling + 2 s tolerance.

6.1.2.3 HCS Cell reselection

6.1.2.3.1 Definition

Test to verify that the UE performs the cell reselection correctly for hierarchical cell structures. This shall be done according to the HCS priority, the received signal quality value Q and the quality level threshold criterion H.

6.1.2.3.2 Conformance requirement

1. When camped normally, the UE shall execute the cell reselection evaluation process on the following occasions/triggers:

   1.1 UE internal triggers, so as to meet performance as specified in TS 25.133 for FDD mode and in TS 25.123 for TDD mode.

   1.2 When information on the BCCH used for the cell reselection evaluation procedure has been modified.

2. Cell Reselection Criteria for hierarchical cells:

   2.1 The quality level threshold criterion H for hierarchical cell structures is used to determine whether prioritised ranking according to hierarchical cell re-selection rules shall apply, and is calculated from the Q, Qhcs, TEMP_OFFSET and PENALTY_TIME parameters.

   2.2 The UE shall perform ranking of all cells that fulfil the S criterion among all cells that have the highest HCS_PRIO among those cells that fulfil the criterion H >= 0.

   2.3 The cells shall be ranked according to the R criteria. The best ranked cell is the cell with the highest R value. If an FDD cell is ranked as the best cell, the UE shall perform cell re-selection to that FDD cell. If a TDD cell is ranked as the best cell, the UE shall perform cell re-selection to that TDD cell.

   2.4 In all cases, the UE shall reselect the new cell, only if the cell reselection criteria are fulfilled during a time interval Treselection.

   2.5 The cell-ranking criterion R is derived from Q, Qhyst, Qoffset, TEMP_OFFSET, PENALTY_TIME.

References

1. TS 25.304, clause 5.2.2.

2. TS 25.304, clause 5.2.6.1.4.

6.1.2.3.3 Test purpose

1. Verify that the UE ignores cells with H<0 for reselection and that H is calculated from Qhcs. The modification of this parameter on the BCCH shall trigger the cell reselection evaluation process.

2. Verify that the UE ranks cells based on both HCS priority and R. Qhyst, Qoffset, TEMP_OFFSET, PENALTY_TIME and Treselection are not applied so R equals CPICH_RSCP for FDD cells, and P-CCPCH RSCP for TDD cells.

6.1.2.3.4 Method of test

Initial conditions

SS shall indicate in System Information that HCS is in use.

Each cell shall include the other cells as neighbouring cells in System Information Block Type 11.

For FDD only:

Step a-c:

Parameter	Unit	Cell 1	Cell 2	Cell 3
Test channel		1	2	2
LAC		0001	0002	0003
CPICH_Ec	dBm/3.84 MHz	-70	-65	-70
HCS priority		6	7	7
$Qhcs_s$	dBm	-80	-50	-50
$Qhcs_{n=1}$	dBm	n/a	-80	-80
$Qhcs_{n=2}$	dBm	-50	n/a	-50
$Qhcs_{n=3}$	dBm	-50	-50	n/a
H_s*	dB	10	-15	-20
$H_{n=1}$*	dB	n/a	10	10
$H_{n=2}$*	dB	-15	n/a	-15
$H_{n=3}$*	dB	-20	-20	n/a

Step d-e:

$Qhcs_s$	dBm	-80	-50	-50 -> -80
$Qhcs_{n=3}$	dBm	-50 -> -80	-50 -> -80	n/a
H_s*	dB	10	-15	-20 -> 10
$H_{n=3}$*	dB	-20 -> 10	-20 -> 10	n/a

Step f-g:

$Qhcs_s$	dBm	-80	-50 -> -80	-80
$Qhcs_{n=2}$	dBm	-50 -> -80	n/a	-50 -> -80
H_s*	dB	10	-15 -> 15	10
$H_{n=2}$*	dB	-15 -> 15	n/a	-15 -> 15

For TDD only:

Step a-c:

Parameter	Unit	Cell 1	Cell 2	Cell 3
P-CCPCH RSCP	dBm	-69	-74	-79
HCS priority		6	7	7
Qhcss	dBm	-89	-59	-59
Qhcsn=1	dBm	n/a	-89	-89
Qhcsn=2	dBm	-59	n/a	-59
Qhcsn=3	dBm	-59	-59	n/a
Hs*	dB	20	-15	-20
Hn=1*	dB	n/a	20	20
Hn=2*	dB	-15	n/a	-15
Hn=3*	dB	-20	-20	n/a

Step d-e:

$Qhcs_s$	dBm	-89	-59	-59 -> -89
$Qhcs_{n=3}$	dBm	-59 -> -89	-59 -> -89	n/a
H_s*	dB	20	-15	-20 -> 10
$H_{n=3}$*	dB	-20 -> 10	-20 -> 10	n/a

Step f-g:

Qhcss	dBm	-89	-59 -> -89	-89
Qhcsn=2	dBm	-59 -> -89	n/a	-59 -> -89
Hs*	dB	20	-15 -> 15	10
Hn=2*	dB	-15 -> 15	n/a	-15 -> 15

Test procedure

Method C is applied.

a) The SS activates the cells 1-3 and monitors them for random access requests from the UE.

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) The SS changes Qhcs for Cell 3, and notifies UE of the BCCH modification.

e) The SS waits for random access requests from the UE.

f) The SS changes Qhcs for Cell 2, and notifies UE of the BCCH modification.

g) The SS waits for random access requests from the UE.

6.1.2.3.5 Test requirements

1) In step c), after the UE has responded on Cell 1, it shall not respond on any other cell within 1 min.

2) In step e), the UE shall respond on Cell 3.

3) In step g), the UE shall respond on Cell 2.

6.1.2.4 HCS Cell reselection using reselection timing parameters for the H criterion

6.1.2.4.1 Definition

Test to verify that the UE performs the cell reselection correctly for hierarchical cell structures using TEMP_OFFSET and PENALTY_TIME applied to the H criterion.

6.1.2.4.2 Conformance requirement

1. When camped normally, the UE shall execute the cell reselection evaluation process on the following occasions/triggers:

   1.1 UE internal triggers, so as to meet performance as specified in TS 25.133 for FDD mode and in TS 25.123 for TDD mode.

   1.2 When information on the BCCH used for the cell reselection evaluation procedure has been modified.

2. Cell Reselection Criteria for hierarchical cells:

   2.1 The quality level threshold criterion H for hierarchical cell structures is used to determine whether prioritised ranking according to hierarchical cell re-selection rules shall apply, and is calculated from the Q, Qhcs, TEMP_OFFSET and PENALTY_TIME parameters.

2.2 The UE shall perform ranking of all cells that fulfil the S criterion among all cells that have the highest HCS_PRIO among those cells that fulfil the criterion H >= 0.

2.3 The cells shall be ranked according to the R criteria. The best ranked cell is the cell with the highest R value. If an FDD cell is ranked as the best cell, the UE shall perform cell re-selection to that FDD cell. If a TDD cell is ranked as the best cell, the UE shall perform cell re-selection to that TDD cell.

2.4 In all cases, the UE shall reselect the new cell, only if the cell reselection criteria are fulfilled during a time interval Treselection.

2.5 The cell-ranking criterion R is derived from Q, Qhyst, Qoffset, TEMP_OFFSET and PENALTY_TIME.

3. $TEMP\_OFFSET_n$ applies an offset to the H criteria for the duration of $PENALTY\_TIME_n$ after the timer T_n has started for that cell. T_n shall be started from zero when $Q_{meas,n} > Qhcs_n$. TEMP_OFFSET is only applied to the H criteria if the cells have different HCS priorities.

References

1. TS 25.304, clause 5.2.2.

2,3. TS 25.304, clause 5.2.6.1.4.

6.1.2.4.3 Test purpose

1. Verify that TEMP_OFFSET is applied to the H criterion for a period of PENALTY_TIME and that the timer is started when $Q_{meas,n} > Qhcs_n$ if serving and neighbour cell have different HCS priorities.

6.1.2.4.4 Method of test

Initial conditions

Cell_selection_and_reselection_quality_measure is CPICH_RSCP (FDD).

Each cell includes the other cells in the inter-frequency neighbour cell list in System Information Block Type 11.

For FDD only:

Step a-c:

Parameter	Unit	Cell 1	Cell 2	Cell 3
Test channel		1	2	3
LAC		0001	0002	0003
CPICH_Ec	dBm/3.84 MHz	-60	-70	-70
HCS priority		2	4	7
$Qhcs_s$	dBm	-80	-50	-50
$Qhcs_{n=1}$	dBm	n/a	-80	-80
$Qhcs_{n=2}$	dBm	-50	n/a	-50
$Qhcs_{n=3}$	dBm	-50	-50	n/a
$TEMP\_OFFSET1_{n=1}$	dB	n/a	0	0
$TEMP\_OFFSET1_{n=2}$	dB	inf	n/a	0
$TEMP\_OFFSET1_{n=3}$	dB	inf	inf	n/a
H_s*	dB	20	-20	-20
$H_{n=1}$*	dB	n/a	20	20
$H_{n=2}$*	dBm	-20	n/a	-20
$H_{n=3}$*	dBm	-20	-20	n/a
$PENALTY\_TIME_{n=1}$	sec	n/a	0	0
$PENALTY\_TIME_{n=2}$	sec	40	n/a	0
$PENALTY\_TIME_{n=3}$	sec	60	60	n/a

Step d-e:

$Qhcs_s$	dBm	-80	-50 -> -85	-50
$Qhcs_{n=2}$	dBm	-50 -> -85	n/a	-50 -> -85
$Qhcs_{n=3}$	dBm	-50	-50	n/a
H_s*	dB	20	-20 -> 15	-20
$H_{n=2}$*	dB	-inf -> 15 (after 40 sec)	n/a	-20 -> 15
$H_{n=3}$*	dB	-20	-20	n/a

Step f-g:

$Qhcs_s$	dBm	-80	-85	-50 -> -80
$Qhcs_{n=1}$	dBm	n/a	-80	-80
$Qhcs_{n=2}$	dBm	-85	n/a	-85
$Qhcs_{n=3}$	dBm	-50->80	50->-80	n/a
H_s*	dB	20	15	-20 -> 10
$H_{n=1}$*	dB	n/a	20	20
$H_{n=2}$*	dB	15	n/a	15
$H_{n=3}$*	dB	-inf -> 10 (after 60 sec)	-inf -> 10 (after 60 sec)	n/a

For TDD only:

Step a-c:

Parameter	**Unit**	**Cell 1**	**Cell 2**	**Cell 3**
P-CCPCH RSCP	dBm	-69	-74	-74
HCS priority		2	4	7
$Qhcs_s$	dBm	-89	-54	-54
$Qhcs_{n=1}$	dBm	n/a	-89	-89
$Qhcs_{n=2}$	dBm	-54	n/a	-54
$Qhcs_{n=3}$	dBm	-54	-54	n/a
$TEMP\_OFFSET1_{n=1}$	dB	n/a	0	0
$TEMP\_OFFSET1_{n=2}$	dB	inf	n/a	0
$TEMP\_OFFSET1_{n=3}$	dB	inf	inf	n/a
H_s*	dB	20	-20	-20
$H_{n=1}$*	dB	n/a	20	20
$H_{n=2}$*	dB	-20	n/a	-20
$H_{n=3}$*	dB	-20	-20	n/a
$PENALTY\_TIME_{n=1}$	sec	n/a	0	0
$PENALTY\_TIME_{n=2}$	sec	40	n/a	0
$PENALTY\_TIME_{n=3}$	sec	60	60	n/a

Step d-e:

$Qhcs_s$	dBm	-89	-54 -> -94	-54
$Qhcs_{n=2}$	dBm	-54 -> -94	n/a	-54 -> -94
$Qhcs_{n=3}$	dBm	-54	-54	n/a
H_s*	dB	20	-20 -> 20	-20
$H_{n=2}$*	dB	-inf -> 20 (after 40 sec)	n/a	-20 -> 20
$H_{n=3}$*	dB	-inf	-inf	n/a

Step g-f:

$Qhcs_s$	dBm	-89	-94	-54 ->-84
$Qhcs_{n=1}$	dBm	na	-89	-89
$Qhcs_{n=2}$	dBm	-94	n/a	-94
$Qhcs_{n=3}$	dBm	-54->84	-54->-84	n/a
H_s*	dB	20	20	-20 ->10
$H_{n=1}$*	dB	n/a	20	20
$H_{n=2}$*	dB	20	n/a	20
$H_{n=3}$*	dB	-inf ->10 (after 60 sec)	-inf ->10 (after 60 sec)	n/a

Test procedure

Method C is applied.

a) The SS activates the cells 1-3 and monitors them for random access requests from the UE.

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) The SS changes Qhcs for Cell 2, and notifies UE of the BCCH modification.

e) The SS waits for random access requests from the UE.

f) The SS changes Qhcs for Cell 3, and notifies UE of the BCCH modification.

g) The SS waits for random access requests from the UE.

6.1.2.4.5 Test requirements

1) In step c), after the UE has responded on Cell 1, it shall not respond on any other cell within 1 min.

2) In step e), there shall be no response from the UE on Cell 2 within 38 s after changing the parameters in step d), but the UE shall respond on Cell 2 within 49 s (see NOTE1).

3) In step g),There shall be no response from the UE on Cell 3 within 58 s after changing the parameters in step f), but the UE shall respond on Cell 3 within 69 s (see NOTE2).

NOTE1: Minimum time set by PENALTY_TIME (cell 2) - 2 s tolerance. Maximum time set by PENALTY_TIME (cell 2) + 1 280 msec. for DRX cycle + 2 s tolerance + 5 s tolerance (for UE to read System Information).

NOTE2: Minimum time set by PENALTY_TIME (cell 3) - 2 s tolerance. Maximum time set by PENALTY_TIME (cell 3) + 1 280 msec. for DRX cycle + 2 s tolerance + 5 s tolerance (for UE to read System Information).

6.1.2.5 HCS Cell reselection using reselection timing parameters for the R criterion

6.1.2.5.1 Definition

Test to verify that the UE performs the cell reselection correctly for hierarchical cell structures using TEMP_OFFSET and PENALTY_TIME applied to the R criterion.

6.1.2.5.2 Conformance requirement

1. When camped normally, the UE shall execute the cell reselection evaluation process on the following occasions/triggers:

   1.1 UE internal triggers, so as to meet performance as specified in TS 25.133 for FDD mode and in TS 25.123 for TDD mode.

   1.2 When information on the BCCH used for the cell reselection evaluation procedure has been modified.

2. Cell Reselection Criteria for hierarchical cells:

   2.1 The quality level threshold criterion H for hierarchical cell structures is used to determine whether prioritised ranking according to hierarchical cell re-selection rules shall apply, and is calculated from the Q, Qhcs, TEMP_OFFSET and PENALTY_TIME parameters.

   2.2 The UE shall perform ranking of all cells that fulfil the S criterion among all cells, not considering HCS priority levels, if no cell fulfil the criterion H>=0.

   2.3 The cells shall be ranked according to the R criteria. The best ranked cell is the cell with the highest R value. If a FDD cell is ranked as the best cell, the UE shall perform cell re-selection to that FDD cell. If a TDD cell is ranked as the best cell, the UE shall perform cell re-selection to that TDD cell.

   2.4 In all cases, the UE shall reselect the new cell, only if the cell reselection criteria are fulfilled during a time interval Treselection.

   2.5 The cell-ranking criterion R is derived from Q, Qhyst, Qoffset, TEMP_OFFSET, PENALTY_TIME.

3. $TEMP\_OFFSET_n$ applies an offset to the R criteria for the duration of $PENALTY\_TIME_n$ after the timer T_n has started for that cell. T_n shall be started from zero when $Q_{meas,n} > Q_{meas,s} + Qoffset2_{s,n}$. TEMP_OFFSET is only applied to the R criteria if the cells have identical priorities.

References

1. TS 25.304, clause 5.2.2.

2,3. TS 25.304, clause 5.2.6.1.4.

6.1.2.5.3 Test purpose

1. Verify that TEMP_OFFSET is applied to the R criterion for a period of PENALTY_TIME if serving and neighbour cell have identical HCS priorities and that the timer is started when $Q_{meas,n} > Q_{meas,s} + Qoffset1_{s,n}$.

6.1.2.5.4 Method of test

Initial conditions

Cell_selection_and_reselection_quality_measure is CPICH_RSCP (FDD).

For FDD only:

Step a-c:

Parameter	Unit	Cell 1	Cell 2	Cell 3
LAC		0001	0002	0003
CPICH_Ec	dBm/3.84 MHz	-60	-70	-75
HCS priority		1	1	1
$Qhcs_s$	dBm	-80	-80	-80
$TEMP\_OFFSET1_{n=1}$	dB	n/a	0	0
$TEMP\_OFFSET1_{n=2}$	dBm	inf	n/a	0
$TEMP\_OFFSET1_{n=3}$	dBm	inf	inf	n/a
$PENALTY\_TIME_{n=1}$	sec	n/a	0	0
$PENALTY\_TIME_{n=2}$	sec	40	n/a	0
$PENALTY\_TIME_{n=3}$	sec	60	60	n/a
H_s*	dBm	20	10	5
$H_{n=1}$*	dB	n/a	20	20
$H_{n=2}$*	dBm	10	n/a	10
$H_{n=3}$*	dBm	5	5	n/a
R_s*	dBm	-60	-70	-75
$R_{n=1}$*	dBm	n/a	-60	-60
$R_{n=2}$*	dBm	-70	n/a	-70
$R_{n=3}$*	dBm	-75	-75	n/a

Step d-e:

CPICH_Ec	dBm/3.84 MHz	-60 -> -70	-70 -> -65	-75
R_s*	dBm	-60 -> -70	-70 -> -65	-75
$R_{n=1}$*	dBm	n/a	-60 -> -70	-60 -> -70
$R_{n=2}$*	dBm	-inf -> -65 (after 40 sec)	n/a	-70 -> -65
$R_{n=3}$*	dBm	-75	--75	n/a

Step f-g:

CPICH_Ec	dBm/3.84 MHz	-70	-65	-75 -> -60
R_s*	dBm	-70	-65	-75->-60
$R_{n=1}$*	dBm	n/a	-70	-70
$R_{n=2}$*	dBm	-65	n/a	-65
$R_{n=3}$*	dBm	-inf -> -60 (after 60 sec)	-inf -> -60 (after 60 sec)	n/a

For TDD only:

Step a-c:

Parameter	Unit	Cell 1	Cell 2	Cell 3
P-CCPCH RSCP	dBm	-69	-79	-84
HCS priority		1	1	1
$Qhcs_s$	dBm	-89	-89	-89
$TEMP\_OFFSET1_{n=1}$	dB	n/a	0	0
$TEMP\_OFFSET1_{n=2}$	dB	inf	n/a	0
$TEMP\_OFFSET1_{n=3}$	dB	inf	inf	n/a
$PENALTY\_TIME_{n=2}$	sec	n/a	0	0
$PENALTY\_TIME_{n=2}$	sec	40	n/a	0
$PENALTY\_TIME_{n=3}$	sec	60	60	n/a
H_s*	dB	20	10	5
$H_{n=1}$*	dB	n/a	20	20
$H_{n=2}$*	dB	10	n/a	10
$H_{n=3}$*	dB	5	5	n/a
R_s*	dBm	-69	-79	-84
$R_{n=1}$*	dBm	n/a	-69	-69
$R_{n=2}$*	dBm	-79	n/a	-79
$R_{n=3}$*	dBm	-84	-84	n/a

Step d-e:

P-CCPCH RSCP	dBm	-69 -> -79	-79 -> -74	-84
R_s*	dBm	-69 -> -79	-79 -> -74	-84
$R_{n=1}$*	dBm	n/a	-69 -> -79	-69 -> -79
$R_{n=2}$*	dBm	-inf -> -74 (after 40 sec)	n/a	-79 -> -74
$R_{n=3}$*	dBm	-84	-84	n/a

Step f-g:

P-CCPCH RSCP	dBm	-79	-74	-84 -> -69
R_s*	dBm	-79	-74	-84 -> -69
$R_{n=1}$*	dBm	n/a	-79	-79
$R_{n=2}$*	dBm	-74	n/a	-74
$R_{n=3}$*	dBm	-inf -> -69 (after 60 sec)	-inf -> -69 (after 60 sec)	n/a

Test procedure

Method C is applied.

a) The SS activates the cells 1-3 and monitors them for random access requests from the UE.

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) The SS changes the power level of Cell 1-2.

e) The SS waits for random access requests from the UE.

f) The SS changes the power level of Cell 3.

g) The SS waits for random access requests from the UE.

6.1.2.5.5 Test requirements

1) In step c), after the UE has responded on Cell 1, it shall not respond on any other cell within 1 min.

2) In step e), there shall be no response from the UE on Cell 2 within 38 s after changing the parameters in step d), but the UE shall respond on Cell 2 within 50 s (see NOTE1).

3) In step g), there shall be no response from the UE on Cell 3 within 58 s after changing the parameters in step f), but the UE shall respond on Cell 2 within 70 s (see NOTE2).

NOTE1: Minimum time set by PENALTY_TIME (cell 2) – 2 s tolerance. Maximum time set by PENALTY_TIME (cell 2) + 6.4 s ($T_{evaluateFDD}$ from TS 25.133, table 4.1 for FDD mode and $T_{evaluateTDD}$ from TS 25.123, table 4.1 for TDD mode) + 1 280 msec + 2 s tolerance.

NOTE2: Minimum time set by PENALTY_TIME (cell 3) – 2 s tolerance. Maximum time set by PENALTY_TIME (cell 3) + 6.4 s ($T_{evaluateFDD}$ from TS 25.133, table 4.1 for FDD mode and $T_{evaluateTDD}$ from TS 25.123, table 4.1 for TDD mode) + 1 280 msec + 2 s tolerance.

6.1.2.6 Emergency calls

6.1.2.6.1 Definition

Test to verify that the UE shall be able to initiate emergency calls when no suitable cells of the selected PLMN are available, but at least one acceptable cell is available.

6.1.2.6.2 Conformance requirement

1. Acceptable cell:

   An "acceptable cell" is a cell on which the UE may camp to obtain limited service (originate emergency calls). Such a cell shall fulfil the following requirements, which is the minimum set of requirements to initiate an emergency call in a UTRAN network:

   1.1 The cell is not barred;

   1.2 The cell selection criteria are fulfilled.

2. A "suitable cell" is a cell on which the UE may camp on to obtain normal service. Such a cell shall fulfil all the following requirements.

   2.1 The cell is part of the selected PLMN or, of a PLMN considered as equivalent by the UE according to the information provided by the NAS.

   2.2 The cell is not barred.

   2.3 The cell is not part of the list of "forbidden LAs for roaming".

   2.4 The cell selection criteria are fulfilled.

3. If the UE is unable to find any suitable cell of selected PLMN the UE shall enter the *Any cell selection* state.

4. Any Cell Selection State: In this state, the UE shall attempt to find an acceptable cell of any PLMN to camp on, trying all RATs that are supported by the UE and searching first for a high quality cell. The UE, which is not camped on any cell, shall stay in this state until an acceptable cell is found.

5. Camped on Any Cell State: In this state the UE obtains limited service. The UE shall regularly attempt to find a suitable cell of the selected PLMN, trying RATs that are supported by the UE. If a suitable cell is found, this causes an exit to the Camped normally State.

6. In the Camped on Any Cell State, the UE shall perform the cell reselection evaluation process on the following occasions/triggers:

   6.1 UE internal triggers, so as to meet performance as specified in TS 25.133 for FDD mode and TS 25.123 for TDD mode.

   6.2 When information on the BCCH used for the cell reselection evaluation procedure has been modified.

References

1. TS 25.304, clause 4.3.
2. TS 25.304, clause 4.3.
3. TS 25.304, clause 5.2.2.1.
4. TS 25.304, clause 5.2.8.
5. TS 25.304, clause 5.2.2.5.
6. TS 25.304, clause 5.2.9.1.

6.1.2.6.3 Test purpose

1. To verify that the UE shall be able to initiate emergency calls when no suitable cells of the selected PLMN are available, but at least one acceptable cell is available.
2. To verify that the UE selects a cell with S>0 and CellBarred = Not Barred (i.e. an "acceptable cell") when no suitable cells of the selected PLMN are available.
3. To verify that the UE ranks the acceptable cells according to the cell-ranking criterion R which in this test case equals Q as Qhyst, Qoffset, TEMP_OFFSET and PENALTY_TIME parameters are not used. Treselection is not used either.

6.1.2.6.4 Method of test

Initial conditions

In step a-d, Cell 1 and 4 are neither suitable nor acceptable cells. Cell 7 is an acceptable cell but not suitable.

In step e-f, both Cell 1 and 7 are acceptable cells.

Prior to performing the actual test procedure PLMN3 is set as forbidden PLMN, so that the USIM will contain the following information:

USIM field	PLMN
EF_{FPLMN}	PLMN 3

The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN1.

All cells in this test case belong to PLMN 3.

Each cell shall include the other cells in the neighbour cell list in System Information Block Type 11.

Step a-d:

For FDD only:

Parameter	Unit	Cell 1	Cell 4	Cell 7
Test Channel		1	2	3
CPICH_Ec	dBm/3.84 MHz	-65	-60	-70
Qrxlevmin	dBm	-81	-51	-81
Qqualmin	dB	-16	-16	-16
Srxlev*	dB	16	-9	11
CellBarred		Barred	Not barred	Not barred
Tbarred		10s		

For TDD only:

Parameter	Unit	Cell 1	Cell 3	Cell 7
Test Channel		1	2	3
P-CCPCH RSCP	dBm	-69	-64	-74
CellBarred		Barred	Not barred	Not barred
Tbarred		10s		

Step e-f:

CellBarred		Barred -> Not barred	0	0

Test procedure

Method C is applied.

a) The SS activates the cells and monitors them for random access requests from the UE.

b) The UE is switched on.

c) 50 s after switch on, an emergency call is initiated on the UE.

d) The SS waits for random access request from the UE.

e) The SS changes the CellBarred of Cell 1 to 'Not barred'.

f) After 30 s an emergency call is initiated on the UE.

g) The SS waits for random access request from the UE.

6.1.2.6.5 Test requirements

1) In step d), the first access from the UE shall be on Cell 7.

2) In step g), the first access from the UE shall be on Cell 1.

6.1.2.7 Void

6.1.2.8 Cell reselection: Equivalent PLMN

6.1.2.8.1 Definition

Test to verify that the UE performs the cell reselection correctly to a cell belonging to a PLMN Equivalent to the registered PLMN, if the serving cell of registered PLMN becomes barred or S<0.

6.1.2.8.2 Conformance requirement

1. When camped on a cell, the UE shall regularly search for a better cell according to the cell reselection criteria. If a better cell is found, that cell is selected. The change of cell may imply a change of RAT.

2. A "suitable cell" is a cell on which the UE may camp on to obtain normal service. Such a cell shall fulfil all the following requirements.

   2.1 The cell is part of the selected PLMN or of a PLMN considered as equivalent by the UE according to the information provided by the NAS

   2.2 The cell is not barred

   2.3 The cell is not part of the list of "forbidden LAs for roaming"

   2.4 The cell selection criteria are fulfilled

3. When camped normally, the UE shall execute the cell reselection evaluation process on the following occasions/triggers:

   3.1 UE internal triggers, so as to meet performance as specified in TS 25.133 for FDD mode and in TS 25.123 for TDD mode.

   3.2 When information on the BCCH used for the cell reselection evaluation procedure has been modified

4. Cell Reselection Criteria:

   4.1 The UE shall perform ranking of all cells that fulfil the S criterion

   4.2 The cells shall be ranked according to the R criteria, deriving Qmeas,n and Qmeas,s and calculating the R values using CPICH RSCP, P-CCPCH RSCP and the averaged received signal level as specified in TS 25.133 and TS 25.123 for FDD, TDD and GSM cells, respectively.

   The offset $Qoffset1_{s,n}$ is used for $Qoffset_{s,n}$ to calculate R_n, the hysteresis $Qhyst1_s$ is used for $Qhyst_s$ to calculate R_s.

   If the usage of HCS is indicated in system information, $TEMP\_OFFSET1_n$ is used for $TEMP\_OFFSET_n$ to calculate TO_n. If it is indicated in system information that HCS is not used, $TEMP\_OFFSET_n$ is not applied when calculating R_n. The best ranked cell is the cell with the highest R value.

   If a TDD cell is ranked as the best cell, the UE shall perform cell re-selection to that TDD cell.

   If an FDD cell is ranked as the best cell and the quality measure for cell selection and re-selection is set to CPICH RSCP, the UE shall perform cell re-selection to that FDD cell.

   4.3 In all cases, the UE shall reselect the new cell, only if the following conditions are met:

   - the new cell is better ranked than the serving cell during a time interval Treselection.
   - more than 1 second has elapsed since the UE camped on the current serving cell.

5. When cell status "barred" is indicated, the UE shall select another cell according to the following rule:

   5.1 If the "Intra-frequency cell re-selection indicator" IE in Cell Access Restriction IE is set to value "allowed", the UE may select another cell on the same frequency if selection/re-selection criteria are fulfilled.

   - If the UE is camping on another cell, the UE shall exclude the barred cell from the neighbouring cell list until the expiry of a time interval T_{barred}. The time interval T_{barred} is sent via system information in a barred cell together with Cell status information in the Cell Access Restriction IE.
   - If the UE does not select another cell, and the barred cell remains to be the "best" one, the UE shall after expiry of the time interval T_{barred} again check whether the status of the barred cell has changed.

   5.2 If the "Intra-frequency cell re-selection indicator" IE is set to "not allowed" the UE shall not re-select a cell on the same frequency as the barred cell. For emergency call, the Intra-frequency cell re-selection indicator IE" shall be ignored, i.e. even if it is set to "not allowed" the UE may select another intra-frequency cell.

References

1. TS 25.304, 5.2.1
2. TS 25.304, 4.3
3. TS 25.304, 5.2.5.1
4. TS 25.304, 5.2.6.1.4
5. TS 25.304, 5.3.1.1

6.1.2.8.3 Test purpose

1. To confirm that the UE treats the cell of the equivalent PLMN as a cell of the current PLMN.
2. To verify that the UE performs cell reselection on the following occasions:

   2.1 Serving cell becomes barred.

   2.2 S<0 for serving cell.
3. To verify conformance requirement 5.

NOTE: Reselection triggered by the cell becoming a part of a forbidden registration area is tested in clause 9.4.2.3 "Location updating / rejected / location area not allowed" and 9.4.2.4 "Location updating / rejected / roaming not allowed in this LA".

6.1.2.8.4 Method of test

Initial conditions

Treselection, Qhyst, Qoffset, TEMP_OFFSET and PENALTY_TIME are not used, so the cell-ranking criterion R equals CPICH_RSCP for FDD cells, and P-CCPCH RSCP for TDD cells.

The UE is Idle Updated on PLMN1 in cell 1.

Cell 1 indicates in System Information Block Type 11 that Cell 2 and Cell 4 are neighbouring cells.

Cell 2 indicates in System Information Block Type 11 that Cell 1 and Cell 4 are neighbouring cells.

Cell 4 indicates in System Information Block Type 11 that Cell 1 and Cell 2 are neighbouring cells.

Step a-c (FDD):

Parameter	Unit	Cell 1	Cell 2	Cell 4
Test Channel		1	1	2
PLMN		PLMN 1	PLMN 2	PLMN 3
CPICH_Ec	dBm/ 3.84 MHz	-60	-67	-80
Qrxlevmin	dBm	-115	-115	-115
Qqualmin	dB	-16	-16	-16
Srxlev*	dB	55	48	35
CellBarred		Not barred	Not barred	Not barred

Step a-c (TDD):

Parameter	Unit	Cell 1	Cell 2	Cell 4
Test Channel		1	1	2
PLMN		PLMN 1	PLMN 2	PLMN 3
P-CCPCH RSCP	dBm	-69	-74	-79
Qrxlevmin	dBm	-103	-103	-103
Srxlev*	dB	34	29	24

Step d-f:

CellBarred		Not barred->Barred		
Intra-frequency cell re-selection indicator		Not Allowed		
Tbarred	s	10		

Step g-h:

Intra-frequency cell re-selection indicator		Not Allowed -> Allowed		

Step i-k:

Parameter	Unit	Cell 1	Cell 2	Cell 4
CellBarred		Barred -> Not barred	Not barred	Not barred

Step l-m (FDD):

Qrxlevmin	dBm	-115 -> -51	-115	-115
Qqualmin	dB	-16	-16	-16
Srxlev*	dBm	55 -> -9	48	35

Step l-m (TDD):

Qrxlevmin	dBm	-103 -> -59	-103	-103
Srxlev*	dBm	34 -> -10	29	24

Test procedure

Method C is applied.

a) The UE is switched off. The SS activates Cell 2 and 4.

b) The UE is switched on.

c) The SS waits for random access requests from the UE. A complete Location Update is done. SS specifies PLMN 2 and 3 are Equivalent to PLMN 1 in Location Update Accept Message. For UE that supports both CS and PS domain or PS domain only, the Location Updating procedure could be replaced by the appropriate GMM registration procedure. In these cases, the GMM Attach Accept message shall include PLMN2 and PLMN3 in the equivalent PLMN list.

d) The SS sets Cell 1 to be barred. The SS notifies UE of the BCCH modification.

e) The SS waits for random access requests from the UE. A complete Location Update is done. SS specifies PLMN 1 and 2 are Equivalent to PLMN 3 in Location Update Accept Message. For UE that supports both CS and PS domain or PS domain only, the Location Updating procedure could be replaced by the appropriate GMM Routing Area Updating procedure. In these cases, the Routing Area Update Accept message shall include PLMN1 and PLMN2 in the equivalent PLMN list.

f) The SS sets "Intra-frequency cell re-selection indicator" to "Allowed".

g) The SS waits for random access requests from the UE. A complete Location Update is done. SS specifies PLMN 1 and 3 are Equivalent to PLMN 2 in Location Update Accept Message. For UE that supports both CS and PS domain or PS domain only, the Location Updating procedure could be replaced by a Routing Area Updating procedure. In these cases, the Routing Area Update Accept message shall include PLMN1 and PLMN3 in the equivalent PLMN list.

h) Void

i) The SS sets Cell 1 to be not barred.

j) Void

k) The SS waits for random access requests from the UE. A complete Location Update is done. SS specifies PLMN 2 and 3 are Equivalent to PLMN 1 in Location Update Accept Message. For UE that supports both CS and PS domain or PS domain only, the Location Updating procedure could be replaced by a Routing Area Updating procedure. In these cases, the Routing Area Update Accept message shall include PLMN2 and PLMN3 in the equivalent PLMN list.

l) For FDD cell, Qrxlevmin is increased to -51 dBm, so S will become negative.
For TDD cell, Qrxlevmin is increased to -59 dBm, so S will become negative.
The SS notifies UE of the BCCH modification

m) The SS waits for random access requests from the UE.

6.1.2.8.5 Test requirements

1) In step c), after the UE has responded on Cell 1, it shall not respond on any other cell within 1 min.

2) In step e), the UE shall respond on Cell 4.

3) In step g), the UE shall respond on Cell 2.

4) In step k), the UE shall respond on Cell 1. After the UE has responded on Cell 1, it shall not respond on any other cell within 1 min.

5) In step m), the UE shall respond on Cell 2.

6.1.2.9 Void

6.1.2.9a Cell reselection using cell status and cell reservations – Type “A” USIM

6.1.2.9a.1 Definition

Test to verify that the UE correctly interprets cell status and cell reservations when performing cell reselection.

6.1.2.9a.2 Conformance requirement

1. When cell status is indicated as "not barred", "not reserved" for operator use and "not reserved" for future extension (Cell Reservation Extension),

   - the UE may select/re-select this cell during the cell selection and cell re-selection procedures in Idle mode and in Connected mode.

2. When cell status is indicated as "not barred", "not reserved" for operator use and "reserved" for future extension (Cell Reservation Extension),

   - UEs shall behave as if cell status "barred" is indicated using the value "not allowed" in the IE "Intra-frequency cell re-selection indicator" and the maximum value for T_{barred}, see [8] (see also below).

3. When cell status is indicated as "not barred" and "reserved" for operator use,

   - UEs assigned to Access Class 11 or 15 may select/re-select this cell if in the home PLMN.

- UEs assigned to an Access Class in the range 0 to 9 and 12 to 14 shall behave as if cell status "barred" is indicated using the value "not allowed" in the IE "Intra-frequency cell re-selection indicator" and the maximum value for T_{barred}, see [8] (see also below).

4. When cell status "barred" is indicated,

- The UE is not permitted to select/re-select this cell, not even for emergency calls.
- The UE shall ignore the "Cell Reserved for future extension (Cell Reservation Extension) use" IE.
- The UE shall select another cell according to the following rule:
  - If the "Intra-frequency cell re-selection indicator" IE in Cell Access Restriction IE is set to value "allowed", the UE may select another cell on the same frequency if selection/re-selection criteria are fulfilled.
    - If the UE is camping on another cell, the UE shall exclude the barred cell from the neighbouring cell list until the expiry of a time interval T_{barred}. The time interval T_{barred} is sent via system information in a barred cell together with Cell status information in the Cell Access Restriction IE.
    - If the UE does not select another cell, and the barred cell remains to be the "best" one, the UE shall after expiry of the time interval T_{barred} again check whether the status of the barred cell has changed.
  - If the "Intra-frequency cell re-selection indicator" IE is set to "not allowed" the UE shall not re-select a cell on the same frequency as the barred cell. For emergency call, the Intra-frequency cell re-selection indicator IE" shall be ignored, i.e. even if it is set to "not allowed" the UE may select another intra-frequency cell.
    - If the barred cell remains to be the "best" one, the UE shall after expiry of the time interval T_{barred} again check whether the status of the barred cell has changed.

  The reselection to another cell may also include a change of RAT.

Reference(s)

3GPP TS 25.304, clause 5.3.1.1

6.1.2.9a.3 Test purpose

1. To verify that when cell status is indicated as "not barred" and "reserved" for operator use,

- UEs assigned to an Access Class in the range 0 to 9 shall behave as if cell status "barred" is indicated using the value "not allowed" in the IE "Intra-frequency cell re-selection indicator" and the maximum value for T_{barred}.

6.1.2.9a.4 Method of test

Initial conditions

Use of USIM with "Type A" EF_{ACC} as defined in TS 34.108.

Step a-c (FDD):

Parameter	Unit	Cell 1	Cell 2	Cell 4
Test Channel		1	1	2
LAC		0001	0002	0003
CPICH_Ec	dBm/3.84 MHz	-58	-68	-78
Qqualmin	dB	-16	-24	-16
Qrxlevmin	dBm	-83	-83	-83
Srxlev*	dB	25	15	5
Cell Reserved for operator use		not reserved	not reserved	not reserved
Cell Reservation Extension		not reserved	not reserved	not reserved

Step a-c (TDD):

Parameter	Unit	Cell 1	Cell 2	Cell 4
Test Channel		1	1	2
LAC		0001	0002	0003
P-CCPCH RSCP	dBm	-68	-73	-78
Qrxlevmin	dBm	-83	-83	-83
Srxlev*	dB	15	10	5

Step d-e:

Cell Reserved for operator use		not reserved -> reserved	not reserved	not reserved
Cell Reservation Extension		not reserved	not reserved	not reserved

Step f-g:

Cell Reserved for operator use		reserved -> not reserved	not reserved	not reserved
Cell Reservation Extension		not reserved	not reserved	not reserved

Related ICS/IXIT Statement(s)

None

Test procedure

Method C applied.

a) The SS activates Cell 1, 2 and 4, and monitors them for random access requests from the UE.

b) The UE is switched on.

c) The SS waits to see if there are any random access requests from the UE.

d) The SS sets Cell 1 to "reserved" for operator use. The SS notifies UE of the BCCH modification.

e) The SS waits to see if there are any random access requests from the UE.

f) The SS sets Cell 1 to "not reserved" for operator use.

g) The SS waits to see if there are any random access requests from the UE.

6.1.2.9a.5 Test requirements

1) In step c), the UE shall respond on Cell 1.

2) In step e), the UE shall respond on Cell 4.

3) In step g), the UE shall respond on Cell 1 after 1280 seconds (maximum value for Tbarred) from SS notified UE of the BCCH modification in Cell 1 in step d).

6.1.2.9b Cell reselection using cell status and cell reservations – Type "B" USIM

6.1.2.9b.1 Definition

This test case is identical to test case 6.1.2.9a except that the USIM used for this test case is of type "B".

6.1.2.9b.2 Conformance requirement

Same conformance requirement as in clause 6.1.2.9a.2

6.1.2.9b.3 Test purpose

1. To verify that when cell status is indicated as "not barred", "not reserved" for operator use and "reserved" for future extension (Cell Reservation Extension),

   - UEs behave as if cell status "barred" is indicated using the value "not allowed" in the IE "Intra-frequency cell re-selection indicator" and the maximum value for T_{barred}.

2. To verify that when cell status is indicated as "not barred" and "reserved" for operator use,

   - UEs assigned to Access Class 11-15 may select/re-select this cell if in the home PLMN.

6.1.2.9b.4 Method of test

Initial conditions

Test procedure: Use of USIM with "Type B" EF_{ACC} as defined in TS 34.108.

Step a-c (FDD):

Parameter	Unit	Cell 1	Cell 2	Cell 4
LAC		0001	0002	0003
Test Channel		1	1	2
CPICH_Ec	dBm/3.84 MHz	-58	-68	-78
Qqualmin	dB	-16	-24	-16
Qrxlevmin	dBm	-83	-83	-83
Srxlev*	dB	25	15	5
Cell Reserved for operator use		not reserved	not reserved	not reserved
Cell Reservation Extension		not reserved	not reserved	not reserved

Step a-c (TDD):

Parameter	Unit	Cell 1	Cell 2	Cell 4
LAC		0001	0002	0003
Test Channel		1	1	2
P-CCPCH RSCP	dBm	-68	-73	-78
Qrxlevmin	dBm	-83	-83	-83
Srxlev*	dB	15	10	5

Step d-e:

Cell Reserved for operator use		not reserved	not reserved	not reserved
Cell Reservation Extension		not reserved -> reserved	not reserved	not reserved

Step f-g:

Cell Reserved for operator use		not reserved -> reserved	not reserved	not reserved
Cell Reservation Extension		reserved	not reserved	not reserved

Related ICS/IXIT Statement(s)

None

Test procedure

Method C applied.

a) The SS activates Cell 1, 2 and 4, and monitors them for random access requests from the UE.

b) The UE is switched on.

c) The SS waits to see if there are any random access requests from the UE.

d) The SS sets Cell 1 to "reserved" for future extension. The SS notifies UE of the BCCH modification.

e The SS waits to see if there are any r random access requests from the UE.

f The SS sets Cell 1 to "reserved" for operator use.

g) The SS waits to see if there are any random access requests from the UE.

6.1.2.9b.5 Test requirements

1) In step c), the UE shall respond on Cell 1.

2) In step e), the UE shall respond on Cell 4.

3) In step g), the UE shall respond on Cell 1 after 1280 seconds (maximum value for Tbarred) from SS notified UE of the BCCH modification in Cell 1 in step d).

6.1.2.10 HCS inter-frequency cell reselection

6.1.2.10.1 Definition

Test to verify that the UE performs inter-frequency cell reselection correctly for hierarchical cell structures in FDD. This shall be done according to the received signal quality value Q and the quality level thresholds Sintrasearch, Sintersearch and SsearchHCS.

6.1.2.10.2 Conformance requirement

1. When camped normally, the UE shall execute the cell reselection evaluation process on the following occasions/triggers:

   1.1 UE internal triggers, so as to meet performance as specified in TS 25.133 for FDD mode.

   1.2 When information on the BCCH used for the cell reselection evaluation procedure has been modified.

2. Cell Reselection Criteria for hierarchical cells:

2.1 The quality level thresholds for measurement rules for cell reselection can be used to control inter-frequency cell reselections. Intra-frequency cell reselections shall still be performed if Sintrasearch is not sent.

2.2 The quality level threshold criterion H for hierarchical cell structures is used to determine whether prioritised ranking according to hierarchical cell re-selection rules shall apply, and is calculated from the Q, Qhcs, TEMP_OFFSET and PENALTY_TIME parameters.

2.3 The UE shall perform ranking of all cells that fulfil the S criterion among all cells that have the highest HCS_PRIO among those cells that fulfil the criterion H >= 0.

2.4 The cells shall be ranked according to the R criteria. The best ranked cell is the cell with the highest R value. If an FDD cell is ranked as the best cell, the UE shall perform cell re-selection to that FDD cell. If a TDD cell is ranked as the best cell, the UE shall perform cell re-selection to that TDD cell.

2.5 In all cases, the UE shall reselect the new cell, only if the cell reselection criteria are fulfilled during a time interval Treselection.

2.6 The cell-ranking criterion R is derived from Q, Qhyst, Qoffset, TEMP_OFFSET, PENALTY_TIME.

References

1. TS 25.304, clause 5.2.2.
2. TS 25.304, clause 5.2.6.1.2.
3. TS 25.304, clause 5.2.6.1.4.

6.1.2.10.3 Test purpose

1. Verify that in FDD the UE ignores inter-frequency cells for reselection when the inter-frequency cells have equal or lower HCS priority than the serving cell, and Sintraseach is not sent, and Sintersearch < Squal and SsearchHCS < Srxlev.
2. Verify that in FDD the UE reselect to an inter-frequency cells when Sintraseach is not sent, and Sintersearch < Squal but SsearchHCS > Srxlev. The modification of this parameter on the BCCH shall trigger the cell reselection evaluation process. Qhyst, Qoffset, TEMP_OFFSET, PENALTY_TIME and Treselection are not applied so R equals CPICH_RSCP for FDD cells.

6.1.2.10.4 Method of test

Initial conditions

SS shall indicate in System Information that HCS is in use.

Each cell shall include the other cells as neighbouring cells in System Information Block Type 11.

For FDD only:

Step a- d:

Parameter	Unit	Cell 1	Cell 2	Cell 3
Test Channel		1	1	2
LAC		0001	0002	0003
HCS priority		6	6	6
CPICH_Ec	dBm/3.84 MHz	-70	-65	-60
CPICH_Ec/No	dB	-11	-6	-5
Qrxlevmin	dBm	-109	-105	-99
Qqualmin	dB	-24	-24	-24
Srxlev*	dB	39	40	39
Squal*	dB	13	18	19
Sintrasearch	dB	8	8	8
Sintersearch	dB	8	8	8
SsearchHCS	dB	31	31	31
$Qhcs_s$	dBm	-80	-80	-80
$Qhcs_{n=1}$	dBm	n/a	-80	-80
$Qhcs_{n=2}$	dBm	-80	n/a	-80
$Qhcs_{n=4}$	dBm	-80	-80	n/a
H_s*	dB	10	15	20
$H_{n=1}$*	dB	n/a	10	10
$H_{n=2}$*	dB	15	n/a	15
$H_{n=4}$*	dB	20	20	n/a

Step e-f:

Sintrasearch	dB	8 -> n/a	8 -> n/a	8 -> n/a

Step g-h:

Srxlev*	dB	39	40->20	39
Qrxlevmin	dBm	-109	-105 -> -85	-99

Test procedure

Method C is applied.

a) The SS activates cell 1.

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) The SS activates cells 2 and 3 and monitors them for random access requests from the UE.

e) The SS stops the transmission of Sintrasearch in all cells, and notifies UE of the BCCH modification.

f) The SS waits for random access requests from the UE.

g) The SS changes Qrxlevmin for Cell 2, and notifies UE of the BCCH modification.

h) The SS waits for random access requests from the UE.

6.1.2.10.5 Test requirements

1) In step c, the UE shall respond on cell 1.

2) In step d, the UE shall not respond on cell 2 or 3.

3) In step f), the UE shall respond on Cell 2.

4) In step h), the UE shall respond on Cell 3.

6.1.2.10a HCS inter-frequency cell reselection for inter-band operation

6.1.2.10a.1 Definition

This test case is identical to test case 6.1.2.10 except that the inter-frequency cell to be reselected is on a different frequency band.

6.1.2.10a.2 Conformance requirement

Same conformance requirement as in clause 6.1.2.10.2.

6.1.2.10a.3 Test purpose

Same test purpose as in clause 6.1.2.10.3 except that the inter-frequency cell to be reselected is on a different frequency band.

6.1.2.10a.4 Method of test

Initial conditions

Same initial conditions as in clause 6.1.2.10.4 except that cells 1and 2 use test channel 1 as specified in Table 6.3 for the primary band and that cell 3 uses test channel 2 as specified in Table 6.3 for the secondary band. Primary and secondary bands are selected according to PIXIT parameters.

Related ICS/IXIT statement(s)

- UE supports multiple bands simultaneously yes/no

Test procedure

Same test procedure as in clause 6.1.2.10.4.

NOTE: If the UE supports more than 2 frequency bands, the test may be executed for various band combinations.

6.1.2.10a.5 Test requirements

Same test requirement as in clause 6.1.2.10.5.

6.1.2.11 Cell reselection in shared network environment

6.1.2.11.1 Definition

Test to verify that the UE performs cell reselection according to core specification 25.304 in a shared network environment (FDD). Correct handling of equivalent PLMNs is also verified.

6.1.2.11.2 Conformance requirement

1. suitable cell:

   A "suitable cell" is a cell on which the UE may camp on to obtain normal service. Such a cell shall fulfil all the following requirements.

   - The cell shall be part of either:
     - the selected PLMN, or:
     - the registered PLMN, or:

- a PLMN of the Equivalent PLMN list

according to the latest information provided by the NAS.

- The cell is not barred, see subclause 5.3.1.1;

- The cell is part of at least one LA that is not part of the list of "forbidden LAs for roaming" [9], which belongs to a PLMN that fulfils the first bullet above;

- The cell selection criteria are fulfilled, see subclause 5.2.3.1.2.

If the IE “Multiple PLMN List” [4] is broadcast in the cell, the cell is considered to be part of all LAs with LAIs constructed from the PLMN identities in the “Multiple PLMN List” and the LAC broadcast in the cell.

2. When camped on a cell, the UE shall regularly search for a better cell according to the cell reselection criteria. If a better cell is found, that cell is selected. The change of cell may imply a change of RAT.

3. When camped normally, the UE shall perform the following tasks:

- select and monitor the indicated PICH and PCH of the cell as specified in clause 8 according to information sent in system information;

- monitor relevant System Information. This is specified in [4];

- perform necessary measurements for the cell reselection evaluation procedure;

- execute the cell reselection evaluation process on the following occasions/triggers:

1) UE internal triggers, so as to meet performance as specified in [10] and [11];

2) When information on the BCCH used for the cell reselection evaluation procedure has been modified

4. Cell Reselection Criteria:

4.1 If HCS is not used in the serving cell the UE shall perform ranking of all cells that fulfil the criterion S, among:

- all measured cells (see subclause 5.2.6.1.1).

4.2 The cells shall be ranked according to the R criteria, deriving Qmeas,n and Qmeas,s and calculating the R values using CPICH RSCP, P-CCPCH RSCP and the averaged received signal level as specified in TS 25.133 and TS 25.123 for FDD, TDD and GSM cells, respectively.

The offset $Qoffset1_{s,n}$ is used for $Qoffset_{s,n}$ to calculate R_n, the hysteresis $Qhyst1_s$ is used for $Qhyst_s$ to calculate R_s.

…

If the usage of HCS is indicated in system information, $TEMP\_OFFSET1_n$ is used for $TEMP\_OFFSET_n$ to calculate TO_n. If it is indicated in system information that HCS is not used, $TEMP\_OFFSET_n$ is not applied when calculating R_n. The best ranked cell is the cell with the highest R value.

…

If an FDD cell is ranked as the best cell and the quality measure for cell selection and re-selection is set to CPICH RSCP, the UE shall perform cell re-selection to that FDD cell.

4.3 In all cases, the UE shall reselect the new cell, only if the following conditions are met:

- the new cell is better ranked than the serving cell during a time interval Treselection.

…

- more than 1 second has elapsed since the UE camped on the current serving cell.

5. Location Registration

In the UE, the AS shall report registration area information to the NAS.

If the UE reads more than one PLMN identity in the current cell, the UE shall report the found PLMN identities that make the cell suitable in the registration area information to NAS.

6. Location updating accepted by the network

The network may also send a list of "equivalent PLMNs" in the LOCATION UPDATING ACCEPT message. Each entry of the list contains a PLMN code (MCC+MNC). The mobile station shall store the list, as provided by the network, except that any PLMN code that is already in the "forbidden PLMN list" shall be removed from the "equivalent PLMNs" list before it is stored by the mobile station. In addition the mobile station shall add to the stored list the PLMN code of the registered PLMN that sent the list. All PLMNs in the stored list shall be regarded as equivalent to each other for PLMN selection, cell selection/re-selection and handover. The stored list in the mobile station shall be replaced on each occurrence of the LOCATION UPDATING ACCEPT message. If no list is contained in the message, then the stored list in the mobile station shall be deleted. The list shall be stored in the mobile station while switched off so that it can be used for PLMN selection after switch on.

,References

1. TS 25.304, 4.3
2. TS 25.304, 5.2.1
3. TS 25.304, 5.2.5.1
4. TS 25.304, 5.2.6.1.4
5. TS 25.304, 5.5
6. TS 24.008, 4.4.4.6

6.1.2.11.3 Test purpose

1. To verify that the UE is able to reselect to a higher ranked cell in shared network environment.
2. To verify that the UE treats a cell of an Equivalent PLMN as a cell of the Registered PLMN for cell reselection in shared network environment.
3. To verify that the UE respects the IE “MIB PLMN Identity” in Camped Normally state.
4. To verify correct behaviour if the stored Equivalent PLMN list is deleted on reception of Location Area Update Accept or Routing Area Update Accept message not containing an Equivalent PLMN list.

6.1.2.11.4 Method of test

Initial conditions

The UE is equipped with a USIM containing default values. The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN1.

Cell reselection parameters are set to default values, so the cell-ranking criterion R equals CPICH_RSCP.

Each cell indicates in System Information Block Type 11 that all other cells are neighbouring cells.

Cell 2, Cell 4 and Cell 7 are switched off.

The reference system configuration from TS 34.108 clause 6.1 is used in all cells, with the following modifications:

Master Information Block

- MIB value tag	Set to (Current MIB value tag + 1)
- Supported PLMN types	
- PLMN type	GSM-MAP
- PLMN identity	
- MCC digit	See table below

- MNC digit	See table below
- Multiple PLMN List	
- MIB PLMN Identity	See table below
- Multiple PLMNs (1)	
- MCC	See table below
- MNC	See table below
- Multiple PLMNs (2)	
- MCC	See table below
- MNC	See table below

The MIB PLMN Identity and PLMN codes broadcasted on the BCCH in each cell shall be configured as defined in the table below.

Cell	MIB PLMN Identity	PLMN Identity		Multiple PLMNs (1)		Multiple PLMNs (2)	
		MCC digits	MNC digits	MCC digits	MNC digits	MCC digits	MNC digits
1	TRUE	PLMN 1	PLMN 1	-	PLMN 2	-	PLMN 3
2	FALSE	PLMN 3	PLMN 3	-	PLMN 2	-	PLMN 1
4	FALSE	PLMN 4	PLMN 4	-	PLMN 5	-	PLMN 6
7	FALSE	PLMN 6	PLMN 6	-	PLMN 5	-	PLMN 4

The definition of each PLMN code is found in table below.

PLMN	**MCC digit**			**MNC digit**		
	1	**2**	**3**	**1**	**2**	**3**
1	0	0	1	0	1	-
2	0	0	1	0	2	-
3	0	0	1	0	3	-
4	0	0	1	0	4	-
5	0	0	1	0	5	-
6	0	0	1	0	6	-

NOTE: "–" (dash) denotes "not present"

System Information Block type 1

The GSM-MAP NAS system information (LAC) broadcasted on the BCCH in each cell shall be configured as defined below.

- CN common GSM-MAP NAS system information	
- GSM-MAP NAS system information	See table below

System Information Block type 3 and 4

Parameter	**Cell 1**	**Cell 2**	**Cell 4**	**Cell 7**
q_QualMin	-24	-16	-16	-24

Cell	LAC
1	1
2	2
4	4
7	7

Step a-e

Parameter	Unit	Cell 1	Cell 2	Cell 4	Cell 7
Test Channel		1	1	2	3
CPICH_Ec	dBm/ 3.84 MHz	-84	-78	-72	-66

Step f-g

Parameter	Unit	Cell 1	Cell 2	Cell 4	Cell 7
CPICH_Ec	dBm/ 3.84 MHz	-84 -> -60	-78 -> -60	-72	-66

Test procedure

Method C is applied.

a) The UE is switched on.

b) The SS waits for random access requests from the UE. A complete Location Update is done. For UE that supports both CS and PS domain or PS domain only, the Location Updating procedure could be replaced by the appropriate GMM registration procedure.

c) Cell 2, Cell 4 and Cell 7 are switched on.

d) The SS waits for random access requests from the UE. A complete Location Update is done. SS specifies PLMN 6 as Equivalent to PLMN1 in Location Update Accept Message. For UE that supports both CS and PS domains or PS domain only, the Location Updating procedure could be replaced by the appropriate GMM Routing Area Updating procedure. In these cases, the Routing Area Update Accept message shall include PLMN6 in the equivalent PLMN list.

e) The SS waits for random access requests from the UE. A complete Location Update is done. For UE that supports both CS and PS domains or PS domain only, the Location Updating procedure could be replaced by the appropriate GMM registration procedure.

f) The SS changes the levels of Cell 1 and Cell 2.

g) The SS waits for random access requests from the UE.

6.1.2.11.5 Test requirements

1) In step b), the UE shall respond on Cell 1.

2) In step d), the UE shall respond on Cell 2.

3) In step e), the UE shall respond on Cell 4.

4) In step g), the UE shall not respond on Cell 1, Cell 2 or Cell 5 within 1 min.

6.1.2.12 Cell reselection based on absolute priority in SIB19

6.1.2.12.1 Definition

Test to verify that the UE performs cell reselection based on absolute RAT priority defined in SIB 19.

6.1.2.12.2 Conformance requirement

5.2.6.1.2a Measurement rules for inter-frequency and inter-RAT cell reselection when

absolute priorities are used

…

If the UE has received absolute priority information for inter-frequency layers, the UE shall follow these rules:

- The UE shall perform measurements of inter-frequency layers with a priority higher than the priority of the current serving layer.

NOTE: The rate of these measurements may vary depending on whether Srxlev and Squal of the serving cell are above or below Sprioritysearch1 and Sprioritysearch2. This is specified in [10].

…

- For inter-frequency layers with a priority equal or lower than the priority of the current serving layer:
- If Srxlev**ServingCell** > Sprioritysearch1 and Squal**ServingCell** > Sprioritysearch2 the UE may choose not to perform measurements of inter-frequency layers of equal or lower priority.
- If Srxlev**ServingCell** <= Sprioritysearch1 or Squal**ServingCell** <= Sprioritysearch2 the UE shall perform measurements of

inter-frequency layers of equal or lower priority.

- The UE shall not perform measurements of inter-frequency layers for which the UE has no absolute priority.

…

5.2.6.1.4a Absolute priority based criteria for inter-frequency and inter-RAT cell reselection

Absolute priorities of different absolute priority layers may be provided to the UE. The following cell reselection criteria are used for inter-frequency cells if absolute priority information for inter-frequency is available to the UE, and inter-RAT cells if absolute priority information for inter-RAT is available to the UE.

If System Information Block 18 with UTRAN information is provided then the UE shall apply the inter-frequency priority rules below only to UTRAN cells of the selected PLMN or equivalent PLMNs. If System Information Block 18 is not provided, or is provided but contains no information for UTRAN, then the rules below apply for the entire UTRAN RAT.

…

If priority information is provided for any inter-frequency layers, cells belonging to inter-frequency layers for which no priority or no threshold is assigned shall not be considered for reselection.

…

If none of the inter-frequency layers in UTRAN are provided with both priority and threshold parameters, the cell reselection criteria in subclause 5.2.6.1.4 shall apply for inter-frequency layers in UTRAN.

…

If both criteria in subclause 5.2.6.1.4 and criteria in subclause 5.2.6.1.4a are simultaneously fulfilled, the order in which the reselection criteria are evaluated is left to UE implementation.

…

The UE may apply either priorities broadcast in system information or priorities received through dedicated signalling. The rules regarding which set of priorities shall apply are defined in [4]. UE specific priorities are only valid in the RPLMN, and shall be cleared when the validity time of the UE specific priorities expires, or when leaving the RPLMN.

UE specific priorities are not applied in camped on any cell state.

…

The following definitions apply for the layers for which Threshx,high2 or Threshx,low2 are not provided:

- Criterion 1: the SrxlevnonServingCell,x of a cell on an evaluated higher absolute priority layer is greater than

Threshx,high during a time interval Treselection;

- Criterion 2: SrxlevServingCell < Threshserving,low or SqualServingCell < 0 and the SrxlevnonServingCell,x of a inter-frequency cell on an evaluated equal absolute priority layer is greater than Threshx,low during a time interval Treselection;

- Criterion 3: SrxlevServingCell < Threshserving,low or SqualServingCell < 0 and the SrxlevnonServingCell,x of a cell on an evaluated lower absolute priority layer is greater than Threshx,low during a time interval Treselection;

The following definitions apply for the layers for which both Threshx,high2 and Threshx,low2 are provided:

- Criterion 4: the SqualnonServingCell,x of a cell on an evaluated higher absolute priority layer is greater than

Threshx,high2 during a time interval Treselection;

- Criterion 5: SqualServingCell < Threshserving,low2 and the SqualnonServingCell,x of a cell on an evaluated lower absolute priority layer is greater than Threshx,low2 during a time interval Treselection;

Cell reselection to a cell on a higher absolute priority layer than the camped frequency shall be performed if criterion 1 or 4 is fulfilled.

Cell reselection to an inter-frequency cell on an equal absolute priority layer to the camped frequency shall be performed if criterion 2 is fulfilled.

Cell reselection to a cell on a lower absolute priority layer than the camped frequency shall be performed if criterion 3 or 5 is fulfilled.

If more than one cell meets the above criteria, the UE shall reselect the cell with the highest SrxlevnonServingCell,x among

the cells meeting the criteria on the highest absolute priority layer.

The UE shall not perform cell reselection to cells for which the cell selection criterion S is not fulfilled.

The UE shall not perform cell reselection until more than 1 second has elapsed since the UE camped on the current serving cell.

The UE should not perform cell reselection while the UE has an allocated common E-DCH resource.

For UE in RRC connected mode states CELL_PCH or URA_PCH the interval Treselections,PCH applies, if provided in SIB4 (see [4]), while for UE in RRC connected mode state CELL_FACH the interval Treselections,FACH applies, if provided in SIB4 (see [4]).

In all the above criteria the values of Treselections, Treselections,PCH or Treselections,FACH apply for Treselection and are scaled according to the UE mobility state and target RAT, as specified in 5.2.6.1.1a.

8.6.7.3a UTRA priority info list

If the IE "UTRA priority info list" is received in System Information Block Type 19, the UE shall:

1> if the value of the IE "Priority status" in the variable PRIORITY_INFO_LIST equals "dedicated_priority":

2> store the value of the IEs "$S_{prioritysearch1}$", "$S_{prioritysearch2}$", "$Thresh_{serving,low}$" and "$Thresh_{serving,low2}$" in the IE "UTRA Serving Cell" in the variable PRIORITY_INFO_LIST;

2> if any of the values in any of the occurrences of the IE "Frequency List" in any occurrence of the IE "Priority Info List" within the variable PRIORITY_INFO_LIST is the frequency of the serving cell:

3> store the value of the IE "priority" in the IE "UTRA Serving Cell" in the variable PRIORITY_INFO_LIST.

2> otherwise:

3> clear the value of the IE "priority" in the IE "UTRA Serving Cell" in the variable PRIORITY_INFO_LIST.

2> for each occurrence of the IE "UTRAN FDD Frequencies":

3> if the value of the IE "UARFCN" exists in the list of UTRA FDD priorities in the PRIORITY_INFO_LIST then, in the occurrence of IE "Frequency List" within the variable PRIORITY_INFO_LIST with that value of the IE "UARFCN":

4> store the value of the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$", "QqualminFDD" and "QrxlevminFDD".

2> for each occurrence of the IE "UTRAN TDD Frequencies":

3> if the value of the IE "UARFCN" exists in the list of UTRA TDD priorities in the PRIORITY_INFO_LIST then, in the occurrence of IE "Frequency List" within the variable PRIORITY_INFO_LIST with that value of the IE "UARFCN":

4> store the value of the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$" and "QrxlevminTDD".

1> otherwise:

2> update the PRIORITY_INFO_LIST IE "Priority status" to cause "sys_info_priority".

2> store information in the IE "UTRA Serving Cell" in the IE "UTRA Serving Cell" within the variable PRIORITY_INFO_LIST;

2> for each occurrence of the IE "UTRAN FDD Frequencies":

3> if an entry already exists in the IE "Priority Info List" in the variable PRIORITY_INFO_LIST with the same priority value as indicated in the IE "priority" and has the CHOICE "Radio Access Technology" set to "UTRA FDD":

4> create a new entry in the IE "Frequency List" in that occurrence of IE "Priority Info List", and store the value of "UARFCN" in the IE "UARFCN" in this occurrence of the IE "Frequency List" within the variable PRIORITY_INFO_LIST, and in that new entry:

5> store the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$", "QqualminFDD" and "QrxlevminFDD".

3> otherwise:

4> create a new entry in the IE "Priority Info List" and store the value of "priority" in the IE "priority" in this occurrence of the IE "Priority Info List" within the variable PRIORITY_INFO_LIST, and in that new entry:

5> set the CHOICE "Radio Access Technology" to "UTRA FDD" and store the value of "UARFCN" in the IE "UARFCN" in the first occurrence of the IE "Frequency List";

5> store the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$", "QqualminFDD" and "QrxlevminFDD" in that occurrence of the IE "Frequency List".

2> for each occurrence of the IE "UTRAN TDD Frequencies":

3> if an entry already exists in the IE "Priority Info List" in the variable PRIORITY_INFO_LIST with the same priority value as indicated in the IE "priority" and has the CHOICE "Radio Access Technology" set to "UTRA TDD":

4> create a new entry in the IE "Frequency List" in that occurrence of IE "Priority Info List", and store the value of "UARFCN" in the IE "UARFCN" in this occurrence of the IE "Frequency List" within the variable PRIORITY_INFO_LIST, and in that new entry:

5> store the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$" and "QrxlevminTDD".

3> otherwise:

4> create a new entry in the IE "Priority Info List" and store the value of "priority" in the IE "priority" in this occurrence of the IE "Priority Info List" within the variable PRIORITY_INFO_LIST, and in that new entry:

5> set the CHOICE "Radio Access Technology" to "UTRA TDD" and store the value of "UARFCN" in the IE "UARFCN" in the first occurrence of the IE "Frequency List";

5> store the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$" and "QrxlevminTDD" in that occurrence of the IE "Frequency List".

References

1. TS 25.304, 5.2.6.1.2a
2. TS 25.304, 5.2.6.1.4a
3. TS 25.331, 8.6.7.3a

6.1.2.12.3 Test purpose

1. To verify that UE performs Higher Priority Cell Reselection based on absolute priority.
2. To verify that UE performs LowerPriority Cell Reselection based on absolute priority.
3. To verify that UE performs Equal Priority Cell Reselection based on absolute priority.

6.1.2.12.4 Method of test

Initial conditions

System Simulator:

- 2 cells Cell 1 and Cell 4
- Cell 1 as the active cell with SS downlink transmission power settings according to “T0” in table 6.1.2.x below.
- SIB19 to be transmitted by both cells.

User Equipment:

- UE is in idle mode, registered on Cell 1 with power settings “T0”.
- Idle state (state 3 or state 7) as specified in clause 7.4 of TS 34.108 with a CN UE identity, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports FDD.

Table 6.1.2.12

Parameter	Unit	Cell 1			Cell 4		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			High Range Test Frequency		
CPICH Ec (FDD)	dBm/3.84MHz	-60	-60	-76	-90	-65	-74
Srxlev*	dB	21	21	5	-9	16	7
qRxLevMinFDD	dB	-81			-81		
Note-Srxlev is calculated in UE. During T1, UE should meet higher priority cell reselection criteria. During T2, UE should meet lower priority cell reselection criteria, followed by equal priority cell reselection criteria.							

Test procedure

Method C is applied.

a) SS transmits the MIB with the “MIB Value Tag” IE different from the original setting and SIB TYPE 19 with cell 4 as higher priority cell and cell 1 as lower priority cell (See specific message contents).

b) SS notifies the UE by sending a PAGING TYPE1 with BCCH modification and waits for 5s to ensure UE has read the SIB information.

c) SS configures downlink transmission power settings according to columns "T1" in the table 6.1.2.x.

d) UE meets the higher priority cell reselection and reselects to higher priority cell 4.

e) SS waits for random access request from UE. A Location Area Update procedure is done for UE. For UE that supports both CS and PS domain or PS domain only, the Location Updating procedure could be replaced by the appropriate GMM registration procedure.

f) SS transmits the MIB with the “MIB Value Tag” IE different from the original setting and SIB TYPE 19 for cell 4 as indicated in specific message contents.

g) SS notifies the UE by sending a PAGING TYPE1 with BCCH modification and waits for 5s to ensure UE has read the SIB information.

h) SS should transmit SIB TYPE 19 default content for cell 1 and then SS configures downlink transmission power settings according to columns "T2" in table 6.1.2.x.

i) UE meets the lower priority cell reselection criteria and reselects to lower priority cell 1.

j) SS waits for random access request from UE. A Location Area Update procedure is done for UE. For UE that supports both CS and PS domain or PS domain only, the Location Updating procedure could be replaced by the appropriate GMM registration procedure.

k) SS transmits the MIB with the "MIB Value Tag" IE different from the original setting and the SIB TYPE 19 where both Cell 1 and Cell 4 are defined as equal priority cells.

l) SS notifies the UE by sending PAGING TYPE1 with BCCH modification and waits for 5s to ensure UE has read all the SIB information.

m) UE meets the equal priority cell reselection criteria with same power level as “T2” and reselects to equal priority cell 4.

n) SS waits for random access request from UE. A Location Area Update procedure is done for UE. For UE that supports both CS and PS domain or PS domain only, the Location Updating procedure could be replaced by the appropriate GMM registration procedure.

Specific Message Contents

The contents of the SYSTEM INFORMATION BLOCK TYPE 19 message in this test case is identical to TS 34.108 clause 6.1.0b, with the following exceptions:

System Information Block type 19 (Step a)

Information Element	Value/remark	Version
SysInfoType19		REL-8 or later
utra-PriorityInfoList		
utra-ServingCell		
Priority	[4]	
s-PrioritySearch1	[8 (16 dB)]	
s-PrioritySearch2	Not present	
threshServingLow	[4 (8 dB)]	
utran-FDD-FrequencyList		
uarfcn	Same downlink uarfcn as used for cell 4	
priority	[5]	
threshXhigh	[5 (10 dB)]	
threshXlow	[1 (2 dB)]	
qQualMinFDD	-24 dB	
qRxLevMinFDD	-81 dBm	
utran-TDD-FrequencyList	Not present	
gsm-PriorityInfoList	Not present	
eutra-FrequencyAndPriorityInfoList (SIZE (1..maxNumEUTRAFreqs)	Not present	

System Information Block type 19 (Step f)

Information Element	Value/remark	Version
SysInfoType19		REL-8 or later
utra-PriorityInfoList		
utra-ServingCell		
Priority	[4]	
s-PrioritySearch1	[8 (16 dB)]	
s-PrioritySearch2	Not present	
threshServingLow	[10 (20 dB)]	
utran-FDD-FrequencyList		
uarfcn	Same downlink uarfcn as used for cell 4	
priority	[4]	
threshXhigh	[11 (22 dB)]	
threshXlow	[1 (2 dB)]	
qQualMinFDD	-24 dB	
qRxLevMinFDD	-81 dBm	
utran-TDD-FrequencyList	Not present	
gsm-PriorityInfoList	Not present	
eutra-FrequencyAndPriorityInfoList (SIZE (1..maxNumEUTRAFreqs)	Not present	

System Information Block type 19 (Step k)

Information Element	Value/remark	Version
SysInfoType19		REL-8 or later
utra-PriorityInfoList		
utra-ServingCell		
Priority	[4]	
s-PrioritySearch1	[8 (16 dB)]	
s-PrioritySearch2	Not present	
threshServingLow	[10 (20 dB)]	
utran-FDD-FrequencyList		
uarfcn	Same downlink uarfcn as used for cell 4	
priority	[4]	
threshXhigh	[11 (22 dB)]	
threshXlow	[1 (2 dB)]	
qQualMinFDD	-24 dB	
qRxLevMinFDD	-81 dBm	
utran-TDD-FrequencyList	Not present	
gsm-PriorityInfoList	Not present	
eutra-FrequencyAndPriorityInfoList ::= SEQUENCE (SIZE (1..maxNumEUTRAFreqs) OF SEQUENCE {	Not present	

PAGING TYPE 1 (Step b, Step g and Step l)

Information Element	Value/Remark
PagingType1	
pagingRecordList	Not present
bcch-ModificationInfo	
mib-ValueTag	Set to (Current MIB value tag + 1)
bcch-ModificationTime	Not present
laterNonCriticalExtensions SEQUENCE {}	Not present

6.1.2.12.5 Test requirements

1) At step d), UE reselects to a higher priority Cell 4.

2) At step i), UE reselects to lower priority Cell 4.

3) At step m), UE reselects to equal priority Cell 4.

6.1.3 MBSFN Cluster selection and reselection

6.1.3.1 MBSFN only service recognition

6.1.3.1.1 Definition

Test to verify that a UE supporting both transmit and receive functions correctly distinguishes an MBSFN only mode cluster from a unicast carrier cell and performs the procedures for either MBSFN cluster selection or UTRAN unicast carrier cell selection as appropriate. The unicast carrier cell may have some (but not all) timeslots assigned to MBSFN.

6.1.3.1.2 Conformance requirement

The MS shall perform registration on the PLMN if the MS is capable of services which require registration. In both automatic and manual modes, the concept of registration on a PLMN is used. An MS successfully registers on a PLMN if:

a) The MS has found a suitable cell of the PLMN to camp on; and

b) An LR request from the MS has been accepted in the registration area of the cell on which the MS is camped (see table 1).

…

The registration on the selected PLMN and the location registration are only necessary if the MS is capable of services which require registration. Otherwise, the PLMN selection procedures are performed without registration.

…

At switch on, or following recovery from lack of coverage, the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see clause 4.5.2) attempts to perform a Location Registration.

…

suitable cell:

A "suitable cell" is a cell on which the UE may camp on to obtain normal service. Such a cell shall fulfil all the following requirements.

- The cell shall be part of either:
  - the selected PLMN, or:
  - the registered PLMN, or:
  - a PLMN of the Equivalent PLMN list

  according to the latest information provided by the NAS.
- The cell is not barred, see subclause 5.3.1.1;
- The cell is part of at least one LA that is not part of the list of "forbidden LAs for roaming" [9], which belongs to a PLMN that fulfils the first bullet above;
- The cell selection criteria are fulfilled, see subclause 5.2.3.1.2.

If the IE “Multiple PLMN List” [4] is broadcast in the cell, the cell is considered to be part of all LAs with LAIs constructed from the PLMN identities in the “Multiple PLMN List” and the LAC broadcast in the cell.

…

suitable MBSFN cluster:

A cell is part of an MBSFN cluster if it is indicated in system information [4]. An MBSFN cluster provides exclusively MBMS services. A suitable MBSFN cluster shall fulfil all the following requirements:

- For FDD, 3.84 Mcps TDD IMB and 3.84/7.68 Mcps TDD the MBSFN cluster shall be part of either:
  - the registered PLMN, or:
  - a PLMN of the Equivalent PLMN list

The MBSFN cluster shall be indicated as:

- providing MBSFN only service

…

The UE shall search for MBSFN clusters if the frequencies on which MBSFN clusters are available are not indicated in the cell that the UE is camping on for normal service if the mobile is configured to receive services via MBSFN mode. Details of the process are not specified.

For 1.28 Mcps TDD, the UE that needs receive MBMS services delivered in an MBSFN cluster may at the first step select a non MBSFN cell (i.e. a unicast cell), that the MBSFN cluster is associated with. The UE can get synchronized to the MBSFN cluster with the help of the information indicated in system information broadcast by the associated unicast cell, and receive the system information and MCCH messages in the MBSFN Special Timeslot. The details of the association between MBSFN clusters and non MBSFN cells operating in a unicast carrier are not specified. In case there are more than one MBSFN clusters indicated in system information broadcast by a unicast cell, the process of which MBSFN cluster should be selected for searching is not specified.

…

When camped on a MBSFN cluster, the UE shall perform the following tasks:

- receive the MCCH as specified in clause 8.4 and in [4];

…

If the IE "MBSFN only service" is set to TRUE the UE shall:

1> consider this cell to operate in MBSFN mode;

1> for TDD consider that all slots operate in MBSFN mode;

1> for FDD, 3.84 Mcps TDD IMB and 3.84/7.68 Mcps TDD if the UE capabilities allow the reception of MBSFN in addition to the normal UE operation the UE may receive MBMS services from this cell in accordance with requirements for selection of a cell providing only MBSFN as specified in [4]. For 1.28 Mcps TDD, if the UE capabilities allow the reception of MBSFN in addition to the normal UE operation the UE may get synchronized to the MBSFN cluster as specified in [4].

…

A cell provides MBMS service in MBSFN mode if it is indicated so in system information, see subclause 8.1.1.6.3. A UE that supports MBSFN operation may receive MBMS services via a cell operating in MBSFN mode. For FDD, 3.84 Mcps TDD IMB and 3.84/7.68 Mcps TDD in order to receive an MBMS service via a MBSFN cluster the UE shall select the MBSFN cluster as specified in [4] in addition to selecting a cell for normal camping as specified in [4]. For 1.28 Mcps TDD in order to receive an MBMS service via an MBSFN cluster the UE shall at the first step camp on a unicast cell and get the frequency and "cell parameter ID" from the system information, and then get synchronized to the MBSFN cluster operating with that frequency and "cell parameter ID". For 3.84/7.68 Mcps TDD a cell shall be considered to be operating in MBSFN mode when individual scrambling codes are assigned to all timeslots (via the IE "TDD MBSFN Information").

…

For FDD and 3.84/7.68 Mcps TDD if the IE "MBSFN frequency list" is not included in system information block 11 and if services are listed in the variable MBMS_ACTIVATED_SERVICES a UE supporting reception of MBMS service in MBSFN mode shall search for cells providing MBMS service in MBSFN mode.

For 1.28 Mcps TDD the IE "Cell parameter ID" in the IE "MBSFN frequency list" included in system information block 11 indicates the cell which is providing MBMS service in MBSFN only mode on the corresponding frequency; if the IE "Cell parameter ID" is not included in the IE "MBSFN frequency list", a UE may consider that the corresponding frequency is the secondary frequency providing MBMS service in non-MBSFN only mode of current multi-frequency cell.

…

If the variable MBMS_ACTIVATED_services is not empty, the UE shall apply the MCCH acquisition procedure upon selecting (e.g. upon power on) or re- selecting a cell supporting MBMS or an MBSFN cluster, upon change of MBMS controlling cell (e.g. due to an active set update or hard handover), upon entering UTRA from another RAT, upon release of a MBMS PTP RB for the purpose of changing transfer mode, upon return from loss of coverage and upon receiving an indication from upper layers that the set of activated services has changed.

References

TS 23.122, 4.4.2, 4.4.3, 4.4.3.1

TS 25.304, 4.3, 6.3.1.1, 6.3.1.2

TS 25.331, 8.1.1.6.3, 8.5.43, 8.6.9.9ac, 8.7.2.2

6.1.3.1.3 Test purpose

1. To verify that the UE initiates PLMN registration following selection of a cell that does not indicate MBSFN only mode.

2. To verify that the UE performs PLMN selection procedures without registration in an MBSFN only mode cluster.

6.1.3.1.4 Method of test

Initial condition

System Simulator:

MBSFN carrier: 1 cell, Cell 31 (PLMN1). In addition to broadcasting System Information, MCCH messages are transmitted by the SS using MBMS configuration C2 and Default1 MCCH scheduling (One ongoing session) according to subclause 11.1 or 11.2 of TS 34.108.

Unicast carrier: 1 cell, Cell 1 (PLMN1) with default configuration. The unicast carrier cell shall support FDD or TDD as appropriate to UE.

User Equipment:

The UE is switched off.

The UE is equipped with a Test-USIM containing default values. The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN1.

Related ICS/IXIT statements

- MBMS Broadcast services in MBSFN mode available on UE Yes/No.
- Support of transmit and receive functions available on UE Yes/No.
- Support of MBSFN receive only function available on UE Yes/No.

Test procedure

a) The UE is switched on.

b) The UE registers as specified in clause 7.2.2 of TS 34.108 on the unicast carrier Cell 1. For 3.84 Mcps TDD IMB, the UE registers on the FDD unicast carrier cell 1. On the unicast carrier Cell 1, a Location Update Accept message shall be sent on reception of a Location Updating Request message from the UE. The Location Updating Accept message shall include PLMN2 in the equivalent PLMN list. For a UE that supports both CS and PS domains or PS domain only, the Location Updating procedure could be replaced by the appropriate GMM registration procedure. In these cases, the GMM Attach Accept message shall include PLMN2 in the equivalent PLMN list.

c) The SS sends ACTIVATE RB TEST MODE on the unicast carrier and the UE responds with ACTIVATE RB TEST MODE COMPLETE. The SS then sends CLOSE UE TEST LOOP to activate RLC SDU counting on the MCCH of Cell 31.

d) The SS activates Cell 31.

e) One MBMS service from the list of services available on the Dedicated National Carrier (see TS 34.108 clause 11.2) is activated on the UE.

f) The SS transmits the SYSTEM INFORMATION BLOCK TYPE 5 message indicating the configuration of the S-CCPCH carrying MCCH within the IE " Secondary CCPCH system information MBMS". In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C2 (one PTM session ongoing) and Default1 MCCH scheduling according to clause 11.1 or 11.2 of TS 34.108. The service is carried on a 129.6kbps RB for MTCH with 80 ms TTI as specified in clause 6.10.3.4.4.6(FDD) or a 124.4 kbps RB for MTCH with 80 ms TTI as specified in clause 6.11.7.2.2.1 (3.84 Mcps TDD IMB) or a 124 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.9 (3.84 Mcps TDD) or clause 6.11.5.4.4.9 (1.28 Mcps TDD) or clause 6.11.6.4.4.9 (7.68 Mcps TDD).

g) The UE camps on Cell 31 on the MBSFN carrier. The UE shall perform the MCCH acquisition procedure. The UE shall start receiving the p-t-m radio bearer for the ongoing activated MBMS service indicated in the MBMS UNMODIFIED SERVICES INFORMATION message according to the configuration defined in the MBMS CURRENT CELL P-T-M INFORMATION (one ongoing session corresponding to the service activated at the UE). The UE closes the test loop and starts counting successfully received RLC PDUs on the MTCH. The UE will send CLOSE UE TEST LOOP COMPLETE.

Expected sequence

Step	Direction		Carrier	Message	Comments
	UE	SS			
1	UE		U		The UE is switched on and camps on unicast carrier Cell 1.
2	→		U	LOCATION UPDATING REQUEST	For UE that supports both CS and PS domain or PS domain only, the Location Updating procedure could be replaced by the appropriate GMM registration procedure
3	←		U	LOCATION UPDATING ACCEPT	
4	→		U	TMSI REALLOCATION COMPLETE	
5	←		U	ACTIVATE RB TEST MODE	
6	→		U	ACTIVATE RB TEST MODE COMPLETE	
7	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated. Short Transmission Identity for the selected national service on Cell 31.
8	SS		M		Cell 31 is activated
9	UE		M		MBMS National Service 1 is activated.
10	←		M	SYSTEM INFORMATION BLOCK TYPE 5	
11	←		M	MBMS MCCH Message Configuration C2	No modified services. One ongoing session. (Service activated at the UE). 129.6(FDD), 124.4 kbps (IMB) or 124(TDD) kbps PS RAB
12	UE		M		The UE shall continue acquiring the above MBMS messages until it has received a consistent set of MCCH information in the same modification period.
13	→		U	CLOSE UE TEST LOOP COMPLETE	The UE shall establish the indicated p-t-m radio bearer and close the test loop.
14	←		U	OPEN UE TEST LOOP	
15	→		U	OPEN UE TEST LOOP COMPLETE	
16	←		U	DEACTIVATE RB TEST MODE	
17	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific message contents

With the following exceptions, all messages have the same content as defined in TS 34.108 clause 9.1.1 or 9.1.3 for the MBSFN carrier and in TS 34.108 clause 9.1.1 or clause 9.1.2 for the unicast carrier:

There are no exceptions for this test case.

6.1.3.1.5 Test requirements

1) The UE sends a LOCATION UPDATING REQUEST message on the unicast carrier at step 2.

2) The UE sends a CLOSE UE TEST LOOP COMPLETE message on the unicast carrier at step 13.

6.1.3.2 Suitable PLMN selection; MBSFN Frequency List present (unicast carrier)

6.1.3.2.1 Definition

Test to verify that the UE performs selection of a suitable MBSFN cluster which is part of the registered PLMN or which is in the stored list of Equivalent PLMN, when the MBSFN Frequency List is present in the SIB11of the unicast carrier on which the UE has registered.

6.1.3.2.2 Conformance requirement

suitable MBSFN cluster:

A cell is part of an MBSFN cluster if it is indicated in system information [4]. An MBSFN cluster provides exclusively MBMS services. A suitable MBSFN cluster shall fulfil all the following requirements:

- For FDD 3.84 Mcps TDD IMB and 3.84/7.68 Mcps TDD the MBSFN cluster shall be part of either:
  - the registered PLMN, or:
  - a PLMN of the Equivalent PLMN list

The MBSFN cluster shall be indicated as:

- providing MBSFN only service

For FDD and 3.84/7.68 Mcps TDD MBSFN cluster selection/reselection process for MBSFN clusters operating on the same frequency shall be based on reception quality. Details of the process are not specified.

…

When camped on a MBSFN cluster, the UE shall perform the following tasks:

- receive the MCCH as specified in clause 8.4 and in [4];

…

A cell provides MBMS service in MBSFN mode if it is indicated so in system information, see subclause 8.1.1.6.3. A UE that supports MBSFN operation may receive MBMS services via a cell operating in MBSFN mode. For FDD, 3.84 Mcps TDD IMB and 3.84/7.68 Mcps TDD in order to receive an MBMS service via a MBSFN cluster the UE shall select the MBSFN cluster as specified in [4] in addition to selecting a cell for normal camping as specified in [4]. For 1.28 Mcps TDD in order to receive an MBMS service via an MBSFN cluster the UE shall at the first step camp on a unicast cell and get the frequency and "cell parameter ID" from the system information, and then get synchronized to the MBSFN cluster operating with that frequency and "cell parameter ID". For 3.84/7.68 Mcps TDD a cell shall be considered to be operating in MBSFN mode when individual scrambling codes are assigned to all timeslots (via the IE "TDD MBSFN Information").

…

MBSFN frequency list

For FDD and 3.84/7.68 Mcps TDD this IE may be included in system information block 11 in a cell which is not providing MBMS service in MBSFN mode in order to provide information about frequencies providing MBMS service in MBSFN mode. For 1.28 Mcps TDD this IE shall be included in system information block 11 in a cell which is not providing MBMS service in MBSFN only mode but is associated with one or more cells in MBSFN only mode, in order to provide information about frequencies providing MBMS service in MBSFN only mode, and this IE also provides information about the secondary frequencies providing MBMS service in non-MBSFN only mode of current multi-frequency cell.

…

If the variable MBMS_ACTIVATED_services is not empty, the UE shall apply the MCCH acquisition procedure upon selecting (e.g. upon power on) or re- selecting a cell supporting MBMS or an MBSFN cluster, upon change of MBMS controlling cell (e.g. due to an active set update or hard handover), upon entering UTRA from another RAT, upon

release of a MBMS PTP RB for the purpose of changing transfer mode, upon return from loss of coverage and upon receiving an indication from upper layers that the set of activated services has changed.

References

TS 25.304, 4.3, 6.3.1.2

TS 25.331, 8.5.43, 8.6.9.9ac, 8.7.2.2

6.1.3.2.3 Test purpose

1. To verify that when SIB11 of the unicast carrier that a UE is camped on contains IE MBSFN Frequency List, a UE supporting reception of MBMS service in MBSFN mode will select a suitable MBSFN cluster if services are listed in the variable MBMS_ACTIVATED_SERVICE.
2. To verify that the UE when selecting a suitable MBSFN cluster will select an available MBSFN cluster of the registered PLMN (unicast carrier).
3. To verify that the UE when selecting a suitable MBSFN cluster will select an available MBSFN cluster of a PLMN in the stored list of Equivalent PLMN.
4. To verify that the UE having selected a suitable MBSFN cluster will start to acquire the MCCH.

6.1.3.2.4 Method of test

Initial condition

System Simulator:

MBSFN carrier(s): 6 cells. Cell 31 (PLMN1), Cell 32 (PLMN2), Cell 33 (PLMN1), Cell 34 (PLMN2), Cell 35 (PLMN3) and Cell 37 (PLMN3) are all switched off.

Unicast carrier: 1 cell, Cell 1 (PLMN1) default configuration.

NOTE: The IE MBSFN frequency list is included in SIB11 of Cell 1.

User Equipment:

The UE is switched off.

The UE is equipped with a Test-USIM containing default values. The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN1.

Related ICS/IXIT statements

- MBMS Broadcast services in MBSFN mode available on UE Yes/No.
- Support of transmit and receive functions available on UE Yes/No.
- Support of MBSFN receive only function available on UE Yes/No.

Test procedure

The SS shall apply the downlink power settings as shown below:

Step 1-7:

Parameter	Unit	Cell 1	Cell 31	Cell 32	Cell 33	Cell 34	Cell 35	Cell 37
P-CCPCH RSCP (TDD)	dBm	-60	OFF	OFF	OFF	OFF	OFF	OFF
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF	OFF	OFF	OFF	OFF	OFF
P-CPICH Ec (IMB)	dBm/3.84MHz		OFF	OFF	OFF	OFF	OFF	OFF
T-CPICH (IMB)	dBm/3.84MHz		OFF	OFF	OFF	OFF	OFF	OFF

Step 8-19:

Parameter	Unit	Cell 1	Cell 31	Cell 32	Cell 33	Cell 34	Cell 35	Cell 37
P-CCPCH RSCP (TDD)	dBm	-60	OFF	-69	OFF	-69	-59	-59
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF	-69	OFF	-69	-59	-59
P-CPICH Ec (IMB)	dBm/3.84MHz		OFF	-69	OFF	-69	-59	-59
T-CPICH (IMB)	dBm/3.84MHz		OFF	-59.5	OFF	-59.5	-49.5	-49.5

Step 20-34:

Parameter	Unit	Cell 1	Cell 31	Cell 32	Cell 33	Cell 34	Cell 35	Cell 37
P-CCPCH RSCP (TDD)	dBm	-60	-69	OFF	-69	OFF	-59	-59
CPICH Ec (FDD)	dBm/3.84MHz	-60	-69	OFF	-69	OFF	-59	-59
P-CPICH Ec (IMB)	dBm/3.84MHz		-69	OFF	-69	OFF	-59	-59
T-CPICH (IMB)	dBm/3.84MHz		-59.5	OFF	-59.5	OFF	-49.5	-49.5

a) The UE is switched on.

b) The UE registers as specified in clause 7.2.2 of TS 34.108 on the unicast carrier Cell 1. For 3.84 Mcps TDD IMB, the UE registers on the FDD unicast carrier cell 1. On the unicast carrier Cell 1, a Location Update Accept message shall be sent on reception of a Location Updating Request message from the UE. The Location Updating Accept message shall include PLMN2 in the equivalent PLMN list. For a UE that supports both CS and PS domains or PS domain only, the Location Updating procedure could be replaced by the appropriate GMM registration procedure. In these cases, the GMM Attach Accept message shall include PLMN2 in the equivalent PLMN list.

c) The SS sends ACTIVATE RB TEST MODE on the unicast carrier and the UE responds with ACTIVATE RB TEST MODE COMPLETE. The SS then sends CLOSE UE TEST LOOP to activate RLC SDU counting on the MTCH (Transmission identity corresponding to the activated National Service 1).

d) The SS activates Cell 32, Cell 34, Cell 35 and Cell 37. The SS transmits the SYSTEM INFORMATION BLOCK TYPE 5 message indicating the configuration of the S-CCPCH carrying MCCH within the IE " Secondary CCPCH system information MBMS". In addition to broadcasting System Information, MCCH messages are transmitted by the SS on all these cells using MBMS configuration C2 (one PTM session ongoing) and Default1 MCCH scheduling according to clause 11.1 or 11.2 of TS 34.108. The service is carried on a 129.6kbps RB for MTCH with 80 ms TTI as specified in clause 6.10.3.4.4.6(FDD) or a 124 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.9 (3.84 Mcps TDD) or 124.4 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.11.7.2.2.1 (3.84 Mcps TDD IMB) or clause 6.11.5.4.4.9 (1.28 Mcps TDD) or clause 6.11.6.4.4.9 (7.68 Mcps TDD).

e) After the UE is switched on in step 1 the UE starts searching for an MBSFN cell. Cell search on the MBSFN carrier is independent and not time synchronised with the message sequence on the unicast carrier. One MBMS service (National Service 1) from the list of services available is activated at this stage to ensure MBSFN cell search continues.

f) The UE camps on Cell 32 or Cell 34, recognising PLMN2 as an Equivalent PLMN to the registered PLMN on the unicast carrier. The SS transmits the SYSTEM INFORMATION BLOCK TYPE 5 message indicating the configuration of the S-CCPCH carrying MCCH within the IE " Secondary CCPCH system information MBMS". In addition to broadcasting System Information, MCCH messages are transmitted by the SS using MBMS configuration C2 (one PTM session ongoing) and Default1 MCCH scheduling according to clause 11.1 or 11.2 of TS 34.108. The service is carried on a 129.6kbps RB for MTCH with 80 ms TTI as specified in clause 6.10.3.4.4.6(FDD) or a 124 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.9 (3.84 Mcps TDD) or 124.4 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.11.7.2.2.1 (3.84 Mcps TDD IMB) or clause 6.11.5.4.4.9 (1.28 Mcps TDD) or clause 6.11.6.4.4.9 (7.68 Mcps TDD).

g) The UE shall perform the MCCH acquisition procedure. The UE shall detect the available MBMS services by acquiring the MBMS MODIFIED SERVICES INFORMATION, the MBMS UNMODIFIED SERVICES INFORMATION, the MBMS GENERAL INFORMATION, the MBMS COMMON P-T-M RB INFORMATION and the MBMS CURRENT CELL P-T-M INFORMATION.

h) The UE shall continue acquiring the above MBMS messages until it has received a consistent set of MCCH information in the same modification period. The UE shall start receiving the p-t-m radio bearer for the ongoing activated MBMS service indicated in the MBMS UNMODIFIED SERVICES INFORMATION message according to the configuration defined in the MBMS CURRENT CELL P-T-M INFORMATION (one ongoing session corresponding to the service activated at the UE). The UE closes the test loop and starts counting successfully received RLC PDUs on the MTCH. The UE will send CLOSE UE TEST LOOP COMPLETE.

i) The SS broadcasts 10 RLC SDUs on the MTCH configured on the MBMS p-t-m radio bearer for the activated service on Cell 32. The SS then broadcasts 10 RLC SDUs on the MTCH configured on the MBMS p-t-m radio bearer for the activated service on Cell 34.

j) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST and waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is > 0.

k) The SS sends OPEN UE TEST LOOP. The UE responds with OPEN UE TEST LOOP COMPLETE.

l) The SS switches off Cell 32 and Cell 34. The SS activates Cell 31 and Cell 33.

m) The SS sends CLOSE UE TEST LOOP to activate RLC SDU counting on the MTCH (Transmission identity corresponding to the activated National Service 1).

n) The UE camps on Cell 31 or Cell 33. The UE shall perform the MCCH acquisition procedure. The UE shall start receiving the p-t-m radio bearer for the ongoing activated MBMS service indicated in the MBMS UNMODIFIED SERVICES INFORMATION message according to the configuration defined in the MBMS CURRENT CELL P-T-M INFORMATION (one ongoing session corresponding to the service activated at the UE). The UE closes the test loop and starts counting successfully received RLC PDUs on the MTCH. The UE will send CLOSE UE TEST LOOP COMPLETE.

o) The SS broadcasts 10 RLC SDUs on the MTCH configured on the MBMS p-t-m radio bearer for the activated service on Cell 31. The SS then broadcasts 10 RLC SDUs on the MTCH configured on the MBMS p-t-m radio bearer for the activated service on Cell 33.

p) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST and waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is > 0.

Expected sequence

Step	Direction		Carrier	Message	Comments
	UE	SS			
1	←		U	SYSTEM INFORMATION BLOCK TYPE 11	The UE is switched on and it camps on unicast carrier Cell 1. The IE MBSFN frequency list is present in SIB 11 on the BCCH.
2	→		U	LOCATION UPDATING REQUEST	For UE that supports both CS and PS domain or PS domain only, the Location Updating procedure could be replaced by the appropriate GMM registration procedure
3	←		U	LOCATION UPDATING ACCEPT	IE Equivalent PLMNs contains PLMN2. PLMN2 is maintained in Equivalent PLMN list of UE.
4	→		U	TMSI REALLOCATION COMPLETE	
5	←		U	ACTIVATE RB TEST MODE	
6	→		U	ACTIVATE RB TEST MODE COMPLETE	
7	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated. Short Transmission Identity for the selected national service
8	SS		M		Cells 32, 34, 35 and 37 are switched ON
9	**UE**		**M**		MBMS National Service 1 is activated. UE performs cell search and selects Cell 32 or Cell 34.

Step	Direction		Carrier	Message	Comments
	UE	SS			
10	←		M	SYSTEM INFORMATION BLOCK TYPE 5	
11	←		M	MBMS MCCH Message Configuration C2	No modified services. One ongoing service corresponding to that activated at the UE. 129.6(FDD) or 124(TDD) kbps PS RAB or 124.4 kbps (IMB)
12	UE		**M**		The UE shall continue acquiring the above MBMS messages until it has received a consistent set of MCCH information in the same modification period.
13	→		U	CLOSE UE TEST LOOP COMPLETE	The UE shall establish the indicated p-t-m radio bearer and close the test loop.
14	SS		M		The SS transmits 10 RLC SDUs on the MTCH of Cell 32.
15	SS		M		The SS transmits 10 RLC SDUs on the MTCH of Cell 34.
16	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
17	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is greater than zero.
18	←		U	OPEN UE TEST LOOP	
19	→		U	OPEN UE TEST LOOP COMPLETE	
20	SS		M		Cell 32 and Cell 34 are switched OFF. Cell 31 and Cell 33 are switched ON.
21	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated. Short Transmission Identity for the selected national service
22	UE		M		UE performs cell search and selects Cell 31 or Cell 33.
23	←		M	SYSTEM INFORMATION BLOCK TYPE 5	
24	←		M	MBMS MCCH Message Configuration C2	No modified services. One ongoing service corresponding to that activated at the UE. 129.6(FDD) or 124(TDD) kbps PS RAB or 124.4 kbps (IMB)
25	UE		M		The UE shall continue acquiring the above MBMS messages until it has received a consistent set of MCCH information in the same modification period.
26	→		U	CLOSE UE TEST LOOP COMPLETE	The UE shall establish the indicated p-t-m radio bearer and close the test loop.
27	SS		M		The SS transmits 10 RLC SDUs on the MTCH of Cell 31.
28	SS		M		The SS transmits 10 RLC SDUs on the MTCH of Cell 33.
29	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
30	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is greater than zero.
31	←		U	OPEN UE TEST LOOP	
32	→		U	OPEN UE TEST LOOP COMPLETE	
33	←		U	DEACTIVATE RB TEST MODE	
34	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific message contents

With the following exceptions, all messages have the same content as defined in TS 34.108 clause 9.1.1 or 9.1.3 for the MBSFN carriers and in TS 34.108 clause 9.1.1 or 9.1.2 for the unicast carrier:

Contents of System Information Block type 11 (Step 1)

…	

- MBSFN frequency list	
- MBSFN frequency	
- CHOICE *mode*	FDD or TDD
- UARFCN (Nt)	Refer to clause 6.1 "Simulated network environments" for frequency "f1"
- MBSFN frequency	
- CHOICE *mode*	FDD or TDD
- UARFCN (Nt)	Refer to clause 6.1 "Simulated network environments" for frequency "f2"

Contents of System Information Block type 11 (IMB)

… - MBSFN frequency list	
- MBSFN frequency	
- CHOICE *mode*	TDD
- UARFCN (Nt)	Refer to clause 6.1 "Simulated network environments" for frequency "f1"
- IMB indication	TRUE
- MBSFN frequency	
- CHOICE *mode*	TDD
- UARFCN (Nt)	Refer to clause 6.1 "Simulated network environments" for frequency "f2"
- IMB indication	TRUE

MBMS UNMODIFIED SERVICES INFORMATION (Step 11 and Step 24)

Information Element	Value/remark	Version
Message type		Rel-6
Unmodified service list	4 services	Rel-6
- MBMS Transmission identity		
- MBMS Service ID	(National Service 1)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	'01'	
- MBMS required UE action	Acquire PTM RB info	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 2)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 3)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 4)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7

6.1.3.2.5 Test requirements

1) After step 17, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number > 0.

2) After step 30, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number > 0.

6.1.3.3 Suitable PLMN search; MBSFN Frequency List not present (unicast carrier)

6.1.3.3.1 Definition

Test to verify that the UE performs a search and then selection of a suitable MBSFN cluster which is part of the registered PLMN or which is in the stored list of Equivalent PLMN, when the MBSFN Frequency List is not present in the SIB11of the unicast carrier on which the UE has registered.

6.1.3.3.2 Conformance requirement

suitable MBSFN cluster:

A cell is part of an MBSFN cluster if it is indicated in system information [4]. An MBSFN cluster provides exclusively MBMS services. A suitable MBSFN cluster shall fulfil all the following requirements:

- For FDD, 3.84 Mcps TDD IMB and 3.84/7.68 Mcps TDD the MBSFN cluster shall be part of either:
  - the registered PLMN, or:
  - a PLMN of the Equivalent PLMN list

The MBSFN cluster shall be indicated as:

- providing MBSFN only service

For FDD and 3.84/7.68 Mcps TDD MBSFN cluster selection/reselection process for MBSFN clusters operating on the same frequency shall be based on reception quality. Details of the process are not specified.

…

The UE shall search for MBSFN clusters if the frequencies on which MBSFN clusters are available are not indicated in the cell that the UE is camping on for normal service if the mobile is configured to receive services via MBSFN mode. Details of the process are not specified.

…

When camped on a MBSFN cluster, the UE shall perform the following tasks:

- receive the MCCH as specified in clause 8.4 and in [4];

…

A cell provides MBMS service in MBSFN mode if it is indicated so in system information, see subclause 8.1.1.6.3. A UE that supports MBSFN operation may receive MBMS services via a cell operating in MBSFN mode. For FDD, 3.84 Mcps TDD IMB and 3.84/7.68 Mcps TDD in order to receive an MBMS service via a MBSFN cluster the UE shall select the MBSFN cluster as specified in [4] in addition to selecting a cell for normal camping as specified in [4]. For 1.28 Mcps TDD in order to receive an MBMS service via an MBSFN cluster the UE shall at the first step camp on a unicast cell and get the frequency and "cell parameter ID" from the system information, and then get synchronized to the MBSFN cluster operating with that frequency and "cell parameter ID". For 3.84/7.68 Mcps TDD a cell shall be considered to be operating in MBSFN mode when individual scrambling codes are assigned to all timeslots (via the IE "TDD MBSFN Information").

…

For FDD and 3.84/7.68 Mcps TDD if the IE "MBSFN frequency list" is not included in system information block 11 and if services are listed in the variable MBMS_ACTIVATED_SERVICES a UE supporting reception of MBMS service in MBSFN mode shall search for cells providing MBMS service in MBSFN mode.

For 1.28 Mcps TDD the IE "Cell parameter ID" in the IE "MBSFN frequency list" included in system information block 11 indicates the cell which is providing MBMS service in MBSFN only mode on the corresponding frequency; if the IE "Cell parameter ID" is not included in the IE "MBSFN frequency list", a UE may consider that the corresponding frequency is the secondary frequency providing MBMS service in non-MBSFN only mode of current multi-frequency cell.

…

If the variable MBMS_ACTIVATED_services is not empty, the UE shall apply the MCCH acquisition procedure upon selecting (e.g. upon power on) or re- selecting a cell supporting MBMS or an MBSFN cluster, upon change of MBMS controlling cell (e.g. due to an active set update or hard handover), upon entering UTRA from another RAT, upon release of a MBMS PTP RB for the purpose of changing transfer mode, upon return from loss of coverage and upon receiving an indication from upper layers that the set of activated services has changed.

…

The Mobile Equipment shall store a list of "equivalent PLMNs". This list is replaced or deleted at the end of each location update procedure, routing area update procedure and GPRS attach procedure. The stored list consists of a list of equivalent PLMNs as downloaded by the network plus the PLMN code of the registeredPLMN that downloaded the list. The stored list shall not be deleted when the MS is switched off. The stored list shall be deleted if the SIM/USIM is removed. The maximum number of possible entries in the stored list is 16.

References

TS 25.304, 4.3, 6.3.1.1, 6.3.1.2

TS 25.331, 8.5.43, 8.6.9.9ac, 8.7.2.2

TS 24.008, 4.4.1

6.1.3.3.3 Test purpose

1. To verify that when SIB11 of the unicast carrier that a UE is camped on does not contain IE MBSFN Frequency List, a UE supporting reception of MBMS service in MBSFN mode will search for a suitable MBSFN cluster if services are listed in the variable MBMS_ACTIVATED_SERVICES.
2. To verify that the UE when selecting a MBSFN cluster will select a suitable MBSFN cluster of the registered PLMN (unicast carrier).
3. To verify that the UE when selecting a MBSFN cluster will select a suitable MBSFN cluster of a PLMN in the stored list of Equivalent PLMN.
4. To verify that the UE having selected a suitable MBSFN cluster will start to acquire the MCCH.

6.1.3.3.4 Method of test

Initial condition

System Simulator:

MBSFN carrier(s): 3 cells. Cell 31 (PLMN1), Cell 32 (PLMN2) and Cell 37 (PLMN3) are all switched off.

Unicast carrier: 1 cell, Cell 1 (PLMN1) default configuration.

NOTE: The IE MBSFN frequency list is not included in SIB11 of Cell 1.

User Equipment:

The UE is switched off.

The UE is equipped with a Test-USIM containing default values. The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN1.

Related ICS/IXIT statements

- MBMS Broadcast services in MBSFN mode available on UE Yes/No.
- Support of transmit and receive functions available on UE Yes/No.
- Support of MBSFN receive only function available on UE Yes/No.

Test procedure

The SS shall apply the downlink power settings as shown below:

Step 1-7:

Parameter	Unit	Cell 1	Cell 31	Cell 32	Cell 37
P-CCPCH RSCP (TDD)	dBm	-60	OFF	OFF	OFF
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF	OFF	OFF
P-CPICH (IMB)	dBm/3.84MHz		OFF	OFF	OFF
T-CPICH (IMB)	dBm/3.84MHz		OFF	OFF	OFF

Step 8-19:

Parameter	Unit	Cell 1	Cell 31	Cell 32	Cell 37
P-CCPCH RSCP (TDD)	dBm	-60	OFF	-69	-59
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF	-69	-59
P-CPICH (IMB)	dBm/3.84MHz		OFF	-69	-59
T-CPICH (IMB)	dBm/3.84MHz		OFF	-59.5	-49.5

Step 20-34:

Parameter	Unit	Cell 1	Cell 31	Cell 32	Cell 37
P-CCPCH RSCP (TDD)	dBm	-60	-69	OFF	-59
CPICH Ec (FDD)	dBm/3.84MHz	-60	-69	OFF	-59
P-CPICH (IMB)	dBm/3.84MHz		-69	OFF	-59
T-CPICH (IMB)	dBm/3.84MHz		-59.5	OFF	-49.5

a) The UE is switched on.

b) The UE registers as specified in clause 7.2.2 of TS 34.108 on the unicast carrier Cell 1. For 3.84 Mcps TDD IMB, the UE registers on the FDD unicast carrier cell 1. On the unicast carrier Cell 1, a Location Update Accept message shall be sent on reception of a Location Updating Request message from the UE. The Location Updating Accept message shall include PLMN2 in the equivalent PLMN list. For a UE that supports both CS and PS domains or PS domain only, the Location Updating procedure could be replaced by the appropriate GMM registration procedure. In these cases, the GMM Attach Accept message shall include PLMN2 in the equivalent PLMN list.

c) The SS sends ACTIVATE RB TEST MODE on the unicast carrier and the UE responds with ACTIVATE RB TEST MODE COMPLETE. The SS then sends CLOSE UE TEST LOOP to activate RLC SDU counting on the MTCH (Transmission identity corresponding to the activated National Service 1).

d) The SS activates Cell 32 and Cell 37. The SS transmits the SYSTEM INFORMATION BLOCK TYPE 5 message indicating the configuration of the S-CCPCH carrying MCCH within the IE " Secondary CCPCH system information MBMS". In addition to broadcasting System Information, MCCH messages are transmitted by the SS on all these cells using MBMS configuration C2 (one PTM session ongoing) and Default1 MCCH scheduling according to clause 11.1 or 11.2 of TS 34.108. The service is carried on a 129.6kbps RB for MTCH with 80 ms TTI as specified in clause 6.10.3.4.4.6(FDD) or a 124 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.9 (3.84 Mcps TDD) or 124.4 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.11.7.2.2.1 (3.84 Mcps TDD IMB) or clause 6.11.5.4.4.9 (1.28 Mcps TDD) or clause 6.11.6.4.4.9 (7.68 Mcps TDD).

e) After the UE is switched on in step 1 the UE starts searching for an MBSFN cell. Cell search on the MBSFN carrier is independent and not time synchronised with the message sequence on the unicast carrier. One MBMS service (National Service 1) from the list of services available is activated at this stage to ensure MBSFN cell search continues.

f) The UE camps on Cell 32, recognising PLMN2 as an Equivalent PLMN to the registered PLMN on the unicast carrier. The SS transmits the SYSTEM INFORMATION BLOCK TYPE 5 message indicating the configuration of the S-CCPCH carrying MCCH within the IE " Secondary CCPCH system information MBMS". In addition to broadcasting System Information, MCCH messages are transmitted by the SS using MBMS configuration C2 (one PTM session ongoing) and Default1 MCCH scheduling according to clause 11.1 or 11.2 of TS 34.108. The service is carried on a 129.6kbps RB for MTCH with 80 ms TTI as specified in clause 6.10.3.4.4.6(FDD) or a 124 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.9 (3.84 Mcps TDD) or 124.4 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.11.7.2.2.1 (3.84 Mcps TDD IMB) or clause 6.11.5.4.4.9 (1.28 Mcps TDD) or clause 6.11.6.4.4.9 (7.68 Mcps TDD).

g) The UE shall perform the MCCH acquisition procedure. The UE shall detect the available MBMS services by acquiring the MBMS MODIFIED SERVICES INFORMATION, the MBMS UNMODIFIED SERVICES INFORMATION, the MBMS GENERAL INFORMATION, the MBMS COMMON P-T-M RB INFORMATION and the MBMS CURRENT CELL P-T-M INFORMATION.

h) The UE shall continue acquiring the above MBMS messages until it has received a consistent set of MCCH information in the same modification period. The UE shall start receiving the p-t-m radio bearer for the ongoing activated MBMS service indicated in the MBMS UNMODIFIED SERVICES INFORMATION message according to the configuration defined in the MBMS CURRENT CELL P-T-M INFORMATION (one ongoing session corresponding to the service activated at the UE). The UE closes the test loop and starts counting successfully received RLC PDUs on the MTCH. The UE will send CLOSE UE TEST LOOP COMPLETE.

i) The SS broadcasts 10 RLC SDUs on the MTCH configured on the MBMS p-t-m radio bearer for the activated service on Cell 32.

j) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST and waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is > 0.

k) The SS sends OPEN UE TEST LOOP. The UE responds with OPEN UE TEST LOOP COMPLETE.

l) The SS switches off Cell 32. The SS activates Cell 31.

m) The SS sends CLOSE UE TEST LOOP to activate RLC SDU counting on the MTCH (Transmission identity corresponding to the activated National Service 1).

n) The UE camps on Cell 31. The UE shall perform the MCCH acquisition procedure. The UE shall start receiving the p-t-m radio bearer for the ongoing activated MBMS service indicated in the MBMS UNMODIFIED SERVICES INFORMATION message according to the configuration defined in the MBMS CURRENT CELL P-T-M INFORMATION (one ongoing session corresponding to the service activated at the UE). The UE closes the test loop and starts counting successfully received RLC PDUs on the MTCH. The UE will send CLOSE UE TEST LOOP COMPLETE.

o) The SS broadcasts 10 RLC SDUs on the MTCH configured on the MBMS p-t-m radio bearer for the activated service on Cell 31.

p) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST and waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is > 0.

Expected sequence

Step	Direction		Carrier	Message	Comments
	UE	SS			

Step	Direction		Carrier	Message	Comments
	UE	SS			
1	←		U	SYSTEM INFORMATION BLOCK TYPE 11	The UE is switched on and it camps on unicast carrier Cell 1. The IE MBSFN frequency list is not present in SIB 11 on the BCCH.
2	→		U	LOCATION UPDATING REQUEST	For UE that supports both CS and PS domain or PS domain only, the Location Updating procedure could be replaced by the appropriate GMM registration procedure
3	←		U	LOCATION UPDATING ACCEPT	IE Equivalent PLMNs contains PLMN2. PLMN2 is maintained in Equivalent PLMN list of UE.
4	→		U	TMSI REALLOCATION COMPLETE	
5	←		U	ACTIVATE RB TEST MODE	
6	→		U	ACTIVATE RB TEST MODE COMPLETE	
7	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated. Short Transmission Identity for the selected national service
8	SS		M		Cells 32 and 37 are switched ON
9	UE		M		MBMS National Service 1 is activated. UE performs cell search and selects Cell 32.
10	←		M	SYSTEM INFORMATION BLOCK TYPE 5	
11	←		M	MBMS MCCH Message Configuration C2	No modified services. One ongoing service corresponding to that activated at the UE. 129.6(FDD) or 124(TDD) kbps PS RAB, 124.4 kbps (IMB)
12	UE		M		The UE shall continue acquiring the above MBMS messages until it has received a consistent set of MCCH information in the same modification period.
13	→		U	CLOSE UE TEST LOOP COMPLETE	The UE shall establish the indicated p-t-m radio bearer and close the test loop.
14	SS		M		The SS transmits 10 RLC SDUs on the MTCH of Cell 32.
15	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
16	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is greater than zero.
17	←		U	OPEN UE TEST LOOP	
18	→		U	OPEN UE TEST LOOP COMPLETE	
19	SS		M		Cell 32 is switched OFF. Cell 31 is switched ON.
20	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated. Short Transmission Identity for the selected national service
21	UE		M		UE performs cell search and selects Cell 31.
22	←		M	SYSTEM INFORMATION BLOCK TYPE 5	
23	←		M	MBMS MCCH Message Configuration C2	No modified services. One ongoing service corresponding to that activated at the UE. 129.6(FDD) or 124(TDD) kbps PS RAB, 124.4 kbps (IMB)
24	UE		M		The UE shall continue acquiring the above MBMS messages until it has received a consistent set of MCCH information in the same modification period.
25	→		U	CLOSE UE TEST LOOP COMPLETE	The UE shall establish the indicated p-t-m radio bearer and close the test loop.
26	SS		M		The SS transmits 10 RLC SDUs on the MTCH of Cell 31.
27	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	

Step	Direction		Carrier	Message	Comments
	UE	SS			
28	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is greater than zero.
29	←		U	OPEN UE TEST LOOP	
30	→		U	OPEN UE TEST LOOP COMPLETE	
31	←		U	DEACTIVATE RB TEST MODE	
32	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific message contents

With the following exceptions, all messages have the same content as defined in TS 34.108 clause 9.1.1 or 9.1.3 for the MBSFN carrier and in TS 34.108 clause 9.1.1 or 9.1.2 for the unicast carrier:

MBMS UNMODIFIED SERVICES INFORMATION (Step 11 and Step 23)

Information Element	Value/remark	Version
Message type		Rel-6
Unmodified service list	4 services	Rel-6
- MBMS Transmission identity		
- MBMS Service ID	(National Service 1)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	'01'	
- MBMS required UE action	Acquire PTM RB info	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 2)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 3)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 4)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7

6.1.3.3.5 Test requirements

1) After step 16, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number > 0.

2) After step 28, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number > 0.

6.1.3.4 Cell reservations and access restrictions; Normal access class only

6.1.3.4.1 Definition

Test to verify that a UE, not assigned to any of the special access classes (Access Classes 11 to 15), performs selection of a suitable MBSFN cluster in accordance with the cell reservations and access restrictions signalled over the air interface.

6.1.3.4.2 Conformance requirement

For an MBSFN cluster (see [4]) when cell status is indicated "not reserved" for operator use and "not reserved" for future extension (Cell Reservation Extension),

- All UEs shall treat this MBSFN cluster as candidate during the MBSFN cluster selection and MBSFN cluster re-selection procedures.

For an MBSFN cluster (see [4]) when cell status is indicated as "not reserved" for operator use and "reserved" for future extension (Cell Reservation Extension),

- UEs shall not consider this MBSFN cluster as candidate during the MBSFN cluster selection and MBSFN cluster re-selection procedures. The UE may choose to not recheck the status of this MBSFN cluster during the time indicated by T_{barred}.

For an MBSFN cluster (see [4]) when cell status is indicated as "reserved" for operator use,

- UEs assigned to Access Class 11 or 15 shall treat this MBSFN cluster as candidate during the MBSFN cluster selection and MBSFN cluster re-selection procedures.

- UEs assigned to an Access Class in the range 0 to 9 and 12 to 14 shall not consider this MBSFN cluster as candidate during the MBSFN cluster selection and MBSFN cluster re-selection procedures The UE may choose to not recheck the status of this MBSFN cluster during the time indicated by T_{barred}.

…

The UE shall search for MBSFN clusters if the frequencies on which MBSFN clusters are available are not indicated in the cell that the UE is camping on for normal service if the mobile is configured to receive services via MBSFN mode. Details of the process are not specified.

…

When camped on a MBSFN cluster, the UE shall perform the following tasks:

- receive the MCCH as specified in clause 8.4 and in [4];

…

A cell provides MBMS service in MBSFN mode if it is indicated so in system information, see subclause 8.1.1.6.3. A UE that supports MBSFN operation may receive MBMS services via a cell operating in MBSFN mode. For FDD, 3.84 Mcps TDD IMB and 3.84/7.68 Mcps TDD in order to receive an MBMS service via a MBSFN cluster the UE shall select the MBSFN cluster as specified in [4] in addition to selecting a cell for normal camping as specified in [4]. For 1.28 Mcps TDD in order to receive an MBMS service via an MBSFN cluster the UE shall at the first step camp on a unicast cell and get the frequency and "cell parameter ID" from the system information, and then get synchronized to the MBSFN cluster operating with that frequency and "cell parameter ID". For 3.84/7.68 Mcps TDD a cell shall be considered to be operating in MBSFN mode when individual scrambling codes are assigned to all timeslots (via the IE "TDD MBSFN Information").

…

If the variable MBMS_ACTIVATED_services is not empty, the UE shall apply the MCCH acquisition procedure upon selecting (e.g. upon power on) or re- selecting a cell supporting MBMS or an MBSFN cluster, upon change of MBMS controlling cell (e.g. due to an active set update or hard handover), upon entering UTRA from another RAT, upon release of a MBMS PTP RB for the purpose of changing transfer mode, upon return from loss of coverage and upon receiving an indication from upper layers that the set of activated services has changed.

References

TS 25.304, 5.3a, 6.3.1.1, 6.3.1.2

TS 25.331, 8.5.43, 8.7.2.2

6.1.3.4.3 Test purpose

1. To verify that a UE not assigned to any of the special access classes (Access Classes 11 to 15), supporting reception of MBMS service in MBSFN mode, will search for a suitable MBSFN cluster if services are listed in the variable MBMS_ACTIVATED_SERVICES.

2. To verify that a UE not assigned to any of the special access classes (Access Classes 11 to 15), when selecting a suitable MBSFN cluster will not select an MBSFN cluster when the cell status is indicated as "not reserved" for operator use and is indicated as "reserved" for future extension.

3. To verify that a UE not assigned to any of the special access classes (Access Classes 11 to 15), when selecting a suitable MBSFN cluster will not select an MBSFN cluster when the cell status is indicated as "reserved" for operator use.

4. To verify that a UE not assigned to any of the special access classes (Access Classes 11 to 15), when selecting a suitable MBSFN cluster will select an MBSFN cluster when the cell status is indicated as "not reserved" for operator use and "not reserved" for future extension.

5. To verify that the UE having selected a suitable MBSFN cluster will start to acquire the MCCH.

6.1.3.4.4 Method of test

Initial condition

System Simulator:

MBSFN carrier: 3 cells, Cell 31 (PLMN1), Cell 32 (PLMN1) and Cell 37 (PLMN1) which are all switched off.

Unicast carrier: 1 cell, Cell 1 (PLMN1) default configuration.

User Equipment:

The UE is switched off.

The UE is equipped with a Test-USIM containing default values. The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN1.

Related ICS/IXIT statements

- MBMS Broadcast services in MBSFN mode available on UE Yes/No.

  Support of transmit and receive functions available on UE Yes/No.

- Support of MBSFN receive only function available on UE Yes/No.

Test procedure

The SS shall apply the downlink power settings as shown below:

Step 1-7:

Parameter	Unit	Cell 1	Cell 31	Cell 32	Cell 37
P-CCPCH RSCP (TDD)	dBm	-60	OFF	OFF	OFF
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF	OFF	OFF
P-CPICH (IMB)	dBm/3.84MHz		OFF	OFF	OFF
T-CPICH (IMB)	dBm/3.84MHz		OFF	OFF	OFF

Step 8-16:

Parameter	Unit	Cell 1	Cell 31	Cell 32	Cell 37
P-CCPCH RSCP (TDD)	dBm	-60	OFF	-59	-59
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF	-59	-59
P-CPICH (IMB)	dBm/3.84MHz		OFF	-59	-59
T-CPICH (IMB)	dBm/3.84MHz		OFF	-49.5	-49.5

Step 17-29:

Parameter	Unit	Cell 1	Cell 31	Cell 32	Cell 37
P-CCPCH RSCP (TDD)	dBm	-60	-69	-59	-59
CPICH Ec (FDD)	dBm/3.84MHz	-60	-69	-59	-59
P-CPICH (IMB)	dBm/3.84MHz		-69	-59	-59
T-CPICH (IMB)	dBm/3.84MHz		-59.5	-49.5	-49.5

a) The UE is switched on.

b) The UE registers as specified in clause 7.2.2 of TS 34.108 on the unicast carrier Cell 1. For 3.84 Mcps TDD IMB, the UE registers on the FDD unicast carrier cell 1. On the unicast carrier Cell 1, a Location Update Accept message shall be sent on reception of a Location Updating Request message from the UE. For a UE that supports both CS and PS domains or PS domain only, the Location Updating procedure could be replaced by the appropriate GMM registration procedure.

c) The SS sends ACTIVATE RB TEST MODE on the unicast carrier and the UE responds with ACTIVATE RB TEST MODE COMPLETE. The SS then sends CLOSE UE TEST LOOP to activate RLC SDU counting on the MTCH (Transmission identity corresponding to the activated National Service 1).

d) The SS activates Cell 32 and Cell 37. Cell 32 indicates 'reserved' for future extension in the Cell Access Restriction IE of SIB3. Cell 37 indicates 'reserved' for operator use in the Cell Access Restriction IE of SIB3. The SS transmits the SYSTEM INFORMATION BLOCK TYPE 5 message indicating the configuration of the S-CCPCH carrying MCCH within the IE " Secondary CCPCH system information MBMS". In addition to broadcasting System Information, MCCH messages are transmitted by the SS on these cells using MBMS configuration C2 (one PTM session ongoing) and Default1 MCCH scheduling according to clause 11.1 or 11.2 of TS 34.108. The service is carried on a 129.6kbps RB for MTCH with 80 ms TTI as specified in clause 6.10.3.4.4.6(FDD) or 124.4 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.11.7.2.2.1 (3.84 Mcps TDD IMB) or a 124 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.9 (3.84 Mcps TDD) or clause 6.11.5.4.4.9 (1.28 Mcps TDD) or clause 6.11.6.4.4.9 (7.68 Mcps TDD).

e) After the UE is switched on in step 1 the UE starts searching for an MBSFN cell. Cell search on the MBSFN carrier is independent and not time synchronised with the message sequence on the unicast carrier. One MBMS service (National Service 1) from the list of services available is activated at this stage to ensure MBSFN cell search continues. The UE performs cluster selection but is unable to find a suitable MBSFN cluster.

f) SS delays for a period of time greater than or equal to 10 times the T_{barred} setting used in the Cell Access Restriction IE on Cells 32 and 37 (say 120 seconds). Note: If the UE sends CLOSE UE TEST LOOP COMPLETE at this stage then a test failure is recorded.

g) The SS sends OPEN UE TEST LOOP. The UE responds with OPEN UE TEST LOOP COMPLETE.

h) MBMS National Service 1 is de-activated at the UE.

i) The SS sends CLOSE UE TEST LOOP to activate RLC SDU counting on the MTCH (Transmission identity corresponding to National Service 2).

j) The SS activates Cell 31.

k) MBMS service (National Service 2) from the list of services available is activated to ensure MBSFN cell search continues.

l) The UE camps on Cell 31. The UE shall perform the MCCH acquisition procedure. The UE shall start receiving the p-t-m radio bearer for the ongoing activated MBMS service indicated in the MBMS UNMODIFIED

SERVICES INFORMATION message according to the configuration defined in the MBMS CURRENT CELL P-T-M INFORMATION (one ongoing session corresponding to the service activated at the UE). The UE closes the test loop and starts counting successfully received RLC PDUs on the MTCH. The UE will send CLOSE UE TEST LOOP COMPLETE.

m) The SS broadcasts 10 RLC SDUs on the MTCH configured on the MBMS p-t-m radio bearer for National Service 2 on Cell 31.

n) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST and waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is > 0.

Expected sequence

Step	Direction		Carrier	Message	Comments
	UE	SS			
1	←		U	SYSTEM INFORMATION BLOCK TYPE 11	The UE is switched on and it camps on unicast carrier Cell 1.
2	→		U	LOCATION UPDATING REQUEST	For UE that supports both CS and PS domain or PS domain only, the Location Updating procedure could be replaced by the appropriate GMM registration procedure
3	←		U	LOCATION UPDATING ACCEPT	
4	→		U	TMSI REALLOCATION COMPLETE	
5	←		U	ACTIVATE RB TEST MODE	
6	→		U	ACTIVATE RB TEST MODE COMPLETE	
7	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated. Short Transmission Identity for National Service 1
8		SS	M		Cells 32 and 37 are switched ON
9	←		M	SYSTEM INFORMATION BLOCK TYPE 3	On Cell 32 the SIB3 contains the IE Cell Reservation Extension set to 'reserved'.
10	←		M	SYSTEM INFORMATION BLOCK TYPE 3	On Cell 37 the SIB3 contains the IE Cell Reserved for operator use set to 'reserved'.
11	←		M	MBMS MCCH Message Configuration C2	Cell 32 and Cell 37: No modified services. Two ongoing services (National Services 1 and 2). 129.6(FDD) or 124(TDD) kbps PS RAB, 124.4 kbps (IMB)
12	UE		M		MBMS National Service 1 is activated. UE performs cell search but is unable to find a suitable MBSFN cluster.
13	SS		M		SS delays for >= $10*T_{barred}$ (e.g. 120s). Note: If CLOSE UE TEST LOOP COMPLETE is received a test failure is recorded.
14	←		U	OPEN UE TEST LOOP	
11	→		U	OPEN UE TEST LOOP COMPLETE	
15	UE		M		MBMS National Service 1 is de-activated.
16	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated. Short Transmission Identity for National Service 2 is included.
17	SS		M		Cell 31 is switched ON.
18	SS		M		MBMS National Service 2 is activated.

Step	Direction		Carrier	Message	Comments
	UE	SS			
19	UE		M		UE performs cell search and selects Cell 31.
20	←		M	MBMS MCCH Message Configuration C2	Cell 31, 32 and Cell 37: No modified services. Two ongoing services (National Services 1 and 2). 129.6(FDD) or 124(TDD) kbps PS RAB, 124.4 kbps (IMB)
21	UE		M		The UE shall continue acquiring the above MBMS messages until it has received a consistent set of MCCH information in the same modification period.
22	→		U	CLOSE UE TEST LOOP COMPLETE	The UE shall establish the indicated p-t-m radio bearer and close the test loop.
23	SS		M		The SS transmits 10 RLC SDUs on the MTCH of Cell 31 for National Service 2.
24	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
25	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is greater than zero.
26	←		U	OPEN UE TEST LOOP	
27	→		U	OPEN UE TEST LOOP COMPLETE	
28	←		U	DEACTIVATE RB TEST MODE	
29	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific message contents

With the following exceptions, all messages have the same content as defined in TS 34.108 clause 9.1.1 or 9.1.3 for the MBSFN carrier and in TS 34.108 clause 9.1.1 or 9.1.2 for the unicast carrier:

SYSTEM INFORMATION BLOCK TYPE 3 for Cell 32 (Step 9)

Information Element	Value/remark
… - T_{barred} - Cell Reserved for operator use - Cell Reservation Extension	 10 not reserved reserved

SYSTEM INFORMATION BLOCK TYPE 3 for Cell 37 (Step 10)

Information Element	Value/remark
… - T_{barred} - Cell Reserved for operator use - Cell Reservation Extension	 10 reserved not reserved

MBMS UNMODIFIED SERVICES INFORMATION (Step 11 and Step 20)

Information Element	Value/remark	Version
Message type		Rel-6
Unmodified service list	4 services	Rel-6
- MBMS Transmission identity		
- MBMS Service ID	(National Service 1)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	'01'	
- MBMS required UE action	Acquire PTM RB info	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 2)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	'01'	
- MBMS required UE action	Acquire PTM RB info	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 3)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 4)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7

6.1.3.4.5 Test requirements

1) At step 13, CLOSE UE TEST LOOP COMPLETE shall not be received from the UE.

2) After step 25, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number > 0.

6.1.3.5 Cell reservations and access restrictions; Operator access class

6.1.3.5.1 Definition

Test to verify that a UE, assigned to one of the Access Classes 11 or 15, performs selection of a suitable MBSFN cluster in accordance with the cell reservations and access restrictions signalled over the air interface.

6.1.3.5.2 Conformance requirement

For an MBSFN cluster (see [4]) when cell status is indicated "not reserved" for operator use and "not reserved" for future extension (Cell Reservation Extension),

- All UEs shall treat this MBSFN cluster as candidate during the MBSFN cluster selection and MBSFN cluster re-selection procedures.

For an MBSFN cluster (see [4]) when cell status is indicated as "not reserved" for operator use and "reserved" for future extension (Cell Reservation Extension),

- UEs shall not consider this MBSFN cluster as candidate during the MBSFN cluster selection and MBSFN cluster re-selection procedures. The UE may choose to not recheck the status of this MBSFN cluster during the time indicated by T_{barred}.

For an MBSFN cluster (see [4]) when cell status is indicated as "reserved" for operator use,

- UEs assigned to Access Class 11 or 15 shall treat this MBSFN cluster as candidate during the MBSFN cluster selection and MBSFN cluster re-selection procedures.

- UEs assigned to an Access Class in the range 0 to 9 and 12 to 14 shall not consider this MBSFN cluster as candidate during the MBSFN cluster selection and MBSFN cluster re-selection procedures The UE may choose to not recheck the status of this MBSFN cluster during the time indicated by T_{barred}.

…

The UE shall search for MBSFN clusters if the frequencies on which MBSFN clusters are available are not indicated in the cell that the UE is camping on for normal service if the mobile is configured to receive services via MBSFN mode. Details of the process are not specified.

…

When camped on a MBSFN cluster, the UE shall perform the following tasks:

- receive the MCCH as specified in clause 8.4 and in [4];

…

A cell provides MBMS service in MBSFN mode if it is indicated so in system information, see subclause 8.1.1.6.3. A UE that supports MBSFN operation may receive MBMS services via a cell operating in MBSFN mode. For FDD, 3.84 Mcps TDD IMB and 3.84/7.68 Mcps TDD in order to receive an MBMS service via a MBSFN cluster the UE shall select the MBSFN cluster as specified in [4] in addition to selecting a cell for normal camping as specified in [4]. For 1.28 Mcps TDD in order to receive an MBMS service via an MBSFN cluster the UE shall at the first step camp on a unicast cell and get the frequency and "cell parameter ID" from the system information, and then get synchronized to the MBSFN cluster operating with that frequency and "cell parameter ID". For 3.84/7.68 Mcps TDD a cell shall be considered to be operating in MBSFN mode when individual scrambling codes are assigned to all timeslots (via the IE "TDD MBSFN Information").

…

If the variable MBMS_ACTIVATED_services is not empty, the UE shall apply the MCCH acquisition procedure upon selecting (e.g. upon power on) or re- selecting a cell supporting MBMS or an MBSFN cluster, upon change of MBMS controlling cell (e.g. due to an active set update or hard handover), upon entering UTRA from another RAT, upon release of a MBMS PTP RB for the purpose of changing transfer mode, upon return from loss of coverage and upon receiving an indication from upper layers that the set of activated services has changed.

References

TS 25.304, 5.3a, 6.3.1.1, 6.3.1.2

TS 25.331, 8.5.43, 8.7.2.2

6.1.3.5.3 Test purpose

1. To verify that a UE assigned to one of the Access Classes 11 or 15 (in addition to one of the Access Classes 0 to 9), supporting reception of MBMS service in MBSFN mode, will search for a suitable MBSFN cluster if services are listed in the variable MBMS_ACTIVATED_SERVICES.

2. To verify that a UE assigned to one of the Access Classes 11 or 15 (in addition to one of the Access Classes 0 to 9), when selecting a suitable MBSFN cluster will not select an MBSFN cluster when the cell status is indicated as "not reserved" for operator use and is indicated as "reserved" for future extension.

3. To verify that a UE assigned to one of the Access Classes 11 or 15 (in addition to one of the Access Classes 0 to 9), when selecting a suitable MBSFN cluster will select an MBSFN cluster when the cell status is indicated as "reserved" for operator use and is indicated as "not reserved" for future extension.

4. To verify that a UE assigned to one of the Access Classes 11 or 15 (in addition to one of the Access Classes 0 to 9), when selecting a suitable MBSFN cluster will select an MBSFN cluster when the cell status is indicated as "not reserved" for operator use and "not reserved" for future extension.

5. To verify that the UE having selected a suitable MBSFN cluster will start to acquire the MCCH.

6.1.3.5.4 Method of test

Initial condition

System Simulator:

MBSFN carrier: 3 cells, Cell 31 (PLMN1), Cell 32 (PLMN1) and Cell 37 (PLMN1) all are switched off.

Unicast carrier: 1 cell, Cell 1 (PLMN1) default configuration.

User Equipment:

The UE is switched off.

The UE is equipped with a Test-USIM containing default values with the exception that the field EF_{ACC} (Access Control Class) of the Test-USIM shall be set as per "Type C" in clause 8.3.2.15.

The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN1.

Related ICS/IXIT statements

- MBMS Broadcast services in MBSFN mode available on UE Yes/No.
- Support of transmit and receive functions available on UE Yes/No.
- Support of MBSFN receive only function available on UE Yes/No.

Test procedure

The SS shall apply the downlink power settings as shown below:

Step 1-7:

Parameter	Unit	Cell 1	Cell 31	Cell 32	Cell 37
P-CCPCH RSCP (TDD)	dBm	-60	OFF	OFF	OFF
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF	OFF	OFF
P-CPICH (IMB)	dBm/3.84MHz		OFF	OFF	OFF
T-CPICH (IMB)	dBm/3.84MHz		OFF	OFF	OFF

Step 8-16:

Parameter	Unit	Cell 1	Cell 31	Cell 32	Cell 37
P-CCPCH RSCP (TDD)	dBm	-60	OFF	-59	OFF
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF	-59	OFF
P-CPICH (IMB)	dBm/3.84MHz		OFF	- 59	OFF
T-CPICH (IMB)	dBm/3.84MHz		OFF	-49.5	OFF

Step 17-30:

Parameter	Unit	Cell 1	Cell 31	Cell 32	Cell 37
P-CCPCH RSCP (TDD)	dBm	-60	OFF	-59	-69
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF	-59	-69
P-CPICH (IMB)	dBm/3.84MHz		OFF	-59	-69
T-CPICH (IMB)	dBm/3.84MHz		OFF	-49.5	-59.5

Step 31-43:

Parameter	Unit	Cell 1	Cell 31	Cell 32	Cell 37
P-CCPCH RSCP (TDD)	dBm	-60	-69	-59	OFF
CPICH Ec (FDD)	dBm/3.84MHz	-60	-69	-59	OFF
P-CPICH (IMB)	dBm/3.84MHz		-69	-59	OFF
T-CPICH (IMB)	dBm/3.84MHz		-59.5	-49.5	OFF

a) The UE is switched on.

b) The UE registers as specified in clause 7.2.2 of TS 34.108 on the unicast carrier Cell 1. For 3.84 Mcps TDD IMB, the UE registers on the FDD unicast carrier cell 1. On the unicast carrier Cell 1, a Location Update Accept message shall be sent on reception of a Location Updating Request message from the UE. For a UE that supports both CS and PS domains or PS domain only, the Location Updating procedure could be replaced by the appropriate GMM registration procedure.

c) The SS sends ACTIVATE RB TEST MODE on the unicast carrier and the UE responds with ACTIVATE RB TEST MODE COMPLETE. The SS then sends CLOSE UE TEST LOOP to activate RLC SDU counting on the MTCH (Transmission identity corresponding to the activated National Service 1).

d) The SS activates Cell 32. Cell 32 indicates 'reserved' for future extension in the Cell Access Restriction IE of SIB3. The SS transmits the SYSTEM INFORMATION BLOCK TYPE 5 message indicating the configuration of the S-CCPCH carrying MCCH within the IE " Secondary CCPCH system information MBMS". In addition to broadcasting System Information, MCCH messages are transmitted by the SS on these cells using MBMS configuration C2 (one PTM session ongoing) and Default1 MCCH scheduling according to clause 11.1 or 11.2 of TS 34.108. The service is carried on a 129.6kbps RB for MTCH with 80 ms TTI as specified in clause 6.10.3.4.4.6(FDD) or a 124 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.9 (3.84 Mcps TDD)or 124.4 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.11.7.2.2.1 (3.84 Mcps TDD IMB) or clause 6.11.5.4.4.9 (1.28 Mcps TDD) or clause 6.11.6.4.4.9 (7.68 Mcps TDD).

e) After the UE is switched on in step 1 the UE starts searching for an MBSFN cell. Cell search on the MBSFN carrier is independent and not time synchronised with the message sequence on the unicast carrier. One MBMS service (National Service 1) from the list of services available is activated at this stage to ensure MBSFN cell search continues. The UE performs cluster selection but is unable to find a suitable MBSFN cluster.

f) SS delays for a period of time greater than or equal to 10 times the T_{barred} setting used in the Cell Access Restriction IE on Cells 32 (say 120 seconds). Note: If the UE sends CLOSE UE TEST LOOP COMPLETE at this stage then a test failure is recorded.

g) The SS sends OPEN UE TEST LOOP. The UE responds with OPEN UE TEST LOOP COMPLETE.

h) MBMS National Service 1 is de-activated at the UE.

i) The SS sends CLOSE UE TEST LOOP to activate RLC SDU counting on the MTCH (Transmission identity corresponding to National Service 2).

j) The SS activates Cell 37 as well as Cell 32. Cell 37 indicates 'reserved' for operator use in the Cell Access Restriction IE of SIB3. The SS transmits the SYSTEM INFORMATION BLOCK TYPE 5 message indicating the configuration of the S-CCPCH carrying MCCH within the IE " Secondary CCPCH system information MBMS". In addition to broadcasting System Information, MCCH messages are transmitted by the SS on these cells using MBMS configuration C2 (one PTM session ongoing) and Default1 MCCH scheduling according to clause 11.1 or 11.2 of TS 34.108. The service is carried on a 129.6kbps RB for MTCH with 80 ms TTI as specified in clause 6.10.3.4.4.6(FDD) or a 124 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.9 (3.84 Mcps TDD) or 124.4 kbps RB for MBSFN MTCH with 80ms TTI as specified in

clause 6.11.7.2.2.1 (3.84 Mcps TDD IMB) or clause 6.11.5.4.4.9 (1.28 Mcps TDD) or clause 6.11.6.4.4.9 (7.68 Mcps TDD).

k) MBMS service (National Service 2) from the list of services available is activated to ensure MBSFN cell search continues.

l) The UE camps on Cell 37. The UE shall perform the MCCH acquisition procedure. The UE shall start receiving the p-t-m radio bearer for the ongoing activated MBMS service indicated in the MBMS UNMODIFIED SERVICES INFORMATION message according to the configuration defined in the MBMS CURRENT CELL P-T-M INFORMATION (one ongoing session corresponding to the service activated at the UE). The UE closes the test loop and starts counting successfully received RLC PDUs on the MTCH. The UE will send CLOSE UE TEST LOOP COMPLETE.

m) The SS broadcasts 10 RLC SDUs on the MTCH configured on the MBMS p-t-m radio bearer for National Service 2 on Cell 37.

n) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST and waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is > 0.

o) The SS sends OPEN UE TEST LOOP. The UE responds with OPEN UE TEST LOOP COMPLETE.

p) MBMS National Service 2 is de-activated at the UE.

q) The SS sends CLOSE UE TEST LOOP to activate RLC SDU counting on the MTCH (Transmission identity corresponding to National Service 3).

r) The SS switches off Cell 37. The SS activates Cell 31 as well as Cell 32. The SS transmits the SYSTEM INFORMATION BLOCK TYPE 5 message indicating the configuration of the S-CCPCH carrying MCCH within the IE " Secondary CCPCH system information MBMS". In addition to broadcasting System Information, MCCH messages are transmitted by the SS on these cells using MBMS configuration C2 (one PTM session ongoing) and Default1 MCCH scheduling according to clause 11.1 or 11.2 of TS 34.108. The service is carried on a 129.6kbps RB for MTCH with 80 ms TTI as specified in clause 6.10.3.4.4.6(FDD) or a 124 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.9 (3.84 Mcps TDD) or 124.4 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.11.7.2.2.1 (3.84 Mcps TDD IMB) or clause 6.11.5.4.4.9 (1.28 Mcps TDD) or clause 6.11.6.4.4.9 (7.68 Mcps TDD).

s) MBMS service (National Service 3) from the list of services available is activated to ensure MBSFN cell search continues.

t) The UE camps on Cell 31. The UE shall perform the MCCH acquisition procedure. The UE shall start receiving the p-t-m radio bearer for the ongoing activated MBMS service indicated in the MBMS UNMODIFIED SERVICES INFORMATION message according to the configuration defined in the MBMS CURRENT CELL P-T-M INFORMATION (one ongoing session corresponding to the service activated at the UE). The UE closes the test loop and starts counting successfully received RLC PDUs on the MTCH. The UE will send CLOSE UE TEST LOOP COMPLETE.

u) The SS broadcasts 10 RLC SDUs on the MTCH configured on the MBMS p-t-m radio bearer for National Service 2 on Cell 31.

v) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST and waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is > 0.

Expected sequence

Step	Direction		Carrier	Message	Comments
	UE	SS			
1	←		U	SYSTEM INFORMATION BLOCK TYPE 11	The UE is switched on and it camps on unicast carrier Cell 1.

Step	Direction		Carrier	Message	Comments
	UE	SS			
2	→		U	LOCATION UPDATING REQUEST	For UE that supports both CS and PS domain or PS domain only, the Location Updating procedure could be replaced by the appropriate GMM registration procedure
3	←		U	LOCATION UPDATING ACCEPT	
4	→		U	TMSI REALLOCATION COMPLETE	
5	←		U	ACTIVATE RB TEST MODE	
6	→		U	ACTIVATE RB TEST MODE COMPLETE	
7	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated. Short Transmission Identity for National Service 1
8	SS		M		Cells 32 is switched ON
9	←		M	SYSTEM INFORMATION BLOCK TYPE 3	On Cell 32 the SIB3 contains the IE Cell Reservation Extension set to 'reserved'.
10	←		M	MBMS MCCH Message Configuration C2	Cell 32: No modified services. Three ongoing services (National Services 1, 2 and 3). 129.6(FDD) or 124(TDD) kbps PS RAB, 124.4 kbps (IMB)
11	UE		M		MBMS National Service 1 is activated. UE performs cell search but is unable to find a suitable MBSFN cluster.
12	SS		M		SS delays for >= $10*T_{barred}$ (e.g. 120s). Note: If CLOSE UE TEST LOOP COMPLETE is received a test failure is recorded.
13	←		U	OPEN UE TEST LOOP	
14	→		U	OPEN UE TEST LOOP COMPLETE	
15	UE		M		MBMS National Service 1 is de-activated.
16	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated. Short Transmission Identity for National Service 2 is included.
17	SS		M		Cell 37 is switched ON.
18	SS		M		MBMS National Service 2 is activated.
19	UE		M		UE performs cell search and selects Cell 37.
20	←		M	SYSTEM INFORMATION BLOCK TYPE 3	On Cell 37 the SIB3 contains the IE Cell Reserved for operator use set to 'reserved'.
21	←		M	MBMS MCCH Message Configuration C2	Cell 32 and Cell 37: No modified services. Three ongoing services (National Services 1, 2 and 3). 129.6(FDD) or 124(TDD) kbps PS RAB, 124.4 kbps (IMB)
22	UE		M		The UE shall continue acquiring the above MBMS messages until it has received a consistent set of MCCH information in the same modification period.
23	→		U	CLOSE UE TEST LOOP COMPLETE	The UE shall establish the indicated p-t-m radio bearer and close the test loop.
24	SS		M		The SS transmits 10 RLC SDUs on the MTCH of Cell 37 for National Service 2.
25	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
26	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is greater than zero.
27	←		U	OPEN UE TEST LOOP	
28	→		U	OPEN UE TEST LOOP COMPLETE	
29	UE		M		MBMS National Service 2 is de-activated.
30	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated. Short Transmission Identity for National Service 3 is included.
31	SS		M		Cell 37 is switched OFF. Cell 31 is switched ON.

Step	Direction		Carrier	Message	Comments
	UE	SS			
32	SS		M		MBMS National Service 3 is activated.
33	UE		M		UE performs cell search and selects Cell 31.
34	←		M	MBMS MCCH Message Configuration C2	Cell 31 and Cell 32: No modified services. Three ongoing services (National Services 1, 2 and 3). 129.6(FDD) or 124(TDD) kbps PS RAB, 124.4 kbps (IMB)
35	UE		M		The UE shall continue acquiring the above MBMS messages until it has received a consistent set of MCCH information in the same modification period.
36	→		U	CLOSE UE TEST LOOP COMPLETE	The UE shall establish the indicated p-t-m radio bearer and close the test loop.
37	SS		M		The SS transmits 10 RLC SDUs on the MTCH of Cell 31 for National Service 3.
38	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
39	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is greater than zero.
40	←		U	OPEN UE TEST LOOP	
41	→		U	OPEN UE TEST LOOP COMPLETE	
42	←		U	DEACTIVATE RB TEST MODE	
43	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific message contents

With the following exceptions, all messages have the same content as defined in TS 34.108 clause 9.1.1 or 9.1.3 for the MBSFN carrier and in TS 34.108 clause 9.1.1 or 9.1.2 for the unicast carrier:

SYSTEM INFORMATION BLOCK TYPE 3 for Cell 32 (Step 9)

Information Element	Value/remark
… - T_{barred} - Cell Reserved for operator use - Cell Reservation Extension	 10 not reserved reserved

SYSTEM INFORMATION BLOCK TYPE 3 for Cell 37 (Step 20)

Information Element	Value/remark
… - T_{barred} - Cell Reserved for operator use - Cell Reservation Extension	 10 reserved not reserved

MBMS UNMODIFIED SERVICES INFORMATION (Step 10, Step 21 and Step 34)

Information Element	Value/remark	Version
Message type		Rel-6
Unmodified service list	4 services	Rel-6
- MBMS Transmission identity		
- MBMS Service ID	(National Service 1)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	'01'	
- MBMS required UE action	Acquire PTM RB info	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 2)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	'01'	
- MBMS required UE action	Acquire PTM RB info	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 3)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	'01'	
- MBMS required UE action	Acquire PTM RB info	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 4)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7

6.1.3.5.5 Test requirements

1) At step 12, CLOSE UE TEST LOOP COMPLETE shall not be received from the UE.

2) After step 26, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number > 0.

3) After step 39, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number > 0.

6.1.3.6 Cell reservations and access restrictions; Home country services access class

6.1.3.6.1 Definition

Test to verify that a UE, assigned to one of the Access Classes 12, 13 or 14, performs selection of a suitable MBSFN cluster in accordance with the cell reservations and access restrictions signalled over the air interface.

6.1.3.6.2 Conformance requirement

For an MBSFN cluster (see [4]) when cell status is indicated "not reserved" for operator use and "not reserved" for future extension (Cell Reservation Extension),

- All UEs shall treat this MBSFN cluster as candidate during the MBSFN cluster selection and MBSFN cluster re-selection procedures.

For an MBSFN cluster (see [4]) when cell status is indicated as "not reserved" for operator use and "reserved" for future extension (Cell Reservation Extension),

- UEs shall not consider this MBSFN cluster as candidate during the MBSFN cluster selection and MBSFN cluster re-selection procedures. The UE may choose to not recheck the status of this MBSFN cluster during the time indicated by T_{barred}.

For an MBSFN cluster (see [4]) when cell status is indicated as "reserved" for operator use,

- UEs assigned to Access Class 11 or 15 shall treat this MBSFN cluster as candidate during the MBSFN cluster selection and MBSFN cluster re-selection procedures.

- UEs assigned to an Access Class in the range 0 to 9 and 12 to 14 shall not consider this MBSFN cluster as candidate during the MBSFN cluster selection and MBSFN cluster re-selection procedures The UE may choose to not recheck the status of this MBSFN cluster during the time indicated by T_{barred}.

…

The UE shall search for MBSFN clusters if the frequencies on which MBSFN clusters are available are not indicated in the cell that the UE is camping on for normal service if the mobile is configured to receive services via MBSFN mode. Details of the process are not specified.

…

When camped on a MBSFN cluster, the UE shall perform the following tasks:

- receive the MCCH as specified in clause 8.4 and in [4];

…

A cell provides MBMS service in MBSFN mode if it is indicated so in system information, see subclause 8.1.1.6.3. A UE that supports MBSFN operation may receive MBMS services via a cell operating in MBSFN mode. For FDD, 3.84 Mcps TDD IMB and 3.84/7.68 Mcps TDD in order to receive an MBMS service via a MBSFN cluster the UE shall select the MBSFN cluster as specified in [4] in addition to selecting a cell for normal camping as specified in [4]. For 1.28 Mcps TDD in order to receive an MBMS service via an MBSFN cluster the UE shall at the first step camp on a unicast cell and get the frequency and "cell parameter ID" from the system information, and then get synchronized to the MBSFN cluster operating with that frequency and "cell parameter ID". For 3.84/7.68 Mcps TDD a cell shall be considered to be operating in MBSFN mode when individual scrambling codes are assigned to all timeslots (via the IE "TDD MBSFN Information").

…

If the variable MBMS_ACTIVATED_services is not empty, the UE shall apply the MCCH acquisition procedure upon selecting (e.g. upon power on) or re- selecting a cell supporting MBMS or an MBSFN cluster, upon change of MBMS controlling cell (e.g. due to an active set update or hard handover), upon entering UTRA from another RAT, upon release of a MBMS PTP RB for the purpose of changing transfer mode, upon return from loss of coverage and upon receiving an indication from upper layers that the set of activated services has changed.

References

TS 25.304, 5.3a, 6.3.1.1, 6.3.1.2

TS 25.331, 8.5.43, 8.7.2.2

6.1.3.6.3 Test purpose

1. To verify that a UE, assigned to just one of the Access Classes 12, 13 or 14 (in addition to one of the Access Classes 0 to 9), supporting reception of MBMS service in MBSFN mode, will search for a suitable MBSFN cluster if services are listed in the variable MBMS_ACTIVATED_SERVICES.

2. To verify that a UE, assigned to just one of the Access Classes 12, 13 or 14 (in addition to one of the Access Classes 0 to 9), when selecting a suitable MBSFN cluster will not select an MBSFN cluster when the cell status is indicated as "not reserved" for operator use and is indicated as "reserved" for future extension.

3. To verify that a UE, assigned to just one of the Access Classes 12, 13 or 14 (in addition to one of the Access Classes 0 to 9), when selecting a suitable MBSFN cluster will not select an MBSFN cluster when the cell status is indicated as "reserved" for operator use.

4. To verify that a UE, assigned to just one of the Access Classes 12, 13 or 14 (in addition to one of the Access Classes 0 to 9), when selecting a suitable MBSFN cluster will select an MBSFN cluster when the cell status is indicated as "not reserved" for operator use and "not reserved" for future extension.

5. To verify that the UE having selected a suitable MBSFN cluster will start to acquire the MCCH.

6.1.3.6.4 Method of test

Refer to the "Method of test" in clause 6.1.3.4.4 with the following exception:

The UE is equipped with a Test-USIM containing default values with the exception that the field EF_{ACC} (Access Control Class) of the Test-USIM shall be set as per "Type D" in clause 8.3.2.15.

6.1.3.6.5 Test requirements

Refer to the "Test requirements" in clause 6.1.3.4.5.

6.1.3.7 Inter frequency neighbour reselection / Service activation

6.1.3.7.1 Definition

This test is applicable for UEs that support MBMS broadcast services in MBSFN mode and which support either both TDD transmit and receive functions or TDD MBSFN receive only function or 3.84 Mcps TDD IMB function.

6.1.3.7.2 Conformance requirement

Upon detection of one MBSFN cluster all other frequencies on which MBMS service is provided in MBSFN mode for one of the PLMN assigned to the MBSFN cluster are indicate as specified in [4].

The UE chooses the frequency for the MBSFN cluster to be received based on the information on the services that are provided on the MBSFN clusters of those frequencies.

…

If the variable MBMS_ACTIVATED_SERVICES is not empty, the UE shall apply the MCCH acquisition procedure upon selecting (e.g. upon power on) or re- selecting a cell supporting MBMS or an MBSFN cluster, upon change of MBMS controlling cell (e.g. due to an active set update or hard handover), upon entering UTRA from another RAT, upon release of a MBMS PTP RB for the purpose of changing transfer mode, upon return from loss of coverage and upon receiving an indication from upper layers that the set of activated services has changed.

…

The UE shall detect the available MBMS services by acquiring the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3.

...

For cells operating in MBSFN mode as indicated in subclause 8.1.1.6.3 the UE shall immediately acquire the MBMS GENERAL INFORMATION messages i.e. it shall not delay reception of these messages until it has completed the acquisition of the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages. Likewise for cells operating in MBSFN mode as indicated in subclause 8.1.1.6.3, the UE should immediately acquire the MBMS CURRENT CELL P-T-M RB INFORMATION.

The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information e.g. both the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION message should be acquired in the same modification period.

…

If the UE selects to another cell, the UE shall re-establish the RLC entity used for MCCH reception.

…

If the IE "MBMS required UE action" is included and concerns an MBMS activated service the UE shall:

…

1> if the IE "MBMS required UE action" is set to 'Acquire PTM RB info'; or

1> if the IE "MBMS required UE action" is set to 'Acquire counting info– PTM RBs unmodified' and the UE is not receiving a p-t-m RB for the concerned service:

2> continue acquiring the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3

2> act upon the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION message, if received, in accordance with subclause 8.7.5;

…

Upon completing the reception of the MBMS COMMON P-T-M RB INFORMATION and the MBMS CURRENT CELL P-T-M RB INFORMATION messages for an activated MBMS service, the UE shall:

1> if the UE is already receiving an MTCH and does not have the capability to receive the new service in addition:

2> the UE behaviour is undefined.

NOTE: In this case, the UE may request upper layers to prioritise the services and only receive the service(s) prioritised by upper layers.

1> act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following;

1> if the UE previously received the service by means of a p-t-m radio bearer from a cell belonging to another MBMS cell group:

2> re-establish RLC;

2> re-initialise PDCP.

1> start immediately to use the indicated configuration unless specified otherwise;

1> start or continue receiving the indicated p-t-m radio bearers depending on its UE capabilities.

The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information i.e. the MBMS MODIFIED SERVICES INFORMATION message, MBMS UNMODIFIED SERVICES INFORMATION message, MBMS COMMON P-T-M RB INFORMATION and the MBMS CURRENT CELL P-T-M RB INFORMATION message should be acquired in the same modification period.

Reference

3GPP TS 25.304 clauses 6.3.1.3.

3GPP TS 25.331 clauses 8.7.2.2, 8.7.2.3, 8.7.1.3, 8.6.9.6, 8.7.5.3.

6.1.3.7.3 Test purpose

1. To verify that on indication from upper layers that there has been a change to the activated service(s) the UE will perform a cluster reselection to an inter frequency neighbour cluster providing the required MBMS service .
2. To verify that the UE starts the reception of the activated MBMS service after reselection to the inter frequency neighbour MBSFN cluster.

6.1.3.7.4 Method of test

Initial condition

System Simulator:

- MBSFN carrier: 2 cells, Cell 31 (PLMN1) and Cell 33 (PLMN1). Cell 31 is powered off. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 33 using MBMS configuration C1 and Default1 MCCH scheduling (No ongoing session) according to subclause 11.2 of TS 34.108.
- Unicast carrier : 1 cell, Cell 1 with default parameters.

User Equipment:

- On the unicast carrier cell the UE is in registered Idle Mode on PS (state 3) if the UE only supports PS domain or registered Idle Mode on CS/PS (state 7) if the UE supports both CS and PS domains, as specified in clause 7.2.2 of TS 34.108.
- The UE is in MBSFN Idle mode with no activated service as specified in clause 7.6.3 of TS 34.108.

Related ICS/IXIT statements

- MBMS Broadcast services in MBSFN mode application available on UE Yes/No.
- Support of TDD transmit and receive functions available on UE Yes/No.
- Support of TDD MBSFN receive only function available on UE Yes/No.

Test procedure

Table 8.5.1.14

Parameter	Unit	Cell 1		Cell 31		Cell 33	
		T0	T1	T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 2		Ch. 3	
CPICH Ec (FDD)	dBm / 3.84MHz	-60	-60	-	-	-	-
P-CCPCH RSCP (TDD)	dBM	-60	-60	OFF	-60	-60	-60
P-CPICH (IMB)	dBm / 3.84MHz			OFF	-60	-60	-60
T-CPICH (IMB)	dBm / 3.84MHz			OFF	-50.5	-50.5	-50.5

Table 8.5.1.1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution.

a) The UE is camping on Cell 1 and Cell 33. The SS sends ACTIVATE RB TEST MODE on the unicast carrier and the UE responds with ACTIVATE RB TEST MODE COMPLETE. The SS then sends CLOSE UE TEST

LOOP to activate RLC SDU counting on MTCH (Transmission identity indicating the MBMS National Service 1 (see TS 34.108 clause 11.2.4). The UE responds with CLOSE UE TEST LOOP COMPLETE.

b) The SS powers on Cell 31 at T1.

c) National Service 1 ongoing on MBSFN Cell 31 (see TS 34.108 clause 11.2.4) is selected at the UE. The UE determines from the MBMS UNMODIFIED SERVICES INFORMATION and MBMS GENERAL INFORMATION messages on the MCCH of Cell 33 that the selected National Service is available on inter frequency neighbour cell 31.

d) The UE reselects to MBSFN carrier on URFCN Ch. 3 and camps on Cell 31. The SS transmits the SYSTEM INFORMATION BLOCK TYPE 5 message indicating the configuration of the S-CCPCH carrying MCCH within the IE " Secondary CCPCH system information MBMS". In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C2 (one PTM session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108. The service is carried on a 124 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.9 (3.84 Mcps TDD) or 124.4 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.11.7.2.2.1 (3.84 Mcps TDD IMB) or clause 6.11.5.4.4.9 (1.28 Mcps TDD).or clause 6.11.6.4.4.9 (7.68 Mcps TDD).

e) The UE shall perform the MCCH acquisition procedure. The UE shall start receiving the p-t-m radio bearer for the ongoing activated MBMS service indicated in the MBMS UNMODIFIED SERVICES INFORMATION message according to the configuration defined in the MBMS CURRENT CELL P-T-M INFORMATION (one ongoing session corresponding to the service activated at the UE). The UE closes the test loop and starts counting successfully received RLC PDUs on the MTCH. The UE will send CLOSE UE TEST LOOP COMPLETE.

f) The SS broadcasts 10 RLC SDUs on the MTCH configured on the MBMS p-t-m radio bearer for National Service 1 on Cell 31.

g) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST and waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is > 0.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
	←		M	MBMS MCCH Message Configuration C1	Cell 33: No ongoing sessions
1	←		U	ACTIVATE RB TEST MODE	
2	→		U	ACTIVATE RB TEST MODE COMPLETE	
3	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated with Short Transmission Identity for National Service 1 on Cell 31.
5	SS				The SS powers on Cell 31 (T1).
6	UE		M		National Service 1, available on Cell 31, is selected at the UE.
6	UE		M		The UE reselects to Cell 31 and starts to acquire the MCCH.
7	←		M	SYSTEM INFORMATION BLOCK TYPE 5	
	←		M	MBMS MCCH Message Configuration C2	Cell 31: No modified services. One ongoing session. (National Service 1). 124 kbps PS RAB, 124.4 kbps (IMB)
15	UE		M		The UE shall continue acquiring the above MBMS messages until it has received a consistent set of MCCH information in the same modification period.
4	→		U	CLOSE UE TEST LOOP COMPLETE	The UE shall establish the indicated p-t-m radio bearer and close the test loop.
16	SS		M		The SS transmits 10 RLC SDUs on the MTCH of Cell 31 for National Service 1.
17	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
18	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is greater than zero.
19	←		U	OPEN UE TEST LOOP	
20	→		U	OPEN UE TEST LOOP COMPLETE	
21	←		U	DEACTIVATE RB TEST MODE	
22	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific message contents

All messages have the same content as defined in 34.108 clause 9.1 with the following exceptions:

There are no exceptions for this test case.

6.1.3.7.5 Test requirements

1) After step 18, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number > 0.

6.1.3.8 Inter frequency neighbour reselection / Activation of higher priority service

6.1.3.8.1 Definition

This test is applicable for UEs that support MBMS broadcast services in MBSFN mode and which support either both TDD transmit and receive functions or TDD MBSFN receive only function or 3.84 Mcps TDD IMB function.

6.1.3.8.2 Conformance requirement

If the cell is operating in MBSFN mode according to subclause 8.1.1.6.3 the UE shall:

1> if for two or more services included in variable MBMS_ACTIVATED_SERVICES the IE "MBSFN cluster frequency" is available:

2> request from upper layers the priorities of the different MBMS services included in variable MBMS_ACTIVATED_SERVICES for which the IE "MBSFN cluster frequency" is available;

2> if the IE "MBSFN cluster frequency" is available for the service with the highest priority included in variable MBMS_ACTIVATED_SERVICES:

3> tune to the frequency indicated in the IE "MBSFN cluster frequency" of that service.

…

The UE may:

1> monitor the MBMS notification Indicator Channel (MICH);

1> if a notification on the MICH for one or more of the MBMS services included in the variable MBMS_ACTIVATED_SERVICES is detected:

2> acquire the MBMS MODIFIED SERVICES INFORMATION message with delaying the reading of MCCH until the next modification period and with stopping at the end of the modification period, in accordance with subclause 8.7.1.3;

2> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4.

The UE shall:

1> if in idle mode, URA_PCH, CELL_PCH or CELL_FACH state:

2> if not monitoring MICH during the current or the previous modification period:

3> acquire the MBMS MODIFIED SERVICES INFORMATION message from MCCH at the start of every modification period, in accordance with subclause 8.7.1.3;

3> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4.

…

Upon receiving the MBMS MODIFIED SERVICES INFORMATION message, the UE shall act as follows for each of the services included in this messages provided that the service is included in variable MBMS_ACTIVATED_SERVICES and upper layers indicate that the session has not yet been received correctly (referred to as 'applicable services'):

…

1> act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following

…

1> perform the MBMS frequency selection procedure as specified in subclause 8.5.27;

Reference

3GPP TS 25.331 clauses 8.6.9.9ab, 8.7.3.3.1, 8.7.3.4.

6.1.3.8.3 Test purpose

1. To verify that the UE correctly handles the notification procedure after receiving the MBMS MODIFIED SERVICES INFORMATION message via MCCH indicating a change in available services.

2. To verify that the UE acts upon service priority indications from upper layers that require a change in MBSFN cluster frequency.

3. To verify that the UE acquires the MBMS information on MCCH after selecting the new MBSFN cluster.

4. To verify that the UE, after acquiring the MBMS information on MCCH, starts the p-t-m reception of the higher priority MBMS service.

6.1.3.8.4 Method of test

Initial condition

System Simulator:

- MBSFN carrier: 2 cells, Cell 31 (PLMN1) and Cell 33 (PLMN1). Cell 31 is powered off. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 33 using MBMS configuration C1 and Default1 MCCH scheduling (No ongoing session) according to subclause 11.2 of TS 34.108.

- Unicast carrier : 1 cell, Cell 1 with default parameters.

User Equipment:

- On the unicast carrier cell the UE is in registered Idle Mode on PS (state 3) if the UE only supports PS domain or registered Idle Mode on CS/PS (state 7) if the UE supports both CS and PS domains, as specified in clause 7.2.2 of TS 34.108.

    - The UE is in MBSFN Idle mode with one activated service as specified in clause 7.6.4 of TS 34.108. The UE has selected (i.e. it is included in MBMS_ACTIVATED_SERVICES variable) a local service that will start on MBSFN Cell 33 (see TS 34.108 clause 11.2.4) during the test. The UE has configured this MBMS service to have a low priority.

Related ICS/IXIT statements

- MBMS Broadcast services in MBSFN mode application available on UE Yes/No.

- Support of TDD transmit and receive functions available on UE Yes/No.

- Support of TDD MBSFN receive only function available on UE Yes/No.

Test procedure

Table 8.5.1.14

Parameter	Unit	Cell 1		Cell 31		Cell 33	
		T0	T1	T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 2		Ch. 3	
CPICH Ec (FDD)	dBm / 3.84MHz	-60	-60	-	-	-	-
P-CCPCH RSCP (TDD)	dBM	-60	-60	OFF	-60	-60	-60
P-CPICH (IMB)	dBm / 3.84MHz			OFF	-60	-60	-60
T-CPICH (IMB)	dBm / 3.84MHz			OFF	-50.5	-50.5	-50.5

Table 8.5.1.1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution.

a) The UE is camping on Cell 1 and Cell 33. The SS sends ACTIVATE RB TEST MODE on the unicast carrier and the UE responds with ACTIVATE RB TEST MODE COMPLETE.

b) The SS sends CLOSE UE TEST LOOP to activate RLC SDU counting on the MTCH of Cell 33 (Transmission identity of the activated local service)

c) The SS notifies on MCCH about the start of an MBMS session, corresponding to the national service activated by the UE. For one modification period. MCCH messages are transmitted by the SS on Cell 33 using MBMS configuration C4 (one PTM session starting) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

d) MCCH messages are then transmitted by the SS on Cell 33 using MBMS configuration C2 (one PTM session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108. The service is carried on a 124 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.9 (3.84 Mcps TDD) or 124.4 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.11.7.2.2.1 (3.84 Mcps TDD IMB) or clause 6.11.5.4.4.9 (1.28 Mcps TDD) or clause 6.11.6.4.4.9 (7.68 Mcps TDD).

e) The UE shall start receiving the p-t-m radio bearer for the ongoing activated MBMS service indicated in the MBMS UNMODIFIED SERVICES INFORMATION message according to the configuration defined in the MBMS CURRENT CELL P-T-M INFORMATION (one ongoing session corresponding to the service activated at the UE). The UE closes the test loop and starts counting successfully received RLC PDUs on the MTCH. The UE will send CLOSE UE TEST LOOP COMPLETE.

f) The SS broadcasts 10 RLC SDUs on the MTCH configured on the MBMS p-t-m radio bearer for the selected local service on Cell 33.

g) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST and waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is > 0.

h) The SS sends OPEN UE TEST LOOP. The UE responds with OPEN UE TEST LOOP COMPLETE.

i) The SS sends CLOSE UE TEST LOOP to activate RLC SDU counting on the MTCH (Transmission identity corresponding to National Service 1).

j) The SS powers on Cell 31 (T1). In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C2 (one PTM session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108. National Service 1 is carried on a 124 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.9 (3.84 Mcps TDD) or 124.4 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.11.7.2.2.1 (3.84 Mcps TDD IMB) or clause 6.11.5.4.4.9 (1.28 Mcps TDD) or clause 6.11.6.4.4.9 (7.68 Mcps TDD).

k) National Service 1 is activated at the UE and is configured to have a high priority.

l) The UE determines from the MBMS UNMODIFIED SERVICES INFORMATION and MBMS GENERAL INFORMATION message that the activated local service is available on inter frequency neighbour cell 31. The UE requests from upper layers the priorities of the activated national service on Cell 31 and the activated local service on Cell 33. The UE decides that reselection to Cell 31 is required in order to receive the higher priority national service. The UE reselects to MBSFN carrier on URFCN Ch. 2 and camps on Cell 31.

m) On Cell 31 the SS transmits the SYSTEM INFORMATION BLOCK TYPE 5 message indicating the configuration of the S-CCPCH carrying MCCH within the IE " Secondary CCPCH system information MBMS". In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C2 (one PTM session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108. The service is carried on a 124 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.9 (3.84 Mcps TDD) or 124.4 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.11.7.2.2.1 (3.84 Mcps TDD IMB) or clause 6.11.5.4.4.9 (1.28 Mcps TDD) or clause 6.11.6.4.4.9 (7.68 Mcps TDD).

n) The UE shall perform the MCCH acquisition procedure. The UE shall start receiving the p-t-m radio bearer for the ongoing activated MBMS service indicated in the MBMS UNMODIFIED SERVICES INFORMATION message according to the configuration defined in the MBMS CURRENT CELL P-T-M INFORMATION (one ongoing session corresponding to the service activated at the UE). The UE closes the test loop and starts counting successfully received RLC PDUs on the MTCH. The UE will send CLOSE UE TEST LOOP COMPLETE.

o) The SS broadcasts 10 RLC SDUs on the MTCH configured on the MBMS p-t-m radio bearer for National Service 1 on Cell 31.

p) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST and waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is > 0.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1	←		U	ACTIVATE RB TEST MODE	
2	→		U	ACTIVATE RB TEST MODE COMPLETE	
3	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated. Short Transmission Identity for the selected local service
4	←		M	MBMS MCCH Message Configuration C4	Includes the national service activated at UE in the modified services list for one modification period.
5	←		M	MBMS MCCH Message Configuration C2	No modified services. One ongoing national service corresponding to that activated at the UE. 124 kbps PS RAB, 124.4 kbps (IMB)
6	→		U	CLOSE UE TEST LOOP COMPLETE	The UE shall establish the indicated p-t-m radio bearer and close the test loop.
7	**SS**		M		The SS transmits 10 RLC SDUs on the MTCH of Cell 33.
8	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
9	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is greater than zero.
10	←		U	OPEN UE TEST LOOP	
11	→		U	OPEN UE TEST LOOP COMPLETE	
12	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated. Short Transmission Identity for National service 1 on Cell 31.
13	SS		M		The SS powers on Cell 31 (T1).
14	UE		M		National Service 1 ongoing on Cell 31 is activated at the UE and configured to have a high priority.
15	UE		M		The UE reselects to Cell 31 and starts to acquire the MCCH.
16	←		M	MBMS MCCH Message Configuration C2	Cell 31: No modified services. One ongoing national service corresponding to that activated at the UE. 124 kbps PS RAB, 124.4 kbps (IMB)
17	→		U	CLOSE UE TEST LOOP COMPLETE	The UE shall establish the indicated p-t-m radio bearer and close the test loop.
18	SS		M		The SS transmits 10 RLC SDUs on the MTCH of Cell 31.
19	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
20	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is greater than zero.
21	←		U	OPEN UE TEST LOOP	
22	→		U	OPEN UE TEST LOOP COMPLETE	
23	←		U	DEACTIVATE RB TEST MODE	
24	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific message contents

All messages have the same content as defined in 34.108 clause 9.1 with the following exceptions:

There are no exceptions for this test case.

6.1.3.8.5 Test requirements

1) After step 9, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number > 0.

2) After step 20, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number > 0.

6.2 Multi-mode environment (2G/3G case)

For Inter-RAT idle mode test cases cells belonging to different RAT shall use different LAC and RAC.

6.2.1 PLMN and RAT selection

6.2.1.1 Selection of the correct PLMN and associated RAT

6.2.1.1.1 Definition

Test to verify that the UE selects the correct combination of PLMN and associated access technology according to the fields on the USIM.

6.2.1.1.2 Conformance requirement

1. At switch on, or following recovery from lack of coverage, the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see TS 23.122, clause 4.5.2) attempts to perform a Location Registration.

   If successful registration is achieved, the MS indicates the selected PLMN.

   If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows either Automatic or Manual Network Selection Mode Procedure depending on its operating mode.

2. The "HPLMN Selector with Access Technology", "User Controlled PLMN Selector with Access Technology" and "Operator Controlled PLMN Selector with Access Technology" data fields in the SIM include associated access technologies for each PLMN entry. The PLMN/access technology combinations are listed in priority order. If an entry includes more than one access technology, then no priority is defined for the preferred access technology and the priority is an implementation issue.

3. To allow provision for multiple HPLMN codes, the HPLMN access technologies are stored on the SIM together with PLMN codes. This version of the specification does not support multiple HLPMN codes and the "HPLMN Selector with Access Technology" data field is only used by the MS to get the HPLMN access technologies. The HPLMN code is the PLMN code included in the IMSI.

4. Automatic Network Selection Mode Procedure:

   The MS selects and attempts registration on other PLMNs, if available and allowable in the following order:

   i) HPLMN (if not previously selected);

   ii) Each PLMN in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   iii) Each PLMN in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   iv) Other PLMN/access technology combinations with received high quality signal in random order;

   v) Other PLMN/access technology combinations in order of decreasing signal quality.

5. In i [HPLMN (if not previously selected)], the MS shall search for all access technologies it is capable of. No priority is defined for the preferred access technology and the priority is an implementation issue, but "HPLMN Selector with Access Technology" data field on the SIM may be used to optimise the procedure.

References

1. TS 23.122, clause 4.4.3.1.
2. TS 23.122, clause 4.4.3
3. TS 23.122, clause 4.4.3
4. TS 23.122, clause 4.4.3.1.1
5. TS 23.122 (Rel-6), clause 4.4.3.1.1 f)

NOTE: TS 31.102 defines the USIM fields.

6.2.1.1.3 Test purpose

1. To verify that the UE selects the correct combination of HPLMN/access technology combination according to the fields on the USIM. If the UE is not using HPLMN Selector with Access Technology data field on the USIM there is no priority order for the RAT.

6.2.1.1.4 Method of test

Related ICS/IXIT statements

- Access technology priority supported in HPLMNwACT field – yes/no.

Initial conditions

The UE is in automatic PLMN selection mode.

Cell levels are from tables 6.3, 6.4 and 6.5.

Cell	CPICH_Ec [dBm/3.84 MHz] (FDD)	P-CCPCH_RSCP [dBm] (TDD)	Test Channel	PLMN	Radio Access Technology
Cell 2	-70	-59	1	PLMN 1	UTRAN
Cell 3	-75	-64	2	PLMN 2	UTRAN

Cell	RF signal level [dBm]	Test Channel	PLMN	Radio Access Technology
Cell 1	-48	1	PLMN 1	GSM
Cell 4	-50	2	PLMN 2	GSM

The UE is equipped with a USIM containing default values except for those listed below.

USIM A

USIM field	Priority	PLMN	Access Technology Identifier
$EF_{HPLMNwAcT}$	1st	PLMN1	GSM
	2nd	PLMN1	UTRAN

The HPLMN (MCC+MNC) of the IMSI for USIM A is set to PLMN1.

USIM B

USIM field	Priority	PLMN	Access Technology Identifier
$EF_{HPLMNwAcT}$	1st	PLMN2	UTRAN
	2nd	PLMN2	GSM

The HPLMN (MCC+MNC) of the IMSI for USIM B is set to PLMN2.

Test procedure

Method C is applied.

a) The SS activates cells 1-4 and monitors the cells for random access requests from the UE. The UE shall have a USIM with settings according to USIM A.

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) The UE is switched off and a USIM with settings according to USIM B is inserted.

e) The UE is switched on.

f) The SS waits for random access requests from the UE.

6.2.1.1.5 Test Requirements

1) In step c), the response from the UE shall be on Cell 1. The displayed PLMN shall be PLMN1 (GSM). If the UE is not using HPLMN Selector with Access Technology data field on the USIM or if the UE is Rel-6 or higher, the response from the UE shall be either on Cell 1 or Cell 2. The displayed PLMN shall be either PLMN1 (GSM) or PLMN1 (UTRAN).

2) In step f), the response from the UE shall be on Cell 3. The displayed PLMN shall be PLMN2 (UTRAN). If the UE is not using HPLMN Selector with Access Technology data field on the USIM or if the UE is Rel-6 or higher, the response from the UE shall be either on Cell 3 or Cell 4. The displayed PLMN shall be either PLMN2 (GSM) or PLMN2 (UTRAN).

6.2.1.2 Selection of RAT for HPLMN; Manual mode

6.2.1.2.1 Definition

Test to verify that the UE selects the HPLMN RAT according to the HPLMN RAT priority list on the USIM. If no RAT on the list is available, the UE shall try to obtain registration on the same PLMN using other UE-supported RATs.

6.2.1.2.2 Conformance requirement

1. To allow provision for multiple HPLMN codes, the HPLMN access technologies are stored on the SIM together with PLMN codes. This version of the specification does not support multiple HLPMN codes and the "HPLMN Selector with Access Technology" data field is only used by the MS to get the HPLMN access technologies. The HPLMN code is the PLMN code included in the IMSI.

2. For HPLMN, the MS shall search for all access technologies it is capable of. The MS shall start its search using the access technologies stored in the "HPLMN Selector with Access Technology" data field on the SIM in priority order (i.e. the PLMN/access technology combinations are listed in priority order, if an entry includes more than one access technology then no priority is defined for the preferred access technology and the priority is an implementation issue).

3. Manual Network Selection Mode Procedure:

   The MS indicates whether there are any PLMNs, which are available using all supported access technologies. This includes PLMNs in the "forbidden PLMNs" list and PLMNs which only offer services not supported by the MS.

   If displayed, PLMNs meeting the criteria above are presented in the following order:

3.1 HPLMN;

3.2 PLMNs contained in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

3.3 PLMNs contained in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

3.4 Other PLMN/access technology combinations with received high quality signal in random order;

3.5 Other PLMN/access technology combinations in order of decreasing signal quality.

The user may select his desired PLMN and the MS then initiates registration on this PLMN using the access technology chosen by the user for that PLMN or using the highest priority available access technology for that PLMN, if the associated access technologies have a priority order. (This may take place at any time during the presentation of PLMNs). For such a registration, the MS shall ignore the contents of the "forbidden LAs for roaming", "forbidden LAs for regional provision of service", "forbidden PLMNs for GPRS service" and "forbidden PLMNs" lists.

If the user does not select a PLMN, the selected PLMN shall be the one that was selected before the PLMN selection procedure started. If no such PLMN was selected or that PLMN is no longer available, then the MS shall attempt to camp on any acceptable cell and enter the limited service state.

NOTE: It is an MS implementation option whether to indicate access technologies to the user. If the MS does display access technologies, then the access technology used should be the access technology chosen by the user for that PLMN. If the MS does not display access technologies, then the access technology chosen for a particular PLMN should be the highest priority available access technology for that PLMN, if the associated access technologies have a priority order.

References

1. TS 23.122, clause 4.4.3.
2. TS 23.122, clause 4.4.3.1.1 (f).
3. TS 23.122, clause 4.4.3.1.2.

NOTE: TS 31.102 defines the USIM fields.

6.2.1.2.3 Test purpose

1. To verify that:

   1.1 the UE searches for a HPLMN RAT according to the HPLMN Selector with Access Technology data field on the USIM in priority order.

   1.2 If no RAT on the priority list is available, the UE tries to obtain registration on the same PLMN using other UE-supported RATs.

6.2.1.2.4 Method of test

Initial conditions

The UE is in manual PLMN selection mode.

Cell levels are from tables 6.3, 6.4 and 6.5.

Cell	CPICH_Ec [dBm/3.84 MHz] (FDD)	P-CCPCH_RSCP [dBm] (TDD)	Test Channel	PLMN	Radio Access Technology
Cell 1	-72	-59	1	PLMN 2	UTRAN
Cell 3	-75	-64	2	PLMN 3	UTRAN

Cell	RF signal level [dBm]	Test Channel	PLMN	Radio Access Technology
Cell 2	-48	1	PLMN 2	GSM
Cell 4	-50	2	PLMN 3	GSM

The UE is equipped with a USIM containing default values except for those listed below.

USIM A

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}		PLMN 1	
$EF_{HPLMNwAcT}$	1st	PLMN2	UTRAN
	2nd	PLMN2	GSM

The HPLMN (MCC+MNC) of the IMSI for USIM A is set to PLMN2.

USIM B

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}		PLMN 1	
$EF_{HPLMNwAcT}$	1st	PLMN2	UTRAN
	2nd	PLMN2	

The HPLMN (MCC+MNC) of the IMSI for USIM B is set to PLMN2.

Test procedure

Method C is applied.

a) The SS activates cells 1-4 and monitors the cells for random access requests from the UE. The UE shall have a USIM with settings according to USIM A.

b) The UE is switched on.

c) PLMN2 (UTRAN) shall be selected when the PLMN list is presented.

d) The SS waits for random access requests from the UE.

e) Cell 1 is switched off.

f) PLMN2 (GSM) shall be selected when the PLMN list is presented.

g) The SS waits for random access requests from the UE.

h) The UE is switched off and a USIM with settings according to USIM B is inserted. All cells except Cell 1 are active.

i) The UE is switched on.

j) PLMN2 (GSM) shall be selected when the PLMN list is presented.

k) The SS waits for random access requests from the UE.

6.2.1.2.5 Test Requirements

1) In step c), the list shall be presented. It shall contain as highest priority PLMN2 (UTRAN as number 1 on the list and GSM as number 2).

2) In step d), the response from the UE shall be on Cell 1 (1st priority RAT for $EF_{HPLMNwAcT}$). The displayed PLMN shall be PLMN2 (UTRAN).

3) In step f), the list shall be presented. It shall contain as highest priority PLMN2 (GSM).

4) In step g), the response from the UE shall be on Cell 2 (2nd priority RAT for $EF_{HPLMNwAcT}$). The displayed PLMN shall be PLMN2 (GSM).

5) In step j), the list shall be presented. It shall contain as highest priority PLMN2 (GSM).

6) In step k), the response from the UE shall be on Cell 2. The displayed PLMN shall be PLMN2 (GSM). (PLMN2 is not available on UTRAN so registration on the same PLMN is attempted using other UE-supported RATs).

6.2.1.2a Selection of RAT for HPLMN; Different ITU regions; Manual mode

6.2.1.2a.1 Definition and applicability

Test to verify that a Multi-Band Multi-RAT device using manual network mode supports the Multi-Band Multi-RAT PLMN selection between frequency bands of different ITU regions.

Test is applicable for UEs supporting FDD and GSM, at least one FDD frequency band in ITU region 2 and at least one GSM frequency band in ITU region 1.

6.2.1.2a.2 Conformance requirement

1. At switch on, or following recovery from lack of coverage, the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see clause 4.5.2) attempts to perform a Location Registration.

   …

   If successful registration is achieved, the MS indicates the selected PLMN.

2. The MS indicates whether there are any PLMNs, which are available using all supported access technologies. This includes PLMNs in the "forbidden PLMNs" list and PLMNs which only offer services not supported by the MS. An MS which supports GSM COMPACT shall also indicate GSM COMPACT PLMNs (which use PBCCH).

   If displayed, PLMNs meeting the criteria above are presented in the following order:

   i)- either the HPLMN (if the EHPLMN list is not present or is empty) or, if one or more of the EHPLMNs are available then based on an optional data field on the SIM either only the highest priority available EHPLMN is to be presented to the user or all available EHPLMNs are presented to the user in priority order. If the data field is not present on the SIM, then only the highest priority available EHPLMN is presented;

   ii)- PLMN/access technology combinations contained in the " User Controlled PLMN Selector with Access Technology " data file in the SIM (in priority order);

   iii)- PLMN/access technology combinations contained in the "Operator Controlled PLMN Selector with Access Technology" data file in the SIM (in priority order);

   iv)- other PLMN/access technology combinations with received high quality signal in random order;

   v)- other PLMN/access technology combinations in order of decreasing signal quality.

References

1. TS 23.122, clause 4.4.3.1.

NOTE: TS 31.102 defines the USIM fields.

6.2.1.2a.3 Test purpose

1. To verify that in Manual Network Selection Mode Procedure:

   1.1 the UE indicates PLMN/access technology combinations with received high quality signal in random order if none of PLMNs contained in EF_{IMSI}, $EF_{HPLMNwAcT}$, $EF_{PLMNwAcT}$ or $EF_{OPLMNwAcT}$ are available

   1.2 the UE registers in the PLMN selected by the user

6.2.1.2a.4 Method of test

NOTE: The test may be executed with frequency bands of various ITU region combinations.

Initial conditions

The UE is in automatic PLMN selection mode.

In the System Information broadcast in each cell, the neighbouring cell list does not contain any cell belonging to the other PLMN's.

UTRA (FDD) test frequencies for the selection of RAT for HPLMN between frequency bands of different ITU regions.

Test Channel:	1	2	3	Comment
Band II	9263	9313	9263	Uplink UARFCN
Band IV	1313	1363	1313	Uplink UARFCN
Band V (*)	4133	4158	4133	Uplink UARFCN
Band X	FFS	FFS	FFS	Uplink UARFCN
Band XII	FFS	FFS	FFS	Uplink UARFCN
Band XIII	FFS	FFS	FFS	Uplink UARFCN
Band XIV	FFS	FFS	FFS	Uplink UARFCN
Band II / I	9263	9313	9613	Uplink UARFCN
Band II / VIII	9263	9313	2713	Uplink UARFCN
Band IV / I	1313	1363	9613	Uplink UARFCN
Band IV / VIII	1313	1363	2713	Uplink UARFCN
Band V / I	4133	4158	9613	Uplink UARFCN
Band V / VIII	4133	4158	2713	Uplink UARFCN

NOTE: Bands marked with (*) use a 5 MHz spacing between test channels because the total available bandwidth is limited. Other bands use a 10 MHz spacing between test channels. Test Channel combinations defined for single FDD frequency band (e.g. Band II) are used if the UE does not support any FDD frequency band in ITU region 1 (e.g. UE supports FDD II for ITU region 2 and doesn't support FDD I or FDD VIII for ITU region 1). Test Channel combinations of two FDD frequency bands are used if the UE supports at least one FDD frequency band of ITU region 2 and at least one FDD frequency band of ITU region 1.

GSM Cell 2 uses test channel 1 as specified in Table 6.6 as primary GSM band for ITU region 2 or alternatively as primary GSM band for ITU region 1 if the UE does not support any GSM band in ITU region 2. GSM Cell 4 uses test channel 2 as specified in Table 6.6 as secondary GSM band for ITU region 1. Primary GSM band for ITU region 1, secondary GSM band for ITU region 1 and primary GSM band for ITU region 2 are selected according to PIXIT parameters.

Step a-e:

Cell	CPICH_Ec [dBm/3.84 MHz] (FDD)	Test Channel	Frequency band used in ITU region (Note)	PLMN	Radio Access Technology
Cell 1	-70	1	2	PLMN 2	UTRAN

Step f-i:

Cell	CPICH_Ec [dBm/3.84 MHz] (FDD)	Test Channel	Frequency band used in ITU region (Note)	PLMN	Radio Access Technology
Cell 3	-70	2	2	PLMN 3	UTRAN
Cell 5	-76	3	1 else 2	PLMN 4	UTRAN
Note: For Cell 5 FDD frequency band of ITU region 2 may be configured if the UE does not support any FDD frequency band of ITU region 1.					

Cell	RF signal level [dBm]	Test Channel	Frequency band used in ITU region (Note)	PLMN	Radio Access Technology
Cell 2	-48	1	2 else 1	PLMN 5	GSM
Cell 4	-52	2	1	PLMN 6	GSM
Note: For Cell 2 GSM frequency band of ITU region 1 may be configured if the UE does not support any GSM frequency band of ITU region 2.					

The UE is equipped with a USIM containing default values according to TS 34.108 section 8 except for those listed below.

USIM field	Priority	PLMN (Note)	Access Technology Identifier
$EF_{HPLMNwAcT}$	1st	PLMN 1 (ITU region 2)	UTRAN
	2nd	PLMN 1 (ITU region 2)	GSM
NOTE: 3rd digit of MNC value is equal to '1'.			

The $EF_{PLMNwACT}$ list shall be empty according to 3GPP TS 31.102, Annex E. The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN 1 (ITU region 2). 3rd digit of MNC value is equal to '1'.

UE is previously registered on PLMN 2, before switched off .

Related ICS/IXIT statement(s)

None

Test procedure

Method C is applied.

a) The SS activates Cell 1 and monitors the cells for random access requests from the UE.

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) Set the network selection mode to manual and then power off the UE.

e) Cell 1 is switched off.

f) The SS activates Cell 2, Cell 3, Cell 4 and Cell 5.

g) The UE is switched on.

h) If the UE supports FDD frequency band used in ITU region 1 then PLMN4 (UTRAN) shall be selected manually when PLMN list is indicated. Otherwise, if the UE does not support FDD frequency band used in ITU region 1, then PLMN6 (GSM) shall be selected when PLMN list is indicated.

i) The SS waits for random access requests from the UE.

6.2.1.2a.5 Test Requirements

1) In step c), the response from the UE shall be on Cell 1 (registered PLMN). The indicated PLMN shall be PLMN 2 (UTRAN).

2) In step g), confirm that the UE after performing manual search, indicates following PLMNs and RATs in any order:

   - PLMN3, FDD UTRAN Frequency band used in ITU region 2

   - PLMN4, FDD UTRAN Frequency band used in ITU region 1 or 2.

- PLMN5, GSM Frequency band used in ITU region 2 or 1.
- PLMN6, GSM Frequency band used in ITU region 1

3) In step i)

- if the UE supports FDD frequency band used in ITU region 1 the response from the UE shall be on Cell 5 and the indicated PLMN shall be PLMN4
- otherwise, if the UE does not support FDD frequency band used in ITU region 1 the response from the UE shall be on Cell 4 and the indicated PLMN shall be PLMN6.

6.2.1.3 Selection of RAT for UPLMN; Manual mode

6.2.1.3.1 Definition

Test to verify that the UE selects the UPLMN RAT according to the UPLMN RAT priority list on the USIM. If no PLMN/RAT on the UPLMN RAT priority list is available then the UE shall search for PLMNs in the OPLMN list.

6.2.1.3.2 Conformance requirement

1. Manual Network Selection Mode Procedure:

   The MS indicates whether there are any PLMNs, which are available using all supported access technologies. This includes PLMNs in the "forbidden PLMNs" list and PLMNs which only offer services not supported by the MS.

   If displayed, PLMNs meeting the criteria above are presented in the following order:

   1.1 HPLMN;

   1.2 PLMNs contained in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   1.3 PLMNs contained in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   1.4 Other PLMN/access technology combinations with received high quality signal in random order;

   1.5 Other PLMN/access technology combinations in order of decreasing signal quality.

   The user may select his desired PLMN and the MS then initiates registration on this PLMN using the access technology chosen by the user for that PLMN or using the highest priority available access technology for that PLMN, if the associated access technologies have a priority order. (This may take place at any time during the presentation of PLMNs). For such a registration, the MS shall ignore the contents of the "forbidden LAs for roaming", "forbidden LAs for regional provision of service", "forbidden PLMNs for GPRS service" and "forbidden PLMNs" lists.

   If the user does not select a PLMN, the selected PLMN shall be the one that was selected before the PLMN selection procedure started. If no such PLMN was selected or that PLMN is no longer available, then the MS shall attempt to camp on any acceptable cell and enter the limited service state.

NOTE: It is an MS implementation option whether to indicate access technologies to the user. If the MS does display access technologies, then the access technology used should be the access technology chosen by the user for that PLMN. If the MS does not display access technologies, then the access technology chosen for a particular PLMN should be the highest priority available access technology for that PLMN, if the associated access technologies have a priority order.

References

1. TS 23.122, clause 4.4.3.1.2.

NOTE: TS 31.102 defines the USIM fields.

6.2.1.3.3 Test purpose

1. To verify that:

   1.1 the UE selects the UPLMN RAT according to the UPLMN RAT priority list on the USIM.

   1.2 If no RAT on the UPLMN RAT priority list is available, the UE searches for PLMNs in the OPLMN list.

6.2.1.3.4 Method of test

Initial conditions

The UE is in manual PLMN selection mode.

Cell levels are from tables 6.3, 6.4 and 6.5.

Cell	CPICH_Ec [dBm/3.84 MHz] (FDD)	P-CCPCH_RSCP [dBm] (TDD)	Test Channel	PLMN	Radio Access Technology
Cell 1	-72	-59	1	PLMN 3	UTRAN
Cell 3	-75	-64	2	PLMN 4	UTRAN
Cell 5	-78	-69	3	PLMN 5	UTRAN

Cell	RF signal level [dBm]	Test Channel	PLMN	Radio Access Technology
Cell 2	-48	1	PLMN 3	GSM
Cell 4	-50	2	PLMN 4	GSM

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}		PLMN 1	
$EF_{HPLMNwAcT}$	1st	PLMN2	UTRAN
	2nd	PLMN2	GSM
$EF_{PLMNwAcT}$	1st	PLMN 3	UTRAN
	2nd	PLMN 4	GSM
$EF_{OPLMNwAcT}$	1st	PLMN 5	UTRAN
	2nd	PLMN 6	GSM

The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN2.

Test procedure

Method C is applied.

a) The SS activates cells 1-5 and monitors the cells for random access requests from the UE.

b) The UE is switched on.

c) PLMN3 (UTRAN) shall be selected when the PLMN list is presented.

d) The SS waits for random access requests from the UE.

e) Cell 1 and Cell 2 are switched off. See note.

f) PLMN4 (GSM) shall be selected when the PLMN list is presented.

g) The SS waits for random access requests from the UE.

h) Cell 4 and Cell 3 are switched off. See note.

i) PLMN5 (UTRAN) shall be selected when the PLMN list is presented.

j) The SS waits for random access requests from the UE.

NOTE: When the serving cell (Cell 1 in step e and Cell 4 in step h) is switched off then the UE will trigger the recovery from lack of coverage scenario (TS 23.122 clause 4.4.3.1). The UE will search for a cell within the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the UE is capable of. Thus Cell 2 in step e and Cell 3 in step h need to be switched off.

6.2.1.3.5 Test Requirements

1) In step c), the list shall be presented. It shall contain in priority PLMN3 (UTRAN), PLMN4 (GSM), other PLMNs.

2) In step d), the response from the UE shall be on Cell 1 (1st priority RAT for $EF_{PLMNwAcT}$). The displayed PLMN shall be PLMN3 (UTRAN).

3) In step f), the list shall be presented. It shall contain in priority PLMN4 (GSM), PLMN5 (UTRAN), other PLMNs.

4) In step g), the response from the UE shall be on Cell 4 (2nd priority RAT for $EF_{PLMNwACT}$). The displayed PLMN shall be PLMN4 (GSM).

5) In step i), the list shall be presented. It shall contain as highest priority PLMN5 (UTRAN).

6) In step j), the response from the UE shall be on Cell 5 (1st priority RAT for $EF_{OPLMNwAcT}$). The displayed PLMN shall be PLMN5 (UTRAN).

6.2.1.4 Selection of RAT for OPLMN; Manual mode

6.2.1.4.1 Definition

Test to verify that the UE selects the OPLMN RAT according to the OPLMN RAT priority list on the USIM. If no PLMN/RAT on the OPLMN RAT priority list is available then the UE shall search for other PLMN/access technology combinations with received high quality signal in random order.

6.2.1.4.2 Conformance requirement

1. Manual Network Selection Mode Procedure:

   The MS indicates whether there are any PLMNs, which are available using all supported access technologies. This includes PLMNs in the "forbidden PLMNs" list and PLMNs which only offer services not supported by the MS.

   If displayed, PLMNs meeting the criteria above are presented in the following order:

   1.1 HPLMN;

   1.2 PLMNs contained in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   1.3 PLMNs contained in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   1.4 Other PLMN/access technology combinations with received high quality signal in random order;

   1.5 Other PLMN/access technology combinations in order of decreasing signal quality.

   The user may select his desired PLMN and the MS then initiates registration on this PLMN using the access technology chosen by the user for that PLMN or using the highest priority available access technology for that PLMN, if the associated access technologies have a priority order. (This may take place at any time during the presentation of PLMNs). For such a registration, the MS shall ignore the contents of the "forbidden LAs for roaming", "forbidden LAs for regional provision of service", "forbidden PLMNs for GPRS service" and "forbidden PLMNs" lists.

If the user does not select a PLMN, the selected PLMN shall be the one that was selected before the PLMN selection procedure started. If no such PLMN was selected or that PLMN is no longer available, then the MS shall attempt to camp on any acceptable cell and enter the limited service state.

NOTE: It is an MS implementation option whether to indicate access technologies to the user. If the MS does display access technologies, then the access technology used should be the access technology chosen by the user for that PLMN. If the MS does not display access technologies, then the access technology chosen for a particular PLMN should be the highest priority available access technology for that PLMN, if the associated access technologies have a priority order.

References

1. TS 23.122, clause 4.4.3.1.2.

NOTE: TS 31.102 defines the USIM fields.

6.2.1.4.3 Test purpose

1. To verify that:

1.1 the UE selects the OPLMN RAT according to the OPLMN RAT priority list on the USIM.

1.2 If no PLMN/RAT on the OPLMN RAT priority list is available, the UE searches for "other PLMN/access technology combinations with received high quality signal in random order".

6.2.1.4.4 Method of test

Initial conditions

The UE is in manual PLMN selection mode.

Cell levels are from tables 6.3, 6.4 and 6.5.

Cell	CPICH_Ec [dBm/3.84 MHz] (FDD)	P-CCPCH_RSCP [dBm] (TDD)	Test Channel	PLMN	Radio Access Technology
Cell 1	-72	-59	1	PLMN 5	UTRAN
Cell 3	-75	-64	2	PLMN 6	UTRAN
Cell 5	-78	-69	3	PLMN 7	UTRAN

Cell	RF signal level [dBm]	Test Channel	PLMN	Radio Access Technology
Cell 2	-48	1	PLMN 5	GSM
Cell 4	-50	2	PLMN 6	GSM

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}		PLMN 1	
$EF_{HPLMNwAcT}$	1st	PLMN2	UTRAN
	2nd	PLMN2	GSM
$EF_{PLMNwAcT}$	1st	PLMN 3	UTRAN
	2nd	PLMN 4	GSM
$EF_{OPLMNwAcT}$	1st	PLMN 5	UTRAN
	2nd	PLMN 6	GSM

The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN2.

Test procedure

Method C is applied.

a) The SS activates cells 1-5 and monitors the cells for random access requests from the UE.

b) The UE is switched on.

c) PLMN5 (UTRAN) shall be selected when the PLMN list is presented.

d) The SS waits for random access requests from the UE.

e) Cell 1 and Cell2 are switched off. See note.

f) PLMN6 (GSM) shall be selected when the PLMN list is presented.

g) The SS waits for random access requests from the UE.

h) Cell 4 and Cell 3 are switched off. See note.

i) PLMN7 (UTRAN) shall be selected when the PLMN list is presented.

j) The SS waits for random access requests from the UE.

NOTE: When the serving cell (Cell 1 in step e and Cell 4 in step h) is switched off then the UE will trigger the recovery from lack of coverage scenario (TS 23.122 clause 4.4.3.1). The UE will search for a cell within the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the UE is capable of. Thus Cell 2 in step e and Cell 3 in step h need to be switched off.

6.2.1.4.5 Test Requirements

1) In step c), the list shall be presented. It shall contain in priority PLMN5 (UTRAN), PLMN6 (GSM), other PLMNs.

2) In step d), the response from the UE shall be on Cell 1 (1st priority RAT for $EF_{OPLMNwAcT}$). The displayed PLMN shall be PLMN5 (UTRAN).

3) In step f), the list shall be presented. It shall contain as highest priority PLMN6 (GSM) followed by PLMN5 (GSM), PLMN6 (UTRAN) and PLMN7 (UTRAN) in random order.

4) In step g), the response from the UE shall be on Cell 4 (2nd priority RAT for $EF_{OPLMNwAcT}$). The displayed PLMN shall be PLMN6 (GSM).

5) In step i), the list shall be presented. It shall contain PLMN5 (GSM), PLMN6 (UTRAN) and PLMN7 (UTRAN) in random order.

6) In step j), the response from the UE shall be on Cell 5. The displayed PLMN shall be PLMN7 (UTRAN).

6.2.1.5 Selection of "Other PLMN / access technology combinations"; Manual mode

6.2.1.5.1 Definition

Test to verify that if neither RPLMN, HPLMN, UPLMN nor OPLMN is available, the UE tries to obtain registration on "Other PLMN/access technology combinations with received high quality signal in random order". Forbidden PLMNs shall also by displayed in the list.

6.2.1.5.2 Conformance requirement

1. Manual Network Selection Mode Procedure:

   The MS indicates whether there are any PLMNs, which are available using all supported access technologies. This includes PLMNs in the "forbidden PLMNs" list and PLMNs which only offer services not supported by the MS.

   If displayed, PLMNs meeting the criteria above are presented in the following order:

1.1 HPLMN;

1.2 PLMNs contained in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

1.3 PLMNs contained in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

1.4 Other PLMN/access technology combinations with received high quality signal in random order;

1.5 Other PLMN/access technology combinations in order of decreasing signal quality.

In 1.5, the MS shall order the PLMN/access technology combinations in order of decreasing signal quality within each access technology. The order between PLMN/access technology combinations with different access technologies is an MS implementation issue.

The user may select his desired PLMN and the MS then initiates registration on this PLMN using the access technology chosen by the user for that PLMN or using the highest priority available access technology for that PLMN, if the associated access technologies have a priority order. (This may take place at any time during the presentation of PLMNs). For such a registration, the MS shall ignore the contents of the "forbidden LAs for roaming", "forbidden LAs for regional provision of service", "forbidden PLMNs for GPRS service" and "forbidden PLMNs" lists.

If the user does not select a PLMN, the selected PLMN shall be the one that was selected before the PLMN selection procedure started. If no such PLMN was selected or that PLMN is no longer available, then the MS shall attempt to camp on any acceptable cell and enter the limited service state.

NOTE: It is an MS implementation option whether to indicate access technologies to the user. If the MS does display access technologies, then the access technology used should be the access technology chosen by the user for that PLMN. If the MS does not display access technologies, then the access technology chosen for a particular PLMN should be the highest priority available access technology for that PLMN, if the associated access technologies have a priority order.

2. UTRA case: The UE shall scan all RF channels in the UTRA band according to its capabilities to find available PLMNs. On each carrier, the UE shall search for the strongest cell according to the cell search procedures (for FDD, see TS 25.214, and TDD, see TS 25.224) and read its system information, in order to find out which PLMN the cell belongs to. If the UE can read the PLMN identity, the found PLMN shall be reported to the NAS as a high quality PLMN (but without the RSCP value), provided that the following high quality criterion is fulfilled:

   - For an FDD cell, the measured primary CPICH RSCP value shall be greater than or equal to -95 dBm.
   - For a TDD cell, the measured P-CCPCH RSCP value shall be greater than or equal to –84 dBm.

   Found PLMNs that do not satisfy the high quality criterion, but for which the UE has been able to read the PLMN identities are reported to the NAS together with the CPICH RSCP value for UTRA FDD cells and P-CCPCH RSCP for UTRA TDD cells.

3. GSM case: A PLMN shall be understood to be received with high quality signal if the signal level is above -85 dBm.

References

1. TS 23.122, clause 4.4.3.1.2.
2. TS 25.304, clause 5.1.2.2.
3. TS 03.22, clause 4.4.3.

NOTE: TS 31.102 defines the USIM fields.

6.2.1.5.3 Test purpose

1. To verify that if neither RPLMN, HPLMN, UPLMN nor OPLMN is available, the UE tries to obtain registration on "Other PLMN/access technology combinations with received high quality signal in random order".

2. To verify that forbidden PLMNs are also displayed in the list.

6.2.1.5.4 Method of test

Initial conditions

The UE is in manual PLMN selection mode.

Cell levels are from tables 6.3, 6.4 and 6.5.

Cell	CPICH_Ec [dBm/3.84 MHz] (FDD)	P-CCPCH_RSCP [dBm] (TDD)	High Quality signal	Test Channel	PLMN	Radio Access Technology
Cell 1	-80	-74	Yes	1	PLMN 7	UTRAN
Cell 3	-80	-69	Yes	2	PLMN 9	UTRAN

Cell	RF signal level [dBm]	High Quality signal	Test Channel	PLMN	Radio Access Technology
Cell 2	-65	Yes	1	PLMN 8	GSM
Cell 4	-65	Yes	3	PLMN 11	GSM

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}		PLMN 7	
EF_{FPLMN}	PLMN 8		
	PLMN 9		

Test procedure

Method C is applied.

a) The SS activates cells 1-4 and monitors the cells for random access requests from the UE.

b) The UE is switched on.

c) PLMN7 shall be selected when the PLMN list is presented.

d) The SS waits for random access requests from the UE.

e) Cell 1 is switched off.

f) PLMN8 shall be selected when the PLMN list is presented. The SS shall accept the Registration Request from the UE.

g) The SS waits for random access requests from the UE.

h) Cell 2 is switched off.

i) PLMN9 shall be selected when the PLMN list is presented. The SS shall accept the Registration Request from the UE.

j) The SS waits for random access requests from the UE.

k) Cell 3 is switched off.

l) PLMN11 shall be selected when the PLMN list is presented.

m) The SS waits for random access requests from the UE.

n) Cell 4 is switched off.

6.2.1.5.5 Test Requirements

In all steps, the PLMN priority list shall be as follows: PLMN7, PLMN8, PLMN9 and PLMN11 in random order.

1) In step c), the list shall be presented and contain PLMN7, 8, 9, 11.

2) In step d), the response from the UE shall be on Cell 1. The displayed PLMN shall be PLMN7.

3) In step f), the list shall be presented and contain PLMN 8, 9, 11.

4) In step g), the response from the UE shall be on Cell 2. The displayed PLMN shall be PLMN8.

5) In step i), the list shall be presented and contain PLMN9, 11.

6) In step j), the response from the UE shall be on Cell 3. The displayed PLMN shall be PLMN9.

7) In step l), the list shall be presented and contain PLMN11. The displayed PLMN shall be PLMN11.

8) After step n), the UE shall inform that no network is available

6.2.1.6 Selection of RAT for HPLMN; Automatic mode

6.2.1.6.1 Definition

Test to verify that the UE selects the HPLMN RAT according to the HPLMN RAT priority list on the USIM. If no RAT on the list is available, the UE shall try to obtain registration on the same PLMN using other UE-supported RATs.

6.2.1.6.2 Conformance requirement

1. To allow provision for multiple HPLMN codes, the HPLMN access technologies are stored on the SIM together with PLMN codes. This version of the specification does not support multiple HLPMN codes and the "HPLMN Selector with Access Technology" data field is only used by the MS to get the HPLMN access technologies. The HPLMN code is the PLMN code included in the IMSI.

2. Automatic Network Selection Mode Procedure:

   The MS selects and attempts registration on other PLMNs, if available and allowable in the following order:

   i) HPLMN (if not previously selected);

   ii) Each PLMN in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   iii) Each PLMN in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   iv) Other PLMN/access technology combinations with received high quality signal in random order;

   v) Other PLMN/access technology combinations in order of decreasing signal quality.

   If successful registration is achieved, the MS indicates the selected PLMN.

   If registration cannot be achieved because no PLMNs are available and allowable, the MS indicates "no service" to the user, waits until a new PLMN is available and allowable and then repeats the procedure.

   If there were one or more PLMNs which were available and allowable, but an LR failure made registration on those PLMNs unsuccessful or an entry in the "forbidden LAs for regional provision of service" list prevented a registration attempt, the MS selects the first such PLMN again and enters a limited service state.

Alternative 3a for R99, Rel-4 and Rel-5:

3a. In i [HPLMN (if not previously selected)], the MS shall search for all access technologies it is capable of. The MS shall start its search using the access technologies stored in the "HPLMN Selector with Access Technology" data field on the SIM in priority order as defined in 23.122 clause 4.4.3 (i.e. the PLMN/access technology combinations are listed in priority order, if an entry includes more than one access technology then no priority is defined for the preferred access technology and the priority is an implementation issue).

Alternative 3b for all releases (from R99 onwards):

3b. In i [HPLMN (if not previously selected)], the MS shall search for all access technologies it is capable of. No priority is defined for the preferred access technology and the priority is an implementation issue, but "HPLMN Selector with Access Technology" data field on the SIM may be used to optimise the procedure.

References

1. TS 23.122, clause 4.4.3.

2. TS 23.122, clause 4.4.3.1.1.

3a. TS 23.122, clause 4.4.3.1.1 f)

3b. TS 23.122 (Rel-6), clause 4.4.3.1.1 f)

NOTE: TS 31.102 defines the USIM fields.

6.2.1.6.3 Test purpose

1. To verify that:

   1.1 the UE searches for a HPLMN RAT according to the HPLMN Selector with Access Technology data field on the USIM in priority order. If the UE is not using HPLMN Selector with Access Technology data field on the USIM, there is no priority order for the RAT.

   1.2 If no RAT on the priority list is available, the UE tries to obtain registration on the same PLMN using other UE-supported RATs.

6.2.1.6.4 Method of test

Related ICS/IXIT statements

- Access technology priority supported in HPLMNwACT field – yes/no.

Initial conditions

The UE is in automatic PLMN selection mode.

Cell levels are from tables 6.3, 6.4 and 6.5.

Cell	CPICH_Ec [dBm/3.84 MHz] (FDD)	P-CCPCH_RSCP [dBm] (TDD)	Test Channel	PLMN	Radio Access Technology
Cell 1	-70	-59	1	PLMN 2	UTRAN
Cell 3	-60	-60	2	PLMN 3	UTRAN

Cell	RF signal level [dBm]	Test Channel	PLMN	Radio Access Technology
Cell 2	-48	1	PLMN 2	GSM

The UE is equipped with a USIM containing default values except for those listed below.

USIM A

USIM field	Priority	PLMN	Access Technology Identifier
$EF_{HPLMNwAcT}$	1st	PLMN2	UTRAN
	2nd	PLMN2	GSM
$EF_{PLMNwAcT}$	1ST	PLMN3	UTRAN

The HPLMN (MCC+MNC) of the IMSI for USIM A is set to PLMN2.

USIM B

USIM field	Priority	PLMN	Access Technology Identifier
$EF_{HPLMNwAcT}$	1st	PLMN2	UTRAN
	2nd	PLMN2	
$EF_{PLMNwAcT}$	1ST	PLMN3	UTRAN

The HPLMN (MCC+MNC) of the IMSI for USIM B is set to PLMN2.

Test procedure

Method C is applied.

a) The SS activates cells 1-3 and monitors the cells for random access requests from the UE. The UE shall have a USIM with settings according to USIM A.

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) The UE is switched off. All cells except Cell 1 are active. The UE is switched on.

e) The SS waits for random access requests from the UE.

f) The UE is switched off and a USIM with settings according to USIM B is inserted. All cells except Cell 1 are active.

g) The UE is switched on.

h) The SS waits for random access requests from the UE.

6.2.1.6.5 Test Requirements

1) In step c), the response from the UE shall be on Cell 1 (1st priority RAT for $EF_{HPLMNwAcT}$). The displayed PLMN shall be PLMN2 (UTRAN). If the UE is not using HPLMN Selector with Access Technology data field on the USIM or if UE is Rel-6 or higher, the response from the UE shall be either on Cell 1 or Cell 2. The displayed PLMN shall be PLMN2 (either UTRAN or GSM).

2) In step e), the response from the UE shall be on Cell 2. The displayed PLMN shall be PLMN2 (GSM).

3) In step h), the response from the UE shall be on Cell 2. The displayed PLMN shall be PLMN2 (GSM).

6.2.1.7 Selection of RAT for UPLMN; Automatic mode

6.2.1.7.1 Definition

Test to verify that the UE selects the UPLMN RAT according to the UPLMN RAT priority list on the USIM. If no PLMN/RAT on the UPLMN RAT priority list is available then the UE shall search for PLMNs in the OPLMN list.

6.2.1.7.2 Conformance requirement

1. Automatic Network Selection Mode Procedure:

   The MS selects and attempts registration on other PLMNs, if available and allowable in the following order:

   1.1 HPLMN (if not previously selected);

   1.2 Each PLMN in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   1.3 Each PLMN in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   1.4 Other PLMN/access technology combinations with received high quality signal in random order;

   1.5 Other PLMN/access technology combinations in order of decreasing signal quality.

   If successful registration is achieved, the MS indicates the selected PLMN.

   If registration cannot be achieved because no PLMNs are available and allowable, the MS indicates "no service" to the user, waits until a new PLMN is available and allowable and then repeats the procedure.

   If there were one or more PLMNs which were available and allowable, but an LR failure made registration on those PLMNs unsuccessful or an entry in the "forbidden LAs for regional provision of service" list prevented a registration attempt, the MS selects the first such PLMN again and enters a limited service state.

References

1. TS 23.122, clause 4.4.3.1.1.

NOTE: TS 31.102 defines the USIM fields.

6.2.1.7.3 Test purpose

1. To verify that:

   1.1 the UE selects the UPLMN RAT according to the UPLMN RAT priority list on the USIM.

   1.2 If no PLMN/RAT on the UPLMN RAT priority list is available, the UE searches for PLMNs in the OPLMN list.

6.2.1.7.4 Method of test

Initial conditions

The UE is in automatic PLMN selection mode.

Cell levels are from tables 6.3, 6.4 and 6.5.

In system information broadcast in each cell, the neighbouring cell list does not contain any other cell belonging to the same PLMN.

Cell	CPICH_Ec [dBm/3.84 MHz] (FDD)	P-CCPCH [dBm] (TDD)	Test Channel	PLMN	Radio Access Technology
Cell 1	-70	-59	1	PLMN 3	UTRAN
Cell 3	-75	-64	2	PLMN 4	UTRAN
Cell 5	-80	-69	3	PLMN 5	UTRAN

Cell	RF signal level [dBm]	Test Channel	PLMN	Radio Access Technology
Cell 2	-48	1	PLMN 3	GSM
Cell 4	-50	2	PLMN 4	GSM

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN	Access Technology Identifier
$EF_{HPLMNwAcT}$	1st	PLMN2	UTRAN
	2nd	PLMN2	GSM
$EF_{PLMNwAcT}$	1st	PLMN 3	UTRAN
	2nd	PLMN 4	GSM
$EF_{OPLMNwAcT}$	1st	PLMN 5	UTRAN
	2nd	PLMN 6	GSM

The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN2.

UE is previously registered on PLMN 1, before switched off.

Test procedure

Method C is applied.

a) The SS activates cells 1-5 and monitors the cells for random access requests from the UE.

b) The UE is switched on.

c) The SS waits for random access requests from the UE. As no cell exists for neither registered PLMN (PLMN1) nor home PLMN/RAT (PLMN2, UTRAN or GSM) the UE shall select Cell 1 (1st priority PLMN/RAT in $EF_{PLMNwAcT}$).

d) Cell 1 and Cell 2 are switched off. See note.

e) The SS waits for random access requests from the UE. As no cell exists for neither registered PLMN (PLMN3 registered at step c), home PLMN (PLMN2, UTRAN or GSM) nor any cells for the 1st priority PLMN/RAT in $EF_{PLMNwAcT}$ (PLMN3/UTRAN) then UE shall select Cell 4 (2nd priority PLMN/RAT in $EF_{PLMNwAcT}$).

f) Cell 4 and Cell 3 are switched off. See note.

g) The SS waits for random access requests from the UE. As no cell exists for neither registered PLMN (PLMN4 registered at step e), home PLMN (PLMN2, UTRAN or GSM) nor user controlled PLMN/RAT (PLMN3/UTRAN or PLMN4/GSM) then UE shall select Cell 5 (1st priority RAT for $EF_{OPLMNwAcT}$).

NOTE: When the serving cell (Cell 1 in step d and Cell 4 in step f) is switched off then the UE will trigger the recovery from lack of coverage scenario (TS 23.122 clause 4.4.3.1). The UE will search for a cell within the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the UE is capable of. Thus need Cell 2 in step d and Cell 3 in step f to be switched off.

6.2.1.7.5 Test Requirements

1) In step c), the response from the UE shall be on Cell 1 (1st priority RAT for $EF_{PLMNwAcT}$). The displayed PLMN shall be PLMN3 (UTRAN).

2) In step e), the response from the UE shall be on Cell 4 (2nd priority RAT for $EF_{PLMNwAcT}$). The displayed PLMN shall be PLMN4 (GSM).

3) In step g), the response from the UE shall be on Cell 5 (1st priority RAT for $EF_{OPLMNwAcT}$). The displayed PLMN shall be PLMN5 (UTRAN).

6.2.1.8 Selection of RAT for OPLMN; Automatic mode

6.2.1.8.1 Definition

Test to verify that the UE selects the OPLMN RAT according to the OPLMN RAT priority list on the USIM. If no PLMN/RAT on the OPLMN list is available then the UE shall search for other PLMN/access technology combinations with received high quality signal in random order.

6.2.1.8.2 Conformance requirement

1. Automatic Network Selection Mode Procedure:

   The MS selects and attempts registration on other PLMNs, if available and allowable in the following order:

   1.1 HPLMN (if not previously selected);

   1.2 Each PLMN in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   1.3 Each PLMN in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   1.4 Other PLMN/access technology combinations with received high quality signal in random order;

   1.5 Other PLMN/access technology combinations in order of decreasing signal quality.

   If successful registration is achieved, the MS indicates the selected PLMN.

   If registration cannot be achieved because no PLMNs are available and allowable, the MS indicates "no service" to the user, waits until a new PLMN is available and allowable and then repeats the procedure.

   If there were one or more PLMNs which were available and allowable, but an LR failure made registration on those PLMNs unsuccessful or an entry in the "forbidden LAs for regional provision of service" list prevented a registration attempt, the MS selects the first such PLMN again and enters a limited service state.

References

1. TS 23.122, clause 4.4.3.1.1.

NOTE: TS 31.102 defines the USIM fields.

6.2.1.8.3 Test purpose

1. To verify that:

   1.1 the UE selects the OPLMN RAT according to the OPLMN RAT priority list on the USIM.

   1.2 If no PLMN/RAT on the OPLMN RAT priority list is available, the UE searches for "other PLMN/access technology combinations with received high quality signal in random order".

6.2.1.8.4 Method of test

Initial conditions

The UE is in automatic PLMN selection mode.

Cell levels are from tables 6.3, 6.4 and 6.5.

In system information broadcast in each cell, the neighbouring cell list does not contain any other cell belonging to the same PLMN.

Cell	CPICH_Ec [dBm/3.84 MHz] (FDD)	P-CCPCH_RSCP [dBm] (TDD)	Test Channel	PLMN	Radio Access Technology
Cell 1	-70	-59	1	PLMN 5	UTRAN
Cell 3	-75	-64	2	PLMN 6	UTRAN
Cell 5	-80	-69	3	PLMN 7	UTRAN

Cell	RF signal level [dBm]	Test Channel	PLMN	Radio Access Technology
Cell 2	-48	1	PLMN 5	GSM
Cell 4	-50	2	PLMN 6	GSM

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN	Access Technology Identifier
$EF_{HPLMNwAcT}$	1st	PLMN2	UTRAN
	2nd	PLMN2	GSM
$EF_{PLMNwAcT}$	1st	PLMN 3	UTRAN
	2nd	PLMN 4	GSM
$EF_{OPLMNwAcT}$	1st	PLMN 5	UTRAN
	2nd	PLMN 6	GSM

The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN2.

UE is previously registered on PLMN 1, before switched off.

Test procedure

Method C is applied.

a) The SS activates cells 1-5 and monitors the cells for random access requests from the UE.

b) The UE is switched on.

c) The SS waits for random access requests from the UE. As no cell exists for neither registered PLMN (PLMN1), home PLMN/RAT (PLMN2, UTRAN or GSM) nor user controlled PLMN/RAT (PLMN3/UTRAN or PLMN4/GSM) then the UE shall select Cell 1 (1st priority RAT for $EF_{OPLMNwAcT}$).

d) Cell 1 and Cell 2 are switched off. See note.

e) The SS waits for random access requests from the UE. As no cell exists for neither registered PLMN (PLMN5 registered in step c), home PLMN/RAT (PLMN2, UTRAN or GSM), user controlled PLMN/RAT (PLMN3/UTRAN or PLMN4/GSM) nor any cells for the 1st priority PLMN/RAT in $EF_{OPLMNwAcT}$ (PLMN5/UTRAN) then UE shall select Cell 4 (2nd priority PLMN/RAT in $EF_{OPLMNwAcT}$).

f) Cell 4 and Cell 3 are switched off. See note.

g) The SS waits for random access requests from the UE. As no cell exists for neither registered PLMN (PLMN6 registered in step e), home PLMN/RAT (PLMN2, UTRAN or GSM), user controlled PLMN/RAT (PLMN3/UTRAN or PLMN4/GSM) nor operator controlled PLMN/RAT (PLMN5/UTRAN or PLMN6/GSM) then UE shall select another PLMN/access technology combinations with received high quality signal in random order (Cell 5).

NOTE: When the serving cell (Cell 1 in step d and Cell 4 in step f) is switched off then the UE will trigger the recovery from lack of coverage scenario (TS 23.122 clause 4.4.3.1). The UE will search for a cell within the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the UE is capable of. Thus need Cell 2 in step d and Cell 3 in step f to be switched off.

6.2.1.8.5 Test Requirements

1) In step c), the response from the UE shall be on Cell 1 (1st priority RAT for $EF_{OPLMNwAcT}$). The displayed PLMN shall be PLMN5 (UTRAN).

2) In step e), the response from the UE shall be on Cell 4 (2nd priority RAT for $EF_{OPLMNwAcT}$). The displayed PLMN shall be PLMN6 (GSM).

3) In step g), the response from the UE shall be on either Cell 5 (other PLMN/access technology combination) with associated PLMN7 (UTRAN) shown.

6.2.1.8a Selection of RAT for OPLMN; Different ITU regions

In the initial conditions the assignment of ITU region A and ITU region B depends on the selected operation band under test. The FDD frequency bands used in different ITU regions are indicated in table 6.2A. Test channel configurations for the FDD frequency bands are specified in Table 6.3B.

For the case that operation band under test belongs to ITU region 2 (A=2, B=1) following channel configuration is used:

- UTRAN test channel 1 and UTRAN test channel 4 uses primary FDD band for ITU region 2.

- UTRAN test channel 2 and UTRAN test channel 3 uses secondary FDD band for ITU region 2.

- Test channel configurations for the GSM frequency bands are specified in Table 6.6.

  - GSM test channel 1 uses primary GSM band for ITU region 2 or alternatively as secondary GSM band for ITU region 1 if the UE does not support any GSM band in ITU region 2.

  - GSM test channel 2 uses primary GSM band for ITU region 1.

  - GSM test channel 3 uses secondary GSM band for ITU region 1.

For the case that operation band under test belongs to ITU region 1 (A=1, B=2) following channel configuration is used:

- UTRAN test channel 1 and UTRAN test channel 4 uses primary FDD band for ITU region 1.

- UTRAN test channel 2 and UTRAN test channel 3 uses secondary FDD band for ITU region 1.

- Test channel configurations for the GSM frequency bands are specified in Table 6.7.

  - GSM test channel 1 uses primary GSM band for ITU region 1 or alternatively as secondary GSM band for ITU region 2 if the UE does not support any GSM band in ITU region 1.

  - GSM test channel 2 uses primary GSM band for ITU region 2.

  - GSM test channel 3 uses secondary GSM band for ITU region 2.

Primary and secondary FDD and GSM bands for both ITU regions are selected according to PIXIT parameters.

6.2.1.8a.1 Selection of RAT for OPLMN; Different ITU regions; Automatic mode

6.2.1.8a.1.1 Definition and applicability

Test to verify that at switch on or following recovery from lack of coverage, the UE selects the registered PLMN. The UE performs Multi-Band Multi-RAT PLMN selection between frequency bands of different ITU regions according to the "Operator Controlled PLMN Selector with Access Technology" priority list on the USIM. If the UE is in a VPLMN it periodically attempts to obtain service on its HPLMN or higher priority PLMN according HPLMN Search Period on the USIM.

Test is applicable for UEs supporting FDD and GSM and at least one frequency band of different ITU region in each RAT.

6.2.1.8a.1.2 Conformance requirement

1. At switch on, or following recovery from lack of coverage, the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see clause 4.5.2) attempts to perform a Location Registration.

   …

   If successful registration is achieved, the MS indicates the selected PLMN.

   If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows one of the following two procedures depending on its operating mode.

2. The MS selects and attempts registration on other PLMN/access technology combinations, if available and allowable, in the following order:

   i) either the HPLMN (if the EHPLMN list is not present or is empty) or the highest priority EHPLMN that is available (if the EHPLMN list is present) ;

   ii) each PLMN/access technology combination in the "User Controlled PLMN Selector with Access Technology" data file in the SIM (in priority order);

   iii) each PLMN/access technology combination in the "Operator Controlled PLMN Selector with Access Technology" data file in the SIM (in priority order);

   …

   If successful registration is achieved, the MS indicates the selected PLMN.

3. If the MS is in a VPLMN, the MS shall periodically attempt to obtain service on its HPLMN (if the EHPLMN list is not present or is empty) or one of its EHPLMNs (if the EHPLMN list is present) or a higher priority PLMN/access technology combinations listed in "user controlled PLMN selector" or "operator controlled PLMN selector" by scanning in accordance with the requirements that are applicable to i), ii) and iii) as defined in the Automatic Network Selection Mode in clause 4.4.3.1.1.

   …

   The attempts to access the HPLMN or an EHPLMN or higher priority PLMN shall be as specified below:

   a) The periodic attempts shall only be performed in automatic mode when the MS is roaming;

   b) After switch on, a period of at least 2 minutes and at most T minutes shall elapse before the first attempt is made;

   c) The MS shall make an attempt if the MS is on the VPLMN at time T after the last attempt;

   d) Periodic attempts shall only be performed by the MS while in idle mode;

   e) If the HPLMN (if the EHPLMN list is not present or is empty) or a EHPLMN (if the list is present) or a higher priority PLMN is not found, the MS shall remain on the VPLMN.

   f) In steps i), ii) and iii) of subclause 4.4.3.1.1 the MS shall limit its attempts to access higher priority PLMN/access technology combinations to PLMN/access technology combinations of the same country as the current serving VPLMN, as defined in Annex B.

References

1. TS 23.122, clause 4.4.3.1.

NOTE: TS 31.102 defines the USIM fields.

6.2.1.8a.1.3 Test purpose

1. To verify that in Automatic Network Selection Mode Procedure:

   1.1 at switch on the UE selects the registered PLMN using all access technologies that the UE is capable of.

   1.2 the UE selects the OPLMN RAT between frequency bands of different ITU regions according to the OPLMN RAT priority list on the USIM.

   1.3 the UE attempts to obtain service on its HPLMN or higher priority PLMN according to HPLMN Search Period on the USIM

6.2.1.8a.1.4 Method of test

Initial conditions

The UE is in automatic PLMN selection mode.

In the System Information broadcast in each cell, the neighbouring cell list does not contain any cell belonging to the other PLMN's.

The definition of each PLMN code is found in table below.

PLMN	MCC1	MCC2	MCC3	MNC1	MNC2	MNC3 (Note 1)	LAC (Note 3)
1	0	0	1	0	1	ITU region A	x
2	0	0	1	0	2	ITU region A	x
3	0	0	1	0	3	ITU region A else ITU region B (Note 2)	x
4	0	0	1	0	4	ITU region A	x
5	0	0	1	0	5	ITU region B	x
6	0	0	1	0	6	ITU region B	x
7	0	0	1	0	7	ITU region B	x
8	0	0	1	0	8	ITU region A	x

NOTE 1: 3rd digit of MNC value is equal to '1' if used PLMN is for ITU region 2.
NOTE 2: ITU region B may be configured if the UE does not support any GSM frequency band of ITU region A.
NOTE 3: 'x' denotes any value.

Step a-f:

Cell	CPICH_Ec [dBm/3.84 MHz] (FDD)	Test Channel	Frequency band used in ITU region (Note)	PLMN	Radio Access Technology
Cell 1	-70	1	A	PLMN 2	UTRAN
Cell 3	-76	2	A	PLMN 4	UTRAN

Note: The test may be executed with frequency bands of various ITU region combinations. Different FDD frequency bands shall be defined for the cells if the UE supports two FDD frequency bands of same ITU region (e.g. FDD II for Cell 1 and FDD V for Cell 3 for ITU region 2).

Cell	RF signal level [dBm]	Test Channel	Frequency band used in ITU region (Note)	PLMN	Radio Access Technology
Cell 2	-48	1	A else B	PLMN 3	GSM
Cell 4	-52	2	B	PLMN 5	GSM
Note: The test may be executed with frequency bands of various ITU region combinations. GSM frequency band of ITU region B may be configured if the UE does not support any GSM frequency band of ITU region A.					

Step g-h:

Cell	CPICH_Ec [dBm/3.84 MHz] (FDD)	Test Channel	Frequency band used in ITU region (Note)	PLMN	Radio Access Technology
Cell 5	-70	3	A	PLMN 8	UTRAN
Cell 7	-76	4	A	PLMN 3	UTRAN
Note: The test may be executed with frequency bands of various ITU region combinations. Different FDD frequency bands shall be defined for the cells if the UE supports two FDD frequency bands of same ITU region (e.g. FDD II for Cell 7 and FDD V for Cell 5 for ITU region 2). Different FDD frequency bands shall be defined for FDD Cell 1 and Cell 5 if the UE supports two FDD frequency bands of same ITU region (e.g. in case of ITU region 2 FDD II for Cell 1 and FDD V for Cell 5 may be configured).					

Cell	RF signal level [dBm]	Test Channel	Frequency band used in ITU region (Note)	PLMN	Radio Access Technology
Cell 6	-48	3	B	PLMN 7	GSM
Cell 4	-52	2	B	PLMN 5	GSM
Note: The test may be executed with frequency bands of various ITU region combinations. Different GSM frequency bands shall be defined for the cells if the UE supports two GSM frequency bands of same ITU region (e.g. in case of ITU region 1 GSM 900 for Cell 6 and GSM 1800 for Cell 4 may be configured).					

The HPLMN Search Period on the USIM shall be set to 6 minutes. The UE is equipped with a USIM containing default values according to TS 34.108 section 8 except for those listed below.

USIM field	Priority	PLMN	Access Technology Identifier
$EF_{HPLMNwAcT}$	1st	PLMN 1	UTRAN
	2nd	PLMN 1	GSM
$EF_{OPLMNwAcT}$	1st	PLMN 8	UTRAN
	2nd	PLMN 8	GSM
	3rd	PLMN 7	GSM
	4th	PLMN 6	UTRAN
	5th	PLMN 6	GSM
	6th	PLMN 5	UTRAN
	7th	PLMN 5	GSM
	8th	PLMN 4	UTRAN
	9th	PLMN 3	UTRAN
	10th	PLMN 3	GSM
	11th	PLMN 2	UTRAN
	12th	PLMN 2	GSM

The $EF_{PLMNwACT}$ list shall be empty according to 3GPP TS 31.102, Annex E.

The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN 1.

UE is previously registered on PLMN 2, before switched off.

Related ICS/IXIT statement(s)

None

Test procedure

Method C is applied.

a) The SS activates Cell 1, Cell 2, Cell 3 and Cell 4 and monitors the cells for random access requests from the UE.

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) The SS starts timer of tmin = 2 minutes and tmax = (6 minutes + cell selection time) after the previous registration.

e) The SS waits for random access requests from the UE.

f) Cell 1, Cell 2 and Cell 3 are switched off.

g) The SS activates Cell 5, Cell 6 and Cell 7.

h) The SS waits for random access requests from the UE.

6.2.1.8a.1.5 Test Requirements

1. In step c), the response from the UE shall be on Cell 1 (registered PLMN). The indicated PLMN shall be PLMN 2 (UTRAN).

2. In step e), the response from the UE shall be on Cell 4 (7th priority RAT for $EF_{OPLMNwAcT}$) between tmin = 2 minutes and tmax = (6 minutes + cell selection time) seconds after the previous registration. The indicated PLMN shall be PLMN5 (GSM).

3. In step h), the response from the UE shall be on Cell 5 (1st priority RAT for $EF_{OPLMNwAcT}$) within a maximum of tmax = (6 minutes + cell selection time) after the previous registration. The indicated PLMN shall be PLMN8 (UTRAN).

6.2.1.8a.2 Selection of RAT for OPLMN; Different ITU regions; Limited service; Automatic mode

6.2.1.8a.2.1 Definition and applicability

Test to verify that at switch on or following recovery from lack of coverage, the UE selects the registered PLMN. The UE performs Multi-Band Multi-RAT PLMN selection between frequency bands of different ITU regions according to the "Operator Controlled PLMN Selector with Access Technology" priority list on the USIM. When the network rejects the idle update procedure with reject cause “PLMN not allowed” the UE shall attempt to obtain service on its HPLMN or higher priority PLMN according to the entries on the USIM.

Test is applicable for UEs supporting FDD and GSM and at least one frequency band of different ITU region in each RAT.

6.2.1.8a.2.2 Conformance requirement

1. If a message with cause value "PLMN not allowed" is received by an MS in response to an LR request from a VPLMN, that VPLMN is added to a list of "forbidden PLMNs" in the SIM and thereafter that VPLMN will not be accessed by the MS when in automatic mode.

2. The behaviour of the MS in the roaming not allowed state is dependent on the LR reject cause as shown in table 2 in clause 5. Additionally:

   - in automatic mode, "PLMN not allowed" and "roaming not allowed in this location area" cause the Automatic Network Selection procedure of clause 4.4.3.1.1 to be started;

3. At switch on, or following recovery from lack of coverage, the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see clause 4.5.2) attempts to perform a Location Registration.

   …

   If successful registration is achieved, the MS indicates the selected PLMN.

   If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows one of the following two procedures depending on its operating mode.

4. The MS selects and attempts registration on other PLMN/access technology combinations, if available and allowable, in the following order:

   i) either the HPLMN (if the EHPLMN list is not present or is empty) or the highest priority EHPLMN that is available (if the EHPLMN list is present) ;

   ii) each PLMN/access technology combination in the "User Controlled PLMN Selector with Access Technology" data file in the SIM (in priority order);

   iii) each PLMN/access technology combination in the "Operator Controlled PLMN Selector with Access Technology" data file in the SIM (in priority order);

   …

   If successful registration is achieved, the MS indicates the selected PLMN.

References

1. TS 23.122, clause 3.1, 4.3.3, 4.4.3.1.

NOTE: TS 31.102 defines the USIM fields.

6.2.1.8a.2.3 Test purpose

1. To verify that in Automatic Network Selection Mode Procedure:

   1.1 the UE selects the registered PLMN using all access technologies that the UE is capable of.

   1.2 the UE selects the OPLMN RAT between frequency bands of different ITU regions according to the OPLMN RAT priority list on the USIM.

   1.3 the UE attempts to obtain service on its HPLMN or higher priority PLMN when registration attempt is rejected with "PLMN not allowed" cause.

6.2.1.8a.2.4 Method of test

Initial conditions

The UE is in automatic PLMN selection mode.

In the System Information broadcast in each cell, the neighbouring cell list does not contain any cell belonging to the other PLMN’s.

Step a-g:

Cell	CPICH_Ec [dBm/3.84 MHz] (FDD)	Test Channel	Frequency band used in ITU region (Note)	PLMN	Radio Access Technology
Cell 1	-70	1	A	PLMN 2	UTRAN
Cell 3	-76	2	A	PLMN 4	UTRAN
Note: The test may be executed with frequency bands of various ITU region combinations. Different FDD frequency bands shall be defined for the cells if the UE supports two FDD frequency bands of same ITU region (e.g. FDD II for Cell 1 and FDD V for Cell 3 for ITU region 2).					

Cell	RF signal level [dBm]	Test Channel	Frequency band used in ITU region (Note)	PLMN	Radio Access Technology
Cell 2	-48	1	A else B	PLMN 3	GSM
Cell 4	-52	2	B	PLMN 5	GSM
Note: The test may be executed with frequency bands of various ITU region combinations. GSM frequency band of ITU region B may be configured if the UE does not support any GSM frequency band of ITU region A.					

Step h-k:

Cell	CPICH_Ec [dBm/3.84 MHz] (FDD)	Test Channel	Frequency band used in ITU region (Note)	PLMN	Radio Access Technology
Cell 5	-70	3	A	PLMN 8	UTRAN
Cell 7	-76	4	A	PLMN 3	UTRAN
Note: The test may be executed with frequency bands of various ITU region combinations. Different FDD frequency bands shall be defined for the cells if the UE supports two FDD frequency bands of same ITU region (e.g. FDD II for Cell 7 and FDD V for Cell 5 for ITU region 2). Different FDD frequency bands shall be defined for FDD Cell 1 Cell 5 if the UE supports two FDD frequency bands of same ITU region (e.g. in case of ITU region 2 FDD II for Cell 1 and FDD V for Cell 5 may be configured).					

Cell	RF signal level [dBm]	Test Channel	Frequency band used in ITU region (Note)	PLMN	Radio Access Technology
Cell 6	-48	3	B	PLMN 7	GSM
Cell 4	-52	2	B	PLMN 5	GSM
Note: The test may be executed with frequency bands of various ITU region combinations. Different GSM frequency bands shall be defined for the cells if the UE supports two GSM frequency bands of same ITU region (e.g. in case of ITU region 1 GSM 900 for Cell 6 and GSM 1800 for Cell 4 may be configured).					

The UE is equipped with a USIM containing default values according to TS 34.108 section 8 except for those listed below.

USIM field	Priority	PLMN (Note)	Access Technology Identifier
$EF_{HPLMNwAcT}$	1st	PLMN 1 (ITU region A)	UTRAN
	2nd	PLMN 1 (ITU region A)	GSM
$EF_{OPLMNwAcT}$	1st	PLMN 8 (ITU region A)	UTRAN
	2nd	PLMN 8 (ITU region A)	GSM
	3rd	PLMN 7 (ITU region B)	GSM
	4th	PLMN 6 (ITU region B)	UTRAN
	5th	PLMN 6 (ITU region B)	GSM
	6th	PLMN 5 (ITU region B)	UTRAN
	7th	PLMN 5 (ITU region B)	GSM
	8th	PLMN 4 (ITU region A)	UTRAN
	9th	PLMN 3 (ITU region A else B)	UTRAN
	10th	PLMN 3 (ITU region A else B)	GSM
	11th	PLMN 2 (ITU region A)	UTRAN
	12th	PLMN 2 (ITU region A)	GSM
NOTE: 3rd digit of MNC value is equal to '1' if used PLMNs are for ITU region 2. ITU region B may be configured if the UE does not support any GSM frequency band of ITU region A.			

The $EF_{PLMNwACT}$ list shall be empty according to 3GPP TS 31.102, Annex E.

The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN 1 (ITU region A). 3rd digit of MNC value is equal to '1' if used PLMNs are for ITU region 2.

UE is previously registered on PLMN 2, before switched off (ITU region A). 3rd digit of MNC value is equal to '1' if used PLMNs are for ITU region 2.

Related ICS/IXIT statement(s)

None

Test procedure

Method C is applied.

a) The SS activates Cell 1, Cell 2, Cell 3 and Cell 4 and monitors the cells for random access requests from the UE.

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) The registration attempt on Cell 1 is rejected by the SS using cause "PLMN not allowed" (#11).

e) The SS waits for the next random access requests from the UE.

f) The UE is switched off.

g) Cell 1, Cell 2 and Cell 3 are switched off.

h) The SS activates Cell 5, Cell 6 and Cell 7.

i) The SS waits for random access requests from the UE.

j) The registration attempt on Cell 4 is rejected by the SS using cause "PLMN not allowed" (#11).

k) The SS waits for the next random access requests from the UE.

6.2.1.8a.2.5 Test Requirements

1. In step c), the response from the UE shall be on Cell 1 (registered PLMN).

2. In step e), the response from the UE shall be on Cell 4 (7th priority RAT for $EF_{OPLMNwAcT}$) after rejection of previous registration attempt. The indicated PLMN shall be PLMN5 (GSM).

3. In step i), the response from the UE shall be on Cell 4 (registered PLMN).

4. In step k), the response from the UE shall be on Cell 5 (1st priority RAT for $EF_{OPLMNwAcT}$) after rejection of previous registration attempt. The indicated PLMN shall be PLMN8 (UTRAN).

6.2.1.8a.3 Selection of RAT for OPLMN; Different ITU regions; No service; Automatic mode

6.2.1.8a.3.1 Definition and applicability

Test to verify that at switch on or following recovery from lack of coverage, the UE selects the registered PLMN. If there is no registered PLMN or if registration is not possible due to the PLMN being unavailable the UE shall attempt to obtain service on its HPLMN or higher priority PLMN according to the entries on the USIM. The UE performs Multi-Band Multi-RAT PLMN selection between frequency bands of different ITU regions according to the "Operator Controlled PLMN Selector with Access Technology" priority list on the USIM.

Test is applicable for UEs supporting FDD and GSM and at least one frequency band of different ITU region in each RAT.

6.2.1.8a.3.2 Conformance requirement

1. At switch on, or following recovery from lack of coverage, the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see clause 4.5.2) attempts to perform a Location Registration.

   …

   If successful registration is achieved, the MS indicates the selected PLMN.

   If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows one of the following two procedures depending on its operating mode.

2. The MS selects and attempts registration on other PLMN/access technology combinations, if available and allowable, in the following order:

i) either the HPLMN (if the EHPLMN list is not present or is empty) or the highest priority EHPLMN that is available (if the EHPLMN list is present) ;

ii) each PLMN/access technology combination in the "User Controlled PLMN Selector with Access Technology" data file in the SIM (in priority order);

iii) each PLMN/access technology combination in the "Operator Controlled PLMN Selector with Access Technology" data file in the SIM (in priority order);

…

If successful registration is achieved, the MS indicates the selected PLMN.

References

1. TS 23.122, clause 4.4.3.1.

NOTE: TS 31.102 defines the USIM fields.

6.2.1.8a.3.3 Test purpose

1. To verify that in Automatic Network Selection Mode Procedure:

   1.1 the UE selects the registered PLMN using all access technologies that the UE is capable of.

   1.2 the UE selects the OPLMN RAT between frequency bands of different ITU regions according to the OPLMN RAT priority list on the USIM.

1.3 the UE attempts to obtain service on its HPLMN or higher priority PLMN when following recovery from lack of coverage (registration not possible due to the PLMN being unavailable).

6.2.1.8a.3.4 Method of test

Initial conditions

The UE is in automatic PLMN selection mode.

In the System Information broadcast in each cell, the neighbouring cell list does not contain any cell belonging to the other PLMN's.

Step a-f:

Cell	CPICH_Ec [dBm/3.84 MHz] (FDD)	Test Channel	Frequency band used in ITU region (Note)	PLMN	Radio Access Technology
Cell 1	-70	1	A	PLMN 2	UTRAN
Cell 3	-76	2	A	PLMN 4	UTRAN
Note: The test may be executed with frequency bands of various ITU region combinations. Different FDD frequency bands shall be defined for the cells if the UE supports two FDD frequency bands of same ITU region (e.g. FDD II for Cell 1 and FDD V for Cell 3 for ITU region 2).					

Cell	RF signal level [dBm]	Test Channel	Frequency band used in ITU region (Note)	PLMN	Radio Access Technology
Cell 2	-48	1	A else B	PLMN 3	GSM
Cell 4	-52	2	B	PLMN 5	GSM
Note: The test may be executed with frequency bands of various ITU region combinations. GSM frequency band of ITU region B may be configured if the UE does not support any GSM frequency band of ITU region A.					

Step g-i:

Cell	CPICH_Ec [dBm/3.84 MHz] (FDD)	Test Channel	Frequency band used in ITU region (Note)	PLMN	Radio Access Technology
Cell 5	-70	3	A	PLMN 8	UTRAN
Cell 7	-76	4	A	PLMN 3	UTRAN
Note: The test may be executed with frequency bands of various ITU region combinations. Different FDD frequency bands shall be defined for the cells if the UE supports two FDD frequency bands of same ITU region (e.g. FDD II for Cell 7 and FDD V for Cell 5 for ITU region 2). Different FDD frequency bands shall be defined for FDD Cell 1 and Cell 5 if the UE supports two FDD frequency bands of same ITU region (e.g. in case of ITU region 2 FDD II for Cell 1 and FDD V for Cell 5 may be configured).					

Cell	RF signal level [dBm]	Test Channel	Frequency band used in ITU region (Note)	PLMN	Radio Access Technology
Cell 6	-48	3	B	PLMN 7	GSM
Cell 4	-52	2	B	PLMN 5	GSM
Note: The test may be executed with frequency bands of various ITU region combinations.					

The UE is equipped with a USIM containing default values according to TS 34.108 section 8 except for those listed below.

USIM field	Priority	PLMN (Note)	Access Technology Identifier
$EF_{HPLMNwAcT}$	1st	PLMN 1 (ITU region A)	UTRAN
	2nd	PLMN 1 (ITU region A)	GSM
$EF_{OPLMNwAcT}$	1st	PLMN 8 (ITU region A)	UTRAN
	2nd	PLMN 8 (ITU region A)	GSM
	3rd	PLMN 7 (ITU region B)	GSM
	4th	PLMN 6 (ITU region B)	UTRAN
	5th	PLMN 6 (ITU region B)	GSM
	6th	PLMN 5 (ITU region B)	UTRAN
	7th	PLMN 5 (ITU region B)	GSM
	8th	PLMN 4 (ITU region A)	UTRAN
	9th	PLMN 3 (ITU region A else B)	UTRAN
	10th	PLMN 3 (ITU region A else B)	GSM
	11th	PLMN 2 (ITU region A)	UTRAN
	12th	PLMN 2 (ITU region A)	GSM
NOTE: 3rd digit of MNC value is equal to '1' if used PLMNs are for ITU region 2. ITU region B may be configured if the UE does not support any GSM frequency band of ITU region A.			

The $EF_{PLMNwACT}$ list shall be empty according to 3GPP TS 31.102, Annex E. The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN 1 (ITU region A). 3rd digit of MNC value is equal to '1' if used PLMNs are for ITU region 2.

UE is previously registered on PLMN 2, before switched off (ITU region A). 3rd digit of MNC value is equal to '1' if used PLMNs are for ITU region 2.

Related ICS/IXIT statement(s)

None

Test procedure

Method C is applied.

a) The SS activates Cell 1, Cell 2, Cell 3 and Cell 4 and monitors the cells for random access requests from the UE.

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) Cell 1 is switched off by the SS, after the previous registration.

e) The SS waits for random access requests from the UE.

f) Cell 2 and Cell 3 are switched off by the SS.

g) The SS activates Cell 5, Cell 6 and Cell 7 after the previous test step.

h) Cell 4 is switched off by the SS.

i) The SS waits for random access requests from the UE.

6.2.1.8a.3.5 Test Requirements

1. In step c), the response from the UE shall be on Cell 1 (registered PLMN). The indicated PLMN shall be PLMN 2 (UTRAN).

2. In step e), the response from the UE shall be on Cell 4 (7th priority RAT for $EF_{OPLMNwAcT}$). The indicated PLMN shall be PLMN5 (GSM).

3. In step i), the response from the UE shall be on Cell 5 (1st priority RAT for $EF_{OPLMNwAcT}$). The indicated PLMN shall be PLMN8 (UTRAN).

6.2.1.9 Selection of "Other PLMN / access technology combinations"; Automatic mode

6.2.1.9.1 Definition

Test to verify that if neither RPLMN, HPLMN, UPLMN nor OPLMN is available, the UE tries to obtain registration on "Other PLMN/access technology combinations with received high quality signal in random order".

6.2.1.9.2 Conformance requirement

1. Automatic Network Selection Mode Procedure:

   The MS selects and attempts registration on other PLMNs, if available and allowable in the following order:

   1.1 HPLMN (if not previously selected);

   1.2 Each PLMN in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   1.3 Each PLMN in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   1.4 Other PLMN/access technology combinations with received high quality signal in random order;

   1.5 Other PLMN/access technology combinations in order of decreasing signal quality.

   In 1.5, the MS shall order the PLMN/access technology combinations in order of decreasing signal quality within each access technology. The order between PLMN/access technology combinations with different access technologies is an MS implementation issue.

   If successful registration is achieved, the MS indicates the selected PLMN.

   If registration cannot be achieved because no PLMNs are available and allowable, the MS indicates "no service" to the user, waits until a new PLMN is available and allowable and then repeats the procedure.

   If there were one or more PLMNs which were available and allowable, but an LR failure made registration on those PLMNs unsuccessful or an entry in the "forbidden LAs for regional provision of service" list prevented a registration attempt, the MS selects the first such PLMN again and enters a limited service state.

2. UTRA case: The UE shall scan all RF channels in the UTRA band according to its capabilities to find available PLMNs. On each carrier, the UE shall search for the strongest cell according to the cell search procedures (for FDD, see TS 25.214, and TDD, see TS 25.224) and read its system information, in order to find out which PLMN the cell belongs to. If the UE can read the PLMN identity, the found PLMN shall be reported to the NAS as a high quality PLMN (but without the RSCP value), provided that the following high quality criterion is fulfilled:

   - For an FDD cell, the measured primary CPICH RSCP value shall be greater than or equal to -95 dBm.

   - For a TDD cell, the measured P-CCPCH RSCP shall be greater than or equal to –84 dBm.

   Found PLMNs that do not satisfy the high quality criterion, but for which the UE has been able to read the PLMN identities are reported to the NAS together with the CPICH RSCP value for UTRA FDD cells and P-CCPCH RSCP for UTRA TDD cells.

3. GSM case: A PLMN shall be understood to be received with high quality signal if the signal level is above -85 dBm.

References

1. TS 23.122, clause 4.4.3.1.1.
2. TS 25.304, clause 5.1.2.2.
3. TS 03.22, clause 4.4.3.

NOTE: TS 31.102 defines the USIM fields.

6.2.1.9.3 Test purpose

1. To verify that if neither RPLMN, HPLMN, UPLMN nor OPLMN is available, the UE tries to obtain registration on "Other PLMN/access technology combinations with received high quality signal in random order".

6.2.1.9.4 Method of test

Initial conditions

The UE is in automatic PLMN selection mode.

Cell levels are from tables 6.3, 6.4 and 6.5.

Cell	CPICH_Ec [dBm/3.84 MHz] (FDD)	P-CCPCH_RSCP [dBm] (TDD)	"High Quality signal"	Test Channel	PLMN	Radio Access Technology
Cell 1	-80	-69	Yes	1	PLMN 7	UTRAN
Cell 3	-80	-69	Yes	2	PLMN 9	UTRAN

Cell	RF signal level [dBm]	"High Quality signal"	Test Channel	PLMN	Radio Access Technology
Cell 2	-65	Yes	1	PLMN 8	GSM

UE is previously registered on PLMN7, before switched off.

Test procedure

Method C is applied.

a) The SS activates cells 1-3 and monitors the cells for random access requests from the UE.

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) The cell on which a response was received, is switched off.

e) Step c-d) is repeated until the UE informs that no network is available.

6.2.1.9.5 Test Requirements

1) In step c), the displayed PLMN is noted.

2) When the test procedure has finished, the noted PLMNs shall have appeared in the following order: PLMN7 first, then PLMN8 or PLMN9 in random order.

6.2.1.10 Void

6.2.1.11 Selection of PLMN and RAT in shared network environment, Manual Mode

6.2.1.11.1 Definition

Test to verify that the UE can present the available PLMNs in priority order to the user when asked to do so in multi-mode Shared Network environment (Manual Mode). This includes PLMNs broadcasted in UTRAN cells (IE "PLMN Identity", UTRAN IE "Multiple PLMN list") and in GSM cells. The test also verifies that displayed PLMNs can be selected by the user and that the UE attempts to access the selected PLMN. After successful registration, the selected PLMN shall be displayed to the user. The order of the displayed PLMNs shall be as specified by TS 23.122.

6.2.1.11.2 Conformance requirement

1a. At switch on or recovery from lack of coverage

At switch on, or following recovery from lack of coverage, the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see clause 4.5.2) attempts to perform a Location Registration.

EXCEPTION: In A/Gb mode an MS with voice capability, shall not search for CPBCCH carriers. In A/Gb mode an MS not supporting packet services shall not search for CPBCCH carriers.

If successful registration is achieved, the MS indicates the selected PLMN.

If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows one of the following two procedures depending on its operating mode.

EXCEPTION: If registration is not possible on recovery from lack of coverage due to the registered PLMN being unavailable, a MS attached to GPRS services may, optionally, continue looking for the registered PLMN for an implementation dependent time.

NOTE: A MS attached to GPRS services should use the above exception only if one or more PDP contexts are currently active.

1b. At switch on, or following recovery from lack of coverage, the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see clause 4.5.2) attempts to perform a Location Registration.

EXCEPTION: In A/Gb mode an MS with voice capability, shall not search for CPBCCH carriers. In A/Gb mode an MS not supporting packet services shall not search for CPBCCH carriers.

If successful registration is achieved, the MS indicates the selected PLMN.

If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows one of the following two procedures depending on its PLMN selection operating mode.

EXCEPTION: At switch on, if the MS is in manual mode and neither registered PLMN nor PLMN that is equivalent to it is available but EHPLMN is available, then instead of performing the manual network selection mode procedure of clause 4.4.3.1.2 the MS may select and attempt registration on the highest priority EHPLMN. If the EHPLMN list is not available or is empty and the HPLMN is available, then the MS may select and attempt registration on the HPLMN. The MS shall remain in manual mode.

NOTE 1: If successful registration is achieved, then the current serving PLMN becomes the registered PLMN and the MS does not store the previous registered PLMN for later use.

EXCEPTION: If registration is not possible on recovery from lack of coverage due to the registered PLMN being unavailable, an MS attached to GPRS services may, optionally, continue looking for the registered PLMN for an implementation dependent time.

NOTE2: An MS attached to GPRS services should use the above exception only if one or more PDP contexts are currently active.

2. Manual Network Selection Mode Procedure:

   The MS indicates whether there are any PLMNs, which are available using all supported access technologies. This includes PLMNs in the "forbidden PLMNs" list and PLMNs which only offer services not supported by the MS. An MS which supports GSM COMPACT shall also indicate GSM COMPACT PLMNs (which use PBCCH).

   If displayed, PLMNs meeting the criteria above are presented in the following order:

   i)- HPLMN;

   ii)- PLMN/access technology combinations contained in the " User Controlled PLMN Selector with Access Technology " data file in the SIM (in priority order);

   iii)- PLMN/access technology combinations contained in the "Operator Controlled PLMN Selector with Access Technology" data file in the SIM (in priority order);

   iv)- other PLMN/access technology combinations with received high quality signal in random order;

   v)- other PLMN/access technology combinations in order of decreasing signal quality.

   In ii and iii, an MS using a SIM without access technology information storage (i.e. the "User Controlled PLMN Selector with Access Technology" and the "Operator Controlled PLMN Selector with Access Technology" data files are not present) shall instead present the PLMNs contained in the "PLMN Selector" data file in the SIM (in priority order).

   In v, requirement h) in clause 4.4.3.1.1 applies.

   In GSM COMPACT, the non support of voice services shall be indicated to the user.

   The user may select his desired PLMN and the MS then initiates registration on this PLMN using the access technology chosen by the user for that PLMN or using the highest priority available access technology for that PLMN, if the associated access technologies have a priority order. (This may take place at any time during the presentation of PLMNs). For such a registration, the MS shall ignore the contents of the "forbidden LAs for roaming", "forbidden LAs for regional provision of service", "forbidden PLMNs for GPRS service" and "forbidden PLMNs" lists.

   Once the UE has registered on a PLMN selected by the user, the UE shall not automatically register on a different PLMN unless:

   i) the new PLMN is declared as an equivalent PLMN by the registered PLMN; or

   ii) the user selects automatic mode.

   NOTE 1: It is an MS implementation option whether to indicate access technologies to the user. If the MS does display access technologies, then the access technology used should be the access technology chosen by the user for that PLMN. If the MS does not display access technologies, then the access technology chosen for a particular PLMN should be the highest priority available access technology for that PLMN, if the associated access technologies have a priority order.

   If the user does not select a PLMN, the selected PLMN shall be the one that was selected before the PLMN selection procedure started. If no such PLMN was selected or that PLMN is no longer available, then the MS shall attempt to camp on any acceptable cell and enter the limited service state.

   NOTE 2: High quality signal is defined in the appropriate AS specification.

3. If a "PLMN not allowed" message is received by an MS in response to an LR request from a VPLMN, that VPLMN is added to a list of "forbidden PLMNs" in the SIM and thereafter that VPLMN will not be accessed by the MS when in automatic mode. A PLMN is removed from the "forbidden PLMNs" list if, after a subsequent manual selection of that PLMN, there is a successful LR. This list is retained when the MS is switched off or the SIM is removed. The HPLMN shall not be stored on the list of "forbidden PLMNs".

References

1a. TS 23.122, clause 4.4.3.1

1b. TS 23.122 (Rel-7), clause 4.4.3.1

2. TS 23.122, clause 4.4.3.1.2

NOTE: TS 31.102 defines the USIM fields.

6.2.1.11.3 Test purpose

1. To verify that all PLMNs available are displayed to the user in multi-mode Shared Network environment (Manual Mode). This includes for the UTRAN cells, PLMNs broadcasted in IE "PLMN Identity" and IE "Multiple PLMN list", as well as the PLMNs broadcasted by GSM cells. The available PLMNs shall be displayed in priority order according to TS 23.122.

2. To verify that it is possible to manually select any PLMN, regardless of RAT, from the displayed list, and that the UE subsequently attempts to register on the selected PLMN/RAT.

3. To verify that the UE in general behaves according to TS 23.122 in multi-mode Shared Network environment (Manual Mode).

6.2.1.11.4 Method of test

Initial conditions

Cell levels are from table 6.5 (GSM) and 6.3 (UTRAN FDD).

Cell	RF signal level [dBm]	Test Channel	PLMN	Radio Access Technology
Cell 9	-48	1	PLMN 9	GSM
Cell 10	-50	2	PLMN 10	GSM

Cell	CPICH_Ec [dBm/3.84 MHz] (FDD)	Test Channel	PLMN	Radio Access Technology
Cell 1	-60	1	See below	UTRAN
Cell 4	-65	2	See below	UTRAN

The reference system configuration from TS 34.108 clause 6.1 is used in the UTRAN cells, with the following modifications:

Master Information Block

- MIB value tag	1Set to (Current MIB value tag + 1)
- Supported PLMN types	
- PLMN type	GSM-MAP
- PLMN identity	
- MCC digit	See table below
- MNC digit	See table below
- Multiple PLMN List	
- MIB PLMN Identity	See table below
- Multiple PLMNs (1)	
- MCC	See table below
- MNC	See table below
- Multiple PLMNs (2)	
- MCC	See table below
- MNC	See table below

The MIB PLMN Identity and PLMN codes broadcasted on the BCCH in each cell shall be configured as defined in the table below.

Cell	MIB PLMN Identity	PLMN Identity		Multiple PLMNs (1)		Multiple PLMNs (2)	
		MCC digits	MNC digits	MCC digits	MNC digits	MCC digits	MNC digits
1	TRUE	PLMN 1	PLMN 1	-	PLMN 2	-	PLMN 3
4	FALSE	PLMN 4	PLMN 4	-	PLMN 5	-	PLMN 10

NOTE: "–" (dash) denotes "not present"

The definition of each PLMN code is found in table below.

PLMN	MCC digit			MNC digit		
	1	**2**	**3**	**1**	**2**	**3**
1	0	0	1	0	1	-
2	0	0	1	0	2	-
3	0	0	1	0	3	-
4	0	0	1	0	4	-
5	0	0	1	0	5	-
6	0	0	1	0	6	-
9	0	0	1	0	9	-
10	0	0	1	1	0	-

NOTE: "–" (dash) denotes "not present"

The UE is in manual PLMN selection mode and equipped with a USIM containing default values except for those listed below. The UE has successfully selected a PLMN in manual PLMN selection mode. The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN1.

USIM field	Priority	PLMN	Access Technology Identifier
$EF_{PLMNwAcT}$	1st	PLMN 10	GSM
	2nd	PLMN 9	GSM
$EF_{OPLMNwAcT}$	1st	PLMN 2	UTRAN

Test procedure

Method C is applied.

a) The SS activates all cells and monitors the cells for random access requests from the UE.

b) The UE is switched on. Instead of performing the manual network selection mode procedure the UE may select and attempt registration on the HPLMN (PLMN 1). The SS shall complete the registration procedure, the UE shall remain in manual mode and the test execution shall continue.

c) PLMN 9 shall be selected when the list is displayed.

d) The SS waits for random access requests from the UE.

e) Cell 9 is switched off.

f) PLMN 2 shall be selected when the list is displayed.

g) The SS waits for random access requests from the UE.

h) Cell 1 is switched off.

i) PLMN 10 shall be selected when the list is displayed.

j) The SS waits for random access requests from the UE.

6.2.1.11.5 Test Requirements

1) In step c), the list shall be presented. The priority shall be as follows PLMN 1, PLMN 10, PLMN 9, PLMN 2, other PLMNs.

2) In step d), the response from the UE shall be on Cell 9. The displayed PLMN shall be PLMN 9. If indication of RAT is supported, the displayed PLMN shall be PLMN 9 (GSM)

3) In step f), the list shall be presented. The priority shall be as follows: PLMN 1, PLMN 10, PLMN 2, other PLMNs.

4) In step g), the response from the UE shall be on Cell 1. The displayed PLMN shall be PLMN 2. If indication of RAT is supported, the displayed PLMN shall be PLMN 2 (UTRAN).

5) In step i), the list shall be presented. The priority shall be as follows: PLMN 10, PLMN 5.

6) In step j), the response from the UE shall be on either Cell 4 or Cell 10. The displayed PLMN shall be PLMN 10.

6.2.2 Cell selection and reselection

6.2.2.1 Cell reselection if cell becomes barred or S<0; UTRAN to GSM

6.2.2.1.1 Definition

Test to verify that if both a GSM and UTRAN network is available, the UE performs cell reselection from UTRAN to GSM if the UTRAN cell becomes barred or S falls below zero.

6.2.2.1.2 Conformance requirement

1. When camped on a cell, the UE shall regularly search for a better cell according to the cell reselection criteria. If a better cell is found, that cell is selected. The change of cell may imply a change of RAT.

2. A "suitable cell" is a cell on which the UE may camp on to obtain normal service. Such a cell shall fulfil all the following requirements.

   2.1 The cell is part of the selected PLMN or, of a PLMN considered as equivalent by the UE according to the information provided by the NAS.

   2.2 The cell is not barred.

   2.3 The cell is not part of the list of "forbidden LAs for roaming".

   2.4 The cell selection criteria are fulfilled.

3. When camped normally, the UE shall execute the cell reselection evaluation process on the following occasions/triggers:

   3.1 UE internal triggers, so as to meet performance as specified in TS 25.133 for FDD and TS 25.123 for TDD.

   3.2 When information on the BCCH used for the cell reselection evaluation procedure has been modified.

4. Cell Reselection Criteria:

   4.1 The UE shall perform ranking of all cells that fulfil the S criterion.

   4.2 The cells shall be ranked according to the R criteria, deriving Qmeas,n and Qmeas,s and calculating the R values using CPICH RSCP, P-CCPCH RSCP and the averaged received signal level as specified in TS 25.133 and TS 25.123 for FDD, TDD and GSM cells, respectively.

   The offset $Qoffset1_{s,n}$ is used for $Qoffset_{s,n}$ to calculate R_n, the hysteresis $Qhyst1_s$ is used for $Qhyst_s$ to calculate R_s.

If the usage of HCS is indicated in system information, $TEMP\_OFFSET1_n$ is used for $TEMP\_OFFSET_n$ to calculate TO_n. If it is indicated in system information that HCS is not used, $TEMP\_OFFSET_n$ is not applied when calculating R_n. The best ranked cell is the cell with the highest R value.

If a TDD or GSM cell is ranked as the best cell, then the UE shall perform cell re-selection to that TDD or GSM cell.

4.3 In all cases, the UE shall reselect the new cell, only if the following conditions are met:

- the new cell is better ranked than the serving cell during a time interval Treselection.
- more than 1 second has elapsed since the UE camped on the current serving cell.

References

1. TS 25.304, clause 5.2.1.
2. TS 25.304, clause 4.3.
3. TS 25.304, clause 5.2.5.1.
4. TS 25.304, clause 5.2.6.1.4.

6.2.2.1.3 Test purpose

1. To verify that the UE performs cell reselection from UTRAN to GSM on the following occasions:

   1.1 Serving cell becomes barred.

   1.2 S<0 for serving cell.

6.2.2.1.4 Method of test

Initial conditions

UE is idle updated on cell 1.

All cells belong to the same PLMN.

The Inter-RAT Cell Info List of Cell 1 (UTRAN) refers to Cell 9 (GSM) and Cell 10 (GSM).

The 3G Neighbour Cell Description of Cell 9 (GSM) and Cell 10 (GSM) refers to Cell 1 (UTRAN)

Step a-c:

Parameter	Unit	Cell 1 (UTRAN)
Test Channel		1
CPICH_Ec (FDD)	dBm / 3.84 MHz	-60
P-CCPCH_RSCP (TDD)	dBm	-60
Qrxlevmin	dBm	-79
Srxlev*	dBm	19
CellBarred		Not barred
S-search RAT	dB	+20

Parameter	Unit	Cell 9 (GSM)	Cell 10 (GSM)
Test Channel		1	2
RF Signal Level	dBm	-80	-87
RXLEV_ACCESS_MIN	dBm	-100	-100
C1*	dBm	20	13
FDD_Qmin	dB	-20	-20
FDD_Qoffset	dBm	0	0

Step d-f:

Parameter	Unit	Cell 1 (UTRAN)
CellBarred		Not barred -> Barred
Tbarred	s	80

Step g:

Parameter	Unit	Cell 1 (UTRAN)
CPICH_Ec (FDD)	dBm/ 3.84 MHz	-90
P-CCPCH_RSCP (TDD)	dBm	-90
Srxlev*	dB	19->-11

Test procedure

Method B is applied.

a) The SS activates cells 9, and 10. The SS monitors cells 9 and 10 for random access requests from the UE.

b) Void

c) Void

d) The SS sets Cell 1 to be barred. The SS notifies UE of the BCCH modification

e) The SS waits for random access request from the UE.

f) The UE is switched off. The SS sets Cell 1 to be not barred

g) Step a-e) is repeated except that in step d), the signal level is reduced, so S will become negative instead of being barred.

6.2.2.1.5 Test Requirements

1) In step a), after the UE has responded on Cell 1, it shall not respond on any other cell within 1 min.

2) In step e), the UE shall respond on Cell 9.

3) In step g), the UE shall respond on Cell 9 after the signal level is reduced.

6.2.2.1a Cell reselection if cell becomes barred or S<0; UTRAN(1.28Mcps TDD) to GSM

6.2.2.1a.1 Definition

Test to verify that if both a GSM and UTRAN network is available, the UE performs cell reselection from UTRAN to GSM if the UTRAN cell becomes barred or S falls below zero.

6.2.2.1a.2 Conformance requirement

1. When camped on a cell, the UE shall regularly search for a better cell according to the cell reselection criteria. If a better cell is found, that cell is selected. The change of cell may imply a change of RAT.

2. A "suitable cell" is a cell on which the UE may camp on to obtain normal service. Such a cell shall fulfil all the following requirements.

   2.1 The cell is part of the selected PLMN or, of a PLMN considered as equivalent by the UE according to the information provided by the NAS.

   2.2 The cell is not barred.

   2.3 The cell is not part of the list of "forbidden LAs for roaming".

   2.4 The cell selection criteria are fulfilled.

3. When camped normally, the UE shall execute the cell reselection evaluation process on the following occasions/triggers:

   3.1 UE internal triggers, so as to meet performance as specified in TS 25.133 for FDD and TS 25.123 for TDD.

   3.2 When information on the BCCH used for the cell reselection evaluation procedure has been modified.

4. Cell Reselection Criteria:

   4.1 The UE shall perform ranking of all cells that fulfil the S criterion.

   4.2 The cells shall be ranked according to the R criteria, deriving Qmeas,n and Qmeas,s and calculating the R values using CPICH RSCP, P-CCPCH RSCP and the averaged received signal level as specified in TS 25.133 and TS 25.123 for FDD, TDD and GSM cells, respectively.

   The offset $Qoffset1_{s,n}$ is used for $Qoffset_{s,n}$ to calculate R_n, the hysteresis $Qhyst1_s$ is used for $Qhyst_s$ to calculate R_s.

   If the usage of HCS is indicated in system information, $TEMP\_OFFSET1_n$ is used for $TEMP\_OFFSET_n$ to calculate TO_n. If it is indicated in system information that HCS is not used, $TEMP\_OFFSET_n$ is not applied when calculating R_n. The best ranked cell is the cell with the highest R value.

   If a TDD or GSM cell is ranked as the best cell, then the UE shall perform cell re-selection to that TDD or GSM cell.

   4.3 In all cases, the UE shall reselect the new cell, only if the following conditions are met:

   - the new cell is better ranked than the serving cell during a time interval Treselection.
   - more than 1 second has elapsed since the UE camped on the current serving cell.

References

1. TS 25.304, clause 5.2.1.
2. TS 25.304, clause 4.3.
3. TS 25.304, clause 5.2.5.1.
4. TS 25.304, clause 5.2.6.1.4.

6.2.2.1a.3 Test purpose

1. To verify that the UE performs cell reselection from UTRAN to GSM on the following occasions:

   1.1 Serving cell becomes barred.

   1.2 S<0 for serving cell.

6.2.2.1a.4 Method of test

Initial conditions

UE is idle updated on cell 1.

All cells belong to the same PLMN.

The Inter-RAT Cell Info List of Cell 1 (UTRAN) refers to Cell 9 (GSM) and Cell 10 (GSM).

The 3G Neighbour Cell Description of Cell 9 (GSM) and Cell 10 (GSM) refers to Cell 1 (UTRAN)

Step a-c:

Parameter	Unit	Cell 1 (UTRAN)
Test Channel		1
P-CCPCH_RSCP (TDD)	dBm	-65
Qrxlevmin	dBm	-84
Srxlev*	dBm	19
CellBarred		Not barred
S-search RAT	dB	+20

Parameter	Unit	Cell 9 (GSM)	Cell 10 (GSM)
Test Channel		1	2
RF Signal Level	dBm	-80	-87
RXLEV_ACCESS_MIN	dBm	-100	-100
C1*	dBm	20	13
TDD_Qoffset	dBm	-60	-60

Step d-f:

Parameter	Unit	Cell 1 (UTRAN)
CellBarred		Not barred -> Barred
Tbarred	s	80

Step g:

Parameter	Unit	Cell 1 (UTRAN)
P-CCPCH_RSCP (TDD)	dBm	-95
Srxlev*	dB	19->-11

Test procedure

Method B is applied.

a) The SS activates cells 9, and 10. The SS monitors cells 9 and 10 for random access requests from the UE.

b) Void

c) Void

d) The SS sets Cell 1 to be barred. The SS notifies UE of the BCCH modification

e) The SS waits for random access request from the UE.

f) The UE is switched off. The SS sets Cell 1 to be not barred

g) Step a-e) is repeated except that in step d), the signal level is reduced, so S will become negative instead of being barred.

6.2.2.1a.5 Test Requirements

1) In step a), after the UE has responded on Cell 1, it shall not respond on any other cell within 1 min.

2) In step e), the UE shall respond on Cell 9.

3) In step g), the UE shall respond on Cell 9 after the signal level is reduced.

6.2.2.2 Cell reselection if cell becomes barred or C1<0; GSM to UTRAN

6.2.2.2.1 Definition

Test to verify that if both a GSM and UTRAN network is available, the UE performs cell reselection from GSM to UTRAN if the GSM cell becomes barred or the path loss criterion C1 falls below zero for a period of 5 s.

6.2.2.2.2 Conformance requirement

1. At least every 5 s the MS shall calculate the value of C1 and C2 for the serving cell and re-calculate C1 and C2 values for non serving cells (if necessary). The MS shall then check whether:

   1.1 The path loss criterion (C1) for current serving cell falls below zero for a period of 5 s. This indicates that the path loss to the cell has become too high.

2. While camped on a cell of the registered PLMN ("camped normally"), the MS may need to select a different cell ("normal cell reselection" state). The following events trigger a cell reselection:

   2.1 The path loss criterion parameter C1 (see TS 03.22, clause 3.6) indicates that the path loss to the cell has become too high;

   2.2 The cell camped on (current serving cell) has become barred.

References

1. TS 05.08, clause 6.6.2.
2. TS 03.22, clause 4.5.

6.2.2.2.3 Test purpose

1. To verify that the UE performs cell reselection from GSM to UTRAN on the following occasions:

   1.1 Serving cell becomes barred.

   1.2 The path loss criterion C1 for serving cell falls below zero for a period of 5 s.

6.2.2.2.4 Method of test

Initial conditions

UE is idle updated on Cell 9.

Cell 9:

The SS transmitted system information for Cell 1 and Cell 2 shall be according to TS 34.108, clause 6.1.4 with the following exceptions:

The 3G Neighbour Cell Description of Cell 9 (GSM) refers Cell 1 (UTRAN) and Cell 2 (UTRAN).

SYSTEM INFORMATION TYPE 3 REST OCTETS

- SI2q indicated on BCCH Extended

SYSTEM INFORMATION TYPE 2QUATER

Information Element	Value/remark
< **RR management Protocol Discriminator** bit (4) >	'0110'B
< **Skip Indicator** : bit (4) >	'0000'B
< **Message type** : bit (8) >	'0000 0111'B
< **SI2 quarter Rest Octets** >	
< **BA_IND** : bit >	0
< **3G_BA_IND** : bit >	0
< **MP_CHANGE_MARK** : bit >	0
< **SI2quater _INDEX** : bit (4) >	'0000'B
< **SI2quater_COUNT** : bit (4) >	'0000'B
0 | 1 < **Measurement_Parameters Description >**	0
0 | 1 < **GPRS_Real Time Difference Description >**	0
0 | 1 < **GPSR_BSIC Description >**	0
0 | 1 < **GPRS_REPORT PRIORITY Description >**	0
0 | 1 < **GPRS_Measurement_Parameters Description >**	0
0 | 1 < **NC Measurement Parameters >**	0
0 | 1 < **extension length** >	0
0 | 1 < **3G Neighbour Cell Description >**	1
0 | 1 < **Index_Start_3G** : bit (7) >	0
0 | 1 < **Absolute_Index_Start_EMR** : bit (7) >	0
0 | 1 < **UTRAN FDD Description >**	1
0 | 1 < **Bandwidth_FDD** : bit (3) >	0
1 < **Repeated UTRAN FDD Neighbour Cells >** ** 0	1
0 < **FDD-ARFCN** : bit (14) >	0 See TS 34.108, clause 6.1.5, table 6.1.1
< **FDD_Indic0** : bit >	0
< **NR_OF_FDD_CELLS** : bit (5) >	'00010'B
< **FDD_CELL_INFORMATION Field >**	19 bits Scrambling code according to TS 34.108, clause 6.1.4, Default settings for cell No.1 and cell No.2
1 < **Repeated UTRAN FDD Neighbour Cells >** ** 0	0
0 | 1 < **UTRAN TDD Description >**	0
0 | 1 < **3G MEASUREMENT Parameters Description >**	1
< **Qsearch_I :** bit (4) >	'0111'B (Always)
< **Qsearch_C_Initial :** bit (1) >	0
0 | 1 < **FDD_Qoffset** : bit (4) >	1 '1000'B (0 dB)
< **FDD_REP_QUANT** : bit (1) >	0
< **FDD_MULTIRAT_REPORTING** : bit (2) >	'00'B
< **FDD_Qmin** : bit (3) >	'000'B (-20 dB)
0 | 1 < **TDD_Qoffset** : bit (4) >	0
0 | 1 < **GPRS_3G_MEASUREMENT Parameters Description >**	1
< **Qsearch_P** : bit (4) >	'1111'B (Never)
< **3G_SEARCH_PRIO** : bit >	0
0 | 1 < **FDD_REP_QUANT** : bit >	0
0 | 1 < **FDD_REPORTING_OFFSET** : bit (3) >	0
0 | 1 < **TDD_MULTIRAT_REPORTING** : bit (2) >	0
0 | 1 < **TDD_REPORTING_OFFSET** : bit (3) >	0

Cell 1 and Cell 2:

The SS transmitted system information for Cell 1 and Cell 2 shall be according to TS 34.108, clause 6.1.4 with the following exceptions:

The Inter-RAT Cell Info List of Cell 1 (UTRAN) and Cell 2 (UTRAN) refers to Cell 9 (GSM).

Step a-c:

Parameter	Unit	Cell 9 (GSM)
Test Channel		1
RF Signal Level	dBm	-50
RXLEV_ACCESS_MIN	dBm	-70
MS_TXPWR_MAX_CCH	dBm	Max. output power of UE
FDD_Qmin	dB	-20
FDD_Qoffset	dB	0
CELL_BAR_ACCESS		Not barred
C1*	dB	20

Parameter	Unit	Cell 1 (UTRAN)	Cell 2 (UTRAN)
P-CCPCH_RSCP (TDD)	dBm	-65	-72
CPICH_Ec (FDD)	dBm/3.84 MHz	-65	-72
Qrxlevmin	dBm	-101	-101
Srxlev*	dB	36	29

Step d-e:

Parameter	Unit	Cell 9 (GSM)
CELL_BAR_ACCESS		Not barred -> Barred

Step f-g:

Parameter	Unit	Cell 9 (GSM)
RF Signal Level	dBm	-50 -> -80 (4sec) -> -50
C1*	dB	20 -> -10 (4sec) -> 20

Step h:

Parameter	Unit	Cell 9 (GSM)
RF Signal Level	dBm	-50 -> -80
C1*	dB	20 -> -10

Test procedure

Method C is applied.

a) The SS activates cells 1, and 2. The SS monitors cells 1 and 2 for random access requests from the UE.

b) Void.

c) Void

d) The SS sets Cell 9 to be barred. The SS notifies UE of the BCCH modification

e) The SS waits for random access request from the UE.

f) The UE is switched off. The SS sets Cell 9 to be not barred and deactivates cells 1 and 2.

g) The UE is switched on. The SS waits until UE is idle updated on Cell 9.

h) Step a-e) is repeated except that in step d), the SS reduces signal level on Cell 9 to –80 dBm for 4 s and then raises the level back to –50 dBm (C1 becomes –10 dBm during this period).

i) The SS reduces signal level on Cell 9 to –80 dBm.

j) The SS waits for random access request from the UE.

6.2.2.2.5 Test Requirements

1) In step a), there shall not be any random access requests on any cell within 1 min.

2) In step e), the UE shall respond on Cell 1, the RRC Connection Request cause shall be "interRAT_CellReselection".

3) In step h), there shall be no access on Cell 1 within 30 s, after having reduced the signal level on Cell 9.

4) In step j), the UE shall respond on Cell 1, the RRC Connection Request cause shall be "interRAT_CellReselection".

6.2.2.2a Cell reselection if cell becomes barred or C1<0; GSM to UTRAN (1.28 Mcps TDD)

6.2.2.2a.1 Definition

Test to verify that if both a GSM and UTRAN network is available, the UE performs cell reselection from GSM to UTRAN if the GSM cell becomes barred or the path loss criterion C1 falls below zero for a period of 5 s.

6.2.2.2a.2 Conformance requirement

1. At least every 5 s the MS shall calculate the value of C1 and C2 for the serving cell and re-calculate C1 and C2 values for non serving cells (if necessary). The MS shall then check whether:

   1.1 The path loss criterion (C1) for current serving cell falls below zero for a period of 5 s. This indicates that the path loss to the cell has become too high.

2. While camped on a cell of the registered PLMN ("camped normally"), the MS may need to select a different cell ("normal cell reselection" state). The following events trigger a cell reselection:

   2.1 The path loss criterion parameter C1 (see TS 03.22, clause 3.6) indicates that the path loss to the cell has become too high;

   2.2 The cell camped on (current serving cell) has become barred.

References

1. TS 05.08, clause 6.6.2.

2. TS 03.22, clause 4.5.

6.2.2.2a.3 Test purpose

1. To verify that the UE performs cell reselection from GSM to UTRAN on the following occasions:

   1.1 Serving cell becomes barred.

   1.2 The path loss criterion C1 for serving cell falls below zero for a period of 5 s.

6.2.2.2a.4 Method of test

Initial conditions

UE is idle updated on Cell 9.

Cell 9:

The SS transmitted system information for Cell 1 and Cell 2 shall be according to TS 34.108, clause 6.1.4 with the following exceptions:

The 3G Neighbour Cell Description of Cell 9 (GSM) refers Cell 1 (UTRAN) and Cell 2 (UTRAN).

SYSTEM INFORMATION TYPE 3 REST OCTETS

- SI2q indicated on BCCH Extended

SYSTEM INFORMATION TYPE 2QUATER

Information Element	Value/remark
< **RR management Protocol Discriminator** bit (4) >	'0110'B
< **Skip Indicator** : bit (4) >	'0000'B
< **Message type** : bit (8) >	'0000 0111'B
< **SI2 quarter Rest Octets** >	
< **BA_IND** : bit >	0
< **3G_BA_IND** : bit >	0
< **MP_CHANGE_MARK** : bit >	0
< **SI2quater _INDEX** : bit (4) >	'0000'B
< **SI2quater_COUNT** : bit (4) >	'0000'B
0 | 1 < **Measurement_Parameters Description >**	0
0 | 1 < **GPRS_Real Time Difference Description >**	0
0 | 1 < **GPSR_BSIC Description >**	0
0 | 1 < **GPRS_REPORT PRIORITY Description >**	0
0 | 1 < **GPRS_Measurement_Parameters Description >**	0
0 | 1 < **NC Measurement Parameters >**	0
0 | 1 < **extension length** >	0
0 | 1 < **3G Neighbour Cell Description >**	1
0 | 1 < **Index_Start_3G** : bit (7) >	0
0 | 1 < **Absolute_Index_Start_EMR** : bit (7) >	0
0 | 1 < **UTRAN FDD Description >**	0
0 | 1 < **UTRAN TDD Description >**	1
0 | 1 < **Bandwidth_TDD** : bit (3) >	1
1 < **Repeated UTRAN TDD Neighbour Cells >** ** 0	1
0 < **TDD-ARFCN** : bit (14) >	0 See TS 34.108, clause 6.1.5, table 6.1.1
< **TDD_Indic0** : bit >	0
< **NR_OF_TDD_CELLS** : bit (5) >	'00010'B
<**TDD_CELL_INFORMATION Field >**	17 bits Scrambling code according to TS 34.108, clause 6.1.4, Default settings for cell No.1 and cell No.2
1 < **Repeated UTRAN TDD Neighbour Cells >** ** 0	0
0 | 1 < **3G MEASUREMENT Parameters Description >**	1
< **Qsearch_I :** bit (4) >	'0111'B (Always)
< **Qsearch_C_Initial :** bit (1) >	0
0 | 1 < **FDD_Qoffset** : bit (4) >	0
0 | 1 < **TDD_Qoffset** : bit (4) >	1 '1100'B (-69dbm)
< **TDD_MULTIRAT_REPORTING** : bit (2) >	'00'B
0 | 1 < **GPRS_3G_MEASUREMENT Parameters Description >**	1
< **Qsearch_P** : bit (4) >	'1111'B (Never)
< **3G_SEARCH_PRIO** : bit >	0
0 | 1 < **FDD_REP_QUANT** : bit >	0
0 | 1 < **FDD_REPORTING_OFFSET** : bit (3) >	0
0 | 1 < **TDD_MULTIRAT_REPORTING** : bit (2) >	0
0 | 1 < **TDD_REPORTING_OFFSET** : bit (3) >	0

Cell 1 and Cell 2:

The SS transmitted system information for Cell 1 and Cell 2 shall be according to TS 34.108, clause 6.1.4 with the following exceptions:

The Inter-RAT Cell Info List of Cell 1 (UTRAN) and Cell 2 (UTRAN) refers to Cell 9 (GSM).

Step a-c:

Parameter	Unit	Cell 9 (GSM)
Test Channel		1
RF Signal Level	dBm	-50
RXLEV_ACCESS_MIN	dBm	-70
MS_TXPWR_MAX_CCH	dBm	Max. output power of UE
TDD_Qoffset	dBm	-69dbm
CELL_BAR_ACCESS		Not barred
C1*	dB	20

Parameter	Unit	Cell 1 (UTRAN)	Cell 2 (UTRAN)
P-CCPCH_RSCP (TDD)	dBm	-75	-80
Qrxlevmin	dBm	-101	-101
Srxlev*	dB	26	21

Step d-e:

Parameter	Unit	Cell 9 (GSM)
CELL_BAR_ACCESS		Not barred -> Barred

Step f-g:

Parameter	Unit	Cell 9 (GSM)
RF Signal Level	dBm	-50 -> -80 (4sec) -> -50
C1*	dB	20 -> -10 (4sec) -> 20

Step h:

Parameter	Unit	Cell 9 (GSM)
Test Channel		1
RF Signal Level	dBm	-50
RXLEV_ACCESS_MIN	dBm	-70
MS_TXPWR_MAX_CCH	dBm	Max. output power of UE
TDD_Qoffset	dB	-81
CELL_BAR_ACCESS		Not barred
C1*	dB	20

Test procedure

Method C is applied.

a) The SS activates cells 1, and 2. The SS monitors cells 1 and 2 for random access requests from the UE.

b) Void.

c) Void

d) The SS sets Cell 9 to be barred. The SS notifies UE of the BCCH modification

e) The SS waits for random access request from the UE.

f) The UE is switched off. The SS sets Cell 9 to be not barred and deactivates cells 1 and 2.

g) The UE is switched on. The SS waits until UE is idle updated on Cell 9.

h) Step a-e) is repeated except that in step d), the SS reduces signal level on Cell 9 to –80 dBm for 4 s and then raises the level back to –50 dBm (C1 becomes –10 dBm during this period).

i) The SS sets “TDD_Qoffset” to -81dbm. The SS notifies UE of the BCCH modification.

j) The SS waits for random access request from the UE.

6.2.2.2a.5 Test Requirements

1) In step a), there shall not be any random access requests on any cell within 1 min.

2) In step e), the UE shall respond on Cell 1, the RRC Connection Request cause shall be "interRAT_CellReselection".

3) In step h), there shall be no access on Cell 1 within 30 s, after having reduced the signal level on Cell 9.

4) In step j), the UE shall respond on Cell 1, the RRC Connection Request cause shall be "interRAT_CellReselection".

6.2.2.3 Cell reselection timings; GSM to UTRAN

6.2.2.3.1 Definition

Test to verify that the UE meets the cell reselection timing requirements when both a GSM and UTRAN network is available.

6.2.2.3.2 Conformance requirement

1. If the 3G Cell Reselection list (see TS 04.18) includes UTRAN frequencies, the MS shall, at least every 5 s update the value RLA_C for the serving cell and each of the at least 6 strongest non-serving GSM cells.

   1.1 The MS shall then reselect a suitable UTRAN cell if its measured RSCP value exceeds the value of RLA_C for the serving cell and all of the suitable non-serving GSM cells by the value XXX_Qoffset for a period of 5 s and, for FDD, the UTRAN cells measured Ec/No value is equal or greater than the value FDD_Qmin.

   - Ec/No and RSCP are the measured quantities.
   - FDD_Qmin and XXX_Qoffset are broadcast on BCCH of the serving cell. XXX indicates other radio access technology/mode.

   1.2 In case of a cell reselection occurring within the previous 15 s, XXX_Qoffset is increased by 5 dB.

   1.3 Cell reselection to UTRAN shall not occur within 5 s after the MS has reselected a GSM cell from an UTRAN cell if a suitable GSM cell can be found.

   1.4 If more than one UTRAN cell fulfils the above criteria, the UE shall select the cell with the greatest RSCP value.

2. The MS shall be able to identify and select a new best UTRAN cell on a frequency, which is part of the 3G Cell Reselection list, within 30 s after it has been activated under the condition that there is only one UTRAN frequency in the list and under good radio conditions.

   The allowed time is increased by 30 s for each additional UTRAN frequency in the 3G Cell Reselection list. However, multiple UTRAN cells on the same frequency in the neighbour cell list does not increase the allowed time.

NOTE: Definitions of measurements are in TS 25.215 and TS 25.101 for FDD mode, in TS 25.225 and TS 25.102 for TDD mode, clause 3.2 and TS 05.08, clause 6.1.

References

1. TS 05.08, clause 6.6.5.
2. TS 05.08, clause 6.6.4.

6.2.2.3.3 Test purpose

1. To verify that:

   1.1 The UE meets conformance requirement 1.1 and additionally, that no cell reselection is performed if the period is less than 5 s

   1.3 The UE meets conformance requirement 1.3.

6.2.2.3.4 Method of test

UE is idle updated on Cell 1.

Cell 9:

The SS transmitted system information for Cell 1 shall be according to TS 34.108, clause 6.1.4 with the following exceptions:

The 3G Neighbour Cell Description of Cell 9 (GSM) refers to Cell 1 (UTRAN).

SYSTEM INFORMATION TYPE 3 REST OCTETS

- SI2q indicated on BCCH Norm

SYSTEM INFORMATION TYPE 2QUATER

Information Element	Value/remark
< **RR management Protocol Discriminator** bit (4) >	'0110'B
< **Skip Indicator** : bit (4) >	'0000'B
< **Message type** : bit (8) >	'0000 0111'B
< **SI2 quarter Rest Octets** >	
< **BA_IND** : bit >	0
< **3G_BA_IND** : bit >	0
< **MP_CHANGE_MARK** : bit >	0
< **SI2quater _INDEX** : bit (4) >	'0000'B
< **SI2quater_COUNT** : bit (4) >	'0000'B
0 | 1 < **Measurement_Parameters Description >**	0
0 | 1 < **GPRS_Real Time Difference Description >**	0
0 | 1 < **GPSR_BSIC Description >**	0
0 | 1 < **GPRS_REPORT PRIORITY Description >**	0
0 | 1 < **GPRS_Measurement_Parameters Description >**	0
0 | 1 < **NC Measurement Parameters >**	0
0 | 1 < **extension length** >	0
0 | 1 < **3G Neighbour Cell Description >**	1
0 | 1 < **Index_Start_3G** : bit (7) >	0
0 | 1 < **Absolute_Index_Start_EMR** : bit (7) >	0
0 | 1 < **UTRAN FDD Description >**	1
0 | 1 < **Bandwidth_FDD** : bit (3) >	0
1 < **Repeated UTRAN FDD Neighbour Cells >** ** 0	1
0 < **FDD-ARFCN** : bit (14) >	0 See TS 34.108, clause 6.1.5, table 6.1.1
< **FDD_Indic0** : bit >	0
< **NR_OF_FDD_CELLS** : bit (5) >	'00001'B
< **FDD_CELL_INFORMATION Field >**	10 bits Scrambling code according to TS 34.108, clause 6.1.4, Default settings for cell No.1
1 < **Repeated UTRAN FDD Neighbour Cells >** ** 0	0
0 | 1 < **UTRAN TDD Description >**	0
0 | 1 < **3G MEASUREMENT Parameters Description >**	1
< **Qsearch_I :** bit (4) >	'0111'B (Always)
< **Qsearch_C_Initial :** bit (1) >	0
0 | 1 < **FDD_Qoffset** : bit (4) >	1 '1001'B (4dB)
< **FDD_REP_QUANT** : bit (1) >	0
< **FDD_MULTIRAT_REPORTING** : bit (2) >	'00'B
< **FDD_Qmin** : bit (3) >	'000'B (-20 dB)
0 | 1 < **TDD_Qoffset** : bit (4) >	0
0 | 1 < **GPRS_3G_MEASUREMENT Parameters Description >**	1
< **Qsearch_P** : bit (4) >	'1111'B (Never)
< **3G_SEARCH_PRIO** : bit >	0
0 | 1 < **FDD_REP_QUANT** : bit >	0
0 | 1 < **FDD_REPORTING_OFFSET** : bit (3) >	0
0 | 1 < **TDD_MULTIRAT_REPORTING** : bit (2) >	0
0 | 1 < **TDD_REPORTING_OFFSET** : bit (3) >	0

Cell 1:

The SS transmitted system information for Cell 1 shall be according to TS 34.108, clause 6.1.4 with the following exceptions:

The Inter-RAT Cell Info List of Cell 1 (UTRAN) refers to Cell 9 (GSM).

Step a-c:

Parameter	Unit	Cell 9 (GSM)
Test Channel		1
RF Signal Level	dBm	-66
RXLEV_ACCESS_MIN	dBm	-100
MS_TXPWR_MAX_CCH	dBm	Max. output power of UE
FDD_Qmin	dBm	-20
FDD_Qoffset	dB	4

Parameter	Unit	Cell 1 (UTRAN)
Test Channel		1
CPICH_Ec (FDD)	dBm / 3.84 MHz	-74
P-CCPCH_RSCP (TDD)	dBm	-74
Qrxlevmin	dBm	-101
Srxlev*	dB	27
S-search RAT	dB	+20

Step d:

Parameter	Unit	Cell 9 (GSM)
RF Signal Level	dBm	-66 -> -85 (4 s) -> -66

Step f-g:

Parameter	Unit	Cell 9 (GSM)
RF Signal Level	dBm	-66 -> -83 (4 s) -> -66

Step h-i:

Parameter	Unit	Cell 9 (GSM)
RF Signal Level	dBm	-66 -> -83

Test procedure

NOTE: Step a-d): Test purpose 1.3. Step f-i): test purpose 1.1.

A combination of Method B and Method C is applied.

a) The SS activates Cell 9.

b) Void

c) Void.

d) Once the random access request is received on Cell 9, the SS starts paging the UE continuously on Cell 1, and changes the power level of cell 9 to -85 dBm for 4 s (RSCP will then exceed RLA_C value of Cell 9 by 11dB, which is more than XXX_Qoffset+5dB) and then change back to -66 dBm and see if there is any random access request on cell 1 for 20 s. To avoid that the UE enters dedicated mode (performing the Location Update procedure) during this time, the SS rejects the random access received on Cell 9 with wait indication set to 30 s.

e) When the second random access request is received on Cell 9 (after 30 s), the SS stops paging and performs the Location Update procedure to register the UE on Cell 9.

f) The SS decreases the transmit level of Cell 9 to –83 dBm for a period of 4 s (RSCP will then exceed RLA_C value of Cell 9 by 9dB, which is more than XXX_Qoffset) and then changes the level back to –66 dBm.

g) The SS waits 20 s to see if there is any random access request from the UE on Cell 1.

h) The SS sets the transmit level of Cell 9 to –83 dBm.

i) The SS waits 20 s to see if there is any random access request from the UE on Cell 1. (The UE should revert to Cell 1 due to cell reselection).

j) The SS performs the Location Update procedure (or Routing Area Update procedure for UE that supports PS) to register the UE on Cell 1.

6.2.2.3.5 Test Requirements

1) In step d), there shall be no access on Cell 1.

2) In step g), there shall be no access on Cell 1.

3) In step i), the UE shall send random access on Cell 1.

6.2.2.3a Cell reselection timings; GSM to UTRAN (1.28 Mcps TDD)

6.2.2.3a.1 Definition

Test to verify that the UE meets the cell reselection timing requirements when both a GSM and UTRAN network is available.

6.2.2.3a.2 Conformance requirement

1. If the 3G Cell Reselection list includes UTRAN frequencies, the MS shall, at least every 5 s update the value RLA_C for the serving cell and each of the at least 6 strongest non serving GSM cells.

   1.1 The MS shall then reselect a suitable (see 3GPP TS 25.304) UTRAN cell if:

   - for a TDD cell the measured RSCP value is equal to or greater than TDD_Qoffset for a period of 5 s and

   - for an FDD cell the following criteria are all met for a period of 5 s:

     a) its measured RSCP value exceeds the value of RLA_C for the serving cell and all of the suitable (see 3GPP TS 43.022) non-serving GSM cells by the value FDD_Qoffset,

     b) its measured Ec/No value is equal or greater than the value FDD_Qmin - FDD_Qmin_Offset, and

     c) its measured RSCP value is equal to or greater than FDD_RSCP_threshold.

   1.2 In case of a cell reselection occurring within the previous 15 seconds, FDD_Qoffset or TDD_Qoffset is increased by 5 dB.

   - Ec/No and RSCP are the measured quantities, see subclause 8.1.5.

   - FDD_RSCP_threshold equals FDD_RSCPmin – min((P_MAX – 21 dBm), 3 dB) if FDD_RSCPmin is broadcast on the serving cell, else Qrxlevmin + Pcompensation + 10 dB, if these parameters are available, otherwise the default value of FDD_RSCPmin.

- Qrxlevmin is the minimum required RX level in the UTRAN FDD cell (dBm), see 3GPP TS 25.304.
- Pcompensation is max(UE_TXPWR_MAX_RACH – P_MAX, 0) (dB), see 3GPP TS 25.304.
- UE_TXPWR_MAX_RACH is the maximum TX power level an MS may use when accessing the UTRAN FDD cell on RACH (dBm), see 3GPP TS 25.304.
- P_MAX is the maximum RF output power of the MS (dBm) in UTRAN FDD mode, see 3GPP TS 25.304.
- FDD_Qmin, FDD_Qoffset and optionally FDD_RSCPmin and FDD_Qmin_Offset are broadcast on BCCH of the serving cell.
- TDD_Qoffset is broadcast on BCCH of the serving cell.

NOTE 1: The parameters required to determine if the UTRAN cell is suitable are broadcast on BCCH of the UTRAN cell. An MS may start reselection towards the UTRAN cell before decoding the BCCH of the UTRAN cell, leading to a short interruption of service if the UTRAN cell is not suitable.

NOTE 2: If FDD_RSCPmin is broadcast, optimum GSM to UTRAN reselection performance is achieved if UTRAN cells at UTRAN coverage border areas are planned for +24 dBm UE power.

NOTE 3: The parameter TDD_Qoffset is an absolute threshold for reselection towards a target UTRAN TDD cell.

The MS shall store the UTRAN cell RSCP suitability criterion parameters above, whenever decoded from a UTRAN FDD cell of an equivalent PLMN while attempting to camp on the UTRAN FDD cell. The most recently decoded parameters from one UTRAN FDD cell of an equivalent PLMN are valid reselection criteria towards all UTRAN FDD cells. This list of parameters shall be cleared after PLMN selection (see 3GPP TS 23.122).

1.3 Cell reselection to UTRAN shall not occur within 5 seconds after the MS has reselected a GSM cell from an UTRAN cell if a suitable GSM cell can be found.

2. A UTRAN capable MS shall be able to identify and select a new best UTRAN cell on a frequency, which is part of the 3G Cell Reselection list, within 30 seconds after it has been activated under the condition that there is only one UTRAN frequency in the list (and no E-UTRAN frequencies in the E-UTRAN Neighbour Cell list) and that no new GSM cells are activated at the same time and under good radio conditions. As an exception, the time is increased to [70] seconds in case of a UTRAN capable MS performing cell reselection based on priority information (see subclause 6.6.6) if the UTRAN frequency has higher priority than the serving cell. A E-UTRAN capable MS shall be able to identify and select a new best E-UTRAN cell on a frequency, which is part of the E-UTRAN Neighbour Cell list, within 30 seconds after it has been activated if the frequency has lower priority than the serving cell, or within [70] seconds after it has been activated if the frequency has higher priority than the serving cell, under the condition that there is only one E-UTRAN frequency in the list (and no UTRAN frequencies in the 3G Cell Reselection list) and that no new GSM cells are activated at the same time and under good radio conditions. For test purposes the following radio conditions can be used: Serving GSM cell at RXLEV= -70 dBm, with 6 GSM neighbours at RXLEV= -75 dBm. Then either an UTRAN FDD neighbour cell or an UTRAN TDD neighbour cell or an E-UTRAN FDD neighbour cell or an E-UTRAN TDD neighbour cell is switched on.

NOTE: Definitions of measurements are in TS 25.215 and TS 25.101 for FDD mode, in TS 25.225 and TS 25.102 for TDD mode, clause 3.2 and TS 05.08, clause 6.1.

References

1. TS 45.008, clause 6.6.5.
2. TS 45.008, clause 6.6.4.

6.2.2.3a.3 Test purpose

1. To verify that:

1.1 The UE meets conformance requirement 1.1 and additionally, that no cell reselection is performed if the period is less than 5 s

1.3 The UE meets conformance requirement 1.3.

6.2.2.3a.4 Method of test

UE is idle updated on Cell 1.

Cell 9:

The SS transmitted system information for Cell 1 shall be according to TS 34.108, clause 6.1.4 with the following exceptions:

The 3G Neighbour Cell Description of Cell 9 (GSM) refers to Cell 1 (UTRAN).

SYSTEM INFORMATION TYPE 3 REST OCTETS

- SI2q indicated on BCCH Norm

SYSTEM INFORMATION TYPE 2QUATER

Information Element	Value/remark
< **RR management Protocol Discriminator** bit (4) >	‘0110'B
< **Skip Indicator** : bit (4) >	‘0000'B
< **Message type** : bit (8) >	‘0000 0111’B
< **SI2 quarter Rest Octets** >	
< **BA_IND** : bit >	0
< **3G_BA_IND** : bit >	0
< **MP_CHANGE_MARK** : bit >	0
< **SI2quater _INDEX** : bit (4) >	‘0000’B
< **SI2quater_COUNT** : bit (4) >	‘0000’B
0 | 1 < **Measurement_Parameters Description >**	0
0 | 1 < **GPRS_Real Time Difference Description >**	0
0 | 1 < **GPSR_BSIC Description >**	0
0 | 1 < **GPRS_REPORT PRIORITY Description >**	0
0 | 1 < **GPRS_Measurement_Parameters Description >**	0
0 | 1 < **NC Measurement Parameters >**	0
0 | 1 < **extension length** >	0
0 | 1 < **3G Neighbour Cell Description >**	1
0 | 1 < **Index_Start_3G** : bit (7) >	0
0 | 1 < **Absolute_Index_Start_EMR** : bit (7) >	0
0 | 1 < **UTRAN FDD Description >**	0
0 | 1 < **UTRAN TDD Description >**	1
0 | 1 < **Bandwidth_TDD** : bit (3) >	1
1 < **Repeated UTRAN TDD Neighbour Cells >** ** 0	1
0 < **TDD-ARFCN** : bit (14) >	0 See TS 34.108, clause 6.1.5, table 6.1.1
< **TDD_Indic0** : bit >	0
< **NR_OF_TDD_CELLS** : bit (5) >	‘00001’B
<**TDD_CELL_INFORMATION Field >**	9 bits Cell parameters ID according to TS 34.108, clause 6.1.4, Default settings for cell No.1
1 < **Repeated UTRAN TDD Neighbour Cells >** ** 0	0
0 | 1 < **3G MEASUREMENT Parameters Description >**	1
< **Qsearch_I :** bit (4) >	‘0101’B (-78dbm)
< **Qsearch_C_Initial :** bit (1) >	0
0 | 1 < **FDD_Qoffset** : bit (4) >	0
0 | 1 < **TDD_Qoffset** : bit (4) >	1 ‘0100’B(-81dbm)
<**TDD_MULTIRAT_REPORTING** : bit (2) >	‘00’B
0 | 1 < **GPRS_3G_MEASUREMENT Parameters Description >**	1
< **Qsearch_P** : bit (4) >	‘1111’B (Never)
< **3G_SEARCH_PRIO** : bit >	0
0 | 1 < **FDD_REP_QUANT** : bit >	0
0 | 1 < **FDD_REPORTING_OFFSET** : bit (3) >	0
0 | 1 < **TDD_MULTIRAT_REPORTING** : bit (2) >	0
0 | 1 < **TDD_REPORTING_OFFSET** : bit (3) >	0

Cell 1:

The SS transmitted system information for Cell 1 shall be according to TS 34.108, clause 6.1.4 with the following exceptions:

The Inter-RAT Cell Info List of Cell 1 (UTRAN) refers to Cell 9 (GSM).

Step a-c:

Parameter	Unit	Cell 9 (GSM)
Test Channel		1
RF Signal Level	dBm	-70
RXLEV_ACCESS_MIN	dBm	-100
MS_TXPWR_MAX_CCH	dBm	Max. output power of UE
TDD_Qoffset	dBm	-81

Parameter	Unit	Cell 1 (UTRAN)
Test Channel		1
P-CCPCH_RSCP (TDD)	dBm	-74
Qrxlevmin	dBm	-101
Srxlev*	dB	27
S-search RAT	dB	+20

Step d:

Parameter	Unit	Cell 9 (GSM)
RF Signal Level	dBm	-70 -> -85 (4 s) -> -70

Step f-g:

Parameter	Unit	Cell 9 (GSM)
RF Signal Level	dBm	-70 -> -83 (4 s) -> -70

Step h-i:

Parameter	Unit	Cell 9 (GSM)
RF Signal Level	dBm	-70 -> -83

Test procedure

NOTE: Step a-d): Test purpose 1.3. Step f-i): test purpose 1.1.

A combination of Method B and Method C is applied.

a) The SS activates Cell 9.

b) Void

c) Void.

d) Once the random access request is received on Cell 9, the SS starts paging the UE continuously on Cell 1, and changes the power level of cell 9 to -85 dBm for 4 s (GSM RF signal level will then be lower than Qsearch_I and UTRA signal level is higher than TDD_Qoffset) and then change back to -70 dBm and see if there is any

random access request on cell 1 for 20 s. To avoid that the UE enters dedicated mode (performing the Location Update procedure) during this time, the SS rejects the random access received on Cell 9 with wait indication set to 30 s.

e) When the second random access request is received on Cell 9 (after 30 s), the SS stops paging and performs the Location Update procedure to register the UE on Cell 9.

f) The SS decreases the transmit level of Cell 9 to –83 dBm for a period of 4 s (GSM RF signal level will then be lower than Qsearch_I and UTRA signal level is higher than TDD_Qoffset) and then changes the level back to –70 dBm.

g) The SS waits 20 s to see if there is any random access request from the UE on Cell 1.

h) The SS sets the transmit level of Cell 9 to –83 dBm.

i) The SS waits 20 s to see if there is any random access request from the UE on Cell 1. (The UE should revert to Cell 1 due to cell reselection).

j) The SS performs the Location Update procedure (or Routing Area Update procedure for UE that supports PS) to register the UE on Cell 1.

6.2.2.3a.5 Test Requirements

1) In step d), there shall be no access on Cell 1.

2) In step g), there shall be no access on Cell 1.

3) In step i), the UE shall send random access on Cell 1.

6.2.2.4 Cell reselection in multi-mode shared network environment

6.2.2.4.1 Definition

Test to verify that the UE performs cell reselection according to core specification 25.304 in multi-mode shared network environment (FDD). It is verified that the UE reselects from a shared UTRAN cell in case of a higher ranked GSM cell or if the serving UTRAN cell becomes unsuitable. It is also verified that the UE is able to return to a shared UTRAN cell in case of loss of GSM coverage.

6.2.2.4.2 Conformance requirement

1. suitable cell:

   A "suitable cell" is a cell on which the UE may camp on to obtain normal service. Such a cell shall fulfil all the following requirements.

   - The cell shall be part of either:
     - the selected PLMN, or:
     - the registered PLMN, or:
     - a PLMN of the Equivalent PLMN list

     according to the latest information provided by the NAS.
   - The cell is not barred, see subclause 5.3.1.1;
   - The cell is part of at least one LA that is not part of the list of "forbidden LAs for roaming" [9], which belongs to a PLMN that fulfils the first bullet above;
   - The cell selection criteria are fulfilled, see subclause 5.2.3.1.2.

     If the IE “Multiple PLMN List” [4] is broadcast in the cell, the cell is considered to be part of all LAs with LAIs constructed from the PLMN identities in the “Multiple PLMN List” and the LAC broadcast in the cell.

2. When camped on a cell, the UE shall regularly search for a better cell according to the cell reselection criteria. If a better cell is found, that cell is selected. The change of cell may imply a change of RAT.

3. When camped normally, the UE shall perform the following tasks:

   - select and monitor the indicated PICH and PCH of the cell as specified in clause 8 according to information sent in system information;

   - monitor relevant System Information. This is specified in [4];

   - perform necessary measurements for the cell reselection evaluation procedure;

   - execute the cell reselection evaluation process on the following occasions/triggers:

     1) UE internal triggers, so as to meet performance as specified in [10] and [11];

     2) When information on the BCCH used for the cell reselection evaluation procedure has been modified

4. Cell Reselection Criteria:

   4.1 If HCS is not used in the serving cell the UE shall perform ranking of all cells that fulfil the criterion S, among:

   - all measured cells (see subclause 5.2.6.1.1).

   4.2 The cells shall be ranked according to the R criteria, deriving Qmeas,n and Qmeas,s and calculating the R values using CPICH RSCP, P-CCPCH RSCP and the averaged received signal level as specified in TS 25.133 and TS 25.123 for FDD, TDD and GSM cells, respectively.

   The offset $Qoffset1_{s,n}$ is used for $Qoffset_{s,n}$ to calculate R_n, the hysteresis $Qhyst1_s$ is used for $Qhyst_s$ to calculate R_s.

   …

   If the usage of HCS is indicated in system information, $TEMP\_OFFSET1_n$ is used for $TEMP\_OFFSET_n$ to calculate TO_n. If it is indicated in system information that HCS is not used, $TEMP\_OFFSET_n$ is not applied when calculating R_n. The best ranked cell is the cell with the highest R value.

   …

   If an FDD cell is ranked as the best cell and the quality measure for cell selection and re-selection is set to CPICH RSCP, the UE shall perform cell re-selection to that FDD cell.

   4.3 In all cases, the UE shall reselect the new cell, only if the following conditions are met:

   - the new cell is better ranked than the serving cell during a time interval Treselection.

   …

   - more than 1 second has elapsed since the UE camped on the current serving cell.

5. Location Registration

   In the UE, the AS shall report registration area information to the NAS.

   If the UE reads more than one PLMN identity in the current cell, the UE shall report the found PLMN identities that make the cell suitable in the registration area information to NAS.

,References

1. TS 25.304, 4.3

2. TS 25.304, 5.2.1

3. TS 25.304, 5.2.5.1

4. TS 25.304, 5.2.6.1.4
5. TS 25.304, 5.5

6.2.2.4.3 Test purpose

1. To verify that the UE is able to reselect to a higher ranked cell (UTRAN->GSM) in multi-mode shared network environment.
3. To verify that the UE is able to reselect to a GSM cell when the serving shared network UTRAN cell becomes unsuitable (S<0).
4. To verify that the UE is able to return to a shared network UTRAN cell when coverage is lost while camping on a GSM cell.

6.2.2.4.4 Method of test

Initial conditions

The UE is equipped with a USIM containing default values. The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN1.

Cell reselection parameters are set to default values, so the cell-ranking criterion R equals CPICH_RSCP / RF Signal Level.

The Inter-RAT Cell Info List of Cell 1 (UTRAN) refers to Cell 9 (GSM) and Cell 10 (GSM).

The 3G Neighbour Cell Description of Cell 9 (GSM) and Cell 10 (GSM) refers to Cell 1 (UTRAN)

Cell parameters are defined in the table below. Cell 9 and 10 are switched off.

Parameter	Unit	Cell 1 (UTRAN)
Test Channel		1
PLMN		PLMN 1
LAC		0001
CPICH_Ec (FDD)	dBm / 3.84 MHz	-60
Qrxlevmin	dBm	-99
Srxlev*	dB	39
S-search RAT	dB	Not sent

Parameter	Unit	Cell 9 (GSM)	Cell 10 (GSM)
Test Channel		1	2
PLMN		PLMN 1	PLMN 1
LAC		0009	0010
RF Signal Level	dBm	-75	-80
RXLEV_ACCESS_MIN	dBm	-100	-100
C1*	dB	25	20
FDD_Qmin	dB	-20	-20
FDD_Qoffset	dBm	0	0

The reference system configuration from TS 34.108 clause 6.1 is used in all cells, with the following modifications:

Master Information Block

- MIB value tag	Set to (Current MIB value tag + 1)
- Supported PLMN types	
- PLMN type	GSM-MAP
- PLMN identity	
- MCC digit	See table below
- MNC digit	See table below
- Multiple PLMN List	

- MIB PLMN Identity	See table below
- Multiple PLMNs (1)	
- MCC	See table below
- MNC	See table below
- Multiple PLMNs (2)	
- MCC	See table below
- MNC	See table below

The MIB PLMN Identity and PLMN codes broadcasted on the BCCH in each cell shall be configured as defined in the table below.

Cell	MIB PLMN Identity	PLMN Identity		Multiple PLMNs (1)		Multiple PLMNs (2)	
		MCC digits	MNC digits	MCC digits	MNC digits	MCC digits	MNC digits
1	FALSE	PLMN 3	PLMN 3	-	PLMN 2	-	PLMN 1

The definition of each PLMN code is found in table below.

PLMN	MCC digit			MNC digit		
	1	**2**	**3**	**1**	**2**	**3**
1	0	0	1	0	1	-
2	0	0	1	0	2	-
3	0	0	1	0	3	-
4	0	0	2	0	1	-

NOTE: "–" (dash) denotes "not present"

Step e-h

Parameter	Unit	Cell 1 (UTRAN)
CPICH_Ec	dBm / 3.84 MHz	-60 -> -85

Step i-k

Parameter	Unit	Cell 1 (UTRAN)
CPICH_Ec	dBm / 3.84 MHz	-85 -> -60
Qrxlevmin	dBm	-99 -> -65
Srxlev*	dB	6

Step k-m

Parameter	Unit	Cell 9 (GSM)
PLMN		PLMN 1 -> PLMN 4

Step l-m

Parameter	Unit	Cell 1 (UTRAN)
CPICH_Ec	dBm / 3.84 MHz	-60 -> -70

Test procedure

Method C is applied.

a) The UE is switched on.

b) The SS waits for random access requests from the UE. A complete Location Update is done. For UE that supports both CS and PS domain or PS domain only, the Location Updating procedure could be replaced by the appropriate GMM registration procedure.

c) The SS activates Cell 9 and Cell 10.

d) The SS waits for random access requests from the UE.

e) The SS changes the level of Cell 1.

f) The SS waits for random access requests from the UE.

g) Cell 9 and Cell 10 are switched off.

h) The SS waits for random access requests from the UE.

i) The UE is switched off. The SS modifies the level and Qrxlevmin of Cell 1.

j) The UE is switched on. A complete Location Update is done. For UE that supports both CS and PS domain or PS domain only, the Location Updating procedure could be replaced by the appropriate GMM registration procedure.

k) Cell 9 and Cell 10 are activated using new PLMN 4 in Cell 9.

l) The SS changes the level of Cell 1.

m) The SS waits for random access requests from the UE.

6.2.2.4.5 Test requirements

1) In step b), the UE shall respond on Cell 1. The displayed PLMN shall be PLMN 1 (UTRAN).

2) In step d), the UE shall not respond on Cell 9 or Cell 10 for 1 min.

3) In step f), the UE shall respond on Cell 9. The displayed PLMN shall be PLMN 1 (GSM).

4) In step h), the UE shall respond on Cell 1. The displayed PLMN shall be PLMN 1 (UTRAN).

5) In step m), the UE shall respond on Cell 10. The displayed PLMN shall be PLMN 1 (GSM).

NOTE: The RAT requirements (within brackets) apply only if UE supports indication of RAT to the user.

6.2.2.5 Cell reselection using SIB18; UTRAN to GSM

6.2.2.5.1 Definition

Test to verify that the UE performs cell reselection according to core specifications 25.331 and 25.304 in multi-mode environment (FDD) when SIB18 present. It is verified that the UE reselects from a UTRAN cell to the GSM cell allowed by SIB18, even if other GSM cells are better ranked.

6.2.2.5.2 Conformance requirement

1. suitable cell:

   A "suitable cell" is a cell on which the UE may camp on to obtain normal service. Such a cell shall fulfil all the following requirements.

   - The cell shall be part of either:
     - the selected PLMN, or:
     - the registered PLMN, or:
     - a PLMN of the Equivalent PLMN list

according to the latest information provided by the NAS.

- The cell is not barred, see subclause 5.3.1.1;
- The cell is part of at least one LA that is not part of the list of "forbidden LAs for roaming" [9], which belongs to a PLMN that fulfils the first bullet above;
- The cell selection criteria are fulfilled, see subclause 5.2.3.1.2.

  If the IE “Multiple PLMN List” [4] is broadcast in the cell, the cell is considered to be part of all LAs with LAIs constructed from the PLMN identities in the “Multiple PLMN List” and the LAC broadcast in the cell.

2. When camped on a cell, the UE shall regularly search for a better cell according to the cell reselection criteria. If a better cell is found, that cell is selected. The change of cell may imply a change of RAT.
3. When camped normally, the UE shall perform the following tasks:
   - select and monitor the indicated PICH and PCH of the cell as specified in clause 8 according to information sent in system information;
   - monitor relevant System Information. This is specified in [4];
   - perform necessary measurements for the cell reselection evaluation procedure;
   - execute the cell reselection evaluation process on the following occasions/triggers:
     1) UE internal triggers, so as to meet performance as specified in [10] and [11];
     2) When information on the BCCH used for the cell reselection evaluation procedure has been modified
4. Cell Reselection Criteria:

   4.1 If HCS is not used in the serving cell the UE shall perform ranking of all cells that fulfil the criterion S, among:
   - all measured cells (see subclause 5.2.6.1.1).

   4.2 The cells shall be ranked according to the R criteria, deriving Qmeas,n and Qmeas,s and calculating the R values using CPICH RSCP, P-CCPCH RSCP and the averaged received signal level as specified in TS 25.133 and TS 25.123 for FDD, TDD and GSM cells, respectively.

   The offset $Qoffset1_{s,n}$ is used for $Qoffset_{s,n}$ to calculate R_n, the hysteresis $Qhyst1_s$ is used for $Qhyst_s$ to calculate R_s.

   …

   If the usage of HCS is indicated in system information, $TEMP\_OFFSET1_n$ is used for $TEMP\_OFFSET_n$ to calculate TO_n. If it is indicated in system information that HCS is not used, $TEMP\_OFFSET_n$ is not applied when calculating R_n. The best ranked cell is the cell with the highest R value.

   …

   If an FDD cell is ranked as the best cell and the quality measure for cell selection and re-selection is set to CPICH RSCP, the UE shall perform cell re-selection to that FDD cell.

   4.3 In all cases, the UE shall reselect the new cell, only if the following conditions are met:
   - the new cell is better ranked than the serving cell during a time interval Treselection.

   …
   - more than 1 second has elapsed since the UE camped on the current serving cell.
5. Location Registration

   In the UE, the AS shall report registration area information to the NAS.

If the UE reads more than one PLMN identity in the current cell, the UE shall report the found PLMN identities that make the cell suitable in the registration area information to NAS.

6. If the System Information Block type 18 is present, a UE shall obtain knowledge of the PLMN identity of the neighbour cells to be considered for cell reselection, and shall behave as specified in this subclause and in subclause 8.5.14a.

   The UE should store all the relevant IEs included in this system information block.

   A UE in idle mode shall act according to the following rules:

   1> any PLMN list of a given type (IEs "PLMNs of intra-frequency cells list", "PLMNs of inter-frequency cells list", "PLMNs of inter-RAT cell lists") included in the IE "Idle mode PLMN identities" is paired with the list of cells of the same type derived from System Information Block type 11;

   1> the PLMN identity located at a given rank in the PLMN list is that of the cell with the same ranking in the paired list of cells, the cells being considered in the increasing order of their associated identities ("Intra-frequency cell id", "Inter-frequency cell id", "Inter-RAT cell id");

   1> if no identity is indicated for the first PLMN in a list, the UE shall assume that the neighbouring cell broadcasts the same PLMN configuration (i.e. IE "PLMN Identity" and IE "Multiple PLMN List") as the current cell;

   1> if no identity is indicated for another entry in the list, the UE shall assume that the neighbouring cell broadcasts the same PLMN configuration (i.e. IE "PLMN Identity" and IE "Multiple PLMN List") as the previous cell in the list;

   1> if the number of identities in a PLMN list exceeds the number of neighbour cells in the paired list (if any), the extra PLMN identities are considered as unnecessary and ignored;

   1> if the number of identities in a PLMN list (if any) is lower than the number of neighbour cells in the paired list, the missing PLMN identities are replaced by the PLMN configuration for the last cell in the list.

7. Neighbour cells list narrowing for cell reselection

   While a UE is camping on a suitable cell, a UE having performed the PLMN identification of the neighbour cells as specified in subclause 8.1.1.6.18 shall narrow the cell list to be used for cell reselection ([4]) to those neighbour cells for which:

   The PLMN identity is part of the PLMNs that can make a cell suitable as defined in [4].

,References

1. TS 25.304, 4.3
2. TS 25.304, 5.2.1
3. TS 25.304, 5.2.5.1
4. TS 25.304, 5.2.6.1.4
5. TS 25.304, 5.5
6. TS 25.331, 8.1.1.6.18
7. TS 25.331, 8.5.14

6.2.2.5.3 Test purpose

To verify that the UE is able to read the information broadcasted in SIB18 and use the information for cell reselection according to core spec 25.331.

6.2.2.5.4 Method of test

Initial conditions

The UE is equipped with a USIM containing default values.

Cell reselection parameters are set to default values, so the cell-ranking criterion R equals CPICH_RSCP / RF Signal Level.

The Inter-RAT Cell Info List of Cell 1 (UTRAN) refers to Cell 9 (GSM) and Cell 10 (GSM).

The 3G Neighbour Cell Description of Cell 9 (GSM) and Cell 10 (GSM) refers to Cell 1 (UTRAN)

Cell parameters are defined in the table below. Cell 9 and 10 are switched off.

Parameter	Unit	Cell 1 (UTRAN)
Test Channel		1
PLMN		PLMN 1
LAC		0001
CPICH_Ec (FDD)	dBm / 3.84 MHz	-60
Qrxlevmin	dBm	-99
Srxlev*	dB	39
S-search RAT	dB	Not sent

Parameter	Unit	Cell 9 (GSM)	Cell 10 (GSM)
Test Channel		1	2
PLMN		PLMN 1	PLMN 1
LAC		0009	0010
RF Signal Level	dBm	-70	-80
RXLEV_ACCESS_MIN	dBm	-100	-100
C1*	dB	30	20
FDD_Qmin	dB	-20	-20
FDD_Qoffset	dBm	0	0

The reference system configuration from TS 34.108 clause 6.1 is used in all cells, with the following modifications:

SYSTEM INFORMATION BLOCK TYPE18

- Idle mode PLMN identities	
- PLMNs of intra-frequency cells list	Not present
- PLMNs of inter-frequency cells list	Not present
- PLMNs of inter-RAT cells list	
- PLMN identity (1)	PLMN2
- PLMN identity (2)	PLMN1
- Connected mode PLMN identities	Not present

Step e-f

Parameter	Unit	Cell 1 (UTRAN)
CPICH_Ec	dBm / 3.84 MHz	-60 -> -85
Srxlev*	dB	39 ->14

Test procedure

Method C is applied.

a) The UE is switched on.

b) The SS waits for random access requests from the UE. A complete Location Update is done. For UE that supports both CS and PS domain or PS domain only, the Location Updating procedure could be replaced by the appropriate GMM registration procedure.

c) The SS activates Cell 9 and Cell 10.

d) The SS checks during 1 minute for random access requests from the UE.

e) The SS changes the level of Cell 1.

f) The SS waits for random access requests from the UE.

6.2.2.5.5 Test requirements

1) In step b), the UE shall respond on Cell 1

2) In step d), the UE shall not respond on Cell 9 or Cell 10.

3) In step f), the UE shall respond on Cell 10.

6.2.2.5a Cell reselection using SIB18; UTRAN(1.28Mcps TDD) to GSM

6.2.2.5a.1 Definition

Test to verify that the UE performs cell reselection according to core specifications 25.331 and 25.304 in multi-mode environment (1.28Mcps TDD) when SIB18 present. It is verified that the UE reselects from a UTRAN cell to the GSM cell allowed by SIB18, even if other GSM cells are better ranked.

6.2.2.5a.2 Conformance requirement

1. suitable cell:

   A "suitable cell" is a cell on which the UE may camp on to obtain normal service. Such a cell shall fulfil all the following requirements.

   - The cell shall be part of either:
     - the selected PLMN, or:
     - the registered PLMN, or:
     - a PLMN of the Equivalent PLMN list

     according to the latest information provided by the NAS.
   - The cell is not barred, see subclause 5.3.1.1;
   - The cell is part of at least one LA that is not part of the list of "forbidden LAs for roaming" [9], which belongs to a PLMN that fulfils the first bullet above;
   - The cell selection criteria are fulfilled, see subclause 5.2.3.1.2.

     If the IE “Multiple PLMN List” [4] is broadcast in the cell, the cell is considered to be part of all LAs with LAIs constructed from the PLMN identities in the “Multiple PLMN List” and the LAC broadcast in the cell.

2. When camped on a cell, the UE shall regularly search for a better cell according to the cell reselection criteria. If a better cell is found, that cell is selected. The change of cell may imply a change of RAT.

3. When camped normally, the UE shall perform the following tasks:

   - select and monitor the indicated PICH and PCH of the cell as specified in clause 8 according to information sent in system information;
   - monitor relevant System Information. This is specified in [4];

- perform necessary measurements for the cell reselection evaluation procedure;
- execute the cell reselection evaluation process on the following occasions/triggers:
  1) UE internal triggers, so as to meet performance as specified in [10] and [11];
  2) When information on the BCCH used for the cell reselection evaluation procedure has been modified

4. Cell Reselection Criteria:

4.1 If HCS is not used in the serving cell the UE shall perform ranking of all cells that fulfil the criterion S, among:

- all measured cells (see subclause 5.2.6.1.1).

4.2 The cells shall be ranked according to the R criteria, deriving Qmeas,n and Qmeas,s and calculating the R values using CPICH RSCP, P-CCPCH RSCP and the averaged received signal level as specified in TS 25.133 and TS 25.123 for FDD, TDD and GSM cells, respectively.

The offset $Qoffset1_{s,n}$ is used for $Qoffset_{s,n}$ to calculate R_n, the hysteresis $Qhyst1_s$ is used for $Qhyst_s$ to calculate R_s.

…

If the usage of HCS is indicated in system information, $TEMP\_OFFSET1_n$ is used for $TEMP\_OFFSET_n$ to calculate TO_n. If it is indicated in system information that HCS is not used, $TEMP\_OFFSET_n$ is not applied when calculating R_n. The best ranked cell is the cell with the highest R value.

…

4.3 In all cases, the UE shall reselect the new cell, only if the following conditions are met:

- the new cell is better ranked than the serving cell during a time interval Treselection.

…

- more than 1 second has elapsed since the UE camped on the current serving cell.

5. Location Registration

In the UE, the AS shall report registration area information to the NAS.

If the UE reads more than one PLMN identity in the current cell, the UE shall report the found PLMN identities that make the cell suitable in the registration area information to NAS.

6. If the System Information Block type 18 is present, a UE shall obtain knowledge of the PLMN identity of the neighbour cells to be considered for cell reselection, and shall behave as specified in this subclause and in subclause 8.5.14a.

The UE should store all the relevant IEs included in this system information block.

A UE in idle mode shall act according to the following rules:

1> any PLMN list of a given type (IEs "PLMNs of intra-frequency cells list", "PLMNs of inter-frequency cells list", "PLMNs of inter-RAT cell lists") included in the IE "Idle mode PLMN identities" is paired with the list of cells of the same type derived from System Information Block type 11;

1> the PLMN identity located at a given rank in the PLMN list is that of the cell with the same ranking in the paired list of cells, the cells being considered in the increasing order of their associated identities ("Intra-frequency cell id", "Inter-frequency cell id", "Inter-RAT cell id");

1> if no identity is indicated for the first PLMN in a list, the UE shall assume that the neighbouring cell broadcasts the same PLMN configuration (i.e. IE "PLMN Identity" and IE "Multiple PLMN List") as the current cell;

1> if no identity is indicated for another entry in the list, the UE shall assume that the neighbouring cell broadcasts the same PLMN configuration (i.e. IE "PLMN Identity" and IE "Multiple PLMN List") as the previous cell in the list;

1> if the number of identities in a PLMN list exceeds the number of neighbour cells in the paired list (if any), the extra PLMN identities are considered as unnecessary and ignored;

2> if the number of identities in a PLMN list (if any) is lower than the number of neighbour cells in the paired list, the missing PLMN identities are replaced by the PLMN configuration for the last cell in the list.

7. Neighbour cells list narrowing for cell reselection

While a UE is camping on a suitable cell, a UE having performed the PLMN identification of the neighbour cells as specified in subclause 8.1.1.6.18 shall narrow the cell list to be used for cell reselection ([4]) to those neighbour cells for which:

The PLMN identity is part of the PLMNs that can make a cell suitable as defined in [4].

References

1. TS 25.304, 4.3
2. TS 25.304, 5.2.1
3. TS 25.304, 5.2.5.1
4. TS 25.304, 5.2.6.1.4
5. TS 25.304, 5.5
6. TS 25.331, 8.1.1.6.18
7. TS 25.331, 8.5.14

6.2.2.5a.3 Test purpose

To verify that the UE is able to read the information broadcasted in SIB18 and use the information for cell reselection according to core spec 25.331.

6.2.2.5a.4 Method of test

Initial conditions

The UE is equipped with a USIM containing default values.

Cell reselection parameters are set to default values, so the cell-ranking criterion R equals P-CCPCH RSCP / RF Signal Level.

The Inter-RAT Cell Info List of Cell 1 (UTRAN) refers to Cell 9 (GSM) and Cell 10 (GSM).

The 3G Neighbour Cell Description of Cell 9 (GSM) and Cell 10 (GSM) refers to Cell 1 (UTRAN)

Cell parameters are defined in the table below. Cell 9 and 10 are switched off.

Parameter	Unit	Cell 1 (UTRAN)
Test Channel		1
PLMN		PLMN 1
LAC		0001
P-CCPCH RSCP(TDD)	dBm	-65
Qrxlevmin	dBm	-104
Srxlev*	dB	39
S-search RAT	dB	Not sent

Parameter	Unit	Cell 9 (GSM)	Cell 10 (GSM)
Test Channel		1	2
PLMN		PLMN 3	PLMN 1
LAC		0009	0010
RF Signal Level	dBm	-70	-80
RXLEV_ACCESS_MIN	dBm	-100	-100
C1*	dB	30	20
TDD_Qoffset	dBm	-60	-60

The reference system configuration from TS 34.108 clause 6.1 is used in all cells, with the following modifications:

SYSTEM INFORMATION BLOCK TYPE18

- Idle mode PLMN identities	
- PLMNs of intra-frequency cells list	Not present
- PLMNs of inter-frequency cells list	Not present
- PLMNs of inter-RAT cells list	
- PLMN identity (1)	PLMN2
- PLMN identity (2)	PLMN1
- Connected mode PLMN identities	Not present

Step e-f

Parameter	Unit	Cell 1 (UTRAN)
P-CCPCH RSCP(TDD)	dBm	-65 -> -90
Srxlev*	dB	39 ->14

Test procedure

Method C is applied.

a) The UE is switched on.

b) The SS waits for random access requests from the UE. A complete Location Update is done. For UE that supports both CS and PS domain or PS domain only, the Location Updating procedure could be replaced by the appropriate GMM registration procedure.

c) The SS activates Cell 9 and Cell 10.

d) The SS checks during 1 minute for random access requests from the UE.

e) The SS changes the level of Cell 1.

f) The SS waits for random access requests from the UE.

6.2.2.5a.5 Test requirements

1) In step b), the UE shall respond on Cell 1

2) In step d), the UE shall not respond on Cell 9 or Cell 10.

3) In step f), the UE shall respond on Cell 10.

6.2.2.6 Cell reselection based on Absolute Priorities(both High priority and Low priority reselection) in SIB19; UTRAN to GSM

6.2.2.6.1 Definition

To verify that UE reselects from UTRAN to GSM cell when absolute priority of GSM cell is indicated in SIB19 and the cell reselection criteria is fulfilled.

6.2.2.6.2 Conformance requirement

If the cell is not operating in MBSFN mode according to subclause 8.1.1.6.3 the UE should store all relevant IEs included in this system information block. If the cell is not operating in MBSFN mode according to subclause 8.1.1.6.3 the UE shall:

1> if the value of the IE "Priority status" in the variable PRIORITY_INFO_LIST equals "dedicated_priority":

2> clear every stored value of "Threshx$_{, high}$", "Thresh$_{x, low}$", "Threshx$_{, high2}$" and "Thresh$_{x, low2}$" in every occurrence of the IE "Priority Info List" in the variable PRIORITY_INFO_LIST.

1> otherwise:

2> clear the variable PRIORITY_INFO_LIST.

1> clear the variable EUTRA_FREQUENCY_INFO_LIST;

1> act upon the received IE "UTRA priority info list" as described in subclause 8.6.7.3a;

1> if the IE "GSM priority info list" is present:

2> act upon the received IE as described in subclause 8.6.7.3b.

1> if the IE "E-UTRA frequency and priority info list" is present:

2> act upon the received IE as described in subclause 8.6.7.3c.

UTRA priority info list

If the IE "UTRA priority info list" is received in System Information Block Type 19, the UE shall:

1> if the value of the IE "Priority status" in the variable PRIORITY_INFO_LIST equals "dedicated_priority":

2> store the value of the IEs "$S_{prioritysearch1}$", "$S_{prioritysearch2}$", "$Thresh_{serving,low}$" and "$Thresh_{serving,low2}$" in the IE "UTRA Serving Cell" in the variable PRIORITY_INFO_LIST;

2> if any of the values in any of the occurrences of the IE "Frequency List" in any occurrence of the IE "Priority Info List" within the variable PRIORITY_INFO_LIST is the frequency of the serving cell:

3> store the value of the IE "priority" in the IE "UTRA Serving Cell" in the variable PRIORITY_INFO_LIST.

2> otherwise:

3> clear the value of the IE "priority" in the IE "UTRA Serving Cell" in the variable PRIORITY_INFO_LIST.

2> for each occurrence of the IE "UTRAN FDD Frequencies":

3> if the value of the IE "UARFCN" exists in the list of UTRA FDD priorities in the PRIORITY_INFO_LIST then, in the occurrence of IE "Frequency List" within the variable PRIORITY_INFO_LIST with that value of the IE "UARFCN":

4> store the value of the IEs "Thresh$_{x, high}$", "Thresh$_{x, low}$", "QqualminFDD" and "QrxlevminFDD".

2> for each occurrence of the IE "UTRAN TDD Frequencies":

3> if the value of the IE "UARFCN" exists in the list of UTRA TDD priorities in the PRIORITY_INFO_LIST then, in the occurrence of IE "Frequency List" within the variable PRIORITY_INFO_LIST with that value of the IE "UARFCN":

4> store the value of the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$" and "QrxlevminTDD".

1> otherwise:

2> update the PRIORITY_INFO_LIST IE "Priority status" to cause "sys_info_priority".

2> store information in the IE "UTRA Serving Cell" in the IE "UTRA Serving Cell" within the variable PRIORITY_INFO_LIST;

2> for each occurrence of the IE "UTRAN FDD Frequencies":

3> if an entry already exists in the IE "Priority Info List" in the variable PRIORITY_INFO_LIST with the same priority value as indicated in the IE "priority" and has the CHOICE "Radio Access Technology" set to "UTRA FDD":

4> create a new entry in the IE "Frequency List" in that occurrence of IE "Priority Info List", and store the value of "UARFCN" in the IE "UARFCN" in this occurrence of the IE "Frequency List" within the variable PRIORITY_INFO_LIST, and in that new entry:

5> store the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$", "QqualminFDD" and "QrxlevminFDD".

3> otherwise:

4> create a new entry in the IE "Priority Info List" and store the value of "priority" in the IE "priority" in this occurrence of the IE "Priority Info List" within the variable PRIORITY_INFO_LIST, and in that new entry:

5> set the CHOICE "Radio Access Technology" to "UTRA FDD" and store the value of "UARFCN" in the IE "UARFCN" in the first occurrence of the IE "Frequency List";

5> store the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$", "QqualminFDD" and "QrxlevminFDD" in that occurrence of the IE "Frequency List".

2> for each occurrence of the IE "UTRAN TDD Frequencies":

3> if an entry already exists in the IE "Priority Info List" in the variable PRIORITY_INFO_LIST with the same priority value as indicated in the IE "priority" and has the CHOICE "Radio Access Technology" set to "UTRA TDD":

4> create a new entry in the IE "Frequency List" in that occurrence of IE "Priority Info List", and store the value of "UARFCN" in the IE "UARFCN" in this occurrence of the IE "Frequency List" within the variable PRIORITY_INFO_LIST, and in that new entry:

5> store the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$" and "QrxlevminTDD".

3> otherwise:

4> create a new entry in the IE "Priority Info List" and store the value of "priority" in the IE "priority" in this occurrence of the IE "Priority Info List" within the variable PRIORITY_INFO_LIST, and in that new entry:

5> set the CHOICE "Radio Access Technology" to "UTRA TDD" and store the value of "UARFCN" in the IE "UARFCN" in the first occurrence of the IE "Frequency List";

5> store the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$" and "QrxlevminTDD" in that occurrence of the IE "Frequency List".

GSM priority info list

If the IE "GSM priority info list" is received in System Information Block Type 19, the UE shall:

1> if the value of the IE "Priority status" in the variable PRIORITY_INFO_LIST equals "dedicated_priority":

2> for each occurrence of the IE "GSM Priority Info":

3> store the IEs "QrxlevminGSM", "$Thresh_{x, high}$" and "$Thresh_{x, low}$" in every entry of PRIORITY_INFO_LIST with CHOICE "Radio Access Technology" set to "GSM", which contains an IE "BCCH ARFCN" matching a BCCH ARFCN indicated in the IE "GSM cell group".

1> otherwise:

2> for each occurrence of the IE "GSM Priority Info":

3> create a new entry in the IE "Priority Info List" in the variable PRIORITY_INFO_LIST, and in this new entry:

4> store the value of IE "priority" from the IE "GSM Priority Info", and set the CHOICE "Radio Access Technology" to "GSM";

4> for each of the BCCH ARFCNs indicated by the IE "GSM cell group":

5> create a new entry in the IE "Frequency List" and store the IEs "Band Indicator", "QrxlevminGSM", "$Thresh_{x, high}$" and "$Thresh_{x, low}$" and store the indicated BCCH ARFCN in the IE "BCCH ARFCN".

If the UE has received absolute priority information for inter-RAT layers, the UE shall follow these rules:

- The UE shall perform measurements of inter-RAT layers with a priority higher than the priority of the current serving cell.

NOTE: The rate of these measurements may vary depending on whether Srxlev and Squal of the serving cell are above or below $S_{prioritysearch1}$ and $S_{prioritysearch2}$. This is specified in [10].

- For inter-RAT layers with a priority lower than the priority of the current serving cell:

  - If $Srxlev_{\mathbf{ServingCell}} > S_{prioritysearch1}$ and $Squal_{\mathbf{ServingCell}} > S_{prioritysearch2}$ the UE may choose not to perform measurements of inter-RAT layers of lower priority.

  - If $Srxlev_{\mathbf{ServingCell}} <= S_{prioritysearch1}$ or $Squal_{\mathbf{ServingCell}} <= S_{prioritysearch2}$ the UE shall perform measurements of inter-RAT layers of lower priority.

Absolute priorities of different absolute priority layers may be provided to the UE. The following cell reselection criteria are used for inter-frequency cells if absolute priority information for inter-frequency is available to the UE, and inter-RAT cells if absolute priority information for inter-RAT is available to the UE.

...

The following definitions apply:

- Criterion 1: the $Srxlev_{nonServingCell,x}$ of a cell on an evaluated higher absolute priority layer is greater than $Thresh_{x,high}$ during a time interval Treselection;

…

- Criterion 3: $Srxlev_{ServingCell} < Thresh_{serving,low}$ or $Squal_{ServingCell} < 0$ and the $Srxlev_{nonServingCell,x}$ of a cell on an evaluated lower absolute priority layer is greater than $Thresh_{x,low}$ during a time interval Treselection;

Cell reselection to a cell on a higher absolute priority layer than the camped frequency shall be performed if criterion 1 is fulfilled.

...

Cell reselection to a cell on a lower absolute priority layer than the camped frequency shall be performed if criterion 3 is fulfilled.

If more than one cell meets the above criteria, the UE shall reselect the cell with the highest $Srxlev_{nonServingCell,x}$ among the cells meeting the criteria on the highest absolute priority layer.

The UE shall not perform cell reselection to cells for which the cell selection criterion S is not fulfilled.

The UE shall not perform cell reselection until more than 1 second has elapsed since the UE camped on the current serving cell.

References

1. TS 25.331, clause 8.1.1.6.19
2. TS 25.331, clause 8.6.7.3a
3. TS 25.331, clause 8.6.7.3b
4. TS 25.304, clause 5.2.6.1.2a
5. TS 25.304, clause 5.2.6.1.4a

6.2.2.6.3 Test purpose

1. To verify that the UE performs cell reselection from UTRAN to GSM on the following occasions:

   1.1 Reselection criteria for low priority cell in SIB 19 are fulfilled.

   1.2 Reselection criteria for high priority cell in SIB 19 are fulfilled.

6.2.2.6.4 Method of test

Initial Condition

UE is idle updated on Cell 1.

All cells belong to the same PLMN.

The Inter-RAT Cell Info List of Cell 1 (UTRAN) refers to Cell 9(GSM).

The 3G Neighbour Cell Description of Cell 9(GSM) refers to Cell 1(UTRAN).

UTRAN cell broadcasts SIB19 with default contents as per 34.108. (FFS)

Related ICS/IXIT statement

- UE supports both GSM and UTRAN Radio Access Technologies

Table 6.2.2.6-1

Parameter	Unit	Cell 1 (UTRAN)			
Timing		T0	T1	T2	T3
CPICH Ec (FDD)	dBm / 3.84 MHz	-60	-78	-60	-70
P-CCPCH RSCP (TDD)	dBm	-60	-78	-60	-70
Srxlev*	dB	19	1	19	9

Table 6.2.2.6-2

Parameter	Unit		Cell 92 (GSM)		
Timing		T0	T1	T2	T32
RF Signal Level	dBm	-105	-80	-105	-75
RXLEV_ACCESS_MIN	dBm	-100	-100	-100	-100
C1*	dBm	-5	20	-5	25

Table 6.2.2.6-1 and Table 6.2.2.6-2 illustrate the downlink power to be applied for the two cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while columns marked "T1", "T2" and "T3" are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Test Procedure

Method C is applied.

a) SS transmits the MIB with the “MIB Value Tag” IE different from the original setting and modified SIB 19(Cell1 priority > Cell 9 priority - See specific message contents).

b) SS transmits Paging Type 1 to notify UE of the change in system information on Cell1 and waits for 5s to ensure UE has read the new SIB information.

c) SS reconfigures itself according to settings in Column T1 in tables 6.2.2.x-1 and 6.2.2.x-2. Reselection criteria for low priority cell reselection is fulfilled: $Srxlev_{serving} < Thresh_{serving,low}$ AND $C1 > Thresh_{x,low}$.

d) UE reselects to Cell9(GSM cell configured as low priority in SIB19) and SS checks for random access request on Cell9.

e) SIB19 for Cell1 is configured with default contents as in 34.108. Then, to bring back UE to Cell1(for verifying High priority cell reselection from UTRAN to GSM), SS reconfigures itself according to settings in Column T20 in table 6.2.2.x-1 and 6.2.2.x-2.

f) UE reselects to Cell1. SS checks for random access request on Cell1.

g) SS transmits the MIB with the “MIB Value Tag” IE different from the previous setting and modified SIB19(Cell9 priority > Cell1 priority – See specific message contents).

h) Then, SS transmits Paging Type 1 to notify UE of the change in system information and waits for 5s to ensure UE has read the new SIB information.

i) SS reconfigures itself according to settings in Column T3 in table 6.2.2.x-1 and 6.2.2.x-2. Reselection criterion for high priority cell reselection is fulfilled: $C1 > Thresh_{x,high}$.

j) UE reselects to Cell9(GSM cell configured as high priority in SIB19). SS checks for random access request on Cell9

Specific Message Contents

System Information Block type 19(Step a)

Information Element	Value/remark
SysInfoType19	
utra-PriorityInfoList	
utra-ServingCell	
Priority	[4]
s-PrioritySearch1	[8 (16 dB)]
s-PrioritySearch2	Not present
threshServingLow	[4 (8 dB)]
utran-FDD-FrequencyList (SIZE(1..maxNumFDDFreqs))	Not present
utran-TDD-FrequencyList (SIZE(1..maxNumTDDFreqs))	Not present
gsm-PriorityInfoList	
gsmCellGroup	
startingARFCN	Value depending on ARFCN of the GSM band under test
bandIndicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
FollowingARFCNs : explicitListOfARFCNs	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
priority[n]	[3]
qRxLevMinGSM	[-50(-100dBm)]
threshXhigh	8 (16dB)
threshXlow	5 (10dB)
eutra-FrequencyAndPriorityInfoList (SIZE (1..maxNumEUTRAFreqs))	Not present

System Information Block type 19(Step g)

Information Element	Value/remark
SysInfoType19	
utra-PriorityInfoList	
utra-ServingCell	
Priority	[4]
s-PrioritySearch1	[8 (16 dB)]
s-PrioritySearch2	Not present
threshServingLow	[4 (8 dB)]
utran-FDD-FrequencyList (SIZE(1..maxNumFDDFreqs))	Not present
utran-TDD-FrequencyList (SIZE(1..maxNumTDDFreqs))	Not present
gsm-PriorityInfoList	
gsmCellGroup	
startingARFCN	Value depending on ARFCN of the GSM band under test
bandIndicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
FollowingARFCNs : explicitListOfARFCNs	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
priority[n]	[5]
qRxLevMinGSM	[-50(-100dBm)]
threshXhigh	8 (16dB)
threshXlow	5 (10dB)
eutra-FrequencyAndPriorityInfoList (SIZE (1..maxNumEUTRAFreqs))	Not present

PAGING TYPE 1(Step b and Step h)

Use the message type reference found in clause 9.1.1 of TS 34.108, with the following exceptions:

Information Element	Value/Remark	Comment	Condition
PagingType1			
pagingRecordList	Not present		
bcch-ModificationInfo			
mib-ValueTag	Set to (Current MIB value tag + 1)		
bcch-ModificationTime	Not present		
laterNonCriticalExtensions	Not present		

6.2.2.6.5 Test requirements

At step d), UE reselects to Cell9(GSM) which is configured as low priority cell.

At step j), UE reselects to Cell9(GSM) which is configured as high priority cell.

6.3 HNB Environment

6.3.1 CSG Selection

6.3.1.1 Manual CSG ID Selection

6.3.1.1.1 Definition

6.3.1.1.2 Conformance requirement

1. If the MS supports CSG, it is provisioned with a list of allowed CSG identities and associated PLMN identities from the USIM if the list is available in the USIM or as described in 3GPP TS 24.285 if the list is not available in the USIM. This list has zero or more entries.

- Manual mode: In this mode, the MS indicates to the user the list of available CSGs in the currently selected PLMN. The list of CSGs presented to the user is not restricted by the allowed CSG list stored in the MS. After the user makes a selection, the MS camps on a cell with the selected CSG identity and attempts to register with the associated PLMN.

2. Manual CSG ID selection enables a human user to select a CSG ID. In manual CSG ID selection the UE may scan all frequencies in the supported frequency bands and display a list of found CSG IDs or the corresponding HNB Names if broadcast by the CSG cells, and indications as to whether the found CSG IDs are contained in the UE's Allowed CSG List. When the user selects an entry in the list, the UE selects the CSG cell with the best RF quality among the ones with same CSG ID. The UE may normally camp on the chosen cell if it is an allowed CSG cell.

During manual CSG ID selection a UE is allowed to perform Location Registration procedure on a CSG cell which CSD ID is not in the Allowed CSG List.

Based on the outcome of a Location Registration procedure initiated on a CSG cell the UE's Allowed CSG List is updated.

The UE is allowed to not support manual CSG selection in connected mode.

3. In the UE on request of NAS, the AS shall scan all RF channels in the UTRA and E-UTRA bands according to its capabilities to find available CSG IDs. On each carrier, the UE shall at least search for the strongest cell, read its system information and report available CSG ID(s) belonging to the registered PLMN together with their "HNB name" (if broadcast) to the NAS. The search for available CSG IDs may be stopped on request of the NAS.

If NAS has selected a CSG ID and provided this selection to AS, the UE shall search for an acceptable or suitable cell belonging to the selected CSG ID to perform the location registration.

Reference

1. TS 23.122 clause3.1A

2. TS 25.367 clause6.1.

3. TS 25.304 clause5.6.

6.3.1.1.3 Test purpose

To verify that the UE could select a specific CSG by manual selection procedure and show/update the CSG list.

6.3.1.1.4 Method of test

Initial conditions

1. There exists 4 cells which belong to 3 different CSG IDs respectively- CSG1(cell1), CSG2(cell2), and CSG3(cell4, cell5), and cell4 has better RF quality than cell5. Cell levels are from the table below.

Cell	CPICH_Ec [dBm/3.84 MHz]	CSG ID	Test Channel	PLMN	LAC
Cell 1	-60	CSG 1	1	PLMN1	001
Cell 2	-65	CSG 2	3	PLMN1	002
Cell 4	-75	CSG 3	2	PLMN1	001
Cell 5	-80	CSG 3	2	PLMN1	002

2. On the UE side, CSG1 and CSG2 are in the UE's Allowed CSG List while CSG3 is not in the list.

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	PLMN	CSG ID
EFACSGL	PLMN 1	CSG 1,CSG 2

The UE is previously registered on PLMN1, before switched off.

3. On the SS side, CSG1 and CSG3 are in the Allowed CSG List which belongs to the UE, while CSG2 is not.

4. The UE is power off.

Test Procedure

Method C is applied.

a) The SS activates 4 cells.

b) The UE is switched on.

c) The SS waits to see if there are any random access requests from the UE.

d) Manual CSG ID selection is triggered at the UE, Wait for UE to display the available CSG cells.

e) CSG2 is selected manually.

f) The SS waits to see if there are any random access requests from the UE. The registration attempt on Cell 2 is rejected by the SS using cause "Not authorized for this CSG" (#25).

g) CSG3 is selected manually.

h) The SS waits to see if there are any random access requests from the UE. The registration attempt on cell 4 is accepted by the SS.

6.3.1.1.5 Test Requirements

1) In step c), the response from the UE shall be on Cell 1.

2) In step d), the list is displayed on the UE with 3 CSG IDs and the indications of whether these CSG IDs are in the UE's Allowed CSG List. It indicates that CSG 1 and CSG 2 are accessible, while CSG 3 is inaccessible.

3) In step f), the response from the UE shall be on Cell 2. The allowed CSG list is updated by deleting CSG 2, and the list indicates now CSG 1 is accessible, while CSG 2 and CSG 3 are not.

4) In step h), the response from the UE shall be on Cell 4. The Allowed CSG List on UE is updated which indicates CSG 1 and CSG 3 are accessible while CSG 2 is not.

6.3.1.2 UE in automatic network selection mode to select a suitable CSG cell

6.3.1.2.1 Definition

6.3.1.2.2 Conformance requirements

For an eCall only mobile station, Timers T3242 and T3243 are considered to have expired at power-on. When mobility management is activated after power-on, the service state is 19.7 PLMN SEARCH. The detailed

processing in this state is described in detail in 3GPP TS 23.122 , 3GPP TS 43.022, 3GPP TS 45.008 and 3GPP TS 25.304, where procedures for power on and selection of PLMN is described in detail. If the "Location update status" stored on the SIM/USIM is different from "updated", then the mobile shall act as if the "Location update status" stored on the SIM/USIM is "not updated".

If the mobile station is in automatic network selection mode and the selected cell is in a forbidden PLMN, is in a forbidden LA, or is a CSG cell whose CSG ID is not in the allowed CSG ID list stored in the MS, then the mobile station enters the LIMITED SERVICE state.

Reference

TS 24.008 clause 4.2.1.1

6.3.1.2.3 Test purpose

Selection of the Service State after Power On: If the mobile station is in automatic network selection mode and the selected cell is a CSG cell whose CSG ID is not in the allowed CSG ID list stored in the MS, then the mobile station enters the LIMITED SERVICE state.

6.3.1.2.4 Method of test

Initial conditions

1. There exists 2 cells which belong to 2 different CSG IDs respectively- CSG1(cell1), CSG2(cell2). Cell levels are from the table below.

Cell	CPICH_Ec [dBm/3.84 MHz]	CSG ID	Test Channel	PLMN	LAC
Cell 1	-60	CSG 1	1	PLMN1	001
Cell 2	-65	CSG2	1	PLMN1	001

2. There exists a UE whose Allowed CSG List does not contain CSG 1 but contains CSG 2.

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	PLMN	CSG ID
EFACSGL	PLMN 1	CSG 2

The UE is previously registered on PLMN1, before switched off.

3. UE is registered on Cell 2.
4. UE is in “automatic network selection mode” and is switched off.
5. Cell 1 and Cell 2 are both switched off.

Test Procedure

a) The SS activates Cell 1.

b) UE is switched on.

c) The SS waits to see if there are any random access requests from the UE.

d) Cell 1 is switched off.

e) The SS activates Cell 2.

f) The SS waits to see if there are any random access requests from the UE.

6.3.1.2.5 Test Requirements

In step c) the UE shall inform that no service or no network is available.

In step f) the response from the UE shall be on Cell 2.

6.3.1.3 Manual CSG ID Selection across PLMNs

6.3.1.3.1 Definition

Test to verify that the UE performs the manual CSG ID selection whose CSG ID is not within the registered or selected PLMN in CSG or hybrid cells.

6.3.1.3.2 Conformance requirement

1. If the MS supports CSG, it is provisioned with an Allowed CSG list and an Operator CSG list and associated PLMN identities. Both lists can be retrieved either from the USIM if the lists are available in the USIM, or as described in 3GPP TS 24.285 [47] if the lists are not available in the USIM. These lists have zero or more entries.

- Manual mode: In this mode, the MS indicates to the user the list of available CSGs and the associated PLMNs. The list of CSGs presented to the user is not restricted by the Allowed CSG list and the Operator CSG List stored in the MS. After the user makes a selection, the MS camps on a cell with the selected CSG identity and may attempt to register with the associated PLMN.

2. Manual CSG ID selection enables a human user to select a CSG ID. In manual CSG ID selection the UE may scan all frequencies in the supported frequency bands and display a list of found CSG IDs or the corresponding HNB Names if broadcast by the CSG cells or hybrid cells, and indications as to whether the found CSG IDs are contained in the UE's CSG white list. When the user selects an entry in the list, the UE selects any CSG cell or hybrid cell among the ones with same CSG ID. The UE may normally camp on the chosen cell if it is an allowed CSG cell or a hybrid cell.

   During manual CSG ID selection a UE is allowed to perform Location Registration procedure on a CSG cell whose CSD ID is not in the CSG white list.

   Based on the outcome of a Location Registration procedure initiated on a CSG cell, the UE's CSG white list is updated.

3. In the UE on request of NAS, the AS shall scan all RF channels in the UTRA bands according to its capabilities to find available CSG IDs. On each carrier, the UE shall at least search for the strongest cell, read its system information and report available CSG ID(s) together with their "HNB name" (if broadcast) and PLMN(s) to the NAS. The search for available CSG IDs may be stopped on request of the NAS.

   If NAS has selected a CSG ID and provided this selection to AS, the UE shall search for an acceptable or suitable cell belonging to the selected CSG ID to camp on.

4. If the MS has initiated the location updating procedure due to manual CSG selection and receives a LOCATION UPDATING ACCEPT message, and the MS sent the LOCATION UPDATING REQUEST message in a CSG cell, the MS shall check if the CSG ID of the cell is contained in the Allowed CSG list. If not, the MS shall add that CSG ID to the Allowed CSG list.

5. If the user selects a CSG in a PLMN that is different from the RPLMN, then the following applies:

   i) The MS shall store a duplicate of the RPLMN and a duplicate of the current PLMN selection mode;

   ii) The MS shall enter into Manual mode of PLMN selection in state M4 (Trying PLMN) as defined in subclause 4.3.1.2 of TS 23.122;

   iii) The MS shall select the PLMN corresponding to the CSG and attempt to register on the selected CSG cell in the PLMN; and

   iv) If the registration fails or the MS is no longer in the coverage of the CSG, then the MS shall return to the stored duplicate PLMN selection mode and use the stored duplicate value of RPLMN for further action.

Reference

1. TS 23.122 clause 3.1A

2. TS 25.367 clause 6.1.

3. TS 25.304 clause 5.6.

4. TS 24.008 clause 4.4.4.6

5. TS 23.122 clause 4.4.3.1.3.3

6.3.1.3.3 Test purpose

1. To verify that the UE could select a specific CSG by manual selection procedure across PLMNs and update the Allowed CSG list.

2. To verify that the UE could select a specific CSG ID of a hybrid cell by manual selection procedure and does not update the Allowed CSG list.

3. To verify that, after having selected a CSG or hybrid cell not belonging to the initial Registered PLMN, when the UE is no longer within the coverage of the CSG cell, it returns to the stored duplicate PLMN selection mode and selects a cell on the initial Registered PLMN

6.3.1.3.4 Method of test

Initial conditions

1. There exists 3 cells which belong to 3 different CSG IDs respectively- CSG1(cell1), CSG2(cell4), and CSG3(cell8). Cell levels are from the table below.

Cell	CPICH_Ec [dBm/3.84 MHz]	CSG ID	CSG Indicator	Test channel	PLMN	LAC
Cell 1	-70	CSG 1	Enumerated (TRUE)	1	PLMN1	001
Cell 4	-65	CSG 2	Enumerated (TRUE)	2	PLMN2	001
Cell 8	-70	CSG 3	Not present	3	PLMN3	002

Cell 1 and Cell 4 shall also broadcast “CSG PSC Split Information” in its System Information Block type 3 with following parameters:

Parameters	Cell 1	Cell 4
Start PSC	100	250
Number of PSCs	5	5

There exists 2 cells which do not belong to any CSG. Their cell levels are given in the table below.

Cell	CPICH_Ec [dBm/3.84 MHz]	CSG ID	CSG Indicator	Test channel	PLMN	LAC
Cell 5	-65	Not present	Not present	2	PLMN2	003
Cell 7	-70	Not present	Not present	3	PLMN3	003

Cell 4 shall include Cell 5 as a neighbouring cell in its System Information Block Type 11.

Cell 8 shall include Cell 7 as a neighbouring cell in its System Information Block Type 11.

2. On the UE side, CSG1 is in the UE’s Allowed CSG List while CSG2 and CSG3 are not in the list. UE’s Operator CSG List is empty.

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	PLMN	CSG ID
EF_{ACSGL}	PLMN 1	CSG 1

The UE is previously registered on PLMN1, before switched off.

3. On the SS side, CSG1, CSG2 and CSG3 are in the Allowed CSG List which belongs to the UE.

4. The UE is power off.

Test Procedure

Method C is applied.

a) The SS activates 3 cells 1, 4 and 8.

b) The UE is switched on

c) The SS waits to see if there are any random access requests from the UE.

d) Manual CSG ID selection is triggered at the UE. Wait for UE to display the available CSG cells.

e) CSG2 is selected manually.

f) The SS waits to see if there are any random access requests from the UE. The registration attempt on Cell 4 is accepted by the SS.

g) Cell-8 is switched off.

h) The SS activates Cell-5. Cell-4 is switched off. The SS waits to see if there are any random access requests from the UE.

i) Cell-5 is switched off. The SS activates Cell-8.

j) CSG3 is selected manually via Manual CSG ID selection.

k) The SS waits to see if there are any random access requests from the UE. The registration attempt on cell 8 is accepted by the SS.

l) The SS activates Cell-7. Cell-8 is switched off. The SS waits to see if there are any random access requests from the UE.

6.3.1.3.5 Test Requirements

1) In step c), the response from the UE shall be on Cell 1. The displayed PLMN shall be PLMN 1.

2) In step d) the list is displayed on the UE with 3 CSG IDs and their associated PLMNs and the indications of whether these CSG IDs are in the UE's CSG whitelist. It indicates that CSG 1 is accessible, while CSG2 and CSG 3 are inaccessible.

3) In step f), the response from the UE shall be on Cell 4. The CSG 2 is added to the Allowed CSG list, and the list indicates now CSG 1 and CSG 2 are accessible, while CSG 3 is not. The displayed PLMN shall be PLMN 2.

4) In step h), the UE shall respond on Cell-1 and not Cell-5.

5) In step k), the response from the UE shall be on Cell 8. The Allowed CSG List on UE is not updated. The displayed PLMN shall be PLMN 3.

6) In step l), the UE shall respond on Cell-1 and not Cell-7.

6.3.1.4 Suitable Cell checking for reselection to the CSG Cell

6.3.1.4.1 Definition

Test to verify the UE can check whether a Cell is a CSG suitable Cell according to the CSG id and ePLMN identity.

6.3.1.4.2 Conformance requirement

1: Definitions

For the purposes of the present document, the following definitions and the definitions in [12] apply.

Absolute priority layer: A priority level can be defined for a UTRA frequency, a group of GSM frequencies or a E-UTRA frequency.

CSG whitelist: A list provided by NAS containing all the CSG identities and their associated PLMN IDs of the CSGs to which the subscriber belongs.

NOTE: This list is known as Allowed CSG List in Rel-8 Access Stratum specifications.

Acceptable Cell: A Cell that satisfies certain conditions as specified in 4.3. A UE can always attempt emergency calls on an acceptable Cell.

Available PLMN: A PLMN for which the UE has found at least one Cell and read its PLMN identity.

Barred Cell: A Cell a UE is not allowed to camp on.

Camped on a Cell: UE has completed the Cell selection/reselection process and has chosen a Cell. The UE monitors system information and (in most cases) paging information.

Camped on any Cell: UE is in idle mode and has completed the Cell selection/reselection process and has chosen a Cell irrespective of PLMN identity.

Camped on MBSFN cluster: UE has completed the MBSFN Cluster selection/reselection process and has chosen a MBSFN Cluster. The UE monitors system information and receives notifications for MBMS services and possibly receives a MBMS service.

Closed Subscriber Group (CSG): A Closed Subscriber Group identifies subscribers of an operator who are permitted to access one or more Cells of the PLMN but which have restricted access (CSG Cells).

CSG Cell: A Cell broadcasting a CSG Indicator that is set to TRUE and a specific CSG identity. All the UTRAN CSG Cells sharing the same identity and PLMN identity are identifiable as a single group for the purposes of mobility management and charging.

CSG identity: An identifier broadcast by a CSG or hybrid Cell/Cells and used by the UE to facilitate access for authorised members of the associated Closed Subscriber Group.

2. Service type in Idle and Connected Mode

This clause defines the level of service that may be provided by the network to a UE in Idle mode and Connected Mode.

The action of camping on a Cell is necessary to get access to some services. Three levels of services are defined for UE:

- Limited service (emergency calls and ETWS if supported on an acceptable Cell)
- Normal service (for public use on a suitable Cell)
- Operator service (for operators only on a reserved Cell)

Furthermore, the Cells are categorised according to which services they offer:

acceptable Cell:

An "acceptable Cell" is a Cell on which the UE may camp to obtain limited service (originate emergency calls and receive ETWS if supported). Such a Cell shall fulfil the following requirements, which is the minimum set of requirements to initiate an emergency call and to receive ETWS primary notification either with or without security in a UTRAN network:

- The Cell is not barred, see subclause 5.3.1.1;
- The Cell selection criteria are fulfilled, see subclause 5.2.3.1.2;

suitable Cell:

A "suitable Cell" is a Cell on which the UE may camp on to obtain normal service. Such a Cell shall fulfil all the following requirements.

- The Cell shall be part of either:

the selected PLMN, or:

the registered PLMN, or:

a PLMN of the Equivalent PLMN list

- For a CSG Cell, the CSG ID broadcast by the Cell is present in the CSG whitelist associated with the PLMN for which the above condition is satisfied;

According to the latest information provided by the NAS.

- The Cell is not barred, see subclause 5.3.1.1;
- The Cell is part of at least one LA that is not part of the list of "forbidden LAs for roaming" [9], which belongs to a PLMN that fulfils the first bullet above;
- The Cell selection criteria are fulfilled, see subclause 5.2.3.1.2.

If the IE “Multiple PLMN List” [4] is broadcast in the Cell, the Cell is considered to be part of all LAs with LAIs constructed from the PLMN identities in the “Multiple PLMN List” and the LAC broadcast in the Cell.

barred Cell:

A Cell is barred if it is so indicated in the system information [4].

reserved Cell:

A Cell is reserved if it is so indicated in system information [4].

Following exceptions to these definitions are applicable for UEs:

- camped on a Cell that belongs to a LA that is forbidden for regional provision of service, and during emergency calls.
- as an outcome of the manual CSG selection procedure the UE is allowed to access an acceptable Cell which fulfils the Cell selection criteria and is not barred or reserved for operator use for UEs not belonging to AC 11 or 15 and inform NAS that access is possible (for location registration procedure).

NOTE: UE is not required to support manual search and selection of CSG(s) while in RRC CONNECTED state.

A Cell that belongs to a LA that is forbidden for regional provision service ([5], [16]) is suitable but provides only limited service.

If a UE has an ongoing emergency call, all acceptable Cells of that PLMN are treated as suitable for Cell reselection for the duration of the emergency call.

suitable MBSFN cluster:

A Cell is part of an MBSFN cluster if it is indicated in system information [4]. An MBSFN cluster provides exclusively MBMS services. A suitable MBSFN cluster shall fulfil all the following requirements:

- For FDD, 3.84 Mcps TDD IMB and 3.84/7.68 Mcps TDD the MBSFN cluster shall be part of either:

the registered PLMN, or:

a PLMN of the Equivalent PLMN list

The MBSFN cluster shall be indicated as:

- providing MBSFN only service

For FDD, 3.84 Mcps TDD IMB and 3.84/7.68 Mcps TDD MBSFN cluster selection/reselection process for MBSFN clusters operating on the same frequency shall be based on reception quality. Details of the process are not specified.

3. Cell reselection with CSG Cells

Cell reselection from a non-CSG Cell to a CSG Cell

In addition to normal Cell reselection, the UE shall use an autonomous search function to detect at least previously visited allowed CSG Cells on non-serving frequencies, including inter-RAT frequencies, according to the performance requirements specified in [10], when at least one CSG ID with associated PLMN identity is included in the UE's CSG whitelist. The UE is required to perform autonomous search function in Idle, Cell_PCH and URA_PCH states. The UE shall disable the autonomous search function for CSG Cells if the UE's CSG whitelist is empty. If "Dedicated CSG frequency(ies) " IE is present, the UE may use the autonomous search function only on these dedicated frequencies and on the other frequencies listed in the system information.

NOTE: The UE autonomous search function, per UE implementation, determines when and/or where to search for allowed CSG Cells.

When the UE has no or an empty CSG whitelist, the UE may ignore Cells with PSC in the stored range "CSG PSC Split Information" [4] reserved for CSG Cells for intra-frequency and inter-frequency measurements and Cell re-selections.

If the UE detects a suitable CSG Cell on the same frequency it shall reselect this Cell if the concerned CSG Cell is the highest ranked Cell, according to 5.2.6.1.4.

If the UE detects a suitable CSG Cell on a different frequency it shall reselect this Cell irrespective of the Cell reselection rules applicable for the Cell the UE is currently camped on, if the detected suitable CSG Cell is the strongest Cell on that frequency. If suitable CSG Cells are detected on different frequencies and these are the strongest Cells on their frequencies, then the UE shall reselect to any one of them.

If the UE detects one or more suitable CSG Cell on another RAT, the UE shall reselect to one of them according to [18].

Cell reselection from a CSG Cell to non-CSG Cell

While camped on a suitable CSG Cell, the UE shall consider the frequency of the serving Cell to be the highest priority frequency (i.e. higher than the eight network configured values or highest HCS priority) and shall not reselect to non-CSG Cell as long as the serving Cell remains the highest ranked Cell on that frequency (This includes the case when the UE has only dedicated priorities for other frequencies but not for the current frequency, i.e. the UE does not consider the current frequency to be the lowest priority frequency according to rules in 5.2.6.1.2a and 5.2.6.1.4a). Cell reselection rules as defined in section 5.2.6.1 are applied for Cell reselection from a CSG Cell to non-CSG Cell.

Cell reselection from a CSG Cell to a CSG Cell

To search for CSG Cells not listed in the system information of the serving CSG Cell, the UE may use the autonomous search function when at least one CSG ID with associated PLMN identity is included in the UE's CSG whitelist. The UE is required to perform autonomous search function in Idle, Cell_PCH and URA_PCH states. If "Dedicated CSG frequency(ies)" IE is present, the UE may use the autonomous search function only on dedicated frequencies and on other frequencies listed in the system information.

If the UE detects a suitable CSG Cell on the same frequency, it shall reselect to this Cell if the concerned CSG Cell is the highest ranked Cell, according to 5.2.6.1.4.

While camped on a suitable CSG Cell, the UE shall consider the frequency of the serving Cell to be the highest priority frequency (i.e. higher than the eight network configured values or highest HCS priority) as long as the serving Cell is the highest ranked Cell on that frequency (This includes the case when the UE has only dedicated priorities for other frequencies but not for the current frequency, i.e. the UE does not consider the current frequency to be the lowest priority frequency according to rules in 5.2.6.1.2a and 5.2.6.1.4a).

If the UE detects one or more suitable CSG Cell on another RAT, the UE may reselect to one of them according to [18].

For reselection to neighbour CSG Cells listed in the system information of the serving CSG Cell the UE shall apply Cell measurement rules according to 5.2.6. If the UE detects a suitable CSG Cell that is listed in the system information of the serving Cell on other frequencies, and the detected CSG Cell is the strongest Cell on that frequency, then the UE shall consider these frequencies to have a priority equal to the current frequency and shall follow Cell reselection rules according to 5.2.6.1.4 and 5.2.6.1.4a.

Cell Reselection with Hybrid Cells

In addition to normal Cell reselection rules, the UE shall use an autonomous search function to detect at least previously visited hybrid Cells whose CSG ID and associated PLMN identity is in the UE's CSG whitelist according to the performance requirements specified in [10]. The UE shall treat detected hybrid Cells as CSG Cells if the CSG ID and associated PLMN of the hybrid Cell is in the UE's CSG whitelist and as normal Cells otherwise.

Reference

1. 3GPP TS 25.304 clause 3.1 v9.6
2. 3GPP TS 25.304 clause 4.3 v9.6
3. 3GPP TS 25.304 clause 5.2.6.4. v9.6

6.3.1.4.3 Test purpose

1. To confirm that a CSG Cell is considered as suitable Cell when tCSG ID with associated PLMN identity of the CSG Cell is included in the UE's CSG whitelist.

6.3.1.4.4 Method of test

Initial conditions

There exist 2 Cells: Cell 1and Cell 2.

Cell 1 is a macro Cell.

Cell 1 shall include Cell 2 as neighbouring Cell in its System Information Block Type 11.

Cell 1 belongs to PLMN 1

Cell 2 is a CSG Cell with the CSG ID of CSG 2. "CSG PSC Split Information" is also included in SIB3 with "Start PSC" set to 144 and "Number of PSCs" set to 10.

The Primary Scrambling Code of Cell 2 is 150.

Cell 2 belongs to PLMN2.

UE's white list is set as below:

Table 6.3.1.4-1

CSG ID	PLMN ID
2	2

Related ICS/IXIT statement(s)

- UE supports FDD and CSG.

Test Procedure

For FDD only:

Step a-d:

Parameter	Unit	Cell 1	Cell 2
Test Channel		1	2
LAC		0001	0002
CPICH_Ec	dBm/3.84 MHz	-60	-75
$Qhyst1_s$	dB	0	10
$Qoffset1_{s,n}$	dBm	0	10
Sintrasearch	dB	0	not present
Sintersearch	dB	0	not present
CSG Identity			0000002
Start PSC			150
Number of PSCs			alltheRest

Step e:

CPICH_Ec	dBm/3.84 MHz	-60->-85	-75->--55
$Qhyst1_s$	dB	0	10
$Qoffset1_{s,n}$	dBm	0	10

Test procedure

a) The SS activates Cell 1.

b) The UE is switched on.

c) The SS waits for random access requests from the UE. A complete Location Update is done. SS specifies PLMN 2 is Equivalent to PLMN 1 in Location Update Accept Message.

d) The SS activates Cell 2 and monitors it for random access requests from the UE.

e) The UE selects Cell 2. A complete Location Updating procedure is done where SS sends LOCATION UPDATING ACCEPT message.

6.3.1.4.5 Test requirements

1) In step c, the UE shall respond and camp on Cell 1.

2) In step d, the UE shall not respond on Cell 2.

3) In step e, the UE shall respond and camp on Cell 2.

6.3.2 Reselection from a non-CSG cell to an allowed CSG cell

6.3.2.1 Intra-frequency cell reselection from a non-CSG cell to an allowed CSG cell

6.3.2.1.1 Definition

Test to verify that the UE performs the intra-frequency cell reselection from a non-CSG cell to an allowed CSG cell correctly for non-hierarchical cell structures in FDD.

6.3.2.1.2 Conformance requirement

1. When camped normally, the UE shall execute the cell reselection evaluation process on the following occasions/triggers:

   1.1 UE internal triggers, so as to meet performance as specified in TS 25.133 for FDD mode.

   1.2 When information on the BCCH used for the cell reselection evaluation procedure has been modified.

2. Intra-frequency Cell Reselection Criteria from a non-CSG cell to a CSG cell:

   2.1 In addition to normal cell reselection the UE shall use an autonomous search function for CSG cells when at least one CSG ID is included in the UE's 'Allowed CSG list'.

   2.2 The UE is required to perform autonomous search function in Idle, Cell_PCH and URA_PCH states.

   2.3 For a CSG cell to be suitable, the CSG ID of the CSG cell has to be part of the Allowed CSG list of the UE.

   2.3 If the UE detects a suitable CSG cell on the same frequency it shall reselect to this cell if the concerned CSG cell is the highest ranked cell.

   2.4 The cells shall be ranked according to the R criteria. The best ranked cell is the cell with the highest R value. The cell-ranking criterion R is derived from Q, Qhyst, Qoffset.

   2.5 If a CSG cell is not listed in system information, then Qoffset will have the value 0.

   2.5 In all cases, the UE shall reselect the new cell, only if the cell reselection criteria are fulfilled during a time interval Treselection.

References

1. TS 25.304, clause 5.2.5.1.
2. TS 25.304, clause 5.2.6.4.1.
3. TS 25.304, clause 5.2.6.1.4.

6.3.2.1.3 Test purpose

1. Verify that in FDD, the UE performs intra-frequency measurements for CSG cells even when the normal measurement rules mentioned in Section 5.2.6.1.1 of TS 25.304 do not mandate it.
2. Verify that in FDD, the UE reselects to an allowed CSG cell on the same frequency if the concerned CSG cell is the highest ranked cell, according to 5.2.6.1.4 of TS 25.304.

6.3.2.1.4 Method of test

Initial conditions

Cell 1 shall not include Cell 2 as a neighbouring cell in its System Information Block Type 11.

Cell 2 shall include Cell 1 as a neighbouring cell in its System Information Block Type 11.

Cell 2 shall also include:

- "CSG Indicator" in its Master Information Block
- "CSG Identity" and "CSG PSC Split Information" in its System Information Block type 3.

"Allowed CSG List" of the test UE shall be empty.

EF_{ACSGL} data is not on the USIM.

For FDD only:

Step a-e:

Parameter	Unit	Cell 1	Cell 2
Test Channel		1	1
LAC		0001	0002
CPICH_Ec	dBm/3.84 MHz	-60	-55
$Qhyst1_s$	dB	0	10
$Qoffset1_{s,n}$	dBm	0	10
R_s*	dB	-60	-45
R_n*	dB	-55	-70
Sintrasearch	dB	0	not present
Sintersearch	dB	0	not present
CSG Identity			0000001
Start PSC			144
Number of PSCs			alltheRest

Step f-g:

CPICH_Ec	dBm/3.84 MHz	-60->-50	-55->-75
$Qhyst1_s$	dB	0	10
$Qoffset1_{s,n}$	dBm	0	10
R_s*	dB	-50	-65
R_n*	dB	-75	-60

Step h-i:

CPICH_Ec	dBm/3.84 MHz	-50->-70	-75->-65
$Qhyst1_s$	dB	0	10
$Qoffset1_{s,n}$	dBm	0	10
R_s*	dB	-70	-55
R_n*	dB	-65	-80

Test procedure

Method C is applied.

a) The SS activates Cell 1.

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) The SS activates Cell 2 and monitors it for random access requests from the UE.

e) The UE is made to perform manual CSG ID selection and select Cell 2. A complete Location Updating procedure is done where SS sends LOCATION UPDATING ACCEPT message.

f) The SS changes the level of Cell 1 and 2.

g) The SS waits for random access requests from the UE

h) The SS changes the level of Cell 1 and 2

i) The SS waits for random access requests from the UE

6.3.2.1.5 Test requirements

1) In step c, the UE shall respond on Cell 1.
2) In step d, the UE shall not respond on Cell 2.
3) In step e, the UE shall respond and camp on Cell 2.
4) In step g, the UE shall respond on Cell 1.
5) In step i, the UE shall respond on Cell 2 within 10 mins.

6.3.2.2 Inter-frequency cell reselection from a non-CSG cell to an allowed CSG cell

6.3.2.2.1 Definition

Test to verify that the UE performs the inter-frequency cell reselection using autonomous search from a non-CSG cell to an allowed CSG cell correctly for non-hierarchical cell structures in FDD.

6.3.2.2.2 Conformance requirement

1. When camped normally, the UE shall execute the cell reselection evaluation process on the following occasions/triggers:

   1.1 UE internal triggers, so as to meet performance as specified in TS 25.133 for FDD mode.

   1.2 When information on the BCCH used for the cell reselection evaluation procedure has been modified.

2. Inter-frequency Cell Reselection Criteria from a non-CSG cell to a CSG cell:

   2.1. In addition to normal cell reselection the UE shall use an autonomous search function for CSG cells when at least one CSG ID is included in the UE's 'Allowed CSG list'.

   2.2 The UE is required to perform autonomous search function in Idle, Cell_PCH and URA_PCH states.

   2.3 For a CSG cell to be suitable, the CSG ID of the CSG cell has to be part of the Allowed CSG list of the UE.

   2.4 If the UE detects a suitable CSG cell on a different frequency it shall reselect this cell irrespective of the cell reselection rules applicable for the cell the UE is currently camped on, if the detected suitable CSG cell is the strongest cell on that frequency.

   2.5 If suitable CSG cells are detected on different frequencies and these are the strongest cells on their frequencies, then the UE shall reselect to any one of them.

   2.6 While camped on a suitable CSG cell, the UE shall consider the frequency of the serving cell to be the highest priority frequency (i.e. higher than the eight network configured values or highest HCS priority) and shall not reselect to non-CSG cell as long as the serving cell remains the highest ranked cell on that frequency.

   3. The UE shall perform search and reselection to an allowed inter-frequency CSG cell that has met CSG reselection criterion defined in [1] and that is in its whitelist, within 6 minutes.

References

1. TS 25.304, clause 5.2.5.1.
2. TS 25.304, clause 5.2.6.4.1.
3. TS 25.304, clause 5.2.6.1.4.
4. TS 25.304, clause 4.3
5. TS 25.304, clause 5.2.6.4.2
6. TS 25.133, clause 4.2.2.11.1

6.3.2.2.3 Test purpose

1. Verify that in FDD, the UE performs inter-frequency measurements for CSG cells using autonomous search, even when the normal measurement rules mentioned in Section 5.2.6.1.1 of TS 25.304 do not mandate it.

2. Verify that in FDD, the UE reselects to an allowed CSG cell on a different frequency irrespective of the cell reselection rules applicable for the cell the UE is currently camped on, if the concerned CSG cell is the strongest cell on that frequency.

6.3.2.2.4 Method of test

Initial conditions

Cell 1 shall include Cell 2 and Cell 4 as neighbouring cell in its System Information Block Type 11.

Cell 2 shall include Cell 1 and Cell 4 as neighbouring cell in its System Information Block Type 11.

Cell 4 shall include Cell 1 and Cell 2 as neighbouring cells in its System Information Block Type 11.

Cell 4 shall not include Cell 5 as neighbouring cells in its System Information Block Type 11.

Cell 5 shall include Cell 1, Cell 2 and Cell 4 as neighbouring cells in its System Information Block Type 11.

Cell 5 shall also include:

- "CSG Indicator" in its Master Information Block
- "CSG Identity" and "CSG PSC Split Information" in its System Information Block type 3.

"Allowed CSG List" of the test UE shall be empty.

EF_{ACSGL} data is not on the USIM.

UE is Powered Off.

Cell 1, 2, 4 and 5 are Powered Off.

Cell 1, 2, 4 and 5 have the same RAI.

For FDD only:

Step a-m:

Parameter	Unit	Cell 1	Cell 2	Cell 4	Cell 5
Test Channel		1	1	2	2
LAC		0001	0002	0003	0004
CPICH_Ec	dBm/3.84 MHz	-54	-60	-72	-66
$Qhyst1_s$	dB	0	0	0	0
$Qoffset1_{s,n}$	dBm	0	0	0	0
R_s*	dB	-54	-60	-72	-66
$R_{n=1}$*	dB	n/a	-54	-54	-54
$R_{n=2}$*	dB	-60	n/a	-60	-60
$R_{n=4}$*	dB	-72	-72	n/a	-72
$R_{n=5}$*	dB	-66	-66	-66	n/a
Sintrasearch	dB	0	not present	not present	not present
Sintersearch	dB	0	not present	not present	not present
CSG Identity					0000001
Start PSC					300
Number of PSCs					alltheRest

Test procedure

Method C is applied.

a) The SS activates Cell 1.

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) The SS activates Cell 4 and Cell 5 and monitors them for random access requests from the UE.

e) The UE is made to perform manual CSG ID selection and select Cell 5. A complete Location Updating procedure is done where SS sends LOCATION UPDATING ACCEPT message.

f) Cell 1 is switched off. The SS activates Cell 2.

h) Cell 4 and 5 are switched off.

i) The SS waits for random access requests from the UE.

j) The SS activates Cell 1 and 4 and monitors them for random access requests from the UE.

k) Cell 2 is switched off.

l) The SS activates Cell 5.

m) The SS waits for random access requests from the UE.

6.3.2.2.5 Test requirements

1) In step c, the UE shall respond on Cell 1.

2) In step d, the UE shall not respond on Cell 4 or Cell 5.

3) In step e, the UE shall respond and camp on Cell 5.

4) In step i, the UE shall respond on Cell 2.

5) In step j, the UE shall respond on Cell 1.

6) In step m, the UE shall respond on Cell 5 within 6 mins.

6.3.2.3 Inter-RAT Cell Reselection / from GSM_Idle / GPRS Packet_Idle to a UTRA idle CSG cell

6.3.2.3.1 Definition

Test to verify that the UE performs the inter-RAT cell reselection from GSM_Idle/GPRS Packet_Idle to an allowed UTRA CSG cell correctly in FDD.

6.3.2.3.2 Conformance requirement

1. Inter-RAT reselection to an allowed CSG cell is supported when the UE is camped on another RAT. The UE requirements are defined in the specifications of the concerned RAT.

2. If a mobile station is a member of at least one Closed Subscriber Group, i.e. at least one CSG ID is included in the MS's "Allowed CSG list", then, in addition to normal cell reselection, the MS shall use an autonomous search function to detect UTRAN and/or E-UTRAN CSG cells. The autonomous search function shall at least detect previously visited allowed CSG cells.

   If the strongest cell which the MS has detected on a UTRAN or E-UTRAN frequency during a time interval T_reselection is a suitable CSG cell, the MS shall reselect to this cell irrespective of the cell reselection rules applicable for the cell on which the MS is currently camped.

The following requirements are valid for reselection to allowed CSG cells previously visited by the MS when the radio configuration parameters, including the carrier frequency and PSC/PCI (whichever and if it is applicable) of the CSG cell, non CSG cell and other neighbour cells, are unchanged from the most recent previous visit. The autonomous search and cell re-selection to a previously visited allowed CSG cell shall meet the performance requirements defined as follows:

- the MS shall perform search and re-selection to a previously visited allowed UTRAN FDD CSG cell, that has met the CSG cell re-selection criterion defined above, within 6 minutes in the radio conditions specified for an UTRAN FDD CSG cell in 3GPP TS 36.133 in terms of parameters for CSG inter-RAT UTRAN FDD reselection; UARFCN and PSC shall be unchanged from the most recent previous visit of the UTRAN FDD CSG cell; Serving GSM cell at RXLEV= -70 dBm, with 6 GSM neighbours at RXLEV= -75 dBm;

- the MS shall perform search and re-selection to a previously visited allowed E-UTRAN CSG cell, that has met the CSG cell re-selection criterion defined above, within 6 minutes in the radio conditions specified for an E-UTRAN CSG cell in 3GPP TS 25.133 in terms of parameters for CSG inter-RAT E-UTRA reselection; E-UARFCN and PCI shall be unchanged from the most recent previous visit of the E-UTRAN CSG cell; Serving GSM cell at RXLEV= -70 dBm, with 6 GSM neighbours at RXLEV= -75 dBm.

NOTE 4: The above performance requirements are minimum requirements defined to ensure the testability of autonomous CSG search.

3. If NAS requests AS to search for available CSG IDs, the MS shall perform the search and report the results to NAS as described in 3GPP TS 25.304 for UTRAN and as described in 3GPP TS 36.304 for E-UTRAN.

   If a CSG ID is manually selected by NAS, the MS shall behave as specified in 3GPP TS 25.304 or in 3GPP TS 36.304, depending on the RAT type of the selected CSG cell.

4. If a mobile station is a member of at least one Closed Subscriber Group, i.e. at least one CSG ID is included in the MS's "Allowed CSG list", then, in addition to normal cell reselection, the MS shall use an autonomous search function to detect UTRAN and/or E-UTRAN CSG cells. The autonomous search function shall at least detect previously visited allowed CSG cells.

Reference

1. TS 25.367, clause 7.2.3
2. TS 45.008, clause 6.6.7.1
3. TS 45.008, clause 6.6.7.2
4. TS 45.008, clause 10.1.3.4

6.3.2.3.3 Test purpose

To test the behaviour of the UE idle mode reselection from GSM cell to an allowed UTRA CSG Cell.

6.3.2.3.4 Method of test

Initial condition

Three Cells, Cell 1, Cell 2 and Cell 9:

Cell	Radio Access Technology	CSG Identity	PLMN	LAC
Cell 9	GSM	-	PLMN 1	-
Cell 1	UTRAN	CSG1	PLMN 1	001
Cell 2	UTRAN	-	PLMN 1	002

Cell 1(UTRAN) is not in the 3G Neighbour Cell Description of Cell 9 (GSM).

Cell 1 is not in the cell info list of Cell 2.

Cell 1 shall include:

- "CSG Indicator" with value of "TRUE" in its Master Information Block
- "CSG Identity" and "CSG PSC Split Information" in its System Information Block type 3.

On the UE side, UE's Allowed CSG List is empty.

The UE is equipped with a USIM containing default values.

For FDD only:

Step a-f:

Parameter	Unit	Cell 9
Test Channel		1
RXLEV_ACCESS_MIN	dBm	-81
RF Signal Level	dBm	-48

Parameter	Unit	Cell 1	Cell 2
Test Channel		2	2
$Qhyst1_s$	dB	0	0
$Qoffset1_{s,n}$	dBm	0	0
$S_{search,RAT}$	dB	16	16
CPICH_Ec	dBm/3.84 MHz	-65	-75
Qrxlevmin	dBm	-79	-79
Srxlev*	dB	14	4
CSG Identity		'000 0000 0000 0000 0000 0000 0001'B (CSG 1)	-
Start PSC		144	-
Number of PSCs		alltheRest	-

Step g-h:

Parameter	Unit	Cell 9
RF Signal Level	dBm	-48->-54

Parameter	Unit	Cell 1	Cell 2
CPICH_Ec	dBm/3.84 MHz	-65->-75	-75->-70
Srxlev*	dB	4	9

Step i-j:

Parameter	Unit	Cell 9
RF Signal Level	dBm	-54->-48

Parameter	Unit	Cell 1	Cell 2
CPICH_Ec	dBm/3.84 MHz	-75->-65	-70->-75
Srxlev*	dB	14	4

Test procedure

Method C is applied.

a) The SS activates Cell 9. The UE is switched on.

b) The SS waits for random access requests from the UE.

c) The SS activates Cell 1 and Cell 2.

d) The SS waits for random access requests from the UE.

e) Make UE perform manual CSG ID selection and CSG 1 is selected manually.

f) The SS waits for random access requests from the UE.

g) The SS changes the level of Cell 1, Cell 2 and Cell 9.

h) The SS waits for random access requests from the UE.

i) The SS changes the level of Cell 1, Cell 2 and Cell 9.

j) The SS waits for random access requests from the UE.

6.3.2.3.5 Test requirements

1) In step b, the UE shall respond and camp on Cell 9.

2) In step d, the UE shall not respond and camp on Cell 1 or Cell 2.

3) In step f, the UE shall respond and camp on Cell 1. CSG 1 is added in UE's Allowed CSG list.

4) In step h, the UE shall respond and camp on Cell 9.

5) In step j, the UE shall respond and camp on Cell 1 in 6 mins.

6.3.3 Reselection from CSG Cell to CSG Cell

6.3.3.1 Intra frequency CSG Cell Reselection / UE is in Idle, Cell_PCH and URA_PCH states

6.3.3.1.1 Definition

6.3.3.1.2 Conformance requirement

1. When camped normally, the UE shall execute the cell reselection evaluation process on the following occasions/triggers:

   1.1 UE internal triggers, so as to meet performance as specified in TS 25.133 for FDD mode.

   1.2 When information on the BCCH used for the cell reselection evaluation procedure has been modified.

2. Intra-frequency Cell Reselection Criteria between CSG cells:

   2.1 In addition to normal cell reselection the UE shall use an autonomous search function for CSG cells when at least one CSG ID is included in the UE's 'Allowed CSG list'.

   2.2 The UE is required to perform autonomous search function in Idle, Cell_PCH and URA_PCH states.

   2.3 For a CSG cell to be suitable, the CSG ID of the CSG cell has to be part of the Allowed CSG list of the UE.

   2.4 If the UE detects a suitable CSG cell on the same frequency, it shall reselect to this cell if the concerned CSG cell is the highest ranked cell.

   2.5 The cells shall be ranked according to the R criteria. The best ranked cell is the cell with the highest R value. The cell-ranking criterion R is derived from Q, Qhyst, Qoffset.

   2.6 If a CSG cell is not listed in system information, then Qoffset will have the value 0.

   2.7 In all cases, the UE shall reselect the new cell, only if the cell reselection criteria are fulfilled during a time interval Treselection.

References

1. TS 25.304, clause 5.2.5.1.

2. TS 25.304, clause 5.2.6.4.3.

3. TS 25.304, clause 5.2.6.1.4.

6.3.3.1.3 Test purpose

To verify that the UE reselects from a CSG cell to an allowed CSG cell on the same frequency if the detected CSG cell is the highest ranked cell, according to clause 5.2.6.1.4 of TS 25.304.

6.3.3.1.4 Method of test

Initial conditions

Two Cells, Cell 1 and Cell 2. Cell 1 and Cell 2 will be mapped to Cell 1 and Cell 2 respectively as found in TS 34.108 clause 6.1.4.

Cell 1 shall not include Cell 2 as a neighbouring cell in its System Information Block Type 11.

Cell 1 shall also include:

- "CSG Indicator" in its Master Information Block
- "CSG Identity" and "CSG PSC Split Information" in its System Information Block type 3.

Cell 2 shall include Cell 1 as a neighbouring cell in its System Information Block Type 11.

Cell 2 shall also include:

- "CSG Indicator" in its Master Information Block.
- "CSG Identity" and "CSG PSC Split Information" in its System Information Block type 3.

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	PLMN	CSG ID
EF_{ACSGL}	PLMN 1	CSG 1

For FDD only:

Step a-e:

Parameter	Unit	Cell 1	Cell 2
Test Channel		1	1
LAC		0001	0002
CPICH_Ec	dBm/3.84 MHz	-65	-50
$Qhyst1_s$	dB	6	6
$Qoffset1_{s,n}$	dBm	5	5
R_s*	dB	-59	-44
R_n*	dB	-55	-70
Sintrasearch	dB	not present	not present
Sintersearch	dB	not present	not present
CSG Identity		0000001	0000002
Start PSC		80	80
Number of PSCs		alltheRest	alltheRest

Step f-g:

CPICH_Ec	dBm/3.84 MHz	-65->-50	-50->-67
$Qhyst1_s$	dB	6	6
$Qoffset1_{s,n}$	dBm	5	5
R_s*	dB	-44	-61
R_n*	dB	-72	-55

Test procedure

Method C is applied.

a) The SS activates Cell 1.

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) The SS activates Cell 2 and monitors it for random access requests from the UE.

e) The UE is made to perform manual CSG ID selection and select Cell 2. A complete Location Updating procedure is done where SS sends LOCATION UPDATING ACCEPT message.

f) The SS changes the level of Cell 1 and 2.

g) The SS waits for random access requests from the UE.

6.3.3.1.5 Test requirements

1) In step c, the UE shall respond on Cell 1.

2) In step d, the UE shall not respond on Cell 2.

3) In step e, the UE shall respond and camp on Cell 2.

4) In step g, the UE shall respond on Cell 1.

6.3.3.2 Inter frequency CSG Cell Reselection / UE is in Idle, Cell_PCH and URA_PCH states

6.3.3.2.1 Definition

6.3.3.2.2 Conformance requirement

1. When camped normally, the UE shall execute the cell reselection evaluation process on the following occasions/triggers:

   1.1 UE internal triggers, so as to meet performance as specified in TS 25.133 for FDD mode.

   1.2 When information on the BCCH used for the cell reselection evaluation procedure has been modified.

2. Inter-frequency Cell Reselection Criteria from between CSG cells:

   2.1 In addition to normal cell reselection the UE shall use an autonomous search function for CSG cells when at least one CSG ID is included in the UE's 'Allowed CSG list'.

   2.2 The UE is required to perform autonomous search function in Idle, Cell_PCH and URA_PCH states.

   2.3 For a CSG cell to be suitable, the CSG ID of the CSG cell has to be part of the Allowed CSG list of the UE.

   2.4 While camped on a suitable CSG cell, the UE shall consider the frequency of the serving cell to be the highest priority frequency (i.e. higher than the eight network configured values) as long as the serving cell is the highest ranked cell on that frequency.

   2.5 If the UE detects a suitable CSG cell that is listed in the system information of the serving cell on other frequencies, and the detected CSG cell is the strongest cell on that frequency, then the UE shall consider these frequencies to have a priority equal to the current frequency and shall follow normal cell reselection rules.

   2.6 The cells shall be ranked according to the R criteria. The best ranked cell is the cell with the highest R value. The cell-ranking criterion R is derived from Q, Qhyst, Qoffset.

   2.7 If a CSG cell is not listed in system information, then Qoffset will have the value 0.

2.8 In all cases, the UE shall reselect the new cell, only if the cell reselection criteria are fulfilled during a time interval Treselection.

References

1. TS 25.304, clause 5.2.5.1.
2. TS 25.304, clause 5.2.6.4.3.
3. TS 25.304, clause 5.2.6.1.4.

6.3.3.2.3 Test purpose

To verify that the UE reselects from a CSG cell to an allowed CSG cell on another frequency if the detected CSG cell is the highest ranked cell, according to clause 5.2.6.1.4 of TS 25.304.

6.3.3.2.4 Method of test

Initial conditions

Two Cells, Cell 1 and Cell 4. Cell 1 and Cell 4 will be mapped to Cell 1 and Cell 4 respectively as found in TS 34.108 clause 6.1.4.

Cell 1 shall not include Cell 4 as a neighbouring cell in its System Information Block Type 11.

Cell 1 shall also include:

- "CSG Indicator" in its Master Information Block
- "CSG Identity" and "CSG PSC Split Information" in its System Information Block type 3.

Cell 4 shall include Cell 1 as a neighbouring cell in its System Information Block Type 11.

Cell 4 shall also include:

- "CSG Indicator" in its Master Information Block
- "CSG Identity" and "CSG PSC Split Information" in its System Information Block type 3.

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	PLMN	CSG ID
EF_{ACSGL}	PLMN 1	CSG 1

For FDD only:

Step a-e:

Parameter	Unit	Cell 1	Cell 4
Test Channel		1	2
LAC		0001	0002
CPICH_Ec	dBm/3.84 MHz	-65	-50
$Qhyst1_s$	dB	5	10
$Qoffset1_{s,n}$	dBm	5	10
R_s*	dB	-60	-40
R_n*	dB	-55	-75
Sintrasearch	dB	not present	not present
Sintersearch	dB	not present	not present
CSG Identity		0000001	0000004
Start PSC		80	80
Number of PSCs		alltheRest	alltheRest

Step f-g:

CPICH_Ec	dBm/3.84 MHz	-65->-50	-50->-76
$Qhyst1_s$	dB	5	10
$Qoffset1_{s,n}$	dBm	5	10
R_s*	dB	-45	-66
R_n*	dB	-81	-60

Test procedure

Method C is applied.

a) The SS activates Cell 1.

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) The SS activates Cell 4 and monitors it for random access requests from the UE.

e) The UE is made to perform manual CSG ID selection and select Cell 4. A complete Location Updating procedure is done where SS sends LOCATION UPDATING ACCEPT message.

f) The SS changes the level of Cell 1 and 4.

g) The SS waits for random access requests from the UE.

6.3.3.2.5 Test requirements

1) In step c, the UE shall respond on Cell 1.

2) In step d, the UE shall not respond on Cell 4.

3) In step e, the UE shall respond and camp on Cell 4.

4) In step g, the UE shall respond on Cell 1.

6.3.4 Cell Reselection with Hybrid Cells

6.3.4.1 Inter-frequency Cell Reselection with Hybrid Cells

6.3.4.1.1 Definition

Test to verify that the UE shall use an autonomous search function to detect hybrid cells whose CSG IDs are in the UE's CSG whitelist and reselect it as a CSG cell correctly in FDD.

6.3.4.1.2 Conformance requirement

1. In case the UE has CSG ID of the hybrid cell in its CSG whitelist, cell reselection procedures will be the same as for a CSG cell as described in Chapter 7.2.

2. In addition to normal cell reselection rules, the UE shall use an autonomous search function to detect at least previously visited hybrid cells whose CSG IDs are in the UE's CSG whitelist according to the performance requirements specified in [10]. The UE shall treat detected hybrid cells as CSG cells if the CSG ID of the hybrid cell is in the UE's CSG whitelist and as normal cells otherwise.

3. The UE shall perform search and reselection to an allowed inter-frequency CSG cell that has met CSG reselection criterion defined in [1] and that is in its whitelist, within 6 minutes.

Reference

1. TS 25.367, clause 9.2

2. TS 25.304, clause 5.2.6.5

3. TS 25.133, clause 4.2.2.11.1

6.3.4.1.3 Test purpose

To test the behaviour of the UE idle mode inter-frequency cell reselection from non-CSG cell to a hybrid Cell whose CSG ID is in the UE's CSG whitelist.

6.3.4.1.4 Method of test

Initial condition

1. Three Cells, Cell 1, Cell 4, Cell 5:

Cell	Radio Access Technology	PLMN	CSG Identity
Cell 1	UTRAN	PLMN 1	-
Cell 4	UTRAN	PLMN 1	-
Cell 5	UTRAN	PLMN 1	CSG 1

Cell 5 is not in the cell info list of Cell 1 and Cell 4.

Cell 5 shall include:

- "CSG Identity" in its System Information Block type 3.

Cell 1 has higher frequency priority than Cell 4 and Cell 5

2. On the UE side, CSG1 is in the UE's Operator CSG List, while the Allowed CSG List is empty.

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	PLMN	CSG ID
EF_{OCSGL}	PLMN 1	CSG 1

For FDD only:

Step a-d:

Parameter	Unit	Cell 1	Cell 4	Cell 5
Test Channel		1	2	2
LAC		0001	0002	0002
CPICH_Ec	dBm/3.84 MHz	-55	-70	-60
$Qhyst1_s$	dB	0	0	0
$Qoffset1_{s,n}$	dBm	0	0	0
R_s*	dB	-55	-70	-60
CSG Identity	-	-	-	0000001

Step e-f:

CPICH_Ec	dBm/3.84 MHz	-55	-70	-60->-80
$Qhyst1_s$	dB	0	0	0
$Qoffset1_{s,n}$	dBm	0	0	0
R_s*	dB	-55	-70	-80

Step g-h:

CPICH_Ec	dBm/3.84 MHz	-55	-70	-80->-60
$Qhyst1_s$	dB	0	0	0
$Qoffset1_{s,n}$	dBm	0	0	0
R_s*	dB	-55	-70	-60

Test procedure

Method C is applied.

a) The SS activates Cell 1. The UE is switched on.

b) The SS waits for random access requests from the UE.

c) The SS activates Cell 4 and Cell 5. Make UE perform manual CSG ID selection and CSG 1 is selected manually.

d) The SS waits for random access requests from the UE.

e) The SS changes the level of Cell 5.

f) The SS waits for random access requests from the UE.

g) The SS changes the level of Cell 5.

h) The SS waits for random access requests from the UE.

6.3.4.1.5 Test requirements

1) In step b, the UE shall respond and camp on Cell 1.

2) In step d, the UE shall respond and camp on Cell 5.

3) In step f, the UE shall respond and camp on Cell 1.

4) In step h, the UE shall respond and camp on Cell 5 in 6 mins.

6.3.4.2 Cell Reselection with Hybrid Cells for non-member UEs

6.3.4.2.1 Definition

Test to verify that the non-member UE detects the cell is a hybrid cell and reselects it according to normal cell reselection rules correctly.

6.3.4.2.2 Conformance requirement

1. In case the UE has CSG ID of the hybrid cell in its CSG whitelist, cell reselection procedures will be the same as for a CSG cell as described in Chapter 7.2.

For all other UEs, cell reselection procedures will utilise normal cell reselection rules.

2. In addition to normal cell reselection rules, the UE shall use an autonomous search function to detect at least previously visited hybrid cells whose CSG IDs are in the UE's CSG whitelist according to the performance requirements specified in [10]. The UE shall treat detected hybrid cells as CSG cells if the CSG ID of the hybrid cell is in the UE's CSG whitelist and as normal cells otherwise.

Reference

1. TS 25.367, clause 9.2

2. TS 25.304, clause 5.2.6.5

6.3.4.2.3 Test purpose

To test the behaviour of the UE idle mode cell reselection from non-CSG cell to a hybrid Cell whose CSG ID is not in the UE's CSG whitelist.

6.3.4.2.4 Method of test

Initial condition

Same initial conditions as in clause 6.1.2.1.4 except the following:

1. Cell 2 shall include:
   - "CSG Identity" in its System Information Block type 3 with the value "000 0000 0000 0000 0000 0000 0001".

   Cell 4 shall include:
   - "CSG Identity" in its System Information Block type 3 with the value "000 0000 0000 0000 0000 0000 0002".
2. On the UE side, the Allowed CSG List and the Operator CSG List are empty.

The UE is equipped with a USIM containing default values.

Test procedure

Same test procedure as in clause 6.1.2.1.4.

6.3.4.2.5 Test requirements

Same test requirement as in clause 6.1.2.1.5.

7 Layer 2

7.1 MAC

General

If not otherwise mentioned, the same procedures as used in RRC test specification (TS 34.123-1 clause 8) or in the generic setup procedures (TS 34.108 clause 7) applies to reach initial conditions for MAC testing.

If not explicitly described, the same message contents and settings are applied as described in the RRC test description default settings.

In some MAC test cases, which are explicitly mentioned, the RLC in the system simulator is operated in Transparent Mode (RLC TM) for the tested channel. Accordingly, no RLC header will be added by the RLC entity. Also, there is no header included by the MAC protocol in the system simulator. The UE, however, shall always be configured as specified in TS 34.108 for the respective test case.

Where RLC TM is used, the payload size in the system simulator is set to the value that corresponds to the transport block size expected by the UE for the respective configuration. The bit positions which are interpreted as RLC and MAC headers by the UE are included into the RLC payload by the system simulator.

For test cases where AM RLC is employed in either UE, SS, or both, the default parameter settings as defined in clause 7.2.3.1 are applicable if not mentioned otherwise.

7.1.1 Mapping between logical channels and transport channels

7.1.1.1 CCCH mapped to RACH/FACH / Invalid TCTF

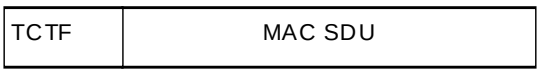
7.1.1.1.1 Definition

This tests that the MAC applies the correct header to the MAC PDU according to the type of logical channel carried on the RACH/FACH transport channel. Incorrect application of MAC headers would result in inoperation of the UE.

7.1.1.1.2 Conformance requirement

CCCH mapped to RACH/FACH:

- TCTF field is included in MAC header.



The following fields are defined for the MAC header:

- Target Channel Type Field
  …

Coding of the Target Channel Type Field on FACH for FDD

TCTF	Designation
00	BCCH
01000000	CCCH
01000001-01111111	Reserved (PDUs with this coding will be discarded by this version of the protocol)
10000000	CTCH
10000001-10111111	Reserved (PDUs with this coding will be discarded by this version of the protocol)
11	DCCH or DTCH over FACH

Coding of the Target Channel Type Field on FACH for TDD

TCTF	Designation
000	BCCH
001	CCCH
010	CTCH
01100	DCCH or DTCH over FACH
01101-01111	Reserved (PDUs with this coding will be discarded by this version of the protocol)
100	SHCCH
101-111	Reserved (PDUs with this coding will be discarded by this version of the protocol)

Reference(s)

TS 25.321 clauses 9.2.1 and 9.2.1.4.

7.1.1.1.3 Test purpose

1. To verify that the UE discards PDUs with reserved or incorrect values in the TCTF field.
2. To verify that the TCTF field is correctly applied when a CCCH is mapped to the RACH/FACH.

7.1.1.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

The SCCPCH is configured as specified in TS 34.108 clause 6.10.2.4.3.3 (FDD) , 6.11.5.4.4.3(1.28Mcps TDD) (Interactive/Background 32 kbps RAB + SRB for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH) with the following exceptions for the FACH:

FDD:

Higher layer	RAB/signalling RB		SRB#0
	User of Radio Bearer		Test
RLC	Logical channel type		CCCH
	RLC mode		TM
	Payload sizes, bit		168
	Max data rate, bps		33600 (alt. 50400)
	RLC header, bit		0
MAC	MAC header, bit		0 (note)
	MAC multiplexing		Simulated by SS
Layer 1	TrCH type		FACH
	TB sizes, bit		168
	TFS	TF0, bits	0 x 168
		TF1, bits	1 x 168
		TF2, bits	2 x 168
		TF3, bits	N/A (alt. 3 x 168)
	TTI, ms		10
	Coding type		CC 1/2
	CRC, bit		16
	Max number of bits/TTI before rate matching		752 (alt. 1136)
	RM attribute		200-240
NOTE:	The SS MAC layer must be configured not to add a MAC header so that the header can be added by the test case in order to create the necessary invalid values.		

TDD:

Higher layer	RAB/signalling RB		SRB#0
	User of Radio Bearer		Test
RLC	Logical channel type		CCCH
	RLC mode		TM
	Payload sizes, bit		171
	Max data rate, bps		33600 (alt. 50400)
	RLC header, bit		0
MAC	MAC header, bit		0 (note)
	MAC multiplexing		Simulated by SS
Layer 1	TrCH type		FACH
	TB sizes, bit		171
	TFS	TF0, bits	0 x 171
		TF1, bits	1 x 171
		TF2, bits	2 x 171
		TF3, bits	3 x 171
		TF4, bits	4x 171
		TF5, bits	N/A (alt. 5x 171)
		TF6, bits	N/A (alt. 6 x 171)
	TTI, ms		20
	Coding type		CC 1/2
	CRC, bit		16
	Max number of bits/TTI before rate matching		1528 (alt. 2292)
	RM attribute		200-240
NOTE:	The SS MAC layer must be configured not to add a MAC header so that the header can be added by the test case in order to create the necessary invalid values.		

And using the configuration in TS 34.108 clause 6.10.2.4.3.3 (FDD), 6.11.5.4.4.3(1.28Mcps TDD) for the PCH.

The TFCS should be configured as specified in clause 6.10.2.4.3.3.1.4 (FDD), 6.11.5.4.4.3.1.4(1.28Mcps TDD).

User Equipment:

The UE shall operate under normal test conditions, Ciphering Off.

The Test-USIM shall be inserted.

The SS starts broadcasting the System Information as specified in TS 34.108 clause 6.1, using the configuration for the PRACH and SCCPCH (signalled in SYSTEM INFORMATION 5) as follows:

1. The SCCPCH is configured as specified in TS 34.108 clause 6.10.2.4.3.3 (FDD), 6.11.5.4.4.3(1.28Mcps TDD) (Interactive/Background 32 kbps RAB + SRB for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH).

2. The PRACH is configured as specified in TS 34.108 clause 6.10.2.4.4.1(FDD), 6.11.5.4.5.2(TDD).

The SS follows the procedure in TS 34.108 clause 7.2.2.1 (CS UE) or 7.2.2.2 (PS UE) so that the UE shall be in idle mode and registered.

Test procedure

a) The SS pages the UE.

b) The SS waits for the first RRC CONNECTION REQUEST message to arrive on the PRACH/CCCH.

c) The SS responds with an RRC CONNECTION SETUP message (specified in TS 34.108 clause 9: Contents of RRC CONNECTION SETUP message: UM (Transition to CELL_FACH)(FDD), or UM (Transition to CELL_FACH) (1.28 Mcps TDD option). In this case the SS will transmit the message in 152 bit for FDD and 160 bits for TDD (note) segments, with a valid UM RLC header and with the MAC header set as follows:

FDD:

Field	Value
TCTF	01000001'B

TDD:

Field	Value
TCTF	101'B

d) The SS waits for retransmission of the RRC CONNECTION REQUEST on the PRACH/CCCH due to expiry of timer T300. If no retransmission is received steps a) and b) are repeated.

e) The SS repeats steps c) and d), with the TCTF field set as follows:

FDD:

Iteration	TCTF Value
2	(void)
3	10000000'B
4	10000001'B
5	(void)

TDD:

Iteration	TCTF Value
2	010'B
3	01111'B
4	(void)'
5	(void)
6	(void)

f) The SS repeats steps c) and d), with the TCTF field set as to 01000000'B(FDD), 001’B(TDD).

Expected sequence

FDD:

Step	Direction		Message	Comments
	UE	SS		
1	←		PAGING TYPE 1	
2	→		RRC CONNECTION REQUEST	
3	-		Void	
4	-		Void	
5	←		MAC PDU(TCTF, RLC UM PDU(SN, RRC CONNECTION SETUP SEGMENT 1))	Sent with incorrect TCTF = 0100 0001'B
	←		MAC PDU(TCTF, RLC UM PDU(SN, RRC CONNECTION SETUP SEGMENT 2))	Sent with incorrect TCTF = 0100 0001'B
			…	
	←		MAC PDU(TCTF, RLC UM PDU(SN, RRC CONNECTION SETUP SEGMENT n))	Sent with incorrect TCTF = 0100 0001'B
6	→		RRC CONNECTION REQUEST	If this message is not received then the PAGING TYPE 1 message as in step 1 shall be sent again.
7	←		MAC PDU(TCTF, RLC UM PDU(SN, RRC CONNECTION SETUP SEGMENT 1))	Sent with incorrect TCTF = 1000 0000'B
	←		MAC PDU(TCTF, UE-ID, RLC UM PDU(SN, RRC CONNECTION SETUP SEGMENT 2))	Sent with incorrect TCTF = 1000 0000'B
			…	
	←		MAC PDU(TCTF, RLC UM PDU(SN, RRC CONNECTION SETUP SEGMENT n))	Sent with incorrect TCTF = 1000 0000'B
8	→		RRC CONNECTION REQUEST	If this message is not received then the PAGING TYPE 1 message as in step 1 shall be sent again.
9	←		MAC PDU(TCTF, RLC UM PDU(SN, RRC CONNECTION SETUP SEGMENT 1))	Sent with incorrect TCTF = 1000 0001'B
	←		MAC PDU(TCTF, RLC UM PDU(SN, RRC CONNECTION SETUP SEGMENT 2))	Sent with incorrect TCTF = 1000 0001'B
			…	
	←		MAC PDU(TCTF, RLC UM PDU(SN, RRC CONNECTION SETUP SEGMENT n))	Sent with incorrect TCTF = 1000 0001'B
10	→		RRC CONNECTION REQUEST	If this message is not received then the PAGING TYPE 1 message as in step 1 shall be sent again.
11	-		Void	
12	-		Void	
13	←		MAC PDU(TCTF, RLC UM PDU(SN, RRC CONNECTION SETUP SEGMENT 1))	Sent with correct TCTF = 0100 0000'B
	←		MAC PDU(TCTF, RLC UM PDU(SN, RRC CONNECTION SETUP SEGMENT 2))	Sent with correct TCTF = 0100 0000'B
			…	
	←		MAC PDU(TCTF, RLC UM PDU(SN, RRC CONNECTION SETUP SEGMENT n))	Sent with correct TCTF = 0100 0000'B
14	→		RRC CONNECTION SETUP COMPLETE	TCTF Field is recognised as correct for the DCCH

TDD:

Step	Direction		Message	Comments
	UE	SS		
1	←		PAGING TYPE 1	
2	→		RRC CONNECTION REQUEST	
3	←		MAC PDU(TCTF, RLC UM PDU(SN, RRC CONNECTION SETUP SEGMENT 1))	Sent with incorrect TCTF = 101'B
	←		MAC PDU(TCTF, RLC UM PDU(SN, RRC CONNECTION SETUP SEGMENT 2))	Sent with incorrect TCTF =101'B
			…	
	←		MAC PDU(TCTF, RLC UM PDU(SN, RRC CONNECTION SETUP SEGMENT n))	Sent with incorrect TCTF = 101'B
4	→		RRC CONNECTION REQUEST	
5	←		MAC PDU(TCTF, RLC UM PDU(SN, RRC CONNECTION SETUP SEGMENT 1))	Sent with incorrect TCTF = 010'B
	←		MAC PDU(TCTF, RLC UM PDU(SN, RRC CONNECTION SETUP SEGMENT 2))	Sent with incorrect TCTF = 010'B
			…	
	←		MAC PDU(TCTF, RLC UM PDU(SN, RRC CONNECTION SETUP SEGMENT n))	Sent with incorrect TCTF = 010'B
6	→		RRC CONNECTION REQUEST	
7	←		MAC PDU(TCTF, RLC UM PDU(SN, RRC CONNECTION SETUP SEGMENT 1))	Sent with incorrect TCTF = 01111'B
	←		MAC PDU(TCTF, UE-ID, RLC UM PDU(SN, RRC CONNECTION SETUP SEGMENT 2))	Sent with incorrect TCTF =01111'B
			…	
	←		MAC PDU(TCTF, RLC UM PDU(SN, RRC CONNECTION SETUP SEGMENT n))	Sent with incorrect TCTF = 01111'B
8	→		RRC CONNECTION REQUEST	
9	-		void	
	-		void	
			…	
	-		void	
10	-		void	
11	-		void	
	-		void	
			…	
	-		void	
12	-		void	
13	-		void	
	-		void	
			…	
	-		void	
14	-		void	
15	←		MAC PDU(TCTF, RLC UM PDU(SN, RRC CONNECTION SETUP SEGMENT 1))	Sent with correct TCTF = 001'B
	←		MAC PDU(TCTF, RLC UM PDU(SN, RRC CONNECTION SETUP SEGMENT 2))	Sent with correct TCTF = 001'B
			…	
	←		MAC PDU(TCTF, RLC UM PDU(SN, RRC CONNECTION SETUP SEGMENT n))	Sent with correct TCTF = 001'B
16	→		RRC CONNECTION SETUP COMPLETE	TCTF Field is recognised as correct for the CCCH

Specific Message Contents

None.

7.1.1.1.5 Test Requirement

On the first iteration, and on each iteration in step e) the UE should not recognise the RRC CONNECTION SETUP message and therefore should either retransmit the RRC CONNECTION REQUEST after each expiry of T300 (the UE

should send up to N300=3 RRC CONNECTION REQUESTs before abandoning the procedure) or not respond (if N300 RRC CONNECTION REQUESTs have already been sent).

On the final iteration the UE should respond with an RRC CONNECTION SETUP COMPLETE message.

7.1.1.2 DTCH or DCCH mapped to RACH/FACH / Invalid TCTF

7.1.1.2.1 Definition

This tests that the MAC applies the correct header to the MAC PDU according to the type of logical channel carried on the RACH/FACH transport channel. Incorrect application of MAC headers would result in inoperation of the UE.

7.1.1.2.2 Conformance requirement

DTCH or DCCH mapped to RACH/FACH:

TCTF field, C/T field, UE-Id type field and UE-Id are included in the MAC header.

The following fields are defined for the MAC header:

- Target Channel Type Field
  …

Coding of the Target Channel Type Field on FACH for FDD

TCTF	Designation
00	BCCH
01000000	CCCH
01000001-01111111	Reserved (PDUs with this coding will be discarded by this version of the protocol)
10000000	CTCH
10000001-10111111	Reserved (PDUs with this coding will be discarded by this version of the protocol)
11	DCCH or DTCH over FACH

Coding of the Target Channel Type Field on FACH for TDD

TCTF	Designation
000	BCCH
001	CCCH
010	CTCH
01100	DCCH or DTCH over FACH
01101-01111	Reserved (PDUs with this coding will be discarded by this version of the protocol)
100	SHCCH
101-111	Reserved (PDUs with this coding will be discarded by this version of the protocol)

Reference(s)

TS 25.321 clauses 9.2.1 and 9.2.1.1 c).

7.1.1.2.3 Test purpose

1. To verify that the UE discards PDUs with reserved or incorrect values in the TCTF field.
2. To verify that the TCTF field, C/T field, UE-Id type and UE-Id field are correctly applied when a DTCH or DCCH is mapped to the RACH/FACH.

7.1.1.2.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

The SCCPCH is configured as specified in TS 34.108 clause 6.10.2.4.3.3(FDD) and 6.11.5.4.4.3(1.28Mcps TDD) (Interactive/Background 32 kbps RAB + SRB for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH) with the following exceptions for the FACH:

FDD:

Higher layer	RAB/signalling RB		RB#3 (SRB#3)
	User of Radio Bearer		Test
RLC	Logical channel type		DCCH
	RLC mode		TM
	Payload sizes, bit		168
	Max data rate, bps		33600 (alt. 50400)
	RLC header, bit		0
MAC	MAC header, bit		0 (note)
	MAC multiplexing		Simulated by SS
Layer 1	TrCH type		FACH
	TB sizes, bit		168
	TFS	TF0, bits	0 x 168
		TF1, bits	1 x 168
		TF2, bits	2 x 168
		TF3, bits	N/A (alt. 3 x 168)
	TTI, ms		10
	Coding type		CC ½
	CRC, bit		16
	Max number of bits/TTI before rate matching		752 (alt. 1136)
	RM attribute		200-240
NOTE: The SS MAC layer must be configured not to add a MAC header so that the header can be added by the test case in order to create the necessary invalid values.			

TDD:

Higher layer	RAB/signalling RB	RB#3 (SRB#3)
	User of Radio Bearer	Test
RLC	Logical channel type	DCCH
	RLC mode	TM
	Payload sizes, bit	171
	Max data rate, bps	33600 (alt. 50400)

	RLC header, bit		0
MAC	MAC header, bit		0 (note)
	MAC multiplexing		Simulated by SS
Layer 1	TrCH type		FACH
	TB sizes, bit		171
	TFS	TF0, bits	0 x 171
		TF1, bits	1 x 171
		TF2, bits	2 x 171
		TF3, bits	3 x 171
		TF4, bits	4x 171
		TF5, bits	N/A (alt. 5x 171)
		TF6, bits	N/A (alt. 6 x 171)
	TTI, ms		20
	Coding type		CC 1/2
	CRC, bit		16
	Max number of bits/TTI before rate matching		1528 (alt. 2292)
	RM attribute		200-240
NOTE:	The SS MAC layer must be configured not to add a MAC header so that the header can be added by the test case in order to create the necessary invalid values.		

and using the configuration in TS 34.108 clause 6.10.2.4.3.3 (FDD), 6.11.5.4.4.3(1.28Mcps TDD) for the PCH.

The TFCS should be configured as specified in clause 6.10.2.4.3.3.1.4 (FDD), 6.11.5.4.4.3.1.4(1.28Mcps TDD).

User Equipment:

The UE shall operate under normal test conditions, Ciphering Off.

The Test-USIM shall be inserted.

The SS starts broadcasting the System Information as specified in TS 34.108 clause 6.1, using the configuration for the PRACH and SCCPCH (signalled in SYSTEM INFORMATION 5) as follows:

1. The SCCPCH is configured as specified in TS 34.108 clause 6.10.2.4.3.3 (FDD), 6.11.5.4.4.3(1.28Mcps TDD) (Interactive/Background 32 kbps RAB + SRB for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH).

2. The PRACH is configured as specified in TS 34.108 clause 6.10.2.4.4.1 (FDD), 6.11.5.4.5.2(1.28Mcps TDD).

The SS follows the procedure in TS 34.108 clause 7.4.2.1.1 (Mobile Terminated for CS) so that the UE shall be in state BGP 6-2 (CS-CELL_FACH_INITIAL) or clause 7.4.2.2.1 (Mobile Terminated for PS) so that the UE shall be in state BGP 6-4 PS-CELL_FACH_INITIAL.

Test procedure

a) The SS receives the PAGING RESPONSE or SERVICE REQUEST (depending on domain) message from the UE and checks the TCTF field.

b) The SS transmits MAC PDUs containing RLC AM PDUs containing a DIRECT TRANSFER message containing an AUTHENTICATION REQUEST message.

   1. Dummy octet string for NAS Message, of size sufficient enough to fit in one RLC PDU of 144 bits, including the correct RLC AM header.

   2. The IE CN Domain Identity is Set to PS Domain (if UE initial state is 6-2) or CS Domain (if UE initial state is 6-4) (no signalling connection for this domain exists).

   3. The polling bit in RLC header is set for transmission of RLC STATUS PDU.

The MAC header shall be set as follows:

Field	Value
TCTF	01000001'B(FDD), 101(TDD)
UE ID Type	C-RNTI
UE ID	As set in RRC CONNECTION SETUP message.
C/T	Logical Channel ID for SRB #3 (AM-DCCH NAS High Priority)

Where a TCTF size of 8-bits is used, 6-bits from the RLC payload shall be discarded.

c) The SS checks that UE shall neither transmit RRC Status message on SRB2 nor RLC Status PDU on SRB3.

d) The SS again transmits MAC PDUs as in b) above, but this time uses the correct TCTF of 11'B for FDD, 01100'B for TDD. The sequence numbers in the RLC headers shall be identical with those sent in b).

e) SS Receives RLC Status PDU on SRB #3 acknowledging the receipt of the above RLC PDU.

f) The SS receives a RRC STATUS message on the uplink DCCH using AM RLC on SRB # 2.

g) The SS repeats steps b), c), d) e) and f), with the TCTF field set as follows in step b):

FDD:

Iteration	TCTF Value
2	01111111'B
3	10000000'B
4	10000001'B
5	10111111'B

TDD:

Iteration	TCTF Value
2	110'B
3	010'B
4	01111'B
5	01101'B

Expected sequence

FDD:

Step	Direction		Message	Comments
	UE	SS		
1	→		PAGING RESPONSE/SERVICE REQUEST	Check TCTF
2	←		MAC PDU(TCTF, UE-ID, C/T, RLC AM PDU(SN=x, DIRECT TRANSFER))	Sent with incorrect TCTF = 01000001'B, 01111111'B, 10000000'B, 10000001'B, or 10111111'B
2a			wait for T = 3 s	SS checks that UE shall neither transmit RRC-Status message on SRB 2 nor RLC Status PDU on SRB 3 See note 1 below
3	←		MAC PDU(TCTF, UE-ID, C/T, RLC AM PDU(SN=x, DIRECT TRANSFER))	Sent with correct TCTF = 11'B
4	→		RLC-STATUS-PDU	ACK PDUs with SN = x and TCTF Field is recognised as correct for the DCCH. See note 2 below
5	→		RRC Status message	
NOTE 1: UE will Transmit Signalling Connection Release Indication on expiry of MM Timer T3240 or GMM Timer T3317. NOTE 2: RRC Status message may be received before RLC Status PDU.				

TDD:

Step	Direction		Message	Comments
	UE	SS		
1	→		PAGING RESPONSE	Check TCTF
2	←		MAC PDU(TCTF, UE-ID, C/T, RLC AM PDU(SN=x, DIRECT TRANSFER))	Sent with incorrect TCTF = 101'B, 110'B, 010'B, 01111'B, or 01101'B
2	←		MAC PDU(TCTF, UE-ID, C/T, RLC AM PDU(SN=x, DIRECT TRANSFER))	Sent with incorrect TCTF = 010101'B, 110'B, 010'B, 01111'B, or 01101'B
2a			wait for T = 3 s	SS checks that UE shall neither transmit RRC-Status message on SRB 2 nor RLC Status PDU on SRB 3 See note 1 below
3	←		MAC PDU(TCTF, UE-ID, C/T, RLC AM PDU(SN=x, DIRECT TRANSFER))	Sent with correct TCTF = 01100'B
4	→		RLC-STATUS-PDU	ACK PDUs with SN = x and TCTF Field is recognised as correct for the DCCH. See note 2 below
5	→		RRC Status message	
NOTE 1: UE will Transmit Signalling Connection Release Indication on expiry of MM Timer T3240 or GMM Timer T3317. NOTE 2: RRC Status message may be received before RLC Status PDU.				

Steps 2 – 5 of above expected sequence are repeated for iterations 2 to 5. Note: For iteration k the SN in steps 2 and 4 starts with x + (k –1).

Specific Message Contents

None

7.1.1.2.5 Test Requirement

In step a) the TCTF field should have the value ‘01'B. Note that this may be implied from receipt of the PAGING RESPONSE/SERVICE REQUEST message correctly by the SS test script.

During the test the SS shall request an RLC status report with every transmitted PDU by setting of the Polling Bit. The UE shall not send any STATUS PDUs indicating missing PDUs.

At the end of each iteration (steps 4 and 5 of expected sequence) the SS shall receive an RRC Status message on SRB # 2, and RLC Status PDU on SRB # 3 with TCTF field set to value '01' B for FDD, '0100' B for TDD.

7.1.1.3 DTCH or DCCH mapped to RACH/FACH / Invalid C/T Field

7.1.1.3.1 Definition

This tests that the MAC applies the correct header to the MAC PDU according to the type of logical channel carried on the RACH/FACH transport channel. Incorrect application of MAC headers would result in inoperation of the UE.

7.1.1.3.2 Conformance requirement

DTCH or DCCH mapped to RACH/FACH:

TCTF field, C/T field, UE-Id type field and UE-Id are included in the MAC header.

The following fields are defined for the MAC header:

- C/T field
  The C/T field provides identification of the logical channel instance when multiple logical channels are carried on the same transport channel…

Structure of the C/T field

C/T field	Designation
0000	Logical channel 1
0001	Logical channel 2
...	...
1110	Logical channel 15
1111	Reserved (PDUs with this coding will be discarded by this version of the protocol)

Reference(s)

TS 25.321 clauses 9.2.1 and 9.2.1.1 c).

7.1.1.3.3 Test purpose

1. To verify that the UE discards PDUs with reserved or incorrect values in C/T field.
2. To verify that the TCTF field, C/T field, UE-Id type and UE-Id field are correctly applied when a DTCH or DCCH is mapped to the RACH/FACH.

7.1.1.3.4 Method of test

Initial conditions

System Simulator:

See clause 7.1.1.2.4.

User Equipment:

See clause 7.1.1.2.4.

Test procedure

a) The SS receives the PAGING RESPONSE or SERVICE REQUEST (depending on domain) message from the UE and checks the C/T field.

b) The SS transmits MAC PDUs containing RLC AM PDUs containing a DIRECT TRANSFER message containing.

1. Dummy octet string for NAS Message, of size sufficient enough to fit in one RLC PDU of 144 bits, including the correct RLC AM header.

2. The IE CN Domain Identity is Set to PS Domain (no signalling connection for this domain exists).

3. The polling bit in RLC header is set for Transmission of RLC STATUS PDU.

The MAC header shall be set as follows:

Field	Value
TCTF	11'B
UE ID Type	C-RNTI
UE ID	As set in RRC CONNECTION SETUP message.
C/T	0111'B

c) The SS checks that UE shall neither transmit RRC Status message on SRB2 nor RLC Status PDU on.

d) The SS again transmits MAC PDUs as in b) above, but this time uses the correct C/T value for AM-DCCH NAS High Priority of 0010'B. The sequence numbers in the RLC headers shall be identical with those sent in b).

e) SS receives RLC Status PDU on SRB #3 acknowledging the receipt of the above RLC PDU.

f) The SS receives a RRC STATUS message on the uplink DCCH using AM RLC on SRB # 2.

g) The SS repeats steps b), c), d), e) and f), with the C/T field set as follows:

Iteration	C/T Value
2	1111'B

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	→		PAGING RESPONSE/SERVICE REQUEST	Check C/T field
2	←		MAC PDU(TCTF, UE-ID, C/T, RLC AM PDU(SN=x, DIRECT TRANSFER))	Sent with incorrect C/T = 0111'B, or 1111'B.
2a			wait for T = 5 s	SS checks that UE shall neither transmit RRC-Status message on SRB 2 nor RLC Status PDU on SRB 3. See note 1 below.
3	←		MAC PDU(TCTF, UE-ID, C/T, RLC AM PDU(SN=x, DIRECT TRANSFER))	Sent with correct C/T = 0010'B
4	→		RLC-STATUS-PDU	ACK PDUs with SN = x C/T Field is recognised as correct for the DCCH. See note 2 below.
5	→		RRC Status message	
NOTE 1: UE will Transmit Signalling Connection Release Indication on expiry of MM Timer T3240 or GMM Timer T3317. NOTE 2: RRC Status message may be received before RLC Status PDU.				

Steps 2 to 5 of the expected sequence are repeated for iteration 2. Note: For iteration k the SN in steps 2 and 4 starts with x + (k –1).

Specific Message Contents

None

7.1.1.3.5 Test Requirement

In step a) the C/T field should be set to the Logical Channel ID for SRB #3 (0010'B). Note that this may be implied from receipt of the PAGING RESPONSE/SERVICE REQUEST message correctly by the SS test script.

During the test the SS shall request RLC status report with every transmitted PDU by setting of the Polling Bit. The UE shall not send any STATUS PDUs indicating missing PDUs.

At the end of each iteration (steps 4 and 5 of expected sequence) the SS shall receive a RLC Status PDU on SRB # 3, with C/T field set to value '0010'B and RRC Status message on SRB # 2.

7.1.1.4 DTCH or DCCH mapped to RACH/FACH / Invalid UE ID Type Field

7.1.1.4.1 Definition

This tests that the MAC applies the correct header to the MAC PDU according to the type of logical channel carried on the RACH/FACH transport channel. Incorrect application of MAC headers would result in inoperation of the UE.

7.1.1.4.2 Conformance requirement

DTCH or DCCH mapped to RACH/FACH:

TCTF field, C/T field, UE-Id type field and UE-Id are included in the MAC header.

The following fields are defined for the MAC header:

- UE-Id Type
  The UE-Id Type field is needed to ensure correct decoding of the UE-Id field in MAC Headers.

Table 9.2.1.7: UE-Id Type field definition

UE-Id Type field 2 bits	UE-Id Type
00	U-RNTI
01	C-RNTI
10	Reserved (PDUs with this coding will be discarded by this version of the protocol)
11	Reserved (PDUs with this coding will be discarded by this version of the protocol)

Reference(s)

TS 25.321 clauses 9.2.1 and 9.2.1.1 c).

7.1.1.4.3 Test purpose

1. To verify that the UE discards PDUs with reserved values in UE-Id type field.
2. To verify that the TCTF field, C/T field, UE-Id type and UE-Id field are correctly applied when a DTCH or DCCH is mapped to the RACH/FACH.

7.1.1.4.4 Method of test

Initial conditions

System Simulator:

See clause 7.1.1.2.4.

User Equipment:

See clause 7.1.1.2.4.

Test procedure

a) The SS receives the PAGING RESPONSE or SERVICE REQUEST (depending on domain) message from the UE and checks the UE-Id Type field.

b) The SS transmits MAC PDUs containing RLC AM PDUs containing a DIRECT TRANSFER message containing.

1. Dummy octet string for NAS Message, of size sufficient enough to fit in one RLC PDU of 144 bits, including the correct RLC AM header.

2. The IE CN Domain Identity is Set to PS Domain (no signalling connection for this domain exists)

3. The polling bit in RLC header is set for transmission of RLC STATUS PDU.

The MAC header shall be set as follows:

Field	Value
TCTF	11'B
UE ID Type	10'B
UE ID	As set in RRC CONNECTION SETUP message.
C/T	Logical Channel ID for SRB #3 (AM-DCCH NAS High Priority): 0010'B

c) The SS checks that UE shall neither transmit RRC Status message on SRB2 nor RLC Status PDU on SRB3.

d) The SS again transmits MAC PDUs as in b) above, but this time uses the correct UE-Id type value for C-RNTI of 01'B. The sequence numbers in the RLC headers shall be identical with those sent in b).

e) SS Receives RLC Status PDU on SRB #3 acknowledging the receipt of the above RLC PDU.

f) The SS receives a RRC STATUS message on the uplink DCCH using AM RLC on SRB # 2

g) The SS repeats steps b), c), d), e) and f), with the UE-Id type field set as follows in step b):

Iteration	UE-Id type Value
2	11'B

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	→		PAGING RESPONSE/SERVICE REQUEST	Check UE-Id Type
2	←		MAC PDU(TCTF, UE-ID, C/T, RLC AM PDU(SN=x, DIRECT TRANSFER))	Sent with incorrect UE-Id Type = 10'B, or 11'B.
2a			wait for T = 5 s	SS checks that UE shall neither transmit RRC-Status message on SRB 2 nor RLC Status PDU on SRB 3. See note 1 below.
3	←		MAC PDU(TCTF, UE-ID, C/T, RLC AM PDU(SN=x, DIRECT TRANSFER))	Sent with correct UE-Id Type = 01'B
4	→		RLC-STATUS-PDU	ACK PDU with SN = x UE-Id is recognised as correct for the UE. See note 2 below.
5	→		RRC Status message	RRC
NOTE 1: UE will Transmit Signalling Connection Release Indication on expiry of MM Timer T3240 or GMM Timer T3317. NOTE 2: RRC Status message may be received before RLC Status PDU.				

Steps 2 to 5 of the expected sequence are repeated for iteration 2. Note: For iteration k the SN in step 2 and 4 starts with x + (k –1).

Specific Message Contents

None

7.1.1.4.5 Test Requirement

In step a) the UE-Id Type field should be set to 01'B. Note that this may be implied from receipt of the PAGING RESPONSE/SERVICE REQUEST message correctly by the SS test script.

During the test the SS request an RLC status report with every transmitted PDU by setting of the Polling Bit. The UE shall not send any STATUS PDUs indicating missing PDUs.

At the end of each iteration (steps 4 and 5 of expected sequence) the SS shall receive a RLC Status PDU on SRB # 3, with UE Id type correctly set to '01'B and RRC Status message on SRB # 2.

7.1.1.5 DTCH or DCCH mapped to RACH/FACH / Incorrect UE ID

7.1.1.5.1 Definition

This tests that the MAC applies the correct header to the MAC PDU according to the type of logical channel carried on the RACH/FACH transport channel. Incorrect application of MAC headers would result in inoperation of the UE.

7.1.1.5.2 Conformance requirement

DTCH or DCCH mapped to RACH/FACH:

TCTF field, C/T field, UE-Id type field and UE-Id are included in the MAC header.

The following fields are defined for the MAC header:

- UE-Id
  The UE-Id field provides an identifier of the UE on common transport channels…

Lengths of UE Id field

UE Id type	Length of UE Id field
U-RNTI	32 bits
C-RNTI	16 bits

Reference(s)

TS 25.321 clauses 9.2.1 and 9.2.1.1 c).

7.1.1.5.3 Test purpose

1. To verify that the UE ignores PDUs with UE-Ids that do not match the Id allocated to it.
2. To verify that the TCTF field, C/T field, UE-Id type and UE-Id field are correctly applied when a DTCH or DCCH is mapped to the RACH/FACH.

7.1.1.5.4 Method of test

Initial conditions

System Simulator:

See clause 7.1.1.2.4.

User Equipment:

See clause 7.1.1.2.4.

Test procedure

a) The SS receives the PAGING RESPONSE or SERVICE REQUEST (depending on domain) message from the UE and checks the UE-Id field.

b) The SS transmits MAC PDUs containing RLC AM PDUs containing a DIRECT TRANSFER message containing.

1. Dummy Octet String for NAS Message, of size sufficient enough to fit in one RLC PDU of 144 bits, including the correct RLC AM header.
2. The IE CN Domain Identity is Sset to PS Domain (no signalling connection for this domain exists)
3. The polling bit in RLC header is set for transmission of RLC STATUS PDU.

The MAC header shall be set as follows:

Field	Value
TCTF	11'B
UE ID Type	C-RNTI
UE ID	Address allocated in RRC CONNECTION SETUP message + 1.
C/T	Logical Channel ID for SRB #3 (AM-DCCH NAS High Priority): 0010'B

c) The SS checks that UE shall neither transmit RRC Status message on SRB2 nor RLC Status PDU on SRB3.

d) The SS again transmits MAC PDUs as in b) above, but this time uses the correct UE-Id value of the address allocated in the RRC CONNECTION SETUP message. The sequence numbers in the RLC headers shall be identical with those sent in b).

e) SS Receives RLC Status PDU on SRB #3 acknowledging the receipt of the above RLC PDU

f) The SS receives a RRC STATUS message on the uplink DCCH using AM RLC on SRB # 2.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	→		PAGING RESPONSE/SERVICE REQUEST	Check UE-Id
2	←		MAC PDU(TCTF, UE-ID, C/T, RLC AM PDU(SN=x, DIRECT TRANSFER))	Sent with incorrect UE-Id = C-RNTI+1
2a			wait for T = 10 s	SS checks that UE shall neither transmit RRC-Status message on SRB 2 nor RLC Status PDU on SRB 3. See note 1 below.
3	←		MAC PDU(TCTF, UE-ID, C/T, RLC AM PDU(SN=x, DIRECT TRANSFER))	Sent with correct UE-Id = C-RNTI
4	→		RLC-STATUS-PDU	ACK PDUs with SN = x UE-Id is recognised as correct for the UE. See note 2 below.
5	→		RRC Status message	
NOTE 1: UE will Transmit Signalling Connection Release Indication on expiry of MM Timer T3240 or GMM Timer T3317. NOTE 2: RRC Status message may be received before RLC Status PDU.				

Specific Message Contents

None

7.1.1.5.5 Test Requirement

In step a) the UE-Id field should be set to the C-RNTI allocated in the RRC CONNECTION SETUP message. Note that this may be implied from receipt of the PAGING RESPONSE/SERVICE REQUEST message correctly by the SS test script.

During the test the SS shall request an RLC status report with every transmitted PDU by setting of the Polling Bit. The UE shall not send any STATUS PDUs indicating missing PDUs.

At the end of the expected sequence (steps 4 and 5) the SS shall receive RLC Status PDU on SRB # 3 with correct C-RNTI and RRC Status message on SRB # 2.

7.1.1.6 DTCH or DCCH mapped to DSCH or USCH

7.1.1.6.1 Definition and applicability

Applicable for if mode TDD only or FDD only is supported. In FDD applicable only to R99 and Rel-4 UEs.

7.1.1.6.2 Conformance requirement

The TCTF field is included in the MAC header for TDD only. The UE-Id type and UE-Id are included in the MAC header for FDD only. The C/T field is included if multiplexing on MAC is applied.

Reference(s)

TS 25.321 clause 9.2.1.1.

7.1.1.6.3 Test purpose

To verify when DTCH or DCCH is mapped to DSCH or USCH, the TCTF field is applied for TDD only, the UE-Id type and UE-Id are applied for FDD only. If multiplexing on MAC is applied, C/T field is included, otherwise, the C/T field is not included in the MAC header.

7.1.1.6.4 Method of test

Initial conditions

System Simulator:

- 1 cell, default parameters. Ciphering Off.

User Equipment:

- The UE shall operate under normal test conditions, Ciphering Off.
- The Test-USIM shall be inserted.

The UE is in Connected mode and a connection is established as described in the TS 34.123-1, 7.3 PDCP testing, clause "Setup a UE originated PS session using IP Header compression in AM RLC (using Loop back test mode 1).

Related ICS/IXIT Statement(s)

TBD

Foreseen Final State of the UE

Test procedure

a) The SS sends a certain data block to the UE.

b) After having received the data block via configured mapped channels, the UE forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its MAC configuration to the SS.

c) The SS receives the returned data block and checks its MAC header whether the TCTF is applied for TDD only, or the UE-Id type and UE-Id are applied for FDD only, and the C/T field shall not be applied.

d) The SS configures the RLC.

e) The SS starts a Radio Bearer Reconfiguration procedure to be connected in RLC transparent mode and configures the Radio Bearer for multiplexing.

f) The SS sends a certain data block to the UE.

g) After having received the data block via configured mapped channels, the UE forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its MAC configuration to the SS.

h) The SS receives the returned data block and checks its MAC header whether the TCTF is applied for TDD only, or the UE-Id type and UE-Id are applied for FDD only and the C/T field is applied.

i) The SS reconfigures its RLC mode to be in AM.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DATA BLOCK	The SS sends one data block with MAC header, sets TCTF as "DCCH or DTCH over USCH or DSCH" for TDD only, or sets UE-Id type as "C-RNTI", and UE-Id as C-RNTI of UE for FDD only.
2	→		LOOP BACK DATA BLOCK	SS receives the loop back data block from the Uplink RB and checks the MAC header.
3				SS sends CMAC_MAC_HEADER_REQ with enable_mac_header and CRLC_CONFIG_REQ with RLC mode as "AM mode".
4	←		RADIO BEARER RECONFIGURE	Reconfigures the downlink and uplink radio bearer as multiplexing .
5	→		RADIO BEARER RECONFIGURATION COMPLETE	
6				SS sends CMAC_MAC_HEADER_REQ with disable_mac_header and CRLC_CONFIG_REQ with RLC mode as "Transparent mode".
7	←		DATA BLOCK	The SS sends one data block with MAC header, sets TCTF as "DCCH or DTCH over USCH or DSCH" for TDD only, or sets UE-Id type as "C-RNTI", and UE-Id as C-RNTI of UE for FDD only and C/T field is included.
8	→		LOOP BACK DATA BLOCK	SS receives the loop back data block from the Uplink RB and checks the MAC header.
9				SS sends CMAC_MAC_HEADER_REQ with enable_mac_header and CRLC_CONFIG_REQ with RLC mode as "AM mode".

Specific Message Contents

RADIO BEARER SET UP:

Information Element	Value/remark
RLC info - RLC mode	 AM RLC
RB mapping info -Downlink - Number of logical channels - Downlink transport channel type	 1 DSCH
-Uplink - Number of logical channels - Uplink transport channel type	 1 USCH

RADIO BEARER RECONFIGURE:

Information Element	Value/remark
RLC info - RLC mode	 AM RLC
RB mapping info -Downlink - Number of logical channels - Downlink transport channel type -Uplink - Number of logical channels - Uplink transport channel type	 2 DSCH 2 USCH

7.1.1.6.5 Test requirements

TCTF field in the MAC header of loop back data block is "DTCH or DCCH over DSCH or USCH" for TDD only. The UE-ID type and UE-Id are applied in the MAC header for FDD only. If multiplexing on MAC is applied, C/T field is included, otherwise, C/T field is not included.

7.1.1.7 DTCH or DCCH mapped to CPCH

7.1.1.7.1 Definition and applicability

All UEs which support CPCH.

7.1.1.7.2 Conformance requirement

UE-Id type field and UE-Id are included in the MAC header. The C/T field is included in the MAC header if multiplexing on MAC is applied.

Reference(s)

TS 25.321 clauses 9.2.1.1 and 11.3.

TS 25.214 clause 6.2.

TS 25.211 clause 5.3.3.11.

7.1.1.7.3 Test purpose

To verify when DTCH or DCCH mapped to CPCH, UE-Id type field and UE-Id are included in the MAC header. if multiplexing on MAC is applied, the C/T field is included in the MAC header, otherwise, C/T field is not included.

7.1.1.7.4 Method of test

Initial conditions

System Simulator:

- 1 cell, default parameters, Ciphering Off.

User Equipment:

- The UE shall operate under normal test conditions, Ciphering Off.
- The Test-USIM shall be inserted.

The UE is in Connected mode and a connection is established as described in the TS 34.123-1, 7.3 PDCP testing, clause "Setup a UE originated PS session using IP Header compression in UM RLC (using Loop back test mode 1).

Related ICS/IXIT Statement(s)

TBD

Foreseen Final State of the UE

Test procedure

a) The SS sends SIBs 7, 8, and 9, sends CSICH information and waits 30 s.

b) The SS reconfigures its RLC mode to be in transparent mode RLC. Afterwards its sends a certain data block to the UE.

c) After having received the data block via configured mapped channels, the UE forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its MAC configuration to the SS.

d) The SS receives the returned data block and checks its MAC header, whether a UE-Id type and a UE-Id are included.

e) The SS reconfigures its RLC mode to be in AM.

f) The SS starts a Radio Bearer Reconfiguration procedure to be connected in RLC transparent mode and configures the Radio Bearer for multiplexing.

g) The SS sends the next data block via its MAC entity with MAC header, including the UE-Id type as "C-RNTI" and UE-Id as C-RNTI of the UE.C/T field.

h) After having received the data block via configured mapped channels, the UE forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its MAC configuration to the SS.

i) The SS receives the returned data block and checks its MAC header, whether UE-Id type, UE-Id field are included and C/T field is applied or not.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		SIBs 7, 8 and 9 and CSICH information	Containing default settings for CPCH.
2	←		DATA BLOCK	The SS sends one data block with MAC header, sets UE-Id type as "C-RNTI", and UE-Id as C-RNTI of UE.
3	→		LOOP BACK DATA BLOCK	SS receives the loop back data block from the Uplink RB and checks the MAC header.
4				SS sends CMAC_MAC_HEADER_REQ with enable_mac_header and CRLC_CONFIG_REQ with RLC mode as "AM mode".
5	←		RADIO BEARER RECONFIGURE	Reconfigures the downlink and uplink radio bearer as multiplexing.
6	→		RADIO BEARER RECONFIGURATION COMPLETE	
7				SS sends CMAC_MAC_HEADER_REQ with disable_mac_header and CRLC_CONFIG_REQ with RLC mode as "Transparent mode".
8	←		DATA BLOCK	The SS sends one data block with MAC header, sets UE-Id type as "C-RNTI", and UE-Id as C-RNTI of UE.
9	→		LOOP BACK DATA BLOCK	SS receives the loop back data block from the Uplink RB and checks the MAC header.
10				SS sends CMAC_MAC_HEADER_REQ with enable_mac_header and CRLC_CONFIG_REQ with RLC mode as "AM mode".

Specific Message Contents

RADIO BEARER SET UP:

Information Element	Value/remark
RLC info - RLC mode	 AM RLC
RB mapping info -Downlink - Number of logical channels - Downlink transport channel type	 1 FACH
-Uplink - Number of logical channels - Uplink transport channel type	 1 CPCH

RADIO BEARER RECONFIGURE:

Information Element	Value/remark
RLC info - RLC mode	 AM RLC
RB mapping info -Downlink - Number of logical channels - Downlink transport channel type -Uplink - Number of logical channels - Uplink transport channel type	 2 FACH 2 CPCH

PRACH persistence level info in System Information Block type 7

Information Element	Value/Remark
PRACHs listed in SIB 5 - Dynamic persistence level	 All set to 8, which maps to minimum persistence value, no access allowed
PRACHs listed in SIB 6 - Dynamic persistence level	 All set to 8, which maps to minimum persistence value, no access allowed

CPCH parameters in System Information Block type 8

Information Element	Value/Remark
Back off control parameters	
- $N_{ap\_retrans\_max}$	15
- N_{access_fails}	15
- $NF_{bo\_no\ aich}$	15
- NS_{bo_busy}	15
- $NF_{bo\_all\_busy}$	15
- $NF_{bo\_mismatch}$	15
- T_{CPCH}	0
Power Control Algorithm	algorithm 1
TPC step size	1
DL DPCCH BER	15

CPCH set info in System Information Block type 8

Information Element	Value/Remark
AP preamble scrambling code	16
AP-AICH channelisation code	15
CD preamble scrambling code	17
CD/CA-ICH channelisation code	16
DeltaPp-m	0
UL DPCCH Slot Format	1
N_start_message	8
CPCH status indication mode	PA mode
PCPCH Channel #1 info	
- UL scrambling code	18
- DL channelisation code	15
- PCP length	8
- UCSM info	
- Minimum spreading factor	64
- NF_max	64
- AP signature	15
PCPCH Channel #2 info	
- UL scrambling code	19
- DL channelisation code	14
- PCP length	8
- UCSM info	
- Minimum spreading factor	64
- NF_max	64
- AP signature	14

PCPCH persistence level info in System Information Block type 9

Information Element	Value/Remark
CPCH set persistence levels	
- PCPCH persistence level	Both set to 1, immediate access allowed

CSICH Information broadcast by SS PHY

Information Element	Value/Remark
PCPCH Channel Availability (PCA) :	
-PCA1	Available
-PCA2	Available

7.1.1.7.5 Test requirements

The UE-Id type and UE-Id field are included in the MAC header. When multiplexing on MAC is not applied, C/T field is included in the MAC header. Otherwise, C/T field is not included.

7.1.1.8 DTCH or DCCH mapped to DCH / Invalid C/T Field

7.1.1.8.1 Definition

This tests that the MAC applies the correct header to the MAC PDU according to the type of logical channel carried on the DCH transport channel. Incorrect application of MAC headers would result in inoperation of the UE.

7.1.1.8.2 Conformance requirement

DTCH or DCCH mapped to DCH, no multiplexing of dedicated channels on MAC: -no MAC header is required.

DTCH or DCCH mapped to DCH, with multiplexing of dedicated channels on MAC: -C/T field is included in MAC header.

The following fields are defined for the MAC header:

- C/T field
  The C/T field provides identification of the logical channel instance when multiple logical channels are carried on the same transport channel…

Structure of the C/T field

C/T field	Designation
0000	Logical channel 1
0001	Logical channel 2
...	...
1110	Logical channel 15
1111	Reserved (PDUs with this coding will be discarded by this version of the protocol)

Reference(s)

TS 25.321 clauses 9.2.1 and 9.2.1.1 b).

7.1.1.8.3 Test purpose

1. To verify that the UE discards PDUs with reserved or incorrect values in C/T field.
2. To verify that the C/T field is correctly applied when a DTCH or DCCH is mapped to a DCH.

7.1.1.8.4 Method of test

Initial conditions

System Simulator:

- 1 cell, default parameters, Ciphering Off.

The DCH/DPCH is configured as specified in TS 34.108 clause 6.10.2.4.1.2 (FDD), 6.11.5.4.1.2(1.28Mcps TDD): (Stand-alone UL:3.4 DL:3.4 kbps SRBs for DCCH) with the following exception:

Higher layer	RAB/signalling RB		RB#3 (SRB#3)
	User of Radio Bearer		NAS_DT High prio
RLC	Logical channel type		DCCH
	RLC mode		TM
	Payload sizes, bit		148
	Max data rate, bps		3700
	RLC header, bit		0
MAC	MAC header, bit		0 (note)
	MAC multiplexing		Simulated by SS
Layer 1	TrCH type		DCH
	TB sizes, bit		148
	TFS	TF0, bits	0 x 148
		TF1, bits	1 x 148
	TTI, ms		40
	Coding type		CC 1/3
	CRC, bit		16
	Max number of bits/TTI before rate matching		516
	Uplink: Max number of bits/radio frame before rate matching		129
	RM attribute		155-165
NOTE: The SS MAC layer must be configured not to add a MAC header so that the header can be added by the test case in order to create the necessary invalid values.			

The TFCS should be configured as specified in clause 6.10.2.4.1.2.1.1.2 (FDD), 6.11.5.4.1.2.1.1.2(1.28 Mcps TDD).

User Equipment:

The UE shall operate under normal test conditions, Ciphering Off.

The Test-USIM shall be inserted.

The SS starts broadcasting the System Information as specified in TS 34.108 clause 6.1, using the configuration for the PRACH and SCCPCH (signalled in SYSTEM INFORMATION 5) as follows:

1. The SCCPCH is configured as specified in TS 34.108 clause 6.10.2.4.3.3 (FDD), 6.11.5.4.4.3(1.28Mcps TDD) (Interactive/Background 32 kbps RAB + SRB for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH).

2. The PRACH is configured as specified in TS 34.108 clause 6.10.2.4.4.1 (FDD), 6.11.5.4.5.2(1.28Mcps TDD).

The SS follows the procedure in TS 34.108 clause 7.4.2.1 (Mobile Terminated for CS) so that the UE shall be in state BGP 6-1 (CS-CELL_DCH_INITIAL) or clause 7.4.2.2 (Mobile Terminated for PS) so that the UE shall be in state BGP 6-3 (PS-CELL_DCH_INITIAL). During this procedure the RRC CONNECTION SETUP message shall allocate a DCH to carry the signalling radio bearers as follows:

1. The DCH/DPCH is configured as specified in TS 34.108 clause 6.10.2.4.1.2 (FDD), 6.11.5.4.1.2(1.28Mcps TDD): Stand-alone UL:3.4 DL:3.4 kbps SRBs for DCCH).

Test procedure

a) The SS receives the PAGING RESPONSE or SERVICE REQUEST (depending on domain) message from the UE and checks the C/T field.

b) The SS transmits MAC PDUs containing RLC AM PDUs containing a DIRECT TRANSFER message containing

1. Dummy octet string for NAS Message, of size sufficient enough to fit in one RLC PDU of 144 bits, including the correct RLC AM header.
2. The IE CN Domain Identity is Set to PS Domain (no signalling connection for this Domain exists).
3. The polling bit in RLC header is set for transmission of RLC STATUS PDU.

The MAC header shall be set as follows:

Field	Value
C/T	'0111'B

c) The SS checks that UE shall neither transmit RRC Status message on SRB2 nor RLC Status PDU on SRB3.

d) The SS again transmits MAC PDUs as in b) above, but this time uses the correct C/T value for AM-DCCH NAS High Priority of 0010'B. The sequence numbers in the RLC headers shall be identical with those sent in b).

e) SS Receives RLC Status PDU on SRB #3 acknowledging the receipt of the above RLC PDU.

f) The SS receives a RRC STATUS message on the uplink DCCH using AM RLC on SRB # 2.

g) The SS repeats steps b), c), d), e) and f), with the C/T field set as follows in step b):

Iteration	C/T Value
2	1111'B

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	→		PAGING RESPONSE/SERVICE REQUEST	Check C/T field
2	←		MAC PDU(C/T, RLC AM PDU(SN=x, DIRECT TRANSFER))	Sent with incorrect C/T = 0111'B, or 1111'B
2a			wait for T = 5 s	SS checks that UE shall neither transmit RRC-Status message on SRB 2 nor RLC Status PDU on SRB 3. See note 1 below.
3	←		MAC PDU(C/T, RLC AM PDU(SN=x, DIRECT TRANSFER))	Sent with correct C/T = 0010'B
4	→		RLC-STATUS-PDU	ACK PDUs with SN = x C/T Field is recognised as correct for the DCCH. See note 2 below.
5	→		RRC Status message	
NOTE 1: UE will Transmit Signalling Connection Release Indication on expiry of MM Timer T3240 or GMM Timer T3317. NOTE 2: RRC Status message may be received before RLC Status PDU.				

Steps 2 to 5 of the expected sequence are repeated for iteration 2.

NOTE: For iteration 2 the SN in steps 2 and 4 starts with x+1.

Specific Message Contents

None

7.1.1.8.5 Test Requirement

In step a) the C/T field should be set to the Logical Channel ID for SRB #3 (0010'B). Note that this may be implied from receipt of the PAGING RESPONSE or SERVICE REQUEST message correctly by the SS test script.

During the test the SS shall request RLC status reports with every transmitted PDU by setting of the Polling Bit. The UE shall not send any STATUS PDUs indicating missing PDUs.

At the end of each iteration (steps 4 and 5 of expected sequence) the SS shall receive a RLC Status PDU on SRB # 3 with C/T field set to '0010'B and RRC Status message on SRB # 2.

7.1.1.9 MTCH mapped to FACH / Invalid TCTF (TDD MBSFN)

7.1.1.9.1 Definition

This tests that the MAC applies the correct header to the MAC PDU according to the type of logical channel carried on the FACH transport channel. Incorrect application of MAC headers would result in inoperation of the UE.

7.1.1.9.2 Conformance requirement

MTCH mapped to FACH:

The TCTF field and MBMS-Id field are included in the MAC header for MTCH

…

Table 9.2.1.1: Coding of the Target Channel Type Field on FACH for TDD

TCTF	Designation
000	BCCH
001	CCCH
010	CTCH
01100	DCCH or DTCH over FACH
01101	MCCH
01110	MTCH
01111	MSCH
100	SHCCH
101-111	Reserved (PDUs with this coding will be discarded by this version of the protocol)

Reference(s)

TS 25.321 clauses 9.2.1 and 9.2.1.8.

7.1.1.9.3 Test purpose

1. To verify that the UE discards PDUs with reserved or incorrect values in the TCTF field.
2. To verify that the TCTF field is correctly applied when a MTCH is mapped to the FACH.

7.1.1.9.4 Method of test

Initial conditions

System Simulator:

Unicast carrier: 1 cell, Cell 1 with default configuration.

- MBSFN carriers: 1 cell, Cell 31 has default parameters. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 and Default1 MCCH scheduling (No ongoing session) according to subclause 11.2 of TS 34.108.

The configuration of the S-CCPCH which will carry the MTCH is based upon that specified in TS 34.108 clause 6.11.1c (3.84 Mcps TDD), 6.11.1d (7.68 Mcps TDD) and 6.11.5.4.4.13 (1.28 Mcps TDD) 8kbps RB for MBSFN MTCH with the following exceptions for the FACH:

Higher layer	RAB/signalling RB		RAB
	User of Radio Bearer		Test
RLC	Logical channel type		MTCH
	RLC mode		TM
	Payload sizes, bit		345
	Max data rate, bps		8200
	UMD PDU header, bit		0
MAC	MAC header, bit		0 (note)
	MAC multiplexing		Simulated by SS
Layer 1	TrCH type		FACH
	TB sizes, bit		345
	TFS	TF0, bits	0x345
		TF1, bits	1x345
	TTI, ms		40
	Coding type		TC
	CRC, bit		16
	Max number of bits/TTI after channel coding		1095
	Max number of bits/radio frame before rate matching		274
	RM attribute		128
NOTE: The SS MAC layer must be configured not to add a MAC header so that the header can be added by the test case in order to create the necessary invalid values.			

User Equipment:

- On the unicast carrier cell the UE is in registered Idle Mode on PS (state 3) if the UE only supports PS domain or registered Idle Mode on CS/PS (state 7) if the UE supports both CS and PS domains, as specified in clause 7.2.2 of TS 34.108.
- The UE is in MBSFN Idle mode with one activated service as specified in clause 7.6.4 of TS 34.108. The UE has selected (i.e. it is included in MBMS_ACTIVATED_SERVICES variable) a national service for which there will be a session starting on MBSFN Cell 31 (see TS 34.108 clause 11.2.4).

Related ICS/IXIT statements

- MBMS Broadcast services in MBSFN mode available on UE Yes/No.
- Support of TDD transmit and receive functions available on UE Yes/No.
- Support of TDD MBSFN receive only function available on UE Yes/No.

Test procedure

a) The UE is camping on Cell 1 and Cell 31. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 (no session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

b) The SS sends ACTIVATE RB TEST MODE on the unicast carrier and the UE responds with ACTIVATE RB TEST MODE COMPLETE.

c) The SS sends CLOSE UE TEST LOOP to activate RLC SDU counting on Cell 31 MTCH (Transmission identity indicating the MBMS activated service).

d) The SS notifies on MCCH about the start of an MBMS session for one modification period. MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C4 (one PTM session starting) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

e) MCCH messages are then transmitted by the SS on Cell 31 using MBMS configuration C2 (one PTM session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

f) The SS waits for the UE to start reception of the MBMS data on MTCH according to the specified service activation time. The UE closes the test loop. The UE sends CLOSE UE TEST LOOP COMPLETE.

g) The SS transmits MAC PDUs containing RLC UM PDUs containing an octet string representing dummy traffic data, of size sufficient enough to fit in one RLC PDU of 338 bits, including the correct RLC UM header.

The MAC header shall be set as follows:

Field	Value
TCTF	101'B
MBMS-Id	0000'B

h) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE corresponds to zero received RLC SDUs. The SS records the value.

i) The SS again transmits MAC PDUs as in b) above, but this time uses the correct TCTF of 01110'B. Where a TCTF size of 5-bits is used, 2-bits from the RLC payload (specified above as 338 bits) shall be discarded. The sequence numbers in the RLC headers shall be identical with those sent in b).

j) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is > 0. The SS records the value.

k) The SS repeats steps g), h), i) and j), with the TCTF field set as follows in step g):

Iteration	TCTF Value
2	110'B
3	111'B
4	001'B
5	010'B
6	100'B
7	01100'B

NOTE 1: For a UE in UE test loop mode 3 the RLC SDU counter value is only reset upon reception of the CLOSE UE TEST LOOP message configuring UE test loop mode 3. To enable the SS to measure the number of received RLC SDUs for the different sub-tests the SS needs to record the reported values for each sub-test and perform the checking of the reported value relative to the previously reported value.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1	←		U	ACTIVATE RB TEST MODE	
2	→		U	ACTIVATE RB TEST MODE COMPLETE	
3	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated on Cell 31 for the selected national service on MTCH.
4	←		M	MBMS MCCH Message Configuration C4	Includes the national service activated at UE in the modified services list for one modification period.
5	←		M	MBMS MCCH Message Configuration C2	No modified services. One ongoing service corresponding to that activated at the UE.
6	→		U	CLOSE UE TEST LOOP COMPLETE	The UE establishes the MTCH according to the activation time and closes the test loop.
7	SS		M		The SS repeats steps 8 - 15 for each invalid TCTF value.
8				MAC PDU(TCTF, MBMS-Id, RLC UM PDU(SN=x))	Sent with invalid TCTF = 101'B, 110'B, 111'B, 001'B, 010'B, 100'B and 01100'B
9					SS waits for T = 2 s
10	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
11	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to zero. The SS records the value.
12				MAC PDU(TCTF, MBMS-Id, RLC UM PDU(SN=x))	Sent with correct TCTF = 01110'B
13					SS waits for T = 2 s
14	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
15	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is greater than zero. The SS records the value.
16	←		U	OPEN UE TEST LOOP	
17	→		U	OPEN UE TEST LOOP COMPLETE	
18	←		U	DEACTIVATE RB TEST MODE	
19	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Steps 8 – 15 of the above expected sequence are repeated for iterations 2 to 7. Note: For iteration k the SN in steps 8 and 12 starts with x + (k –1).

Specific Message Contents

With the following exceptions, all messages have the same content as defined in TS 34.108 clause 9.1.3 for the MBSFN carriers and in TS 34.108 clause 9.1.1 or 9.1.2 for the unicast carrier:

MBMS COMMON P-T-M RB INFORMATION (Step 4 and Step 5) (3.84 Mcps)

Information Element	Value/remark	Version
Message type		Rel-6
RB information list	1 entry in the list	Rel-6
- RB identity		
- MBMS Common RB identity	14	
- PDCP info		
- Support for lossless SRNS relocation	Not Present	
- Max PDCP SN window size	Not Present	
- PDCP PDU header	absent	
- Header compression information	Not Present	

Information Element	Value/remark	Version
- RLC info		
- DL UM RLC LI size	7	
- DL Duplication Avoidance and Reordering info	Not Present	
- DL Out of sequence delivery info	Not Present	
TrCh information for each TrCh	1 entry in the list	Rel-6
- Transport channel identity		
- MBMS Common TrCh identity	1	
- TFS		
- CHOICE *Transport channel type*	Common transport channels	
- Dynamic Transport Format Information		
- RLC Size	Refer to TrCh parameters defined above	
- Number of TBs and TTI List	(This IE is repeated for each TFI)	
- Number of Transport blocks	Refer to TrCh parameters defined above	
- CHOICE *mode*	TDD	
- Transmission Time Interval	Not Present	
- CHOICE *Logical Channel List*	ALL	
- no data		
- Semi-static Transport Format information		
- Transmission time interval	Refer to TrCh parameters defined above	
- Type of channel coding	Turbo	
- Coding Rate	Not Present	
- Rate matching attribute	Refer to TrCh parameters defined above	
- CRC size	Refer to TrCh parameters defined above	
TrCh information for each CCTrCh	Not Present (Default TFCS applies for each CCTrCh)	Rel-6
PhyCh information	1 entry in list	Rel-6
- PhyCh identity		
- MBMS Common PhyCh identity	23	
- Secondary CCPCH info MBMS		
- CHOICE *mode*	1.28/3.84 Mcps TDD	
- Common timeslot info MBMS		
- 2nd interleaving mode	Frame	
- TFCI coding	Reference to clause 6.11.1c	
- Puncturing limit	Reference to clause 6.11.1c	
- Downlink Timeslots and Codes		
- First individual timeslot info		
- Timeslot number		
- CHOICE *TDD option*	3.84 Mcps	
- Timeslot number	1	
- TFCI existence	TRUE	
- Midamble Shift and burst type		
- CHOICE *TDD option*	3.84 Mcps TDD	
- CHOICE Burst Type	MBSFN Burst Type	Rel-7
- no data		Rel-7
- CHOICE *TDD option*	3.84Mcps TDD	
- no data		
- First timeslot channelisation codes		
- CHOICE *codes representation*	Consecutive codes	
- First channelisation code	Reference clause 5.5.2 "Downlink physical channels code allocation for signalling"	
- Last channelisation code	Reference clause 5.5.2 "Downlink physical channels code allocation for signalling"	
- CHOICE *more timeslots*	No more timeslots	
- no data		
- Modulation	Reference to clause 6.11.1c	Rel-7

MBMS COMMON P-T-M RB INFORMATION (Step 4 and Step 5) (7.68 Mcps)

Information Element	Value/remark	Version
Message type		Rel-7
RB information list	1 entry in the list	Rel-7
- RB identity		
- MBMS Common RB identity	14	
- PDCP info		
- Support for lossless SRNS relocation	Not Present	
- Max PDCP SN window size	Not Present	
- PDCP PDU header	absent	
- Header compression information	Not Present	

Information Element	Value/remark	Version
- RLC info		
- DL UM RLC LI size	7	
- DL Duplication Avoidance and Reordering info	Not Present	
- DL Out of sequence delivery info	Not Present	
TrCh information for each TrCh	1 entry in the list	Rel-7
- Transport channel identity		
- MBMS Common TrCh identity	1	
- TFS		
- CHOICE *Transport channel type*	Common transport channels	
- Dynamic Transport Format Information		
- RLC Size	Refer to TrCh parameters defined above	
- Number of TBs and TTI List	(This IE is repeated for each TFI)	
- Number of Transport blocks	Refer to TrCh parameters defined above	
- CHOICE *mode*	TDD	
- Transmission Time Interval	Not Present	
- CHOICE *Logical Channel List*	ALL	
- no data		
- Semi-static Transport Format information		
- Transmission time interval	Refer to TrCh parameters defined above	
- Type of channel coding	Turbo	
- Coding Rate	Not Present	
- Rate matching attribute	Refer to TrCh parameters defined above	
- CRC size	Refer to TrCh parameters defined above	
TrCh information for each CCTrCh	Not Present (Default TFCS applies for each CCTrCh)	Rel-7
PhyCh information	1 entry in list	Rel-7
- PhyCh identity		
- MBMS Common PhyCh identity	23	
- Secondary CCPCH info MBMS		
- CHOICE *mode*	7.68 Mcps TDD	
- Common timeslot info MBMS		
- 2nd interleaving mode	Frame	
- TFCI coding	Reference to clause 6.11.1d	
- Puncturing limit	Reference to clause 6.11.1d	
- Downlink Timeslots and Codes VHCR		
- First Individual timeslot info		
- Timeslot number		
- CHOICE *TDD option*	7.68 Mcps option	
Timeslot number	1	
- TFCI existence	TRUE	
- Midamble Shift and burst type		
- CHOICE *TDD option*	7.68 Mcps TDD	
- CHOICE *Burst Type*	MBSFN Burst Type	
- no data	Default	
- CHOICE *TDD option*	7.68Mcps TDD	
- no data		
- First timeslot channelisation codes VHCR		
- CHOICE *codes representation*	Consecutive codes	
- First channelisation code	Reference clause 5.5.2 "Downlink physical channels code allocation for signalling"	
- Last channelisation code	Reference clause 5.5.2 "Downlink physical channels code allocation for signalling"	
- CHOICE more timeslots	No more timeslots	
- no data		
- Modulation	Reference to clause 6.11.1d	

MBMS COMMON P-T-M RB INFORMATION (Step 4 and Step 5) (1.28 Mcps)

Information Element	Value/remark	Version
Message type		Rel-6
RB information list	1 entry in the list	Rel-6
- RB identity		
- MBMS Common RB identity	14	
- PDCP info		
- Support for lossless SRNS relocation	Not Present	
- Max PDCP SN window size	Not Present	
- PDCP PDU header	absent	
- Header compression information	Not Present	

Information Element	Value/remark	Version
- RLC info		
- DL UM RLC LI size	7	
- DL Duplication Avoidance and Reordering info	Not Present	
- DL Out of sequence delivery info	Not Present	
TrCh information for each TrCh	1 entry in the list	Rel-6
- Transport channel identity		
- MBMS Common TrCh identity	1	
- TFS		
- CHOICE *Transport channel type*	Common transport channels	
- Dynamic Transport Format Information		
- RLC Size	Refer to TrCh parameters defined above	
- Number of TBs and TTI List	(This IE is repeated for each TFI)	
- Number of Transport blocks	Refer to TrCh parameters defined above	
- CHOICE *mode*	TDD	
- Transmission Time Interval	C	
- CHOICE *Logical Channel List*	ALL	
- no data		
- Semi-static Transport Format information		
- Transmission time interval	Refer to TrCh parameters defined above	
- Type of channel coding	Turbo	
- Coding Rate	Not Present	
- Rate matching attribute	Refer to TrCh parameters defined above	
- CRC size	Refer to TrCh parameters defined above	
TrCh information for each CCTrCh	Not Present (Default TFCS applies for each CCTrCh)	Rel-6
PhyCh information	1 entry in list	Rel-6
- PhyCh identity		
- MBMS Common PhyCh identity	23	
- Secondary CCPCH info MBMS		
- CHOICE *mode*	1.28/3.84 Mcps TDD	
- Common timeslot info MBMS		
- 2nd interleaving mode	Frame	
- TFCI coding	Reference to clause 6.11.5.4.4.13	
- Puncturing limit	Reference to clause 6.11.5.4.4.13	
- Downlink Timeslots and Codes		
- First individual timeslot info		
- Timeslot number		
- CHOICE *TDD option*	1.28 Mcps	
- Timeslot number	1	
- TFCI existence	TRUE	
- Midamble Shift and burst type		
- CHOICE *TDD option*	1.28 Mcps TDD	
- Midamble Allocation Mode	Common midamble	
- Midamble configuration	2	
- CHOICE *TDD option*	1.28Mcps TDD	
- Modulation	Reference to clause 6.11.5.4.4.13	
- SS-TPC Symbols	1	
- Additional TPC-SS Symbols	Not Present	
- First timeslot channelisation codes		
- CHOICE *codes representation*	Consecutive codes	
- First channelisation code	Reference clause 5.5.2 "Downlink physical channels code allocation for signalling"	
- Last channelisation code	Reference clause 5.5.2 "Downlink physical channels code allocation for signalling"	
- CHOICE *more timeslots*	No more timeslots	
- no data		
- MBSFN Special Time Slot	TS7	Rel-7
- Modulation	Reference to clause 6.11.5.4.4.13	Rel-7
LCR TDD MBSFN information	Not Present	Rel-7

MBMS CURRENT CELL P-T-M RB INFORMATION (Step 4 and Step 5)

Information Element	Value/remark	Version
Message type		Rel-6
S-CCPCH list	Contains 1 S-CCPCH	Rel-6
- S-CCPCH identity	Not Present	
- Secondary CCPCH info	23	
- MBMS Soft Combining Timing Offset	Not Present	
- TrCh information common for all TrCh	Not Present (MD)	
- TrCH information list		
- TrCh information	1	
- RB information list		
- RB information		
- RB information	14	
- MBMS short transmission ID	Reference to the service which is being provided on this RB.	
- MBMS logical channel identity	1	
- L1 combining status	Not Present	
- MSCH configuration information	Not Present	
S-CCPCH in SIB type 5	Not Present	Rel-6
MBSFN TDM Info List	Not Present	Rel-7

7.1.1.9.5 Test Requirement

1) At step 11 on each iteration, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to zero received RLC SDUs for Cell 31 MTCH.

2) At step 15 on each iteration, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to > 0 received RLC SDUs for Cell 31 MTCH.

7.1.1.9a MTCH mapped to FACH / Invalid TCTF (3.84 Mcps TDD IMB)

7.1.1.9a.1 Definition

This tests that the MAC applies the correct header to the MAC PDU according to the type of logical channel carried on the FACH transport channel. Incorrect application of MAC headers would result in inoperation of the UE.

7.1.1.9a.2 Conformance requirement

MTCH mapped to FACH:

The TCTF field and MBMS-Id field are included in the MAC header for MTCH

Table 9.2.1.1a: Coding of the Target Channel Type Field on FACH for 3.84 Mcps TDD IMB

TCTF	Designation
00	BCCH
01000000	CCCH
01000001-01001111	Reserved (PDUs with this coding will be discarded by this version of the protocol)
01010000	MCCH
01010001-01011110	Reserved (PDUs with this coding will be discarded by this version of the protocol)
01011111	MSCH
0110	MTCH
0111	Reserved (PDUs with this coding will be discarded by this version of the protocol)
10000000	CTCH
10000001-10111111	Reserved (PDUs with this coding will be discarded by this version of the protocol)
11	DCCH or DTCH over FACH

Reference(s)

TS 25.321 [6] clauses 9.2.1 and 9.2.1.8.

7.1.1.9a.3 Test purpose

1. To verify that the UE discards PDUs with reserved or incorrect values in the TCTF field.
2. To verify that the TCTF field is correctly applied when a MTCH is mapped to the FACH.

7.1.1.9a.4 Method of test

Initial conditions

System Simulator:

Unicast carrier: 1 cell, Cell 1 with default configuration.

- MBSFN carriers: 1 cell, Cell 31 has default parameters. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 and Default1 MCCH scheduling (No ongoing session) according to subclause 11.2 of TS 34.108 [9].

The configuration of the S-CCPCH which will carry the MTCH is based upon that specified in TS 34.108 [9], clause 6.11.1e (3.84 Mcps TDD IMB) 8kbps RB for MBSFN MTCH with the following exceptions for the FACH:

Higher layer	RAB/signalling RB		RAB
	User of Radio Bearer		Test
RLC	Logical channel type		MTCH
	RLC mode		TM
	Payload sizes, bit		344
	Max data rate, bps		8200
	UMD PDU header, bit		0
MAC	MAC header, bit		0 (NOTE)
	MAC multiplexing		Simulated by SS
Layer 1	TrCH type		FACH
	TB sizes, bit		344
	TFS	TF0, bits	0x344
		TF1, bits	1x344
	TTI, ms		40
	Coding type		TC
	CRC, bit		16
	Max number of bits/TTI after channel coding		1092
	Max number of bits/radio frame before rate matching		273
	RM attribute		128
NOTE: The SS MAC layer must be configured not to add a MAC header so that the header can be added by the test case in order to create the necessary invalid values.			

User Equipment:

- On the unicast carrier cell the UE is in registered Idle Mode on PS (state 3) if the UE only supports PS domain or registered Idle Mode on CS/PS (state 7) if the UE supports both CS and PS domains, as specified in clause 7.2.2 of TS 34.108 [9].

- The UE is in MBSFN Idle mode with one activated service as specified in clause 7.6.4 of TS 34.108 [9]. The UE has selected (i.e. it is included in MBMS_ACTIVATED_SERVICES variable) a service for which there will be a session starting on MBSFN Cell 31 (see TS 34.108 [9], clause 11.2.4).

Related ICS/IXIT statements

- MBMS Broadcast services in MBSFN mode available on UE Yes/No.

- Support of TDD or FDD transmit and receive functions available on UE Yes/No.

- Support of 3.84 Mcps TDD IMB receive function available on UE Yes/No.

Test procedure

a) The UE is camping on Cell 1 and Cell 31. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 (no session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108 [9].

b) The SS sends ACTIVATE RB TEST MODE on the unicast carrier and the UE responds with ACTIVATE RB TEST MODE COMPLETE.

c) The SS sends CLOSE UE TEST LOOP to activate RLC SDU counting on Cell 31 MTCH (Transmission identity indicating the MBMS activated service).

d) The SS notifies on MCCH about the start of an MBMS session for one modification period. MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C4 (one PTM session starting) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108 [9].

e) MCCH messages are then transmitted by the SS on Cell 31 using MBMS configuration C2 (one PTM session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108 [9].

f) The SS waits for the UE to start reception of the MBMS data on MTCH according to the specified service activation time. The UE closes the test loop. The UE sends CLOSE UE TEST LOOP COMPLETE.

g) The SS transmits MAC PDUs containing RLC UM PDUs containing an octet string representing dummy traffic data, of size sufficient enough to fit in one RLC PDU of 332 bits, including the correct RLC UM header.

The MAC header shall be set as follows:

Field	Value
TCTF	01000001'B
MBMS-Id	0000'B

h) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE corresponds to zero received RLC SDUs. The SS records the value.

i) The SS again transmits MAC PDUs as in g) above, but this time uses the correct TCTF of 0110'B. Where a TCTF size of 4-bits is used, 4-bits to the RLC payload (specified above as 332 bits) shall be added. The sequence numbers in the RLC headers shall be identical with those sent in g).

j) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is > 0. The SS records the value.

k) The SS repeats steps g), h), i) and j), with the TCTF field set as follows in step g):

Iteration	TCTF Value
2	01000010'B
3	01001111'B
4	01000000'B
5	01010001'B
6	01010010'B
7	01011110'B
8	0111'B
9	10000000'B
10	10000001'B
11	10000010'B
12	10111111'B
13	11'B

NOTE 1: For a UE in UE test loop mode 3 the RLC SDU counter value is only reset upon reception of the CLOSE UE TEST LOOP message configuring UE test loop mode 3. To enable the SS to measure the number of received RLC SDUs for the different sub-tests the SS needs to record the reported values for each sub-test and perform the checking of the reported value relative to the previously reported value.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1	←		U	ACTIVATE RB TEST MODE	
2	→		U	ACTIVATE RB TEST MODE COMPLETE	
3	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated on Cell 31 for the selected national service on MTCH.
4	←		M	MBMS MCCH Message Configuration C4	Includes the national service activated at UE in the modified services list for one modification period.
5	←		M	MBMS MCCH Message Configuration C2	No modified services. One ongoing service corresponding to that activated at the UE.
6	→		U	CLOSE UE TEST LOOP COMPLETE	The UE establishes the MTCH according to the activation time and closes the test loop.
7	SS		M		The SS repeats steps 8 - 15 for each invalid TCTF value.
8				MAC PDU(TCTF, MBMS-Id, RLC UM PDU(SN=x))	Sent with invalid TCTF = 01000001'B, 01000010'B, 01001111'B, 01000000'B, 01010001'B, 01010010'B, 01011110'B, 0111'B, 10000000'B, 10000001'B, 10000010'B, 10111111'B, 11'B
9					SS waits for T = 2 s
10	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
11	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to zero. The SS records the value.
12				MAC PDU(TCTF, MBMS-Id, RLC UM PDU(SN=x))	Sent with correct TCTF = 0110'B
13					SS waits for T = 2 s
14	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
15	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is greater than zero. The SS records the value.
16	←		U	OPEN UE TEST LOOP	
17	→		U	OPEN UE TEST LOOP COMPLETE	
18	←		U	DEACTIVATE RB TEST MODE	
19	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Steps 8 – 15 of the above expected sequence are repeated for iterations 2 to 13. Note: For iteration k the SN in steps 8 and 12 starts with x + (k –1).

Specific Message Contents

With the following exceptions, all messages have the same content as defined in TS 34.108 [9], clause 9.1.3 for the MBSFN carriers and in TS 34.108 [9], clause 9.1.1 or 9.1.2 for the unicast carrier:

Contents of MBMS COMMON P-T-M RB INFORMATION message: UM (3.84 Mcps TDD IMB)

Information Element	Value/remark	Version

Message type		Rel-6
RB information list	1 entry in the list	Rel-6
- RB identity		Rel-6
- MBMS Common RB identity	14	
- PDCP info		
- Support for lossless SRNS relocation	Not Present	
- Max PDCP SN window size	Not Present	
- PDCP PDU header	absent	
- Header compression information	Not Present	
- RLC info		
- DL UM RLC LI size	7	
- DL Duplication Avoidance and Reordering info	Not Present	
- DL Out of sequence delivery info	Not Present	
TrCh information for each TrCh	1 entry in the list	Rel-6
- Transport channel identity		Rel-6
- MBMS Common TrCh identity	1	
- TFS		
- CHOICE Transport channel type	Common transport channels	
- Dynamic Transport format information		
- RLC Size	Refer to TrCh parameters defined above	
- Number of TBs and TTI List	(This IE is repeated for TFI number.)	
- Number of Transport blocks	Refer to TrCh parameters defined above	
- CHOICE mode	FDD	
- CHOICE Logical channel list	All	
- no data		
- Semi-static Transport Format information		
- Transmission time interval	Refer to TrCh parameters defined above	
- Type of channel coding	Turbo	
- Coding Rate	Not present	
- Rate matching attribute	Refer to TrCh parameters defined above	
- CRC size	Refer to TrCh parameters defined above	
TrCh information for each CCTrCh	Not Present (Default TFCS applies for each CCTrCh)	Rel-6
PhyCh information	1 entry in list	Rel-6
- PhyCh identity		Rel-6
- MBMS Common PhyCh identity	23	
CHOICE mode	3.84 Mcps TDD IMB	
- Secondary CCPCH frame type 2 info		Rel-8
- Sub-frame number	2(check in 5.5.2)	Rel-8
- Downlink channelisation codes		Rel-8
- First channelisation code	(1..15) or reference to 6.10 "parameter set"	
- Last channelisation code	(1..15) or reference to 6.10 "parameter set"	
- CHOICE modulation	16QAM(check in6.10 "parameter set")	Rel-8
- CPICH secondary CCPCH power offset	0dB	Rel-8
LCR TDD MBSFN information	Not present	Rel-7

MBMS CURRENT CELL P-T-M RB INFORMATION (Step 4 and Step 5)

Information Element	Value/remark	Version
Message type		Rel-6
S-CCPCH list	Contains 1 S-CCPCH	Rel-6
- S-CCPCH identity	Not Present	
- Secondary CCPCH info	23	
- MBMS Soft Combining Timing Offset	Not Present	
- TrCh information common for all TrCh	Not Present (MD)	
- TrCH information list		
- TrCh information	1	
- RB information list		
- RB information		
- RB information	14	
- MBMS short transmission ID	Reference to the service which is being provided on this RB.	
- MBMS logical channel identity	1	
- L1 combining status	Not Present	
- MSCH configuration information	Not Present	
S-CCPCH in SIB type 5	Not Present	Rel-6
MBSFN TDM Info List	Not Present	Rel-7

7.1.1.9a.5 Test Requirement

1) At step 11 on each iteration, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to zero received RLC SDUs for Cell 31 MTCH.

2) At step 15 on each iteration, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to > 0 received RLC SDUs for Cell 31 MTCH.

7.1.1.10 MTCH mapped to FACH / Invalid MBMS-Id (TDD MBSFN)

7.1.1.10.1 Definition

This tests that the MAC applies the correct header to the MAC PDU according to the type of logical channel carried on the FACH transport channel. Incorrect application of MAC headers would result in inoperation of the UE.

7.1.1.10.2 Conformance requirement

MTCH mapped to FACH:

The TCTF field and MBMS-Id field are included in the MAC header for MTCH

…

Table 9.2.1.8: Structure of the MBMS-Id field

MBMS-Id field	MBMS logical channel identity [7]
0000	1
0001	2
...	...
1110	15
1111	Reserved (PDUs with this coding will be discarded by this version of the protocol)

Reference(s)

TS 25.321 clauses 9.2.1 and 9.2.1.8.

7.1.1.10.3 Test purpose

1. To verify that the UE discards PDUs with reserved or incorrect values in the MBMS-Id field.
2. To verify that the MBMS-Id field is correctly applied when a MTCH is mapped to the FACH.

7.1.1.10.4 Method of test

Initial conditions

System Simulator:

Unicast carrier: 1 cell, Cell 1 with default configuration.

- MBSFN carriers: 1 cell, Cell 31 has default parameters. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 and Default1 MCCH scheduling (No ongoing session) according to subclause 11.2 of TS 34.108.

The configuration of the S-CCPCH which will carry the MTCH is based upon that specified in TS 34.108 clause 6.11.1c (3.84 Mcps TDD) and 6.11.1d (7.68 Mcps TDD) 8kbps RB for MBSFN MTCH with the following exceptions for the FACH:

Higher layer	RAB/signalling RB		RAB
	User of Radio Bearer		Test
RLC	Logical channel type		MTCH
	RLC mode		TM
	Payload sizes, bit		345
	Max data rate, bps		8200
	UMD PDU header, bit		0
MAC	MAC header, bit		0 (note)
	MAC multiplexing		Simulated by SS
Layer 1	TrCH type		FACH
	TB sizes, bit		345
	TFS	TF0, bits	0x345
		TF1, bits	1x345
	TTI, ms		40
	Coding type		TC
	CRC, bit		16
	Max number of bits/TTI after channel coding		1095
	Max number of bits/radio frame before rate matching		274
	RM attribute		128
NOTE: The SS MAC layer must be configured not to add a MAC header so that the header can be added by the test case in order to create the necessary invalid values.			

User Equipment:

- On the unicast carrier cell the UE is in registered Idle Mode on PS (state 3) if the UE only supports PS domain or registered Idle Mode on CS/PS (state 7) if the UE supports both CS and PS domains, as specified in clause 7.2.2 of TS 34.108.
- The UE is in MBSFN Idle mode with one activated service as specified in clause 7.6.4 of TS 34.108. The UE has selected (i.e. it is included in MBMS_ACTIVATED_SERVICES variable) a national service for which there will be a session starting on MBSFN Cell 31 (see TS 34.108 clause 11.2.4).

Related ICS/IXIT statements

- MBMS Broadcast services in MBSFN mode available on UE Yes/No.
- Support of TDD transmit and receive functions available on UE Yes/No.

- Support of TDD MBSFN receive only function available on UE Yes/No.

Test procedure

a) The UE is camping on Cell 1 and Cell 31. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 (no session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

b) The SS sends ACTIVATE RB TEST MODE on the unicast carrier and the UE responds with ACTIVATE RB TEST MODE COMPLETE.

c) The SS sends CLOSE UE TEST LOOP to activate RLC SDU counting on Cell 31 MTCH (Transmission identity indicating the MBMS activated service).

d) The SS notifies on MCCH about the start of an MBMS session for one modification period. MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C4 (one PTM session starting) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

e) MCCH messages are then transmitted by the SS on Cell 31 using MBMS configuration C2 (one PTM session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

f) The SS waits for the UE to start reception of the MBMS data on MTCH according to the specified service activation time. The UE closes the test loop. The UE sends CLOSE UE TEST LOOP COMPLETE.

g) The SS transmits MAC PDUs containing RLC UM PDUs containing an octet string representing dummy traffic data, of size sufficient enough to fit in one RLC PDU of 336 bits, including the correct RLC UM header.

The MAC header shall be set as follows:

Field	Value
TCTF	01110'B
MBMS-Id	1111'B

h) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE corresponds to zero received RLC SDUs. The SS records the value.

i) The SS again transmits MAC PDUs as in b) above, but this time uses a valid MBMS-Id of 1110’B. The sequence numbers in the RLC headers shall be identical with those sent in b).

j) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE corresponds to > 0 received RLC SDUs

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1	←		U	ACTIVATE RB TEST MODE	
2	→		U	ACTIVATE RB TEST MODE COMPLETE	
3	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated on Cell 31 for the selected national service on MTCH.
4	←		M	MBMS MCCH Message Configuration C4	Includes the national service activated at UE in the modified services list for one modification period.
5	←		M	MBMS MCCH Message Configuration C2	No modified services. One ongoing service corresponding to that activated at the UE.
6	→		U	CLOSE UE TEST LOOP COMPLETE	The UE establishes the MTCH according to the activation time and closes the test loop.
7				MAC PDU(TCTF, MBMS-Id, RLC UM PDU(SN=x))	Sent with reserved MBMS-Id = 1111'B
8					SS waits for T = 2 s
9	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
10	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to zero. The SS records the value.
11				MAC PDU(TCTF, MBMS-Id, RLC UM PDU(SN=x))	Sent with valid MBMS-Id = 1110'B
12					SS waits for T = 2 s
13	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
14	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is greater than zero.
15	←		U	OPEN UE TEST LOOP	
16	→		U	OPEN UE TEST LOOP COMPLETE	
17	←		U	DEACTIVATE RB TEST MODE	
18	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific Message Contents

With the following exceptions, all messages have the same content as defined in TS 34.108 clause 9.1.3 for the MBSFN carriers and in TS 34.108 clause 9.1.1 or 9.1.2 for the unicast carrier:

MBMS COMMON P-T-M RB INFORMATION (Step 4 and Step 5) (3.84 Mcps)

Information Element	Value/remark	Version
Message type		Rel-6
RB information list	1 entry in the list	Rel-6
- RB identity		
- MBMS Common RB identity	14	
- PDCP info		
- Support for lossless SRNS relocation	Not Present	
- Max PDCP SN window size	Not Present	
- PDCP PDU header	absent	
- Header compression information	Not Present	

Information Element	Value/remark	Version
- RLC info		
- DL UM RLC LI size	15	
- DL Duplication Avoidance and Reordering info	Not Present	
- DL Out of sequence delivery info	Not Present	
TrCh information for each TrCh	1 entry in the list	Rel-6
- Transport channel identity		
- MBMS Common TrCh identity	1	
- TFS		
- CHOICE *Transport channel type*	Common transport channels	
- Dynamic Transport Format Information		
- RLC Size	Refer to TrCh parameters defined above	
- Number of TBs and TTI List	(This IE is repeated for each TFI)	
- Number of Transport blocks	Refer to TrCh parameters defined above	
- CHOICE *mode*	TDD	
- Transmission Time Interval	Not Present	
- CHOICE *Logical Channel List*	ALL	
- no data		
- Semi-static Transport Format information		
- Transmission time interval	Refer to TrCh parameters defined above	
- Type of channel coding	Turbo	
- Coding Rate	Not Present	
- Rate matching attribute	Refer to TrCh parameters defined above	
- CRC size	Refer to TrCh parameters defined above	
TrCh information for each CCTrCh	Not Present (Default TFCS applies for each CCTrCh)	Rel-6
PhyCh information	1 entry in list	Rel-6
- PhyCh identity		
- MBMS Common PhyCh identity	23	
- Secondary CCPCH info MBMS		
- CHOICE *mode*	1.28/3.84 Mcps TDD	
- Common timeslot info MBMS		
- 2nd interleaving mode	Frame	
- TFCI coding	Reference to clause 6.11.1c	
- Puncturing limit	Reference to clause 6.11.1c	
- Downlink Timeslots and Codes		
- First individual timeslot info		
- Timeslot number		
- CHOICE *TDD option*	3.84 Mcps	
- Timeslot number	1	
- TFCI existence	TRUE	
- Midamble Shift and burst type		
- CHOICE *TDD option*	3.84 Mcps TDD	
- CHOICE Burst Type	MBSFN Burst Type	Rel-7
- no data		Rel-7
- CHOICE *TDD option*	3.84Mcps TDD	
- no data		
- First timeslot channelisation codes		
- CHOICE *codes representation*	Consecutive codes	
- First channelisation code	Reference clause 5.5.2 "Downlink physical channels code allocation for signalling"	
- Last channelisation code	Reference clause 5.5.2 "Downlink physical channels code allocation for signalling"	
- CHOICE *more timeslots*	No more timeslots	
- no data		
- Modulation	Reference to clause 6.11.1c	Rel-7

MBMS COMMON P-T-M RB INFORMATION (Step 4 and Step 5) (7.68 Mcps)

Information Element	Value/remark	Version
Message type		Rel-7
RB information list	1 entry in the list	Rel-7
- RB identity		
- MBMS Common RB identity	14	
- PDCP info		
- Support for lossless SRNS relocation	Not Present	
- Max PDCP SN window size	Not Present	
- PDCP PDU header	absent	
- Header compression information	Not Present	

Information Element	Value/remark	Version
- RLC info		
- DL UM RLC LI size	15	
- DL Duplication Avoidance and Reordering info	Not Present	
- DL Out of sequence delivery info	Not Present	
TrCh information for each TrCh	1 entry in the list	Rel-7
- Transport channel identity		
- MBMS Common TrCh identity	1	
- TFS		
- CHOICE *Transport channel type*	Common transport channels	
- Dynamic Transport Format Information		
- RLC Size	Refer to TrCh parameters defined above	
- Number of TBs and TTI List	(This IE is repeated for each TFI)	
- Number of Transport blocks	Refer to TrCh parameters defined above	
- CHOICE *mode*	TDD	
- Transmission Time Interval	Not Present	
- CHOICE *Logical Channel List*	ALL	
- no data		
- Semi-static Transport Format information		
- Transmission time interval	Refer to TrCh parameters defined above	
- Type of channel coding	Turbo	
- Coding Rate	Not Present	
- Rate matching attribute	Refer to TrCh parameters defined above	
- CRC size	Refer to TrCh parameters defined above	
TrCh information for each CCTrCh	Not Present (Default TFCS applies for each CCTrCh)	Rel-7
PhyCh information	1 entry in list	Rel-7
- PhyCh identity		
- MBMS Common PhyCh identity	23	
- Secondary CCPCH info MBMS		
- CHOICE *mode*	7.68 Mcps TDD	
- Common timeslot info MBMS		
- 2nd interleaving mode	Frame	
- TFCI coding	Reference to clause 6.11.1d	
- Puncturing limit	Reference to clause 6.11.1d	
- Downlink Timeslots and Codes VHCR		
- First Individual timeslot info		
- Timeslot number		
- CHOICE *TDD option*	7.68 Mcps option	
Timeslot number	1	
- TFCI existence	TRUE	
- Midamble Shift and burst type		
- CHOICE *TDD option*	7.68 Mcps TDD	
- CHOICE *Burst Type*	MBSFN Burst Type	
- no data	Default	
- CHOICE *TDD option*	7.68Mcps TDD	
- no data		
- First timeslot channelisation codes VHCR		
- CHOICE *codes representation*	Consecutive codes	
- First channelisation code	Reference clause 5.5.2 "Downlink physical channels code allocation for signalling"	
- Last channelisation code	Reference clause 5.5.2 "Downlink physical channels code allocation for signalling"	
- CHOICE more timeslots	No more timeslots	
- no data		
- Modulation	Reference to clause 6.11.1d	

MBMS COMMON P-T-M RB INFORMATION (Step 4 and Step 5) (1.28 Mcps)

Information Element	Value/remark	Version
Message type		Rel-6
RB information list	1 entry in the list	Rel-6
- RB identity		
- MBMS Common RB identity	14	
- PDCP info		
- Support for lossless SRNS relocation	Not Present	
- Max PDCP SN window size	Not Present	
- PDCP PDU header	absent	
- Header compression information	Not Present	

Information Element	Value/remark	Version
- RLC info		
- DL UM RLC LI size	15	
- DL Duplication Avoidance and Reordering info	Not Present	
- DL Out of sequence delivery info	Not Present	
TrCh information for each TrCh	1 entry in the list	Rel-6
- Transport channel identity		
- MBMS Common TrCh identity	1	
- TFS		
- CHOICE *Transport channel type*	Common transport channels	
- Dynamic Transport Format Information		
- RLC Size	Refer to TrCh parameters defined above	
- Number of TBs and TTI List	(This IE is repeated for each TFI)	
- Number of Transport blocks	Refer to TrCh parameters defined above	
- CHOICE *mode*	TDD	
- Transmission Time Interval	Not Present	
- CHOICE *Logical Channel List*	ALL	
- no data		
- Semi-static Transport Format information		
- Transmission time interval	Refer to TrCh parameters defined above	
- Type of channel coding	Turbo	
- Coding Rate	Not Present	
- Rate matching attribute	Refer to TrCh parameters defined above	
- CRC size	Refer to TrCh parameters defined above	
TrCh information for each CCTrCh	Not Present (Default TFCS applies for each CCTrCh)	Rel-6
PhyCh information	1 entry in list	Rel-6
- PhyCh identity		
- MBMS Common PhyCh identity	23	
- Secondary CCPCH info MBMS		
- CHOICE *mode*	1.28/3.84 Mcps TDD	
- Common timeslot info MBMS		
- 2nd interleaving mode	Frame	
- TFCI coding	Reference to clause 6.11.5.4.4.13	
- Puncturing limit	Reference to clause 6.11.5.4.4.13	
- Downlink Timeslots and Codes		
- First individual timeslot info		
- Timeslot number		
- CHOICE *TDD option*	1.28 Mcps	
- Timeslot number	1	
- TFCI existence	TRUE	
- Midamble Shift and burst type		
- CHOICE *TDD option*	1.28 Mcps TDD	
- Midamble Allocation Mode	Common midamble	
- Midamble configuration	2	
- CHOICE *TDD option*	1.28Mcps TDD	
- Modulation	Reference to clause 6.11.5.4.4.13	
- SS-TPC Symbols	1	
- Additional TPC-SS Symbols	Not Present	
- First timeslot channelisation codes		
- CHOICE *codes representation*	Consecutive codes	
- First channelisation code	Reference clause 5.5.2 "Downlink physical channels code allocation for signalling"	
- Last channelisation code	Reference clause 5.5.2 "Downlink physical channels code allocation for signalling"	
- CHOICE *more timeslots*	No more timeslots	
- no data		
- MBSFN Special Time Slot	TS7	Rel-7
- Modulation	Reference to clause 6.11.5.4.4.13	Rel-7
LCR TDD MBSFN information	Not Present	Rel-7

MBMS CURRENT CELL P-T-M RB INFORMATION (Step 4 and Step 5)

Information Element	Value/remark	Version
Message type		Rel-6
S-CCPCH list	Contains 1 S-CCPCH	Rel-6
- S-CCPCH identity	Not Present	
- Secondary CCPCH info	23	
- MBMS Soft Combining Timing Offset	Not Present	
- TrCh information common for all TrCh	Not Present (MD)	
- TrCH information list		
- TrCh information	1	
- RB information list		
- RB information		
- RB information	14	
- MBMS short transmission ID	Reference to the service which is being provided on this RB.	
- MBMS logical channel identity	1	
- L1 combining status	Not Present	
- MSCH configuration information	Not Present	
S-CCPCH in SIB type 5	Not Present	Rel-6
MBSFN TDM Info List	Not Present	Rel-7

7.1.1.10.5 Test Requirement

1) At step 10 on each iteration, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to zero received RLC SDUs for Cell 31 MTCH.

2) At step 14 on each iteration, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to > 0 received RLC SDUs for Cell 31 MTCH.

7.1.1.10a MTCH mapped to FACH / Invalid MBMS-Id (3.84 Mcps TDD IMB)

7.1.1.10a.1 Definition

This tests that the MAC applies the correct header to the MAC PDU according to the type of logical channel carried on the FACH transport channel. Incorrect application of MAC headers would result in inoperation of the UE.

7.1.1.10a.2 Conformance requirement

MTCH mapped to FACH:

The TCTF field and MBMS-Id field are included in the MAC header for MTCH

…

Table 9.2.1.8a: Structure of the MBMS-Id field

MBMS-Id field	MBMS logical channel identity [7]
0000	1
0001	2
...	...
1110	15
1111	Reserved (PDUs with this coding will be discarded by this version of the protocol)

Reference(s)

TS 25.321[6], clauses 9.2.1 and 9.2.1.8.

7.1.1.10a.3 Test purpose

1. To verify that the UE discards PDUs with reserved or incorrect values in the MBMS-Id field.
2. To verify that the MBMS-Id field is correctly applied when a MTCH is mapped to the FACH.

7.1.1.10a.4 Method of test

Initial conditions

System Simulator:

Unicast carrier: 1 cell, Cell 1 with default configuration.

- MBSFN carriers: 1 cell, Cell 31 has default parameters. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 and Default1 MCCH scheduling (No ongoing session) according to subclause 11.2 of TS 34.108 [9].

The configuration of the S-CCPCH which will carry the MTCH is based upon that specified in TS 34.108 [9], clause 6.11.1e (3.84 Mcps TDD IMB) 8kbps RB for MBSFN MTCH with the following exceptions for the FACH:

Higher layer	RAB/signalling RB		RAB
	User of Radio Bearer		Test
RLC	Logical channel type		MTCH
	RLC mode		TM
	Payload sizes, bit		344
	Max data rate, bps		8200
	UMD PDU header, bit		0
MAC	MAC header, bit		0 (NOTE)
	MAC multiplexing		Simulated by SS
Layer 1	TrCH type		FACH
	TB sizes, bit		344
	TFS	TF0, bits	0x344
		TF1, bits	1x344
	TTI, ms		40
	Coding type		TC
	CRC, bit		16
	Max number of bits/TTI after channel coding		1092
	Max number of bits/radio frame before rate matching		273
	RM attribute		128
NOTE: The SS MAC layer must be configured not to add a MAC header so that the header can be added by the test case in order to create the necessary invalid values.			

User Equipment:

- On the unicast carrier cell the UE is in registered Idle Mode on PS (state 3) if the UE only supports PS domain or registered Idle Mode on CS/PS (state 7) if the UE supports both CS and PS domains, as specified in clause 7.2.2 of TS 34.108 [9].
- The UE is in MBSFN Idle mode with one activated service as specified in clause 7.6.4 of TS 34.108 [9]. The UE has selected (i.e. it is included in MBMS_ACTIVATED_SERVICES variable) a national service for which there will be a session starting on MBSFN Cell 31 (see TS 34.108 [9], clause 11.2.4).

Related ICS/IXIT statements

- MBMS Broadcast services in MBSFN mode available on UE Yes/No.
- Support of TDD or FDD transmit and receive functions available on UE Yes/No.
- Support of 3.84 Mcps TDD IMB receive only function available on UE Yes/No.

Test procedure

a) The UE is camping on Cell 1 and Cell 31. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 (no session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108 [9].

b) The SS sends ACTIVATE RB TEST MODE on the unicast carrier and the UE responds with ACTIVATE RB TEST MODE COMPLETE.

c) The SS sends CLOSE UE TEST LOOP to activate RLC SDU counting on Cell 31 MTCH (Transmission identity indicating the MBMS activated service).

d) The SS notifies on MCCH about the start of an MBMS session for one modification period. MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C4 (one PTM session starting) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108 [9].

e) MCCH messages are then transmitted by the SS on Cell 31 using MBMS configuration C2 (one PTM session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108 [9].

f) The SS waits for the UE to start reception of the MBMS data on MTCH according to the specified service activation time. The UE closes the test loop. The UE sends CLOSE UE TEST LOOP COMPLETE.

g) The SS transmits MAC PDUs containing RLC UM PDUs containing an octet string representing dummy traffic data, of size sufficient enough to fit in one RLC PDU of 336 bits, including the correct RLC UM header.

The MAC header shall be set as follows:

Field	Value
TCTF	0110'B
MBMS-Id	1111'B

h) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE corresponds to zero received RLC SDUs. The SS records the value.

i) The SS again transmits MAC PDUs as in g) above, but this time uses a valid MBMS-Id of 1110’B. The sequence numbers in the RLC headers shall be identical with those sent in g).

j) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE corresponds to > 0 received RLC SDUs

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1	←		U	ACTIVATE RB TEST MODE	
2	→		U	ACTIVATE RB TEST MODE COMPLETE	
3	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated on Cell 31 for the selected national service on MTCH.
4	←		M	MBMS MCCH Message Configuration C4	Includes the national service activated at UE in the modified services list for one modification period.
5	←		M	MBMS MCCH Message Configuration C2	No modified services. One ongoing service corresponding to that activated at the UE.
6	→		U	CLOSE UE TEST LOOP COMPLETE	The UE establishes the MTCH according to the activation time and closes the test loop.
7				MAC PDU(TCTF, MBMS-Id, RLC UM PDU(SN=x))	Sent with reserved MBMS-Id = 1111'B
8					SS waits for T = 2 s
9	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
10	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to zero. The SS records the value.
11				MAC PDU(TCTF, MBMS-Id, RLC UM PDU(SN=x))	Sent with valid MBMS-Id = 1110'B
12					SS waits for T = 2 s
13	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
14	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is greater than zero.
15	←		U	OPEN UE TEST LOOP	
16	→		U	OPEN UE TEST LOOP COMPLETE	
17	←		U	DEACTIVATE RB TEST MODE	
18	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific Message Contents

With the following exceptions, all messages have the same content as defined in TS 34.108 [9], clause 9.1.3 for the MBSFN carriers and in TS 34.108 [9] clause 9.1.1 or 9.1.2 for the unicast carrier:

MBMS COMMON P-T-M RB INFORMATION (Step 4 and Step 5) (3.84 Mcps)

Information Element	Value/remark	V
Message type		Rel-6
RB information list	1 entry in the list	Rel-6
- RB identity		Rel-6
- MBMS Common RB identity	14	
- PDCP info		
- Support for lossless SRNS relocation	Not Present	
- Max PDCP SN window size	Not Present	
- PDCP PDU header	absent	
- Header compression information	Not Present	
- RLC info		
- DL UM RLC LI size	7	
- DL Duplication Avoidance and Reordering info	Not Present	
- DL Out of sequence delivery info	Not Present	

TrCh information for each TrCh	1 entry in the list	Rel-6
- Transport channel identity		Rel-6
- MBMS Common TrCh identity	1	
- TFS		
- CHOICE *Transport channel type*	Common transport channels	
- Dynamic Transport format information		
- RLC Size	Refer to TrCh parameters defined above	
- Number of TBs and TTI List	(This IE is repeated for TFI number.)	
- Number of Transport blocks	Refer to TrCh paramters defined above	
- CHOICE mode	FDD	
- CHOICE *Logical channel list*	All	
- no data		
- Semi-static Transport Format information		
- Transmission time interval	Refer to TrCh paramters defined above	
- Type of channel coding	Turbo	
- Coding Rate	Not present	
- Rate matching attribute	Refer to TrCh paramters defined above	
- CRC size	Refer to TrCh paramters defined above	
TrCh information for each CCTrCh	Not Present (Default TFCS applies for each CCTrCh)	Rel-6
PhyCh information	1 entry in list	Rel-6
- PhyCh identity		Rel-6
- MBMS Common PhyCh identity	23	
CHOICE mode	3.84 Mcps TDD IMB	
- Secondary CCPCH frame type 2 info		Rel-8
- Sub-frame number	2(check in 5.5.2)	Rel-8
- Downlink channelisation codes		Rel-8
- First channelisation code	(1..15) or reference to 6.10 "parameter set"	
- Last channelisation code	(1..15) or reference to 6.10 "parameter set"	
- CHOICE modulation	16QAM(check in6.10 "parameter set")	Rel-8
- CPICH secondary CCPCH power offset	0dB	Rel-8
LCR TDD MBSFN information	Not present	Rel-7

MBMS CURRENT CELL P-T-M RB INFORMATION (Step 4 and Step 5)

Information Element	Value/remark	Version
Message type		Rel-6
S-CCPCH list	Contains 1 S-CCPCH	Rel-6
- S-CCPCH identity	Not Present	
- Secondary CCPCH info	23	
- MBMS Soft Combining Timing Offset	Not Present	
- TrCh information common for all TrCh	Not Present (MD)	
- TrCH information list		
- TrCh information	1	
- RB information list		
- RB information		
- RB information	14	
- MBMS short transmission ID	Reference to the service which is being provided on this RB.	
- MBMS logical channel identity	1	
- L1 combining status	Not Present	
- MSCH configuration information	Not Present	
S-CCPCH in SIB type 5	Not Present	Rel-6
MBSFN TDM Info List	Not Present	Rel-7

7.1.1.10a.5 Test Requirement

1) At step 10 on each iteration, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to zero received RLC SDUs for Cell 31 MTCH.

2) At step 14 on each iteration, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to > 0 received RLC SDUs for Cell 31 MTCH.

7.1.2 RACH/FACH procedures

7.1.2.1 Selection and control of Power Level

7.1.2.1.1 Void

NOTE Test case "Selection and control of Power Level (FDD)" has been removed as the test purpose is implicitly tested by radio resource management test cases in TS 34.121 clause 8.4.2.1 and 8.4.2.2.

7.1.2.1.2 Selection and control of Power Level (3,84 Mcps TDD option)

(FFS)

7.1.2.1.3 Void

NOTE: Test case "Selection and control of Power Level (1.28Mcps TDD option)" has been removed as the test purpose is implicitly tested by radio resource management test cases in TS 34.1227.1.2.2. Correct application of Dynamic Persistence

7.1.2.2 Correct application of Dynamic Persistence

7.1.2.2.1 Void

NOTE Test case "Correct application of Dynamic Persistence (FDD)" has been removed as the test purpose is implicitly tested by radio resource management test cases in TS 34.121.

7.1.2.2.2 Correct application of Dynamic Persistence (3.84 Mcps TDD option)

(FFS)

7.1.2.2.3 Void

7.1.2.3 Correct Selection of RACH parameters

7.1.2.3.1 Correct Selection of RACH parameters (FDD)

7.1.2.3.1.1 Definition

The physical random access procedure described in this subclause is initiated upon request of a PHY-Data-REQ primitive from the MAC sublayer.

The UE selection of "PRACH system information" is described in TS 25.331 clause 8.5.17.

7.1.2.3.1.2 Conformance requirement

A. The physical random-access procedure shall be performed as follows:

1 Derive the available uplink access slots, in the next full access slot set, for the set of available RACH sub-channels within the given ASC with the help of TS 25.214, subclauses 6.1.1 and 6.1.2. Randomly select one

access slot among the ones previously determined. If there is no access slot available in the selected set, randomly select one uplink access slot corresponding to the set of available RACH sub-channels within the given ASC from the next access slot set. The random function shall be such that each of the allowed selections is chosen with equal probability.

2 Randomly select a signature from the set of available signatures within the given ASC. The random function shall be such that each of the allowed selections is chosen with equal probability.

3 Set the Preamble Retransmission Counter to Preamble Retrans Max.

…

5 … Transmit a preamble using the selected uplink access slot, signature, and preamble transmission power.

6 If no positive or negative acquisition indicator (AI ≠ +1 nor –1) corresponding to the selected signature is detected in the downlink access slot corresponding to the selected uplink access slot:

6.1 Select the next available access slot in the set of available RACH sub-channels within the given ASC.

6.2 Randomly select a new signature from the set of available signatures within the given ASC. The random function shall be such that each of the allowed selections is chosen with equal probability.

…

6.4 Decrease the Preamble Retransmission Counter by one.

6.5 If the Preamble Retransmission Counter > 0 then repeat from step 5. Otherwise pass L1 status ("No ack on AICH") to the higher layers (MAC) and exit the physical random access procedure.

7 If a negative acquisition indicator corresponding to the selected signature is detected in the downlink access slot corresponding to the selected uplink access slot, pass L1 status ("Nack on AICH received") to the higher layers (MAC) and exit the physical random access procedure.

8 Transmit the random access message three or four uplink access slots after the uplink access slot of the last transmitted preamble depending on the AICH transmission timing parameter. Transmission power of the control part of the random access message should be $P_{p\text{-}m}$ [dB] higher than the power of the last transmitted preamble. Transmission power of the data part of the random access message is set according to subclause 5.1.1.2.

9 Pass L1 status "RACH message transmitted" to the higher layers and exit the physical random access procedure.

Reference(s)

TS 25.214 clause 6.1.

7.1.2.3.1.3 Test purpose

To verify that:

A1 the UE, initially:

- determines the ASC for the given Access Class (AC).
- derives the available uplink access slots, in the next full access slot set, for the set of available RACH sub-channels within the given ASC with the help of TS 25.214, subclauses 6.1.1. and 6.1.2. and randomly select one access slot among the ones previously determined.
- randomly select a new signature from the set of available signatures within the given ASC.

A2 the UE, when not receiving any reply from UTRAN:

- selects the next available access slot in the set of available RACH sub-channels within the given ASC.
- randomly select a new signature from the set of available signatures within the given ASC.
- does not transmit on the PRACH resources specified in the BCH message SIB 5/SIB 5bis after that the physical random access procedure is terminated.

A3 the UE, when detecting a negative acquisition indicator:

- does not transmit on the PRACH resources specified in the BCH message SIB 5/SIB 5bisafter that the physical random access procedure is terminated.

A4 the UE, when detecting a positive acquisition indicator:

- transmits the random access message three or four uplink access slots after the uplink access slot of the last transmitted preamble depending on the AICH transmission timing parameter.
- terminates the random access procedure.

7.1.2.3.1.4 Method of test

Initial conditions

The UE shall be attached to the network and in idle mode.

The UE shall use Access Class AC#0-9, which provides permission to use ASC#0 for the initial access.

Preamble Retrans Max parameter in SIB5/SIB5bis set to 5.

Maximum number of preamble retransmission cycles in SIB 5/SIB 5bis is set to Mmax = 1.

2 ASC settings (ASC#0 and ASC#1) are defined (with default parameters) in SIB5/SIB 5bis, except that the parameter assigned sub channel number is set as follows:

ASC#0 Assigned sub channel number = '0001'B

ASC#1 Assigned sub channel number = '0010'B

The available sub-channel number defined in SIB5/SIB 5bis is set to '1111 1111 1111'B.

NOTE: this value allows RACH transmission on all sub-channels defined by "Assigned sub channel number" above.

Related ICS/IXIT Statement(s)

TBD

Foreseen Final State of the UE

The same as the initial conditions.

Test procedure

a) The SS pages the UE until it performs a RACH access.

b) The SS measures the access slot and preamble signature used.

c) The SS does not acknowledge the RACH access, causing the UE to retry.

d) The SS again measures the access slot and preamble signature used.

e) The SS repeats the procedure from step c) until the maximum number of retries "Preamble Retrans Max" has been attempted, and monitors the RACH channel for 10 seconds to ensure that no further RACH accesses occur.

f) The SS pages the UE until it performs a RACH access.

g) The SS measures the access slot and preamble signature used.

h) The SS responds with a negative acquisition indicator on the AICH.

i) The SS monitors the RACH channel for 10 seconds to ensure that no further RACH accesses occur.

j) The SS pages the UE until it performs a RACH access.

k) The SS measures the access slot used.

l) The SS acknowledges the RACH access normally.

m) The SS measures the first access slot used in the PRACH message part.

n) The SS monitors the RACH channel for 10 seconds to ensure that no further RACH accesses occur.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		←	PAGE	Preamble Retransmission Counter = 5
2		→	Access Preamble	Access slot used = n, where n is defined by the table in clause 7.1.2.3.1.5 Signature used = any from {P_0 .. P_7} Preamble Retransmission Counter = 4
3		→	Access Preamble	Access slot used = mod(n+3,15) Signature used = any from {P_0 .. P_7} Preamble Retransmission Counter = 3
4		→	Access Preamble	Access slot used = mod(n+6,15) Signature used = any from {P_0 .. P_7} Preamble Retransmission Counter = 2
5		→	Access Preamble	Access slot used = mod(n+9,15) Signature used = any from {P_0 .. P_7} Preamble Retransmission Counter = 1
6		→	Access Preamble	Access slot used = mod(n+12,15) Signature used = any from {P_0 .. P_7} Preamble Retransmission Counter = 0
7			Wait for T = 10s	SS monitors for RACH access attempts
8		←	PAGE	
9		→	Access Preamble	Access slot used = n, where n is defined by the table in clause 7.1.2.3.1.5 Signature used = any from {P_0 .. P_7}
10		←	AICH = NEG ACQUISITION IND	
11			Wait for T = 10s	SS monitors for RACH access attempts
12		←	PAGE	
13		→	Access Preamble	Access slot used = n, where n is defined by the table in clause 7.1.2.3.1.5 Signature used = any from {P_0 .. P_7}
14		←	AICH = POS ACQUISITION IND	
15		→	RRC_CONNECTION_REQUEST	Message part. Access slot used = mod(n+3, 15)
16			Wait for T = 10s	SS monitors for RACH access attempts

Specific Message Contents

Use the default parameter values for the system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions

Contents of System Information Block type 1

Information Element	Value/Remark
- UE Timers and constants in connected mode -N300	 0

PRACH power offset info, PRACH info, and PRACH partitioning in System Information Block type 5/System Information Block type 5bis

Information Element	Value/Remark
PRACH info	
- CHOICE	FDD
- Available Sub Channel number	'1111 1111 1111'B
PRACH partitioning	
- Access Service Class	
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#0)
- Available signature End Index	7 (ASC#0)
- Assigned Sub-channel Number	'0001'B
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#1)
- Available signature End Index	7 (ASC#1)
- Assigned Sub-channel Number	'0010'B
PRACH power offset	
- Preamble Retrans Max	5

7.1.2.3.1.5 Test requirements

A1

At step 2

- the SS shall receive a PRACH preamble using an access slot as defined below and using a preamble signature from the set of preamble signatures {P_0 .. P_7}. See TS 25.213, clause 4.3.3.3 for a list of preamble codes.

- the access slot selected for the first access preamble can be any of the shaded table entries given below for ASC#0, depending on SFN.

NOTE: the table entries which are not shaded are not allowed for ASC#0.

SFN modulo 8 of corresponding P-CCPCH frame	Sub-channel number											
	0	1	2	3	4	5	6	7	8	9	10	11
0	0	1	2	3	4	5	6	7				
1	12	13	14						8	9	10	11
2				0	1	2	3	4	5	6	7	
3	9	10	11	12	13	14						8
4	6	7					0	1	2	3	4	5
5			8	9	10	11	12	13	14			
6	3	4	5	6	7					0	1	2
7						8	9	10	11	12	13	14

A2

At steps 3, 4, 5, and 6

- the SS shall receive a PRACH preamble using access slot mod(n + 3, 15), where n is the access slot used in the previous step, and using a preamble signature from the set of preamble signatures {P_0 .. P_7}. See TS 25.213, clause 4.3.3.3 for a list of preamble codes.

At step 7

- the SS shall not receive on the PRACH resources specified in the BCH message SIB 5/SIB 5bis after that the physical random access procedure is terminated.

A3

At step 11

- the SS shall not receive on the PRACH resources specified in the BCH message SIB 5/SIB 5bis after that the physical random access procedure is terminated.

A4

At step 15

- the SS shall receive the random access message three access slots after the uplink access slot of the preamble received in step 13.

At step 11

- the SS shall not receive on the PRACH resources specified in the BCH message SIB 5/SIB 5bis after that the physical random access procedure is terminated.

7.1.2.3.2 Correct Selection of RACH parameters (3.84 Mcps TDD option)

(FFS)

7.1.2.3.3 Correct Selection of RACH parameters (1.28 Mcps TDD option)

7.1.2.3.3.1 Definition and applicability

All TDD 1.28 Mcps UE

7.1.2.3.3.2 Conformance requirement

That the UE selects UpPCH codes and UpPCH sub-channels that are defined for the ASC that the UE should adopt based on its AC (when the RACH message to be transmitted is an 'RRC Connection Request'). Parameters are defined in the SIB 5 messages received by the UE.

Reference(s)

TS25.224 clauses 4.7.1 and 5.6.

TS25.321 clause 11.2.3.

7.1.2.3.3.3 Test Purpose

To verify that the UE selects UpPCH codes and sub-channels that are allocated to the ASC that the UE should adopt based on its AC.

7.1.2.3.3.4 Method of test

Initial conditions

The UE is attached to the network and in idle mode. The Sim card should be configured so that the UE can adopt a known ASC based on its AC. The SS will broadcast SIB 5 messages that allocate to each ASC subsets of the total UpPCH codes and sub-channels.

Related ICS/IXT Statement(s)

TBD

Foreseen Final State of the UE

The same as the initial condition.

Test procedure

The test procedure is similar to that specified for test 7.1.2.1.3. In place of power level the test monitors the UpPCH codes that are used for the UE's UpPCH transmissions and the sub-channels in which they are made.

a) The SS pages the UE to initiate the RACH access procedure;

b) The SS does not respond to UpPCH transmissions received from the UE;

c) The SS identifies the UpPCH codes on which the UE transmits;

d) The SS identifies the system frame numbers of the frames in which the UE's UpPCH transmissions are received;

e) The procedure is continued until the maximum permitted power ramping cycles, and within each power ramping cycle, the maximum number of UpPCH transmissions have been made.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		<–	PAGE	
2		->	UpPCH	Code and sub-channel should be valid.
3		->	UpPCH	Code and sub-channel should be valid.
4			……	
5		->	UpPCH	Code and sub-channel should be valid.
6		->	UpPCH	Code and sub-channel should be valid.
7		->	UpPCH	Code and sub-channel should be valid.
8			……	
9		->	UpPCH	Code and sub-channel should be valid.

7.1.2.3.3.5 Test Requirements

The UpPCH transmissions should be made in sub-channels and using codes that are allocated to the ASC that the UE should adopt based on its AC.

7.1.2.4 Correct Detection and Response to FPACH (1.28 Mcps TDD option)

7.1.2.4.1 Definition and applicability

All TDD 1,28 Mcps UE.

7.1.2.4.2 Conformance requirement

That the UE:

1. Receives and acts upon an FPACH message transmitted within WT sub-frames of the UE transmitting a UpPCH code, provided that:

   - The FPACH was transmitted in the FPACH resource associated with the UpPCH code used by the UE; and

   - The FPACH message correctly identifies the UpPCH codes identity and the number of sub-frames between the UpPCH and the FPACH transmissions.

2. Responds to the valid FPACH by transmitting an 'RRC Connection Request' message in the PRACH resources associated with the FPACH. The transmission should:

   - Occupy the PRACH resource associated with the FPACH and the sub-channel in which the FPACH was received for the duration of the TTI;

   - Be made with a timing correction and a transmission power that are based on information received in the FPACH.

3. Does not respond to FPACH messages that are transmitted, within WT sub-frames of the UE UpPCH transmission, in FPACH resources that are not associated with the UpPCH code that the UE used. Nor should it respond to FPACH messages that are received on the correct FPACH resources within WT sub-frames but which contain the incorrect UpPCH code identifier or an incorrect indication of the number of sub-frames elapsed between the UpPCH and FPACH transmissions.

Reference(s)

TS 25.224 clauses 4.7.1, 5.2.3, 5.6.

TS 25.331 clause 8.5.7.

TS 25.321 clause 11.2.3.

7.1.2.4.3 Test Purpose

To verify that:

- The UE does not respond to FPACH transmissions that are either, received on incorrect FPACH resources, or are received on correct resources and within WT sub-frames of the UpPCH transmission, but which do not contain the correct UpPCH identity or elapsed sub-frames.

- The UE does respond to an FPACH transmission that is received, within WT sub-frames of the UpPCH transmission, on the correct FPACH resources for the UpPCH code that was used, provided that the FPACH contains the identity of the UpPCH code and the number of sub-frames elapsed between the UpPCH and the FPACH transmissions.

- The UE response is to transmit an 'RRC Connection Request' message on the PRACH resources that are associated with the FPACH taking account of the timing correction and power adjustment parameters received in the FPACH.

7.1.2.4.4 Method of test

Initial conditions

The UE is attached to the network and in idle mode. The SS BCH SIB 5 message will specify that there are two or more FPACH associated with the UpPCH code set in a single PRACH system information. The UpPCH code set must include one or more odd and one or more even numbered codes.

Related ICS/IXT Statement(s)

TBD

Foreseen Final State of the UE

The same as the initial condition.

Test procedure

The test procedure consists of a number of stages:

a) The SS pages the UE to initiate RACH access.

b) When UpPCH transmissions are received from the UE the SS should transmit FPACH responses within WT sub-frames of each UpPCH transmission but on an incorrect FPACH resource for the UpPCH code used. It is noted that the UE may change the code used for each UpPCH transmission randomly amongst those available to its ASC.

c) The PRACH resources associated with all of the FPACH should be monitored for a transmission from the UE.

d) The SS pages the UE to initiate RACH access.

e) When UpPCH transmissions are received from the UE the SS should transmit FPACH responses within WT sub-frames of each UpPCH transmission on the correct FPACH resource for the UpPCH code used. The FPACH transmission should contain a signature reference number that is different from that of the UpPCH code that was used by the UE.

f) The PRACH resources associated with all of the FPACH should be monitored for a transmission from the UE.

g) The SS pages the UE to initiate RACH access.

h) When UpPCH transmissions are received from the UE the SS should transmit FPACH responses within WT sub-frames of each UpPCH transmission on the correct FPACH resource for the UpPCH code used. The FPACH transmission should contain a relative sub-frame number that is different from that defined by the elapsed number of frames between the UpPCH and the FPACH transmissions.

i) The PRACH resources associated with all of the FPACH should be monitored for a transmission from the UE.

j) The SS pages the UE to initiate RACH access.

k) When UpPCH transmissions are received from the UE the SS should transmit an FPACH response on the correct FPACH resources for the UpPCH code that was used by the UE. The FPACH response should include correct values for the signature reference and relative sub-frame number fields. The FPACH should also include known entries for the Received starting position of the UpPCH ($UpPCH_{POS}$) and the Transmit Power Level Command for RACH ($PRX_{PRACHdes}$) fields.

l) The SS should monitor the PRACH resources associated with the FPACH commencing two or three sub-frames (depending upon the sub-frame in which the FPACH was transmitted and the length of the TTI) following the sub-frame in which the FPACH was transmitted and continuing for the number of sub-frames in the RACH TTI. The power level of the PRACH transmissions and the time of arrival of their mid-ambles should be measured. The SS should continue to monitor the UpPCH slot to ensure that the UE has ceased UpPCH transmissions.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		<-	PAGE	
2		->	UpPCH	
3		<-	FPACH	Incorrect FPACH resources
4		->	UpPCH	
5			…….	
6		<-	PAGE	
7		->	UpPCH	
8		<-	FPACH	Incorrect signature reference
9		->	UpPCH	
10			……	
11		<-	PAGE	
12		->	UpPCH	
13		<-	FPACH	Incorrect relative sub-frame number
14		->	UpPCH	
15			…….	
16		<-	PAGE	
17		->	UpPCH	
18		<-	FPACH	Correct resources and information fields
19		->	RRC Connection Request	$P_{PRACH} = L_{PCCPCH} + PRX_{PRACHdes} + (i-1)*Pwr_{ramp}$, $UpPCH_{ADV} + UpPCH_{POS} - 8\times16Tc$

7.1.2.4.5 Test Requirements

The UE should not respond to FPACH transmissions, which are made on the incorrect FPACH resources for the UpPCH code that the UE uses. The UE should continue to transmit UpPCH until the permitted maximum number of power ramping cycles is complete.

The UE should not respond to FPACH transmissions which are made within WT sub-frames of a UpPCH transmission and on the correct FPACH resources for the UpPCH code that it used if the FPACH contains either an incorrect

signature reference number or an incorrect relative sub-frame number. The UE should continue to transmit UpPCH until the permitted maximum number of power ramping cycles is complete.

The UE should respond to an FPACH received within WT sub-frames of a UpPCH transmission if the FPACH is received on the correct FPACH resources for the UpPCH code used and if it contains valid information fields. The UE should cease transmitting UpPCH bursts and transmit an RRC Connection Request message using the PRACH resources that are associated with the FPACH and the sub-frame in which the FPACH was received. The transmission should commence two or three sub-frames after that containing the FPACH (dependent upon the sub-frame in which the FPACH was transmitted and the length of the TTI) and is made in all sub-frames within the TTI. Each PRACH burst should be made using the transmission power:

$$P_{PRACH} = L_{PCCPCH} + PRX_{PRACHdes} + (i-1)*Pwr_{ramp}$$

Where i is the number of transmission attempts on UpPCH, i=1…Max SYNC_UL Transmissions. When the power used by the UE for the UpPCH transmission acknowledged by the FPACH was:

$$P_{UpPCH} = L_{PCCPCH} + PRX_{UpPCHdes} + (i-1)*Pwr_{ramp}$$

And $PRACH_{ADV}$,i.e., the offset from the start of the PRACH slot of the UE's transmission measured by SS shall be

$UpPCH_{ADV}+UpPCH_{POS}$ - 8×16Tc chips, to an accuracy of 1/8 chip.

Where $UpPCH_{ADV}$ denotes the offset from the start of the UpPCH slot of the UE's transmission measured by SS and $UpPCH_{POS}$ is the timing correction signalled to the UE in the FPACH.

7.1.2.4a Access Service class selection for RACH transmission

7.1.2.4a.1 Definition and applicability

All UE.

7.1.2.4a.2 Conformance requirement

The following ASC selection scheme shall be applied, where NumASC is the highest available ASC number and MinMLP the highest logical channel priority assigned to one logical channel:

- In case all TBs in the TB set have the same MLP, select ASC=min(NumASC, MLP).
- In case TBs in a TB set have different priority, determine the highest priority level MinMLP and select ASC=min(NumASC, MinMLP).

Reference(s)

TS 25.321 clause 11.2.1.

7.1.2.4a.3 Test purpose

To verify that MAC selects ASC correctly.

7.1.2.4a.4 Method of test

Initial conditions

System Simulator:

- SYSTEM INFORMATION BLOCK TYPE 7 (see specific message contents).
- 1 cell, default parameters, Ciphering Off.

User Equipment:

- The UE shall operate under normal test conditions, Ciphering Off.

- The Test-USIM shall be inserted

  The SS starts broadcasting the System Information as specified in TS 34.108 clause 6.1, using the configuration for the PRACH and SCCPCH (signalled in SYSTEM INFORMATION BLOCK types 5 and 6) as follows:

  1. The SCCPCH is configured as specified in TS 34.108 clause 6.10.2.4.3.3 (Interactive/Background 32 kbps RAB + SRB for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH).
  2. The PRACH is configured as specified in TS 34.108 clause 6.10.2.4.4.1.

  The SS follows the procedure in TS 34.108 clause 7.4.2.6 (initiated by Mobile Terminated connection) so that the UE shall be in state BGP 6-11 (PS-DCCH+DTCH_FACH) with the following exceptions:

  1. The MAC Logical channel Priority (MLP) of the user RB is set to 8.
  2. The Timer Poll for RB20 will be Omitted in Radio Bearer Setup message to UE.

The user RB is placed into loop-back mode 1 each with the UL SDU size set to 39 bytes.

Related ICS/IXIT Statement(s)

TBD

Foreseen Final State of the UE

Test procedure

a) The SS sends 1 RLC SDU of size 10 bytes on the downlink user RB.

   The SS waits to receive uplink data on RACH TrCH via the user RB.

NOTE 1: As all access slots are allowed, correct reception of loop backed PDU by SS, implicitly checks correct selection of ASC.

b) The SS reconfigures the transmitted system information as follows:

   Only one ASC setting (ASC#0) is defined, with default parameters, except that the parameter "Assigned sub channel number" is set as follows:

   ASC#0 Assigned sub channel number = '0010'B (FDD)

   The available sub-channel number defined in system information is set to '1111 1111 1111'B (default parameter setting).

NOTE 2: this value allows RACH transmission on any sub-channel defined by "Assigned sub channel number" above.

   ASC#0 sub channel size = Size1 : NULL (1.28Mcps TDD)

NOTE 3: "all available channelisation codes" and "all available subchannels" with "subchannel size=Size 1".The SS then updates System Information Block 6, sends a SYSTEM INFORMATION CHANGE INDICATION message to the UE and waits 10 s for the UE to take the system information change into account.

c) The SS sends 1 RLC SDU of size 10 bytes on the downlink user RB.

d) The SS waits to receive uplink data on RACH TrCH via the user RB, for FDD, then checks that the access slots and preamble signatures used correspond to ASC#0, i.e. the access slot selected for the first access preamble can be any of the shaded table entries given below for ASC#0, depending on SFN. The access slot used for the Message part shall be the access slot used for preamble (for which SS ACK's) + 3.

NOTE 4: the table entries which are not shaded are not allowed for ASC#0 (FDD).

SFN modulo 8 of corresponding P-CCPCH frame	Sub-channel number											
	0	1	2	3	4	5	6	7	8	9	10	11
0	0	1	2	3	4	5	6	7				
1	12	13	14						8	9	10	11
2				0	1	2	3	4	5	6	7	
3	9	10	11	12	13	14						8
4	6	7					0	1	2	3	4	5
5			8	9	10	11	12	13	14			
6	3	4	5	6	7					0	1	2
7						8	9	10	11	12	13	14

e) The SS reconfigures the transmitted system information as follows:

Four ASC settings (ASC#0 to ASC#3) are defined (with default parameters), except that the parameter assigned sub channel number is set as follows (FDD):

ASC#0 Assigned sub channel number = '0100'B

ASC#1 Assigned sub channel number = '0001'B

ASC#2 Assigned sub channel number = '0010'B

ASC#3 Assigned sub channel number = '0000'B (i.e. no sub channel is assigned)

The available sub-channel number defined in system information is set to '1111 1111 1111'B (default parameter setting).

NOTE 5: this value allows RACH transmission on all sub-channels defined by "Assigned sub channel number" above.

Four ASC settings (ASC#0 to ASC#3) are defined (with default parameters), except that the parameter assigned sub channel number is set as follows (1.28Mcps TDD):

ASC#0 sub channel size = Size4 : '0100'B

ASC#1 sub channel size = Size4 : '0001'B

ASC#2 sub channel size = Size4 : '0010'B

ASC#3 sub channel size = Size4 : '0000'B (i.e. no sub channel is assigned)

NOTE 6: Each bit indicates availability of a subchannel, where the subchannels are numbered subchannel 0, subchannel 1 etc. The value 1 of a bit indicates that the subchannel is available for the ASC this IE is associated with. The value 0 of a bit indicates that the subchannel is not available for the ASC this IE is associated with. Default value of the IE is that all subchannels within the size are available for the ASC this IE is associated with.

The SS then updates System Information Block 6, sends a SYSTEM INFORMATION CHANGE INDICATION message to the UE and waits 10 s for the UE to take the system information change into account.

f) The SS sends 1 RLC SDU of size 10 bytes on the downlink user RB.

g) The SS waits 10 s to ensure no uplink data is received on RACH TrCH via the user RB.

h) The SS then reconfigures the uplink user RB to have a MAC Logical channel Priority of 1 by sending Radio Bearer Reconfiguration message on the DCCH using UM RLC.

i) The SS sends 1 RLC SDU of size 10 bytes on the downlink user RB.

j) The SS waits to receive uplink data on RACH TrCH via the user RB, for FDD, then checks that the access slots and preamble signatures used correspond to ASC#1, i.e. the access slot selected for the first access preamble can be any of the shaded table entries given below for ASC#1, depending on SFN. The access slot used for the Message part shall be the access slot used for preamble (for which SS ACK's) + 3.SS will receive 2 loop backed PDU's. One the loop backed PDU of step I, and the second one due to RLC layer transmission/retransmission of

loop backed PDU of step f. As 'In sequence Delivery' will be enabled, the loop backed PDU of step f shall arrive before loop backed PDU of step i.

NOTE 7: the table entries which are not shaded are not allowed for ASC#1(FDD).

SFN modulo 8 of corresponding P-CCPCH frame	Sub-channel number											
	0	1	2	3	4	5	6	7	8	9	10	11
0	0	1	2	3	4	5	6	7				
1	12	13	14						8	9	10	11
2				0	1	2	3	4	5	6	7	
3	9	10	11	12	13	14						8
4	6	7					0	1	2	3	4	5
5			8	9	10	11	12	13	14			
6	3	4	5	6	7					0	1	2
7						8	9	10	11	12	13	14

k) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		←	RLC PDU	
1a		→	RLC PDU	
2		←	SYSTEM INFORMATION CHANGE INDICATION	Modified system information
3		←	RLC PDU	
4		→	RLC PDU	SS checks ASC parameters (ASC#0)
5		←	SYSTEM INFORMATION CHANGE INDICATION	Modified system information
6		←	RLC PDU	
6a				SS waits to check no RLC PDUs are received
7		←	RB RECONFIGURATION	User RB MLP = 1
7a		→	RLC PDU	Optional step, see note 1 SS checks ASC parameters (ASC#1)(transmission/retransmission of loop backed PDU of step 6)
7b		→	RB RCONFIGURATION COMPLETE	
7c		→	RLC PDU	Optional step, see note 1 SS checks ASC parameters (ASC#1)(transmission/retransmission of loop backed PDU of step 6)
8		←	RLC PDU	
8a		→	RLC PDU	Optional step, see note 1 SS checks ASC parameters (ASC#1) (transmission/retransmission of loop backed PDU of step 6)
9		→	RLC PDU	SS checks ASC parameters (ASC#1)
10		↔	RB RELEASE	optional
Note 1: Loop backed RLC PDU of step 6 can be received either at step 7a or at step 7c or at step 8a				

Specific Message Contents

System Information Block type 7

Use the same System Information Block Type 7 message as found in clause 6.1.0b of TS 34.108, with the following exceptions:

- PRACHs listed in system information block type6 - Dynamic persistence level	 2

System Information Block type 6 (Step 2) (FDD)

Use the same System Information Block Type 6 message as found in clause 6.1.0b of TS 34.108, with the following exceptions:

- PRACH system information list	
- PRACH system information	
- PRACH info	
- CHOICE mode	FDD
- Available Signature	'0000 0000 1111 1111'B
- Available SF	64
- Preamble scrambling code number	0
- Puncturing Limit	1.00
- Available Sub Channel number	'1111 1111 1111'B
- Transport Channel Identity	15
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	168
- Number of TB and TTI List	
- Number of Transport blocks	1
- CHOICE Mode	FDD
- CHOICE Logical Channel List	Configured
- RLC size	360
- Number of TB and TTI List	
- Number of Transport blocks	1
- CHOICE Mode	FDD
- CHOICE Logical Channel List	Configured
- Semi-static Transport Format information	
- Transmission time interval	20 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	
- CHOICE TFCI signalling	Normal
- TFCI Field 1 information	
- CHOICE TFCS representation	Complete reconfiguration
- TFCS complete reconfiguration information	
- CHOICE CTFC Size	2 bit
- CTFC information	0
- Power offset information	
- CHOICE Gain Factors	Computed Gain Factor
- Reference TFC ID	0
- CHOICE Mode	FDD
- Power offset Pp-m	0 dB
- CTFC information	1
- Power offset information	
- CHOICE Gain Factors	Signalled Gain Factor
- CHOICE mode	FDD
- Gain factor ßc	11
- Gain factor ßd	15
- Reference TFC ID	0
- CHOICE Mode	FDD
- Power offset Pp-m	0 dB
- PRACH partitioning	
- Access Service Class	
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0
- Available signature End Index	7
- Assigned Sub-Channel Number	'0010'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- Persistence scaling factor	Not Present
- AC-to-ASC mapping table	
- AC-to-ASC mapping	0 (AC0-9)
- AC-to-ASC mapping	0 (AC10)

- AC-to-ASC mapping	0 (AC11)
- AC-to-ASC mapping	0 (AC12)
- AC-to-ASC mapping	0 (AC13)
- AC-to-ASC mapping	0 (AC14)
- AC-to-ASC mapping	0 (AC15)
- CHOICE mode	FDD
- Primary CPICH TX power	31
- Constant value	-10
- PRACH power offset	
- Power Ramp Step	3dB
- Preamble Retrans Max	4
- RACH transmission parameters	
- Mmax	2
- NB01min	3 slot
- NB01max	10 slot
- AICH info	
- Channelisation code	3
- STTD indicator	FALSE
- AICH transmission timing	0

System Information Block type 6 (Step 2)(1.28Mcps TDD)

Use the same System Information Block Type 6 message as found in clause 6.1.0b of TS 34.108, with the following exceptions:

- PRACH system information list	
- PRACH system information	
- PRACH info	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- SYNC_UL info	
- SYNC_UL codes bitmap	'11111111'
- UL Target SIR	10 dB
- Power Ramping Step	3 dB
- Max SYNC_UL Transmissions	8
- Mmax	32
- Transport Channel Identity	15
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	Reference clause 6.11 "Parameter Set"
- Number of TB and TTI List	
- Number of Transport blocks	Reference clause 6.11 "Parameter Set"
- CHOICE Mode	TDD
- CHOICE Logical Channel List	Configured
- Semi-static Transport Format information	
- Transmission time interval	20 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	Not present
- PRACH partitioning	
- Access Service Class	
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'11111111'
- CHOICE subchannel size	Size1
- Available Subchannels	Null
- Persistence scaling factor	Not Present
- AC-to-ASC mapping table	
- AC-to-ASC mapping	0 (AC0-9)
- AC-to-ASC mapping	0 (AC10)
- AC-to-ASC mapping	0 (AC11)
- AC-to-ASC mapping	0 (AC12)
- AC-to-ASC mapping	0 (AC13)
- AC-to-ASC mapping	0 (AC14)
- AC-to-ASC mapping	0 (AC15)
- CHOICE mode	TDD (no data)

RADIO BEARER RECONFIGURATION (FDD) (Step 7)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical to the message sub-type titled as "Packet to CELL_FACH from CELL_FACH in PS" as found in clause 9 of TS 34.108, with the following exceptions:

- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- Logical channel identity	Not Present
- CHOICE RLC size list	Configured
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	6
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	Not Present
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7

RADIO BEARER RECONFIGURATION (1.28Mcps TDD) (Step 7)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical to the message sub-type titled as "Packet to CELL_FACH from CELL_FACH in PS" as found in clause 9 of TS 34.108, with the following exceptions:

- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- Logical channel identity	Not Present
- CHOICE RLC size list	Configured
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	6
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	Not Present
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7

7.1.2.4a.5 Test requirements

In step 1a, SS implicitly checks ASC parameters by receiving correctly the loop backed PDU.

In step 4, the access slots and preamble signatures used on the PRACH TrCH on which the RLC PDU was received shall correspond to configured legal values for the allowed ASC#0.

In step 6a, no PDUs shall be received on PRACH.

In step 9, the access slots and preamble signatures used on the PRACH TrCH on which the RLC PDU was received shall correspond to configured legal values for the allowed ASC#1.

7.1.2.5 Void

NOTE: Test case "Control of RACH transmissions for FDD mode" has been removed as the test purpose is implicitly tested by radio resource management test case in TS 34.121 clause 8.4.2.3.

7.1.3 Priority handling between data flows of one UE

7.1.3.1 Priority handling between data flows of one UE

7.1.3.1.1 Definition and applicability

7.1.3.1.2 Conformance requirement

When selecting between the Transport Format Combinations in the given Transport FormatCombination Set, priorities of the data flows to be mapped onto the corresponding Transport Channels can be taken into account.

The chosen TFC shall be selected from within the set of valid TFCs and shall satisfy the following criteria in the order in which they are listed below:

1. No other TFC shall allow the transmission of more highest priority data than the chosen TFC.

2. No other TFC shall allow the transmission of more data from the next lower priority logical channels. Apply this criterion recursively for the remaining priority levels.

3. No other TFC shall have a lower bit rate than the chosen TFC.

The above rules for TFC selection in the UE shall apply to DCH, and the same rules shall apply for TF selection on RACH.

Reference(s)

TS 25.301 clause 5.3.1.2.

TS 25.321, clause 11.4.

7.1.3.1.3 Test purpose

To verify that the UE prioritise signalling compared to data on a lower priority logical channel.

7.1.3.1.4 Method of test

Initial conditions

System Simulator:

- 1 cell, default parameters, Ciphering Off.

User Equipment:

- The UE shall operate under normal test conditions, Ciphering Off.
- The Test-USIM shall be inserted.

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 7-bit "Length Indicator" tests described in 3G TS 34.108 clause 6.11.1 is used.

For radio bearer setup the following settings shall be used in both CS and PS mode:

- Re-establishment Timer: useT314
- MAC logical channel priority: 7
- UL Logical Channel Identity:7
- DL Logical Channel Identity:7

Let UM_7_PayloadSize denote the RAB payload size in octets.

Related ICS/IXIT Statement(s)

None

Test procedure

a The SS transmits a TRANSPORT FORMAT COMBINATION CONTROL message using AM_RLC on the DCCH, which indicates that only transport format minimum set is allowed on the uplink for DCH transport channel on the DTCH. I.e. the restricted uplink transport format set shall be (DCCH, UM RLC 7 bit LI RB)=(TF0, TF0), (TF1, TF0) and (TF0, TF1).

b The SS closes the test loop using UE test loop mode 1 with the UL SDU size set to (UM_7_PayloadSize * 25) - 2 bytes. See note 1.

c. The SS transmits a MEASUREMENT CONTROL message requesting periodic reporting with a period of 250ms.

d. The SS sends one RLC SDUs of size floor (UM_7_PayloadSize) - 1 bytes to the UE. The UE is expected to loop this data back in one RLC SDU, segmented into a total of 25 RLC PDUs.

e. The SS waits until data is returned in uplink.

f. The SS checks that the UE transmits alternating measurement reports and data.

NOTE 1: Having UE to return 25 PDUs corresponds to 25*TTI (40 ms) = 1 second of continuous data transmission. SDU size shall be (UM_7_PayloadSize * 25) - 2 to account for presence of Special "Length Indicator" indicating "beginning of an SDU" in the first PDU for a Rel5 and later UE and presence of Special "Length Indicator" indicating end of SDU in the last PDU. As the periodic measurement interval is 250ms this will guarantee that data transmission will be interrupted by transmission of measurement reports in uplink.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<--		ACTIVATE RB TEST MODE (DCCH)	TC
2	-->		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
3	<--		RADIO BEARER SETUP (DCCH)	RRC
4	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
4a	<--		TRANSPORT FORMAT COMBINATION CONTROL (DCCH)	RRC Transport format combinations is limited to transport format minimum set (DCCH, AM RLC 7 bit LI RB)=(TF0, TF0), (TF1, TF0) and (TF0, TF1).
5	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 with UL RLC SDU size parameter set to achieve UE to transmit 25 PDUs in uplink.
6	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
7	-		Void	
8	<--		MEASUREMENT CONTROL (DCCH)	SS sends a MEASUREMENT CONTROL message requesting periodic reporting at 250 ms interval.
9	<--		Downlink RLC PDU	SS sends a SDU fit into one PDU.
10	-->		Uplink RLC PDUs	SS starts receiving RLC PDUs from the UE on the UM RLC RB
11	-->		MEASUREMENT REPORT (DCCH)	SS checks that at least one MEASUREMENT REPORT message is received within 500 ms (=2 x reporting interval)
12	-->		Uplink RLC PDUs	SS checks that UE resumes returning RLC PDUs from the UE on the UM RLC RB

7.1.3.1.5 Test requirements

1. After step 10 the UE shall transmit a MEASUREMENT REPORT message within 500 ms.

2. After step 11 the UE shall resume data transmission.

7.1.3.2 TFC Selection

7.1.3.2.1 Definition and applicability

All UEs

7.1.3.2.2 Conformance requirement

Before selecting a TFC, i.e. at every boundary of the shortest TTI, or prior to each transmission on PRACH the set of valid TFCs shall be established. All TFCs in the set of valid TFCs shall:

1. belong to the TFCS.

1a. not be restricted by higher layer signalling (e.g. TFC Control, see [7]).

2. not be in the Blocked state.

3. be compatible with the RLC configuration.

4. not require RLC to produce padding PDUs (see [6] for definition).

5. not carry more bits than can be transmitted in a TTI (e.g. when compressed mode by higher layer scheduling is used and the presence of compressed frames reduces the number of bits that can be transmitted in a TTI using the Minimum SF configured).

[...]

The chosen TFC shall be selected from within the set of valid TFCs and shall satisfy the following criteria in the order in which they are listed below:

1. No other TFC shall allow the transmission of more highest priority data than the chosen TFC.

2. No other TFC shall allow the transmission of more data from the next lower priority logical channels. Apply this criterion recursively for the remaining priority levels.

3. No other TFC shall have a lower bit rate than the chosen TFC.

In FDD mode the above rules for TFC selection in the UE shall apply to DCH, and the same rules shall apply for TF selection on RACH.

[...]

Reference(s)

TS 25.301 clause 5.3.1.2.

TS 25.321, clause 11.4.

7.1.3.2.3 Test purpose

1. To verify that the UE supports a TFCS that does not allow simultaneous transmission of max data rate on all transport channels.

2. To verify that the UE selects a TFC according to the rule that no other TFC shall allow the transmission of more highest priority data than the chosen TFC.

3. To verify that the UE selects a TFC according to the rule that no other TFC shall allow the transmission of more data from the next lower priority logical channels.

7.1.3.2.4 Method of test

Initial conditions

System Simulator:

- 1 cell, default parameters, Ciphering Off.

User Equipment:

- The UE shall operate under normal test conditions, Ciphering Off.

- The Test-USIM shall be inserted.

RRC Connection Setup procedure is executed with the following exception for SRB 2

Parameter	Value
Polling Info	
- Timer poll prohibit	500

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the following exceptions:

A radio bearer configuration for "Streaming / unknown / UL:16 DL:64 kbps / PS RAB + Interactive or background / UL:16 DL:64 kbps / PS RAB + UL:13.6 DL:13.6 kbps SRBs for DCCH" is configured. This is a modified version of the radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.58 (FDD) clause 6.10.3.4.1.58 (3.85 Mcps TDD) for "Streaming / unknown / UL:16 DL:64 kbps / PS RAB + Interactive or background / UL: 8 DL: 8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH" RAB with the following modifications:

NOTE This radio bearer configuration has been selected to provide for a representative test scenario for how UTRAN configures the TFCS such that the data rate can be increased on one transport channel when there is no (or low) activity on the other transport channels, e.g. to provide for improved signalling performance (13.6 kbps) when there is no data transmitted.

Uplink Transport channel parameters for Streaming / unknown / UL:16 kbps / PS RAB

Higher layer	RAB/Signalling RB		**RAB**
RLC	Logical channel type		DTCH
	RLC mode		AM
	Payload sizes, bit		320
	Max data rate, bps		16000
	AMD PDU header, bit		16
MAC	MAC header, bit		0
	MAC multiplexing		N/A
Layer 1	TrCH type		DCH
	TB sizes, bit		336
	TFS	TF0, bits	0x336
		TF1, bits	1x336
	TTI, ms		20
	Coding type		TC
	CRC, bit		16
	Max number of bits/TTI after channel coding		1068
	Uplink: Max number of bits/radio frame before rate matching		534
	RM attribute		135-175

Uplink Transport channel parameters for Interactive or background / UL:16 kbps / PS RAB

Higher layer	RAB/Signalling RB		**RAB**
RLC	Logical channel type		DTCH
	RLC mode		AM
	Payload sizes, bit		320
	Max data rate, bps		16000
	AMD PDU header, bit		16
MAC	MAC header, bit		0
	MAC multiplexing		N/A
Layer 1	TrCH type		DCH
	TB sizes, bit		336
	TFS	TF0, bits	0x336
		TF1, bits	1x336
		TF2, bits	2x336
	TTI, ms		40
	Coding type		TC
	CRC, bit		16
	Max number of bits/TTI after channel coding		2124
	Uplink: Max number of bits/radio frame before rate matching		531
	RM attribute		135-175

Uplink Transport channel parameters for UL:13.6 kbps SRBs for DCCH

Higher layer	RAB/signalling RB		**SRB#1**	**SRB#2**	**SRB#3**	**SRB#4**
	User of Radio Bearer		RRC	RRC	NAS_DT High prio	NAS_DT Low prio
RLC	Logical channel type		DCCH	DCCH	DCCH	DCCH
	RLC mode		UM	AM	AM	AM
	Payload sizes, bit		136	128	128	128
	Max data rate, bps		13600	12800	12800	12800
	AMD/UMD PDU header, bit		8	16	16	16
MAC	MAC header, bit		4	4	4	4
	MAC multiplexing		4 logical channel multiplexing			
Layer 1	TrCH type		DCH			
	TB sizes, bit		148 (alt 0, 148)			
	TFS	TF0, bits	0x148 (alt 1x0)			
		TF1, bits	1x148			
		TF2, bits	2x148			
		TF3, bits	4x148			
	TTI, ms		40			
	Coding type		CC 1/3			
	CRC, bit		16			
	Max number of bits/TTI before rate matching		~2064			
	Uplink: Max number of bits/radio frame before rate matching		~516			
	RM attribute		155-185			

Uplink TFCS

TFCS size	15
TFCS	(Streaming RAB, Interactive RAB, DCCH)= (TF0,TF0,TF0), (TF1,TF0,TF0), (TF0,TF1,TF0), (TF0,TF2,TF0), (TF1,TF1,TF0), (TF0,TF0,TF1), (TF1,TF0,TF1), (TF1,TF0,TF2), (TF1,TF0,TF3), (TF0,TF1,TF1), (TF0,TF1,TF2), (TF0,TF1,TF3), (TF1,TF1,TF1), (TF0,TF0,TF2), (TF0,TF0,TF3)

Uplink Physical channel parameters (FDD)

DPCH Uplink	Min spreading factor	32
	Max number of DPDCH data bits/radio frame	1200
	Puncturing Limit	1.0

Uplink Physical channel parameters (3.84Mcps TDD)

DPCH Uplink	Midamble	512 chips
	Codes and time slots	SF8 x 1 code x 1 time slot + SF16 x 1code x 1 time slot
	Max. Number of data bits/radio frame	696 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	0.72 (alt. 0.68)

Downlink Transport channel parameters for Streaming / unknown / DL:64 kbps / PS RAB

Higher layer	RAB/Signalling RB		**RAB**
RLC	Logical channel type		DTCH
	RLC mode		AM
	Payload sizes, bit		640
	Max data rate, bps		64000
	AM PDU header, bit		16
MAC	MAC header, bit		0
	MAC multiplexing		N/A
Layer 1	TrCH type		DCH
	TB sizes, bit		656
	TFS	TF0, bits	0x656
		TF1, bits	1x656
		TF2, bits	2x656
		TF3, bits	4x656
	TTI, ms		40
	Coding type		TC
	CRC, bit		16
	Max number of bits/TTI after channel coding		8076
	RM attribute		125-165

Downlink Transport channel parameters for Interactive or background / DL:64 kbps / PS RAB

Higher Layer	RAB/Signalling RB		**RAB**
RLC	Logical channel type		DTCH
	RLC mode		AM
	Payload sizes, bit		320
	Max data rate, bps		64000
	AMD PDU header, bit		16
MAC	MAC header, bit		0
	MAC multiplexing		N/A
Layer 1	TrCH type		DCH
	TB sizes, bit		336
	TFS	TF0, bits	0x336
		TF1, bits	1x336
		TF2, bits	2x336
		TF3, bits	4x336
		TF4, bits	8x336
	TTI, ms		40
	Coding type		TC
	CRC, bit		16
	Max number of bits/TTI after channel coding		8460
	RM attribute		135-175

Downlink Transport channel parameters for DL:13.6 kbps SRBs for DCCH

Higher layer	RAB/signalling RB		**SRB#1**	**SRB#2**	**SRB#3**	**SRB#4**
	User of Radio Bearer		RRC	RRC	NAS_DT High prio	NAS_DT Low prio
RLC	Logical channel type		DCCH	DCCH	DCCH	DCCH
	RLC mode		UM	AM	AM	AM
	Payload sizes, bit		136	128	128	128
	Max data rate, bps		13600	12800	12800	12800
	AMD/UMD PDU header, bit		8	16	16	16
MAC	MAC header, bit		4	4	4	4
	MAC multiplexing		4 logical channel multiplexing			
Layer 1	TrCH type		DCH			
	TB sizes, bit		148 (alt 0, 148) (note)			
	TFS	TF0, bits	0x148 (alt 1x0) (note)			
		TF1, bits	1x148			
		TF2, bits	2x148			
		TF3, bits	4x148			
	TTI, ms		40			
	Coding type		CC 1/3			
	CRC, bit		16			
	Max number of bits/TTI before rate matching		2064			
	RM attribute		155-230			
NOTE: alternative parameters enable the measurement "transport channel BLER" in the UE.						

Downlink TFCS

TFCS size	22
TFCS	((Streaming RAB, Interactive RAB, DCCH)= (TF0,TF0,TF0), (TF1,TF0,TF0), (TF2,TF0,TF0), (TF3,TF0,TF0), (TF0,TF1,TF0), (TF1,TF1,TF0), (TF2,TF1,TF0), (TF3,TF1,TF0), (TF0,TF2,TF0), (TF0,TF3,TF0), (TF0,TF4,TF0), (TF0,TF0,TF1), (TF1,TF0,TF1), (TF2,TF0,TF1), (TF3,TF0,TF1), (TF0,TF1,TF1), (TF1,TF1,TF1), (TF2,TF1,TF1), (TF3,TF1,TF1), (TF0,TF0,TF2), (TF3, TF0, TF2), (TF0,TF0,TF3)

Downlink Physical channel parameters (FDD)

DPCH Downlink	DTX position		Flexible
	Spreading factor		32
	DPCCH	Number of TFCI bits/slot	8
		Number of TPC bits/slot	4
		Number of Pilot bits/slot	8
	DPDCH	Number of data bits/slot	140
		Number of data bits/frame	2100

Downlink Physical channel parameters (3.84 Mcps TDD)

DPCH Downlink	Midamble	256 chips
	Codes and time slots	SF16 x 6 codes x 1 time slot
	Max. Number of data bits/radio frame	1640 bits
	TFCI code word	16 bits
	Puncturing limit	0.64

The logical channel priorities are set according to the following:

Radio Bearer	**Logical Channel Priority**
RB1 (DCCH)	3
RB2 (DCCH)	3
RB3 (DCCH)	4
RB4 (DCCH)	5
RB 5 (streaming/unknown)	2
RB 6 (Interactive/ background)	7

Let PayloadSize denote the RAB payload size in octets.

Related ICS/IXIT Statement(s)

None

Test procedure

In the following, the Streaming/ unknown radio bearer is denoted RB 5, the Interactive/ background radio bearer is denoted RB 6, the payload size for RB5 is denoted RB5_PayloadSize and the payload size for RB6 is denoted RB6_PayloadSize.

a) The SS closes the test loop using UE test loop mode 1 with the UL SDU size set to (RB5_PayloadSize * 25) - 1 bytes for RB5 and to (RB6_PayloadSize * 25) - 1 bytes for RB6. See note 1.

b) The SS transmits a MEASUREMENT CONTROL message requesting periodic reporting with a period of 250ms.

c) The SS sends two RLC SDUs of size floor (RB6_PayloadSize) - 1 bytes to the UE on RB 6. The UE is expected to loop this data back in two RLC SDUs, segmented into a total of 50 RLC PDUs.

d) The SS checks that data is returned in uplink

e) The SS waits until a measurement report is received and checks that the UE transmits the measurement report and data on RB6 simultaneously using a TFC that maximises the data rate for the SRB.

f) The SS waits until the UE has looped back all data

g) The SS sends two RLC SDUs of size floor (RB5_PayloadSize) - 1 bytes to the UE on RB 5. The UE is expected to loop this data back in two RLC SDUs, segmented into a total of 50 RLC PDUs.

h) The SS sends two RLC SDUs of size floor (RB6_PayloadSize) - 1 bytes to the UE on RB 6. The UE is expected to loop this data back in two RLC SDUs, segmented into a total of 50 RLC PDUs.

i) The SS checks that data is returned in uplink on RB5 and RB6 simultaneously.

j) The SS waits until a measurement report is received and checks that during the reception of the measurement report, at least once data is also received on RB5 simultaneously, but not on RB6.

NOTE 1. Having UE to return 50 PDUs corresponds to 50*TTI (20 ms) = 1 second of continuous data transmission. As the periodic measurement interval is 250ms this will guarantee that data transmission will be interrupted by transmission of measurement reports in uplink. To keep the uplink SDU size below the limit (1500 octets) of the Max SDU size parameter associated with PDP context establishment then two downlink PDUs is used to generate the 50 uplink PDUs (uplink SDU size= 1000 octets).

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		<--	ACTIVATE RB TEST MODE (DCCH)	TC
2		-->	ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
3		<--	RADIO BEARER SETUP (DCCH)	RRC
4		-->	RADIO BEARER SETUP COMPLETE (DCCH)	RRC
5		<--	CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 with UL RLC SDU size parameter for RB5 and RB6 set to achieve UE to transmit 50 PDUs in uplink.
6		-->	CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
7		<--	MEASUREMENT CONTROL (DCCH)	SS sends a MEASUREMENT CONTROL message requesting periodic reporting at 250 ms interval.
8		<--	2 x Downlink RLC PDU on RB6	SS sends two SDUs fit into two PDUs on RB6.
9		-->	Uplink RLC PDUs	SS starts receiving RLC PDUs from the UE on RB6
10		-->	MEASUREMENT REPORT (DCCH)	SS checks that at least one MEASUREMENT REPORT message is received within 500 ms (=2 x reporting interval) simultaneous with RB 6 data.
11		-->	Uplink RLC PDUs	SS checks that UE continues returning RLC PDUs on RB6
12		<--	2 x Downlink RLC PDU on RB5	SS sends two SDUs fit into two PDUs on RB5.
13		<--	2 x Downlink RLC PDU on RB6	SS sends two SDUs fit into two PDUs on RB6.
14		-->	Uplink RLC PDUs	SS starts receiving RLC PDUs from the UE on RB5 and RB6
15		-->	MEASUREMENT REPORT (DCCH) and simultaneous data on RB5 and RB6	SS checks that at least one MEASUREMENT REPORT message is received within 500 ms (=2 x reporting interval) simultaneous with RB 5 data but not on RB6 [Note 1].
16		-->	Uplink RLC PDUs	SS continues receiving RLC PDUs from the UE on RB5 and RB6

7.1.3.2.5 Test requirements

1. After step 8 the UE shall loopback data on RB6 using the transport format that carries the maximum amount of data (2 PDUs per TTI)

2. After step 10 the UE shall transmit a MEASUREMENT REPORT message within 500 ms.

3. After step 10 and during the reception of the MEASUREMENT REPORT message, data shall also be received on RB6

4. After step 13, the UE shall loopback data simultaneously on RB5 and RB6 using a TFC that carries data for both transport channels.

5. After step 15 the UE shall transmit a MEASUREMENT REPORT message within 500 ms

6. After step 15 and during the reception of the MEASUREMENT REPORT, the UE shall at least once simultaneously transmit data on RB5 but not on RB6 [Note 1].

NOTE 1: Due to the complexity of test case implementation, the SS verifies at least once that the UE transmits one Measurement report simultaneously with data on RB5 but not on RB6.

7.1.4 Control of CPCH transmissions.

7.1.4.1 Control of CPCH transmissions for FDD

7.1.4.1.1 Definition and applicability

All UEs which support CPCH.

7.1.4.1.2 Conformance requirement

1. If counter M is not less than N_access_fails, the UE shall execute an access failure error procedure and the CPCH access procedure ends.
2. If the sum of the Frame Count Transmitted counter plus the number of frames in the next TTI is larger than NF_max, the UE shall exit the CPCH transmission procedure.
3. If the CSICH information indicates no PCPCH is available, the UE shall not attempt CPCH access.
4. If the CPCH Persistency levels are all set to 8, the UE shall not attempt CPCH access.
5. If the SS issues an immediate Emergency Stop command in the DL-DPCCH for CPCH, the UE shall abort CPCH access.

Reference(s)

TS 25.321 clause 11.3

TS 25.214 clause 6.

TS 25.211 clause 5.3.3.11.

7.1.4.1.3 Test purpose

To verify that the MAC entity control CPCH transmission correctly.

7.1.4.1.4 Method of test

Initial conditions

System Simulator:

- 1 cell, default parameters, Ciphering Off.

User Equipment:

- The UE shall operate under normal test conditions, Ciphering Off.
- The Test-USIM shall be inserted.

The UE is in Connected mode and a connection is established as described in the TS 34.123-1, clause 7.3 PDCP testing, clause "Setup a UE originated PS session using IP Header compression in AM RLC (using Loop back test mode 1).

Related ICS/IXIT Statement(s)

TBD

Foreseen Final State of the UE

The same as the initial conditions.

Test procedure

a) The SS ends SIBs 7, 8 and 9, sends CSICH information and waits 30 s.

b) The SS configures its RLC entity for "Transparent Mode".

c) The SS sends certain DATA BLOCKS to UE with UE-Id type and UE-Id field.

d) After having received the data block via configured mapped channels, the UE forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its MAC configuration to the SS.

e) The SS receives returned DATA BLOCKS.

f) The SS configures its RLC entity for "AM mode.

g) The SS starts the RB reconfiguration procedure by sending the RADIO BEARER RECONFIGURATION message.

h) After having received the UE confirmation for the reconfiguration procedure, the SS configures its RLC entity for" Transparent Mode".

i) The SS sends SIB 8 on BCH with parameter : N_access_fails = 0 and waits 30 s.

j) The SS sends certain DATA BLOCKS.

k) The SS shall not receive any LOOP BACK DATA BLOCKS within 30 s.

l) The SS configures its RLC entity for" AM mode".

m) The SS starts the RB reconfiguration procedure by sending the RADIO BEARER RECONFIGURATION message.

n) The SS receives RADIO BEARER RECONFIGURE COMPLETE.

o) After having received the UE confirmation for the reconfiguration procedure, the SS configures its RLC entity for "Transparent Mode".

p) The SS sends SIB 8 on BCH with parameter : NF_max = 0 and waits 30 s.

q) The SS sends certain DATA BLOCKS.

r) The SS shall not receive any returned DATA BLOCKS within 30 s.

s) The SS configures its RLC entity for "AM mode".

t) The SS starts the RB reconfiguration procedure by sending the RADIO BEARER RECONFIGURATION message.

u) The SS receives RADIO BEARER RECONFIGURE COMPLETE.

v) After having received the UE confirmation for the reconfiguration procedure, the SS configures its RLC entity for "Transparent Mode".

w) The SS sends SIB 8 on BCH and waits 30 s.

x) The SS continuously sends CSICH information with PCA1=PCA2= NOT AVAILABLE.

y) The SS sends certain DATA BLOCKS.

z) The SS shall not receive any returned DATA BLOCKS within 30 s.

aa) The SS configures its RLC entity for "AM mode".

bb) The SS starts the RB reconfiguration procedure by sending the RADIO BEARER RECONFIGURATION message.

cc) The SS receives RADIO BEARER RECONFIGURE COMPLETE.

dd) After having received the UE confirmation for the reconfiguration procedure, the SS configures its RLC entity for "Transparent Mode".

ee) The SS sends CSICH information with PCA1=PCA2= AVAILABLE and the SS PHY is configured to send CPCH Emergency Stop message in all DL DPCCHs for CPCH after N_start_message frames.

ff) The SS sends certain DATA BLOCKS.

gg) The SS shall not receive any returned DATA BLOCKS within 30 s.

hh) The SS configures its RLC entity for "AM mode".

ii) The SS starts the RB reconfiguration procedure by sending the RADIO BEARER RECONFIGURATION message.

jj) The SS receives RADIO BEARER RECONFIGURE COMPLETE.

kk) After having received the UE confirmation for the reconfiguration procedure, the SS configures its RLC entity for "Transparent Mode".

ll) The SS sends SIB 9 on BCH with the CPCH persistence levels set to 8, no access allowed.

mm) The SS sends certain DATA BLOCKS.

nn) The SS shall not receive any returned DATA BLOCKS within 30 s.

oo) The SS configures its RLC entity for "AM mode".

pp) The SS starts the RB reconfiguration procedure by sending the RADIO BEARER RECONFIGURATION message.

qq) The SS receives RADIO BEARER RECONFIGURE COMPLETE.

rr) After having received the UE confirmation for the reconfiguration procedure, the SS configures its RLC entity for "Transparent Mode".

ss) The SS sends SIB 9 on BCH with the CPCH persistence levels set to 1, immediate access allowed.

tt) The SS sends certain DATA BLOCKS.

uu) The SS receives returned DATA BLOCKS.

vv) The SS configures its RLC entity for "AM mode".

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		SIBs 7, 8 and 9 and CSICH information	Containing default settings for CPCH
2				SS sends CMAC_MAC_HEADER_REQ with disable_mac_header and CRLC_CONFIG_REQ with RLC mode as "Transparent mode".
3	←		DATA BLOCKS	
4	→		LOOP BACK DATA BLOCKS	
5				SS sends CMAC_MAC_HEADER_REQ with enable_mac_header and CRLC_CONFIG_REQ with RLC mode as "AM mode".
6	←		RADIO BEARER RECONFIGURATION	
7	→		RADIO BEARER RECONFIGURATION COMPLETE	
8				SS sends CMAC_MAC_HEADER_REQ with disable_mac_header and CRLC_CONFIG_REQ with RLC mode as "Transparent mode".
9	←		SIB 8	N_access_fails = 0
10	←		DATA BLOCK	
11				The SS can't receive loop back data blocks from UE in 30s.
12				SS sends CMAC_MAC_HEADER_REQ with enable_mac_header and CRLC_CONFIG_REQ with RLC mode as "AM mode".
13	←		RADIO BEARER RECONFIGURATION	
14	→		RADIO BEARER RECONFIGURATION COMPLETE	
15				SS sends CMAC_MAC_HEADER_REQ with disable_mac_header and CRLC_CONFIG_REQ with RLC mode as "Transparent mode".
16	←		SIB 8	NF_max = 0
17	←		DATA BLOCK	UE was trigged to send data block.
18				The SS can't receive data from UE in 30s
19				SS sends CMAC_MAC_HEADER_REQ with enable_mac_header and CRLC_CONFIG_REQ with RLC mode as "AM mode".
20	←		RADIO BEARER RECONFIGURATION	
21	→		RADIO BEARER RECONFIGURATION COMPLETE	
22				SS sends CMAC_MAC_HEADER_REQ with disable_mac_header and CRLC_CONFIG_REQ with RLC mode as "Transparent mode".
23	←		SIB 8 and CSICH information	PCA1=PCA2= NOT AVAILABLE
24	←		DATA BLOCK	
25				The SS can't receive data from UE in 30s
26				SS sends CMAC_MAC_HEADER_REQ with enable_mac_header and CRLC_CONFIG_REQ with RLC mode as "AM mode".
27	←		RADIO BEARER RECONFIGURATION	
28	→		RADIO BEARER RECONFIGURATION COMPLETE	
29				SS sends CMAC_MAC_HEADER_REQ with disable_mac_header and CRLC_CONFIG_REQ with RLC mode as "Transparent mode".

Step	Direction		Message	Comments
	UE	SS		
30	←		SIB 8 and CSICH information	PCA1=PCA2=AVAILABLE
31				SS sends a CPCH-Estop command in all DLDPCCHs for CPCH after N_start_message frames
32	←		DATA BLOCK	
33				The SS can't receive data from UE in 30s
34				SS sends CMAC_MAC_HEADER_REQ with enable_mac_header and CRLC_CONFIG_REQ with RLC mode as "AM mode".
35	←		RADIO BEARER RECONFIGURATION	
36	→		RADIO BEARER RECONFIGURATION COMPLETE	
37				SS sends CMAC_MAC_HEADER_REQ with disable_mac_header and CRLC_CONFIG_REQ with RLC mode as "Transparent mode".
38	←		SIB 9	CPCH Persistence levels set to 8; no access allowed
39	←		DATA BLOCK	
40				The SS can't receive data from UE in 30s
41				SS sends CMAC_MAC_HEADER_REQ with enable_mac_header and CRLC_CONFIG_REQ with RLC mode as "AM mode".
42	←		RADIO BEARER RECONFIGURATION	
43	→		RADIO BEARER RECONFIGURATION COMPLETE	
44				SS sends CMAC_MAC_HEADER_REQ with disable_mac_header and CRLC_CONFIG_REQ with RLC mode as "Transparent mode".
45	←		SIB 9	CPCH Persistence levels set to 1; immediate access allowed
46	←		DATA BLOCK	
47	→		LOOP BACK DATA BLOCKS	
48				SS sends CMAC_MAC_HEADER_REQ with enable_mac_header and CRLC_CONFIG_REQ with RLC mode as "AM mode".

Specific Message Contents

RADIO BEARER SET UP:

Information Element	Value/remark
RLC info - RLC mode	 AM RLC
RB mapping info -Downlink - Number of logical channels - Downlink transport channel type	 1 FACH
-Uplink - Number of logical channels - Uplink transport channel type	 1 CPCH

PRACH persistence level info in System Information Block type 7

Information Element	Value/Remark
PRACHs listed in SIB 5/SIB 5bis - Dynamic persistence level PRACHs listed in SIB 6 - Dynamic persistence level	 All set to 8, which maps to minimum persistence value, no access allowed All set to 8,which maps to minimum persistence value, no access allowed

CPCH parameters in System Information Block type 8

Information Element	Value/Remark
Back off control parameters	
- $N_{ap\_retrans\_max}$	15
- N_{access_fails}	15
- $NF_{bo\_no\ aich}$	15
- NS_{bo_busy}	15
- $NF_{bo\_all\_busy}$	15
- $NF_{bo\_mismatch}$	15
- T_{CPCH}	0
Power Control Algorithm	algorithm 1
TPC step size	1
DL DPCCH BER	15

CPCH set info in System Information Block type 8

Information Element	Value/Remark
AP preamble scrambling code	16
AP-AICH channelisation code	15
CD preamble scrambling code	17
CD/CA-ICH channelisation code	16
DeltaPp-m	0
UL DPCCH Slot Format	1
N_start_message	8
CPCH status indication mode	PA mode
PCPCH Channel #1 info	
- UL scrambling code	18
- DL channelisation code	15
- PCP length	8
- UCSM info	
- Minimum spreading factor	64
- NF_max	64
- AP signature	15
PCPCH Channel #2 info	
- UL scrambling code	19
- DL channelisation code	14
- PCP length	8
- UCSM info	
- Minimum spreading factor	64
- NF_max	64
- AP signature	14

PCPCH persistence level info in System Information Block type 9

Information Element	Value/Remark
CPCH set persistence levels - PCPCH persistence level	 Both set to 1, immediate access allowed

CSICH Information broadcast by SS PHY

Information Element	Value/Remark
PCPCH Channel Availability (PCA) : -PCA1 -PCA2	 Available Available

7.1.4.1.5 Test requirements

The SS can't receives data blocks from UE when N_access_fails or NF_max set as 0.

The SS can't receives data blocks from UE when NF_max set as 0.

The SS can't receives data blocks from UE when CSICH info indicates channels not available.

The SS can't receives data blocks from UE when CPCH Persistency level set to 8.

The SS can't receives data blocks from UE when Emergency Stop message terminates access.

7.1.5 HS-DSCH MAC-hs

7.1.5.1 MAC-hs reordering and stall avoidance

7.1.5.1.1 Definition and applicability

All UEs which support HS-PDSCH.

7.1.5.1.2 Conformance requirement

When a MAC-hs PDU with TSN = SN is received:

- If SN is within the receiver window:
  - if SN < next_expected_TSN, or this MAC-hs PDU has previously been received:
    - the MAC-hs PDU shall be discarded.
    - else:
  - the MAC-hs PDU is placed in the reordering buffer at the place indicated by the TSN.
- If SN is outside the receiver window:
  - the received MAC-hs PDU shall be placed above the highest received TSN in the reordering buffer, at the position indicated by SN;
  - RcvWindow_UpperEdge shall be set to SN thus advancing the receiver window;
  - any MAC-hs PDUs with TSN ≤ RcvWindow_UpperEdge – RECEIVE_WINDOW_SIZE, i.e. outside the receiver window after its position is updated, shall be removed from the reordering buffer and be delivered to the disassembly entity;
  - next_expected_TSN shall be set to RcvWindow_UpperEdge – RECEIVE_WINDOW_SIZE + 1;
- All received MAC-hs PDUs with consecutive TSNs from next_expected_TSN (included) up to the first not received MAC-hs PDU are delivered to the disassembly entity.
- next_expected_TSN shall be advanced to the TSN of this first not received MAC-hs PDU.

[...]

If no timer T1 is active:

- the timer T1 shall be started when a MAC-hs PDU with TSN > next_expected_TSN is correctly received.

- T1_TSN shall be set to the TSN of this MAC-hs PDU.

If a timer T1 is already active:

- no additional timer shall be started, i.e. only one timer T1 may be active at a given time.

The timer T1 shall be stopped if:

- the MAC-hs PDU with TSN = T1_TSN can be delivered to the disassembly entity before the timer expires.

When the timer T1expires and T1_TSN > next_expected_TSN:

- all correctly received MAC-hs PDUs with TSN > next_expected_TSN up to and including T1_TSN-1 shall be delivered to the disassembly entity;

- all correctly received MAC-hs PDUs up to the next not received MAC-hs PDU shall be delivered to the disassembly entity.

- next_expected_TSN shall be set to the TSN of the next not received MAC-hs PDU.

When the timer T1 is stopped or expires, and there still exist some received MAC-hs PDUs that can not be delivered to higher layer:

- timer T1 is started

- set T1_TSN to the highest TSN among those of the MAC-hs PDUs that can not be delivered.

[...]

Reference(s)

TS 25.321 clauses 11.6.2.3.1, 11.6.2.3.2

7.1.5.1.3 Test purpose

1. To confirm that the UE performs MAC-hs reordering and delivers RLC PDUs in order to RLC.

2. To confirm that the UE performs stall avoidance in case of missing MAC-hs PDUs based on a) window based stall avoidance and b) timer based stall avoidance.

7.1.5.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration “Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH” as specified in TS 34.108, clause 6.10.2.4.5.1. The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	32
MAC-hs reordering timer T1	400 ms
Polling Info	
- Timer poll prohibit	Not Present
- Timer_poll	Not Present

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 39 octets.

Let T be the value of MAC-hs reordering timer T1 parameter.

Test procedure

In this test procedure each MAC-hs PDU contains one RLC PDU carrying one SDU of size 39 octets and one length indicator indicating the end of the SDU.

a) The SS transmits a MAC-hs PDU with Transmission Sequence Number (TSN) = 0 containing an RLC PDU with SN=0.

b) The SS checks that the RLC PDU with SN=0 is looped back

c) The SS transmits a MAC-hs PDU with TSN = 1 containing an RLC PDU with SN=1.

d) The SS checks that the RLC PDU with SN=1 is looped back

e) The SS repeats the transmission of the MAC-hs PDUs in step a) and c) with identical content except that the RLC PDUs have SN 2,3

f) The SS checks that no data is looped back (the data is discarded in the UE)

g) The SS transmits a MAC-hs PDU with TSN = 3 containing an RLC PDU with SN=3

h) The SS waits 400 ms and checks that no data is looped back and no RLC status report is received during that time

i) The SS transmits a MAC-hs PDU with TSN = 2 containing an RLC PDU with SN=2

j) The SS checks that the RLC PDUs with SN = 2,3 are looped back

k) The SS transmits a MAC-hs PDU with TSN = 6 containing an RLC PDU with SN=4

l) The SS transmits a MAC-hs PDU with TSN = 7 containing an RLC PDU with SN=5

m) The SS transmits a MAC-hs PDU with TSN = 38 containing an RLC PDU with SN=6

n) The SS checks that the RLC PDU with SN = 4 and 5 is looped back but the RLC PDU with SN = 6 is not looped back

o) The SS waits 400 ms and checks that the RLC PDU with SN = 6 is looped back after this time

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		MAC-hs PDU with TSN = 0, containing RLC PDU with SN = 0	
2	→		RLC PDU with SN 0	
3	←		MAC-hs PDU with TSN = 1, containing RLC PDU with SN = 1	
4	→		RLC PDU with SN 1	
5	←		MAC-hs PDU with TSN = 0, containing RLC PDU with SN = 2	The duplicated data is discarded in the UE
6	←		MAC-hs PDU with TSN = 1, containing RLC PDU with SN = 3	The duplicated data is discarded in the UE
7	←		MAC-hs PDU with TSN = 3, containing RLC PDU with SN = 3	
8			SS waits T ms and checks that no data is looped back and no RLC status report is received	The waiting time may need to be adjusted to assure that T1 has not expired in the UE
9	←		MAC-hs PDU with TSN = 2, containing RLC PDU with SN = 2	
10	→		RLC PDUs with SN 2,3	
11	←		MAC-hs PDU with TSN = 6, containing RLC PDU with SN = 4	
12	←		MAC-hs PDU with TSN = 7, containing RLC PDU with SN = 5	
13	←		MAC-hs PDU with TSN = 38, containing RLC PDU with SN = 6	SS need to transmit this PDU before timer T1 in UE expires (400 ms after reception of MAC-hs PDU with TSN=6). Note: T_A
14	→		RLC PDUs with SN 4,5	The RLC PDUs with SN = 4,5 is looped back after reception of the MAC_hs PDU in step 13, i.e. before timer T1 expires
15			SS waits T ms and checks that the RLC PDU with SN = 6 is not looped back during this time	
16	→		RLC PDU with SN 6	The RLC PDU with SN = 6 is looped back after expiry of T1. Note: T_B

NOTE 1: The RLC SN in step 5,6 is increased since otherwise the data would be discarded by RLC even if the MAC-hs reordering does not work correctly. Since the data is discarded the same RLC SN can be reused later in the test sequence.
NOTE 2: In step 8 the absence of an RLC status report is used to check that the RLC PDU with SN = 3 is not delivered to RLC. If the RLC PDU was delivered to RLC the gap in the SN would trigger a status report (detection of missing PDUs).
NOTE3: In step13, the timer T1 is restarted in the UE since the PDU with TSN = 38 can not be delivered to higher layers.
NOTE 4: General timer tolerance as defined by 34.108 sub-clause 4.2.3 applies.

Specific Message Contents

None

7.1.5.1.5 Test requirements

1. After step 1, the RLC PDU with SN = 0 shall be looped back
2. After step 3, the RLC PDU with SN = 1 shall be looped back
3. After step 5 and 6 , no data shall be looped back
4. After step 7, no data shall be looped back and no RLC status report shall be received
5. After step 9, the RLC PDUs with SN = 2,3 shall be looped back

6. After step 13, the RLC PDUs with SN = 4,5 shall be looped back

7. In step 16, the RLC PDU with SN = 6 shall be looped back and $T_B - T_A$ shall be equal to T ms .

7.1.5.2 MAC-hs priority queue handling

7.1.5.2.1 Definition and applicability

All UEs which support HS-PDSCH.

7.1.5.2.2 Conformance requirement

Reordering Queue distribution:

The reordering queue distribution function routes the MAC-hs PDUs to the correct reordering buffer based on the Queue ID.

[...]

The HARQ process processes the Queue ID in the received MAC-hs PDUs. The UE shall:

- arrange the received MAC-hs PDUs in queues based on the Queue ID.

[...]

Reference(s)

TS 25.321 clauses 4.2.3.3 and 11.6.2.2

7.1.5.2.3 Test purpose

1. To confirm that the UE handles several priority queues, where different radio bearers are mapped to different queues.

7.1.5.2.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration “5 x Interactive or background / UL: 8 kbps DL: [max bit rate depending on UE category] / UM PS RAB” as specified in TS 34.108, clause 6.11.4a.1 with the logical channel, transport channel and queue identities set to:

Logical Channel ID	MAC-d flow (DL)	Queue ID	Comment
7	1	0	RB5
8	1	0	RB6
9	2	1	RB7
10	2	2	RB8
13	3	3	RB9
NOTE 1: LCH 7-8 emulates logical channels with the same priority whereas LCH 9-10 emulates logical channels with different priorities. NOTE 2: The radio bearer numbers refer to the radio bearers as specified in TS 34.108 clause 6.11.4a.1.			

The following parameters are specific for this test case:

- Timer poll prohibit	Not Present
- Timer_poll	Not Present

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 40 octets for RB5, RB6 and 39 octets for RB7, RB8, RB9.

Test procedure

In this test procedure each MAC-hs PDU contains one RLC PDU carrying one SDU of size 39 or 40 octets (depending on the RB Identity, see Initial conditions) and one length indicator indicating the end of the SDU.

a) The SS transmits a MAC-hs PDU where:

1. The TSN = 0
2. The Queue ID = 0
3. The MAC-hs PDU contains an RLC PDU with SN=0.

b) The SS checks that the RLC PDU with SN=0 is looped back and checks that the logical channel IDs are correct.

c) The SS repeats steps a), b) with the Logical channel ID, Queue ID and TSN field set as follows:

Iteration	Logical Channel ID	Queue ID Value	TSN Value
1	7	0	0
2	8	0	1
3	9	1	0
4	10	2	0
5	13	3	0

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		MAC-hs PDU containing an RLC PDU with SN = 0. The Logical channel ID, Queue ID and TSN are set according to the table above.	
2	→		RLC PDU with SN = 0	

Steps 1 to 2 of the expected sequence are repeated for iteration 2-5.

7.1.5.2.5 Test requirements

1. In step 2, for each iteration, the RLC PDU with SN=0 shall be looped back with the logical channel ID as specified by the table below:

Iteration	Logical Channel ID
1	7
2	8
3	9
4	10
5	13
NOTE: Logical Channel ID 13 is the Uplink Logical Channel Identity of RB9.	

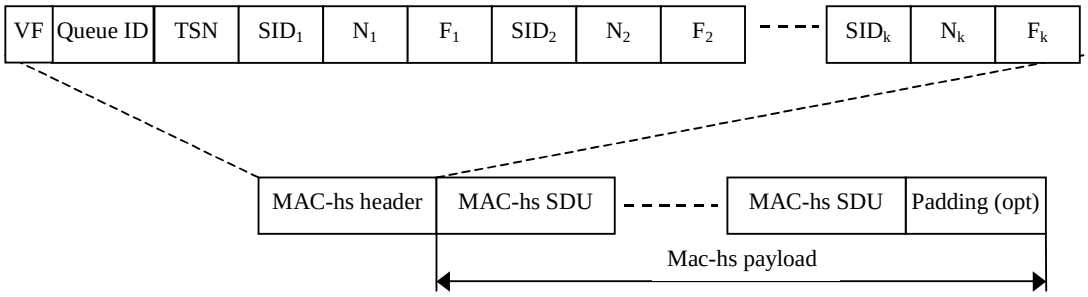
7.1.5.3 MAC-hs PDU header handling

7.1.5.3.1 Definition and applicability

All UEs which support HS-PDSCH.

7.1.5.3.2 Conformance requirement

MAC PDU (HS-DSCH):



[...]

The following fields are included in the MAC header for HS-DSCH:

- Version Flag (VF):
  The VF field is a one bit flag providing extension capabilities of the MAC-hs PDU format. The VF field shall be set to zero and the value one is reserved in this version of the protocol.

- Queue identifier (Queue ID):
  The Queue ID field provides identification of the reordering queue in the receiver, in order to support independent buffer handling of data belonging to different reordering queues. The length of the Queue ID field is 3 bit.

- Transmission Sequence Number (TSN):
  The TSN field provides an identifier for the transmission sequence number on the HS-DSCH. The TSN field is used for reordering purposes to support in-sequence delivery to higher layers. The length of the TSN field is 6 bit.

- Size index identifier (SID):
  The SID fields identifies the size of a set of consecutive MAC-d PDUs. The MAC-d PDU size for a given SID is configured by higher layers and is independent for each Queue ID. The length of the SID field is 3 bit.

- Number of MAC-D PDUs (N):
  The number of consecutive MAC-d PDUs with equal size is identified with the N field. The length of the N field is 7 bits. In FDD mode, the maximum number of PDUs transmitted in a single TTI shall be assumed to be 70. In 1.28 Mcps TDD mode, the maximum number of PDUs transmitted in a single TTI shall be assumed to be 45. In 3.84 Mcps TDD mode, the maximum number of PDUs transmitted in a single TTI shall be assumed to be 318. If more PDUs than the defined maximum number of PDUs for the corresponding mode are received, the UE behaviour is unspecified.

- Flag (F):
  The F field is a flag indicating if more fields are present in the MAC-hs header or not. If the F field is set to "0" the F field is followed by an additional set of SID, N and F fields. If the F field is set to "1" the F field is followed by a MAC-d PDU. The maximum number of MAC-hs header extensions, i.e. number of fields F set to “0”, in a single TTI shall be assumed to be 7. If more extensions than the maximum defined for the corresponding mode are included in a TTI, the UE behaviour is unspecified.

[...]

a) Use of reserved coding in the MAC header

   If the MAC entity receives a MAC PDU with a header field using a value marked as reserved for this version of the protocol, it shall discard the PDU, unless explicitly mentioned otherwise.

b) Inconsistent MAC header

   If the MAC entity receives a MAC PDU with a header inconsistent with the configuration received from RRC, it shall discard the PDU. E.g.: In case DTCH is mapped to RACH/FACH, the MAC entity shall discard a PDU with a C/T field indicating a logical channel number that is not configured.

[...]

Reference(s)

TS 25.321 clauses 9.1.4, 9.2.2, 10

7.1.5.3.3 Test purpose

1. To confirm that the UE discards PDUs with reserved values of the fields in the MAC header
2. To confirm that the UE discards PDUs with values in the MAC header that are inconsistent with the RRC configuration.
3. To confirm that the UE correctly reads the MAC header and disassembles the MAC-hs PDU into MAC-d PDUs and delivers the MAC-d PDUs to the RLC layer.

7.1.5.3.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration “Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH” as specified in TS 34.108, clause 6.10.2.4.5.1. The following parameters are specific for this test case:

Parameter	Value
UMD_PDU_size1	136 bit
UMD_PDU_size2	328 bit
Queue ID	0
Size Index Identifier (SID)	SID =0: 136 bit SID =1: 328 bit
MAC-hs reordering timer T1	400 ms
MAC-hs receiver window size	32

The RB is configured with 2 RLC PDU sizes UMD_PDU_size1 and UMD_PDU_size2.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 39 octets.

Let T be the value of MAC-hs reordering timer T1 parameter.

Test procedure

a) The SS transmits a MAC-hs PDU containing:

8 RLC UMD PDUs where:

RLC PDUs with SN= 0, 2, 4, 6has the PDU size UMD_PDU_size1 and contains one SDU of length 14 octets .

RLC PDUs with SN= 1, 3, 5, 7 has the PDU size UMD_PDU_size2 and contains one SDU of length 38 octets .

The first RLC PDU with SN=0 will have two Length Indicators. The first Length Indicator will be set to 1111100 (starting of the SDU) and the second length Indicator will have the exact size of the first PDU.

The remaining RLC PDUs will also have two length Indicators. The first LI will have the exact size of the PDU and the second LI will be set to 1111111(the rest of the RLC PDU has padding bits and the number padding bits will be zero).The MAC fields in the MAC-hs header shall be set according to 25.321 with the following exception:

Field	Value
Version flag VF	1

b) The SS checks that the UE does not loop back any data (since the MAC-hs PDU in the previous step is discarded)

c) The SS again transmits a MAC-hs PDU as in a) above, but this time sets the fields in the MAC-hs header according to 25.321 with the following exception:

Field	Value
Size index identifier (SID)	SID =2: 136 bit SID =3: 328 bit

The sequence numbers in the RLC headers shall be identical with those sent in a).

d) The SS checks that the UE does not loop back any data (since the MAC-hs PDU in the previous step is discarded)

e) The SS again transmits a MAC-hs PDU as in a) above, but this time sets the fields in the MAC-hs header according to 25.321. The sequence numbers in the RLC headers shall be identical with those sent in a).

f) The SS checks that the UE loops back 8 RLC PDUs and checks the sequence numbers of the RLC PDUs

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		MAC-hs PDU with a reserved value of the version flag	discarded by the UE
2			wait for T ms	SS checks that no RLC PDUs are looped back (note)
3	←		MAC-hs PDU with a value of the size index identifier that is inconsistent with RRC configuration	discarded by the UE
4			wait for T ms	SS checks that no RLC PDUs are looped back (note)
5	←		MAC-hs PDU with correct values of the MAC-hs header	Accepted by the UE and the contained data is looped back.
6	→		RLC PDUs with SN 0,1, ...,7	
NOTE General timer tolerance as defined by 34.108 sub-clause 4.2.3 applies.				

Specific Message Contents

See test procedure

7.1.5.3.5 Test requirements

1. After step 1, no data shall be looped back to the SS
2. After step 3, no data shall be looped back to the SS
3. After step 5, the RLC PDUs with SN =0,1, ...,7 shall be looped back to the SS

7.1.5.4 MAC-hs retransmissions

7.1.5.4.1 Definition and applicability

All UEs which support HS-PDSCH.

7.1.5.4.2 Conformance requirement

[...]

The UE shall:

- if the New Data Indicator has been incremented compared to the value in the previous received transmission in this HARQ process or this is the first received transmission in the HARQ process:
  - replace the data currently in the soft buffer for this HARQ process with the received data.
  - if the Transport Block Size index value is equal to 111111 (FDD only):
    - generate a positive acknowledgement (ACK) of the data in this HARQ process;
    - discard the received data;
    - assume that the data has been successfully decoded.
- if the New Data Indicator is identical to the value used in the previous received transmission in the HARQ process:
  - if the Transport Block Size index value is equal to 111111 (FDD only):
    - assume that the transport block size is identical to the last valid transport block size signalled for this HARQ process.
  - if the data has not yet been successfully decoded:
    - combine the received data with the data currently in the soft buffer for this HARQ process.
- if the data in the soft buffer has been successfully decoded and no error was detected:
  - deliver the decoded MAC-hs PDU to the reordering entity;
  - generate a positive acknowledgement (ACK) of the data in this HARQ process.
- else:
  - generate a negative acknowledgement (NAK) of the data in this HARQ process;
- schedule the generated positive or negative acknowledgement for transmission and the time of transmission relative to the reception of data in a HARQ process is configured by upper layer.

[...]

Reference(s)

TS 25.321 clauses 11.6.22

7.1.5.4.3 Test purpose

1. To confirm that the UE correctly transmit positive and negative acknowledgements when receiving MAC-hs PDUs

7.1.5.4.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration "Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH" as specified in TS 34.108, clause 6.10.2.4.5.1. The following parameters are specific for this test case:

Parameter	Value
Polling info	
- Timer Poll Prohibit	Not Present
- Timer_poll	Not Present

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 39 octets.

Test procedure

In this test procedure each MAC-hs PDU contains one RLC PDU carrying one SDU of size 39 octets and one length indicator indicating the end of the SDU.

a) The SS transmits a MAC-hs PDU where:

1. The TSN = 0
2. The HARQ process id = 0
3. The Queue ID = 0
4. The MAC-hs PDU contains an RLC PDU with SN=0.
5. The physical layer CRC is modified such that the CRC check in the UE will fail

b) The SS checks that a negative acknowledgement is received for the correct HARQ process and no RLC PDU loop backed by UE

c) The SS transmits a MAC-hs PDU with the same content as in step a) but where the CRC is correct

d) The SS checks that a positive acknowledgement is received for the correct HARQ process and RLC PDU is loop backed by UE.

e) The SS repeats steps a), b), c) & d) with the HARQ process, TSN and RLC SN set as follows for iteration 2 to 8:

Iteration	HARQ process	TSN	RLC SN
1	0	0	0
2	1	1	1
3	2	2	2
4	3	3	3
5	4	4	4
6	5	5	5
7	6	6	6
8	7	7	7

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		MAC-hs PDU sent in process N	Erroneous CRC
2	→		MAC-hs negative acknowledgement with process id = N	
2a				SS checks for 5 sec that UE does not send loop backed PDU
3	←		MAC-hs PDU sent in process N	
4	→		MAC-hs positive acknowledgement with process id = N	
5	→		RLC Loop Backed PDU	
NOTE: The process id N in step 1-4 is taken from the table in the Test procedure description above.				

Steps 1 to 5 of the expected sequence are repeated for iteration 2-8.

7.1.5.4.5 Test requirements

1. After step 1, a MAC-hs negative acknowledgement shall be received for the correct HARQ process
2. After step 3, a MAC-hs positive acknowledgement shall be received for the correct HARQ process

7.1.5.5 MAC-hs reset

7.1.5.5.1 Definition and applicability

All UEs which support HS-PDSCH.

7.1.5.5.2 Conformance requirement

Rel-5 and Rel-6:

If a reset of the MAC-hs entity is requested by upper layers, the UE shall:

- flush soft buffer for all configured HARQ processes;
- stop all active re-ordering release timer (T1) and set all timer T1 to their initial value;
- start TSN with value 0 for the next transmission on every configured HARQ process;
- initialise the variables RcvWindow_UpperEdge and next_expected_TSN to their initial values;
- disassemble all MAC-hs PDUs in the re-ordering buffer and deliver all MAC-d PDUs to the MAC-d entity;
- flush the re-ordering buffer.

and then:

- indicate to all AM RLC entities mapped on HS-DSCH to generate a status report.

[...]

Rel-7:

If a reset of the MAC-hs entity is requested by upper layers, the UE shall at the activation time indicated by higher layers:

- flush soft buffer for all configured HARQ processes;
- stop all active re-ordering release timer (T1) and set all timer T1 to their initial value;
- start TSN with value 0 for the next transmission on every configured HARQ process;
- initialise the variables RcvWindow_UpperEdge and next_expected_TSN to their initial values;

- disassemble all MAC-hs PDUs in the re-ordering buffer and deliver all MAC-d PDUs to the MAC-d entity;
- flush the re-ordering buffer.

[...]

Reference(s)

TS 25.321 clause 11.6.2.5

7.1.5.5.3 Test purpose

1. To confirm that the UE flushes the reordering buffer and delivers all MAC-d PDUs in the buffer to higher layers upon reset.
2. To confirm that the UE initializes the TSN and next_expected_TSN to their initial values.

7.1.5.5.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off

User Equipment:

The SS establishes the reference radio bearer configuration “Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH” as specified in TS 34.108, clause 6.10.2.4.5.1. The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	32
MAC-hs reordering timer T1	400 ms
Polling Info	
- Timer poll prohibit	Not Present
- Timer poll	Disabled

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 39 octets.

Test procedure

In this test procedure each MAC-hs PDU contains one RLC PDU carrying one SDU of size 39 octets and one length indicator indicating the end of the SDU.

a) The SS transmits a MAC-hs PDU with Transmission Sequence Number (TSN) = 0 containing an RLC PDU with SN=0

b) The SS checks that the RLC PDU with SN=0 is looped back

b) The SS transmits 2 MAC-hs PDUs with TSN = 2,3 containing the RLC PDUs with SN=1,2

c) The SS initiates a MAC-hs reset by transmitting a PHYSICAL CHANNEL RECONFIGURATION message

d) The SS checks that the RLC PDUs with SN=1,2 are looped back

e) The UE may send an RLC status report

d) The SS transmits a MAC-hs PDU with TSN = 0 containing an RLC PDU with SN=3

e) The SS checks that the RLC PDU with SN=3 is looped back

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		MAC-hs PDU with TSN = 0, containing RLC PDU with SN = 0	
2	→		RLC PDU with SN 0	
3	←		MAC-hs PDU with TSN = 2, containing RLC PDU with SN = 1	
4	←		MAC-hs PDU with TSN = 3, containing RLC PDU with SN = 2	
5	←		SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to trigger a MAC-hs reset	
6	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
7	→		RLC PDUs with SN 1,2	The RLC PDUs are delivered directly after the MAC-hs reset i.e. before T1 expires.
8	→		RLC status report	Optional
9	←		MAC-hs PDU with TSN = 0, containing RLC PDU with SN = 3	
10	→		RLC PDU with SN 3	
NOTE: Steps 6-8 may occur in different order.				

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 5)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
Downlink information common for all radio links - MAC-hs reset indicator	TRUE

7.1.5.5.5 Test requirements

1. After step 1, the RLC PDU with SN = 0 shall be looped back
2. After step 5, the RLC PDUs with SN = 1,2 shall be looped back
3. After step 9, the RLC PDU with SN=3 shall be looped back

7.1.5.6 MAC-hs transport block size selection

7.1.5.6.1 Definition and applicability

All UEs which support HS-PDSCH and FDD.

7.1.5.6.2 Conformance requirement

For HS-DSCH the transport block size is derived from the value signalled on the HS-SCCH. The mapping between the TFRI value and the transport block size for each mode is specified below:

For all transmissions of a transport block, the transport block size is derived from the TFRI value as specified below, except only in those cases of retransmissions where the Node-B selects a combination for which no mapping exists between the original transport block size and the selected combination of channelisation Code set and modulation type. In such cases, the transport block size index value signalled to the UE shall be set to 111111, i.e., k_i=63.

Let k_i be the TFRI signalled on the HS-SCCH value and let $k_{0,i}$ be the value in the table 7.1.5.6.1 corresponding to the modulation and the number of codes signalled on the HS-SCCH. Let k_t be the sum of the two values: $k_t = k_i + k_{0,i}$. The transport block size $L(k_t)$ can be obtained by accessing the position k_t in the table in Annex A (normative) or by using the formula below (informative):

If k_t < 40

$$L(k_t) = 125 + 12 \cdot k_t$$

else

$$L(k_t) = \lfloor L_{\min} p^{k_t} \rfloor$$

$$p = 2085/2048$$

$$L_{\min} = 296$$

End

Table 7.1.5.6.1: Values of $k_{0,i}$ for different numbers of channelization codes and modulation schemes

Combination *i*	Modulation scheme	Number of channelization codes	$k_{0,i}$
0	QPSK	1	1
1		2	40
2		3	63
3		4	79
4		5	92
5		6	102
6		7	111
7		8	118
8		9	125
9		10	131
10		11	136
11		12	141
12		13	145
13		14	150
14		15	153
15	16QAM	1	40
16		2	79
17		3	102
18		4	118
19		5	131
20		6	141
21		7	150
22		8	157
23		9	164
24		10	169
25		11	175
26		12	180
27		13	184
28		14	188
29		15	192

……

The following table provides the mapping between k_t (as per the definition above) and the HS-DSCH Transport Block Size ($L(k_t)$):

Index	TB Size	Index	TB Size	Index	TB Size
1	137	86	1380	171	6324
2	149	87	1405	172	6438
3	161	88	1430	173	6554
4	173	89	1456	174	6673
5	185	90	1483	175	6793
6	197	91	1509	176	6916
7	209	92	1537	177	7041
8	221	93	1564	178	7168
9	233	94	1593	179	7298
10	245	95	1621	180	7430
11	257	96	1651	181	7564
12	269	97	1681	182	7700
13	281	98	1711	183	7840
14	293	99	1742	184	7981
15	305	100	1773	185	8125
16	317	101	1805	186	8272
17	329	102	1838	187	8422
18	341	103	1871	188	8574
19	353	104	1905	189	8729
20	365	105	1939	190	8886
21	377	106	1974	191	9047
22	389	107	2010	192	9210
23	401	108	2046	193	9377
24	413	109	2083	194	9546
25	425	110	2121	195	9719
26	437	111	2159	196	9894
27	449	112	2198	197	10073
28	461	113	2238	198	10255
29	473	114	2279	199	10440
30	485	115	2320	200	10629
31	497	116	2362	201	10821
32	509	117	2404	202	11017
33	521	118	2448	203	11216
34	533	119	2492	204	11418
35	545	120	2537	205	11625
36	557	121	2583	206	11835
37	569	122	2630	207	12048
38	581	123	2677	208	12266
39	593	124	2726	209	12488
40	605	125	2775	210	12713
41	616	126	2825	211	12943
42	627	127	2876	212	13177
43	639	128	2928	213	13415
44	650	129	2981	214	13657
45	662	130	3035	215	13904
46	674	131	3090	216	14155
47	686	132	3145	217	14411
48	699	133	3202	218	14671
49	711	134	3260	219	14936
50	724	135	3319	220	15206

51	737	136	3379	221	15481
52	751	137	3440	222	15761
53	764	138	3502	223	16045
54	778	139	3565	224	16335
55	792	140	3630	225	16630
56	806	141	3695	226	16931
57	821	142	3762	227	17237
58	836	143	3830	228	17548
59	851	144	3899	229	17865
60	866	145	3970	230	18188
61	882	146	4042	231	18517
62	898	147	4115	232	18851
63	914	148	4189	233	19192
64	931	149	4265	234	19538
65	947	150	4342	235	19891
66	964	151	4420	236	20251
67	982	152	4500	237	20617
68	1000	153	4581	238	20989
69	1018	154	4664	239	21368
70	1036	155	4748	240	21754
71	1055	156	4834	241	22147
72	1074	157	4921	242	22548
73	1093	158	5010	243	22955
74	1113	159	5101	244	23370
75	1133	160	5193	245	23792
76	1154	161	5287	246	24222
77	1175	162	5382	247	24659
78	1196	163	5480	248	25105
79	1217	164	5579	249	25558
80	1239	165	5680	250	26020
81	1262	166	5782	251	26490
82	1285	167	5887	252	26969
83	1308	168	5993	253	27456
84	1331	169	6101	254	27952
85	1356	170	6211		

Reference(s)

3GPP TS 25.321, 9.2.3, 9.2.3.1 and Annex A

7.1.5.6.3 Test purpose

To verify that the UE selects the correct transport block size based on the TFRI value signalled on the HS-SCCH.

7.1.5.6.4 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-5 IE “HS-DSCH physical layer category” (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

Definition of test variables:

N_{codes}	Number of HS-DSCH codes (1..15, maximum number dependent on UE category)
M	Type of modulation scheme (QPSK, 16QAM)
k_i	TFRI signalled on the HS-SCCH value
$K_{0,I}$	See table 7.1.5.6.2
k_t	Transport Block Size index (=k_i + $k_{0,I}$), see table 7.1.5.6.3
TB_{size}	Transport Block size
N_{PDUs}	Number of MAC-d PDUs
MAC-hs_header_size	MAC-hs header size for the reference HS-DSCH radio bearer configuration under test.
MAC-d_PDU_size	MAC-d PDU size for the reference HS-DSCH radio bearer configuration under test.

Table 7.1.5.6.2: Values of $k_{0,i}$ for different numbers of channelization codes and modulation schemes

Combination *I*	Modulation scheme	Number of channelization codes	$k_{0,i}$
0	QPSK	1	1
1		2	40
2		3	63
3		4	79
4		5	92
5		6	102
6		7	111
7		8	118
8		9	125
9		10	131
10		11	136
11		12	141
12		13	145
13		14	150
14		15	153
15	16QAM	1	40
16		2	79
17		3	102
18		4	118
19		5	131
20		6	141
21		7	150
22		8	157
23		9	164
24		10	169
25		11	175
26		12	180
27		13	184
28		14	188
29		15	192

Table 7.1.5.6.3: Mapping of HS-DSCH Transport Block Size for FDD to value of index k_t (=k_i + $k_{0,I}$)

Index	TB Size	Index	TB Size	Index	TB Size
1	137	86	1380	171	6324
2	149	87	1405	172	6438
3	161	88	1430	173	6554
4	173	89	1456	174	6673
5	185	90	1483	175	6793
6	197	91	1509	176	6916
7	209	92	1537	177	7041
8	221	93	1564	178	7168
9	233	94	1593	179	7298
10	245	95	1621	180	7430
11	257	96	1651	181	7564
12	269	97	1681	182	7700
13	281	98	1711	183	7840
14	293	99	1742	184	7981
15	305	100	1773	185	8125
16	317	101	1805	186	8272
17	329	102	1838	187	8422
18	341	103	1871	188	8574
19	353	104	1905	189	8729
20	365	105	1939	190	8886
21	377	106	1974	191	9047
22	389	107	2010	192	9210
23	401	108	2046	193	9377
24	413	109	2083	194	9546
25	425	110	2121	195	9719
26	437	111	2159	196	9894
27	449	112	2198	197	10073
28	461	113	2238	198	10255
29	473	114	2279	199	10440
30	485	115	2320	200	10629
31	497	116	2362	201	10821
32	509	117	2404	202	11017
33	521	118	2448	203	11216
34	533	119	2492	204	11418
35	545	120	2537	205	11625
36	557	121	2583	206	11835
37	569	122	2630	207	12048
38	581	123	2677	208	12266
39	593	124	2726	209	12488
40	605	125	2775	210	12713
41	616	126	2825	211	12943
42	627	127	2876	212	13177
43	639	128	2928	213	13415
44	650	129	2981	214	13657
45	662	130	3035	215	13904
46	674	131	3090	216	14155
47	686	132	3145	217	14411
48	699	133	3202	218	14671
49	711	134	3260	219	14936
50	724	135	3319	220	15206
51	737	136	3379	221	15481

52	751	137	3440	222	15761
53	764	138	3502	223	16045
54	778	139	3565	224	16335
55	792	140	3630	225	16630
56	806	141	3695	226	16931
57	821	142	3762	227	17237
58	836	143	3830	228	17548
59	851	144	3899	229	17865
60	866	145	3970	230	18188
61	882	146	4042	231	18517
62	898	147	4115	232	18851
63	914	148	4189	233	19192
64	931	149	4265	234	19538
65	947	150	4342	235	19891
66	964	151	4420	236	20251
67	982	152	4500	237	20617
68	1000	153	4581	238	20989
69	1018	154	4664	239	21368
70	1036	155	4748	240	21754
71	1055	156	4834	241	22147
72	1074	157	4921	242	22548
73	1093	158	5010	243	22955
74	1113	159	5101	244	23370
75	1133	160	5193	245	23792
76	1154	161	5287	246	24222
77	1175	162	5382	247	24659
78	1196	163	5480	248	25105
79	1217	164	5579	249	25558
80	1239	165	5680	250	26020
81	1262	166	5782	251	26490
82	1285	167	5887	252	26969
83	1308	168	5993	253	27456
84	1331	169	6101	254	27952
85	1356	170	6211		

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off

User Equipment:

UE in idle mode

The following parameters are specific for this test case:

Common for all UE categories:

Parameter	Value
MAC-d PDU size	336 bits
MAC-hs receiver window size	16
Number of HARQ processes	1
Number of reordering queues	1

UE Category 1 to 4:

Parameter	Value
RLC Transmission window size	128
RLC Receiving window size	512

UE Category 5 and 6:

Parameter	Value
RLC Transmission window size	256
RLC Receiving window size	512

UE Category 7 and 8:

Parameter	Value
RLC Transmission window size	512
RLC Receiving window size	1536

UE Category 9 and 10:

Parameter	Value
RLC Transmission window size	512
RLC Receiving window size	2047

UE Category 11 and 12:

Parameter	Value
RLC Transmission window size	128
RLC Receiving window size	1024

Test procedure

a) The SS establishes the reference radio bearer configuration "Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH" as specified in TS 34.108, clause 6.10.2.4.5.1. See note 1.

b) The SS closes the test loop using UE test loop mode 1 setting the UL RLC SDU size parameter to 39 octets (312 bits).

c) The SS sets M= QPSK.

d) The SS sets $N_{\underline{codes}}$ = 1.

e) The SS sets $k_{0,i}$ to the value according to table 7.1.5.6.2 based on the actual value of M and $N_{\underline{codes}}$.

f) The SS sets the test parameter k_i to 0.

g) The SS calculates the index value k_t (=k_i + $k_{0,I}$) and look up the transport block size, TB_{size}, for the actual k_t in table 7.1.5.6.3

If TB_{size} is bigger than the UE capability for "Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI" then SS continues with step n) else step h). See note 2.

h) The SS calculates the coding rate using $Coding\_rate = (TB_{size} + N_{CRC}) / (N_{codes} \cdot N_{phy\_bits})$.

If *Coding_rate* falls within any of the ranges defined in table 14.1.3.2.1 then SS continues with step m), else proceed with step i). See note 4.

i) The SS calculates the maximum number of MAC-d PDUs that fits into the MAC-hs transport block:

N_{PDUs} = floor((TB_{size} – *MAC-hs_header_size)* / *MAC-d_PDU_size)*

If N_{PDUs} is bigger than 70 then SS continues with step n) else j).

j) The SS creates a MAC-hs PDU of size TB_{size} containing N_{PDUs} MAC-d PDUs + padding. The payload data of the MAC-d PDUs contains 4 RLC SDUs of size N_{PDUs} * MAC-d PDU payload size / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). See note 3.

k) The SS configures the HARQ transmission parameters according to TS 34.108 [9], table 6.1.5.1 based on the actual value of *M*. Then the SS transmits the MAC-hs PDU.

l) The SS checks that the UE returned RLC SDUs has the same content as the first 312 bits of the test data sent by the SS in downlink.

m) The SS increments the test parameter k_i by 1. If k_i is less than 63 then SS repeats steps g) to m).

n) The SS increments the test parameter $N_{\underline{codes}}$ *by 1*. If $N_{\underline{codes}}$ is less or equal to the UE capability for *"Maximum number of HS-DSCH codes received"* then the SS repeats test steps e) to n) else continue with step o). See note 2.

o) If *Modulation* = QPSK and UE capability for *"Supported modulation"* is 16QAM then the SS sets the test parameter *Modulation* to 16QAM and repeats steps d) to o) else continue with step p). See note 2.

p) The SS opens the UE test loop.

q) The SS release the radio bearer.

r) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The SS configures the physical channel parameters according to the actual UE category under test.

NOTE 2: See table 14.1.3.1.1 in section 14.1.3.1 for FDD HS-DSCH physical layer and RLC and MAC-hs capability parameters and there values for different UE FDD HS-DSCH physical layer categories (UE categories). The capability parameters having impact on the test procedure are: "Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI", *"Maximum number of HS-DSCH codes received" and "Supported modulation"*

NOTE 3: The test data for transport channels on HS-DSCH is divided into 4 RLC SDUs to keep the SDU size not to exceed 1500 octets (limit of SDU size in SM).

NOTE 4: See table 14.1.3.2.1 in section 14.1.3.2 for those values of coding rate that must be avoided because of turbo coder irregularities.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
2	<--		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
4	<--		RRC CONNECTION SETUP (CCCH)	RRC
5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6	-->		SERVICE REQUEST (DCCH)	GMM
7	<--		SECURITY MODE COMMAND	RRC see note 1
8	-->		SECURITY MODE COMPLETE	RRC see note 1
9	<--		ACTIVATE RB TEST MODE (DCCH)	TC
10	-->		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
11	<--		RADIO BEARER SETUP (DCCH)	RRC. For the PS radio bearer the 'pdcp info' IE shall be omitted.
12	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
13	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is set to 39 octets
14	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
15	SS			The SS calculates test data for the first TFRC (TFRI,N_{codes} and *M*).
16	<--		DOWNLINK MAC-hs PDU (4 x RLC SDU)	Send test data. The MAC-hs PDU contains 4 RLC SDUs
17	-->		UPLINK RLC SDUs	The SS checks that the content of the received UL RLC SDUs are correct
18	SS			The SS calculates test data for next TFRC and repeat steps 16 to 18 until all TFRCs have been tested.
19	<--		OPEN UE TEST LOOP (DCCH)	TC
20	-->		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
21			RB RELEASE	RRC
22	<--		DEACTIVATE RB TEST MODE	TC Optional step
23	-->		DEACTIVATE RB TEST MODE COMPLETE	TC Optional step
Note 1: In addition to activate integrity protection Step 6 and Step 7 are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.				

7.1.5.6.5 Test requirements

For each TFRC the UE shall return a UL RLC SDUs with the same content as the first 312 bits of the test data sent by the SS in downlink.

7.1.5.6a MAC-hs transport block size selection (1.28 Mcps TDD)

7.1.5.6a.1 Definition and applicability

All 1.28 Mcps TDD UEs which support HS-PDSCH.

7.1.5.6a.2 Conformance requirement

The mapping of transport block size, in bits, to TFRI value is dependent upon the UE's HS-DSCH capability class.

When MAC-hs is used, the bit aligned table of transport block size defined as following shall be used.

If k is the signalled TFRI value then the corresponding HS-DSCH transport block size L_k is given by:

If k = 1..62

$$L_k = \lfloor L_{\min} p^{k-1} \rfloor$$

where

$p = \frac{6214}{5973}$ if the HS-DSCH physical layer category is between 1 and 3 inclusively,

$p = \frac{1292}{1228}$ if the HS-DSCH physical layer category is between 4 and 6 inclusively,

$p = \frac{1901}{1795}$ if the HS-DSCH physical layer category is between 7 and 9 inclusively,

$p = \frac{9445}{8877}$ if the HS-DSCH physical layer category is between 10 and 12 inclusively,

$p = \frac{2345}{2196}$ if the HS-DSCH physical layer category is between 13 and 15 inclusively,

and

$L_{\min} = 240$

If $k = 63$ then,

L_k = 2788 if the HS-DSCH physical layer category is between 1 and 3 inclusively,

5600 if the HS-DSCH physical layer category is between 4 and 6 inclusively,

8416 if the HS-DSCH physical layer category is between 7 and 9 inclusively,

11226 if the HS-DSCH physical layer category is between 10 and 12 inclusively,

14043 if the HS-DSCH physical layer category is between 13 and 15 inclusively.

If k=0, L_k indicates NULL and shall not be used to signal a transport block size in the TFRI.

Transport block sizes calculated by this formula shall equal the values indicated in the following tables: –

Table 7.1.5.6a.1: HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [1, 3], bit aligned

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	434	32	817	48	1540
1	240	17	451	33	851	49	1602
2	249	18	470	34	885	50	1667
3	259	19	489	35	921	51	1734
4	270	20	508	36	958	52	1804
5	281	21	529	37	996	53	1877
6	292	22	550	38	1037	54	1952
7	304	23	572	39	1078	55	2031
8	316	24	596	40	1122	56	2113
9	329	25	620	41	1167	57	2198
10	342	26	645	42	1214	58	2287
11	356	27	671	43	1263	59	2380
12	370	28	698	44	1314	60	2476
13	385	29	726	45	1367	61	2575
14	401	30	755	46	1423	62	2679
15	417	31	786	47	1480	63	2788

Table 7.1.5.6a.2: HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [4, 6], bit aligned

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	514	32	1159	48	2613
1	240	17	541	33	1219	49	2749
2	252	18	569	34	1283	50	2893
3	265	19	598	35	1350	51	3043
4	279	20	630	36	1420	52	3202
5	294	21	662	37	1494	53	3369
6	309	22	697	38	1572	54	3544
7	325	23	733	39	1654	55	3729
8	342	24	772	40	1740	56	3924
9	360	25	812	41	1831	57	4128
10	379	26	854	42	1926	58	4343
11	398	27	899	43	2027	59	4570
12	419	28	946	44	2132	60	4808
13	441	29	995	45	2244	61	5058
14	464	30	1047	46	2361	62	5322
15	488	31	1101	47	2484	63	5600

Table 7.1.5.6a.3: HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [7, 9], bit aligned

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	567	32	1421	48	3559
1	240	17	601	33	1505	49	3769
2	254	18	636	34	1594	50	3991
3	269	19	674	35	1688	51	4227
4	285	20	713	36	1787	52	4477
5	301	21	756	37	1893	53	4741
6	319	22	800	38	2005	54	5021
7	338	23	848	39	2123	55	5318
8	358	24	898	40	2249	56	5632
9	379	25	951	41	2381	57	5964
10	402	26	1007	42	2522	58	6317
11	425	27	1066	43	2671	59	6690
12	451	28	1129	44	2829	60	7085
13	477	29	1196	45	2996	61	7503
14	505	30	1267	46	3173	62	7946
15	535	31	1341	47	3360	63	8416

Table 7.1.5.6a.4: HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [10, 12], bit aligned

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	608	32	1641	48	4427
1	240	17	647	33	1746	49	4711
2	255	18	688	34	1858	50	5012
3	271	19	732	35	1977	51	5333
4	289	20	779	36	2103	52	5674
5	307	21	829	37	2238	53	6037
6	327	22	882	38	2381	54	6424
7	348	23	939	39	2533	55	6835
8	370	24	999	40	2695	56	7272
9	394	25	1063	41	2868	57	7737
10	419	26	1131	42	3051	58	8232
11	446	27	1203	43	3247	59	8759
12	474	28	1280	44	3455	60	9320
13	505	29	1362	45	3676	61	9916
14	537	30	1449	46	3911	62	10550
15	571	31	1542	47	4161	63	11226

Table 7.1.5.6a.5: HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [13,15], bit aligned

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	642	32	1836	48	5250
1	240	17	686	33	1961	49	5606
2	256	18	732	34	2094	50	5987
3	273	19	782	35	2236	51	6393
4	292	20	835	36	2388	52	6827
5	312	21	892	37	2550	53	7290
6	333	22	952	38	2723	54	7785
7	355	23	1017	39	2908	55	8313
8	380	24	1086	40	3105	56	8877
9	405	25	1160	41	3316	57	9479
10	433	26	1238	42	3541	58	10123
11	462	27	1322	43	3781	59	10809
12	494	28	1412	44	4037	60	11543
13	527	29	1508	45	4311	61	12326
14	563	30	1610	46	4604	62	13162
15	601	31	1719	47	4916	63	14043

Reference(s)

3GPP TS 25.321 Section 9.2.3.3.

7.1.5.6a.3 Test purpose

To verify that the UE selects the correct transport block size based on the TFRI value signalled on the HS-SCCH.

7.1.5.6a.4 Method of test

Definition of test variables:

N_{slots}	Number of HS-DSCH slots (1- 6 dependent on UE category)
N_{codes}	Number of HS-DSCH codes per timeslot, 1 to 16
k	TFRI signalled on the HS-SCCH value (see Table 7.1.5.6a.2)
TB_{size}	Transport Block size (see Table 7.1.5.6a.2)
N_{PDUs}	Number of MAC-d PDUs
MAC-hs_header_size	MAC-hs header size for the reference HS-DSCH radio bearer configuration under test.
MAC-d_PDU_size	MAC-d PDU size for the reference HS-DSCH radio bearer configuration under test.

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off

User Equipment:

UE in idle mode

The following parameters are specific for this test case:

Common for all UE categories:

Parameter	Value
MAC-d PDU size	336 bits
MAC-hs receiver window size	16
Number of HARQ processes	1
Number of reordering queues	1

UE Category 1 to 3:

Parameter	Value
RLC Transmission window size	128
RLC Receiving window size	512

UE Category 4and 6

Parameter	Value
RLC Transmission window size	256
RLC Receiving window size	512

UE Category 7 and 9:

Parameter	Value
RLC Transmission window size	512
RLC Receiving window size	1536

UE Category 10and 12:

Parameter	Value
RLC Transmission window size	512
RLC Receiving window size	1536

UE Category 13and 15:

Parameter	Value
RLC Transmission window size	512
RLC Receiving window size	1536

Test procedure

a) The SS establishes the reference radio bearer configuration "Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH" as specified in TS 34.108, clause 6.10.3.4.6.1. See note 1.

b) The SS closes the test loop using UE test loop mode 1 setting the UL RLC SDU size parameter to 39 octets (312 bits).

c) The SS sets N_{slots} =*3*.

d) The SS sets $N_{\underline{codes}}$ = 1.

e) The SS calculates TB_{size} and k for N_{slots} and N_{codes} according to table 7.1.5.6a.2

f) If TB_{size} is bigger than the UE capability for "Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI" then SS continues with step l) else step g). See note 2.

g) The SS calculates the maximum number of MAC-d PDUs that fits into the MAC-hs transport block:

$$N_{PDUs} = \text{floor}((TB_{size} - MAC\text{-}hs\_header\_size) / MAC\text{-}d\_PDU\_size)$$

If N_{PDUs} is bigger than 45 then SS continues with step m) else i).

h) The SS creates a MAC-hs PDU of size TB_{size} containing N_{PDUs} MAC-d PDUs + padding. The payload data of the MAC-d PDUs contains 4 RLC SDUs of size N_{PDUs} * MAC-d PDU payload size / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). See note 3.

i) The SS transmits the MAC-hs PDU.

j) The SS checks that the UE returned RLC SDUs has the same content as the first 312 bits of the test data sent by the SS in downlink.

k) The SS increments N_{codes} by 1.If N_{codes} is $\leq$16 then SS repeats steps e) to k).

l) The SS sets $N_{\underline{slots}}$ *to the next category supported by the UE and repeats steps d) to l).* If there are no more categories supported by the UE (i.e. all categories have been tested) then the test is completed via steps m) through q). See note 2.

m) The SS opens the UE test loop.

n) The SS release the radio bearer.

o) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The SS configures the physical channel parameters according to the actual UE category under test.

NOTE 2: See 34.108 6.11for 1.28 Mcps TDD HS-DSCH physical layer, RLC and MAC-hs capability parameters and the values for different UE 3.84 Mcps TDD HS-DSCH physical layer categories (UE categories). The capability parameters having impact on the test procedure are: "Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI" and "Maximum number of HS-DSCH timeslots per TTI"

NOTE 3: The test data for transport channels on HS-DSCH is divided into 4 RLC SDUs to keep the SDU size not to exceed 1500 octets (limit of SDU size in SM).

Expected sequence:

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
2	<--		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
4	<--		RRC CONNECTION SETUP (CCCH)	RRC
5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6	-->		SERVICE REQUEST (DCCH)	GMM
7	<--		SECURITY MODE COMMAND	RRC see note 1
8	-->		SECURITY MODE COMPLETE	RRC see note 1
9	<--		ACTIVATE RB TEST MODE (DCCH)	TC
10	-->		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
11	<--		RADIO BEARER SETUP (DCCH)	RRC. For the PS radio bearer the 'pdcp info' IE shall be omitted.
12	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
13	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is set to 39 octets
14	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
15	SS			The SS calculates test data for the first TFRC
16	<--		DOWNLINK MAC-hs PDU (4 x RLC SDU)	Send test data. The MAC-hs PDU contains 4 RLC SDUs
17	-->		UPLINK RLC SDUs	The SS checks that the content of the received UL RLC SDUs are correct
18	SS			The SS calculates test data for next TFRC and repeat steps 16 to 18 until all TFRCs have been tested.
19	<--		OPEN UE TEST LOOP (DCCH)	TC
20	-->		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
21			RB RELEASE	RRC
22	<--		DEACTIVATE RB TEST MODE	TC Optional step
23	-->		DEACTIVATE RB TEST MODE COMPLETE	TC Optional step
Note 1: In addition to activate integrity protection Step 6 and Step 7 are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.				

7.1.5.6a.5 Test requirements

For each TFRC the UE shall return a UL RLC SDUs with the same content as the first 312 bits of the test data sent by the SS in downlink.

7.1.5.7 MAC-hs transport block size selection (3.84 Mcps TDD)

7.1.5.7.1 Definition and applicability

All 3.84 Mcps TDD UEs which support HS-PDSCH.

7.1.5.7.2 Conformance requirement

For HS-DSCH the transport block size is derived from the value signalled on the HS-SCCH. The mapping between the TFRI value and the transport block size for each mode is specified below:

Let k be the signalled TFRI value, then the corresponding HS-DSCH transport block size L_k is given by:

If k=1..510

$$L_k = \lfloor L_{\min} p^k \rfloor$$

$$p = \frac{8313}{8192}$$

$$L_{\min} = 57$$

If k = 511

L_k = 102000

If k=0, L_k indicates NULL and shall not be used to signal a transport block size in the TFRI.

Transport block sizes calculated by this formula shall equal the values indicated in Table 7.1.5.7.2

Table 7.1.5.7.2: HSDPA Transport Block Sizes for 3.84 Mcps TDD

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	128	372	256	2432	384	15890
1	57	129	377	257	2468	385	16124
2	58	130	383	258	2504	386	16362
3	59	131	389	259	2541	387	16604
4	60	132	394	260	2579	388	16849
5	61	133	400	261	2617	389	17098
6	62	134	406	262	2656	390	17351
7	63	135	412	263	2695	391	17607
8	64	136	418	264	2735	392	17867
9	65	137	424	265	2775	393	18131
10	66	138	431	266	2816	394	18399
11	66	139	437	267	2858	395	18671
12	67	140	443	268	2900	396	18946
13	68	141	450	269	2943	397	19226
14	69	142	457	270	2986	398	19510
15	71	143	463	271	3030	399	19798
16	72	144	470	272	3075	400	20091
17	73	145	477	273	3121	401	20388
18	74	146	484	274	3167	402	20689
19	75	147	491	275	3213	403	20994
20	76	148	499	276	3261	404	21304
21	77	149	506	277	3309	405	21619
22	78	150	514	278	3358	406	21938
23	79	151	521	279	3408	407	22263
24	81	152	529	280	3458	408	22591
25	82	153	537	281	3509	409	22925
26	83	154	545	282	3561	410	23264
27	84	155	553	283	3613	411	23607
28	85	156	561	284	3667	412	23956
29	87	157	569	285	3721	413	24310
30	88	158	578	286	3776	414	24669
31	89	159	586	287	3832	415	25033
32	91	160	595	288	3888	416	25403
33	92	161	604	289	3946	417	25778
34	93	162	613	290	4004	418	26159
35	95	163	622	291	4063	419	26545
36	96	164	631	292	4123	420	26938
37	98	165	640	293	4184	421	27335
38	99	166	650	294	4246	422	27739
39	100	167	659	295	4309	423	28149
40	102	168	669	296	4372	424	28565
41	103	169	679	297	4437	425	28987
42	105	170	689	298	4502	426	29415

43	107	171	699	299	4569	427	29849
44	108	172	709	300	4636	428	30290
45	110	173	720	301	4705	429	30738
46	111	174	730	302	4774	430	31192
47	113	175	741	303	4845	431	31652
48	115	176	752	304	4916	432	32120
49	116	177	763	305	4989	433	32594
50	118	178	775	306	5063	434	33076
51	120	179	786	307	5138	435	33564
52	122	180	798	308	5213	436	34060
53	123	181	809	309	5290	437	34563
54	125	182	821	310	5369	438	35074
55	127	183	834	311	5448	439	35592
56	129	184	846	312	5528	440	36117
57	131	185	858	313	5610	441	36651
58	133	186	871	314	5693	442	37192
59	135	187	884	315	5777	443	37742
60	137	188	897	316	5862	444	38299
61	139	189	910	317	5949	445	38865
62	141	190	924	318	6037	446	39439
63	143	191	937	319	6126	447	40021
64	145	192	951	320	6217	448	40613
65	147	193	965	321	6308	449	41212
66	150	194	980	322	6402	450	41821
67	152	195	994	323	6496	451	42439
68	154	196	1009	324	6592	452	43066
69	156	197	1024	325	6689	453	43702
70	159	198	1039	326	6788	454	44347
71	161	199	1054	327	6889	455	45002
72	163	200	1070	328	6990	456	45667
73	166	201	1085	329	7094	457	46342
74	168	202	1101	330	7198	458	47026
75	171	203	1118	331	7305	459	47721
76	173	204	1134	332	7413	460	48426
77	176	205	1151	333	7522	461	49141
78	178	206	1168	334	7633	462	49867
79	181	207	1185	335	7746	463	50603
80	184	208	1203	336	7860	464	51351
81	186	209	1221	337	7976	465	52109
82	189	210	1239	338	8094	466	52879
83	192	211	1257	339	8214	467	53660
84	195	212	1276	340	8335	468	54453
85	198	213	1294	341	8458	469	55257
86	201	214	1313	342	8583	470	56073
87	204	215	1333	343	8710	471	56901
88	207	216	1353	344	8839	472	57742
89	210	217	1373	345	8969	473	58595
90	213	218	1393	346	9102	474	59460
91	216	219	1413	347	9236	475	60338
92	219	220	1434	348	9373	476	61230

93	222	221	1456	349	9511	477	62134
94	226	222	1477	350	9652	478	63052
95	229	223	1499	351	9794	479	63983
96	232	224	1521	352	9939	480	64928
97	236	225	1543	353	10086	481	65887
98	239	226	1566	354	10235	482	66860
99	243	227	1589	355	10386	483	67848
100	246	228	1613	356	10539	484	68850
101	250	229	1637	357	10695	485	69867
102	254	230	1661	358	10853	486	70899
103	258	231	1685	359	11013	487	71946
104	261	232	1710	360	11176	488	73009
105	265	233	1736	361	11341	489	74087
106	269	234	1761	362	11508	490	75182
107	273	235	1787	363	11678	491	76292
108	277	236	1814	364	11851	492	77419
109	281	237	1840	365	12026	493	78563
110	285	238	1868	366	12204	494	79723
111	290	239	1895	367	12384	495	80901
112	294	240	1923	368	12567	496	82095
113	298	241	1952	369	12752	497	83308
114	303	242	1981	370	12941	498	84539
115	307	243	2010	371	13132	499	85787
116	312	244	2039	372	13326	500	87054
117	316	245	2070	373	13523	501	88340
118	321	246	2100	374	13722	502	89645
119	326	247	2131	375	13925	503	90969
120	331	248	2163	376	14131	504	92313
121	336	249	2195	377	14340	505	93676
122	340	250	2227	378	14551	506	95060
123	346	251	2260	379	14766	507	96464
124	351	252	2293	380	14984	508	97889
125	356	253	2327	381	15206	509	99335
126	361	254	2362	382	15430	510	100802
127	366	255	2397	383	15658	511	102000

Reference(s)

3GPP TS 25.321 Section 9.2.3.2

7.1.5.7.3 Test purpose

To verify that the UE selects the correct transport block size based on the TFRI value signalled on the HS-SCCH.

7.1.5.7.4 Method of test

Definition of test variables:

$N_{\underline{slots}}$ Number of HS-DSCH slots (2, 4, 6 or 12 dependent on UE category)

N_{codes} Number of HS-DSCH codes per timeslot, 1 to 16

k	TFRI signalled on the HS-SCCH value (see Table 7.1.5.7.2)
TB_{size}	Transport Block size (see Table 7.1.5.7.2)
N_{PDUs}	Number of MAC-d PDUs
MAC-hs_header_size	MAC-hs header size for the reference HS-DSCH radio bearer configuration under test.
MAC-d_PDU_size	MAC-d PDU size for the reference HS-DSCH radio bearer configuration under test.

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off

User Equipment:

UE in idle mode

The following parameters are specific for this test case:

Common for all UE categories:

Parameter	Value
MAC-d PDU size	336 bits
MAC-hs receiver window size	16
Number of HARQ processes	1
Number of reordering queues	1

UE Category 1 to 4:

Parameter	Value
RLC Transmission window size	128
RLC Receiving window size	512

UE Category 5 and 6:

Parameter	Value
RLC Transmission window size	256
RLC Receiving window size	512

UE Category 7 and 8:

Parameter	Value
RLC Transmission window size	512
RLC Receiving window size	1536

UE Category 9:

Parameter	Value
RLC Transmission window size	512
RLC Receiving window size	2047

Test procedure

a) The SS establishes the reference radio bearer configuration “Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH” as specified in TS 34.108, clause 6.10.3.4.6.1. See note 1.

b) The SS closes the test loop using UE test loop mode 1 setting the UL RLC SDU size parameter to 39 octets (312 bits).

c) The SS sets N_{slots} = *2*.

d) The SS sets N_{codes} = 1.

e) The SS calculates TB_{size} and k for N_{slots} and N_{codes} according to table 7.1.5.7.2

f) If TB_{size} is bigger than the UE capability for "Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI" then SS continues with step l) else step g). See note 2.

g) The SS calculates the maximum number of MAC-d PDUs that fits into the MAC-hs transport block:

N_{PDUs} = floor((TB_{size} – *MAC-hs_header_size)* / *MAC-d_PDU_size)*

If N_{PDUs} is bigger than 318 then SS continues with step m) else i).

h) The SS creates a MAC-hs PDU of size TB_{size} containing N_{PDUs} MAC-d PDUs + padding. The payload data of the MAC-d PDUs contains 4 RLC SDUs of size N_{PDUs} * MAC-d PDU payload size / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). See note 3.

i) The SS transmits the MAC-hs PDU.

j) The SS checks that the UE returned RLC SDUs has the same content as the first 312 bits of the test data sent by the SS in downlink.

k) The SS increments N_{codes} by 1.If N_{codes} is ≤16 then SS repeats steps e) to k).

l) The SS sets N_{slots} *to the next category supported by the UE and repeats steps d) to l).* If there are no more categories supported by the UE (i.e. all categories have been tested) then the test is completed via steps m) through q). See note 2.

m) The SS opens the UE test loop.

n) The SS release the radio bearer.

o) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The SS configures the physical channel parameters according to the actual UE category under test.

NOTE 2: See table 18.2.1.4.1.1 in section 18.2.1.4.1 for 3.84 Mcps TDD HS-DSCH physical layer, RLC and MAC-hs capability parameters and the values for different UE 3.84 Mcps TDD HS-DSCH physical layer categories (UE categories). The capability parameters having impact on the test procedure are: "Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI" and "Maximum number of HS-DSCH timeslots per TTI"

NOTE 3: The test data for transport channels on HS-DSCH is divided into 4 RLC SDUs to keep the SDU size not to exceed 1500 octets (limit of SDU size in SM).

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
2	<--		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
4	<--		RRC CONNECTION SETUP (CCCH)	RRC
5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6	-->		SERVICE REQUEST (DCCH)	GMM
7	<--		SECURITY MODE COMMAND	RRC see note 1
8	-->		SECURITY MODE COMPLETE	RRC see note 1
9	<--		ACTIVATE RB TEST MODE (DCCH)	TC
10	-->		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
11	<--		RADIO BEARER SETUP (DCCH)	RRC. For the PS radio bearer the 'pdcp info' IE shall be omitted.
12	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
13	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is set to 39 octets
14	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
15	SS			The SS calculates test data for the first TFRC
16	<--		DOWNLINK MAC-hs PDU (4 x RLC SDU)	Send test data. The MAC-hs PDU contains 4 RLC SDUs
17	-->		UPLINK RLC SDUs	The SS checks that the content of the received UL RLC SDUs are correct
18	SS			The SS calculates test data for next TFRC and repeat steps 16 to 18 until all TFRCs have been tested.
19	<--		OPEN UE TEST LOOP (DCCH)	TC
20	-->		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
21			RB RELEASE	RRC
22	<--		DEACTIVATE RB TEST MODE	TC Optional step
23	-->		DEACTIVATE RB TEST MODE COMPLETE	TC Optional step
Note 1: In addition to activate integrity protection Step 6 and Step 7 are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.				

7.1.5.7.5 Test requirements

For each TFRC the UE shall return a UL RLC SDUs with the same content as the first 312 bits of the test data sent by the SS in downlink.

7.1.5.8 MAC-hs transport block size selection (7.68 Mcps TDD)

7.1.5.8.1 Definition and applicability

All 7.68 Mcps TDD UEs which support HS-PDSCH.

7.1.5.8.2 Conformance requirement

For HS-DSCH the transport block size is derived from the value signalled on the HS-SCCH. The mapping between the TFRI value and the transport block size for each mode is specified below:

Let k be the signalled TFRI value, then the corresponding HS-DSCH transport block size L_k is given by:

If k=1..510

$$L_k = \lfloor L_{\min} p^k \rfloor$$

$$p = \frac{33297}{32768}$$

$$L_{\min} = 57$$

If k = 511

L_k = 204000

If k=0, L_k indicates NULL and shall not be used to signal a transport block size in the TFRI.

Transport block sizes calculated by this formula shall equal the values indicated in Table 7.1.5.8.2

Table 7.1.5.8.2: HSDPA Transport Block Sizes for 7.68 Mcps TDD

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	128	442	256	3438	384	26709
1	57	129	449	257	3494	385	27140
2	58	130	457	258	3550	386	27578
3	59	131	464	259	3607	387	28023
4	60	132	472	260	3666	388	28476
5	61	133	479	261	3725	389	28935
6	62	134	487	262	3785	390	29402
7	63	135	495	263	3846	391	29877
8	64	136	503	264	3908	392	30360
9	65	137	511	265	3971	393	30850
10	66	138	519	266	4035	394	31348
11	67	139	528	267	4101	395	31854
12	69	140	536	268	4167	396	32368
13	70	141	545	269	4234	397	32891
14	71	142	553	270	4302	398	33422
15	72	143	562	271	4372	399	33961
16	73	144	572	272	4443	400	34509
17	74	145	581	273	4514	401	35066
18	76	146	590	274	4587	402	35633
19	77	147	600	275	4661	403	36208
20	78	148	609	276	4736	404	36792
21	79	149	619	277	4813	405	37386
22	81	150	629	278	4891	406	37990
23	82	151	639	279	4970	407	38603
24	83	152	650	280	5050	408	39226
25	85	153	660	281	5131	409	39860
26	86	154	671	282	5214	410	40503
27	87	155	682	283	5298	411	41157
28	89	156	693	284	5384	412	41822
29	90	157	704	285	5471	413	42497
30	92	158	715	286	5559	414	43183
31	93	159	727	287	5649	415	43880
32	95	160	739	288	5740	416	44588
33	96	161	751	289	5833	417	45308
34	98	162	763	290	5927	418	46040
35	99	163	775	291	6023	419	46783

36	101	164	787	292	6120	420	47538
37	103	165	800	293	6219	421	48306
38	104	166	813	294	6319	422	49085
39	106	167	826	295	6421	423	49878
40	108	168	840	296	6525	424	50683
41	109	169	853	297	6630	425	51501
42	111	170	867	298	6737	426	52333
43	113	171	881	299	6846	427	53178
44	115	172	895	300	6957	428	54036
45	117	173	910	301	7069	429	54908
46	119	174	924	302	7183	430	55795
47	120	175	939	303	7299	431	56696
48	122	176	954	304	7417	432	57611
49	124	177	970	305	7537	433	58541
50	126	178	986	306	7658	434	59486
51	128	179	1001	307	7782	435	60446
52	131	180	1018	308	7908	436	61422
53	133	181	1034	309	8035	437	62414
54	135	182	1051	310	8165	438	63421
55	137	183	1068	311	8297	439	64445
56	139	184	1085	312	8431	440	65486
57	142	185	1103	313	8567	441	66543
58	144	186	1120	314	8705	442	67617
59	146	187	1138	315	8846	443	68709
60	148	188	1157	316	8988	444	69818
61	151	189	1175	317	9134	445	70945
62	153	190	1194	318	9281	446	72091
63	156	191	1214	319	9431	447	73254
64	158	192	1233	320	9583	448	74437
65	161	193	1253	321	9738	449	75639
66	164	194	1274	322	9895	450	76860
67	166	195	1294	323	10055	451	78101
68	169	196	1315	324	10217	452	79361
69	172	197	1336	325	10382	453	80643
70	174	198	1358	326	10550	454	81945
71	177	199	1380	327	10720	455	83267
72	180	200	1402	328	10893	456	84612
73	183	201	1425	329	11069	457	85978
74	186	202	1448	330	11248	458	87366
75	189	203	1471	331	11429	459	88776
76	192	204	1495	332	11614	460	90209
77	195	205	1519	333	11801	461	91666
78	198	206	1543	334	11992	462	93145
79	201	207	1568	335	12185	463	94649
80	205	208	1594	336	12382	464	96177
81	208	209	1619	337	12582	465	97730
82	211	210	1646	338	12785	466	99308
83	215	211	1672	339	12992	467	100911
84	218	212	1699	340	13201	468	102540
85	222	213	1727	341	13414	469	104195

86	225	214	1755	342	13631	470	105877
87	229	215	1783	343	13851	471	107587
88	233	216	1812	344	14075	472	109324
89	237	217	1841	345	14302	473	111088
90	240	218	1871	346	14533	474	112882
91	244	219	1901	347	14767	475	114704
92	248	220	1932	348	15006	476	116556
93	252	221	1963	349	15248	477	118438
94	256	222	1994	350	15494	478	120350
95	260	223	2027	351	15744	479	122293
96	265	224	2059	352	15999	480	124267
97	269	225	2093	353	16257	481	126273
98	273	226	2126	354	16519	482	128312
99	278	227	2161	355	16786	483	130383
100	282	228	2196	356	17057	484	132488
101	287	229	2231	357	17332	485	134627
102	291	230	2267	358	17612	486	136800
103	296	231	2304	359	17897	487	139009
104	301	232	2341	360	18185	488	141253
105	306	233	2379	361	18479	489	143533
106	311	234	2417	362	18777	490	145850
107	316	235	2456	363	19081	491	148205
108	321	236	2496	364	19389	492	150597
109	326	237	2536	365	19702	493	153029
110	331	238	2577	366	20020	494	155499
111	337	239	2619	367	20343	495	158010
112	342	240	2661	368	20671	496	160560
113	348	241	2704	369	21005	497	163152
114	353	242	2748	370	21344	498	165786
115	359	243	2792	371	21689	499	168463
116	365	244	2837	372	22039	500	171182
117	371	245	2883	373	22395	501	173946
118	377	246	2929	374	22756	502	176754
119	383	247	2977	375	23124	503	179608
120	389	248	3025	376	23497	504	182507
121	395	249	3074	377	23876	505	185454
122	402	250	3123	378	24262	506	188447
123	408	251	3174	379	24653	507	191490
124	415	252	3225	380	25051	508	194581
125	421	253	3277	381	25456	509	197722
126	428	254	3330	382	25867	510	200914
127	435	255	3384	383	26284	511	204000

Reference(s)

3GPP TS 25.321 Section 9.2.3.2a

7.1.5.8.3 Test purpose

To verify that the UE selects the correct transport block size based on the TFRI value signalled on the HS-SCCH.

7.1.5.8.4 Method of test

Definition of test variables:

N_{slots}	Number of HS-DSCH slots (1, 2, 3, 4, 5, 8 or 12 dependent on UE category)
N_{codes}	Number of HS-DSCH codes per timeslot, 1 to 16
k	TFRI signalled on the HS-SCCH value (see Table 7.1.5.8.2)
TB_{size}	Transport Block size (see Table 7.1.5.8.2)
N_{PDUs}	Number of MAC-d PDUs
MAC-hs_header_size	MAC-hs header size for the reference HS-DSCH radio bearer configuration under test.
MAC-d_PDU_size	MAC-d PDU size for the reference HS-DSCH radio bearer configuration under test.

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off

User Equipment:

UE in idle mode

The following parameters are specific for this test case:

Common for all UE categories:

Parameter	Value
MAC-d PDU size	336 bits
MAC-hs receiver window size	16
Number of HARQ processes	1
Number of reordering queues	1

UE Category 1 to 4:

Parameter	Value
RLC Transmission window size	128
RLC Receiving window size	512

UE Category 5 and 6:

Parameter	Value
RLC Transmission window size	256
RLC Receiving window size	512

UE Category 7 to 10:

Parameter	Value
RLC Transmission window size	512
RLC Receiving window size	1536

UE Category 11 to 12:

Parameter	Value
RLC Transmission window size	768
RLC Receiving window size	3072

UE Category 13:

Parameter	Value
RLC Transmission window size	1024
RLC Receiving window size	4095

Test procedure

a) The SS establishes the reference radio bearer configuration "Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH" as specified in TS 34.108, clause 6.10.3.4.6.1. See note 1.

b) The SS closes the test loop using UE test loop mode 1 setting the UL RLC SDU size parameter to 39 octets (312 bits).

c) The SS sets N_{slots} = *2*.

d) The SS sets N_{codes} = 1.

e) The SS calculates TB_{size} and k for N_{slots} and N_{codes} according to table 7.1.5.8.2

f) If TB_{size} is bigger than the UE capability for "Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI" then SS continues with step l) else step g). See note 2.

g) The SS calculates the maximum number of MAC-d PDUs that fits into the MAC-hs transport block:

N_{PDUs} = floor((TB_{size} – *MAC-hs_header_size)* / *MAC-d_PDU_size)*

If N_{PDUs} is bigger than 318 then SS continues with step m) else i).

h) The SS creates a MAC-hs PDU of size TB_{size} containing N_{PDUs} MAC-d PDUs + padding. The payload data of the MAC-d PDUs contains 4 RLC SDUs of size N_{PDUs} * MAC-d PDU payload size / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). See note 3.

i) The SS transmits the MAC-hs PDU.

j) The SS checks that the UE returned RLC SDUs has the same content as the first 312 bits of the test data sent by the SS in downlink.

k) The SS increments N_{codes} by 1.If N_{codes} is $\leq$16 then SS repeats steps e) to k).

l) The SS sets N_{slots} *to the next category supported by the UE and repeats steps d) to l)*. If there are no more categories supported by the UE (i.e. all categories have been tested) then the test is completed via steps m) through q). See note 2.

m) The SS opens the UE test loop.

n) The SS release the radio bearer.

o) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The SS configures the physical channel parameters according to the actual UE category under test.

NOTE 2: See table 18.2.1.4.1.1 in section 18.2.1.4.1 for 3.84 Mcps TDD HS-DSCH physical layer, RLC and MAC-hs capability parameters and the values for different UE 3.84 Mcps TDD HS-DSCH physical layer categories (UE categories). The capability parameters having impact on the test procedure are: "Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI" and "Maximum number of HS-DSCH timeslots per TTI"

NOTE 3: The test data for transport channels on HS-DSCH is divided into 4 RLC SDUs to keep the SDU size not to exceed 1500 octets (limit of SDU size in SM).

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
2	<--		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
4	<--		RRC CONNECTION SETUP (CCCH)	RRC
5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6	-->		SERVICE REQUEST (DCCH)	GMM
7	<--		SECURITY MODE COMMAND	RRC see note 1
8	-->		SECURITY MODE COMPLETE	RRC see note 1
9	<--		ACTIVATE RB TEST MODE (DCCH)	TC
10	-->		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
11	<--		RADIO BEARER SETUP (DCCH)	RRC. For the PS radio bearer the 'pdcp info' IE shall be omitted.
12	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
13	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is set to 39 octets
14	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
15	SS			The SS calculates test data for the first TFRC
16	<--		DOWNLINK MAC-hs PDU (4 x RLC SDU)	Send test data. The MAC-hs PDU contains 4 RLC SDUs
17	-->		UPLINK RLC SDUs	The SS checks that the content of the received UL RLC SDUs are correct
18	SS			The SS calculates test data for next TFRC and repeat steps 16 to 18 until all TFRCs have been tested.
19	<--		OPEN UE TEST LOOP (DCCH)	TC
20	-->		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
21			RB RELEASE	RRC
22	<--		DEACTIVATE RB TEST MODE	TC Optional step
23	-->		DEACTIVATE RB TEST MODE COMPLETE	TC Optional step
Note 1: In addition to activate integrity protection Step 6 and Step 7 are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.				

7.1.5.8.5 Test requirements

For each TFRC the UE shall return a UL RLC SDUs with the same content as the first 312 bits of the test data sent by the SS in downlink.

7.1.5.9 MAC-hs data transmission with enhanced TS0 (1.28 Mcps TDD)

7.1.5.9.1 Definition and applicability

All UEs which support HS-PDSCH and 1.28Mcps TDD and enhanced TS0.

7.1.5.9.2 Conformance requirement

For 1.28 Mcps, the timeslots to be used for HS-PDSCH resources are signalled by the bits $x_{ts,1}$, $x_{ts,2}$, …, $x_{ts,5}$, where bit $x_{ts,n}$ carries the information for timeslot n+1. Timeslot 1 cannot be used for HS-DSCH resources. If the signalling bit is set (i.e. equal to 1), then the corresponding timeslot shall be used for HS-PDSCH resources. Otherwise, the timeslot shall not be used. All used timeslots shall use the same channelisation code set, as signalled by the channelisation code set information bits.

When indicated by the higher layer that Timeslot 0 can be used for HS-PDSCH, bit $x_{ts,1}$ carries the information for timeslot 0. If $x_{ts,1}$ is set (i.e. equal to 1), Timeslot 0 shall be used for HS-PDSCH resource. Otherwise, Timeslot 0 shall not be used.

Reference(s)

TS 25.222 clause 4.6.1.2.1

7.1.5.9.3 Test purpose

To verify that the UE can receive the data transmitted in TS0 with MAC-hs.

7.1.5.9.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off cell1 configures 3 carrier frequency, one is primary frequency, other are secondary frequencies. The frequency relation show as below:

Parameter	Cell 1
UTRA RF Channel Number1	Ch. 1
UTRA RF Channel Number2	Ch. 2
UTRA RF Channel Number3	Ch.3

User Equipment:

UE in idle mode

Test procedure

a) The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.5.4.7.6 using condition A11 as specified in clause 9.1 of TS 34.108.

b) The SS closes the test loop using UE test loop mode 1 setting the UL RLC SDU size parameter to 39 octets (312 bits).

c) The SS transmits a MAC-hs PDU in TS0.

d) The SS checks that the UE returned RLC SDUs has the same content as the first 312 bits of the test data sent by the SS in downlink.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<--		RADIO BEARER SETUP (DCCH)	RRC. For the PS radio bearer the 'pdcp info' IE shall be omitted.
2	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
3	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is set to 39 octets
4	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
5	<--		DOWNLINK MAC-hs PDU	Send test data inTS0
6	-->		UPLINK RLC SDUs	The SS checks that the content of the received UL RLC SDUs are correct

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for "Packet to CELL_DCH / E-DCH / HS-DSCH using three multiplexing options (3/3) and SRBs mapped on DCH/DCH" in 34.108 with the following exceptions:

Information Element	Value/remark
Downlink HS-PDSCH Information	Not Present
- CHOICE mode	TDD
- CHOICE *TDD option*	1.28 Mcps
- TS0 Indicator	TRUE
Multi-frequency Info	
- Second Frequency Info	UTRA RF Channel Number2

7.1.5.9.5 Test requirements

In step6 the UE shall return a UL RLC SDUs with the same content as the first 312 bits of the test data sent by the SS in downlink.

7.1.5a HS-DSCH MAC-ehs

7.1.5a.1 MAC-ehs multiplexing / multiple logical channels on same queue

7.1.5a.1.1 Definition and applicability

All UEs which support MAC-ehs.

7.1.5a.1.2 Conformance requirement

- LCH-ID demultiplexing:
  The demultiplexing entity routes the MAC-ehs SDUs to correct logical channel based on the received logical channel identifier.

- The following is allowed:
  The MAC-ehs SDUs included in a MAC-ehs PDU can have a different size and a different priority and can be mapped to different priority queues.

[...]

When MAC-ehs is configured, a MAC PDU for HS-DSCH consists of one MAC-ehs header and one or more reordering PDUs. Each reordering PDU consists of one or more reordering SDUs belonging to the same priority queue. Each reordering SDU equals a complete MAC-ehs SDU or a segment of a MAC-ehs SDU. Each MAC-ehs SDU equals a MAC-d PDU or a MAC-c PDU (FDD and 1.28 Mcps TDD only). The LCH-ID and L fields are repeated per reordering SDU. The TSN and SI fields are repeated per reordering PDU. In 1.28 Mcps TDD multi-frequency HS-DSCH cell, TSN can be extended to 9bit as indicated by RRC signalling. When TSN is extended to 9bit, the 3 least significant bits are placed after the last reordering PDU. If several TSNs are included in MAC-ehs header, the extended bits of TSN should be concatenated in the same order as that of the TSN occurrence in the MAC-ehs header. For FDD, the size of the TSN field is configurable by upper layers [7].

The presence of the TSN_i and SI_i fields is based on the value of the $LCH\text{-}ID_i$; if the $LCH\text{-}ID_i$ is mapped to the same reordering queue as $LCH\text{-}ID_{i-1}$, there is no TSN_i or SI_i field. The mapping of the LCH-ID to the reordering queue is provided by upper layers [7]. The TSN_1 and SI_1 fields are always present.

[...]

For each MAC-d or MAC-c PDU that is delivered to the demultiplexing entity, the UE shall:

- route MAC-d or MAC-c PDU to the correct logical channel based on the corresponding LCH ID field.

Reference(s)

TS 25.321 clauses 4.2.3.5, 9.1.4, 11.6.4.7

7.1.5a.1.3 Test purpose

To confirm that the UE handles multiple logical channels, mapped to same Mac-ehs queue.

7.1.5a.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration 3 x Interactive or background / UL: 8 kbps DL: [max bit rate depending on UE category] / UM PS RAB as specified in TS 34.108, clause 6.11.4f.1 (FDD) / 6.11.5.4.8.1 (1.28 Mcps TDD) with the logical channel, MAC-ehs queue identities set to:

Logical Channel ID	Mac-ehs Queue ID	Comment
7	0	RB5
8	0	RB6
9	0	RB7

DL MAC header type is set as MAC-ehs.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 39 octets for RB5, RB6 and RB7 and RLC Mode as UM.

Test procedure

In this test procedure each DL RLC PDU consists of one RLC SDU of size 39 octets , special LI and length indicator indicating the end of the SDU.

a) The SS transmits a MAC-ehs PDU where:

1. The TSN1 = 0, TSN2, TSN3 are not present
2. contains 3 MAC-ehs SDU's one each from each RB.

b) The SS checks that the RLC PDU's are looped back and checks that the logical channel IDs are correct.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		MAC-ehs PDU containing 3 RLC PDU's with TSN = 0. Each RLC corresponds to different RB's configured	MAC-ehs header consists of LCH1[6], L1[42],TSN1[0], SI1[00],F1[0] LCH2[7],L2[42],F2[0], LCH3[8],L3[42],F3[1] all values are in decimal. See NOTE1
2	→		Loop Backed RLC PDU's on RB5, RB6 and RB7	
NOTE1: The SS will send the LCH Id one less than the LCH Id signalled to the UE as per TS 25.321 section 9.2.2				

Specific Message Contents

None

7.1.5a.1.5 Test requirements

In Step 2, SS receives one loop backed RLC PDU on RB5, RB6 and RB7.

7.1.5a.2 MAC-ehs multiplexing / multiple logical channels on multiple queues

7.1.5a.2.1 Definition and applicability

All UEs which support MAC-ehs.

7.1.5a.2.2 Conformance requirement

- LCH-ID demultiplexing:
  The demultiplexing entity routes the MAC-ehs SDUs to correct logical channel based on the received logical channel identifier.

- The following is allowed:
  The MAC-ehs SDUs included in a MAC-ehs PDU can have a different size and a different priority and can be mapped to different priority queues.

[...]

When MAC-ehs is configured, a MAC PDU for HS-DSCH consists of one MAC-ehs header and one or more reordering PDUs. Each reordering PDU consists of one or more reordering SDUs belonging to the same priority queue. Each reordering SDU equals a complete MAC-ehs SDU or a segment of a MAC-ehs SDU. Each MAC-ehs SDU equals a MAC-d PDU or a MAC-c PDU (FDD and 1.28 Mcps TDD only). The LCH-ID and L fields are repeated per reordering SDU. The TSN and SI fields are repeated per reordering PDU. In 1.28 Mcps TDD multi-frequency HS-DSCH cell, TSN can be extended to 9bit as indicated by RRC signalling. When TSN is extended to 9bit, the 3 least significant bits are placed after the last reordering PDU. If several TSNs are included in MAC-ehs header, the extended bits of TSN should be concatenated in the same order as that of the TSN occurrence in the MAC-ehs header. For FDD, the size of the TSN field is configurable by upper layers [7].

The presence of the TSN_i and SI_i fields is based on the value of the $LCH\text{-}ID_i$; if the $LCH\text{-}ID_i$ is mapped to the same reordering queue as $LCH\text{-}ID_{i-1}$, there is no TSN_i or SI_i field. The mapping of the LCH-ID to the reordering queue is provided by upper layers [7]. The TSN_1 and SI_1 fields are always present.

[...]

For each MAC-d or MAC-c PDU that is delivered to the demultiplexing entity, the UE shall:

- route MAC-d or MAC-c PDU to the correct logical channel based on the corresponding LCH ID field.

Reference(s)

TS 25.321 clauses 4.2.3.5, 9.1.4, 11.6.4.7

7.1.5a.2.3 Test purpose

To confirm that the UE handles multiple logical channels, mapped to different Mac-ehs queues.

7.1.5a.2.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration 3 x Interactive or background / UL: 8 kbps DL: [max bit rate depending on UE category] / UM PS RAB as specified in TS 34.108, clause 6.11.4f.1 (FDD) / 6.11.5.4.8.1 (1.28 Mcps TDD) with the logical channel, MAC-ehs queue identities set to:

Logical Channel ID	Mac-ehs Queue ID	Comment
7	0	RB5
8	1	RB6
9	2	RB7

DL MAC header type is set as MAC-ehs.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 39 octets for RB5, RB6 and RB7 and RLC Mode as UM.

Test procedure

In this test procedure each DL RLC PDU consists of one RLC SDU of size 39 octets , special LI and length indicator indicating the end of the SDU.

a) The SS transmits a MAC-ehs PDU where:

1. The TSN1 = 0, TSN2=0, TSN3=0

2. contains 3 MAC-ehs SDU's one each from each RB.

b) The SS checks that the RLC PDU's are looped back and checks that the logical channel IDs are correct.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		MAC-ehs PDU containing 3 RLC PDU's with all TSN's = 0. Each RLC PDU corresponds to different RB's configured on different MAC-ehs queues	MAC-ehs header consists of LCH1[6], L1[42], TSN1[0], SI1[0], F1[0] LCH2[7], L2[42], TSN2[0], SI2[0], F2[0] LCH3[8], L3[42], TSN3[0], SI3[0], F3[1] where all values are in decimal. See NOTE1
2	→		Loop Backed RLC PDU on RB5, RB6 and RB7	
NOTE1: The SS will send the LCH Id one less than the LCH Id signalled to the UE as per TS 25.321 section 9.2.2				

Specific Message Contents

None.

7.1.5a.2.5 Test requirements

In Step 2, SS receives one loop backed RLC PDU on RB5, RB6 and RB7.

7.1.5a.3 MAC-ehs segmentation / UE handling of partial and full PDUs

7.1.5a.3.1 Definition and applicability

All UEs which support MAC-ehs.

7.1.5a.3.2 Conformance requirement

If MAC-ehs is configured by upper layers [7], the parameters for the MAC header are:

…

- Segmentation Indication (SI)

  The SI field indicates if the MAC-ehs SDU has been segmented. Table 9.2.2-1 shows the 2 bit SI field.

Table 9.2.2-1: Structure of the SI field

SI Field	Segmentation indication
00	The first reordering SDU of the reordering PDU is a completeMAC-ehs SDU. The last reordering SDU of the reordering PDU is a complete MAC-ehs SDU.
01	If there are more than one reordering SDUs in the reordering PDU, the last reordering SDU of the reordering PDU is a complete MAC-ehs SDU. The first reordering SDU of the reordering PDU is the last segment of a MAC-ehs SDU.
10	If there are more than one reordering SDUs in the reordering PDU, the first reordering SDU of the reordering PDU is a complete MAC-ehs SDU. The last reordering SDU of the reordering PDU is the first segment of a MAC-ehs SDU.
11	If there are more than one reordering SDUs in the reordering PDU, the first reordering SDU of the reordering PDU is the last segment of a MAC-ehs SDU and the last reordering SDU of reordering PDU is the first segment of a MAC-ehs SDU. If there is only one reordering SDU in the reordering PDU, the reordering SDU is a middle segment of a MAC-ehs SDU.

[…]

The reassembly unit processes the SI field associated with a reordering PDU. The UE shall:

- if SI field is set to “00”:
  - deliver all MAC-d or MAC-c PDUs corresponding to MAC-ehs SDUs in the reordering PDU to demultiplexing entity;
  - discard any previously stored segment of MAC-ehs SDU.
- if SI field is set to “01”:
  - if the received and stored segments of a MAC-ehs SDU are consecutive:
    - combine the first reordering SDU with the stored segment of MAC-ehs SDU;
    - deliver the MAC-d or MAC-c PDU corresponding to the combined MAC-ehs SDU to demultiplexing entity.
  - if the received and stored segments of MAC-ehs SDU are not consecutive
    - discard the first received reordering SDU and the stored segment of MAC-ehs SDU.
  - deliver all MAC-d or MAC-c PDUs corresponding to subsequent MAC-ehs SDUs in the reordering queue to demultiplexing entity;
- if SI field is set to “10”:
  - deliver all MAC-d or MAC-c PDUs corresponding to all but last reordering SDU in the reordering PDU to the demultiplexing entity;
  - discard any previously stored segment of MAC-ehs SDU and store the last reordering SDU of the received reordering PDU
- if SI field is set to “11”:
  - if the received and stored MAC-ehs SDUs are consecutive:
    - if there is only one reordering SDU in the reordering PDU:

- combine the received reordering SDU with the stored segment of MAC-ehs SDU:

- if is more than one reordering SDUs in the reordering PDU:

- combine the first received reordering SDU with the stored segment MAC-ehs SDU;

- deliver the MAC-d or MAC-c PDU corresponding to the combined MAC-ehs SDU to demultiplexing entity.

- deliver all MAC-d or MAC-c PDUs corresponding to all but last reordering SDU in the reordering PDU to demultiplexing entity;

- discard any previously stored segment of MAC-ehs SDU and store the last reordering SDU of the received reordering PDU.

- if the received and stored segments of the MAC-ehs SDU are not consecutive:

- discard the first received reordering SDU and the stored segment of MAC-ehs SDU;

- if is more than one reordering SDUs in the reordering PDU:

- deliver all MAC-d or MAC-c PDUs corresponding to all but first and last reordering SDUs in the reordering PDU to demultiplexing entity and store the last reordering SDU of the received reordering PDU.

Reference(s)

TS 25.321 clauses 9.2.2, 11.6.4.6

7.1.5a.3.3 Test purpose

1. To test UE is able to handle all 4 SI values.
2 To test UE is able to combine MAC-ehs SDU segments from consecutive MAC-ehs PDU's
3. To test UE discards stored MAC-ehs SDU segment, if it cannot be combined.

7.1.5a.3.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration 1 x Interactive or background / UL: 8 kbps DL: [max bit rate depending on UE category] / UM PS RAB as specified in TS 34.108, clause 6.11.4f.2 (FDD) / 6.11.5.4.8.2 (1.28 Mcps TDD) with the logical channel, MAC-ehs queue identity set to:

Logical Channel ID	Mac-ehs Queue ID	Comment
7	0	RB5

DL MAC header type is set as MAC-ehs.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 39 octets and RLC Mode as UM.

Test procedure

In this test procedure each DL RLC PDU consists of one RLC SDU of size 39 octets , special LI and length indicator indicating the end of the SDU.

a) The SS transmits a MAC-ehs PDU:

The TSN = 0, SI =10, and containing one full MAC-ehs SDU 1 and one segment of MAC-ehs SDU 2.

b) UE loops back the RLC PDU corresponding to full MAC-ehs SDU 1 and stores the segment of MAC-ehs SDU 2.

c) The SS transmits a MAC-ehs PDU :

The TSN=1, SI=01, and containing remaining part of the MAC-ehs SDU 2 and a full MAC-ehs SDU3.

d) UE transmits 2 loop back PDU's corresponding to MAC-ehs SDU's 2 and 3.

e) The SS transmits a MAC-ehs PDU:

The TSN=2, SI=11, and containing a segment of the MAC-ehs SDU 4, a full MAC-ehs SDU5 and a segment of MAC-ehs SDU 6.

f) UE discards, segment of MAC-ehs SDU4, loop backs RLC PDU corresponding to MAC-ehs SDU5 and stores segment of MAC-ehs SDU 6.

g) The SS transmits a MAC-ehs PDU:

The TSN=3, SI=00, and containing one full MAC-ehs SDU 7.

h) UE discards stored segment of MAC-ehs SDU6, and loops back RLC PDU corresponding to MAC-ehs SDU 7.

i) The SS transmits a MAC-ehs PDU:

The TSN=4, SI=10, and containing first segment of MAC-ehs SDU 8.

j) The SS transmits a MAC-ehs PDU:

The TSN=5, SI=11, and containing second segment of MAC-ehs SDU 8.

k) The SS transmits a MAC-ehs PDU:

The TSN=6, SI=01, and containing last segment of MAC-ehs SDU 8.

l) UE transmits loop back PDU corresponding to MAC-ehs SDU 8.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		MAC-ehs SDU, TSN=0	TSN=0, SI=10 Contains full MAC-ehs SDU1 and segment of MAC-ehs SDU2
2	→		RLC PDU corresponding to MAC-ehs SDU1	
3	←		MAC-ehs SDU, TSN=1	TSN=1, SI=01 Contains segment of MAC-ehs SDU2 and full MAC-ehs SDU3 and
4	→		RLC PDU corresponding to MAC-ehs SDU2	
5	→		RLC PDU corresponding to MAC-ehs SDU3	
6	←		MAC-ehs SDU, TSN=2	TSN=2, SI=11 Contains segment of MAC-ehs SDU4, full MAC-ehs SDU5 and segment of MAC-ehs SDU6
7	→		RLC PDU corresponding to MAC-ehs SDU5	
8				SS Waits for 5 seconds to see no further loop back PDU's are received
9	←		MAC-ehs SDU, TSN=3	TSN=3, SI=00 Contains full MAC-ehs SDU7
10	→		RLC PDU corresponding to MAC-ehs SDU7	
11	←		MAC-ehs SDU, TSN=4	TSN=4, SI=10 Contains [first] segment of MAC-ehs SDU8
12	←		MAC-ehs SDU, TSN=5	TSN=5, SI=11 Contains second segment of MAC-ehs SDU8 [SDU not yet completed]
13	←		MAC-ehs SDU, TSN=6	TSN=6, SI=01 Contains last[third] segment of MAC-ehs SDU8
14	→		RLC PDU corresponding to MAC-ehs SDU8	
15				SS Waits for 5 seconds to see no further loop back PDU's are received

Specific Message Contents

None.

7.1.5a.3.5 Test requirements

a) In step 2, UE loop backs RLC PDU corresponding to MAC-ehs SDU1.

b) In step 4 and 5, UE loop backs RLC PDU's corresponding to MAC-ehs SDU's 2 and 3.

c) In Step 7, UE loops back RLC PDU corresponding to MAC-ehs SDU5

d) In step 8, no RLC PDU's are received by SS.

e) In Step 10, UE loops back RLC PDU corresponding to MAC-ehs SDU7

f) In Step 14, UE loops back RLC PDU corresponding to MAC-ehs SDU8

g) In step 15, no RLC PDU's are received by SS

7.1.5a.4 MAC-ehs reordering and stall avoidance

7.1.5a.4.1 Definition and applicability

All UEs which support MAC-ehs.

7.1.5a.4.2 Conformance requirement

The SI field indicates if the MAC-ehs SDU has been segmented. Table 9.2.2-1 shows the 2 bit SI field.

Table 9.2.2-1: Structure of the SI field

SI Field	Segmentation indication
00	The first reordering SDU of the reordering PDU is a completeMAC-ehs SDU. The last reordering SDU of the reordering PDU is a complete MAC-ehs SDU.
01	If there are more than one reordering SDUs in the reordering PDU, the last reordering SDU of the reordering PDU is a complete MAC-ehs SDU. The first reordering SDU of the reordering PDU is the last segment of a MAC-ehs SDU.
10	If there are more than one reordering SDUs in the reordering PDU, the first reordering SDU of the reordering PDU is a complete MAC-ehs SDU. The last reordering SDU of the reordering PDU is the first segment of a MAC-ehs SDU.
11	If there are more than one reordering SDUs in the reordering PDU, the first reordering SDU of the reordering PDU is the last segment of a MAC-ehs SDU and the last reordering SDU of reordering PDU is the first segment of a MAC-ehs SDU. If there is only one reordering SDU in the reordering PDU, the reordering SDU is a middle segment of a MAC-ehs SDU.

[…]

When a reordering PDU with TSN = SN is received:

- if SN is within the receiver window:
  - if SN < next_expected_TSN, or this reordering PDU has previously been received:
    - the reordering PDU shall be discarded;
  - else:
    - the reordering PDU shall be placed in the reordering buffer at the place indicated by the TSN.
- if SN is outside the receiver window:
  - the received reordering PDU shall be placed above the highest received TSN in the reordering buffer, at the position indicated by SN;
  - RcvWindow_UpperEdge shall be set to SN thus advancing the receiver window;
  - any reordering PDU with TSN ≤ RcvWindow_UpperEdge – RECEIVE_WINDOW_SIZE, i.e. outside the receiver window after its position is updated, shall be removed from the reordering buffer and be delivered to the reassembly entity;
  - if next_expected_TSN is below the updated receiver window:
    - next_expected_TSN shall be set to RcvWindow_UpperEdge – RECEIVE_WINDOW_SIZE + 1;
- if the reordering PDU with TSN = next_expected_TSN is stored in the reordering buffer:
  - all received reordering PDUs with consecutive TSNs from next_expected_TSN (included) up to the first not received reordering PDU shall be delivered to the reassembly entity;
  - next_expected_TSN shall be advanced to the TSN of this first not received reordering PDU.

[...]

If no timer T1 is active:

- the timer T1 shall be started when a reordering PDU with TSN > next_expected_TSN is correctly received.
- T1_TSN shall be set to the TSN of this reordering PDU.

If a timer T1 is already active:

- no additional timer shall be started, i.e. only one timer T1 may be active at a given time.

The timer T1 shall be stopped if:

- the reordering PDU with TSN = T1_TSN can be delivered to the reassembly entity before the timer expires.

When the timer T1expires and T1_TSN > next_expected_TSN:

- all correctly received reordering PDUs with TSN > next_expected_TSN up to and including T1_TSN-1 shall be delivered to the reassembly entity;
- all correctly received reordering PDUs up to the next not received reordering PDU shall be delivered to the reassembly entity.
- next_expected_TSN shall be set to the TSN of the next not received reordering PDU.

When the timer T1 is stopped or expires, and there still exist some received reordering PDUs that can not be delivered to higher layer:

- timer T1 is started
- set T1_TSN to the highest TSN among those of the reordering PDUs that can not be delivered.

[...]

The reassembly unit processes the SI field associated with a reordering PDU. The UE shall:

- if SI field is set to “00”:
  - deliver all MAC-d or MAC-c PDUs corresponding to MAC-ehs SDUs in the reordering PDU to demultiplexing entity;
  - discard any previously stored segment of MAC-ehs SDU.
- if SI field is set to “01”:
  - if the received and stored segments of a MAC-ehs SDU are consecutive:
    - combine the first reordering SDU with the stored segment of MAC-ehs SDU;
    - deliver the MAC-d or MAC-c PDU corresponding to the combined MAC-ehs SDU to demultiplexing entity.
  - if the received and stored segments of MAC-ehs SDU are not consecutive
    - discard the first received reordering SDU and the stored segment of MAC-ehs SDU.
  - deliver all MAC-d or MAC-c PDUs corresponding to subsequent MAC-ehs SDUs in the reordering queue to demultiplexing entity;
- if SI field is set to “10”:
  - deliver all MAC-d or MAC-c PDUs corresponding to all but last reordering SDU in the reordering PDU to the demultiplexing entity;
  - discard any previously stored segment of MAC-ehs SDU and store the last reordering SDU of the received reordering PDU
- if SI field is set to “11”:

- if the received and stored MAC-ehs SDUs are consecutive:
  - if there is only one reordering SDU in the reordering PDU:
    - combine the received reordering SDU with the stored segment of MAC-ehs SDU:
  - if is more than one reordering SDUs in the reordering PDU:
    - combine the first received reordering SDU with the stored segment MAC-ehs SDU;
    - deliver the MAC-d or MAC-c PDU corresponding to the combined MAC-ehs SDU to demultiplexing entity.
    - deliver all MAC-d or MAC-c PDUs corresponding to all but last reordering SDU in the reordering PDU to demultiplexing entity;
    - discard any previously stored segment of MAC-ehs SDU and store the last reordering SDU of the received reordering PDU.
- if the received and stored segments of the MAC-ehs SDU are not consecutive:
  - discard the first received reordering SDU and the stored segment of MAC-ehs SDU;
  - if is more than one reordering SDUs in the reordering PDU:
    - deliver all MAC-d or MAC-c PDUs corresponding to all but first and last reordering SDUs in the reordering PDU to demultiplexing entity and store the last reordering SDU of the received reordering PDU.

Reference(s)

TS 25.321 clauses 9.2.2, 11.6.4.5.2 and 11.6.4.6

7.1.5a.4.3 Test purpose

1. To confirm that the UE performs MAC-ehs reordering and delivers RLC PDUs in order to RLC.
2. To confirm that the UE performs stall avoidance in case of missing MAC-ehs PDUs based on a) window based stall avoidance and b) timer based stall avoidance.
3. To confirm that the UE correctly discards partial MAC-ehs SDU segments in case of missing MAC-ehs PDUs.

7.1.5a.4.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration 1 x Interactive or background / UL: 8 kbps DL: [max bit rate depending on UE category] / UM PS RAB as specified in TS 34.108, clause 6.11.4f.2 (FDD) / 6.11.5.4.8.2 (1.28 Mcps TDD). The following parameters are specific for this test case:

Parameter	Value
MAC-ehs receiver window size	32
MAC-ehs reordering timer T1	400 ms

DL MAC header type is set as MAC-ehs.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 39 octets.

Let T be the value of MAC-ehs reordering timer T1 parameter.

Test procedure

In this test procedure each DL RLC PDU consists of one RLC SDU of size 39 octets, special LI and one length indicator indicating the end of the SDU.

a) The SS transmits a MAC-ehs PDU with TSN = 0, SI = 00 and containing a full MAC-ehs SDU carrying RLC PDU with SN = 0

b) The SS checks that the RLC PDU corresponding to DL SN = 0 is looped back

c) The SS transmits a MAC-ehs PDU with TSN = 1, SI = 00 and containing a full MAC-ehs SDU carrying RLC PDU with SN = 1

d) The SS checks that the RLC PDU corresponding to DL SN = 1 is looped back

e) The SS repeats the transmission of the MAC-ehs PDUs in steps a) and c) with identical content except that the RLC PDUs have SN = 2 and 3

f) The SS checks that no data is looped back (the data is discarded in the UE)

g) The SS transmits a MAC-ehs PDU with TSN = 3, SI = 10 and containing a full MAC-ehs SDU carrying RLC PDU with SN = 3 as well as the start segment of a MAC-ehs SDU carrying RLC PDU with SN = 4

h) The SS waits 200 ms and checks that no data is looped back.

NOTE: T1 is 400ms and the middle value of 200ms is considered to assure that T1 has not expired in the UE.

i) The SS transmits a MAC-ehs PDU with TSN = 2, SI = 00 and containing a full MAC-ehs SDU carrying an RLC PDU with SN=2

j) The SS checks that the RLC PDUs corresponding to DL SN = 2 and 3 are looped back

k) The SS transmits a MAC-ehs PDU with TSN = 6, SI = 00 and containing a full MAC-ehs SDU carrying an RLC PDU with SN = 5

l) The SS transmits a MAC-ehs PDU with TSN = 7, SI = 00 and containing a full MAC-ehs SDU carrying an RLC PDU with SN = 6

m) The SS transmits a MAC-ehs PDU with TSN = 38, SI = 01 and containing the end segment of a MAC-ehs SDU carrying an RLC PDU with SN=7, as well as a full MAC-ehs SDU carrying an RLC PDU with SN = 8

n) The SS checks that the RLC PDUs corresponding to DL SN = 5 and 6 are looped back but the RLC PDUs corresponding to DL SN = 4, 7 and 8 are not looped back

o) The SS waits 400 ms and checks that the RLC PDU corresponding to DL SN = 8 is looped back after this time, but that the RLC PDUs with SN = 4 and 7 are not looped back

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		MAC-ehs PDU with TSN = 0 and SI = 00, containing a full MAC-ehs SDU carrying RLC PDU with SN = 0	
2	→		RLC PDU corresponding to DL SN 0	
3	←		MAC-ehs PDU with TSN = 1 and SI = 00, containing a full MAC-ehs SDU carrying RLC PDU with SN = 1	
4	→		RLC PDU corresponding to DL SN 1	
5	←		MAC-ehs PDU with TSN = 0 and SI = 00, containing a full MAC-ehs SDU carrying RLC PDU with SN = 2	The duplicated data is discarded in the UE
6	←		MAC-ehs PDU with TSN = 1 and SI = 00, containing a full MAC-ehs SDU carrying RLC PDU with SN = 3	The duplicated data is discarded in the UE
7	←		MAC-ehs PDU with TSN = 3 and SI = 10, containing a full MAC-ehs SDU carrying RLC PDU with SN = 3 and the start segment of a MAC-ehs SDU carrying RLC PDU with SN = 4	
8			SS waits 200 ms and checks that no data is looped back	Note: T1 is 400ms and the middle value of 200ms is considered to assure that T1 has not expired in the UE
9	←		MAC-ehs PDU with TSN = 2 and SI = 00, containing a full MAC-ehs SDU carrying RLC PDU with SN = 2	
10	→		RLC PDUs corresponding to DL SN 2,3	
11	←		MAC-ehs PDU with TSN = 6 and SI = 00, containing a full MAC-ehs SDU carrying RLC PDU with SN = 5	
12	←		MAC-ehs PDU with TSN = 7 and SI = 00, containing a full MAC-ehs SDU carrying RLC PDU with SN = 6	
13	←		MAC-ehs PDU with TSN = 38 and SI = 01, containing the end segment of a MAC-ehs SDU carrying RLC PDU with SN = 7 and a full MAC-ehs SDU carrying RLC PDU with SN = 8	SS need to transmit this PDU before timer T1 in UE expires (400 ms after reception of MAC-ehs PDU with TSN=6). Note: T_A
14	→		RLC PDUs corresponding to DL SN 5,6	The RLC PDUs corresponding to DL SN = 5,6 are looped back after reception of the MAC-ehs PDU in step 13, i.e. before timer T1 expires. See NOTE 5
15			SS waits T ms and checks that the RLC PDUs corresponding to DL SN = 4, 7 and 8 are not looped back during this time	
16	→		RLC PDU corresponding to DL SN 8	The RLC PDU corresponding to DL SN = 8 is looped back after expiry of T1. Note: $T_{B.}$ See NOTE 6

NOTE 1: The RLC SN in step 5,6 is increased since otherwise the data would be discarded by RLC even if the MAC-ehs reordering does not work correctly. Since the data is discarded the same RLC SN can be reused later in the test sequence.
NOTE 2: Void
NOTE3: In step 13, the timer T1 is restarted in the UE since the PDU with TSN = 38 cannot be delivered to higher layers.
NOTE 4: General timer tolerance as defined by 34.108 subclause 4.2.3 applies.
NOTE 5: RLC PDUs with UL SN=4 and 5 is looped back
NOTE 6: RLC PDU with UL SN=6 is looped back

Specific Message Contents

None

7.1.5a.4.5 Test requirements

1. After step 1, the RLC PDU corresponding to DL SN = 0 shall be looped back
2. After step 3, the RLC PDU corresponding to DL SN = 1 shall be looped back
3. After steps 5 and 6, no data shall be looped back
4. After step 7, no data shall be looped back and no RLC status report shall be received
5. After step 9, the RLC PDUs corresponding to DL SN = 2 and 3 shall be looped back
6. After step 13, the RLC PDUs corresponding to DL SN = 5 and 6 shall be looped back
7. In step 16, the RLC PDU corresponding to DL SN = 8 shall be looped back and $T_B - T_A$ shall be equal to T ms

7.1.5a.5 MAC-ehs transport block size selection

7.1.5a.5.1 Generic test procedure for the MAC-ehs transport block size selection test cases

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-7 IE "HS-DSCH physical layer category extension". This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

Definition of test variables:

N_{codes}	Number of HS-DSCH codes (1..15, maximum number dependent on UE category)
M	Type of modulation scheme (QPSK, 16QAM, 64QAM)
k_i	TFRI signalled on the HS-SCCH value
$K_{0,I}$	See table 7.1.5a.5.3
k_t	Transport Block Size index $(=k_i + k_{0,I})$, see table 7.1.5a.5.4
TB_{size}	Transport Block size
MAC-ehs_header_size	MAC-ehs header size for the reference HS-DSCH radio bearer configuration under test.

Table 7.1.5a.5.3: Values of $k_{0,i}$ for different numbers of channelization codes and modulation schemes

Combination *i*	Modulation scheme	Number of channelization codes	$k_{0,i}$
0	QPSK	1	1
1		2	58
2		3	81
3		4	97
4		5	109
5		6	119
6		7	128
7		8	136
8		9	142
9		10	148
10		11	153
11		12	158
12		13	163
13		14	167
14		15	171
15	16QAM	1	58
16		2	97
17		3	119
18		4	136
19		5	148
20		6	158
21		7	167
22		8	174
23		9	181
24		10	187
25		11	192
26		12	197
27		13	201
28		14	206
29		15	209
30	64QAM	1	81
31		2	119
32		3	142
33		4	158
34		5	171
35		6	181
36		7	190
37		8	197
38		9	204
39		10	209
40		11	215
41		12	220
42		13	224
43		14	228
44		15	233

Table 7.1.5a.5.4: Mapping of HS-DSCH Transport Block Size for FDD to value of index k_t (=k_i + $k_{0,l}$)

Index	TB Size	Index	TB Size	Index	TB Size	Index	TB Size
1	120	86	1000	171	4592	256	21000
2	128	87	1016	172	4672	257	21384
3	136	88	1040	173	4760	258	21768
4	144	89	1056	174	4848	259	22160
5	152	90	1072	175	4936	260	22560
6	160	91	1096	176	5024	261	22968
7	168	92	1112	177	5112	262	23384
8	176	93	1136	178	5208	263	23808
9	184	94	1152	179	5296	264	24232
10	192	95	1176	180	5392	265	24672
11	200	96	1200	181	5488	266	25120
12	208	97	1216	182	5592	267	25568
13	216	98	1240	183	5688	268	26032
14	224	99	1264	184	5792	269	26504
15	232	100	1288	185	5896	270	26976
16	240	101	1312	186	6008	271	27464
17	248	102	1336	187	6112	272	27960
18	256	103	1360	188	6224	273	28464
19	264	104	1384	189	6336	274	28976
20	272	105	1408	190	6448	275	29504
21	280	106	1432	191	6568	276	30032
22	288	107	1456	192	6688	277	30576
23	296	108	1488	193	6808	278	31128
24	304	109	1512	194	6928	279	31688
25	312	110	1536	195	7056	280	32264
26	320	111	1568	196	7184	281	32848
27	328	112	1600	197	7312	282	33440
28	336	113	1624	198	7440	283	34040
29	344	114	1656	199	7576	284	34656
30	352	115	1688	200	7712	285	35280
31	360	116	1712	201	7856	286	35920
32	368	117	1744	202	7992	287	36568
33	376	118	1776	203	8136	288	37224
34	384	119	1808	204	8288	289	37896
35	392	120	1840	205	8440	290	38576
36	400	121	1872	206	8592	291	39272
37	408	122	1912	207	8744	292	39984
38	416	123	1944	208	8904	293	40704
39	424	124	1976	209	9064	294	41440
40	440	125	2016	210	9224	295	42192
41	448	126	2048	211	9392		
42	456	127	2088	212	9560		
43	464	128	2128	213	9736		
44	472	129	2168	214	9912		
45	480	130	2200	215	10088		
46	488	131	2240	216	10272		
47	496	132	2288	217	10456		
48	504	133	2328	218	10648		
49	512	134	2368	219	10840		
50	528	135	2408	220	11032		
51	536	136	2456	221	11232		

52	544	137	2496	222	11432		
53	552	138	2544	223	11640		
54	560	139	2592	224	11848		
55	576	140	2632	225	12064		
56	584	141	2680	226	12280		
57	592	142	2736	227	12504		
58	608	143	2784	228	12728		
59	616	144	2832	229	12960		
60	624	145	2880	230	13192		
61	640	146	2936	231	13432		
62	648	147	2984	232	13672		
63	664	148	3040	233	13920		
64	672	149	3096	234	14168		
65	688	150	3152	235	14424		
66	696	151	3208	236	14688		
67	712	152	3264	237	14952		
68	728	153	3328	238	15224		
69	736	154	3384	239	15496		
70	752	155	3448	240	15776		
71	768	156	3512	241	16064		
72	776	157	3576	242	16352		
73	792	158	3640	243	16648		
74	808	159	3704	244	16944		
75	824	160	3768	245	17256		
76	840	161	3840	246	17568		
77	848	162	3912	247	17880		
78	864	163	3976	248	18200		
79	880	164	4048	249	18536		
80	896	165	4120	250	18864		
81	912	166	4200	251	19208		
82	928	167	4272	252	19552		
83	952	168	4352	253	19904		
84	968	169	4432	254	20264		
85	984	170	4512	255	20632		

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off

User Equipment:

UE in idle mode

The following parameters are specific for this test case:

Common for all UE categories:

Parameter	Value
MAC-ehs receiver window size	16
Number of HARQ processes	1
Number of reordering queues	1

UE Category 1 to 4:

Parameter	Value
RLC Transmission window size	128
RLC Receiving window size	512

UE Category 5 and 6:

Parameter	Value
RLC Transmission window size	256
RLC Receiving window size	512

UE Category 7 and 8:

Parameter	Value
RLC Transmission window size	512
RLC Receiving window size	1536

UE Category 9 and 10:

Parameter	Value
RLC Transmission window size	512
RLC Receiving window size	2047

UE Category 11 and 12:

Parameter	Value
RLC Transmission window size	128
RLC Receiving window size	1024

UE Category 13 to 20:

Parameter	Value
RLC Transmission window size	512
RLC Receiving window size	2047

Test procedure

a) The SS establishes the reference radio bearer configuration “Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH” using enhanced Layer 2 configuration with Flexible RLC and MAC-ehs (Alt 3) as specified in TS 34.108, clause 6.10.2.4.5.1. See note 1.

b) The SS closes the test loop using UE test loop mode 1 setting the UL RLC SDU size parameter to 39 octets (312 bits).

c) The SS sets M= modulation scheme as specified in the test case.

d) The SS sets $N_{\underline{codes}} = 1$.

e) The SS sets $k_{0,i}$ to the value according to table 7.1.5a.5.3 based on the actual value of M and $N_{\underline{codes}}$.

f) The SS sets the test parameter k_i to 0.

g) The SS calculates the index value k_t (=k_i + $k_{0,1}$) and look up the transport block size, TB_{size}, for the actual k_t in table 7.1.5a.5.4.

If TB_{size} is bigger than the UE capability for "Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI" then SS continues with step n) else step h). See note 2.

h) The SS calculates the coding rate using $Coding\_rate = (TB_{size} + N_{CRC}) / (N_{codes} \cdot N_{phy\_bits})$.

If *Coding_rate* falls within any of the ranges defined in table 14.1.3.2.1b then SS continues with step m), else proceed with step i). See note 4.

i) If the transport block size TB_{size} is >12040 bits the SS creates 4 DL RLC SDUs of size 8*FLOOR ((TB_{size} – 136 bit)/32) (largest possible RLC SDU size considering octet alignment and MAC-ehs and minimum RLC AM headers). If the transport block size TB_{size} is ≤ 12040 bits the SS creates 1 DL RLC SDUs of size 8*FLOOR((TB_{size} – 40 bit)/8). The SS creates a DL RLC PDU for each DL RLC SDU using the special value of HE field ('10') in the RLC PDU header. See note 3.

j) Void

k) The SS configures the HARQ transmission parameters according to TS 34.108 [9], table 6.1.5.1 based on the actual value of *M*. Then the SS transmits all the DL RLC PDUs generated in step i) concatenated into a MAC-ehs PDU.

l) The SS checks that the UE returned RLC SDUs has the same content as the first 312 bits of the test data sent by the SS in downlink for DL RLC SDU size greater than or equal to 312 bits. If the downlink RLC SDU size is less than 312 bits then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink.

m) The SS increments the test parameter k_i by 1.

For UE category 13: if M=64QAM and *ki* is larger than 52 then SS continues with step n).

If k_i is less than 63 then SS repeats steps g) to m) else SS continues with step n).

n) The SS increments the test parameter N_{codes} *by 1*. If N_{codes} is less or equal to the UE capability for *"Maximum number of HS-DSCH codes received"* then the SS repeats test steps e) to n) else continue with step o). See note 2.

o) The SS opens the UE test loop.

p) The SS release the radio bearer.

q) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The SS configures the physical channel parameters according to the actual UE category under test.

NOTE 2: See table 14.1.3.1.1 in section 14.1.3.1 for FDD HS-DSCH physical layer and RLC and MAC-ehs capability parameters and there values for different UE FDD HS-DSCH physical layer categories (UE categories). The capability parameters having impact on the test procedure are: "Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI" *and "Maximum number of HS-DSCH codes received"*.

NOTE 3: The test data for DTCHs mapped on HS-DSCH is divided into 4 RLC SDUs to keep the maximum SDU size below or equal to 1500 octets (1500 octets is the limit of QoS parameter "Max SDU size" in SM). To allow for testing of the smallest TB sizes a single RLC PDU is used when the TB size is equal or below 12040 bits to reduce the L2 header overhead. 12040 bits corresponds to maximum RLC SDU size of 1500 octets (12000 bits) plus MAC-ehs header size of 24 bits and AMD PDU header size (16 bits).

NOTE 4: See table 14.1.3.2.1b in section 14.1.3.2.1b for those values of coding rate that must be avoided because of turbo coder irregularities.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
2	<--		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
4	<--		RRC CONNECTION SETUP (CCCH)	RRC
5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6	-->		SERVICE REQUEST (DCCH)	GMM
7	<--		SECURITY MODE COMMAND	RRC see note 1
8	-->		SECURITY MODE COMPLETE	RRC see note 1
9	<--		ACTIVATE RB TEST MODE (DCCH)	TC
10	-->		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
11	<--		RADIO BEARER SETUP (DCCH)	RRC. For the PS radio bearer the 'pdcp info' IE shall be omitted.
12	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
13	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is set to 39 octets
14	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
15	SS			The SS calculates test data for the first TFRC (TFRI,N_{codes} and *M*).
16	<--		DOWNLINK MAC-hs PDU	Send test data. The MAC-hs PDU contains one or 4 RLC SDUs depending on TB size to be tested
17	-->		UPLINK RLC SDUs	The SS checks that the content of the received UL RLC SDUs are correct
18	SS			The SS calculates test data for next TFRC and repeat steps 16 to 18 until all TFRCs have been tested.
19	<--		OPEN UE TEST LOOP (DCCH)	TC
20	-->		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
21			RB RELEASE	RRC
22	<--		DEACTIVATE RB TEST MODE	TC Optional step
23	-->		DEACTIVATE RB TEST MODE COMPLETE	TC Optional step
Note 1: In addition to activate integrity protection Step 6 and Step 7 are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.				

7.1.5a.5.2 MAC-ehs transport block size selection / QPSK and 16QAM

7.1.5a.5.2.1 Definition and applicability

All UEs which support FDD, HS-PDSCH and MAC-ehs.

7.1.5a.5.2.2 Conformance requirement

For all transmissions of a transport block, the transport block size is derived from the TFRI value as specified below, except only in those cases of retransmissions where the Node-B selects a combination for which no mapping exists between the original transport block size and the selected combination of channelisation Code set and modulation type. In such cases, the transport block size index value signalled to the UE shall be set to 111111, i.e., k_i=63.

Let k_i be the TFRI signalled on the HS-SCCH value and let $k_{0,i}$ be the value in table 7.1.5a.5.1 or table 7.1.5a.5.2.2 (as configured by higher layers) corresponding to the modulation and the number of codes signalled on the HS-SCCH. Let k_t be the sum of the two values: $k_t = k_i + k_{0,i}$. The transport block size $L(k_t)$ can be obtained by accessing the position k_t in one of the tables in Annex A (normative) or by using one of the corresponding formulas below (informative).

The use of table 7.1.5a.5.2.2 requires MAC-ehs.

Formula corresponding to table 7.1.5a.5.2.1:

If $k_t < 40$

$$L(k_t) = 125 + 12 \cdot k_t$$

else

$$L(k_t) = \lfloor L_{\min} p^{k_t} \rfloor$$
$$p = 2085/2048$$
$$L_{\min} = 296$$

end

Table 7.1.5a.5.2.1: Table 0 of values of $k_{0,i}$ for different numbers of channelization codes and modulation schemes (QPSK and 16QAM)

Combination *i*	Modulation scheme	Number of channelization codes	$k_{0,i}$
0	QPSK	1	1
1		2	40
2		3	63
3		4	79
4		5	92
5		6	102
6		7	111
7		8	118
8		9	125
9		10	131
10		11	136
11		12	141
12		13	145
13		14	150
14		15	153
15	16QAM	1	40
16		2	79
17		3	102
18		4	118
19		5	131
20		6	141
21		7	150
22		8	157
23		9	164
24		10	169
25		11	175
26		12	180
27		13	184
28		14	188
29		15	192

NOTE: Some UE categories are only required to support values of K_i up to the value of 52, as described in [23].

Formula corresponding to table 7.1.5a.5.2.2:

If $k_t < 40$

$$L(k_t) = (14 + k_t) * 8$$

else

$$L(k_t) = \lfloor L_{\min} p^{k_t} \rfloor * 8$$

$$p = \left(\frac{5274}{27} \right)^{\frac{1}{296-1}}$$

$$L_{\min} = 27$$

end

Table 7.1.5a.5.2.2: Table 1 of values of $k_{0,i}$ for different numbers of channelization codes and modulation schemes (QPSK, 16QAM and 64QAM)

Combination *i*	Modulation scheme	Number of channelization codes	$k_{0,i}$
0	QPSK	1	1
1		2	58
2		3	81
3		4	97
4		5	109
5		6	119
6		7	128
7		8	136
8		9	142
9		10	148
10		11	153
11		12	158
12		13	163
13		14	167
14		15	171
15	16QAM	1	58
16		2	97
17		3	119
18		4	136
19		5	148
20		6	158
21		7	167
22		8	174
23		9	181
24		10	187
25		11	192
26		12	197
27		13	201
28		14	206
29		15	209
30	64QAM	1	81
31		2	119
32		3	142
33		4	158
34		5	171
35		6	181
36		7	190
37		8	197
38		9	204
39		10	209
40		11	215
41		12	220
42		13	224
43		14	228
44		15	233

NOTE: Some UE categories are only required to support values of K_i up to the value of 52, as described in 3GPP TS 25.306 .

……

The following table provides the mapping between k_t (as per the definition above) and the HS-DSCH Transport Block Size (L(k_t)) corresponding to table 7.1.5a.5.2.1:

Index	TB Size	Index	TB Size	Index	TB Size
1	137	86	1380	171	6324
2	149	87	1405	172	6438
3	161	88	1430	173	6554
4	173	89	1456	174	6673
5	185	90	1483	175	6793
6	197	91	1509	176	6916
7	209	92	1537	177	7041
8	221	93	1564	178	7168
9	233	94	1593	179	7298
10	245	95	1621	180	7430
11	257	96	1651	181	7564
12	269	97	1681	182	7700
13	281	98	1711	183	7840
14	293	99	1742	184	7981
15	305	100	1773	185	8125
16	317	101	1805	186	8272
17	329	102	1838	187	8422
18	341	103	1871	188	8574
19	353	104	1905	189	8729
20	365	105	1939	190	8886
21	377	106	1974	191	9047
22	389	107	2010	192	9210
23	401	108	2046	193	9377
24	413	109	2083	194	9546
25	425	110	2121	195	9719
26	437	111	2159	196	9894
27	449	112	2198	197	10073
28	461	113	2238	198	10255
29	473	114	2279	199	10440
30	485	115	2320	200	10629
31	497	116	2362	201	10821
32	509	117	2404	202	11017
33	521	118	2448	203	11216
34	533	119	2492	204	11418
35	545	120	2537	205	11625
36	557	121	2583	206	11835
37	569	122	2630	207	12048
38	581	123	2677	208	12266
39	593	124	2726	209	12488
40	605	125	2775	210	12713
41	616	126	2825	211	12943
42	627	127	2876	212	13177
43	639	128	2928	213	13415
44	650	129	2981	214	13657
45	662	130	3035	215	13904
46	674	131	3090	216	14155
47	686	132	3145	217	14411
48	699	133	3202	218	14671
49	711	134	3260	219	14936
50	724	135	3319	220	15206
51	737	136	3379	221	15481
52	751	137	3440	222	15761

53	764	138	3502	223	16045
54	778	139	3565	224	16335
55	792	140	3630	225	16630
56	806	141	3695	226	16931
57	821	142	3762	227	17237
58	836	143	3830	228	17548
59	851	144	3899	229	17865
60	866	145	3970	230	18188
61	882	146	4042	231	18517
62	898	147	4115	232	18851
63	914	148	4189	233	19192
64	931	149	4265	234	19538
65	947	150	4342	235	19891
66	964	151	4420	236	20251
67	982	152	4500	237	20617
68	1000	153	4581	238	20989
69	1018	154	4664	239	21368
70	1036	155	4748	240	21754
71	1055	156	4834	241	22147
72	1074	157	4921	242	22548
73	1093	158	5010	243	22955
74	1113	159	5101	244	23370
75	1133	160	5193	245	23792
76	1154	161	5287	246	24222
77	1175	162	5382	247	24659
78	1196	163	5480	248	25105
79	1217	164	5579	249	25558
80	1239	165	5680	250	26020
81	1262	166	5782	251	26490
82	1285	167	5887	252	26969
83	1308	168	5993	253	27456
84	1331	169	6101	254	27952
85	1356	170	6211		

The following table provides the mapping between k_t (as per the definition above) and the HS-DSCH Transport Block Size ($L(k_t)$) corresponding to table in table 7.1.5a.5.2.2:

Index	TB Size	Index	TB Size	Index	TB Size	Index	TB Size
1	120	86	1000	171	4592	256	21000
2	128	87	1016	172	4672	257	21384
3	136	88	1040	173	4760	258	21768
4	144	89	1056	174	4848	259	22160
5	152	90	1072	175	4936	260	22560
6	160	91	1096	176	5024	261	22968
7	168	92	1112	177	5112	262	23384
8	176	93	1136	178	5208	263	23808
9	184	94	1152	179	5296	264	24232
10	192	95	1176	180	5392	265	24672
11	200	96	1200	181	5488	266	25120
12	208	97	1216	182	5592	267	25568
13	216	98	1240	183	5688	268	26032
14	224	99	1264	184	5792	269	26504
15	232	100	1288	185	5896	270	26976
16	240	101	1312	186	6008	271	27464
17	248	102	1336	187	6112	272	27960
18	256	103	1360	188	6224	273	28464
19	264	104	1384	189	6336	274	28976
20	272	105	1408	190	6448	275	29504
21	280	106	1432	191	6568	276	30032
22	288	107	1456	192	6688	277	30576
23	296	108	1488	193	6808	278	31128
24	304	109	1512	194	6928	279	31688
25	312	110	1536	195	7056	280	32264
26	320	111	1568	196	7184	281	32848
27	328	112	1600	197	7312	282	33440
28	336	113	1624	198	7440	283	34040
29	344	114	1656	199	7576	284	34656
30	352	115	1688	200	7712	285	35280
31	360	116	1712	201	7856	286	35920
32	368	117	1744	202	7992	287	36568
33	376	118	1776	203	8136	288	37224
34	384	119	1808	204	8288	289	37896
35	392	120	1840	205	8440	290	38576
36	400	121	1872	206	8592	291	39272
37	408	122	1912	207	8744	292	39984
38	416	123	1944	208	8904	293	40704
39	424	124	1976	209	9064	294	41440
40	440	125	2016	210	9224	295	42192
41	448	126	2048	211	9392		
42	456	127	2088	212	9560		
43	464	128	2128	213	9736		
44	472	129	2168	214	9912		
45	480	130	2200	215	10088		
46	488	131	2240	216	10272		
47	496	132	2288	217	10456		
48	504	133	2328	218	10648		
49	512	134	2368	219	10840		
50	528	135	2408	220	11032		

51	536	136	2456	221	11232		
52	544	137	2496	222	11432		
53	552	138	2544	223	11640		
54	560	139	2592	224	11848		
55	576	140	2632	225	12064		
56	584	141	2680	226	12280		
57	592	142	2736	227	12504		
58	608	143	2784	228	12728		
59	616	144	2832	229	12960		
60	624	145	2880	230	13192		
61	640	146	2936	231	13432		
62	648	147	2984	232	13672		
63	664	148	3040	233	13920		
64	672	149	3096	234	14168		
65	688	150	3152	235	14424		
66	696	151	3208	236	14688		
67	712	152	3264	237	14952		
68	728	153	3328	238	15224		
69	736	154	3384	239	15496		
70	752	155	3448	240	15776		
71	768	156	3512	241	16064		
72	776	157	3576	242	16352		
73	792	158	3640	243	16648		
74	808	159	3704	244	16944		
75	824	160	3768	245	17256		
76	840	161	3840	246	17568		
77	848	162	3912	247	17880		
78	864	163	3976	248	18200		
79	880	164	4048	249	18536		
80	896	165	4120	250	18864		
81	912	166	4200	251	19208		
82	928	167	4272	252	19552		
83	952	168	4352	253	19904		
84	968	169	4432	254	20264		
85	984	170	4512	255	20632		

Reference(s)

3GPP TS 25.321, 9.2.3.1 and Annex A

7.1.5a.5.2.3 Test purpose

To verify that the UE selects the correct transport block size with MAC-ehs configured based on the TFRI value signalled on the HS-SCCH for the QPSK and 16QAM modulations schemes.

7.1.5a.5.2.4 Method of test

The test procedure in clause 7.1.5a.5.1 is executed twice.

Execution counter	Downlink Modulation Scheme (M)
1	QPSK
2	16QAM

7.1.5a.5.2.5 Test requirements

For execution counter 1 and 2; and for each TFRC the UE shall return a UL RLC SDUs with the same content as the first 312 bits of the test data sent by the SS in downlink for DL RLC SDU size greater than or equal to 312 bits. If the downlink RLC SDU size is less than 312 bits then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink.

7.1.5a.5.3 MAC-ehs transport block size selection / 64QAM

7.1.5a.5.3.1 Definition and applicability

All UEs which support FDD, HS-PDSCH, MAC-ehs and 64QAM.

7.1.5a.5.3.2 Conformance requirement

See 7.1.5a.2.2

7.1.5a.5.3.3 Test purpose

To verify that the UE selects the correct transport block size with MAC-ehs configured based on the TFRI value signalled on the HS-SCCH for the 64QAM modulations scheme case.

7.1.5a.5.3.4 Method of test

The test procedure in clause 7.1.5a.5.1 is executed with M=64QAM.

7.1.5a.5.3.5 Test requirements

The UE shall for each TFRC return a UL RLC SDUs with the same content as the first 312 bits of the test data sent by the SS in downlink for DL RLC SDU size greater than or equal to 312 bits. If the downlink RLC SDU size is less than 312 bits then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink.

7.1.5a.5.4 MAC-ehs transport block size selection (1.28Mcps TDD)

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-7 IE "HS-DSCH physical layer category extension". This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

7.1.5a.5.4.1 Definition and applicability

All UEs which support 1.28Mcps TDD, HS-PDSCH and MAC-ehs.

7.1.5a.5.4.2 Conformance requirement

When MAC-ehs is used, the octet aligned table of transport block size defined as following shall be used.

NOTE: When in CELL_FACH, CELL_PCH or URA_PCH state with HS-DSCH reception, the octet aligned table of transport block size for the HS-DSCH physical layer category 9 shall be used.

If k is the signalled TFRI value then the corresponding HS-DSCH transport block size Lk is given by:

If k = 1..62

$$L_k = \lfloor L_{\min} p^{k-1} \rfloor * 8$$

where

$p = \left(\frac{348}{30}\right)^{\frac{1}{63-1}}$ if the HS-DSCH physical layer category is between 1 and 3 inclusively,

$p = \left(\frac{700}{30}\right)^{\frac{1}{63-1}}$ if the HS-DSCH physical layer category is between 4 and 6 inclusively,

$p = \left(\frac{1052}{30}\right)^{\frac{1}{63-1}}$ if the HS-DSCH physical layer category is between 7 and 9 inclusively,

$p = \left(\frac{1403}{30}\right)^{\frac{1}{63-1}}$ if the HS-DSCH physical layer category is between 10 and 12 inclusively,

$p = \left(\frac{1755}{30}\right)^{\frac{1}{63-1}}$ if the HS-DSCH physical layer category is between 13 and 15 inclusively,

$p = \left(\frac{1579}{30}\right)^{\frac{1}{63-1}}$ if the HS-DSCH physical layer category is between 16 and 18 inclusively,

$p = \left(\frac{2107}{30}\right)^{\frac{1}{63-1}}$ if the HS-DSCH physical layer category is between 19 and 21 inclusively,

$p = \left(\frac{2634}{30}\right)^{\frac{1}{63-1}}$ if the HS-DSCH physical layer category is between 22 and 24 inclusively,

and

$L_{\min} = 30$

If $k = 63$ then,

L_k = 2784 if the HS-DSCH physical layer category is between 1 and 3 inclusively,

5600 if the HS-DSCH physical layer category is between 4 and 6 inclusively,

8416 if the HS-DSCH physical layer category is between 7 and 9 inclusively,

11224 if the HS-DSCH physical layer category is between 10 and 12 inclusively,

14040 if the HS-DSCH physical layer category is between 13 and 15 inclusively,

12632 if the HS-DSCH physical layer category is between 16 and 18 inclusively,

16856 if the HS-DSCH physical layer category is between 19 and 21 inclusively,

21072 if the HS-DSCH physical layer category is between 22 and 24 inclusively.

If k=0, L_k indicates NULL and shall not be used to signal a transport block size in the TFRI.

Transport block sizes calculated by this formula shall equal the values indicated in the following tables:

Table 7.1.5a.5.4.1: HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [1, 3], octet aligned

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	432	32	816	48	1536

1	240	17	448	33	848	49	1600
2	248	18	464	34	880	50	1664
3	256	19	488	35	920	51	1728
4	264	20	504	36	952	52	1800
5	280	21	528	37	992	53	1872
6	288	22	544	38	1032	54	1944
7	304	23	568	39	1072	55	2024
8	312	24	592	40	1120	56	2104
9	328	25	616	41	1160	57	2192
10	336	26	640	42	1208	58	2280
11	352	27	664	43	1256	59	2376
12	368	28	696	44	1312	60	2472
13	384	29	720	45	1360	61	2568
14	400	30	752	46	1416	62	2672
15	416	31	784	47	1472	63	2784

Table 7.1.5a.5.4.2: HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [4, 6], octet aligned

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	512	32	1152	48	2608
1	240	17	536	33	1216	49	2744
2	248	18	568	34	1280	50	2888
3	264	19	592	35	1344	51	3040
4	272	20	624	36	1416	52	3200
5	288	21	656	37	1488	53	3368
6	304	22	696	38	1568	54	3544
7	320	23	728	39	1648	55	3728
8	336	24	768	40	1736	56	3920
9	360	25	808	41	1824	57	4128
10	376	26	848	42	1920	58	4336
11	392	27	896	43	2024	59	4568
12	416	28	944	44	2128	60	4808
13	440	29	992	45	2240	61	5056
14	464	30	1040	46	2360	62	5320
15	488	31	1096	47	2480	63	5600

Table 7.1.5a.5.4.3: HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [7, 9], octet aligned

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	560	32	1416	48	3552
1	240	17	600	33	1504	49	3768
2	248	18	632	34	1592	50	3984
3	264	19	672	35	1688	51	4224
4	280	20	712	36	1784	52	4472
5	296	21	752	37	1888	53	4736
6	312	22	800	38	2000	54	5016
7	336	23	848	39	2120	55	5312
8	352	24	896	40	2248	56	5632
9	376	25	944	41	2376	57	5960
10	400	26	1000	42	2520	58	6312
11	424	27	1064	43	2664	59	6688
12	448	28	1128	44	2824	60	7080
13	472	29	1192	45	2992	61	7496
14	504	30	1264	46	3168	62	7944
15	528	31	1336	47	3360	63	8416

Table 7.1.5a.5.4.4: HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [10, 12], octet aligned

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	608	32	1640	48	4424
1	240	17	640	33	1744	49	4704
2	248	18	688	34	1856	50	5008
3	264	19	728	35	1976	51	5328
4	288	20	776	36	2096	52	5672
5	304	21	824	37	2232	53	6032
6	320	22	880	38	2376	54	6416
7	344	23	936	39	2528	55	6832
8	368	24	992	40	2688	56	7264
9	392	25	1056	41	2864	57	7736
10	416	26	1128	42	3048	58	8224
11	440	27	1200	43	3240	59	8752
12	472	28	1280	44	3448	60	9312
13	504	29	1360	45	3672	61	9912
14	536	30	1448	46	3904	62	10544
15	568	31	1536	47	4160	63	11224

Table 7.1.5a.5.4.5 : HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [13,15], octet aligned

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	640	32	1832	48	5240
1	240	17	680	33	1960	49	5600
2	256	18	728	34	2088	50	5976
3	272	19	776	35	2232	51	6384
4	288	20	832	36	2384	52	6816
5	312	21	888	37	2544	53	7280

6	328	22	952	38	2720	54	7776
7	352	23	1016	39	2904	55	8304
8	376	24	1080	40	3096	56	8864
9	400	25	1152	41	3312	57	9464
10	432	26	1232	42	3536	58	10112
11	456	27	1320	43	3776	59	10792
12	488	28	1408	44	4032	60	11528
13	520	29	1504	45	4304	61	12312
14	560	30	1608	46	4600	62	13144
15	600	31	1712	47	4912	63	14040

Table 7.1.5a.5.4.6: HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [16,18], octet aligned

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	624	32	1736	48	4840
1	240	17	664	33	1856	49	5160
2	248	18	704	34	1976	50	5496
3	272	19	752	35	2104	51	5864
4	288	20	808	36	2248	52	6248
5	304	21	856	37	2392	53	6664
6	328	22	912	38	2552	54	7104
7	352	23	976	39	2720	55	7568
8	368	24	1040	40	2896	56	8072
9	400	25	1112	41	3088	57	8600
10	424	26	1184	42	3296	58	9176
11	448	27	1264	43	3512	59	9776
12	480	28	1344	44	3744	60	10424
13	512	29	1432	45	3992	61	11112
14	544	30	1528	46	4256	62	11848
15	584	31	1632	47	4536	63	12632

Table 7.1.5a.5.4.7: HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [19,21], octet aligned

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	664	32	2008	48	6024
1	240	17	712	33	2152	49	6448
2	256	18	768	34	2304	50	6904
3	272	19	824	35	2464	51	7400
4	288	20	880	36	2640	52	7920
5	312	21	944	37	2832	53	8488
6	336	22	1008	38	3032	54	9088
7	360	23	1080	39	3248	55	9736
8	384	24	1160	40	3480	56	10424
9	408	25	1240	41	3728	57	11168
10	440	26	1328	42	3992	58	11960
11	472	27	1424	43	4272	59	12808
12	504	28	1528	44	4576	60	13720
13	544	29	1632	45	4904	61	14688
14	584	30	1752	46	5248	62	15736
15	624	31	1872	47	5624	63	16856

Table 7.1.5a.5.4.8: HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [22,24], octet aligned

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	704	32	2248	48	7136
1	240	17	760	33	2416	49	7664
2	256	18	816	34	2592	50	8240
3	272	19	872	35	2792	51	8856
4	296	20	944	36	3000	52	9520
5	320	21	1016	37	3224	53	10232
6	344	22	1088	38	3464	54	11000
7	368	23	1168	39	3720	55	11824
8	392	24	1256	40	4000	56	12712
9	424	25	1352	41	4304	57	13664
10	456	26	1456	42	4624	58	14688
11	488	27	1560	43	4968	59	15784
12	528	28	1680	44	5344	60	16968
13	568	29	1808	45	5744	61	18232
14	608	30	1944	46	6176	62	19600
15	656	31	2088	47	6632	63	21072

Reference(s)

3GPP TS 25.321, 9.2.3.3

7.1.5a.5.4.3 Test purpose

To verify that the UE selects the correct transport block size with MAC-ehs configured based on the TFRI value signalled on the HS-SCCH.

7.1.5a.5.4.4 Method of test

Definition of test variables:

N_{slots}	Number of HS-DSCH slots (1- 6 dependent on UE category)
N_{codes}	Number of HS-DSCH codes per timeslot, 1 to 16
k	TFRI signalled on the HS-SCCH value (see Table 7.1.5a.5.4.x)
TB_{size}	Transport Block size (see Table 7.1.5a.5.4.x)
N_{PDUs}	Number of MAC-d PDUs
MAC-hs_header_size	MAC-hs header size for the reference HS-DSCH radio bearer configuration under test.
MAC-d_PDU_size	MAC-d PDU size for the reference HS-DSCH radio bearer configuration under test.

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off

User Equipment:

UE in idle mode

The following parameters are specific for this test case:

Common for all UE categories:

Parameter	Value
MAC-d PDU size	336 bits
MAC-hs receiver window size	16
Number of HARQ processes	1
Number of reordering queues	1

UE Category 1 to 3:

Parameter	Value
RLC Transmission window size	128
RLC Receiving window size	512

UE Category 4 to 6

Parameter	Value
RLC Transmission window size	256
RLC Receiving window size	512

UE Category 7 to 9:

Parameter	Value
RLC Transmission window size	512
RLC Receiving window size	1536

UE Category 10 to 12:

Parameter	Value
RLC Transmission window size	512
RLC Receiving window size	1536

UE Category 13 to 15:

Parameter	Value
RLC Transmission window size	512
RLC Receiving window size	1536

UE Category 16 to 24:

Parameter	Value
RLC Transmission window size	512
RLC Receiving window size	2047

The test procedure in clause 7.1.5.6a is executed.

7.1.5a.5.4.5 Test requirements

For each TFRC the UE shall return a UL RLC SDUs with the same content as the first 312 bits of the test data sent by the SS in downlink for DL RLC SDU size greater than or equal to 312 bits. If the downlink RLC SDU size is less than 312 bits then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink.

7.1.5a.6 UE Identification on HS-PDSCH in CELL_FACH

7.1.5a.6.1 Definition and applicability

All UEs which support FDD or 1.28 Mcps TDD and HS-PDSCH in CELL_FACH.

7.1.5a.6.2 Conformance requirement

In FDD and 1.28 Mcps TDD, the MAC PDU header for DTCH and DCCH mapped on HS-DSCH CELL_FACH, CELL_PCH state is as shown in figure 9.2.1.1c-1.

- there is no MAC-d header included for DTCH and DCCH.
- there is no MAC-c header included for DTCH and DCCH when UE dedicated H-RNTI is used.

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

1> use the IE "HS-DSCH common system information" in System Information Block type 5 or System Information Block type 5bis;

1> for FDD, receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving cell applying the scrambling code as received in the IE "DL Scrambling code" as received in IE "HS-DSCH common system information";

1> for 1.28 Mcps TDD, receive the HS-SCCH(s) according to the stored HS-SCCH configuration, applying the HS-PDSCH midamble code according to the stored HS-PDSCH midamble configuration;

1> perform HS-DSCH reception procedures:

2> if the UE has a stored IE "HARQ info":

3> act on subclause 8.6.5.6b for the stored IE "HARQ info".

2> else:

3> act on subclause 8.6.5.20 for the IE "HARQ System info" as received in IE "HS-DSCH common system information".

2> and use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

When the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

3GPP TS 25.321 clause 9.2.1.1c

3GPP TS 25.331 clauses 8.5.36, 8.6.3.1b

7.1.5a.6.3 Test purpose

1. To confirm that the UE can receive data on DCCH (SRB#1) using common H-RNTI in CELL_FACH state.

7.1.5a.6.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_FACH state as specified in clause 7.4 of TS 34.108, with dedicated H-RNTI assigned. SIB5 uses default message in 34.108 section 6.10b, condition B1, with the exception of the following parameters

Information Element	Value/remark
- HS-DSCH paging system information	Not Present

Related ICS/IXIT statement(s)

- UE supports FDD or 1.28 Mcps TDD
- UE supports HS-PDSCH in CELL_FACH

Test Procedure

The UE is in CELL_FACH state with SRBs mapped to HS-DSCH and RACH. The SS transmits a UE CAPABILITY ENQUIRY message on RB1 over HS-DSCH but with unmatched UE Id on HS-SCCH. The UE does not respond to this. SS transmits a UE CAPABILITY ENQUIRY message on RB2 over HS-DSCH with matched UE Id on HS-SCCH. After receiving the message, the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH which includes the requested capabilities. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the UE capability enquiry procedure.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_FACH state with dedicated H-RNTI
2	←		UE CAPABILITY ENQUIRY	Sent on HS-DSCH using UM RLC but sent with unmatched H-RNTI on HS-SCCH. Use default message
3				SS waits 10 seconds and checks that UE does not respond
4	←		UE CAPABILITY ENQUIRY	Sent on HS-DSCH using AM RLC but sent with matched H-RNTI on HS-SCCH. Use default message.
5	→		UE CAPABILITY INFORMATION	Use default message.
6	←		UE CAPABILITY INFORMATION CONFIRM	Use default message. SRB is sent on DCCH using AM RLC.

7.1.5a.6.5 Test requirement

At step 3 the UE shall not respond to the UE CAPABILITY ENQUIRY message sent in step 2.

After step 4, the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH to respond to the downlink UE CAPABILITY ENQUIRY message with correct contents.

7.1.5a.7 HARQ retransmissions without ACK/NACK signalling in CELL_FACH

7.1.5a.7.1 Definition and applicability

All UEs which support FDD and HS-PDSCH in CELL_FACH.

7.1.5a.7.2 Conformance requirement

The HS-SCCH reception procedure is as defined in subclause 6A.1.1.

If a UE detects that one of the monitored HS-SCCHs carries consistent control information intended for this UE, the UE shall perform the following:

- Start receiving the HS-PDSCHs indicated by this consistent control information
- If the CRC of the HS-SCCH is OK, the transport block size information shall be derived from the signalled TFRI value as defined in [9]. If the 'Hybrid-ARQ process information' is not included in the set configured by upper layers, the UE shall discard the information received on this HS-SCCH and on the HS-PDSCHs.

Unless indicated by higher layers, the UE shall not transmit any HARQ-ACK or CQI information and DTX shall be used on all the HS-DPCCH subframes.

3GPP TS 25.214 clauses 6A.1.1A

7.1.5a.7.3 Test Purpose

To confirm that the UE can perform the HARQ Retransmissions without ACK/NACK Signalling.

7.1.5a.7.4 Method of test

Initial Condition

System Simulator: 1 cell, default parameters, Ciphering Off.

The radio bearer is placed into UE test loop mode 1 and configured to return UL RLC SDUs of the same size as received in DL.

UE: CELL_FACH state as specified in clause 7.4 of TS 34.108, with dedicated H-RNTI. SIB5 uses default message in 34.108 section 6.10b, condition B1, with the exception of the following parameters

Information Element	Value/remark
- HS-DSCH paging system information	Not Present

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH in CELL_FACH

Test Procedure

The UE is in CELL_FACH state and has a radio bearer established which is mapped to HS-DSCH and RACH. The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed with default Radio Bearer according to RB setup (condition A24). With the exception of the following parameters which are specific for this test case:

Parameter	Value
PDCP info	Not Present
Polling info	
- Timer Poll Prohibit	Not Present
- Timer_poll	Not Present

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 39 octets.

In this test procedure each MAC-ehs PDU contains one RLC PDU carrying one SDU of size 39 octets and one length indicator indicating the end of the SDU.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_FACH state with dedicated H-RNTI
2			RB Establishment	See generic procedures
3			Close UE Test Loop	
4	←		MAC-ehs PDU sent	Correct CRC
5	→		RLC Loop Backed PDU	SS validates that UE sends loop backed PDU correctly, while UE does not send HARQ ACK or NACK
6	←		MAC-ehs PDU sent	Erroneous CRC
7				SS checks for 5 sec that UE does not send loop backed PDU. UE does not send HARQ ACK or NACK
8			Open UE Test Loop	See generic procedures
9			RB Release	

Specific Message Contents

None.

7.1.5a.7.5 Test requirement

1. At Step 5, the UE shall loop back the RLC PDU.
2. After Step 6, no data shall be looped back.
3. At Step 5 & 7, the UE shall not send HARQ ACK or NACK.

7.1.5a.8 HARQ retransmissions without ACK/NACK signalling in CELL_FACH when Dedicated H-RNTI is not allocated (1.28 Mcps TDD)

7.1.5a.8.1 Definition and applicability

All UEs which support 1.28Mcps TDD and HS-PDSCH in CELL_FACH.

7.1.5a.8.2 Conformance requirement

If the UE is configured without dedicated UE identity, the UE shall not transmit an HS-SICH. If the UE is configured with a dedicated UE identity, but the HS-SCCH is an uplink synchronization establishment order, then its associated HS-SICH shall not be transmitted. Otherwise, the channel quality indication shall be transmitted on HS-SICH, and the HS-DSCH channel quality indication procedure is the same as that in CELL_DCH state of 1.28Mcps TDD, cf. 5.9.2.

- Schedules new transmissions and retransmissions:
    - When transmitting for a UE in CELL_DCH state the scheduler determines based on the status reports from HARQ Processes if either a new transmission or a retransmission should be made. A new transmission can however be initiated on a HARQ process at any time. Based on a delay attribute provided by upper layers, the scheduler may decide to discard any 'out-of-date' MAC-ehs SDU.
    - In FDD when transmitting for a UE in CELL_FACH state the scheduler determines based on RRM and IE "Transmitted Power Level" received on Iub FP the number of retransmission that should be made after new transmission. If HARQ feedback is configured, the scheduler may stop retransmission based on the status reports from HARQ processes. A new transmission can however be initiated on a HARQ process at any time. Based on a delay attribute provided by upper layers, the scheduler may decide to discard any 'out-of-date' MAC-ehs SDU.
    - In 1.28Mcps TDD, when transmitting CCCH or DCCH with common H-RNTI for a UE in CELL_FACH state the scheduler determines based on RRM and IE "Transmitted Power Level" received on Iub FP the number of retransmission that should be made after new transmission. Based on a delay attribute provided by upper layers, the scheduler may decide to discard any 'out-of-date' MAC-ehs SDU.

References(s)

3GPP TS 25.224 clauses 5.9A.2, 3GPP TS 25.321 clauses 11.6.3.1

7.1.5a.8.3 Test Purpose

To confirm that the UE can perform the HARQ Retransmissions without ACK/NACK Signalling in CELL_FACH when Dedicated H-RNTI is not allocated.

7.1.5a.8.4 Method of test

Initial Condition

System Simulator: 1 cell, default parameters, Ciphering Off.

The radio bearer is placed into UE test loop mode 1 and configured to return UL RLC SDUs of the same size as received in DL.

UE: CELL_FACH state as specified in clause 7.4 of TS 34.108, with dedicated H-RNTI. SIB5 uses default message in 34.108 section 6.1.0b, condition B1, with the exception of the following parameters

Information Element	Value/remark
- HS-DSCH paging system information	Not Present

Related ICS/IXIT statement(s)

- UE supports 1.28Mcps TDD
- UE supports HS-PDSCH in CELL_FACH

Test Procedure

The UE is in CELL_FACH state and has a radio bearer established which is mapped to HS-DSCH and E-DCH. The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed with default Radio Bearer according to RB setup (condition A18). With the exception of the following parameters which are specific for this test case:

Parameter	Value
Polling info	
- Timer Poll Prohibit	Not Present
- Timer_poll	Not Present

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 39 octets.

In this test procedure each MAC-ehs PDU contains one RLC PDU carrying one SDU of size 39 octets and one length indicator indicating the end of the SDU.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_FACH state without dedicated H-RNTI
2			RB Establishment	See generic procedures
3			Close UE Test Loop	
4	←		MAC-ehs PDU sent	Erroneous CRC
5				SS checks for 5 sec that UE does not send loop backed PDU. UE does not send HARQ ACK or NACK
6	←		MAC-ehs PDU sent	Correct CRC
7	→		RLC Loop Backed PDU	SS validates that UE sends loop backed PDU correctly, while UE does not send HARQ ACK or NACK
8			Open UE Test Loop	See generic procedures
9			RB Release	

Specific Message Contents

None.

7.1.5a.8.5 Test requirement

1. At step 4, SS sends a MAC-ehs PDU with erroneous CRC.
2. At step 6, SS sends a MAC-ehs PDU with correct CRC.

3. At step 7, SS receives the loop backed PDU.

7.1.5a.9 HARQ retransmissions with ACK/NACK signalling in CELL_FACH when Dedicated H-RNTI is allocated (1.28 Mcps TDD)

7.1.5a.9.1 Definition and applicability

All UEs which support 1.28Mcps TDD and HS-PDSCH in CELL_FACH.

7.1.5a.9.2 Conformance requirement

If the UE is configured without dedicated UE identity, the UE shall not transmit an HS-SICH. If the UE is configured with a dedicated UE identity, but the HS-SCCH is an uplink synchronization establishment order, then its associated HS-SICH shall not be transmitted. Otherwise, the channel quality indication shall be transmitted on HS-SICH, and the HS-DSCH channel quality indication procedure is the same as that in CELL_DCH state of 1.28Mcps TDD, cf. 5.9.2.

- Schedules new transmissions and retransmissions:
  - When transmitting for a UE in CELL_DCH state the scheduler determines based on the status reports from HARQ Processes if either a new transmission or a retransmission should be made. A new transmission can however be initiated on a HARQ process at any time. Based on a delay attribute provided by upper layers, the scheduler may decide to discard any 'out-of-date' MAC-ehs SDU.
  - In FDD when transmitting for a UE in CELL_FACH state the scheduler determines based on RRM and IE "Transmitted Power Level" received on Iub FP the number of retransmission that should be made after new transmission. If HARQ feedback is configured, the scheduler may stop retransmission based on the status reports from HARQ processes. A new transmission can however be initiated on a HARQ process at any time. Based on a delay attribute provided by upper layers, the scheduler may decide to discard any 'out-of-date' MAC-ehs SDU.
  - In 1.28Mcps TDD, when transmitting CCCH or DCCH with common H-RNTI for a UE in CELL_FACH state the scheduler determines based on RRM and IE "Transmitted Power Level" received on Iub FP the number of retransmission that should be made after new transmission. Based on a delay attribute provided by upper layers, the scheduler may decide to discard any 'out-of-date' MAC-ehs SDU.
  - In 1.28Mcps TDD, When transmitting or retransmitting DCCH/DTCH with dedicated H-RNTI for a UE in CELL_FACH state, if In SYNC state is not indicated by physical layer as in [18], then the synchronization Command via HS-SCCH shall be sent to the UE firstly, the transmitting or retransmitting DCCH/DTCH shall not be initiated or resumed until In-SYNC state is detected as in [18]. The scheduler determines based on the status reports from HARQ Processes if either a new transmission or a retransmission should be made. Based on a delay attribute provided by upper layers, the scheduler may decide to discard any 'out-of-date' MAC-ehs SDU.

References(s)

3GPP TS 25.224 clauses 5.9A.2, 3GPP TS 25.321 clauses 11.6.3.1

7.1.5a.9.3 Test Purpose

To confirm that the UE can perform the HARQ Retransmissions with ACK/NACK Signalling in CELL_FACH when Dedicated H-RNTI is allocated.

7.1.5a.9.4 Method of test

Initial Condition

System Simulator: 1 cell, default parameters, Ciphering Off.

The radio bearer is placed into UE test loop mode 1 and configured to return UL RLC SDUs of the same size as received in DL.

UE: CELL_FACH state as specified in clause 7.4 of TS 34.108, with dedicated H-RNTI. SIB5 uses default message in 34.108 section 6.1.0b, condition B1, with the exception of the following parameters

Information Element	Value/remark
- HS-DSCH paging system information	Not Present

Related ICS/IXIT statement(s)

- UE supports 1.28Mcps TDD
- UE supports HS-PDSCH in CELL_FACH

Test Procedure

The UE is in CELL_FACH state and has a radio bearer established which is mapped to HS-DSCH and E-DCH. The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed with default Radio Bearer according to RB setup (condition A18). With the exception of the following parameters which are specific for this test case:

Parameter	Value
Polling info	
- Timer Poll Prohibit	Not Present
- Timer_poll	Not Present

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 39 octets.

In this test procedure each MAC-ehs PDU contains one RLC PDU carrying one SDU of size 39 octets and one length indicator indicating the end of the SDU.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_FACH state with dedicated H-RNTI
2			RB Establishment	See generic procedures
3			Close UE Test Loop	
4	←		MAC-ehs PDU sent	Erroneous CRC
5	→		HS-SICH	UE sends HARQ NACK
6	←		MAC-ehs PDU sent	Correct CRC
7	→		RLC Loop Backed PDU	SS validates that UE sends loop backed PDU correctly, while UE does not send HARQ ACK or NACK
8			Open UE Test Loop	See generic procedures
9			RB Release	

Specific Message Contents

None.

7.1.5a.9.5 Test requirement

1. At step 4, SS sends a MAC-ehs PDU with erroneous CRC.
2. At step 6, SS sends a MAC-ehs PDU with correct CRC.
3. At step 7, SS receives the loop backed PDU.

7.1.5a.10 MAC-ehs data transmission with enhanced TS0 (1.28 Mcps TDD)

7.1.5a.10.1 Definition and applicability

All UEs which support HS-PDSCH and 1.28Mcps TDD and MAC-ehs and enhanced TS0.

7.1.5a.10.2 Conformance requirement

For 1.28 Mcps, the timeslots to be used for HS-PDSCH resources are signalled by the bits $x_{ts,1}$, $x_{ts,2}$, …, $x_{ts,5}$, where bit $x_{ts,n}$ carries the information for timeslot n+1. Timeslot 1 cannot be used for HS-DSCH resources. If the signalling bit is set (i.e. equal to 1), then the corresponding timeslot shall be used for HS-PDSCH resources. Otherwise, the timeslot shall not be used. All used timeslots shall use the same channelisation code set, as signalled by the channelisation code set information bits.

When indicated by the higher layer that Timeslot 0 can be used for HS-PDSCH, bit $x_{ts,1}$ carries the information for timeslot 0. If $x_{ts,1}$ is set (i.e. equal to 1), Timeslot 0 shall be used for HS-PDSCH resource. Otherwise, Timeslot 0 shall not be used.

Reference(s)

TS 25.222 clause 4.6.1.2.1

7.1.5a.10.3 Test purpose

To verify that the UE can receive the data transmitted in TS0 with MAC-ehs.

7.1.5a.10.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off cell1 configures 3 carrier frequency, one is primary frequency, other are secondary frequencies. The frequency relation show as below:

Parameter	Cell 1
UTRA RF Channel Number1	Ch. 1
UTRA RF Channel Number2	Ch. 2
UTRA RF Channel Number3	Ch.3

User Equipment:

UE in idle mode

Test procedure

a) The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.5.4.7.6 using condition A11 as specified in clause 9.1 of TS 34.108.

b) The SS closes the test loop using UE test loop mode 1 setting the UL RLC SDU size parameter to 39 octets (312 bits).

c) The SS transmits a MAC-ehs PDU in TS0.

d) The SS checks that the UE returned RLC SDUs has the same content as the first 312 bits of the test data sent by the SS in downlink.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<--		RADIO BEARER SETUP (DCCH)	RRC. For the PS radio bearer the 'pdcp info' IE shall be omitted.
2	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
3	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is set to 39 octets
4	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
5	<--		DOWNLINK MAC-ehs PDU	Send test data inTS0
6	-->		UPLINK RLC SDUs	The SS checks that the content of the received UL RLC SDUs are correct

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for "Packet to CELL_DCH / E-DCH / HS-DSCH using three multiplexing options (3/3) and SRBs mapped on DCH/DCH" in 34.108 with the following exceptions:

Information Element	Value/remark
Downlink HS-PDSCH Information	Not Present
- CHOICE mode	TDD
- CHOICE *TDD option*	1.28 Mcps
- TS0 Indicator	TRUE
Multi-frequency Info	
- Second Frequency Info	UTRA RF Channel Number2

7.1.5a.10.5 Test requirements

In step6 the UE shall return a UL RLC SDUs with the same content as the first 312 bits of the test data sent by the SS in downlink.

7.1.5b HS-SCCH Less Operation

7.1.5b.1 HARQ procedure for HS-SCCH less operation

7.1.5b.1.1 Definition and applicability

All UEs which support HS-SCCHless HS-DSCH.

7.1.5b.1.2 Conformance requirement

When the HS-SCCH less mode of operation is enabled, the UE shall be able to store 13 TTIs in a cyclic soft buffer.

For each received MAC-hs PDU provided by the lower layers the UE shall:

- If the associated HS-SCCH corresponds to an HS-SCCH less retransmission as defined in subclause 4.6A.2.1.2 of [16]:
  - if the data in the soft buffer identified by the TTI [5*CFN + subframe number - 6 – PTR]**mod** 13 has not been decoded successfully:
    - combine the received data with the data currently in the soft buffer identified by [5*CFN + subframe number - 6 – PTR]**mod** 13 where PTR is the value of the pointer to the previous transmission as defined in subclause 4.6A.2.1.2.1 of [16].
  - If the data in the soft buffer has been successfully decoded and no error was detected;

- deliver the decoded MAC-hs PDU to the reordering entity;
- generate a positive acknowledgement (ACK) of the data corresponding to this TTI.

- else:
  - place the combined data for the HS-SCCH less TTI in the soft buffer identified by [5*CFN + subframe number]**mod** 13, replacing any data previously stored in that buffer.
- generate a negative acknowledgement (NACK) of the data corresponding to this TTI.

- Else if the associated HS-SCCH corresponds to a HS-SCCH type 1 as defined in subclause 4.6 of [16];
  - process the received MAC-hs PDU provided by the lower layers as per subclause 11.6.2.2.
- Else;
  - If the data has been successfully decoded and no error was detected;
    - deliver the decoded MAC-hs PDU to the reordering entity;
    - generate a positive acknowledgement (ACK) of the data corresponding to this TTI.
  - else
  - place the data for the HS-SCCH less TTI in the soft buffer identified by [5*CFN + subframe number]**mod** 13, replacing any data previously stored in that buffer.

Reference(s)

TS 25.321 clauses 11.6.2.7

7.1.5b.1.3 Test purpose

To verify that

1. UE is able to operate in HS-SCCH less mode of operation..
2. When multiple transport block sizes are configured, UE is able to decode the Transport block correctly on first Transmission.
3. UE is able to combine data in soft buffer and data received and decode combined data.
4. UE does not transmit NACK for HS-SCCH less mode of operation

7.1.5b.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / UM PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH, as specified in TS 34.108, clause 6.11.4i.1 with the logical channel, MAC-hs queue identity set to:

Logical Channel ID	Mac-hs Queue ID	Comment
7	0	RB5

The following parameters are specific for this test case:

Parameter	Value
DTX_DRX_STATUS	FALSE
HS-SCCH less information	
- HS-PDSCH Code Index	14
- Transport Block Size List	4 elements
- Transport Block Size Index	20 [365, sufficient for one MAC-hs SDU 0f 336 + MAC-hs header of 21]
- HS-PDSCH Second Code Support	FALSE
- Transport Block Size Index	48 [699, sufficient for 2 MAC-hs SDU of 336 + MAC-hs header of 21]
- HS-PDSCH Second Code Support	FALSE
- Transport Block Size Index	70[1036, sufficient for 3 MAC-hs SDU of 336 + MAC-hs header of 21]
- HS-PDSCH Second Code Support	TRUE
- Transport Block Size Index	86 [1380, sufficient for 4 MAC-hs SDU of 336 + MAC-hs header of 21]
- HS-PDSCH Second Code Support	TRUE

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 39 octets.

Test procedure

In this test procedure each MAC-hs PDU contains one RLC PDU carrying one SDU of size 39 octets and one length indicator indicating the end of the SDU.

a) The SS transmits a MAC-hs PDU where:

1. The TSN = 0
2. The MAC-hs PDU contains a RLC PDU with SN=0.

Using HS-SCCH less mode of operation.

b) The SS checks that a Positive acknowledgement is received and RLC PDUis loop backed by UE

c) The SS transmits a MAC-hs PDU where:

1. The TSN = 1
2. The MAC-hs PDU contains 2 RLC PDU's with SN=1&2.
3. The physical layer CRC is modified such that the CRC check in the UE will fail

The MAC-hs PDU is transmitted in a CFN, Subframe number such that by [5*CFN + subframe number]**mod** 13 = X, using HS-SCCH less mode of operation.

d) The SS checks that no negative acknowledgement is received and no RLC PDU loop backed by UE

e) The SS re-transmits a MAC-hs PDU with the same content as in step c) but where the CRC is correct, using HS-SCCH Type-2, in next available CFN & subframe satisfying [5*CFN + subframe number - 6 – PTR]**mod** 13=X as in step c.

f) The SS checks that a positive acknowledgement is received and RLC PDU's for SN 1,2 are loop backed by UE.

g) The SS transmits a MAC-hs PDU where:

1. The TSN = 2
2. The MAC-hs PDU contains 3 RLC PDU's with SN=3,4&5.

3. The physical layer CRC is modified such that the CRC check in the UE will fail

The MAC-hs PDU is transmitted in a CFN, Subframe number such that by [5*CFN + subframe number]**mod** 13 = X, using HS-SCCH less mode of operation.

h) The SS checks that no negative acknowledgement is received and no RLC PDU loop backed by UE

i) The SS re-transmits a MAC-hs PDU with the same content as in step g) again with an incorrect CRC, using HS-SCCH Type-2, in next available CFN & subframe satisfying [5*CFN + subframe number - 6 – PTR]**mod** 13=X as in step g [second transmission]. Further [5*CFN + subframe number]**mod** 13 = Y.

j) The SS checks that a negative acknowledgement is received and no RLC PDU loop backed by UE.

k) The SS re-transmits a MAC-hs PDU with the same content as in step g) but where the CRC is correct, using HS-SCCH Type-2, in next available CFN & subframe satisfying [5*CFN + subframe number - 6 – PTR]**mod** 13=Y as in step i[final transmission].

l) The SS checks that a positive acknowledgement is received and RLC PDU's for SN 3,4,5 are loop backed by UE.

m) The SS repeats steps g to l, with TSN=3 and MAC-hs PDU consisting of 4 RLC PDU's with SN=6,7,8&9

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		MAC-hs PDU containing one RLC PDU with SN=0	HS-SCCH Less operation
2	->		MAC-hs ACK	
3	->		RLC Loop Backed PDU with SN=0	
4	←		MAC-hs PDU containing 2 RLC PDU's with SN=1&2	Erroneous CRC, [5*CFN + subframe number]**mod** 13 = X
5				SS checks no MAC-hs negative acknowledgement or loop backed data is received
6	←		MAC-hs PDU containing 2 RLC PDU's with SN=1&2	First Transmission, Correct CRC, [5*CFN + subframe number - 6 – PTR]**mod** 13=X [second transmission]
7	→		MAC-hs positive acknowledgement	
8	→		RLC Loop Backed PDU's with SN=1&2	
9	←		MAC-hs PDU containing 3 RLC PDU's with SN=3,4&5	Erroneous CRC, [5*CFN + subframe number]**mod** 13 = X
10				SS checks no MAC-hs negative acknowledgement or loop backed data is received
11	←		MAC-hs PDU containing 3 RLC PDU's with SN=3,4&5	Second Transmission, Erroneous CRC, [5*CFN + subframe number - 6 – PTR]**mod** 13=X [second transmission] Further [5*CFN + subframe number]**mod** 13 = Y
12	→		MAC-hs negative acknowledgement	
13	←		MAC-hs PDU containing 3 RLC PDU's with SN=3,4&5	Third Transmission, Correct CRC, [5*CFN + subframe number - 6 – PTR] **mod** 13 = Y [Final transmission]
14	→		MAC-hs positive acknowledgement	
15	→		RLC Loop Backed PDU's with SN=3,4&5	
16	←		MAC-hs PDU containing 4 RLC PDU's with SN=6,7,8&9	Erroneous CRC, [5*CFN + subframe number] **mod** 13 = XX
17				SS checks no MAC-hs negative acknowledgement or loop backed data is received
18	←		MAC-hs PDU containing 4 RLC PDU's with SN=6,7,8&9	Second Transmission, Erroneous CRC, [5*CFN + subframe number - 6 – PTR]**mod** 13=XX [second transmission] Further [5*CFN + subframe number]**mod** 13 = YY *Note
19	→		MAC-hs negative acknowledgement	
20	←		MAC-hs PDU containing 4 RLC PDU's with SN=6,7,8&9	Third Transmission, Correct CRC, [5*CFN + subframe number - 6 – PTR]**mod** 13=YY [Final transmission] *Note
21	→		MAC-hs positive acknowledgement	
22	→		RLC Loop Backed PDU's with SN=6,7,8&9	
Note: the CRC calculations made in steps 16, 18 &20 [9, 11 & 13] is in such a way that, it will result in CRC error in steps 16 & 18 [9 & 11] and no CRC error in step 20 [13], after combination of new data in step 20 [13] and stored data in UE after step 18[11].				

Specific Message Contents

None

7.1.5b.1.5 Test requirements

1. After steps 11 & 18, a MAC-hs negative acknowledgement shall be received.
2. After steps 1, 6, 13 & 20, a MAC-hs Positive acknowledgement shall be received
3. After steps 4, 9 & 16 no MAC-hs NACK shall be received by SS.
4. After step 1, RLC Loop Backed PDU with SN=1 is received.
5. After step 6, RLC Loop Backed PDU's with SN=2 & 3 is received
6. After step 13, RLC Loop Backed PDU's with SN=4, 5 & 6 are received
7. After step 20, RLC Loop Backed PDU's with SN=7, 8, 9 & 10 are received

7.1.5c HS-DSCH SPS Operation

7.1.5c.1 HARQ procedure for HS-DSCH SPS operation

7.1.5c.1.1 Definition and applicability

All UEs which support 1.28Mcps TDD and SPS operation.

7.1.5c.1.2 Conformance requirement

When the HS-DSCH SPS operation is enabled, the UE shall maintain cyclic virtual IR buffers with number of N where N is configured by higher layer as in [7]. And the value tagged to the virtual IR buffers should be all set to NULL.

For each received MAC-hs PDU provided by the lower layers the UE shall:

- If the associated HS-SCCH corresponds to an HS-SCCH SPS retransmission as defined in subclause 4.6C of [19]:
  - if the data in the virtual IR buffer tagged with the value [2*CFN + subframe number - 4 – PTR] mod 512 has not been decoded successfully:
    - combine the received data with the data currently in the virtual IR buffer tagged with the value [2*CFN + subframe number - 4 - PTR] mod 512, where PTR is the value of the pointer to the previous transmission as defined in subclause 4.6C of [19].
  - If the data in the virtual IR buffer has been successfully decoded and no error was detected:
    - deliver the decoded MAC-hs PDU to the reordering entity;
    - generate a positive acknowledgement (ACK) of the data corresponding to this TTI;
      - tag the virtual IR buffer with the value NULL.
  - else:
    - generate a negative acknowledgement (NACK) of the data corresponding to this TTI;
    - tag the virtual IR buffer with the value [2*CFN + subframe number].
  - else:
    - generate a positive acknowledgement (ACK) of the data corresponding to this TTI;
    - discard the received data.

- Else if the associated HS-SCCH corresponds to a HS-SCCH as defined in subclause 4.6 of [19]:
  - process the received MAC-hs PDU provided by the lower layers as per subclause 11.6.2.2.
- Else if the TTI is allocated to the UE with HS-DSCH SPS resources:
  - if there is virtual IR buffer of which the tagged value is set to NULL:
    - place the received data for the HS-DSCH SPS TTI in any of the virtual IR buffers of which the tagged value is set to NULL.
  - else:
    - place the received data for the HS-DSCH SPS TTI in the virtual IR buffer which contains the oldest MAC-hs PDU, replacing any data previously stored in this buffer.
  - If the received data has been successfully decoded and no error was detected;
    - deliver the decoded MAC-hs PDU to the reordering entity;
    - generate a positive acknowledgement (ACK) of the data corresponding to this TTI;
    - tag the virtual IR buffer with the value NULL.
  - else:
    - generate a negative acknowledgement (NACK) of the data corresponding to this TTI;
    - tag the virtual IR buffer with the value [2*CFN + subframe number].
- For the data stored in each virtual IR buffer of which the tagged value is not set to NULL, if the time waiting for retransmission has been longer than 4+PTRmax TTIs, where PTRmax is the maximum value that can be indicated by PTR:
  - tag the virtual IR buffer with the value NULL.

Reference(s)

TS 25.321 clauses 11.6.2.8

7.1.5c.1.3 Test purpose

To verify that

1. UE is able to operate in SPS operation..
2. UE is able to decode the Transport block correctly on first Transmission.
3. UE is able to combine data in soft buffer and data received and decode combined data.

7.1.5c.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH, as specified in TS 34.108, clause 6.11.5.4.7.4 with the logical channel, MAC-hs/MAC-ehs queue identity set to:

Logical Channel ID	Mac-hs Queue ID	Comment
7	0	RB5

The following parameters are specific for this test case:

Parameter	Value
CONTROL_CHANNEL_DRX_STATUS	FALSE
Transport Block Size List	1 element
- Transport Block Size Index	9 [sufficient for one MAC-hs SDU 0f 336 + MAC-hs header of 21]
HARQ Info for Semi-Persistent Scheduling	
- Number of Processes	8
- Process Memory size	hms6400

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 39 octets.

Test procedure

In this test procedure each MAC-hs PDU contains one RLC PDU carrying one SDU of size 39 octets and one length indicator indicating the end of the SDU.

a) The SS transmits a MAC-hs PDU where:

1. The TSN = 0
2. The MAC-hs PDU contains a RLC PDU with SN=0.

Using HS-DSCH SPS resource.

b) The SS checks that a Positive acknowledgement is received and RLC PDU is loop backed by UE

c) The SS transmits a MAC-hs PDU where:

1. The TSN = 1
2. The MAC-hs PDU contains 1 RLC PDU with SN=1.
3. The physical layer CRC is modified such that the CRC check in the UE will fail

The MAC-hs PDU is transmitted in a CFN, Subframe number such that by 2*CFN + subframe number =X, using HS-DSCH SPS resource.

d) The SS checks that a negative acknowledgement is received and no RLC PDU loop backed by UE

e) The SS re-transmits a MAC-hs PDU with the same content as in step c) but where the CRC is correct, using HS-SCCH Type-3, in next available CFN & subframe satisfying [2*CFN + subframe number - 4 – PTR] mod 512 = X as in step c.

f) The SS checks that a positive acknowledgement is received and RLC PDU's for SN 1 are loop backed by UE.

g) The SS transmits a MAC-hs PDU where:

1. The TSN = 2
2. The MAC-hs PDU contains 2 RLC PDU's with SN=2.

3. The physical layer CRC is modified such that the CRC check in the UE will fail

The MAC-hs PDU is transmitted in a CFN, Subframe number such that by 2*CFN + subframe number = X, using HS-DSCH SPS operation.

h) The SS checks that a negative acknowledgement is received and no RLC PDU loop backed by UE

i) The SS re-transmits a MAC-hs PDU with the same content as in step g) again with an incorrect CRC, using HS-SCCH Type-3, in next available CFN & subframe satisfying [2*CFN + subframe number - 4 – PTR] mod 512 = X as in step g [second transmission]. Further 2*CFN + subframe number = Y.

j) The SS checks that a negative acknowledgement is received and no RLC PDU loop backed by UE.

k) The SS re-transmits a MAC-hs PDU with the same content as in step g) but where the CRC is correct, using HS-SCCH Type-3, in next available CFN & subframe satisfying [2*CFN + subframe number - 4 – PTR] mod 512 = Y as in step i[final transmission].

l) The SS checks that a positive acknowledgement is received and RLC PDU for SN 3 is loop backed by UE.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		MAC-hs PDU containing one RLC PDU with SN=0	SPS operation
2	->		MAC-hs ACK	
3	->		RLC Loop Backed PDU with SN=0	
4	←		MAC-hs PDU containing one RLC PDU with SN=1	Erroneous CRC, 2*CFN + subframe number = X
5			MAC-hs negative acknowledgement	SS checks a MAC-hs negative acknowledgement
6	←		MAC-hs PDU containing one RLC PDU with SN=1	First Transmission, Correct CRC, [2*CFN + subframe number - 4 – PTR] mod 512 =X [second transmission]
7	→		MAC-hs positive acknowledgement	
8	→		RLC Loop Backed PDU's with SN=1	
9	←		MAC-hs PDU containing one RLC PDU with SN=2	Erroneous CRC, 2*CFN + subframe number = X
10			MAC-hs negative acknowledgement	SS checks a MAC-hs negative acknowledgement
11	←		MAC-hs PDU containing one RLC PDU's with SN=2	Second Transmission, Erroneous CRC, [2*CFN + subframe number - 4 – PTR] mod 512=X [second transmission] Further 2*CFN + subframe number = Y
12	→		MAC-hs negative acknowledgement	
13	←		MAC-hs PDU containing one RLC PDU with SN=2	Third Transmission, Correct CRC, [2*CFN + subframe number - 4 – PTR] mod 512 = Y [Final transmission]
14	→		MAC-hs positive acknowledgement	
15	→		RLC Loop Backed PDU's with SN=2	
Note: the CRC calculations made in steps 9, 11 & 13 is in such a way that, it will result in CRC error in steps 9 & 11 and no CRC error in step 13, after combination of new data in step 13 and stored data in UE after step 11.				

Specific Message Contents

None

7.1.5c.1.5 Test requirements

1. After steps 4, 9, 11, a MAC-hs negative acknowledgement shall be received.

2. After steps 1, 6, 13, a MAC-hs Positive acknowledgement shall be received

3. After step 1, RLC Loop Backed PDU with SN=0 is received.

4. After step 6, RLC Loop Backed PDU with SN=1 is received
5. After step 13, RLC Loop Backed PDU with SN=2 is received

7.1.6 E-DCH MAC-es/e

7.1.6.1 MAC-es/e multiplexing

7.1.6.1.1 MAC-es/e multiplexing without RRC restrictions

7.1.6.1.1.1 Definition and applicability

All UEs which support E-DCH.

7.1.6.1.1.2 Conformance requirement

From 25.321 clause 9.1.5:

In the case of E-DCH there are two MAC sublayers, MAC-e and MAC-es. MAC-es sits on top of MAC-e and receives PDUs directly from MAC-d. MAC-es SDUs (i.e. MAC-d PDUs) of the same size, coming from a particular logical channel can be multiplexed together into a single MAC-es payload. To this payload is prepended the MAC-es header (see subclause 9.2.4.1). The number of PDUs, as well as the DDI value identifying the logical channel, the MAC-d flow and the MAC-es SDU size are included as part of the MAC-e header. In case sufficient space is left in the E-DCH transport block or if Scheduling Information needs to be transmitted, an SI will be included at the end of the MAC-e PDU (see subclause 9.2.4.2). Multiple MAC-es PDUs, but only one MAC-e PDU can be transmitted in a TTI.

[…]

From 25.331 clause 8.6.5.18:

1> if the IE "E-DCH MAC-d flow multiplexing list" is included:

2> only multiplex MAC-d PDU’s from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU’s from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed in accordance to the IE "E-DCH MAC-d flow multiplexing list".

[…]

Reference(s)

TS 25.321 clause 9.1.5, TS 25.331 clause 8.6.5.18

7.1.6.1.1.3 Test purpose

The purpose of this test case is to verify that the UE multiplexes data from different logical channels in the same TTI when no restriction on the multiplexing is configured by RRC.

7.1.6.1.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4d(FDD) /6.11.5.4.7.7(1.28Mcps TDD) using condition A15(FDD) /A14(1.28Mcps TDD) as specified in clause 9.1 of TS 34.108. The logical channel, transport channel and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25
8 (LCH2)	3	2	RB17
Note: The RAB combination also includes SRBs on E-DCH on MAC-d flow 1 which is not used in the testcase			

The following parameters are specific for this test case:

Parameter	Value
Periodicity for Scheduling Info – no grant	500 ms (see 25.331 10.3.6.99) (FDD)
T-WAIT	200 ms (see 25.331 10.3.6.103)(1.28Mcps TDD)
E-DCH MAC-d flow multiplexing list	11111111 (See 25.331 10.3.5.1b) Note 1
Note 1: This configuration means that all MAC-d flows can be multiplexed in the same TTI	

The UE is placed into UE test loop mode 1 with the UL SDU size set to 39 octets for RB25 and RB17.

Test procedure

The UE is configured with two logical channels, LCH1 (with priority 1) and LCH2 (with priority 2). LCH1 is mapped to MAC-d flow 2 and LCH2 is mapped to MAC-d flow 3.

a) The SS has not issued any scheduling grants for E-DCH to the UE

b) The SS transmits one SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH2

c) The SS transmits one SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

d) The SS waits for an SI to be received that indicates that data is available on both logical channels (can be identified from the content of the SI)

e) The SS issues an absolute grant that allows the UE to send with a high rate (signalling value 10, allowing a rate well above 2 SDUs/TTI)

f) The SS waits until data is received and verifies that data from the two LCHs is received in the same TTI

NOTE: The UE may send an SI after step 1 but this SI would only indicate data on LCH2. This SI will be ignored.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		1 RLC PDU on LCH 2	
2	←		1 RLC PDU on LCH 1	
3	→		Potential SI indicating data on LCH 2	This SI is ignored by the SS
4	→		SI indicating data on LCH 1 and LCH 2	This can be verified from the indicated fraction of data on LCH1
5	←		Absolute grant allowing UE to transmit on E-DCH	This grant must be sufficiently high to allow a rate corresponding to at least 2 RLC PDUs/TTI, signalling value 10
6	→		MAC e/es PDU containing 1 RLC PDU on LCH 1 and one RLC PDU on LCH 2	

Specific Message Contents

None

7.1.6.1.1.5 Test requirements

1. After step 2 the SS shall receive an SI indicating that data is available on LCH 1 and LCH 2 but no RLC PDUs shall be received

2. In step 6, the SS shall receive 1 RLC PDU on LCH 1 and one RLC PDU on LCH 2 in the same TTI

7.1.6.1.2 MAC-es/e multiplexing with RRC restrictions

7.1.6.1.2.1 Definition and applicability

All UEs which support E-DCH.

7.1.6.1.2.2 Conformance requirement

From 25.321 clause 9.1.5:

In the case of E-DCH there are two MAC sublayers, MAC-e and MAC-es. MAC-es sits on top of MAC-e and receives PDUs directly from MAC-d. MAC-es SDUs (i.e. MAC-d PDUs) of the same size, coming from a particular logical channel can be multiplexed together into a single MAC-es payload. To this payload is prepended the MAC-es header (see subclause 9.2.4.1). The number of PDUs, as well as the DDI value identifying the logical channel, the MAC-d flow and the MAC-es SDU size are included as part of the MAC-e header. In case sufficient space is left in the E-DCH transport block or if Scheduling Information needs to be transmitted, an SI will be included at the end of the MAC-e PDU (see subclause 9.2.4.2). Multiple MAC-es PDUs, but only one MAC-e PDU can be transmitted in a TTI.

[…]

From 25.331 clause 8.6.5.18:

1> if the IE "E-DCH MAC-d flow multiplexing list" is included:

2> only multiplex MAC-d PDU’s from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU’s from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed in accordance to the IE "E-DCH MAC-d flow multiplexing list".

[…]

Reference(s)

TS 25.321 clause 9.1.5, TS 25.331 clause 8.6.5.18

7.1.6.1.2.3 Test purpose

The purpose of this test case is to verify that the UE does not multiplex data from different logical channels in the same TTI when the multiplexing has been restricted by RRC.

7.1.6.1.2.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4d(FDD) /6.11.5.4.7.7(1.28Mcps TDD) using condition A15(FDD) /A14(1.28Mcps TDD) as specified in clause 9.1 of TS 34.108.The logical channel, transport channel and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 LCH1)	2	1	RB25
8 (LCH2)	3	2	RB17
Note: The RAB combination also includes SRBs on E-DCH on MAC-d flow 1 which is not used in the test case			

The following parameters are specific for this test case:

Parameter	Value
Periodicity for Scheduling Info – no grant	500 ms (see 25.331 10.3.6.99) (FDD)
T-WAIT	200 ms (see 25.331 10.3.6.103)(1.28Mcps TDD)
E-DCH MAC-d flow multiplexing list	00000000 (See 25.331 10.3.5.1b) Note 1
Note 1: This configuration means that no multiplexing is allowed	

The UE is placed into UE test loop mode 1 with the UL SDU size set to 39 octets for RB25 and RB17.

Test procedure

The UE is configured with two logical channels, LCH1 (with priority 1) and LCH2 (with priority 2). LCH1 is mapped to MAC-d flow 2 and LCH2 is mapped to MAC-d flow 3.

a) The SS has not issued any scheduling grants for E-DCH to the UE

b) The SS transmits one SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH2

c) The SS transmits one SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

d) The SS waits for an SI to be received that indicates that data is available on both logical channels (can be identified from the content of the SI)

e) The SS issues an absolute grant that allows the UE to send with a high rate (signalling value 10, allowing rates well above 2 SDUs/TTI)

f) The SS waits until data is received and verifies that only data from LCH1 is received in the first TTI

g) The SS verifies that data from LCH2 is received (in a separate TTI from the data from LCH1)

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		1 RLC PDU on LCH 2	
2	←		1 RLC PDU on LCH 1	
3	→		Potential SI indicating data on LCH 2	This SI is ignored by the SS
4	→		SI indicating data on LCH 1 and LCH 2	This can be verified from the indicated fraction of data on LCH1
5	←		Absolute grant allowing UE to transmit on E-DCH	This grant must be sufficiently high to allow a rate corresponding to at least 2 RLC PDUs/TTI, signalling value 10
6	→		MAC e/es PDU containing 1 RLC PDU on LCH 1	
7	→		MAC e/es PDU containing 1 RLC PDU on LCH 2	

Specific Message Contents

None

7.1.6.1.2.5 Test requirements

1. After step 2 the SS shall receive an SI indicating that data is available on LCH 1 and LCH 2 but no RLC PDUs shall be received
2. In step 6, the SS shall receive 1 RLC PDU on LCH 1 but no data from LCH 2
3. In step 7, the SS shall receive 1 RLC PDU on LCH 2 but no data from LCH 1

7.1.6.1.3 Correct settings of MAC-es/e header fields

7.1.6.1.3.1 Definition and applicability

All UEs which support E-DCH.

7.1.6.1.3.2 Conformance requirement

Extract from 25.321:

[…]

- Transmission Sequence Number (TSN):
  The TSN field provides the transmission sequence number for the MAC-es PDU. This information is used for reordering purposes to support in-sequence delivery to higher layers. The length of the TSN field is 6 bits.

[…]

- For FDD: Data description indicator (DDI):
  The DDI field identifies the logical channel, MAC-d flow and size of the MAC-d PDUs concatenated into the associated MAC-es PDU. The mapping between the DDI values and the logical channel ID, MAC-d flow and PDU size is provided by higher layers. The length of the DDI field is 6 bits. When, due to the quantization in the transport block sizes that can be supported or triggering of the Scheduling Information, the size of the data plus header is less than or equal to the TB size of the E-TFC selected by the UE minus 24 bits, the DDI value [111111] shall be appended at the end of the MAC-e header and a Scheduling Information shall be concatenated into this MAC-e PDU, where DDI value [111111] indicates that there is a Scheduling Information concatenated in this MAC-e PDU. Otherwise, if the size of the data plus header is less than or equal to the TB size of the E-TFC selected by the UE minus 18 bits, a Scheduling Information shall be concatenated into this MAC-e PDU. In any other case it is understood that another MAC-es PDU or Scheduling Information does not fit and it is therefore not necessary to reserve room in the transport block for an additional DDI field.

- For TDD: When, due to the quantization in the transport block sizes that can be supported or triggering of the Scheduling Information (due to timer expiry, see subclauses 11.9.1.4a and 11.9.1.5), the size of the data plus header is less than or equal to the TB size of the E-TFC selected by the UE minus 29bits, the DDI value [111111] shall be appended at the end of the MAC-e header and a Scheduling Information shall be concatenated into this MAC-e PDU, where DDI value [111111] indicates that there is a Scheduling Information concatenated in this MAC-e PDU. Otherwise, if the size of the data plus header is less than or equal to the TB size of the E-TFC selected by the UE minus 23 bits, a Scheduling Information shall be concatenated into this MAC-e PDU. In any other case it is understood that another MAC-es PDU or Scheduling Information does not fit and it is therefore not necessary to reserve room in the transport block for an additional DDI field.

- Number of MAC-d PDUs (N):
  The number of consecutive MAC-d PDUs corresponding to the same DDI value. The length of the N field is 6 bits.

Reference(s)

TS 25.321 clauses 9.2.4.1, 9.2.4.2

7.1.6.1.3.3 Test purpose

The purpose of this test case is to verify that the UE sets the MAC-es/e header fields in a correct way.

7.1.6.1.3.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4d(FDD) /6.11.5.4.7.7(1.28Mcps TDD) using condition A15(FDD) /A14(1.28Mcps TDD) as specified in clause 9.1 of TS 34.108. The logical channel, transport channel and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25
8 (LCH2)	3	2	RB17
Note: The RAB combination also includes SRBs on E-DCH on MAC-d flow 1 which is not used in the testcase			

The following parameters are specific for this test case:

Parameter	Value
Periodicity for Scheduling Info – no grant	500 ms (see 25.331 10.3.6.99) (FDD)
T-WAIT	200 ms (see 25.331 10.3.6.103)(1.28Mcps TDD)
E-DCH MAC-d flow multiplexing list	11111111 (See 25.331 10.3.5.1b) Note 1
Note 1: This configuration means that all MAC-d flows can be multiplexed in the same TTI	

The UE is placed into UE test loop mode 1 with the UL SDU size set to 39 octets for RB25 and RB17.

Test procedure

The UE is configured with two logical channels, LCH1 (with priority 1) and LCH2 (with priority 2). LCH1 is mapped to MAC-d flow 2 and LCH2 is mapped to MAC-d flow 3.

a) The SS has not issued any scheduling grant for E-DCH to the UE

b) The SS transmits 4 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH2

c) The SS issues an absolute grant that allows the UE to send with a high rate (signalling value 10, allowing rates well above 5 SDUs/TTI)

d) The SS waits until data is received and checks the values of the header parameters

e) The SS removes the scheduling grant for E-DCH for the UE

f) The SS transmits three SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH2

g) The SS transmits two SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

h) The SS issues an absolute grant that allows the UE to send with a high rate (signalling value 10, allowing rates well above 5 SDUs/TTI)

i) The SS waits until data is received and checks the values of the header parameters

j) The SS transmits two SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH2

k) The SS waits until data is received and checks the values of the header parameters

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		4 RLC PDUs on LCH 2	
2	→		SI indicating data on LCH 2	
3	←		Absolute grant allowing UE to transmit on E-DCH	This grant must be sufficiently high to allow a rate corresponding to at least 5 RLC PDUs/TTI, signalling value 10
4	→		1 MAC-es PDU containing 4 RLC PDUs on LCH 2	SS checks header fields
5	←		Removal of scheduling grant for UE	
6	←		3 RLC PDUs on LCH 2	
7	←		2 RLC PDUs on LCH 1	
8	→		Potential SI indicating data on LCH 2	This SI is ignored by the SS
8a			SI indicating data on LCH1 and LCH 2	
9	←		Absolute grant allowing UE to transmit on E-DCH	This grant must be sufficiently high to allow a rate corresponding to at least 5 RLC PDUs/TTI, signalling value 10
10	→		2 MAC-es PDUs containing 2 RLC PDUs on LCH 1 and 3 RLC PDUs on LCH 2 respectively	SS checks header fields
11	←		2 RLC PDUs on LCH 2	
12	→		1 MAC-es PDU containing 2 RLC PDUs on LCH 2	SS checks header fields

Specific Message Contents

None

7.1.6.1.3.5 Test requirements

1. After step 4, the SS shall receive 1 MAC-es PDU shall be received where:
   - The TSN is set to 0, DDI is set to 6 and N is set to 4
2. After step 10, the SS shall receive 2 MAC-es PDUs shall be received where:
   - For MAC-es PDU 1: The TSN is set to 0, DDI is set to 5 and N is set to 2
   - For MAC-es PDU 2: The TSN is set to 1, DDI is set to 6 and N is set to 3
3. After step 12, the SS shall receive 1 MAC-es PDU where:
   - The TSN is set to 2, DDI is set to 6 and N is set to 2

7.1.6.2 MAC-es/e – Scheduling

7.1.6.2.1 Correct settings of MAC-es/e scheduling information

7.1.6.2.1.1 Definition and applicability

All UEs which support E-DCH.

7.1.6.2.1.2 Conformance requirement

Extract From 25.321 clause 9.2.5.3.2:

This information includes the following fields:

The Scheduling Information shall not be transmitted if the Total E-DCH Buffer Status is zero, even if it was triggered by one of the configured triggering mechanisms.

[…]

If data with higher priority than the data already in the transmission buffer arrives, the transmission of a Scheduling Information shall be triggered.

[…]

- Highest priority Logical channel ID (HLID):
  The HLID field identifies unambiguously the highest priority logical channel with available data. If multiple logical channels exist with the highest priority, the one corresponding to the highest buffer occupancy will be reported. The length of the HLID is 4 bits. In case the TEBS is indicating index 0 (0 bits), the HLID shall indicate the value "0000".

- Fields related to amount of available data:

- Total E-DCH Buffer Status (TEBS):
  The TEBS field identifies the total amount of data available across all logical channels for which reporting has been requested by the RRC. The length of this field is 5 bits. The values taken by TEBS are shown in [Ts 25.321] Table 9.2.5.3.2.1.

- Highest priority Logical channel Buffer Status (HLBS):
  The HLBS field indicates the amount of data available from the logical channel identified by HLID, relative to the highest value of the buffer size range reported by TEBS when the reported TEBS index is not 31, and relative to 50000 bits when the reported TEBS index is 31. The length of HLBS is 4 bits. The values taken by HLBS are shown in [TS 25.321] table 9.2.5.3.2.2. In case the TEBS field is indicating index 0 (0 bits), the HLBS field shall indicate index 0.

[…]

Extract From 25.321 clause 9.2.4.2:

- Data description indicator (DDI):
  The DDI field identifies the logical channel, MAC-d flow and size of the MAC-d PDUs concatenated into the associated MAC-es PDU. The mapping between the DDI values and the logical channel ID, MAC-d flow and PDU size is provided by higher layers. The length of the DDI field is 6 bits.

- For FDD: When, due to the quantization in the transport block sizes that can be supported or triggering of the Scheduling Information, the size of the data plus header is less than or equal to the TB size of the E-TFC selected by the UE minus 24 bits, the DDI value [111111] shall be appended at the end of the MAC-e header and a Scheduling Information shall be concatenated into this MAC-e PDU, where DDI value [111111] indicates that there is a Scheduling Information concatenated in this MAC-e PDU. Otherwise, if the size of the data plus header is less than or equal to the TB size of the E-TFC selected by the UE minus 18 bits, a Scheduling Information shall be concatenated into this MAC-e PDU. In any other case it is understood that another MAC-es PDU or Scheduling Information does not fit and it is therefore not necessary to reserve room in the transport block for an additional DDI field.

- For TDD: When, due to the quantization in the transport block sizes that can be supported or triggering of the Scheduling Information (due to timer expiry, see subclauses 11.9.1.4a and 11.9.1.5), the size of the data plus header is less than or equal to the TB size of the E-TFC selected by the UE minus 29bits, the DDI value [111111] shall be appended at the end of the MAC-e header and a Scheduling Information shall be concatenated into this MAC-e PDU, where DDI value [111111] indicates that there is a Scheduling Information concatenated in this MAC-e PDU. Otherwise, if the size of the data plus header is less than or equal to the TB size of the E-TFC selected by the UE minus 23 bits, a Scheduling Information shall be concatenated into this MAC-e PDU. In any other case it is understood that another MAC-es PDU or Scheduling Information does not fit and it is therefore not necessary to reserve room in the transport block for an additional DDI field.

[…]

Extract From 25.321 clause 9.2.6.3:

This control information is used by UEs to indicate to the Node B the amount of resources they require. Scheduling Information is sent via the E-PUCH in the MAC-e header when the UE is granted resource and by the E-RUCCH when no resource has been granted. Scheduling Information consists of three components as defined in subclause 9.2.6.3.3.

- Buffer Information: This consists of:

- Highest priority Logical Channel (HLID)
- Total E-DCH Buffer Status (TEBS)
- Highest priority Logical channel Buffer Status (HLBS)

- UE Power Headroom (UPH): The UPH field indicates the ratio of the maximum UE transmission power and the calculated UE transmit power defined as in [18] that would result for β_e equal to 0. The length of UPH is 5 bits.
- Serving and Neighbour Cell Pathloss (SNPL): This may be used by the Node-B to assist with its estimation of the degree of inter cell interference each UE will generate and hence the absolute grant power value and physical resources to assign . The length of SNPL is 5 bits.

The length of TEBS field is 5 bits, the values taken by TEBS are shown in Table 9.2.5.3.2-1. The length of HLBS is 4 bits, the values taken by HLBS are shown in table 9.2.5.3.2-2.

The Scheduling Information message is represented in figure 9.2.6.3-1.

SNPL (5 bits)	UPH (5 bits)	TEBS (5 bits)	HLBS (4 bits)	HLID (4 bits)

Figure 9.2.6.3.-1: Scheduling Information format

If Scheduling Information is sent via the E-RUCCH then the E-RNTI is also sent via the E-RUCCH, as shown by Figure 9.2.6.3-2:

Scheduling Information (23 bits)	E-RNTI (16 bits)

Figure 9.2.6.3-2: Format of information sent on E-RUCCH

-

[…]

Scheduling information reports will be triggered differently depending on the value of the variable Serving_Grant after the Serving Grant Update function. The triggering of a report shall be indicated to the E-TFC selection function at the first new transmission opportunity (this process may be delayed in case the HARQ processes are occupied with re-transmissions).

Extract From 25.321 clause 11.9.1.5:

[…]

If a UE has no Grant and the TEBS becomes larger than zero, the transmission of Scheduling Information shall be triggered via E-RUCCH.

If the UE has a Grant, the scheduling information needs to be included in the MAC-e PDU according to subclause 9.2.4.2, and it shall be transmitted regardless of TEBS status. Additional timer mechanism is used to avoid long pause duration of scheduling information reporting (period defined by RRC and set the same value as below T_WAIT). When the scheduling information is included in MAC-e PDU and sent, the timer will be reset and restarted immediately; when the timer expires, scheduling information shall be sent in a new MAC-e PDU.

RRC can configure MAC with a delay timer to be used when the UE transits from having a Grant to not having a Grant and the TEBS is still larger than zero. The delay timer T_WAIT shall be started once the Grant expires and shall be stopped and reset when a Grant is received. When T_WAIT expires, the transmission of a Scheduling Information shall be triggered via E-RUCCH (T_WAIT shall be stopped and reset).

Reference(s)

TS 25.321 clause 9.2.5.3.2, 9.2.4.2, 9.2.6.3, 11.8.1.6, 11.9.1.5

7.1.6.2.1.3 Test purpose

The purpose of this test case is to verify that the UE sends the E-DCH scheduling information with correct content and with correct triggers.

7.1.6.2.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4d(FDD) /6.11.5.4.7.7(1.28Mcps TDD) using condition A15(FDD) /A14(1.28Mcps TDD) as specified in clause 9.1 of TS 34.108. The logical channel, transport channel and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25
8 (LCH2)	3	2	RB17
Note: The RAB combination also includes SRBs on E-DCH on MAC-d flow 1 which is not used in the testcase			

The following parameters are specific for this test case:

Parameter	Value
Periodicity for Scheduling Info – no grant	500 ms (see 25.331 10.3.6.99) (FDD)
Periodicity for Scheduling Info – grant	100ms (FDD)
T-WAIT	200 ms (see 25.331 10.3.6.103)(1.28Mcps TDD)
T-RUCCH	600 ms (see 25.331 10.3.6.103)(1.28Mcps TDD)
E-DCH MAC-d flow multiplexing list	11111111 (See 25.331 10.3.5.1b) Note 1
E-DCH Transport Block Size Table	0
Note 1: This configuration means that all MAC-d flows can be multiplexed in the same TTI	

The UE is placed into UE test loop mode 1 with the UL SDU size set to 39 octets for RB25 and RB17.

Test procedure

The UE is configured with two logical channels, LCH1 (with priority 1) and LCH2 (with priority 2). LCH1 is mapped to MAC-d flow 2 and LCH2 is mapped to MAC-d flow 3.

a) The SS has not issued any scheduling grant for E-DCH to the UE

b) The SS waits for at least 1000 ms and verifies that no SI is received

c) The SS transmits 1 SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH2

d) The SS waits until an SI is received at time **T0**

e) The SS waits until the next SI is received at time **T1** and checks the content

f) The SS transmits 1 SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH 1 at time **T2**

g) The SS waits until the next SI is received at time **T3** and checks the content

h) The SS issues an absolute grant that allows the UE to transmit 1 SDUs/TTI (absolute grant signalling value 4)

i) The SS waits until all data has been received

j) The SS removes the scheduling grant for the UE

k) The SS transmits 24 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH 1

l) The SS issues an absolute grant that allows the UE to transmit 1 SDUs/TTI (absolute grant signalling value 4)

m) The SS waits until the next SI is received with payload at time **T4**

n) The SS waits until the next SI is received with payload at time **T5**

o) The SS waits until all data is received

p) Void

q) The SS issues an absolute grant that allows the UE to transmit 5 SDUs/TTI (absolute grant signalling value 8)

r) The SS transmits 5 SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

s) The SS waits until the 5 SDUs are received and checks that contain both a regular SI and the special DDI (value = 63) NOTE

NOTE: 5 336 bit PDUs and 18 bit Mac-e/es header require a TB size of 1698 bits. The nearest higher TB size is 1749, which easily holds an SI + the special length indicator.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	SS			After the radio bearer has been established the SS waits 1000 ms. No SI shall be received during this time
2	←		1 RLC PDUs on LCH 2	
3	→		SI indicating data on LCH 2	Time **T0**
4	→		SI indicating data on LCH 2	Time **T1**
5	←		1 RLC PDUs on LCH 1	Time **T2**
6	→		SI indicating data on LCH 1 and LCH 2	Time **T3.** Presence of data on LCH 1 and LCH 2 can be verified from the indicated fraction of data on LCH1
7	←		Absolute grant allowing the UE to transmit 1 RLC PDUs per TTI	Signalling value 4
8	→		Data on LCH 1 and LCH 2	
8a	←		Removal of absolute grant	Signalling value 1
9	←		24 RLC PDUs on LCH 1	
9a	←		Absolute grant allowing the UE to transmit 1 RLC PDUs per TTI	Signalling value 4
10	→		Data and SI	Time **T4**
11	→		Data only	
12	→		Data and SI	Time **T5**
13	→		Data only	
14	SS			After all data has been received, SS waits 1000ms. No SI shall be received during this time.
15	←		void	
16	→		void	
17	←		Absolute grant allowing the UE to transmit 5 RLC PDUs per TTI	Signalling value 8
18	←		5 RLC PDUs on LCH 1	
19	→		Data and SI	The received transport block shall in addition to the 5 PDUs contain a regular SI and the special DDI (value = 63). As there is no data left in buffers, TEBS is set as 0, HLID is set as '0000' and HLBS is set as 0.
NOTE 1: General timer tolerance as defined by 34.108 sub-clause 4.2.3 applies. NOTE 2: Step 10 and 11 can occur in any order. SS should accept these PDUs in any order and verify the time difference between T5 and T4 as per the test requirement.				

Specific Message Contents

None

7.1.6.2.1.5 Test requirements

1. In step 1 the SS shall not receive any SI since the UE buffer is empty
2. In step 3 the SS shall receive an SI (content ignored)
3. In step 4 the SS shall receive an SI indicating
   - Total E-DCH Buffer Status (TEBS) Index = 6 ($32 < TEBS \leq 42$).
   - Highest priority Logical channel ID (HLID) = LCH 2.
   - Highest Priority Logical Channel Buffer Status (HLBS) Index = 15 ($82\% < HLBS \leq 100\%$).
4. In step 6 the SS shall receive an SI indicating
   - Total E-DCH Buffer Status (TEBS) Index = 9 ($73 < TEBS \leq 97$).
   - Highest priority Logical channel ID (HLID) = LCH 1.
   - Highest Priority Logical Channel Buffer Status (HLBS) Index =11($37 < HLBS \leq 45$).
5. T1-T0 shall equal 500 ms
6. T3-T2 shall be less then 120 ms. Note 1.
7. T5-T4 shall equal 100ms
8. In step 14, the SS shall not receive any SI since the UE buffer is empty.
9. In step 19, the received transport block shall in addition to the payload include a regular SI and the special DDI (value = 63). TEBS, HLID and HLBS shall be set as zero.

NOTE 1. 120ms = 2 TTI(for Data to be transmitted from RLC to MAC) + Maximum UE test loop delay (10*TTI according to 34.109=100ms).

7.1.6.2.2 Happy bit setting

7.1.6.2.2.1 Definition and applicability

All UEs which support E-DCH.

7.1.6.2.2.2 Conformance requirement

The happy bit is a single bit field that is passed from MAC to the physical layer for inclusion on the E-DPCCH. This field takes two values, “Not Happy” and “Happy” indicating respectively whether the UE could use more resources or not. The setting of the Happy Bit is defined in subclause [TS 25.321] 11.8.1.5.

[…]

The Happy Bit is included on the E-DPCCH for every E-DCH transmission. E-DCH transmissions shall not be triggered specifically to allow the transmission of the happy bit.

RRC configures MAC with the duration Happy_Bit_Delay_Condition, over which to evaluate the current grant relative to the TEBS after application of the E-TFC selection procedure described in [TS 25.321] subclause 11.8.1.4.

For every E-DCH transmission, the Happy Bit shall be set to "unhappy" if the three following criteria are met:

1) UE is transmitting as much scheduled data as allowed by the current Serving_Grant in E-TFC selection; and
2) UE has enough power available to transmit at higher data rate; and

3) Based on the same power offset as the one selected in E-TFC selection to transmit data in the same TTI as the Happy Bit, TEBS would require more than Happy_Bit_Delay_Condition ms to be transmitted with the current Serving_Grant × the ratio of active processes to the total number of processes.

The first criteria is always true for a deactivated process and the ratio of the third criteria is always 1 for 10ms TTI.

Reference(s)

TS 25.321 clause 9.2.5.3.1, 11.8.1.5

7.1.6.2.2.3 Test purpose

The purpose of this test case is to verify that the UE sets the happy bit correctly.

7.1.6.2.2.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4c using condition A12 as specified in clause 9.1 of TS 34.108.

The following parameters are specific for this test case:

Parameter	Value
Periodicity for Scheduling Info	No periodic SI transmission
Happy bit delay condition	20 ms
E-DCH MAC-d flow maximum number of retransmissions	15
HARQ RV Configuration	rv0

The UE is placed into UE test loop mode 1 with the UL SDU size set to 39 octets.

Test procedure

In this test procedure the UE is configured with one logical channel with Id 7 (LCH1).

a) The SS transmits 2 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

b) The SS issues an absolute grant corresponding to 2 RLC PDUs of size 41 octets per TTI (signalling value 5)

c) The SS waits until all data is received in uplink and checks the happy bit

d) The SS removes the scheduling grant for the UE

e) The SS transmits 8 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

f) The SS issues an absolute grant corresponding to 2 RLC SDUs of size 40 octets per TTI (signalling value 5)

g) SS waits until data is receive in uplink and checks the happy bit

h) The SS waits until all data is received in uplink

i) The SS is configured to always send a NACK on every HARQ process, when data is received in uplink, and to pass the received data to the higher layers.

j) The SS transmits 2 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

k) The SS waits until data is received in uplink. The SS stores the HARQ process ID[x] of the HARQ process used for this transmission and checks the happy bit

l) The SS is reconfigured to normal ACK/NACK operation mode on all HARQ processes, except HARQ process ID[x]

m) The SS transmits 10 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

n) The SS waits for the data to be received in uplink and checks the happy bit every time data is re-transmitted on HARQ process ID[x]

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		2 RLC PDUs on LCH 1	
2	←		Absolute grant allowing the UE to transmit 2 RLC PDUs per TTI	Signalling value 5
3	→		Data and happy bit	Happy bit should be set to happy
4	←		Removal of absolute grant	Signalling value 1
5	←		8 RLC PDUs on LCH 1	
6	←		Absolute grant allowing the UE to transmit 2 RLC PDUs per TTI	Signalling value 5
7	→		Data and happy bit	Happy bit should be set to unhappy
8		SS		The SS always NACK the received data on all HARQ processes
9	←		2 RLC PDUs on LCH 1	
10	→		Data and happy bit	Happy bit should be set to happy for the data received by the SS on HARQ process ID[x]
11		SS		The SS is set to normal ACK/NACK operation mode on all HARQ processes, except HARQ process ID[x]
12	←		10 RLC PDUs on LCH 1	
12a	←		10 RLC PDUs on LCH1	
13	→		Data and happy bit	Happy bit for the retransmissions of the MAC es PDU received on HARQ process ID[x] should change from happy to unhappy, and become happy again when buffered data has been processed by the other HARQ processes.

Specific Message Contents

None

7.1.6.2.2.5 Test requirements

1. In step 3 the SS shall receive data and the happy bit shall be set to happy in the first TTI containing data
2. In step 7 the SS shall receive data and the happy bit shall be set to unhappy in the first TTI containing data
3. In step 10 the SS shall receive data and the happy bit shall be set to happy in the first TTI containing data
4. In step 13 the SS shall receive data and the happy bit, on the same HARQ process as in step 10, shall change status from happy to unhappy, and later change status from unhappy to happy.

7.1.6.2.3 MAC-es/e non-scheduled transmissions

7.1.6.2.3.1 Definition and applicability

All UEs which support E-DCH.

7.1.6.2.3.2 Conformance requirement

Extract From 25.321 clause 11.8.1.4:

[…]

RRC can allocate non-scheduled transmission grants to individual MAC-d flows in order to reduce the transmission delays. When a 2ms TTI is configured each non-scheduled grant is applicable to the specific set of HARQ processes indicated by RRC. The applicability of scheduled grants can be also restricted to a specific set of HARQ processes when a 2ms TTI is configured. HARQ process restriction and reservation is under the control of the serving cell Node B and indicated to the UE by RRC.

[…]

For all logical channels, if the logical channel belongs to a non-scheduled MAC-d flow, its data shall be considered as available up to the corresponding non-scheduled grant, if the logical channel does not belong to a non-scheduled MAC-d flow, its data shall be considered as available up to the Serving Grant;

[…]

The amount of data from MAC-d flows for which non-scheduled grants were configured shall not exceed the value of the non-scheduled grant;

[…]

Extract From 25.321 clause11.9.1.4:

In TDD, rules for E-TFC selection shall be applied as provided below.

UEs shall apply E-TFC selection when invoked by the HARQ entity (see subclause 11.9.1.1.1).

For each MAC-d flow, RRC configures MAC-e with a HARQ profile and multiplexing list. Additionally, RRC configures MAC with a power offset in case the Scheduling Information needs to be transmitted without any higher-layer data. The HARQ profile includes the power offset and maximum number of HARQ transmissions to use for this MAC-d flow. For 1.28 Mcps TDD, the HARQ profile also includes a retransmission timer attribute. The multiplexing list identifies for each MAC-d flow(s), the other MAC-d flows for which data can be multiplexed in a transmission that uses the power offset included in its HARQ profile.

RRC can control the scheduling of uplink data by giving each logical channel a priority between 1 and 8, where 1 is the highest priority and 8 the lowest. E-TFC selection in the UE shall be done in accordance with the priorities indicated by RRC. Logical channels have absolute priority, i.e. the UE shall maximise the transmission of higher priority data.

RRC can allocate non-scheduled transmission grants to individual MAC-d flows in order to reduce the transmission delays.

The UE shall determine whether to take scheduled or non-scheduled grants into account in the upcoming transmission. If neither are supposed to be taken into account (i.e. the TTI is not available for non-scheduled transmission and no Grant for scheduled transmission has been received) then no grant shall be assumed to exist. If a grant exists then the transmission format and data allocation shall follow the requirements below.

For each configured MAC-d flow, a given E-TFC can be in any of the following states:

- Supported state;
- Blocked state.

The E-TFC states are derived according to the following:

- If the transmission is a retransmission then only the E-TFC with the same block size as the original transmission may be in the supported state.

- For 1.28Mcps TDD, only E-TFCs from the E-TFCS (the table of TB sizes) which are consistent with the UE's E-DCH capability category shall be considered for the transmission;

- Only E-TFCs from the E-TFCS (the table of TB sizes) which can be supported by (exactly) the number of slots assigned by the grant shall be considered for the transmission;

- Only E-TFCs which result (for the granted timeslot and code physical resources) in a code rate lying between the maximum and minimum (inclusive) allowable code rates set by RRC [7] shall be considered for the transmission {note: the definition of the term "coderate" as used here is the same as that provided by [18]}. This shall be evaluated for both QPSK and 16-QAM modulation;

- P_{HARQ}, the HARQ profile power offset is selected (the HARQ profile for the transmission shall be selected among the HARQ profiles of MAC-d flows on which the highest priority logical channels with available data are mapped; Scheduling Information power offset shall be used when Scheduling Information is transmitted without any higher-layer data.)

- Only E-TFCs whose calculated transmission power requirement $P_{E\text{-}PUCH}$ (see [18]) is less than or equal to the available or granted power shall be considered for the transmission (note: this requirement does not apply in the case of a retransmission on non-scheduled resources).

For 3.84Mcps/7.68Mcps TDD, from those E-TFCs in the supported state the UE determines the largest block size that it is permitted to transmit within the given constraints.

For 1.28Mcps TDD, from those E-TFCs in the supported state, UE determines a candidate set with up to 64 E-TFCs, including the largest 63 E-TFCs, in addition to the E-TFC dedicated for SI. If the number of E-TFCs in the supported state is not greater than 63, all the E-TFCs in the supported state shall be included in the candidate set. The E-TFCs in the candidate set shall then be re-indexed in an ascending order and numbered from 0 to (Nmax -1), where Nmax is the number of E-TFC in the candidate set. From the candidate set the UE determines the largest block size that is permitted to transmit within the given constraints.

The UE shall select the modulation type associated with the determined E-TFC (note: if an E-TFC is supported by both QPSK and 16-QAM then 16-QAM modulation shall be used if its power requirement ($P_{E\text{-}PUCH}$) is lower than the power requirement for QPSK, otherwise QPSK modulation shall be used).

Data allocation shall then be performed in accordance with the following:

- For all logical channels, if the logical channel belongs to a non-scheduled MAC-d flow, its data shall be considered as available up to the largest block size determined for the corresponding non-scheduled grant. If the logical channel does not belong to a non-scheduled MAC-d flow, its data shall be considered as available up to the largest block size determined for the Serving Grant;

- The data allocation shall maximise the transmission of higher priority data;

- The UE shall select the E-TFC, SF and modulation which minimises the power used (3.84/7.68 Mcps TDD only);

- The UE shall select the E-TFC and modulation which minimises the power used (1.28 Mcps TDD only);

Once an appropriate E-TFC and data allocation are found according to the rules above, the "Multiplexing and TSN Setting" entity shall generate the corresponding MAC-e PDU.

In 1.28Mcps TDD, when Scheduling Information is triggered by timer per subclause 11.9.1.5, the E-TFC selection and data-allocation process shall assume that Scheduling Information has a priority higher than any other logical channel.

The E-TFC selection function shall provide this MAC-e PDU and transmission HARQ profile to the HARQ entity. The selected E-TFC is also provided (Note: for 1.28Mcps TDD, the signalled transport block size index, i.e. E-TFCI, is the index of the selected E-TFC in the candidate set.). The maximum number of HARQ transmissions and the power offset in this profile shall be set respectively to the maximum of both the Max Number of HARQ Transmissions and of the power offset of the HARQ profiles from all the MAC-d flows from which data is multiplexed into the transmission. For 1.28 Mcps TDD, the retransmission timer shall be set to the maximum of the retransmission timer value of the HARQ profiles that are permitted to be multiplexed into the transmission. Each HARQ process which is associated with a buffer holding a MAC-e PDU for potential retransmission shall maintain the HARQ profile and the number of re-

transmissions that have occurred. For 1.28 Mcps TDD, the HARQ process shall also maintain the value of RTX_TIMER.

Further information on E-TFC selection is provided in Annex CA.

Reference(s)

TS 25.321 clause 11.8.1.4, 11.9.1.4

7.1.6.2.3.3 Test purpose

To verify that the UE when RRC is configured for non-scheduled transmissions sends data without scheduling grant. To verify that no SI is sent for non-scheduled transmissions.

7.1.6.2.3.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4c(FDD) /6.11.5.4.7.6(1.28Mcps TDD) using condition A12(FDD) /A11(1.28Mcps TDD) as specified in clause 9.1 of TS 34.108. The following parameters are specific for this test case:

Parameter	Value
Periodicity for scheduling info	No periodic scheduling info
E-TFCI table	Table 0 for 10 ms TTI(FDD)
E-TFCI table	5ms TTI E-DCH Transport Block Size Table 0(1.28Mcps TDD)

The UE is placed into UE test loop mode 1 with the UL SDU size set to (10*41)-2 octets.

Test procedure

LCH 1 is mapped to MAC-d flow 2 which is configured for non-scheduled transmission allowing one SDU/TTI to be sent.

a) The SS has not issued any scheduling grant for E-DCH to the UE

b) The SS transmits 1 SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH 1

c) The SS waits until data is received and checks that only 1 PDU/TTI is transmitted

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		1 RLC PDU on LCH 1	
2	→		MAC-es PDU containing 1 RLC PDU	This step is repeated 10 times until the complete SDU is transmitted

Specific Message Contents

None

7.1.6.2.3.5 Test requirements

1. After step 1, the SS shall not receive any SI.
2. In step 2, the SS shall receive 1 MAC-es PDU containing 1 RLC PDU in each TTI until the complete SDU has been received.

7.1.6.2.4 MAC-es/e correct handling of scheduled transmissions when absolute grant varies

7.1.6.2.4.1 Definition and applicability

All UEs which support E-DCH.

7.1.6.2.4.2 Conformance requirement

Extract from 25.321 clause 9.2.5.2.2:

The absolute grant message is sent on downlink, on the configured E-AGCH, from the serving E-DCH cell and allows the Node B scheduler to directly adjust the granted rate of UEs under its control.

[…]

Absolute Grant Value:
This field indicates the maximum E-DCH traffic to pilot ratio (E-DPDCH/DPCCH) that the UE is allowed to use in the next transmission. The length of the Absolute Grant Value field is 5 bits

[…]

Extract From 25.321 clause 9.2.6.2.1:

The Absolute Grant is sent on downlink on a set of configured E-AGCHs from the serving E-DCH cell and allows the Node B scheduler to directly adjust the granted rate and assigned physical resources for UEs under its control. The physical resource assignment indicates to the UE the maximum amount of uplink resources that it may use for a scheduled transmission.

The E-AGCH is a shared channel that uses an E-RNTI specific CRC in order to address messages to specific UEs (see [19]). For TDD, the RRC shall configure the MAC with a primary E-RNTI only.

A UE is required to monitor a set of E-AGCHs. The RRC signals to the UE details of the set of E-AGCHs that are to be monitored. The UE decodes an Absolute Grant intended for it on the basis of the E-RNTI sent to it by the Node B via the SRNC and by RRC. The following information will be conveyed in an absolute grant message:

Absolute Grant Value – maximum power granted per resource unit (per slot)

The physical resources to be used for transmission

- Channelisation Code
- Timeslots
- Resource Duration (optional)

The absolute grant message itself includes multiple fields that are multiplexed together into between 14 and 28 bits for 3.84/7.68 Mcps TDD and between 23 and 26 bits for 1.28 Mcps TDD (depending on the system configuration) inside the MAC-e of the Node B and then submitted to the physical layer for transmission on the E-AGCH. These fields are:

- Absolute Grant Value:
  For TDD, this field indicates the maximum E-DCH traffic to reference power ratio (E-PUCH/$P_{e\text{-}base}$) per TDD resource unit that the UE is allowed to use on the E-DCH resources associated with the Absolute Grant. A TDD resource unit is defined as one sixteenth of the OVSF code space in one timeslot. The length of the Absolute Grant Value field for TDD is 5 bits.
- Channelisation Code:
  This field describes the code component of the physical resource grant. For 1.28/3.84 Mcps TDD it comprises an

enumerated value of length 5 bits indicating which node on the OVSF code tree has been allocated. For 7.68 Mcps TDD it comprises an enumerated value of length 6 bits indicating which node on the OVSF tree has been allocated. The mapping between the allocated OVSF and the enumerated node 0…30 for 1.28/3.84 Mcps and 0…62 for 7.68 Mcps is as given in [19].

- Timeslot Resource Related Information:
  This field describes the timeslot component of the physical resource grant and comprises a bitmap of length n_{TRRI} indicating which of the timeslots configured for E-DCH use by RRC have been allocated with the LSB corresponding to the lowest numbered E-DCH timeslot and the MSB corresponding to the highest numbered timeslot. The length of the TRRI field (n_{TRRI}) is 5 bits for 1.28 Mcps TDD and is configurable by RRC on a per-cell basis between 1 and 12 bits for 3.84/7.68 Mcps TDD.

- Resource Duration Indicator:
  Optionally, RRC may configure, on a per-cell basis the presence of a resource duration indicator field on E-AGCH for TDD. If configured as present in a cell, 3 bits are used to indicate the number of TTI's allocated and the spacing between the allocated TTIs via a single grant according to table 9.2.6.2.1-2. If the field is configured as not present on E-AGCH in the cell, a value of 0 is implicitly assumed by the UE corresponding to 1 TTI.

Table 9.2.6.2.1-2 – Resource Duration Indicator (RDI) interpretation

Resource Duration Indicator (3 bits)	TTIs allocated	TTI spacing
0	1	1
1	2	1
2	2	2
3	2	4
4	4	1
5	4	2
6	4	4
7	8	1

- E-AGCH Cyclic Sequence Number (ECSN):
  The ECSN is a 3-bit field used to assist the UE with outer-loop power control of E-AGCH (cf. HCSN for HS-SCCH).

- E-HICH Indicator(EI) (1.28 Mcps TDD only)
  The E-HICH indicator (EI) consists of 2 bits and is used to indicate which E-HICH will convey the acknowledgement indicator for the scheduled UEs.

- E-UCCH Number Indicator (ENI) (1.28 Mcps TDD only)
  The E-UCCH Number Indicator (ENI) is a 3-bit field used to indicate the detailed number of E-UCCH.

[…]

UEs in CELL_DCH state, configured with an E-DCH transport channel shall maintain a Serving Grant and the list of active HARQ processes based on the absolute and relative grant commands decoded on the configured E-AGCH and E-RGCH(s).

[…]

For all logical channels, if the logical channel belongs to a non-scheduled MAC-d flow, its data shall be considered as available up to the corresponding non-scheduled grant, if the logical channel does not belong to a non-scheduled MAC-d flow, its data shall be considered as available up to the Serving Grant;

Reference(s)

TS 25.321 clauses 9.2.5.2.2, 9.2.6.2.1, 11.8.1.3

7.1.6.2.4.3 Test purpose

To verify that the UE transmits different amount of data when the absolute grant varies.

7.1.6.2.4.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4c(FDD) /6.11.5.4.7.6(1.28Mcps TDD) using condition A12(FDD) /A11(1.28Mcps TDD) as specified in clause 9.1 of TS 34.108. The following parameters are specific for this test case:

Parameter	Value
Periodicity for scheduling info	No periodic scheduling info
E-TFCI table	Table 0 for 10 ms TTI (FDD)
E-TFCI table	5ms TTI E-DCH Transport Block Size Table 0(1.28Mcps TDD)

The UE is placed into UE test loop mode 1 with the UL SDU size set to 39 octets.

Test procedure

Logical Channel with Id 7 (LCH 1) is mapped to MAC-d flow 2 with priority 1.

a) The SS has not issued any scheduling grant for E-DCH to the UE

b) The SS transmits 4 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH 1

c) SS waits until an SI is received

d) The SS issues an absolute grant that allows the UE to transmit 1 SDU/TTI (absolute grant signalling value 4)

e) The SS waits until data is received and checks that only 1 SDU/TTI is transmitted

f) The SS waits until all 4 SDUs have been received

g) The SS removes the scheduling grant for E-DCH for the UE

h) The SS transmits 8 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH 1

i) SS waits until an SI is received

j) The SS issues an absolute grant that allows the UE to transmit 4 SDUs/TTI (absolute grant signalling value 7)

k) The SS waits until data is received and checks that only 4 SDUs/TTI is transmitted

l) The SS waits until all 8 SDUs have been received

m) The SS removes the scheduling grant for E-DCH for the UE

Expected sequence

Step	Direction		Message	Comments
	UE	SS		

1	←	4 RLC PDUs on LCH 1	
1a	→	SI indicating data on LCH 1	
2	←	Absolute grant allowing the UE to transmit 1 RLC PDU per TTI	Signalling value 4
3	→	MAC es PDU containing 1 RLC PDU, 4 TTIs in a row	
4	←	Removal of absolute grant	Signalling value 1
5	←	8 RLC PDUs on LCH 1	
5a	→	SI indicating data on LCH 1	
6	←	Absolute grant allowing the UE to transmit 4 RLC PDUs per TTI	Signalling value 7
7	→	MAC es PDU containing 4 RLC PDUs, 2 TTIs in a row	
8	←	Removal of absolute grant	Signalling value 1

Specific Message Contents

None

7.1.6.2.4.5 Test requirements

1. In step 3, the SS shall receive 1 MAC-es PDU containing 1 RLC PDU. This shall happen 4 TTIs in a row.
2. In step 7, the SS shall receive 1 MAC-es PDU containing 4 RLC PDUs. This shall happen 2 TTIs in a row.

7.1.6.2.5 MAC-es/e de-activation and re-activation of HARQ processes

7.1.6.2.5.1 Definition and applicability

All UEs which support E-DCH and support 2 ms TTI.

7.1.6.2.5.2 Conformance requirement

The Serving Grant Update procedure shall be applied at every TTI boundary and shall take into account the Absolute Grant message, Serving Relative Grant and non-serving Relative Grants that apply to the TTI.

The UE shall:

1> set reference_ETPR to the E-DPDCH to DPCCH power ratio as defined in subclause 3.1.2;

1> if an Absolute Grant was received for this TTI:

2> if the Identity type is “Primary”, and the Absolute Grant value is set to "INACTIVE":

3> if Absolute Grant Scope indicates "Per HARQ process" and a 2ms TTI is configured:

4> de-activate the process given by the value of CURRENT_HARQ_PROCESS.

3> if Absolute Grant Scope indicates "All HARQ processes" and a secondary E-RNTI was configured by higher layers:

4> activate all HARQ processes;

4> set Serving_Grant = Stored_Secondary_Grant;

4> set Primary_Grant_Available to "False".

3> if Absolute Grant Scope indicates "All HARQ processes", a 2ms TTI is configured and a secondary E-RNTI was not configured by higher layers:

4> deactivate all HARQ processes (if a process was inactive it remains inactive, if a process was active it becomes inactive).

2> else if the Absolute Grant Value is different from "INACTIVE":

3> if the Identity Type is "Secondary":

4> set Stored_Secondary_Grant = Absolute Grant Value.

3> if the Identity Type is "Primary" or Primary_Grant_Available is set to "False":

4> set Serving_Grant = Absolute Grant Value.

4> if the Identity Type is "Primary":

5> set Primary_Grant_Available to "True";

5> if Absolute Grant Scope indicates "Per HARQ process":

6> activate the process given by the value of CURRENT_HARQ_PROCESS.

5> if Absolute Grant Scope indicates "All HARQ processes":

6> activate all HARQ processes;

5> if AG_Timer is not active, it shall be started, otherwise it shall be restarted.

Reference(s)

TS 25.321 clause 11.8.1.3.1

7.1.6.2.5.3 Test purpose

The purpose of this test case is to verify the selective de-activation and re-activation of a HARQ process

7.1.6.2.5.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4c using condition A12 as specified in clause 9.1 of TS 34.108. The logical channel, transport channel and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25

The following parameters are specific for this test case:

Parameter	Value
Periodicity for Scheduling Info – no grant	500 ms (see 25.331 10.3.6.99)
E-DCH TTI	2 ms

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to (10*41)-2 octets.

Test procedure

In this test procedure The UE is configured with one logical channels, with an UL SDU size of 39 octets.

a) SS has not issued any scheduling grant for E-DCH to the UE

b) SS transmits 5 SDU's of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

c) SS waits until an SI is received.

d) SS issues an absolute grant that allows the UE to send 1 RLC PDU per TTI (signalling value 4)

e) SS starts receiving loop backed RLC PDU's. SS checks all 8 Harq processes are used.

f) SS transmits an absolute grant, with Absolute Grant Value set to "INACTIVE" and Absolute Grant Scope indicating "Per HARQ process" corresponding to HARQ process 0 & 4.

g) SS transmits 5 SDU's of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

h) SS starts receiving loop backed RLC PDU's. SS checks Harq processes 0 and 4 are not used.

i) SS transmits an absolute grant, with Absolute Grant Value that allows UE to send 1 RLC PDU per TTI (signalling value 4) and Absolute Grant Scope indicating " All HARQ processes ".

j) SS transmits 1 SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

k) SS starts receiving loop backed RLC PDU's. SS checks all 8 Harq processes are used.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		←	5 RLC PDUs on LCH 1	
2		→	SI indicating data on LCH 1	
3		←	Absolute grant allowing the UE to transmit 1 RLC PDU per TTI	Signalling value 4
4		→	MAC es PDU containing 1 RLC PDU from LCH 1	This step is repeated until all 5 RLC SDU's are received
5		←	Absolute grant de-activating HARQ Process 0	
6		←	Absolute grant de-activating HARQ Process 4	
7		←	5 RLC PDUs on LCH 1	
8		→	MAC es PDU containing 1 RLC PDU from LCH 1	This step is repeated until all 5 RLC SDU's are received.
9		←	Absolute grant activating All HARQ Process 0	Signalling value 4
10		←	5 RLC PDUs on LCH 1	
11		→	MAC es PDU's containing 1 RLC PDU from LCH 1	This step is repeated until all 5 RLC SDU's are received

Specific Message Contents

None

7.1.6.2.5.5 Test requirements

1. In step 4 all 8 HARQ processes shall be used to transmit RLC PDU's
2. In step 8 HARQ processes 0 and 4 shall not be used to transmit RLC PDU's
3. In step 11 all 8 HARQ processes shall be used to transmit RLC PDU's

7.1.6.2.6 MAC-es/e correct handling of relative grants

7.1.6.2.6.1 Definition and applicability

All UEs which support E-DCH.

7.1.6.2.6.2 Conformance requirement

The Serving Grant Update procedure shall be applied at every TTI boundary and shall take into account the Absolute Grant message, Serving Relative Grant and non-serving Relative Grants that apply to the TTI.

The UE shall:

1> set reference_ETPR2 to reference_ETPR as defined in subclause 3.1.2;

1> set reference_ETPR to the E-DPDCH to DPCCH power ratio as defined in subclause 3.1.2;

1> if an Absolute Grant was received for this TTI:

…..

1> else (no Absolute Grant received):

2> if the HARQ process given by the value of CURRENT_HARQ_PROCESS is active; and

2> if Primary_Grant_Available is equal to "True"; and

2> if Serving_Grant <> "Zero_Grant" ; and

2> if AG_Timer has expired; and2> if there was a scheduled transmission (see Note) in the previous TTI of the HARQ process given by the value of CURRENT_HARQ_PROCESS:

3> if the Serving Relative Grant indicates "UP":

4> determine the Serving_Grant in accordance with subclause 9.2.5.2.1.

3> else, if the Serving Relative Grant indicates "DOWN":

4> determine the Serving_Grant in accordance with subclause 9.2.5.2.1.

1> if any Non-Serving Relative Grants indicate "DOWN" for this TTI and Serving_Grant <> "Zero_Grant":

2> Serving_Grant = MIN(Serving_Grant, Serving_Grant determined in accordance with subclause 9.2.5.2.1);

2> Maximum_Serving_Grant = Serving_Grant.

2> if Non_Serving_RG_Timer is not active it shall be started, otherwise it shall be restarted;

1> else if no Non-Serving Relative Grants indicate "DOWN" for this TTI:

2> if Non_Serving_RG_Timer has not expired:

3> Serving_Grant = MIN(Maximum_Serving_Grant, Serving_Grant).NOTE: Scheduling Information sent alone is not considered as a scheduled transmission.

Reference(s)

TS 25.321 clause 11.8.1.3.1

7.1.6.2.6.3 Test purpose

The purpose of this test case is

1. To verify that the UE acts on serving and non-serving relative grants when the UE is using the Primary E-RNTI.
2. To verify that the UE only acts on non-serving relative grants when the UE is using the Secondary E-RNTI
3. To verify that the UE does not use a Serving_Grant value greater than Maximum_Serving_Grant when the Non_Serving_RG_Timer has not expired.

7.1.6.2.6.4Method of test

Initial conditions

System Simulator:

2 cells, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4c using condition A12 as specified in clause 9.1 of TS 34.108. The logical channel, transport channel and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25

Cell 1 is the serving E-DCH cell.

The following parameters are specific for this test case:

Parameter	Value
Periodicity for Scheduling Info – no grant	500 ms (see 25.331 10.3.6.99)
E-DCH TTI	10 ms
New Secondary E-RNTI	'1010 1111 1010 1111'
3-Index-Step Threshold	20
2-Index-Step Threshold	37

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to (10*41)-2 octets.

Test procedure

In this test procedure the UE is configured with one logical channel.

0) SS waits for the Measurement report from the UE with event set to “1a” and then adds the Radio link on the second cell by sending an Active Set Update message.

a) SS has not issued any scheduling grant for E-DCH to the UE

b) SS transmits 10 SDU’s of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

c) SS waits until an SI is received.

d) SS issues a primary absolute grant that allows the UE to send 1 RLC PDU per TTI (signalling value 4)

e) SS starts receiving loop backed RLC PDU’s.

f) After receiving data once on all HARQ processes in a HARQ-RTT, SS transmits a relative grant in cell 1(serving cell) as ‘UP’.

g) SS continues receiving loop back PDU’s and checks that UE has started using the serving grant corresponding to more than one RLC PDU’s transmitted per TTI.

h) SS transmits 10 SDU’s of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

i) SS starts receiving loop backed RLC PDU’s.

j) After receiving data once on all HARQ processes in a HARQ-RTT, SS transmits a relative grant in cell 2(non serving) as ‘Down’.

k) SS continues receiving loop back PDU’s and checks that the UE has reduced the serving grant corresponding to one RLC PDU transmitted per TTI.

l) SS transmits a primary absolute grant, with Absolute Grant Value set to "INACTIVE" and Absolute Grant Scope indicating "All HARQ process" . The UE starts using the Secondary Grant.

m) SS transmits 10 SDU's of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

n) SS waits until an SI is received.

o) SS issues a secondary absolute grant corresponding to 1 RLC PDU of size 41 octets per TTI (signalling value 4)

p) After receiving data once on all HARQ processes in a HARQ-RTT, SS transmits a relative grant in cell 1(serving cell) as 'UP'.

q) SS continues receiving loop back PDU's and checks that the UE has ignored the previous relative grant.

r) SS issues a secondary absolute grant corresponding to 2 RLC PDU's of size 41 octets per TTI (signalling value 5)

s) SS transmits 10 SDU's of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

t) SS starts receiving loop backed RLC PDU's. SS checks that the UE is using a serving grant corresponding to 2 RLC PDU's transmitted per TTI.

u) After receiving data on all HARQ processes for two HARQ-RTTs, SS transmits a relative grant in cell 2 (non serving) as 'Down'. (*Note)

v) SS continues receiving loop back PDU's and checks that UE has reduced the serving grant corresponding to 1 RLC PDU's transmitted per TTI.

w) SS issues a secondary absolute grant corresponding to 2 RLC PDU's of size 41 octets per TTI (signalling value 5)

wa) SS transmits 10 SDU's of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

wb) SS starts receiving loop backed RLC PDU's. SS checks that the UE is using a serving grant corresponding to 2 RLC PDU's transmitted per TTI.

x) After receiving data on all HARQ processes for two HARQ-RTTs, SS transmits a relative grant in cell 2 (non serving) as 'Down'.

y) In the following TTI, SS transmits a secondary absolute grant that allows the UE to send 2 RLC PDU's of size 41 octets per TTI (signalling value 5).

za) Void

aa) SS continues receiving loop back PDU's and checks that UE has reduced the serving grant corresponding to 1 RLC PDU's transmitted per TTI.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
0a	→		Measurement Report	See specific message contents for this message
0b	←		ACTIVE SET UPDATE	The SS instructs the UE to add cell 2 in the active set
0c	→		ACTIVE SET UPDATE COMPLETE	
1	←		10 RLC PDUs on LCH 1	
2	→		SI indicating data on LCH 1	
3	←		Absolute grant allowing the UE to transmit 1 RLC PDU per TTI	Signalling value 4
4	→		MAC es PDU containing 1 RLC PDU from LCH 1	This step is repeated for one HARQ RTT
5	←		Relative Grant in cell 1 with 'UP'	
6	→		MAC es PDU containing more than one RLC PDU from LCH 1	This step is repeated until all RLC SDU's are received.
7	←		10 RLC PDUs on LCH 1	
8	→		MAC es PDU containing more than one RLC PDU from LCH 1	This step is repeated for one HARQ RTT
9	←		Relative Grant in cell 2 with 'DOWN'	
10	→		MAC es PDU containing 1 RLC PDU from LCH 1	This step is repeated until all RLC SDU's are received.
11	←		Primary Absolute grant set to 'INACTIVE' and scope 'All HARQ Processes'	UE serving grant to Stored_Secondary_Grant which is initialised to 'Zero_grant'.
12	←		10 RLC PDUs on LCH 1	
13	→		SI indicating data on LCH 1	
14	←		Secondary Absolute grant allowing the UE to transmit 1 RLC PDU per TTI	Signalling value 4
15	→		MAC es PDU containing 1 RLC PDU from LCH 1	This step is repeated for one HARQ RTT
16	←		Relative Grant in cell 1 with 'UP'	
17	→		MAC es PDU containing one RLC PDU from LCH 1	This step is repeated until all RLC SDU's are received.
18	←		Secondary Absolute grant allowing the UE to transmit 2 RLC PDU per TTI	Signalling value 5
19	←		10 RLC PDUs on LCH 1	
20	→		MAC es PDU containing 2 RLC PDU from LCH 1	This step is repeated for two HARQ RTTs
21	←		Relative Grant in cell 2 with 'DOWN'	
22	→		MAC es PDU containing 1 RLC PDU from LCH 1	This step is repeated until all RLC SDU's are received.
23	←		Secondary Absolute grant allowing the UE to transmit 2 RLC PDUs per TTI	Signalling value 5 SG_{LUPR} corresponding to 19/15
23a	←		10 RLC PDUs on LCH 1	
23b	→		MAC es PDU containing 2 RLC PDU from LCH 1	This step is repeated for two HARQ RTTs
24	←		Relative Grant in cell 2 with 'DOWN'	SG_{LUPR} corresponding to 17/15 sufficient for 1 RLC PDU per TTI
25	←		1 TTI after step 24, Absolute grant allowing the UE to transmit 2 RLC PDUs per TTI	Signalling value 5
26	←		Void	
27	→		MAC es PDU containing 1 RLC PDU from LCH 1	This step is repeated until all RLC SDU's are received.

Specific Message Contents

MEASUREMENT REPORT (Step 0a)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 0b)

The message to be used in this test is defined in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Activation time	Not Present
Radio link addition information	
- Primary CPICH Info	
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- Downlink DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	P-CPICH can be used.
- DPCH frame offset	Calculated value from Cell synchronisation information
- Secondary CPICH info	Not Present
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE
- Secondary scrambling code	1
- Spreading factor	Refer to TS 34.108 clause 6.10.2.4 "Typical radio parameter sets"
- Code Number	For each DPCH, assign the same code number in the current code given in cell 1.
- Scrambling code change	Not Present
- TPC Combination Index	1
- Close loop timing adjustment mode	Not Present
- TFCI Combining Indicator	FALSE
- E-HICH Information	
- Channelisation code	4
- Signature sequence	1
- CHOICE E-RGCH Information	
- E-RGCH Information	
- Signature Sequence	0
- RG combination index	1

7.1.6.2.6.5 Test requirements

1. After step 5 UE will start sending 2 RLC PDU's per TTI.
2. After step 9, UE will reduce number of RLC PDU's per TTI to 1.
3. After step 16, UE will not change its rate of RLC PDU's per TTI.
4. After step 21, UE will reduce number of RLC PDU's per TTI to 1.

4a After Step 23,UE will start sending 2 RLC PDU's per TTI

4b. After step 24, UE will reduce number of RLC PDU's per TTI to 1

5. After step 25, UE will not change its SG_{LUPR} and hence in step 27 will loop back PDU's at the rate of 1 RLC PDU per TTI.

7.1.6.2.7 MAC-es/e correct handling of absolute grants on Primary and Secondary E-RNTI

7.1.6.2.7.1 Definition and applicability

All UEs which support E-DCH.

7.1.6.2.7.2 Conformance requirement

The Serving Grant Update procedure shall be applied at every TTI boundary and shall take into account the Absolute Grant message, Serving Relative Grant and non-serving Relative Grants that apply to the TTI.

The UE shall:

1> set reference_ETPR to the E-DPDCH to DPCCH power ratio as defined in subclause 3.1.2;

1> if an Absolute Grant was received for this TTI:

2> if the Identity type is “Primary”, and the Absolute Grant value is set to "INACTIVE":

3> if Absolute Grant Scope indicates "Per HARQ process" and a 2ms TTI is configured:

4> de-activate the process given by the value of CURRENT_HARQ_PROCESS.

3> if Absolute Grant Scope indicates "All HARQ processes" and a secondary E-RNTI was configured by higher layers:

4> activate all HARQ processes;

4> set Serving_Grant = Stored_Secondary_Grant;

4> set Primary_Grant_Available to "False".

3> if Absolute Grant Scope indicates "All HARQ processes", a 2ms TTI is configured and a secondary E-RNTI was not configured by higher layers:

4> deactivate all HARQ processes (if a process was inactive it remains inactive, if a process was active it becomes inactive).

2> else if the Absolute Grant Value is different from "INACTIVE":

3> if the Identity Type is "Secondary":

4> set Stored_Secondary_Grant = Absolute Grant Value.

3> if the Identity Type is "Primary" or Primary_Grant_Available is set to "False":

4> set Serving_Grant = Absolute Grant Value.

4> if the Identity Type is "Primary":

5> set Primary_Grant_Available to "True";

5> if Absolute Grant Scope indicates "Per HARQ process":

6> activate the process given by the value of CURRENT_HARQ_PROCESS.

5> if Absolute Grant Scope indicates "All HARQ processes":

6> activate all HARQ processes;

5> if AG_Timer is not active, it shall be started, otherwise it shall be restarted.

Reference(s)

TS 25.321 clause 11.8.1.3.1

7.1.6.2.7.3 Test purpose

The purpose of this test case is to verify that the UE acting on absolute grants given on the Primary and Secondary E-RNTI and switching between the 2 cases.

7.1.6.2.7.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4c using condition A12 as specified in clause 9.1 of TS 34.108. The logical channel, transport channel and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25

The following parameters are specific for this test case:

Parameter	Value
Periodicity for Scheduling Info – no grant	500 ms (see 25.331 10.3.6.99)
New Secondary E-RNTI	'1010 1111 1010 1111'

The UE is placed into UE test loop mode 1 with the UL SDU size set to (4*41)-2 octets.

Test procedure

In this test procedure The UE is configured with one logical channel.

a) SS has not issued any scheduling grant for E-DCH to the UE

b) SS transmits 1 SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

c) SS waits until an SI is received.

d) The SS issues primary absolute grant corresponding to 4 RLC PDUs of size 41 octets per TTI (signalling value 7)

e) SS starts receiving loop backed RLC PDU's.

f) SS transmits primary absolute grant, with Absolute Grant Value set to "INACTIVE" and Absolute Grant Scope indicating "All HARQ process" . UE starts using Secondary Grant.

g) SS transmits 1 SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

h) SS waits until an SI is received.

i) The SS issues secondary absolute grant corresponding to 1 RLC PDU of size 41 octets per TTI (signalling value 4)

j) SS starts receiving loop backed RLC PDU's.

k) SS issues secondary absolute grant of 'ZERO_GRANT'.

l) SS transmits 1 SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

m) SS waits until an SI is received.

n) The SS issues primary absolute grant corresponding to 4 RLC PDUs of size 41 octets per TTI (signalling value 7), with Absolute Grant Scope set as "All HARQ processes". UE starts using primary grant.

o) SS starts receiving loop backed RLC PDU's.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		1 RLC PDUs on LCH 1	
2	→		SI indicating data on LCH 1	
3	←		Primary Absolute grant allowing the UE to transmit 4 RLC PDU per TTI	Signalling value 7
4	→		MAC es PDU containing 4 RLC PDU's from LCH 1	
5	←		Primary Absolute grant set to 'INACTIVE' and scope 'All HARQ Processes'	UE serving grant to Stored_Secondary_Grant which is initialised to 'Zero_grant'.
6	←		1 RLC PDUs on LCH 1	
7	→		SI indicating data on LCH 1	
8	←		Secondary Absolute grant allowing the UE to transmit 1 RLC PDU per TTI	Signalling value 4
9	→		MAC es PDU containing 1 RLC PDU from LCH 1	This step is repeated until the whole RLC SDU is transmitted
10	←		Secondary Absolute grant set to 'Zero_Grant'	
11	←		1 RLC PDUs on LCH 1	
12	→		SI indicating data on LCH 1	
13	←		Primary Absolute grant allowing the UE to transmit 4 RLC PDU per TTI	Signalling value 7
14	→		MAC es PDU containing 4 RLC PDU's from LCH 1	

Specific Message Contents

None

7.1.6.2.7.5 Test requirements

1. In step 4, the SS shall receive 1 MAC-es PDU containing 4 RLC PDU's

1a. In step 7 UE shall transmit SI, as an indication that it has stopped using previous absolute grant.

2. After step 8, UE shall start sending loop backed PDU, with one RLC PDU per TTI.

3. In step 12 UE shall transmit SI.

4. After step 13, UE shall loop back all 4 RLC PDU's in one TTI.

7.1.6.2.8 MAC-es/e combined non-scheduled and scheduled transmissions

7.1.6.2.8.1 Definition and applicability

All UEs which support E-DCH.

7.1.6.2.8.2 Conformance requirement

From 25.321 clause 11.8.1.4:

The transmission format and data allocation shall follow the requirements below:

[…]

- For all logical channels, if the logical channel belongs to a non-scheduled MAC-d flow, its data shall be considered as available up to the corresponding non-scheduled grant, if the logical channel does not belong to a non-scheduled MAC-d flow, its data shall be considered as available up to the Serving Grant;

[…]

- The amount of data from MAC-d flows for which non-scheduled grants were configured shall not exceed the value of the non-scheduled grant;

[…]

- When not in a power limited condition the maximum amount of data from MAC-d flows for which no non-scheduled grants were configured shall be quantized to the next smaller supported E-TFC based on the Serving Grant (after adjustment for compressed frames), the power offset from the selected HARQ profile, the non-scheduled grants (if any) and Scheduling Information (if any); In the case a 2ms TTI is configured and the HARQ process is inactive, the UE shall not include any such data in the transmission;

From 25.321 clause 11.9.1.4:

In TDD, rules for E-TFC selection shall be applied as provided below.

UEs shall apply E-TFC selection when invoked by the HARQ entity (see subclause 11.9.1.1.1).

For each MAC-d flow, RRC configures MAC-e with a HARQ profile and multiplexing list. Additionally, RRC configures MAC with a power offset in case the Scheduling Information needs to be transmitted without any higher-layer data. For 1.28 Mcps TDD, RRC also configures MAC with a retransmission timer and the maximum number of HARQ transmissions in case the Scheduling Information needs to be transmitted without any higher-layer data. The HARQ profile includes the power offset and maximum number of HARQ transmissions to use for this MAC-d flow. For 1.28 Mcps TDD, the HARQ profile also includes a retransmission timer attribute. The multiplexing list identifies for each MAC-d flow(s), the other MAC-d flows for which data can be multiplexed in a transmission that uses the power offset included in its HARQ profile.

RRC can control the scheduling of uplink data by giving each logical channel a priority between 1 and 8, where 1 is the highest priority and 8 the lowest. E-TFC selection in the UE shall be done in accordance with the priorities indicated by RRC. Logical channels have absolute priority, i.e. the UE shall maximise the transmission of higher priority data.

RRC can allocate non-scheduled transmission grants to individual MAC-d flows in order to reduce the transmission delays.

The UE shall determine whether to take scheduled or non-scheduled grants into account in the upcoming transmission. If neither are supposed to be taken into account (i.e. the TTI is not available for non-scheduled transmission and no Grant for scheduled transmission has been received) then no grant shall be assumed to exist. If a grant exists then the transmission format and data allocation shall follow the requirements below.

For each configured MAC-d flow, a given E-TFC can be in any of the following states:

- Supported state;

- Blocked state.

The E-TFC states are derived according to the following:

- If the transmission is a retransmission then only the E-TFC with the same block size as the original transmission may be in the supported state.

- For 1.28Mcps TDD, only E-TFCs from the E-TFCS (the table of TB sizes) which are consistent with the UE's E-DCH capability category shall be considered for the transmission;

- Only E-TFCs from the E-TFCS (the table of TB sizes) which can be supported by (exactly) the number of slots assigned by the grant shall be considered for the transmission;

- Only E-TFCs which result (for the granted timeslot and code physical resources) in a coderate lying between the maximum and minimum (inclusive) allowable code rates set by RRC [7] shall be considered for the transmission {note: the definition of the term “coderate” as used here is the same as that provided by [18]}. This shall be evaluated for both QPSK and 16-QAM modulation;

- P_{HARQ}, the HARQ profile power offset is selected (for 3.84/7.68Mcps TDD the HARQ profile for the transmission shall be selected among the HARQ profiles of MAC-d flows on which the highest priority logical channels with available data are mapped, for 1.28Mcps TDD the HARQ power offset shall be set to the maximum of HARQ power offset of all the MAC-d flows mapped to the same type of resource (scheduled or non-scheduled resource); Scheduling Information power offset shall be used when Scheduling Information is transmitted without any higher-layer data.)

- Only E-TFCs whose calculated transmission power requirement $P_{E\text{-}PUCH}$ (see [18]) is less than or equal to both the available and the granted power shall be considered for the transmission (note: this requirement does not apply in the case of a retransmission on non-scheduled resources). For TDD, the smallest E-TFC is considered always in the supported state. The granted power is defined as the calculated E-PUCH transmission power of [18] with β_e = (Absolute Grant Value + α_e). The available power is the maximum UE transmission power.

From those E-TFCs in the supported state the UE determines the largest block size that it is permitted to transmit within the given constraints.

The UE shall select the modulation type associated with the determined E-TFC (note: if an E-TFC is supported by both QPSK and 16-QAM then 16-QAM modulation shall be used if its power requirement ($P_{E\text{-}PUCH}$) is lower than the power requirement for QPSK, otherwise QPSK modulation shall be used).

Data allocation shall then be performed in accordance with the following:

- For all logical channels, if the logical channel belongs to a non-scheduled MAC-d flow, its data shall be considered as available up to the largest block size determined for the corresponding non-scheduled grant. If the logical channel does not belong to a non-scheduled MAC-d flow, its data shall be considered as available up to the largest block size determined for the Serving Grant;

- The data allocation shall maximise the transmission of higher priority data;

- The UE shall select the E-TFC, SF and modulation which minimises the power used (3.84/7.68 Mcps TDD only);

- The UE shall select the E-TFC and modulation which minimises the power used (1.28 Mcps TDD only);

Once an appropriate E-TFC and data allocation are found according to the rules above, the "Multiplexing and TSN Setting" entity shall generate the corresponding MAC-e PDU.

In 1.28Mcps TDD, when Scheduling Information is triggered by timer per subclause 11.9.1.5, the E-TFC selection and data-allocation process shall assume that Scheduling Information has a priority higher than any other logical channel.

The E-TFC selection function shall provide this MAC-e PDU and transmission HARQ profile to the HARQ entity. For 3.84Mcps TDD and 7.68Mcps TDD the selected E-TFC is also provided (Note: for 1.28Mcps TDD, the signalled transport block size index, i.e. E-TFCI, is the index of the selected E-TFC in the candidate set.). The maximum number of HARQ transmissions and the power offset in this profile shall be set respectively to the maximum of both the Max Number of HARQ Transmissions and of the power offset of the HARQ profiles from all the MAC-d flows from which data is multiplexed into the transmission. For 1.28 Mcps TDD, the maximum number of HARQ transmissions shall be set to the maximum of the Max Number of HARQ Transmissions of the HARQ profiles from all the MAC-d flows from which data is multiplexed into the transmission, the HARQ power offset shall be set to the maximum of HARQ power offset of all the MAC-d flows mapped to the same type of resource (scheduled or non-scheduled resource), and the retransmission timer shall be set to the maximum of the retransmission timer value of the HARQ profiles that are permitted to be multiplexed into the transmission. For 1.28Mcps TDD, when the Scheduling Information needs to be transmitted without any higher-layer data, the specific HARQ profile should be applied. Each HARQ process which is associated with a buffer holding a MAC-e PDU for potential retransmission shall maintain the HARQ profile and the number of re-transmissions that have occurred. For 1.28 Mcps TDD, the HARQ process shall also maintain the value of RTX_TIMER.

Further information on E-TFC selection is provided in Annex CA.

From 25.331 clause 8.6.5.18:

1> if the IE "E-DCH MAC-d flow multiplexing list" is included:

2> only multiplex MAC-d PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed in accordance to the IE "E-DCH MAC-d flow multiplexing list".

[…]

1> for FDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> if the TTI configured on the E-DCH equals 2ms, and the IE "2ms non-scheduled transmission grant HARQ process allocation" is configured for this MAC-d flow:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e PDU transmitted by HARQ processes allowed by the IE "2ms non-scheduled transmission grant HARQ process allocation", with a total contribution from this MAC-d flow not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

3> else:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall be included in a MAC-e PDU transmitted by any HARQ process, with a total contribution from this MAC-d flow not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

1> for TDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e PDU transmitted by HARQ processes designated as non scheduled (Ids 4 – 7) in the TTIs indicated (as determined from the IEs "Activation Time", "Resource Duration" and "Resource Periodicity").

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDUs for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH (see [15]).

Reference(s)

TS 25.321 clause 11.8.1.4, 11.9.1.4, TS 25.331 clause 8.6.5.18

7.1.6.2.8.3 Test purpose

To verify that the UE is able to handle combined non-scheduled and scheduled transmissions.

7.1.6.2.8.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4d (FDD) /6.11.5.4.7.7(1.28Mcps TDD) using condition A15 (FDD) /A14 (1.28Mcps TDD) as specified in clause 9.1 of TS 34.108. The following parameters are specific for this test case with the logical channel, transport channel and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25
8 (LCH2)	3	2	RB17
Note: The RAB combination also includes SRBs on E-DCH on MAC-d flow 1 which is not used in the test case			

The following parameters are specific for this test case:

Parameter	Value
E-DCH MAC-d flow multiplexing list	11111111 (See 25.331 10.3.5.1b) Note 1
E-TFCI table	Table 0 for 10 ms TTI (FDD)
E-TFCI table	5ms TTI E-DCH Transport Block Size Table 0(1.28Mcps TDD)
Note 1: This configuration means that all MAC-d flows can be multiplexed in the same TTI	

The UE is placed into UE test loop mode 1 with the UL SDU size for LCH 1 set to (25*41)-2 octets and LCH 2 size set to 39 octets.

Test procedure

The UE is configured with a non-scheduled grant on MAC-d flow 2, and the value of the "Max MAC-e PDU contents size" is 500 bits. The UE is not given any grant to transmit on MAC-d flow 3 (LCH 2).

a) The SS has not issued any grant for E-DCH on MAC-d flow 3 (LCH 2)

b) The SS transmits 1 SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH 2

c) The SS transmits 1 SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH 1

d) The SS waits until data is received and checks that the first TTI contains only data on LCH 1

e) The SS issues an absolute grant that allows the UE to send with a high rate on LCH 2 (well above 1 SDU/TTI) immediately after the previous step (i.e. not more than one TTI after the first data on LCH 1 has been looped back).

f) The SS receives data from the two logical channels LCH 1 and LCH 2 in one TTI.

g) The SS removes the scheduling grant for E-DCH for the UE

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		1 RLC PDU on LCH 2	SDU size is 40 bytes
2	←		1 RLC PDU on LCH 1	SDU size is 40 bytes
2a	→		SI indicating data on LCH 2	Step 2a and 3 can happen in any order
3	→		MAC es PDU containing 1 RLC PDU on LCH 1	
4	←		Absolute grant allowing the UE to transmit with high data rate on LCH 2	Signalling value 31
5	→		MAC es PDU containing 1 RLC PDU on LCH 1 and 1 RLC PDU on LCH 2	Before and after this step, SS continues to receive 1 RLC PDU on LCH 1 per TTI, until complete SDU consisting of 25 PDU's is received.
6	←		Removal of absolute grant	Signalling value 1

Specific Message Contents

None

7.1.6.2.8.5 Test requirements

1. In step 3, the SS shall receive 1 MAC-es PDU containing 1 RLC PDU on LCH 1.

2. In step 5, the SS shall receive 1 MAC-es PDU containing 1 RLC PDU on LCH 1 and 1 RLC PDU on LCH 2 within the same TTI.

7.1.6.2.9 MAC-es/e Correct handling of HARQ profile power offsets

7.1.6.2.9.1 Definition and applicability

All UEs which support E-DCH.

7.1.6.2.9.2 Conformance requirement

In FDD mode, the rules for E-TFC selection provided below shall apply to UEs in CELL_DCH state with an E-DCH transport channel configured. These UEs shall apply the E-TFC selection procedure when invoked by the HARQ entity (see subclause 11.8.1.1.1). In the case where a 2ms TTI is configured, E-TFC selection shall not be performed for TTIs that overlap with an uplink compressed mode gap. The E-TFC restriction procedure described in [12] shall always be applied before the E-TFC selection process below. Furthermore, for UEs that are also configured with a DCH transport channel on uplink, the TFC selection procedure shall be applied before either of these.

For each MAC-d flow, RRC configures MAC with a HARQ profile and a multiplexing list. Additionally, RRC configures MAC with a power offset for "Control-only" transmissions. This power offset and a maximum number of HARQ transmissions of 8 will be used to define a HARQ profile for "Control-only" transmissions which will be used, in case the Scheduling Information needs to be transmitted without any higher-layer data. The HARQ profile includes the power offset and maximum number of HARQ transmissions to use for this MAC-d flow. The multiplexing list identifies for each MAC-d flow(s), the other MAC-d flows from which data can be multiplexed in a transmission that uses the power offset included in its HARQ profile.

RRC can control the scheduling of uplink data by giving each logical channel a priority between 1 and 8, where 1 is the highest priority and 8 the lowest. E-TFC selection in the UE shall be done in accordance with the priorities indicated by RRC. Logical channels have absolute priority, i.e. the UE shall maximise the transmission of higher priority data.

RRC can allocate non-scheduled transmission grants to individual MAC-d flows in order to reduce the transmission delays. When a 2ms TTI is configured each non-scheduled grant is applicable to the specific set of HARQ processes indicated by RRC. The applicability of scheduled grants can be also restricted to a specific set of HARQ processes when a 2ms TTI is configured. HARQ process restriction and reservation is under the control of the serving cell Node B and indicated to the UE by RRC.

For each configured MAC-d flow, a given E-TFC can be in any of the following states:

- Supported state;
- Blocked state.

At each TTI boundary, UEs in CELL_DCH state with an E-DCH transport channel configured shall determine the state of each E-TFC for every MAC-d flow configured based on its required transmit power versus the maximum UE transmit power (see [7] and [12]). If no DCH transport channel is configured or if a DCH transport channel is configured and the selected TFC is "empty" (see [3]), the UE shall consider that E-TFCs included in the minimum set of E-TFCs are always in supported state (see [7]).

At every TTI boundary for which a new transmission is requested by the HARQ entity (see subclause 11.8.1.1.1), the UE shall perform the operations described below. UEs configured both with DCH and E-DCH transport channels shall perform TFC selection before performing E-TFC selection.

The Serving Grant Update function provides the E-TFC selection function with the maximum E-DPDCH to DPCCH power ratio that the UE is allowed to allocate for the upcoming transmission for scheduled data (held in the Serving Grant state variable – see subclause 11.8.1.3).

The HARQ process ID for the upcoming transmission is determined using the following formulae:

- For 2ms TTI: CURRENT_HARQ_PROCESS_ID = [5*CFN + subframe number] **mod** HARQ_RTT
- For 10ms TTI: CURRENT_HARQ_PROCESS_ID = [CFN] **mod** HARQ_RTT

Based on this current HARQ process ID and the RRC configuration, the UE shall determine whether to take the scheduled and non-scheduled grants into account in the upcoming transmission. If they are not supposed to be taken into account, then the corresponding grant shall be assumed to not exist. If the variable Serving_Grant has the value "Zero_Grant" after the Serving Grant Update, then the Serving Grant shall not be taken into account in the upcoming transmission.

When Scheduling Information is triggered per subclause 11.8.1.6, the E-TFC selection and data-allocation process shall assume that a non-scheduled grant is available for its transmission and that Scheduling Information has a priority higher then any other logical channel. Furthermore the HARQ process used for the upcoming transmission shall be assumed to be active and not L3 restricted for the transmission of the Scheduling Information, i.e. transmission of Scheduling Information can take place on this process.

The transmission format and data allocation shall follow the requirements below:

- Only E-TFCs from the configured E-TFCS shall be considered for the transmission;
- For all logical channels, if the logical channel belongs to a non-scheduled MAC-d flow, its data shall be considered as available up to the corresponding non-scheduled grant, if the logical channel does not belong to a non-scheduled MAC-d flow, its data shall be considered as available up to the Serving Grant;
- The power offset for the transmission is the one from the HARQ profile of the MAC-d flow that allows highest-priority data to be transmitted. If more than one MAC-d flow allows data of the same highest priority to be transmitted, it is left to implementation to select which MAC-d flow to prefer);
- In case the variable Serving_Grant has the value "Zero_Grant" after the Serving Grant Update function and there is no data available for MAC-d flows for which non-scheduled grants were configured and the transmission of Scheduling Information has been triggered, the "Control-only" HARQ profile configured by the higher layers shall be used.
- The Nominal Power Offset shall be set to the power offset included in the transmission HARQ profile;
- The data allocation shall maximize the transmission of higher priority data;
- The amount of data from MAC-d flows for which non-scheduled grants were configured shall not exceed the value of the non-scheduled grant;
- If a 10ms TTI is configured and the TTI for the upcoming transmission overlaps with a compressed mode gap, the Serving_Grant provided by the Serving Grant Update function shall be scaled back as follows:

  $$SG' = SG * (\frac{N_C}{15})$$

  where SG' represents the modified serving grant considered by the E-TFC selection algorithm and N_C represents the number of non DTX slots in the compressed TTI;
- When not in a power limited condition the maximum amount of data from MAC-d flows for which no non-scheduled grants were configured shall be quantized to the next smaller supported E-TFC based on the Serving Grant (after adjustment for compressed frames), the power offset from the selected HARQ profile, the non-scheduled grants (if any) and Scheduling Information (if any); In the case a 2ms TTI is configured and the HARQ process is inactive, the UE shall not include any such data in the transmission;
- The Scheduling Information is always sent when triggered;
- Only E-TFCs in supported state shall be considered;
- The E-TFC resulting in the smallest amount of padding for the selected MAC-es PDUs and corresponding MAC-e/es headers, shall be selected including the case when the Scheduling Information needs to be transmitted.

Once an appropriate E-TFC and data allocation are found according to the rules above, the "Multiplexing and TSN Setting" entity shall generate the corresponding MAC-e PDU.

The E-TFC selection function shall provide this MAC-e PDU and transmission HARQ profile to the HARQ entity. The maximum number of HARQ transmissions and the power offset in this profile, shall be set respectively to the maximum of the Max Number of HARQ Transmissions of the HARQ profiles from all the MAC-d flows from which data is multiplexed into the transmission and to the Nominal Power Offset. The HARQ entity shall also be informed of whether the transmission includes Scheduling Information and whether this information is sent by itself or with higher-layer data.

Reference(s)

TS 25.321 clause 11.8.1.4

7.1.6.2.9.3 Test purpose

The purpose of this test case is to verify that the UE applies different HARQ profiles from different MAC-d flows to E-DCH transmissions accordingly and in case data from two MAC-d flows is transmitted in the same E-DCH transmission, the UE selects the correct power offset.

7.1.6.2.9.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4d using condition A15 as specified in clause 9.1 of TS 34.108. The logical channel, transport channel and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25
8 (LCH2)	3	2	RB17
Note: The RAB combination also includes SRBs on E-DCH on MAC-d flow 1 which is not used in the testcase			

The following parameters are specific for this test case:

Parameter	Value
E-DCH MAC-d flow multiplexing list for MAC-d flow 2	11111111 (See 25.331 10.3.5.1b) Note 1
E-DCH MAC-d flow multiplexing list for MAC-d flow 3	11111111 (See 25.331 10.3.5.1b) Note 1
Power offset for MAC-d flow 2	3dB (see 25.331 subclause 10.3.5.1b)
Power offset for MAC-d flow 3	0dB (see 25.331 subclause 10.3.5.1b)
Note 1: This configuration means that all MAC-d flows can be multiplexed in the same TTI	

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 39 octets for RB 25 and RB17.

Test procedure

The UE is configured with two logical channels, LCH1 (with priority 1) and LCH2 (with priority 2). LCH1 is mapped to MAC-d flow 2 and LCH2 is mapped to MAC-d flow 3.

a) SS has not issued any scheduling grant for E-DCH to the UE.

b) SS transmits 2 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

c) SS waits until an SI is received.

d) The SS issues primary absolute grant corresponding to 1 RLC PDU of size 41 octets per TTI when the Mac-d flow power offset is 3dB (signalling value 5), with Absolute Grant Scope set as "All HARQ processes".

e) SS starts receiving loop backed RLC PDU’s.

f) The SS issues primary absolute grant corresponding to “ZERO GRANT”, with Absolute Grant Scope set as "All HARQ processes".

g) SS transmits 4 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH2.

h) SS waits until an SI is received.

i) The SS issues primary absolute grant corresponding to 2 RLC PDUs of size 41 octets per TTI when the Mac-d flow power offset is 0dB (signalling value 5), with Absolute Grant Scope set as "All HARQ processes".

j) SS starts receiving loop backed RLC PDU's.

k) The SS issues primary absolute grant corresponding to "ZERO GRANT", with Absolute Grant Scope set as "All HARQ processes".

l) SS transmits 2 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH2.

m) SS waits until an SI is received.

n) SS transmits 2 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

o) SS waits until an SI is received.

p) The SS issues primary absolute grant corresponding to 3 RLC PDUs of size 41 octets per TTI when the Mac-d flow power offset is 3dB (signalling value 9), with Absolute Grant Scope set as "All HARQ processes".

q) SS starts receiving loop backed RLC PDU's.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		2 RLC PDUs on LCH 1	
2	→		SI indicating data on LCH 1	
3	←		Primary Absolute grant allowing the UE to transmit 1 RLC PDU per TTI	Signalling value 5
4	→		MAC es PDU containing 1 RLC SDU from LCH 1	This step is repeated until all the RLC SDUs are transmitted
5	←		Primary Absolute grant set to 'ZERO GRANT' and scope 'All HARQ Processes'	
6	←		4 RLC PDUs on LCH 2	
7	→		SI indicating data on LCH 2	
8	←		Primary Absolute grant allowing the UE to transmit 2 RLC PDU per TTI	Signalling value 5
9	→		MAC es PDU containing 2 RLC SDU from LCH 2	This step is repeated until all the RLC SDUs are transmitted
10	←		Primary Absolute grant set to 'ZERO GRANT' and scope 'All HARQ Processes'	
11	←		2 RLC PDUs on LCH 2	
12	→		SI indicating data on LCH 2	
13	←		2 RLC PDUs on LCH 1	
14	→		SI indicating data on LCH 1	
15	←		Primary Absolute grant allowing the UE to transmit 3 RLC PDUs per TTI	Signalling value 9
16	→		MAC es PDU containing 2 RLC PDU's from LCH 1 and MAC es PDU containing 1 RLC PDU from LCH 2	
17	→		MAC es PDU containing 1 RLC PDU from LCH 2	

Specific Message Contents

None

7.1.6.2.9.5 Test requirements

1. In step 4, UE shall loop back PDUs for two TTIs, with one RLC PDU per TTI.

2. In step 9, UE shall loop back PDUs for two TTIs, with two RLC PDUs per TTI.
3. In step 16, UE shall loop back PDUs for one TTI, with three RLC PDU per TTI (2 RLC PDU's from LCH1 and 1 RLC PDU from LCH 2).
4. In step 17, UE shall loop back PDU for one TTI, with one RLC PDU per TTI (1 RLC PDU from LCH 2).

7.1.6.2.9a MAC-es/e Correct handling of HARQ profile (1.28Mcps TDD)

7.1.6.2.9a.1 Definition and applicability

All UEs which support E-DCH.

7.1.6.2.9a.2 Conformance requirement

In TDD, rules for E-TFC selection shall be applied as provided below.

UEs shall apply E-TFC selection when invoked by the HARQ entity (see subclause 11.9.1.1.1).

For each MAC-d flow, RRC configures MAC-e with a HARQ profile and multiplexing list. Additionally, RRC configures MAC with a power offset in case the Scheduling Information needs to be transmitted without any higher-layer data. For 1.28 Mcps TDD, RRC also configures MAC with a retransmission timer and the maximum number of HARQ transmissions in case the Scheduling Information needs to be transmitted without any higher-layer data. The HARQ profile includes the power offset and maximum number of HARQ transmissions to use for this MAC-d flow. For 1.28 Mcps TDD, the HARQ profile also includes a retransmission timer attribute. The multiplexing list identifies for each MAC-d flow(s), the other MAC-d flows for which data can be multiplexed in a transmission that uses the power offset included in its HARQ profile.

RRC can control the scheduling of uplink data by giving each logical channel a priority between 1 and 8, where 1 is the highest priority and 8 the lowest. E-TFC selection in the UE shall be done in accordance with the priorities indicated by RRC. Logical channels have absolute priority, i.e. the UE shall maximise the transmission of higher priority data.

RRC can allocate non-scheduled transmission grants to individual MAC-d flows in order to reduce the transmission delays.

The UE shall determine whether to take scheduled or non-scheduled grants into account in the upcoming transmission. If neither are supposed to be taken into account (i.e. the TTI is not available for non-scheduled transmission and no Grant for scheduled transmission has been received) then no grant shall be assumed to exist. If a grant exists then the transmission format and data allocation shall follow the requirements below.

For each configured MAC-d flow, a given E-TFC can be in any of the following states:

- Supported state;
- Blocked state.

The E-TFC states are derived according to the following:

- If the transmission is a retransmission then only the E-TFC with the same block size as the original transmission may be in the supported state.
- For 1.28Mcps TDD, only E-TFCs from the E-TFCS (the table of TB sizes) which are consistent with the UE's E-DCH capability category shall be considered for the transmission;
- Only E-TFCs from the E-TFCS (the table of TB sizes) which can be supported by (exactly) the number of slots assigned by the grant shall be considered for the transmission;
- Only E-TFCs which result (for the granted timeslot and code physical resources) in a coderate lying between the maximum and minimum (inclusive) allowable code rates set by RRC [7] shall be considered for the transmission {note: the definition of the term "coderate" as used here is the same as that provided by [18]}. This shall be evaluated for both QPSK and 16-QAM modulation;
- P_{HARQ}, the HARQ profile power offset is selected (for 3.84/7.68Mcps TDD the HARQ profile for the transmission shall be selected among the HARQ profiles of MAC-d flows on which the highest priority logical channels with available data are mapped, for 1.28Mcps TDD the HARQ power offset shall be set to the

maximum of HARQ power offset of all the MAC-d flows mapped to the same type of resource (scheduled or non-scheduled resource); Scheduling Information power offset shall be used when Scheduling Information is transmitted without any higher-layer data.)

- Only E-TFCs whose calculated transmission power requirement $P_{E\text{-}PUCH}$ (see [18]) is less than or equal to both the available and the granted power shall be considered for the transmission (note: this requirement does not apply in the case of a retransmission on non-scheduled resources). For TDD, the smallest E-TFC is considered always in the supported state. The granted power is defined as the calculated E-PUCH transmission power of [18] with β_e = (Absolute Grant Value + α_e). The available power is the maximum UE transmission power.

From those E-TFCs in the supported state the UE determines the largest block size that it is permitted to transmit within the given constraints.

The UE shall select the modulation type associated with the determined E-TFC (note: if an E-TFC is supported by both QPSK and 16-QAM then 16-QAM modulation shall be used if its power requirement ($P_{E\text{-}PUCH}$) is lower than the power requirement for QPSK, otherwise QPSK modulation shall be used).

Data allocation shall then be performed in accordance with the following:

- For all logical channels, if the logical channel belongs to a non-scheduled MAC-d flow, its data shall be considered as available up to the largest block size determined for the corresponding non-scheduled grant. If the logical channel does not belong to a non-scheduled MAC-d flow, its data shall be considered as available up to the largest block size determined for the Serving Grant;

- The data allocation shall maximise the transmission of higher priority data;

- The UE shall select the E-TFC, SF and modulation which minimises the power used (3.84/7.68 Mcps TDD only);

- The UE shall select the E-TFC and modulation which minimises the power used (1.28 Mcps TDD only);

Once an appropriate E-TFC and data allocation are found according to the rules above, the "Multiplexing and TSN Setting" entity shall generate the corresponding MAC-e PDU.

In 1.28Mcps TDD, when Scheduling Information is triggered by timer per subclause 11.9.1.5, the E-TFC selection and data-allocation process shall assume that Scheduling Information has a priority higher than any other logical channel.

The E-TFC selection function shall provide this MAC-e PDU and transmission HARQ profile to the HARQ entity. For 3.84Mcps TDD and 7.68Mcps TDD the selected E-TFC is also provided

NOTE: For 1.28Mcps TDD, the signalled transport block size index, i.e. E-TFCI, is the index of the selected E-TFC in the candidate set.

The maximum number of HARQ transmissions and the power offset in this profile shall be set respectively to the maximum of both the Max Number of HARQ Transmissions and of the power offset of the HARQ profiles from all the MAC-d flows from which data is multiplexed into the transmission. For 1.28 Mcps TDD, the maximum number of HARQ transmissions shall be set to the maximum of the Max Number of HARQ Transmissions of the HARQ profiles from all the MAC-d flows from which data is multiplexed into the transmission, the HARQ power offset shall be set to the maximum of HARQ power offset of all the MAC-d flows mapped to the same type of resource (scheduled or non-scheduled resource), and the retransmission timer shall be set to the maximum of the retransmission timer value of the HARQ profiles that are permitted to be multiplexed into the transmission. For 1.28Mcps TDD, when the Scheduling Information needs to be transmitted without any higher-layer data, the specific HARQ profile should be applied. Each HARQ process which is associated with a buffer holding a MAC-e PDU for potential retransmission shall maintain the HARQ profile and the number of re-transmissions that have occurred. For 1.28 Mcps TDD, the HARQ process shall also maintain the value of RTX_TIMER.

Further information on E-TFC selection is provided in Annex CA.

Reference(s)

TS 25.321 clause 11.9.1.4

7.1.6.2.9a.3 Test purpose

The purpose of this test case is to verify that the UE applies different HARQ profiles from different MAC-d flows to E-DCH transmissions.

7.1.6.2.9a.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.5.4.7.7 using condition A14 as specified in clause 9.1 of TS 34.108. The logical channel, transport channel and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25
8 (LCH2)	3	2	RB17
Note: The RAB combination also includes SRBs on E-DCH on MAC-d flow 1 which is not used in the testcase			

The following parameters are specific for this test case:

Parameter	Value
E-DCH MAC-d flow multiplexing list for MAC-d flow 2	11111111 (See 25.331 10.3.5.1b) Note 1
E-DCH MAC-d flow multiplexing list for MAC-d flow 3	11111111 (See 25.331 10.3.5.1b) Note 1
Power offset for MAC-d flow 2	3dB (see 25.331 subclause 10.3.5.1b)
Power offset for MAC-d flow 3	0dB (see 25.331 subclause 10.3.5.1b)
Note 1: This configuration means that all MAC-d flows can be multiplexed in the same TTI	

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 39 octets for RB 25 and RB17.

Test procedure

The UE is configured with two logical channels, LCH1 (with priority 1) and LCH2 (with priority 2). LCH1 is mapped to MAC-d flow 2 and LCH2 is mapped to MAC-d flow 3.

a) SS has not issued any scheduling grant for E-DCH to the UE.

b) SS transmits 2 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

c) SS waits until an SI is received.

d) The SS issues primary absolute grant corresponding to 1 RLC PDU of size 41 octets per TTI.

e) SS starts receiving loop backed RLC PDU's.

f) SS transmits 4 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH2.

g) SS waits until an SI is received.

h) The SS issues primary absolute grant corresponding to 2 RLC PDUs of size 41 octets per TTI.

i) SS starts receiving loop backed RLC PDU's.

j) SS transmits 2 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH2.

k) SS waits until an SI is received.

l) SS transmits 2 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

m) SS waits until an SI is received.

n) The SS issues primary absolute grant corresponding to 3 RLC PDUs of size 41 octets per TTI.

o) SS starts receiving loop backed RLC PDU's.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		2 RLC PDUs on LCH 1	
2	→		SI indicating data on LCH 1	
3	←		Primary Absolute grant allowing the UE to transmit 1 RLC PDU per TTI	
4	→		MAC es PDU containing 1 RLC SDU from LCH 1	This step is repeated until all the RLC SDUs are transmitted
5	←		4 RLC PDUs on LCH 2	
6	→		SI indicating data on LCH 2	
7	←		Primary Absolute grant allowing the UE to transmit 2 RLC PDU per TTI	
8	→		MAC es PDU containing 2 RLC SDU from LCH 2	This step is repeated until all the RLC SDUs are transmitted
9	←		2 RLC PDUs on LCH 2	
10	→		SI indicating data on LCH 2	
11	←		2 RLC PDUs on LCH 1	
12	→		SI indicating data on LCH 1	
13	←		Primary Absolute grant allowing the UE to transmit 3 RLC PDUs per TTI	
14	→		MAC es PDU containing 2 RLC PDU's from LCH 1 and MAC es PDU containing 1 RLC PDU from LCH 2	
15	→		MAC es PDU containing 1 RLC PDU from LCH 2	

Specific Message Contents

None

7.1.6.2.9a.5 Test requirements

1. In step 4, UE shall loop back PDUs for two TTIs, with one RLC PDU per TTI.
2. In step 9, UE shall loop back PDUs for two TTIs, with two RLC PDUs per TTI.
3. In step 16, UE shall loop back PDUs for one TTI, with three RLC PDU per TTI (2 RLC PDU's from LCH1 and 1 RLC PDU from LCH 2).
4. In step 17, UE shall loop back PDU for one TTI, with one RLC PDU per TTI (1 RLC PDU from LCH 2).

7.1.6.2.10 MAC-es/e Correct handling of minimum set of E-TFCI

7.1.6.2.10.1 Definition and applicability

All UEs which support E-DCH.

7.1.6.2.10.2 Conformance requirement

In FDD mode, the rules for E-TFC selection provided below shall apply to UEs in CELL_DCH state with an E-DCH transport channel configured. These UEs shall apply the E-TFC selection procedure when invoked by the HARQ entity (see subclause 11.8.1.1.1). In the case where a 2ms TTI is configured, E-TFC selection shall not be performed for TTIs

that overlap with an uplink compressed mode gap. The E-TFC restriction procedure described in [12] shall always be applied before the E-TFC selection process below. Furthermore, for UEs that are also configured with a DCH transport channel on uplink, the TFC selection procedure shall be applied before either of these.

For each MAC-d flow, RRC configures MAC with a HARQ profile and a multiplexing list. Additionally, RRC configures MAC with a power offset for "Control-only" transmissions. This power offset and a maximum number of HARQ transmissions of 8 will be used to define a HARQ profile for "Control-only" transmissions which will be used, in case the Scheduling Information needs to be transmitted without any higher-layer data. The HARQ profile includes the power offset and maximum number of HARQ transmissions to use for this MAC-d flow. The multiplexing list identifies for each MAC-d flow(s), the other MAC-d flows from which data can be multiplexed in a transmission that uses the power offset included in its HARQ profile.

RRC can control the scheduling of uplink data by giving each logical channel a priority between 1 and 8, where 1 is the highest priority and 8 the lowest. E-TFC selection in the UE shall be done in accordance with the priorities indicated by RRC. Logical channels have absolute priority, i.e. the UE shall maximise the transmission of higher priority data.

RRC can allocate non-scheduled transmission grants to individual MAC-d flows in order to reduce the transmission delays. When a 2ms TTI is configured each non-scheduled grant is applicable to the specific set of HARQ processes indicated by RRC. The applicability of scheduled grants can be also restricted to a specific set of HARQ processes when a 2ms TTI is configured. HARQ process restriction and reservation is under the control of the serving cell Node B and indicated to the UE by RRC.

For each configured MAC-d flow, a given E-TFC can be in any of the following states:

- Supported state;
- Blocked state.

At each TTI boundary, UEs in CELL_DCH state with an E-DCH transport channel configured shall determine the state of each E-TFC for every MAC-d flow configured based on its required transmit power versus the maximum UE transmit power (see [7] and [12]). If no DCH transport channel is configured or if a DCH transport channel is configured and the selected TFC is "empty" (see [3]), the UE shall consider that E-TFCs included in the minimum set of E-TFCs are always in supported state (see [7]).

At every TTI boundary for which a new transmission is requested by the HARQ entity (see subclause 11.8.1.1.1), the UE shall perform the operations described below. UEs configured both with DCH and E-DCH transport channels shall perform TFC selection before performing E-TFC selection.

The Serving Grant Update function provides the E-TFC selection function with the maximum E-DPDCH to DPCCH power ratio that the UE is allowed to allocate for the upcoming transmission for scheduled data (held in the Serving Grant state variable – see subclause 11.8.1.3).

The HARQ process ID for the upcoming transmission is determined using the following formulae:

- For 2ms TTI: CURRENT_HARQ_PROCESS_ID = [5*CFN + subframe number] **mod** HARQ_RTT
- For 10ms TTI: CURRENT_HARQ_PROCESS_ID = [CFN] **mod** HARQ_RTT

Based on this current HARQ process ID and the RRC configuration, the UE shall determine whether to take the scheduled and non-scheduled grants into account in the upcoming transmission. If they are not supposed to be taken into account, then the corresponding grant shall be assumed to not exist. If the variable Serving_Grant has the value "Zero_Grant" after the Serving Grant Update, then the Serving Grant shall not be taken into account in the upcoming transmission.

When Scheduling Information is triggered per subclause 11.8.1.6, the E-TFC selection and data-allocation process shall assume that a non-scheduled grant is available for its transmission and that Scheduling Information has a priority higher then any other logical channel. Furthermore the HARQ process used for the upcoming transmission shall be assumed to be active and not L3 restricted for the transmission of the Scheduling Information, i.e. transmission of Scheduling Information can take place on this process.

The transmission format and data allocation shall follow the requirements below:

- Only E-TFCs from the configured E-TFCS shall be considered for the transmission;

- For all logical channels, if the logical channel belongs to a non-scheduled MAC-d flow, its data shall be considered as available up to the corresponding non-scheduled grant, if the logical channel does not belong to a non-scheduled MAC-d flow, its data shall be considered as available up to the Serving Grant;

- The power offset for the transmission is the one from the HARQ profile of the MAC-d flow that allows highest-priority data to be transmitted. If more than one MAC-d flow allows data of the same highest priority to be transmitted, it is left to implementation to select which MAC-d flow to prefer);

- In case the variable Serving_Grant has the value "Zero_Grant" after the Serving Grant Update function and there is no data available for MAC-d flows for which non-scheduled grants were configured and the transmission of Scheduling Information has been triggered, the "Control-only" HARQ profile configured by the higher layers shall be used.

- The Nominal Power Offset shall be set to the power offset included in the transmission HARQ profile;

- The data allocation shall maximize the transmission of higher priority data;

- The amount of data from MAC-d flows for which non-scheduled grants were configured shall not exceed the value of the non-scheduled grant;

- If a 10ms TTI is configured and the TTI for the upcoming transmission overlaps with a compressed mode gap, the Serving_Grant provided by the Serving Grant Update function shall be scaled back as follows:

$$SG' = SG * (\frac{N_C}{15})$$

  where SG' represents the modified serving grant considered by the E-TFC selection algorithm and N_C represents the number of non DTX slots in the compressed TTI;

- When not in a power limited condition the maximum amount of data from MAC-d flows for which no non-scheduled grants were configured shall be quantized to the next smaller supported E-TFC based on the Serving Grant (after adjustment for compressed frames), the power offset from the selected HARQ profile, the non-scheduled grants (if any) and Scheduling Information (if any); In the case a 2ms TTI is configured and the HARQ process is inactive, the UE shall not include any such data in the transmission;

- The Scheduling Information is always sent when triggered;

- Only E-TFCs in supported state shall be considered;

- The E-TFC resulting in the smallest amount of padding for the selected MAC-es PDUs and corresponding MAC-e/es headers, shall be selected including the case when the Scheduling Information needs to be transmitted.

Once an appropriate E-TFC and data allocation are found according to the rules above, the "Multiplexing and TSN Setting" entity shall generate the corresponding MAC-e PDU.

The E-TFC selection function shall provide this MAC-e PDU and transmission HARQ profile to the HARQ entity. The maximum number of HARQ transmissions and the power offset in this profile, shall be set respectively to the maximum of the Max Number of HARQ Transmissions of the HARQ profiles from all the MAC-d flows from which data is multiplexed into the transmission and to the Nominal Power Offset. The HARQ entity shall also be informed of whether the transmission includes Scheduling Information and whether this information is sent by itself or with higher-layer data.

Reference(s)

TS 25.321 clause 11.8.1.4

7.1.6.2.10.3 Test purpose

The purpose of this test case is to verify that the UE considers the minimum set of E-TFCI as always supported.

7.1.6.2.10.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4c using condition A12 as specified in clause 9.1 of TS 34.108. The following parameters are specific for this test case:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25

The following Radio Bearer Setup parameters are specific for this test case:

Parameter	Value
Maximum allowed UL TX power	0dBm
Uplink DPCH power control info	
Power Control Algorithm	Algorithm 2
- E-DPDCH info	
- E-TFCI table index	0
- E-DCH minimum set E-TFCI	31
- Reference E-TFCIs	2 E-TFCIs
- Reference E-TFCI	11
- Reference E-TFCI PO	8
- Reference E-TFCI	83
- Reference E-TFCI PO	21
Scheduling Information Configuration	
- Periodicity for Scheduling Info – no grant	10ms
ACK/NACK	5
CQI Reporting Cycle	2

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 39 octets.

Test procedure

In this test procedure The UE is configured with one logical channel, with Id 7 (LCH 1). The Scheduling Information configuration for the E-DCH indicates to the UE that it shall periodically report Scheduling Information, which contains UPH measurement every E-DCH TTI.

a) SS has not issued any scheduling grant for E-DCH to the UE.

b) SS transmits 2 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

c) SS waits until an SI is received.

d) The SS issues primary absolute grant corresponding to 2 RLC PDUs of size 41 octets per TTI (signalling value 5), with Absolute Grant Scope set as "All HARQ process".

e) SS starts receiving loop backed RLC PDU’s.

f) The SS issues primary absolute grant corresponding to “ZERO GRANT”, with Absolute Grant Scope set as "All HARQ processes".

g) SS transmits 2 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

h) SS waits until the next periodic SI is received.

i) The SS sends power control bits to give one TPC_cmd +1 to the UE.

j) SS waits 100ms and checks the UPH measurement from the UE for 150ms. If UPH measurement does not indicate UE_POWER_HEADROOM_5 within the 150ms then go back to step g) otherwise proceed to next step.

NOTE: When the UPH target range is reached then power control bits to give TPC_cmd =0 should be sent by SS to maintain the target power headroom. Failure to reach the target UPH range results in INCONCLUSIVE verdict and the test case should be re-run.

k) The SS issues primary absolute grant corresponding to 2 RLC PDUs of size 41 octets per TTI (signalling value 5), with Absolute Grant Scope set as "All HARQ process".

l) SS starts receiving loop backed RLC PDU's.

NOTE: Due to the configured "Minimum set of E-TFCI" of 31, the UE should send a single PDU/TTI anyway.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		2 RLC PDUs on LCH 1	
2	→		SI indicating data on LCH 1	
3	←		Primary Absolute grant allowing the UE to transmit 2 RLC PDU per TTI	Signalling value 8
4	→		MAC es PDU containing 2 RLC PDU's from LCH 1	
5	←		Primary Absolute grant set to 'ZERO GRANT' and scope 'All HARQ Processes'	
6	←		2 RLC PDUs on LCH 1	
7	→		SI indicating data on LCH 1	Next periodic SI sent from UE
8	←			The SS sends power control bits to give one TPC_cmd +1 to the UE.
9			Wait 100ms	
10	→		Periodic SIs indicating UPH measurement	SS checks UPH measurement for 150ms. If UE_POWER_HEADROOM_5 then next step, otherwise step 6
11	←		Primary Absolute grant allowing the UE to transmit 2 RLC PDU per TTI	Signalling value 8
12	→		MAC es PDU containing 1 RLC PDUs from LCH 1	This step is repeated until the all RLC SDUs are transmitted

Specific Message Contents

None

7.1.6.2.10.5 Test requirements

1. In step 4, UE shall start sending loop backed PDU, with two RLC PDUs per TTI.
2. In step 12, UE shall start sending loop backed PDU, with one RLC PDU per TTI.

7.1.6.2.10a Smallest E-TFC (1.28Mcps TDD)

7.1.6.2.10a.1 Definition and applicability

All UEs which support E-DCH.

7.1.6.2.10a.2 Conformance requirement

In TDD, rules for E-TFC selection shall be applied as provided below.

UEs shall apply E-TFC selection when invoked by the HARQ entity (see subclause 11.9.1.1.1).

For each MAC-d flow, RRC configures MAC-e with a HARQ profile and multiplexing list. Additionally, RRC configures MAC with a power offset in case the Scheduling Information needs to be transmitted without any higher-layer data. For 1.28 Mcps TDD, RRC also configures MAC with a retransmission timer and the maximum number of HARQ transmissions in case the Scheduling Information needs to be transmitted without any higher-layer data. The HARQ profile includes the power offset and maximum number of HARQ transmissions to use for this MAC-d flow. For 1.28 Mcps TDD, the HARQ profile also includes a retransmission timer attribute. The multiplexing list identifies for each MAC-d flow(s), the other MAC-d flows for which data can be multiplexed in a transmission that uses the power offset included in its HARQ profile.

RRC can control the scheduling of uplink data by giving each logical channel a priority between 1 and 8, where 1 is the highest priority and 8 the lowest. E-TFC selection in the UE shall be done in accordance with the priorities indicated by RRC. Logical channels have absolute priority, i.e. the UE shall maximise the transmission of higher priority data.

RRC can allocate non-scheduled transmission grants to individual MAC-d flows in order to reduce the transmission delays.

The UE shall determine whether to take scheduled or non-scheduled grants into account in the upcoming transmission. If neither are supposed to be taken into account (i.e. the TTI is not available for non-scheduled transmission and no Grant for scheduled transmission has been received) then no grant shall be assumed to exist. If a grant exists then the transmission format and data allocation shall follow the requirements below.

For each configured MAC-d flow, a given E-TFC can be in any of the following states:

- Supported state;
- Blocked state.

The E-TFC states are derived according to the following:

- If the transmission is a retransmission then only the E-TFC with the same block size as the original transmission may be in the supported state.
- For 1.28Mcps TDD, only E-TFCs from the E-TFCS (the table of TB sizes) which are consistent with the UE's E-DCH capability category shall be considered for the transmission;
- Only E-TFCs from the E-TFCS (the table of TB sizes) which can be supported by (exactly) the number of slots assigned by the grant shall be considered for the transmission;
- Only E-TFCs which result (for the granted timeslot and code physical resources) in a coderate lying between the maximum and minimum (inclusive) allowable code rates set by RRC [7] shall be considered for the transmission {note: the definition of the term “coderate” as used here is the same as that provided by [18]}. This shall be evaluated for both QPSK and 16-QAM modulation;
- P_{HARQ}, the HARQ profile power offset is selected (for 3.84/7.68Mcps TDD the HARQ profile for the transmission shall be selected among the HARQ profiles of MAC-d flows on which the highest priority logical channels with available data are mapped, for 1.28Mcps TDD the HARQ power offset shall be set to the maximum of HARQ power offset of all the MAC-d flows mapped to the same type of resource (scheduled or non-scheduled resource); Scheduling Information power offset shall be used when Scheduling Information is transmitted without any higher-layer data.)
- Only E-TFCs whose calculated transmission power requirement $P_{E\text{-}PUCH}$ (see [18]) is less than or equal to both the available and the granted power shall be considered for the transmission (note: this requirement does not apply in the case of a retransmission on non-scheduled resources). For TDD, the smallest E-TFC is considered always in the supported state. The granted power is defined as the calculated E-PUCH transmission power of [18] with β_e = (Absolute Grant Value + α_e). The available power is the maximum UE transmission power.

From those E-TFCs in the supported state the UE determines the largest block size that it is permitted to transmit within the given constraints.

The UE shall select the modulation type associated with the determined E-TFC (note: if an E-TFC is supported by both QPSK and 16-QAM then 16-QAM modulation shall be used if its power requirement ($P_{E\text{-}PUCH}$) is lower than the power requirement for QPSK, otherwise QPSK modulation shall be used).

Data allocation shall then be performed in accordance with the following:

- For all logical channels, if the logical channel belongs to a non-scheduled MAC-d flow, its data shall be considered as available up to the largest block size determined for the corresponding non-scheduled grant. If the logical channel does not belong to a non-scheduled MAC-d flow, its data shall be considered as available up to the largest block size determined for the Serving Grant;

- The data allocation shall maximise the transmission of higher priority data;

- The UE shall select the E-TFC, SF and modulation which minimises the power used (3.84/7.68 Mcps TDD only);

- The UE shall select the E-TFC and modulation which minimises the power used (1.28 Mcps TDD only);

Once an appropriate E-TFC and data allocation are found according to the rules above, the "Multiplexing and TSN Setting" entity shall generate the corresponding MAC-e PDU.

In 1.28Mcps TDD, when Scheduling Information is triggered by timer per subclause 11.9.1.5, the E-TFC selection and data-allocation process shall assume that Scheduling Information has a priority higher than any other logical channel.

The E-TFC selection function shall provide this MAC-e PDU and transmission HARQ profile to the HARQ entity. For 3.84Mcps TDD and 7.68Mcps TDD the selected E-TFC is also provided.

NOTE: For 1.28Mcps TDD, the signalled transport block size index, i.e. E-TFCI, is the index of the selected E-TFC in the candidate set.

The maximum number of HARQ transmissions and the power offset in this profile shall be set respectively to the maximum of both the Max Number of HARQ Transmissions and of the power offset of the HARQ profiles from all the MAC-d flows from which data is multiplexed into the transmission. For 1.28 Mcps TDD, the maximum number of HARQ transmissions shall be set to the maximum of the Max Number of HARQ Transmissions of the HARQ profiles from all the MAC-d flows from which data is multiplexed into the transmission, the HARQ power offset shall be set to the maximum of HARQ power offset of all the MAC-d flows mapped to the same type of resource (scheduled or non-scheduled resource), and the retransmission timer shall be set to the maximum of the retransmission timer value of the HARQ profiles that are permitted to be multiplexed into the transmission. For 1.28Mcps TDD, when the Scheduling Information needs to be transmitted without any higher-layer data, the specific HARQ profile should be applied. Each HARQ process which is associated with a buffer holding a MAC-e PDU for potential retransmission shall maintain the HARQ profile and the number of re-transmissions that have occurred. For 1.28 Mcps TDD, the HARQ process shall also maintain the value of RTX_TIMER.

Further information on E-TFC selection is provided in Annex CA.

Reference(s)

TS 25.321 clause 11.9.1.4

7.1.6.2.10a.3 Test purpose

The purpose of this test case is to verify that the UE considers the smallest E-TFC as always supported.

7.1.6.2.10a.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.5.4.7.6 using condition A11 as specified in clause 9.1 of TS 34.108. The following parameters are specific for this test case:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25

The following parameters are specific for this test case:

Parameter	Value
Maximum allowed UL TX power	33dBm

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 39 octets.

Test procedure

In this test procedure The UE is configured with one logical channel, with Id 7 (LCH 1).

a) SS has not issued any scheduling grant for E-DCH to the UE.

b) SS transmits 2 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

c) SS waits until an SI is received.

d) The SS issues primary absolute grant corresponding to 2 RLC PDUs of size 41 octets per TTI.

e) SS starts receiving loop backed RLC PDU's.

f) The SS performs a physical channel reconfiguration setting the "Maximum allowed UL TX power" to a small enough value that not even a single PDU is supported due to insufficient available power.

g) SS transmits 2 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

h) SS waits until an SI is received.

i) The SS issues primary absolute grant corresponding to 2 RLC PDUs of size 41 octets per TTI (.

j) SS starts receiving loop backed MAC es PDU only including an SI.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		2 RLC PDUs on LCH 1	
2	→		SI indicating data on LCH 1	
3	←		Primary Absolute grant allowing the UE to transmit 2 RLC PDU per TTI	
4	→		MAC es PDU containing 2 RLC PDU's from LCH 1	
5	←		SS performs a physical channel reconfiguration	The "Maximum allowed UL TX power" is reduced such that any E-TFC is not supported anymore
6	←		2 RLC PDUs on LCH 1	
7	→		SI indicating data on LCH 1	
8	←		Primary Absolute grant allowing the UE to transmit 2 RLC PDU per TTI	
9	→		MAC es PDU containing an SI only	

Specific Message Contents

None

7.1.6.2.10a.5 Test requirements

1. In step 4, UE shall start sending loop backed PDU, with two RLC PDUs per TTI.
2. In step 9, UE shall start sending loop backed PDU, including an SI only.

7.1.6.2.11 MAC-es/e correct handling of absolute and relative grants in discontinuous downlink reception operation

7.1.6.2.11.1 Definition and applicability

All UEs which support DPCCH Discontinuous Transmission and Discontinuous Downlink Reception operation.

7.1.6.2.11.2 Conformance requirement

From TS 25.321 clause 11.8.1.3.1

The Serving Grant Update procedure shall be applied at every TTI boundary and shall take into account the Absolute Grant message, Serving Relative Grant and non-serving Relative Grants that apply to the TTI.

The UE shall:

1> set reference_ETPR2 to reference_ETPR as defined in subclause 3.1.2;

1> set reference_ETPR to the E-DPDCH to DPCCH power ratio as defined in subclause 3.1.2;

1> if an Absolute Grant was received for this TTI:

2> if the Identity type is "Primary", and the Absolute Grant value is set to "INACTIVE":

3> if Absolute Grant Scope indicates "Per HARQ process" and a 2ms TTI is configured:

4> de-activate the process given by the value of CURRENT_HARQ_PROCESS.

3> if Absolute Grant Scope indicates "All HARQ processes" and a secondary E-RNTI was configured by higher layers:

4> activate all HARQ processes;

4> set Serving_Grant = Stored_Secondary_Grant;

4> set Primary_Grant_Available to "False".

3> if Absolute Grant Scope indicates "All HARQ processes", a 2ms TTI is configured and a secondary E-RNTI was not configured by higher layers:

4> deactivate all HARQ processes (if a process was inactive it remains inactive, if a process was active it becomes inactive).

2> else if the Absolute Grant Value is different from "INACTIVE":

3> if the Identity Type is "Secondary":

4> set Stored_Secondary_Grant = Absolute Grant Value.

3> if the Identity Type is "Primary" or Primary_Grant_Available is set to "False":

4> set Serving_Grant = Absolute Grant Value.

4> if the Identity Type is "Primary":

5> set Primary_Grant_Available to "True";

5> if Absolute Grant Scope indicates "Per HARQ process":

6> activate the process given by the value of CURRENT_HARQ_PROCESS.

5> if Absolute Grant Scope indicates "All HARQ processes":

6> activate all HARQ processes.

5> if AG_Timer is not active, it shall be started, otherwise it shall be restarted.

1> else (no Absolute Grant received):

2> if the HARQ process given by the value of CURRENT_HARQ_PROCESS is active; and

2> if Primary_Grant_Available is equal to "True"; and

2> if Serving_Grant <> "Zero_Grant" ; and

2> if AG_Timer has expired; and

2> if there was a scheduled transmission (see NOTE) in the previous TTI of the HARQ process given by the value of CURRENT_HARQ_PROCESS:

3> if the Serving Relative Grant indicates "UP":

4> determine the Serving_Grant in accordance with subclause 9.2.5.2.1.

3> else, if the Serving Relative Grant indicates "DOWN":

4> determine the Serving_Grant in accordance with subclause 9.2.5.2.1.

3> else:

4> the Serving_Grant is unchanged (i.e. kept from previous TTI).

1> if any Non-Serving Relative Grants indicate "DOWN" for this TTI and Serving_Grant <> "Zero_Grant":

2> Serving_Grant = MIN(Serving_Grant, Maximum_Serving_Grant, Serving_Grant determined in accordance with subclause 9.2.5.2.1);

2> Maximum_Serving_Grant = Serving_Grant.

2> if Non_Serving_RG_Timer is not active it shall be started, otherwise it shall be restarted;

1> else if no Non-Serving Relative Grants indicate "DOWN" for this TTI:

2> if Non_Serving_RG_Timer has not expired:

3> Serving_Grant = MIN(Maximum_Serving_Grant, Serving_Grant).

1> if Non_Serving_RG_Timer expires:

2> set the Maximum_Serving_Grant to the highest possible value (i.e. index 37 in table 9.2.5.2.1.1 or 9.2.5.2.1.2 as configured by higher layers).

NOTE 1: MIN("Zero_Grant", any numerical value) = "Zero_Grant".

NOTE 2: Scheduling Information sent alone is not considered as a scheduled transmission.

From TS 25.321 clause 11.8.1.8

When the DRX feature is enabled by higher layers, and in addition to the conditions defined in subclause 6C.3 of [5] the downlink monitoring of E-AGCH and E-RGCH sets is required in the following conditions:

- At least one MAC-d flow is configured with a scheduled transmission and TEBS > 0 or;
- a scheduled E-DCH transmission has been performed in any of the *Inactivity Threshold for UE Grant Monitoring* previous TTIs or;
- the start of E-AGCH and E-RGCH commands overlap with an E-HICH corresponding to a scheduled E-DCH transmission.

From TS 25.214 clause 6C.3

When DL_DRX_Active is TRUE (see section 6C), the UE shall continue to receive F-DPCH as described in sub-clause 5.1 and the UE need not receive physical downlink channels other than the F-DPCH except for the following cases:

1. …
2. …
3. …
4. …
5. The UE shall monitor the full E-AGCH transmission from the serving E-DCH cell in the following cases:
   - If UE_DRX_Grant_Monitoring is TRUE and the start of the E-AGCH transmission overlaps with an HS-SCCH reception subframe as defined in the HS-SCCH reception pattern,
   - When conditions defined in subclause 11.8.1.8 of [6] are fulfilled.
6. The UE shall monitor the full E-RGCH transmissions from cells in the serving E-DCH radio link set in the following cases:
   - If UE_DRX_Grant_Monitoring is TRUE and the start of the E-RGCH transmission overlaps with an HS-SCCH reception subframe as defined in the HS-SCCH reception pattern,
   - When conditions defined in subclause 11.8.1.8 of [6] are fulfilled.
7. The UE shall monitor the full E-RGCH(s) from all the other cells in the E-DCH active set, except from the cells in the serving E-DCH radio link set as determined in subclause 11.8.1.8 of [6].

Reference(s)

TS 25.321 clauses 11.8.1.3.1 and 11.8.1.8

TS 25.214 clause 6C.3

7.1.6.2.11.3 Test purpose

The purpose of this test case is to verify that when in discontinuous downlink reception operation, the UE monitors the E-AGCH and E-RGCH at the times specified in the core specifications.

7.1.6.2.11.4 Method of test

Initial conditions

System Simulator:

2 cells, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / UM PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH as specified in TS 34.108, clause 6.11.4i.1. The logical channel, transport channel and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25

Both cells 1 and 2 are in E-DCH active set. Cell 1 is the serving E-DCH cell. Cell 2 belongs to non serving Radio link set.

The following parameters are specific for this test case:

Parameter	Value
Periodicity for Scheduling Info – no grant	500 ms (see 25.331 10.3.6.99)
E-DCH TTI	10 ms
Inactivity Threshold for UE Grant Monitoring	0

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to (10*41)-2 octets.

Test procedure

In this test procedure the UE is configured with one logical channel.

0) SS waits for the Measurement report from the UE with event set to "1a" and then adds the Radio link on the second cell by sending an Active Set Update message.

a) SS has not issued any scheduling grant for E-DCH to the UE, TEBS at the UE is 0 and there is no pending E-HICH corresponding to a previous scheduled E-DCH transmission.

b) SS has waited long enough for both SS and UE to go autonomously into DTX/DRX mode.

c) SS issues a primary absolute grant that allows the UE to send 2 RLC PDU's per TTI (signalling value 5), in a transmission that overlaps with an HS-SCCH reception subframe as defined in the HS-SCCH reception pattern.

d) SS transmits 10 SDU's of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

e) SS starts receiving looped back PDU's and checks that UE has started using the serving grant corresponding to 2 RLC PDU's transmitted per TTI.

f) Void.

g) Within 1 HARQ-RTT of the TTI with the last scheduled E-DCH transmission, and in a transmission that overlaps with an HS-SCCH reception subframe as defined in the HS-SCCH reception pattern, SS sends a relative grant in cell 2 (non-serving) as 'Down'. (*Note)

h) SS transmits 10 SDU's of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

i) SS starts receiving looped back PDU's and checks that UE has started using the serving grant corresponding to 1 RLC PDU transmitted per TTI, i.e. that it has acted on the 'Down' command from cell 2.

j) In a transmission overlapping with the E-HICH for the last transmitted PDU, but not overlapping with an HS-SCCH reception subframe as defined in the HS-SCCH reception pattern , SS issues a issues a primary absolute grant that allows the UE to send 2 RLC PDU's per TTI (signalling value 5).

k) SS transmits 10 SDU's of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

l) SS starts receiving looped back PDU's and checks that UE has started using the serving grant corresponding to 2 RLC PDU's transmitted per TTI.

m) Void.

n) In a transmission overlapping with the E-HICH for the last transmitted PDU, but not overlapping with an HS-SCCH reception subframe as defined in the HS-SCCH reception pattern, SS issues a relative grant in cell 2 (non-serving) as 'Down'. (*Note)

o) SS transmits 10 SDU's of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

p) SS starts receiving looped back PDU's and checks that UE has started using the serving grant corresponding to 1 RLC PDU transmitted per TTI.

q) SS waits until all data has been received.

r) SS removes the scheduling grant from the UE.

s) SS sends a Physical Channel Reconfiguration Message to the UE to change the value of 'Inactivity Threshold for UE Grant Monitoring' from 0 to 8 subframes.

t) UE sends a Physical Channel Reconfiguration Complete Message.

u) SS issues a primary absolute grant that allows the UE to send 1 RLC PDU per TTI (signalling value 4), in a transmission that overlaps with an HS-SCCH reception subframe as defined in the HS-SCCH reception pattern.

v) SS transmits 10 SDU's of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

w) SS starts receiving looped back PDU's and checks that UE has started using the serving grant corresponding to 1 RLC PDU transmitted per TTI.

x) In up to 8 subframes of the TTI with the last scheduled E-DCH transmission, in a transmission that does not overlap with an HS-SCCH reception subframe as defined in the HS-SCCH reception pattern, SS issues a primary absolute grant that allows the UE to send 2 RLC PDU's per TTI (signalling value 5)

y) SS transmits 10 SDU's of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

z) SS starts receiving looped back PDU's and checks that UE has started using the serving grant corresponding to 2 RLC PDU's transmitted per TTI.

aa) In up to 8 subframes of the TTI with the last scheduled E-DCH transmission, in a transmission that does not overlap with an HS-SCCH reception subframe as defined in the HS-SCCH reception pattern, SS issues relative grant in cell 2 (non-serving) as 'Down'. (*Note)

ab) SS transmits 10 SDU's of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

ac) SS starts receiving looped back PDU's and checks that UE has started using the serving grant corresponding to 1 RLC PDU transmitted per TTI, i.e. that it has acted on the first primary grant followed by the 'Down' command from cell 2.

ad) SS waits for at least 8 subframes after the TTI of the last scheduled E-DCH transmission, then removes the scheduling grant from the UE.

ae) SS transmits 10 SDU's of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

af) SS waits until an SI is received.

ag) SS issues a primary absolute grant that allows the UE to send 2 RLC PDU's per TTI (signalling value 5), in a transmission that does not overlap with an HS-SCCH reception subframe as defined in the HS-SCCH reception pattern.

ah) SS starts receiving looped back PDU's and checks that UE has started using the serving grant corresponding to 2 RLC PDU's transmitted per TTI.

*NOTE: The absolute grants issued in steps c, j and x with signalling value 5 result in SG_{LUPR} corresponding to 19/15. One transmission of a 'Down' command will result in SG_{LUPR} corresponding to 17/15, which is sufficient for 1 RLC PDU transmission only.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
0A	→		Measurement Report	See specific message contents for this message
0B	←		ACTIVE SET UPDATE	The SS instructs the UE to add cell 2 in the active set
0C	→		ACTIVE SET UPDATE COMPLETE	
1	←		Absolute grant allowing the UE to transmit 2 RLC PDUs per TTI	Signalling value 5 Overlapping with an HS-SCCH reception subframe
2	←		10 RLC PDUs on LCH 1	
3	→		MAC es PDU containing more than one RLC PDU from LCH 1	This step is repeated until all RLC SDU's are received.
4	←		Void	
5	←		Within 1 HARQ-RTT of the last scheduled E-DCH transmission in Step 3, Relative Grant in cell 2 with 'DOWN'	Overlapping with an HS-SCCH reception subframe
6	←		10 RLC PDUs on LCH 1	
7	→		MAC es PDU containing 1 RLC PDU from LCH 1	This step is repeated until all RLC SDU's are received.
8	←		Absolute grant allowing the UE to transmit 2 RLC PDUs per TTI	Signalling value 5 Overlapping with E-HICH transmission for the last PDU sent in Step 6 Not overlapping with an HS-SCCH reception subframe
9	←		10 RLC PDUs on LCH 1	
10	→		MAC es PDU containing more than one RLC PDU from LCH 1	This step is repeated until all RLC SDU's are received.
11	←		Void	
12	←		Relative Grant in cell 2 with 'DOWN'	Overlapping with E-HICH transmission for the last PDU sent in Step 10 Not overlapping with an HS-SCCH reception subframe
13	←		10 RLC PDUs on LCH 1	
14	→		MAC es PDU containing 1 RLC PDU from LCH 1	This step is repeated until all RLC SDU's are received.
15			Removal of scheduling grant for the UE	
16	←		Physical Channel Reconfiguration	' Inactivity Threshold for UE Grant Monitoring' set to 8 frames
17	→		Physical Channel Reconfiguration Complete	
18	←		Absolute grant allowing the UE to transmit 1 RLC PDU per TTI	Signalling value 4 Overlapping with an HS-SCCH reception subframe
19	←		10 RLC PDUs on LCH 1	
20	→		MAC es PDU containing 1 RLC PDU from LCH 1	This step is repeated until all RLC SDU's are received.
21			In up to 8 subframes of the last scheduled E-DCH transmission in Step 20, absolute grant allowing the UE to transmit 2 RLC PDUs per TTI	Signalling value 5 Not overlapping with an HS-SCCH reception subframe
22	←		10 RLC PDUs on LCH 1	
23	→		MAC es PDU containing more than one RLC PDU from LCH 1	This step is repeated until all RLC SDU's are received.
24			Void	
25			In up to 8 subframes of the last scheduled E-DCH transmission in Step 23, Relative Grant in cell 2 with 'DOWN'	Not overlapping with an HS-SCCH reception subframe
26	←		10 RLC PDUs on LCH 1	
27	→		MAC es PDU containing 1 RLC PDU from LCH 1	This step is repeated until all RLC SDU's are received.
28	←		At least 8 subframes after the last scheduled E-DCH transmission in Step 27, removal of	

		scheduling grant for the UE	
29	←	10 RLC PDUs on LCH 1	
30	→	SI indicating data on LCH 1	
31	←	Absolute grant allowing the UE to transmit 2 RLC PDUs per TTI	Signalling value 5 Not overlapping with an HS-SCCH reception subframe
32	→	MAC es PDU containing more than one RLC PDU from LCH 1	This step is repeated until all RLC SDU's are received.

Specific Message Contents

MEASUREMENT REPORT (Step 0a)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 0b)

The message to be used in this test is defined in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Activation time DTX-DRX timing information	Not Present
CHOICE *timing*	Continue
DTX-DRX Information	Not Present
Radio link addition information	
- Primary CPICH Info	
- Primary scrambling code	Primary scrambling code of Cell 2
- Downlink F-DPCH info for each RL	
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- F-DPCH frame offset	Calculated value from Cell synchronisation information
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present
- Secondary CPICH info	Not Present
- Secondary scrambling code	Not Present
- Code number	12
- TPC combination index	1
- CHOICE E-HICH Information	
- E-HICH Information	
- Channelisation code	4
- Signature sequence	1
- CHOICE E-RGCH Information	
- E-RGCH Information	
- Signature Sequence	0
- RG combination index	2

7.1.6.2.11.5 Test requirements

1. After step 2, UE will start sending 2 RLC PDU's per TTI.
2. After step 6, UE will start sending 1 RLC PDU per TTI.
3. After step 9, UE will start sending 2 RLC PDU's per TTI.
4. After step 13, UE will start sending 1 RLC PDU per TTI.
5. After step 19, UE will start sending 1 RLC PDU per TTI.
6. After step 22, UE will start sending 2 RLC PDU's per TTI.
7. After step 26, UE will start sending 1 RLC PDU per TTI.
8. After Step 31, UE will start sending 2 RLC PDU's per TTI.

7.1.6.2.12 MAC-es/e correct handling scheduling information transmission (for different UpPCH shifting setting, for 1.28Mcps TDD only)

7.1.6.2.12.1 Definition and applicability

All UEs which support 1.28Mcps TDD and HS-PDSCH and E-DCH.

7.1.6.2.12.2 Conformance requirement

[TS 25.224, clause 5.2.2]

Open loop uplink synchronisation control is used for UpPCH.

The UE may estimate the propagation delay Δt_p based upon the path loss using the received P-CCPCH and/or DwPCH power.

The UpPCH is sent to the Node B advanced in time according to the timing of the received DwPCH. The time of the beginning of the UpPCH $T_{TX\text{-}UpPCH}$ is given by:

$T_{TX\text{-}UpPCH} = T_{RX\text{-}DwPCH} - 2\Delta t_p + 12*16\ T_C \square n_{UpPCHShift}*16Tc$

$n_{UpPCHShift}$ =0..127, $n_{UpPCHShift}$ is indicated by higher layers

in multiple of 1/8 chips, where

$T_{TX\text{-}UpPCH}$ is the beginning time of UpPCH transmission with the UE's timing,

$T_{RX\text{-}DwPCH}$ is the received beginning time of DwPCH with the UE's timing,

$2\Delta t_p$ is the timing advance of the UpPCH default value is 48Tc.

[TS 25.224, clause 5.6.3]

Requests for the transmission of an E-RUCCH are controlled by higher layers [18].

The available eight SYNC_UL signatures in a cell is divided into two subsets, one for the access of RACH information and the other for the access of E-RUCCH information.

When a Node B detects a SYNC_UL signature and acknowledges it on the related FPACH, it should do some recordings, including the FPACH channel number, the sub-frame on which the acknowledgement is sent and the SYNC_UL signature number. When a PRACH or E-RUCCH comes from a UE, the Node B should derive the related FPACH and the sub-frame on which the acknowledgement was sent for the UE and find the right record. The signature number in the record can help the Node B know the access type.

Random access procedure for enhanced uplink is basically same as random access procedure in subclause 5.6.3, only adding some new definitions.

L_{iE} is the Length of E-RUCCH information transport blocks associated to FPACHi in sub-frames.

N_{RACHi} is the number of PRACHs associated to the ith FPACH.

$N_{E\text{-}RUCCHi}$ is the number of E-RUCCHs associated to the ith FPACH and $N_{E\text{-}RUCCHi}$ equals to $\min\{N_{RACHi}, L_{iE}\}$.

When SF of PRACH code equals to 16, L_{iE} will be 2, otherwise L_{iE} will be 1

When SF of PRACH code equals to 4, SF of E-RUCCH will be 8, otherwise E-RUCCHs has the same SF with PRACH.

When $n_{E\text{-}RUCCHi}$ equals to n_{RACHi}, E-RUCCH will share the same code resource with PRACH. And when SF of PRACH code equals to 4, the code resource assigned to PRACH including two codes (code i and code i+1) of SF 8, E-RUCCH can use the ith code of SF 8.

If $FPACH_i$ sent an acknowledgement for E-RUCCH information, the sub-frames on which an acknowledgement is sent on FPACHi is fulfilling the following relation:

(SFN' mod L_{iE})=$n_{E\text{-}RUCCHi}$; $n_{E\text{-}RUCCHi}$=0,…, $N_{E\text{-}RUCCHi}$-1,

Where, SFN' is the sub-frame number of the acknowledgement on FPACH

Accordingly, the code resource assigned to PRACH may be used by PRACH or E-RUCCH, we should make two prescript avoiding the collision between PRACH and E-RUCCH.

When Node B sent a FPACH$_i$ for $PRACH_{nRACHi}$ in sub frame K, Node B could not send a FPACH$_i$ for $E-RUCCH_{n_{E-RUCCHi}}$ before sub frame K+L_i.

When Node B sent a FPACH$_i$ for $E-RUCCH_{n_{E-RUCCHi}}$ in sub frame K, Node B could not send a FPACHi for $PRACH_{nRACHi}$ before sub frame K+L_{iE}.

The interval between the acknowledgement on FPACH and transmission of E-RUCCH is fixed for a UE. The UE will send at the sub-frame coming 2 sub-frames after the one carrying the signature acknowledgement. In case L_{iE} is bigger than one and the sub-frame number of the acknowledgement is odd the UE will wait one more sub-frame.

The transmission power and the transmission timing are set according to subclause 5.1.1.7 and 5.2.7 respectively.

[TS 25.224, clause 5.2.7]

The Node B shall measure the received SYNC-UL timing deviation $UpPCH_{POS}$. $UpPCH_{POS}$ is sent in the FPACH and is represented as an 13 bit number (0-8191) being the multiple of 1/8 chips which is nearest to received position of the UpPCH.

Time of the beginning of the E-RUCCH $T_{TX\text{-}E\text{-}RUCCH}$ is given by:

$T_{TX\text{-}E\text{-}RUCCH} = T_{RX\text{-}E\text{-}RUCCH} -(UpPCH_{ADV} + UpPCH_{POS} – 8*16\ T_C)$

in multiple of 1/8 chips, where

$T_{TX\text{-}E\text{-}RUCCH}$ is the beginning time of E-RUCCH transmission with the UE's timing,

$T_{RX\text{-}E\text{-}RUCCH}$ is the beginning time of E-RUCCH reception with the UE's timing if the E-RUCCH was a DL channel,

$UpPCH_{ADV}$ is the timing advance of the UpPCH.

[TS 25.321, clause 11.9.1.5]

A "Grant Request" type Scheduling Information can be triggered if any of the following events occur:

- The TEBS becomes larger than zero;
- An E-DCH serving cell change occurs and the TEBS is larger than zero;

An optional Extended Estimation Window (defined by RRC in TTIs) may be used to prevent the UE from triggering unnecessary E-RUCCH transmission in case the UE potentially has an available Grant a short time in the future. The UE may perform a persistent check through the Extended Estimation Window to evaluate whether there is a Grant available for new data transmission when the UE can not take the decision just according to the related HARQ information, e.g., HARQ timing, HARQ retransmission numbers and so on.

If a UE has no Grant (including scheduled grant or non-scheduled grant) available for a new MAC-e or MAC-i PDU transmission in current TTI or in the Extended Estimation Window (if configured by RRC), as the "Grant Request" type Scheduling Information is triggered, the transmission of Scheduling Information shall be triggered via E-RUCCH.

Else if the UE has a Grant (including scheduled grant or non-scheduled grant) available for a new MAC-e or MAC-i PDU transmission in current TTI or in Extended Estimation Window (if configured by RRC), as the "Grant Request" type Scheduling Information is triggered, the scheduling information should be included in a MAC-e or MAC-i PDU via the Grant. If the HARQ process fails to deliver the MAC-e or MAC-i PDU containing the triggered the "Grant Request" type Scheduling Information, another "Grant Request" type Scheduling Information shall be triggered.

When assembling a MAC-e or MAC-i PDU, if the scheduling information needs to be included in the MAC-e or MAC-i PDU according to subclause 9.2.4.2 and it shall be transmitted regardless of TEBS status.

Additional periodic timer T-SI is used to avoid long pause duration of scheduling information reporting (defined by RRC). Once the grant is designated, T-SI shall be started .When the scheduling information is included in MAC-e or MAC-i PDU and sent, the timer shall be restarted immediately. When the timer expires, if there is a grant to send a new MAC-e or MAC-i PDU, it should include scheduling information, otherwise the UE shall wait for a grant to send scheduling information in a new MAC-e or MAC-i PDU.

Additionally if data with higher priority than the data already in the transmission buffer arrives, the Scheduling Information shall be triggered and included in next available MAC-e or MAC-i PDU, i.e. higher priority data arrival event shall not trigger a E-RUCCH procedure.

RRC can configure MAC with a delay timer to be used when the UE transits from having a Grant to not having a Grant and the TEBS is still larger than zero. The delay timer T_WAIT shall be started once the Grant expires and shall be stopped and reset when a Grant is received. When T_WAIT expires, the transmission of a Scheduling Information shall be triggered via E-RUCCH (T_WAIT shall be stopped and reset).

Even if multiple events are triggered by the time a new Scheduling Information reporting can take place, only single scheduling information with newly updated content shall be sent via E-RUCCH or included in a MAC-e or MAC-i PDU.

[TS 25.331, clause 8.6.6.43]

If the IE "Second Frequency info" is included, the UE shall:

1> act as specified in section 8.6.6.1.

If the IE "FPACH Frequency info" is included, the UE shall:

1> store the FPACH frequency indicated in the IE "FPACH Frequency info".

If the IE "UpPCH Position Info" is included:

1> store and use the UpPCH position indicated by the IE "UpPCH Position Info ". The calculation of the uplink

access position is described in [33].

If the IE "UpPCH Position Info" is not included:

1> use the UpPTS as the default UpPCH position.

Reference

3GPP TS 25.224 clause 5.2.2, 5.2.7, 5.6.3a, TS25.321 clause 11.9.1.5, TS 25.331 clause 8.6.6.43.

7.1.6.2.12.3 Test purpose

To confirm that UE can transmit SI correctly for different UpPCH shifting setting.

7.1.6.2.12.4 Method of test

Initial conditions

System Simulator:

1 cell, 3 frequency (one is primary frequency, others are secondary frequency).

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.5.4.7.6 using condition A11 as specified in clause 9.1 of TS 34.108 at the secondary frequency. The following parameters are specific for this test case:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 39 octets.

Test procedure

In this test procedure The UE is configured with one logical channel, with Id 7 (LCH 1).

a) SS has not issued any scheduling grant for E-DCH to the UE.

b) SS transmits 2 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

c) Wait 40ms until the timer T-WAIT expires.

d) UE sends SI on E-RUCCH.

e) The SS issues primary absolute grant corresponding to 2 RLC PDUs of size 41 octets per TTI.

f) SS starts receiving loop backed RLC PDU's.

g) SS sends the PHYSICAL CHANNEL RECONFIGURATION message to UE for changing the UpPCH shifting value from 0(default value) to 63.

h) UE sends PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to SS.

i) SS transmits 2 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

j) Wait 40ms until the timer T-WAIT expires.

k) UE sends SI on E-RUCCH.

l) The SS issues primary absolute grant corresponding to 2 RLC PDUs of size 41 octets per TTI.

m) SS starts receiving loop backed RLC PDU's.

n) SS sends the PHYSICAL CHANNEL RECONFIGURATION message to UE for modifying the UpPCH shifting value from 63(default value) to 127.

o) UE sends PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to SS.

p) SS transmits 2 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

q) UE sends SI on E-RUCCH.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		2 RLC PDUs on LCH 1	
2			Wait 40ms until timer T-WAIT expires	
3	→		SI via E-RUCCH	SS checks SI received on E-RUCCH.
4	←		Absolute grant allowing the UE to transmit 2 RLC PDU per TTI	
5	→		MAC es PDU containing 2 RLC PDU's from LCH 1	
6	←		PHYSICAL CHANNEL RECONFIGURATION	UpPCH shifting value=63
7	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
8	←		2 RLC PDUs on LCH 1	
9			Wait 40ms until timer T-WAIT expires	
10	→		SI via E-RUCCH	SS checks SI received on E-RUCCH.
11	←		Absolute grant allowing the UE to transmit 2 RLC PDU per TTI	
12	→		MAC es PDU containing 2 RLC PDU's from LCH 1	

13	←	PHYSICAL CHANNEL RECONFIGURATION	UpPCH shifting value=127
14	→	PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
15	←	2 RLC PDUs on LCH 1	
16		Wait 40ms until timer T-WAIT expires	
17	→	SI via E-RUCCH	SS checks SI received on E-RUCCH.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 6) (1.28 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info		
- UARFCN (Nt)	Same as primary frequency of the cell	
Multi-frequency Info		
- Second Frequency Info	Same as secondary frequency of the cell	
- FPACH Frequency Info	Same as secondary frequency of the cell	
- UpPCH Position Info	63	

PHYSICAL CHANNEL RECONFIGURATION (Step 13) (1.28 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info		
- UARFCN (Nt)	Same as primary frequency of the cell	
Multi-frequency Info		
- Second Frequency Info	Same as secondary frequency of the cell	
- FPACH Frequency Info	Same as secondary frequency of the cell	
- UpPCH Position Info	127	

7.1.6.2.12.5 Test requirements

1. After step 3 the SS shall receive an SI indicating that data is available on LCH 1.
2. After step 10 the SS shall receive an SI indicating that data is available on LCH 1.
3. After step 17 the SS shall receive an SI indicating that data is available on LCH 1.

7.1.6.3 MAC-es/e- E-TFC selection

7.1.6.3.1 MAC-es/e E-TFC priority

7.1.6.3.1.1 Definition and applicability

All UEs which support E-DCH.

7.1.6.3.1.2 Conformance requirement

Extract from TS 25.321 clause 11.8.1.4

[…]

RRC can control the scheduling of uplink data by giving each logical channel a priority between 1 and 8, where 1 is the highest priority and 8 the lowest. E-TFC selection in the UE shall be done in accordance with the priorities indicated by RRC. Logical channels have absolute priority, i.e. the UE shall maximise the transmission of higher priority data.

[…]

Extract from TS 25.321 clause 11.9.1.4

[…]

RRC can control the scheduling of uplink data by giving each logical channel a priority between 1 and 8, where 1 is the highest priority and 8 the lowest. E-TFC selection in the UE shall be done in accordance with the priorities indicated by RRC. Logical channels have absolute priority, i.e. the UE shall maximise the transmission of higher priority data.

[…]

Reference(s)

TS 25.321 clause 11.8.1.4, 11.9.1.4

7.1.6.3.1.3 Test purpose

To verify that the UE transmits data in order of priority

7.1.6.3.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4d(FDD) /6.11.5.4.7.7(1.28Mcps TDD) using condition A15(FDD) /A14(1.28Mcps TDD) as specified in clause 9.1 of TS 34.108. The logical channel, transport channel and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25
8 (LCH2)	3	2	RB17
NOTE: The RAB combination also include SRBs on E-DCH on MAC-d flow 1 which are not used in the test case			

The following parameters are specific for this test case:

Parameter	Value
Periodicity for Scheduling Info – no grant	500 ms (see 25.331 10.3.6.99) (FDD)
T-WAIT	200 ms (see 25.331 10.3.6.103)(1.28Mcps TDD)
E-DCH MAC-d flow multiplexing list	11111111 (See 25.331 10.3.5.1b) Note 1
Note 1: This configuration means that all MAC-d flows can be multiplexed in the same TTI	

The UE is placed into UE test loop mode 1 with the UL SDU size set to (10*41)-2 octets for RB25 and RB17.

Test procedure

The UE is configured with two logical channels, LCH1 (with priority 1) and LCH2 (with priority 2). LCH1 is mapped to MAC-d flow 2 and LCH2 is mapped to MAC-d flow 3.

a) The SS has not issued any scheduling grant for E-DCH to the UE

b) The SS transmits one SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH2

c) The SS transmits one SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

d) The SS waits for an SI to be received that indicates that data is available on both logical channels (can be identified from the content of the SI)

e) The SS issues an absolute grant that allows the UE to send 1 RLC PDU per TTI (signalling value 4)

f) The SS verifies that the first TTIs only contains data from LCH1 which have a higher priority

g) The SS verifies that data on LCH2 is only transmitted after all the data on LCH1 has been looped back

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		1 RLC PDU on LCH 2	
2	←		1 RLC PDU on LCH 1	
3	→		Potential SI indicating data on LCH 2	This SI is ignored by the SS
4	→		SI indicating that data is available for LCH 1 and LCH 2	
5	←		Absolute grant allowing the UE to transmit 1 RLC PDU per TTI	Signalling value 4
6	→		MAC es PDU containing 1 RLC PDU from LCH 1	This step is repeated until the whole RLC SDU is transmitted
7	→		MAC es PDU containing 1 RLC PDU from LCH 2	This step is repeated until the whole RLC SDU is transmitted

Specific Message Contents

None

7.1.6.3.1.5 Test requirements

1. In step 6, the SS shall receive 1 MAC-es PDU containing 1 RLC PDU from LCH 1 in each TTI until the whole RLC SDU has been received.

2. In step 6, the SS verifies that no data is received on LCH 2 until all data on LCH 1 has been received

3. In step 7, the SS shall receive 1 MAC-es PDU containing 1 RLC PDU from LCH 2 in each TTI until the whole RLC SDU has been received

7.1.6.3.2 MAC-es/e transport block size selection/ UL QPSK

7.1.6.3.2.1 Definition and applicability

All UEs which support E-DCH.

7.1.6.3.2.2 Conformance requirement

Extract from TS 25.321 clause 11.8.1.4

For Rel-6:

[…]

The transmission format and data allocation shall follow the requirements below:

- Only E-TFCs from the configured E-TFCS shall be considered for the transmission;

[…]

- The UE may avoid using the following E-TFCIs;
  - If the UE is configured with E-TFCI table 0 (see [7]) and 2ms TTI, it may avoid using E-TFCI 120 in the mapping defined in Annex B.1
  - If the UE is configured with E-TFCI table 1 (see [7]) and 2ms TTI, it may avoid using E-TFCI 115 in the mapping defined in Annex B.2

[…]

[…]

For Rel-7 and later releases:

[…]

The transmission format and data allocation shall follow the requirements below:

[…]

- The UE shall not use the following E-TFCIs;
  - If the UE is configured with E-TFCI table 0 (see [7]) and 2ms TTI, it shall not use E-TFCI 120 in the mapping defined in Annex B.1
  - If the UE is configured with E-TFCI table 1 (see [7]) and 2ms TTI, it shall not use E-TFCI 115 in the mapping defined in Annex B.2
  - If the UE is configured with E-TFCI table 2 (see [7]) and 2ms TTI, it shall not use E-TFCI 121 in the mapping defined in Annex B.2a
  - If the UE is configured with E-TFCI table 3 (see [7]) and 2ms TTI, it shall not use E-TFCIs 101 and 102 in the mapping defined in Annex B.2b

[…]

[…]

Extract from TS 25.321 clause 9.2.5.4

[…]

RRC can configure the MAC-e to use one of two Transport block size sets for each TTI duration. The normative description of the mapping between the E-TFC index and the corresponding transport block size is provided in Annex B:

- If the UE is configured with E-TFCI table 0 (see 3GPP TS 25.331) and 2ms TTI, it shall use the mapping defined in 3GPP TS 25.321 Annex B.1
- If the UE is configured with E-TFCI table 1 (see 3GPP TS 25.331) and 2ms TTI, it shall use the mapping defined in 3GPP TS 25.321 Annex B.2
- If the UE is configured with E-TFCI table 0 (see 3GPP TS 25.331) and 10ms TTI, it shall use the mapping defined in 3GPP TS 25.321 Annex B.3
- If the UE is configured with E-TFCI table 1 (see 3GPP TS 25.331) and 10ms TTI, it shall use the mapping defined in 3GPP TS 25.321 Annex B.4

[…]

Reference(s)

TS 25.321 clause 9.2.5.4

7.1.6.3.2.3 Test purpose

To verify that the UE is able to transmit all possible transport block sizes in accordance with configured MAC-d PDU size and within the UE capability.

7.1.6.3.2.4 Method of test

NOTE: The reference to E-DCH Category refers to the UE capability as signalled in the Rel-6 IE "E-DCH physical layer category". All UEs supporting E-DCH should signal a category between 1 and 6 for this IE even if the UE physical capability category is above 6.

NOTE: The reference to HS-DSCH Categories refers to the UE capability as signalled in the Rel-5 IE "HS-DSCH physical layer category" (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

NOTE: At the SS RLC transmit entity and UE UL RLC entity for data RB 'Last transmission PDU poll and Last retransmission PDU poll' should be set to 'FALSE' and 'Poll SDU' to 'Not Present'.

User Equipment:

UE in idle mode

The following parameters are specific for this test case:

Common for all UE HS-DSCH categories:

Parameter	Value
MAC-d PDU size	336 bits
MAC-hs receiver window size	16
Number of HARQ processes	1
Number of reordering queues	1

Common for all UE E-DCH categories:

Parameter	Value
Periodicity for Scheduling Info – no grant	500 ms (see 25.331 10.3.6.99)
RLC Poll Timer	1000ms
RLC Reset Timer	1000ms

Specific depending on E-DCH category:

Parameter	E-DCH Category	Value
RLC Transmission window size	1	512
	2 to 3	1024
	4 to 6	1536
E-TFCI table	1 to 6	See table 7.1.6.3.2.5

Specific depending on HS-DSCH category:

Parameter	HS-DSCH Category	Value
RLC Receiving window size	1 to 6	512
	7 and 8	1536
	9 and 10	2047
	11 and 12	1024

Definition of test variables:

N_{PDUs}	Number of MAC-d PDUs

The mapping between the chosen E-TFC index and the corresponding E-DCH transport block size is given in the following tables:

Table 7.1.6.3.2.1: Test points for 2ms TTI E-DCH Transport Block Size Table 0

TB Index	TB Size (bits)	TB Index	TB Size (bits)	TB Index	TB Size (bits)	TB Index	TB Size (bits)	TB Index	TB Size (bits)
0	18	30	342	60	1015	90	3008	120	8913 Note
1	120	31	355	61	1053	91	3119	121	9241
2	124	32	368	62	1091	92	3234	122	9582
3	129	33	382	63	1132	93	3353	123	9935
4	133	34	396	64	1173	94	3477	124	10302
5	138	35	410	65	1217	95	3605	125	10681
6	143	36	426	66	1262	96	3738	126	11075
7	149	37	441	67	1308	97	3876	127	11484
8	154	38	458	68	1356	98	4019		
9	160	39	474	69	1406	99	4167		
10	166	40	492	70	1458	100	4321		
11	172	41	510	71	1512	101	4480		
12	178	42	529	72	1568	102	4645		
13	185	43	548	73	1626	103	4816		
14	192	44	569	74	1685	104	4994		
15	199	45	590	75	1748	105	5178		
16	206	46	611	76	1812	106	5369		
17	214	47	634	77	1879	107	5567		
18	222	48	657	78	1948	108	5772		
19	230	49	682	79	2020	109	5985		
20	238	50	707	80	2094	110	6206		
21	247	51	733	81	2172	111	6435		
22	256	52	760	82	2252	112	6672		
23	266	53	788	83	2335	113	6918		
24	275	54	817	84	2421	114	7173		
25	286	55	847	85	2510	115	7437		
26	296	56	878	86	2603	116	7711		
27	307	57	911	87	2699	117	7996		
28	318	58	944	88	2798	118	8290		
29	330	59	979	89	2901	119	8596		

NOTE: E-TFCI value 120 shall not be used by a Rel-7 or later release UE and may not be used by a Rel-6 UE. The reason for including the test point for the E-TFCI value 120 is to verify that a Rel-7 UE uses the next possible larger E-TFCI value instead. This test point is not applicable for Rel-6 UEs.

Table 7.1.6.3.2.2: Test points for 2ms TTI E-DCH Transport Block Size Table 1

TB Index	TB Size (bits)	TB Index	TB Size (bits)	TB Index	TB Size (bits)
0	18	43	2724	86	7252
1	186	44	2742	87	7288
2	204	45	3042	88	7428
3	354	46	3060	89	7464
4	372	47	3078	90	7764
5	522	48	3298	91	7800
6	540	49	3316	92	7908
7	674	50	3334	93	7944
8	690	51	3378	94	8100
9	708	52	3396	95	8136
10	726	53	3414	96	8436
11	858	54	3732	97	8472
12	876	55	3750	98	8564
13	1026	56	3972	99	8600
14	1044	57	3990	100	8772
15	1062	58	4068	101	8808
16	1194	59	4086	102	9108
17	1212	60	4404	103	9144
18	1330	61	4422	104	9220
19	1348	62	4628	105	9256
20	1362	63	4646	106	9444
21	1380	64	4740	107	9480
22	1398	65	4758	108	9780
23	1530	66	5076	109	9816
24	1548	67	5094	110	9876
25	1698	68	5284	111	9912
26	1716	69	5302	112	10116
27	1734	70	5412	113	10152
28	1866	71	5430	114	10452
29	1884	72	5748	115	10488 Note
30	1986	73	5766	116	10532
31	2004	74	5940	117	10568
32	2022	75	5958	118	10788
33	2034	76	6084	119	10824
34	2052	77	6102	120	11124
35	2070	78	6420	121	11178
36	2370	79	6438	122	11188
37	2388	80	6596	123	11242
38	2406	81	6614	124	11460
39	2642	82	6756	125	11478
40	2660	83	6774		
41	2678	84	7092		
42	2706	85	7110		

NOTE: E-TFCI value 115 shall not be used by a Rel-7 or later release UE and may not be used by a Rel-6 UE. The reason for including the test point for the E-TFCI value 115 is to verify that a Rel-7 UE uses the next possible larger E-TFCI value instead. This test point is not applicable for Rel-6 UEs.

Table 7.1.6.3.2.3: Test points for 10ms TTI E-DCH Transport Block Size Table 0

TB Index	TB Size (bits)	TB Index	TB Size (bits)	TB Index	TB Size (bits)	TB Index	TB Size (bits)	TB Index	TB Size (bits)
0	18	30	389	60	1316	90	4452	120	15051
1	120	31	405	61	1371	91	4636	121	15675
2	124	32	422	62	1428	92	4828	122	16325
3	130	33	440	63	1487	93	5029	123	17001
4	135	34	458	64	1549	94	5237	124	17706
5	141	35	477	65	1613	95	5454	125	18440
6	147	36	497	66	1680	96	5680	126	19204
7	153	37	517	67	1749	97	5915	127	20000
8	159	38	539	68	1822	98	6161		
9	166	39	561	69	1897	99	6416		
10	172	40	584	70	1976	100	6682		
11	180	41	608	71	2058	101	6959		
12	187	42	634	72	2143	102	7247		
13	195	43	660	73	2232	103	7547		
14	203	44	687	74	2325	104	7860		
15	211	45	716	75	2421	105	8186		
16	220	46	745	76	2521	106	8525		
17	229	47	776	77	2626	107	8878		
18	239	48	809	78	2735	108	9246		
19	249	49	842	79	2848	109	9629		
20	259	50	877	80	2966	110	10028		
21	270	51	913	81	3089	111	10444		
22	281	52	951	82	3217	112	10877		
23	293	53	991	83	3350	113	11328		
24	305	54	1032	84	3489	114	11797		
25	317	55	1074	85	3634	115	12286		
26	331	56	1119	86	3784	116	12795		
27	344	57	1165	87	3941	117	13325		
28	359	58	1214	88	4105	118	13877		
29	374	59	1264	89	4275	119	14453		

Table 7.1.6.3.2.4: Test points for 10ms TTI E-DCH Transport Block Size Table 1

TB Index	TB Size (bits)	TB Index	TB Size (bits)	TB Index	TB Size (bits)
0	18	41	5076	82	11850
1	186	42	5094	83	12132
2	204	43	5412	84	12186
3	354	44	5430	85	12468
4	372	45	5748	86	12522
5	522	46	5766	87	12804
6	540	47	6084	88	12858
7	690	48	6102	89	13140
8	708	49	6420	90	13194
9	858	50	6438	91	13476
10	876	51	6756	92	13530
11	1026	52	6774	93	13812
12	1044	53	7092	94	13866
13	1194	54	7110	95	14148
14	1212	55	7428	96	14202
15	1362	56	7464	97	14484
16	1380	57	7764	98	14556
17	1530	58	7800	99	14820
18	1548	59	8100	100	14892
19	1698	60	8136	101	15156
20	1716	61	8436	102	15228
21	1866	62	8472	103	15492
22	1884	63	8772	104	15564
23	2034	64	8808	105	15828
24	2052	65	9108	106	15900
25	2370	66	9144	107	16164
26	2388	67	9444	108	16236
27	2706	68	9480	109	16500
28	2724	69	9780	110	16572
29	3042	70	9816	111	17172
30	3060	71	10116	112	17244
31	3378	72	10152	113	17844
32	3396	73	10452	114	17916
33	3732	74	10488	115	18516
34	3750	75	10788	116	18606
35	4068	76	10824	117	19188
36	4086	77	11124	118	19278
37	4404	78	11178	119	19860
38	4422	79	11460	120	19950
39	4740	80	11514		
40	4758	81	11796		

Table 7.1.6.3.2.5: Applicable E-TFS indexes for sub-tests 1 to 4 and UE E-DCH categories 1 to 6.

			Applicable E-TFS indexes					
Sub-test	**E-DCH TTI**	**E-DCH Transport Block Size Table**	**Category 1**	**Category 2**	**Category 3**	**Category 4**	**Category 5**	**Category 6**
1	10ms	10ms TTI Table 0, Table 7.1.6.3.2.3	1..101	1..119	1..119	1..127	1..127	1..127
2	10ms	10ms TTI Table 1, Table 7.1.6.3.2.4	1..54	1..97	1..97	1..120	1..120	1..120
3	2ms	2ms TTI Table 0, Table 7.1.6.3.2.1	N/A	1..88	N/A	1..108	N/A	1..127
4	2ms	2ms TTI Table 1, Table 7.1.6.3.2.2	N/A	1..44	N/A	1..73	N/A	1..125
NOTE 1: Applicable indexes depends on the UE capability of "Maximum number of bits of an E-DCH transport block transmitted within a 10 ms E-DCH TTI" and "Maximum number of bits of an E-DCH transport block transmitted within a 2 ms E-DCH TTI" as specified in TS 25.306 clause 5 and Table 5.1g. E-TFCI index=0 not tested as TB size for this E-TFCI value is 18 bits, which would only fit the MAC-e/es header used by the SS in the test procedure 1.								
NOTE 2: For E-DCH categories beyond 6, E-TFS indices for category 6 are applicable.								

Table 7.1.6.3.2.6: E-TFCI values causing degradation due to turbo coder irregularities

E-DCH Transport Block Size Tables	E-TFCI	Reference
2 ms TTI, Table 0	120	[6], Annex B.1
2 ms TTI, Table 1	115	[6], Annex B.2

Test procedure

a) The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.10.2.4.6.2 using condition A13 as specified in clause 9.1 of TS 34.108.. See Note 1.

b) The SS closes the test loop using UE test loop mode 1 and configuring the UL RLC SDU size to be equal to the received DL SDU size (i.e. not setting the UL RLC SDU size parameter).

c) SS sets RLC SDU size = 312 bits which corresponds to maximum AM payload size for 1 MAC-d PDU of size 336 bits.

d) The SS removes the scheduling grant for E-DCH for the UE.

e) If N_{PDUs} is less than 36 the SS transmits one RLC SDU with size ((*NPDUs* – 1) * 320 + 312) else the SS transmits two SDUs with size ((N_{PDUs} – 2) * 320 + 2 * 312) / 2. See note 2.

f) The SS waits for an SI to be received that indicates that there is data available for transmission (can be identified from the content of the SI). See Note 3. The SS checks that TEBS has the correct value.

g) The SS issues an absolute grant that allows the UE to send at maximum bit rate (signalling value 31)

h) The SS waits until data is received and verifies that the looped back SDU data has the correct content and is sent in the same TTI.

i) The SS verifies that the received E-TFC used by the UE is correct. For Rel-7 and later release UE the SS checks that the UE has not used the transport block sizes correspondent to the E-TFCI values as listed in table 7.1.6.3.2.6, but instead used the transport block size correspondent to the next possible larger E-TFCI value.

j) The SS increments the RLC SDU payload size by 320 bits. For the case of 2 SDUs transmitted by the SS, each of the payload sizes are incremented by 320 bits. The SS calculates the new E-TFC transport block size from the relevant Transport Block Size Table. If this transport block size is supported by the UE under test, according to Table 7.1.6.3.2.5, then continue with step d else continue with step k.

k) The SS opens the UE test loop.

l) The SS release the radio bearer.

m) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The SS configures the physical channel parameters according to the actual UE category under test.

NOTE 2: Calculation of Downlink (DL) RLC SDU size:

DL SDU size = N_{PDUs} * 336 bits RLC PDU – headers associated with MAC and RLC.

RLC PDU = RLC 16 bits Sequence Number + 8 bits for the Optional Length Indicators + RLC pay load size. The Optional Length Indicator is present only in the delivery of the last RLC PDU.

The Optional Length Indicators consists of a 7 bits Length Indicator + 1 bit Extension Field of binary value = "0". The 7 bit length indicator indicates the number of octets between the end of the RLC header up to and including the last octet of the (DL) RLC SDU ending within the PDU.

Therefore, the RLC payload has two different sizes of 320 bits (336 – 16 bits Sequence Number) and 312 bits (336 – 16 bits sequence Number - (7 bits Length Indicator + 1 bit extension field)).

N_{PDUs} = FLOOR ((TBS size – MAC-e header size – MAC-es header size) / MAC-d PDU size) = FLOOR ((TBS size -18) / 336).

For N_{PDUs} = 1

DL RLC SDU payload has size 312 bits

For $1 < N_{PDUs} < 36$

There are (N_{PDUs} – 1) RLC payloads of size 320 bits with the last RLC payload size 312 bits

DL RLC SDU payload size = (N_{PDUs} -1) * 320 + 312

For $N_{PDUs} \geq 36$

The test data for transport channels on HS-DSCH and E-DCH is divided into 2 RLC SDUs so that the SDU size does not exceed 1500 octets (limit of SDU size in SM)

The payload data of the MAC-d PDUs contains 2 RLC SDUs of size

((N_{PDUs} – 2) * 320 + 2 * 312) / 2

$N_{PDU} = N_{PDUs} + 2$

Calculation of E-TFC TB Size:

Select the E-TFC Index/TB Size = Number of MAC-d PDU * 336 bits RLC PDU + 18 bits MAC-es and MAC-e headers (6 bits N + 6 bits TSN + 6 bits DDI) according to the E-DCH Transport Block Size Tables for FDD per 25.321 Annex B, .

As an example TBS value of 716 bits is used by the UE in the 10mS Index 0 subtest to deliver UL RLC SDU size o f 84 bytes = 672bit + 18 bits MAC headers = 690 bits

NOTE 3: Calculation of TEBS value:

Using the E-TFC TB size determined in Note 2 above, select the TEBS index according to 25.321 Table 9.2.5.3.2-1.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
2	<--		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
4	<--		RRC CONNECTION SETUP (CCCH)	RRC
5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6	-->		SERVICE REQUEST (DCCH)	GMM
7	<--		SECURITY MODE COMMAND	RRC see note 1
8	-->		SECURITY MODE COMPLETE	RRC see note 1
9	<--		ACTIVATE RB TEST MODE (DCCH)	TC
10	-->		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
11	<--		RADIO BEARER SETUP (DCCH)	RRC. For the PS radio bearer the 'pdcp info' IE shall be omitted.
12	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
13	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 with no "LB Setup RB IE#k" parameter set (UE shall return an UL RLC SDU with the same size as the received RLC SDU in downlink)
14	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
15	SS			The SS initially creates one RLC SDU with payload size 312bits
16	←		Removal of absolute grant	Signalling value 1
17	<--		DOWNLINK RLC SDU(s)	Send test data. The data contains 1 RLC SDU or 2 SDUs (refer to Note 2) in test procedure above
18	→		SI indicating data for transmission	This can be verified from the indicated Total E-DCH Buffer Status (TEBS)
19	<--		Absolute grant allowing the UE to transmit at maximum bit rate.	Signalling value 31
20	-->		UPLINK RLC SDU(s)	The SS checks E-TFC from the UE and checks that the content of the received UL RLC SDU is correct and sent in the same TTI. For Rel-7 and later release UE the SS checks that the UE has not used the transport block sizes correspondent to the E-TFCI values as listed in table 7.1.6.3.2.6, but instead used the transport block size correspondent to the next possible larger E-TFCI value.
21	SS			The SS increases the SDU size(s) by 320 bits (refer to Note 2) and calculates the E-TFC transport block size required to send this data on E-DCH from the relevant Transport Block Size Table. If E-TFC TB size is supported by the E-DCH category then repeat steps 16 to 19
22	<--		OPEN UE TEST LOOP (DCCH)	TC
23	-->		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
24			RB RELEASE	RRC
25	<--		DEACTIVATE RB TEST MODE	TC Optional step
26	-->		DEACTIVATE RB TEST MODE COMPLETE	TC Optional step
Note 1: In addition to activate integrity protection Step 7 and Step 8 are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.				

7.1.6.3.2.5 Test requirements

1. In step 20, the SS verifies that the received E-TFC has the correct size .For Rel-7 and later release UE the SS checks that the UE has not used the transport block sizes correspondent to the E-TFCI values as listed in table 7.1.6.3.2.6, but instead used the transport block size correspondent to the next possible larger E-TFCI value.

2. In step 20, the SS shall receive the RLC SDUs in the same TTI and with the same content as sent in downlink.

7.1.6.3.2a MAC-es/e transport block size selection/UL 16QAM

7.1.6.3.2a.1 Definition and applicability

All UEs which support E-DCH and UL 16QAM.

7.1.6.3.2a.2 Conformance requirement

Extract from TS 25.321 clause 9.2.5.4

Extract from TS 25.321 clause 11.8.1.4

For Rel-6:

[…]

The transmission format and data allocation shall follow the requirements below:

- Only E-TFCs from the configured E-TFCS shall be considered for the transmission;

[…]

- The UE may avoid using the following E-TFCIs;
  - If the UE is configured with E-TFCI table 0 (see [7]) and 2ms TTI, it may avoid using E-TFCI 120 in the mapping defined in Annex B.1
  - If the UE is configured with E-TFCI table 1 (see [7]) and 2ms TTI, it may avoid using E-TFCI 115 in the mapping defined in Annex B.2

[…]

[…]

For Rel-7 and later releases:

[…]

The transmission format and data allocation shall follow the requirements below:

[…]

- The UE shall not use the following E-TFCIs;
  - If the UE is configured with E-TFCI table 0 (see [7]) and 2ms TTI, it shall not use E-TFCI 120 in the mapping defined in Annex B.1
  - If the UE is configured with E-TFCI table 1 (see [7]) and 2ms TTI, it shall not use E-TFCI 115 in the mapping defined in Annex B.2
  - If the UE is configured with E-TFCI table 2 (see [7]) and 2ms TTI, it shall not use E-TFCI 121 in the mapping defined in Annex B.2a
  - If the UE is configured with E-TFCI table 3 (see [7]) and 2ms TTI, it shall not use E-TFCIs 101 and 102 in the mapping defined in Annex B.2b

[…]

[…]

RRC can configure the MAC-e to use one of two Transport block size sets for each TTI duration. The normative description of the mapping between the E-TFC index and the corresponding transport block size is provided in Annex B:

- If the UE is configured with E-TFCI table 0 (see 3GPP TS 25.331) and 2ms TTI, it shall use the mapping defined in 3GPP TS 25.321 Annex B.1
- If the UE is configured with E-TFCI table 1 (see 3GPP TS 25.331) and 2ms TTI, it shall use the mapping defined in 3GPP TS 25.321 Annex B.2
- If the UE is configured with E-TFCI table 2 (see 3GPP TS 25.331) and 2ms TTI, it shall use the mapping defined in 3GPP TS 25.321 Annex B.2a
- If the UE is configured with E-TFCI table 3 (see 3GPP TS 25.331) and 2ms TTI, it shall use the mapping defined in 3GPP TS 25.321 Annex B.2b
- If the UE is configured with E-TFCI table 0 (see 3GPP TS 25.331) and 10ms TTI, it shall use the mapping defined in 3GPP TS 25.321 Annex B.3
- If the UE is configured with E-TFCI table 1 (see 3GPP TS 25.331) and 10ms TTI, it shall use the mapping defined in 3GPP TS 25.321 Annex B.4

[…]

Reference(s)

TS 25.321 clause 9.2.5.4

7.1.6.3.2a.3 Test purpose

To verify that the UE is able to transmit all possible transport block sizes in accordance with configured MAC-d PDU size and within the UE capability.

7.1.6.3.2a.4 Method of test

NOTE: The reference to E-DCH Category refers to the UE capability as signalled in the Rel-7 IE “E-DCH physical layer category extension”.

NOTE: The reference to HS-DSCH Categories refers to the UE capability as signalled in the Rel-5 IE “HS-DSCH physical layer category” (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

NOTE: At the SS RLC transmit entity for data RB ‘Last transmission PDU poll and Last retransmission PDU poll’ should be set to ‘FALSE’ and ‘Poll SDU’ to ‘Not Present’.

User Equipment:

UE in idle mode

The following parameters are specific for this test case:

Common for all UE HS-DSCH categories:

Parameter	Value
MAC-d PDU size	336 bits
MAC-hs receiver window size	16
Number of HARQ processes	1
Number of reordering queues	1

Common for all UE E-DCH categories:

Parameter	Value
Periodicity for Scheduling Info – no grant	500 ms (see 25.331 10.3.6.99)
RLC Poll Timer	1000ms
RLC Reset Timer	1000ms

Specific depending on E-DCH category:

Parameter	E-DCH Category	Value
RLC Transmission window size	**7**	**1536**
E-TFCI table	**7**	**See table 7.1.6.3.2a.3**

Specific depending on HS-DSCH category:

Parameter	HS-DSCH Category	Value
RLC Receiving window size	1 to 6	512
	7 and 8	1536
	9 and 10	2047
	11 and 12	1024

Definition of test variables:

N_{PDUs}	Number of MAC-d PDUs

The mapping between the chosen E-TFC index and the corresponding E-DCH transport block size is given in the following tables:

Table 7.1.6.3.2a.1 Test points for 2ms TTI E-DCH Transport Block Size Table 2

E-TFCI	TB Size (bits)	E-TFCI	TB Size (bits)	E-TFCI	TB Size (bits)	E-TFCI	TB Size (bits)	E-TFCI	TB Size (bits)
0	18	30	402	60	1405	90	4913	120	17173
1		31		61		91		121	17904
	120		419		1465		5122		Note
2	125	32	437	62	1528	92	5341	122	18667
3	130	33	455	63	1593	93	5568	123	19462
4	135	34	475	64	1661	94	5805	124	20291
5	141	35	495	65	1731	95	6053	125	21155
6	147	36	516	66	1805	96	6310	126	22056
7	154	37	538	67	1882	97	6579	127	22995
8	160	38	561	68	1962	98	6859		
9	167	39	585	69	2046	99	7152		
10	174	40	610	70	2133	100	7456		
11	182	41	636	71	2224	101	7774		
12	189	42	663	72	2319	102	8105		
13	197	43	691	73	2417	103	8450		
14	206	44	721	74	2520	104	8810		
15	215	45	752	75	2628	105	9185		
16	224	46	784	76	2740	106	9577		
17	233	47	817	77	2856	107	9985		
18	243	48	852	78	2978	108	10410		
19	254	49	888	79	3105	109	10853		
20	265	50	926	80	3237	110	11316		
21	276	51	965	81	3375	111	11798		
22	288	52	1007	82	3519	112	12300		
23	300	53	1049	83	3669	113	12824		
24	313	54	1094	84	3825	114	13370		
25	326	55	1141	85	3988	115	13940		
26	340	56	1189	86	4158	116	14534		
27	354	57	1240	87	4335	117	15153		
28	370	58	1293	88	4520	118	15798		
29	385	59	1348	89	4712	119	16471		

NOTE: E-TFCI value 121 shall not be used by a Rel-7 or later release UE and may not be used by a Rel-6 UE. The reason for including the test point for the E-TFCI value 121 is to verify that a Rel-7 UE uses the next possible larger E-TFCI value instead.

Table 7.1.6.3.2a.2: Test points for 2ms TTI E-DCH Transport Block Size Table 3

E-TFCI	TB Size (bits)	E-TFCI	TB Size (bits)	E-TFCI	TB Size (bits)	E-TFCI	TB Size (bits)	E-TFCI	TB Size (bits)
0	18	30	1902	60	6614	90	14184	120	21966
1	186	31	1986	61	6774	91	14538	121	22302
2	204	32	2004	62	7110	92	14874	122	22430
3	354	33	2034	63	7270	93	15210	123	22638
4	372	34	2052	64	7446	94	15546	124	22996
5	522	35	2370	65	7782	95	15882		
6	540	36	2388	66	7926	96	16218		
7	558	37	2642	67	8118	97	16554		
8	674	38	2660	68	8454	98	16890		
9	692	39	2706	69	8582	99	17226		
10	708	40	2724	70	8790	100	17562		
11	858	41	3042	71	9126	101	17802 Note		
12	876	42	3060	72	9238	102	17898 Note		
13	894	43	3298	73	9462	103	18252		
14	1026	44	3316	74	9798	104	18476		
15	1044	45	3378	75	9894	105	18588		
16	1194	46	3396	76	10134	106	18924		
17	1212	47	3750	77	10470	107	19132		
18	1230	48	3990	78	10550	108	19260		
19	1330	49	4086	79	10806	109	19596		
20	1348	50	4422	80	11160	110	19788		
21	1362	51	4646	81	11224	111	19932		
22	1380	52	4758	82	11496	112	20268		
23	1530	53	5094	83	11880	113	20444		
24	1548	54	5302	84	12168	114	20604		
25	1566	55	5430	85	12536	115	20940		
26	1698	56	5766	86	12840	116	21100		
27	1716	57	5958	87	13192	117	21276		
28	1866	58	6102	88	13512	118	21612		
29	1884	59	6438	89	13848	119	21774		

NOTE: E-TFCI values 101 and 102 shall not be used by a Rel-7 or later release UE and may not be used by a Rel-6 UE. The reason for including the test point for the E-TFCI values 101 and 102 is to verify that a Rel-7 UE uses the next possible larger E-TFCI values instead.

Table 7.1.6.3.2a.3 Applicable E-TFS indexes for sub-tests 1 to 2 and UE E-DCH category 7.

			Applicable E-TFS indexes
Sub-test	**E-DCH TTI**	**E-DCH Transport Block Size Table**	**Category 7**
1	2ms	2ms TTI Table 2, Table 7.1.6.3.2.2a.1	1..127
2	2ms	2ms TTI Table 3, Table 7.1.6.3.2.2a.2	1..124
NOTE 1: Applicable indexes depends on "Maximum number of bits of an E-DCH transport block transmitted within a 2 ms E-DCH TTI" as specified in TS 25.306 clause 5.1. E-TFCI index=0 not tested as TB size for this E-TFCI value is 18 bits, which would only fit the MAC-e/es header used by the SS in the test procedure.			

Table 7.1.6.3.2a.6 lists E-TFCI values that a Rel-7 or later release UE shall not use due to the associated coding rates cause turbo coder irregularities (ref. [6], Annex B).

Table 7.1.6.3.2a.6: E-TFCI values causing degradation due to turbo coder irregularities

E-DCH Transport Block Size Tables	E-TFCI	Reference
2 ms TTI, Table 2	121	[6], Annex B.2a
2 ms TTI, Table 3	101	[6], Annex B.2b
2 ms TTI, Table 3	102	[6], Annex B.2b

Test procedure

a) The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.10.2.4.6.2 using condition " Packet to CELL_DCH / E-DCH[UL : 16QAM] / HS-DSCH using one multiplexing option (1/1) and SRBs mapped on E-DCH/DCH condition A19a" as specified in clause 9.1 of TS 34.108. See note 1.

b) The SS closes the test loop using UE test loop mode 1 and configuring the UL RLC SDU size to be equal to the received DL SDU size (i.e. not setting the UL RLC SDU size parameter).

c) SS sets RLC SDU size = 312 bits which corresponds to maximum AM payload size for 1 MAC-d PDU of size 336 bits.

d) The SS removes the scheduling grant for E-DCH for the UE.

e) If N_{PDUs} is less than 36 the SS transmits one RLC SDU with size ((*NPDUs* – 1) * 320 + 312) else the SS transmits two SDUs with size ((N_{PDUs} – 2) * 320 + 2 * 312) / 2. See note 2.

f) The SS waits for an SI to be received that indicates that there is data available for transmission (can be identified from the content of the SI). See Note 3. The SS checks that TEBS has the correct value.

g) The SS issues an absolute grant that allows the UE to send at maximum bit rate (signalling value 31)

h) The SS waits until data is received and verifies that the looped back SDU data has the correct content and is sent in the same TTI.

i) The SS verifies that the received E-TFC used by the UE is correct. For Rel-7 and later release UE the SS checks that the UE has not used the transport block sizes correspondent to the E-TFCI values as listed in table 7.1.6.3.2a.6, but instead used the transport format correspondent to the next possible larger E-TFCI value.

j) The SS increments the RLC SDU payload size by 320 bits. For the case of 2 SDUs transmitted by the SS, each of the payload sizes are incremented by 320 bits. The SS calculates the new E-TFC transport block size from the relevant Transport Block Size Table. If this transport block size is supported by the UE under test, according to Table 7.1.6.3.2.5, then continue with step d else continue with step k.

k) The SS opens the UE test loop.

l) The SS release the radio bearer.

m) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The SS configures the physical channel parameters according to the actual UE category under test.

NOTE 2: Calculation of Downlink (DL) RLC SDU size:
DL SDU size = N_{PDUs} * 336 bits RLC PDU – headers associated with MAC and RLC.

RLC PDU = RLC 16 bits Sequence Number + 8 bits for the Optional Length Indicators + RLC pay load size. The Optional Length Indicator is present only in the delivery of the last RLC PDU.

The Optional Length Indicators consists of a 7 bits Length Indicator + 1 bit Extension Field of binary value = "0". The 7 bit length indicator indicates the number of octets between the end of the RLC header up to and including the last octet of the (DL) RLC SDU ending within the PDU.

Therefore, the RLC payload has two different sizes of 320 bits (336 – 16 bits Sequence Number) and 312 bits (336 – 16 bits sequence Number - (7 bits Length Indicator + 1 bit extension field)).

N_{PDUs} = FLOOR ((TBS size – MAC-e header size – MAC-es header size) / MAC-d PDU size) = FLOOR ((TBS size -18) / 336).

For N_{PDUs} = 1
DL RLC SDU payload has size 312 bits

For $1 < N_{PDUs} < 36$
There are (N_{PDUs} – 1) RLC payloads of size 320 bits with the last RLC payload size 312 bits
DL RLC SDU payload size = (N_{PDUs} -1) * 320 + 312

For $N_{PDUs} \geq 36$
The test data for transport channels on HS-DSCH and E-DCH is divided into 2 RLC SDUs so that the SDU size does not exceed 1500 octets (limit of SDU size in SM)

The payload data of the MAC-d PDUs contains 2 RLC SDUs of size

((N_{PDUs} – 2) * 320 + 2 * 312) / 2

$N_{PDU} = N_{PDUs} + 2$

Calculation of E-TFC TB Size:
Select the E-TFC Index/TB Size = Number of MAC-d PDU * 336 bits RLC PDU + 18 bits MAC-es and MAC-e headers (6 bits N + 6 bits TSN + 6 bits DDI) according to the E-DCH Transport Block Size Tables for FDD per 25.321 Annex B,

As an example TBS value of 716 bits is used by the UE in the 10mS Index 0 subtest to deliver UL RLC SDU size o f 84 bytes = 672bit + 18 bits MAC headers = 690 bits

NOTE 3: Calculation of TEBS value:
Using the E-TFC TB size determined in Note 2 above, select the TEBS index according to 25.321 Table 9.2.5.3.2-1.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
2	<--		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
4	<--		RRC CONNECTION SETUP (CCCH)	RRC
5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6	-->		SERVICE REQUEST (DCCH)	GMM
7	<--		SECURITY MODE COMMAND	RRC see note 1
8	-->		SECURITY MODE COMPLETE	RRC see note 1
9	<--		ACTIVATE RB TEST MODE (DCCH)	TC
10	-->		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
11	<--		RADIO BEARER SETUP (DCCH)	RRC. For the PS radio bearer the 'pdcp info' IE shall be omitted.
12	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
13	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 with no "LB Setup RB IE#k" parameter set (UE shall return an UL RLC SDU with the same size as the received RLC SDU in downlink)
14	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
15	SS			The SS initially creates one RLC SDU with payload size 312bits
16	←		Removal of absolute grant	Signalling value 1
17	<--		DOWNLINK RLC SDU(s)	Send test data. The data contains 1 RLC SDU or 2 SDUs (refer to Note 2 in test procedure above)
18	→		SI indicating data for transmission	This can be verified from the indicated Total E-DCH Buffer Status (TEBS)
19	<--		Absolute grant allowing the UE to transmit at maximum bit rate.	Signalling value 31
20	-->		UPLINK RLC SDU(s)	The SS checks E-TFC from the UE and checks that the content of the received UL RLC SDU is correct and sent in the same TTI For Rel-7 and later release UE the SS checks that the UE has not used the transport block sizes correspondent to the E-TFCI values as listed in table 7.1.6.3.2a.6, but instead used the transport block size correspondent to the next possible larger E-TFCI value.
21	SS			The SS increases the SDU size(s) by 320 bits (refer to Note 2) and calculates the E-TFC transport block size required to send this data on E-DCH from the relevant Transport Block Size Table. If E-TFC TB size is supported by the E-DCH category then repeat steps 16 to 19
22	<--		OPEN UE TEST LOOP (DCCH)	TC
23	-->		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
24			RB RELEASE	RRC
25	<--		DEACTIVATE RB TEST MODE	TC Optional step
26	-->		DEACTIVATE RB TEST MODE COMPLETE	TC Optional step
Note 1	In addition to activate integrity protection Step 7 and Step 8 are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.			

7.1.6.3.2a.5 Test requirements

1. In step 20, the SS verifies that the received E-TFC has the correct size. For Rel-7 and later release UE the SS checks that the UE has not used the transport block sizes correspondent to the E-TFCI values as listed in table 7.1.6.3.2a.6, but instead used the transport block size correspondent to the next possible larger E-TFCI value,.

2. In step 20, the SS shall receive the RLC SDU(s) in the same TTI and with the same content as sent in downlink.

7.1.6.3.3 Impact on E-TFCI selection on MAC at UE for UL DRX at Node B/ MAC Inactivity Threshold>1

7.1.6.3.3.1 Definition and applicability

All UEs which support UL DTX (E-DCH start time restriction).

7.1.6.3.3.2 Conformance requirement

In FDD mode, the rules for E-TFC selection provided below shall apply to UEs in CELL_DCH state with an E-DCH transport channel configured. These UEs shall apply the E-TFC selection procedure when invoked by the HARQ entity (see subclause 11.8.1.1.1). In the case where a 2ms TTI is configured, E-TFC selection shall not be performed for TTIs that overlap with an uplink compressed mode gap. The E-TFC restriction procedure described in [12] shall always be applied before the E-TFC selection process below. E-TFCs which (according to calculations in [16]) require channelisation codes which are not allowed by the value given by the Maximum channelisation codes for E-DPDCH or are not supported by the UE capability shall be considered as blocked. Furthermore, for UEs that are also configured with a DCH transport channel on uplink, the TFC selection procedure shall be applied before either of these.

…

In FDD, in case the DTX feature is configured by higher layers and no E-DCH transmission is performed in this TTI:

- if *MAC Inactivity Threshold* > 1 and no E-DCH transmission has been performed for *MAC Inactivity Threshold* - 1 previous TTIs or,

- if *MAC Inactivity Threshold* = 1:

  - E-TFC selection shall only be performed for the TTIs where the following conditions are fulfilled:

    - For 2ms TTI: [5*CFN + subframe number - *UE DTX DRX Offset*] **mod** *MAC DTX Cycle* = 0;

    - For 10ms TTI: [5*CFN - *UE DTX DRX Offset*] **mod** *MAC DTX Cycle* = 0.

    In 2ms TTI case, if the TTI that fulfilled [5*CFN + subframe number - UE DTX DRX Offset] mod MAC DTX Cycle = 0 overlapped with an uplink compressed mode transmission gap, the E-TFC selection shall be performed for the first TTI not overlapping with an uplink compressed mode transmission gap.

Reference(s)

TS 25.321 clauses 11.8.1.4

7.1.6.3.3.3 Test purpose

The purpose of this test case is to verify that

1. To verify that when no E-DCH transmission has been performed for MAC Inactivity Threshold -1 previous TTI, UE start E-DCH transmission in TTI satisfying [5*CFN - *UE DTX DRX Offset*] **mod** *MAC DTX Cycle* = 0.

2. To verify that when E-DCH transmission has been performed within MAC Inactivity Threshold -1 previous TTI, UE start E-DCH transmission immediately[Grant available].

7.1.6.3.3.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / UM PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH as specified in TS 34.108, clause 6.11.4i.1. The logical channel, transport channel and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25

DL_DRX is not activated and default UL_DTX parameters are applied.

The following UL_DRX parameters are specific for this test case:

Parameter	Value
E-DCH TTI	10 ms
MAC DTX Cycle	20
MAC Inactivity Threshold	128
UE DTX DRX Offset	10 (multiple of 5)

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 39 octets.

Test procedure

a) SS waits for 1.5 seconds, so that condition for MAC Inactivity is satisfied.

b) SS transmits 5 SDU's of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

c) SS waits until an SI is received. SS checks that the CFN in which SI is received satisfies condition [5*CFN - UE DTX DRX Offset] mod MAC DTX Cycle = 0.

d) SS issues an absolute grant that allows the UE to send 1 RLC PDU per TTI (signalling value 4)

e) SS starts receiving loop backed RLC PDU's.

f) SS transmits 1 SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH1Expected sequence

g) SS receives loop backed RLC PDU. SS repeats steps f & g, until CFN in which loop backed PDU is received satisfies condition [5*CFN - *UE DTX DRX Offset*] **mod** *MAC DTX Cycle* ≠ 0.

h) SS waits for 1.5 seconds, so that condition for MAC Inactivity is satisfied.

i) SS transmits 1 SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

j) SS receives loop backed RLC PDU. SS checks that the CFN in which loop backed PDU is received satisfies condition [5*CFN - *UE DTX DRX Offset*] **mod** *MAC DTX Cycle* = 0.

k) SS repeats steps h-j, 10 times and always condition [5*CFN - *UE DTX DRX Offset*] **mod** *MAC DTX Cycle* = 0 is satisfied.

Step	Direction		Message	Comments
	UE	SS		
1				SS Waits for 1.5 seconds so that MAC_Inactivity_Threshold is satisfied
2	←		5 RLC PDUs on LCH 1	
3	→		SI indicating data on LCH 1	SS Checks that [5*CFN - *UE DTX DRX Offset*] **mod** *MAC DTX Cycle* = 0 is satisfied for transmission of SI
4	←		Absolute grant allowing the UE to transmit 1 RLC PDU per TTI	Signalling value 4
5	→		MAC es PDU containing 1 RLC PDU from LCH 1	First Loop Backed PDU.
6	→		MAC es PDU containing 1 RLC PDU from LCH 1	This step is repeated until all remaining 4 RLC SDU's are received on consecutive TTI's
7	←		1 RLC PDUs on LCH 1	
8	→		MAC es PDU containing 1 RLC PDU from LCH 1	SS Checks that [5*CFN - *UE DTX DRX Offset*] **mod** *MAC DTX Cycle* ≠ 0 is satisfied If above equation is not satisfied steps 7 and 8 are repeated.
9				SS Waits for 1.5 seconds so that MAC_Inactivity_Threshold is satisfied
10	←		1 RLC PDUs on LCH 1	
11	→		MAC es PDU containing 1 RLC PDU from LCH 1	SS Checks that [5*CFN - *UE DTX DRX Offset*] **mod** *MAC DTX Cycle* = 0 is satisfied
				Steps 9 to 11 are repeated 10 times

Specific Message Contents

None

7.1.6.3.3.5 Test requirements

1. In step 3, the CFN of transmitted SI satisfies [5*CFN - *UE DTX DRX Offset*] **mod** *MAC DTX Cycle* = 0.
2. In step 8, the CFN of loop backed PDU satisfies [5*CFN - *UE DTX DRX Offset*] **mod** *MAC DTX Cycle* ≠ 0
3. In step 11,for all iterations, the CFN of loop backed PDU satisfies [5*CFN - *UE DTX DRX Offset*] **mod** *MAC DTX Cycle* = 0

7.1.6.3.4 Impact on E-TFCI selection on MAC at UE for UL DRX at Node B/ MAC Inactivity Threshold =1

7.1.6.3.4.1 Definition and applicability

All UEs which support UL DTX (E-DCH start time restriction).

7.1.6.3.4.2 Conformance requirement

In FDD mode, the rules for E-TFC selection provided below shall apply to UEs in CELL_DCH state with an E-DCH transport channel configured. These UEs shall apply the E-TFC selection procedure when invoked by the HARQ entity (see subclause 11.8.1.1.1). In the case where a 2ms TTI is configured, E-TFC selection shall not be performed for TTIs that overlap with an uplink compressed mode gap. The E-TFC restriction procedure described in [12] shall always be applied before the E-TFC selection process below. E-TFCs which (according to calculations in [16]) require channelisation codes which are not allowed by the value given by the Maximum channelisation codes for E-DPDCH or are not supported by the UE capability shall be considered as blocked. Furthermore, for UEs that are also configured with a DCH transport channel on uplink, the TFC selection procedure shall be applied before either of these.

…

In FDD, in case the DTX feature is configured by higher layers and no E-DCH transmission is performed in this TTI:

- if *MAC Inactivity Threshold* > 1 and no E-DCH transmission has been performed for *MAC Inactivity Threshold* - 1 previous TTIs or,
- if *MAC Inactivity Threshold* = 1:
  - E-TFC selection shall only be performed for the TTIs where the following conditions are fulfilled:
    - For 2ms TTI: [5*CFN + subframe number - *UE DTX DRX Offset*] **mod** *MAC DTX Cycle* = 0;
    - For 10ms TTI: [5*CFN - *UE DTX DRX Offset*] **mod** *MAC DTX Cycle* = 0.

    In 2ms TTI case, if the TTI that fulfilled [5*CFN + subframe number - UE DTX DRX Offset] mod MAC DTX Cycle = 0 overlapped with an uplink compressed mode transmission gap, the E-TFC selection shall be performed for the first TTI not overlapping with an uplink compressed mode transmission gap.

Reference(s)

TS 25.321 clauses 11.8.1.4

7.1.6.3.4.3 Test purpose

To verify that UE always start E-DCH transmission in TTI satisfying [5*CFN - *UE DTX DRX Offset*] **mod** *MAC DTX Cycle* = 0.

7.1.6.3.4.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / UM PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH as specified in TS 34.108, clause 6.11.4i.1. The logical channel, transport channel and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25

DL_DRX is not activated and default UL_DTX parameters are applied.

The following UL_DRX parameters are specific for this test case:

Parameter	Value
E-DCH TTI	10 ms
MAC DTX Cycle	20
MAC Inactivity Threshold	1
UE DTX DRX Offset	10 (multiple of 5)

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 39 octets.

Test procedure

a) SS transmits 5 SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH1Expected sequence

b) SS waits until an SI is received. The SS checks that the CFN in which SI is received satisfies condition [5*CFN - UE DTX DRX Offset] mod MAC DTX Cycle = 0.

c) SS issues an absolute grant that allows the UE to send 1 RLC PDU per TTI (signalling value 4)

d) SS starts receiving loop backed RLC PDU's. SS checks that the CFN in which each loop backed PDU received satisfies condition [5*CFN - *UE DTX DRX Offset*] **mod** *MAC DTX Cycle* = 0.

e) SS transmits 1 SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH1Expected sequence

f) SS receives loop backed RLC PDU..

g) SS repeats steps e & f, 10 times and always condition [5*CFN - *UE DTX DRX Offset*] **mod** *MAC DTX Cycle* = 0 is satisfied.

Step	Direction		Message	Comments
	UE	SS		
1	←		5 RLC PDUs on LCH 1	
2	→		SI indicating data on LCH 1	SS Checks that [5*CFN - *UE DTX DRX Offset*] **mod** *MAC DTX Cycle* = 0 is satisfied for transmission of SI
3	←		Absolute grant allowing the UE to transmit 1 RLC PDU per TTI	Signalling value 4
4	→		MAC es PDU containing 1 RLC PDU from LCH 1	First Loop Backed PDU. SS Checks that [5*CFN - *UE DTX DRX Offset*] **mod** *MAC DTX Cycle* = 0 is satisfied
5	→		MAC es PDU containing 1 RLC PDU from LCH 1	This step is repeated until all remaining 4 RLC SDU's are received. SS Checks that [5*CFN - *UE DTX DRX Offset*] **mod** *MAC DTX Cycle* = 0 is satisfied for each of the PDUs.
6	←		1 RLC PDUs on LCH 1	
7	→		MAC es PDU containing 1 RLC PDU from LCH 1	SS Checks that [5*CFN - *UE DTX DRX Offset*] **mod** *MAC DTX Cycle* = 0 is satisfied
				Steps 6 & 7 are repeated 10 times

Specific Message Contents

None

7.1.6.3.4.5 Test requirements

1. In step 4, the CFN of loop backed PDU satisfies [5*CFN - *UE DTX DRX Offset*] **mod** *MAC DTX Cycle* = 0.
2. In step 2, the CFN of transmitted SI satisfies [5*CFN - *UE DTX DRX Offset*] **mod** *MAC DTX Cycle* = 0
3. In step 5, for all 4 transmissions, the CFN of the loop backed PDUs satisfies [5*CFN - *UE DTX DRX Offset*] **mod** *MAC DTX Cycle* = 0
4. In step 7, for all iterations, the CFN of loop backed PDU satisfies [5*CFN - *UE DTX DRX Offset*] **mod** *MAC DTX Cycle* = 0

7.1.6.3.5 MAC-es/e transport block size selection(1.28Mcps TDD)

7.1.6.3.5.1 Definition and applicability

All UEs which support E-DCH.

7.1.6.3.5.2 Conformance requirement

Extract from TS 25.321 clause 9.2.6.4

For 1.28 Mcps TDD, the normative description of the mapping between the TB index and the corresponding transport block size is provided in Annex BC.

[…]

Reference(s)

TS 25.321 clause 9.2.6.4

7.1.6.3.2.3 Test purpose

To verify that the UE transmits all possible transport block sizes within the UE capability.

7.1.6.3.2.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

UE in idle mode

The following parameters are specific for this test case:

Sub-tests and test points for UE HS-DSCH physical layer category 6. Testing of UE supporting UE HS-DSCH physical layer category 13 to 15 shall be performed in accordance to test parameters, sub-tests and test points for UE HS-DSCH physical layer category 10

Common for all UE HS-DSCH categories:

Parameter	Value
MAC-d PDU size	336 bits
MAC-hs receiver window size	16
Number of HARQ processes	1
Number of reordering queues	1

Common for all UE E-DCH categories:

Parameter	Value
T-WAIT	200 ms (see 25.331 10.3.6.103)

Specific depending on E-DCH category:

Parameter	E-DCH Category	Value
RLC Transmission window size	1 to 5	512
	6	1536
E-TFCI table	1 to 6	See table 7.1.6.3.2.5

Specific depending on HS-DSCH category:

Parameter	HS-DSCH Category	Value
RLC Receiving window size	1 to 6	512
	7 and 8	1536
	9 and 10	2047
	11 and 12	1024

The mapping between the chosen E-TFC index and the corresponding E-DCH transport block size is given in the following tables:

Table 7.1.6.3.5.1 5ms TTI E-DCH Transport Block Size Table 0

	Category 1-2			Category 3-6				
TB index	1 Timeslot TBS	2 Timeslots TBS	3 Timeslots TBS	1 Timeslot TBS	2 Timeslots TBS	3 Timeslots TBS	4 Timeslots TBS	5 Timeslots TBS
0	23	23	23	23	23	23	23	23
1	116	116	116	116	116	116	116	116
2	162	162	162	162	162	162	162	162
3	167	169	170	169	171	172	173	173
4	173	177	180	177	181	184	186	186
5	179	186	190	186	192	196	199	199
6	186	195	200	194	204	209	213	213
7	192	204	211	204	216	223	229	229
8	199	214	222	213	229	238	245	245
9	206	224	235	223	242	254	263	263
10	213	234	247	234	257	271	282	282
11	221	246	261	245	272	289	302	302
12	229	257	275	257	288	309	324	324
13	237	270	290	269	306	329	347	347
14	245	282	306	282	324	351	372	372
15	254	296	323	295	343	375	399	399
16	263	310	341	309	364	400	427	427
17	272	325	359	324	385	427	458	458
18	282	340	379	339	408	455	491	491
19	292	356	400	355	433	486	526	526
20	302	373	422	372	459	518	564	564
21	313	391	445	390	486	553	605	605
22	324	410	469	408	515	589	648	648
23	335	429	495	427	546	629	695	695
24	347	450	522	448	578	671	745	745
25	359	471	550	469	613	716	799	799
26	372	493	581	491	649	764	856	856
27	385	517	612	514	688	815	918	918
28	399	541	646	539	729	869	983	983
29	413	567	681	564	773	927	1054	1054
30	428	594	718	591	819	989	1130	1130
31	443	622	758	619	867	1055	1211	1211
32	458	652	799	648	919	1125	1298	1298
33	475	683	843	679	974	1201	1392	1392
34	491	716	889	711	1032	1281	1492	1492
35	509	750	937	745	1094	1366	1599	1599
36	527	785	989	780	1159	1458	1714	1714
37	545	823	1043	817	1228	1555	1837	1837
38	565	862	1100	856	1301	1659	1969	1969
39	585	903	1160	896	1379	1770	2110	2110
40	605	946	1223	938	1461	1888	2262	2262
41	627	991	1290	983	1548	2014	2425	2425
42	649	1038	1361	1029	1640	2148	2599	2599
43	672	1087	1435	1078	1738	2292	2786	2786
44	696	1139	1514	1129	1841	2445	2986	2986
45	720	1193	1596	1183	1951	2608	3200	3200
46	746	1250	1684	1239	2067	2782	3430	3430
47	772	1309	1776	1297	2191	2968	3677	3677
48	799	1372	1873	1359	2321	3166	3941	3941
49	827	1437	1975	1423	2460	3377	4224	4224
50	857	1505	2083	1491	2606	3603	4528	4528
51	887	1577	2197	1561	2762	3843	4853	4853
52	918	1652	2317	1635	2926	4100	5202	5202
53	951	1730	2444	1712	3101	4374	5576	5576
54	984	1813	2578	1794	3285	4666	5976	5976
55	1019	1899	2719	1878	3481	4977	6406	6406
56	1055	1989	2867	1967	3689	5310	6866	6866
57	1092	2084	3024	2060	3908	5664	7359	7359

58	1131	2183	3189	2158	4141	6042	7888	7888
59	1171	2287	3364	2260	4388	6446	8455	8455
60	1212	2395	3547	2367	4650	6876	9062	9062
61	1255	2509	3741	2479	4927	7335	9713	9713
62	1300	2629	3946	2597	5220	7825	10411	10411
63	1346	2754	4162	2720	5532	8348	11160	11160

Table 7.1.6.3.5.2 Applicable E-TFS indexes for sub-tests 1 to 4 and UE E-DCH categories 1 to 6.

			Applicable E-TFS indexes					
Sub-test	**E-DCH TTI**	**E-DCH Transport Block Size Table**	**Category 1**	**Category 2**	**Category 3**	**Category 4**	**Category 5**	**Category 6**
1	5ms	5ms TTI Table 0, Table 7.1.6.3.5.1	0..101	0..119	0..119	0..127	0..127	0..127
NOTE 1: Applicable indexes depends on the UE capability of "Maximum number of bits of an E-DCH transport block transmitted within a 5 ms E-DCH TTI" and "Maximum number of bits of an E-DCH transport block transmitted within a 5 ms E-DCH TTI" as specified in TS 25.306 clause 5.1.								

Test procedure

a) The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.5.4.7.2 using condition A11 as specified in clause 9.1 of TS 34.108.. See note 1.

b) The SS closes the test loop using UE test loop mode 1 and configuring the UL RLC SDU size to be equal to the received DL SDU size (i.e. not setting the UL RLC SDU size parameter).

c) SS sets *E-TFC index* = 0.

d) The SS removes the scheduling grant for E-DCH for the UE.

e) The SS transmits two RLC SDUs of size (*TBS_size* – 18)*160 / 336 – 8 bits, where the value for *TBS_size* is derived from the applicable E-TFS index table as specified in Table 7.1.6.3.5.2 for the sub-test.

f) The SS waits for an SI to be received that indicates that the two RLC SDUs are available for transmission (can be identified from the content of the SI)

g) The SS issues an absolute grant that allows the UE to send at maximum bit rate

h) The SS waits until data is received and verifies that the looped back SDU has correct content

i) The SS verifies that the received E-TFC has correct size

j) The SS increments the parameter *E-TFC index* by one. If the *E-TFC index* is supported by the UE under test according to Table 7.1.6.3.5.2 then continue with step d else continue with step k.

k) The SS opens the UE test loop.

l) The SS release the radio bearer.

m) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The SS configures the physical channel parameters according to the actual UE category under test.

NOTE 2: The test data for transport channels on HS-DSCH and E-DCH is divided into 2 RLC SDUs to keep the SDU size not to exceed 1500 octets (limit of SDU size in SM). Calculation of RLC SDU size:

*RLC SDUs of size = Number of MAC-d PDUs * RLC payload size* / 2 – 8 bits (size of 7 bit length indicator and expansion bit) where the *RLC payload size* is 320 bits and the *Number of MAC-d PDUs* = (*TBS size – MAC-e header size – MAC-es header size*) / *MAD-d PDU size* = (*TBS size* – 18) / 336. This gives that the *RLC SDUs of size* = (TBS size – 18) *160 / 336 – 8 bits.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
2	<--		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
4	<--		RRC CONNECTION SETUP (CCCH)	RRC
5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6	-->		SERVICE REQUEST (DCCH)	GMM
7	<--		SECURITY MODE COMMAND	RRC see note 1
8	-->		SECURITY MODE COMPLETE	RRC see note 1
9	<--		ACTIVATE RB TEST MODE (DCCH)	TC
10	-->		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
11	<--		RADIO BEARER SETUP (DCCH)	RRC. For the PS radio bearer the 'pdcp info' IE shall be omitted.
12	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
13	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 with no "LB Setup RB IE#k" parameter set (UE shall return an UL RLC SDU with the same size as the received RLC SDU in downlink)
14	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
15	SS			The SS creates two RLC SDUs according to the E-TFC under test
16	←		Removal of absolute grant	Signalling value 1
17	<--		DOWNLINK RLC SDU#1 DOWNLINK RLC SDU#2	Send test data. The MAC-hs PDU contains 4 RLC SDUs
18	→		SI indicating 2 RLC SDUs	This can be verified from the indicated Total E-DCH Buffer Status (TEBS)
19	<--		Absolute grant allowing the UE to transmit at maximum bit rate.	
20	-->		UPLINK RLC SDUs	The SS checks that the content of the received UL RLC SDUs are correct
21	SS			The SS calculates test data for next E-TFC index and repeat steps 16 to 19 until all applicable E-TFC indexes have been tested.
22	<--		OPEN UE TEST LOOP (DCCH)	TC
23	-->		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
24			RB RELEASE	RRC
25	<--		DEACTIVATE RB TEST MODE	TC Optional step
26	-->		DEACTIVATE RB TEST MODE COMPLETE	TC Optional step
Note 1: In addition to activate integrity protection Step 6 and Step 7 are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.				

7.1.6.3.2.5 Test requirements

1. In step 20, the SS verifies that the received E-TFC has the correct size
2. In step 20, the SS shall receive 2 RLC SDUs with the same content as sent in downlink.

7.1.6.4 MAC-es/e - E-DCH retransmissions

7.1.6.4.1 MAC-es/e process handling

7.1.6.4.1.1 Definition and applicability

All UEs which support E-DCH with 2ms TTI. (FDD)/ All UEs which support E-DCH(1.28Mcps TDD).

7.1.6.4.1.2 Conformance requirement

Extract from 25.331:

1> for FDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> if the TTI configured on the E-DCH equals 2ms, and the IE "2ms non-scheduled transmission grant HARQ process allocation" is configured for this MAC-d flow:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e PDU transmitted by HARQ processes allowed by the IE "2ms non-scheduled transmission HARQ process allocation", with a total contribution from this MAC-d flow not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

1> for TDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e PDU transmitted by HARQ processes designated as non scheduled (Ids 4 – 7) in the TTIs indicated (as determined from the IEs "Activation Time", "Resource Duration" and "Resource Periodicity").

Extract from 25.331:

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> configure the UL E-DPCCH in accordance with the stored IE "E-DPCCH" configuration;

2> configure the MAC with the stored IE "E-DPDCH" configuration and/or the information contained in IE "Scheduled Transmission configuration".

1> for TDD:

2> configure the E-RUCCH with the stored E-RUCCH configuration;

2> configure the MAC with the stored E-PUCH configuration.

Extract from 25.321:

RRC can allocate non-scheduled transmission grants to individual MAC-d flows in order to reduce the transmission delays. When a 2ms TTI is configured each non-scheduled grant is applicable to the specific set of HARQ processes indicated by RRC. The applicability of scheduled grants can be also restricted to a specific set of HARQ processes when a 2ms TTI is configured. HARQ process restriction and reservation is under the control of the serving cell Node B and indicated to the UE by RRC

Extract From 25.321 clause 11.9.1.4:

RRC can allocate non-scheduled transmission grants to individual MAC-d flows in order to reduce the transmission delays.

The UE shall determine whether to take scheduled or non-scheduled grants into account in the upcoming transmission. If neither are supposed to be taken into account (i.e. the TTI is not available for non-scheduled transmission and no Grant for scheduled transmission has been received) then no grant shall be assumed to exist. If a grant exists then the transmission format and data allocation shall follow the requirements below.

Reference(s)

TS 25.321 clauses 11.8.1.4, 11.9.1.4,. TS 25.331 clauses 8.6.5.18 and 8.6.6.37

7.1.6.4.1.3 Test purpose

To verify that the UE performs transmissions and retransmissions in the correct MAC-es process.

To verify that the UE uses only the allowed HARQ processes for scheduled and non-scheduled transmissions.

7.1.6.4.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4d(FDD) /6.11.5.4.7.7(1.28Mcps TDD) using condition A15(FDD) /A14(1.28Mcps TDD) as specified in clause 9.1 of TS 34.108. The following parameters are specific for this test case with the logical channel, transport channel and queue identities set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25
8 (LCH2)	3	2	RB17
Note: The RAB combination also includes SRBs on E-DCH on MAC-d flow 1 which is not used in the test case			

The following parameters are specific for this test case:

Parameter	Value
TTI for Radio bearer	2 ms(FDD)
TTI for Radio bearer	5 ms(1.28Mcps TDD)
Periodicity for scheduling info	No periodic scheduling info
E-TFCI table	Table 0 for 2 ms TTI
E-TFCI table	5ms TTI E-DCH Transport Block Size Table 0(1.28Mcps TDD)
HARQ RV Configuration	rv0

The UE is placed into UE test loop mode 1 with the UL SDU size set to 39 octets.

Test procedure

In this test procedure the UE is configured with two logical channels, with Id 7 (LCH 1) and 8 (LCH2). LCH 1 is mapped to MAC-d flow 2 and LCH 2 is mapped to MAC-d flow3. The MAC-d flow 2 has been configured with non-scheduled transmissions allowed in HARQ process 1(FDD) / one HARQ process of 4 to 7 (1.28Mcps TDD), with a rate exceeding 1 SDU/TTI and the value of the “Max MAC-e PDU contents size” is 500 bits. MAC-d flow 3 has been configured with a scheduled transmission allowed in HARQ process 2/ one HARQ process of 0 to 3(1.28Mcps TDD)..

a) The SS has not issued any scheduling grant for E-DCH to the UE

b) The SS transmits 1 SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH 1

c) The SS waits until data is received and checks that the data is received in HARQ process 1(FDD) / one HARQ process of 4 to7 (1.28Mcps TDD)

d) The SS sends a HARQ NACK

e) The SS waits until the retransmission is received and checks that the data is received in HARQ process 1(FDD) / one HARQ process of 4 to7 (1.28Mcps TDD)

f) The SS transmits 8 SDU’s of size 40 bytes (plus 1 byte RLC length indicator) on LCH 2

g) The SS waits until an SI is received.

h) The SS issues primary absolute grant corresponding to 1 RLC PDU of size 41 octets per TTI (signalling value 4), with Absolute Grant Scope set as "All HARQ processes"(FDD)/ The SS issues absolute grant corresponding to 1 RLC PDU of size 41 octets per TTI(1.28Mcps TDD).

i) The SS waits until data is received and checks that the data is received in HARQ process 2/ one HARQ process of 0 to 3(1.28Mcps TDD).

j) The SS transmits 8 SDU's of size 40 bytes (plus 1 byte RLC length indicator) on LCH 1

k) The SS waits until data is received and checks that the data is received in HARQ process 1(FDD) / one HARQ process of 4 to7 (1.28Mcps TDD)

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		1 RLC PDU on LCH 1	
2	→		MAC-es PDU containing 1 RLC PDU	
3	←		HARQ NACK	
4	→		MAC-es PDU containing 1 RLC PDU	
5	←		8 RLC SDU's on LCH 2	
6	→		SI indicating data on LCH 2	
7	←		Primary Absolute grant allowing the UE to transmit 1 RLC PDU per TTI	Signalling value 4
8	→		MAC-es PDU containing 1 RLC PDU	PDU shall be received in HARQ process 2/ one HARQ process of 0 to 3(1.28Mcps TDD). This step is repeated until all 8 RLC SDU's are received on LCH2.
9	←		8 RLC SDU's on LCH 1	
10	→		MAC-es PDU containing 1 RLC PDU	PDU shall be received in HARQ process 1(FDD) / one HARQ process of 4 to7 (1.28Mcps TDD). This step is repeated until all 8 RLC SDU's are received on LCH1.

Specific Message Contents

None

7.1.6.4.1.5 Test requirements

1. In step 2 the SS shall receive a MAC-es PDU in HARQ process 1(FDD) / one HARQ process of 4 to7 (1.28Mcps TDD).

2. In step 4 the SS shall receive a MAC-es PDU in HARQ process 1(FDD) / one HARQ process of 4 to7 (1.28Mcps TDD).

3. In step 8 the SS shall receive all MAC-es PDUs in HARQ process 2/ one HARQ process of 0 to 3(1.28Mcps TDD).

4. In step 10 the SS shall receive all MAC-es PDUs in HARQ process 1(FDD) / one HARQ process of 4 to7 (1.28Mcps TDD).

7.1.6.4.2 MAC-es/e maximum number of retransmissions

7.1.6.4.2.1 Definition and applicability

All UEs which support E-DCH.

7.1.6.4.2.2 Conformance requirement

Extract From 25.321 clause 11.8.1.4:

For each MAC-d flow, RRC configures MAC with a HARQ profile and a multiplexing list. Additionally, RRC configures MAC with a power offset for "Control-only" transmissions. This power offset and a maximum number of HARQ transmissions of 8 will be used to define a HARQ profile for “Control-only” transmissions which will be used, in case the Scheduling Information needs to be transmitted without any higher-layer data. The HARQ profile includes the power offset and maximum number of HARQ transmissions to use for this MAC-d flow. The multiplexing list identifies for each MAC-d flow(s), the other MAC-d flows from which data can be multiplexed in a transmission that uses the power offset included in its HARQ profile.

[..]

The E-TFC selection function shall provide this MAC-e PDU and transmission HARQ profile to the HARQ entity. The maximum number of HARQ transmissions and the power offset in this profile, shall be set respectively to the maximum of the Max Number of HARQ Transmissions of the HARQ profiles from all the MAC-d flows from which data is multiplexed into the transmission and to the Nominal Power Offset. The HARQ entity shall also be informed of whether the transmission includes Scheduling Information and whether this information is sent by itself or with higher-layer data.

Extract From 25.321 clause 11.9.1.4:

[..]

For each MAC-d flow, RRC configures MAC-e with a HARQ profile and multiplexing list. Additionally, RRC configures MAC with a power offset in case the Scheduling Information needs to be transmitted without any higher-layer data. The HARQ profile includes the power offset and maximum number of HARQ transmissions to use for this MAC-d flow. For 1.28 Mcps TDD, the HARQ profile also includes a retransmission timer attribute. The multiplexing list identifies for each MAC-d flow(s), the other MAC-d flows for which data can be multiplexed in a transmission that uses the power offset included in its HARQ profile.

[..]

The E-TFC selection function shall provide this MAC-e PDU and transmission HARQ profile to the HARQ entity. The selected E-TFC is also provided (Note: for 1.28Mcps TDD, the signalled transport block size index, i.e. E-TFCI, is the index of the selected E-TFC in the candidate set.). The maximum number of HARQ transmissions and the power offset in this profile shall be set respectively to the maximum of both the Max Number of HARQ Transmissions and of the power offset of the HARQ profiles from all the MAC-d flows from which data is multiplexed into the transmission. For 1.28 Mcps TDD, the retransmission timer shall be set to the maximum of the retransmission timer value of the HARQ profiles that are permitted to be multiplexed into the transmission. Each HARQ process which is associated with a buffer holding a MAC-e PDU for potential retransmission shall maintain the HARQ profile and the number of re-transmissions that have occurred. For 1.28 Mcps TDD, the HARQ process shall also maintain the value of RTX_TIMER.

Reference(s)

TS 25.321 clause 11.8.1.4, 11.9.1.4

7.1.6.4.2.3 Test purpose

To verify that the UE, when 2 MAC d flows are multiplexed, follows the maximum number of retransmissions according to the HARQ profiles (different values configured for maximum number of retransmissions for each HARQ profile).

7.1.6.4.2.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4d(FDD) /6.11.5.4.7.7(1.28Mcps TDD) using condition A15(FDD) /A14(1.28Mcps TDD) as specified in clause 9.1 of TS 34.108. The logical channel, transport channel, maximum number of retransmissions and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Max. retransmissions	Comment
7 (LCH1)	2	1	2	RB25
8 (LCH2)	3	2	4	RB17
NOTE: The RAB combination also includes SRBs on E-DCH which are not used in the testcase				

The following parameters are specific for this test case:

Parameter	Value
Periodicity for Scheduling Info – no grant	500 ms(FDD)
T-WAIT	200 ms (see 25.331 10.3.6.103)(1.28Mcps TDD)
E-DCH MAC-d flow multiplexing list	11111111 (See 25.331 10.3.5.1b) Note 1
HARQ RV Configuration	rv0
Note 1: This configuration means that all MAC-d flows can be multiplexed in the same TTI	

The UE is placed into UE test loop mode 1 with the UL SDU size set to 39 octets for RB25 and RB17.

Test procedure

The UE is configured with two logical channels, LCH1 (with priority 1) and LCH2 (with priority 2). LCH1 is mapped to MAC-d flow 2 and LCH2 is mapped to MAC-d flow 3. The UE is not given any grant to transmit on E-DCH.

a) The SS has not issued any scheduling grant for E-DCH to the UE

b) The SS transmits one SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

c) The SS waits for an SI to be received that indicates that data is available

d) The SS issues an absolute grant that allows the UE to send with a rate sufficient to accommodate one RLC PDU per TTI (signalling value 4)

e) For each received transmission, the SS sends a negative HARQ acknowledgement and verifies that exactly 2 retransmissions are made by the UE.

f) The SS sets the absolute grant to zero for the UE(FDD only)

g) The SS transmits one SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH2

h) The SS transmits one SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

i) The SS waits for an SI to be received that indicates that data is available on both LCHs.

j) The SS issues an absolute grant that allows the UE to send with a rate sufficient to accommodate two RLC PDUs per TTI (signalling value 5)

k) For each received transmission, the SS sends a negative HARQ acknowledgement and verifies that exactly 4 retransmissions are made by the UE (maximum from the HARQ profiles for LCH1 and LCH2).

NOTE: The UE may send an SI after step g but this SI would only indicate data on LCH2. This SI will be ignored.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		1 RLC PDUs on LCH 1	
2	→		SI showing that data is available for LCH 1	
3	←		Absolute grant allowing the UE to transmit 1 RLC PDU per TTI	Signalling value 4
4	→		MAC es PDU containing 1 RLC PDU from LCH 1	
5	←		HARQ NACK	
6	SS			SS sends a HARQ NACK for each received retransmission. After the second retransmission the SS waits 1 s to verify that no further retransmissions occur.
7	←		Removal of absolute grant	Signalling value 1(FDD only)
8	←		1 RLC PDUs on LCH 2	
9	←		1 RLC PDUs on LCH 1	
10	→		Potential SI indicating data on LCH 2	This SI is ignored by the SS
11	→		SI showing that data is available for LCH 1 and LCH 2	
12	←		Absolute grant allowing the UE to transmit 2 RLC PDUs per TTI	Signalling value 5
13	→		MAC e PDU containing 1 RLC PDU from LCH 1 and 1 RLC PDU from LCH 2 (NOTE1)	
14	←		HARQ NACK	
15	SS			SS sends a HARQ NACK for each received retransmission. After the fourth retransmission the SS waits 1 s to verify that no further retransmissions occur.
NOTE 1: MAC SDU for LCH 1 and 2 can come in any order				

Specific Message Contents

None

7.1.6.4.2.5 Test requirements

1. In step 6, exactly 2 retransmission shall be performed by the UE.
2. In step 15, exactly 4 retransmissions shall be performed by the UE.

7.1.6.4.3 MAC-es/e Correct handling of MAC-es/e reset

7.1.6.4.3.1 Definition and applicability

All UEs which support E-DCH (FDD) / All UEs which support E-DCH(1.28Mcps TDD).

7.1.6.4.3.2 Conformance requirement

For FDD, if a reset of the MAC-es/e entity is requested by upper layers, the UE shall at the activation time indicated by higher layers:

- flush all HARQ processes.
- set CURRENT_TSN to 0 for all the logical channels mapped to E-DCH.

NOTE: In this case, the HARQ entity will not notify the Scheduling Information Reporting function if a flushed MAC-e PDU contained a triggered Scheduling Information (rely on periodic triggering).

For 1.28Mcps TDD, if a reset of MAC-es/e entity is requested by upper layers, the UE shall at the activation time indicated by higher layer:

- flush all HARQ processes;
- set CURRENT_TSN to 0 for all the logical channels mapped to E-DCH;
- stop all active timers (the timers include Retransmission timer, T_SI, T_WAIT, T_RUCCH);
- set CURRENT_RUCCH to 0.

Reference(s)

TS 25.321 clause 11.8.1.7, 11.9.1.6.

7.1.6.4.3.3 Test purpose

The purpose of this test case is to verify that the UE correctly handles a MAC-es/e reset procedure.

7.1.6.4.3.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4c (FDD) /6.11.5.4.7.6 (1.28Mcps TDD) using condition A12 (FDD) / A11 (1.28Mcps TDD) as specified in clause 9.1 of TS 34.108 as specified in clause 9.1 of TS 34.108. The following parameters are specific for this test case:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25

The following parameters are specific for this test case:

Parameter	Value	
E-DCH MAC-d flow maximum number of retransmissions	15	
E-DCH MAC-d flow retransmission timer	>40	Only for 1.28Mcps TDD
HARQ RV Configuration	rv0	

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 39 octets.

Test procedure

In this test procedure The UE is configured with one logical channel, with Id 7 (LCH1).

a) SS has not issued any scheduling grant for E-DCH to the UE.

b) SS transmits 1 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

c) SS waits until an SI is received.

d) The SS issues primary absolute grant corresponding to 1 RLC PDU of size 41 octets per TTI (signalling value 4), with Absolute Grant Scope set as "All HARQ process" (FDD) / The SS issues absolute grant corresponding to 1 RLC PDU of size 41 octets per TTI(1.28Mcps TDD).

e) SS starts receiving loop backed RLC PDU's.

f) The SS sends HARQ ACK.

g) SS transmits 1 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

h) SS starts receiving loop backed RLC PDU's.

i) The SS continuously sends HARQ NACKs. The UE continuously performs retransmissions of the same PDU.

j) The SS waits 40 ms after completing step h), then sends a Radio Bearer Reconfiguration message with the MAC-es/e reset indicator set to true and activation time set to "now".

k) SS transmits 1 SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

l) SS starts receiving loop backed RLC PDU's.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		1 RLC PDUs on LCH 1	
2	→		SI indicating data on LCH 1	
3	←		Primary Absolute grant (FDD) / Absolute grant (1.28Mcps TDD) allowing the UE to transmit 1 RLC PDU per TTI	Signalling value 4
4	→		MAC es PDU containing 1 RLC PDU's from LCH 1	
5	←		SS sends HARQ ACK	
6	←		1 RLC PDUs on LCH 1	
7	→		MAC es PDU containing 1 RLC PDU's from LCH 1	
8	←		SS continuously sends HARQ NACKs	UE continuously performs retransmissions of the same PDU
9	←		SS triggers a Radio Bearer Reconfiguration	MAC-es/e reset indicator set to "TRUE" and activation time set to "now"
10	←		1 RLC PDUs on LCH 1	
11	→		MAC es PDU containing 1 RLC PDUs from LCH 1	

Specific Message Contents

None

7.1.6.4.3.5 Test requirements

1. In step 9, UE shall abort transmission of the MAC-e PDU
2. In step 11, UE shall start sending loop backed PDU, with one RLC PDU per TTI.
3. In step 11, The TSN field in the MAC-es PDU shall be set to zero.

7.1.6a E-DCH MAC-es/e for 3.84 and 7.68Mcps TDD

7.1.6a.1 MAC-es/e multiplexing

7.1.6a.1.1 MAC-es/e multiplexing without RRC restrictions

7.1.6a.1.1.1 Definition and applicability

All UEs which support E-DCH and 3.84Mcps or 7.68Mcps TDD.

7.1.6a.1.1.2 Conformance requirement

From 25.321 clause 9.1.5:

In the case of E-DCH there are two MAC sublayers, MAC-e and MAC-es. MAC-es sits on top of MAC-e and receives PDUs directly from MAC-d. MAC-es SDUs (i.e. MAC-d PDUs) of the same size, coming from a particular logical channel can be multiplexed together into a single MAC-es payload. To this payload is prepended the MAC-es header (see subclause 9.2.4.1). The number of PDUs, as well as the DDI value identifying the logical channel, the MAC-d flow

and the MAC-es SDU size are included as part of the MAC-e header. In case sufficient space is left in the E-DCH transport block or if Scheduling Information needs to be transmitted, an SI will be included at the end of the MAC-e PDU (see subclause 9.2.4.2). Multiple MAC-es PDUs, but only one MAC-e PDU can be transmitted in a TTI.

[…]

From 25.331 clause 8.6.5.18:

1> if the IE "E-DCH MAC-d flow multiplexing list" is included:

2> only multiplex MAC-d PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed in accordance to the IE "E-DCH MAC-d flow multiplexing list".

[…]

Reference(s)

TS 25.321 clause 9.1.5, TS 25.331 clause 8.6.5.18

7.1.6a.1.1.3 Test purpose

The purpose of this test case is to verify that the UE multiplexes data from different logical channels in the same TTI when no restriction on the multiplexing is configured by RRC.

7.1.6a.1.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4h using condition A15 as specified in clause 9.1 of TS 34.108. The logical channel, transport channel and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25
8 (LCH2)	3	2	RB17
Note: The RAB combination also includes SRBs on E-DCH on MAC-d flow 1 which is not used in the testcase			

The following parameters are specific for this test case:

Parameter	Value
T-RUCCH	200ms (see 25.331 10.3.6.103)
E-DCH MAC-d flow multiplexing list	11111111 (See 25.331 10.3.5.1b) Note 1
Note 1: This configuration means that all MAC-d flows can be multiplexed in the same TTI	

The UE is placed into UE test loop mode 1 with the UL SDU size set to 39 octets for RB25 and RB17.

Test procedure

The UE is configured with two logical channels, LCH1 (with priority 1) and LCH2 (with priority 2). LCH1 is mapped to MAC-d flow 2 and LCH2 is mapped to MAC-d flow 3.

a) The SS has not issued any scheduling grants for E-DCH to the UE

b) The SS transmits one SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH2

c) The SS transmits one SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

d) The SS waits for an SI to be received that indicates that data is available on both logical channels (can be identified from the content of the SI)

e) The SS issues an absolute grant that allows the UE to send with a high rate (signalling value 10, code resource related value 0 (i.e. SF1) and timeslot resource related information set to indicate all timeslots on which PUCH can be allocated for TDD only; thus allowing a rate well above 2 SDUs/TTI)

f) The SS waits until data is received and verifies that data from the two LCHs is received in the same TTI

NOTE: The UE may send an SI after step 1 but this SI would only indicate data on LCH2. This SI will be ignored.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		1 RLC PDU on LCH 2	
2	←		1 RLC PDU on LCH 1	
3	→		Potential SI indicating data on LCH 2	This SI is ignored by the SS
4	→		SI indicating data on LCH 1 and LCH 2	This can be verified from the indicated fraction of data on LCH1
5	←		Absolute grant allowing UE to transmit on E-DCH	This grant must be sufficiently high to allow a rate corresponding to at least 2 RLC PDUs/TTI, signalling value 10
6	→		MAC e/es PDU containing 1 RLC PDU on LCH 1 and one RLC PDU on LCH 2	

Specific Message Contents

None

7.1.6a.1.1.5 Test requirements

1. After step 2 the SS shall receive an SI indicating that data is available on LCH 1 and LCH 2 but no RLC PDUs shall be received

2. In step 6, the SS shall receive 1 RLC PDU on LCH 1 and one RLC PDU on LCH 2 in the same TTI

7.1.6a.1.2 MAC-es/e multiplexing with RRC restrictions

7.1.6a.1.2.1 Definition and applicability

All UEs which support E-DCH and 3.84Mcps or 7.68Mcps TDD.

7.1.6a.1.2.2 Conformance requirement

From 25.321 clause 9.1.5:

In the case of E-DCH there are two MAC sublayers, MAC-e and MAC-es. MAC-es sits on top of MAC-e and receives PDUs directly from MAC-d. MAC-es SDUs (i.e. MAC-d PDUs) of the same size, coming from a particular logical channel can be multiplexed together into a single MAC-es payload. To this payload is prepended the MAC-es header (see subclause 9.2.4.1). The number of PDUs, as well as the DDI value identifying the logical channel, the MAC-d flow and the MAC-es SDU size are included as part of the MAC-e header. In case sufficient space is left in the E-DCH transport block or if Scheduling Information needs to be transmitted, an SI will be included at the end of the MAC-e PDU (see subclause 9.2.4.2). Multiple MAC-es PDUs, but only one MAC-e PDU can be transmitted in a TTI.

[…]

From 25.331 clause 8.6.5.18:

1> if the IE "E-DCH MAC-d flow multiplexing list" is included:

2> only multiplex MAC-d PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed in accordance to the IE "E-DCH MAC-d flow multiplexing list".

[…]

Reference(s)

TS 25.321 clause 9.1.5, TS 25.331 clause 8.6.5.18

7.1.6a.1.2.3 Test purpose

The purpose of this test case is to verify that the UE does not multiplex data from different logical channels in the same TTI when the multiplexing has been restricted by RRC.

7.1.6a.1.2.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4d using condition A15 as specified in clause 9.1 of TS 34.108.The logical channel, transport channel and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 LCH1)	2	1	RB25
8 (LCH2)	3	2	RB17
Note: The RAB combination also includes SRBs on E-DCH on MAC-d flow 1 which is not used in the test case			

The following parameters are specific for this test case:

Parameter	Value
T-RUCCH	200ms (see 25.331 10.3.6.103)
E-DCH MAC-d flow multiplexing list	00000000 (See 25.331 10.3.5.1b) Note 1
Note 1: This configuration means that no multiplexing is allowed	

The UE is placed into UE test loop mode 1 with the UL SDU size set to 39 octets for RB25 and RB17.

Test procedure

The UE is configured with two logical channels, LCH1 (with priority 1) and LCH2 (with priority 2). LCH1 is mapped to MAC-d flow 2 and LCH2 is mapped to MAC-d flow 3.

a) The SS has not issued any scheduling grants for E-DCH to the UE

b) The SS transmits one SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH2

c) The SS transmits one SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

d) The SS waits for an SI to be received that indicates that data is available on both logical channels (can be identified from the content of the SI)

e) The SS issues an absolute grant that allows the UE to send with a high rate (signalling value 10, code resource related value 0 (i.e. SF1) and timeslot resource related information set to indicate all timeslots on which PUCH can be allocated; thus allowing a rate well above 2 SDUs/TTI)

f) The SS waits until data is received and verifies that only data from LCH1 is received in the first TTI

g) The SS verifies that data from LCH2 is received (in a separate TTI from the data from LCH1)

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		1 RLC PDU on LCH 2	
2	←		1 RLC PDU on LCH 1	
3	→		Potential SI indicating data on LCH 2	This SI is ignored by the SS
4	→		SI indicating data on LCH 1 and LCH 2	This can be verified from the indicated fraction of data on LCH1
5	←		Absolute grant allowing UE to transmit on E-DCH	This grant must be sufficiently high to allow a rate corresponding to at least 2 RLC PDUs/TTI, signalling value 10
6	→		MAC e/es PDU containing 1 RLC PDU on LCH 1	
7	→		MAC e/es PDU containing 1 RLC PDU on LCH 2	

Specific Message Contents

None

7.1.6a.1.2.5 Test requirements

1. After step 2 the SS shall receive an SI indicating that data is available on LCH 1 and LCH 2 but no RLC PDUs shall be received

2. In step 6, the SS shall receive 1 RLC PDU on LCH 1 but no data from LCH 2

3. In step 7, the SS shall receive 1 RLC PDU on LCH 2 but no data from LCH 1

7.1.6a.1.3 Correct settings of MAC-es/e header fields

7.1.6a.1.3.1 Definition and applicability

All UEs which support E-DCH and 3.84Mcps or 7.68Mcps TDD.

7.1.6a.1.3.2 Conformance requirement

Extract from 25.321:

[…]

- Transmission Sequence Number (TSN):
  The TSN field provides the transmission sequence number for the MAC-es PDU. This information is used for reordering purposes to support in-sequence delivery to higher layers. The length of the TSN field is 6 bits.

[…]

- Data description indicator (DDI):
  The DDI field identifies the logical channel, MAC-d flow and size of the MAC-d PDUs concatenated into the associated MAC-es PDU. The mapping between the DDI values and the logical channel ID, MAC-d flow and PDU size is provided by higher layers. The length of the DDI field is 6 bits.

  - For FDD: When, due to the quantization in the transport block sizes that can be supported or triggering of the Scheduling Information, the size of the data plus header is less than or equal to the TB size of the E-TFC

selected by the UE minus 24 bits, the DDI value [111111] shall be appended at the end of the MAC-e header and a Scheduling Information shall be concatenated into this MAC-e PDU, where DDI value [111111] indicates that there is a Scheduling Information concatenated in this MAC-e PDU. Otherwise, if the size of the data plus header is less than or equal to the TB size of the E-TFC selected by the UE minus 18 bits, a Scheduling Information shall be concatenated into this MAC-e PDU. In any other case it is understood that another MAC-es PDU or Scheduling Information does not fit and it is therefore not necessary to reserve room in the transport block for an additional DDI field.

- For TDD: When, due to the quantization in the transport block sizes that can be supported or triggering of the Scheduling Information (due to timer expiry, see subclauses 11.9.1.4a and 11.9.1.5), the size of the data plus header is less than or equal to the TB size of the E-TFC selected by the UE minus 29bits, the DDI value [111111] shall be appended at the end of the MAC-e header and a Scheduling Information shall be concatenated into this MAC-e PDU, where DDI value [111111] indicates that there is a Scheduling Information concatenated in this MAC-e PDU. Otherwise, if the size of the data plus header is less than or equal to the TB size of the E-TFC selected by the UE minus 23 bits, a Scheduling Information shall be concatenated into this MAC-e PDU. In any other case it is understood that another MAC-es PDU or Scheduling Information does not fit and it is therefore not necessary to reserve room in the transport block for an additional DDI field.

- Number of MAC-d PDUs (N):
  The number of consecutive MAC-d PDUs corresponding to the same DDI value. The length of the N field is 6 bits.

Reference(s)

TS 25.321 clauses 9.2.4.1, 9.2.4.2

7.1.6a.1.3.3 Test purpose

The purpose of this test case is to verify that the UE sets the MAC-es/e header fields in a correct way.

7.1.6a.1.3.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4h using condition A15 as specified in clause 9.1 of TS 34.108. The logical channel, transport channel and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25
8 (LCH2)	3	2	RB17
Note: The RAB combination also includes SRBs on E-DCH on MAC-d flow 1 which is not used in the testcase			

The following parameters are specific for this test case:

Parameter	Value
T-RUCCH	200ms (see 25.331 10.3.6.103)
E-DCH MAC-d flow multiplexing list	11111111 (See 25.331 10.3.5.1b) Note 1
Note 1: This configuration means that all MAC-d flows can be multiplexed in the same TTI	

The UE is placed into UE test loop mode 1 with the UL SDU size set to 39 octets for RB25 and RB17.

Test procedure

The UE is configured with two logical channels, LCH1 (with priority 1) and LCH2 (with priority 2). LCH1 is mapped to MAC-d flow 2 and LCH2 is mapped to MAC-d flow 3.

a) The SS has not issued any scheduling grant for E-DCH to the UE

b) The SS transmits 4 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH2

c) The SS issues an absolute grant that allows the UE to send with a high rate (signalling value 10, code resource related value 0 (i.e. SF1) and timeslot resource related information set to indicate all timeslots on which PUCH can be allocated, allowing rates well above 5 SDUs/TTI)

d) The SS waits until data is received and checks the values of the header parameters

e) The SS removes the scheduling grant for E-DCH for the UE

f) The SS transmits three SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH2

g) The SS transmits two SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

h) The SS issues an absolute grant that allows the UE to send with a high rate (signalling value 10, allowing rates well above 5 SDUs/TTI)

i) The SS waits until data is received and checks the values of the header parameters

j) The SS transmits two SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH2

k) The SS waits until data is received and checks the values of the header parameters

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		4 RLC PDUs on LCH 2	
2	→		SI indicating data on LCH 2	
3	←		Absolute grant allowing UE to transmit on E-DCH	This grant must be sufficiently high to allow a rate corresponding to at least 5 RLC PDUs/TTI
4	→		1 MAC-es PDU containing 4 RLC PDUs on LCH 2	SS checks header fields
5	←		Removal of scheduling grant for UE	
6	←		3 RLC PDUs on LCH 2	
7	←		2 RLC PDUs on LCH 1	
8	→		Potential SI indicating data on LCH 2	This SI is ignored by the SS
8a			SI indicating data on LCH1 and LCH 2	
9	←		Absolute grant allowing UE to transmit on E-DCH	This grant must be sufficiently high to allow a rate corresponding to at least 5 RLC PDUs/TTI,
10	→		2 MAC-es PDUs containing 2 RLC PDUs on LCH 1 and 3 RLC PDUs on LCH 2 respectively	SS checks header fields
11	←		2 RLC PDUs on LCH 2	
12	→		1 MAC-es PDU containing 2 RLC PDUs on LCH 2	SS checks header fields

Specific Message Contents

None

7.1.6a.1.3.5 Test requirements

1. After step 4, the SS shall receive 1 MAC-es PDU shall be received where:

   - The TSN is set to 0, DDI is set to 6 and N is set to 4

2. After step 10, the SS shall receive 2 MAC-es PDUs shall be received where:
   - For MAC-es PDU 1: The TSN is set to 0, DDI is set to 5 and N is set to 2
   - For MAC-es PDU 2: The TSN is set to 1, DDI is set to 6 and N is set to 3
3. After step 12, the SS shall receive 1 MAC-es PDU where:
   - The TSN is set to 2, DDI is set to 6 and N is set to 2

7.1.6a.2 MAC-es/e – Scheduling

7.1.6a.2.1 Correct settings of MAC-es/e scheduling information

7.1.6a.2.1.1 Definition and applicability

All UEs which support E-DCH and 3.84Mcps or 7.68Mcps TDD.

7.1.6a.2.1.2 Conformance requirement

This control information is used by UEs to indicate to the Node B the amount of resources they require. Scheduling Information is sent via the E-PUCH in the MAC-e header when the UE is granted resource and by the E-RUCCH when no resource has been granted. Scheduling Information consists of three components as defined in subclause 9.2.6.3.3 -

- Buffer Information: This consists of:
  - Highest priority Logical Channel (HLID)
  - Total E-DCH Buffer Status (TEBS)
  - Highest priority Logical channel Buffer Status (HLBS)

- UE Power Headroom (UPH): The UPH field indicates the ratio of the maximum UE transmission power and the calculated UE transmit power defined as in [18] that would result for β_e equal to 0. The length of UPH is 5 bits.

- Serving and Neighbour Cell Pathloss (SNPL): This may be used by the Node-B to assist with its estimation of the degree of intercell interference each UE will generate and hence the absolute grant power value and physical resources to assign . The length of SNPL is 5 bits.

The length of TEBS field is 5 bits, the values taken by TEBS are shown in Table 9.2.5.3.2-1[in TS25.331]. The length of HLBS is 4 bits, the values taken by HLBS are shown in table 9.2.5.3.2-2 [in TS25.331].

[…]

If a UE has no Grant and the TEBS becomes larger than zero, the transmission of Scheduling Information shall be sent via E-RUCCH.

If the UE has a Grant then Scheduling Information may be included in the MAC-e PDU according to subclause 9.2.4.2. If the UE has a Grant and scheduling information delay timer ≥ T-SCHED then the UE shall include Scheduling Information in the next MAC-e PDU sent and the scheduling information delay timer shall be restarted. If the UE does not receive any Grant before the scheduling information delay timer > T-SCHED + T-RUCCH /2 then the UE shall send scheduling information via the E-RUCCH and shall stop and reset the scheduling information delay timer.

Reference(s)

TS 25.321 clause 9.2.6.3, 11.9.1.4a

7.1.6a.2.1.3 Test purpose

The purpose of this test case is to verify that the UE sends the E-DCH scheduling information with correct content and with correct triggers.

7.1.6a.2.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4h using condition A15 as specified in clause 9.1 of TS 34.108. The logical channel, transport channel and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25
8 (LCH2)	3	2	RB17
Note: The RAB combination also includes SRBs on E-DCH on MAC-d flow 1 which is not used in the testcase			

The following parameters are specific for this test case:

Parameter	Value
T-RUCCH	200 ms (see 25.331 10.3.6.103) Note 1
T-SCHED	160ms (see 25.331 10.3.6.103)
E-DCH MAC-d flow multiplexing list	11111111 (See 25.331 10.3.5.1b) Note 2
E-DCH Transport Block Size Table	0
Note 1: The persistence value will result in the time between sending scheduling information on the E-RUCCH to obe variable, however only a single ASC is defined and thus the persistence is configured to 1. Note 2: This configuration means that all MAC-d flows can be multiplexed in the same TTI	

The UE is placed into UE test loop mode 1 with the UL SDU size set to 39 octets for RB25 and RB17.

Test procedure

The UE is configured with two logical channels, LCH1 (with priority 1) and LCH2 (with priority 2). LCH1 is mapped to MAC-d flow 2 and LCH2 is mapped to MAC-d flow 3.

a) The SS has not issued any scheduling grant for E-DCH to the UE

b) The SS waits for at least 1000 ms and verifies that no SI is received

c) The SS transmits 1 SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH2

d) The SS waits until an SI is received at time **T0**

e) The SS waits until the next SI is received at time **T1** and checks the content

f) The SS transmits 1 SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH 1 at time **T2**

g) The SS waits until the next SI is received at time **T3** and checks the content

h) The SS issues an absolute grant that allows the UE to transmit 1 SDUs/TTI

i) The SS waits until all data has been received

j) The SS removes the scheduling grant for the UE

k) The SS transmits 24 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH 1

l) The SS issues an absolute grant that allows the UE to transmit 1 SDUs/TTI

m) The SS waits until the next SI is received with payload at time **T4**

n) The SS waits until the next SI is received with payload at time **T5**

o) The SS waits until all data is received

p) Void

q) The SS issues an absolute grant that allows the UE to transmit 5 SDUs/TTI

r) The SS transmits 5 SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

s) The SS waits until the 5 SDUs are received and checks that contain both a regular SI and the special DDI (value = 63) NOTE

NOTE: 5 336 bit PDUs and 18 bit Mac-e/es header require a TB size of 1698 bits. The nearest higher TB size is 1730, which is able to additionally hold an SI + the special DDI.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	SS			After the radio bearer has been established the SS waits 1000 ms. No SI shall be received during this time
2	←		1 RLC PDUs on LCH 2	
3	→		SI indicating data on LCH 2	Time **T0**
4	→		SI indicating data on LCH 2	Time **T1**
5	←		1 RLC PDUs on LCH 1	Time **T2**
6	→		SI indicating data on LCH 1 and LCH 2	Time **T3.** Presence of data on LCH 1 and LCH 2 can be verified from the indicated fraction of data on LCH1
7	←		Absolute grant allowing the UE to transmit 1 RLC PDUs per TTI	
8	→		Data on LCH 1 and LCH 2	
8a	←		Removal of absolute grant	
9	←		24 RLC PDUs on LCH 1	
9a	←		Absolute grant allowing the UE to transmit 1 RLC PDUs per TTI	
10	→		Data and SI	Time **T4**
11	→		Data only	
12	→		Data and SI	Time **T5**
13	→		Data only	
14	SS			After all data has been received, SS waits 1000ms. No SI shall be received during this time.
15	←		void	
16	→		void	
17	←		Absolute grant allowing the UE to transmit 5 RLC PDUs per TTI	
18	←		5 RLC PDUs on LCH 1	
19	→		Data and SI	The received transport block shall in addition to the 5 PDUs contain a regular SI and the special DDI (value = 63). As there is no data left in buffers, TEBS is set as 0, HLID is set as '0000' and HLBS is set as 0.
NOTE 1: General timer tolerance as defined by 34.108 sub-clause 4.2.3 applies. NOTE 2: Step 10 and 11 can occur in any order. SS should accept these PDUs in any order and verify the time difference between T5 and T4 as per the test requirement.				

Specific Message Contents

None

7.1.6a.2.1.5 Test requirements

1. In step 1 the SS shall not receive any SI since the UE buffer is empty
2. In step 3 the SS shall receive an SI (content ignored)
3. In step 4 the SS shall receive an SI indicating
   - Total E-DCH Buffer Status (TEBS) Index = 6 ($32 < TEBS \leq 42$).
   - Highest priority Logical channel ID (HLID) = LCH 2.
   - Highest Priority Logical Channel Buffer Status (HLBS) Index = 15 ($82\% < HLBS \leq 100\%$).
4. In step 6 the SS shall receive an SI indicating
   - Total E-DCH Buffer Status (TEBS) Index = 9 ($73 < TEBS \leq 97$).
   - Highest priority Logical channel ID (HLID) = LCH 1.
   - Highest Priority Logical Channel Buffer Status (HLBS) Index = 12 ($45\% < HLBS \leq 55\%$).
5. T1-T0 shall equal 200 ms
6. T3-T2 shall be less then 120 ms. Note 1.
7. T5-T4 shall equal 160ms
8. In step 14, the SS shall not receive any SI since the UE buffer is empty.
9. In step 19, the received transport block shall in addition to the payload include a regular SI and the special DDI (value = 63). TEBS, HLID and HLBS shall be set as zero.

NOTE 1: 120ms = 2 TTI(for Data to be transmitted from RLC to MAC) + Maximum UE test loop delay (10*TTI according to 34.109=100ms).

7.1.6a.2.2 Correct settings of MAC-es/e scheduling information when scheduling delay timer expires

7.1.6a.2.2.1 Definition and applicability

All UEs which support E-DCH and 3.84Mcps or 7.68Mcps TDD.

7.1.6a.2.2.2 Conformance requirement

If the UE has a Grant then Scheduling Information may be included in the MAC-e PDU according to subclause 9.2.4.2. If the UE has a Grant and scheduling information delay timer $\geq$ T-SCHED then the UE shall include Scheduling Information in the next MAC-e PDU sent and the scheduling information delay timer shall be restarted. If the UE does not receive any Grant before the scheduling information delay timer > T-SCHED + T-RUCCH /2 then the UE shall send scheduling information via the E-RUCCH and shall stop and reset the scheduling information delay timer.

Reference(s)

TS 25.321 clause 11.9.1.4a

7.1.6a.2.2.3 Test purpose

The purpose of this test case is to verify that the UE sends the E-DCH scheduling information using the correct trigger when a previous grant has been sent to the UE so the scheduling information delay timer is running but no subsequent grant is sent to the UE.

7.1.6a.2.2.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4h using condition A15 as specified in clause 9.1 of TS 34.108. The logical channel, transport channel and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25
8 (LCH2)	3	2	RB17
Note: The RAB combination also includes SRBs on E-DCH on MAC-d flow 1 which is not used in the testcase			

The following parameters are specific for this test case:

Parameter	Value
T-RUCCH	200 ms (see 25.331 10.3.6.103) Note 1
T-SCHED	160ms (see 25.331 10.3.6.103)
E-DCH MAC-d flow multiplexing list	11111111 (See 25.331 10.3.5.1b) Note 2
Note 1: The persistence value will result in the time between sending scheduling information on the E-RUCCH to obe variable, however only a single ASC is defined and thus the persistence is configured to 1. Note 2: This configuration means that all MAC-d flows can be multiplexed in the same TTI	

The UE is placed into UE test loop mode 1 with the UL SDU size set to 39 octets for RB25 and RB17.

Test procedure

The UE is configured with two logical channels, LCH1 (with priority 1) and LCH2 (with priority 2). LCH1 is mapped to MAC-d flow 2 and LCH2 is mapped to MAC-d flow 3.

a) The SS has not issued any scheduling grant for E-DCH to the UE

b) The SS waits for at least 1000 ms and verifies that no SI is received

c) The SS transmits 10 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH2

d) The SS waits until an SI is received at T0.

h) The SS issues an absolute grant that allows the UE to transmit 1 SDUs/TTI once every 40ms.

i) The SS continues to send absolute grants while waiting to receive a SI from the UE sent in a MAC-e PDU at time T1.

j) The SS stops issuing absolute grants to the UE.

k) The SS waits for a SI from the UE at T2.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	SS			After the radio bearer has been established the SS waits 1000 ms. No SI shall be received during this time
2	←		10 RLC PDUs on LCH 2	
3	→		SI indicating data on LCH 2	Time **T0**
4	←		Absolute grant allowing the UE to transmit 1 RLC PDUs per TTI	This grant is made every 40ms until step 6.
5	→		Data on LCH 2 (no SI included)	
6	→		Data on LCH 2 (with SI included)	Time **T1**
7			SS stops sending absolute grants to the UE	
8	→		E-RUCCH which contains SI	Time **T2**

Specific Message Contents

None

7.1.6a.2.2.5 Test requirements

1. In step 1 the SS shall not receive any SI since the UE buffer is empty
2. In step 3 the SS shall receive an SI (content ignored)
3. T1-T0 shall equal 160 ms
4. T2-T1 shall be less then 260 ms.

7.1.6a.2.3 MAC-es/e correct handling of scheduled transmissions

7.1.6a.2.3.1 Definition and applicability

All UEs which support E-DCH.

7.1.6a.2.3.2 Conformance requirement

Extract from 25.321 clause 9.2.6.2.1:

The Absolute Grant is sent on downlink on a set of configured E-AGCHs from the serving E-DCH cell and allows the Node B scheduler to directly adjust the granted rate and assigned physical resources for UEs under its control. The physical resource assignment indicates to the UE the maximum amount of uplink resources that it may use for a scheduled transmission.

[…]

The absolute grant message itself includes multiple fields that are multiplexed together into between 14 and 28 bits for 3.84/7.68 Mcps TDD and between 23 and 26 bits for 1.28 Mcps TDD (depending on the system configuration) inside the MAC-e of the Node B and then submitted to the physical layer for transmission on the E-AGCH. These fields are:

- Absolute Grant Value:
  For TDD, this field indicates the maximum E-DCH traffic to reference power ratio (E-PUCH/$P_{e\text{-}base}$) per TDD resource unit that the UE is allowed to use on the E-DCH resources associated with the Absolute Grant. A TDD resource unit is defined as one sixteenth of the OVSF codespace in one timeslot. The length of the Absolute Grant Value field for TDD is 5 bits.

- Channelisation Code:
  This field describes the code component of the physical resource grant. For 1.28/3.84 Mcps TDD it comprises an enumerated value of length 5 bits indicating which node on the OVSF code tree has been allocated. For 7.68 Mcps TDD it comprises an enumerated value of length 6 bits indicating which node on the OVSF tree has been

allocated. The mapping between the allocated OVSF and the enumerated node 0…30 for 1.28/3.84 Mcps and 0…62 for 7.68 Mcps is as given in [19].

- Timeslot Resource Related Information:
  This field describes the timeslot component of the physical resource grant and comprises a bitmap of length n_{TRRI} indicating which of the timeslots configured for E-DCH use by RRC have been allocated with the LSB corresponding to the lowest numbered E-DCH timeslot and the MSB corresponding to the highest numbered timeslot. The length of the TRRI field (n_{TRRI}) is 5 bits for 1.28 Mcps TDD and is configurable by RRC on a per-cell basis between 1 and 12 bits for 3.84/7.68 Mcps TDD.

- Resource Duration Indicator:
  Optionally, RRC may configure, on a per-cell basis the presence of a resource duration indicator field on E-AGCH for TDD. If configured as present in a cell, 3 bits are used to indicate the number of TTI's allocated and the spacing between the allocated TTIs via a single grant according to table 9.2.6.2.1-2. If the field is configured as not present on E-AGCH in the cell, a value of 0 is implicitly assumed by the UE corresponding to 1 TTI.

Table 9.2.6.2.1-2 – Resource Duration Indicator (RDI) interpretation

Resource Duration Indicator (3 bits)	TTIs allocated	TTI spacing
0	1	1
1	2	1
2	2	2
3	2	4
4	4	1
5	4	2
6	4	4
7	8	1

- E-AGCH Cyclic Sequence Number (ECSN):
  The ECSN is a 3-bit field used to assist the UE with outer-loop power control of E-AGCH (cf. HCSN for HS-SCCH).

- E-HICH Indicator(EI) (1.28 Mcps TDD only)
  The E-HICH indicator (EI) consists of 2 bits and is used to indicate which E-HICH will convey the acknowledgement indicator for the scheduled UEs.

- E-UCCH Number Indicator (ENI) (1.28 Mcps TDD only)
  The E-UCCH Number Indicator (ENI) is a 3-bit field used to indicate the detailed number of E-UCCH.

[…]

The UE determines whether each TTI is available for scheduled or non-scheduled transmissions.

The parameters applicable to a transmission are timeslots, code and maximum power. In the case of non-scheduled transmission, these parameters are set by RRC and retransmissions and/or new transmissions may occur in frames at intervals set by RRC. For scheduled transmission, the parameters are received via the E-AGCH.

Reference(s)

TS 25.321 clauses 9.2.6.2.1., 11.9.1.3

7.1.6a.2.3.3 Test purpose

To verify that the UE transmits different amount of data when the absolute grant varies.

7.1.6a.2.3.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4f using condition A12 as specified in clause 9.1.2 of TS 34.108. The following parameters are specific for this test case:

Parameter	Value
Periodicity for scheduling info	No periodic scheduling info

The UE is placed into UE test loop mode 1 with the UL SDU size set to 39 octets.

Test procedure

Logical Channel with Id 7 (LCH 1) is mapped to MAC-d flow 2 with priority 1.

a) The SS has not issued any scheduling grant for E-DCH to the UE

b) The SS transmits 4 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH 1

c) SS waits until an SI is received

d) The SS issues an absolute grant that allows the UE to transmit 1 SDU/TTI (absolute grant signalling value 10, Timeslot Resource Related Information 0001, channelisation code 1, Resource Duration Indicator 4)

e) The SS waits until data is received and checks that only 1 SDU/TTI is transmitted

f) The SS waits until all 4 SDUs have been received

g) The SS transmits 8 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH 1

h) SS waits until an SI is received

i) The SS issues an absolute grant that allows the UE to transmit 4 SDUs/TTI (absolute grant signalling value 10, Timeslot Resource Related Information 1111, channelisation code 1, Resource Duration Indicator 1)

j) The SS waits until data is received and checks that only 4 SDUs/TTI is transmitted

k) The SS waits until all 8 SDUs have been received

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		4 RLC PDUs on LCH 1	
1a	→		SI indicating data on LCH 1	
2	←		Absolute grant allowing the UE to transmit 1 RLC PDU per TTI	
3	→		MAC es PDU containing 1 RLC PDU, 4 TTIs in a row	
4	←		8 RLC PDUs on LCH 1	
4a	→		SI indicating data on LCH 1	
5	←		Absolute grant allowing the UE to transmit 4 RLC PDUs per TTI	
6	→		MAC es PDU containing 4 RLC PDUs, 2 TTIs in a row	

Specific Message Contents

None

7.1.6a.2.3.5 Test requirements

1. In step 3, the SS shall receive 1 MAC-es PDU containing 1 RLC PDU. This shall happen 4 TTIs in a row.
2. In step 6, the SS shall receive 1 MAC-es PDU containing 4 RLC PDUs. This shall happen 2 TTIs in a row.

7.1.6a.2.4 MAC-es/e combined non-scheduled and scheduled transmissions

7.1.6a.2.4.1 Definition and applicability

All UEs which support E-DCH.

7.1.6a.2.4.2 Conformance requirement

From 25.321 clause 11.9.1.4:

The transmission format and data allocation shall follow the requirements below:

[…]

- - RRC can allocate non-scheduled transmission grants to individual MAC-d flows in order to reduce the transmission delays;

[…]

- The UE shall determine whether to take scheduled or non-scheduled grants into account in the upcoming transmission. If neither are supposed to be taken into account (i.e. the TTI is not available for non-scheduled transmission and no Grant for scheduled transmission has been received) then no grant shall be assumed to exist. If a grant exists then the transmission format and data allocation shall follow the requirements below;

[…]

- For all logical channels, if the logical channel belongs to a non-scheduled MAC-d flow, its data shall be considered as available up to the largest block size determined for the corresponding non-scheduled grant. If the logical channel does not belong to a non-scheduled MAC-d flow, its data shall be considered as available up to the largest block size determined for the Serving Grant;

From 25.331 clause 8.6.5.18:

1> if the IE "E-DCH MAC-d flow multiplexing list" is included:

2> only multiplex MAC-d PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from E-DCH MAC-d flows with which multiplexing in the same MAC-e or MAC-i PDU is allowed in accordance to the IE "E-DCH MAC-d flow multiplexing list".

[…]

1> for TDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e or MAC-i PDU transmitted by HARQ processes designated as non scheduled (Ids 4 – 7) in the TTIs indicated (for 3.84 Mcps TDD and 7.68 Mcps TDD, as determined from the IEs "Activation Time", "Resource Duration" and "Resource Periodicity"; for 1.28 Mcps TDD, as determined from the IEs "Activation Time", "Subframe number", "Resource Duration" and "Resource Periodicity", and the calculation of assigned Non-scheduled transmission grant is specified in subclause 8.6.6.16a).

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDUs for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH (see [15]).

Reference(s)

TS 25.321 clause 11.9.1.4 , TS 25.331 clause 8.6.5.18

7.1.6a.2.4.3 Test purpose

To verify that the UE is able to handle combined non-scheduled and scheduled transmissions.

7.1.6a.2.4.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4h using condition A15 as specified in clause 9.1 of TS 34.108. The following parameters are specific for this test case with the logical channel, transport channel and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25
8 (LCH2)	3	2	RB17
Note: The RAB combination also includes SRBs on E-DCH on MAC-d flow 1 which is not used in the test case			

The following parameters are specific for this test case:

Parameter	Value
E-DCH MAC-d flow multiplexing list	11111111 (See 25.331 10.3.5.1b) Note 1
Note 1: This configuration means that all MAC-d flows can be multiplexed in the same TTI	

The UE is placed into UE test loop mode 1 with the UL SDU size for LCH 1 set to (25*41)-2 octets and LCH 2 size set to 39 octets.

Test procedure

The UE is configured with a non-scheduled grant on MAC-d flow 2, and the value of the “Max MAC-e PDU contents size” is 500 bits. The UE is not given any grant to transmit on MAC-d flow 3 (LCH 2).

a) The SS has not issued any grant for E-DCH on MAC-d flow 3 (LCH 2)

b) The SS transmits 1 SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH 2

c) The SS transmits 1 SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH 1

d) The SS waits until data is received and checks that the first TTI contains only data on LCH 1

e) The SS issues an absolute grant that allows the UE to send with a high rate on LCH 2 (well above 1 SDU/TTI) immediately after the previous step (i.e. not more than one TTI after the first data on LCH 1 has been looped back).

f) The SS receives data from the two logical channels LCH 1 and LCH 2 in one TTI.

g) The SS removes the scheduling grant for E-DCH for the UE

Expected sequence

Step	Direction		Message	Comments
	UE	SS		

1	←	1 RLC PDU on LCH 2	SDU size is 40 bytes
2	←	1 RLC PDU on LCH 1	SDU size is 40 bytes
2a	→	SI indicating data on LCH 2	Step 2a and 3 can happen in any order
3	→	MAC es PDU containing 1 RLC PDU on LCH 1	
4	←	Absolute grant allowing the UE to transmit with high data rate on LCH 2	Signalling value 31
5	→	MAC es PDU containing 1 RLC PDU on LCH 1 and 1 RLC PDU on LCH 2	Before and after this step, SS continues to receive 1 RLC PDU on LCH 1 per TTI, until complete SDU consisting of 25 PDU's is received.
6	←	Removal of absolute grant	Signalling value 1

Specific Message Contents

None

7.1.6a.2.4.5 Test requirements

1. In step 3, the SS shall receive 1 MAC-es PDU containing 1 RLC PDU on LCH 1.
2. In step 5, the SS shall receive 1 MAC-es PDU containing 1 RLC PDU on LCH 1 and 1 RLC PDU on LCH 2 within the same TTI.

7.1.6a.2.5 MAC-es/e Correct handling of HARQ profile power offsets

7.1.6a.2.5.1 Definition and applicability

All UEs which support E-DCH.

7.1.6a.2.5.2 Conformance requirement

In TDD, rules for E-TFC selection shall be applied as provided below.

UEs shall apply E-TFC selection when invoked by the HARQ entity (see subclause 11.9.1.1.1).

For each MAC-d flow, RRC configures MAC-e with a HARQ profile and multiplexing list. Additionally, RRC configures MAC with a power offset in case the Scheduling Information needs to be transmitted without any higher-layer data. The HARQ profile includes the power offset and maximum number of HARQ transmissions to use for this MAC-d flow. For 1.28 Mcps TDD, the HARQ profile also includes a retransmission timer attribute. The multiplexing list identifies for each MAC-d flow(s), the other MAC-d flows for which data can be multiplexed in a transmission that uses the power offset included in its HARQ profile.

RRC can control the scheduling of uplink data by giving each logical channel a priority between 1 and 8, where 1 is the highest priority and 8 the lowest. E-TFC selection in the UE shall be done in accordance with the priorities indicated by RRC. Logical channels have absolute priority, i.e. the UE shall maximise the transmission of higher priority data.

RRC can allocate non-scheduled transmission grants to individual MAC-d flows in order to reduce the transmission delays.

The UE shall determine whether to take scheduled or non-scheduled grants into account in the upcoming transmission. If neither are supposed to be taken into account (i.e. the TTI is not available for non-scheduled transmission and no Grant for scheduled transmission has been received) then no grant shall be assumed to exist. If a grant exists then the transmission format and data allocation shall follow the requirements below.

For each configured MAC-d flow, a given E-TFC can be in any of the following states:

- Supported state;
- Blocked state.

The E-TFC states are derived according to the following:

- If the transmission is a retransmission then only the E-TFC with the same block size as the original transmission may be in the supported state.

- For 1.28Mcps TDD, only E-TFCs from the E-TFCS (the table of TB sizes) which are consistent with the UE's E-DCH capability category shall be considered for the transmission;

- Only E-TFCs from the E-TFCS (the table of TB sizes) which can be supported by (exactly) the number of slots assigned by the grant shall be considered for the transmission;

- Only E-TFCs which result (for the granted timeslot and code physical resources) in a code rate lying between the maximum and minimum (inclusive) allowable code rates set by RRC [7] shall be considered for the transmission {note: the definition of the term “code rate” as used here is the same as that provided by [18]}. This shall be evaluated for both QPSK and 16-QAM modulation;

- P_{HARQ}, the HARQ profile power offset is selected (the HARQ profile for the transmission shall be selected among the HARQ profiles of MAC-d flows on which the highest priority logical channels with available data are mapped; Scheduling Information power offset shall be used when Scheduling Information is transmitted without any higher-layer data.)

- Only E-TFCs whose calculated transmission power requirement $P_{E\text{-}PUCH}$ (see [18]) is less than or equal to the available or granted power shall be considered for the transmission (note: this requirement does not apply in the case of a retransmission on non-scheduled resources).

For 3.84Mcps/7.68Mcps TDD, from those E-TFCs in the supported state the UE determines the largest block size that it is permitted to transmit within the given constraints.

For 1.28Mcps TDD, from those E-TFCs in the supported state, UE determines a candidate set with up to 64 E-TFCs, including the largest 63 E-TFCs, in addition to the E-TFC dedicated for SI. If the number of E-TFCs in the supported state is not greater than 63, all the E-TFCs in the supported state shall be included in the candidate set. The E-TFCs in the candidate set shall then be re-indexed in an ascending order and numbered from 0 to (Nmax -1), where Nmax is the number of E-TFC in the candidate set. From the candidate set the UE determines the largest block size that is permitted to transmit within the given constraints.

The UE shall select the modulation type associated with the determined E-TFC (note: if an E-TFC is supported by both QPSK and 16-QAM then 16-QAM modulation shall be used if its power requirement ($P_{E\text{-}PUCH}$) is lower than the power requirement for QPSK, otherwise QPSK modulation shall be used).

Data allocation shall then be performed in accordance with the following:

- For all logical channels, if the logical channel belongs to a non-scheduled MAC-d flow, its data shall be considered as available up to the largest block size determined for the corresponding non-scheduled grant. If the logical channel does not belong to a non-scheduled MAC-d flow, its data shall be considered as available up to the largest block size determined for the Serving Grant;

- The data allocation shall maximise the transmission of higher priority data;

- The UE shall select the E-TFC, SF and modulation which minimises the power used (3.84/7.68 Mcps TDD only);

- The UE shall select the E-TFC and modulation which minimises the power used (1.28 Mcps TDD only);

Once an appropriate E-TFC and data allocation are found according to the rules above, the "Multiplexing and TSN Setting" entity shall generate the corresponding MAC-e PDU.

In 1.28Mcps TDD, when Scheduling Information is triggered by timer per subclause 11.9.1.5, the E-TFC selection and data-allocation process shall assume that Scheduling Information has a priority higher than any other logical channel.

The E-TFC selection function shall provide this MAC-e PDU and transmission HARQ profile to the HARQ entity. The selected E-TFC is also provided (Note: for 1.28Mcps TDD, the signalled transport block size index, i.e. E-TFCI, is the index of the selected E-TFC in the candidate set.). The maximum number of HARQ transmissions and the power offset in this profile shall be set respectively to the maximum of both the Max Number of HARQ Transmissions and of the power offset of the HARQ profiles from all the MAC-d flows from which data is multiplexed into the transmission. For 1.28 Mcps TDD, the retransmission timer shall be set to the maximum of the retransmission timer value of the HARQ profiles that are permitted to be multiplexed into the transmission. Each HARQ process which is associated with a

buffer holding a MAC-e PDU for potential retransmission shall maintain the HARQ profile and the number of re-transmissions that have occurred. For 1.28 Mcps TDD, the HARQ process shall also maintain the value of RTX_TIMER.

Reference(s)

TS 25.321 clause 11.9.1.4

7.1.6a.2.5.3 Test purpose

The purpose of this test case is to verify that the UE applies different HARQ profiles from different MAC-d flows to E-DCH transmissions accordingly and in case data from two MAC-d flows is transmitted in the same E-DCH transmission, the UE selects the correct power offset.

7.1.6a.2.5.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4h using condition A15 as specified in clause 9.1 of TS 34.108. The logical channel, transport channel and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25
8 (LCH2)	3	2	RB17
Note: The RAB combination also includes SRBs on E-DCH on MAC-d flow 1 which is not used in the testcase			

The following parameters are specific for this test case:

Parameter	Value
E-DCH MAC-d flow multiplexing list for MAC-d flow 2	11111111 (See 25.331 10.3.5.1b) Note 1
E-DCH MAC-d flow multiplexing list for MAC-d flow 3	11111111 (See 25.331 10.3.5.1b) Note 1
E-DCH MAC-d flow power offset for flow 2	3dB (see 25.331 subclause 10.3.5.1b)
E-DCH MAC-d flow power offset for flow 3	0dB (see 25.331 subclause 10.3.5.1b)
Note 1: This configuration means that all MAC-d flows can be multiplexed in the same TTI	

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 39 octets for RB 25 and RB17.

Test procedure

The UE is configured with two logical channels, LCH1 (with priority 1) and LCH2 (with priority 2). LCH1 is mapped to MAC-d flow 2 and LCH2 is mapped to MAC-d flow 3.

a) SS has not issued any scheduling grant for E-DCH to the UE.

b) SS transmits 2 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

c) SS waits until an SI is received.

d) The SS issues absolute grant corresponding to 1 RLC PDU of size 41 octets per TTI when the Mac-d flow power offset is 3dB (signalling value 5), with Absolute Grant Scope set as "All HARQ processes".

e) SS starts receiving loop backed RLC PDU's.

f) The SS stops issuing absolute grants to the UE.

g) SS transmits 4 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH2.

h) SS waits until an SI is received.

i) The SS issues primary absolute grant corresponding to 2 RLC PDUs of size 41 octets per TTI when the Mac-d flow power offset is 0dB (signalling value 5), with Absolute Grant Scope set as "All HARQ processes".

j) SS starts receiving loop backed RLC PDU's.

k) The SS issues primary absolute grant corresponding to "ZERO GRANT", with Absolute Grant Scope set as "All HARQ processes".

l) SS transmits 2 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH2.

m) SS waits until an SI is received.

n) SS transmits 2 SDUs of size 40 bytes (plus 1 byte RLC length indicator) on LCH1.

o) SS waits until an SI is received.

p) The SS issues primary absolute grant corresponding to 3 RLC PDUs of size 41 octets per TTI when the Mac-d flow power offset is 3dB (signalling value 9), with Absolute Grant Scope set as "All HARQ processes".

q) SS starts receiving loop backed RLC PDU's.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		2 RLC PDUs on LCH 1	
2	→		SI indicating data on LCH 1	
3	←		Primary Absolute grant allowing the UE to transmit 1 RLC PDU per TTI	Signalling value 5
4	→		MAC es PDU containing 1 RLC SDU from LCH 1	This step is repeated until all the RLC SDUs are transmitted
5	←		4 RLC PDUs on LCH 2	
6	→		SI indicating data on LCH 2	
7	←		Primary Absolute grant allowing the UE to transmit 2 RLC PDU per TTI	Signalling value 5
8	→		MAC es PDU containing 2 RLC SDU from LCH 2	This step is repeated until all the RLC SDUs are transmitted
8	←		Primary Absolute grant set to 'ZERO GRANT' and scope 'All HARQ Processes'	
10	←		2 RLC PDUs on LCH 2	
11	→		SI indicating data on LCH 2	
12	←		2 RLC PDUs on LCH 1	
13	→		SI indicating data on LCH 1	
14	←		Primary Absolute grant allowing the UE to transmit 3 RLC PDUs per TTI	Signalling value 9
15	→		MAC es PDU containing 2 RLC PDU's from LCH 1 and MAC es PDU containing 1 RLC PDU from LCH 2	
16	→		MAC es PDU containing 1 RLC PDU from LCH 2	

Specific Message Contents

None

7.1.6a.2.5.5 Test requirements

1. In step 4, UE shall loop back PDUs for two TTIs, with one RLC PDU per TTI.
2. In step 8, UE shall loop back PDUs for two TTIs, with two RLC PDUs per TTI.
3. In step 15, UE shall loop back PDUs for one TTI, with three RLC PDU per TTI (2 RLC PDU's from LCH1 and 1 RLC PDU from LCH 2).
4. In step 16, UE shall loop back PDU for one TTI, with one RLC PDU per TTI (1 RLC PDU from LCH 2).

7.1.6a.3 MAC-es/e- E-TFC selection

7.1.6a.3.1 MAC-es/e E-TFC priority

7.1.6a.3.1.1 Definition and applicability

All UEs which support E-DCH.

7.1.6a.3.1.2 Conformance requirement

Extract from TS 25.321 clause 11.9.1.4

[…]

RRC can control the scheduling of uplink data by giving each logical channel a priority between 1 and 8, where 1 is the highest priority and 8 the lowest. E-TFC selection in the UE shall be done in accordance with the priorities indicated by RRC. Logical channels have absolute priority, i.e. the UE shall maximise the transmission of higher priority data.

Reference(s)

TS 25.321 clause 11.9.1.4

7.1.6a.3.1.3 Test purpose

To verify that the UE transmits data in order of priority

7.1.6a.3.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4h using condition A15 as specified in clause 9.1 of TS 34.108. The logical channel, transport channel and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25
8 (LCH2)	3	2	RB17
NOTE: The RAB combination also include SRBs on E-DCH on MAC-d flow 1 which are not used in the test case			

The following parameters are specific for this test case:

Parameter	Value
T-RUCCH	200ms (see 25.331 10.3.6.103)
E-DCH MAC-d flow multiplexing list	11111111 (See 25.331 10.3.5.1b) Note 1
Note 1: This configuration means that all MAC-d flows can be multiplexed in the same TTI	

The UE is placed into UE test loop mode 1 with the UL SDU size set to (10*41)-2 octets for RB25 and RB17.

Test procedure

The UE is configured with two logical channels, LCH1 (with priority 1) and LCH2 (with priority 2). LCH1 is mapped to MAC-d flow 2 and LCH2 is mapped to MAC-d flow 3.

a) The SS has not issued any scheduling grant for E-DCH to the UE

b) The SS transmits one SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH2

c) The SS transmits one SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

d) The SS waits for an SI to be received that indicates that data is available on both logical channels (can be identified from the content of the SI)

e) The SS issues an absolute grant that allows the UE to send 1 RLC PDU per TTI (signalling value 4)

f) The SS verifies that the first TTIs only contains data from LCH1 which have a higher priority

g) The SS verifies that data on LCH2 is only transmitted after all the data on LCH1 has been looped back

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		1 RLC PDU on LCH 2	
2	←		1 RLC PDU on LCH 1	
3	→		Potential SI indicating data on LCH 2	This SI is ignored by the SS
4	→		SI indicating that data is available for LCH 1 and LCH 2	
5	←		Absolute grant allowing the UE to transmit 1 RLC PDU per TTI	Signalling value 4
6	→		MAC es PDU containing 1 RLC PDU from LCH 1	This step is repeated until the whole RLC SDU is transmitted
7	→		MAC es PDU containing 1 RLC PDU from LCH 2	This step is repeated until the whole RLC SDU is transmitted

Specific Message Contents

None

7.1.6a.3.1.5 Test requirements

1. In step 6, the SS shall receive 1 MAC-es PDU containing 1 RLC PDU from LCH 1 in each TTI until the whole RLC SDU has been received.

2. In step 6, the SS verifies that no data is received on LCH 2 until all data on LCH 1 has been received

3. In step 7, the SS shall receive 1 MAC-es PDU containing 1 RLC PDU from LCH 2 in each TTI until the whole RLC SDU has been received

7.1.6a.3.2 MAC-es/e transport block size selection/ UL QPSK

7.1.6a.3.2.1 Definition and applicability

All UEs which support E-DCH.

7.1.6a.3.2.2 Conformance requirement

Extract from TS 25.321 clause 9.2.6.4

[…]

For 3.84 Mcps TDD, the normative description of the mapping between the E-TFC index and the corresponding transport block size is provided in Annex BA.

For 7.68 Mcps TDD, the normative description of the mapping between the E-TFC index and the corresponding transport block size is provided in Annex BB.

[…]

For 3.84 Mcps TDD, the mapping of transport block size L to signalled index k_i = {0,1,…127} (see Annex BA.1) is given by the formula:

$$L = \lfloor 60 \times \rho^{k_n + k_i} \rfloor$$

In the above formula $\rho = 128^{\frac{1}{127}}$, k_i is the TBS index (0…127) and k_n is an integer selected based upon the number of timeslots allocated (n). Values for k_n are tabulated in Table 9.2.6.4.1.

Table 9.2.6.4.1: k_n tabulated as a function of the number of timeslots (n)

n	k_n
1	0
2	18
3	28
4	36
5	42
6	46
7	50
8	54
9	57
10	60
11	62
12	65

[…]

For 7.68 Mcps TDD, the mapping of transport block size L to signalled index k_i = {0,1,…127} (see Annex BB.1) is given by the formula:

$$L = \lfloor 60 \times \rho^{k_n + k_i} \rfloor$$

In the above formula, $\rho = 256^{\frac{1}{127}}$ k_i is the TBS index (0…127) and k_n is an integer selected based upon the number of timeslots allocated (n). Values for k_n are tabulated in Table 9.2.6.4.2.

Table 9.2.6.4.2: k_n tabulated as a function of the number of timeslots (n)

n	k_n
1	0
2	15
3	25
4	31
5	36
6	41
7	44
8	47
9	50
10	52
11	54
12	56

Reference(s)

TS 25.321 clause 9.2.6.4, 9.2.6.4.1 and 9.2.6.4.2.

7.1.6a.3.2.3 Test purpose

To verify that the UE transmits all possible transport block sizes within the UE capability.

7.1.6a.3.2.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

UE in idle mode

The following parameters are specific for this test case:

Common for all UE HS-DSCH categories:

Parameter	Value
MAC-d PDU size	336 bits
MAC-hs receiver window size	16
Number of HARQ processes	1
Number of reordering queues	1

Common for all UE E-DCH categories:

Parameter	Value
T-RUCCH	200 ms (see 25.331 10.3.6.103)

Specific depending on E-DCH category for 3.84Mcps:

Parameter	E-DCH Category	Value
RLC Transmission window size	1 to 4	512
	5	1536
E-TFCI table	1 to 5	See table 7.1.6a.3.1

Specific depending on E-DCH category for 7.68Mcps:

Parameter	E-DCH Category	Value
RLC Transmission window size	1 to 4	512
	5 to 7	1536
E-TFCI table	1 to7	See table 7.1.6a.3.3

Specific depending on HS-DSCH category for 3.84Mcps:

Parameter	HS-DSCH Category	Value
RLC Receiving window size	1 to 6	512
	7 and 8	1536
	9	2047

Specific depending on HS-DSCH category for 7.68Mcps:

Parameter	HS-DSCH Category	Value
RLC Receiving window size	1 to 6	512
	7 to 10	1536
	11 to 13	2047

The mapping between the chosen E-TFC index and the corresponding E-DCH transport block size is given in the following table:

Table 7.1.6a.3.1 10ms TTI E-DCH Transport Block Size Table 0 for 3.84Mcps

N_{slots}	1	2	3	4	5	6	7	8	9	10	11	12
K_n	0	18	28	36	42	46	50	54	57	60	62	65
TBS index												
0	60	119	174	237	298	347	405	472	529	593	641	718
1	62	123	181	246	310	361	421	490	550	616	665	746
2	64	128	188	256	322	375	437	509	571	641	691	775
3	67	133	196	266	334	390	454	529	593	665	718	806
4	69	139	203	276	347	405	472	550	616	691	746	837
5	72	144	211	287	361	421	490	571	641	718	775	870
6	75	150	219	298	375	437	509	593	665	746	806	904
7	78	155	228	310	390	454	529	616	691	775	837	939
8	81	162	237	322	405	472	550	641	718	806	870	975
9	84	168	246	334	421	490	571	665	746	837	904	1013
10	87	174	256	347	437	509	593	691	775	870	939	1053
11	91	181	266	361	454	529	616	718	806	904	975	1094
12	94	188	276	375	472	550	641	746	837	939	1013	1136
13	98	196	287	390	490	571	665	775	870	975	1053	1181
14	102	203	298	405	509	593	691	806	904	1013	1094	1227
15	106	211	310	421	529	616	718	837	939	1053	1136	1275
16	110	219	322	437	550	641	746	870	975	1094	1181	1324
17	114	228	334	454	571	665	775	904	1013	1136	1227	1376
18	119	237	347	472	593	691	806	939	1053	1181	1275	1429
19	123	246	361	490	616	718	837	975	1094	1227	1324	1485
20	128	256	375	509	641	746	870	1013	1136	1275	1376	1543
21	133	266	390	529	665	775	904	1053	1181	1324	1429	1603
22	139	276	405	550	691	806	939	1094	1227	1376	1485	1665
23	144	287	421	571	718	837	975	1136	1275	1429	1543	1730
24	150	298	437	593	746	870	1013	1181	1324	1485	1603	1798
25	155	310	454	616	775	904	1053	1227	1376	1543	1665	1868
26	162	322	472	641	806	939	1094	1275	1429	1603	1730	1941
27	168	334	490	665	837	975	1136	1324	1485	1665	1798	2016
28	174	347	509	691	870	1013	1181	1376	1543	1730	1868	2095
29	181	361	529	718	904	1053	1227	1429	1603	1798	1941	2176
30	188	375	550	746	939	1094	1275	1485	1665	1868	2016	2261
31	196	390	571	775	975	1136	1324	1543	1730	1941	2095	2349
32	203	405	593	806	1013	1181	1376	1603	1798	2016	2176	2441
33	211	421	616	837	1053	1227	1429	1665	1868	2095	2261	2536
34	219	437	641	870	1094	1275	1485	1730	1941	2176	2349	2634
35	228	454	665	904	1136	1324	1543	1798	2016	2261	2441	2737
36	237	472	691	939	1181	1376	1603	1868	2095	2349	2536	2844
37	246	490	718	975	1227	1429	1665	1941	2176	2441	2634	2954
38	256	509	746	1013	1275	1485	1730	2016	2261	2536	2737	3070
39	266	529	775	1053	1324	1543	1798	2095	2349	2634	2844	3189
40	276	550	806	1094	1376	1603	1868	2176	2441	2737	2954	3313
41	287	571	837	1136	1429	1665	1941	2261	2536	2844	3070	3442
42	298	593	870	1181	1485	1730	2016	2349	2634	2954	3189	3576
43	310	616	904	1227	1543	1798	2095	2441	2737	3070	3313	3716
44	322	641	939	1275	1603	1868	2176	2536	2844	3189	3442	3861
45	334	665	975	1324	1665	1941	2261	2634	2954	3313	3576	4011
46	347	691	1013	1376	1730	2016	2349	2737	3070	3442	3716	4167
47	361	718	1053	1429	1798	2095	2441	2844	3189	3576	3861	4329
48	375	746	1094	1485	1868	2176	2536	2954	3313	3716	4011	4498

49	390	775	1136	1543	1941	2261	2634	3070	3442	3861	4167	4673
50	405	806	1181	1603	2016	2349	2737	3189	3576	4011	4329	4855
51	421	837	1227	1665	2095	2441	2844	3313	3716	4167	4498	5044
52	437	870	1275	1730	2176	2536	2954	3442	3861	4329	4673	5241
53	454	904	1324	1798	2261	2634	3070	3576	4011	4498	4855	5445
54	472	939	1376	1868	2349	2737	3189	3716	4167	4673	5044	5657
55	490	975	1429	1941	2441	2844	3313	3861	4329	4855	5241	5877
56	509	1013	1485	2016	2536	2954	3442	4011	4498	5044	5445	6106
57	529	1053	1543	2095	2634	3070	3576	4167	4673	5241	5657	6344
58	550	1094	1603	2176	2737	3189	3716	4329	4855	5445	5877	6591
59	571	1136	1665	2261	2844	3313	3861	4498	5044	5657	6106	6848
60	593	1181	1730	2349	2954	3442	4011	4673	5241	5877	6344	7115
61	616	1227	1798	2441	3070	3576	4167	4855	5445	6106	6591	7392
62	641	1275	1868	2536	3189	3716	4329	5044	5657	6344	6848	7680
63	665	1324	1941	2634	3313	3861	4498	5241	5877	6591	7115	7979
64	691	1376	2016	2737	3442	4011	4673	5445	6106	6848	7392	8289
65	718	1429	2095	2844	3576	4167	4855	5657	6344	7115	7680	8612
66	746	1485	2176	2954	3716	4329	5044	5877	6591	7392	7979	8948
67	775	1543	2261	3070	3861	4498	5241	6106	6848	7680	8289	9296
68	806	1603	2349	3189	4011	4673	5445	6344	7115	7979	8612	9658
69	837	1665	2441	3313	4167	4855	5657	6591	7392	8289	8948	10034
70	870	1730	2536	3442	4329	5044	5877	6848	7680	8612	9296	10425
71	904	1798	2634	3576	4498	5241	6106	7115	7979	8948	9658	10831
72	939	1868	2737	3716	4673	5445	6344	7392	8289	9296	10034	11253
73	975	1941	2844	3861	4855	5657	6591	7680	8612	9658	10425	11691
74	1013	2016	2954	4011	5044	5877	6848	7979	8948	10034	10831	12146
75	1053	2095	3070	4167	5241	6106	7115	8289	9296	10425	11253	12620
76	1094	2176	3189	4329	5445	6344	7392	8612	9658	10831	11691	13111
77	1136	2261	3313	4498	5657	6591	7680	8948	10034	11253	12146	13622
78	1181	2349	3442	4673	5877	6848	7979	9296	10425	11691	12620	14152
79	1227	2441	3576	4855	6106	7115	8289	9658	10831	12146	13111	14703
80	1275	2536	3716	5044	6344	7392	8612	10034	11253	12620	13622	15276
81	1324	2634	3861	5241	6591	7680	8948	10425	11691	13111	14152	15871
82	1376	2737	4011	5445	6848	7979	9296	10831	12146	13622	14703	16489
83	1429	2844	4167	5657	7115	8289	9658	11253	12620	14152	15276	17131
84	1485	2954	4329	5877	7392	8612	10034	11691	13111	14703	15871	17798
85	1543	3070	4498	6106	7680	8948	10425	12146	13622	15276	16489	18491
86	1603	3189	4673	6344	7979	9296	10831	12620	14152	15871	17131	19212
87	1665	3313	4855	6591	8289	9658	11253	13111	14703	16489	17798	19960
88	1730	3442	5044	6848	8612	10034	11691	13622	15276	17131	18491	20737
89	1798	3576	5241	7115	8948	10425	12146	14152	15871	17798	19212	21545
90	1868	3716	5445	7392	9296	10831	12620	14703	16489	18491	19960	22384
91	1941	3861	5657	7680	9658	11253	13111	15276	17131	19212	20737	23256
92	2016	4011	5877	7979	10034	11691	13622	15871	17798	19960	21545	24161
93	2095	4167	6106	8289	10425	12146	14152	16489	18491	20737	22384	25102
94	2176	4329	6344	8612	10831	12620	14703	17131	19212	21545	23256	26080
95	2261	4498	6591	8948	11253	13111	15276	17798	19960	22384	24161	27095
96	2349	4673	6848	9296	11691	13622	15871	18491	20737	23256	25102	28151
97	2441	4855	7115	9658	12146	14152	16489	19212	21545	24161	26080	29247
98	2536	5044	7392	10034	12620	14703	17131	19960	22384	25102	27095	30386
99	2634	5241	7680	10425	13111	15276	17798	20737	23256	26080	28151	31569
100	2737	5445	7979	10831	13622	15871	18491	21545	24161	27095	29247	32799
101	2844	5657	8289	11253	14152	16489	19212	22384	25102	28151	30386	34076

102	2954	5877	8612	11691	14703	17131	19960	23256	26080	29247	31569	35403
103	3070	6106	8948	12146	15276	17798	20737	24161	27095	30386	32799	36782
104	3189	6344	9296	12620	15871	18491	21545	25102	28151	31569	34076	38214
105	3313	6591	9658	13111	16489	19212	22384	26080	29247	32799	35403	39703
106	3442	6848	10034	13622	17131	19960	23256	27095	30386	34076	36782	41249
107	3576	7115	10425	14152	17798	20737	24161	28151	31569	35403	38214	42855
108	3716	7392	10831	14703	18491	21545	25102	29247	32799	36782	39703	44524
109	3861	7680	11253	15276	19212	22384	26080	30386	34076	38214	41249	46258
110	4011	7979	11691	15871	19960	23256	27095	31569	35403	39703	42855	48060
111	4167	8289	12146	16489	20737	24161	28151	32799	36782	41249	44524	49932
112	4329	8612	12620	17131	21545	25102	29247	34076	38214	42855	46258	51876
113	4498	8948	13111	17798	22384	26080	30386	35403	39703	44524	48060	53896
114	4673	9296	13622	18491	23256	27095	31569	36782	41249	46258	49932	55995
115	4855	9658	14152	19212	24161	28151	32799	38214	42855	48060	51876	58176
116	5044	10034	14703	19960	25102	29247	34076	39703	44524	49932	53896	60442
117	5241	10425	15276	20737	26080	30386	35403	41249	46258	51876	55995	62796
118	5445	10831	15871	21545	27095	31569	36782	42855	48060	53896	58176	65241
119	5657	11253	16489	22384	28151	32799	38214	44524	49932	55995	60442	67782
120	5877	11691	17131	23256	29247	34076	39703	46258	51876	58176	62796	70422
121	6106	12146	17798	24161	30386	35403	41249	48060	53896	60442	65241	73164
122	6344	12620	18491	25102	31569	36782	42855	49932	55995	62796	67782	76013
123	6591	13111	19212	26080	32799	38214	44524	51876	58176	65241	70422	78974
124	6848	13622	19960	27095	34076	39703	46258	53896	60442	67782	73164	82049
125	7115	14152	20737	28151	35403	41249	48060	55995	62796	70422	76013	85245
126	7392	14703	21545	29247	36782	42855	49932	58176	65241	73164	78974	88565
127	7680	15276	22384	30386	38214	44524	51876	60442	67782	76013	82049	92014

Table 7.1.6a.3.2 Applicable E-TFS indexes for sub-tests 1 to 3 and UE E-DCH categories 1 to 5 for 3.84Mcps.

			Applicable E-TFS indexes				
Sub-test	N_{slots}	E-DCH Transport Block Size Table	Category 1	Category 2	Category 3	Category 4	Category 5
1	**12**	**Table 7.1.6a.3.1**	**0..74**	**0..92**	**0..103**	**0..113**	**0..127**
2	**6**	**Table 7.1.6a.3.1**	**0..93**	**0..111**	**0.122**	**0..127**	**0..127**
3	**1**	**Table 7.1.6a.3.1**	**0..127**	**0..127**	**0..127**	**0..127**	**0..127**
NOTE 1: Applicable indexes depends on the UE capability of "Maximum number of bits of an E-DCH transport block transmitted within a 10 ms E-DCH TTI" as specified in TS 25.306 clause 5.1.							

Table 7.1.6a.3.3 10ms TTI E-DCH Transport Block Size Table 0 for 7.68Mcps

Nslots	1	2	3	4	5	6	7	8	9	10	11	12
kn	0	15	25	31	36	41	44	47	50	52	54	56
TBS index												
0	60	115	178	232	288	359	409	467	532	581	634	691
1	62	120	186	242	301	375	428	487	556	606	662	722
2	65	126	195	253	315	392	447	509	581	634	691	755
3	68	131	203	264	329	409	467	532	606	662	722	788
4	71	137	212	276	344	428	487	556	634	691	755	823
5	74	143	222	288	359	447	509	581	662	722	788	860
6	77	150	232	301	375	467	532	606	691	755	823	899
7	81	156	242	315	392	487	556	634	722	788	860	939
8	85	163	253	329	409	509	581	662	755	823	899	981
9	88	171	264	344	428	532	606	691	788	860	939	1024
10	92	178	276	359	447	556	634	722	823	899	981	1070
11	96	186	288	375	467	581	662	755	860	939	1024	1118
12	101	195	301	392	487	606	691	788	899	981	1070	1168
13	105	203	315	409	509	634	722	823	939	1024	1118	1220
14	110	212	329	428	532	662	755	860	981	1070	1168	1275
15	115	222	344	447	556	691	788	899	1024	1118	1220	1331
16	120	232	359	467	581	722	823	939	1070	1168	1275	1391
17	126	242	375	487	606	755	860	981	1118	1220	1331	1453
18	131	253	392	509	634	788	899	1024	1168	1275	1391	1518
19	137	264	409	532	662	823	939	1070	1220	1331	1453	1586
20	143	276	428	556	691	860	981	1118	1275	1391	1518	1656
21	150	288	447	581	722	899	1024	1168	1331	1453	1586	1730
22	156	301	467	606	755	939	1070	1220	1391	1518	1656	1808
23	163	315	487	634	788	981	1118	1275	1453	1586	1730	1888
24	171	329	509	662	823	1024	1168	1331	1518	1656	1808	1973
25	178	344	532	691	860	1070	1220	1391	1586	1730	1888	2061
26	186	359	556	722	899	1118	1275	1453	1656	1808	1973	2153
27	195	375	581	755	939	1168	1331	1518	1730	1888	2061	2249
28	203	392	606	788	981	1220	1391	1586	1808	1973	2153	2349
29	212	409	634	823	1024	1275	1453	1656	1888	2061	2249	2454
30	222	428	662	860	1070	1331	1518	1730	1973	2153	2349	2564
31	232	447	691	899	1118	1391	1586	1808	2061	2249	2454	2678

32	242	467	722	939	1168	1453	1656	1888	2153	2349	2564	2798
33	253	487	755	981	1220	1518	1730	1973	2249	2454	2678	2922
34	264	509	788	1024	1275	1586	1808	2061	2349	2564	2798	3053
35	276	532	823	1070	1331	1656	1888	2153	2454	2678	2922	3189
36	288	556	860	1118	1391	1730	1973	2249	2564	2798	3053	3331
37	301	581	899	1168	1453	1808	2061	2349	2678	2922	3189	3480
38	315	606	939	1220	1518	1888	2153	2454	2798	3053	3331	3636
39	329	634	981	1275	1586	1973	2249	2564	2922	3189	3480	3798
40	344	662	1024	1331	1656	2061	2349	2678	3053	3331	3636	3967
41	359	691	1070	1391	1730	2153	2454	2798	3189	3480	3798	4144
42	375	722	1118	1453	1808	2249	2564	2922	3331	3636	3967	4329
43	392	755	1168	1518	1888	2349	2678	3053	3480	3798	4144	4523
44	409	788	1220	1586	1973	2454	2798	3189	3636	3967	4329	4725
45	428	823	1275	1656	2061	2564	2922	3331	3798	4144	4523	4935
46	447	860	1331	1730	2153	2678	3053	3480	3967	4329	4725	5156
47	467	899	1391	1808	2249	2798	3189	3636	4144	4523	4935	5386
48	487	939	1453	1888	2349	2922	3331	3798	4329	4725	5156	5626
49	509	981	1518	1973	2454	3053	3480	3967	4523	4935	5386	5877
50	532	1024	1586	2061	2564	3189	3636	4144	4725	5156	5626	6140
51	556	1070	1656	2153	2678	3331	3798	4329	4935	5386	5877	6414
52	581	1118	1730	2249	2798	3480	3967	4523	5156	5626	6140	6700
53	606	1168	1808	2349	2922	3636	4144	4725	5386	5877	6414	6999
54	634	1220	1888	2454	3053	3798	4329	4935	5626	6140	6700	7311
55	662	1275	1973	2564	3189	3967	4523	5156	5877	6414	6999	7638
56	691	1331	2061	2678	3331	4144	4725	5386	6140	6700	7311	7979
57	722	1391	2153	2798	3480	4329	4935	5626	6414	6999	7638	8335
58	755	1453	2249	2922	3636	4523	5156	5877	6700	7311	7979	8707
59	788	1518	2349	3053	3798	4725	5386	6140	6999	7638	8335	9095
60	823	1586	2454	3189	3967	4935	5626	6414	7311	7979	8707	9501
61	860	1656	2564	3331	4144	5156	5877	6700	7638	8335	9095	9925
62	899	1730	2678	3480	4329	5386	6140	6999	7979	8707	9501	10368
63	939	1808	2798	3636	4523	5626	6414	7311	8335	9095	9925	10831
64	981	1888	2922	3798	4725	5877	6700	7638	8707	9501	10368	11314
65	1024	1973	3053	3967	4935	6140	6999	7979	9095	9925	10831	11819
66	1070	2061	3189	4144	5156	6414	7311	8335	9501	10368	11314	12347
67	1118	2153	3331	4329	5386	6700	7638	8707	9925	10831	11819	12898
68	1168	2249	3480	4523	5626	6999	7979	9095	10368	11314	12347	13474

69	1220	2349	3636	4725	5877	7311	8335	9501	10831	11819	12898	14075
70	1275	2454	3798	4935	6140	7638	8707	9925	11314	12347	13474	14703
71	1331	2564	3967	5156	6414	7979	9095	10368	11819	12898	14075	15360
72	1391	2678	4144	5386	6700	8335	9501	10831	12347	13474	14703	16045
73	1453	2798	4329	5626	6999	8707	9925	11314	12898	14075	15360	16761
74	1518	2922	4523	5877	7311	9095	10368	11819	13474	14703	16045	17509
75	1586	3053	4725	6140	7638	9501	10831	12347	14075	15360	16761	18291
76	1656	3189	4935	6414	7979	9925	11314	12898	14703	16045	17509	19107
77	1730	3331	5156	6700	8335	10368	11819	13474	15360	16761	18291	19960
78	1808	3480	5386	6999	8707	10831	12347	14075	16045	17509	19107	20851
79	1888	3636	5626	7311	9095	11314	12898	14703	16761	18291	19960	21781
80	1973	3798	5877	7638	9501	11819	13474	15360	17509	19107	20851	22753
81	2061	3967	6140	7979	9925	12347	14075	16045	18291	19960	21781	23769
82	2153	4144	6414	8335	10368	12898	14703	16761	19107	20851	22753	24830
83	2249	4329	6700	8707	10831	13474	15360	17509	19960	21781	23769	25938
84	2349	4523	6999	9095	11314	14075	16045	18291	20851	22753	24830	27095
85	2454	4725	7311	9501	11819	14703	16761	19107	21781	23769	25938	28305
86	2564	4935	7638	9925	12347	15360	17509	19960	22753	24830	27095	29568
87	2678	5156	7979	10368	12898	16045	18291	20851	23769	25938	28305	30888
88	2798	5386	8335	10831	13474	16761	19107	21781	24830	27095	29568	32266
89	2922	5626	8707	11314	14075	17509	19960	22753	25938	28305	30888	33706
90	3053	5877	9095	11819	14703	18291	20851	23769	27095	29568	32266	35211
91	3189	6140	9501	12347	15360	19107	21781	24830	28305	30888	33706	36782
92	3331	6414	9925	12898	16045	19960	22753	25938	29568	32266	35211	38424
93	3480	6700	10368	13474	16761	20851	23769	27095	30888	33706	36782	40139
94	3636	6999	10831	14075	17509	21781	24830	28305	32266	35211	38424	41930
95	3798	7311	11314	14703	18291	22753	25938	29568	33706	36782	40139	43801
96	3967	7638	11819	15360	19107	23769	27095	30888	35211	38424	41930	45756
97	4144	7979	12347	16045	19960	24830	28305	32266	36782	40139	43801	47798
98	4329	8335	12898	16761	20851	25938	29568	33706	38424	41930	45756	49932
99	4523	8707	13474	17509	21781	27095	30888	35211	40139	43801	47798	52160
100	4725	9095	14075	18291	22753	28305	32266	36782	41930	45756	49932	54488
101	4935	9501	14703	19107	23769	29568	33706	38424	43801	47798	52160	56920
102	5156	9925	15360	19960	24830	30888	35211	40139	45756	49932	54488	59460
103	5386	10368	16045	20851	25938	32266	36782	41930	47798	52160	56920	62114
104	5626	10831	16761	21781	27095	33706	38424	43801	49932	54488	59460	64886
105	5877	11314	17509	22753	28305	35211	40139	45756	52160	56920	62114	67782

106	6140	11819	18291	23769	29568	36782	41930	47798	54488	59460	64886	70807
107	6414	12347	19107	24830	30888	38424	43801	49932	56920	62114	67782	73967
108	6700	12898	19960	25938	32266	40139	45756	52160	59460	64886	70807	77268
109	6999	13474	20851	27095	33706	41930	47798	54488	62114	67782	73967	80717
110	7311	14075	21781	28305	35211	43801	49932	56920	64886	70807	77268	84319
111	7638	14703	22753	29568	36782	45756	52160	59460	67782	73967	80717	88082
112	7979	15360	23769	30888	38424	47798	54488	62114	70807	77268	84319	92014
113	8335	16045	24830	32266	40139	49932	56920	64886	73967	80717	88082	96120
114	8707	16761	25938	33706	41930	52160	59460	67782	77268	84319	92014	100410
115	9095	17509	27095	35211	43801	54488	62114	70807	80717	88082	96120	104891
116	9501	18291	28305	36782	45756	56920	64886	73967	84319	92014	100410	109573
117	9925	19107	29568	38424	47798	59460	67782	77268	88082	96120	104891	114463
118	10368	19960	30888	40139	49932	62114	70807	80717	92014	100410	109573	119572
119	10831	20851	32266	41930	52160	64886	73967	84319	96120	104891	114463	124908
120	11314	21781	33706	43801	54488	67782	77268	88082	100410	109573	119572	130483
121	11819	22753	35211	45756	56920	70807	80717	92014	104891	114463	124908	136306
122	12347	23769	36782	47798	59460	73967	84319	96120	109573	119572	130483	142390
123	12898	24830	38424	49932	62114	77268	88082	100410	114463	124908	136306	148744
124	13474	25938	40139	52160	64886	80717	92014	104891	119572	130483	142390	155383
125	14075	27095	41930	54488	67782	84319	96120	109573	124908	136306	148744	162318
126	14703	28305	43801	56920	70807	88082	100410	114463	130483	142390	155383	169562
127	15360	29568	45756	59460	73967	92014	104891	119572	136306	148744	162318	177130

Table 7.1.6a.3.4 Applicable E-TFS indexes for sub-tests 1 to 3 and UE E-DCH categories 1 to 7 for 3.84Mcps.

			Applicable E-TFS indexes						
Sub-test	N_{slots}	E-DCH Transport Block Size Table	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7
1	**12**	**Table 7.1.6a.3.3**	**0..66**	**0..82**	**0..91**	**0..100**	**0..107**	**0..115**	**0..127**
2	**6**	**Table 7.1.6a.3.3**	**0..81**	**0..97**	**0.106**	**0..115**	**0..127**	**0..127**	**0..127**
3	**1**	**Table 7.1.6a.3.3**	**0..122**	**0..127**	**0..127**	**0..127**	**0..127**	**0..127**	**0..127**
NOTE 1: Applicable indexes depends on the UE capability of "Maximum number of bits of an E-DCH transport block transmitted within a 10 ms E-DCH TTI" as specified in TS 25.306 clause 5.1.									

Test procedure

a) The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.10.3.4.7.1 for 3.84Mcps and clause 6.11.6.4.7.1 for 7.68Mcps using condition A12 as specified in clause 9.1 of TS 34.108.. See note 1.

b) The SS closes the test loop using UE test loop mode 1 and configuring the UL RLC SDU size to be equal to the received DL SDU size (i.e. not setting the UL RLC SDU size parameter).

c) SS sets RLC SDU size = 312 bits which corresponds to maximum AM payload size for 1 MAC-d PDU of size 336 bits.

d) The SS removes the scheduling grant for E-DCH for the UE.

e) If N_{PDUs} is less than 36 the SS transmits one RLC SDU with size ((*NPDUs* – 1) * 320 + 312) else the SS transmits two SDUs with size ((N_{PDUs} – 2) * 320 + 2 * 312) / 2. See note 2.

f) The SS waits for an SI to be received that indicates that there is data available for transmission (can be identified from the content of the SI). See Note 3. The SS checks that TEBS and HLBS have the correct values.

g) The SS issues an absolute grant that allows the UE to which specifies the maximum absolute grant value (signalled value 31) together with a physical resource allocation of the whole code space (signalled value 0) and TS allocation limited to the number of timeslots defined in Table 7.1.6a.3.2 for 3.84Mcps and in Table 7.1.6a.3.4 for 7.68Mcps for the sub-test. The resource duration takes the default value of 1 TTI.

h) The SS waits until data is received and verifies that the looped back SDU data has the correct content and is sent in the same TTI.

i) The SS verifies that the received E-TFC used by the UE is correct. For Rel-7 and later release UE the SS checks that the UE has not used the transport block sizes correspondent to the E-TFCI values as listed in table 7.1.6.3.2.6, but instead used the transport block size correspondent to the next possible larger E-TFCI value.

j) The SS increments the RLC SDU payload size by 320 bits. For the case of 2 SDUs transmitted by the SS, each of the payload sizes are incremented by 320 bits. The SS calculates the new E-TFC transport block size from the relevant Transport Block Size Table. If this transport block size is supported by the UE under test, according to Table 7.1.6.3.2.5, then continue with step d else continue with step k.

k) The SS opens the UE test loop.

l) The SS release the radio bearer.

m) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The SS configures the physical channel parameters according to the actual UE category under test.

NOTE 2: Calculation of Downlink (DL) RLC SDU size:

DL SDU size = N_{PDUs} * 336 bits RLC PDU – headers associated with MAC and RLC.

RLC PDU = RLC 16 bits Sequence Number + 8 bits for the Optional Length Indicators + RLC pay load size. The Optional Length Indicator is present only in the delivery of the last RLC PDU.

The Optional Length Indicators consists of a 7 bits Length Indicator + 1 bit Extension Field of binary value = "0". The 7 bit length indicator indicates the number of octets between the end of the RLC header up to and including the last octet of the (DL) RLC SDU ending within the PDU.

Therefore, the RLC payload has two different sizes of 320 bits (336 – 16 bits Sequence Number) and 312 bits (336 – 16 bits sequence Number - (7 bits Length Indicator + 1 bit extension field)).

N_{PDUs} = FLOOR ((TBS size – MAC-e header size – MAC-es header size) / MAC-d PDU size) = FLOOR ((TBS size -18) / 336).

For N_{PDUs} = 1

DL RLC SDU payload has size 312 bits

For $1 < N_{PDUs} < 36$

There are (N_{PDUs} – 1) RLC payloads of size 320 bits with the last RLC payload size 312 bits

DL RLC SDU payload size = (N_{PDUs} -1) * 320 + 312

For $N_{PDUs} \geq 36$

The test data for transport channels on HS-DSCH and E-DCH is divided into 2 RLC SDUs so that the SDU size does not exceed 1500 octets (limit of SDU size in SM)

The payload data of the MAC-d PDUs contains 2 RLC SDUs of size

((N_{PDUs} – 2) * 320 + 2 * 312) / 2

$N_{PDU} = N_{PDUs} + 2$

Calculation of E-TFC TB Size:

Select the E-TFC Index/TB Size = Number of MAC-d PDU * 336 bits RLC PDU + 336 bits UL AM ACK (status) PDU + 18 bits MAC-es and MAC-e headers (6 bits N + 6 bits TSN + 6 bits DDI) according to the E-DCH Transport Block Size Tables for FDD per 25.321 Annex B, .

As an example TBS value of 716 bits is used by the UE in the 10mS Index 0 subtest to deliver UL RLC SDU size o f 84 bytes = 672bit + 18 bits MAC headers = 690 bits

NOTE 3: Calculation of TEBS value:

Using the E-TFC TB size determined in Note 2 above, select the TEBS index according to 25.321 Table 9.2.5.3.2-1.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
2	<--		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
4	<--		RRC CONNECTION SETUP (CCCH)	RRC
5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6	-->		SERVICE REQUEST (DCCH)	GMM
7	<--		SECURITY MODE COMMAND	RRC see note 1
8	-->		SECURITY MODE COMPLETE	RRC see note 1
9	<--		ACTIVATE RB TEST MODE (DCCH)	TC
10	-->		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
11	<--		RADIO BEARER SETUP (DCCH)	RRC. For the PS radio bearer the 'pdcp info' IE shall be omitted.
12	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
13	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 with no "LB Setup RB IE#k" parameter set (UE shall return an UL RLC SDU with the same size as the received RLC SDU in downlink)
14	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
15	SS			The SS creates two RLC SDUs according to the E-TFC under test
16	←		Removal of absolute grant	Signalling value 1
17	<--		DOWNLINK RLC SDU#1 DOWNLINK RLC SDU#2	Send test data. The MAC-hs PDU contains 4 RLC SDUs
18	→		SI indicating 2 RLC SDUs	This can be verified from the indicated Total E-DCH Buffer Status (TEBS)
19	<--		Absolute grant allowing the UE to transmit at maximum bit rate.	Signalling value 31
20	-->		UPLINK RLC SDUs	The SS checks that the content of the received UL RLC SDUs are correct
21	SS			The SS calculates test data for next E-TFC index and repeat steps 16 to 19 until all applicable E-TFC indexes have been tested.
22	<--		OPEN UE TEST LOOP (DCCH)	TC
23	-->		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
24			RB RELEASE	RRC
25	<--		DEACTIVATE RB TEST MODE	TC Optional step
26	-->		DEACTIVATE RB TEST MODE COMPLETE	TC Optional step
Note 1	In addition to activate integrity protection Step 6 and Step 7 are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.			

7.1.6a.3.2.5 Test requirements

1. In step 20, the SS verifies that the received E-TFC has the correct size
2. In step 20, the SS shall receive 2 RLC SDUs with the same content as sent in downlink.

7.1.6a.4 MAC-es/e - E-DCH retransmissions

7.1.6a.4.1 MAC-es/e process handling

7.1.6a.4.1.1 Definition and applicability

All UEs which support E-DCH.

7.1.6a.4.1.2 Conformance requirement

Extract from 25.331:

1> for TDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e or MAC-i PDU transmitted by HARQ processes designated as non scheduled (Ids 4 – 7) in the TTIs indicated (for 3.84 Mcps TDD and 7.68 Mcps TDD, as determined from the IEs "Activation Time", "Resource Duration" and "Resource Periodicity"; for 1.28 Mcps TDD, as determined from the IEs "Activation Time", "Subframe number", "Resource Duration" and "Resource Periodicity", and the calculation of assigned Non-scheduled transmission grant is specified in subclause 8.6.6.16a).

[…]

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

[…]

1> for TDD:

2> configure the E-RUCCH with the stored E-RUCCH configuration;

2> configure the MAC with the stored E-PUCH configuration.

Extract From 25.321 clause 11.9.1.4:

RRC can allocate non-scheduled transmission grants to individual MAC-d flows in order to reduce the transmission delays.

The UE shall determine whether to take scheduled or non-scheduled grants into account in the upcoming transmission. If neither are supposed to be taken into account (i.e. the TTI is not available for non-scheduled transmission and no Grant for scheduled transmission has been received) then no grant shall be assumed to exist. If a grant exists then the transmission format and data allocation shall follow the requirements below.

Reference(s)

TS 25.321 clauses 11.9.1.4,. TS 25.331 clauses 8.6.5.18 and 8.6.6.37

7.1.6a.4.1.3 Test purpose

To verify that the UE performs transmissions and retransmissions in the correct MAC-es process.

To verify that the UE uses only the allowed HARQ processes for scheduled and non-scheduled transmissions.

7.1.6a.4.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4h using condition A15 as specified in clause 9.1 of TS 34.108. The logical channel, transport channel and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	1	RB25
8 (LCH2)	3	2	RB17
Note: The RAB combination also includes SRBs on E-DCH on MAC-d flow 1 which is not used in the test case			

The following parameters are specific for this test case:

Parameter	Value
Periodicity for scheduling info	No periodic scheduling info
HARQ RV Configuration	rv0

The UE is placed into UE test loop mode 1 with the UL SDU size set to 39 octets.

Test procedure

In this test procedure the UE is configured with two logical channels, with Id 7 (LCH 1) and 8 (LCH2). LCH 1 is mapped to MAC-d flow 2 and LCH 2 is mapped to MAC-d flow3. The MAC-d flow 2 has been configured with non-scheduled transmissions allowed in HARQ process 4, with a rate exceeding 1 SDU/TTI and the value of the "Max MAC-e PDU contents size" is 500 bits. MAC-d flow 3 has been configured with a scheduled transmission allowed in HARQ process 2.

a) The SS has not issued any scheduling grant for E-DCH to the UE

b) The SS transmits 1 SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH 1

c) The SS waits until data is received and checks that the data is received in HARQ process 4

d) The SS sends a HARQ NACK

e) The SS waits until the retransmission is received and checks that the data is received in HARQ process 4

f) The SS transmits 8 SDU's of size 40 bytes (plus 1 byte RLC length indicator) on LCH 2

g) The SS waits until an SI is received.

h) The SS issues absolute grant corresponding to 1 RLC PDU of size 41 octets per TTI.

i) The SS waits until data is received and checks that the data is received in HARQ process 2

j) The SS transmits 8 SDU's of size 40 bytes (plus 1 byte RLC length indicator) on LCH 1

k) The SS waits until data is received and checks that the data is received in HARQ process 4

Expected sequence

Step	Direction		Message	Comments
	UE	SS		

1	←	1 RLC PDU on LCH 1	
2	→	MAC-es PDU containing 1 RLC PDU	
3	←	HARQ NACK	
4	→	MAC-es PDU containing 1 RLC PDU	
5	←	8 RLC SDU's on LCH 2	
6	→	SI indicating data on LCH 2	
7	←	Primary Absolute grant allowing the UE to transmit 1 RLC PDU per TTI	Signalling value 4
8	→	MAC-es PDU containing 1 RLC PDU	PDU shall be received in HARQ process 2. This step is repeated until all 8 RLC SDU's are received on LCH2.
9	←	8 RLC SDU's on LCH 1	
10	→	MAC-es PDU containing 1 RLC PDU	PDU shall be received in HARQ process 4. This step is repeated until all 8 RLC SDU's are received on LCH1.

Specific Message Contents

None

7.1.6a.4.1.5 Test requirements

1. In step 2 the SS shall receive a MAC-es PDU in HARQ process 4
2. In step 4 the SS shall receive a MAC-es PDU in HARQ process 4
3. In step 8 the SS shall receive all MAC-es PDUs in HARQ process 2
4. In step 10 the SS shall receive all MAC-es PDUs in HARQ process 4

7.1.6a.4.2 MAC-es/e maximum number of retransmissions

7.1.6a.4.2.1 Definition and applicability

All UEs which support E-DCH.

7.1.6a.4.2.2 Conformance requirement

Extract From 25.321 clause 11.9.1.4:

[..]

For each MAC-d flow, RRC configures MAC-e with a HARQ profile and multiplexing list. Additionally, RRC configures MAC with a power offset in case the Scheduling Information needs to be transmitted without any higher-layer data. The HARQ profile includes the power offset and maximum number of HARQ transmissions to use for this MAC-d flow. For 1.28 Mcps TDD, the HARQ profile also includes a retransmission timer attribute. The multiplexing list identifies for each MAC-d flow(s), the other MAC-d flows for which data can be multiplexed in a transmission that uses the power offset included in its HARQ profile.

[..]

The E-TFC selection function shall provide this MAC-e PDU and transmission HARQ profile to the HARQ entity. The selected E-TFC is also provided (Note: for 1.28Mcps TDD, the signalled transport block size index, i.e. E-TFCI, is the index of the selected E-TFC in the candidate set.). The maximum number of HARQ transmissions and the power offset in this profile shall be set respectively to the maximum of both the Max Number of HARQ Transmissions and of the power offset of the HARQ profiles from all the MAC-d flows from which data is multiplexed into the transmission. For 1.28 Mcps TDD, the retransmission timer shall be set to the maximum of the retransmission timer value of the HARQ profiles that are permitted to be multiplexed into the transmission. Each HARQ process which is associated with a buffer holding a MAC-e PDU for potential retransmission shall maintain the HARQ profile and the number of re-

transmissions that have occurred. For 1.28 Mcps TDD, the HARQ process shall also maintain the value of RTX_TIMER.

Reference(s)

TS 25.321 clause 11.9.1.4

7.1.6a.4.2.3 Test purpose

To verify that the UE, when 2 MAC d flows are multiplexed, follows the maximum number of retransmissions according to the HARQ profiles (different values configured for maximum number of retransmissions for each HARQ profile).

7.1.6a.4.2.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4h using condition A15 as specified in clause 9.1 of TS 34.108. The logical channel, transport channel and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Max. retransmissions	Comment
7 (LCH1)	2	1	2	RB25
8 (LCH2)	3	2	4	RB17
NOTE: The RAB combination also includes SRBs on E-DCH which are not used in the testcase				

The following parameters are specific for this test case:

Parameter	Value
T-RUCCH	200 ms (see 25.331 10.3.6.103
E-DCH MAC-d flow multiplexing list	11111111 (See 25.331 10.3.5.1b) Note 1
HARQ RV Configuration	rv0
Note 1: This configuration means that all MAC-d flows can be multiplexed in the same TTI	

The UE is placed into UE test loop mode 1 with the UL SDU size set to 39 octets for RB25 and RB17.

Test procedure

The UE is configured with two logical channels, LCH1 (with priority 1) and LCH2 (with priority 2). LCH1 is mapped to MAC-d flow 2 and LCH2 is mapped to MAC-d flow 3. The UE is not given any grant to transmit on E-DCH.

a) The SS has not issued any scheduling grant for E-DCH to the UE

b) The SS transmits one SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

c) The SS waits for an SI to be received that indicates that data is available

d) The SS issues an absolute grant that allows the UE to send with a rate sufficient to accommodate one RLC PDU per TTI

e) For each received transmission, the SS sends a negative HARQ acknowledgement and verifies that exactly 2 retransmissions are made by the UE.

f) The SS stops issuing absolute grants

g) The SS transmits one SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH2

h) The SS transmits one SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

i) The SS waits for an SI to be received that indicates that data is available on both LCHs.

j) The SS issues an absolute grant that allows the UE to send with a rate sufficient to accommodate two RLC PDUs per TTI (signalling value 5)

k) For each received transmission, the SS sends a negative HARQ acknowledgement and verifies that exactly 4 retransmissions are made by the UE (maximum from the HARQ profiles for LCH1 and LCH2).

NOTE: The UE may send an SI after step g but this SI would only indicate data on LCH2. This SI will be ignored.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		1 RLC PDUs on LCH 1	
2	→		SI showing that data is available for LCH 1	
3	←		Absolute grant allowing the UE to transmit 1 RLC PDU per TTI	Signalling value 4
4	→		MAC es PDU containing 1 RLC PDU from LCH 1	
5	←		HARQ NACK	
6	SS			SS sends a HARQ NACK for each received retransmission. After the second retransmission the SS waits 1 s to verify that no further retransmissions occur.
7	←		1 RLC PDUs on LCH 2	
8	←		1 RLC PDUs on LCH 1	
9	→		Potential SI indicating data on LCH 2	This SI is ignored by the SS
10	→		SI showing that data is available for LCH 1 and LCH 2	
11	←		Absolute grant allowing the UE to transmit 2 RLC PDUs per TTI	Signalling value 5
12	→		MAC es PDU containing 1 RLC PDU from LCH 1 and 1 RLC PDU from LCH 2	
13	←		HARQ NACK	
14	SS			SS sends a HARQ NACK for each received retransmission. After the fourth retransmission the SS waits 1 s to verify that no further retransmissions occur.

Specific Message Contents

None

7.1.6a.4.2.5 Test requirements

1. In step 6, exactly 2 retransmissions shall be performed by the UE.

2. In step 15, exactly 4 retransmissions shall be performed by the UE.

7.1.7 E-DCH MAC-i/is

7.1.7.1 MAC-i/is multiplexing (multiple PDUs from different LC in one TTI)

7.1.7.1.1 Definition and applicability

Applicable for all UEs supporting MAC-i/is.

7.1.7.1.2 Conformance Requirement

From 25.321 clause 9.1.5:

When MAC-i/is is configured, there are two MAC sublayers, MAC-i and MAC-is. MAC-is sits on top of MAC-i and receives PDUs directly from MAC-d. When MAC-i/is is configured, a MAC PDU for E-DCH consists of one MAC-i header and one or more MAC-is PDUs. Each MAC-is PDU consists of one or more MAC-is SDUs belonging to the same logical channel. Each MAC-is SDU equals a complete or a segment of a MAC-d PDU. The MAC-is SDUs can have different sizes. The LCH-ID and L fields are repeated per MAC-is SDU. The TSN and SS fields are repeated per MAC-is PDU. Multiple MAC-is PDUs from multiple logical channels, but only one MAC-i PDU can be transmitted in a TTI. In case sufficient space is left in the E-DCH transport block or if Scheduling Information needs to be transmitted, an SI will be included at the end of the MAC-i PDU (see subclause 9.2.4.2).

[…]

From 25.331 clause 8.6.5.18:

1> if the IE "E-DCH MAC-d flow multiplexing list" is included:

- 2> only multiplex MAC-d PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from E-DCH MAC-d flows with which multiplexing in the same MAC-e or MAC-i PDU is allowed in accordance to the IE "E-DCH MAC-d flow multiplexing list".

Reference(s)

TS 25.321 clause 9.1.5, TS 25.331 clause 8.6.5.18

7.1.7.1.3 Test purpose

1. To verify that the UE multiplexes data from multiple PDUs from different logical channels in the same TTI

7.1.7.1.4 Method of test

Initial conditions

System Simulator:

1 cells, default parameters, Ciphering Off

User Equipment:

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed with all the parameters as specified in the procedure, with the exception that the default Radio Bearer is replaced with the Radio Bearers according to clause 6.11.4k.4 (FDD) / 6.11.5.4.9.4(1.28Mcps TDD) (Flexible RLC + MAC-i/is + MAC-ehs) using condition A26 (FDD) / A22(1.28Mcps TDD). The MAC-d flows are configured for scheduled transmissions. The following parameters are specific for this test case with the logical channel, transport channel and queue identities set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	6	RB26
8 (LCH2)	3	7	RB27
9 (LCH3)	4	8	RB21
Note: The RAB combination also includes SRBs on E-DCH on MAC-d flow 1 which is not used in the test case			

The following parameters are specific for this test case

Parameter	Value
Periodicity for Scheduling Info – no grant	500 ms (see 25.331 10.3.6.99) (FDD)
E-DCH MAC-d flow multiplexing list	Flow 2 = 00101000 Flow 3 = 00010000 Flow 4 = 00101000 See 25.331 10.3.5.1b

The UE is placed into UE test loop mode 1 with the UL SDU size for LCH 1 and LCH2 set to 40 octets.

Test procedure

The UE is configured with three logical channels, LCH1 (with priority 6), LCH2 (with priority 7) and LCH3 (with priority 8). LCH1 is mapped to MAC-d flow 2, LCH2 is mapped to MAC-d flow 3 and LCH3 is mapped to MAC-d flow 4.

a) The SS has not issued any scheduling grants for E-DCH to the UE

b) The SS transmits one SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH3

c) The SS transmits one SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH2

d) The SS transmits one SDU of size 40 bytes (plus 1 byte RLC length indicator) on LCH1

e) The SS waits for an SI to be received that indicates that data is available on all three logical channels (can be identified from the content of the SI)

e) The SS issues an absolute grant that allows the UE to send with a high rate (signalling value 10 (FDD only), allowing a rate well above 3 SDUs/TTI)

f) The SS waits until data is received and verifies that data from LCH1 and LCH3 are received in the same TTI and data from LCH2 is received in the next TTI

NOTE: The UE may send an SI after step 1 or step 2 but these SI's would only indicate data on LCH3, LCH2 or LCH2 and LCH3. These will be ignored.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		

1	←	1 RLC PDU on LCH 3	
2	←	1 RLC PDU on LCH 2	
3	←	1 RLC PDU on LCH 1	
4	→	Potential SI indicating data on LCH3, LCH2 or LCH2 and LCH3	These SI are ignored by the SS
5	→	SI indicating data on LCH 1 LCH 2 and LCH3	This can be verified from the indicated fraction of data on LCH1, LCH2 and LCH3
6	←	Absolute grant allowing UE to transmit on E-DCH	This grant must be sufficiently high to allow a rate corresponding to at least 3 RLC PDUs/TTI, signalling value 10 for FDD
7	→	MAC-i PDU containing 1 RLC PDU on LCH 1 and 1 RLC PDU on LCH 3	Data on LCH1 and LCH2 should be received in the same TTI
8	→	MAC-i PDU containing 1 RLC PDU on LCH 2	Data on LCH2 in the next TTI

Specific Message Contents

None.

7.1.7.1.5 Test requirements

1. After step 3 the SS shall receive an SI indicating that data is available on LCH 1, LCH 2 and LCH3 but no RLC PDUs shall be received
2. In step 7, the SS shall receive 1 RLC PDU on LCH 1 and 1 RLC PDU on LCH 3 in the same TTI
3. In step 8, the SS shall receive 1 RLC PDU on LCH2 in the next TTI

7.1.7.2 MAC-i/is segmentation / Correct Usage of Segmentation Status Field

7.1.7.2.1 Definition and applicability

Applicable for all UEs supporting MAC-i/is.

7.1.7.2.2 Conformance requirement

The transmitting UM RLC entity segments the RLC SDU into UMD PDUs of appropriate size, if the RLC SDU is larger than the length of available space in the UMD PDU. The size of the UMD PDUs after segmentation and/or concatenation shall be smaller than or equal to the largest UL UMD PDU size. If MAC-i/is has been configured and the RLC PDU size is set to "flexible size", the size of the UMD PDUs after segmentation and/or concatenation shall be larger than or equal to the Minimum UL RLC PDU size. If data to be transmitted is not enough to create a UMD PDU of the minimum size, it is allowed to create a UMD PDU including all data to be transmitted, even if the resulting size is smaller than the Minimum UL RLC PDU size. The UMD PDU may contain segmented and/or concatenated RLC SDUs. UMD PDU may also contain padding to ensure that it is of a valid length. Length Indicators are used to define boundaries between RLC SDUs within UMD PDUs unless the "Extension bit" already indicates that a UMD PDU contains exactly one complete SDU. Length Indicators are also used to define whether Padding is included in the UMD PDU.

…

- in uplink, the last segment of an RLC SDU shall be concatenated with the first segment of the next RLC SDU in order to fill the data field at least up to the Minimum UL RLC PDU size. It is allowed to concatenate up to the largest UL AMD PDU size for Acknowledged mode data and largest UMD PDU size for Unacknowledged mode data. The "Length Indicator" field is used to point the borders between RLC SDUs (see subclause 9.2.2.8). If data to be transmitted is not enough to create a UMD PDU of the minimum size, it is allowed to create a UMD PDU including all data to be transmitted, even if the resulting size is smaller than the Minimum UL RLC PDU size.
- in uplink, if MAC-i/is has been configured:
  - if the UE pre-generates RLC PDUs for transmission in a later TTI:

- provided that the UE has sufficient amount of data available for transmission, the size of the data field of the RLC PDU shall be chosen so that each RLC PDU to be multiplexed to the MAC-i/is PDU matches the maximum amount of data allowed to be transmitted by the applicable current grant (scheduled or non-scheduled) for the current TTI.

- RLC PDUs may only be pre-generated if the amount of data in outstanding pre-generated RLC PDUs for this logical channel is less than or equal to four times the maximum amount of data allowed to be transmitted by the applicable current grant (scheduled or non-scheduled) for the current TTI.

- if the UE generates RLC PDUs for transmission in the current TTI:

  - the size of the data field of the RLC PDU shall be chosen so that the RLC PDU size matches the data requested for this logical channel by the current E-TFC selection.

…

There are two different MAC PDU formats for E-DCH. Depending on configuration by upper layers the format is either MAC-e/es or MAC-i/is. The MAC PDU format is determined by upper layer signalling [7].

…

- Segmentation Status (SS):
  The Segmentation Status (SS) field provides indication of the segmentation status of the MAC SDU or segment of MAC SDU belonging to the logical channel identified by the LCH-ID field. The length of the SS field is 2 bits.

Table 9.2.4.3-1: Structure of the SS field

SI Field	Segmentation indication
00	The first MAC-is SDU of the MAC-is PDU is a complete MAC-d PDU. The last MAC-is SDU of the MAC-is PDU is a complete MAC-d PDU.
01	If there are more than one MAC-is SDUs in the MAC-is PDU, the last MAC-is SDU of the MAC-is PDU is a complete MAC-d PDU. The first MAC-is SDU of the MAC-is PDU is the last segment of a MAC-d PDU.
10	If there are more than one MAC-is SDUs in the MAC-is PDU, the first MAC-is SDU of the MAC-is PDU is a complete MAC-d PDU. The last MAC-is SDU of the MAC-is PDU is the first segment of a MAC-d PDU.
11	If there are more than one MAC-is SDUs in the MAC-is PDU, the first MAC-is SDU of the MAC-is PDU is the last segment of a MAC-d PDU and the last MAC-is SDU of MAC-is PDU is the first segment of a MAC-d PDU. If there is only one MAC-is SDU in the MAC-is PDU, the MAC-is SDU is a middle segment of a MAC-d PDU.

[…]

There is one segmentation entity per logical channel in the UE.

When the MAC-d PDU size, the untransmitted part of the MAC-d PDU, the MAC-c PDU size (FDD only) or the untransmitted part of the MAC-c PDU (FDD only) exceeds available space in the transport block according to the E-TFC selection, the segmentation entity shall:

- segment the MAC-d PDU, the untransmitted part of the MAC-d PDU, the MAC-c PDU or the untransmitted part of the MAC-c PDU to fit the available space in the transport block according to the E-TFC selection and store the untransmitted part of the MAC-d PDU or MAC-c PDU;

- set the segmentation status (SS) field of the transmission to indicate the segmentation status as described in subclause 9.2.4.3.

Reference(s)

TS 25.322 clause 4.2.1.2.1, 9.2.2.9

TS 25.321 clauses 9.1.5, 9.2.4.3, 11.8.1.2a

7.1.7.2.3 Test purpose

To test UE is able to segment data at MAC layer and use all 4 SS values in MAC-is header.

7.1.7.2.4 Method of test

Initial conditions

Downlink length indicators of size 15 shall be used

Uplink length indicator of size 15 shall be used

Test procedure

The following parameters are specific for this test case:

Parameter	Value
Minimum UL RLC PDU	1600 bits
Largest UL RLC PDU size	1600 bits
Max_RLC_PDU_size	200 octets
Periodicity for scheduling info	No periodic scheduling info
E-TFCI table	Table 0 for 10 ms TTI (FDD), 5ms TTI E-DCH Transport Block Size Table 0(1.28Mcps TDD)

In this test procedure the UE is configured with one logical channel with Id 7 (LCH1).

a) The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed with all the parameters as specified in the procedure, with the exception that the default Radio Bearer is replaced with the RB according to clause 6.11.4k.2 (FDD) /6.11.5.4.9.2 (1.28Mcps TDD) (UM Flexible RLC + MAC-i/is + MAC-ehs) using condition A27 (FDD) /A23 (1.28Mcps TDD) with RB mapping to HS-DSCH and E-DCH. The MAC-d flow of the RB is configured for scheduled transmissions.

b) The radio bearer is placed into UE test loop mode 1 and configured to return UL RLC SDUs of the same size as received in DL.

c) The SS transmits two RLC SDUs (SDU1, SDU2) of size 40 and 60 octets respectively. The SDUs are concatenated into a single RLC PDU. Length indicators are used to indicate the end of each SDU.

d) The SS waits for an SI to be received that indicates that data is available (can be identified from the content of the SI).

e) The SS issues a scheduled grant that allows the UE to transmit SDU1 and the first segment of the SDU2.

f) UE loops back SDU1 and a segment of SDU2 in first TTI and the remainder of SDU2 in the next TTI.

TSN = 0, SS = 10, for MAC-is header in first TTI, TSN = 1, SS = 01 for MAC-is header in the next TTI.

g) The SS removes the scheduling grant for the UE.

h) The SS transmits three RLC SDUs (SDU3, SDU4, SDU5) of size 20, 30, 10 octets, respectively. The SDUs are concatenated into a single RLC PDU. Length indicators are used to indicate the end of each SDU.

i) The SS waits for an SI to be received that indicates that data is available.

j) The SS issues a scheduled grant that allows the UE to transmit the 3 SDUs.

k) UE loops back SDU3, SDU4, SDU5 in the same TTI.

TSN = 2, SS = 00, for MAC-is header.

l) The SS removes the scheduling grant for the UE.

m) SS transmits one RLC (SDU6) of size 198 octets with no Length Indicator and Alternative E-bit interpretation (bit value 0) in the UM header.

n) The SS waits for an SI to be received that indicates that data is available.

o) The SS issues an absolute grant (grant value 3) which restricts the UE to transmit less than 300 bits per TTI. The current grant is less than the minimum UL RLC PDU size.

p) UE loops back the contents of SDU6 in consecutive MAC-i PDUs.

SS = 10, and MAC-is PDU4 containing first segment of SDU6.

SS = 11, and MAC-is PDUs containing the middle segments of SDU6.

SS = 01, and MAC-is PDU containing the last segment of SDU6.

All MAC-is PDUs should have sequential sequence numbers starting from TSN = 3 for MAC-is PDU4

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2			Close UE test loop	
3	←		DOWNLINK RLC SDUs (SDU1, SDU2)	SDU1 = 40 octets, SDU2 = 60 octets
4	→		SI indicating data	
5	←		Absolute grant allowing the UE to transmit SDU1 and a segment of SDU2	Grant value 4 for FDD
6	→		MAC-is PDU1, TSN = 0	TSN = 0, SS = 10 MAC-is PDU consisting of SDU1 and the first segment of SDU2
7	→		MAC-is PDU2, TSN = 1	TSN = 1, SS = 01 MAC-is PDU consisting of last segment of SDU2
8	←		Removal of absolute grant	Signalling value 1 (FDD only)
9	←		DOWNLINK RLC SDUs (SDU3, SDU4, SDU5)	SDU3 size = 20, SDU4 size = 30, SDU5 size = 10
10	→		SI indicating data	
11	←		Absolute grant of sufficient value to allow the UE to transmit SDU3, SDU4 and SDU5	Grant value 10 for FDD
12	→		MAC-is PDU3, TSN = 2	TSN=2, SS=00, MAC-is PDU consisting of SDU3, SDU4, SDU5.
	←		Removal of absolute grant	Signalling value 1 (FDD only)
13	←		DOWNLINK RLC SDU6	DL RLC SDU size = 198 Octets
14	→		SI indicating data	
15	←		Absolute grant allowing the UE to transmit segments of SDU6.	Grant value 3 for FDD The current grant is less than the minimum UL PDU size
16	→		UPLINK MACis PDUs	TSN = 3, SS = 10 for MAC-is PDU 4 contains first segment of SDU6. The last MAC-is PDU contains the final segment of SDU6, SS = 01. The other MAC-is PDUs contain the middle segments of SDU6, SS = 11.
17			Open UE test loop	
18			RB release	

7.1.7.2.5 Test requirements

a) In step 6, UE loop backs RLC SDU1 and first segment of RLC SDU2 in MAC-i PDU.

b) In step 7, UE loop backs the final segment of RLC SDU2 in MAC-i PDU.

c) In step 12, UE loops back RLC SDU3, SDU4, SDU5 in a single MAC-i PDU.

d) In step 16, UE loops back RLC SDU6 in several TTIs. In the first MAC-i PDU has SS = 10, containing the first segment of SDU6, the succeeding MAC-i PDUs contain the middle segments of SDU6, SS = 11 and the final MAC-i PDU contains the final segment of SDU6, SS = 01.

7.1.7.3 Correct settings of MAC-i/is header fields

7.1.7.3.1 Definition and applicability

Applicable for all UEs supporting MAC-i/is

7.1.7.3.2 Conformance requirement

Extract from 25.321:

[…]

When MAC-i/is is configured, there are two MAC sublayers, MAC-i and MAC-is. MAC-is sits on top of MAC-i and receives PDUs directly from MAC-d and MAC-c (FDD and 1.28 Mcps TDD only). When MAC-i/is is configured, a MAC PDU for E-DCH consists of one MAC-i header and one or more MAC-is PDUs. Each MAC-is PDU consists of one or more MAC-is SDUs belonging to the same logical channel. Each MAC-is SDU equals a complete or a segment of a MAC-d PDU or a MAC-c PDU (FDD and 1.28 Mcps TDD only). The MAC-is SDUs can have different sizes. The LCH-ID and L fields are repeated per MAC-is SDU. The TSN and SS fields are repeated per MAC-is PDU. Multiple MAC-is PDUs from multiple logical channels, but only one MAC-i PDU can be transmitted in a TTI. In case sufficient space is left in the E-DCH transport block or if Scheduling Information needs to be transmitted, an SI will be included at the end of the MAC-i PDU (see Figure 9.1.5.4a).

[…]

- Transmission Sequence Number (TSN):
  The TSN field provides the transmission sequence number for the MAC-is PDU. This information is used for reordering purposes to support in-sequence delivery to higher layers. The length of the TSN field is 6 bits.

- Segmentation Status (SS):
  The Segmentation Status (SS) field provides indication of the segmentation status of the MAC SDU or segment of MAC SDU belonging to the logical channel identified by the LCH-ID field. The length of the SS field is 2 bits.

[…]

- Length (L):
  The L field provides the length of the MAC-is SDU in octets. The size can vary for each SDU in the MAC-is PDU, and is set for each SDU individually. The length of the Length field is 11 bits.

- Logical channel identifier (LCH-ID):
  The LCH-ID field provides identification of the logical channel at the receiver and the re-ordering buffer destination of a MAC-is SDU. In FDD, one LCH-ID value is reserved to indicate that the UE's E-RNTI is included in the MAC-i header. The length of the LCH-ID is 4 bits.

Table 9.2.4.4-1: Structure of the LCH-ID field (FDD only)

LCH-ID Field	Designation
0000	Logical channel 1
0001	Logical channel 2
…	…
1101	Logical channel 14
1110	Identification of CCCH (SRB0)
1111	Identification of E-RNTI being included.

Table 9.2.4.4-2: Structure of the LCH-ID field (1.28 Mcps TDD only)

LCH-ID Field	Designation
0000	Logical channel 1
0001	Logical channel 2
…	…
1101	Logical channel 14
1110	Identification of CCCH (SRB0)
1111	Reserved

- Flag (F):
  The F field is a flag indicating if more fields are present in the MAC-i header or not. If the F field is set to "0" the F field is followed by an additional set of LCH-ID, L and F fields. If the F field is set to "1" the F field is followed by a MAC-is PDU. Each header extension corresponds to one MAC-is SDU.

Reference(s)

TS 25.321 clauses 9.1.5, 9.2.4.3, 9.2.4.4

7.1.7.3.3 Test purpose

The purpose of this test case is to verify that the UE sets the MAC-i/is header fields in the correct way for multiple logical channels on multiple flows mapped onto a single MAC-i PDU.

7.1.7.3.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4k.4 (FDD) / 6.11.5.4.9.4(1.28Mcps TDD) using condition A26 (FDD) /A22 (1.28Mcps TDD) in UM as specified in clause 9.1 of TS 34.108. The logical channel, transport channel and queue identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	6	RB26
8 (LCH2)	3	7	RB27
9 (LCH3)	4	8	RB21
Note: The RAB combination also includes SRBs on E-DCH on MAC-d flow 1 which is not used in the testcase			

The following parameters are specific for this test case:

Parameter	Value
Periodicity for Scheduling Info – no grant	500 ms (see 25.331 10.3.6.99) (FDD)
E-DCH MAC-d flow multiplexing list	11111111 (See 25.331 10.3.5.1b) Note 1
Largest UL RLC PDU size	20 bytes (Note 2)
Note 1: This configuration means that all MAC-d flows can be multiplexed in the same TTI Note 2: The actual value is (IE value * 8) + 16	

The UE is placed into UE test loop mode 1 and the loopback is configured to return UL RLC SDUs of the same size as received the received DL RLC SDU for each radio bearer.

Test procedure

The UE is configured with three logical channels, LCH1 (with priority 6), LCH2 (with priority 7) and LCH3 (with priority 8). LCH1 is mapped to MAC-d flow 2, LCH2 is mapped to MAC-d flow 3 and LCH3 is mapped to MAC-d flow 4.

a) The SS has not issued any scheduling grant for E-DCH to the UE

b) The SS transmits 4 SDUs of sizes 20, 60, 30, 40 bytes on LCH2 in the same TTI

c) The SS waits for an SI indicating data on LCH2

d) The SS issues an absolute grant that allows the UE to send with a high rate (signalling value 10, allowing rates well above 4 SDUs/TTI)

e) The SS waits until data is received and checks the values of the header parameters

f) The SS removes the scheduling grant for E-DCH for the UE

g) The SS transmits three SDUs of size 40, 30, 40 bytes respectively on LCH3 in the same TTI

h) The SS transmits two SDU of size 20, 15 bytes respectively on LCH2 in the same TTI

i) The SS transmits one SDU of size 50 bytes on LCH1

j) The SS waits for SI indicating data on the 3 logical channels

k) The SS issues an absolute grant that allows the UE to send with a high rate (signalling value 10, allowing rates well above 6 SDUs/TTI)

l) The SS waits until data is received and checks the values of the header parameters

m) The SS removes the scheduling grant for E-DCH for the UE

n) The SS transmits two SDUs of size 40 bytes, on LCH2 in the same TTI

o) The SS waits for SI indicating data on LCH2

p) The SS issues an absolute grant that allows the UE to send with a high rate (signalling value 10, allowing rates well above 2 SDUs/TTI)

q) The SS waits until data is received and checks the values of the header parameters

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		4 RLC SDUs on LCH 2 with sizes 20, 60, 30, 40 bytes respectively in the same TTI	
2	→		SI indicating data on LCH 2	
3	←		Absolute grant allowing UE to transmit on E-DCH	This grant must be sufficiently high to allow a rate corresponding to at least 4 RLC PDUs/TTI, signalling value 10 for FDD
4	→		1 MAC-is PDU containing 8 RLC PDUs on LCH 2	SS checks header fields
5	←		Removal of scheduling grant for UE	Grant value 1 (FDD only)
6	←		3 RLC SDUs on LCH 3, size 40, 30, 40 bytes respectively	Data sent in the same TTI
7	←		2 RLC SDUs on LCH 2, size 20 and 15 bytes respectively	Data sent in the same TTI
8	←		1 RLC SDUs on LCH 1, size 50 byes	
9	→		Potential SI indicating data on LCH 3, LCH2, LCH1 or any combination	SS waits for SI indicating data on all logical channels
10	←		Absolute grant allowing UE to transmit on E-DCH	This grant must be sufficiently high to allow a rate corresponding to at least 6 RLC PDUs/TTI, signalling value 10
11	→		3 MAC-is PDUs containing 3 RLC PDUs on LCH 1, 2 RLC PDUs on LCH 2 and 6 RLC PDUs on LCH3 respectively	SS checks header fields
12	←		Removal of scheduling grant for UE	Grant value 1 (FDD only)
13	←		2 RLC SDUs on LCH 2, size 40 bytes each	Data sent in the same TTI
14	→		SI indicating data on LCH 2	
15	←		Absolute grant allowing UE to transmit on E-DCH	This grant must be sufficiently high to allow a rate corresponding to at least 2 RLC PDUs/TTI, signalling value 10 for FDD
16	→		1 MAC-is PDU containing 4 RLC PDUs on LCH 2	SS checks header fields

Specific Message Contents

None

7.1.7.3.5 Test requirements

1. After step 4, the SS shall receive 1 MAC-is PDU shall be received where:
   - For MAC-is header content,, TSN = 0, SS = 00
   - The content of MAC-i headers received shall be set to :

     LCH-ID = 0111'B, L = 22'D, F = 0 header for MAC-is SDU1

     LCH-ID = 0111'B, L = 22'D, F = 0 header for MAC-is SDU2

     LCH-ID = 0111'B, L = 22'D, F = 0 header for MAC-is SDU3

     LCH-ID = 0111'B, L = 22'D, F = 1 header for MAC-is SDU4

     LCH-ID = 0111'B, L = 22'D, F = 0 header for MAC-is SDU5

     LCH-ID = 0111'B, L = 22'D, F = 0 header for MAC-is SDU6

     LCH-ID = 0111'B, L = 22'D, F = 0 header for MAC-is SDU7

     LCH-ID = 0111'B, L = 12'D, F = 1 header for MAC-is SDU8
2. After step 11, the SS shall receive 3 MAC-is PDUs where:
   - For MAC-is PDU1:

     TSN = 0, SS = 00, for The Content of MAC-I Header received shall be set to

     LCH-ID = 0110'B, L = 22'D, F = 0

     LCH-ID = 0110'B, L = 22'D, F = 0

     LCH-ID = 0110'B, L = 12'D, F = 1
   - FOR MAC-is PDU2

     TSN = 1, SS = 00, the content of MAC-i headers received shall be set to :

     LCH-ID = 0111'B, L = 22'D, F = 0

     LCH-ID = 0111'B, L = 17'D, F = 1
   - FOR MAC-is PDU3

     TSN = 0, SS = 00, the content of MAC-i headers received shall be set to :

     LCH-ID = 1000'B, L = 22'D, F = 0

     LCH-ID = 1000'B, L = 22'D, F = 0

     LCH-ID = 1000'B, L = 22'D, F = 0

     LCH-ID = 1000'B, L = 22'D, F = 0

     LCH-ID = 1000'B, L = 22'D, F = 0

     LCH-ID = 1000'B, L = 12'D, F = 1
3. After step 16, the SS shall receive 1 MAC-is PDU where:
   - The TSN is set to 2, SS = 00, the content of MAC-i headers received shall be set to :

     LCH-ID = 0111'B , L = 22'D, F = 0

     LCH-ID = 0111'B , L = 22'D, F = 0

     LCH-ID = 0111'B , L = 22'D, F = 0

LCH-ID = 0111'B , L = 22'D, F = 1

7.1.7.4 MAC-is/i transport block size selection/ UL QPSK

7.1.7.4.1 Definition and applicability

Applicable for all UEs supporting MAC-i/is.

7.1.7.4.2 Conformance requirement

Extract from TS 25.321 clause 11.8.1.4

The transmission format and data allocation shall follow the requirements below:

- Only E-TFCs from the configured E-TFCS shall be considered for the transmission;

[…]

- The UE shall not use the following E-TFCIs;
  - If the UE is configured with E-TFCI table 0 (see [7]) and 2ms TTI, it shall not use E-TFCI 120 in the mapping defined in Annex B.1
  - If the UE is configured with E-TFCI table 1 (see [7]) and 2ms TTI, it shall not use E-TFCI 115 in the mapping defined in Annex B.2
  - If the UE is configured with E-TFCI table 2 (see [7]) and 2ms TTI, it shall not use E-TFCI 121 in the mapping defined in Annex B.2a
  - If the UE is configured with E-TFCI table 3 (see [7]) and 2ms TTI, it shall not use E-TFCIs 101 and 102 in the mapping defined in Annex B.2b

[…]

[…]

Extract from TS 25.321 clause 9.2.5.4

[…]

RRC can configure the MAC-e or MAC-i to use one of two Transport block size sets for the 10ms TTI duration and one of four Transport block size sets for the 2ms TTI duration. The normative description of the mapping between the E-TFCI and the corresponding transport block size is provided in Annex B:

- If the UE is configured with E-TFCI table 0 (see [7]) and 2ms TTI, it shall use the mapping defined in Annex B.1
- If the UE is configured with E-TFCI table 1 (see [7]) and 2ms TTI, it shall use the mapping defined in Annex B.2
- If the UE is configured with E-TFCI table 2 (see [7]) and 2ms TTI, it shall use the mapping defined in Annex B.2a
- If the UE is configured with E-TFCI table 3 (see [7]) and 2ms TTI, it shall use the mapping defined in Annex B.2b
- If the UE is configured with E-TFCI table 0 (see [7]) and 10ms TTI, it shall use the mapping defined in Annex B.3
- If the UE is configured with E-TFCI table 1 (see [7]) and 10ms TTI, it shall use the mapping defined in Annex B.4

[…]

Reference(s)

TS 25.321 clause 11.8.1.4, 9.2.5.4

7.1.7.4.3 Test purpose

To verify that the UE is able to transmit all possible transport block sizes when MAC-i/is is configured and within the UE capability.

7.1.7.4.4 Method of test

NOTE: The reference to E-DCH Category refers to the UE capability as signalled in the Rel-6 IE "E-DCH physical layer category". All UEs supporting E-DCH should signal a category between 1 and 6 for this IE even if the UE physical capability category is above 6.

NOTE: The reference to HS-DSCH Categories refers to the UE capability as signalled in the Rel-5 IE "HS-DSCH physical layer category" (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

UE in idle mode

The following parameters are specific for this test case:

Common for all UE HS-DSCH categories:

Parameter	Value
MAC-d PDU size	336 bits
MAC-ehs receiver window size	16
Number of HARQ processes	1
Number of reordering queues	1

Common for all UE E-DCH categories:

Parameter	Value
Periodicity for Scheduling Info – no grant	500 ms (see 25.331 10.3.6.99)

Specific depending on E-DCH category:

Parameter	E-DCH Category	Value
RLC Transmission window size	1 to 5	512
	6	1536
E-TFCI table	1 to 6	See table 7.1.6.3.2.5

Specific depending on HS-DSCH category:

Parameter	HS-DSCH Category	Value
RLC Receiving window size	1 to 6	512
	7 and 8	1536
	9 and 10	2047
	11 and 12	1024

Definition of test variables:

$I_{E\text{-}TFCI}$	Index value used by SS to lock up the TB size used for the different test points

The mapping between the chosen E-TFC index and the corresponding E-DCH transport block size is given in the following tables:

Table 7.1.7.4.1: Test points for 2ms TTI E-DCH Transport Block Size Table 0

$I_{E\text{-}TFCI}$	TB Size (bits)	$I_{E\text{-}TFCI}$	TB Size (bits)	$I_{E\text{-}TFCI}$	TB Size (bits)	$I_{E\text{-}TFCI}$	TB Size (bits)	$I_{E\text{-}TFCI}$	TB Size (bits)
0	18	30	342	60	1015	90	3008	120	8913 Note
1	120	31	355	61	1053	91	3119	121	9241
2	124	32	368	62	1091	92	3234	122	9582
3	129	33	382	63	1132	93	3353	123	9935
4	133	34	396	64	1173	94	3477	124	10302
5	138	35	410	65	1217	95	3605	125	10681
6	143	36	426	66	1262	96	3738	126	11075
7	149	37	441	67	1308	97	3876	127	11484
8	154	38	458	68	1356	98	4019		
9	160	39	474	69	1406	99	4167		
10	166	40	492	70	1458	100	4321		
11	172	41	510	71	1512	101	4480		
12	178	42	529	72	1568	102	4645		
13	185	43	548	73	1626	103	4816		
14	192	44	569	74	1685	104	4994		
15	199	45	590	75	1748	105	5178		
16	206	46	611	76	1812	106	5369		
17	214	47	634	77	1879	107	5567		
18	222	48	657	78	1948	108	5772		
19	230	49	682	79	2020	109	5985		
20	238	50	707	80	2094	110	6206		
21	247	51	733	81	2172	111	6435		
22	256	52	760	82	2252	112	6672		
23	266	53	788	83	2335	113	6918		
24	275	54	817	84	2421	114	7173		
25	286	55	847	85	2510	115	7437		
26	296	56	878	86	2603	116	7711		
27	307	57	911	87	2699	117	7996		
28	318	58	944	88	2798	118	8290		
29	330	59	979	89	2901	119	8596		

Note: E-TFCI index 120 shall not be used by the UE (see TS 25.321 clause 11.8.1.4). The reason to include this test point is to verify that UE comply to this requirement and is not using E-TFCI index value 120.

Table 7.1.7.4.2: Test points for 2ms TTI E-DCH Transport Block Size Table 1

$I_{E\text{-}TFCI}$	TB Size (bits)	$I_{E\text{-}TFCI}$	TB Size (bits)	$I_{E\text{-}TFCI}$	TB Size (bits)
0	18	43	2724	86	7252
1	186	44	2742	87	7288
2	204	45	3042	88	7428
3	354	46	3060	89	7464
4	372	47	3078	90	7764
5	522	48	3298	91	7800
6	540	49	3316	92	7908
7	674	50	3334	93	7944
8	690	51	3378	94	8100
9	708	52	3396	95	8136
10	726	53	3414	96	8436
11	858	54	3732	97	8472
12	876	55	3750	98	8564
13	1026	56	3972	99	8600
14	1044	57	3990	100	8772
15	1062	58	4068	101	8808
16	1194	59	4086	102	9108
17	1212	60	4404	103	9144
18	1330	61	4422	104	9220
19	1348	62	4628	105	9256
20	1362	63	4646	106	9444
21	1380	64	4740	107	9480
22	1398	65	4758	108	9780
23	1530	66	5076	109	9816
24	1548	67	5094	110	9876
25	1698	68	5284	111	9912
26	1716	69	5302	112	10116
27	1734	70	5412	113	10152
28	1866	71	5430	114	10452
29	1884	72	5748	115	10488 Note
30	1986	73	5766	116	10532
31	2004	74	5940	117	10568
32	2022	75	5958	118	10788
33	2034	76	6084	119	10824
34	2052	77	6102	120	11124
35	2070	78	6420	121	11178
36	2370	79	6438	122	11188
37	2388	80	6596	123	11242
38	2406	81	6614	124	11460
39	2642	82	6756	125	11478
40	2660	83	6774		
41	2678	84	7092		
42	2706	85	7110		

Note: E-TFCI index 115 shall not be used by the UE (see TS 25.321 clause 11.8.1.4). The reason to include this test point is to verify that UE comply to this requirement and is not using E-TFCI index value 115.

Table 7.1.7.4.3: Test points for 10ms TTI E-DCH Transport Block Size Table 0

I_{E-TFCI}	TB Size (bits)	I_{E-TFCI}	TB Size (bits)	I_{E-TFCI}	TB Size (bits)	I_{E-TFCI}	TB Size (bits)	I_{E-TFCI}	TB Size (bits)
0	18	30	389	60	1316	90	4452	120	15051
1	120	31	405	61	1371	91	4636	121	15675
2	124	32	422	62	1428	92	4828	122	16325
3	130	33	440	63	1487	93	5029	123	17001
4	135	34	458	64	1549	94	5237	124	17706
5	141	35	477	65	1613	95	5454	125	18440
6	147	36	497	66	1680	96	5680	126	19204
7	153	37	517	67	1749	97	5915	127	20000
8	159	38	539	68	1822	98	6161		
9	166	39	561	69	1897	99	6416		
10	172	40	584	70	1976	100	6682		
11	180	41	608	71	2058	101	6959		
12	187	42	634	72	2143	102	7247		
13	195	43	660	73	2232	103	7547		
14	203	44	687	74	2325	104	7860		
15	211	45	716	75	2421	105	8186		
16	220	46	745	76	2521	106	8525		
17	229	47	776	77	2626	107	8878		
18	239	48	809	78	2735	108	9246		
19	249	49	842	79	2848	109	9629		
20	259	50	877	80	2966	110	10028		
21	270	51	913	81	3089	111	10444		
22	281	52	951	82	3217	112	10877		
23	293	53	991	83	3350	113	11328		
24	305	54	1032	84	3489	114	11797		
25	317	55	1074	85	3634	115	12286		
26	331	56	1119	86	3784	116	12795		
27	344	57	1165	87	3941	117	13325		
28	359	58	1214	88	4105	118	13877		
29	374	59	1264	89	4275	119	14453		

Table 7.1.7.4.4: Test points for 10ms TTI E-DCH Transport Block Size Table 1

I_{E-TFCI}	TB Size (bits)	I_{E-TFCI}	TB Size (bits)	I_{E-TFCI}	TB Size (bits)
0	18	41	5076	82	11850
1	186	42	5094	83	12132
2	204	43	5412	84	12186
3	354	44	5430	85	12468
4	372	45	5748	86	12522
5	522	46	5766	87	12804
6	540	47	6084	88	12858
7	690	48	6102	89	13140
8	708	49	6420	90	13194
9	858	50	6438	91	13476
10	876	51	6756	92	13530
11	1026	52	6774	93	13812
12	1044	53	7092	94	13866
13	1194	54	7110	95	14148
14	1212	55	7428	96	14202
15	1362	56	7464	97	14484

16	1380	57	7764	98	14556
17	1530	58	7800	99	14820
18	1548	59	8100	100	14892
19	1698	60	8136	101	15156
20	1716	61	8436	102	15228
21	1866	62	8472	103	15492
22	1884	63	8772	104	15564
23	2034	64	8808	105	15828
24	2052	65	9108	106	15900
25	2370	66	9144	107	16164
26	2388	67	9444	108	16236
27	2706	68	9480	109	16500
28	2724	69	9780	110	16572
29	3042	70	9816	111	17172
30	3060	71	10116	112	17244
31	3378	72	10152	113	17844
32	3396	73	10452	114	17916
33	3732	74	10488	115	18516
34	3750	75	10788	116	18606
35	4068	76	10824	117	19188
36	4086	77	11124	118	19278
37	4404	78	11178	119	19860
38	4422	79	11460	120	19950
39	4740	80	11514		
40	4758	81	11796		

Table 7.1.7.4.5: Applicable E-TFS indexes for sub-tests 1 to 4 and UE E-DCH categories 1 to 6.

			Applicable E-TFS indexes					
Sub-test	**E-DCH TTI**	**E-DCH Transport Block Size Table**	**Category 1**	**Category 2**	**Category 3**	**Category 4**	**Category 5**	**Category 6**
1	10ms	10ms TTI Table 0, Table 7.1.7.4.3	1..101	1..119	1..119	1..127	1..127	1..127
2	10ms	10ms TTI Table 1, Table 7.1.7.4.4	1..54	1..99	1..99	1..120	1..120	1..120
3	2ms	2ms TTI Table 0, Table 7.1.7.4.1	N/A	1..88	N/A	1..108	N/A	1..127
4	2ms	2ms TTI Table 1, Table 7.1.7.4.2	N/A	1..44	N/A	1..73	N/A	1..125

NOTE 1: Applicable indexes depends on the UE capability of “Maximum number of bits of an E-DCH transport block transmitted within a 10 ms E-DCH TTI” and “Maximum number of bits of an E-DCH transport block transmitted within a 2 ms E-DCH TTI” as specified in TS 25.306 clause 5 and Table 5.1g. E-TFCI index=0 not tested as TB size for this E-TFCI value is 18 bits, which would only fit the MAC-i/is header used by the SS in the test procedure 1.

NOTE 2: For E-DCH categories beyond 6, E-TFS indices for category 6 are applicable.

Table 7.1.7.4.6: E-TFCI values causing degradation due to turbo coder irregularities

E-DCH Transport Block Size Tables	E-TFCI	Reference
2 ms TTI, Table 0	120	[6], Annex B.1
2 ms TTI, Table 1	115	[6], Annex B.2

Test procedure

The following test specs shall be executed for each applicable sub-test in Table 7.1.7.4.5:

a) The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4k.2 (UM, Flexible RLC + MAC-i/is + MAC-ehs) using conditions A27 as specified in clause 9.1 of TS 34.108. See Note 1.

b) The SS closes the test loop using UE test loop mode 1 and configuring the UL RLC SDU size to be equal to the received DL SDU size (i.e. not setting the UL RLC SDU size parameter).

c) The SS sets $I_{E\text{-}TFCI}$ =1.

d) The SS look up the TB Size based on the $I_{E\text{-}TFCI}$ value in the table used for the sub-test according to Table 7.1.7.4.5.

e) The SS removes the scheduling grant for E-DCH for the UE.

f) If the transport block size TB_{size} is >12040 bits then SS creates 2 DL RLC SDUs of size 8*FLOOR ((TB_{size} – 56 bit)/16) (largest possible RLC SDU size considering octet alignment and MAC-i/is and minimum RLC UM headers). If the transport block size TB_{size} is $\leq$ 12040 bits the SS creates 1 DL RLC SDUs of size 8*FLOOR((TB_{size} – 32 bit)/8). The SS creates a DL RLC PDU for each DL RLC SDU using Alternative E-bit interpretation ('0') in the RLC PDU header and transmits in downlink. See note 2.

g) The SS waits for an SI to be received that indicates that there is data available for transmission (can be identified from the content of the SI). The SS checks that TEBS have the correct values. See Note 3.

h) The SS issues an absolute grant that allows the UE to send at maximum bit rate (signalling value 31)

i) The SS waits until data is received and verifies that the looped back SDU data has the correct content and is sent in the same TTI.

j) The SS verifies that the received E-TFC used by the UE is correct. The SS checks that the UE has not used the transport block sizes correspondent to the E-TFCI values as listed in table 7.1.7.4.6, but instead used the transport block size correspondent to the next possible larger E-TFCI value.

k) The SS increments the $I_{E\text{-}TFCI}$ by 1. If the $I_{E\text{-}TFCI}$ value is less than maximum value for the actual sub-test and UE category according to Table 7.1.7.4.5 then continue with step d else continue with step l.

l) The SS opens the UE test loop.

m) The SS release the radio bearer.

n) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The SS configures the physical channel parameters according to the actual UE category under test.

NOTE 2: The test data for DTCHs mapped on HS-DSCH is divided into 2 RLC SDUs to keep the maximum SDU size below or equal to 1500 octets (1500 octets is the limit of QoS parameter "Max SDU size" in SM). To allow for testing of the smallest TB sizes a single RLC PDU is used when the TB size is equal or below 12032 bits to reduce the L2 header overhead. 12032 bits corresponds to maximum RLC SDU size of 1500 octets (12000 bits) plus MAC-i/is header size of 24 bits and UMD PDU header size (8 bits).

The SS is using one RLC PDU per RLC SDU. The RLC SDU size is calculated as:
RLC SDU size = 8*FLOOR((TBsize - MAC-i/is header size)/N - UMD PDU header size)/8
= 8*FLOOR((TBsize – 24 - (N-1)*16)/N – 8)/8 bits.

For N=1 this gives RLC SDU size = 8*FLOOR(TB size – 32)/8 bits.
For N=2 this gives RLC SDU size = 8*FLOOR(TB size – 56)/16 bits

NOTE 3: The SS calculates the TEBS value using the E-TFC TB size determined by the E-TFCI value tested according to 25.321 Table 9.2.5.3.2-1.

Expected sequence

The expected sequence is repeated for each applicable sub-test in Table 7.1.7.4.5:

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
2	<--		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
4	<--		RRC CONNECTION SETUP (CCCH)	RRC
5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6	-->		SERVICE REQUEST (DCCH)	GMM
7	<--		SECURITY MODE COMMAND	RRC see note 1
8	-->		SECURITY MODE COMPLETE	RRC see note 1
9	<--		ACTIVATE RB TEST MODE (DCCH)	TC
10	-->		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
11	<--		RADIO BEARER SETUP (DCCH)	RRC. For the PS radio bearer the 'pdcp info' IE shall be omitted.
12	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
13	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 with no "LB Setup RB IE#k" parameter set (UE shall return an UL RLC SDU with the same size as the received RLC SDU in downlink)
14	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
15	SS			The SS sets $I_{E\text{-}TFCI}$ = 1 and look up the transport block size from the relevant Transport Block Size Table for the sub-test.
16	←		Removal of absolute grant	Signalling value 1
17	<--		DOWNLINK RLC SDU(s)	The SS creates and transmit one or 2 RLC SDUs. The number of RLC SDUs and their size depends on TB size under test.
18	→		SI indicating data for transmission	This can be verified from the indicated Total E-DCH Buffer Status (TEBS)
19	<--		Absolute grant allowing the UE to transmit at maximum bit rate.	Signalling value 31
20	-->		UPLINK RLC SDU(s)	The SS checks E-TFC from the UE and checks that the content of the received UL RLC SDU(s) are correct and sent in the same TTI. The SS checks that the UE has not used the transport block sizes correspondent to the E-TFCI values as listed in table 7.1.7.4.6, but instead used the transport block size correspondent to the next possible larger E-TFCI value.
21	SS			The SS increments $I_{E\text{-}TFCI}$ by 1 and look up transport block size from the relevant Transport Block Size Table for the sub-test. If E-TFC TB size is supported by the E-DCH category then repeat steps 16 to 21 else continue with step 22.
22	<--		OPEN UE TEST LOOP (DCCH)	TC
23	-->		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
24			RB RELEASE	RRC
25	<--		DEACTIVATE RB TEST MODE	TC Optional step
26	-->		DEACTIVATE RB TEST MODE COMPLETE	TC Optional step
Note 1: In addition to activate integrity protection Step 7 and Step 8 are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.				

7.1.7.4.5 Test requirements

1. In step 20, the SS verifies that the received E-TFC has the correct size. The SS checks that the UE has not used the transport block sizes correspondent to the E-TFCI values as listed in table 7.1.7.4.6, but instead used the transport block size correspondent to the next possible larger E-TFCI value.

2. In step 20, the SS shall receive the RLC SDUs in the same TTI and with the same content as sent in downlink.

7.1.7.5 MAC-is/i transport block size selection/ UL 16QAM

7.1.7.5.1 Definition and applicability

Applicable for all UEs supporting MAC-i/is and UL 16QAM.

7.1.7.5.1 Conformance requirement

Extract from TS 25.321 clause 11.8.1.4

The transmission format and data allocation shall follow the requirements below:

- Only E-TFCs from the configured E-TFCS shall be considered for the transmission;

[…]

- The UE shall not use the following E-TFCIs;

  - If the UE is configured with E-TFCI table 0 (see [7]) and 2ms TTI, it shall not use E-TFCI 120 in the mapping defined in Annex B.1

  - If the UE is configured with E-TFCI table 1 (see [7]) and 2ms TTI, it shall not use E-TFCI 115 in the mapping defined in Annex B.2

  - If the UE is configured with E-TFCI table 2 (see [7]) and 2ms TTI, it shall not use E-TFCI 121 in the mapping defined in Annex B.2a

  - If the UE is configured with E-TFCI table 3 (see [7]) and 2ms TTI, it shall not use E-TFCIs 101 and 102 in the mapping defined in Annex B.2b

[…]

[…]

Extract from TS 25.321 clause 9.2.5.4

[…]

RRC can configure the MAC-e or MAC-i to use one of two Transport block size sets for the 10ms TTI duration and one of four Transport block size sets for the 2ms TTI duration. The normative description of the mapping between the E-TFCI and the corresponding transport block size is provided in Annex B:

- If the UE is configured with E-TFCI table 0 (see [7]) and 2ms TTI, it shall use the mapping defined in Annex B.1

- If the UE is configured with E-TFCI table 1 (see [7]) and 2ms TTI, it shall use the mapping defined in Annex B.2

- If the UE is configured with E-TFCI table 2 (see [7]) and 2ms TTI, it shall use the mapping defined in Annex B.2a

- If the UE is configured with E-TFCI table 3 (see [7]) and 2ms TTI, it shall use the mapping defined in Annex B.2b

- If the UE is configured with E-TFCI table 0 (see [7]) and 10ms TTI, it shall use the mapping defined in Annex B.3

- If the UE is configured with E-TFCI table 1 (see [7]) and 10ms TTI, it shall use the mapping defined in Annex B.4

[…]

Reference(s)

TS 25.321 clause 11.8.1.4, 9.2.5.4

7.1.7.5.3 Test purpose

To verify that the UE is able to transmit all possible transport block sizes when 16QAM uplink and MAC-i/is is configured.

7.1.7.5.4 Method of test

NOTE: The reference to E-DCH Category refers to the UE capability as signalled in the Rel-7 IE "E-DCH physical layer category extension".

NOTE: The reference to HS-DSCH Categories refers to the UE capability as signalled in the Rel-5 IE "HS-DSCH physical layer category" (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

UE in idle mode

The following parameters are specific for this test case:

Common for all UE HS-DSCH categories:

Parameter	Value
MAC-d PDU size	336 bits
MAC-ehs receiver window size	16
Number of HARQ processes	1
Number of reordering queues	1

Common for all UE E-DCH categories:

Parameter	Value
Periodicity for Scheduling Info – no grant	500 ms (see 25.331 10.3.6.99)
RLC Poll Timer	1000ms
RLC Reset Timer	1000ms

Specific depending on E-DCH category:

Parameter	E-DCH Category	Value
RLC Transmission window size	**7**	**1536**
E-TFCI table	**7**	**See table 7.1.5.1.3**

Specific depending on HS-DSCH category:

Parameter	HS-DSCH Category	Value
RLC Receiving window size	1 to 6	512
	7 and 8	1536
	9 and 10	2047
	11 and 12	1024

Definition of test variables:

$I_{E\text{-}TFCI}$	Index value used by SS to lock up the TB size used for the different test points

The mapping between the chosen E-TFC index and the corresponding E-DCH transport block size is given in the following tables:

Table 7.1.7.5.1: Test points for 2ms TTI E-DCH Transport Block Size Table 2

$I_{E\text{-}TFCI}$	TB Size (bits)	$I_{E\text{-}TFCI}$	TB Size (bits)	$I_{E\text{-}TFCI}$	TB Size (bits)	$I_{E\text{-}TFCI}$	TB Size (bits)	$I_{E\text{-}TFCI}$	TB Size (bits)
0	18	30	402	60	1405	90	4913	120	17173
1	120	31	419	61	1465	91	5122	121	17904 Note
2	125	32	437	62	1528	92	5341	122	18667
3	130	33	455	63	1593	93	5568	123	19462
4	135	34	475	64	1661	94	5805	124	20291
5	141	35	495	65	1731	95	6053	125	21155
6	147	36	516	66	1805	96	6310	126	22056
7	154	37	538	67	1882	97	6579	127	22995
8	160	38	561	68	1962	98	6859		
9	167	39	585	69	2046	99	7152		
10	174	40	610	70	2133	100	7456		
11	182	41	636	71	2224	101	7774		
12	189	42	663	72	2319	102	8105		
13	197	43	691	73	2417	103	8450		
14	206	44	721	74	2520	104	8810		
15	215	45	752	75	2628	105	9185		
16	224	46	784	76	2740	106	9577		
17	233	47	817	77	2856	107	9985		
18	243	48	852	78	2978	108	10410		
19	254	49	888	79	3105	109	10853		
20	265	50	926	80	3237	110	11316		
21	276	51	965	81	3375	111	11798		
22	288	52	1007	82	3519	112	12300		
23	300	53	1049	83	3669	113	12824		
24	313	54	1094	84	3825	114	13370		
25	326	55	1141	85	3988	115	13940		
26	340	56	1189	86	4158	116	14534		
27	354	57	1240	87	4335	117	15153		
28	370	58	1293	88	4520	118	15798		
29	385	59	1348	89	4712	119	16471		

Note: E-TFCI index 121 shall not be used by the UE (see TS 25.321 clause 11.8.1.4). The reason to include this test point is to verify that UE comply to this requirement and is not using E-TFCI index value 121.

Table 7.1.7.5.2: Test points for 2ms TTI E-DCH Transport Block Size Table 3

$I_{E\text{-}TFCI}$	TB Size (bits)	$I_{E\text{-}TFCI}$	TB Size (bits)	$I_{E\text{-}TFCI}$	TB Size (bits)	$I_{E\text{-}TFCI}$	TB Size (bits)	$I_{E\text{-}TFCI}$	TB Size (bits)
0	18	30	1902	60	6614	90	14184	120	21966
1	186	31	1986	61	6774	91	14538	121	22302
2	204	32	2004	62	7110	92	14874	122	22430
3	354	33	2034	63	7270	93	15210	123	22638
4	372	34	2052	64	7446	94	15546	124	22996
5	522	35	2370	65	7782	95	15882		
6	540	36	2388	66	7926	96	16218		
7	558	37	2642	67	8118	97	16554		
8	674	38	2660	68	8454	98	16890		
9	692	39	2706	69	8582	99	17226		
10	708	40	2724	70	8790	100	17562		
11	858	41	3042	71	9126	101	17802 Note		
12	876	42	3060	72	9238	102	17898 Note		
13	894	43	3298	73	9462	103	18252		
14	1026	44	3316	74	9798	104	18476		
15	1044	45	3378	75	9894	105	18588		
16	1194	46	3396	76	10134	106	18924		
17	1212	47	3750	77	10470	107	19132		
18	1230	48	3990	78	10550	108	19260		
19	1330	49	4086	79	10806	109	19596		
20	1348	50	4422	80	11160	110	19788		
21	1362	51	4646	81	11224	111	19932		
22	1380	52	4758	82	11496	112	20268		
23	1530	53	5094	83	11880	113	20444		
24	1548	54	5302	84	12168	114	20604		
25	1566	55	5430	85	12536	115	20940		
26	1698	56	5766	86	12840	116	21100		
27	1716	57	5958	87	13192	117	21276		
28	1866	58	6102	88	13512	118	21612		
29	1884	59	6438	89	13848	119	21774		

Note: E-TFCI indices 101 and 102 shall not be used by the UE (see TS 25.321 clause 11.8.1.4). The reason to include this test point is to verify that UE comply to this requirement and is not using E-TFCI index values 101 and 102.

Table 7.1.7.5.3: Applicable E-TFS indexes for sub-tests 1 to 2 and UE E-DCH category 7.

Sub-test	E-DCH TTI	E-DCH Transport Block Size Table	Applicable E-TFS indexes
1	2ms	2ms TTI Table 2, Table 7.1.7.4.2a	1..127
2	2ms	2ms TTI Table 3, Table 7.1.7.4.2b	1..124

Table 7.1.7.5.4: E-TFCI values causing degradation due to turbo coder irregularities

E-DCH Transport Block Size Tables	E-TFCI	Reference
2 ms TTI, Table 2	121	[6], Annex B.2a
2 ms TTI, Table 3	101	[6], Annex B.2b
2 ms TTI, Table 3	102	[6], Annex B.2b

Test procedure

The following test specs shall be executed for each applicable sub-test in Table 7.1.7.5.5:

a) The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.4k.2 (UM, Flexible RLC + MAC-i/is + MAC-ehs) using conditions A27a (16QAM) as specified in clause 9.1 of TS 34.108. See Note 1.

b) The SS closes the test loop using UE test loop mode 1 and configuring the UL RLC SDU size to be equal to the received DL SDU size (i.e. not setting the UL RLC SDU size parameter).

c) The SS sets $I_{E\text{-}TFCI}$ =1.

d) The SS look up the TB Size based on the $I_{E\text{-}TFCI}$ value in the table used for the sub-test according to Table 7.1.7.5.5.

e) The SS removes the scheduling grant for E-DCH for the UE.

f) If the transport block size TB_{size} is >12040 bits then SS creates 2 DL RLC SDUs of size 8*FLOOR ((TB_{size} – 56 bit)/16) (largest possible RLC SDU size considering octet alignment and MAC-i/is and minimum RLC UM headers). If the transport block size TB_{size} is $\leq$ 12040 bits the SS creates 1 DL RLC SDUs of size 8*FLOOR((TB_{size} – 32 bit)/8). The SS creates a DL RLC PDU for each DL RLC SDU using the special value of HE field ('10') in the RLC PDU header and transmits in downlink. See note 2.

g) The SS waits for an SI to be received that indicates that there is data available for transmission (can be identified from the content of the SI). The SS checks that TEBS have the correct values. See Note 3.

h) The SS issues an absolute grant that allows the UE to send at maximum bit rate (signalling value 31)

i) The SS waits until data is received and verifies that the looped back SDU data has the correct content and is sent in the same TTI.

j) The SS verifies that the received E-TFC used by the UE is correct. The SS checks that the UE has not used the transport block sizes correspondent to the E-TFCI values as listed in table 7.1.7.5.6, but instead used the transport block size correspondent to the next possible larger E-TFCI value.

k) The SS increments the $I_{E\text{-}TFCI}$ by 1. If the $I_{E\text{-}TFCI}$ value is less than maximum value for the actual sub-test and UE category according to Table 7.1.7.5.5 then continue with step d else continue with step l.

l) The SS opens the UE test loop.

m) The SS release the radio bearer.

n) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The SS configures the physical channel parameters according to the actual UE category under test.

NOTE 2: The test data for DTCHs mapped on HS-DSCH is divided into 2 RLC SDUs to keep the maximum SDU size below or equal to 1500 octets (1500 octets is the limit of QoS parameter "Max SDU size" in SM). To allow for testing of the smallest TB sizes a single RLC PDU is used when the TB size is equal or below 12032 bits to reduce the L2 header overhead. 12032 bits corresponds to maximum RLC SDU size of 1500 octets (12000 bits) plus MAC-i/is header size of 24 bits and UMD PDU header size (8 bits).

The SS is using one RLC PDU per RLC SDU. The RLC SDU size is calculated as:
RLC SDU size = 8*FLOOR((TBsize - MAC-i/is header size)/N - UMD PDU header size)/8
= 8*FLOOR((TBsize – 24 - (N-1)*16)/N – 8)/8 bits.

For N=1 this gives RLC SDU size = 8*FLOOR(TB size – 32)/8 bits.
For N=2 this gives RLC SDU size = 8*FLOOR(TB size – 56)/16 bits

NOTE 3: The SS calculates the TEBS value using the E-TFC TB size determined by the E-TFCI value tested according to 25.321 Table 9.2.5.3.2-1.

Expected sequence

The expected sequence is repeated for each applicable sub-test in Table 7.1.7.5.5:

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
2	<--		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
4	<--		RRC CONNECTION SETUP (CCCH)	RRC
5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6	-->		SERVICE REQUEST (DCCH)	GMM
7	<--		SECURITY MODE COMMAND	RRC see note 1
8	-->		SECURITY MODE COMPLETE	RRC see note 1
9	<--		ACTIVATE RB TEST MODE (DCCH)	TC
10	-->		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
11	<--		RADIO BEARER SETUP (DCCH)	RRC. For the PS radio bearer the 'pdcp info' IE shall be omitted.
12	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
13	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 with no "LB Setup RB IE#k" parameter set (UE shall return an UL RLC SDU with the same size as the received RLC SDU in downlink)
14	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
15	SS			The SS sets $I_{E\text{-}TFCI}$ = 1 and look up the transport block size from the relevant Transport Block Size Table for the sub-test.
16	←		Removal of absolute grant	Signalling value 1
17	<--		DOWNLINK RLC SDU(s)	The SS creates and transmit one or 2 RLC SDUs. The number of RLC SDUs and their size depends on TB size under test.
18	→		SI indicating data for transmission	This can be verified from the indicated Total E-DCH Buffer Status (TEBS)
19	<--		Absolute grant allowing the UE to transmit at maximum bit rate.	Signalling value 31
20	-->		UPLINK RLC SDU(s)	The SS checks E-TFC from the UE and checks that the content of the received UL RLC SDU(s) are correct and sent in the same TTI. The SS checks that the UE has not used the transport block sizes correspondent to the E-TFCI values as listed in table 7.1.7.5.6, but instead used the transport block size correspondent to the next possible larger E-TFCI value.
21	SS			The SS increments $I_{E\text{-}TFCI}$ by 1 and look up transport block size from the relevant Transport Block Size Table for the sub-test. If E-TFC TB size is supported by the E-DCH category then repeat steps 16 to 21 else continue with step 22.
22	<--		OPEN UE TEST LOOP (DCCH)	TC
23	-->		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
24			RB RELEASE	RRC
25	<--		DEACTIVATE RB TEST MODE	TC Optional step
26	-->		DEACTIVATE RB TEST MODE COMPLETE	TC Optional step
Note 1: In addition to activate integrity protection Step 7 and Step 8 are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.				

7.1.7.5.5 Test requirements

1. In step 20, the SS verifies that the received E-TFC has the correct size. The SS checks that the UE has not used the transport block sizes correspondent to the E-TFCI values as listed in table 7.1.7.5.4, but instead used the transport block size correspondent to the next possible larger E-TFCI value.

2. In step 20, the SS shall receive the RLC SDUs in the same TTI and with the same content as sent in downlink.

7.1.7.6 MAC-is/i transport block size selection (1.28Mcps TDD)

7.1.7.6.1 Definition and applicability

Applicable for all UEs supporting 1.28Mcps TDD and MAC-i/is.

7.1.7.6.2 Conformance requirement

Extract from TS 25.321 clause 11.9.1.4

In TDD, rules for E-TFC selection shall be applied as provided below.

UEs shall apply E-TFC selection when invoked by the HARQ entity (see subclause 11.9.1.1.1).

For CELL-DCH state in TDD, for each MAC-d flow, RRC configures MAC-e with a HARQ profile and multiplexing list. Additionally, RRC configures MAC with a power offset in case the Scheduling Information needs to be transmitted without any higher- layer data. For 1.28 Mcps TDD, RRC also configures MAC with a retransmission timer and the maximum number of HARQ transmissions in case the Scheduling Information needs to be transmitted without any higher-layer data. The HARQ profile includes the power offset and maximum number of HARQ transmissions to use for this MAC-d flow. For 1.28 Mcps TDD, the HARQ profile also includes a retransmission timer attribute. The multiplexing list identifies for each MAC-d flow(s), the other MAC-d flows for which data can be multiplexed in a transmission that uses the power offset included in its HARQ profile.

For 1.28 Mcps TDD in CELL_FACH state and idle mode, for common MAC flows, RRC configures MAC with a HARQ profile and multiplexing list. The HARQ profile includes the power offset/maximum number of HARQ transmissions to use for this common MAC flows and a retransmission timer attribute.

RRC can control the scheduling of uplink data by giving each logical channel a priority between 1 and 8, where 1 is the highest priority and 8 the lowest. E-TFC selection in the UE shall be done in accordance with the priorities indicated by RRC. Logical channels have absolute priority, i.e. the UE shall maximise the transmission of higher priority data.

For 1.28 Mcps TDD in CELL_FACH state and idle mode, CCCH shall not be multiplexed with any other logical channel, and the CCCH data shall have higher priority than that of any other logical channel.

RRC can allocate non-scheduled transmission grants to individual MAC-d flows in order to reduce the transmission delays.

The UE shall determine whether to take scheduled or non-scheduled grants into account in the upcoming transmission. If neither are supposed to be taken into account (i.e. the TTI is not available for non-scheduled transmission and no Grant for scheduled transmission has been received) then no grant shall be assumed to exist. If a grant exists then the transmission format and data allocation shall follow the requirements below.

For each configured MAC-d flow or common flow (1.28 Mcps TDD only), a given E-TFC can be in any of the following states:

- Supported state;
- Blocked state.

The E-TFC states are derived according to the following:

- If the transmission is a retransmission then only the E-TFC with the same block size as the original transmission may be in the supported state.
- For 1.28Mcps TDD, only E-TFCs from the E-TFCS (the table of TB sizes) which are consistent with the UE's E-DCH capability category shall be considered for the transmission;
- Only E-TFCs from the E-TFCS (the table of TB sizes) which can be supported by (exactly) the number of slots assigned by the grant shall be considered for the transmission;
- Only E-TFCs which result (for the granted timeslot and code physical resources) in a code rate lying between the maximum and minimum (inclusive) allowable code rates set by RRC [7] shall be considered for the transmission

{note: the definition of the term "code rate" as used here is the same as that provided by [18]}. This shall be evaluated for both QPSK and 16-QAM modulation;

- P_{HARQ}, the HARQ profile power offset is selected (for 3.84/7.68Mcps TDD the HARQ profile for the transmission shall be selected among the HARQ profiles of MAC-d flows on which the highest priority logical channels with available data are mapped, for 1.28Mcps TDD the HARQ power offset shall be set to the maximum of HARQ power offset of all the MAC-d flows or common flows mapped to the same type of resource (scheduled or non-scheduled resource); Scheduling Information power offset shall be used when Scheduling Information is transmitted without any higher-layer data.)

- Only E-TFCs whose calculated transmission power requirement $P_{E\text{-}PUCH}$ (see [18]) is less than or equal to both the available and the granted power shall be considered for the transmission (note: this requirement does not apply in the case of a retransmission on non-scheduled resources). For TDD, the smallest E-TFC is considered always in the supported state. The granted power is defined as the calculated E-PUCH transmission power of [18] with β_e = (Absolute Grant Value + α_e). The available power is the maximum UE transmission power.

- For 1.28Mcps TDD, if the E-PUCH coexists with other physical channel within one timeslot, the sum of calculated transmission power requirement $P_{E\text{-}PUCH}$ and the transmission power requirement for the other physical channel shall be less than or equal to the available power.

- If only scheduling information is included in MAC-e PDU, the transmission power shall be equal to the granted power (the available maximum E-PUCH power shall be considered too). And the UE shall select QPSK modulation. (1.28 Mcps TDD only);

From those E-TFCs in the supported state the UE determines the largest block size that it is permitted to transmit within the given constraints.

The UE shall select the modulation type associated with the determined E-TFC (note: if an E-TFC is supported by both QPSK and 16-QAM then 16-QAM modulation shall be used if its power requirement ($P_{E\text{-}PUCH}$) is lower than the power requirement for QPSK, otherwise QPSK modulation shall be used).

Data allocation shall then be performed in accordance with the following:

- For all logical channels, if the logical channel belongs to a non-scheduled MAC-d flow, its data shall be considered as available up to the largest block size determined for the corresponding non-scheduled grant. If the logical channel does not belong to a non-scheduled MAC-d flow, its data shall be considered as available up to the largest block size determined for the Serving Grant;

- The data allocation shall maximise the transmission of higher priority data;

- The UE shall select the E-TFC, SF and modulation which minimises the power used (3.84/7.68 Mcps TDD only);

- The UE shall select the E-TFC and modulation. QPSK shall be used in the case of E-PUCH allocated with other physical channel in the same timeslot of one TTI for one UE, otherwise modulation shall be selected, which minimises the power used (1.28 Mcps TDD only);

While respecting all the above listed requirements, for each logical channel using RLC-UM or RLC-AM when new data to be transmitted, at every TTI, the UE may select the RLC PDU size so as to maximise the amount of data of this logical channel that can be transmitted.

Once an appropriate E-TFC and data allocation are found according to the rules above, the "Multiplexing and TSN Setting" entity shall generate the corresponding MAC-e or MAC-i PDU.

In 1.28Mcps TDD, when Scheduling Information is triggered by timer per subclause 11.9.1.5, the E-TFC selection and data-allocation process shall assume that Scheduling Information has a priority higher than any other logical channel.

The E-TFC selection function shall provide this MAC-e or MAC-i PDU and transmission HARQ profile to the HARQ entity. The selected E-TFC is also provided. For 3.84Mcps TDD and 7.68Mcps TDD the maximum number of HARQ transmissions and the power offset in this profile shall be set respectively to the maximum of both the Max Number of HARQ Transmissions and of the power offset of the HARQ profiles from all the MAC-d flows from which data is multiplexed into the transmission. For 1.28 Mcps TDD, the maximum number of HARQ transmissions shall be set to the maximum of the Max Number of HARQ Transmissions of the HARQ profiles from all the MAC-d flows from which data is multiplexed into the transmission, the HARQ power offset shall be set to the maximum of HARQ power offset of all the MAC-d flows mapped to the same type of resource (scheduled or non-scheduled resource), and the

retransmission timer shall be set to the maximum of the retransmission timer value of the HARQ profiles that are permitted to be multiplexed into the transmission. For 1.28Mcps TDD, when the Scheduling Information needs to be transmitted without any higher-layer data, the specific HARQ profile should be applied. Each HARQ process which is associated with a buffer holding a MAC-e or MAC-i PDU for potential retransmission shall maintain the HARQ profile and the number of re-transmissions that have occurred. For 1.28 Mcps TDD, the HARQ process shall also maintain the value of RTX_TIMER.

Further information on E-TFC selection is provided in Annex CA.

[…]

For 1.28 Mcps TDD, the mapping of transport block size L to TB index k (k = {0,1,…63};) (see Annex BC.1) is given by the formula:

Table 9.2.6.4.3: formula used to calculate the Transport Block Size

Category 1-2			Category 3-6			
1 Timeslot	2 Timeslots	3 Timeslots	1 Timeslot	2 Timeslots	3 Timeslots	4&5 Timeslots
$L_0 = 23, L_1 = 116, L_{\min} = 162, L_k = \lfloor L_{\min} p^{k-2} \rfloor, k \in [2,62]$						
$L_{63} = 1346,$ $p = \frac{7768}{7503}$	$L_{63} = 2754,$ $p = \frac{2578}{2461}$	$L_{63} = 4162,$ $p = \frac{8934}{8471}$	$L_{63} = 2720,$ $p = \frac{9781}{9339}$	$L_{63} = 5532,$ $p = \frac{2934}{2769}$	$L_{63} = 8348,$ $p = \frac{3052}{2861}$	$L_{63} = 11160,$ $p = \frac{9652}{9005}$

NOTE: When in CELL FACH state with E-DCH transmission, the formula used to calculate the Transport Block Size according to the E-DCH physical layer category 3 shall be used.

Reference(s)

TS 25.321 clause 11.9.1.4, 9.2.6.4.3

7.1.7.6.3 Test purpose

To verify that the UE is able to transmit all possible transport block sizes when MAC-i/is is configured and within the UE capability.

7.1.7.6.4 Method of test

Initial Condition

Same initial conditions as in clause 7.1.6.3.5.

Test Procedure

Same test procedure as in clause 7.1.6.3.5.

Expected sequence

Same expected sequence as in clause 7.1.6.3.5.

Specific Message Contents

Same specific message contents as in clause 7.1.6.3.5.

7.1.7.6.5 Test requirement

Same test requirements as in clause 7.1.6.3.5.

7.1.8 E-DCH MAC-is/i for RACH procedure

7.1.8.1 Release of common E-DCH resource when maximum resource allocation for E-DCH expires or uplink transmission ends for CCCH transmission

7.1.8.1.1 Definition and Applicability

All UEs which support E-DCH in CELL_FACH

7.1.8.1.2 Conformance Requirement

Extract from 25.321 11.2.2A:

The allocated common E-DCH resource shall be used by MAC to carry either only CCCH transmission or only DTCH/DCCH transmission, but not both.

The E-DCH enhanced physical random access transmission procedure is completed with release of the allocated common E-DCH resource, if one of the following conditions is fulfilled:

- If the UE according to subclause 8.5.4A in [7] failed to establish the physical channels, or if the criteria for radio link failure are met as specified in subclause 8.5.6 in [7], then the timer T_2 is started. After the expiry of T_2 a back off timer T_{BO1} is started. Back off timer T_{BO1} is set to an integer number N_{BO1} of 10 ms time intervals, randomly drawn within an interval $0 \leq N_{BO1min} \leq N_{BO1} \leq N_{BO1max}$ (with uniform distribution). N_{BO1min} and N_{BO1max} may be set equal when a fixed delay is desired, and even to zero when no delay other than the one due to persistency is desired. The procedure ends if timer TBO1 expires or the UE performs cell reselection while timer TBO1 is running, whatever occurs first. In case of a cell reselection, the timer TBO1 is stopped.

- In case of CCCH transmission, if the maximum E-DCH resource allocation for CCCH has been reached, then this triggers a CMAC-STATUS which informs the RRC about end of the Enhanced Uplink for CELL_FACH state and Idle mode.

- In case of CCCH transmission, if the transmission E-DCH Buffer status is 0 bytes, then the MAC-STATUS-Ind primitive indicates to RLC for each logical channel that no PDU shall be transferred to MAC. If the transmission E-DCH Buffer status is 0 bytes and no MAC-i PDUs are left for (re-)transmission in MAC, then this triggers a CMAC-STATUS which informs the RRC about the end of the Enhanced Uplink for CELL_FACH state and Idle mode.

- In case of DTCH/DCCH transmission, if no E-AGCH with UE's E-RNTI has been received (through an E-RNTI-specific CRC attachment) within the maximum period for collision resolution phase, then this triggers a CMAC-STATUS which informs the RRC about the end of the Enhanced Uplink for CELL_FACH state and Idle mode. Then the timer T_2 is started. After the expiry of T_2 a back off timer T_{BO1} is started. Back off timer T_{BO1} is set to an integer number N_{BO1} of 10 ms time intervals, randomly drawn within an interval $0 \leq N_{BO1min} \leq N_{BO1} \leq N_{BO1max}$ (with uniform distribution). N_{BO1min} and N_{BO1max} may be set equal when a fixed delay is desired, and even to zero when no delay other than the one due to persistency is desired. The procedure ends when T_{BO1} expires.

- Explicit common E-DCH resource release:
  In case of DTCH/DCCH transmission, if an E-AGCH with UE's E-RNTI has been received (through an E-RNTI-specific CRC attachment) with absolute grant value set to 'INACTIVE', then this triggers a CMAC-STATUS which informs the RRC about end of the Enhanced Uplink for CELL_FACH state and Idle mode.

- Implicit release with E-DCH transmission continuation back off
  Implicit resource release is enabled only if "E-DCH transmission continuation back off" is not set to "infinity".
  If implicit resource release is enabled, then in case of DTCH/DCCH transmission, the timer Tb is set to "E-DCH transmission continuation back off" value, when TEBS is 0 byte and the last generated MAC-i PDU with higher layer data is provided with the PHY-data-REQ primitive to the physical layer for transmission.
  If TEBS <> 0 byte is detected while timer Tb is running, then the timer is stopped and uplink data transmission on the common E-DCH resource continues.
  If a MAC-ehs PDU is received while timer Tb is running, then the timer is re-started.
  At expiry of timer Tb the MAC-STATUS-Ind primitive indicates to RLC for each logical channel that no PDUs shall be transferred to MAC. TEBS = 0 byte is reported to the Node B MAC as SI in a MAC-i PDU. If the "E-DCH transmission continuation back off" value is set to "0", then the SI should be transmitted with the MAC-i PDU carrying the last DCCH/DTCH data, given the serving grant is sufficient to carry the SI in the same MAC-i

PDU together with the remaining DCCH/DTCH data. Otherwise, the empty buffer status report is transmitted separately with the next MAC-i PDU.
If after the expiry of timer Tb no MAC-i PDU is left in a HARQ process for (re-)transmission, then this triggers a CMAC-STATUS which informs the RRC about end of the Enhanced Uplink for CELL_FACH state and Idle mode.

Extract from 25.321 clause 11.8.1.4:

For each MAC-d flow, RRC configures MAC with a HARQ profile and a multiplexing list. Additionally, RRC configures MAC with a power offset for "Control-only" transmissions. This power offset and a maximum number of HARQ transmissions of 8 will be used to define a HARQ profile for “Control-only” transmissions which will be used, in case the Scheduling Information needs to be transmitted without any higher-layer data. The HARQ profile includes the power offset and maximum number of HARQ transmissions to use for this MAC-d flow. The multiplexing list identifies for each MAC-d flow(s), the other MAC-d flows from which data can be multiplexed in a transmission that uses the power offset included in its HARQ profile.

[..]

The E-TFC selection function shall provide this MAC-e PDU and transmission HARQ profile to the HARQ entity. The maximum number of HARQ transmissions and the power offset in this profile, shall be set respectively to the maximum of the Max Number of HARQ Transmissions of the HARQ profiles from all the MAC-d flows from which data is multiplexed into the transmission and to the Nominal Power Offset. The HARQ entity shall also be informed of whether the transmission includes Scheduling Information and whether this information is sent by itself or with higher-layer data.

[...]

if expiry of timer T300 occurs:

the UE shall:

1> check the value of V300; and

2> if V300 is equal to or smaller than N300:

…

3> set the IEs in the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

…

3> submit a new RRC CONNECTION REQUEST message to lower layers for transmission on the uplink CCCH;

3> increment counter V300;

3> restart timer T300 when the MAC layer indicates success or failure to transmit the message.

…

2> if V300 is greater than N300:

3> enter idle mode.

3> consider the procedure to be unsuccessful;

3> Other actions the UE shall perform when entering idle mode from connected mode are specified in TS 25.331 subclause 8.5.2;

3> the procedure ends.

References(s)

TS 25.321 clause 11.2.2A , 11.8.1.4,

3GPP TS 25.331 clause 8.1.3.

7.1.8.1.3 Test purpose

1. To verify that UE releases common E-DCH resource when max resource allocation timer of E-DCH expires for CCCH transmission.

2. To verify that UE releases common E-DCH resource when uplink transmission ends for CCCH transmission.

7.1.8.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

UE: Idle state (state 3 or state 7) as specified in clause 7.4 of TS 34.108 with a CN UE identity, depending on the CN domain(s) supported by the UE.

Test procedure

a) SS transmits the PAGING TYPE 1 with cause BCCH modification.

b) SS transmits the changed system information SIB 1 and SIB5 / SIB5 bis. UE updates the stored SIBs. The new SIB 5 / SIB5-bis contains the common E-DCH related information.

c) SS transmits the PAGING TYPE 1 with cause terminating conversational call.

d) SS receives RRC CONNECTION REQ on common E-DCH resource.

e) SS transmits a negative HARQ acknowledgement.

f) SS transmits a HARQ NACK for each received retransmission.

g) The E-DCH resource allocation timer shall expire in UE side which would lead to release of the common E-DCH resource before the specified number of retransmissions.

h) SS receives the RRC CONNECTION REQ sent by UE after the expiry of T300

i) SS transmits a HARQ ACK for the received transmission.

j) UE does not have to send any data (MAC buffer empty) which leads to release of the common E-DCH resource. As RRC CONNECTION SETUP is not sent by SS, the UE acquires a common E-DCH resource to transmit RRC CONNECTION REQUEST after expiry of T300.

NOTE 1: There should not be any transmission from UE for the period of T300 after the expiry of E-DCH resource allocation timer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		

1	←	Paging Type 1	BCCH change ind
2	←	SIB1 and SIB 5/ SIB5 bis	SS transmits E-DCH common information to UE
3			SS waits 5s (to ensure that the UE has time to read the new system information)
4	←	Paging Type 1	SS starts to transmit this message on the PCCH at the correct paging occasion with cause “Terminating conversational call”
5	→	RRC CONNECTION REQ	UE starts the timer max-CCH-ResourceAllocation. SS starts (max CCCH ResourceAllocation timer) + 10%
6	←	HARQ NACK	
7	SS		SS sends a HARQ NACK for each received retransmission. Max – CCH Resource Allocation Timer in UE shall expire. SS checks that the number of UL HARQ re-transmissions shall be less than the mac-d-FlowMaxRetrans (as specified in the test case). This is due to max-CCCH-ResourceAllocation timer < (No of mac-d-FlowMaxRetrans * E-DCH TTI). SS check that the last retransmitted RRC CONNECTION REQUEST is sent before expiry of the timer (max CCCH ResourceAllocation timer) + 10% started in step 5.
8	→	RRC CONNECTION REQ	UE re-transmits after the expiry of T300. UE re-transmits after the expiry of T300. SS checks that UE perform Prach Preamble and Acquisition Indication reception procedure prior to acquiring common E-DCH resource and sending RRC CONNECTION REQ
9	←	HARQ ACK	
10	SS		SS does not respond with RRC CONNECTION SETUP
11	→	RRC CONNECTION REQ	UE re-transmits after the expiry of T300. SS checks that UE perform Prach Preamble and Acquisition Indication reception procedure prior to acquiring common E-DCH resource and sending RRC CONNECTION REQ

Specific Message Contents

PAGING TYPE 1 (Step 1)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
MIB Value Tag	Set to (Current MIB value tag + 1)
BCCH Modification time	Not Present

SYSTEM INFORMATION TYPE 1 (Step 2)

Use the default parameter values for the system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions:

- UE Timers and constants in idle mode	
-T300	8000 milliseconds
-N300	3
-T312	10 seconds
- N312	1

SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis (Step 2) (FDD)

Use the same message type found in clause 6.1 of TS 34.108, with condition B3 “Only for cells which configure common E-DCH and HS-DSCH reception in CELL_FACH”, with the following exception.

Information Element	Value/remark
- Common EDCH system information	
- common-E-DCH-MAC-d-FlowList	
- mac-d-FlowMaxRetrans	15
-CHOICE mode	FDD
- max-CCCH-ResourceAllocation	8 TTI (in the case of 10ms E-DCH TTI). 12 TTI (in the case of 2ms E-DCH TTI).

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	CN identity
- Paging Cause	Terminating Call with one of the supported services
- CN Domain Identity	PS Domain
- CHOICE UE Identity	Local P-TMSI
- Routing parameter	Same as registered P-TMSI
BCCH modification info	Not Present

7.1.8.1.5 Test requirements

1. At step 7 , SS checks that the number of UL HARQ retransmissions for RRC CONNECTION REQUEST is less than mac-d flow max number of retransmissions, specified in SIB5 due to expiry of CCCH resource allocation timer.

2. At step 11 , SS shall check the use of PRACH Preamble and Acquisition Indication procedure to acquire common E-DCH resource to send RRC CONNECTION REQUEST.

7.1.8.2 Activation of HS-DPCCH based on the received SIB5/SIB5bis information

7.1.8.2.1 Definition and Applicability

All UEs which support E-DCH in CELL_FACH

7.1.8.2.2 Conformance requirement

25.331 section 8.5.45

If variable READY_FOR_COMMON_EDCH is set to TRUE, then after selection of a common E-DCH resource configuration, the RRC in the UE shall configure MAC and the physical layer for E-DCH and HSDPA transmission, and the UE shall:

1> configure Uplink DPCH in accordance with the uplink DPCCH slot format 1 [26], the IE "Uplink DPCH code info" and IE "Uplink DPCH power control info";

1> if IE "ACK/NACK support on HS-DPCCH" is set to TRUE:

2> configure the HS-DPCCH in accordance with HS-DPCCH slot format [26], the HS-DPCCH code [28] and IE "Uplink DPCH power control info".

1> configure the common E-DCH MAC-d flows as described in subclause 8.6.5.24;

1> configure the UL E-DPCCH in accordance with the IE "E-DPCCH" configuration;

1> apply the TTI as signalled in the IE "E-DCH Transmission Time Interval" on the E-DPDCH;

1> use a redundancy version for each HARQ transmission as configured by the IE "HARQ RV Configuration";

1> use the same scrambling code for F-DPCH, E-RGCH, E-HICH and E-AGCH reception as configured for the Primary CPICH;

1> use a channelization code for F-DPCH reception as configured by IE "F-DPCH Code number";

1> configure F-DPCH in accordance with the F-DPCH slot format #0 [26];

1> apply the DPC_Mode=0 for F-DPCH according to [29];

1> configure the MAC with the stored IE "E-DPDCH" configuration and/or the information contained in IE "Scheduled Transmission configuration";

1> configure the E-HICH in accordance with the IE "E-HICH info" configuration;

1> configure the E-AGCH in accordance with the IE "E-AGCH info" configuration;

1> configure the E-RGCH in accordance with the IE "E-RGCH info" configuration if an E-RGCH configuration has been provided with the system information;

1> configure the radio link as the serving E-DCH radio link;

1> determine the value for the COMMON_E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.46.

25.331 section 8.5.46

The variable COMMON_E_DCH_TRANSMISSION shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_FACH state or Idle mode;

1> one radio link is configured as the serving E-DCH radio link, and for this radio link the UTRAN has configured the IE "E-HICH info" and the IE "E-AGCH info", and for 1.28Mcps TDD the IE "E-RUCCH Info" and "E-PUCH Info";

1> all logical channels are mapped to E-DCH, and for each of which there is:

- 2> one E-DCH MAC-d flow is configured, i.e. the IEs "E-DCH MAC-d flow power offset", "E-DCH MAC-d flow maximum number of retransmissions", and for 1.28 Mcps TDD, the IEs "E-DCH MAC-d flow retransmission timer".

…..

For FDD, whenever the variable COMMON_E_DCH_TRANSMISSION is set to TRUE, the UE shall:

…..

1> if transmitting DCCH or DTCH data:

- 2> if IE "ACK/NACK support on HS-DPCCH" is set to TRUE:
  - 3> after collision resolution provide ACK/NACK feedback in accordance with [29] in the physical layer on the serving HS-DSCH radio link, using the information in the IE "Uplink DPCH power control info";
  - 3> after collision resolution use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link if the IE "Measurement Feedback Info" has been provided with the common E-DCH resource.

25.321 clauses 11.6.22

[...]

The UE shall:

- if the New Data Indicator has been incremented compared to the value in the previous received transmission in this HARQ process or this is the first received transmission in the HARQ process:
  - replace the data currently in the soft buffer for this HARQ process with the received data.
  - if the Transport Block Size index value is equal to 111111 (FDD only):
    - generate a positive acknowledgement (ACK) of the data in this HARQ process;
    - discard the received data;
    - assume that the data has been successfully decoded.
- if the New Data Indicator is identical to the value used in the previous received transmission in the HARQ process:
  - if the Transport Block Size index value is equal to 111111 (FDD only):
    - assume that the transport block size is identical to the last valid transport block size signalled for this HARQ process.
  - if the data has not yet been successfully decoded:
    - combine the received data with the data currently in the soft buffer for this HARQ process.
- if the data in the soft buffer has been successfully decoded and no error was detected:
  - deliver the decoded MAC-hs PDU to the reordering entity;
  - generate a positive acknowledgement (ACK) of the data in this HARQ process.
- else:
  - generate a negative acknowledgement (NAK) of the data in this HARQ process;
- schedule the generated positive or negative acknowledgement for transmission and the time of transmission relative to the reception of data in a HARQ process is configured by upper layer.

Reference(s)

TS 25.331 section 8.5.45, section 8.5.46

TS 25.321 clauses 11.6.22

7.1.8.2.3 Test purpose

The purpose of the test case is to verify that UE configures the HS-DPCCH based on the common E-DCH information received in SIB5/SIB5bis .

7.1.8.2.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

UE: Idle state (state 3 or state 7) as specified in clause 7.4 of TS 34.108 with a CN UE identity, depending on the CN domain(s) supported by the UE.

UE shall receive SIB5/SIB5bis with condition B3 “Only for cells which configure common E-DCH and HS-DSCH reception in CELL_FACH”.

Test Procedure

a) SS sends the PAGING TYPE 1 with cause “Terminating conversational call”

b) SS waits for RRC CONNECTION REQ message to arrive on E-DCH/CCCH.

c) SS transmits RRC CONNECTION SETUP

d) SS receives RRC CONNECTION SETUP COMPLETE message from UE

e) SS sends E- AGCH with UE specific E-RNTI to end collision resolution phase.

f) SS transmits UE CAPABILITY ENQUIRY message with CRC error

g) SS checks HARQ NACK on HS DPCCH for the message received at step g

h) SS transmits UE CAPABILITY ENQUIRY message without CRC error

i) SS checks HARQ ACK on HS DPCCH for the message received at step i

j) SS receives UE CAPABILITY INFORMATION

k) SS transmits UE CAPABILITY INFORMATION CONFIRM

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		

1	←	Paging Type 1	SS starts to transmit this message continuously on the PCCH at the correct paging occasion with cause "Terminating conversational call"
2	→	RRC CONNECTION REQ	
3	←	RRC CONNECTION SETUP	
4	→	RRC CONNECTION SETUP COMPLETE	
5	←	Absolute Grant	SS sends E-AGCH with serving grant 4 and with UE specific E-RNTI to end the collision resolution phase.
6	←	UE CAPABILITY ENQUIRY	The SS sends this message over HS-DSCH with CRC error.
7		MAC-ehs negative acknowledgement.	UE sends a HARQ NACK for each received data on HS-DSCH on HS_DPCCH
8	←	UE CAPABILITY ENQUIRY	Message sent on HS-DSCH with correct CRC.
9		MAC-ehs positive acknowledgement.	UE sends a HARQ ACK for each received data on HS-DSCH on HS_DPCCH
10	→	UE CAPABILITY INFORMATION	
11	←	UE CAPABILITY INFORMATION CONFIRM	

Specific Message Contents

PAGING TYPE 1 (Step 1)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	CN identity
- Paging Cause	Terminating Call with one of the supported services
- CN Domain Identity	PS Domain or CS Domain
- CHOICE UE Identity	Local (P)TMSI
- Routing parameter	Same as registered P-TMSI
BCCH modification info	Not Present

RRC CONNECTION REQUEST (Step 2)

Information Element	Value/remark
Message Type	
Initial UE Identity	Same as the IMSI stored in the TEST USIM card, or the registered P-TMSI
Establishment Cause	Checked to see if set to one of the supported originating call types
Protocol Error Indicator	Checked to see if set to "FALSE"
Measured Results on RACH	Checked to see if it is absent

7.1.8.2.5 Test Requirement

1. At step 6 and step 8 , SS checks the Nack/Ack on HS-DPCCH channel

7.1.8.3 DTCH/DCCH transmission - implicit common E-DCH resource release without receiving E-AGCH

7.1.8.3.1 Definition and applicability

Applicable for all UEs supporting Enhanced UL in Cell_FACH.

7.1.8.3.2 Conformance Requirement

[..]

- In case of DTCH/DCCH transmission, if no E-AGCH with UE's E-RNTI has been received (through an E-RNTI-specific CRC attachment) within the maximum period for collision resolution phase, then this triggers a CMAC-STATUS which informs the RRC about the end of the Enhanced Uplink for CELL_FACH state and Idle mode.

[..]

- If the UE is sending DTCH or DCCH data, the UE shall release the common E-DCH resource under following conditions:

  - the maximum period for collision resolution is reached and no E-AGCH with the UE's E-RNTI (through an E-RNTI specific CRC attachment) has been reached;

[..]

Reference(s)

TS 25.321 clause 11.2.2A, 11.8.1.9

7.1.8.3.3 Test purpose

1. To verify that the UE releases E-DCH resources when no valid E-AGCH is received and allocates E-DCH resources when a valid E-AGCH is received.

7.1.8.3.4 Method of test

Initial conditions

UE is in Enhanced CELL_FACH state with DTCH/DCCH on common E-DCH / HS-DSCH.

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 9.1 using condition "AM Packet to Enhanced CELL_FACH from Enhanced CELL_FACH in PS with SRBs mapped on common E-DCH/HS-DSCH".

The radio bearer is placed in UE loop-back mode 1 with the UL SDU size set to 40 bytes.

System Simulator

1 cell, default parameters, Ciphering Off

Test procedure

a) Void

b) The SS sends 15 RLC SDU of size 40 bytes on the downlink.

c) The SS allocates common E-DCH resource.

d) The SS does not transmit a grant on the E-AGCH thereby causing the UE to implicitly release the allocated E-DCH resources after expiry of collision resolution phase.

e) The SS checks that UE initiates a PRACH preamble and Acquisition Indication for a new common E-DCH channel which is used to loop back the data. SS checks the loop back data.

Expected sequence

Step	Direction		Message	Comments
	UE	**SS**		

1		Void	
1a		Void	
2	←	RLC SDU	SS sends 15 RLC SDU of size 40 bytes on the downlink
3		UE acquires common E-DCH resource	Preamble transmission to use common E-DCH resource and SS acknowledges the RACH transmission
4			SS does not send E-AGCH
5		Wait for T = 15TTI	SS monitors data transmissions while waiting for the collision resolution phase to end.
6		UE acquires common E-DCH resource	UE initiates a PRACH preamble and Acquisition Indication for a new common E-DCH channel which is used to loop back the data
7	←	Absolute Grant	SS sends E-AGCH with serving grant 4
8	→	RLC SDU	SS receives and checks loop back data on common E-DCH

Specific Message Contents

Use the default parameter values for the system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions

Contents of System Information Block type 1

Information Element	Value/Remark
- UE Timers and constants in connected mode -N300	0

PRACH power offset info, PRACH info, and PRACH partitioning in System Information Block type 5/System Information Block type 5bis

System Information Block type 5/System Information Block type 5bis

Information Element	Value/Remark
- Primary CCPCH info	Not Present
- PRACH system information list	
- PRACH system information	
-PRACH info - CHOICE mode - Available Sub Channel number -PRACH partitioning - Access Service Class - ASC Setting - CHOICE mode - Available signature Start Index - Available signature End Index - Assigned Sub-channel Number - ASC Setting - CHOICE mode - Available signature Start Index - Available signature End Index - Assigned Sub-channel Number -PRACH power offset - Preamble Retrans Max - RACH transmission parameters - Mmax - Common EDCH System Info - Maximum period for collision resolution phase - E-DCH transmission continuation back off - Initial serving grant value	 FDD '1111 1111 1111'B 2 Access Service Classes FDD 0 (ASC#0) 7 (ASC#0) '0001'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number FDD 0 (ASC#1) 7 (ASC#1) '0010'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number 5 1 8TTI infinity 4

7.1.8.3.5 Test requirements

1. At step 6, the UE initiate a PRACH preamble and Acquisition Indication.
2. At step 8, the SS shall receive at least one loopback RLC PDU.

7.1.8.4 DTCH/DCCH transmission – explicit common E-DCH resource release by E-AGCH

7.1.8.4.1 Definition and applicability

Applicable for all UEs supporting Enhanced UL in Cell_FACH.

7.1.8.4.2 Conformance Requirement

[..]

- Explicit common E-DCH resource release:
  In case of DTCH/DCCH transmission, if an E-AGCH with UE's E-RNTI has been received (through an E-RNTI-specific CRC attachment) with absolute grant value set to 'INACTIVE', then this triggers a CMAC-STATUS which informs the RRC about end of the Enhanced Uplink for CELL_FACH state and Idle mode.

[..]

- If the UE is sending DTCH or DCCH data, the UE shall release the common E-DCH resource under following conditions:
  - an E-AGCH is received with a common E-DCH resource release command (INACTIVE) (explicit common E-DCH resource release);

[..]

Reference(s)

TS 25.321 clause 11.2.2A, 11.8.1.9

7.1.8.4.3 Test purpose

1. To verify that the UE releases E-DCH resources when a valid E-AGCH is received with a common E-DCH resource release command (INACTIVE).

7.1.8.4.4 Method of test

Initial conditions

UE is in Enhanced CELL_FACH state with DTCH/DCCH on common E-DCH / HS-DSCH.

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 9.1 using condition “AM Packet to Enhanced CELL_FACH from Enhanced CELL_FACH in PS with SRBs mapped on common E-DCH/HS-DSCH”.

The radio bearer is placed in UE loop-back mode 1 with the UL SDU size set to 10 bytes.

System Simulator

1 cell, default parameters, Ciphering Off

Test procedure

a) UE has common E-DCH resource and allocated E-RNTI to allow data transmission on DTCH. SS sends absolute grant with value of 4 which is sufficient for the UE to transmit data.

b) The SS sends 1 RLC SDU of size 10 bytes on the downlink.

c) The SS receives looped back data on the common E-DCH channel.

d) SS sends Explicit Release on E-AGCH to release the common E-DCH resource.

e) The SS sends 1 RLC SDU of size 10 bytes on the downlink.

f) The SS checks that original common E-DCH channel has been explicitly released by checking that UE initiates a PRACH preamble and Acquisition Indication for a new common E-DCH channel which is used to loop back the data. SS checks the loop back data.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		

1	←		UE has common E-DCH with E-RNTI allocated. The user plane RAB uses DTCH transmission.
1a	←	Absolute Grant	Serving Grant value 4
2	←	RLC SDU	SS sends 1 RLC SDU of size 10 bytes on the downlink
3	→	RLC SDU	SS receives and checks loop back data on common E-DCH
4	←	Absolute grant set to INACTIVE	The SS explicitly instructs the UE to release the E-DCH resources
5	←	RLC SDU	SS sends 1 RLC SDU of size 10 bytes on the downlink
6	<->	UE acquires common E-DCH resource	SS first checks that UE perform Prach Preamble prior to acquiring common E-DCH resource. UE shall then loop back the data using DTCH transmission on common E-DCH
7	→	RLC SDU	SS receives and checks loop back data on common E-DCH

Specific Message Contents

Use the default parameter values for the system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions

Contents of System Information Block type 1

Information Element	Value/Remark
- UE Timers and constants in connected mode -N300	 0

System Information Block type 5/System Information Block type 5bis

Information Element	Value/Remark
- Primary CCPCH info	Not Present
- PRACH system information list	
- PRACH system information	
-PRACH info - CHOICE mode - Available Sub Channel number -PRACH partitioning - Access Service Class - ASC Setting - CHOICE mode - Available signature Start Index - Available signature End Index - Assigned Sub-channel Number - ASC Setting - CHOICE mode - Available signature Start Index - Available signature End Index - Assigned Sub-channel Number -PRACH power offset - Preamble Retrans Max - RACH transmission parameters - Mmax - Common EDCH System Info - Maximum period for collision resolution phase - E-DCH transmission continuation back off	 FDD '1111 1111 1111'B 2 Access Service Classes FDD 0 (ASC#0) 7 (ASC#0) '0001'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number FDD 0 (ASC#1) 7 (ASC#1) '0010'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number 5 1 8TTI infinity

7.1.8.4.5 Test requirements

At step 3, the SS shall receive the loopback PDU.

At step 7, the SS shall receive the loopback PDU on E-DCH resource used other than step 3.

7.1.8.5 RACH procedure with both normal AIs and extended AIs (using E-AICH).

7.1.8.5.1 Definition and Applicability

All UEs which support E-DCH in CELL_FACH

7.1.8.5.2 Conformance Requirement

Extract from 25.211 5.3.3.7.

The use of acquisition indicators is described in [5]. The meaning of acquisition indicators depends on whether a UE sends an access preamble signature corresponding to a PRACH message or corresponding to an E-DCH transmission. Furthermore, if a UE sends an access preamble signature corresponding to an E-DCH transmission, the meaning of the acquisition indicator depends on whether EAI is configured or not. The following rules apply for one PRACH preamble scrambling code. If multiple PRACH preamble scrambling codes are defined in a cell, then for each of them the following rules are used independently.

- If the UE sends an access preamble signature corresponding to a PRACH message, then;
  - if an Acquisition Indicator is set to +1, it represents a positive acknowledgement,
  - if an Acquisition Indicator is set to -1, it represents a negative acknowledgement.
- If the UE sends an access preamble signature corresponding to an E-DCH transmission, then;
  - if the corresponding Acquisition Indicator is set to +1, it represents a positive acknowledgement and the associated default E-DCH resource configuration is allocated to the UE,
  - if the corresponding Acquisition Indicator is set to -1 and EAI is not configured, then it represents a negative acknowledgement,
  - if the corresponding Acquisition Indicator is set to -1 and EAI is configured, then the UE detects which one of the Extended Acquisition Indicator signatures is present.

Extract from 25.331 clause 8.1.3.9 (for RRC CONNECTION REJECT)

2> if V300 is greater than N300:

3> enter idle mode;

3> perform the actions specified in TS 25.331 subclause 8.5.2 when entering idle mode from connected mode;

3> consider the RRC establishment procedure to be unsuccessful;

3> the procedure ends.

References(s)

TS 25.211 5.3.3.7 , TS 25.331 clause 8.1.3.9

7.1.8.5.3 Test purpose

The purpose of the test case is to verify that UE successfully completes raching procedure when E-AICH is not configured and when E-AICH is configured.

7.1.8.5.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

UE: Idle state (state 3 or state 7) as specified in clause 7.4 of TS 34.108 with a CN UE identity, depending on the CN domain(s) supported by the UE.

Test procedure

a) SS transmits the PAGING TYPE 1 with cause BCCH modification.

b) SS transmits the changed system information SIB1 and SIB5 / SIB5bis. UE updates the stored SIBs. The new SIB 5 / SIB5-bis contains the common E-DCH related information (E-AIs not supported).

c) SS transmits the PAGING TYPE 1 with cause Terminating Interactive Call.

d) The SS measures the preamble signature used

e) The SS responds with a negative acquisition indicator on the AICH.

f) The SS monitors the RACH channel for 10 seconds to ensure that no further RACH accesses occur.

g) The SS transmits the PAGING TYPE 1 with cause Terminating Interactive Call.

h) The SS measures the preamble signature used .

i) The SS responds with a positive acquisition indicator on the AICH.

j) UE transmits RRC CONNECTION REQ using the common E-DCH resources allocated.

k) The SS responds with RRC CONNECTION REJECT to avoid any HARQ retransmission and to bring the UE to Idle mode.

l) SS transmits the PAGING TYPE 1 with cause BCCH modification.

m) SS transmits the changed system information SIB5 / SIB5bis. UE updates the stored SIBs. The new SIB 5 / SIB5-bis contain the common E-DCH related information (E-AIs supported).

n) SS transmits the PAGING TYPE 1 with cause Terminating Interactive Call.

o) The SS measures the preamble signature used.

p) The SS responds with a negative acquisition indicator on the AICH.

q) The SS responds with acquisition indicator on the E-AICH with index to use common E-DCH resource.

r) UE transmits RRC CONNECTION REQ using the common E-DCH resources allocated.

s) The SS responds with RRC CONNECTION REJECT to avoid any HARQ retransmission and to bring the UE to Idle mode.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		

1	←	Paging Type 1	BCCH change ind
2	←	SIB1 and SIB 5/ SIB5bis	SS transmits E-DCH common information to UE with E-AIs NOT supported
3	SS		SS waits 5s (to ensure that the UE has time to read the new system information)
4	←	Paging Type 1	SS starts to transmit this message on the PCCH at the correct paging occasion with cause “Terminating Interactive Call”
5	→	Access Preamble	
6	←	AICH = NEG ACQUISITION IND	
7	SS	Wait for T = 10s	SS monitors for RACH access attempts
8	←	Paging Type 1	SS starts to transmit this message continuously on the PCCH at the correct paging occasion with cause “Terminating Interactive Call”
9	→	Access Preamble	
10	←	AICH = POS ACQUISITION IND	Use default common E-DCH resource
11	→	RRC CONNECTION REQ	
12	←	RRC CONNECTION REJECT	IE "wait time" set to 0 to bring the UE to idle mode.
13		Paging Type 1	BCCH change ind
14	SS	SIB 5/ SIB5bis	SS transmits E-DCH common information to UE with E-AIs supported
15	SS		SS waits 5s (to ensure that the UE has time to read the new system information)
16	←	Paging Type 1	SS starts to transmit this message continuously on the PCCH at the correct paging occasion with cause “Terminating Interactive Call”
17	→	Access Preamble	
18	←	AICH = NEG ACQUISITION IND	
19	←	E-AICH = Index to common E-DCH resource	
20	→	RRC CONNECTION REQ	
21	←	RRC CONNECTION REJECT	IE "wait time" set to 0 to bring the UE to idle mode.

Specific Message Contents

Use the default parameter values for the system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions

PAGING TYPE 1 (Step 1, Step 13)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
MIB Value Tag	Set to (Current MIB value tag + 1)
BCCH Modification time	Not Present

SYSTEM INFORMATION TYPE 1 (Step 2)

Use the default parameter values for the system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/Remark
- UE Timers and constants in connected mode -N300	0

SYSTEM INFORMATION BLOCK TYPE 5/SYSTEM INFORMATION BLOCK TYPE 5bis (Step 2) (FDD)

Use the same message type found in clause 6.1 of TS 34.108 with condition B3 “Only for cells which configure common E-DCH and HS-DSCH reception in CELL_FACH”, with the following exception.

Information Element	Value/remark
- Common EDCH system information -PRACH-PreambleForEnhancedUplink - e-ai-Indication	 FALSE
- Common E-DCH Resource Configuration Information List	1 E-DCH resource
- S-offset	0
- F-DPCH Code number	12
- E-RGCH Information	
- Signature Sequence	0
- RG combination index	0
- E-HICH Info	
- Channelisation Code	4
- Signature Sequence	1
- Uplink DPCH Code Info	
- ul-DPCCHscramblingCodeType	Long
- ul-DPCCHscramblingCode	10

PAGING TYPE 1 (Step 4, Step 8 and Step 13)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	CN identity
- Paging Cause	Terminating Call with one of the supported services
- CN Domain Identity	PS Domain
- CHOICE UE Identity	Local (P)TMSI
- Routing parameter	Same as registered P-TMSI
BCCH modification info	Not Present

SYSTEM INFORMATION BLOCK TYPE 5/SYSTEM INFORMATION BLOCK TYPE 5bis (Step 14) (FDD)

Use the same message type found in clause 6.1 of TS 34.108 with condition B3 “Only for cells which configure common E-DCH and HS-DSCH reception in CELL_FACH”, with the following exception.

Information Element	Value/remark
- Common EDCH system information **-PRACH-PreambleForEnhancedUplink** - e-ai-Indication	 TRUE
- Common E-DCH Resource Configuration Information List	1 E-DCH resource
- S-offset	0
- F-DPCH Code number	12
- E-RGCH Information	
- Signature Sequence	0
- RG combination index	0
- E-HICH Info	
- Channelisation Code	4
- Signature Sequence	1
- Uplink DPCH Code Info	
- ul-DPCCHscramblingCodeType	Long
- ul-DPCCHscramblingCode	10

RRC CONNECTION REJECT (Step 12, Step 21)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	Same as the type and value defined in RRC CONNECTION REQUEST message (step 5)
Reject Cause	Congestion
Wait time	0 second

7.1.8.5.5 Test requirements

1. At step 7, SS checks UE does not try for RACH access after transmitting AICH = NEG ACQUISITION IND.
2. At step 11, SS shall receive RRC CONNECTION REQ sent by UE after transmitting AICH = POS ACQUISITION IND (with Index to default common E-DCH resource) at step 10.
3. At step 20 , SS shall receive RRC CONNECTION REQ after transmitting AICH = NEG ACQUISITION IND at step 18 and E-AICH = Index to common E-DCH resource at step 19.

7.1.8.6 DTCH/DCCH transmission - Implicit release with E-DCH transmission continuation backoff - Timer Based

7.1.8.6.1 Definition and applicability

Applicable for all UEs supporting Enhanced UL in Cell_FACH.

7.1.8.6.2 Conformance Requirement

[..]

- Implicit release with E-DCH transmission continuation backoff
  Implicit resource release is enabled only if "E-DCH transmission continuation back off" is not set to "infinity".
  If implicit resource release is enabled, then in case of DTCH/DCCH transmission, the timer Tb is set to "E-DCH transmission continuation back off" value, when TEBS is 0 byte and the last generated MAC-i PDU with higher layer data is provided with the PHY-data-REQ primitive to the physical layer for transmission.
  If TEBS <> 0 byte is detected while timer Tb is running, then the timer is stopped and uplink data transmission on the common E-DCH resource continues.
  If a MAC-ehs PDU is received while timer Tb is running, then the timer is re-started.
  If the "E-DCH transmission continuation back off" value is set to "0" or if timer Tb expires the MAC-STATUS-Ind primitive indicates to RLC for each logical channel that no PDUs shall be transferred to MAC. TEBS = 0 byte is reported to the Node B MAC as SI in a MAC-i PDU. If the "E-DCH transmission continuation back off" value is set to "0", then the SI shall be transmitted with the MAC-i PDU carrying the last DCCH/DTCH data, given the serving grant is sufficient to carry the SI in the same MAC-i PDU together with the remaining

DCCH/DTCH data. Otherwise, the empty buffer status report is transmitted separately with the next MAC-i PDU.
CMAC-STATUS-Ind which informs the RRC about the Enhanced Uplink in CELL_FACH state and Idle mode process termination is triggered when the empty buffer status has been reported and no MAC-i PDU is left in any HARQ process for (re-)transmission.

[..]

When "E-DCH transmission continuation back off" is set to "infinity", the Scheduling Information with empty buffer status report shall be transmitted with the MAC-i PDU carrying the last DCCH/DTCH data, given the serving grant is sufficient to carry the SI in the same MAC-i PDU together with the remaining DCCH/DTCH data. Otherwise, the Scheduling Information with empty buffer status report is transmitted separately with the next MAC-i PDU.

[..]

If the UE is sending DTCH or DCCH data, the UE shall release the common E-DCH resource under following conditions:

[..]

- "E-DCH transmission continuation back off" is not set to "infinity", the empty buffer status (TEBS = 0 byte) has been reported and no MAC-i PDU is left in a HARQ process for (re-)transmission.

[..]

Reference(s)

TS 25.321 clause 11.2.2A, 11.8.1.6, 11.8.1.9

7.1.8.6.3 Test purpose

1. To verify that the UE releases E-DCH resources implicitly only if “E-DCH transmission continuation backoff is not set to “infinity”.
2. To verify that, when “E-DCH transmission continuation backoff is set to “infinity” and all data have been sent, the UE send the Scheduling Information with empty buffer status report in the same MAC-i PDU carrying the last DCCH/DTCH data.

7.1.8.6.4 Method of test

Initial conditions

System Simulator

1 cell, default parameters, Ciphering Off

User Equipment:

SS shall broadcast SIB5/SIB5bis with Common E-DCH/HS-DSCH information with specific message content given below.

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 9.1 using condition “AM Packet to Enhanced CELL_FACH from Enhanced CELL_FACH in PS with SRBs mapped on common E-DCH/HS-DSCH”.

UE is in Enhanced CELL_FACH state with DTCH/DCCH on common E-DCH / HS-DSCH.

The radio bearer is placed in UE loop-back mode 1 with the UL SDU size set to 10 bytes.

Test procedure

a) UE has common E-DCH resource and allocated E-RNTI to allow data transmission on DTCH. SS sends absolute grant with value of 4 which is sufficient for the UE to transmit data.

b) The SS sends 1 RLC SDU of size 10 bytes on the downlink.

c) The SS receives looped back data on the common E-DCH channel.

NOTE: Data should be looped back before E-DCH-transmission continuation back off period expires.

d) The SS waits sufficient time for the "E-DCH transmission continuation back off" period to expire after loop back data transfer.

e) The SS sends 1 RLC SDU of size 10 bytes on the downlink.

f) The SS checks that original common E-DCH channel has been implicitly released by checking that UE initiates a PRACH preamble and Acquisition Indication for a new common E-DCH channel which is used to loop back the data. SS checks the loop back data.

g) SS checks that all the data is looped back on common E-DCH channel.

h) SS sends Explicit Release on E-AGCH to release the common E-DCH resource.

i) The SS commences required actions for acquisition indication and assignment of a common E-DCH resource for RACH preamble phase.

j) The SS issues an absolute grant on E-AGCH with the UE's E-RNTI and a signalling value of 4 during the collision resolution phase to allow the UE to transmit data. SS ensure that E-AGCH is received by UE within Maximum period for collision resolution time interval.

k) UE performs PRACH preamble and Acquisition Indication for a common E-DCH resource allocation.

l) After 120TTI, the SS checks that common E-DCH has not been released by checking that there is still transmission on UL DPCCH assigned to that resource.

m) After 120TTI, the SS checks that common E-DCH has not been released by checking that data can be looped back on the existing common E-DCH without PRACH preamble and AICH procedure for acquiring a common E-DCH resource. The SS also checks that the UE includes the SI with TEBS=0 in the same MAC-i PDU together with the DCCH/DTCH data.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←			UE has common E-DCH with E-RNTI allocated. The user plane RAB uses DTCH transmission.
1a	←		Absolute Grant	Serving Grant 4
2	←		RLC SDU	SS sends 1 RLC SDU of size 10 bytes on the downlink
3	→		RLC SDU	SS receives and checks loop back data on common E-DCH
4			Wait for "E-DCH transmission continuation back off" expiry	SS should check that UL DPCCH is maintained by the UE until "E-DCH transmission continuation back off" expiry
5	←		RLC SDU	SS sends another 1 RLC SDU of size 10 bytes
6	<->		UE acquires common E-DCH resource	SS checks that UE perform PRACH Preamble prior to acquiring common E-DCH resource.
6a	←		Absolute Grant	Serving Grant 4
6b	→		RLC SDU	SS receives and checks loop back data on common E-DCH

7	←	Absolute Grant	SS sends Explicit Release on E-AGCHcommand
8	←	System Information change indication	SS modified system information by setting “E-DCH transmission continuation back off” period to “infinity”
9	←	RLC SDU	SS sends 1 RLC SDU of size 10 bytes on the downlink
10	<->	UE acquires common E-DCH resource	SS first checks that UE perform Prach Preamble prior to acquiring common E-DCH resource. UE shall then loop back the data using DTCH transmission on common E-DCH
10a	←	Absolute Grant	Serving Grant 4
11	→	RLC SDU	SS receives and checks loop back data on common E-DCH
12		WAIT for 120 TTI	SS waits for the maximum setting of the “E-DCH transmission continuation back off” to end
12a	←	Absolute Grant	Serving Grant 4
13	←	RLC SDU	SS sends 1 RLC SDU of size 10 bytes on the downlink
14	→	RLC SDU	UE shall loop back the data and a SI with TEBS=0 in the same MAC-I PDU on the existing common E-DCH without PRACH preamble and AICH procedure for acquiring a common E-DCH resource

Specific Message Contents

Use the same message type found in clause 6.1.1 of TS 34.108, with SIB5 configured for common E-DCH / HS-DSCH, with the following exceptions.

System Information Block type 5/System Information Block type 5bis

Information Element	Value/Remark
- Primary CCPCH info	Not Present
- PRACH system information list	
- PRACH system information	
-PRACH info - CHOICE mode - Available Sub Channel number -PRACH partitioning - Access Service Class - ASC Setting - CHOICE mode - Available signature Start Index - Available signature End Index - Assigned Sub-channel Number - ASC Setting - CHOICE mode - Available signature Start Index - Available signature End Index - Assigned Sub-channel Number -PRACH power offset - Preamble Retrans Max - RACH transmission parameters - Mmax - Common EDCH System Info - Maximum period for collision resolution phase - E-DCH transmission continuation back off	 FDD '1111 1111 1111'B 2 Access Service Classes FDD 0 (ASC#0) 7 (ASC#0) '0001'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number FDD 0 (ASC#1) 7 (ASC#1) '0010'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number 5 1 8TTI 80TTI

7.1.8.6.5 Test requirements

- at step 6a, UE shall perform PRACH preamble and receive Acquisition Indication before looping back data on allocated common E-DCH resource.

- at step 14 UE shall loop back data and a SI with TEBS=0 in the same MAC-I PDU on existing common E-DCH resource without PRACH preamble and Acquisition Indication procedure.

7.1.8.6a DTCH/DCCH transmission - Implicit release with E-DCH transmission continuation backoff value set to “0”

7.1.8.6a.1 Definition and applicability

Applicable for all UEs supporting Enhanced UL in Cell_FACH.

7.1.8.6a.2 Conformance Requirement

[..]

- Implicit release with E-DCH transmission continuation backoff
  Implicit resource release is enabled only if "E-DCH transmission continuation back off" is not set to "infinity".
  If implicit resource release is enabled, then in case of DTCH/DCCH transmission, the timer Tb is set to "E-DCH transmission continuation back off" value, when TEBS is 0 byte and the last generated MAC-i PDU with higher

layer data is provided with the PHY-data-REQ primitive to the physical layer for transmission.
If TEBS <> 0 byte is detected while timer Tb is running, then the timer is stopped and uplink data transmission on the common E-DCH resource continues.
If a MAC-ehs PDU is received while timer Tb is running, then the timer is re-started.
If the "E-DCH transmission continuation back off" value is set to "0" or if timer Tb expires the MAC-STATUS-Ind primitive indicates to RLC for each logical channel that no PDUs shall be transferred to MAC. TEBS = 0 byte is reported to the Node B MAC as SI in a MAC-i PDU. If the "E-DCH transmission continuation back off" value is set to "0", then the SI shall be transmitted with the MAC-i PDU carrying the last DCCH/DTCH data, given the serving grant is sufficient to carry the SI in the same MAC-i PDU together with the remaining DCCH/DTCH data. Otherwise, the empty buffer status report is transmitted separately with the next MAC-i PDU.
CMAC-STATUS-Ind which informs the RRC about the Enhanced Uplink in CELL_FACH state and Idle mode process termination is triggered when the empty buffer status has been reported and no MAC-i PDU is left in any HARQ process for (re-)transmission.

[..]

If the UE is sending DTCH or DCCH data, the UE shall release the common E-DCH resource under following conditions:

[..]

- "E-DCH transmission continuation back off" is not set to "infinity", the empty buffer status (TEBS = 0 byte) has been reported and no MAC-i PDU is left in a HARQ process for (re-)transmission.

[..]

Reference(s)

TS 25.321 clause 11.2.2A, 11.8.1.9

7.1.8.6a.3 Test purpose

1. To verify that, when “E-DCH transmission continuation back off" value is set to "0" and UE has resources to transmit all remaining data and a SI, the UE transmit a SI with TEBS=0 in a MAC-i PDU together with the remaining DCCH/DTCH data.

2. To verify that, when “E-DCH transmission continuation back off" value is set to "0" and UE has not resources to transmit all remaining data and a SI, the UE transmit a SI with TEBS=0 separately with the next MAC-i PDU.

7.1.8.6a.4 Method of test

Initial conditions

System Simulator

1 cell, default parameters, Ciphering Off

SS shall broadcast SIB5/SIB5bis with Common E-DCH/HS-DSCH information with specific message content given below.

User Equipment:

UE is in Enhanced CELL_FACH state with DTCH/DCCH on common E-DCH / HS-DSCH.

The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 9.1 using condition “AM Packet to Enhanced CELL_FACH from Enhanced CELL_FACH in PS with SRBs mapped on common E-DCH/HS-DSCH”.

The radio bearer is placed in UE loop-back mode 1 configured to return UL RLC SDUs of the same size as the received DL RLC SDUs.

Test procedure

a) UE has common E-DCH resource and allocated E-RNTI to allow data transmission on DTCH. SS sends absolute grant with value of 30.

b) The SS sends 1 RLC SDU of size 12 bytes on the downlink.

c) The UE has enough resources to transmit all data and SI with TEBS=0. The SS receives looped back data and a SI with TEBS=0 in the same MAC-i PDU on the common E-DCH channel.

d1) After UE has received the HARQ ACK then is the UE performing an implicit release.

NOTE 1: UE is performing an implicit release as “E-DCH transmission continuation back off" value is set to "0" in broadcasted SIB5 and all data have been transmitted.

d2) The SS sends 1 RLC SDU of size 12 bytes on the downlink.

e) The SS checks that original common E-DCH channel has been implicitly released by checking that UE initiates a PRACH preamble and Acquisition Indication for a new common E-DCH channel which is used to loop back the data. SS sends absolute grant with value of 10 allowing UE to return data only.

NOTE 2: An absolute grant of 10 corresponds to AG Index 5, E-TFCI = 1. TBS = 120 bits. With 24 bits for MAC-i/is header of 24 bits this allows 96 bits for data (12 bytes).

f) The SS receives looped back data only in a MAC-i PDU on the common E-DCH channel.

g) The SS receives a MAC-i PDU with SI with TEBS=0 on the common E-DCH channel.

h) After UE has received the HARQ ACK then is the UE performing an implicit release.

NOTE 3: UE is performing an implicit release as “E-DCH transmission continuation back off" value is set to "0" in broadcasted SIB5 and all data have been transmitted.

i) The SS sends 1 RLC SDU of size 12 bytes on the downlink.

j) The SS checks that original common E-DCH channel has been implicitly released by checking that UE initiates a PRACH preamble and Acquisition Indication for a new common E-DCH channel which is used to loop back the data. SS sends absolute grant with value of 30 allowing UE to return data and SI on the same MAC-i PDU.

k) The UE has enough resources to transmit all data and SI with TEBS=0. The SS receives looped back data and a SI with TEBS=0 in the same MAC-i PDU on the common E-DCH channel.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←			UE has common E-DCH with E-RNTI allocated. The user plane RAB uses DTCH transmission.
2	←		Absolute Grant	Serving Grant 30. (Note 1)
3	←		RLC SDU	SS sends 1 RLC SDU of size 12 bytes on the downlink
4	→		RLC SDU	SS checks that UE transmits the loop back data and a SI with TEBS=0 in the same MAC-i PDU on the common E-DCH
5	←		HARQ ACK	SS acknowledge the received RLC SDU and wait 100 ms for UE to release the resources
6	←		RLC SDU	SS sends 1 RLC SDU of size 12 bytes
7	<->		UE acquires common E-DCH resource	SS checks that UE perform PRACH Preamble prior to

			acquiring common E-DCH resource.
8	←	Absolute Grant	Serving Grant 10. (Note 2)
9	→	RLC SDU	SS receives and checks loop back data on the common E-DCH. The SS checks that no SI is received.
10	→	SI	SS checks that the UE transmit a MAC-I PDU with TEBS=0.
11	←	HARQ ACK	SS acknowledge the received SI and wait 100 ms for UE to release the resources
12	←	RLC SDU	SS sends 1 RLC SDU of size 12 bytes
13	<->	UE acquires common E-DCH resource	SS checks that UE perform PRACH Preamble prior to acquiring common E-DCH resource.
14	←	Absolute Grant	Serving Grant 30. (Note 1)
15	→	RLC SDU	SS receives and checks loop back data and a SI with TEBS=0 in the same MAC-i PDU on the common E-DCH.
Note 1: Grant value of 30 guarantees that UE have common resources to be able to transmit remaining data and the scheduling information in the same TTI. Note 2: Grant value of 10 guarantees that UE have common resources to be able to transmit remaining data only causing the scheduling information to be sent in next TTI.			

Specific Message Contents

Use the same message type found in clause 6.1.1 of TS 34.108, with SIB5 configured for common E-DCH / HS-DSCH, with the following exceptions.

System Information Block type 5/System Information Block type 5bis

Information Element	Value/Remark
- Primary CCPCH info	Not Present
- PRACH system information list	
- PRACH system information	
-PRACH info - CHOICE mode - Available Sub Channel number -PRACH partitioning - Access Service Class - ASC Setting - CHOICE mode - Available signature Start Index - Available signature End Index - Assigned Sub-channel Number - ASC Setting - CHOICE mode - Available signature Start Index - Available signature End Index - Assigned Sub-channel Number -PRACH power offset - Preamble Retrans Max - RACH transmission parameters - Mmax - Common EDCH System Info - Maximum period for collision resolution phase - E-DCH transmission continuation back off	 FDD '1111 1111 1111'B 2 Access Service Classes FDD 0 (ASC#0) 7 (ASC#0) '0001'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number FDD 0 (ASC#1) 7 (ASC#1) '0010'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number 5 1 8TTI 0TTI

7.1.8.6a.5 Test requirements

- At step 4 the UE shall include data and a SI with TEBS=0 in the same MAC-i PDU.
- At step 7, UE shall perform PRACH preamble and receive Acquisition Indication before looping back data on allocated common E-DCH resource.
- At step 10, UE shall send a MAC-I PDU including a SI with TEBS=0
- At step 13, UE shall perform PRACH preamble and receive Acquisition Indication before looping back data on allocated common E-DCH resource.

7.1.8.7 Physical Channel Failure for EUL in CELL-FACH during initial access preamble

7.1.8.7.1 Definition and Applicability

All UEs which support E-DCH in CELL_FACH

7.1.8.7.2 Conformance Requirement

- If the UE according to subclause 8.5.4A in [7] failed to establish the physical channels, or if the criteria for radio link failure are met as specified in subclause 8.5.6 in [7], then the timer T_2 is started. After the expiry of T_2 a backoff timer T_{BO1} is started. Backoff timer T_{BO1} is set to an integer number N_{BO1} of 10 ms time intervals, randomly drawn within an interval $0 \leq N_{BO1min} \leq N_{BO1} \leq N_{BO1max}$ (with uniform distribution). N_{BO1min} and N_{BO1max} may be set equal when a fixed delay is desired, and even to zero when no delay other than the one due to persistency is desired. The procedure ends if timer TBO1 expires or the UE performs cell reselection while timer TBO1 is running, whatever occurs first. In case of a cell reselection, the timer TBO1 is stopped.

[…]

When the physical channel establishment for Enhanced Uplink in CELL_FACH state and Idle mode is initiated by the UE, the UE shall considered the physical channel being immediately established.

If the physical layer considers the post-verification of procedure AA failed [29, section 4.3.2.3A], the UE shall consider this as a "physical channel failure".

NOTE: The criteria defined in this subclause only apply in case the UE performs synchronisation procedure AA (FDD only).

[…]

d) The UE shall start transmission on uplink at the time defined for the Enhanced Uplink in CELL_FACH state and IDLE mode in [1] and shall use a post-verification period for confirming the establishment of the downlink physical channel as follows: During the first 40 ms period of the first phase of the downlink synchronisation procedure the UE shall control its transmitter according to a downlink F-DPCH quality criterion as follows:

   - When the UE estimates the F-DPCH quality over the first 40 ms period of the first phase of the downlink synchronisation status evaluation to be worse than a threshold Q_{in}, the UE shall shut its transmitter off and consider post-verification failed. Q_{in} is defined implicitly by the relevant tests in [7].

   If the post-verification has failed, the UE shall not transmit on uplink and await higher layer orders.

[…]

TS 25.321 11.2.2A , Figure 11.2.2A-2

TS 25.331 8.5.4A

TS 25.214 4.3.2.3A

7.1.8.7.3 Test purpose

To verify that UE detects physical channel failure in the RACH preamble procedure for enhanced uplink in CELL_FACH and ends that access attempt.

7.1.8.7.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

SS shall broadcast SIB5/SIB5bis with condition B3 “Only for cells which configure common E-DCH and HS-DSCH reception in CELL_FACH”.

User Equipment:

UE: Idle state (state 3 or state 7) as specified in clause 7.4 of TS 34.108 with a CN UE identity, depending on the CN domain(s) supported by the UE.

Test procedure

a) SS transmits the PAGING TYPE 1 with cause terminating conversational call.

b) UE sends an access preamble.

c) SS responds with positive E-AI but does not send F-DPCH.

d) UE detects Physical channel failure

e) UE should end the RACH attempt

f) UE waits for T2 expiry (10ms) + Tbo1 expiry (<= UE shall not attempt another RACH transmission while in waiting for the timer to expire.)

g) UE takes 40 ms to detect the Physical Channel failure at step (d) after SS has stopped F-DPCH transmission. During this period the UE is allowed to transmit on uplink, therefore the SS may receive the uplink RLC SDU.

h) UE then sends another access preamble. The preamble should be triggered by MAC upon receiving RRC connection request from RRC after T300 expiry.

i) SS responds with E-AI and sends F-DPCH as per normal RACH attempt.

j) The UE sends an RRC connection request

k) SS sends RRC Connection Reject to terminate the procedure

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		Paging Type 1	SS starts to transmit this message on the PCCH at the correct paging occasion with cause “Terminating Interactive Call”
2	→		Access Preamble	
3	←		AICH = POS ACQUISITION IND	
4				SS does not transmit F-DPCH. SS waits for a minimum time of T_2 (10ms) + T_{BO1} (N_{BO1min} * 10 ms) and checks that UE does not perform a new Access Preamble
4a	→			UE takes 40 ms to detect the Physical Channel failure after SS has stopped F-DPCH transmission, SS may receive uplink RLC PDU until 40ms .
5	→		Access Preamble	UE initiates new PRACH preamble attempt after the expiry of T300
6	←		AICH = POS ACQUISITION IND	
7	<->			SS establishes the required physical channels including F-DPCH as per normal enhanced RACH preamble procedure and UE acquires common E-DCH resource
8	→		RRC CONNECTION REQ	Establishment ***cause***=”Terminating Interactive call”
9	←		RRC CONNECTION REJECT	IE "wait time" set to 0 to bring the UE to idle mode.

Specific Message Contents

RRC CONNECTION REJECT (Step 6)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	Same as the type and value defined in RRC CONNECTION REQUEST message (step 5)
Reject Cause	Congestion
Wait time	0 second

7.1.8.7.5 Test requirements

1. At step 5, SS checks that UE sends another preamble.
2. At step 8 , UE should send an RRC Connection Request.

7.1.8.8 Radio Link Failure for Enhanced UL in CELL-FACH with DTCH/DCCH active

7.1.8.8.1 Definition and Applicability

All UEs which support E-DCH in CELL_FACH

7.1.8.8.2 Conformance Requirement

For FDD, in CELL_FACH state and Idle mode, in conjunction with the Enhanced Uplink in CELL_FACH state, after receiving an indication from layer 1 that physical layer transmission stopped caused by an DL out-of-synchronisation, the UE shall:

1> consider it as a "Radio link failure".

[…]

The E-DCH enhanced physical random access transmission procedure is completed with release of the allocated common E-DCH resource, if one of the following conditions is fulfilled:

- If the UE according to subclause 8.5.4A in [7] failed to establish the physical channels, or if the criteria for radio link failure are met as specified in subclause 8.5.6 in [7], then the timer T_2 is started. After the expiry of T_2 a backoff timer T_{BO1} is started. Backoff timer T_{BO1} is set to an integer number N_{BO1} of 10 ms time intervals, randomly drawn within an interval $0 \leq N_{BO1min} \leq N_{BO1} \leq N_{BO1max}$ (with uniform distribution). N_{BO1min} and N_{BO1max} may be set equal when a fixed delay is desired, and even to zero when no delay other than the one due to persistency is desired. The procedure ends if timer TBO1 expires or the UE performs cell reselection while timer TBO1 is running, whatever occurs first. In case of a cell reselection, the timer TBO1 is stopped.

[…]

References(s)

TS 25.331 8.5.6

TS 25.321 11.2.2A

7.1.8.8.3 Test purpose

To verify that UE releases common E-DCH resource in the event of radio link failure when DTCH/DCCH is active in Enhanced CELL_FACH state.

7.1.8.8.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

System Information Block type 5 (FDD)

Use the default parameter values for the system information block 5 with the same type specified in clause

6.1.0b of TS 34.108 for common E-DCH and HS-DSCH reception in CELL_FACH, with the following exceptions:

Information Element	Value/Remark
- Common EDCH System Info	
- E-DCH transmission continuation back off	Infinity

User Equipment:

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed with all the parameters as specified in the procedure, with the exception that the default Radio Bearer is replaced with the RB according to clause 6.10.2.4.6.3 using condition A29 with RB mapping to HS-DSCH and E-DCH. The MAC-d flow of the user plane RB is configured for scheduled transmissions. The logical channel, transport channel and common MAC-d flow identities are set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	8	RB25
Note: The RAB combination also includes SRBs on E-DCH on MAC-d flow 1 which is not used in the testcase			

The UE is placed into UE test loop mode 1 with the UL SDU size set to 39 octets for RB25

Test procedure

1. SS transmits 1 SDU of size 40 bytes
2. SS waits until data is received and checks that all the data is received. SS checks that there is no RACH preamble prior to data loopback because UE has common E-DCH resource
3. SS stops F-DPCH transmission for 5 seconds. This should be sufficient time for UE to detect Radio Link Failure
4. SS transmits 1 SDU of size 40 bytes
5. UE shall acquire common E-DCH resource as SS resumes F-DPCH following positive AI. SS waits until data is received and checks that all the data is received. SS checks that there is RACH preamble prior to data loopback
6. SS opens the test loop and releases the radio bearer

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures, UE has acquired common E-DCH resource and uses this for UL transmission.
2			Close UE test loop	
2a			Absolute Grant	Serving Grant 4
3	←		DOWNLINK RLC SDU	SDU size = 40 Octets
4	→		UPLINK RLC SDU	The SS checks length and content of the received RLC SDUs. SS checks that there is no RACH preamble prior to data loopback on common E-DCH resource.
5				SS stops F-DPCH transmission
6				Wait 5 seconds. This time is sufficient for UE to detect Radio Link failure and release common E-DCH resource
7	←		DOWNLINK RLC SDU	SDU size = 40 Octets
8	<->		UE acquires common E-DCH resource	SS checks for preamble PRACH and sets up the necessary channels, including the resumption of F-DPCH transmission, and takes the steps necessary for UE to acquire common E-DCH resource
8a			Absolute Grant	Serving Grant 4
9	→		UPLINK RLC SDU	The SS checks length and content of the received RLC SDUs.
10			OPEN UE TEST LOOP PROCEDURE	
11			RB RELEASE	

7.1.8.8.5 Test requirements

- at step 4, the UE shall return 1 SDU with the same content as the transmitted SDU on common E-DCH resource without RACH preamble.
- at step 8, UE shall send RACH preamble.
- t step 9 the UE shall return 1 SDU with the same content as the transmitted SDU on common E-DCH resource.

7.1.8.9 CCCH transmission E-DCH access, the UL transmission within the Scheduling Windows

7.1.8.9.1 Definition and Applicability

1.28Mcps TDD UEs which support E-DCH in CELL_FACH

7.1.8.9.2 Conformance Requirement

Extract from 25.331 8.5.46:

For 1.28 Mcps TDD, whenever the variable COMMON_E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> if CCCH message is submitted for transmission on the uplink and if the variable E_RNTI is not set:

2> select a common E-RNTI according to subclause 8.5.50;

2> perform E-RUCCH transmission procedure, using the selected common E-RNTI as UE identity;

2> use the selected common E-RNTI as UE identity in the E-AGCH reception procedure in the physical layer in the common E-RNTI scheduling window according to subclause 8.5.50.

1> else:

2> perform E-RUCCH transmission procedure according to the stored PRACH configuration (see [60]), using the value stored in the variable E_RNTI as UE identity;

2> use the value stored in the variable E_RNTI as UE identity in the E-AGCH reception procedure in the physical layer.

1> perform E-HICH reception procedures for the serving E-DCH radio link;

1> perform E-PUCH transmission procedures according to the stored E-PUCH configuration;

1> perform the inclusion of MAC-d PDUs and MAC-c PDUs in a MAC-i PDU for logical channels belonging to the MAC-d flows in accordance with the received scheduling grant on E-AGCH (see [15]).

NOTE: For 1.28 Mcps TDD, when performing E-DCH transmission in CELL_FACH state and Idle mode, the UE shall use the tables of transport block size for the E-DCH physical layer category 3 as specified in [15].

…

When the IE "Common E-RNTI Information" is included in System Information Block type 5, and if the UE is in CELL_FACH state or Idle mode, and if the variable E_RNTI is not set, UE shall use a common E-RNTI for CCCH transmission (i.e. the common E-RNTI identifies the initial access, including RRC connection request and cell update after cell re-selection):

1> configure the MAC layer with the information in the IE(s) "Common E-RNTI information";

1> when a CCCH message is to be sent, and if the variable E_RNTI is not set, the MAC layer operates as follows:

2> select an E-RUCCH;

2> select the instance of the IE(s) "Common E-RNTI information" which is related to the selected E-RUCCH;

2> select a common E-RNTI which is related to the selected E-RUCCH according to the following procedure:

3> compile a list of candidate common E-RNTI group from the selected instance of the IE(s) "Common E-RNTI information" in the order of appearance in System Information Block type 5, and select a common E-RNTI group from the list of candidate Common E-RNTI groups based on the E-RUCCH transmission occasion:

"Index of selected Common E-RNTI group" = SFNE-RUCCH mod K, for TTI of E-RUCCH = 10ms;

or "Index of selected Common E-RNTI group" = SFN'E-RUCCH mod K, for TTI of E-RUCCH = 5ms;

Where K is the number of E-RNTI groups related to the E-RUCCH; $SFN_{E\text{-}RUCCH}$ or $SFN'_{E\text{-}RUCCH}$ is the frame or sub-frame on which the E-RUCCH shall be sent [33].

3> select a common E-RNTI randomly amongst the candidate the candidate E-RNTIs in the selected group.

2> use the value of the selected common E-RNTI as UE identity in current E-RUCCH transmission, and in the E-AGCH reception within the common E-RNTI scheduling window which is of K frames or K sub-frames length.

References(s)

3GPP TS 25.331 clause 8.5.46, 8.5.50.

7.1.8.9.3 Test purpose

The purpose of the test case is to verify support of CCCH transmission E-DCH with common E-RNTI.

7.1.8.9.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108 with a CN UE identity, depending on the CN domain(s) supported by the UE.

Test procedure

k) SS transmits the PAGING TYPE 1 with cause BCCH modification.

l) SS transmits the changed system information SIB5 / SIB5 bis. UE updates the stored SIBs. The new SIB 5 / SIB5-bis contains the common E-DCH related information.

m) SS transmits the PAGING TYPE 1 with cause terminating conversational call.

n) SS receives E-RUCCH

o) SS transmits a AGCH.

p) SS receives the RRC CONNECTION REQ sent by UE

q) SS transmits a RRC CONNECTION REJECT.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		←	Paging Type 1	BCCH change ind
2		←	SIB1 and SIB 5/ SIB5 bis	SS transmits E-DCH common information to UE
3				SS waits 5s (to ensure that the UE has time to read the new system information)
4		←	Paging Type 1	SS starts to transmit this message continuously on the PCCH at the correct paging occasion with cause “Terminating conversational call”
5		→	E-RUCCH	SS checks UE use correct common E-RNTI.
6		←	AGCH	
7		→	RRC CONNECTION REQ	
8		←	RRC CONNECTION REJECT	

Specific Message Contents

PAGING TYPE 1 (Step 1)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
MIB Value Tag	Set to (Current MIB value tag + 1)
BCCH Modification time	Not Present

SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis (Step 2)

Use the same message type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
- Common EDCH system information	
-CHOICE Mode	TDD
- CHOICE *TDD option*	1.28 Mcps TDD
- CCCH transmission info	
- Common E-RNTI info	
- Common E-RNTI information	
- Starting E-RNTI	'1111 1010 1010 1010'
- Number of group	4
- Number of E-RNTI per group	1

PAGING TYPE 1 (Step 3)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	CN identity
- Paging Cause	Terminating Call with one of the supported services
- CN Domain Identity	Supported Domain (PS Domain or CS Domain)
- CHOICE UE Identity	Local (P)TMSI
- Routing parameter	Same as registered TMSI or P-TMSI
BCCH modification info	Not Present

7.1.8.9.5 Test requirements

1. At step 5 , SS checks UE use correct common E-RNTI.

7.1.8.10 DTCH/DCCH transmission with E-RUCCH access for dedicated control signalling or dedicated user data when dedicated E-RNTI is allocated

7.1.8.10.1 Definition and Applicability

1.28Mcps TDD UEs which support E-DCH in CELL_FACH

7.1.8.10.2 Conformance Requirement

Extract from 25.331 8.5.46:

For 1.28 Mcps TDD, whenever the variable COMMON_E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> if CCCH message is submitted for transmission on the uplink and if the variable E_RNTI is not set:

2> select a common E-RNTI according to subclause 8.5.50;

2> perform E-RUCCH transmission procedure, using the selected common E-RNTI as UE identity;

2> use the selected common E-RNTI as UE identity in the E-AGCH reception procedure in the physical layer in the common E-RNTI scheduling window according to subclause 8.5.50.

1> else:

2> perform E-RUCCH transmission procedure according to the stored PRACH configuration (see [60]), using the value stored in the variable E_RNTI as UE identity;

2> use the value stored in the variable E_RNTI as UE identity in the E-AGCH reception procedure in the physical layer.

1> perform E-HICH reception procedures for the serving E-DCH radio link;

1> perform E-PUCH transmission procedures according to the stored E-PUCH configuration;

1> perform the inclusion of MAC-d PDUs and MAC-c PDUs in a MAC-i PDU for logical channels belonging to the MAC-d flows in accordance with the received scheduling grant on E-AGCH (see [15]).

NOTE: For 1.28 Mcps TDD, when performing E-DCH transmission in CELL_FACH state and Idle mode, the UE shall use the tables of transport block size for the E-DCH physical layer category 3 as specified in [15].

References(s)

3GPP TS 25.331 clause 8.5.46.

7.1.8.10.3 Test purpose

The purpose of the test case is to verify support of DTCH/DCCH transmission with E-RUCCH access for dedicated control signalling or dedicated user data when dedicated E-RNTI is allocated

7.1.8.10.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

User Equipment:

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108 with a dedicated E-RNTI is allocated.

Test procedure

a) The SS establishes the reference radio bearer configuration specified in TS 34.108 clause 6.11.5.4.7.2 using condition A11 as specified in clause 9.1 of TS 34.108.. See note 1.

b) The SS closes the test loop using UE test loop mode 1 and configuring the UL RLC SDU size to be equal to the received DL SDU size (i.e. not setting the UL RLC SDU size parameter).

c) The SS transmits one RLC SDU of size 320 bits,

d) The SS waits for an E-RUCCHwith SI to be received that indicates that the one RLC SDU is available for transmission (can be identified from the content of the SI)

e) The SS issues an absolute grant that allows the UE to send

f) The SS waits until data is received and verifies that the looped back SDU has correct content

g) The SS opens the UE test loop.

h) The SS release the radio bearer.

i) The SS may optionally deactivate the radio bearer test mode.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
2	<--		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
4	<--		RRC CONNECTION SETUP (CCCH)	RRC
5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6	-->		SERVICE REQUEST (DCCH)	GMM
7	<--		SECURITY MODE COMMAND	RRC see note 1
8	-->		SECURITY MODE COMPLETE	RRC see note 1
9	<--		ACTIVATE RB TEST MODE (DCCH)	TC
10	-->		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
11	<--		RADIO BEARER SETUP (DCCH)	RRC. For the PS radio bearer the 'pdcp info' IE shall be omitted.
12	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
13	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 with no "LB Setup RB IE#k" parameter set (UE shall return an UL RLC SDU with the same size as the received RLC SDU in downlink)
14	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
15	SS			The SS creates one RLC SDU
16	<--		DOWNLINK RLC SDU#1	Send test data. The MAC-ehs PDU contains 4 RLC SDUs
17	→		E-RUCCH with SI indicating 1 RLC SDU	This can be verified from the indicated Total E-DCH Buffer Status (TEBS)
18	<--		Absolute grant allowing the UE to transmit at maximum bit rate.	
19	-->		UPLINK RLC SDU	The SS checks that the content of the received UL RLC SDU is correct
20	<--		OPEN UE TEST LOOP (DCCH)	TC
21	-->		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
22			RB RELEASE	RRC
23	<--		DEACTIVATE RB TEST MODE	TC Optional step
24	-->		DEACTIVATE RB TEST MODE COMPLETE	TC Optional step
Note 1: In addition to activate integrity protection Step 6 and Step 7 are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.				

7.1.8.10.5 Test requirements

1. At step 19 , SS checks UE send correct RLC SDU.

7.1.9 E-DCH MAC-is/i for Dual-Cell HSUPA

7.1.9.1 MAC-i/is multiplexing for Dual-Cell HSUPA

7.1.9.1.1 Definition and applicability

Applicable for all UEs supporting MAC-i/is, DC-HSDPA and DC-HSUPA

7.1.9.1.2 Conformance Requirement

From 25.321 clause 9.1.5:

When MAC-i/is is configured, there are two MAC sublayers, MAC-i and MAC-is. MAC-is sits on top of MAC-i and receives PDUs directly from MAC-d. When MAC-i/is is configured, a MAC PDU for E-DCH consists of one MAC-i header and one or more MAC-is PDUs. Each MAC-is PDU consists of one or more MAC-is SDUs belonging to the

same logical channel. Each MAC-is SDU equals a complete or a segment of a MAC-d PDU. The MAC-is SDUs can have different sizes. The LCH-ID and L fields are repeated per MAC-is SDU. The TSN and SS fields are repeated per MAC-is PDU. Multiple MAC-is PDUs from multiple logical channels, but only one MAC-i PDU can be transmitted in a TTI. In case sufficient space is left in the E-DCH transport block or if Scheduling Information needs to be transmitted, an SI will be included at the end of the MAC-i PDU (see subclause 9.2.4.2).

[…]

From 25.321 clause 4.2.3.6:

- Multiplexing and TSN setting:

The multiplexing and TSN setting entity is responsible for concatenating multiple MAC-d PDUs into MAC-is PDUs, and to multiplex one or multiple MAC-is PDUs into a single MAC-i PDU, or, when more than one uplink frequency is activated, one or two MAC-i PDUs, to be transmitted in the next TTI, as instructed by the E-TFC selection function. It is also responsible for managing and setting the TSN per logical channel for each MAC-is PDU.

[…]

From 25.321 clause 11.8.1.2.1:

When one uplink frequency is configured, after each MAC-es PDU or MAC-is PDU is multiplexed:

- increment CURRENT_TSN by 1;
- if CURRENT_TSN > 63:
  - set CURRENT_TSN = 0.

When more than one uplink frequency is configured, after each MAC-is PDU is multiplexed:

- increment CURRENT_TSN by 1;
- if CURRENT_TSN > 16383:
  - set CURRENT_TSN = 0.

[…]

From 25.331 clause 8.6.5.18:

1> if the IE "E-DCH MAC-d flow multiplexing list" is included:

2> only multiplex MAC-d PDU’s from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU’s from E-DCH MAC-d flows with which multiplexing in the same MAC-e or MAC-i PDU is allowed in accordance to the IE "E-DCH MAC-d flow multiplexing list".

Reference(s)

TS 25.321 clause 9.1.5, 4.2.3.6, 11.8.1.2.1, TS 25.331 clause 8.6.5.18

7.1.9.1.3 Test purpose

1. To verify that the UE, when Dual-Cell E-DCH is configured, multiplex multiple MAC-is PDUs into two MAC-i PDUs.
2. To verify that the UE, when Dual-Cell E-DCH is configured, use the extended TSN range (0 to 16383).

7.1.9.1.4 Method of test

Initial conditions

System Simulator:

2 cells –Cell 1/2 DC HSDPA and DC HSUPA cell(s) with Cell 1 (Serving HS.DSCH cell/Primary uplink frequency) and Cell 2 (Secondary serving HS.DSCH cell /Secondary uplink frequency) and Ciphering Off.

User Equipment:

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed with all the parameters as specified in the procedure, with the exception that the default Radio Bearer is replaced with the Radio Bearers according to clause 6.11.4k.5 (Flexible RLC + MAC-i/is + MAC-ehs) using condition A25c to configure Dual-Cell E-DCH operation.

The MAC-d flows are configured for scheduled transmissions. The following parameters are specific for this test case with the logical channel, transport channel and queue identities set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	6	RB26
8 (LCH2)	3	7	RB27
Note: The RAB combination also includes SRBs on E-DCH on MAC-d flow 1 which is not used in the test case			

The UE is placed into UE test loop mode 1 with the UL SDU size for LCH 1 and LCH2 set to 40 octets.

Test procedure

a) The SS has not issued any scheduling grant for E-DCH to the UE

b) The SS transmits one RLC SDU of size 40 bytes on LCH1

c) The SS transmits one RLC SDU of size 40 bytes on LCH2

d) The SS waits for UE to send a SI indicating that all data received in steps b and c is available for transmission.

e) The SS issues an absolute grant on both the uplink frequency that allows the UE to loopback the received data (signalling value 8)

f) The SS checks that the UE returns one RLC SDU for LCH1 and one RLC SDU for LCH2 in 2 MAC-i PDUs in the same TTI. The SS checks the TSN value for each LCH. For the first iteration the TSN value shall be '0'. For each successive iteration the UE shall increment the TSN value by 1 modulo 16383.

g) The SS removes the scheduling grant for E-DCH for the UE.

h) The SS repeats step b to step g 16384 times.

NOTE: The UE may send an SI after step 1 or step 2 indicating that only part of the data is available for transmission. These SIs will be ignored by the SS.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		

1	←	1 RLC SDU on LCH 1	
2	←	1 RLC SDU on LCH 2	
3	→	SI	SS waits until UE sends a SI indicating that all data sent in steps 1 and 2 are available for transmission in uplink. This can be verified from the indicated fraction of data on LCH1 and LCH2. The SS ignores any SI indicating that only part of the data sent in step 1 and 2 is available for transmission in uplink.
4	←	Absolute grant	Absolute grant allowing UE to transmit all data on both E-DCH (signalling value 8)
5	→	2 MAC-i PDUs	Two MAC-i PDUs shall be received in the same TTI containing one RLC PDU on LCH 1 and one RLC PDU on LCH 2. SS check the TSN value for MAC-I PDU.
6	←	SS removes the scheduling grant	
7	SS		Repeat steps 1 to 16384 times

Specific Message Contents

RADIO BEARER SETUP: FFS

7.1.9.1.5 Test requirements

1. At step 5 the SS shall receive 2 MAC-i PDU in the same TTI containing one RLC PDU on LCH1 and one RLC PDU on LCH2.

2. At step 5 the TSN value for both MAC-I PDUs shall be:

   - Frist iteration: ‘0’;

   - Iteration 2 to 16384: ‘1’ to ‘16383’

   - Iteration 16385: ‘0’

7.1.9.2 Happy bit setting and SI handling for Dual-Cell HSUPA

7.1.9.2.1 Definition and applicability

All UEs which support Dual-Cell HSDPA and Dual-Cell E-DCH.

7.1.9.2.2 Conformance requirement

The happy bit is a single bit field that is passed from MAC to the physical layer for inclusion on the E-DPCCH. This field takes two values, "Not Happy" and "Happy" indicating respectively whether the UE could use more resources or not. The setting of the Happy Bit is defined in subclause [TS 25.321] 11.8.1.5.

A happy bit is reported on each of the Activated Uplink Frequencies.

[…]

The Happy Bit is included on the E-DPCCH for every E-DCH transmission on each Activated Uplink Frequency. E-DCH transmissions shall not be triggered specifically to allow the transmission of the happy bit.

RRC configures MAC with the duration Happy_Bit_Delay_Condition, over which to evaluate the current grant relative to the TEBS after application of the E-TFC selection procedure described in subclause 11.8.1.4.

For every E-DCH transmission and for each Activated Uplink Frequency, the Happy Bit on a frequency shall be set to "unhappy" if the three following criteria are met on that frequency:

1) UE is transmitting as much scheduled data as allowed by the current Serving_Grant in E-TFC selection on that frequency; and

2) UE has enough power available to transmit at higher data rate on that frequency; and

3) Based on the same power offset as the one selected in E-TFC selection to transmit data in the same TTI as the Happy Bit, TEBS would require more than Happy_Bit_Delay_Condition ms to be transmitted with the current Serving_Grant × the ratio of active processes to the total number of processes.

   If there is more than one Activated Uplink Frequency, based on the same power offset as the one selected in E-TFC selection on each Activated Uplink Frequency to transmit data in the same TTI as the Happy Bit, TEBS would require more than Happy_Bit_Delay_Condition ms to be transmitted with the current (Serving_Grant × the ratio of active processes to the total number of processes on the Primary Uplink Frequency) plus (Serving_Grant × the ratio of active processes to the total number of processes on the Secondary Uplink Frequency).

The first criteria is always true for a deactivated process and the ratio of the third criteria is always 1 for 10ms TTI.

Otherwise, the Happy Bit shall be set to "happy". When the UE has more than one Activated Uplink Frequency, the power used to assess whether the UE has enough power to transmit at a higher data rate on one Activated Uplink Frequency is based on the maximum remaining power allowed for E-DCH transmission on that Activated Uplink Frequency as determined by E-TFC selection described in subclause 11.8.1.4 and in [12].

In order to assess if it has enough power available to transmit at higher data rate on an Activated Uplink Frequency, the UE shall:

1) If MAC-i/is is configured, identify the E-TFC that has a transport block size at least 32 bits larger than the transport block size of the E-TFC selected for transmission in the same TTI as the Happy Bit. Otherwise, identify the E-TFC that has a transport block size at least *x* bits larger than the transport block size of the E-TFC selected for transmission in the same TTI as the Happy Bit, where *x* is the smallest RLC PDU size configured among all the logical channels that do not belong to non-scheduled MAC-d flows and which have data in the buffer; and

2) Based on the same power offset as the one selected in E-TFC selection to transmit data in the same TTI as the Happy Bit, check that the identified E-TFC is supported i.e. not blocked.

[…]

The Scheduling Information is located at the end of the MAC-e or MAC-i PDU and is used to provide the serving Node B with a better view of the amount of system resources needed by the UE and the amount of resources it can actually make use of. The transmission of this information will be initiated due to the quantization of the transport block sizes that can be supported or based on the triggers defined in subclause 11.8.1.6. When a Scheduling Information is transmitted, its contents shall always be updated in new transmissions with the buffer status after application of the E-TFC selection procedure described in subclause 11.8.1.4. The logical channels for which a non-scheduled grant is configured shall never be taken into account when putting together this information. In addition, the RRC may restrict applicability for logical channels for which no non-scheduled grant was configured.

A Scheduling Information is reported independently on each of the Activated Uplink Frequencies.

This information includes the following fields:

- Highest priority Logical channel ID (HLID):
  The HLID field identifies unambiguously the highest priority logical channel with available data. If multiple logical channels exist with the highest priority, the one corresponding to the highest buffer occupancy will be reported. The length of the HLID is 4 bits. In case the TEBS is indicating index 0 (0 byte), the HLID shall indicate the value "0000".

- Fields related to amount of available data:

- Total E-DCH Buffer Status (TEBS):
  The TEBS field identifies the total amount of data available across all logical channels for which reporting has been requested by the RRC and indicates the amount of data in number of bytes that is available for transmission

and retransmission in RLC layer. If MAC-i/is is configured, it also includes the amount of data that is available for transmission in the MAC-i/is segmentation entity. When MAC is connected to an AM RLC entity, control PDUs to be transmitted and RLC PDUs outside the RLC Tx window shall also be included in the TEBS. RLC PDUs that have been transmitted but not negatively acknowledged by the peer entity shall not be included in the TEBS.

The length of this field is 5 bits. The values taken by TEBS are shown in Table 9.2.5.3.2.1.

Table 9.2.5.3.2-1: TEBS Values

Index	TEBS Value (bytes)
0	TEBS = 0
1	0 < TEBS ≤ 10
2	10 < TEBS ≤ 14
3	14 < TEBS ≤ 18
4	18 < TEBS ≤ 24
5	24 < TEBS ≤ 32
6	32 < TEBS ≤ 42
7	42 < TEBS ≤ 55
8	55 < TEBS ≤ 73
9	73 < TEBS ≤ 97
10	97 < TEBS ≤ 129
11	129 < TEBS ≤ 171
12	171 < TEBS ≤ 228
13	228 < TEBS ≤ 302
14	302 < TEBS ≤ 401
15	401 < TEBS ≤ 533
16	533 < TEBS ≤ 708
17	708 < TEBS ≤ 940
18	940 < TEBS ≤ 1248
19	1248 < TEBS ≤ 1658
20	1658 < TEBS ≤ 2202
21	2202 < TEBS ≤ 2925
22	2925 < TEBS ≤ 3884
23	3884 < TEBS ≤ 5160
24	5160 < TEBS ≤ 6853
25	6853 < TEBS ≤ 9103
26	9103 < TEBS ≤ 12092
27	12092 < TEBS ≤ 16062
28	16062 < TEBS ≤ 21335
29	21335 < TEBS ≤ 28339
30	28339 < TEBS ≤ 37642
31	37642 < TEBS

- Highest priority Logical channel Buffer Status (HLBS):
  The HLBS field indicates the amount of data available from the logical channel identified by HLID, relative to the highest value of the buffer size range reported by TEBS when the reported TEBS index is not 31, and relative to 50000 bytes when the reported TEBS index is 31. The length of HLBS is 4 bits. The values taken by HLBS are shown in table 9.2.5.3.2.2. In case the TEBS field is indicating index 0 (0 byte), the HLBS field shall indicate index 0.

Table 9.2.5.3.2-2: HLBS Values

Index	HLBS values (%)

0	0 < HLBS ≤ 4
1	4 < HLBS ≤ 6
2	6 < HLBS ≤ 8
3	8 < HLBS ≤ 10
4	10 < HLBS ≤ 12
5	12 < HLBS ≤ 14
6	14 < HLBS ≤ 17
7	17 < HLBS ≤ 21
8	21 < HLBS ≤ 25
9	25 < HLBS ≤ 31
10	31 < HLBS ≤ 37
11	37 < HLBS ≤ 45
12	45 < HLBS ≤ 55
13	55 < HLBS ≤ 68
14	68 < HLBS ≤ 82
15	82 < HLBS

- UE Power Headroom (UPH):
  The UPH field of a frequency indicates the ratio of the maximum UE transmission power and the corresponding DPCCH code power of that frequency defined in [17]. The length of UPH is 5 bits.

The Scheduling Information message is represented in figure 9.2.5.3.2-1 where for each field, the LSB is the rightmost bit in the figure and the MSB is the leftmost bit.

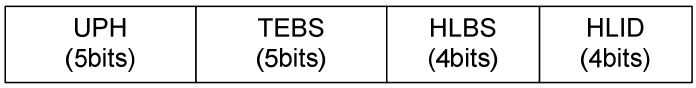


Figure 9.2.5.3.2-1: Scheduling Information format

Reference(s)

TS 25.321 clause 9.2.5.3.1, 11.8.1.5 and 9.2.5.3.2

7.1.9.2.3 Test purpose

1 To verify that UE makes the correct settings of happy bit for the primary and secondary frequency.

2. To verify that UE makes the correct settings of scheduling information for the primary and secondary frequency.

7.1.9.2.4 Method of test

Initial conditions

System Simulator:

2 cell – Cell 1/2 DC HSDPA and DC HSUPA cell(s) with Cell 1 (Serving HS-DSCH cell/Primary uplink frequency) and 2 (Secondary serving HS-DSCH/Secondary uplink frequency), Ciphering Off.

User Equipment:

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed with all the parameters as specified in the procedure, with the exception that the default Radio Bearer is replaced with the Radio Bearers according to clause 6.11.4k.2 (Flexible RLC + MAC-i/is + MAC-ehs) using condition A25c to configure Dual-Cell E-DCH operation..

The MAC-d flows are configured for scheduled transmissions. The following parameters are specific for this test case with the logical channel, transport channel and queue identities set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7	2	6	RB26
Note: The RAB combination also includes SRBs on E-DCH on MAC-d flow 1 which is not used in the test case			

The following parameters are specific for this test case

Parameter	Value
Happy bit delay condition	10 ms (see 25.331 10.3.6.98)

The UE is placed into UE test loop mode 1 with the UL RLC SDU size set to 39 octets.

Test procedure

In this test procedure the UE is configured with one logical channel with Id 7.

a) The SS has not issued any scheduling grant for E-DCH to the UE.

b) The SS transmits 5 RLC SDUs of size 39 bytes to the UE

c) The SS waits for the UE to send a SI on each Activated Uplink Frequency indicating that all data received in step b is available for transmission

d) The SS issues an absolute grant on each Activated Uplink Frequencies allowing the UE to transmit 3 RLC SDUs of size 39 bytes per TTI (signalling value 7 for FDD). This enables the UE to loopback all the received data.

e) The SS waits until all data is received in uplink and checks the happy bit on both E-DPCCH

f) The SS removes the scheduling grant for the UE (Signalling value 1 for FDD).

g) The SS transmits 40 RLC SDUs of size 39 bytes to the UE.

h) The SS waits for the UE to send a SI indicating that all data received in step g is available for transmission

i) The SS issues an absolute grant on both Activated Uplink Frequencies allowing the UE to transmit 2 RLC SDUs of size 39 bytes per TTI on both uplink frequency (signalling value 5 for FDD).

j) The SS waits until data is received in uplink and checks the SI and happy bit on both E-DPCCH

k) The SS issues an absolute grant allowing UE to transmit the remaining RLC SDUs in one TTI (signalling value 31 for FDD)

l) The SS waits until all data has been received in uplink and checks the happy bit on both E-DPCCH

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		5 RLC SDUs	
2	→		SI	Scheduling Information on each Activated Uplink Frequency indicating that data received in step 1 is available for transmission
3	←		Absolute grants	Absolute grant on each Activated Uplink Frequency allowing the UE to transmit at least 3 RLC SDUs of size 39 bytes per TTI. Signalling value 7.
4	→		Data, SI and happy bit	Happy bit on both E-DPCCH shall be set to happy in the first TTI containing data.
5	←		Removal of absolute grant	Signalling value 1 on each Activated Uplink Frequency
6	←		40 RLC SDUs	
7	→		SI	Scheduling Information on each Activated Uplink Frequency indicating that data received in step 6 is available for transmission
8	←		Absolute grants	Absolute grant on each Activated Uplink Frequency allowing the UE to transmit 2 RLC SDUs of size 39 bytes per TTI. Signalling value 5.
9	→		Data, SI and happy bit	Happy bit on both E-DPCCH shall be set to unhappy in the first TTI containing data.
10	←		Absolute grants	Absolute grant on each Activated Uplink Frequency allowing the UE to transmit remaining RLC SDUs in one TTI. Signalling value 31.
11	→		Data, SI and happy bit	Happy bit on both E-DPCCH shall be set to happy in the first TTI containing data.

Specific Message Contents

None

7.1.9.2.5 Test requirements

1. In step 2 the SS shall receive a Scheduling Information on both Activated Uplink Frequencies indicating a total E-DCH Buffer Status (TEBS) Index > 0

2. In step 4 the SS shall for each Activated Uplink Frequency receive data, Scheduling Information and happy bit information. For each E-DPCCH the happy bit shall be set to happy in the first TTI containing data. The Scheduling Information for each Activated Uplink Frequency shall indicate a total E-DCH Buffer Status (TEBS) index = 0.

3. In step 9 the SS shall receive data and the happy bit from both E-DPCCH shall be set to unhappy in the first TTI containing data. The Scheduling Information for each Activated Uplink Frequency shall indicate a total E-DCH Buffer Status (TEBS) Index > 0.

4. In step 11 the SS shall receive data and the happy bit from both E-DPCCH shall be set to happy in the first TTI containing data. The Scheduling Information for each Activated Uplink Frequency shall indicate a total E-DCH Buffer Status (TEBS) index = 0.

7.1.9.3 Void

7.1.9.4 Void

7.1.9.5 Deactivation and activation of secondary uplink frequency using HS-SCCH orders

7.1.9.5.1 Definition and applicability

This test apply for Release 9 and later releases for the FDD UE that supports HSDPA and Dual Cell E-DCH.

7.1.9.5.2 Conformance requirement

If the UE receives:

- a HS-SCCH order for secondary uplink frequency activation/deactivation

it shall:

1> if the variable SECONDARY_CELL_E_DCH_TRANSMISSION is set to TRUE and the HS-SCCH order is to activate the secondary uplink frequency:

2> consider the secondary uplink frequency as activated;

2> initiate the physical dedicated channel establishment procedure on the downlink frequency associated with the secondary uplink frequency according to the stored configuration;

2> configure the serving grant on the secondary uplink frequency in accordance with the IE "Serving Grant Value" configuration.

1> if the HS-SCCH order is to deactivate the secondary uplink frequency:

2> consider the secondary uplink frequency as not activated.

1> determine the value for the SECONDARY_CELL_E_DCH_TRANSMISSION and take the corresponding actions as described in subclause 8.5.58.

…

Whenever the variable SECONDARY_CELL_E_DCH_TRANSMISSION is set to TRUE, and the secondary uplink frequency is an activated uplink frequency, the UE shall:

1> perform E_AGCH reception procedures on the secondary serving E-DCH cell according to the stored E_AGCH configuration as stated in:

2> subclause 8.6.3.14 for the IE "Primary E-RNTI" and the IE "Secondary E-RNTI" for secondary serving E-DCH cell.

1> perform E-HICH reception procedures for all radio links in the secondary E-DCH active set;

1> perform E-RGCH reception procedures for all radio links in the secondary E-DCH active set for which an E-RGCH configuration has been provided;

1> perform uplink DPCCH transmission on the secondary uplink frequency according to the stored uplink DPCH info configuration as stated in:

2> subclause 8.6.6.6 for the IE "Uplink DPCH info";

2> subclause 8.6.6.49 for the IE "Uplink Secondary Cell Info FDD".

1> perform E-DPCCH transmission procedures on the secondary uplink frequency according to the stored E-DPCCH configuration as stated in:

2> subclause 8.6.6.37 for the IE "E-DPCCH Info";

2> subclause 8.6.6.49 for the IE "Uplink Secondary Cell Info FDD".

1> perform E-DPDCH transmission procedures on the secondary uplink frequency according to the stored E-DPDCH configuration as stated in:

2> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

2> subclause 8.6.5.17 for the IE "HARQ info for E-DCH";

2> subclause 8.6.6.37 for the IE "E-DPDCH Info";

2> subclause 8.6.6.49 for the IE "Uplink Secondary Cell Info FDD".

1> inclusion of MAC-d PDU's in a MAC-i PDU for logical channels on the secondary uplink frequency shall:

2> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]) on the downlink frequency associated with the secondary uplink frequency; and

2> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

Whenever the variable SECONDARY_CELL_E_DCH_TRANSMISSION is set to FALSE, or the secondary uplink frequency is not an activated uplink frequency, the UE shall:

1> not perform F-DPCH, E-AGCH, E-HICH and E-RGCH reception procedures on the downlink frequency associated with the secondary uplink frequency;

1> not perform DPCCH, E-DPCCH and E-DPDCH transmission procedures on the secondary uplink frequency

…

If the UE is configured with multiple uplink frequencies, HS-SCCH ordered deactivation or activation of the secondary serving HS-DSCH cell(s) is applied by the UE 18 slots after the end of the HS-SCCH subframe delivering the order, and any transient behaviour related to this change should take place before this point in time. If:

- the activation statuses of all secondary serving HS-DSCH cells in a frequency band (as defined in [7]) remain unaffected by the HS-SCCH ordered deactivation or activation and the serving HS-DSCH cell is not configured in this band or

- the activation statuses of all secondary serving HS-DSCH cells and the secondary uplink frequency in a frequency band remain unaffected by the HS-SCCH ordered deactivation or activation and the serving HS-DSCH cell is configured in this band

...

Figure 34 shows the timing offset between the uplink DPCH, the HS-PDSCH and the HS-DPCCH at the UE. An HS-DPCCH sub-frame starts $m \times 256$ chips after the start of an uplink DPCH frame that corresponds to the DL DPCH or F-DPCH frame from the HS-DSCH serving cell containing the beginning of the related HS-PDSCH subframe with *m* calculated as

$m = (T_{TX\_diff} /256) + 101$

where T_{TX_diff} is the difference in chips (T_{TX_diff} =0, 256, ..., 38144), between

- the transmit timing of the start of the related HS-PDSCH subframe (see sub-clauses 7.8 and 7.1)

and

- the transmit timing of the start of the downlink DPCH or F-DPCH frame from the HS-DSCH serving cell that contains the beginning of the HS-PDSCH subframe (see sub-clause 7.1).

At any one time, *m* therefore takes one of a set of five possible values according to the transmission timing of HS-DSCH sub-frame timings relative to the DPCH or F-DPCH frame boundary. The UE and Node B shall only update the set of values of *m* in connection to UTRAN reconfiguration of downlink timing.

More information about uplink timing adjustments can be found in [5].

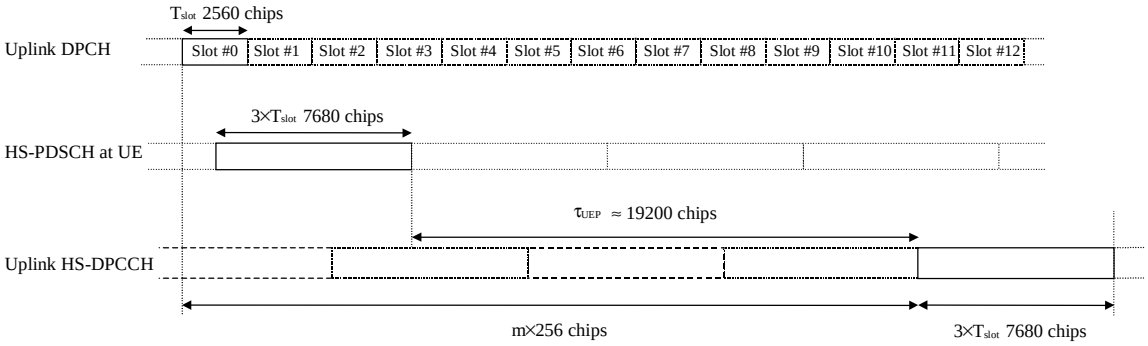


Figure 34: Timing structure at the UE for HS-DPCCH control signalling

...

Figure 35 shows the relative timing between the HS-SCCH and the associated HS-PDSCH for one HS-DSCH sub-frame. The HS-PDSCH starts $\tau_{HS\text{-}PDSCH} = 2\times T_{slot} = 5120$ chips after the start of the HS-SCCH.

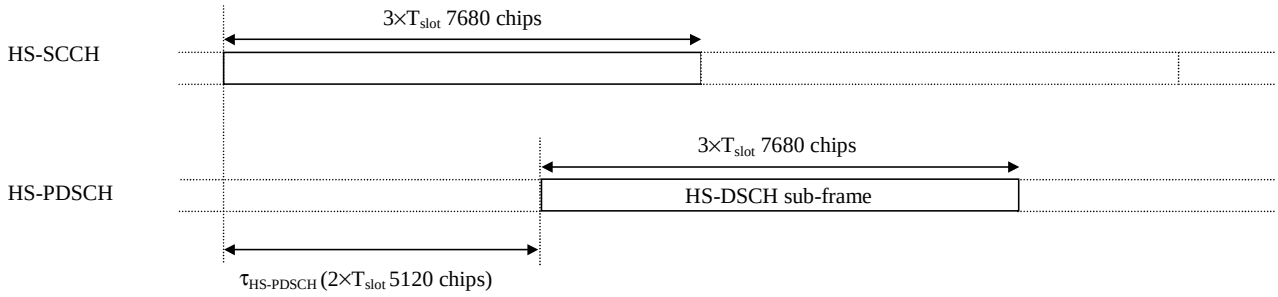


Figure 35: Timing relation between the HS-SCCH and the associated HS-PDSCH

Reference

3GPP TS 25.331 clause 8.5.58, 8.5.59. TS 25.214 clause 6A.1. TS 25.211 clause 7.7, 7.8.

7.1.9.5.3 Test purpose

1. To verify that UE deactivates the secondary uplink frequency when deactivation command is received on the HS-SCCH.
2. To verify that UE activates the secondary uplink frequency when activation command is received on the HS-SCCH.

7.1.9.5.4 Method of test

Initial Condition

System Simulator:

2 cells –Cell 1/2 DC HSDPA and DC HSUPA cell(s) with Cell 1 (Serving HS-DSCH cell/Primary uplink frequency) and Cell 2 (Secondary serving HS-DSCH cell /Secondary uplink frequency) and Ciphering Off.

UE:

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed with all the parameters as specified in the procedure, with the exception that the default Radio Bearer is replaced with the

Radio Bearers according to clause 6.11.4k.2 (Flexible RLC + MAC-i/is + MAC-ehs) using condition A25c to configure Dual-Cell E-DCH operation.

The UE is in secondary uplink frequency deactivation state after the establishment of the secondary uplink carrier.

UE is configured with DC-HSDPA in downlink and Flexible RLC, MAC-i/is in uplink.

The MAC-d flows are configured for scheduled transmissions. The following parameters are specific for this test case with the logical channel, transport channel and queue identities set to:

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7 (LCH1)	2	6	RB26
Note: The RAB combination also includes SRBs on E-DCH on MAC-d flow 1 which is not used in the test case			

The UE is placed into UE test loop mode 1 with the UL SDU size for LCH 1 set to 40 octets.

Test Procedure

The UE is configured with one logical channel. The logical channel is mapped to MAC-d flow 2.

a) The SS transmits an activation HS-SCCH order to the UE to activate secondary uplink carrier.

b) The UE shall respond with ACK on HS-DPCCH. SS check the ACK on HS-DPCCH within 12.5 slots after the end of the HS-SCCH subframe delivering the order.

c) The UE is in secondary uplink frequency activation state. SS should sent zero absolute grant to primary uplink carrier to restrict the data transfer on primary uplink carrier

d) The SS transmits one RLC SDU of size 40 bytes on LCH1

e) The SS waits for an SI to be received that indicates that data is available on LCH1

f) SS should send absolute grant on secondary uplink carrier allowing UE to transmit on secondary E-DCH(Signalling value 4)

g) The SS waits until data is received on the secondary uplink carrier to check that the UE has activated the secondary uplink frequency.

h) The SS transmits deactivation HS-SCCH order to the UE.

i) The UE shall respond with ACK on HS-DPCCH. SS check the ACK on HS-DPCCH within 12.5 slots after the end of the HS-SCCH subframe delivering the order.

j) The SS transmits one RLC SDU of size 40 bytes on LCH1

k) The SS waits for an SI to be received that indicates that data is available on LCH1

l) The data will not be received by the SS, if the UE has de-activated the secondary uplink frequency and there is one zero grant on primary carrier.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		HS-SCCH order(Activation Command)	The UE is in secondary uplink frequency deactivation state after the establishment of the secondary uplink frequency. The HS-SCCH order is used to activate the secondary uplink frequency.
2	→		ACK	
3	←		Zero absolute grant on primary carrier	Disable the uplink data transmitting on primary uplink carrier
4	←		1 RLC SDU on LCH 1	
5	→		SI indicating data on LCH 1	
6	←		Absolute grant on secondary uplink carrier allowing UE to transmit on secondary E-DCH	signalling value 4
7	→		MAC-i PDUs containing 1 RLC PDU on LCH 1	MAC-I PDU should be received on the secondary uplink carrier
8	←		HS-SCCH order(De-Activation Command)	
9	→		ACK	
10	←		1 RLC SDU on LCH 1	
11	→		SI indicating data on LCH 1	
12				SS check that no uplink data will be received during 10 TTIs

Specific Message Contents

HS-SCCH order

The following information is transmitted by means of the HS-SCCH order physical channel. The content of HS-SCCH order in this test case is specified in the TS 25.211.

- Order type (3 bits): *001/011(Activation/De-Activation)*
- Order (3 bits): *010*
- UE identity (16 bits): H-RNTI

7.1.9.5.4 Test requirement

At step 2 the UE shall transmit a HS-DPCCH ACK to respond the Activation Command.

At step 7 the UE shall transmit data to SS on the secondary uplink carrier.

At step 9 the UE shall transmit a HS-DPCCH ACK to respond the De-Activation Command.

After step 11 the UE should not send any data on the primary or secondary uplink carrier during the check time e.g. 10 TTIs.

7.2 RLC testing

7.2.0 General

7.2.0.1 Radio bearer setup

For radio bearer setup the following settings shall be used in both CS and PS mode:

- Re-establishment Timer: useT314

- MAC logical channel priority: 7
- UL Logical Channel Identity:7
- DL Logical Channel Identity:7

7.2.1 Transparent mode

7.2.1.1 Segmentation and reassembly

Transparent mode segmentation and reassembly are not tested in this release of the specification.

7.2.2 Unacknowledged mode

7.2.2.1 General information for UM tests

Two generic Radio Access Bearers are provided for UM tests.

The UM test RAB is set up using the Generic Procedure described in clause 7.1.3 of 3GPP TS 34.108, and with the default RAB replaced as follows:

- For UM 7-bit "Length Indicator" tests: the RB configuration described in 3GPP TS 34.108 clause 6.11.1 is used. For these tests, let UM_7_PayloadSize denote the RAB payload size in octets.
- For UM 15-bit "Length Indicator" tests: the RB configuration described in 3GPP TS 34.108 clause 6.11.2 is used. For these tests, let UM_15_PayloadSize denote the RAB payload size in octets.

The UM test RABs are used in all tests with the following exception:

- Tests that explicitly specify a different Radio Bearer configuration.

All other settings are the same.

The special "Length Indicator" indicating that an SDU begins in the first octet of a PDU, described in clause 9.2.2.8 in 3GPP TS 25.322 is not used in uplink or downlink except when explicitly stated in the corresponding test case.

7.2.2.2 Segmentation and reassembly / Selection of 7 or 15 bit "Length Indicators"

7.2.2.2.1 Definition

The RLC segments and concatenates SDUs into UMD PDUs according to the PDU size requested by MAC. "Length Indicators" are added to allow correct reconstruction of SDUs. The selection of the size of the "Length Indicator" fields used must follow the specified rules. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.2.2.2 Conformance requirement

Except for the predefined values reserved for special purposes and listed in TS 25.322 section 9.2.2.8 the "Length Indicator" shall:

- be set to the number of octets between the end of the RLC header and up to and including the last octet of an RLC SDU segment;
- be included in the PDUs that they refer to.

The size of the Length Indicator may be either 7 bits or 15 bits.

[...]

For UM:

- if the "largest UMD PDU size" is ≤ l25 octets:

- 7-bit "Length Indicators" shall be used.

- else:

  - 15-bit "Length Indicators" shall be used.

- between modifications of the "largest UMD PDU size", the size of the "Length Indicator" is the same for all UMD PDUs.

Reference(s)

TS 25.322 clauses 9.2.2.8 and 9.2.2.9.

7.2.2.2.3 Test purpose

To test that if the size of the largest PDU is ≤ l25 octets, 7 bit indicators are used, otherwise, 15 bit indicators are used.

7.2.2.2.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 7-bit "Length Indicator" tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 10 bytes.

Test procedure

a) The SS transmits an RLC SDU of size 10 bytes.

b) The SS checks the "Length Indicator" values and SDU size and contents in the RLC PDU returned on the uplink (assuming a 7-bit "Length Indicator" size). SS shall take into account presence of Special “Length Indicator” indicating “beginning of an SDU” that will be included by a Rel5 and later UE.

c) The SS releases the RB, and performs the Radio Bearer establishment procedure (clause 7.1.3 of TS 34.108) with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 15-bit "Length Indicator" tests in clause 7.2.2.1.

All other settings the same.

d) The SS transmits an RLC SDU of size 10 bytes.

e) The SS checks the "Length Indicator" values and SDU size and contents in the RLC PDU returned on the uplink (assuming a 15-bit "Length Indicator" size). SS shall take into account presence of Special “Length Indicator” indicating “beginning of an SDU” that will be included by a Rel5 and later UE.

f) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures for UM 7 bit LIs
2	←		DOWNLINK RLC PDU	10 byte SDU + padding
3	→		UPLINK RLC PDU	10 byte SDU + padding
4	←		RB RELEASE	
5			RB ESTABLISHMENT	See generic procedures for UM 15 bit LIs (largest UMD PDU size > 125 bytes)
6	←		DOWNLINK RLC PDU	10 byte SDU + padding
7	→		UPLINK RLC PDU	10 byte SDU + padding
8			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.2.2.5 Test requirements

1. The UE shall send 7 bit "Length Indicators" with values that correctly indicate the end of the SDU received in step 3.

2. The UE shall send 15 bit "Length Indicators" with values that correctly indicate the end of the SDU received in step 7.

7.2.2.3 Segmentation and reassembly / 7-bit "Length Indicators" / Padding

7.2.2.3.1 Definition

The RLC segments and concatenates SDUs into UMD PDUs according to the PDU size requested by MAC. "Length Indicators" are added to allow correct reconstruction of SDUs. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.2.3.2 Conformance requirement

A "Length Indicator" is used to indicate the last octet of each RLC SDU ending within the PDU.

Except for the predefined values reserved for special purposes and listed in the tables below, the "Length Indicator" shall:

- be set to the number of octets between the end of the RLC header and up to and including the last octet of an RLC SDU segment;

- be included in the PDUs that they refer to.

[...]

For UM and AM RLC:

- if a 7 bit "Length Indicator" is used in a RLC PDU and one or more padding octets are present in the RLC PDU after the end of the last RLC SDU:

  - indicate the presence of padding by including a "Length Indicator" with value "1111111" as the last "Length Indicator" in the PDU.

NOTE: After the "Length Indicator" indicating the presence of padding has been included in the RLC PDU, the length of the padding may be zero.

Reference(s)

TS 25.322 clauses 9.2.2.8 and 11.2.2.1.

7.2.2.3.3 Test purpose

1. To test that the UE correctly segments a large SDU, includes a "Length Indicator" indicating padding in the RLC PDU carrying the last SDU segment, and adds padding at the end.

2. To test that the UE correctly deals with a 7-bit padding "Length Indicator" when present in a received PDU.

7.2.2.3.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 7-bit "Length Indicator" tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to UM_7_PayloadSize + 1 bytes.

Test procedure

a) The SS transmits an RLC SDU of size UM_7_PayloadSize + 1 bytes. The second of the 2 PDUs sent shall contain a "Length Indicator" indicating the end of the SDU and the "Length Indicator" indicating that padding is present.

b) The SS checks the "Length Indicator" values in the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU (assuming a 7-bit "Length Indicator" size). SS shall take into account presence of Special “Length Indicator” indicating “beginning of an SDU” that will be included by a Rel5 and later UE in the first PDU.

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1 & Padding
4	→		UPLINK RLC PDU	No LI. See Note 2
5	→		UPLINK RLC PDU	Check LIs and re-assembled SDU
6			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				
NOTE 2: SS shall take into account presence of Special “Length Indicator” indicating “beginning of an SDU” that will be included by a Rel5 and later UE.				

7.2.2.3.5 Test requirements

1. The UE shall return two RLC PDUs. The first RLC PDU shall not include "Length Indicators". except for presence of Special “Length Indicator” indicating “beginning of an SDU” that will be included by a Rel5 and later UE. The second RLC PDU shall have a "Length Indicator" indicating the PDU contains an SDU boundary after octet 1 of the data field, and the second “Length Indicator” shall indicate that the remainder of the PDU contains padding.

2. The length and data content of the received SDU shall be the same as the transmitted SDU.

7.2.2.4 Segmentation and Reassembly / 7-bit "Length Indicators" / LI = 0

7.2.2.4.1 Definition

The RLC segments and concatenates SDUs into UMD PDUs according to the PDU size requested by MAC. A pre-defined "Length Indicator" value is used to indicate when a SDU ends coincident with the end of the previous PDU. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.2.4.2 Conformance requirement

A "Length Indicator" is used to indicate the last octet of each RLC SDU ending within the PDU.

Except for the predefined values reserved for special purposes and listed in TS 25.322 subclause 9.2.2.8, the "Length Indicator" shall:

- be set to the number of octets between the end of the RLC header and up to and including the last octet of an RLC SDU segment;
- be included in the PDUs that they refer to.

[...]

In the case where the end of the last segment of an RLC SDU exactly ends at the end of a PDU and there is no "Length Indicator" that indicates the end of the RLC SDU:

- if 7-bit "Length Indicator" is used:
  - a "Length Indicator" with value "000 0000" shall be placed as the first "Length Indicator" in the following PDU;

[...]

For UM and AM RLC:

- if a 7 bit "Length Indicator" is used in a RLC PDU and one or more padding octets are present in the RLC PDU after the end of the last RLC SDU:
- indicate the presence of padding by including a "Length Indicator" with value "1111111" as the last "Length Indicator" in the PDU.

Reference(s)

TS 25.322 clause 9.2.2.8 and 11.2.2.1.

7.2.2.4.3 Test purpose

1. To test that where a SDU exactly fills a PDU, a "Length Indicator" of all 0's is placed by the transmitter as the first "Length Indicator" in the next PDU.
2. To test that where a SDU exactly fills a PDU, the receiver accepts a "Length Indicator" of all 0's, placed as the first "Length Indicator" in the next PDU.

7.2.2.4.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 7-bit "Length Indicator" tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into loop-back mode 1 with the UL SDU size set to UM_7_PayloadSize bytes. For a Rel-5 and later UE , the UL SDU size shall be set to (UM_7_PayloadSize -1) bytes.

Test procedure

a) The SS transmits an RLC SDU of size 2 * UM_7_PayloadSize bytes.

b) The SS checks the "Length Indicator" values in the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU (assuming a 7-bit "Length Indicator" size).

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1
4	←		DOWNLINK RLC PDU	LI=0 and padding
5	→		UPLINK RLC PDU	No LIs. See Note 2
6	→		UPLINK RLC PDU	Check Lis and re-assembled SDU
7			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				
NOTE 2: SS shall take into account presence of Special “Length Indicator” indicating “beginning of an SDU” that will be included by a Rel5 and later UE.				

7.2.2.4.5 Test requirements

The UE shall return two RLC PDUs. The first RLC PDU shall not include "Length Indicators" except for presence of Special “Length Indicator” indicating “beginning of an SDU” that will be included by a Rel-5 and later UE.. The second RLC PDU shall have a "Length Indicator" indicating that the SDU exactly filled the previous UMD PDU, and a "Length Indicator" indicating that the remainder of the PDU contains padding.

For Rel99 UE, the length of the received SDU shall be UM_7_PayloadSize bytes, and the data content shall be the same as the first UM_7_PayloadSize bytes of the transmitted SDU.

For Rel-5 and later UEs , the length of the received SDU shall be (UM_7_PayloadSize-1) bytes, and the data content shall be the same as the first (UM_7_PayloadSize-1) bytes of the transmitted SDU.

7.2.2.5 Reassembly / 7-bit "Length Indicators" / Invalid LI value

7.2.2.5.1 Definition

The RLC segments and concatenates SDUs into UMD PDU according to the PDU size requested by MAC. "Length Indicators" are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid "Length Indicator" value has been specified. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.2.5.2 Conformance requirement

Upon delivery by the lower layer of an UMD PDU that contains a "Length Indicator" value specified to be reserved for UMD PDUs in this version of the protocol, the Receiver shall:

- ignore that UMD PDU.

[...]

Length: 7 bits

Bit	Description
1111101	Reserved (PDUs with this coding will be discarded by this version of the protocol).
1111110	AMD PDU: The rest of the RLC PDU includes a piggybacked STATUS PDU. UMD PDU: Reserved (PDUs with this coding will be discarded by this version of the protocol).

Reference(s)

TS 25.322 clause 9.2.2.8 and 11.2.4.1.

7.2.2.5.3 Test purpose

To test that PDUs with invalid "Length indicator" '111 1110' are discarded by the receiving RLC.

7.2.2.5.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 7-bit "Length Indicator" tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into loop-back mode 1with the UL SDU size set to UM_7_PayloadSize + 1 bytes.

Test procedure

a) The SS transmits two RLC SDUs of size UM_7_PayloadSize + 1 bytes. In the third PDU for transmission, the SS sets the value of the second (padding) LI to 1111110.

b) The SS checks the "Length Indicator" sizes and values of any RLC PDUs returned on the uplink, and checks for the presence of any received RLC SDUs. SS shall take into account presence of Special “Length Indicator” indicating “beginning of an SDU” that will be included by a Rel-5 and later UE in the first PDU

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	**SS**		
1			RB ESTABLISHMENT	See generic procedures
2		←	DOWNLINK RLC PDU	SDU 1
3		←	DOWNLINK RLC PDU	SDU 1 & SDU 2
4		←	DOWNLINK RLC PDU	SDU 2 and invalid LI (=11111110)
5		→	UPLINK RLC PDU	SDU 1
6		→	UPLINK RLC PDU	SDU 1: Check Lis and re-assembled SDU
7			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.2.5.5 Test requirements

The UE shall return two RLC PDUs. The first RLC PDU shall not include any "Length Indicators" except for presence of Special “Length Indicator” indicating “beginning of an SDU” that will be included by a Rel-5 and later UE. The second RLC PDU shall have a "Length Indicator" indicating the end of the SDU, and a padding "Length Indicator".

The length and data content of the received SDU shall be the same as the first transmitted SDU. The second SDU shall not be returned.

7.2.2.6 Reassembly / 7-bit "Length Indicators" / LI value > PDU size

7.2.2.6.1 Definition

The RLC segments and concatenates SDUs into UMD PDUs according to the PDU size requested by MAC. "Length Indicators" are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid "Length Indicator" value has been specified. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.2.6.2 Conformance requirement

If the "Length Indicator" of an UMD PDU has a value that is larger than the PDU size – RLC header size and is not one of the predefined values listed in the table of TS 25.322 subclause 9.2.2.8, the Receiver shall:

- ignore the UMD PDU.

[...]

Upon delivery of a set of UMD PDUs from the lower layer, the Receiver shall:

- update VR(US) according to each received UMD PDU (see TS 25.322 subclause 9.4);
- if the updating step of VR(US) is not equal to one (i.e. one or more UMD PDUs are missing):
  - discard the SDUs that have segments in the missing UMD PDUs.

Reference(s)

TS 25.322 clauses 11.2.4.2 and 11.2.3.

7.2.2.6.3 Test purpose

To test that PDUs with "Length Indicators" that point beyond the end of the PDU are ignored by the receiving RLC entity.

7.2.2.6.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 7-bit "Length Indicator" tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into loop-back mode 1 with the UL SDU size set to UM_7_PayloadSize + 1 bytes.

Test procedure

a) The SS transmits three RLC SDUs of size UM 7 PayloadSize + 1 bytes. All the SDUs are concatenated or segmented over successive RLC PDUs. In the third PDU for transmission, the SS sets value of the "Length Indicator" to be UM_7_PayloadSize (decimal).

b) The SS checks the "Length Indicator" values in the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDUs (assuming a 7-bit "Length Indicator" size). . SS shall take into account presence of Special “Length Indicator” indicating “beginning of an SDU” that will be included by a Rel-5 and later UE in the first PDU

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1 & SDU 2
4	←		DOWNLINK RLC PDU	SDU 2 & SDU 3, with bad LI
5	←		DOWNLINK RLC PDU	SDU 3 and padding
6	→		UPLINK RLC PDU	SDU 1
7	→		UPLINK RLC PDU	SDU 1 and padding: Check LIs and re-assembled SDU
8			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.2.6.5 Test requirements

The UE shall return two RLC PDUs. The first RLC PDU shall not include "Length Indicators" except for presence of Special “Length Indicator” indicating “beginning of an SDU” that will be included by a Rel-5 and later UE. The second RLC PDU shall have a LI indicating the end of an SDU and an "Length Indicator" indicating that the remainder of the PDU contains padding.

The length and data content of the received SDU should be the same as the first transmitted SDU. No further SDUs or PDUs should be received.

7.2.2.7 Reassembly / 7-bit "Length Indicators" / First data octet LI

7.2.2.7.1 Definition

The RLC segments and concatenates SDUs into UMD PDUs according to the PDU size requested by MAC. "Length indicators" are added to allow correct reconstruction of SDUs. A special "Length Indicator" is defined to indicate that the start of an SDU is coincident with the start of the PDU. The special "Length Indicator" is needed to avoid discarding of an SDU when the first received PDU has a sequence number different from zero. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.2.7.2 Conformance requirement

1. "Length Indicator" = 1111100, UMD PDU: The first data octet in this RLC PDU is the first octet of a RLC SDU.
2. Upon delivery of a set of UMD PDUs from the lower layer, the Receiver shall:

   ...

   - if the special "Length Indicator" "1111 100" or "1111 1111 1111 100" is the first "Length Indicator" of a UMD PDU received on the downlink:
     - consider the first data octet in this UMD PDU as the first octet of an RLC SDU.

Reference(s)

1. TS 25.322 clause 9.2.2.8.
2. TS 25.322 clause 11.2.3.

7.2.2.7.3 Test purpose

To test that a UE in unacknowledged mode correctly handles a received RLC PDU with a 7-bit "Length Indicator" having its value equal to the special "Length Indicator" value 1111100 when the sequence number of the first received PDU is different from zero.

7.2.2.7.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 7-bit "Length Indicator" tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 12 bytes.

Test procedure

a) The SS transmits a RLC SDU of size 12 bytes in a PDU which has the 'First Data Octet LI' as the first "Length Indicator" in the PDU.

b) The SS waits until the SDU has been received back from the UE, and then transmits another SDU of 12 bytes in a PDU which has the 'First Data Octet LI' as the first "Length Indicator" in the PDU.

c) The SS waits until this SDU has been received back from the UE.

c) The SS may optionally release the radio bearer.

NOTE: The SS sends PDUs in downlink starting at sequence number 10.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2		←	DOWNLINK RLC PDU, SN 10	SDU 1 with LI = 1111100
3			…	Wait for loopback
4		→	UPLINK RLC PDU	SDU 1. See Note 2
5		←	DOWNLINK RLC PDU, SN 11	SDU 2 with LI = 1111100
6		→	UPLINK RLC PDU	SDU 2. See Note 2
7			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				
NOTE 2: SS shall take into account presence of Special “Length Indicator” indicating “beginning of an SDU” that will be included by a Rel5 and later UE.				

7.2.2.7.5 Test requirements

1. The UE shall return two RLC PDUs.

2. The length and data content of each received SDU shall be the same as the transmitted SDU.

7.2.2.8 Segmentation and reassembly / 15-bit "Length Indicators" / Padding

7.2.2.8.1 Definition

The RLC segments and concatenates SDUs into UMD PDU according to the PDU size requested by MAC. "Length Indicators" are added to allow correct reconstruction of SDUs. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.2.8.2 Conformance requirement

A PDU that has unused space, to be referred to as padding, shall use a "Length Indicator" to indicate that this space is used as padding unless the padding size is one octet for PDUs with 15-bit "Length Indicators". A padding "Length Indicator" must be placed after any "Length Indicators" for a PU.

One "Length Indicator" field shall be included for each end of a SDU that the PDU includes. The "Length Indicator" shall be set equal to the number of octets between the end of the header fields and the end of the segment. If padding is needed, another "Length Indicator" field set to only 1's shall be added unless the padding size is one octet for PDUs with 15-bit "Length Indicators".

Reference(s)

TS 25.322 clauses 9.2.2.8 and 11.2.2.1.

7.2.2.8.3 Test purpose

1. To test that the UE correctly segments a large SDU and padding is added at the end.
2. To test that the UE correctly deals with a 15-bit padding "Length Indicator" when present in a received PDU.

7.2.2.8.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 15-bit "Length Indicator" tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to UM_15_PayloadSize + 1 bytes.

Test procedure

a) The SS transmits an RLC SDU of size UM_15_PayloadSize + 1 bytes. The second of the 2 PDUs sent shall contain a "Length Indicator" indicating the end of the SDU and the "Length Indicator" indicating that padding is present.

b) The SS checks the "Length Indicator" values in the RLC PDU returned on the uplink, and checks the length and content of the received RLC SDU (assuming a 15-bit "Length Indicator" size).

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1 & Padding
4	→		UPLINK RLC PDU	No LI
5	→		UPLINK RLC PDU	Check LIs and re-assembled SDU
6			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.2.8.5 Test requirements

1. The UE shall return two RLC PDUs. The first shall not include "Length Indicators". The second shall have a "Length Indicator" indicating the PDU contains a SDU boundary after octet 1 of the data field, and the second shall indicate that the remainder of the PDU contains padding.

2. The length and data content of the received SDU shall be the same as the transmitted SDU.

7.2.2.9 Segmentation and Reassembly / 15-bit "Length Indicators" / LI = 0

7.2.2.9.1 Definition

The RLC segments and concatenates SDUs into UMD PDUs according to the PDU size requested by MAC. A pre-defined "Length Indicator" value is used to indicate when an SDUs ends coincident with the end of the previous PU. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.2.9.2 Conformance requirement

If the PDU is exactly filled with the last segment of a SDU and there is no room for an "Length Indicator" field, a "Length Indicator" field set to all 0's shall be included as the first "Length Indicator" in the following PDU.

Reference(s)

TS 25.322 clause 11.2.2.1.

7.2.2.9.3 Test purpose

1. To test that where a SDU exactly fills a PDU, a "Length Indicator" of all 0's is placed by the transmitter as the first "Length Indicator" in the next PDU.

2. To test that where an SDU exactly fills a PDU, and an "Length Indicator" of all 0's is the first "Length Indicator" in the next PDU, the receiver correctly reassembles the PDU.

7.2.2.9.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 15-bit "Length Indicator" tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into loop-back mode 1 with the UL SDU size set to UM_15_PayloadSize bytes.

Test procedure

a) The SS transmits an RLC SDU of size 2 * UM_15_PayloadSize bytes.

b) The SS checks the "Length Indicator" values in the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU (assuming a 15-bit "Length Indicator" size).

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1
4	←		DOWNLINK RLC PDU	LI=0 and padding
5	→		UPLINK RLC PDU	No Lis
6	→		UPLINK RLC PDU	Check LIs and re-assembled SDU
7			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.2.9.5 Test requirements

The UE shall return two RLC PDUs. The first shall not include "Length Indicators". The second shall have an "Length Indicators" indicating that the SDU exactly filled the previous UMD PDU, and a "Length Indicators" indicating that the remainder of the PDU contains padding.

The length of the received SDU shall be UM_15_PayloadSize bytes, and the data content shall be the same as the first UM_15_PayloadSize bytes of the transmitted SDU.

7.2.2.10 Segmentation and reassembly / 15-bit "Length Indicators" / One octet short LI

7.2.2.10.1 Definition

The RLC segments and concatenates SDUs into UMD PDUs according to the PDU size requested by MAC. A pre-defined "Length Indicator" value is used to indicate when an SDUs ends one octet short of the end of the previous PDU. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.2.10.2 Conformance requirement

In the case where the last segment of an RLC SDU is one octet short of exactly filling the last RLC PDU, and 15-bit "Length Indicators" are used, the next "Length Indicator" shall be placed as the first "Length Indicator" in the next PDU and have value "Length Indicator"=111 1111 1111 1011.

In the case where a PDU contains a 15-bit "Length Indicator" indicating that an SDU ends with one octet left in the PDU, the last octet of this PDU shall be ignored and shall not be filled with the first octet of the next SDU data.

Reference(s)

TS 25.322 clause 9.2.2.8.

7.2.2.10.3 Test purpose

1. To test that where the UE transmits an SDU, which is one byte short of filling a PDU, an "Length Indicator" indicating one byte short is placed as the first "Length Indicator" in the next PDU.

2. To test that where the UE correctly handles a received PDU containing an "Length Indicator" indicating that an SDU ended one byte short of the end of the previous PDU.

7.2.2.10.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 15-bit "Length Indicator" tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to UM_15_PayloadSize - 1bytes.

Test procedure

a) The SS transmits an RLC SDU of size (2 * UM_15_PayloadSize) - 1 bytes.

b) The SS checks the "Length Indicator" sizes and values in the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU (assuming a 15-bit "Length Indicator" size).

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1
4	←		DOWNLINK RLC PDU	LI=111 1111 1111 1011 and padding
5	→		UPLINK RLC PDU	No LIs
6	→		UPLINK RLC PDU	Check LIs and re-assembled SDU
7			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.2.10.5 Test requirements

1. The UE shall return two RLC PDUs. The first shall have no "Length Indicators". The second shall have 2 "Length Indicators". The first "Length Indicator" shall be a "Length Indicator" indicating that the SDU was one byte short of filling the previous PDU, and the second shall be a "Length Indicator" indicating that the remainder of the PDU contains padding.

2. The length of the received SDU shall be UM_15_PayloadSize - 1bytes, and the data content shall be the same as the first UM_15_PayloadSize - 1 bytes of the transmitted SDU.

7.2.2.11 Reassembly / 15-bit "Length Indicators" / Invalid LI value

7.2.2.11.1 Definition

The RLC segments and concatenates SDUs into UMD PDUs according to the PDU size requested by MAC. "Length Indicators" are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid "Length Indicator" value has been specified. Incorrect operation of segmentation, concatenation, or coding of "Length Indicator" will result in failure of the UE to communicate.

7.2.2.11.2 Conformance requirement

Upon delivery by the lower layer of an UMD PDU that contains a "Length Indicator" value specified to be reserved for UMD PDUs in this version of the protocol, the Receiver shall:

- ignore that UMD PDU.;

Length: 15bits

Bit	Description
111111111111110	AMD PDU: The rest of the RLC PDU includes a piggybacked STATUS PDU. UMD PDU: Reserved (PDUs with this coding will be discarded by this version of the protocol).

Reference(s)

TS 25.322 clause 11.2.4.1, 9.2.2.8.

7.2.2.11.3 Test purpose

To test that PDUs with invalid "Length Indicators" are discarded by the receiving RLC.

7.2.2.11.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 15-bit "Length Indicator" tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into loop-back mode 1 with the UL SDU size set to UM_15_PayloadSize + 1 bytes.

Test procedure

a) The SS transmits two RLC SDUs of size UM_15_PayloadSize + 1 bytes. In the third PDU for transmission, the SS sets the value of the second (padding) LI to 111111111111110.

b) The SS checks the "Length Indicator" sizes and values of any RLC PDUs returned on the uplink, and checks for the presence of any received RLC SDUs.

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	**SS**		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1 & SDU 2
4	←		DOWNLINK RLC PDU	SDU 2 and invalid LI (=111111111111110)
5	→		UPLINK RLC PDU	SDU 1
6	→		UPLINK RLC PDU	SDU 1: Check Lis and re-assembled SDU
7			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.2.11.5 Test requirements

The UE shall return two RLC PDUs. The first shall not include any "Length Indicators". The second shall have a "Length Indicator" indicating the end of the SDU, and a padding "Length Indicator".

The length and data content of the received SDU shall be the same as the first transmitted SDU. The second SDU shall not be returned.

7.2.2.12 Reassembly / 15-bit "Length Indicators" / LI value > PDU size

7.2.2.12.1 Definition

The RLC segments and concatenates SDUs into UMD PDUs according to the PDU size requested by MAC. "Length Indicators" are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid "Length Indicator" value has been specified. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.2.12.2 Conformance requirement

If the "Length Indicator" of a PDU has a value that is larger than the PDU size – the number of octets containing "Length Indicators" in the PDU – 1 and is not one of the predefined values listed in the table of 3GPP TS 25.322 clause 9.2.2.8, the PDU shall be discarded and treated as a missing PDU.

If a PDU with sequence number < VR(US) is missing then all SDUs that have segments in this PDU shall be discarded.

Reference(s)

TS 25.322 clauses 11.2.4.2 and 11.2.3.

7.2.2.12.3 Test purpose

To test that PDUs with "Length Indicators" that point beyond the end of the PDU are ignored by the receiving RLC entity.

7.2.2.12.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 15-bit "Length Indicator" tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into loop-back mode 1 with the UL SDU size set to UM_15_PayloadSize + 1bytes.

Test procedure

a) The SS transmits three RLC SDUs of size UM_15_PayloadSize + 1 bytes. All the SDUs are concatenated or segmented over successive RLC PDUs. In the third PDU for transmission, the SS sets value of the "Length Indicator" to be UM_15_PayloadSize + 1 (decimal).

b) The SS checks the "Length Indicator" values in the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDUs (assuming a 15-bit "Length Indicator" size).

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1 & SDU 2
4	←		DOWNLINK RLC PDU	SDU 2 & SDU 3, with bad LI
5	←		DOWNLINK RLC PDU	SDU 3 and padding
6	→		UPLINK RLC PDU	SDU 1
7	→		UPLINK RLC PDU	SDU 1 and padding: Check LIs and re-assembled SDU
8			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.2.12.5 Test requirements

The UE shall return two RLC PDUs. The first shall not include any "Length Indicators". The second shall have a "Length Indicator" indicating the end of an SDU and a "Length Indicator" indicating that the remainder of the PDU contains padding.

The length and data content of the received SDU shall be the same as the first transmitted SDU. No further SDUs or PDUs shall be received.

7.2.2.13 Reassembly / 15-bit "Length Indicators" / First data octet LI

7.2.2.13.1 Definition

The RLC segments and concatenates SDUs into UMD PDUs according to the PDU size requested by MAC. "Length Indicators" are added to allow correct reconstruction of SDUs. A special LI is defined to indicate that the start of on SDU is coincident with the start of the PDU. The special LI is needed to avoid discarding of an SDU when the first received PDU has a sequence number different from zero. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.2.13.2 Conformance requirement

"Length Indicators" = 111111111111100, UMD PDU: The first data octet in this RLC PDU is the first octet of a RLC SDU.

Reference(s)

TS 25.322 clause 9.2.2.8.

7.2.2.13.3 Test purpose

To test that a UE in unacknowledged mode correctly handles a received RLC PDU with a 15-bit "Length Indicator" having its value equal to the special LI value 111111111111100 when the sequence number of the first received PDU is different from zero.

7.2.2.13.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 15-bit "Length Indicator" tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 150 bytes.

Test procedure

a) The SS transmits a RLC SDU of size 150 bytes in a PDU which has the 'First Data Octet LI' as the first "Length Indicator" in the PDU.

b) The SS waits until the SDU has been received back from the UE, and then transmits another SDU of 150 bytes in a PDU which has the 'First Data Octet LI' as the first "Length Indicator" in the PDU.

c) The SS waits until this SDU has been received back from the UE.

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1 with LI = 111111111111100
3			…	Wait for loopback
4	→		UPLINK RLC PDU	SDU 1
5	←		DOWNLINK RLC PDU	SDU 2 with LI = 111111111111100
6	→		UPLINK RLC PDU	SDU 2
7			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.2.13.5 Test requirements

1. The UE shall return two RLC PDUs.

2. The length and data content of each received SDU shall be the same as the transmitted SDU.

7.2.2.14 Flexible handling of RLC PDU sizes for UM RLC in downlink

7.2.2.14.1 Definition

When UM RLC is mapped to MAC-ehs (downlink only) the RLC PDU size can have arbitrary size (integer number of octets). The network can choose to segment the SDUs into smaller RLC PDUs or select the RLC PDU size to exactly fit the SDU size.

7.2.2.14.2 Conformance requirement

Unless the "Extension bit" indicates that a UMD PDU contains a complete SDU which is not segmented, concatenated or padded, or the HE field indicates that an AMD PDU contains the last octet of the RLC SDU, a "Length Indicator" is used to indicate the last octet of each RLC SDU ending within the PDU

[…]

The interpretation of this [E bit] bit depends on RLC mode and higher layer configuration:

- In the UMD PDU, the "Extension bit" in the first octet has either the normal E-bit interpretation or the alternative E-bit interpretation depending on higher layer configuration. The "Extension bit" in all the other octets always has the normal E-bit interpretation.

- In the AMD PDU, the "Extension bit" always has the normal E-bit interpretation.

Normal E-bit interpretation:

Bit	Description
0	The next field is data, piggybacked STATUS PDU or padding
1	The next field is Length Indicator and E bit

Alternative E-bit interpretation:

Bit	Description
0	The next field is a complete SDU, which is not segmented, concatenated or padded.
1	The next field is Length Indicator and E bit

[…]

If one or more SDUs have been scheduled for transmission according to subclause 11.2.2, the Sender shall:

- inform the lower layer of the number and size of SDUs scheduled for transmission;
- segment, and if possible concatenate the SDUs according to the PDU sizes indicated by the lower layer (see subclause 9.2.2.9);

[…]

- reassemble the received UMD PDUs into RLC SDUs;
- submit the RLC SDUs to upper layers through the UM-SAP.

Reference(s)

TS 25.322 clauses 9.2.2.8, 11.2.2 and 11.2.3.

7.2.2.14.3 Test purpose

1. To test that a large SDU is correctly received for varying RLC PDU sizes up to the maximum RLC PDU size
2. To test that a segmented SDU is reassembled correctly and delivered to higher layers

7.2.2.14.4 Method of test

Initial conditions

The following parameters are specific for this test case:

Parameter	Value
DL UM RLC LI size	15
Alternative E-bit interpretation	TRUE

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Bearer is replaced with the RB according to 34.108 clause 6.11.4j.1..

The radio bearer is placed into UE test loop mode 1 and configured to return UL RLC SDUs of the same size as received in DL.

Test procedure

a) The SS transmits one RLC SDU of size 20 octets. An RLC PDU is created by adding a one octet UMD header (the SDU is not segmented or concatenated). In the RLC PDU the E field is set to “0”.

b) The SS checks the length and content of the received RLC SDUs

c) The SS transmits one RLC SDU of size 80 octets. An RLC PDU is created by adding a one octet UMD header (the SDU is not segmented or concatenated). In the RLC PDU the E field is set to "0".

d) The SS checks the length and content of the received RLC SDUs

e) The SS transmits one RLC SDU of size 1500 octets. An RLC PDU is created by adding a one octet UMD header (the SDU is not segmented or concatenated). In the RLC PDU the E field is set to "0".

f) The SS checks the length and content of the received RLC SDUs

g) The SS transmits one RLC SDU of size 240 octets. The SDU is segmented into successive RLC PDUs of size 2-3, 43, 83 and 103 octets including a one octet UMD header and a length indicator in each RLC PDU.

h) The SS checks the length and content of the received RLC SDUs

i) The SS opens the UE test loop and release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures,
2			Close UE test loop	
3		←	DOWNLINK RLC PDU (SDU1)	SN=0, RLC SDU size = 20 Octets
4		→	UPLINK RLC PDU (SDU1)	The SS checks length and content of received RLC SDU.
5		←	DOWNLINK RLC PDU (SDU2)	SN=1, RLC SDU size = 80 Octets
6		→	UPLINK RLC PDU (SDU2)	The SS checks length and content of received RLC SDU.
7		←	DOWNLINK RLC PDU (SDU3)	SN=2, RLC SDU size = 1500 Octets
8		→	UPLINK RLC PDU (SDU3)	The SS checks length and content of received RLC SDU.
9		←	DOWNLINK RLC PDUs (SDU4)	SN= 3,4,5,6, RLC SDU size = 240 Octets.
10		→	UPLINK RLC PDU (SDU4)	The SS checks length and content of received RLC SDU.
11			Open UE test loop	
12			RB RELEASE	
NOTE 1: The Expected Sequence shown is informative. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.2.14.5 Test requirements

For each execution of the test procedure:

1. In steps 4, the UE shall return one RLC SDU with the same size and content as the transmitted SDU
2. In steps 6, the UE shall return one RLC SDU with the same size and content as the transmitted SDU
3. In steps 8, the UE shall return one RLC SDU with the same size and content as the transmitted SDU
4. In steps 10, the UE shall return one RLC SDU with the same size and content as the transmitted SDU

7.2.2.15 Flexible handling of RLC PDU sizes for UM RLC in uplink

7.2.2.15.1 Definition

When UM RLC is mapped to MAC-i/is (uplink only) the RLC PDU size can have arbitrary size (integer number of octets) as long as the size is between the configured minimum and maximum size. For each transmission the RLC entity constructs an RLC PDU with a size that matches the size indicated by the MAC layer.

7.2.2.15.2 Conformance requirement

The transmitting UM RLC entity segments the RLC SDU into UMD PDUs of appropriate size, if the RLC SDU is larger than the length of available space in the UMD PDU. The size of the UMD PDUs after segmentation and/or concatenation shall be smaller than or equal to the largest UL UMD PDU size. If MAC-i/is has been configured, the size of the UMD PDUs after segmentation and/or concatenation shall be larger than or equal to the Minimum UL RLC PDU size.

[..]

- in uplink, if MAC-i/is has been configured:
  - if the UE pre-generates RLC PDUs for transmission in a later TTI:
    - provided that the UE has sufficient amount of data available for transmission, the size of the data field of the RLC PDU shall be chosen so that each RLC PDU to be multiplexed to the MAC-i/is PDU matches the maximum amount of data allowed to be transmitted by the applicable current grant (scheduled or non-scheduled) for the current TTI.
    - RLC PDUs may only be pre-generated if the amount of data in outstanding pre-generated RLC PDUs for this logical channel is less than or equal to four times the maximum amount of data allowed to be transmitted by the applicable current grant (scheduled or non-scheduled) for the current TTI.
  - else:
    - the size of the data field of the RLC PDU shall be chosen so that the RLC PDU size matches the data requested for this logical channel by the current E-TFC selection.

[…]

For UM uplink:

- if the "largest UL UMD PDU size" is ≤ 125 octets:
  - 7-bit "Length Indicators" shall be used.
- else:
  - 15-bit "Length Indicators" shall be used.

[…]

If one or more SDUs have been scheduled for transmission according to subclause 11.2.2, the Sender shall:

- inform the lower layer of the number and size of SDUs scheduled for transmission;
- segment, and if possible concatenate the SDUs according to the PDU sizes indicated by the lower layer (see subclause 9.2.2.9);

Reference(s)

TS 25.322 clauses 4.2.1.2.1, 9.2.2.8 and 11.2.2.2.

7.2.2.15.3 Test purpose

1. To test that SDUs are correctly concatenated/segmented into RLC PDUs not smaller than “Minimum UL PDU size” (unless there is no other data in the buffer) and not larger than “largest UL UMD PDU size”
2. To test that the size of the RLC PDU is adapted to the size of the issued grant
3. To test that the size of the Length Indicator field is correctly selected based on the maximum PDU size

7.2.2.15.4 Method of test

Initial conditions

The following parameters are specific for this test case:

Parameter	Value
Minimum UL PDU size	320 bit
Largest UL UMD PDU size	640 bit
Alternative E-bit interpretation	TRUE

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exceptions that the default Radio Bearer is replaced with the RB according to 34.108 clause 6.11.4k.1 (Flexible RLC + MAC-i/is) and that the MAC-d flow#1 of the RB in 34.108 clause 6.11.4k.1 is configured for scheduled transmissions.

The UE is placed into UE test loop mode 1 with the UL SDU size set to 80 octets.

Test procedure

a) The SS has not issued any grant to the UE for E-DCH

b) The SS transmits 4 RLC SDUs of size 80 octets. RLC PDUs are created by adding a one octet UMD header (the SDUs are not segmented or concatenated). In each RLC PDU the E field is set to "0".

c) The SS waits for an SI

d) The SS issues an absolute grant correspondent to a Maximum allowed RLC PDU size below the configured "Minimum UL PDU size" (signalling value 3). See note 1.

e) The SS checks the content of the received RLC SDUs and size of the received RLC PDUs;

f) The SS removes the scheduling grant for the UE

g) The SS transmits 4 RLC SDUs of size 80 octets. RLC PDUs are created by adding a one octet UMD header (the SDUs are not segmented or concatenated). In each RLC PDU the E field is set to "0".

h) The SS issues an absolute grant correspondent to a Maximum allowed RLC PDU size above the configured "Largest UL UMD PDU size" (signalling value 5). See note 2.

i) The SS checks the content of the received RLC SDUs and size of the received RLC PDUs

j) The SS opens the UE test loop and release the radio bearer.

NOTE 1: Signalled absolute grant of 3 enable the UE to transmit a maximum RLC PDU size of 235 bits (10ms TTI, Reference E-TFCI=11 Signalled power offset=4), which is less than the configured "Minimum UL PDU size" of 320 bits.

NOTE 2: Signalled absolute grant of 5 enable the UE to transmit a maximum RLC PDU size of 752 bits (10ms TTI, Reference E-TFCI=11 Signalled power offset=4), which is larger than the configured "Largest UL AMD PDU size" of 640 bits.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures,
2			Close UE test loop	
3	←		DOWNLINK RLC PDUs	SN=0,1,2,3, RLC SDU size = 80 Octets
4	→		SI indicating data	
5	←		Absolute grant	Grant value 3
6	→		UPLINK RLC PDUs	The SS checks length and content of received RLC SDUs.
7	←		Absolute grant	Grant value 1, removal of SG
8	←		DOWNLINK RLC PDUs	SN=4,5,6,7, RLC SDU size = 80 Octets
9	→		SI indicating data	
10	←		Absolute grant	Grant value 5
11	→		UPLINK RLC PDUs	The SS checks length and content of received RLC SDUs.
12			Open UE test loop	
13			RB RELEASE	
NOTE 1: The Expected Sequence shown is informative. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.2.15.5 Test requirements

For each execution of the test procedure:

1. In step 6, the UE shall return 4 RLC SDUs with the same content as the transmitted SDUs. The RLC PDU size of the first three RLC PDUs shall be equal to “minimum UL PDU size”. The size of the LI field in the RLC header shall be 7 bit.

2. In step 11, the UE shall return 4 RLC SDUs with the same content as the transmitted SDUs. The RLC PDU size of the first three RLC PDUs shall be equal to “Largest UL UMD PDU size”. The size of the LI field in the RLC header shall be 7 bit.

7.2.2a Unacknowledged mode (TDD MBSFN) (non-IMB)

7.2.2a.1 P-T-M Radio bearer setup

Two generic P-T-M Radio Access Bearers are provided for the MBSFN UM tests.

The UM test RAB is set up using the Generic Procedure described below, and with the default RAB replaced as follows:

- For UM 7-bit "Length Indicator" tests: the RB configuration described in 3GPP TS 34.108 clause 6.11.1c (3.84 Mcps TDD) or 6.11.1d (7.68 Mcps TDD) or 6.11.5.4.4.13 (1.28 Mcps TDD) is used. For these tests, let UM_7_PayloadSize denote the RAB payload size in octets.

- For UM 15-bit "Length Indicator" tests: the RB configuration described in 3GPP TS 34.108 clause 6.11.2a (3.84 Mcps TDD) or 6.11.2b (7.68 Mcps TDD) or 6.11.5.4.4.14 (1.28 Mcps TDD) is used. For these tests, let UM_15_PayloadSize denote the RAB payload size in octets.

These UM test RABs are used in all tests with the following exception:

- Tests that explicitly specify a different Radio Bearer configuration.

All other settings are the same.

The special "Length Indicator" indicating that an SDU begins in the first octet of a PDU, described in clause 9.2.2.8 in 3GPP TS 25.322 is not used except when explicitly stated in the corresponding test case.

Initial conditions

System Simulator:

Unicast carrier: 1 cell, Cell 1 with default configuration.

- MBSFN carriers: 1 cell, Cell 31 has default parameters. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 and Default1 MCCH scheduling (No ongoing session) according to subclause 11.2 of TS 34.108.

  The configuration of the S-CCPCH which will carry the MTCH is based upon the default test RAB configuration defined above.

User Equipment:

- On the unicast carrier cell the UE is in registered Idle Mode on PS (state 3) if the UE only supports PS domain or registered Idle Mode on CS/PS (state 7) if the UE supports both CS and PS domains, as specified in clause 7.2.2 of TS 34.108.
- The UE is in MBSFN Idle mode with one activated service as specified in clause 7.6.4 of TS 34.108. The UE has selected (i.e. it is included in MBMS_ACTIVATED_SERVICES variable) a national service for which there will be a session starting on MBSFN Cell 31 (see TS 34.108 clause 11.2.4).

Procedure

a) The UE is camping on Cell 1 and Cell 31. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 (no session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

b) The SS sends ACTIVATE RB TEST MODE on the unicast carrier and the UE responds with ACTIVATE RB TEST MODE COMPLETE.

c) The SS sends CLOSE UE TEST LOOP to activate RLC SDU counting on Cell 31 MTCH (Transmission identity indicating the MBSFN MBMS activated service).

d) The SS notifies on MCCH about the start of an MBMS session for one modification period. MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C4 (one PTM session starting) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

e) MCCH messages are then transmitted by the SS on Cell 31 using MBMS configuration C2 (one PTM session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

f) The SS waits for the UE to start reception of the MBMS data on MTCH according to the specified service activation time. The UE closes the test loop. The UE sends CLOSE UE TEST LOOP COMPLETE.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1	←		U	ACTIVATE RB TEST MODE	
2	→		U	ACTIVATE RB TEST MODE COMPLETE	
3	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated on Cell 31 for the selected national service on MTCH.
4	←		M	MBMS MCCH Message Configuration C4	Includes the national service activated at UE in the modified services list for one modification period.
5	←		M	MBMS MCCH Message Configuration C2	No modified services. One ongoing service corresponding to that activated at the UE.
6	→		U	CLOSE UE TEST LOOP COMPLETE	The UE establishes the MTCH according to the activation time and closes the test loop.

7.2.2a.2 Reassembly / 7-bit "Length Indicators" / Invalid LI value (TDD MBSFN)

7.2.2a.2.1 Definition

The RLC segments and concatenates SDUs into UMD PDU according to the PDU size requested by MAC. "Length Indicators" are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid "Length Indicator" value has been specified. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.2a.2.2 Conformance requirement

Upon delivery by the lower layer of an UMD PDU that contains a "Length Indicator" value specified to be reserved for UMD PDUs in this version of the protocol, the Receiver shall:

- ignore that UMD PDU.

[...]

Length: 7 bits

Bit	Description
1111101	Reserved (PDUs with this coding will be discarded by this version of the protocol).
1111110	AMD PDU: The rest of the RLC PDU includes a piggybacked STATUS PDU. UMD PDU: Reserved (PDUs with this coding will be discarded by this version of the protocol).

Reference(s)

TS 25.322 clause 9.2.2.8 and 11.2.4.1.

7.2.2a.2.3 Test purpose

To test that PDUs with reserved "Length indicator" values of '111 1110' and '111 1101' are discarded by the receiving RLC.

7.2.2a.2.4 Method of test

Initial conditions

The generic procedure for P-T-M Radio Bearer setup (clause 7.2.2a.1) is executed with all the parameters as specified in the procedure for the RAB defined for UM 7-bit "Length Indicator" tests.

Test procedure

a) The SS transmits two RLC SDUs of size UM_7_PayloadSize + 1 bytes. In the third PDU for transmission, the SS sets the value of the second (padding) LI to 1111110.

b) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is = 1. The SS records the value.

c) The SS transmits two RLC SDUs of size UM_7_PayloadSize + 1 bytes. In the third PDU for transmission, the SS sets the value of the second (padding) LI to 1111101.

d) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is consistent with a number of received RLC SDUs equal to 1.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1				P-T-M RADIO BEARER SETUP	See clause 7.2.2a.1
2	←		M	DOWNLINK RLC PDU	SDU 1
3	←		M	DOWNLINK RLC PDU	SDU 1 & SDU 2
4	←		M	DOWNLINK RLC PDU	SDU 2 and invalid LI (=11111110)
5	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
6	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to one. SS records value.
7	←		M	DOWNLINK RLC PDU	SDU 1
8	←		M	DOWNLINK RLC PDU	SDU 1 & SDU 2
9	←		M	DOWNLINK RLC PDU	SDU 2 and invalid LI (=11111101)
10	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
11	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to one.
12	←		U	OPEN UE TEST LOOP	
13	→		U	OPEN UE TEST LOOP COMPLETE	
14	←		U	DEACTIVATE RB TEST MODE	
15	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific Message Contents

With the following exceptions, all messages have the same content as defined in TS 34.108 clause 9.1.3 for the MBSFN carriers and in TS 34.108 clause 9.1.1 or 9.1.2 for the unicast carrier:

None.

7.2.2a.2.5 Test requirements

1) At step 6, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to one received RLC SDU for Cell 31 MTCH.

2) At step 11, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to one received RLC SDU for Cell 31 MTCH.

7.2.2a.3 Reassembly / 7-bit "Length Indicators" / LI value > PDU size (TDD MBSFN)

7.2.2a.3.1 Definition

The RLC segments and concatenates SDUs into UMD PDUs according to the PDU size requested by MAC. "Length Indicators" are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid "Length Indicator" value has been specified. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.2a.3.2 Conformance requirement

If the "Length Indicator" of an UMD PDU has a value that is larger than the PDU size – RLC header size and is not one of the predefined values listed in the table of TS 25.322 subclause 9.2.2.8, the Receiver shall:

- ignore the UMD PDU.

[...]

Upon delivery of a set of UMD PDUs from the lower layer, the Receiver shall:

- update VR(US) according to each received UMD PDU (see TS 25.322 subclause 9.4);

- if the updating step of VR(US) is not equal to one (i.e. one or more UMD PDUs are missing):

- discard the SDUs that have segments in the missing UMD PDUs.

Reference(s)

TS 25.322 clauses 11.2.4.2 and 11.2.3.

7.2.2a.3.3 Test purpose

To test that PDUs with "Length Indicators" that point beyond the end of the PDU are ignored by the receiving RLC entity.

7.2.2a.3.4 Method of test

Initial conditions

The generic procedure for P-T-M Radio Bearer setup (clause 7.2.2a.1) is executed with all the parameters as specified in the procedure for the RAB defined for UM 7-bit "Length Indicator" tests.

Test procedure

a) The SS transmits three RLC SDUs of size UM 7 PayloadSize + 1 bytes. All the SDUs are concatenated or segmented over successive RLC PDUs. In the third PDU for transmission, the SS sets value of the "Length Indicator" to be UM_7_PayloadSize (decimal).

b) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 4 RLC SDU COUNTER RESPONSE is = 1. The SS records the value.

c) The SS transmits three RLC SDUs of size UM 7 PayloadSize + 1 bytes. All the SDUs are concatenated or segmented over successive RLC PDUs. In the third PDU for transmission, the SS sets value of the "Length Indicator" to be UM_7_PayloadSize (decimal).

d) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 4 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is consistent with a number of received RLC SDUs equal to 1.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1				P-T-M RADIO BEARER SETUP	See clause 7.2.2a.1
2	←		M	DOWNLINK RLC PDU	SDU 1
3	←		M	DOWNLINK RLC PDU	SDU 1 & SDU 2
4	←		M	DOWNLINK RLC PDU	SDU 2 & SDU 3, with bad LI
5	←		M	DOWNLINK RLC PDU	SDU 3 and padding
6	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
7	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to one. SS records value.
8	←		M	DOWNLINK RLC PDU	SDU 4
9	←		M	DOWNLINK RLC PDU	SDU 4 & SDU 5
10	←		M	DOWNLINK RLC PDU	SDU 5 & SDU 6, with bad LI
11	←		M	DOWNLINK RLC PDU	SDU 6 and padding
12	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
13	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to one.
14	←		U	OPEN UE TEST LOOP	
15	→		U	OPEN UE TEST LOOP COMPLETE	
16	←		U	DEACTIVATE RB TEST MODE	
17	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific Message Contents

With the following exceptions, all messages have the same content as defined in TS 34.108 clause 9.1.3 for the MBSFN carriers and in TS 34.108 clause 9.1.1 or 9.1.2 for the unicast carrier:

None.

7.2.2a.3.5 Test requirements

1) At step 7, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to one received RLC SDU for Cell 31 MTCH.

2) At step 13, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to one received RLC SDU for Cell 31 MTCH.

7.2.2a.4 Reassembly / 7-bit "Length Indicators" / First data octet LI (TDD MBSFN)

7.2.2a.4.1 Definition

The RLC segments and concatenates SDUs into UMD PDUs according to the PDU size requested by MAC. "Length indicators" are added to allow correct reconstruction of SDUs. A special "Length Indicator" is defined to indicate that the start of an SDU is coincident with the start of the PDU. The special "Length Indicator" is needed to avoid discarding of an SDU when the first received PDU has a sequence number different from zero. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.2a.4.2 Conformance requirement

1. "Length Indicator" = 1111100, UMD PDU: The first data octet in this RLC PDU is the first octet of a RLC SDU.

2. Upon delivery of a set of UMD PDUs from the lower layer, the Receiver shall:

   ...

   - if the special "Length Indicator" "1111 100" or "1111 1111 1111 100" is the first "Length Indicator" of a UMD PDU received on the downlink:

     - consider the first data octet in this UMD PDU as the first octet of an RLC SDU.

Reference(s)

1. TS 25.322 clause 9.2.2.8.
2. TS 25.322 clause 11.2.3.

7.2.2a.4.3 Test purpose

To test that a UE in unacknowledged mode correctly handles a received RLC PDU with a 7-bit "Length Indicator" having its value equal to the special "Length Indicator" value 1111100 when the sequence number of the first received PDU is different from zero.

7.2.2a.4.4 Method of test

Initial conditions

The generic procedure for P-T-M Radio Bearer setup (clause 7.2.2a.1) is executed with all the parameters as specified in the procedure for the RAB defined for UM 7-bit "Length Indicator" tests.

Test procedure

a) The SS transmits a RLC SDU of size 12 bytes in a PDU which has the 'First Data Octet LI' as the first "Length Indicator" in the PDU.

b) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is = 1. The SS records the value.

c) The SS transmits another SDU of 12 bytes in a PDU which has the 'First Data Octet LI' as the first "Length Indicator" in the PDU.

d) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is consistent with a number of received RLC SDUs equal to 1.

NOTE: The SS sends PDUs in downlink starting at sequence number 10.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1				P-T-M RADIO BEARER SETUP	See clause 7.2.2a.1
2	←		M	DOWNLINK RLC PDU, SN 10	SDU 1 with LI = 1111100
3	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
4	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to one. SS records value.
5	←		M	DOWNLINK RLC PDU, SN 11	SDU 2 with LI = 1111100
6	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
7	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to one.
8	←		U	OPEN UE TEST LOOP	
9	→		U	OPEN UE TEST LOOP COMPLETE	
10	←		U	DEACTIVATE RB TEST MODE	
11	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific Message Contents

With the following exceptions, all messages have the same content as defined in TS 34.108 clause 9.1.3 for the MBSFN carriers and in TS 34.108 clause 9.1.1 or 9.1.2 for the unicast carrier:

None.

7.2.2a.4.5 Test requirements

1) At step 4, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to one received RLC SDU for Cell 31 MTCH.

2) At step 7, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to one received RLC SDU for Cell 31 MTCH.

7.2.2a.5 Reassembly / 15-bit "Length Indicators" / Invalid LI value (TDD MBSFN)

7.2.2a.5.1 Definition

The RLC segments and concatenates SDUs into UMD PDUs according to the PDU size requested by MAC. "Length Indicators" are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid "Length Indicator" value has been specified. Incorrect operation of segmentation, concatenation, or coding of "Length Indicator" will result in failure of the UE to communicate.

7.2.2a.5.2 Conformance requirement

Upon delivery by the lower layer of an UMD PDU that contains a "Length Indicator" value specified to be reserved for UMD PDUs in this version of the protocol, the Receiver shall:

- ignore that UMD PDU.;

Length: 15bits

Bit	Description
111111111111110	AMD PDU: The rest of the RLC PDU includes a piggybacked STATUS PDU. UMD PDU: Reserved (PDUs with this coding will be discarded by this version of the protocol).

Reference(s)

TS 25.322 clause 11.2.4.1, 9.2.2.8.

7.2.2a.5.3 Test purpose

To test that PDUs with invalid "Length Indicators" are discarded by the receiving RLC.

7.2.2a.5.4 Method of test

Initial conditions

The generic procedure for P-T-M Radio Bearer setup (clause 7.2.2a.1) is executed with all the parameters as specified in the procedure for the RAB defined for UM 15-bit "Length Indicator" tests.

Test procedure

a) The SS transmits two RLC SDUs of size UM_15_PayloadSize + 1 bytes. In the third PDU for transmission, the SS sets the value of the second (padding) LI to 111111111111110.

b) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is = 1. The SS records the value.

c) The SS transmits two RLC SDUs of size UM_15_PayloadSize + 1 bytes. In the third PDU for transmission, the SS sets the value of the second (padding) LI to 111111111111110.

d) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is consistent with a number of received RLC SDUs equal to 1.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1				P-T-M RADIO BEARER SETUP	See clause 7.2.2a.1
2	←		M	DOWNLINK RLC PDU	SDU 1
3	←		M	DOWNLINK RLC PDU	SDU 1 & SDU 2
4	←		M	DOWNLINK RLC PDU	SDU 2 and invalid LI (=111111111111110)
5	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
6	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to one. SS records value.
7	←		M	DOWNLINK RLC PDU	SDU 1
8	←		M	DOWNLINK RLC PDU	SDU 1 & SDU 2
9	←		M	DOWNLINK RLC PDU	SDU 2 and invalid LI (=111111111111110)
10	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
11	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to one.
12	←		U	OPEN UE TEST LOOP	
13	→		U	OPEN UE TEST LOOP COMPLETE	
14	←		U	DEACTIVATE RB TEST MODE	
15	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific Message Contents

With the following exceptions, all messages have the same content as defined in TS 34.108 clause 9.1.3 for the MBSFN carriers and in TS 34.108 clause 9.1.1 or 9.1.2 for the unicast carrier:

None.

7.2.2a.5.5 Test requirements

1) At step 6, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to one received RLC SDU for Cell 31 MTCH.

2) At step 11, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to one received RLC SDU for Cell 31 MTCH.

7.2.2a.6 Reassembly / 15-bit "Length Indicators" / LI value > PDU size (TDD MBSFN)

7.2.2a.6.1 Definition

The RLC segments and concatenates SDUs into UMD PDUs according to the PDU size requested by MAC. "Length Indicators" are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid "Length Indicator" value has been specified. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.2a.6.2 Conformance requirement

If the "Length Indicator" of a PDU has a value that is larger than the PDU size – the number of octets containing "Length Indicators" in the PDU – 1 and is not one of the predefined values listed in the table of 3GPP TS 25.322 clause 9.2.2.8, the PDU shall be discarded and treated as a missing PDU.

If a PDU with sequence number < VR(US) is missing then all SDUs that have segments in this PDU shall be discarded.

Reference(s)

TS 25.322 clauses 11.2.4.2 and 11.2.3.

7.2.2a.6.3 Test purpose

To test that PDUs with "Length Indicators" that point beyond the end of the PDU are ignored by the receiving RLC entity.

7.2.2a.6.4 Method of test

Initial conditions

The generic procedure for P-T-M Radio Bearer setup (clause 7.2.2a.1) is executed with all the parameters as specified in the procedure for the RAB defined for UM 15-bit "Length Indicator" tests.

Test procedure

a) The SS transmits three RLC SDUs of size UM 15 PayloadSize + 1 bytes. All the SDUs are concatenated or segmented over successive RLC PDUs. In the third PDU for transmission, the SS sets value of the "Length Indicator" to be UM_15_PayloadSize (decimal).

b) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is = 1. The SS records the value.

c) The SS transmits three RLC SDUs of size UM 15 PayloadSize + 1 bytes. All the SDUs are concatenated or segmented over successive RLC PDUs. In the third PDU for transmission, the SS sets value of the "Length Indicator" to be UM_15_PayloadSize (decimal).

d) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is consistent with a number of received RLC SDUs equal to 1.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1				P-T-M RADIO BEARER SETUP	See clause 7.2.2a.1
2	←		M	DOWNLINK RLC PDU	SDU 1
3	←		M	DOWNLINK RLC PDU	SDU 1 & SDU 2
4	←		M	DOWNLINK RLC PDU	SDU 2 & SDU 3, with bad LI
5	←		M	DOWNLINK RLC PDU	SDU 3 and padding
6	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
7	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to one. SS records value.
8	←		M	DOWNLINK RLC PDU	SDU 4
9	←		M	DOWNLINK RLC PDU	SDU 4 & SDU 5
10	←		M	DOWNLINK RLC PDU	SDU 5 & SDU 6, with bad LI
11	←		M	DOWNLINK RLC PDU	SDU 6 and padding
12	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
13	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to one.
14	←		U	OPEN UE TEST LOOP	
15	→		U	OPEN UE TEST LOOP COMPLETE	
16	←		U	DEACTIVATE RB TEST MODE	
17	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific Message Contents

With the following exceptions, all messages have the same content as defined in TS 34.108 clause 9.1.3 for the MBSFN carriers and in TS 34.108 clause 9.1.1 or 9.1.2 for the unicast carrier:

None.

7.2.2a.6.5 Test requirements

1) At step 7, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to one received RLC SDU for Cell 31 MTCH.

2) At step 13, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to one received RLC SDU for Cell 31 MTCH.

7.2.2a.7 Reassembly / 15-bit "Length Indicators" / First data octet LI (TDD MBSFN)

7.2.2a.7.1 Definition

The RLC segments and concatenates SDUs into UMD PDUs according to the PDU size requested by MAC. "Length Indicators" are added to allow correct reconstruction of SDUs. A special LI is defined to indicate that the start of on SDU is coincident with the start of the PDU. The special LI is needed to avoid discarding of an SDU when the first received PDU has a sequence number different from zero. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.2a.7.2 Conformance requirement

"Length Indicators" = 111111111111100, UMD PDU: The first data octet in this RLC PDU is the first octet of a RLC SDU.

Reference(s)

TS 25.322 clause 9.2.2.8.

7.2.2a.7.3 Test purpose

To test that a UE in unacknowledged mode correctly handles a received RLC PDU with a 15-bit "Length Indicator" having its value equal to the special LI value 111111111111100 when the sequence number of the first received PDU is different from zero.

7.2.2a.7.4 Method of test

Initial conditions

The generic procedure for P-T-M Radio Bearer setup (clause 7.2.2a.1) is executed with all the parameters as specified in the procedure for the RAB defined for UM 15-bit "Length Indicator" tests.

Test procedure

a) The SS transmits a RLC SDU of size 150 bytes in a PDU which has the 'First Data Octet LI' as the first "Length Indicator" in the PDU.

b) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is = 1. The SS records the value.

c) The SS transmits another SDU of 150 bytes in a PDU which has the 'First Data Octet LI' as the first "Length Indicator" in the PDU.

d) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is consistent with a number of received RLC SDUs equal to 1.

NOTE: The SS sends PDUs in downlink starting at sequence number 10.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1				P-T-M RADIO BEARER SETUP	See clause 7.2.2a.1
2	←		M	DOWNLINK RLC PDU, SN 10	SDU 1 with LI = 111111111111100
3	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
4	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to one. SS records value.
5	←		M	DOWNLINK RLC PDU, SN 11	SDU 2 with LI = 111111111111100
6	←		M	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
7	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to one.
8	←		U	OPEN UE TEST LOOP	
9	→		U	OPEN UE TEST LOOP COMPLETE	
10	←		U	DEACTIVATE RB TEST MODE	
11	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific Message Contents

With the following exceptions, all messages have the same content as defined in TS 34.108 clause 9.1.3 for the MBSFN carriers and in TS 34.108 clause 9.1.1 or 9.1.2 for the unicast carrier:

None.

7.2.2a.7.5 Test requirements

1) At step 4, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to one received RLC SDU for Cell 31 MTCH.

2) At step 7, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to one received RLC SDU for Cell 31 MTCH.

7.2.2b Unacknowledged mode (MBSFN IMB)

7.2.2b.1 P-T-M Radio bearer setup

Two generic P-T-M Radio Access Bearers are provided for the MBSFN UM tests.

The UM test RAB is set up using the Generic Procedure described below, and with the default RAB replaced as follows:

- For UM 7-bit "Length Indicator" tests: the RB configuration described in 3GPP TS 34.108 clause 6.11.1e (3.84 Mcps TDD IMB) is used. For these tests, let UM_7_PayloadSize denote the RAB payload size in octets.

- For UM 15-bit "Length Indicator" tests: the RB configuration described in 3GPP TS 34.108 clause 6.11.2c (3.84 Mcps TDD IMB) is used. For these tests, let UM_15_PayloadSize denote the RAB payload size in octets.

These UM test RABs are used in all tests with the following exception:

- Tests that explicitly specify a different Radio Bearer configuration.

All other settings are the same.

The special "Length Indicator" indicating that an SDU begins in the first octet of a PDU, described in clause 9.2.2.8 in 3GPP TS 25.322 is not used except when explicitly stated in the corresponding test case.

Initial conditions

System Simulator:

Unicast carrier: 1 cell, Cell 1 with default configuration.

- MBSFN carriers: 1 cell, Cell 31 has default parameters. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 and Default1 MCCH scheduling (No ongoing session) according to subclause 11.2 of TS 34.108.

The configuration of the S-CCPCH which will carry the MTCH is based upon the default test RAB configuration defined above.

User Equipment:

- On the unicast carrier cell the UE is in registered Idle Mode on PS (state 3) if the UE only supports PS domain or registered Idle Mode on CS/PS (state 7) if the UE supports both CS and PS domains, as specified in clause 7.2.2 of TS 34.108.

- The UE is in MBSFN Idle mode with one activated service as specified in clause 7.6.4 of TS 34.108. The UE has selected (i.e. it is included in MBMS_ACTIVATED_SERVICES variable) a national service for which there will be a session starting on MBSFN Cell 31 (see TS 34.108 clause 11.2.4).

Procedure

a) The UE is camping on Cell 1 and Cell 31. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 (no session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

b) The SS sends ACTIVATE RB TEST MODE on the unicast carrier and the UE responds with ACTIVATE RB TEST MODE COMPLETE.

c) The SS sends CLOSE UE TEST LOOP to activate RLC SDU counting on Cell 31 MTCH (Transmission identity indicating the MBSFN MBMS activated service).

d) The SS notifies on MCCH about the start of an MBMS session for one modification period. MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C4 (one PTM session starting) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

e) MCCH messages are then transmitted by the SS on Cell 31 using MBMS configuration C2 (one PTM session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

f) The SS waits for the UE to start reception of the MBMS data on MTCH according to the specified service activation time. The UE closes the test loop. The UE sends CLOSE UE TEST LOOP COMPLETE.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1	←		U	ACTIVATE RB TEST MODE	
2	→		U	ACTIVATE RB TEST MODE COMPLETE	
3	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated on Cell 31 for the selected national service on MTCH.
4	←		M	MBMS MCCH Message Configuration C4	Includes the national service activated at UE in the modified services list for one modification period.
5	←		M	MBMS MCCH Message Configuration C2	No modified services. One ongoing service corresponding to that activated at the UE.
6	→		U	CLOSE UE TEST LOOP COMPLETE	The UE establishes the MTCH according to the activation time and closes the test loop.

7.2.2b.2 Reassembly / 7-bit "Length Indicators" / Invalid LI value (MBSFN IMB)

7.2.2b.2.1 Definition

The RLC segments and concatenates SDUs into UMD PDU according to the PDU size requested by MAC. "Length Indicators" are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid "Length Indicator" value has been specified. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.2b.2.2 Conformance requirement

Upon delivery by the lower layer of an UMD PDU that contains a "Length Indicator" value specified to be reserved for UMD PDUs in this version of the protocol, the Receiver shall:

- ignore that UMD PDU.

[...]

Length: 7 bits

Bit	Description
1111101	Reserved (PDUs with this coding will be discarded by this version of the protocol).
1111110	AMD PDU: The rest of the RLC PDU includes a piggybacked STATUS PDU. UMD PDU: Reserved (PDUs with this coding will be discarded by this version of the protocol).

Reference(s)

TS 25.322 clause 9.2.2.8 and 11.2.4.1.

7.2.2b.2.3 Test purpose

To test that PDUs with reserved "Length indicator" values of '111 1110' and '111 1101' are discarded by the receiving RLC.

7.2.2b.2.4 Method of test

Initial conditions

The generic procedure for P-T-M Radio Bearer setup (clause 7.2.2b.1) is executed with all the parameters as specified in the procedure for the RAB defined for UM 7-bit "Length Indicator" tests.

Test procedure

a) The SS transmits two RLC SDUs of size UM_7_PayloadSize + 1 bytes. In the third PDU for transmission, the SS sets the value of the second (padding) LI to 1111110.

b) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is = 1. The SS records the value.

c) The SS transmits two RLC SDUs of size UM_7_PayloadSize + 1 bytes. In the third PDU for transmission, the SS sets the value of the second (padding) LI to 1111101.

d) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is consistent with a number of received RLC SDUs equal to 1.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1				P-T-M RADIO BEARER SETUP	See clause 7.2.2b.1
2	←		MU	DOWNLINK RLC PDU	SDU 1
3	←		MU	DOWNLINK RLC PDU	SDU 1 & SDU 2
4	←		MU	DOWNLINK RLC PDU	SDU 2 and invalid LI (=11111110)
5	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
6	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to one. SS records value.
7	←		MU	DOWNLINK RLC PDU	SDU 1
8	←		MU	DOWNLINK RLC PDU	SDU 1 & SDU 2
9	←		MU	DOWNLINK RLC PDU	SDU 2 and invalid LI (=11111101)
10	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
11	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to one.
12	←		U	OPEN UE TEST LOOP	
13	→		U	OPEN UE TEST LOOP COMPLETE	
14	←		U	DEACTIVATE RB TEST MODE	
15	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific Message Contents

With the following exceptions, all messages have the same content as defined in TS 34.108 clause 9.1.3 for the MBSFN carriers and in TS 34.108 clause 9.1.1 or 9.1.2 for the unicast carrier:

None.

7.2.2b.2.5 Test requirements

1) At step 6, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to one received RLC SDU for Cell 31 MTCH.

2) At step 11, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to one received RLC SDU for Cell 31 MTCH.

7.2.2b.3 Reassembly / 7-bit "Length Indicators" / LI value > PDU size (MBSFN IMB)

7.2.2b.3.1 Definition

The RLC segments and concatenates SDUs into UMD PDUs according to the PDU size requested by MAC. "Length Indicators" are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid "Length Indicator" value has been specified. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.2b.3.2 Conformance requirement

If the "Length Indicator" of an UMD PDU has a value that is larger than the PDU size – RLC header size and is not one of the predefined values listed in the table of TS 25.322 subclause 9.2.2.8, the Receiver shall:

- ignore the UMD PDU.

[...]

Upon delivery of a set of UMD PDUs from the lower layer, the Receiver shall:

- update VR(US) according to each received UMD PDU (see TS 25.322 subclause 9.4);
- if the updating step of VR(US) is not equal to one (i.e. one or more UMD PDUs are missing):
  - discard the SDUs that have segments in the missing UMD PDUs.

Reference(s)

TS 25.322 clauses 11.2.4.2 and 11.2.3.

7.2.2b.3.3 Test purpose

To test that PDUs with "Length Indicators" that point beyond the end of the PDU are ignored by the receiving RLC entity.

7.2.2b.3.4 Method of test

Initial conditions

The generic procedure for P-T-M Radio Bearer setup (clause 7.2.2b.1) is executed with all the parameters as specified in the procedure for the RAB defined for UM 7-bit "Length Indicator" tests.

Test procedure

a) The SS transmits three RLC SDUs of size UM 7 PayloadSize + 1 bytes. All the SDUs are concatenated or segmented over successive RLC PDUs. In the third PDU for transmission, the SS sets value of the "Length Indicator" to be UM_7_PayloadSize (decimal).

b) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 4 RLC SDU COUNTER RESPONSE is = 1. The SS records the value.

c) The SS transmits three RLC SDUs of size UM 7 PayloadSize + 1 bytes. All the SDUs are concatenated or segmented over successive RLC PDUs. In the third PDU for transmission, the SS sets value of the "Length Indicator" to be UM_7_PayloadSize (decimal).

d) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 4 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is consistent with a number of received RLC SDUs equal to 1.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1				P-T-M RADIO BEARER SETUP	See clause 7.2.2a.1
2	←		MU	DOWNLINK RLC PDU	SDU 1
3	←		MU	DOWNLINK RLC PDU	SDU 1 & SDU 2
4	←		MU	DOWNLINK RLC PDU	SDU 2 & SDU 3, with bad LI
5	←		M	DOWNLINK RLC PDU	SDU 3 and padding
6	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
7	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to one. SS records value.
8	←		MU	DOWNLINK RLC PDU	SDU 4
9	←		MU	DOWNLINK RLC PDU	SDU 4 & SDU 5
10	←		MU	DOWNLINK RLC PDU	SDU 5 & SDU 6, with bad LI
11	←		M	DOWNLINK RLC PDU	SDU 6 and padding
12	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
13	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to one.
14	←		U	OPEN UE TEST LOOP	
15	→		U	OPEN UE TEST LOOP COMPLETE	
16	←		U	DEACTIVATE RB TEST MODE	
17	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific Message Contents

With the following exceptions, all messages have the same content as defined in TS 34.108 clause 9.1.3 for the MBSFN carriers and in TS 34.108 clause 9.1.1 or 9.1.2 for the unicast carrier:

None.

7.2.2b.3.5 Test requirements

1) At step 7, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to one received RLC SDU for Cell 31 MTCH.

2) At step 13, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to one received RLC SDU for Cell 31 MTCH.

7.2.2b.4 Reassembly / 7-bit "Length Indicators" / First data octet LI (MBSFN IMB)

7.2.2b.4.1 Definition

The RLC segments and concatenates SDUs into UMD PDUs according to the PDU size requested by MAC. "Length indicators" are added to allow correct reconstruction of SDUs. A special "Length Indicator" is defined to indicate that the start of an SDU is coincident with the start of the PDU. The special "Length Indicator" is needed to avoid discarding of an SDU when the first received PDU has a sequence number different from zero. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.2b.4.2 Conformance requirement

1. "Length Indicator" = 1111100, UMD PDU: The first data octet in this RLC PDU is the first octet of a RLC SDU.
2. Upon delivery of a set of UMD PDUs from the lower layer, the Receiver shall:

   ...

   - if the special "Length Indicator" "1111 100" or "1111 1111 1111 100" is the first "Length Indicator" of a UMD PDU received on the downlink:
     - consider the first data octet in this UMD PDU as the first octet of an RLC SDU.

Reference(s)

1. TS 25.322 clause 9.2.2.8.
2. TS 25.322 clause 11.2.3.

7.2.2b.4.3 Test purpose

To test that a UE in unacknowledged mode correctly handles a received RLC PDU with a 7-bit "Length Indicator" having its value equal to the special "Length Indicator" value 1111100 when the sequence number of the first received PDU is different from zero.

7.2.2b.4.4 Method of test

Initial conditions

The generic procedure for P-T-M Radio Bearer setup (clause 7.2.2b.1) is executed with all the parameters as specified in the procedure for the RAB defined for UM 7-bit "Length Indicator" tests.

Test procedure

a) The SS transmits a RLC SDU of size 12 bytes in a PDU which has the 'First Data Octet LI' as the first "Length Indicator" in the PDU.

b) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is = 1. The SS records the value.

c) The SS transmits another SDU of 12 bytes in a PDU which has the 'First Data Octet LI' as the first "Length Indicator" in the PDU.

d) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is consistent with a number of received RLC SDUs equal to 1.

NOTE: The SS sends PDUs in downlink starting at sequence number 10.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1				P-T-M RADIO BEARER SETUP	See clause 7.2.2a.1
2	←		MU	DOWNLINK RLC PDU, SN 10	SDU 1 with LI = 1111100
3	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
4	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to one. SS records value.
5	←		MU	DOWNLINK RLC PDU, SN 11	SDU 2 with LI = 1111100
6	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
7	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to one.
8	←		U	OPEN UE TEST LOOP	
9	→		U	OPEN UE TEST LOOP COMPLETE	
10	←		U	DEACTIVATE RB TEST MODE	
11	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific Message Contents

With the following exceptions, all messages have the same content as defined in TS 34.108 clause 9.1.3 for the MBSFN carriers and in TS 34.108 clause 9.1.1 or 9.1.2 for the unicast carrier:

None.

7.2.2b.4.5 Test requirements

1) At step 4, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to one received RLC SDU for Cell 31 MTCH.

2) At step 7, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to one received RLC SDU for Cell 31 MTCH.

7.2.2b.5 Reassembly / 15-bit "Length Indicators" / Invalid LI value (MBSFN IMB)

7.2.2b.5.1 Definition

The RLC segments and concatenates SDUs into UMD PDUs according to the PDU size requested by MAC. "Length Indicators" are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid "Length Indicator" value has been specified. Incorrect operation of segmentation, concatenation, or coding of "Length Indicator" will result in failure of the UE to communicate.

7.2.2b.5.2 Conformance requirement

Upon delivery by the lower layer of an UMD PDU that contains a "Length Indicator" value specified to be reserved for UMD PDUs in this version of the protocol, the Receiver shall:

- ignore that UMD PDU.;

Length: 15bits

Bit	Description
111111111111110	AMD PDU: The rest of the RLC PDU includes a piggybacked STATUS PDU. UMD PDU: Reserved (PDUs with this coding will be discarded by this version of the protocol).

Reference(s)

TS 25.322 clause 11.2.4.1, 9.2.2.8.

7.2.2b.5.3 Test purpose

To test that PDUs with invalid "Length Indicators" are discarded by the receiving RLC.

7.2.2b.5.4 Method of test

Initial conditions

The generic procedure for P-T-M Radio Bearer setup (clause 7.2.2b.1) is executed with all the parameters as specified in the procedure for the RAB defined for UM 15-bit "Length Indicator" tests.

Test procedure

a) The SS transmits two RLC SDUs of size UM_15_PayloadSize + 1 bytes. In the third PDU for transmission, the SS sets the value of the second (padding) LI to 111111111111110.

b) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is = 1. The SS records the value.

c) The SS transmits two RLC SDUs of size UM_15_PayloadSize + 1 bytes. In the third PDU for transmission, the SS sets the value of the second (padding) LI to 111111111111110.

d) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is consistent with a number of received RLC SDUs equal to 1.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1				P-T-M RADIO BEARER SETUP	See clause 7.2.2a.1
2	←		MU	DOWNLINK RLC PDU	SDU 1
3	←		MU	DOWNLINK RLC PDU	SDU 1 & SDU 2
4	←		MU	DOWNLINK RLC PDU	SDU 2 and invalid LI (=111111111111110)
5	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
6	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to one. SS records value.
7	←		MU	DOWNLINK RLC PDU	SDU 1
8	←		MU	DOWNLINK RLC PDU	SDU 1 & SDU 2
9	←		MU	DOWNLINK RLC PDU	SDU 2 and invalid LI (=111111111111110)
10	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
11	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to one.
12	←		U	OPEN UE TEST LOOP	
13	→		U	OPEN UE TEST LOOP COMPLETE	
14	←		U	DEACTIVATE RB TEST MODE	
15	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific Message Contents

With the following exceptions, all messages have the same content as defined in TS 34.108 clause 9.1.3 for the MBSFN carriers and in TS 34.108 clause 9.1.1 or 9.1.2 for the unicast carrier:

None.

7.2.2b.5.5 Test requirements

1) At step 6, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to one received RLC SDU for Cell 31 MTCH.

2) At step 11, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to one received RLC SDU for Cell 31 MTCH.

7.2.2b.6 Reassembly / 15-bit "Length Indicators" / LI value > PDU size (MBSFN IMB)

7.2.2b.6.1 Definition

The RLC segments and concatenates SDUs into UMD PDUs according to the PDU size requested by MAC. "Length Indicators" are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid "Length Indicator" value has been specified. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.2b.6.2 Conformance requirement

If the "Length Indicator" of a PDU has a value that is larger than the PDU size – the number of octets containing "Length Indicators" in the PDU – 1 and is not one of the predefined values listed in the table of 3GPP TS 25.322 clause 9.2.2.8, the PDU shall be discarded and treated as a missing PDU.

If a PDU with sequence number < VR(US) is missing then all SDUs that have segments in this PDU shall be discarded.

Reference(s)

TS 25.322 clauses 11.2.4.2 and 11.2.3.

7.2.2b.6.3 Test purpose

To test that PDUs with "Length Indicators" that point beyond the end of the PDU are ignored by the receiving RLC entity.

7.2.2b.6.4 Method of test

Initial conditions

The generic procedure for P-T-M Radio Bearer setup (clause 7.2.2b.1) is executed with all the parameters as specified in the procedure for the RAB defined for UM 15-bit "Length Indicator" tests.

Test procedure

a) The SS transmits three RLC SDUs of size UM 15 PayloadSize + 1 bytes. All the SDUs are concatenated or segmented over successive RLC PDUs. In the third PDU for transmission, the SS sets value of the "Length Indicator" to be UM_15_PayloadSize (decimal).

b) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is = 1. The SS records the value.

c) The SS transmits three RLC SDUs of size UM 15 PayloadSize + 1 bytes. All the SDUs are concatenated or segmented over successive RLC PDUs. In the third PDU for transmission, the SS sets value of the "Length Indicator" to be UM_15_PayloadSize (decimal).

d) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is consistent with a number of received RLC SDUs equal to 1.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1				P-T-M RADIO BEARER SETUP	See clause 7.2.2a.1
2	←		MU	DOWNLINK RLC PDU	SDU 1
3	←		MU	DOWNLINK RLC PDU	SDU 1 & SDU 2
4	←		MU	DOWNLINK RLC PDU	SDU 2 & SDU 3, with bad LI
5	←		M	DOWNLINK RLC PDU	SDU 3 and padding
6	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
7	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to one. SS records value.
8	←		MU	DOWNLINK RLC PDU	SDU 4
9	←		MU	DOWNLINK RLC PDU	SDU 4 & SDU 5
10	←		MU	DOWNLINK RLC PDU	SDU 5 & SDU 6, with bad LI
11	←		M	DOWNLINK RLC PDU	SDU 6 and padding
12	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
13	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to one.
14	←		U	OPEN UE TEST LOOP	
15	→		U	OPEN UE TEST LOOP COMPLETE	
16	←		U	DEACTIVATE RB TEST MODE	
17	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific Message Contents

With the following exceptions, all messages have the same content as defined in TS 34.108 clause 9.1.3 for the MBSFN carriers and in TS 34.108 clause 9.1.1 or 9.1.2 for the unicast carrier:

None.

7.2.2b.6.5 Test requirements

1) At step 7, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to one received RLC SDU for Cell 31 MTCH.

2) At step 13, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to one received RLC SDU for Cell 31 MTCH.

7.2.2b.7 Reassembly / 15-bit "Length Indicators" / First data octet LI (MBSFN IMB)

7.2.2b.7.1 Definition

The RLC segments and concatenates SDUs into UMD PDUs according to the PDU size requested by MAC. "Length Indicators" are added to allow correct reconstruction of SDUs. A special LI is defined to indicate that the start of on SDU is coincident with the start of the PDU. The special LI is needed to avoid discarding of an SDU when the first received PDU has a sequence number different from zero. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.2b.7.2 Conformance requirement

"Length Indicators" = 111111111111100, UMD PDU: The first data octet in this RLC PDU is the first octet of a RLC SDU.

Reference(s)

TS 25.322 clause 9.2.2.8.

7.2.2b.7.3 Test purpose

To test that a UE in unacknowledged mode correctly handles a received RLC PDU with a 15-bit "Length Indicator" having its value equal to the special LI value 111111111111100 when the sequence number of the first received PDU is different from zero.

7.2.2b.7.4 Method of test

Initial conditions

The generic procedure for P-T-M Radio Bearer setup (clause 7.2.2b.1) is executed with all the parameters as specified in the procedure for the RAB defined for UM 15-bit "Length Indicator" tests.

Test procedure

a) The SS transmits a RLC SDU of size 150 bytes in a PDU which has the 'First Data Octet LI' as the first "Length Indicator" in the PDU.

b) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is = 1. The SS records the value.

c) The SS transmits another SDU of 150 bytes in a PDU which has the 'First Data Octet LI' as the first "Length Indicator" in the PDU.

d) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is consistent with a number of received RLC SDUs equal to 1.

NOTE: The SS sends PDUs in downlink starting at sequence number 10.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1				P-T-M RADIO BEARER SETUP	See clause 7.2.2a.1
2	←		MU	DOWNLINK RLC PDU, SN 10	SDU 1 with LI = 111111111111100
3	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
4	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to one. SS records value.
5	←		MU	DOWNLINK RLC PDU, SN 11	SDU 2 with LI = 111111111111100
6	←		MU	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
7	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to one.
8	←		U	OPEN UE TEST LOOP	
9	→		U	OPEN UE TEST LOOP COMPLETE	
10	←		U	DEACTIVATE RB TEST MODE	
11	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific Message Contents

With the following exceptions, all messages have the same content as defined in TS 34.108 clause 9.1.3 for the MBSFN carriers and in TS 34.108 clause 9.1.1 or 9.1.2 for the unicast carrier:

None.

7.2.2b.7.5 Test requirements

1) At step 4, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to one received RLC SDU for Cell 31 MTCH.

2) At step 7, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number that corresponds to one received RLC SDU for Cell 31 MTCH.

7.2.3 Acknowledged mode

7.2.3.1 General information for AM tests

Two generic Radio Access Bearers are provided for AM tests.

The AM test RAB is set up using the Generic Procedure described in clause 7.1.3 of TS 34.108, and with the default RAB replaced as follows:

- For AM 7-bit "Length Indicator" tests: the RB configuration described in 3G TS 34.108 clause 6.11.3 is used. For these tests, let AM_7_PayloadSize denote the RAB payload size in octets.

- For AM 15-bit "Length Indicator" tests: the RB configuration described in 3G TS 34.108 clause 6.11.4 is used. For these tests, let AM_15_PayloadSize denote the RAB payload size in octets.

Unless specified in individual test cases, the default RLC settings are given in table 7.2/1.

Table 7.2/1: RLC Parameters for AM testing

Uplink RLC	
Transmission RLC discard	
Max DAT retransmissions	
Max_DAT	4
Transmission window size	128
Timer_RST	500
Max_RST	4
Polling info	
Timer_poll_prohibit	disabled
Timer_poll	disabled
Poll_PU	disabled
Poll_SDU	disabled
Last transmission PDU poll	TRUE
Last retransmission PDU poll	TRUE
Poll_Window	disabled
Timer_poll_periodic	disabled
Downlink RLC	
In-sequence delivery	TRUE
Receiving window size	128
Timer_Status_Prohibit	disabled
Timer_EPC	disabled
Missing PDU Indicator	TRUE
Timer_STATUS_periodic	disabled

The AM test RABs are used in all tests with the following exception:

- Tests that explicitly specify a different Radio Bearer configuration.

All other settings are the same.

7.2.3.2 Segmentation and reassembly / Selection of 7 or 15 bit Length Indicators

7.2.3.2.1 Definition

The RLC segments and concatenates SDUs into PDUs according to the PDU size configured by RRC. "Length Indicators" are added to allow correct reconstruction of SDUs. The selection of the size of the "Length Indicator" fields used must follow the specified rules. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.3.2.2 Conformance requirement

Except for the predefined values reserved for special purposes and listed in TS 25.322 section 9.2.2.8 the "Length Indicator" shall:

- be set to the number of octets between the end of the RLC header and up to and including the last octet of an RLC SDU segment;
- be included in the PDUs that they refer to.

[...]

The size of the Length Indicator may be either 7 bits or 15 bits.

[...]

For AM:

- if the "AMD PDU size" is ≤ l26 octets:
  - 7-bit "Length Indicators" shall be used.
- else:
  - 15-bit "Length Indicators" shall be used.
- the size of the "Length Indicator" is always the same for all AMD PDUs, for one RLC entity.

Reference(s)

TS 25.322 clauses 9.2.2.8 and 9.2.2.9.

7.2.3.2.3 Test purpose

To test that if the configured AMD PDU size is ≤ l26 octets, 7 bit "Length Indicators" are used in transmitted AMD PDUs, otherwise, 15 bit "Length Indicators" are used.

7.2.3.2.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 10 bytes.

Test procedure

a) The SS transmits an RLC SDU of size 10 bytes. The PDU carrying this SDU is transmitted with a poll for status.

b) The SS checks the "Length Indicator" values and SDU size and contents in the RLC PDU returned on the uplink (assuming a 7-bit "Length Indicator" size).

c) The SS releases the RB.

The SS performs the Radio Bearer establishment procedure (clause 7.1.3 of TS 34.108) with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 15-bit "Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC Transmission window size	16
Downlink RLC Receiving window size	16

All other settings are the same.

d) The SS transmits an RLC SDU of size 10 bytes. The PDU carrying this SDU is transmitted with a poll for status.

e) The SS checks the "Length Indicator" values and SDU size and contents in the RLC PDU returned on the uplink (assuming a 15-bit "Length Indicator" size).

f) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures for AM 7 bit LIs
2	←		DOWNLINK RLC PDU	10 byte SDU + padding + poll
3	→		UPLINK RLC PDU	10 byte SDU + piggy-backed status + poll
3a	→		*STATUS PDU*	*If piggy-backed status is not used in 3*
4	←		STATUS PDU	
5	←		RB RELEASE	
6			RB ESTABLISHMENT	See generic procedures for AM 15 bit LIs (AMD PDU size > 126 bytes)
7	←		DOWNLINK RLC PDU	10 byte SDU + padding + poll
8	→		UPLINK RLC PDU	10 byte SDU + piggy-backed status + poll
8a	→		*STATUS PDU*	*If piggy-backed status is not used in 7*
9	←		STATUS PDU	
10			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.2.5 Test requirements

The UE shall send 7 bit "Length Indicators" with values that correctly indicate the end of SDU in step b).

The UE shall send 15 bit "Length Indicators" with values that correctly indicate the end of SDU in step e).

7.2.3.3 Segmentation and Reassembly / 7-bit "Length Indicators" / Padding or Piggy-backed Status

7.2.3.3.1 Definition

The RLC segments and concatenates SDUs into AMD PDUs according to the PDU size configured by RRC. "Length Indicators" are added to allow correct reconstruction of SDUs. Incorrect operation of segmentation, concatenation, or coding of length indicators will result in failure of the UE to communicate.

7.2.3.3.2 Conformance requirement

A "Length Indicator" is used to indicate the last octet of each RLC SDU ending within the PDU.

Except for the predefined values reserved for special purposes and listed in the tables below, the "Length Indicator" shall:

- be set to the number of octets between the end of the RLC header and up to and including the last octet of an RLC SDU segment;
- be included in the PDUs that they refer to.

Predefined values of the "Length Indicator" are used to indicate padding. The values that are reserved for special purposes are listed in the tables below depending on the size of the "Length Indicator". Only predefined "Length Indicator" values can refer to the padding space. These values shall only be placed after all other "Length Indicators" for a PDU.

STATUS PDUs can be piggybacked on the AMD PDU by using part or all of the padding space. A predefined "Length Indicator" shall be used to indicate the presence of a piggybacked STATUS PDU. This "Length Indicator" replaces the padding "Length Indicator". The piggybacked STATUS PDU shall be appended immediately following the PDU data. When only part of the padding space is used, the end of the piggybacked STATUS PDU is indicated by one of the SUFI fields NO_MORE or ACK. Thus no additional "Length Indicator" is required to show that there is still padding in the AMD PDU.

[…]

Sender shall:

- when RLC SDUs are received from upper layers:
  - segment the RLC SDUs into AMD PDUs where the fixed PDU size is configured by upper layer;
  - set a "Length Indicator" field for each SDU that ends in the AMD PDU according to subclause 9.2.2.8;

[…]

The Receiver may:

- if STATUS PDU(s) to be sent fit into padding octets in AMD PDU(s) to be sent:
  - piggyback a STATUS PDU on the AMD PDU to be sent.

Submission of a piggybacked STATUS PDU in an AMD PDU to the lower layer follows the same rules as an ordinary STATUS PDU.

Reference(s)

TS 25.322 clauses 9.2.2.8, 11.3.2 and 11.5.2.1.

7.2.3.3.3 Test purpose

1. To test that a large SDU is correctly segmented and padding added at the end.
2. To test that a large SDU is received correctly, whether or not it has piggy-backed status at the end.

7.2.3.3.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize + 1 bytes.

Test procedure

a) The SS transmits an RLC SDU (SDU1) of size AM_7_PayloadSize + 1bytes, and polls the receiver for status.

b) The SS checks the "Length Indicator" values in the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU (assuming a 7-bit "Length Indicator" size).

c) The SS transmits another RLC SDU (SDU2) of size AM_7_PayloadSize + 1 bytes, and includes piggy-backed status in the second of the 2 PDUs sent. The SS also polls the receiver for status.

d) The SS checks the "Length Indicator" values in the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU (assuming a 7-bit "Length Indicator" size).

e) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1 +poll + Padding
4	→		UPLINK RLC PDU	No LI
5	→		UPLINK RLC PDU	Poll, Check LIs and re-assembled SDU
5a	→		*STATUS PDU*	*If piggy-backed status is not used in 5*
6	←		DOWNLINK RLC PDU	SDU 2
7	←		DOWNLINK RLC PDU	SDU 2 + poll + piggy-backed status
8	→		UPLINK RLC PDU	No LI
9	→		UPLINK RLC PDU	Poll, Check LIs and re-assembled SDU
9a	→		*STATUS PDU*	*If piggy-backed status is not used in 9*
10	←		STATUS PDU	
11			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.3.5 Test requirements

1. In steps 4 and 5, the UE shall return two RLC PDUs. The first shall have no "Length Indicators". The second shall have a "Length Indicator" indicating the PDU contains an SDU boundary after octet 1 of the data field, and the second shall indicate either that the remainder of the PDU contains padding, or that it contains a piggy-backed status PDU.

2. In steps 8 and 9, the UE shall return two RLC PDUs. The first shall have no "Length Indicators". The second shall have a "Length Indicator" indicating the PDU contains an SDU boundary after octet 1 of the data field, and the second shall indicate either that the remainder of the PDU contains padding, or that it contains a piggy-backed status PDU.

3. The length and data content of all received SDUs shall be the same as the transmitted SDUs.

7.2.3.4 Segmentation and Reassembly / 7-bit "Length Indicators" / LI = 0

7.2.3.4.1 Definition

The RLC segments and concatenates SDUs into AMD PDUs according to the PDU size configured by RRC. A pre-defined "Length Indicator" value is used to indicate when an SDUs ends coincident with the end of the previous PDU. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.3.4.2 Conformance requirement

Except for the predefined values reserved for special purposes and listed in TS 25.322 section 9.2.2.8 the "Length Indicator" shall:

- be set to the number of octets between the end of the RLC header and up to and including the last octet of an RLC SDU segment;
- be included in the PDUs that they refer to.

[...]

In the case where the end of the last segment of an RLC SDU exactly ends at the end of a PDU and there is no "Length Indicator" that indicates the end of the RLC SDU:

- if 7-bit "Length Indicator" is used:
  - a "Length Indicator" with value "000 0000" shall be placed as the first "Length Indicator" in the following PDU;

[...]

For UM and AM RLC:

- if a 7 bit "Length Indicator" is used in a RLC PDU and one or more padding octets are present in the RLC PDU after the end of the last RLC SDU:
- indicate the presence of padding by including a "Length Indicator" with value "1111111" as the last "Length Indicator" in the PDU.

[...]

STATUS PDUs can be piggybacked on the AMD PDU by using part or all of the padding space. A predefined "Length Indicator" shall be used to indicate the presence of a piggybacked STATUS PDU. This "Length Indicator" replaces the padding "Length Indicator". The piggybacked STATUS PDU shall be appended immediately following the PDU data. When only part of the padding space is used, the end of the piggybacked STATUS PDU is indicated by one of the SUFI fields NO_MORE or ACK. Thus no additional "Length Indicator" is required to show that there is still padding in the AMD PDU.

Reference(s)

TS 25.322 clause 9.2.2.8 and 11.3.2.1.

7.2.3.4.3 Test purpose

1. To test that where an SDU exactly fills a PDU, an "Length Indicator" of all 0's is placed by the transmitter as the first "Length Indicator" in the next PDU.
2. To test that where an SDU exactly fills a PDU, and an "Length Indicator" of all 0's is the first "Length Indicator" in the next PDU, the receiver correctly reassembles the SDU.

7.2.3.4.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize bytes.

Test procedure

a) The SS transmits an RLC SDU of size 2 * AM_7_PayloadSize bytes. The SS polls the receiver for status in the last RLC PDU sent.

b) The SS checks the "Length Indicator" sizes and values in the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU (assuming a 7-bit "Length Indicator" size).

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1
4	←		DOWNLINK RLC PDU	LI=0, poll and padding
5	→		UPLINK RLC PDU	No Lis
6	→		UPLINK RLC PDU	(Poll) Check Lis and re-assembled SDU
6a	→		*STATUS PDU*	*If piggy-backed status is not used in 6*
7	←		STATUS PDU	
8			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.4.5 Test requirements

The UE shall return two RLC PDUs. The first shall not include any "Length Indicators". The second shall have a "Length Indicator" indicating that the SDU exactly filled the previous PDU, and a "Length Indicator" indicating either that the remainder of the PDU contains padding, or that it contains a piggy-backed STATUS PDU.

The length of the received SDU shall be AM_7_PayloadSize bytes, and the data content shall be the same as the first AM_7_PayloadSize bytes of the transmitted SDU.

7.2.3.5 Reassembly / 7-bit "Length Indicators" / Reserved LI value

7.2.3.5.1 Definition

The RLC segments and concatenates SDUs into AMD PDUs according to the PDU size configured by RRC. "Length Indicators" are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of a reserved "Length Indicator" value is specified in the conformance requirement below. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.3.5.2 Conformance requirement

Upon delivery by the lower layer of an AMD PDU that contains a "Length Indicator" value specified to be reserved for AMD PDUs in this version of the protocol, the Receiver shall:

- ignore that AMD PDU.

[...]

Length: 7 bits

Bit	Description
1111100	UMD PDU: The first data octet in this RLC PDU is the first octet of an RLC SDU. AMD PDU: Reserved (PDUs with this coding will be discarded by this version of the protocol).
1111101	Reserved (PDUs with this coding will be discarded by this version of the protocol).

Reference(s)

TS 25.322 clause 9.2.2.8 and 11.3.4.6.

7.2.3.5.3 Test purpose

To test that PDUs with reserved "Length Indicators" are discarded by the receiving RLC.

7.2.3.5.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicators" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Downlink RLC Missing PDU Indicator	 FALSE

These settings apply to both the uplink and downlink DTCH.

Test procedure

a) The SS transmits three concatenated RLC SDUs of size AM_7_PayloadSize + 1 bytes. In the second PDU, the SS sets the value of the first "Length Indicator" to correctly indicate the end of SDU1 and adds a second erroneous "Length Indicator" with value 1111100. In the third PDU for transmission, the SS sets the value of the "Length Indicator" to 1111101.

b) The SS waits to receive a status report from the UE.

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	**SS**		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU #0	SDU 1
3	←		DOWNLINK RLC PDU #1	SDU 1 + SDU 2, good LI, LI = 1111100
4	←		DOWNLINK RLC PDU #2	SDU 2 + SDU 3, LI = 1111101
5	←		DOWNLINK RLC PDU #3	SDU 3 + poll
6	→		STATUS PDU	Nack PDUs 1 and 2
7			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.5.5 Test requirements

1. The UE shall return a STATUS PDU indicating that PDUs with sequence numbers 1 and 2 were not received.

7.2.3.6 Reassembly / 7-bit "Length Indicators" / LI value > PDU size

7.2.3.6.1 Definition

The RLC segments and concatenates SDUs into AMD PDUs according to the PDU size configured by RRC. "Length Indicators" are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid "Length Indicator" value where the value is too large is specified in the conformance requirement below. Incorrect operation of segmentation, concatenation, or coding of "Length Indicator" will result in failure of the UE to communicate.

7.2.3.6.2 Conformance requirement

If the "Length Indicator" of an AMD PDU has a value that is larger than the PDU size – RLC header size and is not one of the predefined values listed in the table of subclause 9.2.2.8, the Sender shall:

- ignore that AMD PDU.

Reference(s)

TS 25.322 clause 11.3.4.5.

7.2.3.6.3 Test purpose

To test that PDUs with "Length Indicators" that point beyond the end of the PDU are discarded by the receiving RLC.

7.2.3.6.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Downlink RLC Missing PDU Indicator	 FALSE

These settings apply to both the uplink and downlink DTCH.

Test procedure

a) The SS transmits three RLC SDUs of size AM_7_PayloadSize + 1bytes. All the SDUs are concatenated or segmented over successive RLC PDUs. In the third PDU for transmission, the SS sets value of the "Length Indicator" to be AM_7_PayloadSize (decimal).

b) The SS checks the "Length Indicator" values in the RLC PDUs returned on the uplink, and checks the content of the received STATUS PDU (assuming a 7-bit "Length Indicator" size).

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU #0	SDU 1
3	←		DOWNLINK RLC PDU #1	SDU 1 & SDU 2
4	←		DOWNLINK RLC PDU #2	SDU 2 & SDU 3, with bad LI
5	←		DOWNLINK RLC PDU #3	SDU 3, poll and padding
6	→		STATUS PDU	Nack PDU #2
7			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.6.5 Test requirements

The UE shall return a STATUS PDU indicating that the PDU with sequence number 2 was not received.

7.2.3.7 Segmentation and Reassembly / 15-bit "Length Indicators" / Padding or Piggy-backed Status

7.2.3.7.1 Definition

The RLC segments and concatenates SDUs into AMD PDUs according to the PDU size configured by RRC. "Length Indicators" are added to allow correct reconstruction of SDUs. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.3.7.2 Conformance requirement

The "Length Indicator" is used to indicate, each time, the end of an SDU occurs in the PU. The "Length Indicator" points out the number of octets between the end of the last "Length Indicator" field and up to and including the octet at the end of an SDU segment

A PDU that has unused space, to be referred to as padding, shall use a "Length Indicator" to indicate that this space is used as padding unless the padding size is one octet for PDUs with 15-bit LIs. A padding "Length Indicator" must be placed after any "Length Indicators" for a PDU.

Upon reception of a SDU, RLC shall segment the SDU to fit into the fixed size of a PDU. The segments are inserted in the data field of a PDU. A "Length Indicator" shall be added to each PDU that includes a border of an SDU, i.e. if a PDU does not contain a "Length Indicator", the SDU continues in the next PDU. The length indicator indicates where the border occurs in the PDU. The data after the indicated border can be either a new SDU, padding or piggybacked information. If padding or piggybacking is added another "Length Indicator" shall be added unless the padding size is one octet for PDUs with 15-bit "Length Indicators", see clauses 9.2.2.8 and 9.2.2.9.

Reference(s)

TS 25.322 clauses 9.2.2.8 and 11.3.2.1.2.

7.2.3.7.3 Test purpose

1. To test that a large SDU is correctly segmented and padding added at the end.
2. To test that a large SDU is received correctly, whether or not it has piggy-backed status at the end.

7.2.3.7.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 15-bit "Length Indicator" tests in clause 7.2.3.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to AM_15_PayloadSize + 1bytes.

Test procedure

a) The SS transmits an RLC SDU (SDU1) of size AM_15_PayloadSize + 1 bytes, and polls the receiver for status.

b) The SS checks the "Length Indicator" values in the RLC PDU returned on the uplink, and checks the length and content of the received RLC SDU (assuming a 15-bit "Length Indicator" size).

c) The SS transmits another RLC SDU (SDU2) of size AM_15_PayloadSize + 1 bytes, and includes piggy-backed status in the second of the 2 PDUs sent. The SS also polls the receiver for status.

d) The SS checks the "Length Indicator" sizes and values in the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU (assuming a 15-bit "Length Indicator" size).

e) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1 +poll + Padding
4	→		UPLINK RLC PDU	No LI
5	→		UPLINK RLC PDU	Poll, Check LIs and re-assembled SDU
5a	→		*STATUS PDU*	*If piggy-backed status is not used in 5*
6	←		DOWNLINK RLC PDU	SDU 2
7	←		DOWNLINK RLC PDU	SDU 2 + poll + piggy-backed status
8	→		UPLINK RLC PDU	No LI
9	→		UPLINK RLC PDU	Poll, Check LIs and re-assembled SDU
9a	→		*STATUS PDU*	*If piggy-backed status is not used in 9*
10	←		STATUS PDU	
11			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.7.5 Test requirements

1. In steps 4 and 5, the UE shall return two RLC PDUs. The first shall not include any "Length Indicators". The second shall have a "Length Indicator" indicating the PDU contains an SDU boundary after octet 1 of the data field, and the second shall indicate either that the remainder of the PDU contains padding, or that it contains a piggy-backed status PDU.

2. In steps 8 and 9, the UE shall return two RLC PDUs. The first shall not include any "Length Indicators". The second shall have a "Length Indicator" indicating the PDU contains an SDU boundary after octet 1 of the data field, and the second shall indicate either that the remainder of the PDU contains padding, or that it contains a piggy-backed status PDU.

3. The length and data content of all received SDUs shall be the same as the transmitted SDUs.

7.2.3.8 Segmentation and Reassembly / 15-bit "Length Indicators" / LI = 0

7.2.3.8.1 Definition

The RLC segments and concatenates SDUs into AMD PDUs according to the PDU size configured by RRC. A pre-defined "Length Indicator" value is used to indicate when an SDUs ends coincident with the end of the previous PU. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.3.8.2 Conformance requirement

If the PDU is exactly filled with the last segment of a SDU and there is no room for a "Length Indicator" field, a "Length Indicator" field set to only 0's shall be included as the first "Length Indicator" in the following PDU.

Reference(s)

TS 25.322 clause 11.3.2.1.

7.2.3.8.3 Test purpose

1. To test that where an SDU exactly fills a PDU, a "Length Indicator" of all 0's is placed by the transmitter as the first "Length Indicator" in the next PDU.

2. To test that where an SDU exactly fills a PDU, and a "Length Indicator" of all 0's is the first "Length Indicator" in the next PDU, the receiver correctly reassembles the SDU.

7.2.3.8.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 15-bit "Length Indicator" tests in clause 7.2.3.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to AM_15_PayloadSize bytes.

Test procedure

a) The SS transmits an RLC SDU of size 2 * AM_15_PayloadSize bytes. The SS polls the receiver for status in the last RLC PDU sent.

b) The SS checks the "Length Indicator" values in the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU (assuming a 15-bit "Length Indicator" size).

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1
4	←		DOWNLINK RLC PDU	LI=0, poll and padding
5	→		UPLINK RLC PDU	No Lis
6	→		UPLINK RLC PDU	(Poll) Check Lis and re-assembled SDU
6a	→		*STATUS PDU*	*If piggy-backed status is not used in 6*
7	←		STATUS PDU	
8			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.8.5 Test requirements

The UE shall return two RLC PDUs. The first shall have no "Length Indicators". The second shall have a "Length Indicator" indicating that the SDU exactly filled the previous PDU, and a "Length Indicator" indicating either that the remainder of the PDU contains padding, or that it contains a piggy-backed STATUS PDU.

The length of the received SDU shall be AM_15_PayloadSize bytes, and the data content shall be the same as the first AM_15_PayloadSize bytes of the transmitted SDU.

7.2.3.9 Segmentation and reassembly / 15-bit "Length Indicators" / One octet short LI

7.2.3.9.1 Definition

The RLC segments and concatenates SDUs into AMD PDUs according to the PDU size configured by RRC. A pre-defined "Length Indicator" value is used to indicate when an SDUs ends one octet short of the end of the previous PU. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.3.9.2 Conformance requirement

In the case where the last segment of an RLC SDU is one octet short of exactly filling the last RLC PU, and 15-bit "Length Indicators" are used, the next "Length Indicator" shall be placed as the first "Length Indicator" in the next PDU and have value "Length Indicator"=111 1111 1111 1011.

In the case where a PDU contains a 15-bit "Length Indicator" indicating that an SDU ends with one octet left in the PDU, the last octet of this PDU shall be ignored and shall not be filled with the first octet of the next SDU data.

Reference(s)

TS 25.322 clause 9.2.2.8.

7.2.3.9.3 Test purpose

1. To test that where the UE transmits an SDU, which is one byte short of filling a PDU, a "Length Indicator" indicating one byte short is placed as the first "Length Indicator" in the next PDU.

2. To test that where the UE correctly handles a received PDU containing a "Length Indicator" indicating that an SDU ended one byte short of the end of the previous PDU.

7.2.3.9.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 15-bit "Length Indicator" tests in clause 7.2.3.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to AM_15_PayloadSize – 1bytes.

Test procedure

a) The SS transmits an RLC SDU of size (2 * AM_15_PayloadSize) - 1 bytes. The SS polls the receiver for status in the last RLC PDU sent.

b) The SS checks the "Length Indicator" values of the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU (assuming a 15-bit "Length Indicator" size).

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1
4	←		DOWNLINK RLC PDU	LI=111 1111 1111 1011, poll and padding
5	→		UPLINK RLC PDU	No LIs
6	→		UPLINK RLC PDU	(Poll) Check LIs and re-assembled SDU
6a	→		*STATUS PDU*	*If piggy-backed status is not used in 6*
7	←		STATUS PDU	
8			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.9.5 Test requirements

1. The UE shall return two RLC PDUs. The first shall have no "Length Indicators". The second shall have 2 "Length Indicators". The first "Length Indicator" shall be an "Length Indicator" indicating that the SDU was one byte short of filling the previous PDU, and the second shall be a "Length Indicator" indicating that the remainder of the PDU contains padding.

2. The length of the received SDU shall be AM_15_PayloadSize - 1 bytes, and the data content shall be the same as the first AM_15_PayloadSize - 1 bytes of the transmitted SDU.

7.2.3.10 Reassembly / 15-bit "Length Indicators" / Reserved LI value

7.2.3.10.1 Definition

The RLC segments and concatenates SDUs into AMD PDU according to the PDU size configured by RRC. "Length Indicators" are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of a reserved LI value has been specified. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.3.10.2 Conformance requirement

Upon reception of an AMD PDU that contains "Length Indicator" value "111111111111100" or "111111111111101": PDUs with this coding will be discarded by this version of the protocol.

Reference(s)

TS 25.322 clause 9.2.2.8.

7.2.3.10.3 Test purpose

To test that PDUs with reserved "Length Indicators" are discarded by the receiving RLC.

7.2.3.10.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 15-bit "Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Downlink RLC Missing PDU Indicator	 FALSE

These settings apply to both the uplink and downlink DTCH.

Test procedure

a) The SS transmits three RLC SDUs of size AM_15_PayloadSize + 1 bytes. In the second PDU, the SS sets the value of the "Length Indicator" to 111111111111100. In the third PDU for transmission, the SS sets the value of the second (padding) "Length Indicator" to 111111111111101.

b) The SS waits to receive a status report from the UE.

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU #0	SDU 1
3	←		DOWNLINK RLC PDU #1	SDU 1 + SDU 2, LI = 111111111111100
4	←		DOWNLINK RLC PDU #2	SDU 2+ SDU 3, LI = 111111111111101
5	←		DOWNLINK RLC PDU #3	SDU 3 + poll
6	→		STATUS PDU	Nack PDUs 1 and 2
7			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.10.5 Test requirements

1. The UE shall return a STATUS PDU indicating that PDUs with sequence numbers 1 and 2 were incorrectly received.

2. No uplink SDUs shall be received.

7.2.3.11 Reassembly / 15-bit "Length Indicators" / LI value > PDU size

7.2.3.11.1 Definition

The RLC segments and concatenates SDUs into PDUs according to the PDU size configured by RRC. "Length Indicators" are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid LI value has been specified. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators" will result in failure of the UE to communicate.

7.2.3.11.2 Conformance requirement

If the "Length Indicator" of a PDU has a value that is larger than the PDU size – the number of octets containing "Length Indicators" in the PDU – 1 and is not one of the predefined values listed in the table of 3GPP TS 25.322 clause 9.2.2.8, the PDU shall be discarded and treated as a missing PDU.

Reference(s)

TS 25.322 clause 11.3.4.5.

7.2.3.11.3 Test purpose

To test that PDUs with "Length Indicators" that point beyond the end of the PDU are discarded by the receiving RLC.

7.2.3.11.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 15-bit "Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Downlink RLC Missing PDU Indicator	 FALSE

These settings apply to both the uplink and downlink DTCH.

Test procedure

a) The SS transmits three RLC SDUs of size AM_15_PayloadSize + 1 bytes. All the SDUs are concatenated or segmented over successive RLC PDUs. In the third PDU for transmission, the SS sets value of the "Length Indicators" to be AM_15_PayloadSize + 1 (decimal).

b) The SS checks the "Length Indicator" values of the RLC PDUs returned on the uplink, and checks the content of the received STATUS PDUs (assuming a 15-bit "Length Indicator" size).

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU #0	SDU 1
3	←		DOWNLINK RLC PDU #1	SDU 1 & SDU 2
4	←		DOWNLINK RLC PDU #2	SDU 2 & SDU 3, with bad LI
5	←		DOWNLINK RLC PDU #4	SDU 3, poll and padding
6	→		STATUS PDU	Nack PDU #2
7			RB RELEASE	Optional step

7.2.3.11.5 Test requirements

The UE shall indicate that the PDU with sequence number 2 was not received.

7.2.3.12 Correct use of Sequence Numbering

7.2.3.12.1 Definition

Peer RLC entities use sequence numbering to detect missing PDUs, and for flow control purposes. Incorrect operation of sequence numbering will result in failure of the UE to communicate.

7.2.3.12.2 Conformance requirement

This sub-clause describes the state variables used in AM and UM in order to specify the peer-to-peer protocol. All state variables are non-negative integers. UMD and AMD PDUs are numbered by modulo integer sequence numbers (SN) cycling through the field: 0 to $2^{12} – 1$ for AM … . All arithmetic operations contained in the present document on VT(S), VT(A), VT(MS), VR(R), VR(H) and VR(MR) are affected by the AM modulus. … . When performing arithmetic comparisons of state variables or Sequence number values a modulus base shall be used. This modulus base is subtracted (within the appropriate field) from all the values involved and then an absolute comparison is performed. At the Sender, VT(A) … shall be assumed to be the modulus base in AM … . At the Receiver, VR(R) … shall be assumed to be the modulus base in AM … .

The RLC shall maintain the following state variables in the Sender.

a) VT(S) - Send state variable.

   This state variable contains the "Sequence Number" of the next AMD PDU to be transmitted for the first time (i.e. excluding retransmitted PDUs). It shall be updated after the aforementioned AMD PDU is transmitted or after transmission of a MRW SUFI which includes SN_MRW_{LENGTH} >VT(S) (see subclause 11.6). The initial value of this variable is 0.

[...]

If the AMD PDU is transmitted for the first time, the Sender shall:

- set the "Sequence Number" field equal to VT(S);

Reference(s)

TS 25.322, clauses 9.4 and 11.3.2.1.

7.2.3.12.3 Test purpose

1. To verify that the UE transmits the first PDU with the Sequence Number field equal to 0.
2. To verify that the UE increments the Sequence Number field according to the number of PDUs transmitted.
3. To verify that the UE wraps the Sequence Number after transmitting the 2^{12}-1th PDU.
4. To verify that the UE receiver accepts PDUs with SNs that wrap around every 2^{12}-1th PDU.

7.2.3.12.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Polling info	
Poll_PDU	64
Transmission window size	128
Downlink RLC	
Receiving window size	128

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to (2 * AM_7_PayloadSize) - 1 bytes.

Test procedure

a) The SS sends 2049 RLC SDUs to the UE, each of (2 * AM_7_PayloadSize) - 1 bytes. The SS polls for status on each 64th RLC PDU and the last PDU transmitted

b) When the SS received an uplink PDU with the P bit set to 1, the SS transmits a STATUS PDU acknowledging all the RLC PDUs received so far.

c) The SS checks the sequence numbers of the RLC PDUs it receives in the uplink

d) The SS checks the content of the SDUs it receives from the UE.

e) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU #1	
3	←		DOWNLINK RLC PDU #2	
			…	Transmission of DOWNLINK PDUs continues
4	→		UPLINK RLC PDU#1	SN should be set to 0
5	→		UPLINK RLC PDU#2	SN should be set to 1
	←		…	Transmission of DOWNLINK PDUs continues to SN = 63
6	←		DOWNLINK RLC PDU #64	Poll
7	→		UPLINK STATUS PDU	
	←		…	Transmission of DOWNLINK PDUs continues, polling every 64th PDU, to SN = 4094
8	←		DOWNLINK RLC PDU #4096	
9	←		DOWNLINK RLC PDU #4097	SN=0
10	←		DOWNLINK RLC PDU #4098	SN=1, Poll
10a	→		UPLINK RLC PDUs	UE transmission of UPLINK RLC PDUs continues, polling every 64th PDU, to SN=4094. On poll, SS acknowledge all received PDUs.
10b			Void	
10c	→		UPLINK RLC PDU#4096	SN = 4095, Poll (cause: Poll_PDU=64)
10d	←		STATUS PDU	ACK SN up to 4095
10e			Void	
11			Void	
12	→		UPLINK RLC PDU#4097	SN should be set to 0
13	→		UPLINK RLC PDU#4098	SN should be set to 1, Poll
14	←		DOWNLINK STATUS PDU	
15			RB RELEASE	Optional step
NOTE: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.12.5 Test requirements

1. The first PDU received shall have the SN field set to 0. The second PDU shall have the SN field set to 1, and the 4 097th PDU shall have the SN field set to 0.

2. The size and data content of the received SDUs shall match those of the transmitted SDUs.

7.2.3.13 Control of Transmit Window

7.2.3.13.1 Definition

This test is to check that the UE is able to correctly control its RLC transmission window. Correct operation of RLC windowing is critical for acknowledged mode operation.

7.2.3.13.2 Conformance requirement

VT(MS) - Maximum Send state variable.

This state variable contains the "Sequence Number" of the first AMD PDU that can be rejected by the peer Receiver, VT(MS) = VT(A) + VT(WS). This value represents the upper edge of the transmission window. The transmitter shall not transmit AMD PDUs with "Sequence Number" ≥ VT(MS) unless VT(S) ≥ VT(MS). In that case, the AMD PDU with "Sequence Number" = VT(S) - 1 can also be transmitted. VT(MS) shall be updated when VT(A) or VT(WS) is updated.

The initial value of this variable is Configured_Tx_Window_size.

... The receiver is always allowed to change the Tx window size of the peer entity during a connection, but the minimum and the maximum allowed value is given by RRC configuration. The Rx window of the receiver is not changed.

Reference(s)

TS 25.322, clauses 9.2.2.11.3 and 9.4.

7.2.3.13.3 Test purpose

To verify that the UE does not transmit PDUs with sequence numbers outside of the transmit window, except the PDU with SN=VT(S)-1, even when the transmit window size is changed by the receiver.

7.2.3.13.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC Transmission window size	First run 8	Second run 128

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize - 1 bytes.

Related IXIT statement

UE support for either RLC SDU Buffering OR RLC SDU Discard.

Test procedure

Let W be the size of the transmit window.

The length of all transmitted SDUs is set to AM_7_PayloadSize - 1 bytes.

a) The SS transmits W+1 RLC SDUs to the UE.

b) The SS checks the RLC SDUs received on the uplink, but does not reply to poll requests from the UE, or transmit STATUS PDUs for any other reason.

c) After confirming that the UE has stopped transmitting new RLC SDUs for at least (2*W*TTI) ms, the SS transmits a STATUS PDU acknowledging all the RLC PDUs received so far. The SS transmits W+1 additional RLC SDUs to the UE.

d) The SS again checks the RLC SDUs received on the uplink, but does not reply to poll requests from the UE, or transmit further STATUS PDUs for any other reason.

e) After confirming that the UE has again stopped transmitting new RLC SDUs for at least (2*W*TTI) ms, the SS transmits a STATUS PDU acknowledging all the RLC PDUs received so far, and containing a WINDOW command to reduce the UE transmit window size (W) to half its initial size. The SS transmits W/2+1 additional RLC SDUs to the UE (where W is the original window size).

f) The SS checks the RLC SDUs received on the uplink, but does not reply to poll requests from the UE, or transmit STATUS PDUs for any other reason.

g) After confirming that the UE has stopped transmitting new RLC SDUs for at least (2*W*TTI) ms, the SS transmits a STATUS PDU acknowledging all the RLC PDUs received so far. The SS transmits W/2+1 additional RLC SDUs to the UE (where W is the original window size).

h) The SS checks the RLC SDUs received on the uplink.

i) The SS may optionally release the radio bearer.

NOTE: Window arithmetic is carried out modulo 4096.

The test procedure is run with the window transmit window size set to the default (8), and the repeated with the transmit window size set to 128.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 2
4	←		DOWNLINK RLC PDU	SDU 3
5	←		DOWNLINK RLC PDU	SDU 4
6	←		…	SS continues to transmit RLC SDUs
7	←		DOWNLINK RLC PDU	SDU W+1
8	→		UPLINK RLC PDU	SDU 1
9	→		UPLINK RLC PDU	SDU 2
10	→		…	SS continues to receive RLC SDUs
11	→		UPLINK RLC PDU	SDU W + poll
12				No new transmissions from UE
13	←		STATUS PDU	
13a	←		DOWNLINK RLC PDUs	SDU W+2
13b			…	SS continues to transmit RLC SDUs
13c	←		DOWNLINK RLC PDUs	SDU 2W+2
14	→		UPLINK RLC PDU	SDU W+1 (SDU buffered), or W+2 (SDU W+1 discarded, see note 3)
15	→		UPLINK RLC PDU	Next SDU
16	→		…	SS continues to receive RLC SDUs
17	→		UPLINK RLC PDU	SDU 2W+poll (SDU buffered), or SDU 2W+1+poll (SDU W+1 discarded, see note 3)
18				No new transmissions from UE
19	←		STATUS PDU	WINDOW = W/2
19a	←		DOWNLINK RLC PDUs	SDU 2W+3
19b			…	SS continues to transmit RLC SDUs
19c	←		DOWNLINK RLC PDUs	SDU 2W + W/2 + 3
20	→		UPLINK RLC PDU	SDU 2W+1 (SDU buffered), or 2W+3 (SDU 2W+2 discarded, see note 3)
21	→		UPLINK RLC PDU	Next SDU
22	←		…	SS continues to receive RLC SDUs
23	→		UPLINK RLC PDU	SDU 2W+W/2+poll (SDU buffered), or SDU 2W+W/2+2+poll (SDU 2W+2 discarded, see note 3)
24				No new transmissions from UE
25	←		STATUS PDU	
25a	←		DOWNLINK RLC PDUs	SDU 2W + W/2 + 4
25b			…	SS continues to transmit RLC SDUs
25c	←		DOWNLINK RLC PDUs	SDU 3W + 4
26	→		UPLINK RLC PDU	SDU 2W+W/2+1 (SDU buffered), or 2W+W/2+4 (SDU 2W+W/2+3 discarded, see note 3)
27	→		UPLINK RLC PDU	Next SDU
28	←		…	SS continues to receive RLC SDUs

29	→	UPLINK RLC PDU	SDU 3W+poll (SDU buffered), or SDU 3W+3+poll (SDU 2W+W/2+3 discarded, see note 3)
30		RB RELEASE	Optional step

NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.

NOTE 2: The polls in step 11, 17, 23 and 29 are transmitted as the last PDU in buffer trigger is set to TRUE and the transmitted PDU is the last PDU in the transmitter window, see TS 25.322 clause 9.7.1.

NOTE 3: TS 25.322 does not specify the UE behaviour when transmission buffer is full. Thus, depending on UE implementation, the uplink AM entity may or may not discard AM RLC PDUs received from upper layer (e.g. from UE test loop function) when transmission buffer is full. The SS need to take this into consideration when comparing SS sent SDUs in downlink with the UE returned SDUs in uplink.

7.2.3.13.5 Test requirements

From steps 8 to 11, the SDU contents reassembled from the uplink shall match those of the first W transmitted SDUs.

At step 12 there shall be no further transmission on the uplink DTCH whilst the SS is waiting, except for any repeats of SDUs from 1 to W.

After step 13, the UE shall resume transmission of the next W SDUs. The contents of these SDUs shall match those of SDUs W+1 to 2*W (SDU buffered, see note 3), or W+2 to 2*W+1 (SDU W+1 discarded, see note 3), sent on the downlink.

At step 18 there shall be no further transmission on the uplink DTCH whilst the SS is waiting, except for any repeats of SDUs from W+1 to 2*W or W+2 to 2*W+1.

After step 19, the UE shall resume transmission of the next W/2 SDUs. The contents of these SDUs shall match those of SDUs 2*W+1 to 2*W+W/2 (SDU buffered, see note 3), or 2*W+3 to 2*W+W/2+2 (SDU 2W+2 discarded, see note 3), sent on the downlink.

At step 24 there shall be no further transmission on the uplink DTCH whilst the SS is waiting, except for any repeats of SDUs from 2*W+1 to 2*W+W/2 or 2*W+3 to 2*W+W/2+2.

After step 25, the UE shall resume transmission of the next W/2 SDUs. The contents of these SDUs shall match those of SDUs 2*W+W/2+1 to 3*W (SDU buffered, see note 3), or 2*W+W/2+4 to 3*W+3 (SDU 2W+W/2+3 discarded, see note 3), sent on the downlink.

7.2.3.14 Control of Receive Window

7.2.3.14.1 Definition

This test is to check that the UE is able to correctly control its RLC receive window. Correct operation of RLC windowing is critical for acknowledged mode operation.

This test applies to all UE.

7.2.3.14.2 Conformance requirement

Upon reception of an AMD PDU with "Sequence Number" outside the interval VR(R)≤SN<VR(MR), the Receiver shall:

- discard the AMD PDU;
- if the "polling bit" in the discarded AMD PDU is set to "1":
  - initiate the STATUS PDU transfer procedure.

Reference(s)

TS 25.322, clause 11.3.4.2.

7.2.3.14.3 Test purpose

To verify that the UE discards PDUs with sequence numbers outside the upper boundary of the receive window.

7.2.3.14.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC Transmission window size	First run 8	Second run 128
Downlink RLC Missing PDU Indicator Receiving window size	 FALSE 8	 FALSE 128

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize - 1 bytes.

Test procedure

Let W be the size of the receive window.

The length of all transmitted SDUs is set to AM_7_PayloadSize - 1 bytes.

a) The SS transmits W RLC SDUs to the UE, polling only on the last RLC PDU.

b) The SS checks the RLC SDUs received on the uplink, responding to poll requests with acknowledgements. Then after receiving the STATUS PDU from the UE it transmits a further RLC SDU with the poll bit set. The SS sets the sequence number for the associated RLC PDU above the top of the receive window, for example, 2*W.

c) The SS receives a STATUS PDU from the UE.

d) The SS transmits a further RLC SDU with the sequence number set to the value of the next sequence number within the receive window.

e) The SS checks the RLC SDUs received on the uplink.

f) The SS may optionally release the radio bearer.

This test case is run once for the default receive window size (8) and again with the receive window size set to 128.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1, SN = 0
3	←		DOWNLINK RLC PDU	SDU 2, SN = 1
4	←		…	SS continues to transmit RLC SDUs
5	←		DOWNLINK RLC PDU	SDU W + Poll, SN = W-1
6	→		STATUS PDU	
7	→		UPLINK RLC PDU	SDU 1
8	→		UPLINK RLC PDU	SDU 2
9			…	UE continues to transmit RLC SDUs
10	→		UPLINK RLC PDU	SDU W, Poll
10a	←		STATUS PDU	
11	←		DOWNLINK RLC PDU	SDU W+1, SN = 2W, Poll
11a	→		STATUS PDU	
12	←		DOWNLINK RLC PDU	SDU W+2, SN = W
13	→		UPLINK RLC PDU	SDU W+2
14			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.14.5 Test requirements

1. The SS shall receive back SDUs 1 to W, and SDU W + 2 only. No other SDUs shall be looped back.

2. The SS shall receive a STATUS PDU in step 11a. SN=2W shall not be indicated as received in the STATUS PDU. Negative acknowledgements shall not be indicated for SN=W to 2W-1 either.

7.2.3.15 Polling for status / Last PDU in transmission queue

7.2.3.15.1 Definition

This case tests that the UE will poll for a status request on the last PDU in its transmission queue when that mode is enabled. Incorrect operation of polling will cause degradation of service, or at worst service failure.

7.2.3.15.2 Conformance requirement

Last PDU in buffer.

When an AMD PDU to be transmitted for the first time is submitted to lower layer, the Sender shall:

- if the AMD PDU is the last AMD PDU scheduled for transmission according to subclause 11.3.2 (i.e. no data received from upper layer remains to be segmented into AMD PDUs); or

- if the AMD PDU is the last AMD PDU that is allowed to transmit according to subclause 11.3.2.2:

  - trigger a poll for this AMD PDU

....

- AMD PDUs are only allowed to transmit:

  - if the AMD PDU has a "Sequence Number" < VT(MS); or

  - if the AMD PDU has a "Sequence Number" equal to VT(S)-1; and

- if the AMD PDU is not restricted to be transmitted by the local suspend function, see 3GPP TS 25.322 subclause 9.7.5.

...

The Sender shall:

- if a poll has been triggered by one or several poll triggers (see 3GPP TS 25.322 subclause 9.7.1):
  - if polling is not prohibited, see subclause 9.5:
    - set the "Polling bit" in the AMD PDU header to "1";
- otherwise:
  - set the "Polling bit" in the AMD PDU header to "0".

Reference

TS 25.322 clause 11.3.2.1.1, 9.7.1 and 11.3.2.

7.2.3.15.3 Test purpose

1. To verify that a poll is performed when only one PDU is available for transmission, and the poll prohibit timer function is not used.
2. To verify that a poll is performed when only one PDU is available for transmission, and the poll prohibit timer function is used, but inactive.

7.2.3.15.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	First run	Second run
Polling info		
Timer_poll_prohibit	disabled	200
Last transmission PDU poll	TRUE	TRUE
Last retransmission PDU poll	FALSE	FALSE

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to (2 * AM_7_PayloadSize) - 1 bytes.

Test procedure

a) The SS transmits an RLC SDU of length (4 * AM_7_PayloadSize) - 1bytes to the UE.

b) The SS checks the uplink RLC PDUs for a poll for status flag.

c) The SS may optionally release the radio bearer.

The test is repeated using the RLC parameters given in the Second run column of the configuration table for the initial conditions.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1
4	←		DOWNLINK RLC PDU	SDU 1
5	←		DOWNLINK RLC PDU	SDU 1 + Poll
6	→		STATUS PDU	
7	→		UPLINK RLC PDU	SDU 1
8	→		UPLINK RLC PDU	SDU 1 + Poll
9	←		STATUS PDU	
10			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.15.5 Test requirements

The Poll bit shall be set in the AMD PDU header of the PDU returned in step 8. The poll bit shall not be set in the AMD PDU header of other PDUs.

7.2.3.16 Polling for status / Last PDU in retransmission queue

7.2.3.16.1 Definition

This case tests that the UE will poll for a status request on the last PDU in its retransmission queue when that mode is enabled. Incorrect operation of polling will cause degradation of service, or at worst service failure.

7.2.3.16.2 Conformance requirement

Last PDU in Retransmission buffer.

When a retransmitted AMD PDU is submitted to lower layer, the Sender shall:

- if the AMD PDU is the last AMD PDU scheduled for retransmission according to subclause 11.3.2; or
- if the AMD PDU is the last of the AMD PDUs scheduled for retransmission that are allowed to transmit according to subclause 11.3.2.2:
  - trigger a poll for this AMD PDU

....

- AMD PDUs are only allowed to transmit:
  - if the AMD PDU has a "Sequence Number" < VT(MS); or
  - if the AMD PDU has a "Sequence Number" equal to VT(S)-1; and
  - if the AMD PDU is not restricted to be transmitted by the local suspend function, see 3GPP TS 25.322 subclause 9.7.5.

...

The Sender shall:

- if a poll has been triggered by one or several poll triggers (see 3GPP TS 25.322 subclause 9.7.1):
  - if polling is not prohibited, see subclause 9.5:
    - set the "Polling bit" in the AMD PDU header to "1";

- otherwise:

- set the "Polling bit" in the AMD PDU header to "0".

Reference

25.322 clause 11.3.2.1.1, 9.7.1 and 11.3.2.

7.2.3.16.3 Test purpose

1. To verify that a poll is performed when only one PDU is available for retransmission, and the poll prohibit timer function is not used.

2. To verify that a poll is performed when only one PDU is available for retransmission, and the poll prohibit timer function is used, but inactive.

7.2.3.16.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	First run	Second run
Polling info		
Timer_poll_prohibit	disabled	200
Last transmission PDU poll	FALSE	FALSE
Last retransmission PDU poll	TRUE	TRUE

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to (2 * AM_7_PayloadSize) - 1 bytes.

Test procedure

a) The SS transmits an RLC SDU of length (4 * AM_7_PayloadSize) - 1 bytes to the UE.

b) The SS checks the uplink RLC PDUs for a poll for status flag.

c) The SS transmits a STATUS PDU negatively acknowledging the first uplink RLC PDU as missing.

d) The SS waits for the RLC PDU to be retransmitted and then checks the uplink RLC PDU for a poll for status flag.

e) The SS may optionally release the radio bearer.

The test is repeated using the RLC parameters given in the Second run column of the configuration table for the initial conditions.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1
4	←		DOWNLINK RLC PDU	SDU 1
5	←		DOWNLINK RLC PDU	SDU 1 + Poll
6	→		STATUS PDU	
7	→		UPLINK RLC PDU	SDU 1, SN=0
8	→		UPLINK RLC PDU	SDU 1, SN=1
9	←		STATUS PDU	NAK: SN=0
10	…			Wait for retransmission
11	→		UPLINK RLC PDU	SDU 1, SN=0 + Poll
12	←		STATUS PDU	
13			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.16.5 Test requirements

The Poll bit shall be set in the AMD PDU header of the PDU returned in step 11. The poll bit shall not be set in the AMD PDU header of other PDUs.

7.2.3.17 Polling for status / Poll every Poll_PDU PDUs

7.2.3.17.1 Definition

This case tests that the UE will poll for a status request every Poll_PDU PDUs when that mode is enabled. Incorrect operation of polling will cause degradation of service, or at worst service failure.

7.2.3.17.2 Conformance requirement

VT(PDU).

This state variable is used when the "poll every Poll_PDU PDU" polling trigger is configured. It shall be incremented by 1 for each AMD PDU that is transmitted including both new and retransmitted AMD PDUs. When it becomes equal to the value Poll_PDU, a new poll shall be transmitted and the state variable shall be set to zero.

The initial value of this variable is 0.

Poll_PDU.

This protocol parameter indicates how often the transmitter shall poll the Receiver in the case where "polling every Poll_PDU PDU" is configured by upper layers. It represents the upper limit for the state variable VT(PDU). When VT(PDU) equals the value Poll_PDU a poll shall be transmitted to the peer entity.

Every Poll_PDU PDU.

The Sender triggers the Polling function for every Poll_PDU PDU. Both retransmitted and new AMD PDUs shall be counted.

The Sender shall:

- if a poll has been triggered by one or several poll triggers (see subclause 9.7.1):
  - if polling is not prohibited, see subclause 9.5:
    - set the "Polling bit" in the AMD PDU header to "1";

- otherwise:
  - set the "Polling bit" in the AMD PDU header to "0".

Reference

TS 25.322 clauses 9.4, 9.6, 11.3.2.1.1 and 9.7.1.

7.2.3.17.3 Test purpose

1. To verify that a poll is performed when VT(PDU) reaches Poll_PDU.
2. To verify VT(PDU) is incremented for both new and retransmitted PDUs.

7.2.3.17.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Polling info	
Poll_PDU	4
Last transmission PDU poll	FALSE
Last retransmission PDU poll	FALSE

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize - 1 bytes.

Test procedure

Let the value of Poll_PDU be P:

a) The SS sends 3 * P - 2 RLC SDUs of size AM_7_PayloadSize - 1 bytes to the UE in PDUs with sequence numbers that are contiguous, starting from zero.

b) The SS checks the sequence numbers and polling bits of the RLC PDUs returned on the uplink.

c) The SS sends a STATUS PDU negatively acknowledging two RLC PDUs with a sequence numbers of already received PDUs. The other PDUs are acknowledged as received correctly.

d) The SS checks the sequence numbers and polling bits of the RLC SDUs returned on the uplink.

e) The SS terminates the connection.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1
2	←		DOWNLINK RLC PDU	SDU 2
3	←		…	SS continues to transmit RLC SDUs
4	←		DOWNLINK RLC PDU	SDU 3P – 2
5	→		UPLINK RLC PDU	SDU 1, SN=0
6	→		UPLINK RLC PDU	SDU 2, SN=1
7	→		…	SS continues to receive RLC SDUs
8	→		UPLINK RLC PDU	SDU P, Poll
9	←		STATUS PDU	NAK SN=0 and SN=1
10	→		UPLINK RLC PDU	SDU 1, SN=0
11	→		UPLINK RLC PDU	SDU 2, SN=1
12	→		UPLINK RLC PDU	SDU P+1
13	→		…	SS continues to receive RLC SDUs
14	→		UPLINK RLC PDU	SDU 2P – 2, Poll
15	→		…	SS continues to receive RLC SDUs
16	→		UPLINK RLC PDU	SDU 3P – 2, Poll
17			RB RELEASE	Optional step

NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.

NOTE 2: Due to retransmissions it is not possible to determine the exact PDU that a poll is received on. i.e. A poll may be received on a retransmitted PDU or a PDU transmitted for the first time.

7.2.3.17.5 Test requirements

The SS shall receive a poll for status every Poll_PDU RLC PDUs sent on the uplink.

7.2.3.18 Polling for status / Poll every Poll_SDU SDUs

7.2.3.18.1 Definition

This case tests that the UE will poll for a status request every Poll_SDU SDUs when that mode is enabled. Incorrect operation of polling will cause degradation of service, or at worst service failure.

7.2.3.18.2 Conformance requirement

VT(SDU).

This state variable is used when the "poll every Poll_SDU SDU" polling trigger is configured. It shall be incremented by 1 for a given SDU when the AMD PDUs carrying the first segment of this SDU is scheduled to be transmitted for the first time. When it becomes equal to the value Poll_SDU a new poll shall be transmitted and the state variable shall be set to zero. The "Polling bit" shall be set to "1" in the first transmission of the AMD PDU that contains the “Length Indicator” indicating the end of the SDU.

The initial value of this variable is 0.

Poll_SDU.

This protocol parameter indicates how often the transmitter shall poll the Receiver in the case where "polling every Poll_SDU SDU" is configured by upper layers. It represents the upper limit for state variable VT(SDU). When VT(SDU) equals the value Poll_SDU a poll shall be transmitted to the peer entity.

Every Poll_SDU SDU.

The Sender triggers the Polling function for every Poll_SDU SDU. The poll shall be triggered for the first transmission of the AMD PDU that contains the “Length Indicator” indicating the end of the SDU.

The Sender shall:

- if a poll has been triggered by one or several poll triggers (see TS 25.322 subclause 9.7.1):
  - if polling is not prohibited, see TS 25.322 subclause 9.5:
    - set the "Polling bit" in the AMD PDU header to "1";
- otherwise:
  - set the "Polling bit" in the AMD PDU header to "0".

Reference

TS 25.322 clauses 9. 4, 9.6, 9.7.1 and 11.3.2.1.1.

7.2.3.18.3 Test purpose

1. To verify that a poll is performed when VT(SDU) reaches Poll_ SDU.
2. To verify that the poll is sent in the last PDU of the SDU.

7.2.3.18.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Polling info	
Last transmission PDU poll	FALSE
Poll_SDU	1

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to (2 * AM_7_PayloadSize) - 1 bytes.

Let the value of Poll_SDU be P.

a) The SS sends 2 * P RLC SDUs of size AM_7_PayloadSize - 1 bytes to the UE in PDUs with sequence numbers that are contiguous, starting from zero.

b) The SS checks the sequence numbers and polling bits of the RLC SDUs returned on the uplink.

c) The SS terminates the connection.

The test is repeated with Poll_SDU set to 16.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1
2	←		DOWNLINK RLC PDU	SDU 2
3	←		…	SS continues to transmit RLC SDUs
4	←		DOWNLINK RLC PDU	SDU 2P
5	→		UPLINK RLC PDU	SDU 1 Expanded to (2 *
6	→		UPLINK RLC PDU	AM_7_PayloadSize) - 1 bytes by test function
7	→		…	SS continues to receive RLC SDUs
8	→		UPLINK RLC PDU	SDU P, Poll
9	←		STATUS PDU	
10	→		UPLINK RLC PDU	SDU P+1 Expanded to (2 *
11	→		UPLINK RLC PDU	AM_7_PayloadSize) - 1 bytes by test function
12	→		…	SS continues to receive RLC SDUs
13	→		UPLINK RLC PDU	SDU 2P, Poll
14			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.18.5 Test requirements

The UE shall return uplink PDUs that contain polls for status in sequence numbers 2 * P – 1 and 4 * P – 1. No other PDUs shall poll for status.

7.2.3.19 Polling for status / Timer triggered polling (Timer_Poll_Periodic)

7.2.3.19.1 Definition

This case tests that the UE will poll for a status request every Timer_Poll_Periodic ms when that mode is enabled. Incorrect operation of polling will cause degradation of service, or at worst service failure.

7.2.3.19.2 Conformance requirement

This timer shall only be used when "timer based polling" is configured by upper layers. The value of the timer is signalled by upper layers. The timer shall be started when the RLC entity is created. When the timer expires, the RLC entity shall:

- restart the timer;
- if AMD PDUs are available for transmission or retransmission (not yet acknowledged):
  - trigger a poll.

[...]

The Sender shall:

- if a poll has been triggered by one or several poll triggers (see TS 25.322 subclause 9.7.1):
  - if polling is not prohibited, see TS 25.322 subclause 9.5:

- set the "Polling bit" in the AMD PDU header to "1";

- otherwise:

  - set the "Polling bit" in the AMD PDU header to "0".

Reference

TS 25.322 clauses 9.5, 9.7.1 and 11.3.2.1.1.

7.2.3.19.3 Test purpose

1. To verify that the UE polls the SS in the next PDU to be transmitted or retransmitted each time the Timer_Poll_Periodic timer expires.

2. To verify that if there is no PDU to be transmitted or retransmitted, the timer is restarted, but no poll is sent.

7.2.3.19.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	First run	Second run
Polling info		
Last retransmission PDU poll	FALSE	FALSE
Last transmission PDU poll	FALSE	FALSE
Timer_poll_periodic	500	2000

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to (AM_7_PayloadSize * ceil(T/(5*TTI))) - 1 bytes.

Test procedure

Let T be the value of Timer_Poll_Periodic:

a) The SS waits for at least 2*T ms before starting any transmissions, and monitors the uplink.

b) The SS sends five RLC SDUs of size floor (AM_7_PayloadSize/5) - 1 bytes to the UE. The SDUs are concatenated five SDUs to one PDU. The UE is expected to loop this data back in five RLC SDUs, segmented into a total of at least ceil(T/TTI) RLC PDUs.

c) The SS checks that at least one RLC PDU is received on the uplink with the P bit set and records the arrival time of the last RLC PDU received with the P bit set (T_1) . The SS does not send any STATUS PDUs in response to these poll requests.

d) The SS continues to receive RLC PDUs until all of the data has been received.

e) The SS waits for the UE to retransmit an RLC PDU in order to transmit a poll (this may be the PDU with SN VT(S) - 1, or a PDU that has not been acknowledged). The SS checks that the P bit is set, and records the arrival time (T_2).

f) The SS responds with a STATUS PDU acknowledging all received PDUs.

g) The SS waits for 2*T ms to ensure that no further polls are received from the UE.

h) Void

i) The SS may optionally release the radio bearer.

The Test is repeated using the parameters specified for the second run.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1, SDU2, SDU 3, SDU 4, SDU 5, SN=0
2	→		UPLINK RLC PDU	PDU 1, SN=0
3	→		UPLINK RLC PDU	PDU 2, SN=1
4	→		-	SS continues to receive RLC PDUs
5	→		UPLINK RLC PDU	Poll: Note T_1
6	→		-	SS continues to receive RLC PDUs
7	→		UPLINK RLC PDU	SN = ceil(T/TTI) - 1
8	→		UPLINK RLC PDU	Retransmission of VT(S)-1 or unacknowledged PDU in order to transmit a poll. Poll: Note T_2.
9	←		STATUS PDU	Normal
10	-		-	SS monitors uplink for 2*T ms
11			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.19.5 Test requirements

1. No PDUs shall be received from the UE for 2*T ms before step 1.
2. Time $T_2 - T_1$ shall be T.
3. No PDUs shall be received from the UE for 2*T ms after step 9.

7.2.3.20 Polling for status / Polling on Poll_Window% of transmission window

7.2.3.20.1 Definition

This case tests that the UE will poll for a status request when it has reached Poll_Window% of the transmission window, when that mode is enabled. Incorrect operation of polling will cause degradation of service, or at worst service failure.

This test applies to all UE.

7.2.3.20.2 Conformance requirement

1. A poll is triggered for each AMD PDU when $J \geq$ Poll_Window, where J is the window transmission percentage defined by

$$J = \frac{(4096+VT(S)+1-VT(A)) \textbf{ mod } 4096}{VT(WS)} * 100 ,$$

where the constant 4096 is the modulus for AM described in 3GPP TS 25.322 subclause 9.4 and VT(S) is the value of the variable before the AMD PDU is submitted to lower layer.

2. The Polling function is used by the Sender to request the peer RLC entity for a status report. The "Polling bit" in the AMD PDU indicates the poll request. There are several triggers for initiating the Polling function. Which of the triggers shall be used is configured by upper layers for each RLC entity. The following triggers can be configured:

…….

6) Window based.

The Sender triggers the Polling function when the condition described in subclause 9.6 d) ("Poll_Window") is fulfilled.

3. The Sender shall:

- if a poll has been triggered by one or several poll triggers (see subclause 9.7.1):
  - if polling is not prohibited, see subclause 9.5:
    - set the "Polling bit" in the AMD PDU header to "1".

Reference

25.322 clauses 9.6, 9.7.1 and 11.3.2.1.1.

7.2.3.20.3 Test purpose

To verify that the UE polls the SS when the window based polling condition J >= Poll_Window is fulfilled.

7.2.3.20.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Polling info	
Last transmission PDU poll	FALSE
Poll_Window	50
Transmission window size	8
Downlink RLC	
Receiving window size	8

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1with the UL SDU size set to AM_7_PayloadSize - 1 bytes.

Test procedure

Let W be the size of the transmission window.

a) The SS transmits (W/2) + 2 RLC SDUs of size AM_7_PayloadSize - 1 bytes.

b) The SS checks the sequence number of the first three uplink PDUs received with the P bit set.

c) The SS sends another RLC SDU of size AM_7_PayloadSize - 1 bytes.

d) The SS checks the sequence number of the next uplink PDU received with the P bit set.

e) The SS waits until no more new PDUs are received.

f) The SS sends a STATUS PDU acknowledging the received RLC PDUs with SN = 0 through W/2, followed by two further RLC SDUs.

g) The SS checks the sequence number of the next uplink PDU received with the P bit set.

h) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1
2	←		…	SS continues to transmit RLC SDUs
3	←		DOWNLINK RLC PDU	SDU W/2+2
4	→		UPLINK RLC PDU	SDU 1, SN=0
5	→		UPLINK RLC PDU	SDU 2, SN=1
6	→		…	SS continues to receive RLC PDUs
7	→		UPLINK RLC PDU	SN = W/2-1, Poll
7a	→		UPLINK RLC PDU	SN = W/2, Poll
7b	→		UPLINK RLC PDU	SN = W/2 +1, Poll
8	←		DOWNLINK RLC PDU	SDU W/2 + 3
9	→		UPLINK RLC PDU	SN = W/2 + 2, Poll
9a				SS waits 10 TTI periods to ensure no more new PDUs are received
10	←		STATUS PDU	ACK SN 0 to W/2 (UE sets VT(A) to W/2+1)
11	←		DOWNLINK RLC PDU	SDU W/2 + 4
12	←		DOWNLINK RLC PDU	SDU W/2 + 5
13	→		UPLINK RLC PDU	SN = W/2+3
14	→		UPLINK RLC PDU	SN = W/2+4, Poll
15			RB RELEASE	Optional step
NOTE: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.20.5 Test requirements

The SS shall receive RLC PDUs with the P bit set in PDUs with sequence numbers of 3, 4, 5, 6 and 8. No other PDUs shall have their P bits set.

7.2.3.21 Polling for status / Operation of Timer_Poll timer / Timer expiry

7.2.3.21.1 Definition

This case tests that the UE will retransmit a poll for status if it does not receive a STATUS PDU within Timer_Poll ms after a poll for status is transmitted. Incorrect operation of polling will cause degradation of service, or possible service failure.

7.2.3.21.2 Conformance requirement

Timer_Poll.

This timer shall only be used when so configured by upper layers. The value of the timer is signalled by upper layers. In the UE this timer shall be started when the successful or unsuccessful transmission of an AMD PDU containing a poll is indicated by lower layer. In UTRAN it should be started when an AMD PDU containing a poll is submitted to lower layer. If x is the value of the state variable VT(S) after the poll was submitted to lower layer, the timer shall be stopped upon receiving:

- positive acknowledgements for all the AMD PDUs with "Sequence Number" up to and including x - 1; or
- a negative acknowledgement for the AMD PDU with "Sequence Number" = x - 1.

If the timer expires and no STATUS PDU fulfilling the criteria above has been received:

- the Receiver shall be polled once more;
- the timer shall be restarted; and

- the new value of VT(S) shall be saved.

If a new poll is sent when the timer is active, the timer shall be restarted at the time specified above, and the value of VT(S) shall be saved.

[...]

The Sender shall:

- if a poll has been triggered by one or several poll triggers (see subclause 9.7.1):
  - if polling is not prohibited, see subclause 9.5:
    - set the "Polling bit" in the AMD PDU header to "1";
- otherwise:
  - set the "Polling bit" in the AMD PDU header to "0".

Reference

TS 25.322 clauses 11.3.2.1.1 and 11.3.4.1.

7.2.3.21.3 Test purpose

To verify that if the timer expires and no STATUS PDU containing an acknowledgement or negative acknowledgement of the AMD PDUs up to that which triggered the timer has been received, the receiver is polled once more.

7.2.3.21.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	First run	Second run
Transmission window size	256	256
Polling info		
Last transmission PDU poll	FALSE	FALSE
Timer_poll	600	1000
Timer_Poll_Periodic	2000	2000

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1with the UL SDU size set to AM_7_PayloadSize - 1 bytes.

Test procedure

Let T be the value of the Timer_Poll_Periodic timer.

a) The SS transmits at least 2 * T / TTI SDUs of size AM_7_PayloadSize - 1 bytes.

b) The SS receives PDUs from the UE, and notes the time on receiving the first PDU with the P bit set, but does not respond. This time will be recorded as T_1.

c) The SS continues to receive PDUs from the UE and notes the time on receipt of the next PDU with the P bit set. This time will be recorded as T_2.

d) The SS continues to receive PDUs from the UE until all transmitted PDUs have been received. The SS responds to any PDU received with the P bit set by transmitting a STATUS PDU containing an acknowledgement of the AMD PDUs received.

e) The SS acknowledges the last Poll PDU from the UE.

f) The SS may optionally release the radio bearer.

The test case is run once for each set of initial RLC parameters.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1
2	←		…	SS continues to transmit RLC SDUs
3	←		DOWNLINK RLC PDU	SDU ceil(2T/TTI)
4	→		UPLINK RLC PDU	SDU 1
5	→		UPLINK RLC PDU	SDU 2
6	→		…	SS continues to receive RLC PDUs
7	→		UPLINK RLC PDU	SN = n , Poll: Note T_1 (First PDU with P bit set)
8	→		UPLINK RLC PDU	SN = n+1
9	→		…	SS continues to receive RLC PDUs
9a	SS			No STATUS PDUs are sent by the SS between steps 7 and 10.
10	→		UPLINK RLC PDU	Poll: Note T_2 (Next PDU with P bit set)
11	→		…	SS continues to receive PDUs, acknowledging with STATUS PDUs when polled until all PDUs have been received and acknowledged
12			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				
NOTE 2: The SN value "n" identifies the current RLC sequence number of the first UL PDU with the Poll Bit set. This value is for informative purposes only				

7.2.3.21.5 Test requirements

For the first run, the measured time $T_2 - T_1$ shall be 600 ms.

For the second run, the measured time $T_2 - T_1$ shall be 1000 ms.

7.2.3.22 Polling for status / Operation of Timer_Poll timer / Stopping Timer_Poll timer

7.2.3.22.1 Definition

This case tests that the UE will stop the Timer_Poll timer if it receives a STATUS PDU within Timer_Poll ms after a poll for status is transmitted. Incorrect operation of polling will cause degradation of service, or possible service failure.

7.2.3.22.2 Conformance requirement

Timer_Poll.

This timer shall only be used when so configured by upper layers. The value of the timer is signalled by upper layers. In the UE this timer shall be started when the successful or unsuccessful transmission of an AMD PDU containing a poll is indicated by lower layer. In UTRAN it should be started when an AMD PDU containing a poll is submitted to lower layer. If x is the value of the state variable VT(S) after the poll was submitted to lower layer, the timer shall be stopped upon receiving:

- positive acknowledgements for all the AMD PDUs with "Sequence Number" up to and including x - 1; or
- a negative acknowledgement for the AMD PDU with "Sequence Number" = x - 1.

If the timer expires and no STATUS PDU fulfilling the criteria above has been received:

- the Receiver shall be polled once more;
- the timer shall be restarted; and
- the new value of VT(S) shall be saved.

If a new poll is sent when the timer is active, the timer shall be restarted at the time specified above, and the value of VT(S) shall be saved.

[...]

The Sender shall:

- if a poll has been triggered by one or several poll triggers (see subclause 9.7.1):
  - if polling is not prohibited, see subclause 9.5:
    - set the "Polling bit" in the AMD PDU header to "1";
- otherwise:
  - set the "Polling bit" in the AMD PDU header to "0".

Reference

TS 25.322 clause 9.5.

7.2.3.22.3 Test purpose

To verify that the Timer_Poll timer is stopped when receiving a STATUS PDU that acknowledges all AMD PDUs with SN up to and including VT(S)-1 at the time the poll was transmitted.

7.2.3.22.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	First run	Second run
Tx_Window_Size	256	256
Polling info		
Last transmission PDU poll	FALSE	FALSE
Timer_poll	500	1000
Timer_Poll_Periodic	2000	2000

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize - 1 bytes.

Test procedure

Let T be the value of the Timer_Poll_Periodic timer.

a) The SS transmits at least 2 * T / TTI SDUs of size AM_7_PayloadSize - 1 bytes.

b) The SS receives PDUs from the UE, and notes the time on receiving the first PDU with the P bit set. This time will be recorded as T_1.

c) The SS sends a STATUS PDU acknowledging all the PDUs up to and including the PDU carrying the poll request.

d) The SS continues to receive PDUs from the UE and notes the time on receipt of the next PDU with the P bit set. This time will be recorded as T_2.

e) The SS continues to receive PDUs from the UE until all transmitted PDUs have been received. The SS responds to any PDU received with the P bit set by transmitting a STATUS PDU containing an acknowledgement of the AMD PDUs received.

f) The SS acknowledges the last Poll PDU from the UE.

g) The SS may optionally release the radio bearer.

The test case is run once for each set of initial RLC parameters.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1
2	←		…	SS continues to transmit RLC SDUs
3	←		DOWNLINK RLC PDU	SDU ceil(2T/TTI)
4	→		UPLINK RLC PDU	SDU 1
5	→		UPLINK RLC PDU	SDU 2
6	→		…	SS continues to receive RLC PDUs
7	→		UPLINK RLC PDU	SN = n , Poll: Note T_1 (First PDU with the P bit set).
8	←		STATUS PDU	ACK SN= 0 to SN =n
9	→		UPLINK RLC PDU	SN = n +1
10	→		…	SS continues to receive RLC PDUs
11	→		UPLINK RLC PDU	Poll: Note T_2 (Next PDU with the P bit set)
12	→		…	SS continues to receive PDUs, acknowledging with Status PDUs when polled until all PDUs have been received and acknowledged
13			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				
NOTE 2: The SN value “n” identifies the current RLC sequence number of the first UL PDU with the Poll Bit set. This value is for informative purposes only				

7.2.3.22.5 Test requirements

For both execution runs, the measured time $T_2 - T_1$ shall be 2000 ms.

7.2.3.23 Polling for status / Operation of Timer_Poll timer / Restart of the Timer_Poll timer

7.2.3.23.1 Definition

This case tests that the UE will restart the Timer_Poll timer if another poll request is transmitted whilst the timer is running. Incorrect operation of polling will cause degradation of service, or possible service failure.

This test applies to all UE.

7.2.3.23.2 Conformance requirement

Timer_Poll.

This timer shall only be used when so configured by upper layers. The value of the timer is signalled by upper layers. In the UE this timer shall be started when the successful or unsuccessful transmission of an AMD PDU containing a poll is indicated by lower layer. In UTRAN it should be started when an AMD PDU containing a poll is submitted to lower layer. If x is the value of the state variable VT(S) after the poll was submitted to lower layer, the timer shall be stopped upon receiving:

- positive acknowledgements for all the AMD PDUs with "Sequence Number" up to and including x - 1; or
- a negative acknowledgement for the AMD PDU with "Sequence Number" = x - 1.

If the timer expires and no STATUS PDU fulfilling the criteria above has been received:

- the Receiver shall be polled once more;
- the timer shall be restarted; and
- the new value of VT(S) shall be saved.

If a new poll is sent when the timer is active, the timer shall be restarted at the time specified above, and the value of VT(S) shall be saved.

[...]

The Sender shall:

- if a poll has been triggered by one or several poll triggers (see subclause 9.7.1):
  - if polling is not prohibited, see subclause 9.5:
    - set the "Polling bit" in the AMD PDU header to "1";
- otherwise:
  - set the "Polling bit" in the AMD PDU header to "0".

Reference

TS 25.322 clause 9.5.

7.2.3.23.3 Test purpose

To verify that if a new poll is sent when the timer is running it is restarted.

7.2.3.23.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Polling info	
Last retransmission PDU poll	FALSE
Last transmission PDU poll	FALSE
Timer_poll	600
Poll_Window	60
Poll_PDU	16
Transmit window size	32

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize - 1 bytes.

Test procedure

Let T be the value of the Timer_Poll timer.

a) The SS starts transmission of ceil(Tx_Window_Size * 60%) numbers of SDUs of size AM_7_PayloadSize - 1bytes.

b) Whilst transmitting, the SS receives PDUs from the UE, until it receives the second PDU with the P bit set. This time is recorded as T_1. (Note: poll due to Poll_Window).

c) Void.

d) Void.

e) The SS waits until a PDU is received with the poll bit set and notes the time when it was received. This time is recorded as T_2.

f) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1
2	←		…	SS continues to transmit RLC SDUs
3	←		DOWNLINK RLC PDU	SDU ceil(Tx_Window_Size * 60%)
4	→		UPLINK RLC PDU	SDU 1
5	→		UPLINK RLC PDU	SDU 2
6	→		…	SS continues to receive RLC PDUs
7	→		UPLINK RLC PDU	SN = poll_PDU - 1, 1st Poll, Timer_Poll started
8	→		Void	
9			Void	
10	→		UPLINK RLC PDU	SS continues to receive RLC PDUs
11	→		UPLINK RLC PDU	SN= ceil(Tx_Window_Size * 60%)-1, 2nd Poll, Timer_Poll restarted. Note T1
12			Void	
13			Void	
14			Void	
15	→		UPLINK RLC PDU	SS waits for reception of PDU with poll bit set, 3rd Poll, Timer_Poll expired. Note T_2
16			RB RELEASE	Optional step
NOTE: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.23.5 Test requirements

The measured time $T_2 - T_1$ shall be 600 ms.

7.2.3.24 Polling for status / Operation of timer Timer_Poll_Prohibit

7.2.3.24.1 Definition

This case tests that the UE will not send a poll request within Timer_Poll_Prohibit ms of a previous poll request when this mode of operation is enabled. Incorrect operation of polling will cause degradation of service, or possible service failure.

7.2.3.24.2 Conformance requirement

The timers defined in this subclause are normative. The timers shall be considered active from the time they are started until the time they either expire or are stopped.

b) Timer_Poll_Prohibit.

This timer shall only be used when so configured by upper layers. It is used to prohibit transmission of polls within a certain period. The value of the timer is signalled by upper layers.

In the UE this timer shall be started when the successful or unsuccessful transmission of an AMD PDU containing a poll is indicated by lower layer. In UTRAN it should be started when an AMD PDU containing a poll is submitted to lower layer.

From the time a poll is triggered until the timer expires, polling is prohibited. If another poll is triggered while polling is prohibited, its transmission shall be delayed until the timer expires (see subclause 9.7.1). Only one poll

shall be transmitted when Timer_Poll_Prohibit expires even if several polls were triggered in the meantime. This timer shall not be affected by the reception of STATUS PDUs.

When Timer_Poll_Prohibit is not configured by upper layers, polling is never prohibited.

The Sender shall:

- if a poll has been triggered by one or several poll triggers (see subclause 9.7.1):
  - if polling is not prohibited, see subclause 9.5:
    - set the "Polling bit" in the AMD PDU header to "1";
- otherwise:
  - set the "Polling bit" in the AMD PDU header to "0".

Reference

TS 25.322 clauses 9.5, 9.7.1 and 11.3.2.1.1.

7.2.3.24.3 Test purpose

1. To verify that no poll is transmitted if one or several polls are triggered when the Timer_Poll_Prohibit timer is active and has not expired.
2. To verify that the UE polls only once after Timer_Poll_Prohibit expires even though triggered several times during the prohibit time.

7.2.3.24.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Transmission RLC discard	
MaxDAT	15
Polling info	
Timer_poll_prohibit	500
Last transmission PDU poll	FALSE
Poll_PDU	2
Poll_Window	50
Transmission window size	32
Downlink RLC	
Receiving window size	128

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize - 1 bytes.

Test procedure

Let T be the value of the Timer_Poll_Prohibit timer.

a) The SS starts transmission of at least (2*Poll_PDU) + ceil(T / TTI) SDUs of size AM_7_PayloadSize - 1 bytes.

b) Whilst transmitting, the SS receives PDUs from the UE, and notes the time on receiving the first PDU with the P bit set. This time will be recorded as T_1.

c) The SS does not respond to the poll request.

d) The SS continues to receive PDUs from the UE and notes the time on receipt of the next PDU with the P bit set. This time will be recorded as T_2.

e) The SS waits for at least Timer_Poll_Prohibit to acknowledge any last Poll PDU from the UE.

f) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1
2	←		…	SS continues to transmit RLC SDUs
3	←		DOWNLINK RLC PDU	SDU (2*Poll_PDU)+ ceil(T/TTI)
4	→		UPLINK RLC PDU	SDU 1
5	→		UPLINK RLC PDU	SDU 2
6	→		…	SS continues to receive RLC PDUs
7	→		UPLINK RLC PDU	SN = Poll_PDU - 1, Poll: Note T_1
8	→		…	SS continues to receive RLC PDUs
9			Void	
10	→		UPLINK RLC PDU	SN = (Transmission Window Size / 2) – 1, No Poll
11	→		…	SS continues to receive RLC PDUs
12	→		UPLINK RLC PDU	SN = Poll_PDU + ceil(T/TTI) - 1, Poll: Note T_2
12a	→		…	SS continues to receive RLC PDUs acknowledging with STATUS PDUs when polled until all PDUs have been received and acknowledged
13			RB RELEASE	Optional step
NOTE: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.24.5 Test requirements

1. The measured time $T_2 - T_1$ shall be Timer_poll_prohibit ms.
2. After step 12 no further poll shall be received from the UE for the next Timer_poll_prohibit ms.

7.2.3.25 Receiver Status Triggers / Detection of missing PDUs

7.2.3.25.1 Definition

This case tests that the UE transmits a status report whenever it detects that a PDU is missing, if this mode of operation is enabled. Incorrect operation of status reporting will cause degradation of service, or possible service failure.

7.2.3.25.2 Conformance requirement

Detection of missing PDU(s).

If the Receiver detects one or several missing AMD PDUs it shall trigger the transmission of a status report to the Sender.

Reference

TS 25.322 clause 9.7.2.

7.2.3.25.3 Test purpose

To verify that a status report is transmitted if there are one or more missing PDUs.

7.2.3.25.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

These settings apply to both the uplink and downlink DTCH.

Test procedure

a) The SS transmits 7 SDUs, each of size AM_7_PayloadSize - 1 bytes, in PDUs with consecutive sequence numbers starting from 0, followed by 5 SDUs in PDUs with consecutive sequence numbers starting from 8, followed by an SDU in a PDU with a sequence number of 15.

b) While transmitting, the SS monitors the uplink for STATUS PDUs.

c) The SS may optionally release the radio bearer

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		←	DOWNLINK RLC PDU	SN = 0
2		←	…	SS continues to transmit RLC SDUs
3		←	DOWNLINK RLC PDU	SN = 6
4		←	DOWNLINK RLC PDU	SN = 8
5		→	STATUS PDU	SN = 7 missing
6		←	DOWNLINK RLC PDU	
7		←	…	SS continues to transmit RLC SDUs
8		←	DOWNLINK RLC PDU	SN = 12
9		←	DOWNLINK RLC PDU	SN = 15
10		→	STATUS PDU	SN = 7, 13, 14 missing
11			RB RELEASE	Optional step
NOTE: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.25.5 Test requirements

A STATUS PDU shall be received from the UE after step 4, indicating that the PDU with sequence number 7 was missing.

A STATUS PDU shall be received from the UE after step 9, indicating that the PDUs with sequence numbers 7, 13 and 14 were missing.

7.2.3.26 Receiver Status Triggers / Operation of timer Timer_Status_Periodic

7.2.3.26.1 Definition

This case tests that the UE transmits a status report every Timer_Status_Periodic ms when this mode of operation is enabled. Incorrect operation of status reporting will cause degradation of service, or possible service failure.

7.2.3.26.2 Conformance requirement

This timer shall only be used when timer based status reporting is configured by upper layers.

This timer shall be started when the RLC entity is created. When the timer expires the transmission of a status report shall be triggered and the timer shall be restarted.

Reference

TS 25.322 clauses 9.5, 9.7.2 and 11.5.2.

7.2.3.26.3 Test purpose

To verify that a status report is transmitted each time the Timer_Status_Periodic timer expires.

7.2.3.26.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Downlink RLC Timer_STATUS_periodic	400

These settings apply to both the uplink and downlink DTCH.

Test procedure

Let T be the value of the Timer_STATUS_periodic timer.

a) The SS starts transmission of at least ceil(2 * T / TTI) SDUs of size AM_7_PayloadSize - 1 bytes.

b) The SS waits to receive a STATUS PDU and notes the time. This time will be recorded as T_1.

c) The SS waits to receive a second STATUS PDU and notes the time. This time will be recorded as T_2.

d) The SS waits for at least Timer_Status_Periodic to receive any last STATUS PDU from the UE.

e) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1
2	←		…	SS continues to transmit RLC SDUs
3	←		DOWNLINK RLC PDU	SDU m
4	→		STATUS PDU	Note T_1
5	←		DOWNLINK RLC PDU	
6	←		…	SS continues to transmit RLC SDUs
7	←		DOWNLINK RLC PDU	SDU m + ceil(T/TTI)
8	→		STATUS PDU	Note T_2
9			Void	
10	→		STATUS PDU	SS may receive STATUS PDUs
11			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.26.5 Test requirements

The measured time $T_2 - T_1$ shall be 400 ms.

7.2.3.27 Receiver Status Triggers / Operation of timer Timer_Status_Prohibit

7.2.3.27.1 Definition

This case tests that the UE does not transmit a status report more often than every Timer_Status_Prohibit ms when this mode of operation is enabled. Incorrect operation of status reporting will cause degradation of service, or possible service failure.

7.2.3.27.2 Conformance requirement

In the UE, this timer shall be started when the successful or unsuccessful transmission of the last STATUS PDU of an acknowledgement status report is indicated by lower layer

[...]

When a status report is triggered the Receiver shall:

- if transmission of status reports is not prohibited by any of the functions "STATUS prohibit" or "EPC mechanism":
  - assemble and transmit the status report to the Sender, as specified in subclauses TS 25.322 11.5.2.2 and 11.5.2.3.
- otherwise (if the status report is prohibited by at least one of the functions "STATUS prohibit" or "EPC mechanism"):

  [...]

  - if ACK, LIST, BITMAP, or RLIST SUFIs are required in the status report:

- delay sending these SUFIs until the prohibit function terminates.

[...]

Upon expiry of the timer Timer_Status_Prohibit [...], the Receiver shall:

- if at least one status report was triggered during the time the transmission of a status reports was prohibited that could not be transmitted due to prohibition; and
- if transmission of a status reports is no longer prohibited by any of the functions "STATUS prohibit" or "EPC mechanism":
  - transmit one status report to the Sender, using the procedure described in subclause TS 25.322 11.5.2.3.

Reference

TS 25.322 clause 9.7.2.

7.2.3.27.3 Test purpose

1. To verify that a status report is not transmitted while the Timer_Status_Prohibit timer is active.
2. To verify that only one status report is sent on the expiry of the Timer_Status_Prohibit timer if several triggers occur while it is active.

7.2.3.27.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Downlink RLC	
Timer_Status_Prohibit	500
Timer_STATUS_periodic	200

These settings apply to both the uplink and downlink DTCH.

Test procedure

Let T_{pro} be the value of the Timer_Status_Prohibit timer, and T_{per} be the value of the Timer_Status_Periodic timer.

a) The SS starts transmission of at least ceil(2 * T_{pro} / TTI) + ceil(T_{per}/TTI) SDUs of size AM_7_PayloadSize - 1 bytes.

b) Whilst transmitting, the SS monitors the uplink for a STATUS PDU and notes the time. This time will be recorded as T_1.

c) The SS sets the P bit in one of the next floor(T_{pro}/TTI) PDUs transmitted on the downlink.

d) The SS waits to receive a second STATUS PDU and notes the time. This time will be recorded as T_2.

e) The SS waits for at least Timer_Status_Prohibit to receive any last STATUS PDU from the UE.

f) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1
2	←		…	SS continues to transmit RLC SDUs
3	←		DOWNLINK RLC PDU	SDU m
4	→		STATUS PDU	Note T_1
5	←		DOWNLINK RLC PDU	Poll
6	←		…	SS continues to transmit RLC PDUs
7	←		DOWNLINK RLC PDU	SDU m + ceil(T_{pro} / TTI)
8	→		STATUS PDU	Note T_2
9			Void	
10	→		STATUS PDU	SS may receive STATUS PDUs
11			RB RELEASE	Optional Step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.27.5 Test requirements

1. The measured time $T_2 - T_1$ shall be 500 ms.
2. Only one STATUS PDU shall be received in step 8 after (T1 + Tpro) and before (T1 + 2*Tpro).

7.2.3.28 Status reporting / Abnormal conditions / Reception of LIST SUFI with Length set to zero

7.2.3.28.1 Definition

Peer RLCs use STATUS PDUs to manage flow control and retransmission. On a STATUS report PDU with an invalid LIST SUFI the RLC must behave as specified. Incorrect behaviour may result in degradation of QoS, or failure of the UE to communicate.

7.2.3.28.2 Conformance requirement

The List super-field

The List Super-Field consists of a type identifier field (LIST), a list length field (LENGTH) and a list of LENGTH number of pairs as shown in figure 9.11 below:

Type = **LIST**
LENGTH
SN_1
L_1
SN_2
L_2
…
SN_{LENGTH}
L_{LENGTH}

Figure 9.11: The List fields in a STATUS PDU

LENGTH

Length: 4 bits

The number of (SN_i, L_i)-pairs in the super-field of type LIST. The value "0000" is invalid and the list is discarded.

Reference

TS 25.322 clause 9.2.2.11.4.

7.2.3.28.3 Test purpose

To verify that if a STATUS PDU is received with a LIST SUFI and the LENGTH field is set to "0000" that the list is discarded.

7.2.3.28.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC Polling info Poll_PDU	 4

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to (3 * Poll_PDU * AM_7_PayloadSize) – 1 bytes.

Test procedure

a) The SS sends an SDU of size (AM_7_PayloadSize) – 1.

b) The SS monitors the received (looped back) PDUs for a poll request.

c) The SS responds to the poll request by transmitting a STATUS PDU with a LIST SUFI. The list contains an indication that two PDUs were not received, but has the length field set to "0000".

d) The SS continues to monitor the received PDUs to verify that none are retransmitted.

e) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1 (start)
2	←		…	SS continues to transmit RLC PDUs
3	←		DOWNLINK RLC PDU	SDU 1 (end)
4	→		UPLINK RLC PDU	SDU 1 (start)
5	→		UPLINK RLC PDU	
6	→		…	SS continues to receive RLC PDUs
7	→		UPLINK RLC PDU	SN = Poll_PDU - 1, Poll
8	←		STATUS PDU	LIST(LENGTH = "0000", SN = 1, SN = 2)
9	→		…	SS continues to receive RLC PDUs
10	→		UPLINK RLC PDU	Poll
11	←		STATUS PDU	Normal reply
12	→		…	SS continues to receive RLC PDUs
13	→		UPLINK RLC PDU	SDU 1 (end)
14			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.28.5 Test requirements

No RLC PDUs shall be retransmitted by the UE.

7.2.3.29 Timer based discard, with explicit signalling / Expiry of Timer_Discard

7.2.3.29.1 Definition

This case tests that when the transmission of an SDU exceeds a time limit, the SDU is discarded by the sender, and the discard is signalled to the receiver. SDU discard is used to keep network delays within limits, and incorrect operation will effect the quality of service.

7.2.3.29.2 Conformance requirement

If the transmission time exceeds a predefined value for a SDU in acknowledged mode RLC, this SDU is discarded in the transmitter and a Move Receiving Window (MRW) command is sent to the receiver so that AMD PDUs carrying that SDU are discarded in the receiver and the receiver window is updated accordingly.

This procedure is initiated by the sender when the following conditions are fulfilled … Timer based SDU discard with explicit signalling is used, and Timer_Discard expires for an SDU.

This status report is sent even if the 'STATUS prohibit' is used and the timer 'Timer_Status_Prohibit' is active.

The STATUS PDUs have higher priority than data PDUs.

Reference

TS 25.322 clauses 9.7.3.1, 11.3.4.3.1 and 11.6.

7.2.3.29.3 Test purpose

1. To verify that if the transmission time for an SDU exceeds Timer_Discard, the SDU is discarded in the transmitter and the MRW procedure is invoked.
2. ...

7.2.3.29.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Transmission RLC discard	
Timer based with explicit signalling	
Timer_MRW	500
Timer_Discard	1000
MAX_MRW	4

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize – 1 bytes.

Test procedure

a) The SS sends at least 2 RLC SDUs of size AM_7_PayloadSize – 1bytes.

b) The SS notes the time that the first RLC PDU is received on the uplink. This time will be recorded as T_1.

c) The SS checks the RLC PDUs received on the uplink and responds to all poll requests with a STATUS PDU, negatively acknowledging the RLC PDU with sequence number 0, and positively acknowledging all other RLC PDUs received.

d) The SS monitors received STATUS PDUs for the presence of a MRW SUFI, noting the time it was received. This time will be recorded as T_2.

e) The SS responds to the MRW command with a correct MRW_ACK.

f) Void.

g) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1
2	←		DOWNLINK RLC PDU	SDU 2
3	→		UPLINK RLC PDU	SDU 1: Note T_1
4	→		…	SS continues to receive RLC PDUs
5	→		UPLINK RLC PDU	SDU 2 + Poll
6	←		STATUS PDU	NAK SN=0
7	→		…	SS continues to receive RLC PDU with SN=0 + Poll
8	←		…	STATUS PDU, SS continues to NAK PDU with SN=0
9	→		STATUS PDU	MRW Command: Note T_2
10	←		STATUS PDU	MRW_ACK
11			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.29.5 Test requirements

1. The measured time $T_2 - T_1$ shall be 1000 ms.

2. The STATUS PDU received in step 9 shall contain a MRW SUFI indicating that the first three PDUs shall be discarded, and that the data indicated in the fourth PDU by the first LI shall also be discarded.

7.2.3.29a Timer based discard, with explicit signalling / Expiry of Timer_Discard when Timer_STATUS_prohibit is active

7.2.3.29a.1 Definition

This case tests that when the transmission of an SDU exceeds a time limit, the SDU is discarded by the sender, and the discard is signalled to the receiver while the Timer_STATUS_Prohibit is active. SDU discard is used to keep network delays within limits, and incorrect operation will effect the quality of service.

This test applies to all UE.

7.2.3.29a.2 Conformance requirement

If the transmission time exceeds a predefined value for a SDU in acknowledged mode RLC, this SDU is discarded in the transmitter and a Move Receiving Window (MRW) command is sent to the receiver so that AMD PDUs carrying that SDU are discarded in the receiver and the receiver window is updated accordingly.

Upon expiry of Timer_Discard the sender shall initiate the SDU discard with explicit signalling procedure.

This status report is sent even if the 'STATUS prohibit' is used and the timer 'Timer_Status_Prohibit' is active.

The STATUS PDUs have higher priority than data PDUs.

Reference

TS 25.322 clauses 9.7.3.1, 11.3.4.3.1 and 11.6.

7.2.3.29a.3 Test purpose

1. …

2. To verify that the MRW procedure status report is sent even if the 'STATUS prohibit' is used and the timer 'Timer_Status_Prohibit' is active.

7.2.3.29a.4 Method of test

TBD

7.2.3.29a.5 Test requirements

TBD

7.2.3.30 Timer based discard, with explicit signalling / Obsolete MRW_ACK

7.2.3.30.1 Definition

This case tests the ability of the receiving AM RLC entity to handle obsolete information that can be received during a failure of the SDU discard procedure. SDU discard is used to keep network delays within limits, and incorrect operation will effect the quality of service.

7.2.3.30.2 Conformance requirement

If Timer_MRW expires before the discard procedure is terminated, the MRW SUFI shall be retransmitted, VT(MRW) is incremented by one and Timer_MRW restarted. MRW SUFI shall be exactly the same as previously transmitted even though some new SDUs would have been discarded during the running of the Timer_MRW.

The received MRW_ACK shall be discarded in the following cases.

1. …
2. If the SN_ACK field in the received MRW_ACK < SN_MRW_{LENGTH} in the transmitted MRW SUFI.
3. If the SN_ACK field in the received MRW_ACK is equal to the SN_MRW_{LENGTH} in the transmitted MRW SUFI and the N field in the received MRW_ACK is not equal to the N_{LENGTH} field in the transmitted MRW SUFI
4. If the SN_ACK field in the received MRW_ACK > SN_MRW_{LENGTH} in the transmitted MRW SUFI and the N field in the received MRW_ACK is not equal to zero.

Reference

TS 25.322 clauses 11.6.5 and 11.6.6.3.

7.2.3.30.3 Test purpose

1. To verify that the MRW SUFI is retransmitted if Timer_MRW expires before a valid MRW_ACK is received.
2. To verify that the MRW_ACK is discarded if the SN_ACK field < SN_MRW_{LENGTH}.
3. To verify that the MRW_ACK is discarded if the N field is not equal to N_{LENGTH} transmitted in the MRW SUFI.
4. To verify that the MRW_ACK is discarded if the N field is not zero and the SN_ACK field > SN_MRW_{LENGTH} in the transmitted MRW SUFI.

7.2.3.30.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Transmission RLC discard	
MaxDAT Retransmissions	
MaxDAT	40
Timer_MRW	500
MAX_MRW	4

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize – 1bytes.

Test procedure

a) The SS sends at least 2 RLC SDUs of size AM_7_PayloadSize – 1bytes.

b) The SS checks the RLC PDUs received on the uplink and responds to all poll requests with a STATUS PDU, negatively acknowledging the RLC PDU with sequence number 0, and positively acknowledging all other RLC PDUs received.

c) The SS monitors received STATUS PDUs for the presence of a MRW SUFI, noting the time it was received. This time will be recorded as T_1.

d) The SS responds to the MRW command with an MRW_ACK with the SN_ACK field set to $SN\_MRW_{LENGTH} - 1$.

e) The SS monitors received STATUS PDUs for another MRW SUFI, noting the time it was received. This time will be recorded as T_2.

f) The SS responds to the MRW command with an MRW_ACK with the SN_ACK field set to SN_MRW_{LENGTH}, and the N field set to $(N_{LENGTH} + 1)$ modulo 4.

g) The SS monitors received STATUS PDUs for another MRW SUFI, noting the time it was received. This time will be recorded as T_3.

h) The SS responds to the MRW command with an MRW_ACK with the SN_ACK field set to $SN\_MRW_{LENGTH} + 1$, and the N field set to 1.

i) The SS monitors received STATUS PDUs for another MRW SUFI.

j) The SS responds to the MRW command with a correct MRW_ACK.

k) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1
2	←		DOWNLINK RLC PDU	SDU 2
3	→		UPLINK RLC PDU	SDU 1
4	→		UPLINK RLC PDU	SDU 2 + Poll
5	←		STATUS PDU	NAK SN=0
6	→		…	SS continues to receive RLC PDU with SN=0 + Poll
7	←		...	STATUS PDU, SS continues to NAK PDU with SN=0
8	→		STATUS PDU	MRW Command: Note T_1
9	←		STATUS PDU	MRW_ACK, SN_ACK = SN_MRW_{LENGTH} – 1
10	→		STATUS PDU	MRW Command: Note T_2
11	←		STATUS PDU	MRW_ACK, N field = (N_{LENGTH} + 1) modulo 4
12	→		STATUS PDU	MRW Command: Note T_3
13	←		STATUS PDU	MRW_ACK, SN_ACK = SN_MRW_{LENGTH} + 1, N field = 1
14	→		STATUS PDU	MRW Command
15	←		STATUS PDU	MRW_ACK
16			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.30.5 Test requirements

1. The measured time $T_2 - T_1$ shall be 500 ms.
2. The measured time $T_3 - T_2$ shall be 500 ms.
3. The STATUS PDUs received in steps 8, 10, 12 and 14 shall contain an identical MRW SUFI.

7.2.3.31 Timer based discard, with explicit signalling / Failure of MRW procedure

7.2.3.31.1 Definition

This case tests that if a failure occurs during the signalling of an SDU discard to the receiver, the retransmission protocol operates correctly. SDU discard is used to keep network delays within limits, and incorrect operation will effect the quality of service.

7.2.3.31.2 Conformance requirement

If VT(MRW) = MaxMRW, the Sender shall:

- terminate the SDU discard with explicit signalling procedure;
- stop the timer Timer_MRW if it was started;

- initiate the RLC RESET procedure (see clause 11.4).

If Timer_MRW expires before the discard procedure is terminated, the Sender shall:

- increment VT(MRW) by one;
- if VT(MRW)<MaxMRW:
  - set the MRW SUFI as previously transmitted (even if additional SDUs were discarded in the mean-time);
  - include the MRW SUFI in a new status report (if other SUFIs are included, their contents shall be updated);

- transmit the status report by either including it in a STATUS PDU or piggybacked in an AMD PDU;
- restart Timer_MRW for this discard procedure;

- else (if VT(MRW) = MaxMRW):
  - perform the actions specified in subclause 11.6.4a.

Reference

TS 25.322 clause 11.6.4a, 11.6.5.

7.2.3.31.3 Test purpose

1. To verify that when the number of retransmissions of a MRW command reaches MaxMRW, an error indication is passed to RRC and RESET procedure is initiated.

7.2.3.31.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Transmission RLC discard	
Timer based with explicit signalling	
Timer_MRW	500
Timer_Discard	500
Max_MRW	4
Polling info	
Poll_PDU	2

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1with the UL SDU size set to (2 * AM_7_PayloadSize) – 1bytes.

Test procedure

a) The SS sends 4 RLC SDUs of size (2 * AM_7_PayloadSize) – 1bytes.

b) The SS checks the RLC PDUs received on the uplink and responds to all poll requests as follows: While the VR(H) is 4 or less, with a STATUS PDU, negatively acknowledging the RLC PDU with sequence number 0, and positively acknowledging all other RLC PDUs received. While the VR(H) is greater than 4, a STATUS PDU negatively acknowledging RLC PDUs with sequence numbers 0 and 4, and positively acknowledging all others.

c) The SS monitors received STATUS PDUs for the presence of an MRW SUFI, noting the time it was received. This time will be recorded as T_1.

d) The SS makes no response, but monitors for the next STATUS PDU containing an MRW SUFI, noting the time it was received. This time will be recorded as T_2.

e) The SS sends a STATUS PDU with an MRW_ACK indicating the discard of SDU 1 moving VR(R) to 4.

f) The SS monitors for further STATUS PDUs containing an MRW SUFI, or for a RESET PDU. The SS records the number of STATUS PDUs it received with MRW SUFI before it received the RESET PDU.

g) The SS checks any RLC SDUs reassembled from the uplink.

h) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 2
4	←		…	SS continues to send RLC PDUs
5	←		DOWNLINK RLC PDU	SDU 4
6	→		UPLINK RLC PDU	SDU 1
7	→		…	SS continues to receive RLC PDUs
8	→		UPLINK RLC PDU	Poll
9	←		STATUS PDU	NAK SN=0
10	→		…	SS continues to receive RLC PDUs
11	→		UPLINK RLC PDU	Poll
12	←		STATUS PDU	NAK SN=0, 4
13	→		…	SS continues to receive RLC PDUs
14	→		STATUS PDU	MRW Command: Note T_1
15	→		STATUS PDU	MRW Command: Note T_2
16	←		STATUS PDU	MRW_ACK indicating VR(R) = 4
17	→		STATUS PDU	MRW Command, discard SDU 3
18	→		STATUS PDU	MRW Command
19	→		STATUS PDU	MRW Command
20	→		STATUS PDU	MRW Command
21	→		RESET PDU	
22	←		RESET ACK PDU	
23			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.31.5 Test requirements

The measured time $T_2 - T_1$ shall be 500 ms.

After step 17, the SS shall detect 3 repeats of the MRW command sent in step 17 before a RESET PDU is sent.

7.2.3.32 SDU discard after MaxDAT-1 number of transmissions

7.2.3.32.1 Definition

This case tests that if a PDU is unsuccessfully transmitted MaxDAT-1 times, the SDU it carries, and therefore all other associated PDUs, are discarded by the transmitter and receiver. This mode of SDU discard is used to minimize data loss, and incorrect operation will effect the quality of service.

7.2.3.32.2 Conformance requirement

1. There shall be one VT(DAT) for each PDU and each shall be incremented every time the corresponding AMD PDU is scheduled to be transmitted. The initial value of this variable is 0.

2. If the number of times an AMD PDU is scheduled for transmission reaches MaxDAT, the Sender shall:

   - discard all SDUs segments of which are contained in the AMD PDU; and

   - utilise explicit signalling to inform the Receiver according to clause 11.6.

3. If VT(DAT) = MaxDAT, the Sender shall:

   - if "No_discard after MaxDAT number of transmissions" is configured:

     ….

   - if "SDU discard after MaxDAT number of transmissions" is configured:

     - initiate the "SDU discard with explicit signalling" procedure for the corresponding SDU, see subclause 11.6.

4. Upon initiation of the SDU discard with explicit signalling procedure, the Sender shall:

   …..

   - if "SDU discard after MaxDAT number of transmissions" is configured:

     - discard all SDUs that have segments in AMD PDUs with "Sequence Number" SN inside the interval VT(A) ≤ SN ≤ X, where X is the value of the "Sequence Number" of the AMD PDU with VT(DAT) ≥ MaxDAT.

   - discard all AMD PDUs including segments of the discarded SDUs, unless they also carry a segment of a SDU whose timer has not expired;

   - if more than 15 discarded SDUs are to be informed to the Receiver (see subclause 11.6.2.2):

     ….

   - otherwise (less than or equal to 15 discarded SDUs are to be informed to the Receiver):

     - assemble an MRW SUFI with the discard information of the SDUs.

   - schedule and submit to lower layer a STATUS PDU/piggybacked STATUS PDU containing the MRW SUFI;

   ….

Reference

TS 25.322 clauses 9.4, 9.7.3.3, 11.3.3a and 11.6.

7.2.3.32.3 Test purpose

1. To verify that if VT(DAT) = MaxDAT for any PDU the sender initiates the SDU discard with explicit signalling procedure.

7.2.3.32.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to (2 * AM_7_PayloadSize) – 1 bytes.

Test procedure

a) The SS sends 2 RLC SDUs of size (2 * AM_7_PayloadSize) – 1 bytes.

b) The SS checks the RLC PDUs received on the uplink and responds to all poll requests with a STATUS PDU negatively acknowledging the RLC PDU with sequence number 0, and positively acknowledging all other RLC PDUs received.

c) The SS monitors received STATUS PDUs for the presence of an MRW SUFI.

d) The SS responds with a STATUS PDU containing a valid MRW_ACK SUFI.

e) The SS checks any RLC SDUs reassembled from the uplink.

f) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		←	DOWNLINK RLC PDU	SDU 1
2		←	DOWNLINK RLC PDU	SDU 1
3		←	DOWNLINK RLC PDU	SDU 2
4		←	DOWNLINK RLC PDU	SDU 2
5		→	UPLINK RLC PDU	SDU 1
6		→	…	SS continues to receive RLC PDUs
7		→	UPLINK RLC PDU	SDU 2, Poll
8		←	STATUS PDU	NAK SN=0
9		→	UPLINK RLC PDU	Retransmit SN=0, Poll
10		←	STATUS PDU	NAK SN=0
11		→	UPLINK RLC PDU	Retransmit SN=0, Poll
12		←	STATUS PDU	NAK SN=0
13			Void	
14			Void	
15		→	STATUS PDU	MRW Command
16		←	STATUS PDU	MRW_ACK
17			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.32.5 Test requirements

The uplink RLC PDU with sequence number 0 shall be retransmitted twice, then the SS shall detect a STATUS PDU with an MRW command.

7.2.3.33 Operation of the RLC Reset procedure / UE Originated

7.2.3.33.1 Definition

This case tests that when the maximum number of retransmissions is exceeded, the UE initiates and performs the RLC Reset procedure. Incorrect operation of this procedure may cause loss of service.

7.2.3.33.2 Conformance requirement

The Sender shall:

- if one of the following triggers is detected:

1) "No_Discard after MaxDAT number of transmissions" is configured and VT(DAT) equals the value MaxDAT (see TS 25.322 subclause 9.7.3.4);

…

- stop transmitting any AMD PDU or STATUS PDU;
- increment VT(RST) by 1;
- if VT(RST) = MaxRST:

- the Sender may submit to the lower layer a RESET PDU;
- perform the actions specified in TS 25.322 subclause 11.4.4a.

- else (if VT(RST) < MaxRST):
  - submit a RESET PDU to the lower layer;
  - start the timer Timer_RST.

NOTE: If the TFC selection exchange has been initiated by sending the RLC Entity Info parameter to MAC, the RLC entity may delay the RLC reset procedure until the end of the next TTI.

When a reset procedure has been initiated it can only be ended upon reception of a RESET ACK PDU with the same RSN value as in the corresponding RESET PDU, or upon request of re-establishment or release from upper layer, a reset procedure is not interrupted by the reception of a RESET PDU from the peer entity.

[...]

The Sender shall:

- set the HFNI field to the currently highest used HFN (DL HFN when the RESET PDU is sent by UTRAN or UL HFN when the RESET PDU is sent by the UE);
- set the RSN field to the sequence number of the RESET PDU. The sequence number of the first RESET PDU after the AM entity is established or re-established shall be "0". This sequence number is incremented every time a new RESET PDU is transmitted, but not when a RESET PDU is retransmitted.

[...]

Upon reception of a RESET ACK PDU, the Sender shall:

- if the Sender has already transmitted a RESET PDU which has not been yet acknowledged by a RESET ACK PDU:
  - if the received RSN value is the same as the one in the corresponding RESET PDU:
    - set the HFN value (DL HFN when the RESET ACK PDU is received in UE or UL HFN when the RESET ACK PDU is received in UTRAN) to the HFNI field of the received RESET ACK PDU;
    - reset the state variables described in subclause 9.4 to their initial values;
    - stop all the timers described in subclause 9.5;
    - reset configurable parameters to their configured values;
    - discard all RLC PDUs in the receiving side of the AM RLC entity;
    - discard all RLC SDUs that were transmitted before the reset in the transmitting side of the AM RLC entity;
    - increase with one the UL HFN and DL HFN, and the updated HFN values shall be used for the first transmitted and received AMD PDUs after the reset procedure;
  - otherwise (if the received RSN value is not the same as the one in the corresponding RESET PDU):
    - discard the RESET ACK PDU;
- otherwise (if the Sender has not transmitted a RESET PDU which has not been yet acknowledged by a RESET ACK PDU):
  - discard the RESET ACK PDU.

NOTE: If the TFC selection exchange has been initiated by sending the RLC Entity Info parameter to MAC, the RLC entity may delay the RLC SDUs discard in the transmitting side until the end of the next TTI.

[...]

If Timer_RST expires before the reset procedure is terminated, the Sender shall:

- increment VT(RST) by one;
- if VT(RST)<MaxRST:
  - set the RESET PDU as previously transmitted (even if additional SDUs were discarded in the mean-time);
  - transmit RESET PDU;
  - restart Timer_RST.

Reference

TS 25.322 clause 11.4.2, 11.4.2.1, 11.4.4, 11.4.5.1.

7.2.3.33.3 Test purpose

1. To verify that the Reset procedure is initiated when the maximum number of retransmissions has been exceeded (Reset trigger condition 1) in subclause 11.4.2 of 3GPP TS 25.322 (R1999).
2. To verify that the sender resets state variables to their initial value and resets configurable parameters to their configured value.
3. To verify that RSN is updated correctly.
4. To verify operation of Timer_RST.

7.2.3.33.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC Transmission RLC discard No discard Max_DAT	 4

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to (2 * AM_7_PayloadSize) – 1 bytes.

Test procedure

a) The SS sends 2 RLC SDUs of size (2 * AM_7_PayloadSize) – 1 bytes.

b) The SS checks the RLC PDUs received on the uplink and responds to all poll requests with a STATUS PDU negatively acknowledging the RLC PDU with sequence number 0, and positively acknowledging all other RLC PDUs received.

c) The SS notes the time that the RESET PDU is received. This time will be recorded as T_1. The SS notes the value of the RSN bit.

d) The SS makes no response, and notes the time that the next RESET PDU is received. This time will be recorded as T_2. The SS notes the value of the RSN bit.

e) The SS sends a RESET ACK PDU with the RSN bit set to the same value as received in the RESET PDU received in step d).

f) The SS sends an RLC SDU of size (2 * AM_7_PayloadSize) – 1bytes. The data contents of this RLC SDU shall be different from the contents of the RLC SDUs sent in procedure step a) above.

g) The SS checks the RLC PDUs received on the uplink and responds to all poll requests with a STATUS PDU negatively acknowledging the RLC PDU with sequence number 0, and positively acknowledging all other RLC PDUs received.

h) The SS notes the value of the RSN bit of the RESET PDU received.

i) The SS sends a RESET ACK PDU with the RSN bit set to the value received in the RESET PDU in step c (the incorrect value).

j) The SS waits to receive another RESET PDU and checks the RSN bit.

k) The SS sends a RESET ACK PDU with the correct RSN bit.

l) The SS checks any RLC SDU received on the uplink.

m) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 2
4	←		DOWNLINK RLC PDU	SDU 2
5	→		UPLINK RLC PDU	SDU 1
6	→		…	SS continues to receive RLC PDUs
7	→		UPLINK RLC PDU	SDU, Poll The Poll may appear in returned PDU for either SDU 1 or 2
8	←		STATUS PDU	NAK SN=0
9	→		UPLINK RLC PDU	Retransmit PDU SN=0, Poll
10	←		STATUS PDU	NAK SN=0
11	→		UPLINK RLC PDU	Retransmit PDU SN=0, Poll
12	←		STATUS PDU	NAK SN=0
13			Void	
14			Void	
15	→		RESET PDU	Note T_1
16	→		RESET PDU	Note T_2, check RSN
17	←		RESET ACK PDU	
18	←		DOWNLINK RLC PDU	SDU 3
19	←		DOWNLINK RLC PDU	SDU 3
20	→		UPLINK RLC PDU	SDU 3, check PDU has SN=0
21	→		UPLINK RLC PDU	SDU 3, Poll
22	←		STATUS PDU	NAK SN=0
23	→		UPLINK RLC PDU	Retransmit SN=0, Poll
24	←		STATUS PDU	NAK SN=0
25	→		UPLINK RLC PDU	Retransmit SN=0, Poll
26	←		STATUS PDU	NAK SN=0
27			Void	
28			Void	
29	→		RESET PDU	Check RSN
30	←		RESET ACK PDU	RSN = 0
31	→		RESET PDU	Check RSN
32	←		RESET ACK PDU	RSN = 1
33			RB RELEASE	Optional step

NOTE: The Expected Sequence shown is informative.
The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.
Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.

7.2.3.33.5 Test requirements

1. The measured time $T_2 - T_1$ shall be 500 ms.
2. In steps 20 to 21 the SS shall receive an RLC SDU with contents that match the third RLC SDU sent to the UE. The first RLC PDU containing that SDU shall have sequence number 0.
3. The RSN bit of the first and second RESET PDUs received shall be set to 0. The RSN bit of the third and fourth RESET PDU shall be set to 1.

7.2.3.34 Operation of the RLC Reset procedure / UE Terminated

7.2.3.34.1 Definition

This case tests that the UE responds correctly to the RLC Reset procedure initiated by the network. Incorrect operation of this procedure may cause loss of service.

7.2.3.34.2 Conformance requirement

Upon reception of a RESET PDU the Receiver shall:

- if the RSN value in the RESET PDU is the same as the RSN value in the last received RESET PDU:
  - either only submit a RESET ACK PDU to the lower layer with the contents set exactly as in the last transmitted RESET ACK PDU (i.e., in this case the RLC entity is not reset); or
  - perform the actions specified below as if the RSN value was different from the RSN value in the last received RESET PDU.
- otherwise, if the RESET PDU is the first RESET PDU received since the entity was (re-)established or the RSN value is different from the RSN value in the last received RESET PDU:
  - submit a RESET ACK PDU to the lower layer with the content set as specified in subclause 11.4.3.1;
  - reset the state variables described in subclause 9.4 except VT(RST) to their initial values;
  - stop all the timers described in subclause 9.5 except Timer_RST;
  - reset configurable parameters to their configured values;
  - discard all RLC PDUs in the receiving side of the AM RLC entity;
  - discard all RLC SDUs that were transmitted before the reset in the transmitting side of the AM RLC entity;
  - set the HFN (DL HFN when the RESET PDU is received in UE or UL HFN when the RESET PDU is received in UTRAN) equal to the HFNI field in the received RESET PDU;
  - increase with one the UL HFN and DL HFN, and the updated HFN values shall be used for the first transmitted and received AMD PDUs after the reset procedure.

NOTE: If the TFC selection exchange has been initiated by sending the RLC Entity Info parameter to MAC, the RLC entity may delay the RLC SDUs discard in the transmitting side of the AM RLC entity until the end of the next TTI.

Reference

TS 25.322 clause 11.4.3.

7.2.3.34.3 Test purpose

1. To verify that upon reception of a RESET PDU the receiver responds with a RESET ACK PDU.
2. To verify that the receiver resets its state variables to their initial value and resets configurable parameters to their configured value.

7.2.3.34.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC Transmission RLC discard No discard MaxDAT	 4

These settings apply to both the uplink and downlink DTCH.

Test procedure

a) The SS sends 2 RLC SDUs of size (2 * AM_7_PayloadSize) – 1 bytes, and polls on the last PDU sent.

b) The SS checks the STATUS PDUs received on the uplink until both SDUs have been acknowledged.

c) The SS transmits a RESET PDU.

d) The SS monitors the uplink for a RESET ACK PDU.

e) The SS sends an RLC SDU of size (2 * AM_7_PayloadSize) – 1 bytes, and polls on the last PDU sent.

f) The SS checks for STATUS PDUs received on the uplink until the SDU has been acknowledged.

g) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		←	DOWNLINK RLC PDU	SDU 1
2		←	DOWNLINK RLC PDU	SDU 1
3		←	DOWNLINK RLC PDU	SDU 2
4		←	DOWNLINK RLC PDU	SDU 2, poll
5		→	STATUS PDU	ACK SN=0, 1, 2 and 3
6		←	RESET PDU	
7		→	RESET ACK PDU	
8		←	DOWNLINK RLC PDU	SDU 3
9		←	DOWNLINK RLC PDU	SDU 3, poll
10		→	STATUS PDU	ACK SN=0 and 1
11			RB RELEASE	Optional step
NOTE: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.34.5 Test requirements

1. The SS shall receive a RESET ACK PDU in step 7.

2. The SS shall receive a STATUS PDU in step 10 acknowledging for the third RLC SDU transmitted with PDUs starting at SN=0.

7.2.3.35 Reconfiguration of RLC parameters by upper layers

7.2.3.35.1 Definition

This case verifies the UE behaviour after a reconfiguration of RLC parameters on an established RLC AM entity.

7.2.3.35.2 Conformance requirement

Upon reception of the IE "RLC Info", the UE shall:

1> configure the transmitting and receiving RLC entities in the UE for that radio bearer accordingly;

1> if the IE "Polling info" is present in the IE "RLC info":

2> for each present IE in the IE "Polling info":

3> configure RLC to use the corresponding function according to the value of the IE.

2> for each absent IE in the IE "Polling info":

3> configure RLC to not use the corresponding function.

1> if the IE "Polling info" is absent:

2> configure RLC to not use the polling functionality.

1> if the IE "Downlink RLC STATUS info" is present in the IE "RLC info" (this IE is present for AM RLC):

2> for each present IE in the IE "Downlink RLC STATUS info":

3> configure RLC to use the corresponding function according to value of the IE.

a) Timer_Poll.

This timer shall only be used when so configured by upper layers. The value of the timer is signalled by upper layers. In the UE this timer shall be started when the successful or unsuccessful transmission of an AMD PDU containing a poll is indicated by lower layer.

f) Timer_Status_Prohibit.

This timer shall only be used when so configured by upper layers. It is meant to prohibit the Receiver from sending consecutive acknowledgement status reports. A status report is an acknowledgement status report if it contains any of the SUFIs LIST, BITMAP, RLIST or ACK. The value of the timer is signalled by upper layers.

In the UE, this timer shall be started when the successful or unsuccessful transmission of the last STATUS PDU of an acknowledgement status report is indicated by lower layer.

Reference

TS 25.331 clause 8.6.4.9, 25.322 clause 9.5.

7.2.3.35.3 Test purpose

To verify that the UE starts to use the new set of RLC parameters when an already established AM RLC radio bearer is reconfigured.

7.2.3.35.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to (AM_7_PayloadSize) - 1 bytes.

Test procedure

a) After establishing the radio bearer with default settings, SS reconfigures RLC parameters for an AM RLC entity by sending a RADIO BEARER RECONFIGURATION RRC message to the UE.

b) Let T_{poll} be the value of the Timer_Poll_Periodic timer, T_{pro} the value of the Timer_Status_Prohibit timer, and T_{per} the value of the Timer_Status_Periodic timer.

c) The SS transmits at least 2 * T_{poll} / TTI SDUs of size AM_7_PayloadSize - 1 bytes.

d) Whilst transmitting, the SS monitors the uplink for a STATUS PDU and notes the time. This time will be recorded as T_1.

e) The SS sets the P bit in one of the next floor(T_{pro}/TTI) PDUs transmitted on the downlink.

f) The SS waits to receive a second STATUS PDU and notes the time. This time will be recorded as T_2.

g) The SS receives PDUs from the UE, and notes the time on receiving the first PDU with the P bit set, but does not respond. This time will be recorded as T_3.

h) The SS continues to receive PDUs from the UE and notes the time on receipt of the next PDU with the P bit set. This time will be recorded as T_4.

i) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	RRC
2	→		RADIO BEARER RECONFIGURATION COMPLETE	RRC
3	←		DOWNLINK RLC PDU	SDU 1
4				
	←		…	SS continues to transmit RLC SDUs
5	←		DOWNLINK RLC PDU	SDU m
6	→		STATUS PDU	Note T_1
7	←		DOWNLINK RLC PDU	Poll
8	←		…	SS continues to transmit RLC PDUs
9	←		DOWNLINK RLC PDU	SDU m + ceil(T_{pro} / TTI)
10	→		STATUS PDU	Note T_2
11	←		DOWNLINK RLC PDU	SDU ceil($2T_{poll}$/TTI)
12	→		UPLINK RLC PDU	SDU 1
13	→		UPLINK RLC PDU	SDU 2
14	→		…	SS continues to receive RLC PDUs
15	→		UPLINK RLC PDU	SN = ceil(T_{poll}/TTI), First Poll: Note T_3
16	→		UPLINK RLC PDU	SN = ceil(T_{poll}/TTI)+1
17	→		…	SS continues to receive RLC PDUs
18	→		UPLINK RLC PDU	Second Poll: Note T_4
18a	←		STATUS PDU	
18b	→		…	SS continues to receive PDUs, acknowledging with STATUS PDUs when polled until all PDUs have been received and acknowledged
19			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is informative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

Specific message contents

RADIO BEARER RECONFIGURATION (step 1)

The default RADIO BEARER RECONFIGURATION message as defined in TS 34.108 is used, except for the following:

RB information to reconfigure list	
- RB information to reconfigure	
- RB identity	Referring to the radio bearer defined for AM 7-bit "Length Indicator" tests in clause 7.2.3.1.
- Downlink RLC Info	
- Timer_Status_Prohibit	500
- Timer_STATUS_periodic	200
- Uplink RLC Info	
- Polling info	
- Last retransmission PDU poll	FALSE
- Last transmission PDU poll	FALSE
- Timer_poll	600
- Timer_Poll_Periodic	1000

7.2.3.35.5 Test requirements

The measured time $T_2 - T_1$ shall be 500 ms.

The measured time $T_4 - T_3$ shall be 600 ms.

7.2.3.36 Flexible handling of RLC PDU sizes for AM RLC

7.2.3.36.1 Definition

When flexible “RLC PDU size” is configured in downlink, RLC SDUs are segmented if the SDU is larger than the maximum RLC PDU size. Concatenation may be performed up to the maximum RLC PDU size. If flexible RLC PDU size is configured, the downlink AMD PDU size is variable up to the maximum RLC PDU size.

7.2.3.36.2 Conformance requirement

Unless the "Extension bit" indicates that a UMD PDU contains a complete SDU which is not segmented, concatenated or padded, or the HE field indicates that an AMD PDU contains the last octet of the RLC SDU, a "Length Indicator" is used to indicate the last octet of each RLC SDU ending within the PDU

[…]

This two-bit [Header extension type (HE)] field indicates if the next octet is data or a "Length Indicator" and E bit.

Value	Description
00	The succeeding octet contains data
01	The succeeding octet contains a length indicator and E bit
10	If “Use special value of the HE field” is configured, the succeeding octet contains data and the last octet of the PDU is the last octet of an SDU. Otherwise, this coding is reserved (PDUs with this coding will be discarded by this version of the protocol).
11	Reserved (PDUs with this coding will be discarded by this version of the protocol).

[…]

if "flexible RLC PDU size" has been configured (only applicable for UTRAN in downlink):

- segment, and if possible concatenate the RLC SDUs into AMD PDUs with a size not larger than the maximum RLC PDU size.

- set a "Length Indicator" field for each SDU that ends in the AMD PDU according to subclause 9.2.2.8, except for the SDUs where the end of the SDU has been indicated by the HE field according to subclause 9.2.2.7;

[…]

Upon reception of an AMD PDU, the Receiver shall:

[…]

- reassemble the received AMD PDUs into RLC SDUs;

- if "In-Sequence Delivery" is configured:

- deliver the RLC SDUs in-sequence (i.e. in the same order as the RLC SDUs were originally transmitted by the peer entity) to upper layers through the AM-SAP

Reference(s)

TS 25.322 clauses 9.2.2.8, 11.3.2 and 11.3.3.

7.2.3.36.3 Test purpose

1. To test that a large SDU is correctly received for varying RLC PDU sizes up to the maximum RLC PDU size
2. To test that a segmented is SDU reassembled correctly and delivered to higher layers

7.2.3.36.4 Method of test

Initial conditions

No specific as included in the test procedure (steps a and b) for each test execution

Downlink length indicators of size 15 shall be used

Test procedure

Table 7.2.3.36.4.1 Max_RLC_PDU_size values for different test executions

Test execution	1	2	3
Max_RLC_PDU_size [octets]	90	300	1500

Let Max_RLC_PDU_size be equal to the value for execution 1 in table 7.2.3.36.4.1.

a) The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Bearer is replaced with the RB according to 34.108 clause 6.10.2.4.5.1 (Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH) configured according to alt3 (Flexible RLC + MAC-ehs) .

b) The radio bearer is placed into UE test loop mode 1 and configured to return UL RLC SDUs of the same size as received in DL.

c) The SS transmits two RLC SDUs of size 40 octets. The SDUs are sent in two separate RLC PDUs. The SS sets the HE field to “10”. No length indicators are used.

d) The SS checks the length and content of the received RLC SDUs

e) The SS transmits two RLC SDUs of size 80 octets. The SDUs are segmented and/or concatenated into successive RLC PDUs where no RLC PDU is larger than Max_RLC_PDU_size. A length indicator is used to indicate the end of each SDU.

f) The SS checks the length and content of the received RLC SDUs

g) The SS transmits two RLC SDUs of size 320 octets. The SDUs are segmented into successive RLC PDUs where no RLC PDU is larger than Max_RLC_PDU_size. In the RLC PDU containing the last data octet of an RLC SDU the SS sets the HE field to “10”.

h) The SS checks the length and content of the received RLC SDUs

i) For test execution 1 skip steps j) and k). See Note 1

j) The SS transmits two RLC SDUs of size 1500 octets. The SDUs are segmented into successive RLC PDUs where no RLC PDU is larger than Max_RLC_PDU_size. In the RLC PDU containing the last data octet of an RLC SDU the SS sets the HE field to “10”.

k) The SS checks the length and content of the received RLC SDUs

l) The SS opens the UE test loop and release the radio bearer.

m) Repeat steps a) to k) for the different values of Max_RLC_PDU_size parameter according to table 7.2.3.36.4.1 (test execution 2 and 3).

NOTE 1 The test steps using RLC SDU size of 1500 octets is skipped for test execution 1 as the maximum number of reordering SDUs per TTI (26) would otherwise have been exceeded.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures,
2			Close UE test loop	
3	←		DOWNLINK RLC PDUs (SDU1, SDU2)	DL RLC SDU size = 40 Octets The number of RLC PDUs depends on the test run. All PDUs are transmitted in the same TTI. NOTE 2.
4	→		UPLINK RLC PDUs (SDU1, SDU2)	The SS checks length and content of received RLC SDUs. The number of received RLC PDUs depends on the test run
5	←		DOWNLINK RLC PDUs (SDU1, SDU2)	DL RLC SDU size = 80 Octets The number of RLC PDUs depends on the test run. All PDUs are transmitted in the same TTI. NOTE 2.
6	→		UPLINK RLC PDUs (SDU1, SDU2)	The SS checks length and content of received RLC SDUs. The number of received RLC PDUs depends on the test run
7	←		DOWNLINK RLC PDUs (SDU1, SDU2)	DL RLC SDU size = 320 Octets The number of RLC PDUs depends on the test run. All PDUs are transmitted in the same TTI. NOTE 2.
8	→		UPLINK RLC PDUs (SDU1, SDU2)	The SS checks length and content of received RLC SDUs. The number of received RLC PDUs depends on the test run
9				For test execution 1 skip steps 10 and 11
10	←		DOWNLINK RLC PDUs (SDU1, SDU2)	DL RLC SDU size = 1500 Octets The number of RLC PDUs depends on the test run. All PDUs are transmitted in the same TTI. NOTE 2.
11	→		UPLINK RLC PDUs (SDU1, SDU2)	The SS checks length and content of received RLC SDUs. The number of received RLC PDUs depends on the test run
12			Open UE test loop	
13			RB RELEASE	
14				Repeat steps 1 to 13 for test execution 2 and 3

NOTE 1: The Expected Sequence shown is informative. The number of transmitted RLC PDUs in downlink and uplink varies with the test run. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.

NOTE 2: Depending upon the UE category and the number of bits of an HS-DSCH transport block to be transmitted more than one TTI may be required. This will be done respecting table 5.1a of 3GPP TS 25.306. The HS-DSCH TB table size as provided in the bit aligned table of 3GPP TS 25.321 Annex A will be used.

7.2.3.36.5 Test requirements

For each execution of the test procedure:

1. In steps 4, the UE shall return two RLC SDUs with the same size and content as the transmitted SDUs
2. In steps 6, the UE shall return two RLC SDUs with the same size and content as the transmitted SDUs
3. In steps 8, the UE shall return two RLC SDUs with the same size and content as the transmitted SDUs
4. For test execution 2 and 3: In steps 11, the UE shall return two RLC SDUs with the same size and content as the transmitted SDUs

7.2.3.37 RLC PDU Size Adaptation in Uplink

7.2.3.37.1 Definition and applicability

Applicable for all UEs supporting MAC-i/is.

7.2.3.37.2 Conformance Requirement

[..]

For the Unacknowledged mode data and Acknowledged mode data, if MAC-i/is has been configured on the uplink:

- if the UE pre-generates RLC PDUs for transmission in a later TTI:
  - provided that the UE has sufficient amount of data available for transmission, the size of the data field of the RLC PDU shall be chosen so that each RLC PDU to be multiplexed to the MAC-i/is PDU matches the maximum amount of data allowed to be transmitted by the applicable current grant (scheduled or non-scheduled) for the current TTI.
  - RLC PDUs may only be pre-generated if the amount of data in outstanding pre-generated RLC PDUs for this logical channel is less than or equal to four times the maximum amount of data allowed to be transmitted by the applicable current grant (scheduled or non-scheduled) for the current TTI.
- else:
  - the size of the data field of the RLC PDU shall be chosen so that the RLC PDU size matches the data requested for this logical channel by the current E-TFC selection.

[..]

Reference(s)

TS 25.322 clause 9.2.2.9

7.2.3.37.3 Test purpose

1. To verify that the UE adapts the RLC PDU size according to the current radio conditions and current grant.

7.2.3.37.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off

User Equipment:

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Bearer is replaced with the RB according to 34.108 clause 6.10.2.4.6.1 configured according to Alt 3 (Flexible RLC + MAC-i/is).

Logical Channel ID	MAC-d flow (UL)	Priority	Comment
7(LCH 1)	1	1	RB25

The UE is placed into UE test loop mode 1 with the UL SDU size for LCH 1 set to (1500-2) octets.

Test procedure

The UE is configured with one logical channel LCH 1 mapped to MAC-d flow 1.

a) The SS has not issued a scheduled grant for E-DCH on MAC-d flow 1 (LCH 1)

b) The SS transmits 1 SDU of size 1498 bytes on LCH 1

c) The SS waits for an SI to be received indicating that there is data available on LCH 1.

d) The SS issues an absolute grant with signalling value 5.

e) The SS receives data from LCH 1 and checks that the RLC PDU size is maximum possible for the grant allowed.

f) After receiving 4 RLC PDUs, the SS reduces the absolute grant to signalling value of 4.

g) The SS counts the number of received RLC PDUs on LCH1 which are of the maximum possible size for the previous grant (5). This number should be less than or equal to 5.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		1 RLC SDU on LCH 1	SDU size is 1498 bytes
2	→		SI indicating data on LCH 1	
3	←		Absolute grant allowing the UE to transmit on LCH 1	Signalling value 5
4	→		RLC PDU on LCH 1	
5	←		Reduces the absolute grant allowing the UE to transmit on LCH 1	Signalling Value 4
6	→		RLC PDUs on LCH 1	
7	←		Removal of absolute grant	Signalling value 1

Specific Message Contents

None

7.2.3.37.5 Test requirements

1. In step 4, the SS shall receive RLC PDUs of the maximum possible size for the absolute grant (value 5) allowed.

2. In step 6, the SS shall receive between 0 and 5 RLC PDUs on LCH1 of the maximum possible size for the previous grant (5) allowed. All other RLC PDUs shall be of the maximum possible size for the current absolute grant (value 4) allowed.

7.2.3.38 Flexible handling of RLC PDU sizes for AM RLC in uplink

7.2.3.38.1 Definition

If flexible RLC PDU size is configured in uplink, RLC SDUs are segmented and/or concatenated to create RLC PDUs larger than or equal to the Minimum UL RLC PDU size and smaller than or equal to the largest UL AMD PDU size. If data to be transmitted is not enough to create an AMD PDU of the minimum size, it is allowed to create an AMD PDU including all data to be transmitted, even if the resulting size is smaller than the Minimum UL RLC PDU size. For each transmission the RLC entity constructs an RLC PDU with a size that matches the size indicated by the MAC layer

7.2.3.38.2 Conformance requirement

- if "Flexible RLC PDU size" is configured:

[…]

  - in uplink, the last segment of an RLC SDU shall be concatenated with the first segment of the next RLC SDU in order to fill the data field at least up to the Minimum UL RLC PDU size. It is allowed to concatenate up to the largest UL AMD PDU size for Acknowledged mode data and largest UMD PDU size for Unacknowledged mode data. The "Length Indicator" field is used to point the borders between RLC SDUs (see subclause 9.2.2.8).

- in uplink, if MAC-i/is has been configured:

- if the UE pre-generates RLC PDUs for transmission in a later TTI:
  - provided that the UE has sufficient amount of data available for transmission, the size of the data field of the RLC PDU shall be chosen so that each RLC PDU to be multiplexed to the MAC-i/is PDU matches the maximum amount of data allowed to be transmitted by the applicable current grant (scheduled or non-scheduled) for the current TTI.
  - RLC PDUs may only be pre-generated if the amount of data in outstanding pre-generated RLC PDUs for this logical channel is less than or equal to four times the maximum amount of data allowed to be transmitted by the applicable current grant (scheduled or non-scheduled) for the current TTI.
- else:
  - the size of the data field of the RLC PDU shall be chosen so that the RLC PDU size matches the data requested for this logical channel by the current E-TFC selection.

[…]

  - if "flexible RLC PDU size" has been configured:

- the last segment of an RLC SDU shall be concatenated with the first segment of the next RLC SDU in order to fill the data field at least up to the Minimum UL RLC PDU size. If data to be transmitted is not enough to create an AMD PDU of the minimum size, it is allowed to create an AMD PDU including all data to be transmitted, even if the resulting size is smaller than the Minimum UL RLC PDU size.

Reference(s)

TS 25.322 clauses 4.2.1.3.1, 9.2.2.9 and 11.3.2.

7.2.3.38.3 Test purpose

1. To test that SDUs are correctly concatenated/segmented into RLC PDUs not smaller than “Minimum UL RLC PDU size” (unless there is no other data in the buffer) and not larger than “Largest UL RLC PDU size”

7.2.3.38.4 Method of test

Initial conditions

The following parameters are specific for this test case:

Parameter	Value
Minimum UL RLC PDU size	320 bit
Largest UL RLC PDU size	640 bit

a) The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Bearer is replaced with the RB according to 34.108 clause 6.10.2.4.6.1 configured according to Alt 3 (Flexible RLC + MAC-i/is) with MAC-d flow#1 configured for scheduled transmissions.

b) The radio bearer is placed into UE test loop mode 1 and configured to return UL RLC SDUs of size 80 octets

c) The SS has not issued any grant to the UE for E-DCH.

d) The SS transmits 4 RLC SDUs of size 80 octets. RLC PDUs are created by adding an AMD header (the SDUs are not segmented or concatenated). In each RLC PDU the HE field is set to “10”.

e) The SS waits for a SI to be received.

f) The SS issues an absolute grant correspondent to a Maximum allowed RLC PDU size below the configured “Minimum UL RLCPDU size” (signalling value 3). See note 1.

g) The SS checks the content of the received RLC SDUs, the size of the AMD PDUs.

h) The SS removes the scheduling grant for the UE.

i) The SS transmits 4 RLC SDUs of size 80 octets. RLC PDUs are created by adding an AMD header (the SDUs are not segmented or concatenated). In each RLC PDU the HE field is set to "10"

j) The SS issues an absolute grant correspondent to a Maximum allowed RLC PDU size above the "Largest UL RLC PDU size" (signalling value 5) See note 2.

k) The SS checks the content of the received RLC SDUs and the size of the AMD PDUs.

l) The SS opens the UE test loop and releases the radio bearer.

NOTE 1: Signalled absolute grant of 3 enable the UE to transmit a maximum MAC-i PDU size of 235 bits (10ms TTI, Reference E-TFCI=11 Signalled power offset=4), which is less than the configured "Minimum UL RLC PDU size" of 320 bits.

NOTE 2: Signalled absolute grant of 5 enable the UE to transmit a maximum MAC-i PDU size of 752 bits (10ms TTI, Reference E-TFCI=11 Signalled power offset=4), which is larger than the configured "Largest UL RLC PDU size" of 640 bits.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures,
2			Close UE test loop	
3	←		DOWNLINK RLC PDU (SDUs)	SN=0,1,2,3, RLC SDU size = 80 Octets.
4	→		SI indicating data	
5	←		Absolute grant	Grant value 3.
6	→		UPLINK RLC PDU (SDUs)	The SS checks the content of received RLC SDUs and the size of the AMD PDUs.
7	←		Absolute grant	Grant value 1, removal of SG.
8	←		DOWNLINK RLC PDU (SDUs)	SN=4,5,6,7, RLC SDU size = 80 Octets.
9	→		SI indicating data	
10	←		Absolute grant	Grant value 5.
11	→		UPLINK RLC PDU (SDUs)	The SS checks the content of received RLC SDUs and the size of the AMD PDUs.
12			Open UE test loop	
13			RB RELEASE	
Note 1: The Expected Sequence shown is informative. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.38.5 Test requirements

For each execution of the test procedure:

1. In step 6, the UE shall return 4 RLC SDUs with the same content as the transmitted SDUs. The size of all AMD PDUs, except the final AMD PDU, shall be equal to "Minimum UL RLC PDU size". The size of the last AMD PDU can be less than or equal to the "Minimum UL RLC PDU size".

2. In step 11, the UE shall return 4 RLC SDUs with the same content as the transmitted SDUs. The size of all AMD PDUs shall be less than or equal to "Largest UL RLC PDU size".

7.2.4 MBMS

7.2.4.1 Void

7.2.4.2 MTCH duplicate avoidance and reordering / MBMS Broadcast Service

7.2.4.2.1 Definition

This test is applicable for Rel-6 UEs supporting MBMS broadcast services.

7.2.4.2.2 Conformance requirement

The receiving UM-RLC entity receives UMD PDUs through the configured logical channels from the lower layer. When duplicate avoidance and reordering is configured there may be one or more than one input from the lower layer. Inputs can be added or removed without changing the buffer contents, state variables or timers within the receiving UM RLC entity. Where duplicate avoidance and reordering is not configured there is only one input from the lower layer and it is not reconfigured.

When configured, duplicate avoidance and reordering is the first receive function that is applied to the input UMD PDU streams in the receiving UM RLC entity. It can only be configured in a UE, it is not used in UTRAN. It completes duplicate detection and re-ordering of the UMD PDUs that are received from the one or more inputs to produce a single ordered sequence of PDUs that is passed to the next in sequence RLC receiver function.

…

The duplicate avoidance and reordering function can be configured for use within a receiving UM RLC entity in the UE. It combines PDU sequences received from several sources and/or repeat transmissions from a single source to form a single ordered PDU sequence that is passed to the header removal and reassembly functions. It completes duplicate detection, discard and re-ordering based on the UM PDU sequence number. Where the UM RLC receives input from several sources, inputs can be added or removed without changing the buffer contents, state variables and timers associated with the duplicate avoidance and reordering function or any subsequent UM RLC function.

The duplicate avoidance and reordering function makes use of the state variable VR(UDR) and a receive window whose span is from VR(UDH) – DAR_Window_Size + 1 to VR(UDH) inclusively. For re-ordering the function uses a buffer for the temporary storage of PDUs.

For each PDU received, the duplicate avoidance and reordering function shall (in the following SN denotes the sequence number of each PDU):

Setting initial values of state variables:

- If the PDU is the first PDU received by the duplicate avoidance and reordering function:
  - VR(UDH) is assigned the value SN;
  - VR(UDR) is assigned the value VR(UDH) – DAR_Window_Size + 1.

Duplicate detection and re-ordering:

- if SN is within the receive window:
  - if SN < VR(UDR) or if a PDU with sequence number SN is already stored in the buffer:
    - the PDU shall be discarded;
  - else:
    - the PDU shall be stored in the buffer.
- if SN is outside of the receive window:
  - the PDU shall be stored in the buffer;
  - VR(UDH) shall be assigned the value SN, thereby advancing the receive window;
  - for any stored PDUs with sequence numbers < VR(UDH) – DAR_Window_Size + 1, i.e. outside the receive window after its position is updated, remove the PDU from the buffer and deliver them to the higher RLC function to perform the actions specified in subclause 11.2.3;
  - if VR(UDR) < VR(UDH) – DAR_Window_Size + 1, i.e. VR(UDR) is outside the updated receive window;
    - VR(UDR) shall be assigned the value VR(UDH) – DAR_Window_Size + 1.
- if PDU with sequence number VR(UDR) is stored in the buffer:

- for this PDU and any sequence of stored PDUs with consecutive sequence numbers starting at VR(UDR) + 1, remove the PDUs from the buffer and deliver them to the higher RLC function to perform the actions specified in subclause 11.2.3;

- VR(UDR) shall be assigned the value of x + 1 where x is the sequence number of the highest numbered PDU that was delivered to the higher RLC function.

Timer operation:

- if Timer_DAR is not active when a PDU is stored by the duplicate avoidance and reordering function:

  - Timer_DAR shall be started;

  - VR(UDT) shall be assigned the value of the sequence number of the PDU.

- Timer_DAR shall be stopped:

  - if the PDU with sequence number VR(UDT) is removed from the buffer before Timer_DAR expires.

- if Timer_DAR expires:

  - for all stored PDUs with sequence numbers lower or equal to VR(UDT) and for any sequence of stored PDUs with consecutive sequence numbers starting at VR(UDT) + 1, remove the PDUs from the buffer and deliver them to the higher RLC function to perform the actions specified in subclause 11.2.3;

  - VR(UDR) shall be assigned the value x + 1 where x is the sequence number of the highest numbered PDU that was delivered to the higher RLC function.

- When Timer_DAR is stopped or expires, and there remain PDUs stored by the duplicate avoidance and reordering function:

  - Timer_DAR shall be started;

  - VR(UDT) shall be assigned the sequence number of the highest numbered stored PDU.

Reference

1) 3GPP TS 25.322 clauses 4.2.1.2.2, and 9.7.10

7.2.4.2.3 Test purpose

To verify the MTCH duplicate avoidance and reordering procedure

7.2.4.2.4 Method of test

Initial condition

System Simulator: 1 MBMS Cell

User Equipment:

The UE is in CELL_FACH state as specified in clause 7.6 of TS 34.108.

The UE is interested in the broadcast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

The following parameters are specific for this test case:

Parameter	Value
Timer_DAR	5120 milliseconds
DAR_Window_Size	16

Related ICS/IXIT statements:

MBMS Broadcast service application available on UE yes/no

Test procedure

In this test procedure each SDU of size 322 octets will be formed of 4 RLC PDUs. The first of the 4 PDUs making up one SDU is of size 80 octets + 1 octet LI indicating the start of a PDU (SN= 0, 4, 8..). Every 4th PDU making up one SDU is of size 80 octets + 1 octet LI indicating the end of the SDU (SN=3, 7, 11..). The 2nd and 3rd PDUs are of size 81 octets.

a) SS indicates on MICH and modifies the MCCH to indicate the start of service 1. The UE begins reception of the MBMS service using the 64.8kbps radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.3.5.

b) The radio bearer is placed into UE test loop mode 3.

c) The SS transmits PDUs with RLC sequence number = 3, 3, 2, 2, 1, 1, 0, 0, 19

d) The SS checks that the loopback mode 3 SDU count = 1. (The purpose of SN=19 is in order that the 4 PDUS with sequence numbers < VR(UDH) – DAR_Window_Size + 1, are delivered to higher RLC function, and these 4 PDUs form 1 SDU)

e) The SS transmits PDUs with the RLC sequence number = 19, 18, 17, 16, 15, 14, 13, 12

f) The SS waits 5s for Timer_DAR to expire. PDUs sent in step c are submitted to the higher RLC function. UE sets V(UDR) = 20.

g) The SS checks that the loopback mode 3 SDU count = 3. (2 more SDUs are received, once Timer_DAR expires and the UE empties the DAR buffer)

h) The SS transmits PDUs with the RLC sequence number = 7, 6, 5, 4, 3, 2, 1, 0

i) The SS checks that the loopback mode 3 SDU count = 3. (the data PDUs with SN of 7, 6, 5, 4 in step h is discarded in the UE, because VR(UDR) shall be assigned the value 20. The data PDUs with SN 3, 2, 1, 0 are stored in the buffer because these are inside the new receive window)

j) The SS transmits PDUs with the RLC sequence number = 27, 26, 25, 24, 23, 22, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12

k) The SS checks that the loopback mode 3 SDU count = 8. (Four more complete SDU’s are formed from RLC PDUs with SN of 12, 13, 14, 15 and 16, 17, 18, 19 and 20, 21, 22, 23 and 24, 25, 26, 27. One more complete SDU is formed and delivered from the data stored in step h with the PDUs with SN 0, 1, 2, 3)

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		ACTIVATE RB TEST MODE	
2	→		ACTIVATE RB TEST MODE COMPLETE	
3	←		MBMS MODIFIED SERVICES INFORMATION	MCCH message combination C4 for 1 modification period, then combination C2. The SS waits for the UE to establish the 64.8kbps radio bearer configuration as specified in TS 34.108 clause 6.10.2.4.3.5.
4	←		CLOSE UE TEST LOOP	UE test loop mode 3 setup
5	→		CLOSE UE TEST LOOP COMPLETE	
6	←		9 * RLC PDUs	SN = 3, 3, 2, 2, 1, 1, 0, 0, 19
7	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
8	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	SDU count = 1.
9	←		8 * RLC PDUs	SN = 19, 18, 17, 16, 15, 14, 13, 12
10				SS waits 5120 ms for Timer_DAR to expire
11	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
12	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	SDU count = 3.
13	←		8 * RLC PDUs	SN = 7, 6, 5, 4, 3, 2, 1, 0
14	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
15	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	SDU count = 3.
16	←		16 * RLC PDUs	SN = 27, 26, 25, 24, 23, 22, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12
17	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
18	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	SDU count = 8.
19	←		OPEN UE TEST LOOP	
20	→		OPEN UE TEST LOOP COMPLETE	

Specific message contents

None.

7.2.4.2.5 Test requirements

In step d the UE shall report the loopback mode 3 SDU count as 1.

In steps g and i the UE shall report the loopback mode 3 SDU count as 3.

In step k the UE shall report the loopback mode 3 SDU count as 8.

7.2.4.2a MTCH duplicate avoidance and reordering / MBSFN (FDD)

7.2.4.2a.1 Definition

This test is applicable for Rel-7 UEs supporting MBSFN for FDD.

7.2.4.2a.2 Conformance requirement

The receiving UM-RLC entity receives UMD PDUs through the configured logical channels from the lower layer. When duplicate avoidance and reordering is configured there may be one or more than one input from the lower layer.

Inputs can be added or removed without changing the buffer contents, state variables or timers within the receiving UM RLC entity. Where duplicate avoidance and reordering is not configured there is only one input from the lower layer and it is not reconfigured.

When configured, duplicate avoidance and reordering is the first receive function that is applied to the input UMD PDU streams in the receiving UM RLC entity. It can only be configured in a UE, it is not used in UTRAN. It completes duplicate detection and re-ordering of the UMD PDUs that are received from the one or more inputs to produce a single ordered sequence of PDUs that is passed to the next in sequence RLC receiver function.

…

The duplicate avoidance and reordering function can be configured for use within a receiving UM RLC entity in the UE. It combines PDU sequences received from several sources and/or repeat transmissions from a single source to form a single ordered PDU sequence that is passed to the header removal and reassembly functions. It completes duplicate detection, discard and re-ordering based on the UM PDU sequence number. Where the UM RLC receives input from several sources, inputs can be added or removed without changing the buffer contents, state variables and timers associated with the duplicate avoidance and reordering function or any subsequent UM RLC function.

The duplicate avoidance and reordering function makes use of the state variable VR(UDR) and a receive window whose span is from VR(UDH) – DAR_Window_Size + 1 to VR(UDH) inclusively. For re-ordering the function uses a buffer for the temporary storage of PDUs.

For each PDU received, the duplicate avoidance and reordering function shall (in the following SN denotes the sequence number of each PDU):

Setting initial values of state variables:

- If the PDU is the first PDU received by the duplicate avoidance and reordering function:
  - VR(UDH) is assigned the value SN;
  - VR(UDR) is assigned the value VR(UDH) – DAR_Window_Size + 1.

Duplicate detection and re-ordering:

- if SN is within the receive window:
  - if SN < VR(UDR) or if a PDU with sequence number SN is already stored in the buffer:
    - the PDU shall be discarded;
  - else:
    - the PDU shall be stored in the buffer.
- if SN is outside of the receive window:
  - the PDU shall be stored in the buffer;
  - VR(UDH) shall be assigned the value SN, thereby advancing the receive window;
  - for any stored PDUs with sequence numbers < VR(UDH) – DAR_Window_Size + 1, i.e. outside the receive window after its position is updated, remove the PDU from the buffer and deliver them to the higher RLC function to perform the actions specified in subclause 11.2.3;
  - if VR(UDR) < VR(UDH) – DAR_Window_Size + 1, i.e. VR(UDR) is outside the updated receive window;
    - VR(UDR) shall be assigned the value VR(UDH) – DAR_Window_Size + 1.
- if PDU with sequence number VR(UDR) is stored in the buffer:
  - for this PDU and any sequence of stored PDUs with consecutive sequence numbers starting at VR(UDR) + 1, remove the PDUs from the buffer and deliver them to the higher RLC function to perform the actions specified in subclause 11.2.3;
  - VR(UDR) shall be assigned the value of x + 1 where x is the sequence number of the highest numbered PDU that was delivered to the higher RLC function.

Timer operation:

- if Timer_DAR is not active when a PDU is stored by the duplicate avoidance and reordering function:
  - Timer_DAR shall be started;
  - VR(UDT) shall be assigned the value of the sequence number of the PDU.
- Timer_DAR shall be stopped:
  - if the PDU with sequence number VR(UDT) is removed from the buffer before Timer_DAR expires.
- if Timer_DAR expires:
  - for all stored PDUs with sequence numbers lower or equal to VR(UDT) and for any sequence of stored PDUs with consecutive sequence numbers starting at VR(UDT) + 1, remove the PDUs from the buffer and deliver them to the higher RLC function to perform the actions specified in subclause 11.2.3;
  - VR(UDR) shall be assigned the value x + 1 where x is the sequence number of the highest numbered PDU that was delivered to the higher RLC function.
- When Timer_DAR is stopped or expires, and there remain PDUs stored by the duplicate avoidance and reordering function:
  - Timer_DAR shall be started;
  - VR(UDT) shall be assigned the sequence number of the highest numbered stored PDU.

Reference

1) 3GPP TS 25.322 clauses 4.2.1.2.2, and 9.7.10

7.2.4.2a.3 Test purpose

To verify the MTCH duplicate avoidance and reordering procedure

7.2.4.2a.4 Method of test

Initial condition

System Simulator: 1 MBMS Cell

User Equipment:

The UE is in CELL_FACH state as specified in clause 7.6 of TS 34.108.

The UE is interested in the broadcast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

The following parameters are specific for this test case:

Parameter	Value
Timer_DAR	5120 milliseconds
DAR_Window_Size	16

Related ICS/IXIT statements:

MBMS Broadcast service application available on UE yes/no

Test procedure

In this test procedure each SDU of size 322 octets will be formed of 4 RLC PDUs. The first of the 4 PDUs making up one SDU is of size 80 octets + 1 octet LI indicating the start of a PDU (SN= 0, 4, 8..). Every 4th PDU making up one

SDU is of size 80 octets + 1 octet LI indicating the end of the SDU (SN=3, 7, 11..). The 2nd and 3rd PDUs are of size 81 octets.

a) SS indicates on MICH and modifies the MCCH to indicate the start of service 1. The UE begins reception of the MBMS service using the 64.8kbps radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.3.5.

b) The radio bearer is placed into UE test loop mode 3.

c) The SS transmits PDUs with RLC sequence number = 3, 3, 2, 2, 1, 1, 0, 0, 19

d) The SS checks that the loopback mode 3 SDU count = 1. (The purpose of SN=19 is in order that the 4 PDUS with sequence numbers < VR(UDH) – DAR_Window_Size + 1, are delivered to higher RLC function, and these 4 PDUs form 1 SDU)

e) The SS transmits PDUs with the RLC sequence number = 19, 18, 17, 16, 15, 14, 13, 12

f) The SS waits 5s for Timer_DAR to expire. PDUs sent in step c are submitted to the higher RLC function. UE sets V(UDR) = 20.

g) The SS checks that the loopback mode 3 SDU count = 3. (2 more SDUs are received, once Timer_DAR expires and the UE empties the DAR buffer)

h) The SS transmits PDUs with the RLC sequence number = 7, 6, 5, 4, 3, 2, 1, 0

i) The SS checks that the loopback mode 3 SDU count = 3. (the data PDUs with SN of 7, 6, 5, 4 in step h is discarded in the UE, because VR(UDR) shall be assigned the value 20. The data PDUs with SN 3, 2, 1, 0 are stored in the buffer because these are inside the new receive window)

j) The SS transmits PDUs with the RLC sequence number = 27, 26, 25, 24, 23, 22, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12

k) The SS checks that the loopback mode 3 SDU count = 8. (Four more complete SDU’s are formed from RLC PDUs with SN of 12, 13, 14, 15 and 16, 17, 18, 19 and 20, 21, 22, 23 and 24, 25, 26, 27. One more complete SDU is formed and delivered from the data stored in step h with the PDUs with SN 0, 1, 2, 3)

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		ACTIVATE RB TEST MODE	
2	→		ACTIVATE RB TEST MODE COMPLETE	
3	←		MBMS MODIFIED SERVICES INFORMATION	MCCH message combination C4 for 1 modification period, then combination C2. The SS waits for the UE to establish the 64.8kbps radio bearer configuration as specified in TS 34.108 clause 6.10.2.4.3.5.
4	←		CLOSE UE TEST LOOP	UE test loop mode 3 setup
5	→		CLOSE UE TEST LOOP COMPLETE	
6	←		9 * RLC PDUs	SN = 3, 3, 2, 2, 1, 1, 0, 0, 19
7	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
8	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	SDU count = 1.
9	←		8 * RLC PDUs	SN = 19, 18, 17, 16, 15, 14, 13, 12
10				SS waits 5120 ms for Timer_DAR to expire
11	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
12	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	SDU count = 3.
13	←		8 * RLC PDUs	SN = 7, 6, 5, 4, 3, 2, 1, 0
14	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
15	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	SDU count = 3.
16	←		16 * RLC PDUs	SN = 27, 26, 25, 24, 23, 22, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12
17	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
18	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	SDU count = 8.
19	←		OPEN UE TEST LOOP	
20	→		OPEN UE TEST LOOP COMPLETE	

Specific message contents

None.

7.2.4.2a.5 Test requirements

In step d the UE shall report the loopback mode 3 SDU count as 1.

In steps g and i the UE shall report the loopback mode 3 SDU count as 3.

In step k the UE shall report the loopback mode 3 SDU count as 8.

7.2.4.2b-l Void

7.2.4.2m MTCH duplicate avoidance and reordering / MBMS Multicast Service

7.2.4.2m.1 Definition

This test is applicable for Rel-6 UEs supporting MBMS multicast services.

7.2.4.2m.2 Conformance requirement

Same conformance requirement as in clause 7.2.4.2.2.

Reference

1) 3GPP TS 25.322 clauses 4.2.1.2.2, and 9.7.10

7.2.4.2m.3 Test purpose

Same test purpose as in clause 7.2.4.2.3.

7.2.4.2m.4 Method of test

Initial condition

System Simulator: 1 MBMS Cell

User Equipment:

The UE is in Idle Mode as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Same setting of Timer_DAR and DAR_Window_Size as in clause 7.2.4.2.4.

Related ICS/IXIT statements:

MBMS Multicast service application available on UE yes/no

Test procedure

Same test purpose as in clause 7.2.4.2.4.

Expected Sequence

Same expected sequence as in clause 7.2.4.2.4.

Specific message contents

None.

7.2.4.2m.5 Test requirements

Same test requirements as in clause 7.2.4.2.5.

7.2.4.3 MCCH Out Of Sequence Delivery handling / MBMS Broadcast Service

7.2.4.3.1 Definition

This test is applicable for Rel-6 UEs supporting MBMS broadcast services.

7.2.4.3.2 Conformance requirement

To enable the recovery of SDUs from UMD PDUs that are received in different transmissions the receiving function shall store PDUs until all SDUs that are associated with the PDU can be reconstructed or until they are discarded in accordance with the procedures described below. SDUs are transferred to the upper layers as soon as all PDUs that contain the segments of the SDU and the "Length Indicator" indicating the end of the SDU have been received.

Upon delivery of a set of UMD PDUs from the lower layer, the Receiver shall for each PDU (in the following SN denotes the sequence number of each PDU):

- If the PDU is the first PDU received (after the receiving entity is established or re-established or after Timer_OSD expires):
  - VR(UOH) shall be assigned the value SN-1.
- if VR(UOH) $\leq$ SN > VR(UOH) – OSD_Window_Size then:
  - if a PDU with sequence number SN is already stored:
    - discard the PDU;
  - else:
    - store the PDU in sequence number order.
- else:
  - VR(UOH) shall be assigned the value SN, thereby advancing the storage window;
  - store the PDU in sequence number order;
  - remove from storage any PDUs whose sequence numbers, SN, are outside of the storage window VR(UOH) $\leq$ SN > VR(UOH) – OSD_Window_Size;
  - if Timer_OSD is active then Timer_OSD shall be stopped;
  - Timer_OSD shall be started.
- if a PDU with sequence number SN was stored:
  - if the PDU contains one or more complete SDUs and/or if the PDU contains segments of SDUs for which all the remaining segments and length indicators are contained in stored PDUs:
    - re-assemble the SDUs;
    - submit the SDUs to upper layers through the UM-SAP;
    - remove from storage any PDUs which do not contain any segment of a SDU that has not been re-assembled, and do not contain one of the special length indicators "0000 000", "0000 0000 0000 000" or "1111 1111 1111 011" that indicate the end of a SDU that has not been re-assembled.

NOTE 0: If PDUs are removed from storage after SDU recovery then retransmitted PDUs may result in the duplicate transfer of SDUs to the higher layers.

- if Timer_OSD expires:
  - remove from storage all stored PDUs.

NOTE 1: When configured for out of sequence SDU delivery, the transmitter should consider the possibility that a loss of a number of 128 – OSD_Window_Size consecutively numbered PDUs may result in an undetected protocol error in the receiver, if the transmit state variable VT(US), at the end of a time interval equal to the duration of Timer_OSD, is greater than 128 + SN – OSD_Window_Size + 1, where SN is the lowest sequence number of any PDU transmitted or retransmitted within that time interval.

NOTE 2: The transmitter should not concatenate within a single PDU, SDUs or fractions of SDUs that contain MBMS Access Information messages with SDUs or fractions of SDUs that contain other MCCH message types.

NOTE 3: SDUs are contained within consecutively numbered PDUs. To enable SDUs containing MBMS Access Information messages to be transmitted at their designated times, the transmitter may transmit PDUs out of sequence order.

NOTE 4: The transmitter should not transmit within a single PDU, SDUs or fractions of SDUs that contain MBMS Access Information messages with the special length indicator "0000 000","0000 0000 0000 000", and "1111 1111 1111 011".

Reference

1) 3GPP TS 25.322, clause 11.2.3.2

7.2.4.3.3 Test purpose

To verify MCCH Out Of Sequence Delivery handling.

7.2.4.3.4 Method of test

Initial condition

System Simulator: 1 MBMS Cell.

User Equipment:

The UE is in CELL_FACH state as specified in clause 7.6 of TS 34.108, with the following exception: MCCH Default2 scheduling as specified in TS 34.108 clause 11.1

The UE has a valid IMSI.

The UE is interested in the broadcast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

The following parameters are specific for this test case:

Parameter	Value
OSD_Window_Size	64 (to contain the entire MBMS CONTROL INFORMATION on MCCH)

Related ICS/IXIT statements:

MBMS Broadcast service application available on UE yes/no

Test procedure

a) The SS commands UE into RB Test Mode.

b) SS indicates on MICH and modifies the MCCH to indicate the start of service 1. In this step the SS shall send MCCH information as follows:

The RLC is configured at the SS as TM mode. This is in order to be able to replace encoded PDUs and header information with an invalid LI .

On the first repetition period for all critical MCCH messages, only the odd numbered RLC PDU SN are transmitted correctly, an invalid LI is inserted into the RLC header of the even numbered PDUs.

On the second repetition period for all critical MCCH messages, only the even numbered RLC PDU SN are transmitted correctly, an invalid LI is inserted into the RLC header of the odd numbered PDUs.

SS waits for the UE to begin reception of the MBMS service using the 64.8kbps radio bearer configuration specified in TS 34.108, clause 6.10.2.4.3.5.

c) The radio bearer is placed into UE test loop mode 3.

d) The SS transmits 10 * RLC SDUs of size 80 octets. (PDU is 80 octets + 1 octet special LI)

e) The SS checks that the loopback mode 3 SDU count is greater than 0.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		ACTIVATE RB TEST MODE	
2	→		ACTIVATE RB TEST MODE COMPLETE	
3	←		MCCH MESSAGES	For all MCCH messages using message combination C4 for 1 modification period: on the first repetition period, only the odd numbered RLC PDU SN are transmitted correctly. On the second repetition period only the even numbered RLC PDU SN are transmitted correctly. Other PDUs have an invalid LI in the RLC header. Those messages requiring specific contents are shown in steps 4-6, other messages have the default contents.
4	←		MBMS MODIFIED SERVICES INFORMATION	SS indicates to the UE to Acquire PTM RB info.
5	←		MBMS COMMON P-T-M RB INFORMATION	Contains configuration for the 64.8kbps radio bearer configuration as specified in TS 34.108 clause 6.10.2.4.3.5.
6	←		MBMS CURRENT CELL P-T-M RB INFORMATION	Indicates the radio bearer configuration to be used for reception of the service. The SS waits for the UE to establish the MTCH, according to the activation time.
7	←		MCCH MESSAGES	SS transmits PDUs using message combination C2. For all MCCH messages using message combination C2 for 1 modification period: on the first repetition period, only the odd numbered RLC PDU SN are transmitted correctly. On the second repetition period only the even numbered RLC PDU SN are transmitted correctly. Other PDUs have an invalid LI in the RLC header. After this modification period, the SS stops sending MCCH messages.
8	←		CLOSE UE TEST LOOP	UE test loop mode 3 setup
9	→		CLOSE UE TEST LOOP COMPLETE	
10	←		10 * RLC SDU	SS sends 10*RLC SDUs on MTCH
11	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
12	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	SDU counter response > 0.
13	←		OPEN UE TEST LOOP	
14	→		OPEN UE TEST LOOP COMPLETE	

Specific message contents

Those PDUs indicated to have an invalid LI in the RLC header, shall encode the LI to be invalid according to TS 25.322 clause 11.2.4.2.

7.2.4.3.5 Test requirements

In step e the UE shall report the loopback mode 3 SDU count to be greater than 0.

7.2.4.3a MCCH Out Of Sequence Delivery handling / MBSFN (FDD)

7.2.4.3a.1 Definition

This test is applicable for Rel-7 UEs supporting MBSFN for FDD.

7.2.4.3a.2 Conformance requirement

To enable the recovery of SDUs from UMD PDUs that are received in different transmissions the receiving function shall store PDUs until all SDUs that are associated with the PDU can be reconstructed or until they are discarded in accordance with the procedures described below. SDUs are transferred to the upper layers as soon as all PDUs that contain the segments of the SDU and the "Length Indicator" indicating the end of the SDU have been received.

Upon delivery of a set of UMD PDUs from the lower layer, the Receiver shall for each PDU (in the following SN denotes the sequence number of each PDU):

- If the PDU is the first PDU received (after the receiving entity is established or re-established or after Timer_OSD expires):
  - VR(UOH) shall be assigned the value SN-1.
- if VR(UOH) $\leq$ SN > VR(UOH) – OSD_Window_Size then:
  - if a PDU with sequence number SN is already stored:
    - discard the PDU;
  - else:
    - store the PDU in sequence number order.
- else:
  - VR(UOH) shall be assigned the value SN, thereby advancing the storage window;
  - store the PDU in sequence number order;
  - remove from storage any PDUs whose sequence numbers, SN, are outside of the storage window VR(UOH) $\leq$ SN > VR(UOH) – OSD_Window_Size;
  - if Timer_OSD is active then Timer_OSD shall be stopped;
  - Timer_OSD shall be started.
- if a PDU with sequence number SN was stored:
  - if the PDU contains one or more complete SDUs and/or if the PDU contains segments of SDUs for which all the remaining segments and length indicators are contained in stored PDUs:
    - re-assemble the SDUs;
    - submit the SDUs to upper layers through the UM-SAP;
    - remove from storage any PDUs which do not contain any segment of a SDU that has not been re-assembled, and do not contain one of the special length indicators "0000 000", "0000 0000 0000 000" or "1111 1111 1111 011" that indicate the end of a SDU that has not been re-assembled.

NOTE 0: If PDUs are removed from storage after SDU recovery then retransmitted PDUs may result in the duplicate transfer of SDUs to the higher layers.

- if Timer_OSD expires:
  - remove from storage all stored PDUs.

NOTE 1: When configured for out of sequence SDU delivery, the transmitter should consider the possibility that a loss of a number of 128 – OSD_Window_Size consecutively numbered PDUs may result in an undetected protocol error in the receiver, if the transmit state variable VT(US), at the end of a time interval equal to the duration of Timer_OSD, is greater than 128 + SN – OSD_Window_Size + 1, where SN is the lowest sequence number of any PDU transmitted or retransmitted within that time interval.

NOTE 2: The transmitter should not concatenate within a single PDU, SDUs or fractions of SDUs that contain MBMS Access Information messages with SDUs or fractions of SDUs that contain other MCCH message types.

NOTE 3: SDUs are contained within consecutively numbered PDUs. To enable SDUs containing MBMS Access Information messages to be transmitted at their designated times, the transmitter may transmit PDUs out of sequence order.

NOTE 4: The transmitter should not transmit within a single PDU, SDUs or fractions of SDUs that contain MBMS Access Information messages with the special length indicator "0000 000","0000 0000 0000 000", and "1111 1111 1111 011".

Reference

1) 3GPP TS 25.322, clause 11.2.3.2

7.2.4.3a.3 Test purpose

To verify MCCH Out Of Sequence Delivery handling.

7.2.4.3a.4 Method of test

Initial condition

System Simulator: 1 MBMS Cell.

User Equipment:

The UE is in CELL_FACH state as specified in clause 7.6 of TS 34.108, with the following exception: MCCH Default2 scheduling as specified in TS 34.108 clause 11.1

The UE has a valid IMSI.

The UE is interested in the broadcast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

The following parameters are specific for this test case:

Parameter	Value
OSD_Window_Size	64 (to contain the entire MBMS CONTROL INFORMATION on MCCH)

Related ICS/IXIT statements:

MBMS Broadcast service application available on UE yes/no

Test procedure

a) The SS commands UE into RB Test Mode.

b) SS indicates on MICH and modifies the MCCH to indicate the start of service 1. In this step the SS shall send MCCH information as follows:

The RLC is configured at the SS as TM mode. This is in order to be able to replace encoded PDUs and header information with an invalid LI .

On the first repetition period for all critical MCCH messages, only the odd numbered RLC PDU SN are transmitted correctly, an invalid LI is inserted into the RLC header of the even numbered PDUs.

On the second repetition period for all critical MCCH messages, only the even numbered RLC PDU SN are transmitted correctly, an invalid LI is inserted into the RLC header of the odd numbered PDUs.

SS waits for the UE to begin reception of the MBMS service using the 64.8kbps radio bearer configuration specified in TS 34.108, clause 6.10.2.4.3.5.

c) The radio bearer is placed into UE test loop mode 3.

d) The SS transmits 10 * RLC SDUs of size 80 octets. (PDU is 80 octets + 1 octet special LI)

e) The SS checks that the loopback mode 3 SDU count is greater than 0.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		ACTIVATE RB TEST MODE	
2	→		ACTIVATE RB TEST MODE COMPLETE	
3	←		MCCH MESSAGES	For all MCCH messages using message combination C4 for 1 modification period: on the first repetition period, only the odd numbered RLC PDU SN are transmitted correctly. On the second repetition period only the even numbered RLC PDU SN are transmitted correctly. Other PDUs have an invalid LI in the RLC header. Those messages requiring specific contents are shown in steps 4-6, other messages have the default contents.
4	←		MBMS MODIFIED SERVICES INFORMATION	SS indicates to the UE to Acquire PTM RB info.
5	←		MBMS COMMON P-T-M RB INFORMATION	Contains configuration for the 64.8kbps radio bearer configuration as specified in TS 34.108 clause 6.10.2.4.3.5.
6	←		MBMS CURRENT CELL P-T-M RB INFORMATION	Indicates the radio bearer configuration to be used for reception of the service. The SS waits for the UE to establish the MTCH, according to the activation time.
7	←		MCCH MESSAGES	SS transmits PDUs using message combination C2. For all MCCH messages using message combination C2 for 1 modification period: on the first repetition period, only the odd numbered RLC PDU SN are transmitted correctly. On the second repetition period only the even numbered RLC PDU SN are transmitted correctly. Other PDUs have an invalid LI in the RLC header. After this modification period, the SS stops sending MCCH messages.
8	←		CLOSE UE TEST LOOP	UE test loop mode 3 setup
9	→		CLOSE UE TEST LOOP COMPLETE	
10	←		10 * RLC SDU	SS sends 10*RLC SDUs on MTCH
11	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
12	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	SDU counter response > 0.
13	←		OPEN UE TEST LOOP	
14	→		OPEN UE TEST LOOP COMPLETE	

Specific message contents

Those PDUs indicated to have an invalid LI in the RLC header, shall encode the LI to be invalid according to TS 25.322 clause 11.2.4.2.

7.2.4.3a.5 Test requirements

In step e the UE shall report the loopback mode 3 SDU count to be greater than 0.

7.2.4.3b-l Void

7.2.4.3m MCCH Out Of Sequence Delivery handling / MBMS Multicast Service

7.2.4.3m.1 Definition

This test is applicable for Rel-6 UEs supporting MBMS multicast services.

7.2.4.3m.2 Conformance requirement

Same conformance requirement as in clause 7.2.4.3.2.

Reference

1) 3GPP TS 25.322, clause 11.2.3.2

7.2.4.3m.3 Test purpose

Same test purpose as in clause 7.2.4.3.3.

7.2.4.3m.4 Method of test

Initial condition

System Simulator: 1 MBMS Cell.

User Equipment:

The UE is in CELL_FACH state as specified in clause 7.6 of TS 34.108, with the following exception: MCCH Default2 scheduling as specified in TS 34.108 clause 11.1

The UE has a valid IMSI.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Same setting of OSD_Window_Size as in clause 7.2.4.3.4.

Related ICS/IXIT statements:

MBMS Multicast service application available on UE yes/no

Test procedure

Same test procedure as in clause 7.2.4.3.4.

Specific message contents

Same specific message contents in clause 7.2.4.3.4.

7.2.4.3m.5 Test requirements

Same test requirements as in clause 7.2.4.3.5.

7.2.4.3n-r Void

7.2.4.3s MCCH Out Of Sequence Delivery handling / MBMS Broadcast Service (TDD MBSFN) (non-IMB)

7.2.4.3s.1 Definition

This test is applicable for Rel-7 UEs supporting MBMS broadcast services over MBSFN.

7.2.4.3s.2 Conformance requirement

To enable the recovery of SDUs from UMD PDUs that are received in different transmissions the receiving function shall store PDUs until all SDUs that are associated with the PDU can be reconstructed or until they are discarded in accordance with the procedures described below. SDUs are transferred to the upper layers as soon as all PDUs that contain the segments of the SDU and the "Length Indicator" indicating the end of the SDU have been received.

Upon delivery of a set of UMD PDUs from the lower layer, the Receiver shall for each PDU (in the following SN denotes the sequence number of each PDU):

- If the PDU is the first PDU received (after the receiving entity is established or re-established or after Timer_OSD expires):
  - VR(UOH) shall be assigned the value SN-1.
- if VR(UOH) $\leq$ SN > VR(UOH) – OSD_Window_Size then:
  - if a PDU with sequence number SN is already stored:
    - discard the PDU;
  - else:
    - store the PDU in sequence number order.
- else:
  - VR(UOH) shall be assigned the value SN, thereby advancing the storage window;
  - store the PDU in sequence number order;
  - remove from storage any PDUs whose sequence numbers, SN, are outside of the storage window VR(UOH) $\leq$ SN > VR(UOH) – OSD_Window_Size;
  - if Timer_OSD is active then Timer_OSD shall be stopped;
  - Timer_OSD shall be started.
- if a PDU with sequence number SN was stored:
  - if the PDU contains one or more complete SDUs and/or if the PDU contains segments of SDUs for which all the remaining segments and length indicators are contained in stored PDUs:
    - re-assemble the SDUs;
    - submit the SDUs to upper layers through the UM-SAP;
    - remove from storage any PDUs which do not contain any segment of a SDU that has not been re-assembled, and do not contain one of the special length indicators "0000 000", "0000 0000 0000 000" or "1111 1111 1111 011" that indicate the end of a SDU that has not been re-assembled.

NOTE 0: If PDUs are removed from storage after SDU recovery then retransmitted PDUs may result in the duplicate transfer of SDUs to the higher layers.

- if Timer_OSD expires:

- remove from storage all stored PDUs.

NOTE 1: When configured for out of sequence SDU delivery, the transmitter should consider the possibility that a loss of a number of 128 – OSD_Window_Size consecutively numbered PDUs may result in an undetected protocol error in the receiver, if the transmit state variable VT(US), at the end of a time interval equal to the duration of Timer_OSD, is greater than 128 + SN – OSD_Window_Size + 1, where SN is the lowest sequence number of any PDU transmitted or retransmitted within that time interval.

NOTE 2: The transmitter should not concatenate within a single PDU, SDUs or fractions of SDUs that contain MBMS Access Information messages with SDUs or fractions of SDUs that contain other MCCH message types.

NOTE 3: SDUs are contained within consecutively numbered PDUs. To enable SDUs containing MBMS Access Information messages to be transmitted at their designated times, the transmitter may transmit PDUs out of sequence order.

NOTE 4: The transmitter should not transmit within a single PDU, SDUs or fractions of SDUs that contain MBMS Access Information messages with the special length indicator "0000 000","0000 0000 0000 000", and "1111 1111 1111 011".

Reference

1) 3GPP TS 25.322, clause 11.2.3.2

7.2.4.3s.3 Test purpose

To verify MCCH Out Of Sequence Delivery handling.

7.2.4.3s.4 Method of test

Initial condition

System Simulator:

Unicast carrier: 1 cell, Cell 1 with default configuration.

- MBSFN carriers: 1 cell, Cell 31 has default parameters. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 and Default2 MCCH scheduling (No ongoing session) according to subclause 11.2 of TS 34.108.

  The configuration of the S-CCPCH which will carry the MTCH is based upon that specified in TS 34.108 clause 6.11.1c (3.84 Mcps TDD), 6.11.1d (7.68 Mcps TDD) and 6.11.5.4.4.13 (1.28 Mcps TDD) 8kbps RB for MBSFN MTCH.

  The following parameters are specific for this test case:

Parameter	Value
OSD_Window_Size	64 (to contain the entire MBMS CONTROL INFORMATION on MCCH)

User Equipment:

- On the unicast carrier cell the UE is in registered Idle Mode on PS (state 3) if the UE only supports PS domain or registered Idle Mode on CS/PS (state 7) if the UE supports both CS and PS domains, as specified in clause 7.2.2 of TS 34.108.

- The UE is in MBSFN Idle mode with one activated service as specified in clause 7.6.4 of TS 34.108. The UE has selected (i.e. it is included in MBMS_ACTIVATED_SERVICES variable) a national service for which there will be a session starting on MBSFN Cell 31 (see TS 34.108 clause 11.2.4).

Related ICS/IXIT statements

- MBMS Broadcast services in MBSFN mode available on UE Yes/No.

- Support of TDD transmit and receive functions available on UE Yes/No.

- Support of TDD MBSFN receive only function available on UE Yes/No.

Test procedure

a) The UE is camping on Cell 1 and Cell 31. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 (no session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

b) The SS sends ACTIVATE RB TEST MODE on the unicast carrier and the UE responds with ACTIVATE RB TEST MODE COMPLETE.

c) The SS sends CLOSE UE TEST LOOP to activate RLC SDU counting on Cell 31 MTCH (Transmission identity indicating the MBMS activated service).

d) SS indicates on MICH and modifies the MCCH to indicate the start of the national service. In this step the SS shall send MCCH information as follows:

   The RLC is configured at the SS as TM mode. This is in order to be able to replace encoded PDUs and header information with an invalid LI .

   On the first repetition period for all critical MCCH messages, only the odd numbered RLC PDU SN are transmitted correctly, an invalid LI is inserted into the RLC header of the even numbered PDUs.

   On the second repetition period for all critical MCCH messages, only the even numbered RLC PDU SN are transmitted correctly, an invalid LI is inserted into the RLC header of the odd numbered PDUs.

e) SS waits for the UE to begin reception of the MBMS service using the 8kbps radio bearer configuration specified in TS 34.108, clause 6.11.1c (3.84 Mcps TDD) or 6.11.1d (7.68 Mcps TDD) or 6.11.5.4.4.13 (1.28 Mcps TDD). The UE closes the test loop. The UE sends CLOSE UE TEST LOOP COMPLETE.

f) The SS transmits 10 * RLC SDUs of size 40 octets. (PDU is 40 octets + 1 octet special LI)

g) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is > 0.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1	←		U	ACTIVATE RB TEST MODE	
2	→		U	ACTIVATE RB TEST MODE COMPLETE	
3	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated on Cell 31 for the selected national service on MTCH.
4	←		M	MBMS MCCH Message Configuration C4	For all MCCH messages using message combination C4 for 1 modification period: on the first repetition period, only the odd numbered RLC PDU SN are transmitted correctly. On the second repetition period only the even numbered RLC PDU SN are transmitted correctly. Other PDUs have an invalid LI in the RLC header. Those messages requiring specific contents are shown in steps 6-8, other messages have the default contents.
5	←		M	MBMS MODIFIED SERVICES INFORMATION	Includes the national service activated at UE in the modified services list for one modification period. SS indicates to the UE to Acquire PTM RB info.
6	←		M	MBMS COMMON P-T-M RB INFORMATION	Contains configuration for the 8kbps radio bearer configuration
7	←		M	MBMS CURRENT CELL P-T-M RB INFORMATION	Indicates the radio bearer configuration to be used for reception of the service.
8	←		M	MBMS MCCH Message Configuration C2	SS transmits PDUs using message combination C2. For all MCCH messages using message combination C2 for 1 modification period: on the first repetition period, only the odd numbered RLC PDU SN are transmitted correctly. On the second repetition period only the even numbered RLC PDU SN are transmitted correctly. Other PDUs have an invalid LI in the RLC header. After this modification period, the SS stops sending MCCH messages.
9	←		M	MBMS COMMON P-T-M RB INFORMATION	Contains configuration for the 8kbps radio bearer configuration
10	←		M	MBMS CURRENT CELL P-T-M RB INFORMATION	Indicates the radio bearer configuration to be used for reception of the service.
11	→		U	CLOSE UE TEST LOOP COMPLETE	The UE establishes the MTCH according to the activation time and closes the test loop.
12	←		M	10 * RLC SDU	SS sends 10*RLC SDUs on MTCH
13	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
14	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is greater than zero.
15	←		U	OPEN UE TEST LOOP	
16	→		U	OPEN UE TEST LOOP COMPLETE	
17	←		U	DEACTIVATE RB TEST MODE	
18	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific message contents

Those PDUs indicated to have an invalid LI in the RLC header, shall encode the LI to be invalid according to TS 25.322 clause 11.2.4.2.

With the following exceptions, all messages have the same content as defined in TS 34.108 clause 9.1.3 for the MBSFN carriers and in TS 34.108 clause 9.1.1 or 9.1.2 for the unicast carrier:

MBMS COMMON P-T-M RB INFORMATION (Step 6 and Step 9) (3.84 Mcps)

Information Element	Value/remark	Version
Message type		Rel-6
RB information list	1 entry in the list	Rel-6
- RB identity		
- MBMS Common RB identity	14	
- PDCP info		
- Support for lossless SRNS relocation	Not Present	
- Max PDCP SN window size	Not Present	
- PDCP PDU header	absent	
- Header compression information	Not Present	

Information Element	Value/remark	Version
- RLC info		
- DL UM RLC LI size	7	
- DL Duplication Avoidance and Reordering info	Not Present	
- DL Out of sequence delivery info	Not Present	
TrCh information for each TrCh	1 entry in the list	Rel-6
- Transport channel identity		
- MBMS Common TrCh identity	1	
- TFS		
- CHOICE *Transport channel type*	Common transport channels	
- Dynamic Transport Format Information		
- RLC Size	Reference to clause 6.11.1c	
- Number of TBs and TTI List	(This IE is repeated for each TFI)	
- Number of Transport blocks	Reference to clause 6.11.1c	
- CHOICE *mode*	TDD	
- Transmission Time Interval	Not Present	
- CHOICE *Logical Channel List*	ALL	
- no data		
- Semi-static Transport Format information		
- Transmission time interval	Reference to clause 6.11.1c	
- Type of channel coding	Turbo	
- Coding Rate	Not Present	
- Rate matching attribute	Reference to clause 6.11.1c	
- CRC size	Reference to clause 6.11.1c	
TrCh information for each CCTrCh	Not Present (Default TFCS applies for each CCTrCh)	Rel-6
PhyCh information	1 entry in list	Rel-6
- PhyCh identity		
- MBMS Common PhyCh identity	23	
- Secondary CCPCH info MBMS		
- CHOICE *mode*	1.28/3.84 Mcps TDD	
- Common timeslot info MBMS		
- 2nd interleaving mode	Frame	
- TFCI coding	Reference to clause 6.11.1c	
- Puncturing limit	Reference to clause 6.11.1c	
- Downlink Timeslots and Codes		
- First individual timeslot info		
- Timeslot number		
- CHOICE *TDD option*	3.84 Mcps	
- Timeslot number	1	
- TFCI existence	TRUE	
- Midamble Shift and burst type		
- CHOICE *TDD option*	3.84 Mcps TDD	
- CHOICE Burst Type	MBSFN Burst Type	Rel-7
- no data		Rel-7
- CHOICE *TDD option*	3.84Mcps TDD	
- no data		
- First timeslot channelisation codes		
- CHOICE *codes representation*	Consecutive codes	
- First channelisation code	Reference clause 5.5.2 "Downlink physical channels code allocation for signalling"	
- Last channelisation code	Reference clause 5.5.2 "Downlink physical channels code allocation for signalling"	
- CHOICE *more timeslots*	No more timeslots	
- no data		
- Modulation	Reference to clause 6.11.1c	Rel-7

MBMS COMMON P-T-M RB INFORMATION (Step 6 and Step 9) (7.68 Mcps)

Information Element	Value/remark	Version
Message type		Rel-7
RB information list	1 entry in the list	Rel-7
- RB identity		
- MBMS Common RB identity	14	
- PDCP info		
- Support for lossless SRNS relocation	Not Present	
- Max PDCP SN window size	Not Present	
- PDCP PDU header	absent	
- Header compression information	Not Present	

Information Element	Value/remark	Version
- RLC info		
- DL UM RLC LI size	7	
- DL Duplication Avoidance and Reordering info	Not Present	
- DL Out of sequence delivery info	Not Present	
TrCh information for each TrCh	1 entry in the list	Rel-7
- Transport channel identity		
- MBMS Common TrCh identity	1	
- TFS		
- CHOICE *Transport channel type*	Common transport channels	
- Dynamic Transport Format Information		
- RLC Size	Reference to clause 6.11.1d	
- Number of TBs and TTI List	(This IE is repeated for each TFI)	
- Number of Transport blocks	Reference to clause 6.11.1d	
- CHOICE *mode*	TDD	
- Transmission Time Interval	Not Present	
- CHOICE *Logical Channel List*	ALL	
- no data		
- Semi-static Transport Format information		
- Transmission time interval	Reference to clause 6.11.1d	
- Type of channel coding	Turbo	
- Coding Rate	Not Present	
- Rate matching attribute	Reference to clause 6.11.1d	
- CRC size	Reference to clause 6.11.1d	
TrCh information for each CCTrCh	Not Present (Default TFCS applies for each CCTrCh)	Rel-7
PhyCh information	1 entry in list	Rel-7
- PhyCh identity		
- MBMS Common PhyCh identity	23	
- Secondary CCPCH info MBMS		
- CHOICE *mode*	7.68 Mcps TDD	
- Common timeslot info MBMS		
- 2nd interleaving mode	Frame	
- TFCI coding	Reference to clause 6.11.1d	
- Puncturing limit	Reference to clause 6.11.1d	
- Downlink Timeslots and Codes VHCR		
- First Individual timeslot info		
- Timeslot number		
- CHOICE *TDD option*	7.68 Mcps option	
Timeslot number	1	
- TFCI existence	TRUE	
- Midamble Shift and burst type		
- CHOICE *TDD option*	7.68 Mcps TDD	
- CHOICE *Burst Type*	MBSFN Burst Type	
- no data	Default	
- CHOICE *TDD option*	7.68Mcps TDD	
- no data		
- First timeslot channelisation codes VHCR		
- CHOICE *codes representation*	Consecutive codes	
- First channelisation code	Reference clause 5.5.2 "Downlink physical channels code allocation for signalling"	
- Last channelisation code	Reference clause 5.5.2 "Downlink physical channels code allocation for signalling"	
- CHOICE more timeslots	No more timeslots	
- no data		
- Modulation	Reference to clause 6.11.1d	

MBMS COMMON P-T-M RB INFORMATION (Step 6 and Step 9) (1.28 Mcps)

Information Element	Value/remark	Version
Message type		Rel-6
RB information list	1 entry in the list	Rel-6
- RB identity		
- MBMS Common RB identity	14	
- PDCP info		
- Support for lossless SRNS relocation	Not Present	
- Max PDCP SN window size	Not Present	
- PDCP PDU header	absent	
- Header compression information	Not Present	

Information Element	Value/remark	Version
- RLC info		
- DL UM RLC LI size	7	
- DL Duplication Avoidance and Reordering info	Not Present	
- DL Out of sequence delivery info	Not Present	
TrCh information for each TrCh	1 entry in the list	Rel-6
- Transport channel identity		
- MBMS Common TrCh identity	1	
- TFS		
- CHOICE *Transport channel type*	Common transport channels	
- Dynamic Transport Format Information		
- RLC Size	Reference to clause 6.11.5.4.4.13	
- Number of TBs and TTI List	(This IE is repeated for each TFI)	
- Number of Transport blocks	Reference to clause 6.11.5.4.4.13	
- CHOICE *mode*	TDD	
- Transmission Time Interval	Not Present	
- CHOICE *Logical Channel List*	ALL	
- no data		
- Semi-static Transport Format information		
- Transmission time interval	Reference to clause 6.11.5.4.4.13	
- Type of channel coding	Turbo	
- Coding Rate	Not Present	
- Rate matching attribute	Reference to clause 6.11.5.4.4.13	
- CRC size	Reference to clause 6.11.5.4.4.13	
TrCh information for each CCTrCh	Not Present (Default TFCS applies for each CCTrCh)	Rel-6
PhyCh information	1 entry in list	Rel-6
- PhyCh identity		
- MBMS Common PhyCh identity	23	
- Secondary CCPCH info MBMS		
- CHOICE *mode*	1.28/3.84 Mcps TDD	
- Common timeslot info MBMS		
- 2nd interleaving mode	Frame	
- TFCI coding	Reference to clause 6.11.5.4.4.13	
- Puncturing limit	Reference to clause 6.11.5.4.4.13	
- Downlink Timeslots and Codes		
- First individual timeslot info		
- Timeslot number		
- CHOICE *TDD option*	1.28 Mcps	
- Timeslot number	1	
- TFCI existence	TRUE	
- Midamble Shift and burst type		
- CHOICE *TDD option*	1.28 Mcps TDD	
- Midamble Allocation Mode	Common midamble	
- Midamble configuration	2	
- CHOICE *TDD option*	1.28Mcps TDD	
- Modulation	Reference to clause 6.11.5.4.4.13	
- SS-TPC Symbols	1	
- Additional TPC-SS Symbols	Not Present	
- First timeslot channelisation codes		
- CHOICE *codes representation*	Consecutive codes	
- First channelisation code	Reference clause 5.5.2 "Downlink physical channels code allocation for signalling"	
- Last channelisation code	Reference clause 5.5.2 "Downlink physical channels code allocation for signalling"	
- CHOICE *more timeslots*	No more timeslots	
- no data		
- MBSFN Special Time Slot	TS7	Rel-7
- Modulation	Reference to clause 6.11.5.4.4.13	Rel-7
LCR TDD MBSFN information	Not Present	Rel-7

MBMS CURRENT CELL P-T-M RB INFORMATION (Step 7 and Step 10)

Information Element	Value/remark	Version
Message type		Rel-6
S-CCPCH list	Contains 1 S-CCPCH	Rel-6
- S-CCPCH identity	Not Present	
- Secondary CCPCH info	23	
- MBMS Soft Combining Timing Offset	Not Present	
- TrCh information common for all TrCh	Not Present (MD)	
- TrCH information list		
- TrCh information	1	
- RB information list		
- RB information		
- RB information	14	
- MBMS short transmission ID	Reference to the service which is being provided on this RB.	
- MBMS logical channel identity	1	
- L1 combining status	Not Present	
- MSCH configuration information	Not Present	
S-CCPCH in SIB type 5	Not Present	Rel-6
MBSFN TDM Info List	Not Present	Rel-7

7.2.4.3s.5 Test requirements

1) At step 14, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a count > 0 for Cell 31 MTCH.

7.2.4.3t MCCH Out Of Sequence Delivery handling / MBMS Broadcast Service (IMB)

7.2.4.3t.1 Definition

This test is applicable for 3.84 Mcps TDD IMB UE.

7.2.4.3t.2 Conformance requirement

To enable the recovery of SDUs from UMD PDUs that are received in different transmissions the receiving function shall store PDUs until all SDUs that are associated with the PDU can be reconstructed or until they are discarded in accordance with the procedures described below. SDUs are transferred to the upper layers as soon as all PDUs that contain the segments of the SDU and the "Length Indicator" indicating the end of the SDU have been received.

Upon delivery of a set of UMD PDUs from the lower layer, the Receiver shall for each PDU (in the following SN denotes the sequence number of each PDU):

- If the PDU is the first PDU received (after the receiving entity is established or re-established or after Timer_OSD expires):
  - VR(UOH) shall be assigned the value SN-1.
- if VR(UOH) $\underline{\geq}$ SN > VR(UOH) – OSD_Window_Size then:
  - if a PDU with sequence number SN is already stored:
    - discard the PDU;
  - else:
    - store the PDU in sequence number order.
- else:
  - VR(UOH) shall be assigned the value SN, thereby advancing the storage window;
  - store the PDU in sequence number order;
  - remove from storage any PDUs whose sequence numbers, SN, are outside of the storage window VR(UOH) $\underline{\geq}$ SN > VR(UOH) – OSD_Window_Size;

- if Timer_OSD is active then Timer_OSD shall be stopped;
- Timer_OSD shall be started.

- if a PDU with sequence number SN was stored:
  - if the PDU contains one or more complete SDUs and/or if the PDU contains segments of SDUs for which all the remaining segments and length indicators are contained in stored PDUs:
    - re-assemble the SDUs;
    - submit the SDUs to upper layers through the UM-SAP;
    - remove from storage any PDUs which do not contain any segment of a SDU that has not been re-assembled, and do not contain one of the special length indicators "0000 000", "0000 0000 0000 000" or "1111 1111 1111 011" that indicate the end of a SDU that has not been re-assembled.

NOTE 0: If PDUs are removed from storage after SDU recovery then retransmitted PDUs may result in the duplicate transfer of SDUs to the higher layers.

- if Timer_OSD expires:
  - remove from storage all stored PDUs.

NOTE 1: When configured for out of sequence SDU delivery, the transmitter should consider the possibility that a loss of a number of 128 – OSD_Window_Size consecutively numbered PDUs may result in an undetected protocol error in the receiver, if the transmit state variable VT(US), at the end of a time interval equal to the duration of Timer_OSD, is greater than 128 + SN – OSD_Window_Size + 1, where SN is the lowest sequence number of any PDU transmitted or retransmitted within that time interval.

NOTE 2: The transmitter should not concatenate within a single PDU, SDUs or fractions of SDUs that contain MBMS Access Information messages with SDUs or fractions of SDUs that contain other MCCH message types.

NOTE 3: SDUs are contained within consecutively numbered PDUs. To enable SDUs containing MBMS Access Information messages to be transmitted at their designated times, the transmitter may transmit PDUs out of sequence order.

NOTE 4: The transmitter should not transmit within a single PDU, SDUs or fractions of SDUs that contain MBMS Access Information messages with the special length indicator "0000 000","0000 0000 0000 000", and "1111 1111 1111 011".

Reference

1) 3GPP TS 25.322, clause 11.2.3.2

7.2.4.3t.3 Test purpose

To verify MCCH Out Of Sequence Delivery handling.

7.2.4.3t.4 Method of test

Initial condition

System Simulator:

Unicast carrier: 1 cell, Cell 1 with default configuration.

- MBSFN carriers: 1 cell, Cell 31 has default parameters. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 and Default2 MCCH scheduling (No ongoing session) according to subclause 11.2 of TS 34.108.

  The configuration of the S-CCPCH which will carry the MTCH is based upon that specified in TS 34.108 clause 6.11.1e (3.84 Mcps TDD IMB) 8kbps RB for MBSFN MTCH.

The following parameters are specific for this test case:

Parameter	Value
OSD_Window_Size	64 (to contain the entire MBMS CONTROL INFORMATION on MCCH)

User Equipment:

- On the unicast carrier cell the UE is in registered Idle Mode on PS (state 3) if the UE only supports PS domain or registered Idle Mode on CS/PS (state 7) if the UE supports both CS and PS domains, as specified in clause 7.2.2 of TS 34.108.
- The UE is in MBSFN Idle mode with one activated service as specified in clause 7.6.4 of TS 34.108. The UE has selected (i.e. it is included in MBMS_ACTIVATED_SERVICES variable) a national service for which there will be a session starting on MBSFN Cell 31 (see TS 34.108 clause 11.2.4).

Related ICS/IXIT statements

- MBMS Broadcast services in MBSFN mode available on UE Yes/No.
- Support of MBSFN receive only function available on UE Yes/No.

Test procedure

a) The UE is camping on FDD unicast carrier cell 1 and IMB cell 31. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 (no session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

b) The SS sends ACTIVATE RB TEST MODE on the unicast carrier and the UE responds with ACTIVATE RB TEST MODE COMPLETE.

c) The SS sends CLOSE UE TEST LOOP to activate RLC SDU counting on Cell 31 MTCH (Transmission identity indicating the MBMS activated service).

d) SS indicates on MICH and modifies the MCCH to indicate the start of the national service. In this step the SS shall send MCCH information as follows:

The RLC is configured at the SS as TM mode. This is in order to be able to replace encoded PDUs and header information with an invalid LI .

On the first repetition period for all critical MCCH messages, only the odd numbered RLC PDU SN are transmitted correctly, an invalid LI is inserted into the RLC header of the even numbered PDUs.

On the second repetition period for all critical MCCH messages, only the even numbered RLC PDU SN are transmitted correctly, an invalid LI is inserted into the RLC header of the odd numbered PDUs.

e) SS waits for the UE to begin reception of the MBMS service using the 8kbps radio bearer configuration specified in TS 34.108, clause 6.11.1e (3.84 Mcps TDD IMB). The UE closes the test loop. The UE sends CLOSE UE TEST LOOP COMPLETE.

f) The SS transmits 10 * RLC SDUs of size 40 octets. (PDU is 40 octets + 1 octet special LI)

g) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The SS waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is > 0.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1	←		U	ACTIVATE RB TEST MODE	
2	→		U	ACTIVATE RB TEST MODE COMPLETE	
3	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated on Cell 31 for the selected national service on MTCH.
4	←		M	MBMS MCCH Message Configuration C4	For all MCCH messages using message combination C4 for 1 modification period: on the first repetition period, only the odd numbered RLC PDU SN are transmitted correctly. On the second repetition period only the even numbered RLC PDU SN are transmitted correctly. Other PDUs have an invalid LI in the RLC header. Those messages requiring specific contents are shown in steps 6-8, other messages have the default contents.
5	←		M	MBMS MODIFIED SERVICES INFORMATION	Includes the national service activated at UE in the modified services list for one modification period. SS indicates to the UE to Acquire PTM RB info.
6	←		M	MBMS COMMON P-T-M RB INFORMATION	Contains configuration for the 8kbps radio bearer configuration
7	←		M	MBMS CURRENT CELL P-T-M RB INFORMATION	Indicates the radio bearer configuration to be used for reception of the service.
8	←		M	MBMS MCCH Message Configuration C2	SS transmits PDUs using message combination C2. For all MCCH messages using message combination C2 for 1 modification period: on the first repetition period, only the odd numbered RLC PDU SN are transmitted correctly. On the second repetition period only the even numbered RLC PDU SN are transmitted correctly. Other PDUs have an invalid LI in the RLC header. After this modification period, the SS stops sending MCCH messages.
9	←		M	MBMS COMMON P-T-M RB INFORMATION	Contains configuration for the 8kbps radio bearer configuration
10	←		M	MBMS CURRENT CELL P-T-M RB INFORMATION	Indicates the radio bearer configuration to be used for reception of the service.
11	→		U	CLOSE UE TEST LOOP COMPLETE	The UE establishes the MTCH according to the activation time and closes the test loop.
12	←		M	10 * RLC SDU	SS sends 10*RLC SDUs on MTCH
13	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
14	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is greater than zero.
15	←		U	OPEN UE TEST LOOP	
16	→		U	OPEN UE TEST LOOP COMPLETE	
17	←		U	DEACTIVATE RB TEST MODE	
18	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific message contents

Those PDUs indicated to have an invalid LI in the RLC header, shall encode the LI to be invalid according to TS 25.322 clause 11.2.4.2.

With the following exceptions, all messages have the same content as defined in TS 34.108 clause 9.1.3 for the MBSFN carriers and in TS 34.108 clause 9.1.1 or 9.1.2 for the unicast carrier:

MBMS COMMON P-T-M RB INFORMATION (Step 6 and Step 9) (3.84 Mcps TDD IMB)

Information Element	Value/remark	Version
Message type		Rel-6
RB information list	1 entry in the list	Rel-6
- RB identity		Rel-6
- MBMS Common RB identity	14	
- PDCP info		
- Support for lossless SRNS relocation	Not Present	
- Max PDCP SN window size	Not Present	
- PDCP PDU header	absent	
- Header compression information	Not Present	
- RLC info		
- DL UM RLC LI size	15	
- DL Duplication Avoidance and Reordering info	Not Present	
- DL Out of sequence delivery info	Not Present	
TrCh information for each TrCh	1 entry in the list	Rel-6
- Transport channel identity		Rel-6
- MBMS Common TrCh identity	1	
- TFS		
- CHOICE *Transport channel type*	Common transport channels	
- Dynamic Transport format information		
- RLC Size	Reference to clause 6.11.1e	
- Number of TBs and TTI List	(This IE is repeated for TFI number.)	
- Number of Transport blocks	Reference to clause 6.11.1e	
- CHOICE mode	FDD	
- CHOICE *Logical channel list*	All	
- no data		
- Semi-static Transport Format information		
- Transmission time interval	Reference to clause 6.11.1e	
- Type of channel coding	Turbo Code	
- Coding Rate	Not present	
- Rate matching attribute	Reference to clause 6.11.1e	
- CRC size	Reference to clause 6.11.1e	
TrCh information for each CCTrCh	Not Present (Default TFCS applies for each CCTrCh)	Rel-6
PhyCh information	1 entry in list	Rel-6
- PhyCh identity		Rel-6
- MBMS Common PhyCh identity	23	
CHOICE mode	3.84 Mcps TDD IMB	
- Secondary CCPCH frame type 2 info		Rel-8
- Sub-frame number	2(check in 5.5.2)	Rel-8
- Downlink channelisation codes		Rel-8
- First channelisation code	Reference to clause 6.11.1e	
- Last channelisation code	Reference to clause 6.11.1e	
- CHOICE modulation	Reference to clause 6.11.1e	Rel-8
- CPICH secondary CCPCH power offset	0dB	Rel-8
LCR TDD MBSFN information	Not present	Rel-7

MBMS CURRENT CELL P-T-M RB INFORMATION (Step 7 and Step 10)

Information Element	Value/remark	Version
Message type		Rel-6
S-CCPCH list	Contains 1 S-CCPCH	Rel-6
- S-CCPCH identity	Not Present	
- Secondary CCPCH info	23	
- MBMS Soft Combining Timing Offset	Not Present	
- TrCh information common for all TrCh	Not Present (MD)	
- TrCH information list		
- TrCh information	1	
- RB information list		
- RB information		
- RB information	14	
- MBMS short transmission ID	Reference to the service which is being provided on this RB.	
- MBMS logical channel identity	1	
- L1 combining status	Not Present	
- MSCH configuration information	Not Present	
S-CCPCH in SIB type 5	Not Present	Rel-6
MBSFN TDM Info List	Not Present	Rel-7

7.2.4.3t.5 Test requirements

1) At step 14, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a count > 0 for Cell 31 MTCH.

7.3 PDCP

7.3.1 General

7.3.1.1 General assumptions

If not otherwise mentioned, the same procedures as used in RRC test specification (TS 34.123-1) or in the Generic procedure (TS 34.108) applies to reach Initial conditions for PDCP testing. In this test description, common test sequences for PDCP (clause 7.3.1.2) are defined and are applied either as preamble or post amble to establish or release a Packet Switched (PS) connection for a test case.

If not explicitly described, the same message contents and settings are applied as described in the RRC test description default settings.

Detailed IP header compression coding mechanism as well as mechanism related error recovery and packet reordering described in IETF RFC 2507 are not verified.

For PDCP testing TCP/IP data type and UDP/IP data type as Non-TCP/IP data types are applied for IP data.

The IP data packet size shall be limited to 1500 bytes as defined in 3GPP TS 23.107, clause 6.5.1and 6.5.2 (range of QoS attributes).

An UE supporting IP Header compression protocol RFC 2507 shall be capable to store a header compression context of at least 512 bytes (Integer).

It shall be possible to reconfigure PDCP settings while UE test loop mode 1. With the applied test method using UE test loop mode 1, the UE as Originator and Receiver of PDCP SDUs (concurrent transmission) is tested.

7.3.1.2 Common Test sequences and Default message contents for PDCP

General

The settings and parameter used in the "Common Test sequences for PDCP" are described in the "Default PDCP Message Contents". If not explicitly shown there, the message contents are identical with the default contents for the same message type of layer 3 messages for RRC tests, to establish a packet switched session or connection. The contents of test case specific message parameters are described in the test case (Expected Sequence). If not explicitly shown, default settings and parameter are used as message content for all Common Test sequences.

7.3.1.2.1 Common Test sequences for PDCP

7.3.1.2.1.1 Setup a UE terminated PS session using IP Header compression in AM RLC (using UE Test loop test mode 1)

Initial Conditions

UE is in Idle mode (state 3 or state 7) as specified in clause 7.4 of TS 34.108.

Test procedure

After having received the System Information, the SS starts to setup a RRC connection. After connection establishment and Radio Bearer Setup, the UE test loop mode 1 is activated and the UE test loop mode 1 is closed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		←	SYSTEM INFORMATION	
2		←	PAGING TYPE 1	CN domain identity: PS domain Paging cause: interactive session
3		→	RRC CONNECTION REQUEST	
4		←	RRC CONNECTION SETUP	Connection Setup message PS sessions in AM RLC used in RRC testing matches here
5		→	RRC CONNECTION SETUP COMPLETE	
5a		←	AUTHENTICATION AND CIPHERING REQUEST	As defined in TS 34.108, clause 7.4.2.6a
5b		→	AUTHENTICATION AND CIPHERING RESPONSE	As defined in TS 34.108, clause 7.4.2.6a
5c		←	SECURITY MODE COMMAND	As defined in TS 34.108, clause 7.4.2.6a
5d		→	SECURITY MODE COMPLETE	As defined in TS 34.108, clause 7.4.2.6a
6		←	ACTIVATE RB TEST MODE	
7		→	ACTIVATE RB TEST MODE COMPLETE	
8		←	RADIO BEARER SETUP	The Radio Bearer configuration is as described in TS 34.108, clause 6.10, Prioritised RAB No. 23: QoS parameter: Traffic Class: Interactive or Background, max. UL:64 kbps max. DL:64 kbps, Residual BER as described in TS 34.108, clause: 6.10.
9		→	RADIO BEARER SETUP COMPLETE	
10		←	CLOSE UE TEST LOOP	The SS initiates UE test loop mode 1, indicated by the Parameter: "UE test loop mode" 1 (X1=0 and X2=0) The "DCCH dummy transmission" not used: disabled: (Y1=0)
11		→	CLOSE UE TEST LOOP COMPLETE	After having received the test mode acknowledgement, the UE test loop mode 1 is activated.

Specific message contents

The contents of test case specific message parameters are described in the test case (Expected Sequence). Default contents of messages are described in the clause Default PDCP Message Contents.

7.3.1.2.1.2 Setup a UE terminated PS session using IP Header compression in UM RLC (using UE Test loop test mode 1)

Initial Conditions

UE is in Idle mode (state 3 or state 7) as specified in clause 7.4 of TS 34.108.

Test procedure

After having received the System Information, the SS starts to setup a RRC connection. After connection establishment and Radio Bearer Setup, the UE test loop mode 1 is activated and the UE test loop mode 1 is closed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		SYSTEM INFORMATION	
2	←		PAGING TYPE 1	CN domain identity: PS domain Paging cause: interactive session
3	→		RRC CONNECTION REQUEST	
4	←		RRC CONNECTION SETUP	Connection Setup message PS sessions in UM RLC used in RRC testing matches here
5	→		RRC CONNECTION SETUP COMPLETE	
5a	←		AUTHENTICATION AND CIPHERING REQUEST	As defined in TS 34.108, clause 7.4.2.6a
5b	→		AUTHENTICATION AND CIPHERING RESPONSE	As defined in TS 34.108, clause 7.4.2.6a
5c	←		SECURITY MODE COMMAND	As defined in TS 34.108, clause 7.4.2.6a
5d	→		SECURITY MODE COMPLETE	As defined in TS 34.108, clause 7.4.2.6a
6	←		ACTIVATE RB TEST MODE	
7	→		ACTIVATE RB TEST MODE COMPLETE	
8	←		RADIO BEARER SETUP	The Radio Bearer configuration is as described in TS 34.108, clause 6.10, Prioritised RAB No. 23: QoS parameter: Traffic Class: Interactive or Background, max. UL:64 kbps max. DL:64 kbps, Residual BER as described in TS 34.108, clause: 6.10.
9	→		RADIO BEARER SETUP COMPLETE	
10	←		CLOSE UE TEST LOOP	The SS initiates UE test loop mode 1, indicated by the Parameter: "UE test loop mode"1 (X1=0 and X2=0) The "DCCH dummy transmission" not used: disabled: (Y1=0)
11	→		CLOSE UE TEST LOOP COMPLETE	After having received the test mode acknowledgement, the UE test loop mode 1 is activated.

Specific message contents

The contents of test case specific message parameters are described in the test case (Expected Sequence) Default contents of messages are described in the clause Default PDCP Message Contents.

7.3.1.2.1.3 Deactivate a UE terminated PS session using IP Header compression (using UE test loop mode 1)

Initial Conditions

UE is in connected mode, a UE test loop mode 1 for PDCP is activated, and the UE loop mode 1 is "closed".

Test procedure

The UE opens the UE test loop mode 1, deactivates the test mode and the PS session, releases the Radio Bearer and enters Idle mode.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		OPEN UE TEST LOOP	The SS terminates the UE test loop mode 1, (see described parameter)
2	→		OPEN UE TEST LOOP COMPLETE	After having received the test mode acknowledgement, the test loop mode 1 is deactivated.
3	←		DEACTIVATE RB TEST MODE	SS deactivates the RB test mode
4	→		DEACTIVATE RB TEST MODE COMPLETE	UE shall confirm the previous message. Afterwards, the UE returns to normal operation
5	←		RRC CONNECTION RELEASE	SS terminates the connection
6	→		RRC CONNECTION RELEASE COMPLETE	UE confirms the connection release and returns to Idle mode

Specific message contents

The contents of test case specific message parameter is described in the test case (Expected Sequence). Default contents of messages are described in the clause Default PDCP Message Contents.

7.3.1.2.1.4 (Activate closed loop mode1 in CELL_DCH and CELL_FACH states

Initial Conditions

UE is in Idle mode (state 3 or state 7) as specified in clause 7.4 of TS 34.108.

Test procedure

After having received the System Information, the SS starts to setup a RRC connection. After connection establishment and Radio Bearer Setup, the UE test loop mode 1 is activated and the UE test loop mode 1 is closed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		ACTIVATE RB TEST MODE	
2	→		ACTIVATE RB TEST MODE COMPLETE	
2a	←		RADIO BEARER SETUP	RRC RAB SETUP
2b	→		RADIO BEARER SETUP COMPLETE	RRC
3	←		CLOSE UE TEST LOOP	The SS initiates UE test loop mode 1, indicated by the Parameter: "UE test loop mode" 1 (X1=0 and X2=0) The "DCCH dummy transmission" not used: disabled: (Y1=0)
4	→		CLOSE UE TEST LOOP COMPLETE	After having received the test mode acknowledgement, the UE test loop mode 1 is activated.

7.3.1.2.1.4.1 Specific message contents

For step 2a, the messages in clause 9 of TS 34.108 are used. To execute the procedure for the CELL_DCH case, use the message titled "Packet to CELL_DCH from CELL_DCH in PS". To execute the procedure for the CELL_FACH case, use the message titled "Packet to CELL_FACH from CELL_FACH in PS".

Specific message contents

The contents of test case specific message parameters are described in the test case (Expected Sequence). Default contents of messages are described in the clause Default PDCP Message Contents.

7.3.1.2.1.5 Setup a UE terminated CS session in UM RLC (using UE Test loop test mode 1)

Initial Conditions

UE is in Idle mode (state 2 or state 7) as specified in clause 7.4 of TS 34.108.

Test procedure

After having received the System Information, the SS starts to setup a RRC connection. After connection establishment and Radio Bearer Setup, the UE test loop mode 1 is activated and the UE test loop mode 1 is closed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		←	SYSTEM INFORMATION	
2		←	PAGING TYPE 1	CN domain identity: CS domain Paging cause: Terminating Conversational Call
3		→	RRC CONNECTION REQUEST	
4		←	RRC CONNECTION SETUP	Connection Setup message CS sessions in UM RLC used in RRC testing matches here
5		→	RRC CONNECTION SETUP COMPLETE	
5a		←	AUTHENTICATION AND CIPHERING REQUEST	As defined in TS 34.108, clause 7.4.2.6a
5b		→	AUTHENTICATION AND CIPHERING RESPONSE	As defined in TS 34.108, clause 7.4.2.6a
5c		←	SECURITY MODE COMMAND	As defined in TS 34.108, clause 7.4.2.6a
5d		→	SECURITY MODE COMPLETE	As defined in TS 34.108, clause 7.4.2.6a
6		←	ACTIVATE RB TEST MODE	
7		→	ACTIVATE RB TEST MODE COMPLETE	
8		←	RADIO BEARER SETUP	The Radio Bearer configuration is as described in TS 34.108, clause 6.10.2.2, combination No. 9: Conversational / speech / UL:(12.2, 7.95, 5.9, 4.75) kbps DL: (12.2, 7.95, 5.9, 4.75) kbps / CS RAB on E-DCH and HS-DSCH + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH
9		→	RADIO BEARER SETUP COMPLETE	
10		←	CLOSE UE TEST LOOP	The SS initiates UE test loop mode 1, indicated by the Parameter: "UE test loop mode"1 (X1=0 and X2=0) The "DCCH dummy transmission" not used: disabled: (Y1=0)
11		→	CLOSE UE TEST LOOP COMPLETE	After having received the test mode acknowledgement, the UE test loop mode 1 is activated.

Specific message contents

Default contents of messages are described in the clause Default PDCP Message Contents, except for the contents of the RADIO BEARER SETUP which are as described in TS 34.108, clause 9.1.1 with condition A23.

The contents of test case specific message parameters are described in the test case (Expected Sequence).

7.3.1.2.2 Default PDCP Message Contents

This clause contains the default values of RRC messages used for PDCP testing, other than those specified in TS 34.108 clauses 6 and 9, and default values of PDCP messages. Unless indicated otherwise in specific test cases, only PDCP related specific message contents are described here which shall be transmitted by the system simulator in RRC messages, and which are required to be received from the UE under test. If not explicitly described, the message contents are identical with the default contents for the same message type of layer 3 messages for RRC tests, to establish a packet switched session or connection.

The necessary L3 messages are listed in alphabetic order, with the exception of the SYSTEM INFORMATION messages, where it is the information elements which are listed in alphabetic order (this is because some information elements occur in several SYSTEM INFORMATION types).

In this clause, decimal values are normally used. However, sometimes a hexadecimal value, indicated by an "H", or a binary value, indicated by a "B" is used.

Default SYSTEM INFORMATION:

NOTE: SYSTEM INFORMATION BLOCK TYPE 1 (except for PLMN type "GSM-MAP"), SYSTEM INFORMATION BLOCK TYPE 8, SYSTEM INFORMATION BLOCK TYPE 9, SYSTEM INFORMATION BLOCK TYPE 10, SYSTEM INFORMATION BLOCK TYPE 14, SYSTEM INFORMATION BLOCK TYPE 15 and INFORMATION BLOCK TYPE 16 messages are not used.

Contents of CONNECTION SETUP message:

Information Element	Value/remark
Capability update requirement	
- UE radio access capability update requirement	TRUE
- System specific capability update requirement list	UE only supports 1 system

Contents of CONNECTION SETUP COMPLETE message:

Information Element	Value/remark
UE radio access capability	Value will be checked. Stated capability must be compatible with 34.123-2 (c.f. PICS/PIXIT statements in GSM) and the user settings
- Conformance test compliance	
- PDCP Capability	
- Max PDCP SN	
- Support of lossless SRNS relocation	
- Support for RFC2507	
- Max HC context space	(TCP_SPACE + NON_TCP_SPACE))
- Support for CS Voice over HSPA	Shall be present for Rel-8 and later UEs. May be present for Rel-7 UEs
- RLC Capability	
- Transport channel capability	
- RF Capability	
- Physical channel capability	
- UE multi-mode/multi-RAT capability	
- Security Capability	
- LCS Capability	
- Measurement capability	
UE system specific capability	Value will be checked. UE must include the classmark information for the supported system

Contents of RB RECONFIGURATION COMPLETE message:

Information Element	Value/remark
- Downlink counter synchronisation info - RB with PDCP information list - RB with information	Value will be checked. Stated capability must be compatible with 34.123-2 (c.f. PICS/PIXIT statements in GSM) and the user settings

Contents of ACTIVATE RB TEST MODE message:

Information Element	Value/remark
Protocol Discriminator Skip indicator Message type	TS 24.007, 11.2.3.1.1 TS 24.007, 11.2.3.1.2 01000100B

Contents of ACTIVATE RB TEST MODE COMPLETE message:

Information Element	Value/remark
Protocol Discriminator Skip indicator Message type	TS 24.007, 11.2.3.1.1 TS 24.007, 11.2.3.1.2 01000101B

Contents of DEACTIVATE RB TEST MODE message:

Information Element	Value/remark
Protocol Discriminator Skip indicator Message type	TS 24.007, 11.2.3.1.1 TS 24.007, 11.2.3.1.2 01000110B

Contents of DEACTIVATE RB TEST MODE COMPLETE message:

Information Element	Value/remark
Protocol Discriminator Skip indicator Message type	TS 24.007, 11.2.3.1.1 TS 24.007, 11.2.3.1.2 01000111B

Contents of CLOSE UE TEST LOOP message:

Information Element	Value/remark
Protocol Discriminator Skip indicator Message type UE test loop mode UE test loop mode 1 LB setup - Length of UE loop mode 1 LB setup IE - LB setup list - LB setup RAB subflow #1 - Z13…Z0 (Uplink RLC SDU size in bits)	TS 24.007, 11.2.3.1.1 TS 24.007, 11.2.3.1.2 01000000B 000000100B (X2=0 and X1=0 for UE test mode 1, Y1=0 DCCH dummy transmission disabled) 4 octets 0…16383 (binary coded, Z13 most significant bit); value as negotiated

Contents of CLOSE UE TEST LOOP COMPLETE message:

Information Element	Value/remark
Protocol Discriminator Skip indicator Message type	TS 24.007, 11.2.3.1.1 TS 24.007, 11.2.3.1.2 01000001B

Contents of OPEN UE TEST LOOP message:

Information Element	Value/remark
IE Identifier (only in AM)	1000xxxx
Protocol Discriminator	TS 24.007, 11.2.3.1.1
Skip indicator	TS 24.007, 11.2.3.1.2
Message type	01000010B

Contents of OPEN UE TEST LOOP COMPLETE message:

Information Element	Value/remark
Protocol Discriminator	TS 24.007, 11.2.3.1.1
Skip indicator	TS 24.007, 11.2.3.1.2
Message type	01000011B

7.3.2 IP Header Compression and PID assignment

7.3.2.1 UE in RLC AM

7.3.2.1.1 Transmission of uncompressed Header

7.3.2.1.1.1 Definition and applicability

Applicable for all UEs supporting RLC AM and a Radio Bearer as described in the Common Test Sequences. The UE shall be capable to deal with TCP/IP and UDP/IP data packets with uncompressed IP header.

7.3.2.1.1.2 Conformance requirement

1. The Packet Data Convergence Protocol shall perform the following functions:

   - transfer of user data. This function is used for conveyance of data between users of PDCP services.

2. Depending on the configuration by upper layers (i.e. PDCP PDU type to be used and header compressor protocol), the PDCP sublayer shall be able to:

   - identify the correct header compression protocol; and

   - distinguish different types of header compression packets within a header compression protocol.

The mapping of the PID values shall follow the general rules listed below:

- PID value "0" shall indicate "no compression". PID value "0" shall be used in a PDCP PDU containing in its Data field a PDCP SDU that is unchanged by the Sender and that shall not be decompressed by the Receiver;

Reference(s)

TS 25.323 clause 5.

TS 25.323 clause 5.1.1.

7.3.2.1.1.3 Test purpose

The test case consists of two test procedures:

The first test procedure verifies, that the "PDCP Data" PDU is used for uncompressed IP header packets, if no IP header compression is configured by higher layers. The second test procedure verifies, that the "PDCP No header" PDU is used for uncompressed IP header packets, if no IP header compression is configured by higher layers.

1. To verify, that the UE transmits and receives in acknowledged mode (RLC AM) TCP/IP and UDP/IP data packets without IP header compression as configured by higher layers.

2. To verify, that PID assignment rules are correctly applied, if usage of "PDCP Data" PDU are negotiated, i.e. the UE shall recognize PID value = 0 for a received TCP/IP and UDP/IP data packet and it shall use PID=0 to transmit IP data packets, if no IP header compression is negotiated. If usage of "PDCP No Header" PDU is negotiated, no PID assignment is used for transmitting and receiving TCP/IP and UDP/IP data packets.

7.3.2.1.1.4 Method of test

Initial conditions

UE is in Idle mode (state 3 or state 7) as specified in clause 7.4 of TS 34.108.

Test procedure 1: Usage of "PDCP Data" PDU and no IP header compression is configured.

Test procedure 2: No IP header compression is configured.

Related ICS/IXIT Statement(s)

Support of PS – Yes/No

PIXIT: Test_PDCP_TCP/IP_Packet1

PIXIT: Test_PDCP_UDP/IP_Packet1

Proc 1 Test procedure 1: Transmission of uncompressed IP header packets using PDCP Data PDU

a) The SS setups a packet switched session including radio bearer and UE test loop mode 1 in RLC AM using Common test procedures for mobile terminated PS switched sessions. Usage of "PDCP Data" PDU has been configured by higher layers.

b) The SS sends a TCP/IP data packet with uncompressed IP Header.

c) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PDCP PDU type and shall handle the received data packet with the appropriate decoding method. Then it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration using PDCP Data PDU.

d) The SS receives and decodes the TCP/IP data packet. The decoded data packet shall be identical with the data as sent before.

e) Step b) to d) shall be repeated by using a UDP/IP data packet with uncompressed IP Header.

The SS deactivates the UE test loop mode and terminates the connection.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
Setup a UE terminated PS session using IP Header compression in AM RLC (using UE test loop mode 1)				
1	←		PDCP Data	The SS creates a TCP/IP packet without IP header compression (PDCP Data PDU). The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression is applied for this packet. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.

Step	Direction	Message	Comments
	UE | SS		
2	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function for the received data
3	←	PDCP Data	The SS creates a UDP/IP packet without IP header compression (PDCP Data PDU). The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described UDP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU and recognizes with PID value = 0, there was no IP header compression applied for the UDP/IP packet. Therefore, no IP header decompression is applied for this packet. The data packet is forwarded via PDCP-SAP to the Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
4	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: data: previously received UDP/IP packet After reception of this UDP/IP data packet, the SS decodes the received data
Deactivate a UE terminated PS session using IP Header compression (using UE test loop mode 1)			

Specific Message Contents

RRC CONNECTION SETUP message

The contents of the RRC CONNECTION SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in AM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for AM) with the following exceptions:

Information Element	Value/remark
Capability update requirement - UE radio access capability update requirement	 TRUE NOTE: Value will be checked. Stated capability must be compatible with 34.123-2 (c.f. PICS/PIXIT statements in GSM) and the user settings

RADIO BEARER SETUP message

The contents of the RADIO BEARER SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in AM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for AM) which fits to the below described parameters with the following exceptions:

Information Element	Value/remark
RAB information for setup - RAB info - RAB identity	 No. # 23 as described in TS 34.108, Table 6.10.2.1.1 Prioritised RABs. QoS parameter: Traffic Class: Interactive or Background, max. UL: 64 kbps and max. DL: 64 kbps as described in TS 34.108, including described physical channel parameters, configuration for AM RLC Residual BER as described in TS 34.108, clause: 6.10 Related Signalling RB UL: 3.4 kbps, DL: 3.4 kbps DCCH, No. #2 (as described in TS 34.108)
- CN domain identity	PS domain
- RB information to setup - RB identity	 20
- PDCP info - Support of lossless SRNS relocation	 False (IE "Support of lossless SRNS relocation" only present, if RLC "In-sequence delivery" is TRUE and in AM)
- PDCP PDU header	present
- RLC info - Downlink RLC mode	 (AM RLC)
- Uplink RLC mode	(AM RLC)

Content of PDCP Data PDU (Step 1)

Information Element	Value/remark
PDU type	000
PID	00000 (No header compression, PID = 0)
Data	PDCP test data type #1: TCP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

Content of PDCP Data PDU (Step 3)

Information Element	Value/remark
PDU type	000
PID	00000 (No header compression, PID = 0)
Data	PDCP test data type #2: UDP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

Proc 2: Test procedure 2: Transmission of uncompressed IP header packets using No Header PDU

a) The SS setups a packet switched session including radio bearer and UE test loop mode 1 in RLC AM using Common test procedures for mobile terminated PS switched sessions. Usage of "PDCP No Header" PDU has been configured by higher layers.

b) The SS sends a TCP/IP data packet with uncompressed IP Header.

c) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PDCP PDU type and shall handle the received data packet with the appropriate decoding method. Then it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration using PDCP No Header PDU.

d) The SS receives and decodes the TCP/IP data packet. The decoded data packet shall be identical with the data as sent before.

e) Step b) to d) shall be repeated by using a UDP/IP data packet with uncompressed IP Header.

f) The SS deactivates the UE test loop mode and terminates the connection.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
Setup a UE terminated PS session using IP Header compression in AM RLC (using UE test loop mode 1)				
				The SS creates a TCP/IP packet without IP header compression (PDCP No Header PDU).
1	←		PDCP No Header	The SS sends a PDCP No Header PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: data: below described TCP/IP packet After having received the PDCP No Header PDU, the UE decodes the PDU and recognizes, there was no PID applied for the TCP/IP packet. Therefore, no IP header decompression shall be applied for this packet. Then, the data packet is forwarded via PDCP-SAP to the Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
2	→		PDCP No Header	The UE sends a PDCP No Header PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function for the received data
				The SS creates a UDP/IP packet without IP header compression (PDCP No Header PDU).

Step	Direction		Message	Comments
	UE	SS		
3		←	PDCP No Header	The SS sends a PDCP No Header PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: data: below described UDP/IP packet After having received the PDCP No Header PDU, the UE decodes the PDU and recognizes, there was no PID applied for the UDP/IP packet. Therefore, no IP header decompression shall be applied for this packet. Then, the data packet is forwarded via PDCP-SAP to the Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
4		→	PDCP No Header	The UE sends a PDCP No Header PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: data: previously received UDP/IP packet After reception of this UDP/IP data packet, the SS decodes the received data
Deactivate a UE terminated PS session using IP Header compression (using UE test loop mode 1).				

Specific Message Contents

RRC CONNECTION SETUP message

The contents of the RRC CONNECTION SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in AM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for AM) with the following exceptions:

Information Element	Value/remark
Capability update requirement - UE radio access capability update requirement	 TRUE NOTE: Value will be checked. Stated capability must be compatible with 34.123-2 (c.f. PICS/PIXIT statements in GSM) and the user settings

RADIO BEARER SETUP message

The contents of the RADIO BEARER SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in AM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for AM) which fits to the below described parameters with the following exceptions:

Information Element	Value/remark
RAB information for setup - RAB info - RAB identity	 No. # 23 as described in TS 34.108, Table 6.10.2.1.1 Prioritised RABs. QoS parameter: Traffic Class: Interactive or Background, max. UL: 64 kbps and max. DL: 64 kbps as described in TS 34.108, including described physical channel parameters, configuration for AM RLC Residual BER as described in TS 34.108, clause: 6.10 Related Signalling RB UL: 3.4 kbps, DL: 3.4 kbps DCCH, No. #2 (as described in TS 34.108)
- CN domain identity	PS domain
- RB information to setup - RB identity	 20
- PDCP info - Support of lossless SRNS relocation	 False (IE "Support of lossless SRNS relocation" only present, if RLC "In-sequence delivery" is TRUE and in AM)
- PDCP PDU header	absent
- RLC info - Downlink RLC mode	 (AM RLC)
- Uplink RLC mode	(AM RLC)

Content of PDCP No Header PDU (Step 1)

Information Element	Value/remark
Data	PDCP test data type #1: TCP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

Content of PDCP No Header PDU (Step 3)

Information Element	Value/remark
Data	PDCP test data type #2: UDP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

7.3.2.1.1.5 Test requirements

Test requirements 1 (Proc 1): Transmission of uncompressed IP header packets using PDCP Data PDU

The UE shall return the TCP/IP and UDP/IP data packets as indication, that the previous packets have been received and handled correctly (PDCP Data PDU). This verifies, that the PDCP configuration on UE side works as negotiated by the RRC. An invalid PDU type as well as unconfigured PID values shall not be received by SS.

Test requirements 2 (Proc 1): Transmission of uncompressed IP header packets using PDCP No Header PDU (Proc 2)

The UE shall return the TCP/IP and UDP/IP data packets as indication, that the previous packets have been received and handled correctly (PDCP No Header PDU). This verifies, that the PDCP configuration on UE side works as negotiated by the RRC. An invalid PDU type as well as unconfigured PID values shall not be received by SS.

7.3.2.1.2 Transmission of compressed Header

7.3.2.1.2.1 Definition and applicability

Applicable for all UEs supporting RLC AM and a Radio Bearer as described in the Common Test Sequences.

The UE shall be capable to deal with compressed TCP/IP and UDP/IP data packets and furthermore to establish a PDCP entity which applies IP header compression protocol RFC 2507.

7.3.2.1.2.2 Conformance requirement

1. The Packet Data Convergence Protocol shall perform the following functions:

   - transfer of user data. This function is used for conveyance of data between users of PDCP services.

2. Depending on the configuration by upper layers (i.e. PDCP PDU type to be used and header compressor protocol), the PDCP sublayer shall be able to:

   - identify the correct header compression protocol; and
   - distinguish different types of header compression packets within a header compression protocol.

Reference(s)

TS 25.323 clause 5.

TS 25.323 clause 5.1.1.

7.3.2.1.2.3 Test purpose

1. To verify, that the UE transmits and receives in acknowledged mode (RLC AM) TCP/IP and UDP/IP data packets by using IP header compression protocol as described in RFC2507 as configured by higher layers.
2. To verify, that the PID assignment rules are correctly applied by the UE. The UE as shall use the correct PID value for the applied optimisation method for transmitting and receiving TCP/IP and UDP/IP data packets.

7.3.2.1.2.4 Method of test

Initial conditions

UE is in Idle mode (state 3 or state 7) as specified in clause 7.4 of TS 34.108. Usage of "PDCP Data" PDU and IP header compression is configured.

Related ICS/IXIT Statement(s)

Support of IP header compression protocol RFC 2507 - YES/NO.

Support of PS – Yes/No

PIXIT: Test_PDCP_TCP/IP_Packet1

PIXIT: Test_PDCP_TCP/IP_Packet2

PIXIT: Test_PDCP_UDP/IP_Packet1

PIXIT: Test_PDCP_UDP/IP_Packet2

Test procedure

a) The SS setups a packet switched session including radio bearer and UE test loop mode 1 in RLC AM using Common test procedures for mobile terminated PS switched sessions. Usage of "PDCP Data" PDU has been configured by higher layers.

b) The SS sends a "normal" TCP/IP data packet (no compression packet type), PID=0.

c) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet with the correct decompression protocol. Then, it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.

d) The SS receives and decodes the TCP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.

e) The SS sends a TCP/IP data packet with packet type: Full_Header, PID=1.

NOTE: According to the compression protocol RFC 2507, this is necessary to transmit the created CONTEXT and the assigned CID.

f) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet with the correct decompression protocol. Then, it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.

g) The SS receives and decodes the TCP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.

h) The SS sends a TCP/IP data packet with packet type: Compressed_TCP, PID=2.

i) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet with the correct decompression protocol. Then, it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.

j) The SS receives and decodes the TCP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.

k) Step b) to d) is repeated for a "normal" UDP/IP data packet, PID=0.

l) Step e) to g) is repeated for a UDP/IP data packet with packet type: Full_Header, PID=1.

m) The SS sends a UDP/IP data packet with packet type: Compressed_non_TCP, PID=4.

n) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet with the correct decompression protocol. Then, it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.

o) The SS receives and decodes the UDP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.

p) The SS deactivates the UE tests loop mode 1 and terminates the connection.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
Setup a UE terminated PS session using IP Header compression in AM RLC (using UE test loop mode 1)				
1		←	PDCP Data	The SS creates a TCP/IP packet without IP header compression. The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression is applied for this packet. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
2		→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 to 3 data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
3		←	PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 1 (Full_Header packet type [TCP/IP]) data: below described TCP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU, recognizes PID value = 1 applied for this TCP/IP data packet and decompresses it with the appropriate method. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.

Step	Direction		Message	Comments
	UE	SS		
4	→		PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 to 3 data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
5	←		PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 2 (Compressed_TCP packet type) data: below described TCP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU, recognizes PID value = 2 applied for this TCP/IP data packet and decompress it with the appropriate method. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
6	→		PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 to 3 data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
7	←		PDCP Data	The SS creates a UDP/IP packet without compressed IP header compression. The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described UDP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU and recognizes with PID value = 0, there was no IP header compression applied for the UDP/IP packet. Therefore, no IP header decompression is applied for this packet. The data packet is forwarded via PDCP-SAP to the Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.

Step	Direction		Message	Comments
	UE	SS		
8	→		PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (Data PDU with Header) PID value = 0,1 or 4 (depending on which UDP/IP header format is used by the UE) data: previously received UDP/IP packet After reception of this UDP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.

Step	Direction		Message	Comments
	UE	SS		
9		←	PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 1 (Full_Header packet type) data: below described UDP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 1 applied for this UDP/IP data packet and decompress it with the appropriate method. The data packet is forwarded via PDCP-SAP to the Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
10		→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (Data PDU with Header) PID value = 0,1 or 4 (depending on which UDP/IP header format is used by the UE) data: previously received UDP/IP packet After reception of this UDP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
11		←	PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 4 (Compressed _non-TCP packet type) data: below described UDP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 4 applied for this UDP/IP data packet and decompress it with the appropriate method. The data packet is forwarded via PDCP-SAP to the Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
12		→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (Data PDU with Header) PID value = 0,1 or 4 (depending on which UDP/IP header format is used by the UE) data: previously received UDP/IP packet After reception of this UDP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
Deactivate a UE terminated PS session using IP Header compression (using UE test loop mode 1)				

Specific Message Contents

RRC CONNECTION SETUP message

The contents of the RRC CONNECTION SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in AM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for AM) with the following exceptions:

Information Element	Value/remark
Capability update requirement - UE radio access capability update requirement	 TRUE NOTE: Value will be checked. Stated capability must be compatible with 34.123-2 (c.f. PICS/PIXIT statements in GSM) and the user settings

RADIO BEARER SETUP message

The contents of the RADIO BEARER SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in AM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for AM) which fit to the here described parameters with the following exceptions:

Information Element	Value/remark
RAB information for setup - RAB info - RAB identity	 No. # 23 as described in TS 34.108, Table 6.10.2.1.1 Prioritised RABs. QoS parameter: Traffic Class: Interactive or Background, max. UL: 64 kbps and max. DL: 64 kbps as described in TS 34.108, including described physical channel parameters, configuration for AM RLC Residual BER as described in TS 34.108, clause: 6.10 Related Signalling RB UL: 3.4 kbps, DL: 3.4 kbps DCCH, No. #2 (as described in TS 34.108)
- CN domain identity	PS domain
- RB information to setup - RB identity - PDCP info	 20
- Support of lossless SRNS relocation	False (IE "Support of lossless SRNS relocation" only present, if RLC "In-sequence delivery" is TRUE and in AM)
- PDCP PDU header - Header compression information CHOICE *algorithm type* - RFC2507 - F_MAX_PERIOD - F_MAX_TIME - MAX_HEADER - TCP_SPACE - NON_TCP_SPACE - EXPECT_REORDERING	present 1 256 (Default) 5 (Default) 168 (Default) 15 (Default) 15 (Default) reordering not expected (Default)
- RLC info - Downlink RLC mode - Uplink RLC mode	 (AM RLC) (AM RLC)

Content of PDCP Data PDU (Step 1)

Information Element	Value/remark
PDU type PID Data	000 00000 (No header compression, PID = 0) PDCP test data type #1: TCP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

Content of PDCP Data PDU (Step 3)

Information Element	Value/remark
PDU type PID Data	000 00001 (Full_Header, PID = 1) PDCP test data type #1: TCP/IP data packet with full TCP/IP header with any data content. The data shall be limited to 1500 bytes.

Content of PDCP Data PDU (Step 5)

Information Element	Value/remark
PDU type PID Data	000 00010 (Compressed_TCP, PID = 2) PDCP test data type #1: TCP/IP data packet with a compressed header with any data content. The data shall be limited to 1500 bytes.

Content of PDCP Data PDU (Step 7)

Information Element	Value/remark
PDU type PID Data	000 00000 (No header compression, PID = 0) PDCP test data type #2: UDP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

Content of PDCP Data PDU (Step 9)

Information Element	Value/remark
PDU type PID Data	000 00001 (Full_Header, PID = 1) PDCP test data type #2: UDP/IP data packet with full UDP/IP header with any data content. The data shall be limited to 1500 bytes.

Content of PDCP Data PDU (Step 11)

Information Element	Value/remark
PDU type PID Data	000 00100 (Compressed_non-TCP, PID = 4) PDCP test data type #2: UDP/IP data packet with a compressed header with any data content. The data shall be limited to 1500 bytes.

7.3.2.1.2.5 Test requirements

The UE shall return the TCP/IP and UDP/IP data packets as indication, that the previous packets have been received and handled with the correct compression protocol. This verifies, that the PDCP configuration on UE side works as negotiated by the RRC. An invalid PDU type as well as unconfigured PID values shall not be received by SS.

7.3.2.2 UE in RLC UM

7.3.2.2.1 Transmission of uncompressed Header

7.3.2.2.1.1 Definition and applicability

Applicable for all UEs supporting RLC UM and a Radio Bearer as described in the Common Test Sequences.

The UE shall be capable to deal with TCP/IP and UDP/IP data packets with uncompressed IP header.

7.3.2.2.1.2 Conformance requirement

1. The Packet Data Convergence Protocol shall perform the following functions:
   - transfer of user data. This function is used for conveyance of data between users of PDCP services
2. Depending on the configuration by upper layers (i.e. PDCP PDU type to be used and header compressor protocol), the PDCP sublayer shall be able to:
   - identify the correct header compression protocol; and
   - distinguish different types of header compression packets within a header compression protocol.

The mapping of the PID values shall follow the general rules listed below:

- PID value "0" shall indicate "no compression". PID value "0" shall be used in a PDCP PDU containing in its Data field a PDCP SDU that is unchanged by the Sender and that shall not be decompressed by the Receiver;

Reference(s)

TS 25.323 clause 5.

TS 25.323 clause 5.1.1.

7.3.2.2.1.3 Test purpose

The test case consists of two test procedures:

The first test procedure verifies, that the "PDCP Data" PDU is used for uncompressed IP header packets, if no IP header compression is configured by higher layers. The second test procedure verifies, that the "PDCP No header" PDU is used for uncompressed IP header packets, if no IP header compression is configured by higher layers.

1. To verify, that the UE transmits and receives in unacknowledged mode (RLC UM) TCP/IP and UDP/IP data packets without IP header compression as configured by higher layers.
2. To verify, that PID assignment rules are correctly applied, if usage of "PDCP Data" PDU are negotiated, i.e. the UE shall recognize PID value = 0 for a received TCP/IP and UDP/IP data packet and it shall use PID=0 to transmit IP data packets, if no IP header compression is negotiated. If usage of "PDCP No Header" PDU is negotiated, no PID assignment is used for transmitting and receiving TCP/IP and UDP/IP data packets.

7.3.2.2.1.4 Method of test

Initial conditions

UE is in Idle mode.

Test procedure 1: Usage of "PDCP Data" PDU and no IP header compression is configured.

Test procedure 2: no IP header compression is configured.

Related ICS/IXIT Statement(s)

Support of PS – Yes/No

PIXIT: Test_PDCP_TCP/IP_Packet1

PIXIT: Test_PDCP_UDP/IP_Packet1

Proc 1: Test procedure 1: Transmission of uncompressed IP header packets using PDCP Data PDU

a) The SS setups a packet switched session including radio bearer and UE test loop mode 1 in RLC UM using Common test procedures for mobile terminated PS switched sessions. Usage of "PDCP Data" PDU has been configured by higher layers.

b) The SS sends a TCP/IP data packet with uncompressed IP Header.

c) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PDCP PDU type and shall handle the received data packet with the appropriate decoding method. Then it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration using PDCP Data PDU.

d) The SS receives and decodes the TCP/IP data packet. The decoded data packet shall be identical with the data as sent before.

e) Step b) to d) shall be repeated by using a UDP/IP data packet with uncompressed IP Header.

The SS deactivates the UE test loop mode and terminates the connection.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
Setup a UE terminated PS session using IP Header compression in UM RLC (using UE test loop mode 1)				
1	←		PDCP Data	The SS creates a TCP/IP packet without IP header compression (PDCP Data PDU). The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression is applied for this packet. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
2	→		PDCP Data	The UE sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function for the received data
				The SS creates a UDP/IP packet without IP header compression (PDCP Data PDU).

Step	Direction		Message	Comments
	UE	SS		
3		←	PDCP Data	The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described UDP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU and recognizes with PID value = 0, there was no IP header compression applied for the UDP/IP packet. Therefore, no IP header decompression is applied for this packet. The data packet is forwarded via PDCP-SAP to the Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
4		→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: data: previously received UDP/IP packet After reception of this UDP/IP data packet, the SS decodes the received data
Deactivate a UE terminated PS session using IP Header compression (using UE test loop mode 1)				

Specific Message Contents

RRC CONNECTION SETUP message

The contents of the RRC CONNECTION SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) with the following exceptions:

Information Element	Value/remark
Capability update requirement - UE radio access capability update requirement	 TRUE NOTE: Value will be checked. Stated capability must be compatible with 34.123-2 (c.f. PICS/PIXIT statements in GSM) and the user settings

RADIO BEARER SETUP message

The contents of the RADIO BEARER SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) which fits to the below described parameters with the following exceptions:

Information Element	Value/remark
RAB information for setup - RAB info - RAB identity	 No. # 23 as described in TS 34.108, Table 6.10.2.1.1 Prioritised RABs. QoS parameter: Traffic Class: Interactive or Background, max. UL: 64 kbps and max. DL: 64 kbps as described in TS 34.108, including described physical channel parameters, configuration for UM RLC Residual BER as described in TS 34.108, clause: 6.10 Related Signalling RB UL: 3.4 kbps, DL: 3.4 kbps DCCH, No. #2 (as described in TS 34.108)
- CN domain identity	PS domain
- RB information to setup - RB identity	 21
- PDCP info - PDCP PDU header	 present
- RLC info - Downlink RLC mode	 (UM RLC)

Content of PDCP Data PDU (Step 1)

Information Element	Value/remark
PDU type	000
PID	00000 (No header compression, PID = 0)
Data	PDCP test data type #1: TCP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

Content of PDCP Data PDU (Step 3)

Information Element	Value/remark
PDU type	000
PID	00000 (No header compression, PID = 0)
Data	PDCP test data type #2: UDP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

Proc 2: Test procedure 2: Transmission of uncompressed IP header packets using No Header PDU

a) The SS setups a packet switched session including radio bearer and UE test loop mode 1 in RLC UM using Common test procedures for mobile terminated PS switched sessions. Usage of "PDCP No Header" PDU has been configured by higher layers.

b) The SS sends a TCP/IP data packet with uncompressed IP Header.

c) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PDCP PDU type and shall handle the received data packet with the appropriate decoding method. Then it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration using PDCP No Header PDU.

d) The SS receives and decodes the TCP/IP data packet. The decoded data packet shall be identical with the data as sent before.

e) Step b) to d) shall be repeated by using a UDP/IP data packet with uncompressed IP Header.

f) The SS deactivates the Loop back test mode and terminates the connection.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
Setup a UE terminated PS session using IP Header compression in UM RLC (using UE test loop mode 1)				
				The SS creates a TCP/IP packet without IP header compression (PDCP No Header PDU).
1	←		PDCP No Header	The SS sends a PDCP No Header PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: data: below described TCP/IP packet
				After having received the PDCP No Header PDU, the UE decodes the PDU and recognizes, there was no PID applied for the TCP/IP packet. Therefore, no IP header decompression shall be applied for this packet. Then, the data packet is forwarded via PDCP-SAP to the Radio Bearer Loop Back (RB LB) entity.
				The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
2	→		PDCP No Header	The UE sends a PDCP No Header PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: data: previously received TCP/IP packet
				After reception of this TCP/IP data packet, the SS applies the appropriate decoding function for the received data
				The SS creates a UDP/IP packet without IP header compression (PDCP No Header PDU).

Step	Direction		Message	Comments
	UE	SS		
3	←		PDCP No Header	The SS sends a PDCP No Header PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: data: below described UDP/IP packet
				After having received the PDCP No Header PDU, the UE decodes the PDU and recognizes, there was no PID applied for the UDP/IP packet. Therefore, no IP header decompression shall be applied for this packet. Then, the data packet is forwarded via PDCP-SAP to the Radio Bearer Loop Back (RB LB) entity.
				The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
4	→		PDCP No Header	The UE sends a PDCP No Header PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: data: previously received UDP/IP packet
				After reception of this UDP/IP data packet, the SS decodes the received data
Deactivate a UE terminated PS session using IP Header compression (using UE test loop mode 1)				

Specific Message Contents

RRC CONNECTION SETUP message

The contents of the RRC CONNECTION SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) with the following exceptions:

Information Element	Value/remark
Capability update requirement - UE radio access capability update requirement	 TRUE NOTE: Value will be checked. Stated capability must be compatible with 34.123-2 (c.f. PICS/PIXIT statements in GSM) and the user settings

RADIO BEARER SETUP message

The contents of the RADIO BEARER SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) which fits to the below described parameters with the following exceptions:

Information Element	Value/remark
RAB information for setup - RAB info - RAB identity	 No. # 23 as described in TS 34.108, Table 6.10.2.1.1 Prioritised RABs. QoS parameter: Traffic Class: Interactive or Background, max. UL: 64 kbps and max. DL: 64 kbps as described in TS 34.108, including described physical channel parameters, configuration for UM RLC Residual BER as described in TS 34.108, clause: 6.10 Related Signalling RB UL: 3.4 kbps, DL: 3.4 kbps DCCH, No. #2 (as described in TS 34.108)
- CN domain identity	PS domain
- RB information to setup - RB identity	 21
- PDCP info	False
- PDCP PDU header	absent
- RLC info - Downlink RLC mode	 (UM RLC)
- Uplink RLC mode	(UM RLC)

Content of PDCP No Header PDU (Step 1)

Information Element	Value/remark
Data	PDCP test data type #1: TCP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

Content of PDCP No Header PDU (Step 3)

Information Element	Value/remark
Data	PDCP test data type #2: UDP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

7.3.2.2.1.5 Test requirements

Test requirements 1 (Proc 1): Transmission of uncompressed IP header packets using PDCP Data PDU

The UE shall return the TCP/IP and UDP/IP data packets as indication, that the previous packets have been received and handled correctly (PDCP Data PDU). This verifies, that the PDCP configuration on UE side works as negotiated by the RRC. An invalid PDU type as well as unconfigured PID values shall not be received by SS.

Test requirements 2 (Proc 2): Transmission of uncompressed IP header packets using PDCP No Header PDU

The UE shall return the TCP/IP and UDP/IP data packets as indication, that the previous packets have been received and handled correctly (PDCP No Header PDU). This verifies, that the PDCP configuration on UE side works as negotiated by the RRC. An invalid PDU type as well as unconfigured PID values shall not be received by SS.

7.3.2.2.2 Transmission of compressed Header

7.3.2.2.2.1 Definition and applicability

Applicable for all UEs supporting RLC UM and a Radio Bearer as described in the Common Test Sequences.

The UE shall be capable to deal with compressed TCP/IP and UDP/IP data packets and furthermore to establish a PDCP entity which applies IP header compression protocol RFC 2507.

7.3.2.2.2.2 Conformance requirement

1. The Packet Data Convergence Protocol shall perform the following functions:

   - transfer of user data. This function is used for conveyance of data between users of PDCP services.

2. Depending on the configuration by upper layers (i.e. PDCP PDU type to be used and header compressor protocol), the PDCP sublayer shall be able to:

   - identify the correct header compression protocol; and

   - distinguish different types of header compression packets within a header compression protocol.

Reference(s)

TS 25.323 clause 5.

TS 25.323 clause 5.1.1.

7.3.2.2.2.3 Test purpose

1. To verify, that the UE transmits and receives in unacknowledged mode (RLC UM) TCP/IP and UDP/IP data packets by using IP header compression protocol as described in RFC2507 as configured by higher layers.

2. To verify, that the PID assignment rules are correctly applied by the UE. The UE as shall use the correct PID value for the applied optimisation method for transmitting and receiving TCP/IP and UDP/IP data packets.

7.3.2.2.2.4 Method of test

Initial conditions

UE is in Idle mode (state 3 or state 7) as specified in clause 7.4 of TS 34.108. Usage of "PDCP Data" PDU and no IP header compression is configured.

Related ICS/IXIT Statement(s)

Support of IP header compression protocol RFC 2507 - YES/NO

Support of PS – Yes/No

PIXIT: Test_PDCP_TCP/IP_Packet1

PIXIT: Test_PDCP_TCP/IP_Packet2

PIXIT: Test_PDCP_UDP/IP_Packet1

PIXIT: Test_PDCP_UDP/IP_Packet2

Test procedure

a) The SS setups a packet switched session including radio bearer and UE test loop mode 1 in RLC UM using Common test procedures for mobile terminated PS switched sessions. Usage of "PDCP Data" PDU has been configured by higher layers.

b) The SS sends a "normal" TCP/IP data packet (no compression packet type), PID=0.

c) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet with the correct decompression protocol. Then, it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.

d) The SS receives and decodes the TCP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.

e) The SS sends a TCP/IP data packet with packet type: Full_Header, PID=1.

NOTE: According to the compression protocol RFC 2507, this is necessary to transmit the created CONTEXT and the assigned CID.

f) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet with the correct decompression protocol. Then, it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.

g) The SS receives and decodes the TCP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.

h) The SS sends a TCP/IP data packet with packet type: Compressed_TCP, PID=2.

i) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet with the correct decompression protocol. Then, it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.

j) The SS receives and decodes the TCP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.

k) Step b) to d) is repeated for a "normal" UDP/IP data packet, PID=0.

l) Step e) to g) is repeated for a UDP/IP data packet with packet type: Full_Header, PID=1.

m) The SS sends a UDP/IP data packet with packet type: Compressed_non_TCP, PID=4.

n) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet with the correct decompression protocol. Then, it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.

o) The SS receives and decodes the UDP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.

p) The SS deactivates the UE test loop test mode and terminates the connection.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
Setup a UE terminated PS session using IP Header compression in UM RLC (using UE test loop mode 1)				
1	←		PDCP Data	The SS creates a TCP/IP packet without IP header compression. The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression is applied for this packet. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
2	→		PDCP Data	The UE sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 to 3 data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
3	←		PDCP Data	The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 1 (Full_Header packet type [TCP/IP]) data: below described TCP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU, recognizes PID value = 1 applied for this TCP/IP data packet and decompresses it with the appropriate method. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.

Step	Direction		Message	Comments
	UE	SS		
				The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
4	→		PDCP Data	The UE sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 to 3 data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
5	←		PDCP Data	The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 2 (Compressed_TCP packet type) data: below described TCP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU, recognizes PID value = 2 applied for this TCP/IP data packet and decompress it with the appropriate method. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
6	→		PDCP Data	The UE sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 to 3 data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
7	←		PDCP Data	The SS creates a UDP/IP packet without compressed IP header compression. The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described UDP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU and recognizes with PID value = 0, there was no IP header compression applied for the UDP/IP packet. Therefore, no IP header decompression is applied for this packet. The data packet is forwarded via PDCP-SAP to the Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.

Step	Direction		Message	Comments
	UE	SS		
8	→		PDCP Data	The UE sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (Data PDU with Header) PID value = 0,1 or 4 (depending on which UDP/IP header format is used by the UE) data: previously received UDP/IP packet After reception of this UDP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
9	←		PDCP Data	The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 1 (Full_Header packet type) data: below described UDP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 1 applied for this UDP/IP data packet and decompress it with the appropriate method. The data packet is forwarded via PDCP-SAP to the Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
10	→		PDCP Data	The UE sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (Data PDU with Header) PID value = 0,1 or 4 (depending on which UDP/IP header format is used by the UE) data: below described UDP/IP packet After reception of this UDP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
11	←		PDCP Data	The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 4 (Compressed _non-TCP packet type) data: below described UDP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 1 applied for this UDP/IP data packet and decompress it with the appropriate method. The data packet is forwarded via PDCP-SAP to the Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.

Step	Direction		Message	Comments
	UE	SS		
12	→		PDCP Data	The UE sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (Data PDU with Header) PID value = 0,1 or 4 (depending on which UDP/IP header format is used by the UE) data: previously received UDP/IP packet After reception of this UDP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
Deactivate a UE terminated PS session using IP Header compression (using UE test loop mode 1)				

Specific Message Contents

RRC CONNECTION SETUP message

The contents of the RRC CONNECTION SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) with the following exceptions:

Information Element	Value/remark
Capability update requirement - UE radio access capability update requirement	 TRUE NOTE: Value will be checked. Stated capability must be compatible with 34.123-2 (c.f. PICS/PIXIT statements in GSM) and the user settings

RADIO BEARER SETUP message

The contents of the RADIO BEARER SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) which fit to the here described parameters with the following exceptions:

Information Element	Value/remark
RAB information for setup - RAB info - RAB identity	 No. # 23 as described in TS 34.108, Table 6.10.2.1.1 Prioritised RABs. QoS parameter: Traffic Class: Interactive or Background, max. UL: 64 kbps and max. DL: 64 kbps as described in TS 34.108, including described physical channel parameters, configuration for UM RLC Residual BER as described in TS 34.108, clause: 6.10 Related Signalling RB UL: 3.4 kbps, DL: 3.4 kbps DCCH, No. #2 (as described in TS 34.108)
- CN domain identity	PS domain
- RB information to setup - RB identity	 21
- PDCP info	False
- PDCP PDU header	present
- Header compression information	1
CHOICE *algorithm type*	
- RFC2507	
- F_MAX_PERIOD	256 (Default)
- F_MAX_TIME	5 (Default)
- MAX_HEADER	168 (Default)
- TCP_SPACE	15 (Default)
- NON_TCP_SPACE	15 (Default)
- EXPECT_REORDERING	reordering not expected (Default)
- RLC info	
- Downlink RLC mode	(UM RLC)
- Uplink RLC mode	(UM RLC)

Content of PDCP Data PDU (Step 1)

Information Element	Value/remark
PDU type	000
PID	00000 (No header compression, PID = 0)
Data	PDCP test data type #1: TCP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

Content of PDCP Data PDU (Step 3)

Information Element	Value/remark
PDU type	000
PID	00001 (Full_Header, PID = 1)
Data	PDCP test data type #1: TCP/IP data packet with full TCP/IP header with any data content. The data shall be limited to 1500 bytes.

Content of PDCP Data PDU (Step 5)

Information Element	Value/remark
PDU type PID Data	000 00010 (Compressed_TCP, PID = 2) PDCP test data type #1: TCP/IP data packet with a compressed header with any data content. The data shall be limited to 1500 bytes.

Content of PDCP Data PDU (Step 7)

Information Element	Value/remark
PDU type PID Data	000 00000 (No header compression, PID = 0) PDCP test data type #2: UDP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

Content of PDCP Data PDU (Step 9)

Information Element	Value/remark
PDU type PID Data	000 00001 (Full_Header, PID = 1) PDCP test data type #2: UDP/IP data packet with full UDP/IP header with any data content. The data shall be limited to 1500 bytes.

Content of PDCP Data PDU (Step 11)

Information Element	Value/remark
PDU type PID Data	000 00100 (Compressed_non-TCP, PID = 4) PDCP test data type #2: UDP/IP data packet with a compressed header with any data content. The data shall be limited to 1500 bytes.

7.3.2.2.2.5 Test requirements

The UE shall return the TCP/IP and UDP/IP data packets as indication, that the previous packets have been received and handled with the correct compression method. This verifies, that the PDCP configuration on UE side works as negotiated by the RRC. An invalid PDU type as well as unconfigured PID values shall not be received by SS.

7.3.2.2.3 Extension of used compression methods

7.3.2.2.3.1 Definition and applicability

Applicable for all UEs supporting RLC UM and a Radio Bearer as described in the Common Test Sequences.

The UE shall be capable to deal with compressed TCP/IP data packets and furthermore to establish a PDCP entity which applies IP header compression protocol: RFC 2507.

7.3.2.2.3.2 Conformance requirement

1. The Packet Data Convergence Protocol shall perform the following functions:

   - transfer of user data. Transmission of user data means that PDCP receives PDCP SDU from the NAS and forwards it to the RLC layer and vice versa;

2. Depending on the configuration by upper layers (i.e. PDCP PDU type to be used and header compressor protocol), the PDCP sublayer shall be able to:

   - identify the correct header compression protocol; and

   - distinguish different types of header compression packets within a header compression protocol.

3. The mapping of the PID values shall follow the general rules listed below:

   - PID values are re-mapped for the PDCP entity after any reconfiguration of the header compression protocols for that entity.

Reference(s)

TS 25.323 clause 5.

TS 25.323 clause 5.1

TS 25.323 clause 5.1.1.

7.3.2.2.3.3 Test purpose

1. To verify, that the UE is able to handle an extended PID value allocation table by header compression protocol IETF RFC 2507 after PDCP reconfiguration as configured by RRC.

7.3.2.2.3.4 Method of test

Initial conditions

UE is in Idle mode (state 3 or state 7) as specified in clause 7.4 of TS 34.108. Usage of "PDCP Data" PDU and no IP header compression is configured.

Related ICS/IXIT Statement(s)

Support of IP header compression protocol RFC 2507 - YES/NO

Support of PS – Yes/No

PIXIT: Test_PDCP_TCP/IP_Packet1

PIXIT: Test_PDCP_TCP/IP_Packet2

Test procedure

a) The SS setups a packet switched session including radio bearer and UE test loop mode 1 in RLC UM using Common test procedures for mobile terminated PS switched sessions (with the UE test loop mode 1). Usage of "PDCP Data PDU" and no optimisation method has been configured by higher layers.

b) The SS sends a TCP/IP data packet (no compression packet type), PID=0.

c) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet correctly. Afterwards it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.

d) The SS receives and decodes the TCP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.

e) The SS reconfigures (using RRC Radio Bearer Reconfiguration message) the PDCP entity by extending the PID value allocation table and therefore the applied optimisation method with the IP header compression protocol RFC 2507. The UE test loop mode 1 in RLC UM is still active.

f) The SS sends a TCP/IP data packet (no compression packet type), PID=0.

g) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet correctly. Afterwards it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.

h) The SS receives and decodes the TCP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.

i) The SS sends a TCP/IP data packet with packet type: Full_Header, PID=1.

j) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet correctly. Afterwards it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.

k) The SS receives and decodes the TCP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.

l) The SS deactivates the UE test loop mode and terminates the connection.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
Setup a UE terminated PS session using IP Header compression in UM RLC (using UE test loop mode 1)				
				The SS creates a TCP/IP packet without IP header compression.
1	←		PDCP Data	The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression shall be applied for this packet. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
2	→		PDCP Data	The UE sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
3	←		RRC RADIO BEARER RECONFIGURATION	SS extends the "PID value allocation table" with IP header compression PID (RFC 2507) in the UE.
4	→		RRC RADIO BEARER RECONFIGURATION COMPLETE	UE acknowledges its new settings
5	←		PDCP Data	The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (normal packet type [TCP/IP]) data: below described TCP/IP packet. After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression shall be applied for this packet. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.

Step	Direction	Message	Comments
	UE | SS		
6	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 to 3 data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
7	←	PDCP Data	The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 1 (Full_Header packet type [TCP/IP]) data: below described TCP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 1 applied for this TCP/IP data packet and shall decompress it with the appropriate method. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
8	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 to 3 data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
Deactivate a UE terminated PS session using IP Header compression (using UE test loop mode 1)			

Specific Message Contents

RRC RADIO BEARER RECONFIGURATION message

The contents of the RRC RADIO BEARER RECONFIGURATION message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) with the following exceptions:

Information Element	Value/remark
RB information to reconfigure list	1
RB information to reconfigure	
- PDCP info	
- PDCP PDU header	present
- Header compression information	1
CHOICE *algorithm type*	
- RFC2507	
- F_MAX_PERIOD	256 (Default)
- F_MAX_TIME	5 (Default)
- MAX_HEADER	168 (Default)
- TCP_SPACE	15 (Default)
- NON_TCP_SPACE	15 (Default)
- EXPECT_REORDERING	reordering not expected (Default)

RRC CONNECTION SETUP message

The contents of the RRC CONNECTION SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) with the following exceptions:

Information Element	Value/remark
Capability update requirement - UE radio access capability update requirement	 TRUE NOTE: Value will be checked. Stated capability must be compatible with 34.123-2 (c.f. PICS/PIXIT statements in GSM) and the user settings

RADIO BEARER SETUP message

The contents of the RADIO BEARER SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) which fit to the here described parameters with the following exceptions:

Information Element	Value/remark
RAB information for setup - RAB info - RAB identity	 No. # 23 as described in TS 34.108, Table 6.10.2.1.1 Prioritised RABs. QoS parameter: Traffic Class: Interactive or Background, max. UL: 64 kbps and max. DL: 64 kbps as described in TS 34.108, including described physical channel parameters, configuration for UM RLC Residual BER as described in TS 34.108, clause: 6.10 Related Signalling RB UL: 3.4 kbps, DL: 3.4 kbps DCCH, No. #2 (as described in TS 34.108)
- CN domain identity	PS domain
- RB information to setup - RB identity	 21
- PDCP info - PDCP PDU header	 present
- RLC info - Downlink RLC mode	 (UM RLC)
- Uplink RLC mode	(UM RLC)

Content of PDCP Data PDU (Step 1 and 5)

Information Element	Value/remark
PDU type	000
PID	00000 (No header compression, PID = 0)
Data	PDCP test data type #1: TCP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

Content of PDCP Data PDU (Step 7)

Information Element	Value/remark
PDU type	000
PID	00001 (Full_Header, PID = 1)
Data	PDCP test data type #1: TCP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

7.3.2.2.3.5 Test requirements

After PDCP reconfiguration, the UE shall return the TCP/IP data packets as indication, that the extension of used optimisation method are applied by UE. This verifies, that the PDCP configuration on UE side works as negotiated by the RRC. An invalid PDU type as well as unconfigured PID values shall not be received by SS.

7.3.2.2.4 Compression type used for different entities

7.3.2.2.4.1 Definition and applicability

Applicable only for an UE supporting the establishment of more than one PDCP entity in parallel, i.e. it shall be possible to configure more than one Radio Bearer Loop Back entities (each PDCP entity are assigned via PDCP-SAP to its own Radio Bearer Loop Back entity).

Applicable for all UEs supporting two Radio Bearers in RLC UM and RLC AM as described in this test case, clause 7.3.2.2.4.6 Combined PDCP Acknowledged and Unacknowledged mode configuration.

The UE shall be capable to deal with compressed TCP/IP data packets and furthermore it shall apply IP header compression protocol RFC 2507.

7.3.2.2.4.2 Conformance requirement

1. The Packet Data Convergence Protocol shall perform the following functions:

- transfer of user data. This function is used for conveyance of data between users of PDCP services.

2. Depending on the configuration by upper layers (i.e. PDCP PDU type to be used and header compressor protocol), the PDCP sublayer shall be able to:

   - identify the correct header compression protocol; and

   - distinguish different types of header compression packets within a header compression protocol.

3. The mapping of the PID values shall follow the general rules listed below:

   - PID values shall be mapped to the different packet types independently at each PDCP entity;

Several PDCP entities may be defined for a UE with each using the same or different protocol type. In this version of the specification, only one header compression protocol type, RFC 2507 [6], is supported.

Reference(s)

TS 25.323 clause 5.

TS 25.323 clause 5.1.1.

TS 25.323 clause 4.2.

7.3.2.2.4.3 Test purpose

1. To verify, that a configured IP header compression protocol are applied to compress and decompress TCP/IP data packets by several PDCP entities in parallel, if more than one entities are established, i.e. the UE uses the same PID to transmit two TCP/IP data packets with the same content in parallel using two Radio Bearer configurations.

7.3.2.2.4.4 Method of test

NOTE: For this test case, the SS shall be configured to handle more than one received PDCP messages.

Initial conditions

UE is in Idle mode (state 3 or state 7) as specified in clause 7.4 of TS 34.108. Usage of "PDCP Data" PDU and IP header compression is configured for both PDCP entities.

Related ICS/IXIT Statement(s)

Establishment of more than one PDCP entities - YES/NO.

Support of IP header compression protocol RFC 2507 - YES/NO

Support of UM RB and AM RB

Support of PS – Yes/No

IXIT: Test_PDCP_TCP/IP_Packet1

IXIT: Test_PDCP_TCP/IP_Packet2

Test procedure

a) The SS setups a packet switched session including two radio bearer configurations in parallel in UE test loop mode 1 and in RLC UM and RLC UM using Common test procedures for mobile terminated PS switched sessions. Usage of IP header compression protocol RFC 2507 has been configured by higher layers.

b) The SS sends two successive "normal" TCP/IP data packet, PID=0 via both PDCP configurations to their peer entities.

c) After having received the TCP/IP data packets, the PDCP entities of the UE shall recognize the PID value and shall handle the received data packet independent of the used PID with the correct decompression method. Then they forward the data to their Radio Bearer Loop Back entity. Both received data shall be returned by each Radio Bearer Loop Back entity.

d) The SS receives and decodes TCP/IP data packets according to the inserted PID. The decoded data packets shall be identical with the data as sent before.

e) The SS sends two successive TCP/IP data packets with full header (PID=1) via both PDCP configurations to their peer entities.

f) After having received the TCP/IP data packets, the PDCP entities of the UE shall recognize the PID value and shall handle the received data packets independent of the used PID with the correct decompression method. Then they forward the data to their Radio Bearer Loop Back entity. Both received data shall be returned by each Radio Bearer Loop Back entity.

g) The SS receives and decodes TCP/IP data packets according to the inserted PID. The decoded data packets shall be identical with the data as sent before.

h) The SS deactivates the UE test loop mode and terminates the connection.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
Setup a UE terminated PS session using IP Header compression in UM RLC (using UE test loop mode 1)				
1	←		PDCP Data	The SS sends two successive PDCP Data PDUs using the RLC-UM-Data-Request Primitive via both PDCP entities with the following contents to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet After having received both PDCP Data PDUs, the UE decodes each PDU and recognizes PID value = 0 (no IP header compression applied for both TCP/IP data packets). Although the same PID is used for both PDUs, the UE shall handle they with the correct method and it forwards both data packets via PDCP-SAPs to their Radio Bearer Loop Back (RB LB) entities. The RB LB entities in UE test loop mode 1 return the received data packets and send they back to their PDCP entities.

Step	Direction	Message	Comments
	UE | SS		
2	→	PDCP Data	The UE sends back for each PDCP configuration a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 to 3 data: previously received TCP/IP packet After reception of TCP/IP data packets, the SS applies the appropriate decoding function for both received messages depending on which PID was assigned to the received data
3	←	PDCP Data	The SS sends two successive PDCP Data PDUs using the RLC-UM-Data-Request Primitive via both PDCP entities with the following contents to the UE: PDU type = 000 (PDCP Data PDU) PID = 1 (Full_Header packet type [TCP/IP]) data: below described TCP/IP packet After having received both PDCP Data PDUs, the UE decodes each PDU and recognizes PID value = 1 (Full_Header packet type applied for both TCP/IP data packets). Although the same PID is used for both PDUs, the UE shall handle they with the correct method and it forwards both data packets via PDCP-SAPs to their Radio Bearer Loop Back (RB LB) entities. The RB LB entities in UE test loop mode 1 return the received data packets and send they back to their PDCP entities.
4	→	PDCP Data	The UE sends back for each PDCP configuration a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 to 3 data: previously received TCP/IP packet After reception of TCP/IP data packets, the SS applies the appropriate decoding function for both received messages depending on which PID was assigned to the received data
Deactivate a UE terminated PS session using IP Header compression (using UE test loop mode 1)			

Specific Message Contents

RRC CONNECTION SETUP message

The contents of the RRC CONNECTION SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) with the following exceptions:

Information Element	Value/remark
Capability update requirement - UE radio access capability update requirement	 TRUE NOTE: Value will be checked. Stated capability must be compatible with 34.123-2 (c.f. PICS/PIXIT statements in GSM) and the user settings

RADIO BEARER SETUP message

The contents of the RADIO BEARER SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) which fit to the here described parameters with the following exceptions:

Information Element	Value/remark
RAB information for setup	
- RAB info	
- RAB identity	No. # 23 as described in TS 34.108, Table 6.10.2.1.1 Prioritised RABs. QoS parameter: Traffic Class: Interactive or Background, max. UL: 64 kbps and max. DL: 64 kbps as described in TS 34.108, including described physical channel parameters, configuration for UM RLC configuration for UM RLC Residual BER as described in TS 34.108, clause: 6.10 Related Signalling RB UL: 3.4 kbps, DL: 3.4 kbps DCCH, No. #2 (as described in TS 34.108)
- CN domain identity	PS domain
- RB information to setup	
- RB identity	20
- PDCP info	
- PDCP PDU header	present
- Header compression information	1
CHOICE *algorithm type*	
- RFC2507	
- F_MAX_PERIOD	256 (Default)
- F_MAX_TIME	5 (Default)
- MAX_HEADER	168 (Default)
- TCP_SPACE	15 (Default)
- NON_TCP_SPACE	15 (Default)
- EXPECT_REORDERING	reordering not expected (Default)
- RLC info	
- Downlink RLC mode	(AM RLC)
- Uplink RLC mode	(AM RLC)
- RB information to setup	(NOTE: for RB ID 21, the same RAB configurations are used (No. # 23 as described in TS 34.108) as described for RB ID 20)
- RB identity	21
- PDCP info	
- PDCP PDU header	present
- Header compression information	1
CHOICE *algorithm type*	
- RFC2507	
- F_MAX_PERIOD	256 (Default)
- F_MAX_TIME	5 (Default)
- MAX_HEADER	168 (Default)
- TCP_SPACE	15 (Default)
- NON_TCP_SPACE	15 (Default)
- EXPECT_REORDERING	reordering not expected (Default)
- RLC info	
- Downlink RLC mode	(UM RLC)
- Uplink RLC mode	(UM RLC)

Content of both PDCP Data PDU (Step 1)

Information Element	Value/remark
PDU type PID Data	000 00000 (No header compression, PID = 0) PDCP test data type #1: TCP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

Content of both PDCP Data PDU (Step 3)

Information Element	Value/remark
PDU type PID Data	000 00001 (Full_Header, PID = 1) PDCP test data type #1: TCP/IP data packet with full TCP/IP header compression with any data content. The data shall be limited to 1500 bytes.

7.3.2.2.4.5 Test requirements

The UE shall return both TCP/IP data packets as indication that the previous received data packets associated with the same PID value are handled in parallel with the same decompression protocol. This verifies, that more than one PDCP configuration on UE side using the same compression protocol is able to apply it in parallel. An invalid PDU type as well as unconfigured PID values shall not be received by SS.

7.3.2.2.4.6 Combined PDCP Acknowledged and Unacknowledged mode configuration

This configuration is based on the interactive or background / UL:64 DL 64 kbps / PS RAB. The SRB configurations are UL:3.4 DL:3.4 kbps for DCCH aligned to this combined RABs are described for SRB DL 3.4 kbps in TS 34.108, clause 6.10.2.4.1.2.2 and for SRB DL 3.4 kbps in TS 34.108, clause 6.10.2.4.1.2.1. The TFCS refer to TS34.108, clause 6.10.2.4.1.24.1.1.3 for UL and clause 6.10.2.4.1.25.2.1.3 for DL, the Physical channel parameters refer to TS 34.108, clause 6.10.2.4.1.24.1.2 for UL clause 6.10.2.4.1.25.2.2 and for DL accordingly. The configuration is applied to PDCP test cases using both the acknowledged and unacknowledged mode.

Table 7.3.2.2.4/1: Uplink Transport channel parameter for combined RABs PS AM_UM

Higher layer	RAB/Signalling RB		RAB #20	RAB #21
RLC	Logical channel type		DTCH	DTCH
	RLC mode		AM	UM
	Payload sizes, bit		316	324
	Max data rate, bps		63200	64800
	TrD PDU header, bit		16	8
MAC	MAC header, bit		4	
	MAC multiplexing		2 logical channel multiplexing	
Layer 1	TrCH type		DCH	
	TB sizes, bit		336	
	TFS	TF0, bits	0x336	
		TF1, bits	1x336	
		TF2, bits	2x336	
		TF3, bits	3x336	
		TF4, bits	4x336	
	TTI, ms		20	
	Coding type		TC	
	CRC, bit		16	
	Max number of bits/TTI after channel coding		4236	
	Uplink: Max number of bits/radio frame before rate matching		2118	
	RM attribute		130-170	

Table 7.3.2.2.4/2: Downlink Transport channel parameter for combined RABs PS AM_UM

Higher layer	RAB/Signalling RB		**RAB #20**	**RAB #21**
RLC	Logical channel type		DTCH	DTCH
	RLC mode		AM	UM
	Payload sizes, bit		316	324
	Max data rate, bps		63200	64800
	TrD PDU header, bit		16	8
MAC	MAC header, bit		4	
	MAC multiplexing		2 logical channel multiplexing	
Layer 1	TrCH type		DCH	
	TB sizes, bit		336	
	TFS	TF0, bits	0x336	
		TF1, bits	1x336	
		TF2, bits	2x336	
		TF3, bits	3x336	
		TF4, bits	4x336	
	TTI, ms		20	
	Coding type		TC	
	CRC, bit		16	
	Max number of bits/TTI after channel coding		4236	
	RM attribute		130-170	

7.3.2.2.5 Reception of not defined PID values

7.3.2.2.5.1 Definition and applicability

Applicable for all UEs supporting RLC UM and a Radio Bearer as described in the Common Test Sequences.

The UE shall be capable to deal with compressed TCP/IP data packets and furthermore to establish a PDCP entity, which applies PDCP Data PDU if no IP header compression protocol, is negotiated.

The UE shall not forward invalid PDCP PDU data contents to its Radio Bearer.

7.3.2.2.5.2 Conformance requirement

1. Depending on the configuration by upper layers (i.e. PDCP PDU type to be used and header compressor protocol), the PDCP sublayer shall be able to:

   - identify the correct header compression protocol; and

   - distinguish different types of header compression packets within a header compression protocol.

2. If a PDCP entity receives a PDCP PDU with a PID value that is not mapped with a valid packet type (see TS 25.323 subclause 5.1.1), it shall:

   - discard the PDCP PDU.

Reference(s)

TS 25.323 clause 5.1.1.

TS 25.323 clause 9.2.

7.3.2.2.5.3 Test purpose

1. To verify, that a UE considers a received PDCP PDU message with not defined PID value as invalid, i.e. such an invalid PDCP PDU is not forwarded to the Radio Bearer entity on UE side. Therefore the UE using test loop mode 1 does not return such data packet to the SS.

7.3.2.2.5.4 Method of test

Initial conditions

UE is in Idle mode (state 3 or state 7) as specified in clause 7.4 of TS 34.108. Usage of "PDCP Data" PDU and no IP header compression is configured.

Related ICS/IXIT Statement(s)

Support of IP header compression protocol RFC 2507 - YES/NO

Support of PS – Yes/No

IXIT: Test_PDCP_TCP/IP_Packet1

IXIT: Test_PDCP_TCP/IP_Packet2

Test procedure

a) The SS setups a packet switched session including radio bearer and UE test loop mode 1 in RLC UM using Common test procedures for mobile terminated PS switched sessions. Usage of "PDCP Data PDU" and no PDCP IP header compression protocol has been configured by higher layers.

b) The SS sends a "normal" TCP/IP data packet (no compression packet type), PID=0.

c) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet with the correct decoding method. Afterwards it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.

d) The SS receives and decodes TCP/IP data packets according to the inserted PID. The decoded data packets shall be identical with the data as sent before.

e) The SS sends a TCP/IP data packet with PID=1. See note 1.

f) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet with the correct decoding method.

g) The SS waits an amount of time to make sure, that no returned data packet was sent by UE.

h) The SS deactivates the UE test loop mode and terminates the connection.

NOTE 1 As no PDCP IP header compression protocol has been configured only PID=0 shall be recognised by the UE and PID=1 shall be considered as invalid PID value by the UE).

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
Setup a UE terminated PS session using IP Header compression in UM RLC (using UE test loop mode 1)				
1	←		PDCP Data	The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression shall be applied for this packet. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
2	→		PDCP Data	The UE sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
3	←		PDCP Data	The SS sends a PDCP Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 1 (Full_Header packet type [TCP/IP]) data: below described TCP/IP packet. After having received the PDCP Data PDU, the UE shall recognize, that a not defined PID value (as configured by higher layers) is inserted in the PDCP PDU. The UE shall consider this PDU as invalid, i.e. the data packet is not forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity. Therefore this data packet is not returned to the SS.
4				The SS waits a amount of time to make sure, that the previously sent data packet is not returned to the SS.
Deactivate a UE terminated PS session using IP Header compression (using UE test loop mode 1)				

Specific Message Contents

RRC CONNECTION SETUP message

The contents of the RRC CONNECTION SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) with the following exceptions:

Information Element	Value/remark
Capability update requirement - UE radio access capability update requirement	 TRUE NOTE: Value will be checked. Stated capability must be compatible with 34.123-2 (c.f. PICS/PIXIT statements in GSM) and the user settings

RADIO BEARER SETUP message

The contents of the RADIO BEARER SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in UM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for UM) which fit to the here described parameters with the following exceptions:

Information Element	Value/remark
RAB information for setup - RAB info - RAB identity	 No. # 23 as described in TS 34.108, Table 6.10.2.1.1 Prioritised RABs. QoS parameter: Traffic Class: Interactive or Background, max. UL: 64 kbps and max. DL: 64 kbps as described in TS 34.108, including described physical channel parameters, configuration for UM RLC Residual BER as described in TS 34.108, clause: 6.10 Related Signalling RB UL: 3.4 kbps, DL: 3.4 kbps DCCH, No. #2 (as described in TS 34.108)
- CN domain identity	PS domain
- RB information to setup - RB identity	 21
- PDCP info - PDCP PDU header	 present
- RLC info - Downlink RLC mode	 (UM RLC)
- Uplink RLC mode	(UM RLC)

Content of PDCP Data PDU (Step 1)

Information Element	Value/remark
PDU type PID Data	000 00000 (No header compression, PID = 0) PDCP test data type #1: TCP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes

Content of PDCP Data PDU (Step 3)

Information Element	Value/remark
PDU type PID Data	000 00001 (Invalid PID value, PID = 1) PDCP test data type #1: TCP/IP data packet with full TCP/IP header compression with any data content. The data shall be limited to 1500 bytes.

7.3.2.2.5.5 Test requirements

The UE shall return the received TCP/IP data packet using the PDCP Data PDU with PID = 0.

The UE shall not return the TCP/IP data packet using the PDCP Data PDU with PID = 1.

7.3.3 PDCP sequence numbering when lossless SRNS Relocation

7.3.3.1 Data transmission if lossless SRNS Relocation is supported

7.3.3.1.1 Definition and applicability

Applicable for all UEs supporting RLC AM, RLC in-sequence delivery, a Radio Bearer as described in the Common Test Sequences and lossless SRNS relocation.

The UE shall be capable to deal with uncompressed TCP/IP data packets and furthermore to establish a PDCP entity which applies PDCP Sequence Numbering

7.3.3.1.2 Conformance requirement

1. PDCP sequence numbering shall be applied when lossless SRNS Relocation is supported. PDCP Sequence Numbers serve to acknowledge previously transmitted PDCP SDUs prior to relocation.
2. In case of a lossless SRNS Relocation procedure:
   - the UTRAN should send to the UE the next expected UL_Receive PDCP SN; and
   - the UE shall send to the UTRAN the next expected DL_Receive PDCP SN.

This information exchange synchronises the Sequence Numbers at the UE and UTRAN PDCP entities.

Reference(s)

TS 25.323 clause 5.4.1.1

TS 25.323 clause 5.4.1.3.

7.3.3.1.3 Test purpose

1. To verify, that a UE supporting lossless SRNS relocation is able to receive and to send IP data packets by using PDCP Sequence Numbering as configured by higher layers.

7.3.3.1.4 Method of test

Initial conditions

SS: 2 cells - Cell A belonging to the valid SRNS (Source SRNS), Cell B belonging to the DRNS (Target SRNS). Both cells are neighbour cells. Cell A has a higher RF power level than Cell B such that an UE shall find Cell A more suitable for service.

UE: It is in Idle mode and has selected cell A with valid SRNS (Source SRNS). Usage of "PDCP Data" PDU, PDCP SeqNum PDU and no IP header compression is configured.

Related ICS/IXIT Statement(s)

Support of lossless SRNS Relocation - YES/NO

Support of PS – Yes/No

IXIT: Test_PDCP_TCP/IP_Packet1

IXIT: Test_PDCP_TCP/IP_Packet2

Test procedure

a) The SS setups a packet switched session including Radio Bearer and UE test loop mode 1 in RLC AM and in-sequence delivery using Common test procedures for mobile terminated PS switched sessions in Cell A. The RLC buffer discharge mode shall be set to "no discard". Usage of "PDCP Data" PDU, support of lossless SRNS

relocation and no IP header compression has been configured by higher layers. The PDCP SN window size has been negotiated by RRC.

b) The SS sends a TCP/IP data packet (no compression packet type), PID=0.

c) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet correctly. Afterwards it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.

d) The SS receives and decodes the TCP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.

e) The SS starts to broadcast BCCH messages on the primary CPICH in cell B with a power level higher than in cell A. The UE shall chose cell B to be more suitable for service and hence perform a cell reselection.

f) After completion of cell reselection, the UE transmits a CELL UPDATE message to the SS on the uplink CCCH of cell B with the Cell update cause "Cell Reselection".

g) The SS sends a TCP/IP data packet (no compression packet type), PID=0. The PDCP Data PDU is used during lossless SRNS relocation procedure.

h) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet correctly. Afterwards it forwards the data to its Radio Bearer Loop Back entity. The UE shall increase its internal Sequence Number counter by 1.The received data shall be returned by the UE via its PDCP configuration using PDCP SeqNum PDU.

i) The SS receives and decodes the TCP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.

j) After having performed SRNS relocation (target RNC allocated with new S-RNTI for the UE), the Target SRNS is the valid SRNS and the SS sends a "CELL UPDATE CONFIRM" message with new RNC_ID to indicate the completion of the cell update.

k) The UE shall confirm the reallocation.

l) The SS sends the next TCP/IP data packet (no compression packet type), PID=0 using the PDCP SeqNum PDU to the UE.

m) After having received the TCP/IP data packet, the UE shall recognize the PID value and shall handle the received data packet correctly. Afterwards it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.

n) The SS receives and decodes TCP/IP data packets according to the inserted PID. The decoded data packets shall be identical with the data as sent before.

o) The SS deactivates the UE test loop mode and terminates the connection.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
Setup a UE terminated PS session using IP Header compression in AM RLC (using UE test loop mode 1) in Cell A				
1	←		PDCP Data	The SS creates a TCP/IP packet without IP header compression. The DL_Send PDCP SN is set to "0". The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet Afterwards the SS increments its counter value DL_Send PDCP SN by "1". After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression shall be applied for this packet. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
2	→		PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
3				The SS increases the RF power level of cell B and decreases the power level of Cell A such that the UE finds cell B more suitable for service.
4				The UE cell reselection is performed and Cell B are selected for service.
5	→		RRC CELL UPDATE	Then, the UE shall inform the SS about the new cell selection by sending cell update with new parameters (parameter values as used in RRC testing).

Step	Direction	Message	Comments
	UE | SS		
6	←	PDCP Data	The SS sends a PDCP Data PDU with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet Afterwards the SS increments its counter value DL_Send PDCP SN by "1". The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
7	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
8	←	RRC CELL UPDATE CONFIRM	After having performed SRNS relocation, the Target SRNS is the valid SRNS and the SS sends a "CELL UPDATE CONFIRM" message See message content.
9	→	UTRAN MOBILITY INFORMATION CONFIRM	The UE confirms the newly received information.
10	←	PDCP SeqNum	The SS sends the next PDCP SeqNum PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) SeqNum = current PDCP Sequence Number data: below described TCP/IP packet Afterwards the SS increments its counter value DL_Send PDCP SN by "1". After having received the PDCP SeqNum PDU, the UE shall set the received PDCP Sequence Number as its own valid value. It decodes the PDU, recognizes PID value = 0 applied for this TCP/IP data packet and shall decompress it with the appropriate method. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity. The SN synchronisation shall be considered as successfully performed after acknowledgement of SeqNum PDU transmission by lower layer in the SS. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
11	→	PDCP SeqNum	The UE sends a PDCP SeqNum PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 SeqNum = current PDCP Sequence Number data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
Deactivate a UE terminated PS session using IP Header compression (using UE test loop mode 1)			

Specific Message Contents

RRC CONNECTION SETUP message

The contents of the RRC CONNECTION SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in AM RLC" of this test case are identical to those of the Default Message Contents for Signalling in TS 34.108 clause 9.1 (”UM (Transition to CELL_FACH)”) with the following exceptions:

Information Element	Value/remark
Capability update requirement - UE radio access capability update requirement	 TRUE NOTE: Value will be checked. Stated capability must be compatible with 34.123-2 (c.f. PICS/PIXIT statements in GSM) and the user settings

RADIO BEARER SETUP message

The contents of the RADIO BEARER SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in AM RLC" of this test case are identical to those of the Default Message Contents for Signalling in TS 34.108 clause 9.1 ”AM (Packet to CELL_FACH from CELL_FACH in PS”) with the following exceptions:

Information Element	Value/remark
RAB information for setup - RAB info - RB information to setup - RB identity - PDCP info - Support of lossless SRNS relocation - Max PDCP SN window size - PDCP PDU header - CHOICE RLC info type - CHOICE Uplink RLC mode - Transmission RLC Discard - CHOICE SDU Discard Mode - CHOICE Downlink RLC mode - In-sequence delivery Downlink counter synchronisation info - RB with PDCP information - RB identity - PDCP SN info	 20 True 65535 Present RLC info AM RLC No discard Note: Default value as defined in TS 34.108, Clause 9.1 AM RLC True Note: Default value as defined in TS 34.108, Clause 9.1 20 1 (Note: next expected Sequence Number)

Content of PDCP Data PDU (Step 1)

Information Element	Value/remark
PDU type PID Data	000 00000 (No header compression, PID = 0) PDCP test data type #1: TCP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

Content of PDCP SeqNum PDU (Step 6)

Information Element	Value/remark
PDU type PID Sequence number Data	001 00000 (No header compression, PID = 0) (16 Bit value) valid Sequence Number of the SS PDCP test data type #1: TCP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

CELL UPDATE CONFIRM (Step 8)

Use the message sub-type in default message content defined in Annex A, with the following exceptions.

Information Element	Value/Remarks
New U-RNTI	New value of U-RNTI different from the previous U-RNTI
Receive PDCP sequence number	IE is set to the value to be counted inside SS as next expected reception Sequence Number

UTRAN MOBILITY INFORMATION CONFIRM (Step 9)

Only the message type is checked.

Content of PDCP Data PDU (Step 10)

Information Element	Value/remark
PDU type PID Data	000 00000 (No header compression, PID = 0) PDCP test data type #1: TCP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

7.3.3.1.5 Test requirements

After having completed lossless SRNS relocation, the UE shall return the received TCP/IP data packet by using PDCP SeqNum PDUs as indication, that it supports lossless SRNS relocation. This verifies, that Sequence Numbering is used for lossless SRNS relocation. An invalid PDU type as well as unconfigured PID values shall not be received by SS.

7.3.3.2 Synchronisation of PDCP sequence numbers

7.3.3.2.1 Definition and applicability

Applicable for all UEs supporting RLC AM, RLC in-sequence delivery, a Radio Bearer as described in the Common Test Sequences.

The UE shall be capable to deal with compressed TCP/IP and UDP/IP data packets and furthermore it shall be capable to use IP Header compression protocol RFC 2507.

7.3.3.2.2 Conformance requirement

The PDCP SeqNum PDU shall be sent by the peer PDCP entities when synchronisation of the PDCP SN is required. (...) Synchronisation of PDCP SN is required after (...) RB reconfiguration.

1. In case of a lossless SRNS Relocation procedure:

   - the UTRAN should send to the UE the next expected UL_Receive PDCP SN; and

   - the UE shall send to the UTRAN the next expected DL_Receive PDCP SN.

This information exchange synchronises the Sequence Numbers at the UE and UTRAN PDCP entities.

2. For radio bearers that are configured to support lossless SRNS Relocation, the PDCP entity shall:

   - if upper layer indicates to a PDCP entity that it should synchronise the PDCP SN following a RLC reset or RB reconfiguration; or

   - if the UE/UTRAN PDCP entity receives an invalid "next expected UL/DL_Receive PDCP SN" from upper layer after Relocation:

     - trigger the PDCP SN synchronisation procedure by submitting one PDCP SeqNum PDU to lower layer;

- consider that the synchronisation procedure is complete on confirmation by lower layer of the successful transmission of the PDCP SeqNum PDU.

Reference(s)

TS 25.323 clause 5.4.1.3

TS 25.323 clause 5.4.1.2

7.3.3.2.3 Test purpose

1. To verify, that the UE supporting lossless SRNS relocation as configured by higher layers is able to handle the "PDCP SeqNum" PDU to synchronize the used PDCP Sequence Number after reconfiguration of the Radio Bearer.

7.3.3.2.4 Method of test

Initial conditions

SS: 2 cells - Cell A belonging to the valid SRNS (Source SRNS), Cell B belonging to the DRNS (Target SRNS). Both cells are neighbour cells. Cell A has a higher RF power level than Cell B such that an UE shall find Cell A more suitable for service.

UE: It is in Idle mode and has selected cell A with valid SRNS (Source SRNS). Usage of "PDCP Data" PDU, "PDCP SeqNum" PDU and no IP header compression is configured.

Related ICS/IXIT Statement(s)

Support of lossless SRNS relocation - YES/NO

Support of RLC in-sequence delivery - YES/NO

Test procedure

a) The SS setups a packet switched session including Radio Bearer and UE test loop mode 1 in RLC AM and in-sequence delivery using Common test procedures for mobile terminated PS switched sessions in Cell A. The RLC buffer discharge mode shall be set to "no discard". Usage of "PDCP Data" PDU and "PDCP SeqNum" PDU, support of lossless SRNS relocation and no IP header compression has been configured by higher layers. The PDCP SN window size has been negotiated by RRC.

b) The SS sends a TCP/IP data packet (no compression packet type), PID=0.

c) After having received the TCP/IP data packet, the PDCP entity of the UE shall recognize the PID value and shall handle the received data packet correctly. Afterwards it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration.

d) The SS receives and decodes the TCP/IP data packet according to the inserted PID. The decoded data packet shall be identical with the data as sent before.

e) The SS reconfigures (using RRC Radio Bearer Reconfiguration message) the PDCP entity by extending the PID value allocation table and therefore the applied optimisation method with the IP header compression protocol RFC 2507. The UE test loop mode 1 in RLC AM is still active.

f) The SS sends the next TCP/IP data packet (no compression packet type), PID=0 using the "PDCP SeqNum" PDU including the current PDCP Sequence Number value to the UE.

g) After having received the TCP/IP data packet, the UE shall recognize the PID value and shall handle the received data packet correctly. Afterwards it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE by using PDCP "SeqNum" PDU including its DL_Receive PDCP SN via its PDCP configuration.

h) The SS receives and decodes TCP/IP data packets according to the inserted PID. The decoded data packets shall be identical with the data as sent before.

i) The SS deactivates the UE test loop mode and terminates the connection.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
Setup a UE terminated PS session using IP Header compression in AM RLC (using UE test loop mode 1) in Cell A				
1		←	PDCP Data	The SS creates a TCP/IP packet without IP header compression. The DL_Send PDCP SN is set to "0". The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet Afterwards the SS increments its counter value DL_Send PDCP SN by "1". After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression shall be applied for this packet. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
2		→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: PDU type = 000 (PDCP Data PDU) PID value = 0 data: previously received TCP/IP packet After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
3		←	RRC RADIO BEARER RECONFIGURATION	SS extends the "PID value allocation table" with IP header compression PID (RFC 2507) in the UE.
4		→	RRC RADIO BEARER RECONFIGURATION COMPLETE	UE acknowledges its new settings

Step	Direction		Message	Comments
	UE	SS		
5	←		PDCP SeqNum	The SS sends a PDCP SeqNum PDU including its current Sequence Number with the following content to the UE: PDU type = 001 (PDCP SeqNum PDU) PID = 0 (normal packet type [TCP/IP]) SeqNum = current PDCP Sequence Number data: below described TCP/IP packet Afterwards the SS increments its counter value DL_Send PDCP SN by "1". After having received the PDCP SeqNum PDU, the UE shall set the received PDCP Sequence Number as its own valid value. It decodes the PDU, recognizes PID value = 0 applied for this TCP/IP data packet and shall decompress it with the appropriate method. The UE shall set the value of DL_Receive PDCP SN to the value as received from SS. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity. The SN synchronisation shall be considered as successfully performed after acknowledgement of SeqNum PDU transmission by lower layer in the SS. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
6	→		PDCP PDU	The UE sends a PDCP PDU with PDCP Header back to the SS. The content is as follows: PDU type = 000 (PDCP Data PDU) PID value = 0 to 3 SeqNum: current UE value, (optional parameter, depending on PDU used) data: previously received TCP/IP packet. After reception of this TCP/IP data packet, the SS applies the appropriate decoding function depending on the assigned PID.
Deactivate a UE terminated PS session using IP Header compression (using UE test loop mode 1)				

Specific Message Contents

RRC RADIO BEARER RECONFIGURATION message

The contents of the RRC RADIO BEARER RECONFIGURATION message applied in the preamble "Setup a UE terminated PS session using IP Header compression in AM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for AM) with the following exceptions:

Information Element	Value/remark
RB information to reconfigure list RB information to reconfigure - PDCP info - Max PDCP SN window size - Support of lossless SRNS relocation - PDCP PDU header - Header compression information CHOICE *algorithm type* - RFC2507 - F_MAX_PERIOD - F_MAX_TIME - MAX_HEADER - TCP_SPACE - NON_TCP_SPACE - EXPECT_REORDERING	1 65535 TRUE present 1 256 (Default) 5 (Default) 168 (Default) 15 (Default) 15 (Default) reordering not expected (Default)
Receive PDCP sequence number	IE is set to the value to be counted inside SS as next expected reception Sequence Number
U-RNTI	New value of U-RNTI different from the previous U-RNTI

RRC CONNECTION SETUP message

The contents of the RRC CONNECTION SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in AM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for AM) with the following exceptions:

Information Element	Value/remark
Capability update requirement - UE radio access capability update requirement	 TRUE NOTE: Value will be checked. Stated capability must be compatible with 34.123-2 (c.f. PICS/PIXIT statements in GSM) and the user settings

RADIO BEARER SETUP message

The contents of the RADIO BEARER SETUP message applied in the preamble "Setup a UE terminated PS session using IP Header compression in AM RLC" of this test case is identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (PS connection for AM) which fit to the here described parameters with the following exceptions:

Information Element	Value/remark
- Downlink counter synchronisation info	
- RB with PDCP information list	
- RB identity	20
- PDCP SN info	1 (Note: next expected Sequence Number)
- RAB information for setup	
- RAB info	
- RAB identity	No. # 23 as described in TS 34.108, Table 6.10.2.1.1 Prioritised RABs. QoS parameter: Traffic Class: Interactive or Background, max. UL: 64 kbps and max. DL: 64 kbps as described in TS 34.108, including described physical channel parameters, configuration for AM RLC Residual BER as described in TS 24.108, clause: 6.10 Related Signalling RB UL: 3.4 kbps, DL: 3.4 kbps DCCH, No. #2 (as described in TS 34.108)
- CN domain identity	PS domain
- RB information to setup	
- RB identity	20
- PDCP info	
- Max PDCP SN window size	65535
- Support of lossless SRNS relocation	TRUE
- PDCP PDU header	present
- RLC info	
- Downlink RLC mode	(AM RLC)
- In-sequence delivery	True
- Uplink RLC mode	(AM RLC)
- Transmission RLC Discard	No Discard Note: Default value defined in TS 34.108, Annex B

Content of PDCP Data PDU (Step 1)

Information Element	Value/remark
PDU type	000
PID	00000 (No header compression, PID = 0)
Data	PDCP test data type #1: TCP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

Content of PDCP SeqNum PDU (Step 5)

Information Element	Value/remark
PDU type	001
PID	00000 (No header compression, PID = 0)
Sequence number	(16 Bit value) valid Sequence Number of the SS
Data	PDCP test data type #1: TCP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

7.3.3.2.5 Test requirements

After having received the TCP/IP data packet conveyed with the "PDCP SeqNum" PDU, the UE shall return the TCP/IP data packets as indication, that the UE is able to handle a Sequence Number synchronisation. An invalid PDU type as well as unconfigured PID values shall not be received by SS.

7.3.3.3 PDCP Sequence Numbering and Data Forwarding - Reception of reserved PDU type

FFS

7.3.3.4 PDCP Sequence Number synchronization – Reception of invalid next expected receive Sequence Number

FFS

7.3.3.5 UTRAN MOBILITY INFORMATION: Lossless SRNS relocation in CELL_FACH (without pending of ciphering)

7.3.3.5.1 Definition

7.3.3.5.2 Conformance requirement

To initiate the procedure UTRAN transmits a UTRAN MOBILITY INFORMATION message to the UE on the downlink DCCH using AM or UM RLC. In case of SRNS relocation, the message is sent using UM RLC only.

When the UE receives a UTRAN MOBILITY INFORMATION message, it shall:

1> if the variable PDCP_SN_INFO is non-empty:

2> include the IE "RB with PDCP information list" in the UTRAN MOBILITY INFORMATION CONFIRM message and set it to the value of the variable PDCP_SN_INFO.

1> if the received UTRAN MOBILITY INFORMATION message included the IE "Downlink counter synchronisation info":

2> re-establish RB2;

2> set the new uplink and downlink HFN component of COUNT-C of RB2 to MAX(uplink HFN component of COUNT-C of RB2, downlink HFN component of COUNT-C of RB2);

2> increment by one the downlink and uplink values of the HFN component of COUNT-C for RB2;

2> calculate the START value according to TS 25.331 subclause 8.5.9;

2> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info" in the UTRAN MOBILITY INFORMATION CONFIRM message.

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC;

1> if the IE "Downlink counter synchronisation info" was included in the received UTRAN MOBILITY INFORMATION message:

2> when RLC has confirmed the successful transmission of the response message:

3> re-establish all AM and UM RLC entities with RB identities larger than 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the corresponding CN domain;

3> re-establish the RLC entities with RB identities 1, 3 and 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the CN domain stored in the variable LATEST_CONFIGURED_CN_DOMAIN;

3> set the remaining bits of the HFN component of the COUNT-C values of all UM RLC entities to zero;

3> re-initialise the PDCP header compression entities of each radio bearer in the variable ESTABLISHED_RABS.

1> if the variable PDCP_SN_INFO is non-empty:

2> when RLC has confirmed the successful transmission of the UTRAN MOBILITY INFORMATION CONFIRM message:

3> for each radio bearer in the variable PDCP_SN_INFO:

4> if the IE "RB started" in the variable ESTABLISHED_RABS is set to "started":

5> configure the RLC entity for that radio bearer to "continue".

3> clear the variable PDCP_SN_INFO.

Reference

3GPP TS 25.331 clause 8.3.3

7.3.3.5.3 Test purpose

1. To confirm that the UE that support lossless SRNS relocation, sends the correct expected downlink PDCP sequence number to SS after a successful SRNS relocation.
2. To confirm that the UE sends calculated START values for each CN domain to SS after a successful SRNS relocation.
3. In the case that ciphering is applied by the network, to confirm that the UE applies the new ciphering algorithm following a successful SRNS relocation.

7.3.3.5.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH _FACH (state 6-8) as specified in clause 7.4 of TS 34.108.

Initial conditions message sequence

Step	Direction		Message	Comment
	UE	SS		
SS executes procedure Activate closed loop mode 1 in CELL_FACH case as specified in clause 7.3.1.2.1.4				

Related ICS/IXIT statements

- Lossless SRNS relocation supported yes/no
- Support of RLC in-sequence delivery Yes/No

Specific Message Contents

If network applies ciphering, the contents of SECURITY MODE COMMAND message in the initial condition set-up are identical to the same message sub-type found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Ciphering mode info	
- Ciphering mode command	Start/restart
- Ciphering algorithm	UEA0
- Ciphering activation time for DPCH	Not Present
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN+2
- RB identity	2
- RLC sequence number	Current RLC SN+2
- RB identity	3
- RLC sequence number	Current RLC SN + 2
- RB identity	4
- RLC sequence number	Current RLC SN + 2

The contents of RADIO BEARER SETUP message to be transmitted during P14 as specified in TS 34.108 clause 7.4, use the message titled "Packet to CELL_FACH from CELL_FACH in PS" as found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
- PDCP info	
- Support for lossless SRNS relocation	TRUE
- Max PDCP SN window size	sn65535
- PDCP PDU header	present

Test Procedure

The UE is in the CELL_FACH state. If PS RAB has been established in the initial condition, SS initiates UE to enter loopback mode 1 and sends a PDCP PDU on the RAB. If ciphering is supported, a PDCP PDUs has to be decided so that the ciphering activation time is elapsed. SS shall suspend the sending of PDCP PDUs and wait for the last PDCP PDU to be send back by the UE and then note the next PDCP SN for the next PDCP PDU. SS then transmits a UTRAN MOBILITY INFORMATION message, which includes a valid IE "New C-RNTI" and "New U-RNTI", IE "Downlink counter synchronisation info" and IE "Integrity protection mode info", to the UE on the downlink DCCH using UM RLC. SS verifies that the UE sends UTRAN MOBILITY INFORMATION CONFIRM message. This message also includes a calculated new START value according to the formula "$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the most recently configured CK_X and IK_X}) + 2", calculated IE "Integrity Check Info" using a new FRESH value as included in IE "Integrity protection initialisation number" in IE "Integrity protection mode info" in UTRAN MOBILITY INFORMATION message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration, and "Receive PDCP sequence number".

SS transmits UE CAPABILITY ENQUIRY message on the downlink DCCH using RLC-AM. The UE shall respond to downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS responds with UE CAPABILITY INFORMATION CONFIRM message. SS resumes the transmission of PDCP PDUs and checks that all transmitted PDCP PDUs are sent back by the UE.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
				The SS creates a TCP/IP packet without IP header compression (PDCP Data PDU).
1	←		PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet
1a				After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression is applied for this packet. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.
1b				The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
2	→		PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: data: previously received TCP/IP packet
2a				After reception of this TCP/IP data packet, the SS applies the appropriate decoding function for the received data
2b				The SS creates a UDP/IP packet without IP header compression (PDCP Data PDU).
2c				SS shall suspend the sending of PDCP PDUs and wait for the last PDCP PDU to be sent back by the UE and then note the next PDCP SN for the next PDCP PDU.

3	←	UTRAN MOBILITY INFORMATION	If IE “Ciphering mode info” is present in the SECURITY MODE COMMAND during initial condition set-up, this message is sent after last ciphering activation time has elapsed and there is no pending ciphering activation time. New U-RNTI identities are assigned to the UE. IE “Downlink counter synchronisation info” includes the next PCDP sequence number that SS is expected to receive from the UE, otherwise only IE “Downlink counter synchronisation info” is included. New integrity protection configuration is applied on DL SRB1.
4	→	UTRAN MOBILITY INFORMATION CONFIRM	New calculated START value is included, IE “Receive PDCP sequence number” shall be included. New integrity protection configuration is applied on UL SRB2. If IE “Ciphering mode info” is present in step 3, new ciphering configuration is applied on UL SRB2 with the downlink and uplink values of the HFN component of COUNT-C for SRB2 incremented by one.
5	←	UE CAPABILITY ENQUIRY	New integrity protection configuration is applied on DL SRB2. If IE “Ciphering mode info” is present in step 3, new ciphering configuration is applied on DL SRB2 with the same START value as used in step 4.
6	→	UE CAPABILITY INFORMATION	SS confirms that new integrity protection configuration is applied on SRB2 by UE.
7	←	UE CAPABILITY INFORMATION CONFIRM	
8		Void	
9		Void	
			The SS creates a TCP/IP packet without IP header compression (PDCP Data PDU).
10	←	PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet
11			After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression is applied for this packet. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.

12			The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
13	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: data: previously received TCP/IP packet
14			After reception of this TCP/IP data packet, the SS applies the appropriate decoding function for the received data
15			The SS creates a UDP/IP packet without IP header compression (PDCP Data PDU).
Deactivate a UE terminated PS session using IP Header compression (using UE test loop mode 1)			

Specific Message Contents

UTRAN MOBILITY INFORMATION (Step 3)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Ciphering mode info	If network does not apply ciphering, set this IE to "Not present". If network applies ciphering, this IE present with the values of the sub IEs as stated below.
- Ciphering mode command	Start/restart
- Ciphering algorithm	UEA1
- Ciphering activation time for DPCH	Not Present
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN+2
- RB identity	2
- RLC sequence number	Current RLC SN+2
- RB identity	3
- RLC sequence number	Current RLC SN+2
- RB identity	4
- RLC sequence number	Current RLC SN+2
- RB identity	20
- RLC sequence number	Current RLC SN+2
Integrity protection mode info - Integrity protection mode command - Downlink integrity protection activation info - Integrity protection algorithm - Integrity protection initialisation number	 Start Not Present UIA1 SS selects an arbitrary 32 bits number for FRESH
New U-RNTI - SRNC Identity - S-RNTI New C-RNTI CN Information info - PLMN identity - CN common GSM-MAP NAS system information - GSM-MAP NAS system information - CN domain related information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain specific DRX cycle length coefficient - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain specific DRX cycle length coefficient Downlink counter synchronisation info - RB with PDCP information list - RB with PDCP information - RB identity - PDCP SN info	 An arbitrary 12-bits string which is different from original SRNC An arbitrary 20-bits string which is different from original S-RNTI Not Present Not present 00 01H PS 05 00H 7 CS 1E 01H 7 This IE is included 20 The next PCDP sequence number that SS is expected to receive from the UE

UTRAN MOBILITY INFORMATION CONFIRM for PS only UE (Step 4)

The same message sub-type found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink DCCH with the following exceptions:

Information Element	Value/remark
Uplink counter synchronisation info - RB with PDCP information list - RB with PDCP information - RB identity - PDCP SN info - START list	 This IE is checked 20 Check that the PCDP sequence number is the next sequence number that SS would transmit to the UE. (X) Check that this IE is correct value

Content of PDCP Data PDUs used for entire test case

Information Element	Value/remark
PDU type PID Data	000 00000 (No header compression, PID = 0) PDCP test data type #1: TCP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

UE CAPABILITY ENQUIRY (Step 5)

Use the same message sub-type found in [9] TS 34.108 clause 9.

UE CAPABILITY INFORMATION (Step 6)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9.

UE CAPABILITY INFORMATION CONFIRM (Step 7)

Use the same message sub-type found in [9] TS 34.108 clause 9.

7.3.3.5.5 Test requirement

After step 1, UE shall transmit back all the PDCP PDUs sent by the SS to the UE.

After step 3, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC which includes which includes a calculated new START value according to the formula "$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the most recently configured CK_X and IK_X}) + 2", calculated IE "Integrity Check Info" using the new FRESH value as included in IE "Integrity protection initialisation number" in IE "Integrity protection mode info" in UTRAN MOBILITY INFORMATION message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration. This message shall also include IE "Receive PDCP sequence number" for RB#20. .

After step 5, the UE shall respond with a UE CAPABILITY INFORMATION message to SS and apply new ciphering configuration on UL SRB3.

After step 8, the UE shall respond with a IDENTITY RESPONSE message to SS

After step 9, UE shall start transmission on the RAB beginning with the PDCP SN equal to that included in the UTRAN MOBILITY INFORMATION CONFIRM message.

7.3.3.6 Cell Update: Lossless SRNS relocation in CELL_FACH (without pending of ciphering)

7.3.3.6.1 Definition

7.3.3.6.2 Conformance requirement

When the UTRAN receives a CELL UPDATE message, the UTRAN should:

1> in case the procedure was triggered by reception of a CELL UPDATE:

2> if SRNS relocation was performed:

3> transmit a CELL UPDATE CONFIRM message on the downlink DCCH.

2> otherwise:

3> update the START value for each CN domain as maintained in UTRAN (refer to TS 25.331 subclause 8.5.9) with "START" in the IE "START list" for the CN domain as indicated by "CN domain identity" in the IE "START list";

3> if this procedure was triggered while the UE was not in CELL_DCH state, then for each CN domain as indicated by "CN domain identity" in the IE "START list":

4> set the 20 MSB of the MAC-d HFN with the corresponding START value in the IE "START list";

4> set the remaining LSB of the MAC-d HFN to zero.

3> transmit a CELL UPDATE CONFIRM message on the downlink DCCH or optionally on the CCCH but only if ciphering is not required; and

3> optionally include the IE "RLC re-establish indicator (RB5 and upwards)" to request a RLC re-establishment in the UE, in which case the corresponding RLC entities should also be re-established in UTRAN; or

If the UE after the state transition remains in CELL_FACH state; and

- a C-RNTI is stored in the variable C_RNTI;

the UE shall:

1> if the variable PDCP_SN_INFO is non-empty:

2> include the IE "RB with PDCP information list" in any response message transmitted below and set it to the value of the variable PDCP_SN_INFO.

1> if the received CELL UPDATE CONFIRM message included the IE "Downlink counter synchronisation info":

2> re-establish RB2;

2> set the new uplink and downlink HFN component of the COUNT-C of RB2 to MAX(uplink HFN component of the COUNT-C of RB2, downlink HFN component of the COUNT-C of RB2);

2> increment by one the downlink and uplink values of the HFN component of the COUNT-C for RB2;

2> calculate the START value according to TS 25.331 subclause 8.5.9;

2> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info" in any response message transmitted below.

1> transmit a response message as specified in TS 25.331 subclause 8.3.1.7;

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and

- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

If the new state is CELL_DCH or CELL_FACH, the response message shall be transmitted using the new configuration after the state transition., and the UE shall:

1> if the IE "Downlink counter synchronisation info" was included in the received CELL UPDATE CONFIRM message:

2> when RLC has confirmed the successful transmission of the response message:

3> re-establish all AM and UM RLC entities with RB identities larger than 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the corresponding CN domain;

3> re-establish the RLC entities with RB identities 1, 3 and 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the CN domain stored in the variable LATEST_CONFIGURED_CN_DOMAIN;

3> set the remaining bits of the HFN component of the COUNT-C values of all UM RLC entities to zero;

3> re-initialise the PDCP header compression entities of each radio bearer in the variable ESTABLISHED_RABS as specified in [36].

1> if the variable PDCP_SN_INFO non-empty:

2> when RLC has confirmed the successful transmission of the response message:

3> for each radio bearer in the variable PDCP_SN_INFO:

4> if the IE "RB started" in the variable ESTABLISHED_RABS is set to "started":

5> configure the RLC entity for that radio bearer to "continue".

3> continue with the remainder of the procedure.

Reference

3GPP TS 25.331 clause 8.3.1

7.3.3.6.3 Test purpose

1. To confirm that the UE executes a cell update procedure after the successful reselection of another UTRA cell.
2. To confirm that the UE that support lossless SRNS relocation, sends the correct expected downlink PDCP sequence number to SS after a successful SRNS relocation.
3. To confirm that the UE sends calculated START values for each CN domain to SS after a successful SRNS relocation.

4. In the case that ciphering is applied by the network, to confirm that the UE applies the new ciphering algorithm following a successful SRNS relocation.

7.3.3.6.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and 2 are active.

UE: PS-DCCH_FACH (state 6-8) as specified in clause 7.4 of TS 34.108.

Initial conditions message sequence

Step	Direction		Message	Comment
	UE	SS		
SS executes procedure Activate closed loop mode 1 inCELL_FACH case as specified in clause 7.3.1.2.1.4				

Related ICS/IXIT statements

- Lossless SRNS relocation supported yes/no
- Support of RLC in-sequence delivery Yes/No

Specific Message Content

If network applies ciphering, the contents of SECURITY MODE COMMAND message in the initial condition set-up are identical to the same message sub-type found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Ciphering mode info	
- Ciphering mode command	Start/restart
- Ciphering algorithm	UEA1
- Ciphering activation time for DPCH	Not Present
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN+2
- RB identity	2
- RLC sequence number	Current RLC SN+2
- RB identity	3
- RLC sequence number	Current RLC SN + 2
- RB identity	4
- RLC sequence number	Current RLC SN + 2

For RADIO BEARER SETUP message to be transmitted during P14 as specified in TS 34.108 clause 7.4, uses the message titled “Packet to CELL_FACH from CELL_FACH in PS” as found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
- PDCP info	
- Support for lossless SRNS relocation	TRUE
- Max PDCP SN window size	sn65535
- PDCP PDU header	present

Test Procedure

Table 7.3.3.6

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 1	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-75	-75	-60

Table 7.3.3.6 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions.

The UE is in the CELL_FACH state in cell 1. If PS RAB has been established in the initial condition, SS initiates UE to enter loopback mode 1 and sends a PDCP PDU on the RAB. If ciphering is supported, the number of a PDCP PDU has to be decided so that the ciphering activation time is elapsed. SS shall suspend the sending of PDCP PDUs and wait for the last PDCP PDU to be send back by the UE and then note the next PDCP SN for the next PDCP PDU. SS configures its downlink transmission power settings according to columns "T1" in table 7.3.3.6. The UE shall find cell 2 to be more suitable for service and hence perform a cell reselection. After the completion of cell reselection, the UE shall transmits a CELL UPDATE message to the SS on the uplink CCCH of cell 2 and set IE "Cell update cause" to "Cell Reselection". SS then transmits a CELL UPDATE CONFIRM message, which includes a valid IE “New C-RNTI” and “New U-RNTI”, IE “Downlink counter synchronisation info” and IE “Integrity protection mode info”, to the UE on the downlink DCCH using UM RLC. SS verifies that the UE sends UTRAN MOBILITY INFORMATION CONFIRM message. This message also includes a calculated new START value according to the formula “$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the most recently configured CK_X and IK_X}) + 2”, calculated IE ”Integrity Check Info” using a new FRESH value as included in IE “Integrity protection initialisation number” in IE “Integrity protection mode info” in CELL UPDATE CONFIRM message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration, and “Receive PDCP sequence number”.

SS transmits UE CAPABILITY ENQUIRY message on the downlink DCCH using RLC-AM. The UE shall respond to downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS responds with UE CAPABILITY INFORMATION CONFIRM message. SS resumes the transmission of PDCP PDUs and checks that all transmitted PDCP PDUs are sent back by the UE.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
				The SS creates a TCP/IP packet without IP header compression (PDCP Data PDU).
1	←		PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet
1a				After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression is applied for this packet. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.
1b				The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
2	→		PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: data: previously received TCP/IP packet
2a				After reception of this TCP/IP data packet, the SS applies the appropriate decoding function for the received data
2b				The SS creates a UDP/IP packet without IP header compression (PDCP Data PDU).
2c			Void	SS shall suspend the sending of PDCP PDUs and wait for the last PDCP PDU to be sent back by the UE and then note the next PDCP SN for the next PDCP PDU. After last ciphering activation time has elapsed and there is no pending ciphering activation time, SS applies the downlink transmission power settings, according to the values in columns "T1" of table 7.3.3.6. The UE shall find that the cell 2 is better for service and perform a reselection. SS waits for the maximum duration required for the UE to camp to cell 2.
3	→		CELL UPDATE	Value "cell reselection" shall be indicated in IE "Cell update cause"

4	←	CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_FACH". New C-RNTI and U-RNTI identities are assigned to the UE. IE “Downlink counter synchronisation info” includes the next PCDP sequence number that SS is expected to receive from the UE, otherwise only IE “Downlink counter synchronisation info” is included. New integrity protection configuration is applied on DL SRB1. LAI and RAI of cell 2 are given to the UE, and are the same as cell 1.
5	→	UTRAN MOBILITY INFORMATION CONFIRM	New calculated START value is included. IE “Receive PDCP sequence number” shall be included. New integrity protection configuration is applied on UL SRB2. If IE “Ciphering mode info” is present in step 4, new ciphering configuration is applied on UL SRB2 with the downlink and uplink values of the HFN component of COUNT-C for SRB2 is incremented by one.
6	←	UE CAPABILITY ENQUIRY	New integrity protection configuration is applied on DL SRB2. If IE “Ciphering mode info” is present in step 4, new ciphering configuration is applied on DL SRB2 with the same value as used in step 5.
7	→	UE CAPABILITY INFORMATION	SS confirms that new integrity protection configuration is applied on UL SRB2 by UE.
8	←	UE CAPABILITY INFORMATION CONFIRM	
9		Void	
10		Void	
			The SS creates a TCP/IP packet without IP header compression (PDCP Data PDU).
11	←	PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet
12			After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression is applied for this packet. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.

13			The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
14	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: data: previously received TCP/IP packet
15			After reception of this TCP/IP data packet, the SS applies the appropriate decoding function for the received data
16			The SS creates a UDP/IP packet without IP header compression (PDCP Data PDU).
17			New ciphering configuration is applied on UL and DL RAB using the re-initialised COUNT-C HFN by the start value as stored in step 5.
Deactivate a UE terminated PS session using IP Header compression (using UE test loop mode 1)			

Specific Message Contents

CELL UPDATE (Step 3)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
Cell Update Cause	Check to see if set to 'Cell Re-selection'

CELL UPDATE CONFIRM (Step 4)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Ciphering mode info	If network does not apply ciphering, set this IE to “Not present”. If network applies ciphering, this IE present with the values of the sub IEs as stated below.
- Ciphering mode command	Start/restart
- Ciphering algorithm	UEA0
- Ciphering activation time for DPCH	Not Present
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN+2
- RB identity	2
- RLC sequence number	Current RLC SN+2
- RB identity	3
- RLC sequence number	Current RLC SN+2
- RB identity	4
- RLC sequence number	Current RLC SN+2
- RB identity	20
- RLC sequence number	Current RLC SN+2
Integrity protection mode info - Integrity protection mode command - Downlink integrity protection activation info - Integrity protection algorithm - Integrity protection initialisation number	 Start Not Present UIA1 SS selects an arbitrary 32 bits number for FRESH
New U-RNTI - SRNC Identity - S-RNTI New C-RNTI CN Information info - PLMN identity - CN common GSM-MAP NAS system information - GSM-MAP NAS system information - CN domain related information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information Downlink counter synchronisation info - RB with PDCP information list - RB with PDCP information - RB identity - PDCP SN info	 An arbitrary 12-bits string which is different from original SRNC An arbitrary 20-bits string which is different from original S-RNTI Not Present Not present 00 01H PS 05 00H CS 1E 01H This IE is included 20 The next PCDP sequence number that SS is expected to receive from the UE.(X)

UTRAN MOBILITY INFORMATION CONFIRM (Step 5)

The same message sub-type found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink DCCH with the following exceptions:

Information Element	Value/remark
Uplink counter synchronisation info - RB with PDCP information list - RB with PDCP information - RB identity - PDCP SN info - START list	 This IE is checked 20 Check that the PCDP sequence number is the next sequence number that SS would transmit to the UE Check that this IE is correct value

Content of PDCP Data PDUs used for entire test case

Information Element	Value/remark
PDU type PID Data	000 00000 (No header compression, PID = 0) PDCP test data type #1: TCP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

UE CAPABILITY ENQUIRY (Step 6)

Use the same message sub-type found in [9] TS 34.108 clause 9.

UE CAPABILITY INFORMATION (Step 7)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9.

UE CAPABILITY INFORMATION CONFIRM (Step 8)

Use the same message sub-type found in [9] TS 34.108 clause 9.

7.3.3.6.5 Test requirement

After step 1, UE shall transmit back all the PDCP PDUs sent by the SS to the UE.

After step 2, UE shall transmit CELL UPDATE message with the value of IE “Cell update cause” set to “cell reselection”.

After step 4, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC which includes which includes a calculated new START value according to the formula “$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the most recently configured CK_X and IK_X}) + 2”, calculated IE ”Integrity Check Info” using the new FRESH value as included in IE ”Integrity protection initialisation number” in IE ”Integrity protection mode info” in UTRAN MOBILITY INFORMATION message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration, this message shall also include IE “Receive PDCP sequence number” for RB#20.

After step 6, the UE shall respond with a UE CAPABILITY INFORMATION message to SS.

After step 10, UE shall start transmission on the RAB beginning with the PDCP SN equal to that included in the UTRAN MOBILITY INFORMATION CONFIRM message.

7.3.3.7 URA Update: Lossless SRNS relocation in CELL_FACH (without pending of ciphering)

7.3.3.7.1 Definition

7.3.3.7.2 Conformance requirement

When the UTRAN receives a URA UPDATE message, the UTRAN should:

1> in case the procedure was triggered by reception of a URA UPDATE:

2> if SRNS relocation was performed:

3> transmit a URA UPDATE CONFIRM message on the downlink DCCH.

If the UE after the state transition remains in CELL_FACH state; and

- a C-RNTI is stored in the variable C_RNTI;

the UE shall:

1> if the variable PDCP_SN_INFO is non-empty:

2> include the IE "RB with PDCP information list" in any response message transmitted below and set it to the value of the variable PDCP_SN_INFO.

1> if the received URA UPDATE CONFIRM message included the IE "Downlink counter synchronisation info":

2> re-establish RB2;

2> set the new uplink and downlink HFN component of the COUNT-C of RB2 to MAX(uplink HFN component of the COUNT-C of RB2, downlink HFN component of the COUNT-C of RB2);

2> increment by one the downlink and uplink values of the HFN component of the COUNT-C for RB2;

2> calculate the START value according to TS 25.331 subclause 8.5.9;

2> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info" in any response message transmitted below.

If the URA UPDATE CONFIRM message:

- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes any one or both of the IEs "New C-RNTI" and "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

If the new state is CELL_DCH or CELL_FACH, the response message shall be transmitted using the new configuration after the state transition., and the UE shall:

1> if the IE "Downlink counter synchronisation info" was included in the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message:

2> when RLC has confirmed the successful transmission of the response message:

3> re-establish all AM and UM RLC entities with RB identities larger than 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the corresponding CN domain;

3> re-establish the RLC entities with RB identities 1, 3 and 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the CN domain stored in the variable LATEST_CONFIGURED_CN_DOMAIN;

3> set the remaining bits of the HFN component of the COUNT-C values of all UM RLC entities to zero;

3> re-initialise the PDCP header compression entities of each radio bearer in the variable ESTABLISHED_RABS.

1> if the variable PDCP_SN_INFO non-empty:

2> when RLC has confirmed the successful transmission of the response message:

3> for each radio bearer in the variable PDCP_SN_INFO:

4> if the IE "RB started" in the variable ESTABLISHED_RABS is set to "started":

5> configure the RLC entity for that radio bearer to "continue".

Reference

3GPP TS 25.331 clause 8.3.1

7.3.3.7.3 Test purpose

1. To confirm that the UE executes a URA update procedure after the successful reselection of another UTRA cell.
2. To confirm that the UE that support lossless SRNS relocation, sends the correct expected downlink PDCP sequence number to SS after a successful SRNS relocation.
3. To confirm that the UE sends calculated START values for each CN domain to SS after a successful SRNS relocation.

7.3.3.7.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and 3 are active.

UE: PS-DCCH _DCH(state 6-7) in cell 1 as specified in clause 7.4 of TS 34.108.

Initial conditions message sequence

Step	Direction		Message	Comment
	UE	SS		
SS executes procedure Activate closed loop mode 1 in CELL_DCH case-as specified in clause 7.3.1.2.1.44				
1			SS executes procedure P18 (clause 7.4.2.1.2 of TS 34.108)	
2				UE enters state URA_PCH

Related ICS/IXIT statements

- Lossless SRNS relocation supported yes/no

- Support of RLC in-sequence delivery Yes/No

Specific Message Content

If network applies ciphering, the contents of SECURITY MODE COMMAND message in the initial condition set-up are identical to the same message sub-type found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Ciphering mode info	
- Ciphering mode command	Start/restart
- Ciphering algorithm	UEA1
- Ciphering activation time for DPCH	Not Present
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN+2
- RB identity	2
- RLC sequence number	Current RLC SN+2
- RB identity	3
- RLC sequence number	Current RLC SN + 2
- RB identity	4
- RLC sequence number	Current RLC SN + 2

For RADIO BEARER SETUP message to be transmitted during P14 as specified in TS 34.108 clause 7.4, uses the message titled “Packet to CELL_FACH from CELL_FACH in PS” as found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
- PDCP info	
- Support for lossless SRNS relocation	TRUE
- Max PDCP SN window size	sn65535
- PDCP PDU header	present

Test Procedure

Table 7.3.3.7

Parameter	Unit	Cell 1		Cell 3	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 1	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-75	-75	-60

Table 7.3.3.7 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions.

The UE is in the URA_PCH state, camping onto cell 1. If PS RAB has been established in the initial condition, SS initiates UE to enter loopback mode 1 and sends a PDCP PDUs on the RAB. If ciphering is supported, a PDCP PDUs has to be decided so that the ciphering activation time is elapsed. SS shall suspend the sending of PDCP PDUs and wait for the last PDCP PDU to be send back by the UE and then note the next PDCP SN for the next PDCP PDU. SS configures its downlink transmission power settings according to columns "T1" in table 7.3.3.7. The UE shall find cell 3 to be more suitable for service and hence perform a cell reselection. After the completion of cell reselection, the UE shall transmits a URA UPDATE message to the SS on the uplink CCCH of cell 3 and set IE "URA update cause" to "change of URA". After the SS receives this message, it transmits a URA UPDATE CONFIRM message, which includes a valid IE “New C-RNTI” and “New U-RNTI”, IE “Downlink counter synchronisation info” and IE “Integrity protection mode info”, to the UE on the downlink DCCH using UM RLC. SS verifies that the UE sends UTRAN MOBILITY INFORMATION CONFIRM message. This message also includes a calculated new START value according to the formula “$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the most recently configured CK_X and IK_X}) + 2”, calculated IE ”Integrity Check Info” using a new FRESH value as included in IE “Integrity protection initialisation number” in IE “Integrity protection mode info” in CELL UPDATE CONFIRM message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration, and “Receive PDCP sequence number”.

SS transmits UE CAPABILITY ENQUIRY message on the downlink DCCH using RLC-AM. The UE shall respond to downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS responds with UE CAPABILITY INFORMATION CONFIRM message. SS resumes the transmission of PDCP PDUs and checks that all transmitted PDCP PDUs are sent back by the UE.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
				The SS creates a TCP/IP packet without IP header compression (PDCP Data PDU).
1	←		PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet
1a				After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression is applied for this packet. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.
1b				The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
2	→		PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: data: previously received TCP/IP packet
2a				After reception of this TCP/IP data packet, the SS applies the appropriate decoding function for the received data
2b				The SS creates a UDP/IP packet without IP header compression (PDCP Data PDU).
2c			Void	SS shall suspend the sending of PDCP PDUs and wait for the last PDCP PDU to be sent back by the UE and then note the next PDCP SN for the next PDCP PDU. After last ciphering activation time has elapsed and there is no pending ciphering activation time, SS applies the downlink transmission power settings, according to the values in columns "T1" of table 7.3.3.7. The UE shall find that the cell 2 is better for service and perform a reselection. SS waits for the maximum duration required for the UE to camp to cell 3.
3	→		URA UPDATE	Value "change of URA" shall be indicated in IE "URA update cause"

4	←	URA UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_FACH". New C-RNTI and U-RNTI identities are assigned to the UE. IE “Downlink counter synchronisation info” includes the next PCDP sequence number that SS is expected to receive from the UE, otherwise only IE “Downlink counter synchronisation info” is included. New integrity protection configuration is applied on DL SRB1. LAI and RAI of cell 2 are given to the UE, and are the same as cell 1.
5	→	UTRAN MOBILITY INFORMATION CONFIRM	New calculated START value is included. IE “Receive PDCP sequence number” shall be included. New integrity protection configuration is applied on UL SRB2.
6	←	UE CAPABILITY ENQUIRY	New integrity protection configuration is applied on DL SRB2.
7	→	UE CAPABILITY INFORMATION	SS confirms that new integrity protection configuration is applied on UL SRB2 by UE.
8	←	UE CAPABILITY INFORMATION CONFIRM	
9		Void	
10		Void	
			The SS creates a TCP/IP packet without IP header compression (PDCP Data PDU).
11	←	PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet
12			After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression is applied for this packet. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.
13			The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
14	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: data: previously received TCP/IP packet

15			After reception of this TCP/IP data packet, the SS applies the appropriate decoding function for the received data
16			The SS creates a UDP/IP packet without IP header compression (PDCP Data PDU).
17		Void	
Deactivate a UE terminated PS session using IP Header compression (using UE test loop mode 1)			

Specific Message Contents

URA UPDATE (Step 3)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
URA Update Cause	Check to see if set to “change of URA”

URA UPDATE CONFIRM (Step 4)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Ciphering mode info	Not present
Integrity protection mode info - Integrity protection mode command - Downlink integrity protection activation info - Integrity protection algorithm - Integrity protection initialisation number	 Start Not Present UIA1 SS selects an arbitrary 32 bits number for FRESH
New U-RNTI - SRNC Identity - S-RNTI New C-RNTI CN Information info - PLMN identity - CN common GSM-MAP NAS system information - GSM-MAP NAS system information - CN domain related information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information Downlink counter synchronisation info - RB with PDCP information list - RB with PDCP information - RB identity - PDCP SN info	 An arbitrary 12-bits string which is different from original SRNC An arbitrary 20-bits string which is different from original S-RNTI Not Present Not present 00 01H PS 05 00H CS 1E 01H This IE is included 20 The next PCDP sequence number that SS is expected to receive from the UE.(X)

UTRAN MOBILITY INFORMATION CONFIRM (Step 5)

The same message sub-type found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink DCCH with the following exceptions:

Information Element	Value/remark
Uplink counter synchronisation info - RB with PDCP information list - RB with PDCP information - RB identity - PDCP SN info - START list	 This IE is checked 20 Check that the PCDP sequence number is the next sequence number that SS would transmit to the UE.(X) Check that this IE is correct value

Content of PDCP Data PDUs used for entire test case

Information Element	Value/remark
PDU type PID Data	000 00000 (No header compression, PID = 0) PDCP test data type #1: TCP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

UE CAPABILITY ENQUIRY (Step 6)

Use the same message sub-type found in [9] TS 34.108 clause 9.

UE CAPABILITY INFORMATION (Step 7)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9.

UE CAPABILITY INFORMATION CONFIRM (Step 8)

Use the same message sub-type found in [9] TS 34.108 clause 9.

7.3.3.7.5 Test requirement

After step 1, UE shall transmit back all the PDCP PDUs sent by the SS to the UE.

After step 2, UE shall transmit URA UPDATE message with the value of IE “URA update cause” set to “change of URA”.

After step 4, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC which includes which includes a calculated new START value according to the formula “$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the most recently configured CK_X and IK_X}) + 2”, calculated IE ”Integrity Check Info” using the new FRESH value as included in IE ”Integrity protection initialisation number” in IE ”Integrity protection mode info” in UTRAN MOBILITY INFORMATION message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration. This message shall also include IE “Receive PDCP sequence number” for RB#20.

After step 6, the UE shall respond with a UE CAPABILITY INFORMATION message to SS.

After step 9, the UE shall respond with an IDENTITY RESPONSE message to SS and apply new ciphering configuration on UL SRB3.

After step 10, UE shall start transmission on the RAB beginning with the PDCP SN equal to that included in the UTRAN MOBILITY INFORMATION CONFIRM message.

7.3.3.8 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (Lossless SRNS relocation) (without pending of ciphering)

7.3.3.8.1 Definition

7.3.3.8.2 Conformance requirement

1> if the reconfiguration procedure is simultaneous with SRNS relocation procedure:

2> if the transmitted message is a RADIO BEARER RECONFIGURATION:

3> include the IE "New U-RNTI".

2> else:

3> include the IE "Downlink counter synchronisation info".

The UE shall:

1> if the received reconfiguration message included the IE "Downlink counter synchronisation info";

2> re-establish RB2;

2> set the new uplink and downlink HFN component of COUNT-C of RB2 to MAX(uplink HFN component of COUNT-C of RB2, downlink HFN component of COUNT-C of RB2);

2> increment by one the downlink and uplink values of the HFN component of COUNT-C for RB2;

2> calculate the START value according to subclause 8.5.9;

2> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info".

1> if the variable PDCP_SN_INFO is not empty:

2> include the IE "RB with PDCP information list" and set it to the value of the variable PDCP_SN_INFO.

1> if the IE "Integrity protection mode info" was present in the received reconfiguration message:

2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted response message.

If the new state is CELL_DCH or CELL_FACH, the response message shall be transmitted using the new configuration after the state transition, and the UE shall:

1> if the IE "Downlink counter synchronisation info" was included in the reconfiguration message;

2> when RLC has confirmed the successful transmission of the response message:

3> re-establish all AM and UM RLC entities with RB identities larger than 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the corresponding CN domain;

3> re-establish the RLC entities with RB identities 1, 3 and 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the CN domain stored in the variable LATEST_CONFIGURED_CN_DOMAIN;

3> set the remaining bits of the HFN component of COUNT-C values of all UM RLC entities to zero;

3> re-initialise the PDCP header compression entities of each radio bearer in the variable ESTABLISHED_RABS as specified in [36].

1> if the variable PDCP_SN_INFO is non-empty:

2> when RLC has confirmed the successful transmission of the response message:

3> for each radio bearer in the variable PDCP_SN_INFO:

4> if the IE "RB started" in the variable ESTABLISHED_RABS is set to "started":

5> configure the RLC entity for that radio bearer to "continue".

3> perform the actions below.

Reference

3GPP TS 25.331 clause 8.2.2.

7.3.3.8.3 Test purpose

1. To confirm that the UE performs a combined hard handover and SRNS relocation and then transmit a RADIO BEARER SETUP COMPLETE message in the new cell.
2. In the case that ciphering is applied by the network, to confirm that the UE applies the new ciphering algorithm following a successful SRNS relocation.

7.3.3.8.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 and 2

UE: PS-DCCH _DCH (state 6-7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Initial conditions message sequence

Step	Direction		Message	Comment
	UE	SS		
SS executes procedure Activate closed loop mode 1 in CELL_DCH case-as specified in clause 7.3.1.2.1.4				

Related ICS/IXIT statements

- Lossless SRNS relocation supported yes/no

- Support of RLC in-sequence delivery Yes/No

Specific Message Content

If network applies ciphering, the contents of SECURITY MODE COMMAND message in the initial condition set-up are identical to the same message sub-type found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Ciphering mode info	
- Ciphering mode command	Start/restart
- Ciphering algorithm	UEA0
- Ciphering activation time for DPCH	Not Present
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN+2
- RB identity	2
- RLC sequence number	Current RLC SN+2
- RB identity	3
- RLC sequence number	Current RLC SN + 2
- RB identity	4
- RLC sequence number	Current RLC SN + 2

For RADIO BEARER SETUP message to be transmitted during P13 as specified in TS 34.108 clause 7.4, use the message titled “Packet to CELL_DCH from CELL_DCH in PS” as found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
RAB information for setup	
- RAB info	
- RAB identity	0000 0101B
- CN domain identity	PS domain
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	UseT315
- RB information to setup	
- RB identity	20
- PDCP info	
- Support for lossless SRNS relocation	TRUE
- Max PDCP SN window size	sn65535
- PDCP PDU header	present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- Logical channel identity	7
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	6
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit List
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present

- Logical channel identity	7

Test Procedure

Table 7.3.3.8

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 1	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-75	-75	-60

Table 7.3.3.8 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions.

The UE is in the CELL_DCH state, camping onto cell 1. If PS RAB has been established in the initial condition, SS initiates UE to enter loopback mode 1 and sends a PDCP PDU on the RAB. If ciphering is supported, the a PDCP PDUs has to be decided so that the ciphering activation time is elapsed. SS shall suspend the sending of PDCP PDUs and wait for the last PDCP PDU to be send back by the UE and then note the next PDCP SN for the next PDCP PDU. SS configures its downlink transmission power settings according to columns "T1" in table 7.3.3.8. The SS sends a RADIO BEARER SETUP message on the downlink DCCH using AM RLC requesting the UE to do a handover combined with SRNS relocation. This message includes IE "RRC State Indicator" set to "CELL_DCH", IE “Downlink counter synchronisation info” and IE “Integrity protection mode info”. UE shall reselect to cell 2 and SS verifies that the UE sends RADIO BEARER SETUP COMPLETE message. This message also includes a calculated new START value according to the formula “$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the most recently configured CK_X and IK_X}) + 2”, calculated IE ”Integrity Check Info” using a new FRESH value as included in IE “Integrity protection initialisation number” in IE “Integrity protection mode info” in RADIO BEARER SETUP message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration, and “Receive PDCP sequence number”.

SS transmits UE CAPABILITY ENQUIRY message on the downlink DCCH using RLC-AM. The UE shall respond to downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS responds with UE CAPABILITY INFORMATION CONFIRM message. SS resumes the transmission of PDCP PDUs and checks that all transmitted PDCP PDUs are sent back by the UE.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
				The SS creates a TCP/IP packet without IP header compression (PDCP Data PDU).
1	←		PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet
1a				After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression is applied for this packet. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.
1b				The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
2	→		PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: data: previously received TCP/IP packet
2a				After reception of this TCP/IP data packet, the SS applies the appropriate decoding function for the received data
2b				The SS creates a UDP/IP packet without IP header compression (PDCP Data PDU).
2c			Void	SS shall suspend the sending of PDCP PDUs and wait for the last PDCP PDU to be sent back by the UE and then note the next PDCP SN for the next PDCP PDU. SS applies the downlink transmission power settings, according to the values in columns "T1" of table 7.3.3.8.

3	←	RADIO BEARER SETUP	If IE “Ciphering mode info” is present in the SECURITY MODE COMMAND during initial condition set-up, this message is sent after last ciphering activation time has elapsed and there is no pending ciphering activation time. IE “Downlink counter synchronisation info” includes the next PCDP sequence number that SS is expected to receive from the UE, otherwise only IE “Downlink counter synchronisation info” is included. New integrity protection configuration is applied on DL SRB1. LAI and RAI of cell 2 are given to the UE, and are the same as cell 1.
4	→	RADIO BEARER SETUP COMPLETE	The UE shall transmit this message after it reselects to cell 2. New calculated START value is included. IE “Receive PDCP sequence number” shall be included. New integrity protection configuration is applied on UL SRB2. If IE “Ciphering mode info” is present in step 3, new ciphering configuration is applied on UL SRB2 with the downlink and uplink values of the HFN component of COUNT-C for SRB2 is incremented by one.
5	←	UE CAPABILITY ENQUIRY	New integrity protection configuration is applied on DL SRB2. If IE “Ciphering mode info” is present in step 3, new ciphering configuration is applied on DL SRB2 with the same value as used in step 4.
6	→	UE CAPABILITY INFORMATION	SS confirms that new integrity protection configuration is applied on UL SRB2 by UE.
7	←	UE CAPABILITY INFORMATION CONFIRM	
8		Void	
9		Void	
			The SS creates a TCP/IP packet without IP header compression (PDCP Data PDU).
10	←	PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet

11			After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression is applied for this packet. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.
12			The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
13	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: data: previously received TCP/IP packet
14			After reception of this TCP/IP data packet, the SS applies the appropriate decoding function for the received data
15			The SS creates a UDP/IP packet without IP header compression (PDCP Data PDU).
16			If IE “Ciphering mode info” is present in step 3, new ciphering configuration is applied on UL and DL RAB using the re-initialised COUNT-C HFN by the start value as stored in step 4.
Deactivate a UE terminated PS session using IP Header compression (using UE test loop mode 1)			

Specific Message Contents

RADIO BEARER SETUP for PS only UE (Step 3)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled “Packet to CELL_DCH from CELL_DCH in PS”, with the following exception:

Information Element	Value/remark
Ciphering mode info	If network does not apply ciphering, set this IE to "Not present". If network applies ciphering, this IE present with the values of the sub IEs as stated below.
- Ciphering mode command	Start/restart
- Ciphering algorithm	UEA1
- Ciphering activation time for DPCH	Not Present
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN+2
- RB identity	2
- RLC sequence number	Current RLC SN+2
- RB identity	3
- RLC sequence number	Current RLC SN+2
- RB identity	4
- RLC sequence number	Current RLC SN+2
- RB identity	20
- RLC sequence number	Current RLC SN+2
Integrity protection mode info - Integrity protection mode command - Downlink integrity protection activation info - Integrity protection algorithm - Integrity protection initialisation number	 Start Not Present UIA1 SS selects an arbitrary 32 bits number for FRESH
New U-RNTI - SRNC identity - S-RNTI	 0000 0000 0010B 0000 0000 0000 0000 0001B
CN Information info - PLMN identity - CN common GSM-MAP NAS system information - GSM-MAP NAS system information - CN domain related information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information	 Not present 00 01H PS 05 00H CS 1E 01H
RAB information for setup - RAB info - RAB identity - CN domain identity - NAS Synchronization Indicator - Re-establishment timer - RB information to setup - RB identity - PDCP info - Support for lossless SRNS relocation - Max PDCP SN window size - PDCP PDU header - Header compression information - CHOICE RLC info type - CHOICE Uplink RLC mode - Transmission RLC discard - SDU discard mode - MAX_DAT - Transmission window size - Timer_RST - Max_RST - Polling info - Timer_poll_prohibit - Timer_poll - Poll_PDU - Poll_SDU - Last transmission PDU poll - Last retransmission PDU poll	 0000 1100B PS domain Not Present UseT315 12 FALSE Not present Absent Not present RLC info AM RLC No discard 15 128 500 4 200 200 Not Present 1 TRUE TRUE

- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- Logical channel identity	8
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	6
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	8
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	8
- CHOICE RLC size list	Explicit List
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	8
Downlink counter synchronisation info	
- RB with PDCP information list	This IE is included
- RB with PDCP information	
- RB identity	20
- PDCP SN info	The next PCDP sequence number that SS is expected to receive from the UE.
Downlink information for each radio links	
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for cell 2

RADIO BEARER SETUP for CS only UE (Step 3)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled “Non speech to CELL_DCH from CELL_DCH in CS”, with the following exception:

Information Element	Value/remark
Ciphering mode info	If network does not apply ciphering, set this IE to “Not present”. If network applies ciphering, this IE present with the values of the sub IEs as stated below.
- Ciphering mode command	Start/restart
- Ciphering algorithm	UEA1
- Ciphering activation time for DPCH	(256+CFN-(CFN MOD 8 + 8))MOD 256
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN+2
- RB identity	2
- RLC sequence number	Current RLC SN+2
- RB identity	3
- RLC sequence number	Current RLC SN+2
- RB identity	4
- RLC sequence number	Current RLC SN+2
Integrity protection mode info - Integrity protection mode command - Downlink integrity protection activation info - Integrity protection algorithm - Integrity protection initialisation number	 Start Not Present UIA1 SS selects an arbitrary 32 bits number for FRESH
New U-RNTI - SRNC identity - S-RNTI	 0000 0000 0010B 0000 0000 0000 0000 0001B
CN Information info - PLMN identity - CN common GSM-MAP NAS system information - GSM-MAP NAS system information - CN domain related information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information	 Not present 00 01H PS 05 00H CS 1E 01H
RAB information for setup - RAB info - RAB identity - CN domain identity - NAS Synchronization Indicator - Re-establishment timer - RB information to setup - RB identity - PDCP info - CHOICE RLC info type - CHOICE Uplink RLC mode - Transmission RLC discard - Segmentation indication - CHOICE Downlink RLC mode - Segmentation indication - RB mapping info - Information for each multiplexing option - RLC logical channel mapping indicator - Number of uplink RLC logical channels - Uplink transport channel type - UL Transport channel identity - Logical channel identity - CHOICE RLC size list - MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity - DL DSCH Transport channel identity - Logical channel identity	 0000 1100B CS domain Not Present UseT314 13 Not Present RLC info TM RLC Not Present FALSE TM RLC FALSE Not Present 1 DCH 1 Not Present Configured 8 1 DCH 6 Not Present Not Present

Downlink counter synchronisation info - RB with PDCP information list	 Not present
Downlink information for each radio links - Primary CPICH info - Primary Scrambling Code	 Set to same code as used for cell 2

RADIO BEARER SETUP COMPLETE for PS only UE (Step 4)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
Uplink counter synchronisation info - RB with PDCP information list - RB with PDCP information - RB identity - PDCP SN info - RB identity - PDCP SN info - START list	 This IE is checked. 12 Check that the PCDP sequence number is the next sequence number that SS would transmit to the UE. 20 Check that the PCDP sequence number is the next sequence number that SS would transmit to the UE. Check that this IE is present.

RADIO BEARER SETUP COMPLETE for CS only UE (Step 4)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
Uplink counter synchronisation info - RB with PDCP information list - START list	 Not present Check that this IE is present.

Content of PDCP Data PDUs used for entire test case

Information Element	Value/remark
PDU type PID Data	000 00000 (No header compression, PID = 0) PDCP test data type #1: TCP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

UE CAPABILITY ENQUIRY (Step 5)

Use the same message sub-type found in [9] TS 34.108 clause 9.

UE CAPABILITY INFORMATION (Step 6)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9.

UE CAPABILITY INFORMATION CONFIRM (Step 7)

Use the same message sub-type found in [9] TS 34.108 clause 9.

7.3.3.8.5 Test requirement

After step 1, UE shall transmit back all the PDCP PDUs sent by the SS to the UE.

After step 3, the UE shall transmit a RADIO BEARER SETUP COMPLETE message on the uplink DCCH using AM RLC which includes which includes a calculated new START value according to the formula "$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the most recently configured CK_X and IK_X}) + 2", calculated IE "Integrity Check Info" using the new FRESH value as included in IE "Integrity protection initialisation number" in IE "Integrity protection mode info" in RADIO BEARER SETUP message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration. This message shall also include IE "Receive PDCP sequence number" for RB#20.

After step 5, the UE shall respond with a UE CAPABILITY INFORMATION message to SS.

After step 9, UE shall start transmission on the RAB beginning with the PDCP SN equal to that included in the RADIO BEARER RECONFIGURATION COMPLETE message.

7.3.3.9 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Lossless SRNS relocation) (without pending of ciphering)

7.3.3.9.1 Definition

7.3.3.9.2 Conformance requirement

1> if the reconfiguration procedure is simultaneous with SRNS relocation procedure:

2> if the transmitted message is a RADIO BEARER RECONFIGURATION:

3> include the IE "New U-RNTI".

2> else:

3> include the IE "Downlink counter synchronisation info".

The UE shall:

1> if the received reconfiguration message is a RADIO BEARER RECONFIGURATION and the IE "New U-RNTI" is included:

2> re-establish RB2;

2> set the new uplink and downlink HFN component of COUNT-C of RB2 to MAX(uplink HFN component of COUNT-C of RB2, downlink HFN component of COUNT-C of RB2);

2> increment by one the downlink and uplink values of the HFN component of COUNT-C for RB2;

2> calculate the START value according to subclause 8.5.9;

2> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info".

1> if the variable PDCP_SN_INFO is not empty:

2> include the IE "RB with PDCP information list" and set it to the value of the variable PDCP_SN_INFO.

1> if the IE "Integrity protection mode info" was present in the received reconfiguration message:

2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted response message.

If the new state is CELL_DCH or CELL_FACH, the response message shall be transmitted using the new configuration after the state transition, and the UE shall:

1> if the received reconfiguration message is a RADIO BEARER RECONFIGURATION and the IE "New U-RNTI" is included:

2> when RLC has confirmed the successful transmission of the response message:

3> re-establish all AM and UM RLC entities with RB identities larger than 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the corresponding CN domain;

3> re-establish the RLC entities with RB identities 1, 3 and 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the CN domain stored in the variable LATEST_CONFIGURED_CN_DOMAIN;

3> set the remaining bits of the HFN component of COUNT-C values of all UM RLC entities to zero;

3> re-initialise the PDCP header compression entities of each radio bearer in the variable ESTABLISHED_RABS as specified in [36].

1> if the variable PDCP_SN_INFO is non-empty:

2> when RLC has confirmed the successful transmission of the response message:

3> for each radio bearer in the variable PDCP_SN_INFO:

4> if the IE "RB started" in the variable ESTABLISHED_RABS is set to "started":

5> configure the RLC entity for that radio bearer to "continue".

3> perform the actions below.

Reference

3GPP TS 25.331 clause 8.2.2.

7.3.3.9.3 Test purpose

1. To confirm that the UE performs a combined hard handover and SRNS relocation and then transmit a RADIO BEARER RECONFIGURATION COMPLETE message in the new cell.
2. In the case that ciphering is applied by the network, to confirm that the UE applies the new ciphering algorithm following a successful SRNS relocation.

7.3.3.9.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 and 2

UE: PS-DCCH+ DCH (state 6-7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Initial conditions message sequence

Step	Direction		Message	Comment
	UE	SS		
SS executes procedure Activate closed loop mode 1 in CELL_DCH case as specified in clause 7.3.1.2.1.4				

Related ICS/IXIT statements

- Lossless SRNS relocation supported yes/no

- Support of RLC in-sequence delivery Yes/No

Specific Message Content

If network applies ciphering, the contents of SECURITY MODE COMMAND message in the initial condition set-up are identical to the same message sub-type found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Ciphering mode info	
- Ciphering mode command	Start/restart
- Ciphering algorithm	UEA1
- Ciphering activation time for DPCH	Not Present
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN+2
- RB identity	2
- RLC sequence number	Current RLC SN+2
- RB identity	3
- RLC sequence number	Current RLC SN + 2
- RB identity	4
- RLC sequence number	Current RLC SN + 2

For RADIO BEARER SETUP message to be transmitted during P13 as specified in TS 34.108 clause 7.4, use the message titled “Packet to CELL_DCH from CELL_DCH in PS” as found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
- PDCP info	
- Support for lossless SRNS relocation	TRUE
- Max PDCP SN window size	sn65535
- PDCP PDU header	present

Test Procedure

Table 7.3.3.9

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 1	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-75	-75	-60

Table 7.3.3.9 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions.

The UE is in the CELL_DCH state, camping onto cell 1. If PS RAB has been established in the initial condition, SS initiates UE to enter loopback mode 1. If ciphering is supported a PDCP PDU has to be decided so that the ciphering activation time is elapsed. SS shall suspend the sending of PDCP PDUs and wait for the last PDCP PDU to be send back by the UE and then note the next PDCP SN for the next PDCP PDU. SS configures its downlink transmission power settings according to columns "T1" in table 7.3.3.9. The SS sends a RADIO BEARER RECONFIGURATION message on the downlink DCCH using AM RLC requesting the UE to do a handover combined with SRNS relocation. This message includes IE "RRC State Indicator" set to "CELL_DCH", IE “New U-RNTI” and IE “Integrity protection mode info”. UE shall reselect to cell 2 and SS verifies that the UE sends RADIO BEARER RECONFIGURATION COMPLETE message. This message also includes a calculated new START value according to the formula “$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the most recently configured CK_X and IK_X}) + 2”, calculated IE ”Integrity Check Info” using a new FRESH value as included in IE “Integrity protection initialisation number” in IE “Integrity protection mode info” in RADIO BEARER SETUP message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration, and “Receive PDCP sequence number”.

SS transmits UE CAPABILITY ENQUIRY message on the downlink DCCH using RLC-AM. The UE shall respond to downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS responds with UE CAPABILITY INFORMATION CONFIRM message. SS resumes the transmission of PDCP PDUs and checks that all transmitted PDCP PDUs are sent back by the UE.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
				The SS creates a TCP/IP packet without IP header compression (PDCP Data PDU).
1	←		PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet
1a				After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression is applied for this packet. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.
1b				The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
2	→		PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: data: previously received TCP/IP packet
2a				After reception of this TCP/IP data packet, the SS applies the appropriate decoding function for the received data
2b				The SS creates a UDP/IP packet without IP header compression (PDCP Data PDU).
2c			Void	SS shall suspend the sending of PDCP PDUs and wait for the last PDCP PDU to be sent back by the UE and then note the next PDCP SN for the next PDCP PDU. SS applies the downlink transmission power settings, according to the values in columns "T1" of table 7.3.3.8.

3	←	RADIO BEARER RECONFIGURATION	If IE “Ciphering mode info” is present in the SECURITY MODE COMMAND during initial condition set-up, this message is sent after last ciphering activation time has elapsed and there is no pending ciphering activation time. IE “RB information to reconfigure” includes the next PCDP sequence number that SS is expected to receive from the UE. New integrity protection configuration is applied on DL SRB1. LAI and RAI of cell 2 are given to the UE, and are the same as cell 1.
4	→	RADIO BEARER RECONFIGURATION COMPLETE	The UE shall transmit this message after it reselects to cell 2. New calculated START value is included. IE “Receive PDCP sequence number” shall be included. New integrity protection configuration is applied on UL SRB2. If IE “Ciphering mode info” is present in step 3, new ciphering configuration is applied on UL SRB2 with the downlink and uplink values of the HFN component of COUNT-C for SRB2 is incremented by one.
5	←	UE CAPABILITY ENQUIRY	New integrity protection configuration is applied on DL SRB2. If IE “Ciphering mode info” is present in step 3, new ciphering configuration is applied on DL SRB2 with the same value as used in step 4.
6	→	UE CAPABILITY INFORMATION	SS confirms that new integrity protection configuration is applied on UL SRB2 by UE.
7	←	UE CAPABILITY INFORMATION CONFIRM	
8		Void	
9		Void	
			The SS creates a TCP/IP packet without IP header compression (PDCP Data PDU).
10	←	PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet
11			After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression is applied for this packet. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.

12			The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
13	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: data: previously received TCP/IP packet
14			After reception of this TCP/IP data packet, the SS applies the appropriate decoding function for the received data
15			The SS creates a UDP/IP packet without IP header compression (PDCP Data PDU).
16			If IE “Ciphering mode info” is present in step 3, new ciphering configuration is applied on UL and DL RAB using the re-initialised COUNT-C HFN by the start value as stored in step 4.
Deactivate a UE terminated PS session using IP Header compression (using UE test loop mode 1)			

Specific Message Contents

RADIO BEARER RECONFIGURATION for PS only UE (Step 3)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled “Packet to CELL_DCH from CELL_DCH in PS”, with the following exception:

Information Element	Value/remark
Ciphering mode info	If network does not apply ciphering, set this IE to “Not present”. If network applies ciphering, this IE present with the values of the sub IEs as stated below.
- Ciphering mode command	Start/restart
- Ciphering algorithm	UEA0
- Ciphering activation time for DPCH	Not Present
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN+2
- RB identity	2
- RLC sequence number	Current RLC SN+2
- RB identity	3
- RLC sequence number	Current RLC SN+2
- RB identity	4
- RLC sequence number	Current RLC SN+2
- RB identity	20
- RLC sequence number	Current RLC SN+2
Integrity protection mode info - Integrity protection mode command - Downlink integrity protection activation info - Integrity protection algorithm - Integrity protection initialisation number	 Start Not Present UIA1 SS selects an arbitrary 32 bits number for FRESH
New U-RNTI - SRNC identity - S-RNTI	 0000 0000 0010B 0000 0000 0000 0000 0001B
CN Information info - PLMN identity - CN common GSM-MAP NAS system information - GSM-MAP NAS system information - CN domain related information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information	 Not present 00 01H PS 05 00H CS 1E 01H
RB information to reconfigure list - RB information to reconfigure - RB identity - PDCP info - PDCP SN info - RLC info - CHOICE Uplink RLC mode - Transmission RLC discard - SDU discard mode - MAX_DAT - Transmission window size - Timer_RST - Max_RST - Polling info - Timer_poll_prohibit - Timer_poll - Poll_PDU - Poll_SDU - Last transmission PDU poll - Last retransmission PDU poll - Poll_Window - Timer_poll_periodic - CHOICE Downlink RLC mode - In-sequence delivery - Receiving window size - Downlink RLC status info - Timer_status_prohibit - Timer_EPC	 (AM DCCH for RRC) 2 Not Present Not Present AM RLC No discard 15 128 400 4 150 150 Not present 1 TRUE TRUE 99 Not Present AM RLC TRUE 128 200 Not present

- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	400
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	400
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	150
- Timer_poll	150
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	400
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	400
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	150
- Timer_poll	150
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	400
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DTCH)
- RB identity	20

- PDCP info	
- Support for lossless SRNS relocation	TRUE
- Max PDCP SN window size	sn65535
- PDCP PDU header	Present
- Header compression information	Not present
- PDCP SN info	The next PCDP sequence number that SS is expected to receive from the UE
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	400
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	150
- Timer_poll	150
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	400
- RB mapping info	Not Present
- RB stop/continue	Not Present
Downlink information for each radio links	
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for cell 2

RADIO BEARER RECONFIGURATION for CS only UE (Step 3)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled “Speech in CS” or “Non speech in CS”, with the following exception:

Information Element	Value/remark
Ciphering mode info	If network does not apply ciphering, set this IE to “Not present”. If network applies ciphering, this IE present with the values of the sub IEs as stated below.
- Ciphering mode command	Start/restart
- Ciphering algorithm	UEA1
- Ciphering activation time for DPCH	(256+CFN-(CFN MOD 8 + 8))MOD 256
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN+2
- RB identity	2
- RLC sequence number	Current RLC SN+2
- RB identity	3
- RLC sequence number	Current RLC SN+2
- RB identity	4
- RLC sequence number	Current RLC SN+2
Integrity protection mode info - Integrity protection mode command - Downlink integrity protection activation info - Integrity protection algorithm - Integrity protection initialisation number	 Start Not Present UIA1 SS selects an arbitrary 32 bits number for FRESH
New U-RNTI - SRNC identity - S-RNTI	 0000 0000 0010B 0000 0000 0000 0000 0001B
CN Information info - PLMN identity - CN common GSM-MAP NAS system information - GSM-MAP NAS system information - CN domain related information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information	 Not present 00 01H PS 05 00H CS 1E 01H
RB information to reconfigure list - RB information to reconfigure - RB identity - PDCP info - PDCP SN info - RLC info - CHOICE Uplink RLC mode - Transmission RLC discard - SDU discard mode - MAX_DAT - Transmission window size - Timer_RST - Max_RST - Polling info - Timer_poll_prohibit - Timer_poll - Poll_PDU - Poll_SDU - Last transmission PDU poll - Last retransmission PDU poll - Poll_Window - Timer_poll_periodic - CHOICE Downlink RLC mode - In-sequence delivery - Receiving window size - Downlink RLC status info - Timer_status_prohibit - Timer_EPC - Missing PDU indicator - Timer_STATUS_periodic	 (AM DCCH for RRC) 2 Not Present Not Present AM RLC No discard 15 128 400 4 150 150 Not present 1 TRUE TRUE 99 Not Present AM RLC TRUE 128 200 Not present TRUE 400

- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	400
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	150
- Timer_poll	150
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	400
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	400
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	150
- Timer_poll	150
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	400
- RB mapping info	Not Present
- RB stop/continue	Not Present
Downlink information for each radio links	
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for cell 2

RADIO BEARER RECONFIGURATION COMPLETE for PS only UE (Step 4)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
Uplink counter synchronisation info - RB with PDCP information list - RB with PDCP information - RB identity - PDCP SN info - START list	 This IE is checked 20 Check that the PCDP sequence number is the next sequence number that SS would transmit to the UE. Check that this IE is present.

RADIO BEARER RECONFIGURATION COMPLETE for CS only UE (Step 4)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
Uplink counter synchronisation info - RB with PDCP information list - START list	 Not present Check that this IE is present.

Content of PDCP Data PDUs used for entire test case

Information Element	Value/remark
PDU type PID Data	000 00000 (No header compression, PID = 0) PDCP test data type #1: TCP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

UE CAPABILITY ENQUIRY (Step 5)

Use the same message sub-type found in [9] TS 34.108 clause 9.

UE CAPABILITY INFORMATION (Step 6)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9.

UE CAPABILITY INFORMATION CONFIRM (Step 7)

Use the same message sub-type found in [9] TS 34.108 clause 9.

7.3.3.9.5 Test requirement

After step 1, UE shall transmit back all the PDCP PDUs sent by the SS to the UE.

After step 3, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC which includes which includes a calculated new START value according to the formula "$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the most recently configured CK_X and IK_X}) + 2", calculated IE "Integrity Check Info" using the new FRESH value as included in IE "Integrity protection initialisation number" in IE "Integrity protection mode info" in RADIO BEARER RECONFIGURATION message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration. This message shall also include IE "Receive PDCP sequence number" for RB#20.

After step 5, the UE shall respond with a UE CAPABILITY INFORMATION message to SS.

After step 9, UE shall start transmission on the RAB beginning with the PDCP SN equal to that included in the RADIO BEARER RECONFIGURATION COMPLETE message.

7.3.3.10 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (Lossless SRNS relocation) (without pending of ciphering)

7.3.3.10.1 Definition

7.3.3.10.2 Conformance requirement

1> if the reconfiguration procedure is simultaneous with SRNS relocation procedure:

2> if the transmitted message is a RADIO BEARER RECONFIGURATION:

3> include the IE "New U-RNTI".

2> else:

3> include the IE "Downlink counter synchronisation info".

The UE shall:

1> if the received reconfiguration message included the IE "Downlink counter synchronisation info";

2> re-establish RB2;

2> set the new uplink and downlink HFN component of COUNT-C of RB2 to MAX(uplink HFN component of COUNT-C of RB2, downlink HFN component of COUNT-C of RB2);

2> increment by one the downlink and uplink values of the HFN component of COUNT-C for RB2;

2> calculate the START value according to subclause 8.5.9;

2> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info".

1> if the variable PDCP_SN_INFO is not empty:

2> include the IE "RB with PDCP information list" and set it to the value of the variable PDCP_SN_INFO.

1> if the IE "Integrity protection mode info" was present in the received reconfiguration message:

2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted response message.

If the new state is CELL_DCH or CELL_FACH, the response message shall be transmitted using the new configuration after the state transition, and the UE shall:

1> if the IE "Downlink counter synchronisation info" was included in the reconfiguration message;

2> when RLC has confirmed the successful transmission of the response message:

3> re-establish all AM and UM RLC entities with RB identities larger than 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the corresponding CN domain;

3> re-establish the RLC entities with RB identities 1, 3 and 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the CN domain stored in the variable LATEST_CONFIGURED_CN_DOMAIN;

3> set the remaining bits of the HFN component of COUNT-C values of all UM RLC entities to zero;

3> re-initialise the PDCP header compression entities of each radio bearer in the variable ESTABLISHED_RABS as specified in [36].

1> if the variable PDCP_SN_INFO is non-empty:

2> when RLC has confirmed the successful transmission of the response message:

3> for each radio bearer in the variable PDCP_SN_INFO:

4> if the IE "RB started" in the variable ESTABLISHED_RABS is set to "started":

5> configure the RLC entity for that radio bearer to "continue".

3> perform the actions below.

Reference

3GPP TS 25.331 clause 8.2.2.

7.3.3.10.3 Test purpose

To confirm that the UE performs a combined hard handover and SRNS relocation and then transmit a RADIO BEARER RELEASE COMPLETE message in the new cell.

7.3.3.10.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 and 2

UE: PS -DCCH _DCH (state 6-7) or PS-DCCH_FACH (state 6-8) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Initial conditions message sequence

Step	Direction		Message	Comment
	UE	SS		
SS executes procedure Activate closed loop mode 1 in CELL_DCH or CELL_FACH–as specified in clause 7.3.1.2.1.4				
1a			SS executes procedure P21 (clause 7.4.2.1.2 of TS 34.108)	(PS+PS DCCH+DTCH_DCH)
1b			SS executes procedure P23 (clause 7.4.2.1.2 of TS 34.108)	(PS+CS DCCH+DTCH_DCH)

NOTE: depending on CN domain(s) supported, either step 1a or step 1b shall be executed in order to reach the final initial condition state for this test case.

Related ICS/IXIT statements

- Lossless SRNS relocation supported yes/no

- Support of RLC in-sequence delivery Yes/No

Specific Message Content

If network applies ciphering, the contents of SECURITY MODE COMMAND message in the initial condition set-up are identical to the same message sub-type found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Ciphering mode info	
- Ciphering mode command	Start/restart
- Ciphering algorithm	UEA1
- Ciphering activation time for DPCH	Not Present
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN+2
- RB identity	2
- RLC sequence number	Current RLC SN+2
- RB identity	3
- RLC sequence number	Current RLC SN + 2
- RB identity	4
- RLC sequence number	Current RLC SN + 2

For RADIO BEARER SETUP message to be transmitted during P13 as specified in TS 34.108 clause 7.4, use the message titled “Packet to CELL_DCH from CELL_DCH in PS” as found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
- PDCP info	
- Support for lossless SRNS relocation	TRUE
- Max PDCP SN window size	sn65535
- PDCP PDU header	present

Test Procedure

Table 7.3.3.10

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 1	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-75	-75	-60

Table 7.3.3.10 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions.

The UE is in the CELL_DCH state, camping onto cell 1. If PS RAB has been established in the initial condition, SS initiates UE to enter loopback mode 1 and sends a PDCP PDUs on the RAB. If ciphering is supported, a PDCP PDU has to be decided so that the ciphering activation time is elapsed. SS shall suspend the sending of PDCP PDUs and wait for the last PDCP PDU to be send back by the UE and then note the next PDCP SN for the next PDCP PDU. SS configures its downlink transmission power settings according to columns "T1" in table 7.3.3.10. The SS sends a RADIO BEARER RELEASE message on the downlink DCCH using AM RLC requesting the UE to do a handover combined with SRNS relocation. This message includes IE "RRC State Indicator" set to "CELL_DCH", IE “Downlink counter synchronisation info” and IE “Integrity protection mode info”. UE shall reselect to cell 2 and SS verifies that the UE sends RADIO BEARER RELEASE COMPLETE message. This message also includes a calculated new START value according to the formula “$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the most recently configured CK_X and IK_X}) + 2”, calculated IE ”Integrity Check Info” using a new FRESH value as included in IE “Integrity protection initialisation number” in IE “Integrity protection mode info” in RADIO BEARER RELEASE message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration, and “Receive PDCP sequence number”.

SS transmits UE CAPABILITY ENQUIRY message on the downlink DCCH using RLC-AM. The UE shall respond to downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS resumes the transmission of PDCP PDUs and checks that all transmitted PDCP PDUs are sent back by the UE.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
				The SS creates a TCP/IP packet without IP header compression (PDCP Data PDU).
1	←		PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet
1a				After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression is applied for this packet. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.
1b				The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
2	→		PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: data: previously received TCP/IP packet
2a				After reception of this TCP/IP data packet, the SS applies the appropriate decoding function for the received data
2b				The SS creates a UDP/IP packet without IP header compression (PDCP Data PDU).
2c			Void	SS shall suspend the sending of PDCP PDUs and wait for the last PDCP PDU to be sent back by the UE and then note the next PDCP SN for the next PDCP PDU. SS applies the downlink transmission power settings, according to the values in columns "T1" of table 7.3.3.10

3	←	RADIO BEARER RELEASE	This message is sent after last ciphering activation time has elapsed and there is no pending ciphering activation time. IE “RB information to reconfigure” includes the next PCDP sequence number that SS is expected to receive from the UE. New integrity protection configuration is applied on DL SRB1. LAI and RAI of cell 2 are given to the UE, and are the same as cell 1.
4	→	RADIO BEARER RELEASE COMPLETE	The UE shall transmit this message after it reselects to cell 2. New calculated START value is included. IE “Receive PDCP sequence number” shall be included. New integrity protection configuration is applied on UL SRB2.
5	←	UE CAPABILITY ENQUIRY	New integrity protection configuration is applied on DL SRB2.
6	→	UE CAPABILITY INFORMATION	SS confirms that new integrity protection configuration is applied on UL SRB2 by UE.
7	←	UE CAPABILITY INFORMATION CONFIRM	
8		Void	
9		Void	
			The SS creates a TCP/IP packet without IP header compression PDCP Data PDU).
10	←	PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet
11			After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression is applied for this packet. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.
12			The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
13	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: data: previously received TCP/IP packet

14			After reception of this TCP/IP data packet, the SS applies the appropriate decoding function for the received data
15			The SS creates a UDP/IP packet without IP header compression (PDCP Data PDU).
16		Void	
Deactivate a UE terminated PS session using IP Header compression (using UE test loop mode 1)			

Specific Message Contents

RADIO BEARER RELEASE for PS only UE (Step 3)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "Packet to CELL_DCH from CELL_DCH in PS", with the following exception:

Information Element	Value/remark
Ciphering mode info	Not present
Integrity protection mode info - Integrity protection mode command - Downlink integrity protection activation info - Integrity protection algorithm - Integrity protection initialisation number	 Start Not Present UIA1 SS selects an arbitrary 32 bits number for FRESH
New U-RNTI - SRNC identity - S-RNTI	 0000 0000 0010B 0000 0000 0000 0000 0001B
CN Information info - PLMN identity - CN common GSM-MAP NAS system information - GSM-MAP NAS system information - CN domain related information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information	 Not present 00 01H PS 05 00H CS 1E 01H
RB information to release - RB identity	 18
Downlink counter synchronisation info - RB with PDCP information list - RB with PDCP information - RB identity - PDCP SN info	 This IE is included 20 The next PCDP sequence number that SS is expected to receive from the UE.
Downlink information for each radio links - Primary CPICH info - Primary Scrambling Code	 Set to same code as used for cell 2

RADIO BEARER RELEASE for CS only UE (Step 3)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "Packet to CELL_DCH from CELL_DCH in PS", with the following exception:

Information Element	Value/remark
Ciphering mode info	Not present
Integrity protection mode info - Integrity protection mode command - Downlink integrity protection activation info - Integrity protection algorithm - Integrity protection initialisation number	 Start Not Present UIA1 SS selects an arbitrary 32 bits number for FRESH
New U-RNTI - SRNC identity - S-RNTI	 0000 0000 0010B 0000 0000 0000 0000 0001B
CN Information info - PLMN identity - CN common GSM-MAP NAS system information - GSM-MAP NAS system information - CN domain related information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information	 Not present 00 01H PS 05 00H CS 1E 01H
RB information to release - RB identity	 13
Downlink counter synchronisation info - RB with PDCP information list	 Not present
Downlink information for each radio links - Primary CPICH info - Primary Scrambling Code	 Set to same code as used for cell 2

RADIO BEARER RELEASE COMPLETE for PS only UE (Step 4)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
Uplink counter synchronisation info - RB with PDCP information list - RB with PDCP information - RB identity - PDCP SN info - START list	 This IE is checked 20 Check that the PCDP sequence number is the next sequence number that SS would transmit to the UE. Check that this IE is present.

RADIO BEARER RELEASE COMPLETE for CS only UE (Step 4)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
Uplink counter synchronisation info - RB with PDCP information list - START list	 Not present Check that this IE is present.

Content of PDCP Data PDUs used for entire test case

Information Element	Value/remark
PDU type PID Data	000 00000 (No header compression, PID = 0) PDCP test data type #1: TCP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

UE CAPABILITY ENQUIRY (Step 5)

Use the same message sub-type found in [9] TS 34.108 clause 9.

UE CAPABILITY INFORMATION (Step 6)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9.

UE CAPABILITY INFORMATION CONFIRM (Step 7)

Use the same message sub-type found in [9] TS 34.108 clause 9.

7.3.3.10.5 Test requirement

After step 1, UE shall transmit back all the PDCP PDUs sent by the SS to the UE.

After step 3, the UE shall transmit a RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC which includes which includes a calculated new START value according to the formula "$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the most recently configured CK_X and IK_X}) + 2", calculated IE "Integrity Check Info" using the new FRESH value as included in IE "Integrity protection initialisation number" in IE "Integrity protection mode info" in RADIO BEARER RELEASE message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration. This message shall also include IE "Receive PDCP sequence number" for RB#20.

After step 5, the UE shall respond with a UE CAPABILITY INFORMATION message to SS.

After step 9, UE shall start transmission on the RAB beginning with the PDCP SN equal to that included in the RADIO BEARER RELEASE COMPLETE message.

7.3.3.11 Transport Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Lossless SRNS relocation) (without pending of ciphering)

7.3.3.11.1 Definition

7.3.3.11.2 Conformance requirement

1> if the reconfiguration procedure is simultaneous with SRNS relocation procedure:

2> if the transmitted message is a RADIO BEARER RECONFIGURATION:

3> include the IE "New U-RNTI".

2> else:

3> include the IE "Downlink counter synchronisation info".

The UE shall:

1> if the received reconfiguration message included the IE "Downlink counter synchronisation info"; or

2> re-establish RB2;

2> set the new uplink and downlink HFN component of COUNT-C of RB2 to MAX(uplink HFN component of COUNT-C of RB2, downlink HFN component of COUNT-C of RB2);

2> increment by one the downlink and uplink values of the HFN component of COUNT-C for RB2;

2> calculate the START value according to subclause 8.5.9;

2> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info".

1> if the variable PDCP_SN_INFO is not empty:

2> include the IE "RB with PDCP information list" and set it to the value of the variable PDCP_SN_INFO.

1> if the IE "Integrity protection mode info" was present in the received reconfiguration message:

2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted response message.

If the new state is CELL_DCH or CELL_FACH, the response message shall be transmitted using the new configuration after the state transition, and the UE shall:

1> if the IE "Downlink counter synchronisation info" was included in the reconfiguration message; or

2> when RLC has confirmed the successful transmission of the response message:

3> re-establish all AM and UM RLC entities with RB identities larger than 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the corresponding CN domain;

3> re-establish the RLC entities with RB identities 1, 3 and 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the CN domain stored in the variable LATEST_CONFIGURED_CN_DOMAIN;

3> set the remaining bits of the HFN component of COUNT-C values of all UM RLC entities to zero;

3> re-initialise the PDCP header compression entities of each radio bearer in the variable ESTABLISHED_RABS as specified in [36].

1> if the variable PDCP_SN_INFO is non-empty:

2> when RLC has confirmed the successful transmission of the response message:

3> for each radio bearer in the variable PDCP_SN_INFO:

4> if the IE "RB started" in the variable ESTABLISHED_RABS is set to "started":

5> configure the RLC entity for that radio bearer to "continue".

3> perform the actions below.

Reference

3GPP TS 25.331 clause 8.2.2.

7.3.3.11.3 Test purpose

To confirm that the UE performs a combined hard handover and SRNS relocation and then transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message in the new cell.

7.3.3.11.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 and 2

UE: PS-DCCH _DCH (state 6-7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Initial conditions message sequence

Step	Direction		Message	Comment
	UE	SS		
SS executes procedure Activate closed loop mode 1 in CELL_DCH case as specified in clause 7.3.1.2.1.4				

Related ICS/IXIT statements

- Lossless SRNS relocation supported yes/no

- Support of RLC in-sequence delivery Yes/No

Specific Message Content

If network applies ciphering, the contents of SECURITY MODE COMMAND message in the initial condition set-up are identical to the same message sub-type found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Ciphering mode info	
- Ciphering mode command	Start/restart
- Ciphering algorithm	UEA1
- Ciphering activation time for DPCH	Not Present
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN+2
- RB identity	2
- RLC sequence number	Current RLC SN+2
- RB identity	3
- RLC sequence number	Current RLC SN + 2
- RB identity	4
- RLC sequence number	Current RLC SN + 2

For RADIO BEARER SETUP message to be transmitted during P13 as specified in TS 34.108 clause 7.4, use the message titled “Packet to CELL_DCH from CELL_DCH in PS” as found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
- PDCP info	
- Support for lossless SRNS relocation	TRUE
- Max PDCP SN window size	sn65535
- PDCP PDU header	present

Test Procedure

Table 7.3.3.11

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 1	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-75	-75	-60

Table 7.3.3.11 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions.

The UE is in the CELL_DCH state, camping onto cell 1. If PS RAB has been established in the initial condition, SS initiates UE to enter loopback mode 1 and sends a PDCP PDU on the RAB. If ciphering is supported, a PDCP PDU has to be decided so that the ciphering activation time is elapsed. SS shall suspend the sending of PDCP PDUs and wait for the last PDCP PDU to be send back by the UE and then note the next PDCP SN for the next PDCP PDU. SS configures its downlink transmission power settings according to columns "T1" in table 7.3.3.11. The SS sends a TRANSPORT CHANNEL RECONFIGURATION message requesting the UE to do a handover combined with SRNS relocation. This message includes IE "RRC State Indicator" set to "CELL_DCH", IE “Downlink counter synchronisation info” and IE “Integrity protection mode info”. UE shall reselect to cell 2 and SS verifies that the UE sends TRANSPORT CHANNEL RECONFIGURATION COMPLETE message. This message also includes a calculated new START value according to the formula “$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the most recently configured CK_X and IK_X}) + 2”, calculated IE ”Integrity Check Info” using a new FRESH value as included in IE “Integrity protection initialisation number” in IE “Integrity protection mode info” in TRANSPORT CHANNEL RECONFIGURATION message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration, and “Receive PDCP sequence number”.

SS transmits UE CAPABILITY ENQUIRY message on the downlink DCCH using RLC-AM. The UE shall respond to downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS resumes the transmission of PDCP PDUs and checks that all transmitted PDCP PDUs are sent back by the UE.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
				The SS creates a TCP/IP packet without IP header compression (PDCP Data PDU).
1	←		PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet
1a				After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression is applied for this packet. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.
1b				The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
2	→		PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: data: previously received TCP/IP packet
2a				After reception of this TCP/IP data packet, the SS applies the appropriate decoding function for the received data
2b				The SS creates a UDP/IP packet without IP header compression (PDCP Data PDU).
2c			Void	SS shall suspend the sending of PDCP PDUs and wait for the last PDCP PDU to be sent back by the UE and then note the next PDCP SN for the next PDCP PDU. SS applies the downlink transmission power settings, according to the values in columns "T1" of 7.3.3.11.
3	←		TRANSPORT CHANNEL RECONFIGURATION	This message is sent after last ciphering activation time has elapsed and there is no pending ciphering activation time. IE “RB information to reconfigure” includes the next PCDP sequence number that SS is expected to receive from the UE. New integrity protection configuration is applied on DL SRB1. LAI and RAI of cell 2 are given to the UE, and are the same as cell 1.

4	→	TRANSPORT CHANNEL RECONFIGURATION COMPLETE	The UE shall transmit this message after it reselects to cell 2. New calculated START value is included. IE "Receive PDCP sequence number" shall be included. New integrity protection configuration is applied on UL SRB2.
5	←	UE CAPABILITY ENQUIRY	New integrity protection configuration is applied on DL SRB2.
6	→	UE CAPABILITY INFORMATION	SS confirms that new integrity protection configuration is applied on UL SRB2 by UE.
7	←	UE CAPABILITY INFORMATION CONFIRM	
8		Void	
9		Void	
			The SS creates a TCP/IP packet without IP header compression (PDCP Data PDU).
10	←	PDCP Data	The SS sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content to the UE: PDU type = 000 (PDCP Data PDU) PID = 0 (uncompressed IP header) data: below described TCP/IP packet
11			After having received the PDCP Data PDU, the UE decodes the PDU and recognizes PID value = 0 (no IP header compression) Therefore, no IP header decompression is applied for this packet. The data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity.
12			The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
13	→	PDCP Data	The UE sends a PDCP Data PDU using the RLC-AM-Data-Request Primitive with the following content back to the SS: data: previously received TCP/IP packet
14			After reception of this TCP/IP data packet, the SS applies the appropriate decoding function for the received data
15			The SS creates a UDP/IP packet without IP header compression (PDCP Data PDU).
16		Void	
Deactivate a UE terminated PS session using IP Header compression (using UE test loop mode 1)			

Specific Message Contents

TRANSPORT CHANNEL RECONFIGURATION for PS only UE (Step 3)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled “Packet to CELL_DCH from CELL_DCH in PS”, with the following exception:

Information Element	Value/remark
Ciphering mode info	Not present.
Integrity protection mode info - Integrity protection mode command - Downlink integrity protection activation info - Integrity protection algorithm - Integrity protection initialisation number	 Start Not Present UIA1 SS selects an arbitrary 32 bits number for FRESH
New U-RNTI - SRNC identity - S-RNTI	 0000 0000 0010B 0000 0000 0000 0000 0001B
CN Information info - PLMN identity - CN common GSM-MAP NAS system information - GSM-MAP NAS system information - CN domain related information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information	 Not present 00 01H PS 05 00H CS 1E 01H
Downlink counter synchronisation info - RB with PDCP information list - RB with PDCP information - RB identity - PDCP SN info	 This IE is included. 20 The next PCDP sequence number that SS is expected to receive from the UE.
Downlink information for each radio links - Primary CPICH info - Primary Scrambling Code	 Set to same code as used for cell 2

TRANSPORT CHANNEL RECONFIGURATION for CS only UE (Step 3)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled “Speech in CS” or “Non speech in CS”, with the following exception:

Information Element	Value/remark
Ciphering mode info	Not present.
Integrity protection mode info - Integrity protection mode command - Downlink integrity protection activation info - Integrity protection algorithm - Integrity protection initialisation number	 Start Not Present UIA1 SS selects an arbitrary 32 bits number for FRESH
New U-RNTI - SRNC identity - S-RNTI	 0000 0000 0010B 0000 0000 0000 0000 0001B
CN Information info - PLMN identity - CN common GSM-MAP NAS system information - GSM-MAP NAS system information - CN domain related information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information	 Not present 00 01H PS 05 00H CS 1E 01H
Downlink counter synchronisation info - RB with PDCP information list	 Not present
Downlink information for each radio links - Primary CPICH info - Primary Scrambling Code	 Set to same code as used for cell 2

TRANSPORT CHANNEL RECONFIGURATION COMPLETE for PS only UE (Step 4)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
Uplink counter synchronisation info - RB with PDCP information list - RB with PDCP information - RB identity - PDCP SN info - START list	 This IE is checked 20 Check that the PCDP sequence number is the next sequence number that SS would transmit to the UE. Check that this IE is present.

TRANSPORT CHANNEL RECONFIGURATION COMPLETE for CS only UE (Step 4)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
Uplink counter synchronisation info - RB with PDCP information list - START list	 Not present Check that this IE is present.

Content of PDCP Data PDUs used for entire test case

Information Element	Value/remark
PDU type PID Data	000 00000 (No header compression, PID = 0) PDCP test data type #1: TCP/IP data packet without IP header compression with any data content. The data shall be limited to 1500 bytes.

UE CAPABILITY ENQUIRY (Step 5)

Use the same message sub-type found in [9] TS 34.108 clause 9.

UE CAPABILITY INFORMATION (Step 6)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9.

UE CAPABILITY INFORMATION CONFIRM (Step 7)

Use the same message sub-type found in [9] TS 34.108 clause 9.

7.3.3.11.5 Test requirement

After step 1, UE shall transmit back all the PDCP PDUs sent by the SS to the UE.

After step 3, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC which includes which includes a calculated new START value according to the formula "$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the most recently configured CK_X and IK_X}) + 2", calculated IE "Integrity Check Info" using the new FRESH value as included in IE "Integrity protection initialisation number" in IE "Integrity protection mode info" in TRANSPORT CHANNEL RECONFIGURATION message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration. This message shall also include IE "Receive PDCP sequence number" for RB#20.

After step 5, the UE shall respond with a UE CAPABILITY INFORMATION message to SS.

After step 9, UE shall start transmission on the RAB beginning with the PDCP SN equal to that included in the TRANSPORT CHANNEL RECONFIGURATION COMPLETE message.

7.3.4 PDCP configuration testing

7.3.4.1 PDCP configuration behaviour while RRC Radio bearer setup procedure

FFS

7.3.4.2 PDCP configuration behaviour while RRC Radio bearer release procedure

FFS

7.3.4.3 PDCP configuration behaviour while RRC Cell Update procedure

FFS

7.3.4.4 PDCP configuration behaviour for an invalid RRC configuration

FFS

7.3.5 PDCP RoHC testing

7.3.5.1 General

These test cases are only applicable for UEs supporting PDCP Rel-4 RoHC functions (based on IETF RFC 3095) as defined in TS 25.323 Release 4 onwards.

7.3.5.1.1 Preamble for extended RoHC conformance testing

If PDCP RoHC feature is supported, the following message contents are used if different from TS 34.108, clause 9

Contents of CONNECTION SETUP message:

Information Element	Value/remark
Capability update requirement - UE radio access capability update requirement - System specific capability update requirement list	 TRUE UE only supports 1 system

Contents of CONNECTION SETUP COMPLETE message:

Information Element	Value/remark
UE radio access capability	Value will be checked. Stated capability must be compatible with 34.123-2 and the user settings
- Conformance test compliance	
- PDCP Capability	
- Max PDCP SN	
- Support of lossless SRNS relocation	
- Support for RFC3095	
- CID inclusion info	PDCP header
- Max_CID	15
- Profiles	Profile instance (decompressor supported profiles: UDP/RTP/IPv6, UDP/IPv6 or ESP/IPv6 or IPv6)
- MRRU	Maximum reconstructed reception unit. Default value is 0 (no segmentation).
- Packet _Sizes_Allowed	Packet size as defined in RFC 3095
- Reverse_Decompression_Depth	Determines whether reverse decompression should be used or not and the maximum number of packets that can be reverse decompressed by the decompressor. Default value is 0 (reverse decompression shall not be used).
- RLC Capability	
- Transport channel capability	
- RF Capability	
- Physical channel capability	
- UE multi-mode/multi-RAT capability	
- Security Capability	
- LCS Capability	
- Measurement capability	
UE system specific capability	Value will be check. UE must include the classmark information for the supported system

7.3.5.2 Compression / Decompression of a UDP/RTP/IPv6 header flow

7.3.5.2.1 UDP/RTP/IPv6 Unacknowledged - unidirectional Mode (U-Mode)

FFS

7.3.5.2.2 UDP/RTP/IPv6 Unacknowledged - Normal U-mode Transmission (without ack)

FFS

7.3.5.2.3 UDP/RTP/IPv6 Unacknowledged - Bi-directional Optimistic Mode (O-Mode)

FFS

7.3.5.2.4 UDP/RTP/IPv6 Unacknowledged - Bi-directional Reliable Mode (R-Mode)

FFS

7.3.5.2.5 UDP/RTP/IPv6 Unacknowledged - Transition Mode

FFS

7.3.5.2.6 UDP/RTP/IPv6 Unacknowledged - Flow Parameters

FFS

7.3.5.2.7 UDP/RTP/IPv6 Acknowledged - unidirectional Mode (U-Mode)

FFS

7.3.5.2.8 UDP/RTP/IPv6 Acknowledged - Normal U-mode Transmission (without ack) using the UE as compressor

FFS

7.3.5.2.9 UDP/RTP/IPv6 Acknowledged - Bi-directional Optimistic Mode (O-Mode)

FFS

7.3.5.2.10 UDP/RTP/IPv6 Acknowledged - Bi-directional Reliable Mode (R-Mode)

FFS

7.3.5.2.11 UDP/RTP/IPv6 Acknowledged - Transition Mode

FFS

7.3.5.2.12 UDP/RTP/IPv6 Acknowledged - Flow Parameters

FFS

7.3.5.3 ROHC Profile 2,3 and 4. Compression / Decompression of a UDP/IPv6 or ESP/IPv6 or IPv6 header flow

7.3.5.3.1 UDP/IPv6 or ESP/IPv6 or IPv6 Unacknowledged - unidirectional Mode (U-Mode)

FFS

7.3.5.3.2 UDP/IPv6 or ESP/IPv6 or IPv6 Unacknowledged - Normal U-mode Transmission (without ack)

7.3.5.3.2.1 Definition and applicability

Applicable for all UEs supporting PS PDCP ROHC header compression as describe in the RFC 3095. In this test case, compression unit of the UE and decompression unit of the UE is checked. The UE shall support Profile 2 (UDP/IPv6) streams.

7.3.5.3.2.2 Conformance requirement

Reference(s)

TBD, refer to IETF RFC 3095 clause 5.3.

7.3.5.3.2.3 Test purpose

To verify the unidirectional mode in the UE Decompressor unit without using acknowledgements.

7.3.5.3.2.4 Method of test

Initial conditions

Setup a UE terminated PS session using IP Header compression in AM RLC (using UE test loop mode 1) and ROHC negotiation has been established.

Compressor parameters as negotiated for UE and SS compression unit:

Reset: Non

L:3

K_1/n_1: 1

K_2/n_2: 1

Timer1: 256 packets

Timer2: 256 packets

M_1: 4

M_2: 4

Decompressor parameters as negotiated for UE and SS compression unit:

Mode:U

Clock_resolution: TBD

Reverse_decompressor_depth: Non

RoHC parameter negotiation as done in RB setup message:

MAX_CID: 255

LARGE_CIDs: non

Profiles: 0x0001

Feedback_for : 16

MRRU : 0

The UE compressor shall work in unidirectional mode.

Related ICS/IXIT Statement(s)

Support of IP header compression protocol RFC 3095 - YES/NO.

Support of RoHC profile 2 (UDP/IPv6) – YES / NO

Support of PS – Yes/No

px_test_ROHC_IR_Packet1 as descript in IETF 3095

px_test_ROHC_IR_Packet 2 as descript in IETF 3095

px_test_ROHC_IR_Packet3 as descript in IETF 3095

px_test_ROHC_IR-DYN_Packet 4 to 6 as descript in IETF 3095

px_test_ROHC_UOR-2_Packet 7 to 9 as descript in IETF 3095

px_test_ROHC error packet as descript in IETF 3095

Test procedure

NOTE: The unidirectional mode of operation has a transition logic based in 3 principles. These principles gives the upwards and downwards transition operation. The compressor controls this mode of operation and follows these principles to ensure the robustness of the protocol.

For this test case loop back mode 1 functionality is used in order to loop all received IP data within the UE.

a) The SS compressor unit is triggered to send a IR-DYN packet (px_test_ROHC_IR_DYN_Packet1) as first compressed packet.

b) On UE side, the UE decompressor has to drop the packet and does not initialise the context. This means, it does not forward the IP packet to its upper layer, Therefore no packet is looped back to the SS decompressor. (UE decompressor is in U-mode, No_Context state)

c) The SS compressor unit starts sending IP compressed packets (test_ROHC_IR_Packet1) on initialisation level of compression. This is repeated L times (L = 3), i.e. px_test_ROHC_IR_Packet1 to px_test_ROHC_IR_Packet3 is sent to the UE.

d) After having decompressed the first IR packet, the UE decompressor stores the header as the static part of context and forwards the IP data to its upper layer (UE decompressor switches to Static-Context state, U-Mode). The UE decompressor has to receive these IR compressed packets repeated L times and loops them back to the SS.

e) The SS compressor starts sending IR-DYN compressed IP packets, repeated L (L = 3) times), i.e. px_test_ROHC_IR-DYN_Packet1 to px_test_ROHC_IR-DYN_Packet3 is sent to the UE.

f) The UE decompressor stores the dynamic part of the header context and starts sending IP decompressed packets to upper layers (no the UE decompressor unit is in Full_Context state, U-Mode). The UE decompressor has to receive these IR-DYN compressed packets repeated L times and loops them back to the SS.

NOTE: If the UE Compressor sends the CRC in the compressed header packet then the SS Decompressor has to initialise the context.

g) The SS compressor sends an error packet (px_test ROHC error packet) to the UE decompressor unit.

h) The UE decompressor decreases its state from Full-Context to Static-Context (U-Mode).

i) The SS compressor sends UOR-2 packets (px_test _ROHC_UOR-2_packet 7 to 9) L times (L = 3). No UOR-2 packet shall be send to the SS compressor.

NOTE: The UE decompressor has to drop all the following packets unless packets received containing 7-8bit CRC which can update the context.

Specific Message Contents for the preamble

RADIO BEARER SETUP message

Information Element	Value/remark
RAB information for setup - RAB info - RAB identity	 No. # 23 as described in TS 34.108, Table 6.10.2.1.1 Prioritised RABs. QoS parameter: Traffic Class: Interactive or Background, max. UL: 64 kbps and max. DL: 64 kbps as described in TS 34.108, including described physical channel parameters, configuration for AM RLC Residual BER as described in TS 34.108, clause: 6.10 Related Signalling RB UL: 3.4 kbps, DL: 3.4 kbps DCCH, No. #2 (as described in TS 34.108)
- CN domain identity	PS domain
- RB information to setup - RB identity	 20
- PDCP info - Support of lossless SRNS relocation	 False (IE "Support of lossless SRNS relocation" only present, if RLC "In-sequence delivery" is TRUE and in AM)
- PDCP PDU header - Header compression information CHOICE *algorithm type* - RFC3095	present 1
- CID inclusion info	PDCP header
- Max_CID	255
- Profiles	Profile instance (decompressor supported profiles : 0x0001)
- MRRU	Maximum reconstructed reception unit. Default value is 0 (no segmentation).
- Packet _Sizes_Allowed	Packet size as defined in RFC 3095
- Reverse_Decompression_Depth	Determines whether reverse decompression should be used or not and the maximum number of packets that can be reverse decompressed by the decompressor. Default value is 0 (reverse decompression shall not be used).
- RLC info - Downlink RLC mode - Uplink RLC mode	 (AM RLC) (AM RLC)

7.3.5.3.2.5 Test requirements

1. At step d), the UE has to loop back received IR packets to the SS decompressor in order to verify, that the decompression state was increased from No-Context state to Static-Context state (U-Mode).

2. At step f), the UE has to loop back received IR-DYN packets to the SS decompressor in order to verify, that the decompression state was increased from Static-Context state to Full-Context state(U-Mode).

3. At step i), the UE shall not loop back any received previously received UOR-2 packets to the SS decompressor in order to verify, that the decompression state was decreased from Full-Context state to Static-Context state (U-Mode).

7.3.6 PDCP RoHC performance testing

7.3.6.1 General

IETF RFC3095 "RObust Header Compression (ROHC)" [40] and RFC 4815: "RObust Header Compression (ROHC): Corrections and Clarifications to RFC 3095" [41] is the IP header compression method specially designed for real time IP services over wireless links. ROHC is specified as part of the Rel-4 of UTRAN as one of the compression schemes to be provided by the PDCP sublayer in the RNC. If the UE supports IMS, as described in 3GPP 23.228 [42], the UE shall support header compression according to RFC 3095 as defined in 3GPP 25.323 [30].

ROHC performance requirements have been specified in Rel-5 of the 3GPP 25.323 [30]. The ROHC performance requirements and the corresponding test cases in this clause are specified for profile 0x0001 for compression of RTP/UDP/IP headers.

7.3.6.1.1 Generic ROHC performance test procedure

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
2	<--		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
4	<--		RRC CONNECTION SETUP (CCCH)	RRC
5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6a	-->		SERVICE REQUEST (DCCH)	GMM
6b	<--		SECURITY MODE COMMAND	RRC see note 1
6c	-->		SECURITY MODE COMPLETE	RRC see note 1
7	<--		ACTIVATE RB TEST MODE (DCCH)	TC
8	-->		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
9	<--		RADIO BEARER SETUP (DCCH)	RRC.
10	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
11	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is set to TBD
12	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
13	<-->		ROHC performance test execution	Execute the actual ROHC performance test case
14	<--		OPEN UE TEST LOOP (DCCH)	TC
15	-->		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
16	<--		RRC CONNECTION RELEASE	RRC
17	-->		RRC CONNECTION RELEASE COMPLETE	RRC

NOTE 1 In addition to activate integrity protection Step 6b and Step 6c are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.

Specific Message Contents

RADIO BEARER SETUP message (Step 9)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in TS34.108 clause 9 Default Message Contents to setup 6.11.4e Interactive or background / UL:64 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH, with the following exceptions:

Information Element	**Value/remark**
RAB information for setup	
- RAB info	
- RAB identity	TBD
- CN domain identity	PS domain
- RB information to setup	
- RB identity	TBD
- PDCP info	
- Support of lossless SRNS relocation	FALSE
- Max PDCP SN window size	sn255
- PDCP PDU header	present
- Header compression information	present
CHOICE *algorithm type*	
- RFC3095	
- Profiles	2
- Profile instance	1
- Uplink	
- Max_CID	15
- Downlink	
- Max_CID	15
- Reverse_Decompression_Depth	0
- PDCP ROHC target mode	depends on test case

7.3.6.2 Base test of ROHC RTP O-mode compressor

7.3.6.2.1 Definition and applicability

The purpose of the base test is to verify that the compressor implements an active and efficient compression for a regular IP/UDP/RTP packet stream, i.e. that it makes use of the most efficient compressed packet formats provided by ROHC RTP [40] for O-mode.

7.3.6.2.2 Conformance requirement

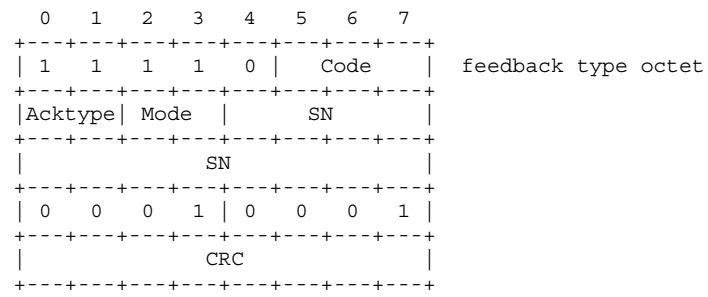
This subclause defines performance test cases for ROHC. The ROHC profile within scope is profile 0x0001 for compression of RTP/UDP/IP headers only. This subclause is not meant to bring incoherent limitations to implementations, and is not meant to create a sub-specification of RFC 3095 [40] either, as a consequence of the requirements on performance that it defines.

…

Compressor implementations are expected to implement robustness algorithms according to the optimistic approach for the U/O-modes of operation. The optimistic approach is the part of the selection of the packet format where a format that contains the necessary information to update a field is used a number N time, starting from the packet for which a new value has to be established in the decompressor context. While N is an implementation parameter, the metrics for each sequence in U/O-mode is expressed in terms of this parameter. Implementation should use the value N as an input parameter for the testing, to adapt to the expected robustness level required for the testing. The value of the parameter N is defined in test case definition separately (informative value is given in Annex B.2.3.). Similarly, R-mode operation requires that an update be conveyed to the decompressor until it gets acknowledged; however for R-mode, relevant test cases provide explicit feedback messages when necessary.

…

The feedback messages used in the test cases, when applicable, are artificially generated and interspersed with the input sequence of uncompressed packets. Feedback messages are generated according to the following format:



Where:

- Code is set to 0x4 (indicates that feedback data above the type octet is 4 octets)
- Acktype is set to 0x0 (means ACK)
- Mode is set as defined by the test case
- SN is set as defined by the test case
- CRC is the 8-bit CRC computed over the entire feedback payload including any CID fields but excluding the packet type, the 'Size' field and the 'Code' octet, using the polynomial defined in RFC 3095.

NOTE: If compressor uses CID field in compressed packet, the CID field should be included in the feedback packet and the Code and CID should be set as defined in [40].

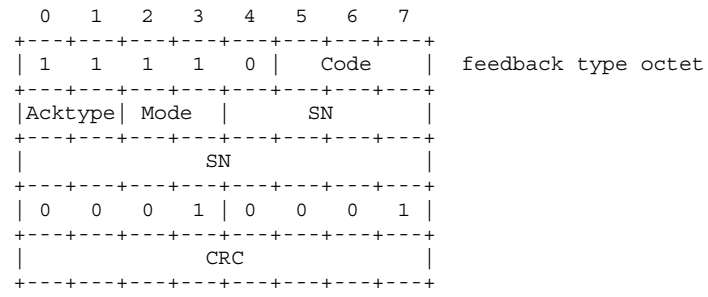
…

The purpose of the base test case is to verify that the compressor properly implements compression for a well-behaved IP/UDP/RTP packet flow, i.e. that t it makes use of efficient compressed packet formats available to ROHC RTP [40] when operating in O-mode.

A sequence consisting of 70 packets in total is used where all header fields are set according to the basic test packet structure, as described in subclause A.3, with addition of the following:

1. The RTP Sequence Number is a linearly increasing counter with a packet-to-packet delta of 1, set to 0x0000 for the first packet and thus ending with 0x0045 (69) in the last packet of the sequence
2. The RTP Time Stamp is a linearly increasing counter with a packet-to-packet delta of 160, set to 0x00000000 for the first packet and thus ending with 0x00002B20 (11040) in the last packet of the sequence.
3. The IP Identification is set to the same value as the RTP Sequence Number; this means that for IPv4 the IP-ID behaviour is not random, thus value(RND)=0 defined in [40] for both IPv4 and IPv6.

Between the 6th and 7th packets (SN=5 and SN=6) of the sequence, a ROHC feedback packet of feedback type 2 is to be given to the ROHC compressor to trigger an immediate transition to O-mode operation. The format of that packet is as follows:



Where:

- Code is set to 0x4 (indicates that feedback data above the type octet is 4 octets)
- Acktype is set to 0x0 (means ACK)
- Mode is set to 0x2 (means O-mode)

- SN is set to 0x000
- CRC is the 8-bit CRC computed over the entire feedback payload including any CID fields but excluding the packet type, the 'Size' field and the 'Code' octet, using the polynomial defined in RFC 3095.

NOTE: If compressor uses CID field in compressed packet, the CID field should be included in the feedback packet and the Code and CID should be set as defined in [40].

Reference(s)

3GPP TS 25.323 clauses A.1, A.1.1, A.2.1.

7.3.6.2.3 Test purpose

To verify that the ROHC compressor successfully transfers to O-mode operation and makes use of efficient compressed packet formats available to ROHC RTP.

7.3.6.2.4 Method of test

Initial conditions

User Equipment:

The UE is in Idle mode (state 3 or state 7) as specified in clause 7.4 of TS 34.108. Execute the generic ROHC performance test procedure for a mobile terminating packet switched session according to clause 7.3.6.1.1.

Profile 0x0001 for compression of RTP/UDP/IP headers only is used

N=4

Related ICS/IXIT Statement(s)

Support of PS	Yes/No
Support of ROHC	Yes/No
UE Supports IPv4	Yes/No
UE Supports IPv6	Yes/No

Test procedure

After the session setup the UE ROHC compressor is in the U-mode operation in accordance with RFC3095 and in the IR state. The SS starts to send IP packets to the UE, the test sequence consists of 70 packets. The UE returns the IP packets in ROHC U-mode using the test loop function. Between the 6th and 7th packets (SN=5 and SN=6) of the sequence, a ROHC feedback packet of feedback type 2 is sent to the UE ROHC compressor to trigger an immediate transition to O-mode operation. When all the expected compressed headers have been received by the SS, the SS disconnects the session. The SS calculates the Average Compressed Header Size and checks if it meets the test requirements for the IP version used.

1. The RTP Sequence Number is a linearly increasing counter with a packet-to-packet delta of 1, set to 0x0000 for the first packet and thus ending with 0x0045 (69) in the last packet of the sequence.

2. The RTP Time Stamp is a linearly increasing counter with a packet-to-packet delta of 160, set to 0x00000000 for the first packet and thus ending with 0x00002B20 (11040) in the last packet of the sequence.

3. The IP Identification is set to the same value as the RTP Sequence Number; this means that for IPv4 the IP-ID behaviour is not random, thus value(RND)=0 defined in RFC3095 for both IPv4 and IPv6.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		

1			After the PS session setup the UE is in ROHC U-mode operation and in the IR state.
2	←	70 test packets	The SS starts sending test packets
3	→	Test packets in U-mode operation.	The UE starts returning test packets in U-mode operation using the test loop function.
4	←	ROHC feedback packet of feedback type 2	Between the 6th and 7th packet (SN=5 and SN=6) of the sequence, a ROHC feedback packet of feedback type 2 is sent to the ROHC compressor to trigger an immediate transition to O-mode operation.
5	UE		The UE changes immediately to O-mode operation and continues to send the test packets
6	→	Test packets in O-mode operation.	
7	SS	After the SS has received all 70 packets in the test sequence the SS disconnects the PS session.	

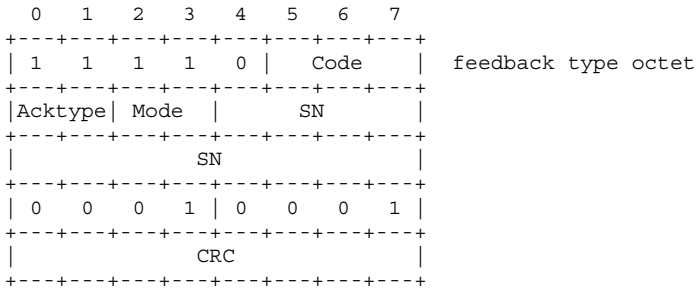
Specific Message Contents

RADIO BEARER SETUP message (during Generic ROHC performance test procedure in clause 7.3.6.1.1)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in TS 34.108 clause 9 Default Message Contents, with the exceptions defined in clause 7.3.6.1.1 and the following exception:

Information Element	**Value/remark**
- PDCP ROHC target mode	O-mode

ROHC feedback packet of feedback type 2 (Step 3)



Where:

- Code is set to 0x4 (indicates that feedback data above the type octet is 4 octets)
- Acktype is set to 0x0 (means ACK)
- Mode is set to 0x2 (means O-mode)
- SN is set to 0x000
- CRC is the 8-bit CRC computed over the entire feedback payload including any CID fields but excluding the packet type, the 'Size' field and the 'Code' octet, using the polynomial defined in RFC 3095.

7.3.6.2.5 Test requirements

The average compressed header size shall not exceed the limits specified in Table 7.3.6.2.

Table 7.3.6.2: Test Requirement for ROHC RTP O-mode compressor

	Average Compressed Header Size, IPv4	Average Compressed Header size, IPv6
SN <= N-1	44 octets	68 octets
SN >= N	5 octets	5 octets

With N value equal to 4 (which is smaller than 8).

The sequence of expected compressed headers can be illustrated as follow (informative):

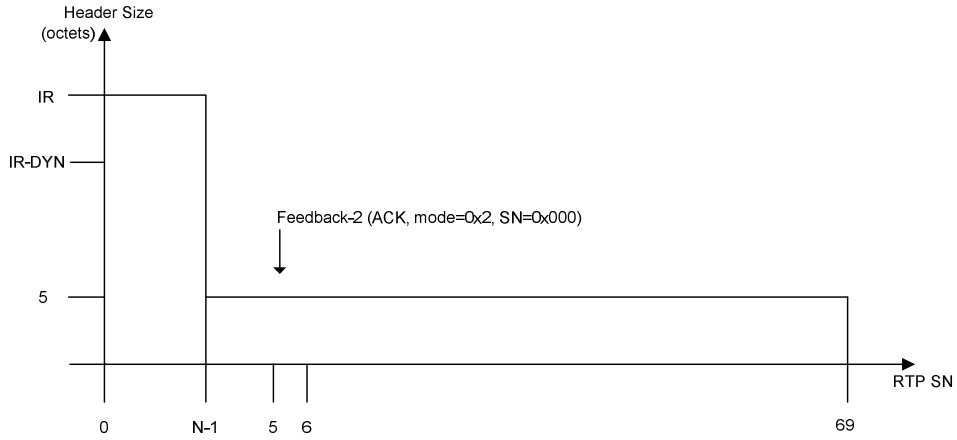


Figure 7.3.6.2: Expected outcome for ROHC RTP O-mode compressor test

7.3.6.3 Base test of ROHC RTP R-mode compressor

7.3.6.3.1 Definition and applicability

The purpose of the base test case is to verify that the compressor properly implements compression for a well-behaved IP/UDP/RTP packet flow, i.e. that it makes use of efficient compressed packet formats available to ROHC RTP [40] when operating in R-mode.

7.3.6.3.2 Conformance requirement

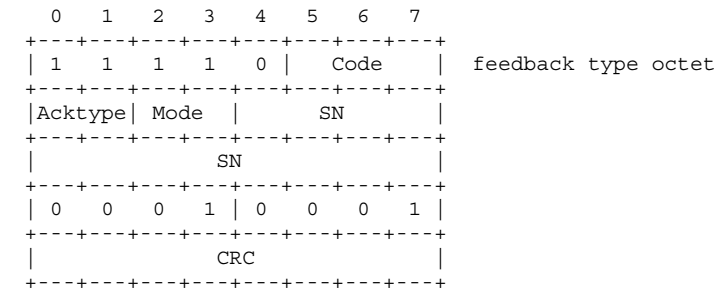
This subclause defines performance test cases for ROHC. The ROHC profile within scope is profile 0x0001 for compression of RTP/UDP/IP headers only. This subclause is not meant to bring incoherent limitations to implementations, and is not meant to create a sub-specification of RFC 3095 [40] either, as a consequence of the requirements on performance that it defines.

…

Compressor implementations are expected to implement robustness algorithms according to the optimistic approach for the U/O-modes of operation. The optimistic approach is the part of the selection of the packet format where a format that contains the necessary information to update a field is used a number N time, starting from the packet for which a new value has to be established in the decompressor context. While N is an implementation parameter, the metrics for each sequence in U/O-mode is expressed in terms of this parameter. Implementation should use the value N as an input parameter for the testing, to adapt to the expected robustness level required for the testing. The value of the parameter N is defined in test case definition separately (informative value is given in Annex B.2.3.). Similarly, R-mode operation requires that an update be conveyed to the decompressor until it gets acknowledged; however for R-mode, relevant test cases provide explicit feedback messages when necessary.

…

The feedback messages used in the test cases, when applicable, are artificially generated and interspersed with the input sequence of uncompressed packets. Feedback messages are generated according to the following format:



Where:

- Code is set to 0x4 (indicates that feedback data above the type octet is 4 octets)
- Acktype is set to 0x0 (means ACK)
- Mode is set as defined by the test case
- SN is set as defined by the test case
- CRC is the 8-bit CRC computed over the entire feedback payload including any CID fields but excluding the packet type, the 'Size' field and the 'Code' octet, using the polynomial defined in RFC 3095.

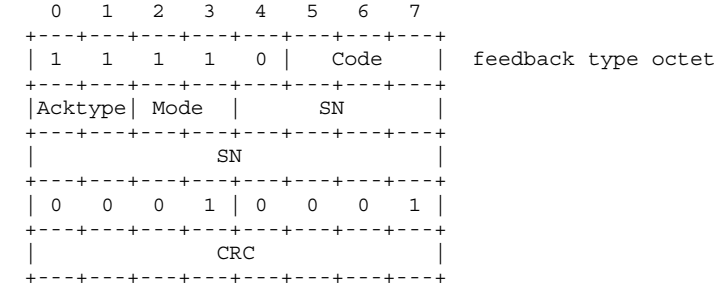
NOTE: If compressor uses CID field in compressed packet, the CID field should be included in the feedback packet and the Code and CID should be set as defined in [40].

…

A sequence consisting of 70 packets in total is used where all header fields are set according to the basic test packet structure, as described in subclause A.3, with addition of the following:

1. The RTP Sequence Number is a linearly increasing counter with a packet-to-packet delta of 1, set to 0x0000 for the first packet and thus ending with 0x0045 (69) in the last packet of the sequence.
2. The RTP Time Stamp is a linearly increasing counter with a packet-to-packet delta of 160, set to 0x00000000 for the first packet and thus ending with 0x00002B20 (11040) in the last packet of the sequence.
3. The IP Identification is set to the same value as the RTP Sequence Number; this means that for IPv4 the IP-ID behaviour is not random, thus value(RND)=0 defined in [40] for both IPv4 and IPv6.

Between the 6th and 7th (SN=5 and SN=6) packet of the sequence, the first ROHC feedback packet of feedback type 2 is to be given to the ROHC compressor to initiate transition to R-mode operation. The format of that packet is as follows:



Where:

- Code is set to 0x4 (indicates that feedback data above the type octet is 4 octets)
- Acktype is set to 0x0 (means ACK)
- Mode is set to 0x3 (means R-mode)

- SN is set to 0x000
- CRC is the 8-bit CRC computed over the entire feedback payload including any CID fields but excluding the packet type, the 'Size' field and the 'Code' octet, using the polynomial defined in RFC 3095.

Reference(s)

3GPP TS 25.323 clauses A1, A.2.2, A.3 and B.2.3.

7.3.6.3.3 Test purpose

To verify that the ROHC compressor successfully transfers to R-mode operation and makes use of efficient compressed packet formats available to ROHC RTP.

7.3.6.3.4 Method of test

Initial conditions

User Equipment:

The UE is in Idle mode (state 3 or state 7) as specified in clause 7.4 of TS 34.108. Execute the generic ROHC performance test procedure for a mobile terminating packet switched session according to clause 7.3.6.1.1.

Profile 0x0001 for compression of RTP/UDP/IP headers only is used

N=4

Related ICS/IXIT Statement(s)

Support of PS	Yes/No
Support of ROHC	Yes/No
UE Supports IPv4	Yes/No
UE Supports IPv6	Yes/No

Test procedure

After the session setup the ROHC compressor is in the U-mode operation in accordance with RFC3095 and in the IR state. The SS starts to send IP packets to the UE, the test sequence consists of 70 packets. The UE returns the IP packets in ROHC U-mode using the test loop function. Between the 6th and 7th packets (SN=5 and SN=6) of the sequence, the first ROHC feedback packet of feedback type 2 is sent to the UE ROHC compressor to trigger an immediate transition to R-mode operation. When all the expected compressed headers have been received by the SS, the SS disconnects the session. The SS calculates the Average Compressed Header Size and checks if it meets the test requirements for the IP version used.

1. The RTP Sequence Number is a linearly increasing counter with a packet-to-packet delta of 1, set to 0x0000 for the first packet and thus ending with 0x0045 (69) in the last packet of the sequence.

2. The RTP Time Stamp is a linearly increasing counter with a packet-to-packet delta of 160, set to 0x00000000 for the first packet and thus ending with 0x00002B20 (11040) in the last packet of the sequence.

3. The IP Identification is set to the same value as the RTP Sequence Number; this means that for IPv4 the IP-ID behaviour is not random, thus value(RND)=0 defined in RFC3095 for both IPv4 and IPv6.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		

1			After the PS session setup the UE is in ROHC U-mode operation and in the IR state.
2	←	70 test packets	The SS starts sending test packets
3	→	Test packets in U-mode operation.	The UE starts returning test packets in U-mode operation using the test loop function.
4	←	ROHC feedback packet of feedback type 2	Between the 6th and 7th (SN=5 and SN=6) packet of the sequence the SS initiates a transition to R-mode operation.
5	UE		The UE changes immediately to R-mode operation and continues to send the test packets
6	→	Test packets in R-mode operation.	The UE returns test packets in R-mode operation using the test loop function.
6a	←	ROHC feedback packet of feedback type 2	During the test case the SS generates a feedback message when the ROHC packet type octet of the received compressed header matches any of the values as described in the table 7.3.6.3.1.
7	SS	After the SS has received all 70 packets in the test sequence the SS disconnects the PS session.	

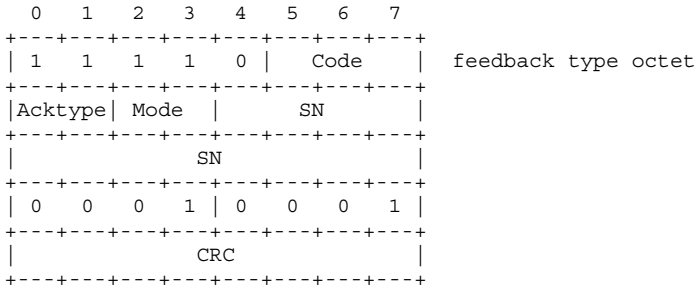
Specific Message Contents

RADIO BEARER SETUP message (during Generic ROHC performance test procedure in clause 7.3.6.1.1)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in TS 34.108 clause 9 Default Message Contents, with the exceptions defined in clause 7.3.6.1.1 and the following exception:

Information Element	**Value/remark**
- PDCP ROHC target mode	R-mode

ROHC feedback packet of feedback type 2 (Step 4 and 6a)



Where:

- Code is set to 0x4 (indicates that feedback data above the type octet is 4 octets)
- Acktype is set to 0x0 (means ACK)
- Mode is set to 0x3 (means R-mode)
- SN is set to 0x000
- CRC is the 8-bit CRC computed over the entire feedback payload including any CID fields but excluding the packet type, the 'Size' field and the 'Code' octet, using the polynomial defined in RFC 3095.

The test equipment waits for a UOR-2, IR-DYN or IR packet from the RoHC compressor with the mode transition parameter set to R. The value of x is the RTP SN of this received packet for which the test equipment generates the second feedback packet of type 2.

The SS shall generate a feedback message when the ROHC packet type octet of the received compressed header matches any of the values as described in the table 7.3.6.3.1. The compressed header type can be identified by inspecting the packet type octet of the compressed header, i.e. the first octet of the ROHC base header.

Table 7.3.6.3.1: Bitmasks for feedback generation

Compressed Header Type (binary mask)	Packet Type	Outcome
01xxxxxx	R-0-CRC	Send feedback
110xxxxx	UOR-2*	Send feedback
1111110x	IR	Send feedback
11111000	IR-DYN	Send feedback
Other values	Other packets	No feedback

where 'x' means 'any value'.

In the feedback message:

- Mode is set to 0x3 (means R-mode)
- SN is set to the RTP SN corresponding to the received compressed header

The SS shall index the input sequence of uncompressed headers using the RTP Sequence Number, and it shall associate the correct RTP SN to each compressed header that it receives back from the compressor. The SS can derive the RTP SN by counting the number of received compressed headers.

NOTE: The purpose of this mechanism is only to provide feedback to the compressor when operating in R-mode; it is not meant to make further verifications of any specific ROHC functionality and applies only to the test cases defined in this annex.

7.3.6.3.5 Test requirements

The average compressed header size shall not exceed the limits specified in Table 7.3.6.3.2

Table 7.3.6.3.2: Test Requirement for ROHC RTP R-mode compressor

	Average Compressed Header Size, IPv4	Average Compressed Header size, IPv6
SN <= N-1	44 octets	68 octets
N <= SN <= 5	5 octets	5 octets
6 <= SN <= x	9 octets	9 octets
SN >= x+1	5 octets	5 octets

N shall be equal to 4 in the test case.

The sequence of expected compressed headers can be illustrated as follow (informative):

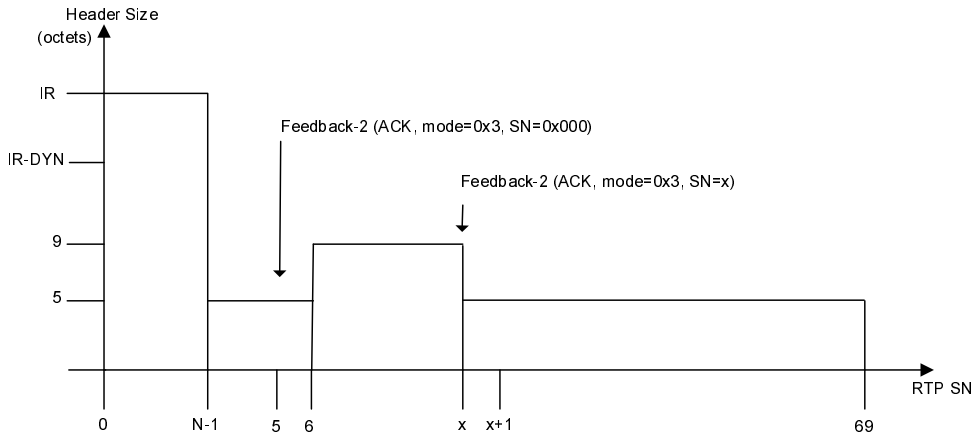


Figure 7.3.6.3: Expected outcome for ROHC RTP R-mode compressor test

7.3.6.4 Re-establishment of TS function after DTX in O-mode

7.3.6.4.1 Definition and applicability

The purpose of the TS re-establishment test case is to verify that the compressor re-establishes the proper TS value after a DTX period, i.e. that it uses efficient header formats available to ROHC RTP [40] when operating in O-mode.

7.3.6.4.2 Conformance requirement

The outline of each test case follows the same format with respect to the input sequences and the requirements Test 1a and 1b are base tests using a well-behaving flow of packets as one of the inputs. All subsequent tests are based on test 1a or test 1b, each with specific test events added to the packet flow of the base tests.

…

The test sequence is the same as in subclause A.2.1, with the following exception:

1. The RTP Time Stamp is a linearly increasing counter with a packet-to-packet delta of 160, set to 0x00000000 for the first packet.
2. For packet with SN= 20, TS is increased to represent a 32 (0.64 seconds) packet skip (32x160) and is thus set to (20+32)x160=8320 (0x00002080). Then TS continues to grow as stated in 1 above.
3. For packet with SN= 30, TS is increased to represent a 128 (2.56 seconds) packet skip (128x160) and is thus set to (30+32+128)x160=30400 (0x000076C0). Then TS continues to grow as stated in 1 above.
4. For packet with SN= 40, TS is increased to represent a 2048 (40.96 seconds) packet skip (2048x160) and is thus set to (40+32+128+2048)x160=359680 (0x00057D00). Then TS continues to grow as stated in 1 above.
5. TS thus ends at 364320 (0x00058F20) in the last packet of the sequence with RTP sequence number 69.

Reference(s)

3GPP TS 25.323 clauses A1.2, A.2.5, A.2.1, A.3, B.2.3.

7.3.6.4.3 Test purpose

To verify that the ROHC compressor re-establishes the proper TS value after a DTX period, i.e. that it uses efficient header formats available to ROHC RTP when operating in O-mode.

7.3.6.4.4 Method of test

Initial conditions

User Equipment:

The UE is in Idle mode (state 3 or state 7) as specified in clause 7.4 of TS 34.108. Execute the generic ROHC performance test procedure for a mobile terminating packet switched session according to clause 7.3.6.1.1.

Profile 0x0001 for compression of RTP/UDP/IP headers only is used

N=4

Related ICS/IXIT Statement(s)

Support of PS	Yes/No
Support of ROHC	Yes/No
UE Supports IPv4	Yes/No
UE Supports IPv6	Yes/No

Test procedure

After the session setup the UE ROHC compressor is in the U-mode operation in accordance with RFC3095 and in the IR state. The SS starts to send IP packets to the UE, the test sequence consists of 70 packets. The UE returns the IP packets in ROHC U-mode using the test loop function. Between the 6th and 7th packets (SN=5 and SN=6) of the sequence, a ROHC feedback packet of feedback type 2 is sent to the UE ROHC compressor to trigger an immediate transition to O-mode operation. When all the expected compressed headers have been received by the SS, the SS disconnects the session.

The SS calculates the Average Compressed Header Size and checks if it meets the test requirements as in clause 7.3.6.4.2, for the IP version used with the following exceptions:

1. The RTP Time Stamp is a linearly increasing counter with a packet-to-packet delta of 160, set to 0x00000000 for the first packet.
2. For packet with SN= 20, TS is increased to represent a 32 (0.64 seconds) packet skip (32x160) and is thus set to (20+32)x160=8320 (0x00002080). Then TS continues to grow as stated in 1 above.
3. For packet with SN= 30, TS is increased to represent a 128 (2.56 seconds) packet skip (128x160) and is thus set to (30+32+128)x160=30400 (0x000076C0). Then TS continues to grow as stated in 1 above.
4. For packet with SN= 40, TS is increased to represent a 2048 (40.96 seconds) packet skip (2048x160) and is thus set to (40+32+128+2048)x160=359680 (0x00057D00). Then TS continues to grow as stated in 1 above.
5. TS thus ends at 364320 (0x00058F20) in the last packet of the sequence with RTP sequence number 69.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		

1			After the PS session setup the UE is in ROHC U-mode operation and in the IR state.
2	←	70 test packets	The SS starts sending test packets
3	→	Test packets in U-mode operation.	The UE starts returning test packets in U-mode operation using the test loop function.
4	←	ROHC feedback packet of feedback type 2	Between the 6th and 7th packet (SN=5 and SN=6) of the sequence, a ROHC feedback packet of feedback type 2 is sent to the ROHC compressor to trigger an immediate transition to O-mode operation.
5	UE		The UE changes immediately to O-mode operation and continues to send the test packets
6	→	Test packets in O-mode operation.	
7	SS		For packet with SN= 20, the SS increases TS to represent a 32 packet skip and sets it to (20+32)x160=8320.
8	SS		For packet with SN= 30, the SS increases TS to represent a 128 packet skip and sets it to (30+32+128)x160=30400.
9	SS		For packet with SN= 40, the SS increases TS to represent a 2048 packet skip and sets it to (40+32+128+2048)x160=359680.
10	SS	After the SS has received all 70 packets in the test sequence the SS disconnects the PS session.	

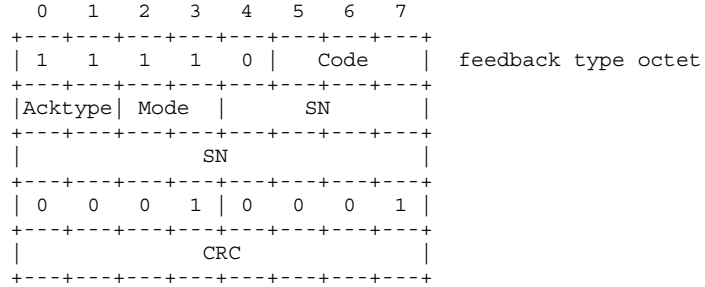
Specific Message Contents

RADIO BEARER SETUP message (during Generic ROHC performance test procedure in clause 7.3.6.1.1)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in TS 34.108 clause 9 Default Message Contents, with the exceptions defined in clause 7.3.6.1.1 and the following exception:

Information Element	**Value/remark**
- PDCP ROHC target mode	O-mode

ROHC feedback packet of feedback type 2 (Step 3)



Where:

- Code is set to 0x4 (indicates that feedback data above the type octet is 4 octets)
- Acktype is set to 0x0 (means ACK)

- Mode is set to 0x2 (means O-mode)
- SN is set to 0x000
- CRC is the 8-bit CRC computed over the entire feedback payload including any CID fields but excluding the packet type, the 'Size' field and the 'Code' octet, using the polynomial defined in RFC 3095.

7.3.6.4.5 Test requirements

The average compressed header size shall not exceed the limits specified in Table 7.3.6.4.

Table 7.3.6.4: Test Requirement for ROHC Test 7.3.6.4

	Average Compressed Header Size, IPv4	Average Compressed Header size, IPv6
SN <= 19	See Test 1a (Test 7.3.6.2 in TS 34.123-1)	
20 <= SN <= 19 + N **30 <= SN <= 29 + N**	10 octets	10 octets
40 <= SN <= 39 + N	10 octets	10 octets
Other SN values	5 octets	5 octets

With N value equal to 4.

The sequence of expected compressed headers can be illustrated as follow (informative):

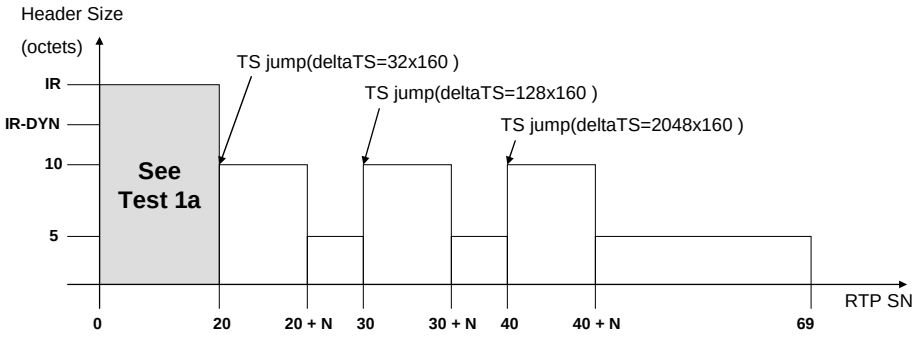


Figure 7.3.6.4: Expected outcome for ROHC Test 7.3.6.4

7.3.6.5 Re-establishment of TS function after DTX in R-mode

7.3.6.5.1 Definition and applicability

The purpose of the TS (Timestamp) re-establishment test case is to verify that the compressor re-establishes the proper TS value after a DTX period, i.e. that it uses the efficient header formats available to ROHC RTP [40] when operating in R-mode.

7.3.6.5.2 Conformance requirement

This subclause defines performance test cases for ROHC. The ROHC profile within scope is profile 0x0001 for compression of RTP/UDP/IP headers only. This subclause is not meant to bring incoherent limitations to implementations, and is not meant to create a sub-specification of RFC 3095 [40] either, as a consequence of the requirements on performance that it defines.

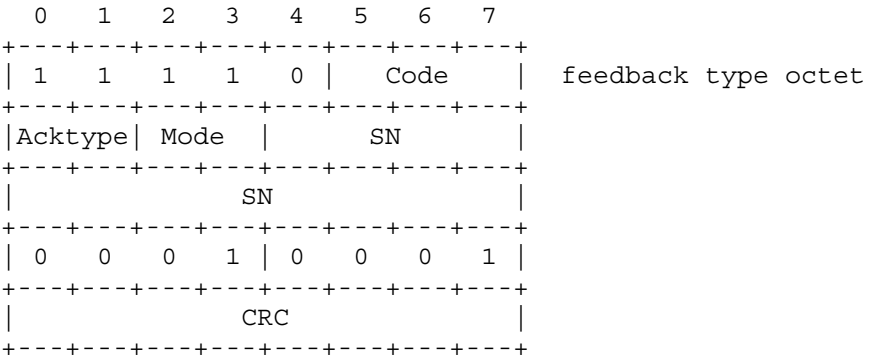
…

Compressor implementations are expected to implement robustness algorithms according to the optimistic approach for the U/O-modes of operation. The optimistic approach is the part of the selection of the packet format where a format

that contains the necessary information to update a field is used a number N time, starting from the packet for which a new value has to be established in the decompressor context. While N is an implementation parameter, the metrics for each sequence in U/O-mode is expressed in terms of this parameter. Implementation should use the value N as an input parameter for the testing, to adapt to the expected robustness level required for the testing. The value of the parameter N is defined in test case definition separately (informative value is given in Annex B.2.3.). Similarly, R-mode operation requires that an update be conveyed to the decompressor until it gets acknowledged; however for R-mode, relevant test cases provide explicit feedback messages when necessary.

…

The feedback messages used in the test cases, when applicable, are artificially generated and interspersed with the input sequence of uncompressed packets. Feedback messages are generated according to the following format:



Where:

- Code is set to 0x4 (indicates that feedback data above the type octet is 4 octets)
- Acktype is set to 0x0 (means ACK)
- Mode is set as defined by the test case
- SN is set as defined by the test case
- CRC is the 8-bit CRC computed over the entire feedback payload including any CID fields but excluding the packet type, the 'Size' field and the 'Code' octet, using the polynomial defined in RFC 3095.

NOTE: If compressor uses CID field in compressed packet, the CID field should be included in the feedback packet and the Code and CID should be set as defined in [40].

…

The test sequence is the same as in subclause A.2.2, with the following exception:

1. The RTP Time Stamp is a linearly increasing counter with a packet-to-packet delta of 160, set to 0x00000000 for the first packet.
2. For packet with SN= 20, TS is increased to represent a 32 (0.64 seconds) packet skip (32x160) and is thus set to (20+32)x160=8320 (0x00002080). Then TS continues to grow as stated in 1 above.
3. For packet with SN= 30, TS is increased to represent a 128 (2.56 seconds) packet skip (128x160) and is thus set to (30+32+128)x160=30400 (0x000076C0). Then TS continues to grow as stated in 1 above.
4. For packet with SN= 40, TS is increased to represent a 2048 (40.96 seconds) packet skip (2048x160) and is thus set to (40+32+128+2048)x160=359680 (0x00057D00). Then TS continues to grow as stated in 1 above.
5. TS thus ends at 393120 (0x0005FFA0) in the last packet of the sequence with RTP sequence number 69.

Reference(s)

3GPP TS 25.323 clauses A.1, A.2.6, A.3 and B.2.3.

7.3.6.5.3 Test purpose

To verify that the compressor re-establishes the proper TS value after a DTX period, i.e. that it uses the efficient header formats available to ROHC RTP when operating in R-mode.

7.3.6.5.4 Method of test

Initial conditions

User Equipment:

The UE is in Idle mode (state 3 or state 7) as specified in clause 7.4 of TS 34.108. Execute the generic ROHC performance test procedure for a mobile terminating packet switched session according to clause 7.3.6.1.1.

Profile 0x0001 for compression of RTP/UDP/IP headers only is used

N=4

Related ICS/IXIT Statement(s)

Support of PS Yes/No

Support of ROHC Yes/No

UE Supports IPv4 Yes/No

UE Supports IPv6 Yes/No

Test procedure

After the session setup the ROHC compressor is in the U-mode operation in accordance with RFC3095 and in the IR state. The SS starts to send IP packets to the UE, the test sequence consists of 70 packets. The UE returns the IP packets in ROHC U-mode using the test loop function. Between the 6th and 7th packets (SN=5 and SN=6) of the sequence, the first ROHC feedback packet of feedback type 2 is sent to the UE ROHC compressor to trigger an immediate transition to R-mode operation. The SS continues to send IP packets to the UE.

For packet with SN= 20, the SS increases TS to represent a 32 (0.64 seconds) packet skip (32x160) and sets it to (20+32)x160=8320 (0x00002080). Then TS continues to grow linearly with a packet-to-packet delta of 160.

For packet with SN= 30, the SS increases TS to represent a 128 (2.56 seconds) packet skip (128x160) and sets it to (30+32+128)x160=30400 (0x000076C0). Then TS continues to grow linearly with a packet-to-packet delta of 160.

For packet with SN= 40, the SS increases TS to represent a 2048 (40.96 seconds) packet skip (2048x160) and sets it to (40+32+128+2048)x160=359680 (0x00057D00). Then TS continues to grow linearly with a packet-to-packet delta of 160.

The test sequence ends with TS at 393120 (0x0005FFA0) in the last packet of the sequence with RTP sequence number 69.

When all the expected compressed headers have been received by the SS, the SS disconnects the session. The SS calculates the Average Compressed Header Size and checks if it meets the test requirements for the IP version used.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		

1			After the PS session setup the UE is in ROHC U-mode operation and in the IR state.
2	←	Test packets	The SS starts sending test packets. The test sequence consists of 70 packets.
3	→	Test packets in U-mode operation.	The UE starts returning test packets in U-mode operation using the test loop function.
4	←	ROHC feedback packet of feedback type 2	Between the 6th and 7th (SN=5 and SN=6) packet of the sequence the SS initiates a transition to R-mode operation.
5	UE		The UE changes immediately to R-mode operation and continues to send the test packets
6	→	Test packets in R-mode operation.	The UE returns test packets in R-mode operation using the test loop function.
6a	←	ROHC feedback packet of feedback type 2	During the test case the SS generates a feedback message when the ROHC packet type octet of the received compressed header matches any of the values as described in the table 7.3.6.3.1.
7	SS		For packet with SN= 20, the SS increases TS to represent a 32 packet skip and sets it to (20+32)x160=8320.
8	SS		For packet with SN= 30, the SS increases TS to represent a 128 packet skip and sets it to (30+32+128)x160=30400.
9	SS		For packet with SN= 40, the SS increases TS to represent a 2048 packet skip and sets it to (40+32+128+2048)x160=359680.
10	SS	After the SS has received all 70 packets in the test sequence the SS disconnects the PS session.	

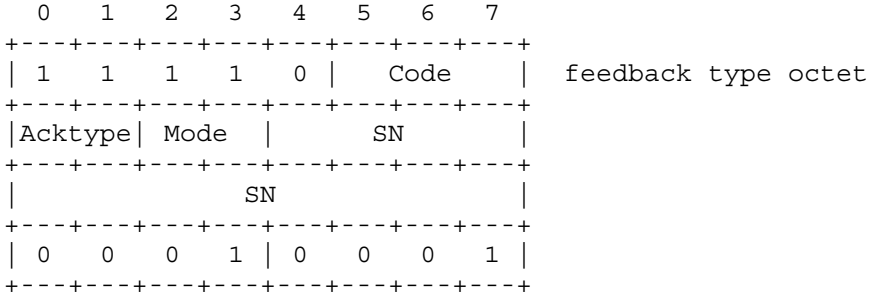
Specific Message Contents

RADIO BEARER SETUP message (during Generic ROHC performance test procedure in clause 7.3.6.1.1)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in TS 34.108 clause 9 Default Message Contents, with the exceptions defined in clause 7.3.6.1.1 and the following exception:

Information Element	**Value/remark**
- PDCP ROHC target mode	R-mode

ROHC feedback packet of feedback type 2 (Step 4 and 6a)



```
|                CRC                |
+---+---+---+---+---+---+---+---+
```

Where:

- Code is set to 0x4 (indicates that feedback data above the type octet is 4 octets)
- Acktype is set to 0x0 (means ACK)
- Mode is set to 0x3 (means R-mode)
- SN is set to 0x000
- CRC is the 8-bit CRC computed over the entire feedback payload including any CID fields but excluding the packet type, the 'Size' field and the 'Code' octet, using the polynomial defined in RFC 3095.

  The test equipment waits for a UOR-2, IR-DYN or IR packet from the RoHC compressor with the mode transition parameter set to R. The value of x is the RTP SN of this received packet for which the test equipment generates the second feedback packet of type 2.

7.3.6.5.5 Test requirements

The average compressed header size shall not exceed the limits specified in Table 7.3.6.5.1

Table 7.3.6.5.1: Test Requirement for Re-establishment of TS function after DTX in R-mode

	Average Compressed Header Size, IPv4	**Average Compressed Header size, IPv6**
SN <= 19	See Test 1b (Test case 7.3.6.3 in TS 34.123-1)	
20 <= SN <= 19 + x **30 <= SN <= 29 + x**	10 octets	10 octets
40 <= SN <= 39 + x	10 octets	10 octets
Other SN values	5 octets	5 octets

The sequence of expected compressed headers can be illustrated as follow (informative):

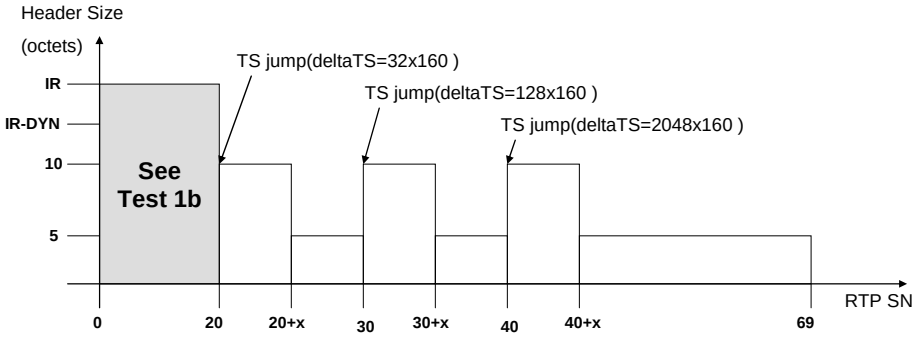


Figure 7.3.6.5: Expected outcome for Re-establishment of TS function after DTX in R-mode test

7.3.6.6 Compressor response to single lost packets in O-mode

7.3.6.6.1 Definition and applicability

Same as in 34.123-1 clause 7.3.6.2.1.

7.3.6.6.2 Conformance requirement

Same as in 34.123-1 clause 7.3.6.2.2.

7.3.6.6.3 Test purpose

The purpose of this test is to verify that the compressor does not panic just because there is a single missing packet, i.e. the compressed packet size should not increase due to such events.

7.3.6.6.4 Method of test

The method is the same as in 34.123-1 clause 7.3.6.2.4 except that test packets with SN 20, 30 and 40 are removed from the sequence.

7.3.6.6.5 Test requirements

The maximal compressed header overhead shall be the same as in 34.123-1 clause 7.3.6.2.5.

7.3.6.7 Compressor response to single lost packets in R-mode

7.3.6.7.1 Definition and applicability

Same as in 34.123-1 clause 7.3.6.3.1.

7.3.6.7.2 Conformance requirement

Same as in 34.123-1 clause 7.3.6.3.2.

7.3.6.7.3 Test purpose

The purpose of this test is to verify that the compressor does not panic just because there is a single missing packet, i.e. the compressed packet size should not increase due to such events

7.3.6.7.4 Method of test

The method is the same as in 34.123-1 clause 7.3.6.3.4 except that test packets with SN 20, 30 and 40 are removed from the sequence.

7.3.6.7.5 Test requirements

The maximal compressed header overhead shall be the same as in 34.123-1 clause 7.3.6.3.5.

7.3.6.8 TS function during DTX with varying delta in O-mode

7.3.6.8.1 Definition and applicability

The purpose of this test case is to verify that the compressor properly handles variations in the function between the TS value and the SN during and after a DTX period, during which SID packets are sent periodically, i.e. that it uses efficient header formats available to ROHC RTP [40] when operating in O-mode.

7.3.6.8.2 Conformance requirement

The outline of each test case follows the same format with respect to the input sequences and the requirements Test 1a and 1b are base tests using a well-behaving flow of packets as one of the inputs. All subsequent tests are based on test 1a or test 1b, each with specific test events added to the packet flow of the base tests.

…

The test sequence is the same as in subclause A.2.1, with the following exception:

1. The RTP Time Stamp is a linearly increasing counter with a packet-to-packet delta of 160, set to 0x00000000 for the first packet.

2. For packets SN = 20, 21 and 22, TS is increased to represent a 7 (0.14 seconds) packet skip (7x160) and is thus set to (20+7)x160=4320 (0x000010E0), (21+7+7)x160=5600(0x000015E0) and (22+7+7+7)x160=6880(0x00001AE0), respectively.

3. For packets SN = 30, 31, 32, 33 and 34, TS is increased to represent a 7 (0.14 seconds) packet skip (7x160) and is thus set to 9280 (0x00002440), 10560 (0x00002940), 11840 (0x00002E40), 13120 (0x00003340) and 14400 (0x00003840) respectively.

4. For packets SN = 40, 41, 42, 43, 44, 45, and 46, TS is increased to represent a 7 (0.14 seconds) packet skip (7x160) and is thus set to 16480 (0x00004060), 17760 (0x00004560), 19040 (0x00004A60), 20320 (0x00004F60), 21600 (0x00005460), 22880 (0x00005960) and 24160 (0x00005E60) respectively.

5. TS thus ends at 27840 (0x00006CC0) in the last packet of the sequence with RTP sequence number 69

Reference(s)

3GPP TS 25.323 clauses A.1.2,A.2.11, A.2.1, A.3, B.2.3.

7.3.6.8.3 Test purpose

To verify that the ROHC compressor properly handles variations in the function between the TS value and the SN during and after a DTX period, during which SID packets are sent periodically, i.e. that it uses efficient header formats available to ROHC RTP when operating in O-mode.

7.3.6.8.4 Method of test

Initial conditions

User Equipment:

The UE is in Idle mode (state 3 or state 7) as specified in clause 7.4 of TS 34.108. Execute the generic ROHC performance test procedure for a mobile terminating packet switched session according to clause 7.3.6.1.1.

Profile 0x0001 for compression of RTP/UDP/IP headers only is used

N=4

Related ICS/IXIT Statement(s)

Support of PS	Yes/No
Support of ROHC	Yes/No
UE Supports IPv4	Yes/No
UE Supports IPv6	Yes/No

Test procedure

After the session setup the UE ROHC compressor is in the U-mode operation in accordance with RFC3095 and in the IR state. The SS starts to send IP packets to the UE, the test sequence consists of 70 packets. The UE returns the IP packets in ROHC U-mode using the test loop function. Between the 6th and 7th packets (SN=5 and SN=6) of the sequence, a ROHC feedback packet of feedback type 2 is sent to the UE ROHC compressor to trigger an immediate transition to O-mode operation.

When all the expected compressed headers have been received by the SS, the SS disconnects the session. The SS calculates the Average Compressed Header Size and checks if it meets the test requirements as in clause 7.3.6.4.2, for the IP version used with the following exceptions:

1. The RTP Time Stamp is a linearly increasing counter with a packet-to-packet delta of 160, set to 0x00000000 for the first packet.

2. For packets SN = 20, 21 and 22, TS is increased to represent a 7 (0.14 seconds) packet skip (7x160) and is thus set to (20+7)x160=4320 (0x000010E0), (21+7+7)x160=5600 (0x000015E0) and (22+7+7+7)x160=6880 (0x00001AE0), respectively.

3. For packets SN = 30, 31, 32, 33 and 34, TS is increased to represent a 7 (0.14 seconds) packet skip (7x160) and is thus set to 9280 (0x00002440), 10560 (0x00002940), 11840 (0x00002E40), 13120 (0x00003340) and 14400 (0x00003840) respectively.

4. For packets SN = 40, 41, 42, 43, 44, 45, and 46, TS is increased to represent a 7 (0.14 seconds) packet skip (7x160) and is thus set to 16480 (0x00004060), 17760 (0x00004560), 19040 (0x00004A60), 20320 (0x00004F60), 21600 (0x00005460), 22880 (0x00005960) and 24160 (0x00005E60) respectively.

5. TS thus ends at 27840 (0x00006CC0) in the last packet of the sequence with RTP sequence number 69.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1				After the PS session setup the UE is in ROHC U-mode operation and in the IR state.
2	←		70 test packets	The SS starts sending test packets
3	→		Test packets in U-mode operation.	The UE starts returning test packets in U-mode operation using the test loop function.
4	←		ROHC feedback packet of feedback type 2	Between the 6th and 7th packet (SN=5 and SN=6) of the sequence, a ROHC feedback packet of feedback type 2 is sent to the ROHC compressor to trigger an immediate transition to O-mode operation.
5	UE			The UE changes immediately to O-mode operation and continues to send the test packets
6	→		Test packets in O-mode operation.	
7	SS			For packets SN = 20, 21 and 22, the SS increases TS to represent a 7 packet skip and sets TS to (20+7)x160=4320, (21+7+7)x160=5600 and (22+7+7+7)x160=6880 respectively.
8	SS			For packets SN = 30, 31, 32, 33 and 34, the SS increases TS to represent a 7 packet skip and sets TS to 9280, 10560, 11840, 13120 and 14400 respectively.
9	SS			For packets SN = 40, 41, 42, 43, 44, 45, and 46, the SS increases TS to represent a 7 packet skip and sets TS to 16480, 17760, 19040, 20320, 21600, 22880 and 24160 respectively.
10	SS		After the SS has received all 70 packets in the test sequence the SS disconnects the PS session.	

Specific Message Contents

RADIO BEARER SETUP message (during Generic ROHC performance test procedure in clause 7.3.6.1.1)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in TS 34.108 clause 9 Default Message Contents, with the exceptions defined in clause 7.3.6.1.1 and the following exception:

Information Element	Value/remark
- PDCP ROHC target mode	O-mode

ROHC feedback packet of feedback type 2 (Step 3)

```
  0   1   2   3   4   5   6   7
+---+---+---+---+---+---+---+---+
| 1   1   1   1   0 |   Code    |  feedback type octet
+---+---+---+---+---+---+---+---+
|Acktype| Mode  |      SN       |
+---+---+---+---+---+---+---+---+
|               SN              |
+---+---+---+---+---+---+---+---+
| 0   0   0   1 | 0   0   0   1 |
+---+---+---+---+---+---+---+---+
|               CRC             |
+---+---+---+---+---+---+---+---+
```

Where:

- Code is set to 0x4 (indicates that feedback data above the type octet is 4 octets)
- Acktype is set to 0x0 (means ACK)
- Mode is set to 0x2 (means O-mode)
- SN is set to 0x000
- CRC is the 8-bit CRC computed over the entire feedback payload including any CID fields but excluding the packet type, the 'Size' field and the 'Code' octet, using the polynomial defined in RFC 3095.

7.3.6.8.5 Test requirements

The average compressed header size shall not exceed the limits specified in Table 7.3.6.8.

Table 7.3.6.8: Test Requirement for ROHC Test 7.3.6.8

	Average Compressed Header Size, IPv4	Average Compressed Header size, IPv6
SN <= 19	See Test 1a (Test 7.3.6.2 in TS 34.123-1)	
20 <= SN <= 22 + N **30 <= SN <= 34 + N** **40 <= SN <= 46 + N**	15 octets	15 octets
Other SN values	5 octets	5 octets

With N value equal to 4.

The sequence of expected compressed headers can be illustrated as follow (informative):

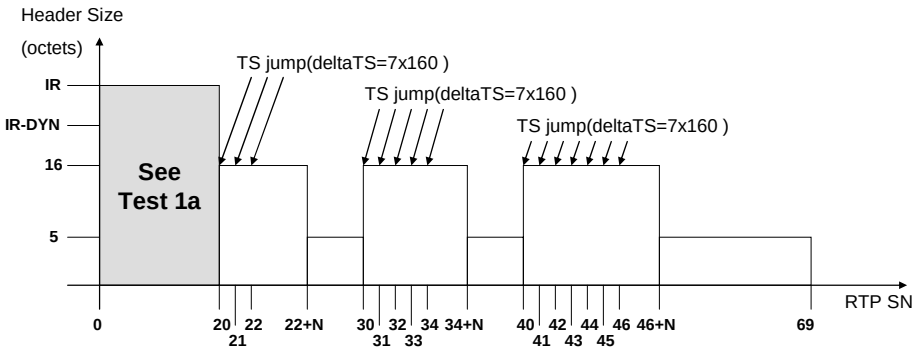


Figure 7.3.6.8: Expected outcome for ROHC Test 7.3.6.8

7.3.6.9 TS function during DTX with varying delta in R-mode

7.3.6.9.1 Definition and applicability

The purpose of this test case is to verify how efficiently the compressor handles variations in the function between the TS value and the SN during and after a DTX period, during which SID packets are sent periodically, i.e. that it uses the efficient header formats available to ROHC RTP [40] when operating in R-mode.

7.3.6.9.2 Conformance requirement

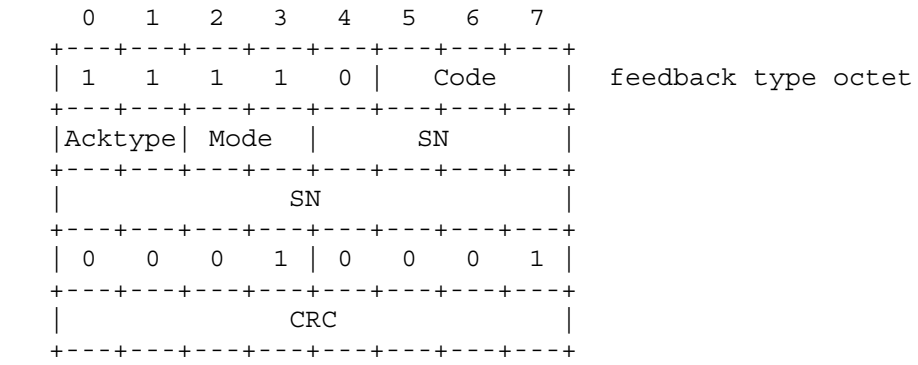
This subclause defines performance test cases for ROHC. The ROHC profile within scope is profile 0x0001 for compression of RTP/UDP/IP headers only. This subclause is not meant to bring incoherent limitations to implementations, and is not meant to create a sub-specification of RFC 3095 [40] either, as a consequence of the requirements on performance that it defines.

…

Compressor implementations are expected to implement robustness algorithms according to the optimistic approach for the U/O-modes of operation. The optimistic approach is the part of the selection of the packet format where a format that contains the necessary information to update a field is used a number N time, starting from the packet for which a new value has to be established in the decompressor context. While N is an implementation parameter, the metrics for each sequence in U/O-mode is expressed in terms of this parameter. Implementation should use the value N as an input parameter for the testing, to adapt to the expected robustness level required for the testing. The value of the parameter N is defined in test case definition separately (informative value is given in Annex B.2.3.). Similarly, R-mode operation requires that an update be conveyed to the decompressor until it gets acknowledged; however for R-mode, relevant test cases provide explicit feedback messages when necessary.

…

The feedback messages used in the test cases, when applicable, are artificially generated and interspersed with the input sequence of uncompressed packets. Feedback messages are generated according to the following format:



Where:

- Code is set to 0x4 (indicates that feedback data above the type octet is 4 octets)
- Acktype is set to 0x0 (means ACK)
- Mode is set as defined by the test case
- SN is set as defined by the test case
- CRC is the 8-bit CRC computed over the entire feedback payload including any CID fields but excluding the packet type, the 'Size' field and the 'Code' octet, using the polynomial defined in RFC 3095.

NOTE: If compressor uses CID field in compressed packet, the CID field should be included in the feedback packet and the Code and CID should be set as defined in [40].

…

The test sequence is the same as in subclause A.2.2, with the following exception:

1. The RTP Time Stamp is a linearly increasing counter with a packet-to-packet delta of 160, set to 0x00000000 for the first packet.
2. For packets SN = 20, 21 and 22, TS is increased to represent a 7 (0.14 seconds) packet skip (7x160) and is thus set to (20+7)x160=4320 (0x000010E0), (21+7+7)x160=5600(0x000015E0) and (22+7+7+7)x160=6880(0x00001AE0), respectively.
3. For packets SN = 30, 31, 32, 33 and 34, TS is increased to represent a 7 (0.14 seconds) packet skip (7x160) and is thus set to 9280 (0x00002440), 10560 (0x00002940), 11840 (0x00002E40), 13120 (0x00003340) and 14400 (0x00003840) respectively.
4. For packets SN = 40, 41, 42, 43, 44, 45, and 46, TS is increased to represent a 7 (0.14 seconds) packet skip (7x160) and is thus set to 16480 (0x00004060), 17760 (0x00004560), 19040 (0x00004A60), 20320 (0x00004F60), 21600 (0x00005460), 22880 (0x00005960) and 24160 (0x00005E60) respectively.
5. TS thus ends at 27840 (0x00006CC0) in the last packet of the sequence with RTP sequence number 69.

Reference(s)

3GPP TS 25.323 clauses A.1, A.2.12, A.3 and B.2.3.

7.3.6.9.3 Test purpose

To verify how efficiently the compressor handles variations in the function between the TS value and the SN during and after a DTX period, during which SID packets are sent periodically, i.e. that it uses the efficient header formats available to ROHC RTP when operating in R-mode.

7.3.6.9.4 Method of test

Initial conditions

User Equipment:

The UE is in Idle mode (state 3 or state 7) as specified in clause 7.4 of TS 34.108. Execute the generic ROHC performance test procedure for a mobile terminating packet switched session according to clause 7.3.6.1.1.

Profile 0x0001 for compression of RTP/UDP/IP headers only is used

N=4

Related ICS/IXIT Statement(s)

Support of PS Yes/No

Support of ROHC Yes/No

UE Supports IPv4 Yes/No

UE Supports IPv6 Yes/No

Test procedure

After the session setup the ROHC compressor is in the U-mode operation in accordance with RFC3095 and in the IR state. The SS starts to send IP packets to the UE, the test sequence consists of 70 packets. The UE returns the IP packets in ROHC U-mode using the test loop function. Between the 6th and 7th packets (SN=5 and SN=6) of the sequence, the first ROHC feedback packet of feedback type 2 is sent to the UE ROHC compressor to trigger an immediate transition to R-mode operation. The SS continues to send IP packets to the UE.

For packets SN = 20, 21 and 22, the SS increases TS to represent a 7 (0.14 seconds) packet skip (7x160) and sets TS to (20+7)x160=4320 (0x000010E0), (21+7+7)x160=5600 (0x000015E0) and (22+7+7+7)x160=6880 (0x00001AE0), respectively.

For packets SN = 30, 31, 32, 33 and 34, the SS increases TS to represent a 7 (0.14 seconds) packet skip (7x160) and sets TS to 9280 (0x00002440), 10560 (0x00002940), 11840 (0x00002E40), 13120 (0x00003340) and 14400 (0x00003840) respectively.

For packets SN = 40, 41, 42, 43, 44, 45, and 46, the SS increases TS to represent a 7 (0.14 seconds) packet skip (7x160) and sets TS to 16480 (0x00004060), 17760 (0x00004560), 19040 (0x00004A60), 20320 (0x00004F60), 21600 (0x00005460), 22880 (0x00005960) and 24160 (0x00005E60) respectively.

The test sequence ends with TS at 27840 (0x00006CC0) in the last packet of the sequence with RTP sequence number 69.

When all the expected compressed headers have been received by the SS, the SS disconnects the session. The SS calculates the Average Compressed Header Size and checks if it meets the test requirements for the IP version used.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1				After the PS session setup the UE is in ROHC U-mode operation and in the IR state.
2	←		Test packets	The SS starts sending test packets. The test sequence consists of 70 packets.
3	→		Test packets in U-mode operation.	The UE starts returning test packets in U-mode operation using the test loop function.
4	←		ROHC feedback packet of feedback type 2	Between the 6th and 7th (SN=5 and SN=6) packet of the sequence the SS initiates a transition to R-mode operation.
5	UE			The UE changes immediately to R-mode operation and continues to send the test packets
6	→		Test packets in R-mode operation.	The UE returns test packets in R-mode operation using the test loop function.
6a	←		ROHC feedback packet of feedback type 2	During the test case the SS generates a feedback message when the ROHC packet type octet of the received compressed header matches any of the values as described in the table 7.3.6.3.1.
7	SS			For packets SN = 20, 21 and 22, the SS increases TS to represent a 7 packet skip and sets TS to (20+7)x160=4320, (21+7+7)x160=5600 and (22+7+7+7)x160=6880 respectively.
8	SS			For packets SN = 30, 31, 32, 33 and 34, the SS increases TS to represent a 7 packet skip and sets TS to 9280, 10560, 11840, 13120 and 14400 respectively.
9	SS			For packets SN = 40, 41, 42, 43, 44, 45, and 46, the SS increases TS to represent a 7 packet skip and sets TS to 16480, 17760, 19040, 20320, 21600, 22880 and 24160 respectively.
10	SS		After the SS has received all 70 packets in the test sequence the SS disconnects the PS session.	

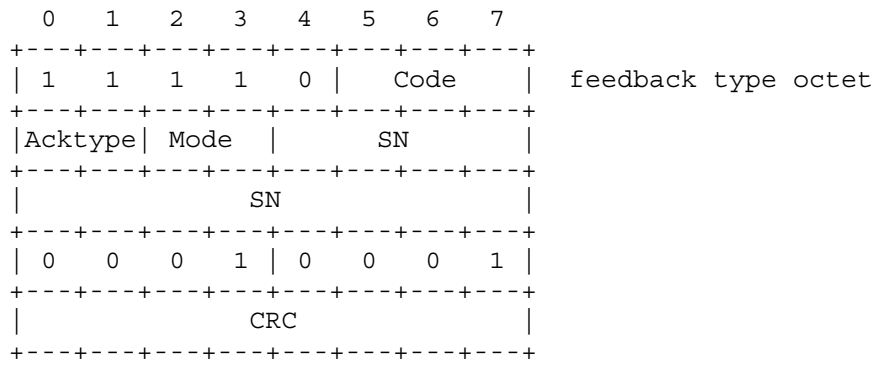
Specific Message Contents

RADIO BEARER SETUP message (during Generic ROHC performance test procedure in clause 7.3.6.1.1)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in TS 34.108 clause 9 Default Message Contents, with the exceptions defined in clause 7.3.6.1.1 and the following exception:

Information Element	**Value/remark**
- PDCP ROHC target mode	R-mode

ROHC feedback packet of feedback type 2 (Step 4 and 6a)



Where:

- Code is set to 0x4 (indicates that feedback data above the type octet is 4 octets)
- Acktype is set to 0x0 (means ACK)
- Mode is set to 0x3 (means R-mode)
- SN is set to 0x000
- CRC is the 8-bit CRC computed over the entire feedback payload including any CID fields but excluding the packet type, the 'Size' field and the 'Code' octet, using the polynomial defined in RFC 3095.

  The test equipment waits for a UOR-2, IR-DYN or IR packet from the RoHC compressor with the mode transition parameter set to R. The value of x is the RTP SN of this received packet for which the test equipment generates the second feedback packet of type 2.

7.3.6.9.5 Test requirements

The average compressed header size shall not exceed the limits specified in Table 7.3.6.9.1

Table 7.3.6.9.1: Test Requirement for TS function during DTX with varying delta in R-mode

	Average Compressed Header Size, IPv4	**Average Compressed Header size, IPv6**
SN <= 19	See Test 1b (Test case 7.3.6.3 in TS 34.123-1)	
20 <= SN <= 22 + x 30 <= SN <= 34 + x 40 <= SN <= 46 + x	15 octets	15 octets
Other SN values	5 octets	5 octets

The sequence of expected compressed headers can be illustrated as follow (informative):

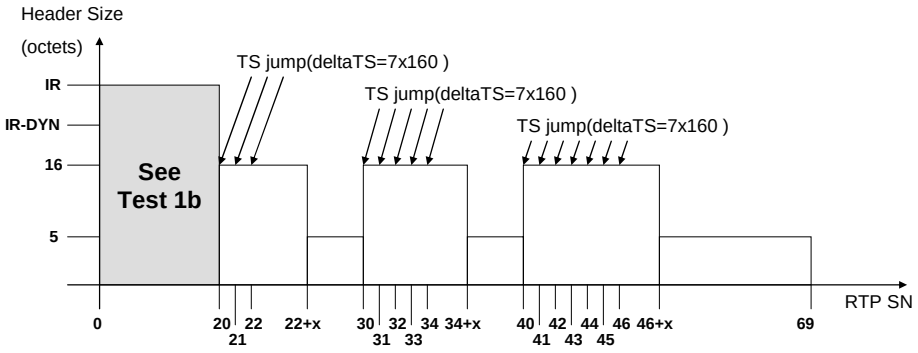


Figure 7.3.6.9: Expected outcome for TS function during DTX with varying delta in R-mode test

7.3.6.10 SRNS relocation for ROHC RTP O-mode compressor

7.3.6.10.1 Definition and applicability

The purpose of this test case is to verify that the compressor does not interrupt efficient header compression upon reception of the indication about SRNS relocation being performed, i.e. that it makes use of efficient compressed packet formats available to ROHC RTP [40] when operating in O-mode when data transmission is resumed after SRNS relocation.

7.3.6.10.2 Conformance requirement

The header compression context relocation is performed by the decision of upper layers in source RNC based on the UE radio capabilities. The decision is done independently every time the SRNS relocation occurs and is specific for each header compression protocol. It is indicated to UE as a part of the SRNS relocation signalling of the upper layer and the selected relocation method is configured to UE PDCP by the upper layer.

The header compression context relocation shall not be performed if the radio bearer is configured to support the lossless SRNS Relocation.

In the UE, upon reception of the indication about SRNS relocation being performed:

- the upper layer configures PDCP (*CPDCP-CONFIG.Req*) to perform either re-initialisation (R) or the context relocation (C) of header compression protocols;
- if the context relocation is to be applied for RFC3095 header compression protocol:
  - if the **compressor** (M-HC) is operating in **R mode**:
    - uplink data may be compressed and transmitted normally.
  - if the **compressor** (M-HC) is operating in **O mode**:
    - compress and transmit uplink data as specified in [8] using the assumption that all ROHC uplink packets transmitted are likely to be lost. When SRNS relocation is completed, M-HC should return to normal operation.

NOTE: When the M-HC is using the assumption that all ROHC uplink packets transmitted are likely to be lost:
- the M-HC can not transit to a higher compression state;
- for W-LSB encoding, the M-HC updates the set of candidate reference values used by the decompressor by adding newly transmitted values but not removing old values.

…

The outline of each test case follows the same format with respect to the input sequences and the requirements Test 1a and 1b are base tests using a well-behaving flow of packets as one of the inputs. All subsequent tests are based on test 1a or test 1b, each with specific test events added to the packet flow of the base tests.

…

The purpose of the base test case is to verify that the compressor properly implements compression for a well-behaved IP/UDP/RTP packet flow, i.e. that t it makes use of efficient compressed packet formats available to ROHC RTP [40] when operating in O-mode.

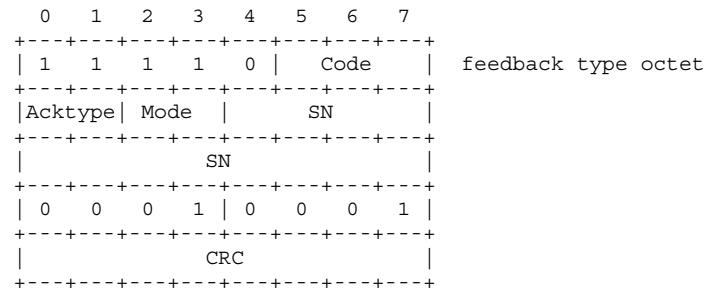
A sequence consisting of 70 packets in total is used where all header fields are set according to the basic test packet structure, as described in subclause A.3, with addition of the following:

1. The RTP Sequence Number is a linearly increasing counter with a packet-to-packet delta of 1, set to 0x0000 for the first packet and thus ending with 0x0045 (69) in the last packet of the sequence

2. The RTP Time Stamp is a linearly increasing counter with a packet-to-packet delta of 160, set to 0x00000000 for the first packet and thus ending with 0x00002B20 (11040) in the last packet of the sequence.

3. The IP Identification is set to the same value as the RTP Sequence Number; this means that for IPv4 the IP-ID behaviour is not random, thus value(RND)=0 defined in [40] for both IPv4 and IPv6.

Between the 6th and 7th packets (SN=5 and SN=6) of the sequence, a ROHC feedback packet of feedback type 2 is to be given to the ROHC compressor to trigger an immediate transition to O-mode operation. The format of that packet is as follows:



Where:

- Code is set to 0x4 (indicates that feedback data above the type octet is 4 octets)
- Acktype is set to 0x0 (means ACK)
- Mode is set to 0x2 (means O-mode)
- SN is set to 0x000
- CRC is the 8-bit CRC computed over the entire feedback payload including any CID fields but excluding the packet type, the 'Size' field and the 'Code' octet, using the polynomial defined in RFC 3095.

NOTE: If compressor uses CID field in compressed packet, the CID field should be included in the feedback packet and the Code and CID should be set as defined in [40].

…

The test sequence is the same as in subclause A.2.1, with the following exceptions:

Packets with SN = 10 to SN = 59 are removed from the sequence.

SRNS relocation occurs between packet with SN = 9 and packet with SN = 60, thus simulating a 1s long SRNS relocation that affects compression of the IP/UDP/RTP packet flow.

NOTE: The operation of the ROHC compressor is not affected by the time interval between packets with SN = 9 and SN = 60 (timer-based compression is not allowed because no appropriate feedback is provided).

Reference(s)

3GPP TS 25.323 clauses 5.4.2, A.1.2, A.2.1, A.2.13.

7.3.6.10.3 Test purpose

To verify that the compressor does not interrupt efficient header compression upon reception of the indication about SRNS relocation being performed, i.e. that it makes use of efficient compressed packet formats available to ROHC RTP [40] when operating in O-mode when data transmission is resumed after SRNS relocation.

To verify the ROHC compressor shall normally add information to the compression context as new uplink data are compressed, but not remove any existing information from the compression context upon reception of the indication about SRNS relocation being performed and if the context relocation is to be applied for RFC3095 header compression protocol when operating in O-mode.

To verify that normal operation is applied when SRNS relocation with header compression context relocation is completed.

7.3.6.10.4 Method of test

Initial conditions

User Equipment:

The UE is in Idle mode (state 3 or state 7) as specified in clause 7.4 of TS 34.108. Execute the generic ROHC performance test procedure for a mobile terminating packet switched session according to clause 7.3.6.1.1.

Profile 0x0001 for compression of RTP/UDP/IP headers only is used

N=4

Related ICS/IXIT Statement(s)

Support of PS Yes/No

Support of ROHC Yes/No

Support of context relocation Yes/No

UE Supports IPv4 Yes/No

UE Supports IPv6 Yes/No

Test procedure

After the session setup the UE ROHC compressor is in the U-mode operation in accordance with RFC3095 and in the IR state. The SS starts to send IP packets to the UE, the test sequence consists of 70 packets. The UE returns the IP packets in ROHC U-mode using the test loop function. Between the 6th and 7th packets (SN=5 and SN=6) of the sequence, a ROHC feedback packet of feedback type 2 is sent to the UE ROHC compressor to trigger an immediate transition to O-mode operation.

The SS transmits a RADIO BEARER RECONFIGURATION message. Packets with SN = 10 to SN = 59 are removed from the sequence.

The UE performs a combined hard handover and SRNS relocation with header compression context relocation and then transmits a RADIO BEARER RECONFIGURATION COMPLETE message in the new cell. The SS resumes the transmission of IP packets and checks that all transmitted IP Packets are sent back by the UE.

When all the expected compressed headers have been received by the SS, the SS disconnects the session. The SS calculates the Average Compressed Header Size and checks if it meets the test requirements for the IP version used.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		

1			After the PS session setup the UE is in ROHC U-mode operation and in the IR state.
2	←	Test packets	The SS starts sending test packets
3	→	Test packets in U-mode operation.	The UE starts returning test packets in U-mode operation using the test loop function.
4	←	ROHC feedback packet of feedback type 2	Between the 6th and 7th packet (SN=5 and SN=6) of the sequence, a ROHC feedback packet of feedback type 2 is sent to the ROHC compressor to trigger an immediate transition to O-mode operation.
5	UE		The UE changes immediately to O-mode operation and continues to send the test packets
6	→	Test packets in O-mode operation.	
7	←	RADIO BEARER RECONFIGURATION	
			The SS stop sending test packets
8	→	RADIO BEARER RECONFIGURATION COMPLETE	
9	←	Test packets	The SS resumes sending test packets.
10	→	Test packets in O-mode operation.	
11	SS	After the SS has received all the packets in the test sequence the SS disconnects the PS session.	

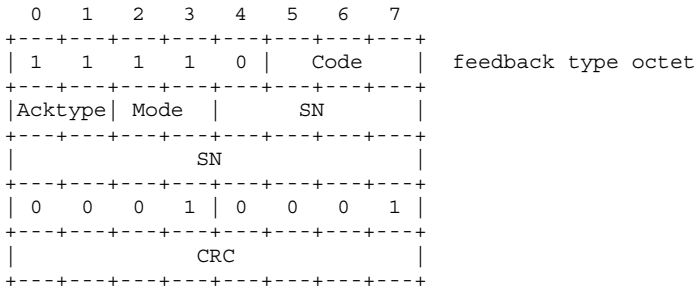
Specific Message Contents

RADIO BEARER SETUP message (during Generic ROHC performance test procedure in clause 7.3.6.1.1)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in TS 34.108 clause 9 Default Message Contents, with the exceptions defined in clause 7.3.6.1.1 and the following exception:

Information Element	**Value/remark**
- PDCP ROHC target mode	O-mode

ROHC feedback packet of feedback type 2 (Step 4)



Where:

- Code is set to 0x4 (indicates that feedback data above the type octet is 4 octets)
- Acktype is set to 0x0 (means ACK)
- Mode is set to 0x2 (means O-mode)

- SN is set to 0x000
- CRC is the 8-bit CRC computed over the entire feedback payload including any CID fields but excluding the packet type, the 'Size' field and the 'Code' octet, using the polynomial defined in RFC 3095.

RADIO BEARER RECONFIGURATION (Step 7)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled “Packet to CELL_DCH from CELL_DCH in PS”, with the following exceptions:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	
- RB identity	TBD
- PDCP info	
- Support for lossless SRNS relocation	FALSE
- PDCP PDU header	Present
- Header compression information	present
CHOICE *algorithm type*	
- RFC3095	
- RLC info	
- CHOICE Uplink RLC mode	UM RLC
- CHOICE Downlink RLC mode	UM RLC
RB with PDCP context relocation info list	
- PDCP context relocation info	
- RB identity	TBD
- Downlink RFC 3095 context relocation indication	TRUE
- Uplink RFC 3095 context relocation indication	TRUE

7.3.6.10.5 Test requirements

The average compressed header size shall not exceed the limits specified in Table 7.3.6.10.

Table 7.3.6.10: Test Requirement for SRNS relocation for ROHC RTP O-mode compressor

	Average Compressed Header Size, IPv4	Average Compressed Header size, IPv6
SN <= N-1	44 octets	68 octets
N <= SN <= 9	5 octets	5 octets
60 <= SN <= 59+N	8 octets	8 octets
SN >= 60+N	5 octets	5 octets

With N value equal to 4.

The sequence of expected compressed headers can be illustrated as follow (informative):

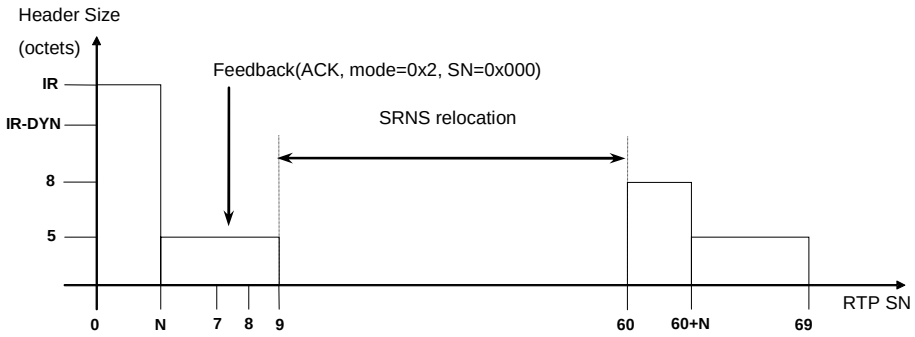


Figure 7.3.6.10: Expected outcome for SRNS relocation for RTP O-mode compressor test

7.3.7 PDCP AMR Data PDU testing

7.3.7.1 PDCP AMR Data PDU testing

7.3.7.1.1 Definition and applicability

Applicable for all UEs supporting CS Voice over HSPA and a Radio Bearer as described in the Common Test Sequences.

The UE shall be capable to deal with AMR data PDU and to correctly set the value of the CS counter.

7.3.7.1.2 Conformance requirement

The Packet Data Convergence Protocol shall perform the following functions:

- header compression and decompression of IP data streams (e.g., TCP/IP and RTP/UDP/IP headers for IPv4 and IPv6) at the transmitting and receiving entity, respectively.
- transfer of user data. This function is used for conveyance of data between users of PDCP services.
- maintenance of PDCP sequence numbers for radio bearers that are configured to support lossless SRNS Relocation or lossless DL RLC PDU size change.
- transfer of CS counter if the radio bearer is configured to convey AMR and AMR WB frames.
- add and remove the padding in PDCP PDU for octet alignment.

PDCP uses the services provided by the Radio Link Control (RLC) sublayer.

(…)

If radio bearer is configured to convey AMR or AMR WB frames for every 20ms, the sender shall :

- if the PDCP SDU length is of 0 bit or no PDCP SDU is received by PDCP entity:
  - discard the PDCP SDU if any and no PDCP PDU is submitted to the lower layer;
- if the PDCP SDU length is of 1 or more bits:
  - include the CS counter in the PDCP AMR Data PDU as specified in subclause 5.6.1.4 of TS 25.323;
  - indicate the PDCP AMR PDU type in the PDU type field;
  - fill the data field of the PDCP AMR PDU type with the PDCP SDU and add padding bits as specified in subclause 8.2.4 of TS 25.323
- increment the CS counter;

When the PDCP entity at the Receiver receives the PDCP PDU from lower layers, it shall:

- if the received PDCP PDU is of type PDCP AMR Data PDU:
  - the PDCP SDU is derived from the data field of the PDCP AMR Data PDU. The receiver determines the bit aligned data content and Frame Type from the PDU Data field length, as possible AMR and AMR WB payload has a unique size when being octet aligned;
- deliver the PDCP SDU and CS counter from the received PDCP header to the upper layer. (…)

In case the radio bearer is configured to convey AMR or AMR WB frames, the CS counter shall be included in the PDCP AMR Data PDU.

The value of the CS counter shall be set to the first to fifth LSBs of the CFN at which the packet has been received from higher layers.

(…)

The PDU type field indicates the PDCP Data PDU type.

Bit	PDU Type
000	PDCP Data PDU (Table 7)
001	PDCP SeqNum PDU (Table 8)
010	PDCP AMR Data PDU (Table 9)
011-111	Reserved (PDUs with this encoding are invalid for this version of the protocol)

(…)

The PDCP AMR Data PDU is used to convey:

- a PDCP SDU containing AMR or AMR WB frame

The format of the PDCP AMR Data PDU is shown in Table 9.

Table 9: PDCP AMR Data PDU format

PDU type	CS counter
Data	

The PDCP PDU is octet aligned but the actual PDCP SDU carrying the AMR or AMR WB frame may not be octet aligned. The AMR classes are always encoded in the order of class A, B and C, where the first bit of data follows immediately after the CS counter field and any padding for octet alignment is inserted at the end of the data field.

(…)

Length: 5 bits

CS counter field value indicates the timing of AMR or AMR WB frame.

Reference(s)

TS 25.323 clauses 5, 5.3, 5.6.1.4, 8.3.1, 8.2.4, 8.3.5

7.3.7.1.3 Test purpose

1. To verify that the UE transmits and receives AMR Data PDU in unacknowledged mode (RLC UM) as configured by higher layers.
2. To verify that the UE includes the CS counter and sets it to the first to fifth LSBs of the CFN at which the packet has been received from higher layers.

7.3.7.1.4 Method of test

Initial conditions

UE is in Idle mode (state 2 or state 7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT Statement(s)

Support of CS Voice over HSPA (Yes/No)

Test procedure

a) The SS setups a circuit switched session including radio bearer and UE test loop mode 1 in RLC UM using Common test procedures for mobile terminated CS switched sessions. Usage of "PDCP AMR Data" PDU has been configured by higher layers.

b) The SS sends an AMR data packet.

c) After having received the AMR data packet, the PDCP entity of the UE shall recognize the PDCP PDU type and shall handle the received AMR data packet with the appropriate decoding method. Then it forwards the data to its Radio Bearer Loop Back entity. The received data shall be returned by the UE via its PDCP configuration using PDCP AMR Data PDU. The CS counter field of the PDCP AMR Data PDU looped back shall be set to the first to fifth LSBs of the CFN at which the packet has been received from higher layers.

d) The SS receives and decodes the data packet. The decoded data packet shall be identical with the data as sent before. The SS verifies that the CS counter is set to the first to fifth LSBs of a CFN value comprised between (current CFN - 4) and (current CFN).

e) Steps b) through d) are repeated 10 times, with 500 ms between the sending of each AMR data packet in the downlink.

f) The SS deactivates the UE test loop mode and terminates the connection.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
Setup a UE terminated CS session (using UE test loop mode 1)				
1	←		PDCP Data	The SS creates an AMR data packet (PDCP AMR Data PDU). The SS sends a PDCP AMR Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 010 (PDCP AMR Data PDU) CS counter = first to fifth LSBs of the CFN at which the packet has been received from higher layers data: below described AMR frames After having received the PDCP AMR Data PDU, the UE decodes the PDU and recognizes PDU type = 010 (PDCP AMR Data PDU) The AMR data packet is forwarded via PDCP-SAP to its Radio Bearer Loop Back (RB LB) entity. The RB LB entity in UE test loop mode 1 returns the received data packet and sends it back to its PDCP entity.
2	→		PDCP Data	The UE sends a PDCP AMR Data PDU using the RLC-UM-Data-Request Primitive with the following content back to the SS: PDU type = 010 (PDCP AMR Data PDU) CS counter = first to fifth LSBs of the CFN at which the packet has been received from higher layers data: previously received AMR frames After reception of this AMR data packet, the SS applies the appropriate decoding function for the received data and verifies that CS counter is set to the first to fifth LSBs of a CFN value comprised between (current CFN - 4) and (current CFN)
				Steps 1-2 are repeated 10 times, with 500 ms between the sending of each AMR data packet in the downlink
Deactivate a UE terminated CS session (using UE test loop mode 1)				

Specific Message Contents

RRC CONNECTION SETUP message

The contents of the RRC CONNECTION SETUP message applied in the preamble "Setup a UE terminated CS session in UM RLC" of this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] (CS connection) with the following exceptions:

Information Element	Value/remark
Capability update requirement - UE radio access capability update requirement	TRUE NOTE: Value will be checked. Stated capability must be compatible with 34.123-2 (c.f. PICS/PIXIT statements in GSM) and the user settings

RADIO BEARER SETUP message

The contents of the RADIO BEARER SETUP message are identical to "Speech to CELL_DCH / E-DCH / HS-DSCH CS RAB with DTX/DRX and enhanced data rate using one multiplexing option (1/1) and SRBs mapped on E-DCH/HS-DSCH (Condition A23) , with the following exceptions

Information Element	Value/remark
- CS-HSPA information	
- UL AMR rate	Not Present
- Max CS delay	100

Content of PDCP Data PDU (Step 1)

Information Element	Value/remark
PDU type	010
CS counter	first to fifth LSBs of the CFN at which the packet has been received from higher layers
Data	244 bits of AMR data + 4 bits of padding

Content of PDCP Data PDU (Step 2)

Information Element	Value/remark
PDU type	010
CS counter	first to fifth LSBs of the CFN at which the packet has been received from higher layers
Data	Same content as Data from PDCP Data PDU at Step 1

7.3.7.1.5 Test requirements

After having received the AMR data packet conveyed with the "PDCP AMR Data" PDU, the UE shall return the data packets as indication that the previous packets have been received and handled correctly (PDCP AMR Data PDU).

The CS counter in the PDCP AMR Data PDUs received from the UE shall be set to the first to fifth LSBs of a CFN value comprised between (current CFN – 4) and (current CFN).

7.3.7.2 PDCP Unrecoverable Error Detection

7.3.7.2.1 Definition and applicability

Applicable for all UEs supporting CS Voice over HSPA and a Radio Bearer as described in the Common Test Sequences.

7.3.7.2.2 Conformance requirement

Length: 3 bits.

The PDU type field indicates the PDCP Data PDU type.

Bit	PDU Type
000	PDCP Data PDU (Table 7)
001	PDCP SeqNum PDU (Table 8)
010	PDCP AMR Data PDU (Table 9)
011-111	Reserved (PDUs with this encoding are invalid for this version of the protocol)

(…)

The PDCP AMR Data PDU is used to convey:

- a PDCP SDU containing AMR or AMR WB frame

The format of the PDCP AMR Data PDU is shown in Table 9.

Table 9: PDCP AMR Data PDU format

PDU type	CS counter
Data	

The PDCP PDU is octet aligned but the actual PDCP SDU carrying the AMR or AMR WB frame may not be octet aligned. The AMR classes are always encoded in the order of class A, B and C, where the first bit of data follows immediately after the CS counter field and any padding for octet alignment is inserted at the end of the data field.

(…)

If a PDCP entity receives a PDCP PDU with a PDU Type set to Reserved (see subclause 8.3.1), it shall:

- discard the PDCP PDU.

If a PDCP entity is not configured for lossless SRNS Relocation or lossless DL RLC PDU size change and receives a PDCP SeqNum PDU, it shall:

- discard the PDCP SeqNum PDU.

…

If a PDCP entity receives a PDCP PDU with a PID value that is not mapped with a valid packet type (see subclause 5.1.1), it shall:

- discard the PDCP PDU.

(…)

For each radio bearer that is configured to perform PDCP Unrecoverable Error Detection:

- if the PDCP entity receives 2 or 3 consecutive PDCP PDUs with an unexpected or invalid PDU Type or PID value:
  - the UE PDCP entity may indicate PDCP Unrecoverable Error to upper layer [2].
- if the PDCP entity receives 4 consecutive PDCP PDUs with an unexpected or invalid PDU Type or PID value:
  - the UE PDCP entity shall indicate PDCP Unrecoverable Error to upper layer [2].

NOTE1: Until the UE receives 4 consecutive PDCP PDUs with an unexpected or invalid PDU Type or PID value, the UE may apply a self-recovery mechanism. For example, the UE PDCP entity may indicate to RLC layer that HFN can be incremented.

NOTE2: The PDCP unrecoverable error detection is performed before the invalid PDU type check specified in subclause 9.1.

NOTE3: PDCP unrecoverable error detection in the UE can only detect the problem in the downlink.

(…)

1> Radio link failure:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met:

3> if the UE is in CELL_DCH state and the criteria for radio link failure are met as specified in subclause 8.5.6; or

3> if the transmission of the UE CAPABILITY INFORMATION message fails as specified in subclause 8.1.6.6; or

3> if the UE detects PDCP Unrecoverable Error [36] in a PDCP entity

4> perform cell update using the cause "radio link failure".

(…)

If IE "PDCP info" is included, the UE shall:

1> if the radio bearer is connected to a CS domain radio access bearer:

2> if the IE "PDCP info" is included in any other message than the RADIO BEARER SETUP, CELL UPDATE CONFIRM or the HANDOVER TO UTRAN COMMAND message; or

2> if the IE "PDCP PDU header" is set to the value "absent"; or

2> if the IE "Support for lossless SRNS relocation or for lossless DL RLC PDU size change" is set to TRUE; or

2> if the IE "Header compression information" is present; or

2> if the UE does not support CS voice service over HSDPA and EDCH:

3> set the variable INVALID_CONFIGURATION to TRUE.

2> else

3> include PDCP headers in both uplink and downlink PDCP PDUs.

3> configure "PDCP Unrecoverable Error Detection" in lower layer.

(…)

Reference(s)

TS 25.323 clauses 8.2.4, 8.3.1, 9.1, 9.2, 9.3

TS 25.331 clauses 8.3.1.2, 8.6.4.10

7.3.7.2.3 Test purpose

1. To verify that the UE discards PDCP PDUs with invalid header.
2. To verify that UE transmits CELL UPDATE with cause "radio link failure" when UE receives consecutive PDCP PDUs with the wrong header.

7.3.7.2.4 Method of test

Initial conditions

UE is in Idle mode (state 2 or state 7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT Statement(s)

Support of CS Voice over HSPA

Test procedure

a) The SS setups a circuit switched session including radio bearer and UE test loop mode 1 in RLC UM using common test procedures for mobile terminated CS switched sessions. Usage of "PDCP AMR Data" PDU has been configured by higher layers.

b) The SS sends a PDCP AMR data packet with invalid header.

c) After having received the AMR data packet, the PDCP entity of the UE shall recognise the PDCP header is invalid and discard the data packet.

d) Step b shall be repeated and SS should verify the expected response in step c.

e) After 2 consecutive PDCP PDUs with invalid header are sent by SS, the UE may optionally send CELL UPDATE.

f) SS transmits another 2 consecutive PDCP PDUs with invalid header.

g) UE shall discard the data packets and may optionally transmit CELL UPDATE after the reception of the 3rd PCDP PDU with invalid header. The UE shall transmit CELL UPDATE after the reception of the 4th PDCP PDU with invalid header.

h) SS shall transmit CELL UPDATE CONFIRM in response to CELL UPDATE from the UE. The SS requests the UE to transit to CELL_DCH state and provides the physical channel configuration to resume the interrupted radio bearer mapped on E-DCH / HS-DSCH and configures UL DTX.

The UE sets up the physical channels associated to E-DCH / HS-DSCH, enters CELL_DCH state and sends a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

i) The SS sends an AMR data packet with a valid header.

j) The received data shall be looped back by the UE via its PDCP configuration using PDCP AMR Data PDU.

k) The SS receives and decodes the data packet. The decoded data packet shall be identical with the data as sent before.

l) Steps i) through k) are repeated 10 times, with 500 ms between the sending of each AMR data packet in the downlink.

m) The SS deactivates the UE test loop mode and terminates the connection.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
Setup a UE terminated CS session (using UE test loop mode 1). Refer to section 7.3.1 of TS 34.123-1 for common test procedure sequence.				
				The SS creates an AMR data packet (PDCP AMR Data PDU).
1	←		PDCP Data with invalid PDU type	The SS sends a PDCP AMR Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 011 (Invalid PDU type) CS counter = first to fifth LSBs of the CFN at which the packet has been received from higher layers
2				After having received the PDCP Data PDU, the UE decodes the PDU and recognizes that the PDU type is an Invalid type. The data packet is discarded. SS checks that PDCP data is not looped back Repeat steps 1 and 2 once
3	→		CELL UPDATE	Optional step, see note 1. If CELL_UPDATE is sent by UE then go to step 8
4	←		PDCP Data with invalid PDU type	The SS sends a third PDCP AMR Data PDU with Invalid PDU type
5	→		CELL UPDATE	Optional step, see note 1. If CELL_UPDATE is sent by UE then go to step 8
6	←		PDCP Data with invalid PDU type	The SS sends a fourth PDCP AMR Data PDU with invalid PDU type
7	→		CELL UPDATE	No data loop back. CELL UPDATE is mandatory if not already received in preceding steps 3 and 5.
8	←		CELL UPDATE CONFIRM	
8a	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
9	←		PDCP Data	The SS sends a PDCP AMR Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 010 (PDCP AMR Data PDU) CS counter = first to fifth LSBs of the CFN at which the packet has been received from higher layers
10	→		PDCP Data	The UE loops back PDCP AMR Data PDU with the following content back to the SS: PDU type = 010 (PDCP AMR Data PDU) CS counter = first to fifth LSBs of the CFN at which the packet has been received from higher layers data: previously received AMR frames
				Steps 9 and 10 are repeated 10 times, with 500 ms between the sending of each AMR data packet in the downlink
Deactivate a UE terminated CS session (using UE test loop mode 1). Refer to section 7.3.1 of TS 34.123-1 for common test procedure sequence.				
Note 1: CELL UPDATE can optionally be transmitted by UE at steps 3 or 5. If CELL UPDATE is transmitted by the UE at either step then the expected test sequence goes direct to step 8.				

Specific Message Contents

RADIO BEARER SETUP message

“Speech to CELL_DCH / E-DCH / HS-DSCH CS RAB with DTX/DRX and enhanced data rate using one multiplexing option (1/1) and SRBs mapped on E-DCH/HS-DSCH (Condition A23), with the following exceptions

Information Element	Value/remark
- RAB information for setup	
- CS-HSPA information	
- UL AMR rate	Not Present
- Max CS delay	100
- RB information to be affected	
- RB identity	1 (UM DCCH for RRC)
- Information for each multiplexing option	2 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- CHOICE RLC PDU size	Fixed size
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	1
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present

- Logical channel identity	1
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.1.3 (standalone 13.6 kbps signalling radio bearer)
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB identity	2 (AM DCCH for RRC)
- Information for each multiplexing option	2 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- CHOICE RLC PDU size	Fixed size
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	2
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.1.3 (standalone 13.6 kbps signalling radio bearer)
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB identity	3 (AM DCCH for RRC)
- Information for each multiplexing option	2 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- CHOICE RLC PDU size	Fixed size
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	3

- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.1.3 (standalone 13.6 kbps signalling radio bearer)
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB identity	4 (AM DCCH for RRC)
- Information for each multiplexing option	2 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- CHOICE RLC PDU size	Fixed size
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	4
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.1.3 (standalone 13.6 kbps signalling radio bearer)
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4

Content of PDCP Data PDU (Step 1, 4, 6)

Information Element	Value/remark
PDU type	011
CS counter	first to fifth LSBs of the CFN at which the packet has been received from higher layers
Data	244 bits of AMR data + 4 bits of padding

Content of CELL UPDATE (step 3, 5, 7)

The same message found in TS 34.108 clause 9.1.1 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
Cell Update Cause	Check to see if set to 'radio link failure'

CELL UPDATE CONFIRM (Step 8)

Use the same message content found in TS 34.108 clause 9.1.1 with the following exception:

Information Element	Value/remark
RRC State indicator	CELL_DCH
DTX-DRX timing information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A23.
Uplink DPCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A23.
E-DCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A23.
Downlink HS-PDSCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A23.
Downlink information common for all radio links	
- Timing Indication	Initialise
- Downlink F-DPCH power control information	
- DPC mode	0 (single)
- TPC command error rate target	0.04
- CHOICE mode	FDD
- DPCH compressed mode info	Not Present
- TX Diversity mode	None
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
- MAC-hs reset indicator	TRUE
Downlink information per radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A23.

Content of PDCP Data PDU (Step 9)

Information Element	Value/remark
PDU type	010
CS counter	first to fifth LSBs of the CFN at which the packet has been received from higher layers
Data	244 bits of AMR data + 4 bits of padding

Content of PDCP Data PDU (Step 10)

Information Element	Value/remark
PDU type	010
CS counter	first to fifth LSBs of the CFN at which the packet has been received from higher layers
Data	Same content as Data from PDCP Data PDU at Step 1

7.3.7.2.5 Test requirements

After receiving 2, 3 or 4 consecutive PDCP PDUs with invalid PDU type the UE shall transmit CELL UPDATE with cause value "radio link failure"

After receiving the AMR data packets conveyed with a valid header, the UE shall successfully loop back all the data packets

7.4 BMC

General

For BMC testing, the UE manufacturers shall define CB data as PIXIT (CB-Data 1 and 2) for different CB message types and for CB Data41 (ANSI-41 data) and it shall describe how the reception is indicated in a clear way on UE side.

Only Cell Broadcast Services (CBS) as distributed BMC service is applied. For a UE supporting BMC, it is assumed, that there is a BMC entity established, if Initial conditions are reached.

If not otherwise mentioned, the same procedures as used in RRC test specification [TS 34.123-1] are applied to reach Initial conditions for BMC testing.

It shall be possible to activate and deactivate a CB message types by using the Message ID of CB data 1, 2 and CB41 data 1 on UE side.

7.4.1 BMC RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

7.4.1.1 Transport channel parameters of BMC RAB and SRBs for CCCH, SRB for DCCH, and SRB for BCCH

Higher layer	RAB/signalling RB		SRB#1	SRB#2	SRB#3	SRB#4	SRB#5	SRB#6	RAB#30
	User of Radio Bearer		RRC	RRC	RRC	NAS_DT High prio	NAS_DT Low prio	RRC	-
RLC	Logical channel type		CCCH	DCCH	DCCH	DCCH	DCCH	BCCH	CTCH
	RLC mode		UM	UM	AM	AM	AM	TM	UM
	Payload sizes, bit		152	136 or 120*	128	128	128	166	152
	Max data rate, bps		45600	40800 or 36000	38400	38400	38400	49800	45600
	AMD/UMD/TrD PDU header, bit		8	8	16	16	16	0	8
MAC	MAC header, bit		8	24 or 40	24	24	24	2	8
	MAC multiplexing		7 logical channel multiplexing						
Layer 1	TrCH type		FACH						
	TB sizes, bit		168						
	TFS	TF0, bits	0x168						
		TF1, bits	1x168						
		TF2, bits	2x168						
		TF3, bits	3x168						
	TTI, ms		10						
	Coding type		CC 1/2						
	CRC, bit		16						
	Max number of bits/TTI before rate matching		1136						
	RM attribute		200-240						

* MAC header size and RLC payload size depend on use of U-RNTI or C-RNTI.

7.4.1.2 TFCS

TFCS size	4
TFCS	(BMC RAB and SRBs for CCCH/DCCH/BCCH) = TF0, TF1, TF2, TF3

7.4.1.3 Physical channel parameters

SCCPCH	DTX position	Flexible
	Spreading factor	64

Number of TFCI bits/slot	8
Number of Pilot bits/slot	0
Number of data bits/slot	72
Number of data bits/frame	1080

7.4.2 General BMC message reception

7.4.2.1 UE in RRC Idle mode

7.4.2.1.1 Definition and applicability

Applicable only for a UE supporting Cell Broadcast Services (CBS) as a type of Broadcast/Multicast Services.

It shall be possible to indicate the reception of certain CBS message contents carried with certain activated CB message types in a clear way on UE side.

7.4.2.1.2 Conformance requirement

A UE supporting Cell Broadcast Services shall be capable to receive BMC messages in the RRC Idle mode.

Reference(s)

TS 25.324 clause 9.1

7.4.2.1.3 Test purpose

To verify, that a BMC configuration for a UE is able to receive activated CBS messages when in RRC Idle mode.

7.4.2.1.4 Method of test

Initial conditions

UE is in RRC Idle mode; BMC entity is established

SS: 1 cell,

NOTE: The CB message ID stored on the SIM shall be known for this test (parameter for CBS PDU's). The CBS data type shall be allocated and activated in the UE.

Related ICS/IXIT Statement(s)

Support of BMC – Yes/No

Support of PS – Yes/No

ICS: CBS message support - YES/No

IXIT: CBS-Data 1: Octet string of N (where N≥1 and less than 1246)

NOTE: For CB-Data 1 IXIT, the manufacturer shall define CBS data as Octet string together with the CB message ID used for transmitting this CB data, which is indicated by the UE after reception in a clear way according to the capabilities stored on the SIM. Furthermore, the manufacturer shall describe the indication on UE side (e.g. certain CBS traffic information)

Test procedure

a) The UE in RRC Idle mode is triggered to wait for the next system information. The UE is activated to receive CBS messages,

b) The UE and the SS have configured their RLC, MAC and PHYs layers with all CB related system information, broadcasted by SS

c) The SS sends the CBS message containing an activated CBS message type according to CB-Data 1 to the UE; this shall be repeated for "CPREP" times (indicated by parameter "repetition period")

d) The UE indicates in an unambiguous way, that this message was received, by certain clear indications (e.g. a unique part of the CB data contents)

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		SYSTEM INFORMATION	Transmit this message as described below on the BCCH, in addition to the regular BCCH transmissions (see RRC test description). Included are CB related system information parameter of the CBS: - CTCH ID, - FACH ID and associated format set, - S-CCPCH ID, - BMC Schedule Level 1 information (N,K)
2				The SS waits for about 10 s to make sure, that the UE is configured to receive CBS data
3	←		BMC CBS Message	Activated CBS message with CB Data 1 message content as described by the manufacturer. This message shall be repeated "CPREP" times, Parameter: - Message_ID, - Serial-No, - Data coding scheme, - CB-Data 1,
4				After having received the BMC CBS message the UE shall indicate the reception of CB Data 1 in a clear way.

Specific Message Contents

SYSTEM INFORMATION TYPE 5 AND 6

The contents of SYSTEM INFORMATION TYPE 5 AND 6 Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark
CHOICE mode	(see RRC default test settings)
- CTCH allocation period	N
- CTCH frame offset	K
Secondary CCPCH system	1
- Secondary CCPCH information	(see RRC default test settings)
- TFCS	1
- FACH/PCH information	(see RRC default test settings)
- TFS	TRUE
- CTCH indicator	

BMC CBS Message

Information Element	Value/remark
Message Type	1 (CBS message)
Message ID	Bitstring (16) CB message ID, it shall fit to the stored Message ID in the SIM inserted in the UE (source and type) [see TS 23.041] according to the transmitted CB-Data 1 content.
Serial Number - Geographic Scope Indicator (2 bit) - Message Code (10 bit) - Update Number (4 bit)	[see TS 23.041] 11 (Normal Cell wide) in accordance with the Message ID for a new message: 0000, incremented by one for each repetition
Data Coding Scheme	Bitstring (16) ID of the alphabet/coding and the applied language [see TS 23.041]
CB Data	Octetstring, [see IXIT value: CB-Data 1]

7.4.2.1.5 Test requirements

The UE shall store and decode a received activated CBS message.

7.4.2.2 UE in RRC Connected mode, state CELL_PCH

7.4.2.2.1 Definition and applicability

Applicable only for a UE supporting Cell Broadcast Services (CBS) as a type of Broadcast/Multicast Services.

It shall be possible to indicate the reception of certain CBS message contents carried with certain activated CB message types in a clear way on UE side.

7.4.2.2.2 Conformance requirement

A UE supporting Cell Broadcast Service (CBS) shall be capable to receive BMC messages (...) in CELL_PCH RRC-state of Connected mode.

Reference(s)

TS 25.324 clause 9.1

7.4.2.2.3 Test purpose

To verify, that a BMC configuration for a UE is able to receive activated CBS messages when in RRC Connected mode, state CELL_PCH.

7.4.2.2.4 Method of test

Initial conditions

UE is in Connected mode state CELL_PCH; BMC entity is established

SS: 1 cell,

NOTE: The CB message ID stored on the SIM shall be known for this test (parameter for CBS PDU's). The CBS data type shall be allocated and activated in the UE.

Related ICS/IXIT Statement(s)

ICS:

Support of BMC – Yes/No

Support of PS – Yes/No

CBS message support - YES/No

IXIT: CBS-Data 1: Octetstring of N (where N≥1 and less than 1246)

NOTE: For CB-Data 1 IXIT, the manufacturer shall define CBS data as Octetstring together with the CB message ID used for transmitting this CB data, which is indicated by the UE after reception in a clear way according to the capabilities stored on the SIM. Furthermore, the manufacturer shall describe the indication on UE side (e.g. certain CBS traffic information)

Test procedure

a) The UE in RRC CELL_PCH is triggered to wait for the next system information. The UE is activated to receive CBS messages.

b) The UE and the SS have configured their RLC, MAC and PHYs layers with all CB related system information, broadcasted by SS.

c) The SS sends the CBS message containing an activated CBS message type according to CB-Data 1 to the UE; this shall be repeated for "CPREP" times (indicated by parameter "repetition period").

d) The UE indicates in an unambiguous way, that this message was received, by certain clear indications (e.g. a unique part of the CB data contents).

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		SYSTEM INFORMATION	Transmit this message as described below on the BCCH, in addition to the regular BCCH transmissions (see RRC test description). Included are CB related system information parameter of the CBS: - CTCH ID, - FACH ID and associated format set, - S-CCPCH ID, - BMC Schedule Level 1 information (N,K)
2				The SS waits for about 10 s to make sure, that the UE is configured to receive CBS data
3	←		BMC CBS Message	Activated CBS message with CB Data 1 message content as described by the manufacturer. This message shall be repeated "CPREP" times, Parameter: - Message_ID, - Serial-No, - Data coding scheme, - CB-Data 1,
4				After having received the BMC CBS message the UE shall indicate the reception of CB Data 1 in a clear way.

Specific Message Contents

SYSTEM INFORMATION TYPE 5 and 6

The contents of SYSTEM INFORMATION TYPE 5 and 6 Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark
CHOICE mode - CTCH allocation period - CTCH frame offset Secondary CCPCH system - Secondary CCPCH information - TFCS - FACH/PCH information - TFS - CTCH indicator	(see RRC default test settings) N K 1 (see RRC default test settings) 1 (see RRC default test settings) TRUE (see RRC default test settings)

BMC CBS Message

Information Element	Value/remark
Message Type	1 (CBS message)
Message ID	Bitstring (16) CB message ID, it shall fit to the stored Message ID in the SIM inserted in the UE (source and type) [see TS 23.041] according to the transmitted CB-Data 1 content.
Serial Number - Geographic Scope Indicator (2 bit) - Message Code (10 bit) - Update Number (4 bit)	[see TS 23.041] 11 (Normal Cell wide) in accordance with the Message ID for a new message: 0000, incremented by one for each repetition
Data Coding Scheme	Bitstring (16) ID of the alphabet/coding and the applied language [see TS 23.041]
CB Data	Octetstring, [see IXIT value: CB-Data 1]

7.4.2.2.5 Test requirements

The UE shall store and decode a received activated CBS message.

7.4.2.3 UE in RRC Connected mode, state URA_PCH

7.4.2.3.1 Definition and applicability

Applicable only for a UE supporting Cell Broadcast Services (CBS) as a type of Broadcast/Multicast Services.

It shall be possible to indicate the reception of certain CBS message contents carried with certain activated CB message types in a clear way on UE side.

7.4.2.3.2 Conformance requirement

A UE supporting Cell Broadcast Service (CBS) shall be capable to receive BMC messages (...) in CELL_PCH and URA_PCH RRC-state of Connected mode.

Reference(s)

TS 25.324 clause 9.1.

7.4.2.3.3 Test purpose

To verify, that a BMC configuration for a UE is able to receive activated CBS messages when in RRC Connected mode, state URA_PCH.

7.4.2.3.4 Method of test

Initial conditions

UE is in Connected mode state URA_PCH; BMC entity is established

SS: 1 cell.

NOTE: The CB message ID stored on the SIM shall be known for this test (parameter for CBS PDU's). The CBS data type shall be allocated and activated in the UE.

Related ICS/IXIT Statement(s)

ICS:

Support of BMC – Yes/No

Support of PS – Yes/No

CBS message support - YES/No.

IXIT: CBS-Data 1: Octetstring of N (where N≥1 and less than 1246).

NOTE: For CB-Data 1 IXIT, the manufacturer shall define CBS data as Octetstring together with the CB message ID used for transmitting this CB data, which is indicated by the UE after reception in a clear way according to the capabilities stored on the SIM. Furthermore, the manufacturer shall describe the indication on UE side (e.g. certain CBS traffic information)

Test procedure

a) The UE in RRC URA_PCH is triggered to wait for the next system information. The UE is activated to receive CBS messages.

b) The UE and the SS have configured their RLC, MAC and PHYs layers with all CB related system information, broadcasted by SS.

c) The SS sends the CBS message containing an activated CBS message type according to CB-Data 1 to the UE, this shall be repeated for "CPREP" times (indicated by parameter "repetition period").

d) The UE indicates in an unambiguous way, that this message was received, by certain clear indications (e.g. a unique part of the CB data contents).

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		←	SYSTEM INFORMATION	Transmit this message as described below on the BCCH, in addition to the regular BCCH transmissions (see RRC test description). Included are CB related system information parameter of the CBS: - CTCH ID, - FACH ID and associated format set, - S-CCPCH ID, - BMC Schedule Level 1 information (N,K)
2				The SS waits for about 10 s to make sure, that the UE is configured to receive CBS data
3		←	BMC CBS Message	Activated CBS message with CB Data 1 message content as described by the manufacturer. This message shall be repeated "CPREP" times, Parameter: - Message_ID, - Serial-No, - Data coding scheme, - CB-Data 1,
4				After having received the BMC CBS message the UE shall indicate the reception of CB Data 1 in a clear way.

Specific Message Contents

SYSTEM INFORMATION TYPE 5 and 6

The contents of SYSTEM INFORMATION TYPE 5 and 6 Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark
CHOICE mode	(see RRC default test settings)
- CTCH allocation period	N
- CTCH frame offset	K
Secondary CCPCH system	1
- Secondary CCPCH information	(see RRC default test settings)
- TFCS	1
- FACH/PCH information	(see RRC default test settings)
- TFS	TRUE
- CTCH indicator	(see RRC default test settings)

BMC CBS Message

Information Element	Value/remark
Message Type	1 (CBS message)
Message ID	Bitstring (16) CB message ID, it shall fit to the stored Message ID in the SIM inserted in the UE (source and type) [see TS 23.041] according to the transmitted CB-Data 1 content.
Serial Number - Geographic Scope Indicator (2 bit) - Message Code (10 bit) - Update Number (4 bit)	[see TS 23.041] 11 (Normal Cell wide) in accordance with the Message ID for a new message: 0000, incremented by one for each repetition
Data Coding Scheme	Bitstring (16) ID of the alphabet/coding and the applied language [see TS 23.041]
CB Data	Octetstring, [see IXIT value: CB-Data 1]

7.4.2.3.5 Test requirements

The UE shall store and decode a received activated CBS message.

7.4.2.4 UE in RRC Idle mode (ANSI-41 CB data)

7.4.2.4.1 Definition and applicability

Applicable only for a UE supporting Cell Broadcast Services (CBS) for ANSI-41 CB data as a type of Broadcast/Multicast Services.

It shall be possible to indicate the reception of a certain CBS41 message content carried with certain activated CB41 message types in a clear way on UE side.

7.4.2.4.2 Conformance requirement

A UE supporting Cell Broadcast Services shall be capable to receive BMC messages in RRC Idle mode. (…)BMC messages are identified: (…), CBS41 Message

Reference(s)

TS 25.324 clause 9.1.

7.4.2.4.3 Test purpose

To verify, that a BMC configuration supporting ANSI-41 CB Data is able to receive activated CBS41 messages when in RRC Idle mode.

7.4.2.4.4 Method of test

Initial conditions

UE is in RRC Idle mode; BMC entity is established.

SS: 1 cell,

NOTE: The CB message ID stored on the SIM shall be known for this test (parameter for CBS41 PDU's). The CBS41 data type shall be allocated and activated in the UE.

Related ICS/IXIT Statement(s)

ICS:

Support of BMC – Yes/No

Support of PS – Yes/No

CBS41 message support - YES/No.

IXIT: CB41-Data 1: Octetstring of N (where N≥1 and less than 1246).

NOTE: For CB41-Data 1 IXIT, the manufacturer shall define CBS data as Octetstring together with the CB message ID used for transmitting this CB41 data, which is indicated by the UE after reception in a clear way according to the capabilities stored on the SIM. Furthermore, the manufacturer shall describe the indication on UE side (e.g. certain CBS41 traffic information)

Test procedure

a) The UE in RRC Idle mode is triggered to wait for the next system information. The UE is activated to receive expected CBS41 messages as described by the manufacturer.

b) The UE and the SS have configured their RLC, MAC and PHYs layers with all CB related system information, broadcasted by SS.

c) The SS sends the CBS41 message containing an activated CBS41 message type according to CB41-Data 1 to the UE; this shall be repeated for "CPREP" times (indicated by parameter "repetition period").

d) The UE indicates in an unambiguous way, that this message was received, by certain clear indications (e.g. a unique part of the CB41 data contents).

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		←	SYSTEM INFORMATION	Transmit this message as described below on the BCCH, in addition to the regular BCCH transmissions (see RRC test description). Included are CB related system information parameter of the CBS: - CTCH ID, - FACH ID and associated format set, - S-CCPCH ID, - BMC Schedule Level 1 information (N,K) In addition, the MIB and SIB 16 are sent as described below to setup the ANSI-41 parameters
2				The SS waits for about 10 s to make sure, that the UE is configured to receive CB41 data
3		←	BMC CBS41 Message	Activated CBS message with CB41 Data 1 message content as described by the manufacturer. This message shall be repeated "CPREP" times, Parameter: - Message_type, - Broadcast Address - CB41-Data 1
4				After having received the BMC CBS message the UE shall indicate the reception of CB41 Data 1 in a clear way.

Specific Message Contents

MASTER INFORMATION BLOCK (MIB)

The contents of MASTER INFORMATION BLOCK Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark
ANSI-41 Core Network information	Present

SYSTEM INFORMATION TYPE 5 AND 6

The contents of SYSTEM INFORMATION TYPE 5 AND 6 Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark

CHOICE mode
- CTCH allocation period
- CTCH frame offset
Secondary CCPCH system
- Secondary CCPCH information
- TFCS
- FACH/PCH information
  - TFS
  - CTCH indicator
	(see RRC default test settings)
	N
	K
	1
	(see RRC default test settings)
	1
	(see RRC default test settings)
	TRUE
	(see RRC default test settings)

SYSTEM INFORMATION TYPE 13

The contents of SYSTEM INFORMATION TYPE 13 Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark

CHOICE CN Type
  - CN domain specific NAS information
  - NAS (ANSI-41) system information
	ANSI-41
	
	T.B.D

BMC CBS41 Message

Information Element	Value/remark
Message Type Broadcast Address CB Data41	3 (CBS41 Message) Bitstring (40) Address Information of higher layer Octetstring, [see IXIT value: CB41-Data 1] (ANSI-41)

7.4.2.4.5 Test requirements

The UE shall store and decode a received activated CBS41 message.

7.4.2.5 UE in RRC Connected mode, state CELL_PCH (ANSI-41 CB data)

7.4.2.5.1 Definition and applicability

Applicable only for a UE supporting Cell Broadcast Services (CBS) for ANSI-41 CB data as a type of Broadcast/Multicast Services.

It shall be possible to indicate the reception of certain CBS41 message contents carried with certain activated CB41 message types in a clear way on UE side.

7.4.2.5.2 Conformance requirement

A UE supporting Cell Broadcast Service (CBS) shall be capable to receive BMC messages (...) in CELL_PCH RRC-state of Connected mode. (…)BMC messages are identified: (…), CBS41 Message.

Reference(s)

TS 25.324 clause 9.1.

7.4.2.5.3 Test purpose

To verify, that a BMC configuration supporting ANSI-41 CB Data is able to receive activated CBS41 messages when in RRC Connected mode, state CELL_PCH.

7.4.2.5.4 Method of test

Initial conditions

UE is in Connected mode state CELL_PCH; BMC entity is established.

SS: 1 cell,

NOTE: The CB41 message ID stored on the SIM shall be known for this test (parameter for CBS41 PDU's). The CBS41 data type shall be allocated and activated in the UE.

Related ICS/IXIT Statement(s)

ICS:

Support of BMC – Yes/No

Support of PS – Yes/No

CBS41 message support - YES/No.

IXIT: CBS41-Data 1: Octetstring of N (where N≥1 and less than 1246).

NOTE: For CB41-Data 1 IXIT, the manufacturer shall define CBS data as Octetstring together with the CB message ID used for transmitting this CB41 data, which is indicated by the UE after reception in a clear way according to the capabilities stored on the SIM. Furthermore, the manufacturer shall describe the indication on UE side

Test procedure

a) The UE in RRC CELL_PCH is triggered to wait for the next system information. The UE is activated to receive expected CBS41 messages as described by the manufacturer.

b) The UE and the SS have configured their RLC, MAC and PHYs layers with all CB41 related system information, broadcasted by SS.

c) The SS sends the CBS41 message containing an activated CBS41 message type according to CB41-Data 1 to the UE; this shall be repeated for "CPREP" times (indicated by parameter "repetition period").

d) The UE indicates in an unambiguous way, that this message was received, by certain clear indications (e.g. a unique part of the CB41 data contents).

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		←	SYSTEM INFORMATION	Transmit this message as described below on the BCCH, in addition to the regular BCCH transmissions (see RRC test description). Included are CB related system information parameter of the CBS: - CTCH ID, - FACH ID and associated format set, - S-CCPCH ID, - BMC Schedule Level 1 information (N,K) In addition, the MIB and SIB 13 are sent as described below for setup the ANSI-41 parameters
2				The SS waits for about 10 s to make sure, that the UE is configured to receive CB41 data
3		←	BMC CBS41 Message	Activated CBS message with CB41 Data 1 message content as described by the manufacturer. This message shall be repeated "CPREP" times, Parameter: - Message_type, - Broadcast Address - CB41-Data 1
4				After having received the BMC CBS message the UE shall indicate the reception of CB41 Data 1 in a clear way.

Specific Message Contents

MASTER INFORMATION BLOCK (MIB)

The contents of MASTER INFORMATION BLOCK Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark
ANSI-41 Core Network information	Present

SYSTEM INFORMATION TYPE 5 and 6

The contents of SYSTEM INFORMATION TYPE 5 and 6 Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark
CHOICE mode	(see RRC default test settings)
- CTCH allocation period	N
- CTCH frame offset	K
Secondary CCPCH system	1
- Secondary CCPCH information	(see RRC default test settings)
- TFCS	1
- FACH/PCH information	(see RRC default test settings)
- TFS	TRUE
- CTCH indicator	(see RRC default test settings)

SYSTEM INFORMATION TYPE 13

The contents of SYSTEM INFORMATION TYPE 13 Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark
CHOICE CN Type - CN domain specific NAS information - NAS (ANSI-41) system information	ANSI-41 T.B.D

BMC CBS41 Message

Information Element	Value/remark
Message Type Broadcast Address CB Data41	3 (CBS41 Message) Bitstring (40) Address Information of higher layer Octetstring, [see IXIT value: CB41-Data 1] (ANSI-41)

7.4.2.5.5 Test requirements

The UE shall store and decode a received activated CBS41 message.

7.4.2.6 UE in RRC Connected mode, state URA_PCH (ANSI-41 CB data)

7.4.2.6.1 Definition and applicability

Applicable only for a UE supporting Cell Broadcast Services (CBS) for ANSI-41 CB data as a type of Broadcast/Multicast Services.

It shall be possible to indicate the reception of a certain CBS41 message content carried with certain activated CB41 message types in a clear way on UE side.

7.4.2.6.2 Conformance requirement

A UE supporting Cell Broadcast Service (CBS) shall be capable to receive BMC messages (...) in URA_PCH RRC-state of Connected mode. (…)BMC messages are identified: (…), CBS41 Message.

Reference(s)

TS 25.324 clause 9.1.

7.4.2.6.3 Test purpose

To verify, that a BMC configuration supporting ANSI-41 CB Data is able to receive activated CBS41 messages when in RRC Connected mode, state URA_PCH.

7.4.2.3.4 Method of test

Initial conditions

UE is in Connected mode state URA_PCH; BMC entity is established.

SS: 1 cell,

NOTE: The CB41 message ID stored on the SIM shall be known for this test (parameter for CBS41 PDU's). The CBS41 data type shall be allocated and activated in the UE.

Related ICS/IXIT Statement(s)

ICS:

Support of BMC – Yes/No

Support of PS – Yes/No

CBS41 message support - YES/No.

IXIT: CBS41-Data 1: Octetstring of N (where N≥1 and less than 1246).

NOTE: For CB41-Data 1 IXIT, the manufacturer shall define CBS data as Octetstring together with the CB message ID used for transmitting this CB41 data, which is indicated by the UE after reception in a clear way according to the capabilities stored on the SIM. Furthermore, the manufacturer shall describe the indication on UE side (e.g. certain CBS41 traffic information).

Test procedure

a) The UE in RRC URA_PCH is triggered to wait for the next system information. The UE is activated to receive expected CBS41 messages as described by the manufacturer.

b) The UE and the SS have configured their RLC, MAC and PHYs layers with all CB related system information, broadcasted by SS.

c) The SS sends the CBS41 message containing an activated CBS41 message type according to CB41-Data 1 to the UE, this shall be repeated for "CPREP" times (indicated by parameter "repetition period").

d) The UE indicates in an unambiguous way, that this message was received, by certain clear indications (e.g. a unique part of the CB41 data contents).

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		←	SYSTEM INFORMATION	Transmit this message as described below on the BCCH, in addition to the regular BCCH transmissions (see RRC test description). Included are CB related system information parameter of the CBS: - CTCH ID, - FACH ID and associated format set, - S-CCPCH ID, - BMC Schedule Level 1 information (N,K) In addition, the MIB and SIB 13 are sent as described below for setup the ANSI-41 parameters
2				The SS waits for about 10 s to make sure, that the UE is configured to receive CB41 data
3		←	BMC CBS41 Message	Activated CBS message with CB41 Data 1 message content as described by the manufacturer. This message shall be repeated "CPREP" times, Parameter: - Message_type, - Broadcast Address - CB41-Data 1
4				After having received the BMC CBS message the UE shall indicate the reception of CB41 Data 1 in a clear way.

Specific Message Contents

MASTER INFORMATION BLOCK (MIB)

The contents of MASTER INFORMATION BLOCK Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark
ANSI-41 Core Network information	Present

SYSTEM INFORMATION TYPE 5 and 6

The contents of SYSTEM INFORMATION TYPE 5 and 6 Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark
CHOICE mode - CTCH allocation period - CTCH frame offset Secondary CCPCH system - Secondary CCPCH information - TFCS - FACH/PCH information - TFS - CTCH indicator	(see RRC default test settings) N K 1 (see RRC default test settings) 1 (see RRC default test settings) TRUE (see RRC default test settings)

SYSTEM INFORMATION TYPE 13

The contents of SYSTEM INFORMATION TYPE 13 Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark
CHOICE CN Type - CN domain specific NAS information - NAS (ANSI-41) system information	ANSI-41 T.B.D

BMC CBS41 Message

Information Element	Value/remark
Message Type Broadcast Address CB Data41	3 (CBS41 Message) Bitstring (40) Address Information of higher layer Octetstring, [see IXIT value: CB41-Data 1] (ANSI-41)

7.4.2.6.5 Test requirements

The UE shall store and decode a received activated CBS41 message.

7.4.3 BMC message reception procedure

7.4.3.1 Reception of certain CBS message types

7.4.3.1.1 Definition and applicability

Applicable only for a UE supporting Cell Broadcast Services (CBS) as type of Broadcast/Multicast Services.

It shall be possible to indicate the reception of two different CBS message contents carried with different activated CB message types in a clear way on UE side.

It shall be possible to activate/deactivate the CBS message types used to receive CB Data 1 or 2.

7.4.3.1.2 Conformance requirement

A UE supporting Cell Broadcast Service (CBS) shall be capable to receive BMC messages in RRC Idle mode.

The BMC entity on UE side evaluates received BMC Schedule Messages and takes decisions which BMC messages are received.

If not otherwise requested by upper layers, only those CB messages received in BMC CBS Messages should be delivered to upper layers for which the Serial Number associated with the CB message has changed. This implies that the BMC has to store the last received Serial Number of each CB message activated by upper layers.

Reference(s)

TS 25.324 clause 9.1.

TS 25.324 clause 9.4.

7.4.3.1.3 Test purpose

1. To verify, that a UE supporting CBS ignores a deactivated CBS message type which has been broadcasted by SS.

2. To verify, that a UE only stores Serial Numbers of a newly transmitted CBS messages. This shall be verified by indication of a received CBS message with changed Serial Number as indication for the storage of Serial Numbers.

7.4.3.1.4 Method of test

Initial conditions

UE is in RRC Idle mode.

SS: 1 cell,

NOTE: The CB message ID stored on the SIM shall be known for this test (as parameter for the CBS message PDU). The CBS data type shall be allocated and in the UE. It shall be possible to activate/deactivate such CBS data type.

Related ICS/IXIT Statement(s)

ICS:

Support of BMC – Yes/No

Support of PS – Yes/No

CBS message support - YES/No.

IXIT:

- CBS-Data 1: Octetstring of N (where N≥1 and less than 1246), with used CB message ID for CB-Data 1.

- CBS-Data 2: Octetstring of N (where N≥1 and less than 1246), with used CB message ID for CB-Data 2 (CB message ID for CB-Data 1 shall be different to CB message ID for CB-Data 2).

NOTE: For CBS data IXIT's, the manufacturer shall define CBS data as Octetstring as described in the IXIT, which is indicated by the UE after reception in a clear way according to the capabilities stored on the SIM. The manufacturer shall describe the indication on UE side for both CBS data types (e.g. certain CBS broadcast information shown in the display of the UE).

Test procedure

a) The UE in RRC Idle mode is triggered to wait for the next system information. The UE is activated to receive CBS data 1, CBS data 2) are deactivated.

b) The UE and the SS have configured their RLC, MAC and PHYs layers with all CB related system information, broadcasted by SS.

c) The SS sends the first BMC CBS schedule message to predict the next CBS messages to the UE.

d) The SS sends the CBS message containing CB-Data 1 to the UE, together with the CBS schedule message to predict the next CBS messages (repetition of CB Data 1, and the next CBS schedule message).

e) The UE indicates on an unambiguous way, that this CB-Data 1 has been received by the UE (e.g. a unique part of the CBS data contents shown on the display).

f) The SS sends the repeated CB Data 1, and the next CBS schedule message to predict the next CBS messages to the UE. (CBS schedule message predicts the first repetition of CB Data).

g) The UE indicates on an unambiguous way, that CB-Data 2 has been received by the UE (e.g. a unique part of the CBS data contents shown in the display).

h) The UE deactivates the CB Message type ID used for CB-Data 1.

i) The SS sends the CB Data 2 (as deactivated CB Data type) to the UE.

j) The UE ignores the newly received CB-Data 2, i.e. there is no indication for this CB Data 2 as described in step e).

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		SYSTEM INFORMATION	Transmit these messages as described below on the BCCH, in addition to the regular BCCH transmissions. Included are all CB related system information parameter of the CBS: - CTCH ID, - FACH ID and associated format set, - S-CCPCH ID, - BMC Schedule Level 1 information (N,K)
2				The SS waits for about 10 s to make sure, that the UE is configured to receive the CBS Data message
3	←		BMC CBS Schedule	Inband CBS schedule message with BMC schedule information Level 2 (DRX) to predict the next CB data block (CB Data 1 –new-, CBS Schedule message)
4	←		BMC CBS Message	Activated CBS message with certain CB data content (CBS data 1 as described by the manufacturer). This message is sent the first time. Parameter: - Message_ID, - Serial-No, - Data coding scheme, - CB-Data 1 (new)
5				After having received the BMC CB-Data 1 the UE shall indicate the reception in a clear way.
6	←		BMC CBS Schedule	Inband CBS schedule message with BMC schedule information Level 2 (DRX) to predict the next CB data block (CB Data 1 –rep.1-, CBS Schedule message)
7	←		BMC CBS Message	Activated CBS message with certain CB data content (CBS data 1 as described by the manufacturer). This message is repeated. Parameter: - Message_ID, - Serial-No, - Data coding scheme, - CB-Data 1 (old)
8				The UE deactivates "CB message type ID" used for CB-Data 1
9	←		BMC CBS Schedule	Inband CBS schedule message with BMC schedule information Level 2 (DRX) to predict the next CB data block (CB Data 2 –new-).
10	←		BMC CBS Message	Deactivated CBS message with certain CB data content (CBS data 2 as described by the manufacturer). This message is sent the first time. Parameter: - Message_ID, - Serial-No, - Data coding scheme, - CB-Data 2 (new)
11				After having received the BMC CBS message (CB-Data 2) the UE shall ignore the newly received CBS data 1 message, i.e. there is no indication as described by the manufacturer.

Specific Message Contents

SYSTEM INFORMATION TYPE 5 and 6

The contents of SYSTEM INFORMATION TYPE 5 and 6 Information Element in this test case are identical to those of the default contents of layer 3 messages for RRC tests [TS 34.123-1] with the following exceptions:

Information Element	Value/remark
CHOICE mode - CTCH allocation period - CTCH frame offset Secondary CCPCH system - Secondary CCPCH information - TFCS - FACH/PCH information - TFS - CTCH indicator	(see RRC default test settings) N K 1 (see RRC default test settings) 1 (see RRC default test settings) TRUE (see RRC default test settings)

BMC CBS Message (Step 4 and 7)

Information Element	Value/remark
Message Type	1 (CBS message)
Message ID	Bitstring (16) CB message ID, it shall fit to the stored Message ID in the SIM inserted in the UE (source and type) [see TS 23.041]
Serial Number - Geographic Scope Indicator (2 bit) - Message Code (10 bit) - Update Number (4 bit)	[see TS 23.041] 11 (Normal Cell wide) according with the Message ID for a new message: 0000, incremented by one for each repetition
Data Coding Scheme	Bitstring (16) ID of the alphabet/coding and the applied language [see TS 23.041]
CB Data	Octetstring, [see IXIT value: CB-Data 1]

BMC CBS Message (Step 10)

Information Element	Value/remark
Message Type	1 (CBS message)
Message ID	Bitstring (16) CB message ID, it shall fit to the stored Message ID in the SIM inserted in the UE (source and type) [see TS 23.041]
Serial Number - Geographic Scope Indicator (2 bit) - Message Code (10 bit) - Update Number (4 bit)	[see TS 23.041] 11 (Normal Cell wide) according with the Message ID for a new message: 0000, incremented by one for each repetition
Data Coding Scheme	Bitstring (16) ID of the alphabet/coding and the applied language [see TS 23.041]
CB Data	Octetstring, [see IXIT value: CB-Data 2]

BMC Schedule Message (Step 3, 6 and Step 9)

The parameters for BMC Schedule Message (inband schedule message) in Step 5 are inserted for CB-Data 2 and in Step 8 for CB-Data 1.

Information Element	Value/remark
Message Type	2 (Schedule message)
Offset to begin CTCH BS index	calculated offset value of the BS (Integer: 0...255) as recommended in TR 25.925
Length of CBS Schedule Period	Number of consecutive CTCH BS of the next CBS Schedule Period, (Integer: 1...255) as recommended in TR 25.925
New Message Bitmap	Bitmap (N*8), N = Length of CBS Schedule Period as recommended in TR 25.925
Message Description - Message Description Type	1 for new message (see TS 25.324, Table 11.9-3) 5 for old message (see TS 25.324, Table 11.9-3)
- Message ID	CB message ID used for the next CB data
- Offset to CTCH (BS index of first transmission)	for Message description type 1 or 5: CB message ID IE included (see TS 23.041)

7.4.3.1.5 Test requirements

After having received the CB-Data 1 message (step 4), the UE shall store the Serial Number of this message and indicate the reception of the CBS message as described by the manufacturer.

After CB-Data 2 message was newly broadcasted (step 10), the UE shall not indicate the reception for the deactivated CBS message (CB-Data 1).

8 Radio Resource Control RRC

8.1 RRC Connection Management Procedure

8.1.1 Paging

8.1.1.1 Paging for Connection in idle mode

8.1.1.1.1 Definition

8.1.1.1.2 Conformance requirement

A UE in idle mode, CELL_PCH state or URA_PCH state shall receive the paging information for all its monitored paging occasions. For an UE in idle mode, the paging occasions are specified in [25.304] and depend on the IE "CN domain specific DRX cycle length coefficient", as specified in subclause 8.6.3.1a. For a UE in CELL_PCH state or URA_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

If the UE is in idle mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a CN identity:

2> compare the IE "UE identity" with all of its allocated CN UE identities:

2> if one match is found:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "UE identity" and the IE "Paging cause" to the upper layers.

1> otherwise:

2> ignore that paging record.

In the UE, the initial direct transfer procedure shall be initiated, when the upper layers request establishment of a signalling connection. This request also includes a request for the transfer of a NAS message.

Upon initiation of the initial direct transfer procedure when the UE is in idle mode, the UE shall:

1> set the variable ESTABLISHMENT_CAUSE to the cause for establishment indicated by upper layers;

1> perform an RRC connection establishment procedure, according to subclause 8.1.3;

1> if the RRC connection establishment procedure was not successful:

2> indicate failure to establish the signalling connection to upper layers and end the procedure.

1> when the RRC connection establishment procedure is completed successfully:

2> continue with the initial direct transfer procedure as below.

Upon initiation of the initial direct transfer procedure when the UE is in CELL_PCH or URA_PCH state, the UE shall:

1> perform a cell update procedure, according to subclause 8.3.1, using the cause "uplink data transmission";

1> when the cell update procedure completed successfully:

2> continue with the initial direct transfer procedure as below.

The UE shall, in the INITIAL DIRECT TRANSFER message:

1> set the IE "NAS message" as received from upper layers; and

1> set the IE "CN domain identity" as indicated by the upper layers; and

1> set the IE "Intra Domain NAS Node Selector" as follows:

2> derive the IE "Intra Domain NAS Node Selector" from TMSI/PMTSI, IMSI, or IMEI; and

2> provide the coding of the IE "Intra Domain NAS Node Selector" according to the following priorities:

1. derive the routing parameter for IDNNS from TMSI (CS domain) or PTMSI (PS domain) whenever a valid TMSI/PTMSI is available;

2. base the routing parameter for IDNNS on IMSI when no valid TMSI/PTMSI is available;

3. base the routing parameter for IDNNS on IMEI only if no (U)SIM is inserted in the UE.

1> calculate the START according to subclause 8.5.9 for the CN domain as set in the IE "CN Domain Identity"; and

1> include the calculated START value for that CN domain in the IE "START".

In CELL_FACH state, the UE shall:

1> include a measurement report in the IE "Measured results on RACH", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in System Information Block type 12 (or "System Information Block Type 11" if "System Information Block Type 12" is not being broadcast);

1> include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported.

The UE shall:

1> transmit the INITIAL DIRECT TRANSFER message on the uplink DCCH using AM RLC on signalling radio bearer RB3;

1> when the INITIAL DIRECT TRANSFER message has been submitted to lower layers for transmission:

2> confirm the establishment of a signalling connection to upper layers; and

2> add the signalling connection with the identity indicated by the IE "CN domain identity" in the variable ESTABLISHED_SIGNALLING_CONNECTIONS.

1> when the successful delivery of the INITIAL DIRECT TRANSFER message has been confirmed by RLC:

2> the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.2 and 8.1.8, 3GPP TS 25.211 clause 5.3.3.10 (FDD), 3GPP TS25.221 (TDD), 3GPP TS 25.304 clause 8.

8.1.1.1.3 Test purpose

1) For the CS domain

To confirm that the UE establishes an RRC connection after it receives a PAGING TYPE 1 message which includes IE "UE identity"(in IE "Paging Record") set to the IMSI of the UE, and responds with a correct INITIAL DIRECT TRANSFER message.

2) For the PS domain

To confirm that the UE establishes an RRC connection after it receives a PAGING TYPE 1 message which includes IE "UE identity"(in IE "Paging Record") set to the P-TMSI allocated by SS at initial attach and responds with a correct INITIAL DIRECT TRANSFER message.

8.1.1.1.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: MM-IDLE state and Updated update status with no TMSI (if CS supported)

GMM-Registered with a P-TMSI assigned (if PS supported)

the UE shall have an IMSI.

Test Procedure

SS transmits SYSTEM INFORMATION BLOCK TYPE 1 or 13 messages, depending on the CN type supported by the UE. The SS transmits a PAGING TYPE 1 message, which includes an unmatched CN UE identity for the UE in the idle state. The UE shall not change its state. The SS transmits a PAGING TYPE 1 message, which includes a matched CN UE identity for the UE in the idle state. During transmission of PAGING TYPE 1 messages, SS selects the correct paging indicator on the PICH in order to allow the UE to respond to paging. Then the UE transmits an RRC CONNECTION REQUEST to the SS, the SS transmits an RRC CONNECTION SETUP to the UE. When the UE receives this message, the UE establishes an RRC connection and transmits an RRC CONNECTION SETUP COMPLETE message and an INITIAL DIRECT TRANSFER message on the uplink DCCH.

NOTE: For UEs supporting GSM-MAP CN type only, SYSTEM INFORMATION TYPE 1 messages are to be sent by SS in this test case. On the other hand, SS transmits SYSTEM INFORMATION TYPE 13 messages if the UE under test supports only ANSI-41 CN type.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1		←	SYSTEM INFORMATION BLOCK TYPE 13 or SYSTEM INFORMATION BLOCK TYPE 1	Transmit these messages on the BCCH. See default message contents in TS 34.108.
2		←	PAGING TYPE 1	The SS transmits the message, which includes an unmatched identity (incorrect IMSI), and the UE does not change its state.
3		←	PAGING TYPE 1	The SS transmits the message, which includes a matched identity. See default message contents in TS 34.108.
4	→		RRC CONNECTION REQUEST	
5		←	RRC CONNECTION SETUP	SS assigns DPCH resources to allow UE to establish an RRC connection.
6	→		RRC CONNECTION SETUP COMPLETE	
7	→		INITIAL DIRECT TRANSFER	

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 1 (Step 1) – for UEs supporting GSM-MAP core networks

Use the default message type found in TS 34.108, clause 6.1.

SYSTEM INFORMATION TYPE 13 (Step 1) – for UEs supporting ANSI-41 core networks

Use the default message type found in TS 34.108, clause 6.1.

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
CHOICE Used paging identity	CN identity
- Paging cause	Terminating Call with one of the supported services
- CN domain identity	A Registered Domain (PS Domain or CS Domain)
- CHOICE UE Identity	IMSI
- IMSI	Set to an arbitrary octet string of length 7 bytes which is different from the IMSI value stored in the TEST USIM card.
BCCH modification info	Not Present

PAGING TYPE 1 (Step 3)

Use the default message type found in TS 34.108, clause 9.1.

Note that Separate message types are defined in TS 34.108 for the cases of TM (Speech in CS) and for TM (Packet in PS).

RRC CONNECTION REQUEST (Step 4)

Information Element	Value/remark
Message type	
Initial UE identity	Same as the registered P-TMSI if PS supported by UE, otherwise the IMSI stored in the TEST USIM card.
Establishment Cause	Check to see if it is set to the same value as "Paging Cause" IE in the PAGING TYPE 1 message transmitted on step 3.
Protocol Error Indicator	Check to see if it is set to FALSE
Measured results on RACH	Not checked.

INITIAL DIRECT TRANSFER (Step 7) – for UEs supporting GSM-MAP core networks

Information Element	Value/remark
Message Type	
Integrity check info	Not present
CN domain identity	CS domain or PS domain (as specified by the SS in the PAGING TYPE 1 message of Step 3)
Intra Domain NAS Node Selector	
- CHOICE version	R99
-- CHOICE CN type	GSM-MAP
--- CHOICE Routing basis	IMSI (response to IMSI paging) in CS domain or Local (P)-TMSI in PS Domain
---- Routing parameter	If the IE "CN domain identity" is equal to "CS domain", bit string (10) consisting of DecimalToBinary [(IMSI div 10) mod 1000]. The first/ leftmost bit of the bit string contains the most significant bit of the result. If the IE "CN domain identity" is equal to "PS domain": The TMSI/ PTMSI consists of 4 octets (32bits). This can be represented by a string of bits numbered from b0 to b31, with bit b0 being the least significant. The "Routing parameter" is set to bits b14 through b23 of the TMSI/ PTMSI. The first/ leftmost/ most significant bit of the bit string contains bit b23 of the TMSI/ PTMSI.
--- Entered parameter	Not checked
NAS message	Not checked
START	Not checked
Measured results on RACH	Not checked

INITIAL DIRECT TRANSFER (Step 7) – for UEs supporting ANSI-41 core networks

Information Element	Value/remark
Message Type	
Integrity check info	Not present
CN domain identity	CS domain or PS domain (as specified by the SS in the PAGING TYPE 1 message of Step 3)
Intra Domain NAS Node Selector	
- CHOICE version	ANSI-41 : Bitstring(14), all bits set to 0
NAS message	Not checked
START	Not checked
Measured results on RACH	Not checked

8.1.1.1.5 Test requirement

After step 2 the UE shall not respond to PAGING TYPE 1 message sent in step 2.

After step 3 the UE shall transmit RRC CONNECTION REQUEST message on the uplink CCCH.

After step 5 the UE shall have an RRC connection based on dedicated physical channel resources and transmit an RRC CONNECTION SETUP COMPLETE message and INITIAL DIRECT TRANSFER message on the uplink DCCH.

8.1.1.2 Paging for Connection in connected mode (CELL_PCH)

8.1.1.2.1 Definition

8.1.1.2.2 Conformance requirement

A UE in idle mode, CELL_PCH state or URA_PCH state shall receive the paging information for all its monitored paging occasions. For an UE in idle mode, the paging occasions are specified in [25.304] and depend on the IE "CN domain specific DRX cycle length coefficient", as specified in subclause 8.6.3.1a. For a UE in CELL_PCH state or URA_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below:

If the UE is in connected mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a UTRAN identity and if this U-RNTI is the same as the U-RNTI allocated to the UE:

2> if the optional IE "CN originated page to connected mode UE" is included:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "Paging cause" and the IE "Paging record type identifier" to the upper layers.

2> otherwise:

3> perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.

2> ignore any other remaining IE "Paging record" that may be present in the message.

1> otherwise:

2> ignore that paging record.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

Reference

3GPP TS 25.331 clause 8.1.2, 8.3.1.7.

8.1.1.2.3 Test purpose

To confirm that the UE enters the CELL_FACH state after it receives a PAGING TYPE 1 message which indicates that the paging has originated from UTRAN. To verify that the UE performs cell update procedure after entering the CELL_FACH state.

8.1.1.2.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_PCH state (state 6-12) as specified in clause 7.4 of TS 34.108, with a valid U-RNTI already assigned by the SS.

Test Procedure

SS transmits SYSTEM INFORMATION BLOCK TYPE 1 or 13 messages, depending on the CN type supported by the UE. The SS transmits a PAGING TYPE 1 message, which includes an unmatched U-RNTI. The UE does not change its state. Then SS transmits a PAGING TYPE 1 message with a matched identifier but originates from the CN instead of UTRAN. The UE shall not change state after receiving this message. The SS transmits a PAGING TYPE 1 message, which includes a matched U-RNTI. Then the UE enters the CELL_FACH state and performs the cell updating procedure.

NOTE: For UEs supporting GSM-MAP CN type only, SYSTEM INFORMATION TYPE 1 messages are to be sent by SS in this test case. On the other hand, SS transmits SYSTEM INFORMATION TYPE 13 messages if the UE under test supports only ANSI-41 CN type.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1		←	SYSTEM INFORMATION BLOCK TYPE 13 or SYSTEM INFORMATION BLOCK TYPE 1	Transmit these messages on the BCCH, in addition to the normal BCCH transmissions. See specific message contents
2		←	PAGING TYPE 1	The SS transmits a message including an unmatched identifier. UE shall not respond to the paging.
3		←	PAGING TYPE 1	The SS transmits a message includes a matched identifier but with the used paging identity being a CN identity, UE shall not respond to the paging.
4		←	PAGING TYPE 1	The SS transmits the message with used paging identity being a UTRAN identity and including the UE's assigned U-RNTI
5		→	CELL UPDATE	The UE enters the CELL_FACH state. UE performs cell updating procedure. The CELL UPDATE message shall contain the value "Cell Update Cause" set to "paging response".
6		←	CELL UPDATE CONFIRM	See message content.
7	→		UTRAN MOBILITY INFORMATION CONFIRM	

Specific Message Contents

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to an arbitrary 16-bit string which is different from the SRNC identity assigned.
- S-RNTI	Set to an arbitrary 20-bit string which is different from the S-RNTI assigned.
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

PAGING TYPE 1 (Step 3)

Same as the PAGING TYPE 1 message as in step 3 of clause 8.1.1.1.4.

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to the same SRNC identity as previously assigned.
- S-RNTI	Set to the same S-RNTI as previously assigned.
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

SYSTEM INFORMATION BLOCK TYPE 13

Use the same SYSTEM INFORMATION BLOCK TYPE 13 message as specified in clause 8.1.1.1.4.

SYSTEM INFORMATION BLOCK TYPE 1

Use the same SYSTEM INFORMATION BLOCK TYPE 1 message as specified in clause 8.1.1.1.4.

CELL UPDATE CONFIRM (Step 6)

Use the message sub-type in default message content defined in [9] (TS 34.108) Clause 9, with the following exceptions.

Information Element	Value/Remarks
New C-RNTI	'1010 1010 1010 1010'

UTRAN MOBILITY INFORMATION CONFIRM (Step 7)

Only the message type is checked.

8.1.1.2.5 Test requirement

After step 2 the UE shall not respond to the PAGING TYPE 1 message sent in step 2.

After step 3 the UE shall not respond to the PAGING TYPE 1 message sent in step 3.

After step 4 the UE shall enter the CELL FACH state and send a CELL UPDATE message with "Cell Update Cause" IE set to "paging response".

After step 6 the UE shall be in the CELL_FACH state and shall transmit UTRAN MOBILITY INFORMATION CONFIRM message.

8.1.1.3 Paging for Connection in connected mode (URA_PCH)

8.1.1.3.1 Definition

8.1.1.3.2 Conformance requirement

A UE in idle mode, CELL_PCH state or URA_PCH state shall receive the paging information for all its monitored paging occasions. For an UE in idle mode, the paging occasions are specified in [25.304] and depend on the IE "CN domain specific DRX cycle length coefficient", as specified in subclause 8.6.3.1a. For a UE in CELL_PCH state or URA_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below:

If the UE is in connected mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a UTRAN identity and if this U-RNTI is the same as the U-RNTI allocated to the UE:

2> if the optional IE "CN originated page to connected mode UE" is included:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "Paging cause" and the IE "Paging record type identifier" to the upper layers.

2> otherwise:

3> perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.

2> ignore any other remaining IE "Paging record" that may be present in the message.

1> otherwise:

2> ignore that paging record.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

Reference

3GPP TS 25.331 clause 8.1.2, 8.3.1.7.

8.1.1.3.3 Test purpose

To confirm that the UE enters the CELL_FACH state after it receives a PAGING TYPE 1 message in which the IE "Used paging identity" is set to "UTRAN identity", and the UE takes the U-RNTI value assigned to it in the IE "U-RNTI".

8.1.1.3.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: URA_PCH state (state 6-13) as specified in clause 7.4 of TS 34.108, with a valid U-RNTI assigned by the SS.

Test Procedure

The SS transmits a PAGING TYPE 1 message, which includes an unmatched U-RNTI. The UE does not change its current state. The SS transmits a PAGING TYPE 1 message which includes a matched U-RNTI. Then the UE listens to it and enters the CELL_FACH state to transmit a CELL UPDATE message using uplink CCCH in respond to the paging.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PAGING TYPE 1	The SS transmits the message that includes an unmatched identifier, but UE does not change its state.
2	←		PAGING TYPE 1	The SS transmits the message that includes a matched identifier.
3	→		CELL UPDATE	The UE enters the CELL_FACH state.
4	←		CELL UPDATE CONFIRM	See message content.
5	→		UTRAN MOBILITY INFORMATION CONFIRM	

Specific Message Contents

PAGING TYPE 1 (Step 1)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to an unused SRNC identity which is different from the SRNC identity assigned.
- S-RNTI	Set to an arbitrary 20-bit string which is different from the S-RNTI assigned.
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to the previously assigned SRNC identity
- S-RNTI	Set to previously assigned S-RNTI
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE CONFIRM (Step 4)

Use the message sub-type in default message content defined in [9] (TS 34.108) Clause 9, with the following exceptions.

Information Element	Value/Remarks
New C-RNTI	'1010 1010 1010 1010'

UTRAN MOBILITY INFORMATION CONFIRM (Step 5)

Only the message type is checked.

8.1.1.3.5 Test requirement

After step 1 the UE shall not respond to the paging.

After step 2 the UE shall enter the CELL FACH state, and transmit CELL UPDATE message to initiate the cell updating procedure with the paging cause set to "paging response".

After step 4 the UE shall be in the CELL_FACH state and shall transmit UTRAN MOBILITY INFORMATION CONFIRM message.

8.1.1.4 Paging for notification of BCCH modification in idle mode

8.1.1.4.1 Definition

8.1.1.4.2 Conformance requirement

A UE in idle mode state shall receive the paging information for all its monitored paging occasions. For an UE in idle mode, the paging occasions are specified in TS 25.304 and depend on the IE "CN domain specific DRX cycle length coefficient".

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

…

If the IE "BCCH modification info" is included, any UE in idle mode state shall perform the actions as specified in TS 25.331 subclause 8.1.1 in addition to any actions caused by the IE "Paging record" occurrences in the message.

The UE shall:

1> compare the value of IE "MIB value tag" in the IE "BCCH modification info" with the value tag stored for the master information block in variable VALUE_TAG.

1> if the value tags differ:

2> read the master information block on BCH;

2> if the value tag of the master information block in the system information is the same as the value in IE "MIB value tag" in "BCCH modification info" but different from the value tag stored in the variable VALUE_TAG:

3> perform actions as specified in TS 25.331 subclause 8.1.1.5.

…

Upon reception of the master information block, the UE shall:

1> compare the value tag in the master information block with the value tag stored for this cell and this PLMN in the variable VALUE_TAG;

1> if the value tags differ:

2> store the value tag into the variable VALUE_TAG for the master information block;

2> read and store scheduling information included in the master information block.

….

For all system information blocks or scheduling blocks that are supported by the UE referenced in the master information block or the scheduling blocks, the UE shall perform the following actions:

1> for all system information blocks with area scope "PLMN" or "Equivalent PLMN" that use value tags:

2> compare the value tag read in scheduling information for that system information block with the value stored within the variable VALUE_TAG for that system information block;

2> if the value tags differ:

3> store the value tag read in scheduling information for that system information block into the variable VALUE_TAG;

3> read and store the IEs of that system information block.

…

Reference

3GPP TS 25.331 clause 8.1.1, 8.1.2.

8.1.1.4.3 Test purpose

To confirm that the UE checks the new value tag of the master information block and reads the updated SYSTEM INFORMATION BLOCK messages after it receives a PAGING TYPE 1 message which includes the IE "BCCH Modification Information".

8.1.1.4.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108 with a CN UE identity, depending on the CN domain(s) supported by the UE.

Test Procedure

The SS transmits a PAGING TYPE 1 message. This message addresses the UE using its (P)TMSI and the "paging cause" IE set to a terminating call type that is supported by the UE. The UE shall respond with RRC CONNECTION REQUEST message. Then SS shall transmit RRC CONNECTION REJECT message to UE.

The SS transmits a PAGING TYPE 1 message on the paging occasions assigned to the UE. The message shall include the IE "BCCH Modification Information" indicating the value tag of the modified master information block. Then it transmits the new master information block followed by the new SYSTEM INFORMATION BLOCK TYPE 5 or SYSTEM INFORMATION BLOCK TYPE 5bis message. In the new SIB TYPE 5 / SIB TYPE 5bis message, the IE "Available Signature" is different when compared to the original SIB TYPE 5 / SIB TYPE 5bis message.

At the paging occasion, SS transmits a new PAGING TYPE 1 message. This message addresses the UE using its (P)TMSI and the "paging cause" IE set to a terminating call type that is supported by the UE. The UE shall respond with RRC CONNECTION REQUEST message. Then SS shall transmit RRC CONNECTION REJECT message to UE.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PAGING TYPE 1	SS starts to transmit this message on the PCCH at the correct paging occasion.
1a	→		RRC CONNECTION REQUEST	
1b	←		RRC CONNECTION REJECT	
2	←		PAGING TYPE 1	SS transmits the message including the IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block.
2a			Void	
3	←		MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting.
	←		SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis	At the same time, SS starts to transmit the affected SIB TYPE 5 / SIB TYPE 5bis messages continuously. The IE "Available Signature" is changed from "0000 0000 1111 1111(B)" to "1111 1111 0000 0000(B)" (for FDD) and Available SYNC_UL codes is changed from “11110000(B)” to “00001111(B)”.
3a				SS waits 5s (to ensure that the UE has time to read the new system information)
4	←		PAGING TYPE 1	SS starts to transmit this message continuously on the PCCH at the correct paging occasion.
5			RRC CONNECTION REQUEST	
6	←		RRC CONNECTION REJECT	

Specific Message Contents

PAGING TYPE 1 (Step 1 and 4)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	CN identity
- Paging Cause	Terminating Call with one of the supported services
- CN Domain Identity	Supported Domain (PS Domain or CS Domain)
- CHOICE UE Identity	Local (P)TMSI
- Routing parameter	Same as registered TMSI or P-TMSI
BCCH modification info	Not Present

RRC CONNECTION REJECT (Step 1b)

Use the same message type found in [9] TS 34.108 clause 9.

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
MIB Value Tag	Set to (Current MIB value tag + 1)
BCCH Modification time	Not Present

MASTER INFORMATION BLOCK (Step 3)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 2
SIB 5 Cell Value tag	Set to (Current SIB5 value tag + 1)

SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis (Step 3) (FDD)

Use the same message type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
- PRACH system information	
- PRACH info	
- CHOICE mode	FDD
- Available Signature	'1111 1111 0000 0000'B

SYSTEM INFORMATION BLOCK TYPE 5 (Step 3) (1.28 Mcps TDD)

- PRACH system information list	
- PRACH system information	
- PRACH info	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- SYNC_UL info	
- SYNC_UL codes bitmap	"00001111"
- Access Service Class	
- ASC Settings	(ASC#0 to ASC #7)
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	"00001111"

RRC CONNECTION REJECT

Use the same message type found in TS 34.108, clause 9.

8.1.1.4.5 Test requirement

After step 1 the UE shall transmit RRC CONNECTION REQUEST messages in response to the PAGING TYPE 1 messages sent in step 1, using an allowed signature according to original IE "Available signature"(FDD))/ "Available SYNC_UL codes indices "(1.28 Mcps TDD) in SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis.

After step 4 the UE shall transmit RRC CONNECTION REQUEST messages in response to the PAGING TYPE 1 messages sent in step 4, using an allowed signature according to modified IE "Available signature"(FDD)/ "Available SYNC_UL codes indices "(1.28 Mcps TDD) in SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis.

8.1.1.5 Paging for notification of BCCH modification in connected mode (CELL_PCH)

8.1.1.5.1 Definition

8.1.1.5.2 Conformance requirement

A UE in CELL_PCH state shall receive the paging information for all its monitored paging occasions. For a UE in CELL_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in TS 25.331 subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

…

If the IE "BCCH modification info" is included, any UE in CELL_PCH state shall perform the actions as specified in TS 25.331 subclause 8.1.1 in addition to any actions caused by the IE "Paging record" occurrences in the message.

The UE shall:

1> compare the value of IE "MIB value tag" in the IE "BCCH modification info" with the value tag stored for the master information block in variable VALUE_TAG.

1> if the value tags differ:

2> read the master information block on BCH;

2> if the value tag of the master information block in the system information is the same as the value in IE "MIB value tag" in "BCCH modification info" but different from the value tag stored in the variable VALUE_TAG:

3> perform actions as specified in TS 25.331 subclause 8.1.1.5.

…

Upon reception of the master information block, the UE shall:

1> compare the value tag in the master information block with the value tag stored for this cell and this PLMN in the variable VALUE_TAG;

1> if the value tags differ:

2> store the value tag into the variable VALUE_TAG for the master information block;

2> read and store scheduling information included in the master information block.

….

For all system information blocks or scheduling blocks that are supported by the UE referenced in the master information block or the scheduling blocks, the UE shall perform the following actions:

1> for all system information blocks with area scope "PLMN" or "Equivalent PLMN" that use value tags:

2> compare the value tag read in scheduling information for that system information block with the value stored within the variable VALUE_TAG for that system information block;

2> if the value tags differ:

3> store the value tag read in scheduling information for that system information block into the variable VALUE_TAG;

3> read and store the IEs of that system information block.

…

Reference

3GPP TS 25.331 clause 8.1.1, 8.1.2.

8.1.1.5.3 Test purpose

To confirm that the UE, in addition to any actions caused by the IE "Paging record" occurrences in the PAGING TYPE 1 message, checks the new value tag of the master information block, and read the SYSTEM INFORMATION messages after it receives a PAGING TYPE 1 message which includes the IE "BCCH Modification Information".

8.1.1.5.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_PCH state (state 6-12) as specified in clause 7.4 of TS 34.108 with valid a U-RNTI assigned to it.

Test Procedure

The SS transmits a PAGING TYPE 1 message on the paging occasions assigned to the UE. The PAGING TYPE 1 message shall include the IE "BCCH Modification Information" indicating value tag of the modified master information block. Then it transmits the new master information block followed by the new SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis message. In the new SIB TYPE 5 / SIB TYPE 5bis message, the IE "Available Signature" for FDD, "Available Channelisation codes indices " for TDD 3.84 Mcps and 7.68 Mcps options or "Available SYNC_UL codes indices " for TDD 1.28 Mcps option is different when compared to the original SIB TYPE 5 / SIB TYPE 5bis message. At the paging occasion, SS transmits a new PAGING TYPE 1 message. This message addresses the UE using its U-RNTI. The UE shall respond with a CELL UPDATE message and set IE "cell update cause" to "paging response". The SS shall transmit a CELL UPDATE CONFIRM message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2	←		PAGING TYPE 1	SS transmits the paging message which comprises IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block.
2a			Void	
3	←		MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting.
	←		SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis.	For FDD, at the same time, SS starts to transmit the affected SIB TYPE 5/ SIB TYPE 5bis continuously. The value of IE "Available Signature" is changed from "0000 0000 1111 1111(B)" to "1111 1111 0000 0000(B)". For TDD 3.84 Mcps and 7.68 Mcps options, at the same time, SS starts to transmit the affected SIB TYPE 6 continuously. The value of IE "Available Channelisation codes indices " is changed according to test purposes. For TDD 1.28 Mcps option, at the same time, SS starts to transmit the affected SIB TYPE 6 continuously. The value of IE "Available SYNC_UL codes indices " is changed according to test purposes.
3a				SS waits 5s (to ensure that the UE has time to read the new system information)
4	←		PAGING TYPE 1	SS transmits this message continuously on the PCCH at the correct paging occasion.
5	→		CELL UPDATE	
6	←		CELL UPDATE CONFIRM	See message content.

Specific Message Contents

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
- MIB Value Tag	Set to (Current MIB value tag + 1)
- BCCH Modification time	Not Present

MASTER INFORMATION BLOCK (Step 3)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 2
SIB 5 Cell Value tag	Set to (Current SIB5 value tag + 1)

SYSTEM INFORMATION BLOCK TYPE 5/ SYSTEM INFORMATION BLOCK TYPE 5bis. (Step 3)(FDD)

Use the same message type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
- PRACH system information	
- PRACH info	
- CHOICE mode	FDD
- Available Signature	'1111 1111 0000 0000'B

SYSTEM INFORMATION BLOCK TYPE 5 (Step 3) (TDD 3.84 Mcps option)

Use the same message type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
- PRACH system information	
- PRACH info	
- CHOICE mode	TDD
- CHOICE *TDD option*	3.84 Mcps option
- Available Channelisation codes indices	To be defined (each bit indicates availability of a channelisation code index)

SYSTEM INFORMATION BLOCK TYPE 5 (Step 3) (TDD 1.28 Mcps option)

Use the same message type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
- PRACH system information	
- PRACH info	
- CHOICE mode	TDD
- CHOICE *TDD option*	1.28 Mcps option
- Available SYNC_UL codes indices	To be defined (each bit indicates availability of a SYNC_UL code index)

SYSTEM INFORMATION BLOCK TYPE 5 (Step 3) (TDD 7.68 Mcps option)

Use the same message type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
- PRACH system information	
- PRACH info	
- CHOICE mode	TDD
- CHOICE *TDD option*	7.68 Mcps option
- Available Channelisation codes indices	To be defined (each bit indicates availability of a channelisation code index)

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE (Step 5)

Check to see if the same message type found in TS 34.108, clause 9 is received, with the following exceptions:

Information Element	Value/remark
U-RNTI	Checked to see if it is set to the same values as in step 4
- SRNC identity	
- S-RNTI	
Cell update cause	Paging response

CELL UPDATE CONFIRM (Step 6)

Use the same message type found in (TS 34.108) Clause 9, with the following exception:

Information Element	Value/remark
RRC State indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3

8.1.1.5.5 Test requirement

After step 4 the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "paging response", using an allowed signature according to modified IE "Available signature"(FDD))/ " Available SYNC_UL codes indices "(1.28 Mcps TDD)/ "Available Channelisation codes indices " (3.84 Mcps and 7.68 Mcps TDD) in SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis.

8.1.1.5a Paging on HS-DSCH for notification of BCCH modification in CELL_PCH

8.1.1.5a.1 Definition and applicability

All UEs which support FDD and HS-PDSCH in CELL_PCH and URA_PCH.

8.1.1.5a.2 Conformance requirement

Upon modifications of system information blocks using value tags, UTRAN should notify the new value tag for the master information block in the IE "BCCH modification info", transmitted in the following way:

1> to reach UEs in idle mode, and in CELL_PCH state and URA_PCH state with S-CCPCH assigned, the IE "BCCH modification info" is contained in a PAGING TYPE 1 message transmitted on the PCCH in all paging occasions in the cell;

1> to reach UEs in CELL_PCH state and URA_PCH state with HS-DSCH assigned and no dedicated H-RNTI assigned, the IE "BCCH modification info" is contained in a PAGING TYPE 1 message transmitted on the PCCH in all paging occasions in the cell;

…

Upon reception of a PAGING TYPE 1 message or a SYSTEM INFORMATION CHANGE INDICATION message containing the IE "BCCH modification info" containing the IE "MIB value tag" but not containing the IE "BCCH modification time", the UE shall perform actions as specified in subclause 8.1.1.7.3.

…

The UE shall:

1> compare the value of IE "MIB value tag" in the IE "BCCH modification info" with the value tag stored for the master information block in variable VALUE_TAG.

1> if the value tags differ:

2> read the master information block on BCH;

2> if the value tag of the master information block in the system information is the same as the value in IE "MIB value tag" in "BCCH modification info" but different from the value tag stored in the variable VALUE_TAG:

3> perform actions as specified in subclause 8.1.1.5.

…

A UE in CELL_PCH state shall receive the paging information for all its monitored paging occasions. For a UE in CELL_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in TS 25.331 subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

If the UE is in idle mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a CN identity:

2> compare the IE "UE identity" with all of its allocated CN UE identities:

2> if one match is found:

…

Reference

3GPP TS 25.331 clause 8.1.1.7, 8.1.1.7.1, 8.1.2.3

8.1.1.5a.3 Test purpose

To confirm that the UE, in addition to any actions caused by the IE "Paging record" occurrences in PAGING TYPE 1 mapped on HS-DSCH, checks the new value tag of the master information block, and reads the SYSTEM INFORMATION messages mapped on HS-DSCH after it receives a PAGING TYPE 1 message on HSDSCH which includes the IE "BCCH Modification Information".

8.1.1.5a.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_PCH (state 6-12) as specified in clause 7.4 of TS 34.108 with valid a U-RNTI but no dedicated H-RNTI assigned to it. HS-DSCH reception in CELL_PCH and URA_PCH is enabled by including the parameters for HS-DSCH reception in CELL_PCH and URA_PCH state in default SIB5, condition B1, TS 34.108, section 6.1.0b.

Test Procedure

The SS transmits a PAGING TYPE 1 message with PCCH mapped onto HS-DSCH on the paging occasions assigned to the UE. The PAGING TYPE 1 message shall include the IE "BCCH Modification Information" indicating value tag of

the modified master information block. Then it transmits the new master information block followed by the new SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis message. In the new SIB TYPE 5 / SIB TYPE 5bis message, the IE "Available Signature" for FDD is different when compared to the original SIB TYPE 5 / SIB TYPE 5bis message. At the paging occasion, SS transmits a new PAGING TYPE 1 message. This message addresses the UE using its U-RNTI. The UE shall respond with a CELL UPDATE message and set IE "cell update cause" to "paging response". The SS shall transmit a CELL UPDATE CONFIRM message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PAGING TYPE 1	SS transmits the paging message which comprises IE "BCCH Modification Information" on HS-DSCH, with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block.
2	←		MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting.
	←		SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis.	For FDD, at the same time, SS starts to transmit the affected SIB TYPE 5/ SIB TYPE 5bis continuously. The value of IE "Available Signature" is changed from "0000 0000 1111 1111(B)" to "1111 1111 0000 0000(B)".
3				SS waits 5s (to ensure that the UE has time to read the new system information)
4	←		PAGING TYPE 1	SS transmits this message continuously on the PCCH at the correct paging occasion.
5	→		CELL UPDATE	
6	←		CELL UPDATE CONFIRM	See message content.

Specific Message Contents

PAGING TYPE 1 (Step 1)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
- MIB Value Tag	Set to (Current MIB value tag + 1)
- BCCH Modification time	Not Present

MASTER INFORMATION BLOCK (Step 2)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 1
SIB 5 Cell Value tag	Set to (Current SIB5 value tag + 1)

SYSTEM INFORMATION BLOCK TYPE 5/ SYSTEM INFORMATION BLOCK TYPE 5bis. (Step 3)(FDD)

Use the same message type found in clause 6.1.0b, condition B1, of TS 34.108, with the following exception.

Information Element	Value/remark
- PRACH system information	
- PRACH info	
- CHOICE mode	FDD
- Available Signature	'1111 1111 0000 0000'B

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE (Step 5)

Check to see if the same message type found in TS 34.108, clause 9 is received, with the following exceptions:

Information Element	Value/remark
U-RNTI	Checked to see if it is set to the same values as in step 4
- SRNC identity	
- S-RNTI	
Cell update cause	Paging response
HS-DSCH in CELL_FACH	Check to see if set to TRUE

CELL UPDATE CONFIRM (Step 6)

Use the same message type found in (TS 34.108) Clause 9, with the following exception:

Information Element	Value/remark
RRC State indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3

8.1.1.5a.5 Test requirement

After step 5 the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "paging response" and “HS-PDSCH in CELL_FACH” set to TRUE, using an allowed signature according to modified IE "Available signature"(FDD) in SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis

8.1.1.5b Paging on HS-DSCH for notification of BCCH modification in CELL_PCH (1.28Mcps TDD)

8.1.1.5b.1 Definition and applicability

All UEs which support 1.28Mcps TDD and E-DCH and HS-PDSCH in CELL_PCH and URA_PCH.

8.1.1.5b.2 Conformance requirement

Upon modifications of system information blocks using value tags, UTRAN should notify the new value tag for the master information block in the IE "BCCH modification info", transmitted in the following way:

1> to reach UEs in idle mode, and in CELL_PCH state and URA_PCH state with S-CCPCH assigned, the IE "BCCH modification info" is contained in a PAGING TYPE 1 message transmitted on the PCCH in all paging occasions in the cell;

1> to reach UEs in CELL_PCH state and URA_PCH state with HS-DSCH assigned and no dedicated H-RNTI assigned, the IE "BCCH modification info" is contained in a PAGING TYPE 1 message transmitted on the PCCH in all paging occasions in the cell;

1> to reach UEs in CELL_FACH state or TDD UEs in CELL_DCH with S-CCPCH assigned, the IE "BCCH modification info" is contained in a SYSTEM INFORMATION CHANGE INDICATION message transmitted on the BCCH mapped on at least one FACH on every Secondary CCPCH in the cell;

1> for FDD and 1.28 Mcps TDD, to reach UEs in CELL_FACH state with HS-DSCH assigned and in CELL_PCH with HS-DSCH and dedicated H-RNTI assigned, the IE "BCCH modification info" is contained in a SYSTEM INFORMATION CHANGE INDICATION message transmitted on the BCCH mapped on the HS-PDSCH indicated with the first indexed HS-SCCH code by the BCCH specific H-RNTI.

Upon reception of a PAGING TYPE 1 message or a SYSTEM INFORMATION CHANGE INDICATION message containing the IE "BCCH modification info" containing the IE "MIB value tag" but not containing the IE "BCCH modification time", the UE shall perform actions as specified in subclause 8.1.1.7.3.

If the IE "BCCH modification time" is included the UE shall perform actions as specified in subclause 8.1.1.7.2.

…

The UE shall:

1> compare the value of IE "MIB value tag" in the IE "BCCH modification info" with the value tag stored for the master information block in variable VALUE_TAG.

1> if the value tags differ:

2> read the master information block on BCH;

2> if the value tag of the master information block in the system information is the same as the value in IE "MIB value tag" in "BCCH modification info" but different from the value tag stored in the variable VALUE_TAG:

3> perform actions as specified in subclause 8.1.1.5.

…

A UE in idle mode, CELL_PCH state or URA_PCH state shall receive the paging information for all its monitored paging occasions. For a UE in idle mode, the paging occasions are specified in [4] and depend on the IE "CN domain specific DRX cycle length coefficient", as specified in subclause 8.6.3.1a. For a UE in CELL_PCH state or URA_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

If the UE is in idle mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a CN identity:

2> compare the IE "UE identity" with all of its allocated CN UE identities:

2> if one match is found:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "UE identity" and the IE "Paging cause" to the upper layers.

1> otherwise:

2> ignore that paging record.

…

If the IE "BCCH modification info" is included, any UE in idle mode, CELL_PCH or URA_PCH state shall perform the actions as specified in subclause 8.1.1 in addition to any actions caused by the IE "Paging record" occurrences in the message as specified above.

…

Reference

3GPP TS 25.331 clause 8.1.1.7.1, 8.1.1.7.3, 8.1.2.3

8.1.1.5b.3 Test purpose

To confirm that the UE, in addition to any actions caused by the IE "Paging record" occurrences in PAGING TYPE 1 mapped on HS-DSCH, checks the new value tag of the master information block, and reads the SYSTEM INFORMATION messages mapped on HS-DSCH after it receives a PAGING TYPE 1 message on HSDSCH which includes the IE "BCCH Modification Information".

8.1.1.5b.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_PCH (state 6-12) as specified in clause 7.4 of TS 34.108 with valid a U-RNTI but no dedicated H-RNTI assigned to it. HS-DSCH reception in CELL_PCH and URA_PCH is enabled by including the parameters for HS-DSCH reception in CELL_PCH and URA_PCH state in default SIB5, condition B1, TS 34.108, section 6.1.0b.

Test Procedure

The SS transmits a PAGING TYPE 1 message with PCCH mapped onto HS-DSCH on the paging occasions assigned to the UE. The PAGING TYPE 1 message shall include the IE "BCCH Modification Information" indicating value tag of the modified master information block. Then it transmits the new master information block followed by the new SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis message. In the new SIB TYPE 5 / SIB TYPE 5bis message, the IE "Timeslot number" for "E-AGCH Info" is different when compared to the original SIB TYPE 5 / SIB TYPE 5bis message. At the paging occasion, SS transmits a new PAGING TYPE 1 message. This message addresses the UE using its U-RNTI. The UE shall respond with a CELL UPDATE message on common E-DCH and set IE "cell update cause" to "paging response". The SS shall transmit a CELL UPDATE CONFIRM message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PAGING TYPE 1	SS transmits the paging message which comprises IE "BCCH Modification Information" on HS-DSCH, with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block.
2	←		MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting.
	←		SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis.	at the same time, SS starts to transmit the affected SIB TYPE 5/ SIB TYPE 5bis continuously. The value of IE "Timeslot number" for "E-AGCH Info" is changed from "6" to "5".
3				SS waits 5s (to ensure that the UE has time to read the new system information)
4	←		PAGING TYPE 1	SS transmits this message continuously on the PCCH at the correct paging occasion.
5	→		CELL UPDATE	
6	←		CELL UPDATE CONFIRM	See message content.

Specific Message Contents

PAGING TYPE 1 (Step 1)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
- MIB Value Tag	Set to (Current MIB value tag + 1)
- BCCH Modification time	Not Present

MASTER INFORMATION BLOCK (Step 2)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 1
SIB 5 Cell Value tag	Set to (Current SIB5 value tag + 1)

SYSTEM INFORMATION BLOCK TYPE 5/ SYSTEM INFORMATION BLOCK TYPE 5bis. (Step 3)(FDD)

Use the same message type found in clause 6.1.0b, condition B1, of TS 34.108, with the following exception.

Information Element	Value/remark
CommonEDCHSystemInfo	
- E-AGCH Info	
- E-AGCH set configuration	
- Timeslot number	5

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE (Step 5)

Check to see if the same message type found in TS 34.108, clause 9 is received, with the following exceptions:

Information Element	Value/remark
U-RNTI	Checked to see if it is set to the same values as in step 4
- SRNC identity	
- S-RNTI	
Cell update cause	Paging response
HS-PDSCH in CELL_FACH	Check to see if set to TRUE
Support of common E-DCH	Check to see if set to TRUE

CELL UPDATE CONFIRM (Step 6)

Use the same message type found in (TS 34.108) Clause 9, with the following exception:

Information Element	Value/remark
RRC State indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3

8.1.1.5b.5 Test requirement

After step 5 the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "paging response" and “HS-PDSCH in CELL_FACH” and “Support of common E-DCH” set to TRUE, using common E-DCH in SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis

8.1.1.6 Paging for notification of BCCH modification in connected mode (URA_PCH)

8.1.1.6.1 Definition

8.1.1.6.2 Conformance requirement

A UE in URA_PCH state shall receive the paging information for all its monitored paging occasions. For a UE in URA_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in TS 25.331 subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

…

If the IE "BCCH modification info" is included, any UE in URA_PCH state shall perform the actions as specified in TS 25.331 subclause 8.1.1 in addition to any actions caused by the IE "Paging record" occurrences in the message as specified above.

The UE shall:

1> compare the value of IE "MIB value tag" in the IE "BCCH modification info" with the value tag stored for the master information block in variable VALUE_TAG.

1> if the value tags differ:

2> read the master information block on BCH;

2> if the value tag of the master information block in the system information is the same as the value in IE "MIB value tag" in "BCCH modification info" but different from the value tag stored in the variable VALUE_TAG:

3> perform actions as specified in subclause 8.1.1.5.

…

Upon reception of the master information block, the UE shall:

1> compare the value tag in the master information block with the value tag stored for this cell and this PLMN in the variable VALUE_TAG;

1> if the value tags differ:

2> store the value tag into the variable VALUE_TAG for the master information block;

2> read and store scheduling information included in the master information block.

….

For all system information blocks or scheduling blocks that are supported by the UE referenced in the master information block or the scheduling blocks, the UE shall perform the following actions:

1> for all system information blocks with area scope "PLMN" or "Equivalent PLMN" that use value tags:

2> compare the value tag read in scheduling information for that system information block with the value stored within the variable VALUE_TAG for that system information block;

2> if the value tags differ:

3> store the value tag read in scheduling information for that system information block into the variable VALUE_TAG;

3> read and store the IEs of that system information block.

…

Reference

3GPP TS 25.331 clause 8.1.1, 8.1.2.

8.1.1.6.3 Test purpose

To confirm that the UE checks the included new value tag of the master information block and reads the relevant SYSTEM INFORMATION block(s) after it receives a PAGING TYPE 1 message which includes the IE "BCCH Modification Information".

8.1.1.6.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: URA_PCH state (state 6-13) as specified in clause 7.4 of TS 34.108 with a valid U-RNTI assigned.

Test Procedure

The SS transmits a PAGING TYPE 1 message on the paging occasions assigned to the UE. The message shall include the IE "BCCH Modification Information" indicating the value tag of the master information block. Then it transmits the new master information block followed by the new SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis. message. In the new SIB TYPE 5 /SIB TYPE 5bis message, the IE "Available Signature" for FDD, "Available Channelisation codes indices" for TDD 3.84 Mcps and 7.68 Mcps options or "Available SYNC_UL codes indices" for TDD 1.28 Mcps option is different when compared to the original SIB TYPE 5 /SIB TYPE 5bis message. At the next paging occasion, SS transmits a new PAGING TYPE 1 message. This message addresses the UE using its U-RNTI and the "paging cause" IE set to a terminating call type that is supported by the UE. The UE shall respond with a CELL UPDATE message and set IE "cell update cause" to "paging response". The SS shall transmit a CELL UPDATE CONFIRM message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2	←		PAGING TYPE 1	SS transmits the paging message which comprises IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block.
2a			Void	
3	←		MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting.
	←		SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis.	For FDD, at the same time, SS starts to transmit the affected SIB TYPE 5 / SIB TYPE 5bis message continuously. The value of IE "Available Signature" is changed from "0000 0000 1111 1111(B)" to "1111 1111 0000 0000(B)". For TDD 3.84 Mcps and 7.68 Mcps options, at the same time, SS starts to transmit the affected SIB TYPE 6 continuously. The value of IE "Available Channelisation codes indices" is changed according to test purposes. For TDD 1.28 Mcps option, at the same time, SS starts to transmit the affected SIB TYPE 6 continuously. The value of IE "Available SYNC_UL codes indices" is changed according to test purposes.
3a				SS waits 5s (to ensure that the UE has time to read the new system information)
4	←		PAGING TYPE 1	SS transmits this message continuously on the PCCH at the correct occasion.
5	→		CELL UPDATE	
6	←		CELL UPDATE CONFIRM	See message content.

Specific Message Contents

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
- MIB Value Tag	Set to (Current MIB value tag + 1)
- BCCH Modification time	Not Present

MASTER INFORMATION BLOCK (Step 3)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 2
SIB 5 Cell Value tag	Set to (Current SIB5 value tag + 1)

SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis. (Step 3)

Use the same message type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
- PRACH system information	
- PRACH info	
- CHOICE mode	FDD
- Available Signature	'1111 1111 0000 0000'B

SYSTEM INFORMATION BLOCK TYPE 5 (Step 3) (TDD 3.84 Mcps option)

Use the same message type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
- PRACH system information	
- PRACH info	
- CHOICE mode	TDD
- CHOICE *TDD option*	3.84 Mcps option
- Available Channelisation codes indices	To be defined (each bit indicates availability of a channelisation code index)

SYSTEM INFORMATION BLOCK TYPE 5 (Step 3) (TDD 1.28 Mcps option)

Use the same message type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
- PRACH system information	
- PRACH info	
- CHOICE mode	TDD
- CHOICE *TDD option*	1.28 Mcps option
- Available SYNC_UL codes indices	To be defined (each bit indicates availability of a SYNC_UL code index)

SYSTEM INFORMATION BLOCK TYPE 5 (Step 3) (TDD 7.68 Mcps option)

Use the same message type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
- PRACH system information - PRACH info - CHOICE mode - CHOICE *TDD option* - Available Channelisation codes indices	 TDD 7.68 Mcps option To be defined (each bit indicates availability of a channelisation code index)

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type Paging record list Paging record - CHOICE Used paging identity - U-RNTI - SRNC Identity - S-RNTI - CN originated page to connected mode UE BCCH modification info	 Only 1 entry UTRAN identity Equal to the U-RNTI assigned earlier. Not Present Not Present

CELL UPDATE (Step 5)

Check to see if the same message type found in TS 34.108, clause 9 is received, with the following exceptions:

Information Element	Value/remark
U-RNTI - SRNC identity - S-RNTI Cell update cause	Checked to see if it is set to the same values as in step 4 Paging response

CELL UPDATE CONFIRM (Step 6)

Use the same message type found in TS 34.108, clause 9 with the following exceptions.

Information Element	Value/Remarks
RRC State indicator	URA_PCH
UTRAN DRX cycle length coefficient	3

8.1.1.6.5 Test requirement

After step 4, the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "paging response", using an allowed signature according to modified IE "Available signature"(FDD))/ "Available SYNC_UL codes indices" (1.28 Mcps TDD) / "Available Channelisation codes indices " (3.84 Mcps and 7.68 Mcps TDD) in SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis.

8.1.1.6a Paging for notification of synchronised BCCH modification in idle mode using BCCH modification time

8.1.1.6a.1 Definition

8.1.1.6a.2 Conformance requirement

For modification of some system information elements, e.g. reconfiguration of the channels, it is important for the UE to know exactly when a change occurs. In such cases, the UTRAN should notify the SFN when the change will occur as well as the new value tag for the master information block in the IE "BCCH modification info"

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

…

Upon reception of a PAGING TYPE 1 message or a SYSTEM INFORMATION CHANGE INDICATION message containing the IE "BCCH modification info" containing the IE "MIB value tag" and containing the IE "BCCH modification time", the UE shall:

1> perform the actions as specified in TS 25.331 subclause 8.1.1.7.3 at the time, indicated in the IE "BCCH Modification Info".

…

If the IE "BCCH modification info" is included, any UE in idle mode state shall perform the actions as specified in TS 25.331 subclause 8.1.1 in addition to any actions caused by the IE "Paging record" occurrences in the message.

The UE shall:

1> compare the value of IE "MIB value tag" in the IE "BCCH modification info" with the value tag stored for the master information block in variable VALUE_TAG.

1> if the value tags differ:

2> read the master information block on BCH;

2> if the value tag of the master information block in the system information is the same as the value in IE "MIB value tag" in "BCCH modification info" but different from the value tag stored in the variable VALUE_TAG:

3> perform actions as specified in TS 25.331 subclause 8.1.1.5.

…

Upon reception of the master information block, the UE shall:

1> compare the value tag in the master information block with the value tag stored for this cell and this PLMN in the variable VALUE_TAG;

1> if the value tags differ:

2> store the value tag into the variable VALUE_TAG for the master information block;

2> read and store scheduling information included in the master information block.

….

For all system information blocks or scheduling blocks that are supported by the UE referenced in the master information block or the scheduling blocks, the UE shall perform the following actions:

1> for all system information blocks with area scope "PLMN" that use value tags:

2> compare the value tag read in scheduling information for that system information block with the value stored within the variable VALUE_TAG for that system information block;

2> if the value tags differ:

3> store the value tag read in scheduling information for that system information block into the variable VALUE_TAG;

3> read and store the IEs of that system information block.

…

Reference

3GPP TS 25.331 clause 8.1.1, 8.1.2.

8.1.1.6a.3 Test purpose

To confirm that the UE checks the new value tag of the master information block and reads the updated SYSTEM INFORMATION BLOCK messages exactly when a change occurs at "BCCH modification time".

8.1.1.6a.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108 with a CN UE identity, depending on the CN domain(s) supported by the UE.

Test Procedure

The SS transmits a PAGING TYPE 1 message. This message addresses the UE using its (P)TMSI and the "paging cause" IE set to a terminating call type that is supported by the UE. The UE shall respond with RRC CONNECTION REQUEST message. Then SS shall transmit RRC CONNECTION REJECT message to UE.

The SS transmits a PAGING TYPE 1 message on the paging occasions assigned to the UE. The message shall include the IE "BCCH Modification Information" indicating the value tag of the modified master information block and BCCH Modification time. Then it transmits the new master information block followed by the new SYSTEM INFORMATION BLOCK TYPE 5 or SYSTEM INFORMATION BLOCK TYPE 5bis message.

At the paging occasion, SS transmits a new PAGING TYPE 1 message. This message addresses the UE using its (P)TMSI and the "paging cause" IE set to a terminating call type that is supported by the UE. The UE shall respond with RRC CONNECTION REQUEST message. Then SS shall transmit RRC CONNECTION REJECT message to UE.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PAGING TYPE 1	SS starts to transmit this message on the PCCH at the correct paging occasion.
2	→		RRC CONNECTION REQUEST	
3	←		RRC CONNECTION REJECT	
4	←		PAGING TYPE 1	SS transmits the message including the IE "BCCH Modification Information", with the MIB "Value Tag" different from the "MIB Value Tag" of the current Master Information Block and “BCCH Modification time”.
5				Before “BCCH Modification time” SS changes S-CCPCH configuration from TS34.108 Clause 6.1.0.b Interactive/Background 32 kbps RAB + SRB for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH in One SCCPCH to TS 34.108 Clause 6.1.1 SCCPCH configuration with Stand-alone SRB for PCCH in the first SCCPCH and Interactive/Background 32 kbps PS RAB + SRBs for CCCH/DCCH/BCCH in the second SCCPCH.
6	←		MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting before BCCH Modification time. At the same time, SS starts to transmit the new SIB TYPE 5 / SIB TYPE 5bis messages continuously. The SIB TYPE 5 / SIB TYPE 5 bis messages are changed from TS34.108 Clause .6.1.0.b to TS34.108 Clause 6.1.1.
7	←		PAGING TYPE 1	SS starts to transmit this message continuously on the PCCH using the new SCCPCH configuration broadcast in NEW SIB TYPE 5 / SIB TYPE 5 bis before the SFN of BCCH Modification Time -1000. SS checks to see UE transmits no RRC CONNECTION REQUEST before the SFN of BCCH Modification Time
8				SS waits 500 SFN after SFN of BCCH Modification Time (to ensure that the UE has time to read the new system information)
9	←		PAGING TYPE 1	SS starts to transmit this message continuously on the PCCH using the new SCCPCH configuration broadcast in NEW SIB TYPE 5 / SIB TYPE 5 bis at the correct paging occasion.
10	→		RRC CONNECTION REQUEST	
11	←		RRC CONNECTION REJECT	

Specific Message Contents

PAGING TYPE 1 (Step 1)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	CN identity
- Paging Cause	Terminating Call with one of the supported services
- CN Domain Identity	Supported Domain (PS Domain or CS Domain)
- CHOICE UE Identity	Local (P)TMSI
- Routing parameter	Same as registered TMSI or P-TMSI
BCCH modification info	Not Present

Use the same SCCPCH in TS 34.108 clause 6.1.0b.

RRC CONNECTION REJECT (Step 3 and 11)

Use the same message type found in [9] TS 34.108 clause 9.

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
MIB Value Tag	Set to (Current MIB value tag + 1)
BCCH Modification time	Set to (Current SFN +4088) MOD4096

Use the same SCCPCH configuration in TS 34.108 clause 6.1.0b.

MASTER INFORMATION BLOCK (Step 6)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 4
SIB 5 Cell Value tag	Set to (Current SIB5 value tag + 1)

SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis (Step 6) (FDD) (3.84 Mcps TDD) (1.28 Mcps TDD)

Use the same message type found in clause 6.1.1 of TS 34.108

PAGING TYPE 1 (Steps 7 & 9)

Use the same message as defined for Step 1.

Use the same SCCPCH configuration in TS 34.108 clause 6.1.1.

8.1.1.6a.5 Test requirement

After step 1 the UE shall transmit RRC CONNECTION REQUEST messages in response to the PAGING TYPE 1 messages sent in step 1, using an allowed SCCPCH configuration in SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis.

After step 6 UE shall not try to receive MIB whose value tag is same as IE "BCCH modification info" in PAGING TYPE 1 continuously.

After step 7 UE shall not transmit RRC CONNECTION REQUEST messages in response to the PAGING TYPE 1 messages sent in step 7

After step 9 the UE shall transmit RRC CONNECTION REQUEST messages in response to the PAGING TYPE 1 messages sent in step 9, using an allowed SCCPCH configuration in SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis.

8.1.1.7 Paging for Connection in connected mode (CELL_DCH)

8.1.1.7.1 Definition

8.1.1.7.2 Conformance requirement

When the UE receives a PAGING TYPE 2 message, it shall not affect the state of any other ongoing RRC procedures, when not stated otherwise elsewhere.

The UE shall:

1> indicate reception of paging; and

1> forward the IE "Paging cause" and the IE "Paging record type identifier" to upper layers.

…

In the UE, the initial direct transfer procedure shall be initiated, when the upper layers request establishment of a signalling connection. This request also includes a request for the transfer of a NAS message.

….

The UE shall, in the INITIAL DIRECT TRANSFER message:

1> set the IE "NAS message" as received from upper layers; and

1> set the IE "CN domain identity" as indicated by the upper layers; and

1> set the IE "Intra Domain NAS Node Selector" as follows:

2> derive the IE "Intra Domain NAS Node Selector" from TMSI/PMTSI, IMSI, or IMEI; and

2> provide the coding of the IE "Intra Domain NAS Node Selector" according to the following priorities:

1. derive the routing parameter for IDNNS from TMSI (CS domain) or PTMSI (PS domain) whenever a valid TMSI/PTMSI is available;

2. base the routing parameter for IDNNS on IMSI when no valid TMSI/PTMSI is available;

3. base the routing parameter for IDNNS on IMEI only if no (U)SIM is inserted in the UE.

…

The UE shall:

1> transmit the INITIAL DIRECT TRANSFER message on the uplink DCCH using AM RLC on signalling radio bearer RB3;

1> when the INITIAL DIRECT TRANSFER message has been submitted to lower layers for transmission:

2> confirm the establishment of a signalling connection to upper layers; and

2> add the signalling connection with the identity indicated by the IE "CN domain identity" in the variable ESTABLISHED_SIGNALLING_CONNECTIONS.

1> when the successful delivery of the INITIAL DIRECT TRANSFER message has been confirmed by RLC:

2> the procedure ends.

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent via a radio access technology other than UTRAN, with a mandatory IE having a value, including choice, reserved for future extension (spare) or a value not used in this version of the specification (e.g. a dummy value), the UE shall:

1> if a default value of the IE is defined:

2> treat the rest of the message using the default value of the IE.

1> if no default value of the IE is defined:

2> set the variable PROTOCOL_ERROR_REJECT to TRUE;

2> set the IE "Protocol error cause" in the variable PROTOCOL_ERROR_INFORMATION to "Information element value not comprehended";

2> perform procedure specific error handling according to clause 8.

Reference

3GPP TS 25.331 clause 8.1.8.2, 8.1.11.3, 9.4.

8.1.1.7.3 Test purpose

To confirm that the UE responds to a PAGING TYPE 2 message which includes the IE "Paging Cause" and the IE "Paging Record Type Identifier".

To confirm that the UE responds with a RRC STATUS message after it has received an invalid PAGING TYPE 2 message.

To Page with the Paging Record Type Identifier set to "IMSI", in order to test the UEs behaviour to this situation which may occur when details of the temporary identity have been lost in the core network.

8.1.1.7.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH state (state 6-9 or state 6-10) as specified in clause 7.4 of TS 34.108 after executing a location registration and/or attach procedure. The UE has been registered in both CS and PS domains.

Test Procedure

The SS transmits an invalid PAGING TYPE 2 message. UE shall respond by transmitting a RRC STATUS message on the uplink DCCH using RLC-AM mode. Finally, SS transmits a PAGING TYPE 2 message, which includes a matched Paging Record Type Identifier. In the CS domain the UE shall respond to this message by the transmission of an INITIAL DIRECT TRANSFER message. In the PS Domain the UE will locally detach and then initiate a GPRS attach procedure (as per clause 4.7.9.1.2 of TS 24.008) also involving the transmission of an INITIAL DIRECT TRANSFER message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2	←		PAGING TYPE 2	SS pages UE from a new CN domain, see specific message contents.
3	→		RRC STATUS	The UE shall respond by reporting the protocol error to the SS.
4	←		PAGING TYPE 2	SS pages the UE with a matched identifier and with a valid "paging cause" IE from a new CN Domain.
5	→		INITIAL DIRECT TRANSFER	The UE shall respond to the paging message sent in step 4.

Specific Message Contents

PAGING TYPE 2 (Step 2)

SS sends a message containing a protocol error causing the UE to perform procedure specific error handling.

Use the same message type found in clause 9 of TS 34.108, with the following exceptions.

Information Element	Value/remark
Paging Cause	Set to value "Spare"
CN Domain Identity	Set to a new CN Domain
Paging Record Type Identifier	Set to "IMSI (GSM-MAP)" for UEs supporting GSM-MAP core network type or "IMSI (DS-41)" for UEs supporting ANSI-41 core network type.

RRC STATUS (Step 3)

Use the same message type found in TS 34.108, clause 9, with the following exception.

Information Element	Value/remark
Identification of received message	
- Received message type	PAGING TYPE 2
- RRC transaction identifier	Checked to see if the value is identical to the same IE in the PAGING TYPE 2 message.
Protocol error information	
- Protocol Error Cause	Information element value not comprehended

PAGING TYPE 2 (Step 4)

Use the same message type found in TS 34.108, clause 9, with the following exception.

Information Element	Value/remark
Paging cause	Terminating Call supported by the UE in the new domain
CN domain identity	New Domain supported by the UE
Paging record type identifier	Set to "IMSI (GSM-MAP)" for UEs supporting GSM-MAP core network type or "IMSI (DS-41)" for UEs supporting ANSI-41 core network type.

INITIAL DIRECT TRANSFER (Step 5) – for UEs supporting GSM-MAP core networks

Check to see if the same message type found in TS 34.108 clause 9 is received, with the following exceptions:

Information Element	Value/remark
CN domain identity	CS domain or PS domain as specified in the PAGING TYPE 2 message in Step 4.
Intra Domain NAS Node Selector	
- CHOICE version	R99
-- CHOICE CN type	GSM
--- CHOICE Routing basis	local (P)TMSI – if CS Domain IMSI (cause UE initiated event) or IMSI (response to IMSI paging) - if PS Domain
---- Routing parameter	If the IE "CN domain identity" is equal to "CS domain": The TMSI consists of 4 octets (32bits). This can be represented by a string of bits numbered from b0 to b31, with bit b0 being the least significant The "Routing parameter" bit string consists of bits b14 through b23 of the TMSI/ PTMSI. The first/ leftmost/ most significant bit of the bit string contains bit b23 of the TMSI/ PTMSI. If the IE "CN domain identity" is equal to "PS domain": The "Routing parameter" bit string consists of DecimalToBinary [(IMSI div 10) mod 1000]. The first/ leftmost bit of the bit string contains the most significant bit of the result.
--- Entered parameter	Not checked
NAS message	Not checked

INITIAL DIRECT TRANSFER (Step 5) – for UEs supporting ANSI-41 core networks

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
CN domain identity	CS domain or PS domain as specified in the PAGING TYPE 2 message in Step 4.
Intra Domain NAS Node Selector	
- CHOICE version	ANSI-41 : Bitstring(14), all bits set to 0
NAS message	Not checked
START	Not checked
Measured results on RACH	Not checked

8.1.1.7.5 Test requirement

After step 2 the UE shall respond to the paging message by transmitting RRC STATUS on the DCCH, stating the protocol error as "Information element value not comprehended ".

After step 4 the UE shall respond to the paging message by transmitting an INITIAL DIRECT TRANSFER message on the uplink DCCH.

8.1.1.8 Paging for Connection in connected mode (CELL_FACH)

8.1.1.8.1 Definition

8.1.1.8.2 Conformance requirement

When the UE receives a PAGING TYPE 2 message, it shall not affect the state of any other ongoing RRC procedures, when not stated otherwise elsewhere.

The UE shall:

1> indicate reception of paging; and

1> forward the IE "Paging cause" and the IE "Paging record type identifier" to upper layers.

…

In the UE, the initial direct transfer procedure shall be initiated, when the upper layers request establishment of a signalling connection. This request also includes a request for the transfer of a NAS message.

The UE shall, in the INITIAL DIRECT TRANSFER message:

…

In CELL_FACH state, the UE shall:

1> include a measurement report in the IE "Measured results on RACH", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in System Information Block type 12 (or "System Information Block Type 11" if "System Information Block Type 12" is not being broadcast);

1> include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported.

The UE shall:

1> transmit the INITIAL DIRECT TRANSFER message on the uplink DCCH using AM RLC on signalling radio bearer RB3;

1> when the INITIAL DIRECT TRANSFER message has been submitted to lower layers for transmission:

2> confirm the establishment of a signalling connection to upper layers; and

2> add the signalling connection with the identity indicated by the IE "CN domain identity" in the variable ESTABLISHED_SIGNALLING_CONNECTIONS.

1> when the successful delivery of the INITIAL DIRECT TRANSFER message has been confirmed by RLC:

2> the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.8.2, 8.1.11.

8.1.1.8.3 Test purpose

To confirm that the UE responds to a PAGING TYPE 2 message, which includes a matching value for IE "Paging Record Type Identifier".

8.1.1.8.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH state (state 6-11) as specified in clause 7.4 of TS 34.108. The UE has been registered in both CS and PS domains.

Test Procedure

The SS transmits a PAGING TYPE 2 message. Then the UE shall respond by transmitting an upper layer message to answer this page.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2	←		PAGING TYPE 2	The SS transmits the message includes a matched identifier.
3	→		INITIAL DIRECT TRANSFER	The UE responds by sending an upper layer message.

Specific Message Content

PAGING TYPE 2 (Step 2)

Use the same message type found in [9] (TS 34.108) Clause 9, with the following exception.

Information Element	Value/remark
Paging cause	Terminating Call supported by the UE
CN domain identity	CS
Paging record type identifier	Set to "TMSI (GSM-MAP)/P-TMSI" for UEs supporting GSM-MAP core network type or "TMSI (DS-41)" for UEs supporting ANSI-41 core network type.

INITIAL DIRECT TRANSFER (Step 3) – for UEs supporting GSM-MAP core networks

Only the message type IE for this message is checked.

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
CN domain identity	CS domain
Intra Domain NAS Node Selector	
- CHOICE version	R99
-- CHOICE CN type	GSM
--- CHOICE Routing basis	Local (P)TMSI
---- Routing parameter	The TMSI/P-TMSI consists of 4 octets (32bits). This can be represented by a string of bits numbered from b0 to b31, with bit b0 being the least significant. The "Routing parameter" bit string consists of bits b14 through b23 of the TMSI/ PTMSI. The first/ leftmost/ most significant bit of the bit string contains bit b23 of the TMSI/ PTMSI.
--- Entered parameter	Not checked
NAS message	Not checked
START	Not checked
Measured results on RACH	Not checked

INITIAL DIRECT TRANSFER (Step 3) – for UEs supporting ANSI-41 core networks

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
CN domain identity	CS domain
Intra Domain NAS Node Selector	
- CHOICE version	ANSI-41 : Bitstring(14), all bits set to 0
NAS message	Not checked
START	Not checked
Measured results on RACH	Not checked

8.1.1.8.5 Test requirement

After step 2 the UE shall respond to the PAGING TYPE 2 message by transmitting an INITIAL DIRECT TRANSFER message on the uplink DCCH.

8.1.1.9 Paging for Connection in idle mode (multiple paging records)

8.1.1.9.1 Definition

8.1.1.9.2 Conformance requirement

A UE in idle mode, CELL_PCH state or URA_PCH state shall receive the paging information for all its monitored paging occasions. For an UE in idle mode, the paging occasions are specified in [25.304] and depend on the IE "CN domain specific DRX cycle length coefficient", as specified in subclause 8.6.3.1a. For a UE in CELL_PCH state or URA_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

If the UE is in idle mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a CN identity:

2> compare the IE "UE identity" with all of its allocated CN UE identities:

2> if one match is found:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "UE identity" and the IE "Paging cause" to the upper layers.

1> otherwise:

2> ignore that paging record.

:

In the UE, the initial direct transfer procedure shall be initiated, when the upper layers request establishment of a signalling connection. This request also includes a request for the transfer of a NAS message.

Upon initiation of the initial direct transfer procedure when the UE is in idle mode, the UE shall:

1> set the variable ESTABLISHMENT_CAUSE to the cause for establishment indicated by upper layers;

1> perform an RRC connection establishment procedure, according to subclause 8.1.3;

1> if the RRC connection establishment procedure was not successful:

2> indicate failure to establish the signalling connection to upper layers and end the procedure.

1> when the RRC connection establishment procedure is completed successfully:

2> continue with the initial direct transfer procedure as below.

Upon initiation of the initial direct transfer procedure when the UE is in CELL_PCH or URA_PCH state, the UE shall:

1> perform a cell update procedure, according to subclause 8.3.1, using the cause "uplink data transmission";

1> when the cell update procedure completed successfully:

2> continue with the initial direct transfer procedure as below.

The UE shall, in the INITIAL DIRECT TRANSFER message:

1> set the IE "NAS message" as received from upper layers; and

1> set the IE "CN domain identity" as indicated by the upper layers; and

1> set the IE "Intra Domain NAS Node Selector" as follows:

2> derive the IE "Intra Domain NAS Node Selector" from TMSI/PMTSI, IMSI, or IMEI; and

2> provide the coding of the IE "Intra Domain NAS Node Selector" according to the following priorities:

1. derive the routing parameter for IDNNS from TMSI (CS domain) or PTMSI (PS domain) whenever a valid TMSI/PTMSI is available;

2. base the routing parameter for IDNNS on IMSI when no valid TMSI/PTMSI is available;

3. base the routing parameter for IDNNS on IMEI only if no (U)SIM is inserted in the UE.

1> calculate the START according to subclause 8.5.9 for the CN domain as set in the IE "CN Domain Identity"; and

1> include the calculated START value for that CN domain in the IE "START".

In CELL_FACH state, the UE shall:

1> include a measurement report in the IE "Measured results on RACH", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in System Information Block type 12 (or "System Information Block Type 11" if "System Information Block Type 12" is not being broadcast);

1> include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported.

The UE shall:

1> transmit the INITIAL DIRECT TRANSFER message on the uplink DCCH using AM RLC on signalling radio bearer RB3;

1> when the INITIAL DIRECT TRANSFER message has been submitted to lower layers for transmission:

2> confirm the establishment of a signalling connection to upper layers; and

2> add the signalling connection with the identity indicated by the IE "CN domain identity" in the variable ESTABLISHED_SIGNALLING_CONNECTIONS.

1> when the successful delivery of the INITIAL DIRECT TRANSFER message has been confirmed by RLC:

2> the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.2 and 8.1.8, 3GPP TS 25.211 clause 5.3.3.10 (FDD), 3GPP TS25.221 (TDD), 3GPP TS 25.304 clause 8.

8.1.1.9.3 Test purpose

1) For the CS domain

   To confirm that the UE establishes an RRC connection after it receives a PAGING TYPE 1 message which contains multiple paging records and includes IE "UE identity"(in IE "Paging Record") set to the IMSI of the UE, and responds with a correct INITIAL DIRECT TRANSFER message.

2) For the PS domain

   To confirm that the UE establishes an RRC connection after it receives a PAGING TYPE 1 message which contains multiple paging records and includes IE "UE identity"(in IE "Paging Record") set to the P-TMSI allocated by SS at initial attach and responds with a correct INITIAL DIRECT TRANSFER message.

8.1.1.9.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: MM-IDLE state and Updated update status with no TMSI (if CS supported)

GMM-Registered with a P-TMSI assigned (if PS supported)

the UE shall have an IMSI.

Test Procedure

SS transmits SYSTEM INFORMATION BLOCK TYPE 1 or 13 messages, depending on the CN type supported by the UE. The SS also transmits SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis messages. The SS transmits a PAGING TYPE 1 message, which includes an unmatched CN UE identity for idle mode, and an unmatched UTRAN UE identity for connected mode. The UE shall not change its state. The SS transmits a PAGING TYPE 1 message, which includes two unmatched identities and a matched CN UE identity for the UE in the idle state. During transmission of PAGING TYPE 1 messages, SS selects the correct paging indicator on the PICH in order to allow the UE to respond to paging. Then the UE transmits an RRC CONNECTION REQUEST to the SS, the SS transmits an RRC CONNECTION SETUP to the UE. When the UE receives this message, the UE establishes an RRC connection and transmits an RRC CONNECTION SETUP COMPLETE message and an INITIAL DIRECT TRANSFER message on the uplink DCCH.

NOTE: For UEs supporting GSM-MAP CN type only, SYSTEM INFORMATION TYPE 1 messages are to be sent by SS in this test case. On the other hand, SS transmits SYSTEM INFORMATION TYPE 13 messages if the UE under test supports only ANSI-41 CN type.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		SYSTEM INFORMATION BLOCK TYPE 13 or SYSTEM INFORMATION BLOCK TYPE 1	See specific message contents.
2	←		SYSTEM INFORMATION BLOCK TYPE 5/SYSTEM INFORMATION BLOCK TYPE 5bis, MASTER INFORMATION BLOCK	See specific message contents.
3	←		PAGING TYPE 1	The SS transmits the message, which includes only unmatched identities, and the UE does not change its state.
4	←		PAGING TYPE 1	The SS transmits the message, which includes a matched identity.
5	→		RRC CONNECTION REQUEST	
6	←		RRC CONNECTION SETUP	SS assigns DPCH resources to allow UE to establish an RRC connection.
7	→		RRC CONNECTION SETUP COMPLETE	
8	→		INITIAL DIRECT TRANSFER	

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 1 (Step 1) – for UEs supporting GSM-MAP core networks

Use the default message type found in clause 6.1 of TS 34.108, except for the following.

Information Element	Value/remark
CN domain system information	
- CN domain identity	PS
- CN domain specific DRX cycle length coefficient	8
- CN domain identity	CS
- CN domain specific DRX cycle length coefficient	6

SYSTEM INFORMATION TYPE 13 (Step 1) – for UEs supporting ANSI-41 core networks

Use the default message type found in clause 6.1 of TS 34.108, clause 6.1.

MASTER INFORMATION BLOCK (Step 2)

Information Element	Value/remark
MIB Value tag	Set to (Current MIB value tag + 1)
SIB 5/5bis Cell Value tag	Set to (Current SIB5/5bis value tag + 1)

SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis. (Step 2)

Use the default message type found in clause 6.1 of TS 34.108, except for the following.

Information Element	Value/remark
PICH Info	
- Number of PI per frame	36

PAGING TYPE 1 (Step 3)

Information Element	Value/remark
Message Type Paging record list - Paging record 1 - CHOICE Used paging identity - Paging cause - CN domain identity - CHOICE UE Identity - IMSI - Paging record 2	 CN identity Terminating Call with one of the supported services A Registered Domain (PS Domain or CS Domain) IMSI Set to an arbitrary octet string of length 7 bytes which is different from the IMSI value stored in the TEST USIM card.
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to an arbitrary SRNC identity.
- S-RNTI	Set to an arbitrary 20-bit string.
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

PAGING TYPE 1 (Step 4)

For services in CS:

Information Element	Value/remark
Message Type Paging record list - Paging record 1 - CHOICE Used paging identity - Paging cause - CN domain identity - CHOICE UE Identity - IMSI - Paging record 2	 CN identity Terminating Call with one of the supported services A Registered Domain (PS Domain or CS Domain) IMSI Set to an arbitrary octet string of length 7 bytes which is different from the IMSI value stored in the TEST USIM card.
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to an arbitrary SRNC identity.
- S-RNTI	Set to an arbitrary 20-bit string.
- CN originated page to connected mode UE	Not Present
- Paging record 3 - CHOICE Used paging identity - Paging cause - CN domain identity - CHOICE UE identity - IMSI (GSM-MAP) BCCH modification info	 CN identity Terminating Call with one of the supported services CS domain Set to the same octet string as in the IMSI stored in the USIM card Not Present

For packet in PS:

Information Element	Value/remark
Message Type	
Paging record list	
- Paging record 1	
- CHOICE Used paging identity	CN identity
- Paging cause	Terminating Call with one of the supported services
- CN domain identity	A Registered Domain (PS Domain or CS Domain)
- CHOICE UE Identity	IMSI
- IMSI	Set to an arbitrary octet string of length 7 bytes which is different from the IMSI value stored in the TEST USIM card.
- Paging record 2	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to an arbitrary SRNC identity.
- S-RNTI	Set to an arbitrary 20-bit string.
- CN originated page to connected mode UE	Not Present
- Paging record 3	
- CHOICE Used paging identity	CN identity
- Paging cause	Terminating Call with one of the supported services
- CN domain identity	PS domain
- CHOICE UE identity	
- P-TMSI	Use P-TMSI allocated by SS at initial attach.
BCCH modification info	Not Present

RRC CONNECTION REQUEST (Step 5)

Information Element	Value/remark
Message type	
Initial UE identity	Same as the registered P-TMSI if PS supported by UE, otherwise the IMSI stored in the TEST USIM card.
Establishment Cause	Check to see if it is set to the same value as "Paging Cause" IE in the PAGING TYPE 1 message transmitted on step 3.
Protocol Error Indicator	Check to see if it is set to FALSE
Measured results on RACH	Not checked.

INITIAL DIRECT TRANSFER (Step 8) – for UEs supporting GSM-MAP core networks

Information Element	Value/remark
Message Type	
Integrity check info	Not present
CN domain identity	CS domain or PS domain (as specified by the SS in the PAGING TYPE 1 message of Step 4)
Intra Domain NAS Node Selector	
- CHOICE version	R99
-- CHOICE CN type	GSM-MAP
--- CHOICE Routing basis	IMSI (response to IMSI paging) in CS domain or Local (P)-TMSI in PS Domain
---- Routing parameter	If the IE "CN domain identity" is equal to "CS domain", bit string (10) consisting of DecimalToBinary [(IMSI div 10) mod 1000]. The first/ leftmost bit of the bit string contains the most significant bit of the result. If the IE "CN domain identity" is equal to "PS domain": The TMSI/ PTMSI consists of 4 octets (32bits). This can be represented by a string of bits numbered from b0 to b31, with bit b0 being the least significant. The "Routing parameter" is set to bits b14 through b23 of the TMSI/ PTMSI. The first/ leftmost/ most significant bit of the bit string contains bit b23 of the TMSI/ PTMSI.
--- Entered parameter	Not checked
NAS message	Not checked
START	Not checked
Measured results on RACH	Not checked

INITIAL DIRECT TRANSFER (Step 8) – for UEs supporting ANSI-41 core networks

Information Element	Value/remark
Message Type	
Integrity check info	Not present
CN domain identity	CS domain or PS domain (as specified by the SS in the PAGING TYPE 1 message of Step 3)
Intra Domain NAS Node Selector	
- CHOICE version	ANSI-41 : Bitstring(14), all bits set to 0
NAS message	Not checked
START	Not checked
Measured results on RACH	Not checked

8.1.1.9.5 Test requirement

After step 3 the UE shall not respond to the PAGING TYPE 1 message sent in step 3.

After step 4 the UE shall transmit an RRC CONNECTION REQUEST message on the uplink CCCH.

After step 6 the UE shall have an RRC connection based on dedicated physical channel resources and transmit an RRC CONNECTION SETUP COMPLETE message and an INITIAL DIRECT TRANSFER message on the uplink DCCH.

8.1.1.10 Paging for Connection in connected mode (URA_PCH, multiple paging records)

8.1.1.10.1 Definition

8.1.1.10.2 Conformance requirement

A UE in idle mode, CELL_PCH state or URA_PCH state shall receive the paging information for all its monitored paging occasions. For an UE in idle mode, the paging occasions are specified in [25.304] and depend on the IE "CN domain specific DRX cycle length coefficient", as specified in subclause 8.6.3.1a. For a UE in CELL_PCH state or URA_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

:

If the UE is in connected mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a UTRAN identity and if this U-RNTI is the same as the U-RNTI allocated to the UE:

2> if the optional IE "CN originated page to connected mode UE" is included:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "Paging cause" and the IE "Paging record type identifier" to the upper layers.

2> otherwise:

3> perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.

2> ignore any other remaining IE "Paging record" that may be present in the message.

1> otherwise:

2> ignore that paging record.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

Reference

3GPP TS 25.331 clause 8.1.2, 8.3.1.7.

8.1.1.10.3 Test purpose

To confirm that the UE enters the CELL_FACH state after it receives a PAGING TYPE 1 message in which the IE "Used paging identity" is set to "UTRAN identity", and the UE takes the U-RNTI value assigned to it in the IE "U-RNTI".

8.1.1.10.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: URA_PCH state (state 6-13) as specified in clause 7.4 of TS 34.108, with a valid U-RNTI assigned by the SS.

Test Procedure

The SS transmits SYSTEM INFORMATION BLOCK TYPE 6 messages with a modified PCH configuration. The SS then transmits a PAGING TYPE 1 message, which includes a matched IMSI, but the UE does not respond since it is in connected mode. The SS transmits a PAGING TYPE 1 message, which includes a matched U-RNTI but in a paging occasion not according to the DRX cycle of the UE. The UE does not reply. The SS transmits a PAGING TYPE 1 message, which includes a matched U-RNTI in a correct paging occasion. Then the UE listens to it and enters the CELL_FACH state to transmit a CELL UPDATE message using uplink CCCH in respond to the paging. The SS sends the UE back to URA_PCH state using CELL UPDATE CONFIRM and also modifies the UTRAN DRX cycle length for the UE. The SS then transmits a PAGING TYPE 1 message using the new paging occasions. The UE replies to this page.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		SYSTEM INFORMATION BLOCK TYPE 6, MASTER INFORMATION BLOCK, SCHEDULING BLOCK 1	See specific message contents
1a	←		PAGING TYPE 1	SS transmits the message including the IE "BCCH Modification Information", with the "Value Tag" same as that in the MIB.
2	←		PAGING TYPE 1	The SS transmits the message that includes a matched CN UE identity, but the UE does not respond.
3	←		PAGING TYPE 1	The SS transmits the message that includes a matched UTRAN UE identity but in a paging occasion not according to the DRX cycle of the UE.
4	←		PAGING TYPE 1	The SS transmits the message that includes a matched UTRAN UE identity in the correct paging occasion.
5	→		CELL UPDATE	The UE enters the CELL_FACH state.
6	←		CELL UPDATE CONFIRM	See message content.
7	→		UTRAN MOBILITY INFORMATION CONFIRM	After transmitting this message, the UE returns to URA_PCH state and changes its UTRAN DRX cycle.
8	←		PAGING TYPE 1	The SS transmits the message that includes a matched UTRAN UE identity, using a paging occasion which is included in the new DRX cycle, but not in the old DRX cycle.
9	→		CELL UPDATE	The UE enters the CELL_FACH state.
10	←		CELL UPDATE CONFIRM	See message content.
11	→		UTRAN MOBILITY INFORMATION CONFIRM	

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 6 (Step 1)

Use the default message type found in clause 6.1 of TS 34.108, except for the following.

Information Element	Value/remark
- Secondary CCPCH info	
- CHOICE mode	FDD
- Secondary scrambling code	Not Present
- STTD indicator	FALSE
- Spreading factor	64
- Code number	1
- Pilot symbol existence	FALSE
- TFCI existence	TRUE
- Fixed or Flexible position	Flexible
- Timing offset	0
- TFCS	(This IE is repeated for TFC number for PCH and FACH.)
- CHOICE TFCI signalling	Normal
- TFCI Field 1 information	
- CHOICE TFCS representation	Complete reconfiguration
- TFCS complete reconfiguration information	
- CHOICE CTFC Size	4 bit
- CTFC information	0
- Power offset information	Not Present
- CTFC information	1
- Power offset information	Not Present
- CTFC information	2
- Power offset information	Not Present
- CTFC information	3
- Power offset information	Not Present
- CTFC information	4
- Power offset information	Not Present
- CTFC information	5
- Power offset information	Not Present
- CTFC information	6
- Power offset information	Not Present
- CTFC information	8
- Power offset information	Not Present
- FACH/PCH information	
- TFS	(PCH)
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC Size	240
- Number of TB and TTI List	
- Number of Transport blocks	0
- Number of Transport blocks	1
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	½
- Rate matching attribute	230
- CRC size	16 bit
- Transport Channel Identity	12 (for PCH)
- CTCH indicator	FALSE
- TFS	(FACH)
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC Size	168
- Number of TB and TTI List	
- Number of Transport blocks	0
- Number of Transport blocks	1
- Number of Transport blocks	2
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	220
- CRC size	16 bit

Information Element	Value/remark
- Transport Channel Identity	13 (for FACH)
- CTCH indicator	FALSE
- TFS	(FACH)
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC Size	360
- Number of TB and TTI List	
- Number of Transport blocks	0
- Number of Transport blocks	1
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Turbo
- Rate matching attribute	130
- CRC size	16bit
- Transport Channel Identity	14 (for FACH)
- CTCH indicator	FALSE
PICH Info - CHOICE mode - Channelisation code - Number of PI per frame	 FDD 2 72
- STTD indicator	FALSE

MASTER INFORMATION BLOCK (Step 1)

Information Element	Value/remark
MIB Value tag	A valid value (as defined in TS 25.331) that is different from the previous MIB.
SB 1 Cell Value tag	Set to (Current SB 1 value tag + 1)

SCHEDULING BLOCK 1 (Step 1)

Information Element	Value/remark
SIB 6 Cell Value tag	Set to (Current SIB 6 value tag + 1)

PAGING TYPE 1 (STEP 1a)

Information Element	Value/remark
Message Type Paging record list BCCH modification info MIB Value Tag BCCH Modification time	 Not Present Same value as the MIB value tag in the MIB in step 1 Not Present

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	
- Paging record 1	
- CHOICE Used paging identity	CN identity
- Paging cause	Terminating Call with one of the supported services
- CN domain identity	A Registered Domain (PS Domain or CS Domain)
- CHOICE UE Identity	IMSI
- IMSI	Set to the same octet string as in the IMSI stored in the USIM card.
- Paging record 2	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to an unused SRNC identity which is different from the SRNC identity assigned.
- S-RNTI	Set to an arbitrary 20-bit string which is different from the S-RNTI assigned.
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

PAGING TYPE 1 (Steps 3, 4 and 8)

Information Element	Value/remark
Message Type	
Paging record list	
- Paging record 1	
- CHOICE Used paging identity	CN identity
- Paging cause	Terminating Call with one of the supported services
- CN domain identity	A Registered Domain (PS Domain or CS Domain)
- CHOICE UE Identity	IMSI
- IMSI	Set to the octet string which is the same as the IMSI value stored in the USIM card.
- Paging record 2	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to an unused SRNC identity which is different from the SRNC identity assigned.
- S-RNTI	Set to an arbitrary 20-bit string which is different from the S-RNTI assigned.
- CN originated page to connected mode UE	Not Present
- Paging record 3	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to the previously assigned SRNC identity
- S-RNTI	Set to previously assigned S-RNTI
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE CONFIRM (Step 6)

Use the message sub-type in default message content defined in [9] (TS 34.108) Clause 9, with the following exceptions.

Information Element	Value/Remarks
New C-RNTI	'1010 1010 1010 1010'
RRC State Indicator	URA_PCH
UTRAN DRX Cycle length coefficient	4

UTRAN MOBILITY INFORMATION CONFIRM (Step 7)

Only the message type is checked.

CELL UPDATE CONFIRM (Step 10)

Use the message sub-type in default message content defined in [9] (TS 34.108) Clause 9, with the following exceptions.

Information Element	Value/Remarks
New C-RNTI	'1010 1010 1010 1010'

8.1.1.10.5 Test requirement

After steps 2 and 3 the UE shall not respond to the paging.

After steps 4 and 8 the UE shall enter the CELL FACH state, and transmit CELL UPDATE message to initiate the cell updating procedure with the cell update cause set to "paging response".

After steps 6 and 10 the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message.

8.1.1.11 Paging for Connection in idle mode (Shared Network Environment)

8.1.1.11.1 Definition

This test is only valid for UEs supporting GSM-MAP CN signalling.

8.1.1.11.2 Conformance requirement

Upon reception of the master information block, the UE shall:

1> if the IE "Multiple PLMN List" is not present in the Master Information Block:

2> consider the IE "PLMN identity" in the Master Information Block as the PLMN identity of the cell.

1> else:

2> consider the PLMN identities in the IE "Multiple PLMN List" as the PLMN identities of the cell;

2> when reading the "Multiple PLMN List", read all the PLMN identities in the list as follows:

3> if the IE "MIB PLMN Identity" is set to TRUE:

4> read the "PLMN identity" IE in the MIB and consider it as a part of the "Multiple PLMN List".

3> if the IE "MIB PLMN Identity" is set to FALSE:

4> not consider the "PLMN identity" IE in the MIB as a part of the "Multiple PLMN List";

4> not consider the IE "PLMN identity" in the MIB as a PLMN identity of the cell;

4> not forward the PLMN in the IE "PLMN identity" of the MIB to upper layers.

3> if the MCC is not present when reading an IE "PLMN identity with Optional MCC" in the IE "Multiple PLMN List":

4> set the MCC of this PLMN identity equal to the MCC of the closest preceding "PLMN identity with Optional MCC" in the "Multiple PLMN List" that includes an MCC;

4> or, if no such "PLMN identity with Optional MCC" exists, the UE shall set the MCC of this PLMN identity to the MCC of the "PLMN identity" IE in the Master Information Block.

…

A UE in idle mode, CELL_PCH state or URA_PCH state shall receive the paging information for all its monitored paging occasions. For an UE in idle mode, the paging occasions are specified in [25.304] and depend on the IE "CN domain specific DRX cycle length coefficient", as specified in subclause 8.6.3.1a. For a UE in CELL_PCH state or

URA_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

If the UE is in idle mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a CN identity:

2> compare the IE "UE identity" with all of its allocated CN UE identities:

2> if one match is found:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "UE identity" and the IE "Paging cause" to the upper layers.

1> otherwise:

2> ignore that paging record.

In the UE, the initial direct transfer procedure shall be initiated, when the upper layers request establishment of a signalling connection. This request also includes a request for the transfer of a NAS message.

Upon initiation of the initial direct transfer procedure the UE shall:

1> set the variable ESTABLISHMENT_CAUSE to the cause for establishment indicated by upper layers.

Upon initiation of the initial direct transfer procedure when the UE is in idle mode, the UE shall:

1> perform an RRC connection establishment procedure, according to subclause 8.1.3;

NOTE: If an RRC connection establishment is ongoing, this procedure continues unchanged, i.e. it is not interrupted.

1> if the RRC connection establishment procedure was not successful:

2> if the establishment cause for the failed RRC connection establishment was set to "MBMS reception" and a different cause value is stored in the variable "ESTABLISHMENT_CAUSE":

3> UE-AS (RRC) initiates a new RRC connection establishment procedure, using the establishment cause as contained in the variable ESTABLISHMENT_CAUSE.

2> otherwise:

3> indicate failure to establish the signalling connection to upper layers and end the procedure.

1> when the RRC connection establishment procedure is completed successfully:

2> continue with the initial direct transfer procedure as below.

Upon initiation of the initial direct transfer procedure when the UE is in CELL_PCH or URA_PCH state, the UE shall:

1> perform a cell update procedure, according to subclause 8.3.1, using the cause "uplink data transmission";

1> when the cell update procedure completed successfully:

2> continue with the initial direct transfer procedure as below.

The UE shall, in the INITIAL DIRECT TRANSFER message:

1> set the IE "NAS message" as received from upper layers; and

1> set the IE "CN domain identity" as indicated by the upper layers; and

1> set the IE "Intra Domain NAS Node Selector" as follows:

2> derive the IE "Intra Domain NAS Node Selector" from TMSI/PMTSI, IMSI, or IMEI; and

2> provide the coding of the IE "Intra Domain NAS Node Selector" according to the following priorities:

1. derive the routing parameter for IDNNS from TMSI (CS domain) or PTMSI (PS domain) whenever a valid TMSI/PTMSI is available;

2. base the routing parameter for IDNNS on IMSI when no valid TMSI/PTMSI is available;

3. base the routing parameter for IDNNS on IMEI only if no (U)SIM is inserted in the UE.

1> if the UE, on the existing RRC connection, has received a dedicated RRC message containing the IE "Primary PLMN Identity in the IE "CN Information Info"

2> set the IE "PLMN identity" in the INITIAL DIRECT TRANSFER message to the latest PLMN information received via dedicated RRC signalling. If NAS has indicated the PLMN towards which a signalling connection is requested, and this PLMN is not in agreement with the latest PLMN information received via dedicated RRC signalling, then the initial direct transfer procedure shall be aborted, and NAS shall be informed.

1> if the UE, on the existing RRC connection, has not received a dedicated RRC message containing the IE "CN Information Info" , and if the IE "Multiple PLMN List" was broadcast in the cell where the current RRC connection was established:

2> set the IE "PLMN identity" in the INITIAL DIRECT TRANSFER message to the PLMN chosen by higher layers [5, 25] amongst the PLMNs in the IE "Multiple PLMN List" broadcast in the cell where the RRC connection was established.

1> if the IE "Activated service list" within variable MBMS_ACTIVATED_SERVICES includes one or more MBMS services with the IE "Service type" set to "Multicast" and;

1> if the IE "CN domain identity" as indicated by the upper layers is set to "CS domain" and;

1> if the variable ESTABLISHED_SIGNALLING_CONNECTIONS does not include the CN domain identity 'PS domain':

2> include the IE "MBMS joined information";

2> include the IE "P-TMSI" within the IE "MBMS joined information" if a valid PTMSI is available.

1> if the variable ESTABLISHMENT_CAUSE_ is initialised:

2> set the IE "Establishment cause" to the value of the variable ESTABLISHMENT_CAUSE;

2> clear the variable ESTABLISHMENT_CAUSE.

1> calculate the START according to subclause 8.5.9 for the CN domain as set in the IE "CN Domain Identity"; and

1> include the calculated START value for that CN domain in the IE "START".

The UE shall:

1> transmit the INITIAL DIRECT TRANSFER message on the uplink DCCH using AM RLC on signalling radio bearer RB3;

1> when the INITIAL DIRECT TRANSFER message has been submitted to lower layers for transmission:

2> confirm the establishment of a signalling connection to upper layers; and

2> add the signalling connection with the identity indicated by the IE "CN domain identity" in the variable ESTABLISHED_SIGNALLING_CONNECTIONS.

1> when the successful delivery of the INITIAL DIRECT TRANSFER message has been confirmed by RLC:

2> the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.1.5, 8.1.2 and 8.1.8

8.1.1.11.3 Test purpose

1) For the CS domain

   To confirm that the UE establishes an RRC connection after it receives a PAGING TYPE 1 message which includes IE "UE identity"(in IE "Paging Record") set to the IMSI of the UE, and responds with a correct INITIAL DIRECT TRANSFER message.

2) For the PS domain

   To confirm that the UE establishes an RRC connection after it receives a PAGING TYPE 1 message which includes IE "UE identity"(in IE "Paging Record") set to the P-TMSI allocated by SS at initial attach and responds with a correct INITIAL DIRECT TRANSFER message.

For both CS and PS domain, it is verified that the UE is able to read and interpret the Multiple PLMN list broadcasted on the BCCH. It is also verified that the correct information is inserted into the IE "PLMN Identity" in the INITIAL DIRECT TRANSFER message.

8.1.1.11.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: MM-IDLE state and Updated update status with no TMSI (if CS supported)

GMM-Registered with a P-TMSI assigned (if PS supported)

the UE shall have an IMSI.

Test Procedure

SS transmits BCCH blocks containing SYSTEM INFORMATION (GSM-MAP). The SS transmits a PAGING TYPE 1 message, which includes a matched CN UE identity for the UE in the idle state. During transmission of PAGING TYPE 1 messages, SS selects the correct paging indicator on the PICH in order to allow the UE to respond to paging. Then the UE transmits an RRC CONNECTION REQUEST to the SS, the SS transmits an RRC CONNECTION SETUP to the UE. When the UE receives this message, the UE establishes an RRC connection and transmits an RRC CONNECTION SETUP COMPLETE message and an INITIAL DIRECT TRANSFER message on the uplink DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		SYSTEM INFORMATION (GSM-MAP)	Transmit these messages on the BCCH according to reference system configuration (34.108 clause 6.1) with modified MIB according to below.
2	←		PAGING TYPE 1	The SS transmits the message, which includes a matched identity. See default message contents in TS 34.108.
3	→		RRC CONNECTION REQUEST	
4	←		RRC CONNECTION SETUP	SS assigns DPCH resources to allow UE to establish an RRC connection.
5	→		RRC CONNECTION SETUP COMPLETE	
6	→		INITIAL DIRECT TRANSFER	

Specific Message Contents

Use the reference system configuration found in TS 34.108 clause 6.1, with the following modifications:

MASTER INFORMATION BLOCK (Step 1)

- MIB value tag	Set to (Current MIB value tag + 1)
- Supported PLMN types	
- PLMN type	GSM-MAP
- PLMN identity	
- MCC digit	MCC1
- MNC digit	MNC3 (Any valid MNC not equal to MNC1 or MNC2)
- Multiple PLMN List	
- MIB PLMN Identity	FALSE
- Multiple PLMNs (1)	
- MCC	Not Present
- MNC	MNC2 (Any valid MNC not equal to MNC0 or MNC1)
- Multiple PLMNs (2)	
- MCC	Not Present
- MNC	MNC1

PAGING TYPE 1 (Step 2)

Use the default message type found in TS 34.108, clause 9.1.

Note that Separate message types are defined in TS 34.108 for the cases of TM (Speech in CS) and for TM (Packet in PS).

RRC CONNECTION REQUEST (Step 3)

Information Element	
Message Type	
Predefined configuration status information	FALSE
Initial UE identity	Same as the IMSI stored in the TEST USIM card, or the registered P-TMSI depending upon CN domain concerned.
Establishment cause	Check to see if it is set to the same value as "Paging Cause" IE in the PAGING TYPE 1 message transmitted on step 3.
Protocol error indicator	FALSE
>UE Specific Behaviour Information 1 idle	Not present
Measured results on RACH	Not checked
Access stratum release indicator	Not checked

RRC CONNECTION SETUP (Step)

Use the default message found in TS 34.108, clause 9.1.1 (transition to Cell_DCH)

RRC CONNECTION SETUP COMPLETE (Step 5)

Use the default message found in TS 34.108, clause 9.1.1

INITIAL DIRECT TRANSFER (Step 6)

Information Element	
Message Type	
Integrity check info	Not present
PLMN identity	
- MCC	MCC1
- MNC	MNC1
CN domain identity	CS domain or PS domain (as specified by the SS in the PAGING TYPE 1 message of Step 3)
Intra Domain NAS Node Selector	
- CHOICE *version*	R99
- CHOICE *CN type*	GSM-MAP
- CHOICE Routing basis	IMSI (response to IMSI paging) in CS domain or Local (P)-TMSI in PS Domain.
- Routing parameter	If the IE "CN domain identity" is equal to "CS domain", bit string (10) consisting of DecimalToBinary [(IMSI div 10) mod 1000]. The first/ leftmost bit of the bit string contains the most significant bit of the result. If the IE "CN domain identity" is equal to "PS domain": The TMSI/ PTMSI consists of 4 octets (32bits). This can be represented by a string of bits numbered from b0 to b31, with bit b0 being the least significant. The "Routing parameter" is set to bits b14 through b23 of the TMSI/ PTMSI. The first/ leftmost/ most significant bit of the bit string contains bit b23 of the TMSI/ PTMSI.
- Extended parameter	Not checked
NAS message	Not checked
START	Not checked
Establishment cause	Not checked
Measured results on RACH	Not checked
MBMS joined information	Not checked
>P-TMSI	Not checked

8.1.1.11.5 Test requirement

After step 2 the UE shall transmit RRC CONNECTION REQUEST message on the uplink CCCH.

After step 4 the UE shall have an RRC connection based on dedicated physical channel resources and transmit an RRC CONNECTION SETUP COMPLETE message and INITIAL DIRECT TRANSFER message on the uplink DCCH. The INITIAL DIRECT TRANSFER message shall contain PLMN (MCC1, MNC1) in IE "PLMN Identity", and the UE shall remain registered on PLMN(MCC1, MNC1).

8.1.1.12 Paging for Connection in connected mode (CELL_PCH) without HS-SCCH

8.1.1.12.1 Definition and applicability

All UEs which support FDD and HS-PDSCH in CELL_PCH and URA_PCH.

8.1.1.12.2 Conformance requirement

A UE in idle mode, CELL_PCH state or URA_PCH state shall receive the paging information for all its monitored paging occasions. For an UE in idle mode, the paging occasions are specified in 3GPP TS 25.304 and depend on the IE "CN domain specific DRX cycle length coefficient", as specified in subclause 8.6.3.1a. For a UE in CELL_PCH state or URA_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below:

…

If the UE is in connected mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a UTRAN single UE identity and if this U-RNTI is the same as the U-RNTI allocated to the UE stored in the UE variable U_RNTI:

2> if the optional IE "CN originated page to connected mode UE" is included:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "Paging cause" and the IE "Paging record type identifier" to the upper layers.

2> if the IE "Release indicator" in the IE "RRC connection release information" has the value "Release":

…

2> otherwise:

3> perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.

2> ignore any other remaining IE "Paging record" that may be present in the message.

1> if the IE "Used paging identity" is a UTRAN group identity and there is a group identity match according to subclause 8.6.3.13:

…

1> otherwise:

2> ignore that paging record.

…

If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list", nor the IE "RB information to reconfigure list", nor the IE "RB information to be affected list"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI"; or
- includes the IE "Downlink counter synchronisation info" and the IE "New U-RNTI":

NOTE: In the case of a cell update procedure during an ongoing reconfiguration procedure moving the UE into CELL_PCH/URA_PCH the CELL UPDATE CONFIRM message should include the IE "New C-RNTI".

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

…

When the IE "HS-DSCH paging system information" is included in System Information Block type 5 or System Information Block type 5bis and the UE is in CELL_PCH or URA_PCH state, the UE shall:

1> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

1> if variable H_RNTI and variable C_RNTI are set:

…

1> else:

2> if variable H_RNTI or variable C_RNTI are set:

3> clear the variable H_RNTI;

3> clear the variable C_RNTI;

3> clear any stored IE "HARQ Info";

3> reset the MAC-ehs entity [25.321].

2> perform the HS-DSCH reception procedure according to IE "HS-DSCH paging system information" as received in System Information Block type 5 or System Information Block type 5bis, receive the HS-PDSCH applying:

3> a scrambling code as received in the IE "DL Scrambling code";

3> a channelisation code selected according to 8.5.41 of 3GPP TS 25.331 in "Number of PCCH transmissions" consecutive TTIs;

3> the Transport block sizes indexed in the IE "Transport Block Size List" for demultiplexing of upper layer PDUs from transport blocks delivered from the physical layer on HS-DSCH, as described in 3GPP TS 25.214; and

3> configure the physical layer to use a virtual IR buffer size of at least 1608 bits for HS-DSCH transmissions.

Reference

3GPP TS 25.331 clauses 8.1.2, 8.3.1.7, 8.5.40.

8.1.1.12.3 Test purpose

To confirm that the UE enters the CELL_FACH state after it receives an HS-SCCH less PAGING TYPE 1 message on the HS-DSCH which indicates that the paging has originated from UTRAN. To verify that the UE performs cell update procedure after entering the CELL_FACH state.

8.1.1.12.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_PCH state (state 6-12) as specified in clause 7.4 of TS 34.108, with a valid U-RNTI already assigned and no dedicated H-RNTI assigned by the SS.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH in CELL_PCH and URA_PCH

Test Procedure

The SS transmits SYSTEM INFORMATION BLOCK TYPE 5 including configuration for HS-DSCH reception in CELL_FACH state, and configuration for HS-DSCH reception in CELL_PCH and URA_PCH states.

During transmission of PAGING TYPE 1 messages, SS selects the correct paging indicator on the PICH in order to allow the UE to respond to paging.

The SS transmits an HS-SCCH less PAGING TYPE 1 message with an unmatched U-RNTI on the HS-DSCH. The UE does not change its state. Then the SS transmits an HS-SCCH less PAGING TYPE 1 message with a matched identifier but which originates from the CN instead of UTRAN, on the HS-DSCH. The UE shall not change state after receiving this message. The SS transmits an HS-SCCH less PAGING TYPE 1 message on the HS-DSCH with a matched U-RNTI. Then the UE enters the CELL_FACH state and performs the cell updating procedure.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		SYSTEM INFORMATION BLOCK TYPE 5/ SYSTEM INFORMATION BLOCK TYPE 5bis	Includes configuration for HS-DSCH reception in CELL_FACH, and configuration for HS-DSCH reception in CELL_PCH and URA_PCH states
2	←		PAGING TYPE 1	The SS transmits an HS-SCCH less PAGING TYPE 1 message on the HS-DSCH including an unmatched U-RNTI. UE shall not respond to the paging.
3	←		PAGING TYPE 1	The SS transmits an HS-SCCH less PAGING TYPE 1 message on the HS-DSCH including a matched identifier but with the used paging identity being a CN identity. UE shall not respond to the paging.
4	←		PAGING TYPE 1	The SS transmits an HS-SCCH less PAGING TYPE 1 message on the HS-DSCH with used paging identity being a UTRAN identity and including the UE's assigned U-RNTI
5	→		CELL UPDATE	The UE enters the CELL_FACH state. UE performs cell updating procedure. The CELL UPDATE message shall contain the value "Cell Update Cause" set to "paging response" and “HS-PDSCH in CELL_FACH” set to TRUE
6	←		CELL UPDATE CONFIRM	See message content.
7	→		UTRAN MOBILITY INFORMATION CONFIRM	
8	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

SYSTEM INFORMATION TYPE 5/ SYSTEM INFORMATION TYPE 5bis

Use the same message as specified for “Only for cells which configure HS-DSCH reception in CELL_FACH “ in 34.108, clause 6.1.0b

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to an arbitrary 16-bit string which is different from the SRNC identity assigned.
- S-RNTI	Set to an arbitrary 20-bit string which is different from the S-RNTI assigned.
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

PAGING TYPE 1 (Step 3)

Same as the PAGING TYPE 1 message as in step 3 of clause 8.1.1.1.4.

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to the same SRNC identity as previously assigned.
- S-RNTI	Set to the same S-RNTI as previously assigned.
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE (Step 5)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
Cell Update Cause	Check to see if set to 'paging response'
HS-PDSCH in CELL_FACH	Check to see if set to TRUE

CELL UPDATE CONFIRM (Step 6)

Use the message sub-type in default message content defined in [9] (TS 34.108) Clause 9, with the following exceptions.

Information Element	Value/Remarks
New C-RNTI	'1010 1010 1010 1010'
New H-RNTI	'0101 0101 0101 0101'

UTRAN MOBILITY INFORMATION CONFIRM (Step 7)

Only the message type is checked.

8.1.1.12.5 Test requirement

After step 2 the UE shall not respond to the PAGING TYPE 1 message sent in step 2.

After step 3 the UE shall not respond to the PAGING TYPE 1 message sent in step 3.

After step 4 the UE shall enter the CELL FACH state and send a CELL UPDATE message with "Cell Update Cause" IE set to "paging response" and “HS-PDSCH in CELL_FACH” set to TRUE.

After step 6 the UE shall be in the CELL_FACH state and shall transmit UTRAN MOBILITY INFORMATION CONFIRM message.

8.1.1.12a Paging for Connection in connected mode (CELL_PCH) without legacy PCH configured (1.28Mcps TDD)

8.1.1.12a.1 Definition and applicability

All UEs which support 1.28Mcps TDD and E-DCH and HS-PDSCH in CELL_PCH and URA_PCH.

8.1.1.12a.2 Conformance requirement

A UE in idle mode, CELL_PCH state or URA_PCH state shall receive the paging information for all its monitored paging occasions. For an UE in idle mode, the paging occasions are specified in 3GPP TS 25.304 and depend on the IE "CN domain specific DRX cycle length coefficient", as specified in subclause 8.6.3.1a. For a UE in CELL_PCH state or URA_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below:

…

If the UE is in connected mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a UTRAN single UE identity and if this U-RNTI is the same as the U-RNTI allocated to the UE stored in the UE variable U_RNTI:

2> if the optional IE "CN originated page to connected mode UE" is included:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "Paging cause" and the IE "Paging record type identifier" to the upper layers.

2> if the IE "Release indicator" in the IE "RRC connection release information" has the value "Release":

3> release all its radio resources;

3> indicate the release of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to the upper layers;

3> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

3> clear the variable ESTABLISHED_RABS;

3> pass the value of the IE "Release cause" received in the IE "Release information" to upper layers;

3> enter idle mode;

3> perform the actions specified in subclause 8.5.2 when entering idle mode;

3> and the procedure ends.

2> otherwise:

3> if variable HSPA_RNTI_STORED_CELL_PCH is set to TRUE:

4> move to CELL_FACH state as specified in subclause 8.5.56.

3> else:

4> perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.

2> ignore any other remaining IE "Paging record" that may be present in the message.

1> if the IE "Used paging identity" is a UTRAN group identity and there is a group identity match according to subclause 8.6.3.13:

2> if the IE "Release indicator" in the IE "RRC connection release information" has the value "Release":

3> release all its radio resources;

3> indicate the release of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to the upper layers;

3> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

3> clear the variable ESTABLISHED_RABS;

3> pass the value of the IE "Release cause" received in the IE “Release information” to upper layers;

3> enter idle mode;

3> perform the actions specified in subclause 8.5.2 when entering idle mode;

3> and the procedure ends.

2> otherwise:

3> if variable HSPA_RNTI_STORED_CELL_PCH is set to TRUE:

4> move to CELL_FACH state as specified in subclause 8.5.56.

3> else:

4> perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.

2> ignore any other remaining IE "Paging record" that may be present in the message.

1> otherwise:

2> ignore that paging record.

…

If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list", nor the IE "RB information to reconfigure list", nor the IE "RB information to be affected list"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI"; or
- includes the IE "Downlink counter synchronisation info" and the IE "New U-RNTI":

NOTE: In the case of a cell update procedure during an ongoing reconfiguration procedure moving the UE into CELL_PCH/URA_PCH the CELL UPDATE CONFIRM message should include the IE "New C-RNTI".

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

…

When the IE "HS-DSCH paging system information" is included in System Information Block type 5 and the UE is in CELL_PCH or URA_PCH state, the UE shall:

1> if variable H_RNTI and variable C_RNTI are set:

2> if the UE is in CELL_PCH state:

3> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

3> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer for DCCH or DTCH reception; and

3> for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH code listed in the IE "HS-SCCH channelisation code" for FDD or first instance in the IE "HS-SCCH Set Configuration" for 1.28 Mcps TDD with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information" from System Information Block type 5 or System Information Block type 5bis;

3> if the UE detects the value of the variable H_RNTI in the HS-SCCH reception procedure:

4> initiate the enhanced uplink synchronization procedure;

4> move to CELL_FACH;

4> stop timer T319 if it is running.

3> if the UE has uplink RLC data PDU or uplink RLC control PDU on RB1 or upwards to transmit:

4> move to CELL_FACH state;

4> stop timer T319 if it is running.

2> if the UE is in URA_PCH state:

3> clear the variable H_RNTI;

3> clear the variable C_RNTI;

3> clear any stored IE "HARQ Info";

3> reset the MAC-ehs entity [15];

3> if the IE "PICH info" isn't included in IE "Secondary CCPCH system information" in System Information Block type 5 or System Information Block type 6:

4> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

4> perform the HS-DSCH reception procedure according to IE "HS-DSCH paging system information" as received in System Information Block type 5:

5> receive the HS-PDSCH applying the configuration according to 8.5.41 in "Paging Sub-Channel Size" * 2 consecutive TTIs and use the Transport block sizes indexed in the IE "Transport Block Size List" for demultiplexing of upper layer PDUs from transport blocks delivered from the physical layer on HS-DSCH, as described in [33].

1> else:

2> if variable H_RNTI or variable C_RNTI are set:

3> clear the variable H_RNTI;

3> clear the variable C_RNTI;

3> clear any stored IE "HARQ Info";

3> reset the MAC-ehs entity [15].

2> if the IE "PICH info" isn't included in IE "Secondary CCPCH system information" in System Information Block type 5 or System Information Block type 6:

3> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

3> perform the HS-DSCH reception procedure according to IE "HS-DSCH paging system information" as received in System Information Block type 5, receive the HS-PDSCH applying:

4> HS-PDSCH configuration selected according to 8.5.41 in "Paging Sub-Channel Size" * 2 consecutive TTIs;

4> the Transport block sizes indexed in the IE "Transport Block Size List" for demultiplexing of upper layer PDUs from transport blocks delivered from the physical layer on HS-DSCH, as described in [33].

NOTE : When performing HS-DSCH reception in CELL_PCH and URA_PCH state, the UE shall use the table of transport block size for the HS-DSCH physical layer category 9 as specified in [15].

Reference

3GPP TS 25.331 clauses 8.1.2.3, 8.3.1.7, 8.5.40a.

8.1.1.12a.3 Test purpose

To confirm that the UE enters the CELL_FACH state after it receives an PAGING TYPE 1 message on the HS-DSCH which indicates that the paging has originated from UTRAN. To verify that the UE performs cell update procedure after entering the CELL_FACH state.

8.1.1.12a.4 Method of test

Initial Condition

System Simulator: 1 cell, the IE "PICH info" isn't included in IE "Secondary CCPCH system information" in System Information Block type 5 or System Information Block type 6

UE: CELL_PCH state (state 6-12) as specified in clause 7.4 of TS 34.108, with a valid U-RNTI already assigned and no dedicated H-RNTI assigned by the SS.

Related ICS/IXIT statement(s)

- UE supports 1.28Mcps TDD
- UE supports HS-PDSCH in CELL_PCH and URA_PCH
- UE supports E-DCH in CELL_PCH and URA_PCH

Test Procedure

The SS transmits SYSTEM INFORMATION BLOCK TYPE 5 including configuration for HS-DSCH reception in CELL_FACH state, and configuration for HS-DSCH reception in CELL_PCH and URA_PCH states, no legacy PCH configured

The SS transmits a PAGING TYPE 1 message with an unmatched U-RNTI on the HS-DSCH. The UE does not change its state. Then the SS transmits a PAGING TYPE 1 message with a matched identifier but which originates from the CN instead of UTRAN, on the HS-DSCH. The UE shall not change state after receiving this message. The SS transmits a PAGING TYPE 1 message on the HS-DSCH with a matched U-RNTI. Then the UE enters the CELL_FACH state and performs the cell updating procedure.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		SYSTEM INFORMATION BLOCK TYPE 5/ SYSTEM INFORMATION BLOCK TYPE 5bis	Includes configuration for HS-DSCH reception in CELL_FACH, and configuration for HS-DSCH reception in CELL_PCH and URA_PCH states, no legacy PCH configured
2	←		PAGING TYPE 1	The SS transmits a PAGING TYPE 1 message on the HS-DSCH including an unmatched U-RNTI. UE shall not respond to the paging.
3	←		PAGING TYPE 1	The SS transmits a PAGING TYPE 1 message on the HS-DSCH including a matched identifier but with the used paging identity being a CN identity. UE shall not respond to the paging.
4	←		PAGING TYPE 1	The SS transmits a PAGING TYPE 1 message on the HS-DSCH with used paging identity being a UTRAN identity and including the UE's assigned U-RNTI
5	→		CELL UPDATE	The UE enters the CELL_FACH state. UE performs cell updating procedure. The CELL UPDATE message shall contain the value "Cell Update Cause" set to "paging response" and “HS-PDSCH in CELL_FACH”” Support of common E-DCH” set to TRUE
6	←		CELL UPDATE CONFIRM	See message content.
7	→		UTRAN MOBILITY INFORMATION CONFIRM	
8	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

SYSTEM INFORMATION TYPE 5/ SYSTEM INFORMATION TYPE 5bis

Use the same message as specified for “Only for cells which configure HS-DSCH reception in CELL_FACH “ in 34.108, clause 6.1.0b

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to an arbitrary 16-bit string which is different from the SRNC identity assigned.
- S-RNTI	Set to an arbitrary 20-bit string which is different from the S-RNTI assigned.
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

PAGING TYPE 1 (Step 3)

Use the default message type found in TS 34.108, clause 9.1.

Note that Separate message types are defined in TS 34.108 for the cases of TM (Speech in CS) and for TM (Packet in PS).

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to the same SRNC identity as previously assigned.
- S-RNTI	Set to the same S-RNTI as previously assigned.
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE (Step 5)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
Cell Update Cause	Check to see if set to 'paging response'
HS-PDSCH in CELL_FACH	Check to see if set to TRUE
Support of common E-DCH	Check to see if set to TRUE

CELL UPDATE CONFIRM (Step 6)

Use the message sub-type in default message content defined in [9] (TS 34.108) Clause 9, with the following exceptions.

Information Element	Value/Remarks
New C-RNTI	'1010 1010 1010 1010'
New H-RNTI	'0101 0101 0101 0101'

UTRAN MOBILITY INFORMATION CONFIRM (Step 7)

Only the message type is checked.

8.1.1.12a.5 Test requirement

After step 2 the UE shall not respond to the PAGING TYPE 1 message sent in step 2.

After step 3 the UE shall not respond to the PAGING TYPE 1 message sent in step 3.

After step 4 the UE shall enter the CELL FACH state and send a CELL UPDATE message with "Cell Update Cause" IE set to "paging response" and “HS-PDSCH in CELL_FACH” “ Support of common E-DCH” set to TRUE.

After step 6 the UE shall be in the CELL_FACH state and shall transmit UTRAN MOBILITY INFORMATION CONFIRM message.

8.1.1.13 ETWS primary and secondary notification without security reception via S-CCPCH in idle mode, URA_PCH and CELL_PCH state / CELL_FACH state

8.1.1.13.1 Definition and applicability

All UEs which support FDD and ETWS

8.1.1.13.2 Conformance requirement

Upon modifications of system information blocks using value tags, UTRAN should notify the new value tag for the master information block in the IE "BCCH modification info", transmitted in the following way:

1> to reach UEs in idle mode, and in CELL_PCH state and URA_PCH state with S-CCPCH assigned, the IE "BCCH modification info" is contained in a PAGING TYPE 1 message transmitted on the PCCH in all paging occasions in the cell;

1> to reach UEs in CELL_PCH state and URA_PCH state with HS-DSCH assigned and no dedicated H-RNTI assigned, the IE "BCCH modification info" is contained in a PAGING TYPE 1 message transmitted on the PCCH in all paging occasions in the cell;

1> to reach UEs in CELL_FACH state or TDD UEs in CELL_DCH with S-CCPCH assigned, the IE "BCCH modification info" is contained in a SYSTEM INFORMATION CHANGE INDICATION message transmitted on the BCCH mapped on at least one FACH on every Secondary CCPCH in the cell;

1> for FDD and 1.28 Mcps TDD, to reach UEs in CELL_FACH state with HS-DSCH assigned and in CELL_PCH with HS-DSCH and dedicated H-RNTI assigned, the IE "BCCH modification info" is contained in a SYSTEM INFORMATION CHANGE INDICATION message transmitted on the BCCH mapped on the HS-PDSCH indicated with the first indexed HS-SCCH code by the BCCH specific H-RNTI.

…

UTRAN may also indicate to send Primary Notification for ETWS, by including in the IE "ETWS information" in the PAGING TYPE 1 message. In this case, UTRAN may omit the IEs "Paging record".

…

If the IE "ETWS information" is included and RRC is configured to receive ETWS without security, an ETWS capable UE in idle mode, CELL_PCH or URA_PCH state shall perform the actions as specified in subclause 8.6.8a.1 in addition to any actions caused by the IE "Paging record" or the IE "BCCH modification info" occurrences in the message as specified above.

…

If RRC is configured from upper layers to receive primary notification for ETWS without security, and if the IE "ETWS information" is received in a PAGING TYPE 1 or a SYSTEM INFORMATION CHANGE INDICATION message, an ETWS capable UE shall:

1> if the variable ETWS_DUPLICATE_DETECT_PARAM is set:

2> if the IE "Message Identifier" and the IE "Serial Number" included in the IE "ETWS information" have the same values as the corresponding IEs in an entry of the variable ETWS_DUPLICATE_DETECT_PARAM:

3> discard the IE "ETWS information".

1> otherwise;

2> set the IE "Message Identifier" and IE "Serial Number" in an entry of the variable ETWS_DUPLICATE_DETECT_PARAM;

2> forward the IE "ETWS information" to upper layers and indicate that the associated security information has not been received.

NOTE: The UE may receive the IE "ETWS information" also in an ETWS PRIMARY NOTIFICATION WITH SECURITY message. The UE behaviour is specified in subclause 8.1.17.4.

…

Upon the reception of the paging message, whether the UE is configured to receive ETWS warnings over paging message or not, the UE activates the reception of the broadcast messages containing the "warning message" as the secondary notification, as follows:

- If both the "digital signature" and "timestamp" are present in the "warning message" and security checks fail, then the UE notifies the user of this fact and stops the user alerting.
- If both the "digital signature" and "timestamp" are present and security checks pass, then the UE indicates the contents of the "warning message" to the user along with an indication that the message has been authenticated.
- In other cases, the UE indicates the contents of the "warning message" to the user along with an indication that the message has not been authenticated.

Reference

3GPP TS 25.331 clauses 8.1.1.7, 8.1.2.2, 8.1.2.3, 8.6.8a.1, 3GPP TS23.041 clause 9.1.2.

8.1.1.13.3 Test purpose

To confirm that UE receives a PAGING TYPE 1 message on the S-CCPCH which indicates ETWS primary notification and then receives a PAGING TYPE 1 message on the S-CCPCH and receives P-CCPCH and S-CCPCH which indicates ETWS secondary notification and UE shall not indicate secondary notification after BCCH is changed.

8.1.1.13.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: URA_PCH state (state 6-13) as specified in clause 7.4 of TS 34.108, with a valid U-RNTI assigned by the SS. UE is configured to receive the CBS data messages.

Specific Message Contents

SYSTEM INFORMATION TYPE 5/ SYSTEM INFORMATION TYPE 5bis / SYSTEM INFORMATION TYPE 6

Use the same message as specified in 34.108, clause 6.1.2 with following exception.

Information Element	Value/remark
Secondary CCPCH system information	Second SCCPCH system information in the sCCPCH-SystemInformationList
- FACH/PCH information	Second FACH/PCH information in the fach-PCH-InformationList
- CTCH indicator	FALSE
CBS DRX Level 1 information	Not present

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports ETWS

Test Procedure

The SS transmits PAGING TYPE 1 message with an unmatched U-RNTI on the S-CCPCH. The UE does not transmit RRC Connection Request message. Then the SS transmits a PAGING TYPE 1 message with "ETWS information" on the S-CCPCH. SS transmits PAGING TYPE 1 message with the same "Message Identifier" and the "Serial Number" in "ETWS information" on the S-CCPCH and UE discards the duplicate "ETWS information", no new primary

notification indications occur (e.g. audible signal or message appearing on the UI). SS transmits ETWS Secondary notification. The SS transmits PAGING TYPE 1 message on the S-CCPCH and UE enters to CELL_FACH state. Then same steps to URA_PCH state except SYSTEM INFORMATION CHANGE INDICATION. The SS transmits PHYSICAL CHANNEL RECONFIGURATION message and UE enters to CELL_PCH state. Then same steps to URA_PCH state. The SS transmits PAGING TYPE 1 message on the S-CCPCH and UE enters to idle mode state. Then same steps to URA_PCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PAGING TYPE 1	SS transmits the message that includes an unmatched identifier, but UE does not change its state.
2	←		PAGING TYPE 1	SS transmits the message that includes IE "ETWS information"
3				After having received the PAGING TYPE 1, UE shall - indicate the reception of ETWS Data 1 and - alert or activate alerting the user
4	←		PAGING TYPE 1	SS transmits the message that includes IE "ETWS information" which includes same IE "Message Identifier" and the IE "Serial Number" to step 2 in "ETWS information".
5				UE shall - not indicate the reception of ETWS Data 2 and - not alert nor activate alerting the user within 40 seconds after step 4.
6	←		PAGING TYPE 1	SS transmits the message that includes the IE "BCCH modification info" ", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block.
7	←		MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis / SYSTEM INFORMATION BLOCK TYPE 6	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting. At the same time, SS starts to transmit the affected SIB TYPE 5 / SIB TYPE 5bis / SIB TYPE 6 messages which indicate “CTCH Indicator” TRUE in TS 34.108 6.1.2 continuously.
8				SS waits for about 5 s to make sure that the UE has time to read the new system information.
9	←		BMC CBS Message	Activated CBS message with CB Data 1 message content as described by the manufacturer. This message shall be repeated "CPREP" times, Parameter: - Message ID, - Serial Number, - Data coding scheme, - CB-Data 1,
10				After having received the BMC CBS message the UE shall - indicate the reception of CB Data 1 and - alert or activate alerting the user
11	←		PAGING TYPE 1	SS transmits the message that includes the IE "BCCH modification info" ", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block.

12	←	MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis / SYSTEM INFORMATION BLOCK TYPE 6	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting. At the same time, SS starts to transmit the affected SIB TYPE 5 / SIB TYPE 5bis/ SIB TYPE 6 messages which indicate “CTCH Indicator” FALSE continuously.
13	←	BMC CBS Message	Activated CBS message with CB Data 2 message content as described by the manufacturer. This message shall be repeated "CPREP" times, Parameter: - Message ID, - Serial Number(Different from CB-Data 1), - Data coding scheme, - CB-Data 2,
14			UE shall - not indicate the reception of CB Data 2 and - not alert nor activate alerting the user within 50 second after step 13.
15	←	PAGING TYPE 1	SS transmits the message that includes a matched identifier.
16	→	CELL UPDATE	UE enters the CELL_FACH state.
17	←	CELL UPDATE CONFIRM	See message content.
18	→	UTRAN MOBILITY INFORMATION CONFIRM	
19		Void	
20	←	SYSTEM INFORMATION CHANGE INDICATION	SS transmits the message that includes IE "ETWS information"
21			Same procedure from step 3 to step 5 except : - in step 4 replace PAGING TYPE1 with SYSTEM INFORMATION CHANGE INDICATION - the ETWS IE "Serial Number" in SYSTEM INFORMATION CHANGE INDICATION is the same as the one used in step 20
22	←	PHYSICAL CHANNEL RECONFIGURATION	SS transmits the message which includes RRC State Indicator CELL_PCH.
23	→	PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE enters the CELL_PCH state.
24	←	PAGING TYPE 1	SS transmits the message that includes IE "ETWS information"
25			Same procedure from step 3 to step 14 except the values which are different from the IE "Message Identifier" and the IE "Serial Number" and CBS parameters used before.
26	←	PAGING TYPE 1	
27	→	CELL UPDATE	UE transmits CELL UPDATE.
28	←	CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_FACH".
29	→	UTRAN MOBILITY INFORMATION CONFIRM	
30	←	DEACTIVATE PDP CONTEXT REQUEST	
31	→	DEACTIVATE PDP CONTEXT ACCEPT	

31a	→	DETACH REQUEST	A non-auto attach UE may (optionally) send a Detach Request. The SS shall wait up to 'T3390' seconds for the Detach Request.
31b	←	DETACH ACCEPT	If the UE transmitted a Detach Request (for non power-off) message in step 31a, then the SS responds with a Detach Accept message.
32	←	RRC CONNECTION RELEASE	
33	→	RRC CONNECTION RELEASE COMPLETE	UE enters the idle mode state.
34		Void	
35	←→	CALL C.1	If the test result of C.1 indicates that UE is in Idle Mode state, the test passes, otherwise it fails.
36	←	PAGING TYPE 1	SS transmits the message that includes IE "ETWS information".
37			UE shall - not indicate the reception of ETWS Data 3 and - not alert nor activate alerting the user within 40 seconds after step 36.
38	←	PAGING TYPE 1	SS transmits the message that includes IE "ETWS information".
39			After having received the PAGING TYPE 1, UE shall - indicate the reception of ETWS Data 1 and - alert or activate alerting the user
40			Same procedure from step 7 to step 14 except the values which are different from the IE "Message Identifier" and the IE "Serial Number" in PAGING TYPE 1 and CBS parameters used before.
41	←	PAGING TYPE 1	SS transmits the message that includes a matched identifier.
42	→	RRC CONNECTION REQUEST	
43	←	RRC CONNECTION REJECT	

Note: The data indication and user alerting are the UE implementation issues.

Note: Step 41 paging will have to be for CS domain for non-auto attach UEs.

Specific Message Contents

PAGING TYPE 1 (Step 1)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to an unused SRNC identity which is different from the SRNC identity assigned.
- S-RNTI	Set to an arbitrary 20-bit string which is different from the S-RNTI assigned.
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present
ETWS information	
Warning Type	Warning Type Value=0000010 Emergency User Alert =1 Popup=1 Padding=0000000
Message Identifier	1102
Serial Number	GS=11 Message Code = 1100000010 Update Number = 0000

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	Not Present
ETWS information	
Warning Type	Warning Type Value=0000010 Emergency User Alert =1 Popup=1 Padding=0000000
Message Identifier	1102
Serial Number	GS=11 Message Code = 1100000010 Update Number = Update Number of previous message (containing ETWS information) +1

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	Not Present
ETWS information	
Warning Type	Warning Type Value=0000010 Emergency User Alert =1 Popup=1 Padding=0000000
Message Identifier	1102
Serial Number	GS=11 Message Code = 1100000010 Update Number = Update Number of previous message (containing ETWS information)

PAGING TYPE 1 (Step 6)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
MIB Value Tag	Set to (Current MIB value tag + 1)
BCCH Modification time	Not Present
ETWS information	Not Present

MASTER INFORMATION BLOCK (Step 7)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 6
SIB 5 Cell Value tag	Set to (Current SIB5 value tag + 1)

SYSTEM INFORMATION BLOCK TYPE 5 / 5bis and 6 (Step 7)

The contents of SYSTEM INFORMATION TYPE 5/ 5bis and 6 Information Element in this test case are identical to those of the default contents of clause 6.1.2 in 34.108.

BMC CBS Message (Step 9 and 13)

Information Element	Value/remark
Message Type	1 (CBS message)
Message ID	Bitstring (16) CB message ID, it shall fit to the stored Message ID in the SIM inserted in the UE (source and type) [see TS 23.041]
Serial Number	[see TS 23.041]
- Geographic Scope Indicator (2 bit)	11 (Normal Cell wide)
- Message Code (10 bit)	according with the Message ID
- Update Number (4 bit)	for a new message: 0000, incremented by one for each repetition
Data Coding Scheme	Default alphabet, English "00000001"B
CB Data	Octetstring, [see IXIT value: CB-Data 1 and 2]

PAGING TYPE 1 (Step 11)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
MIB Value Tag	Set to (Current MIB value tag + 1)
BCCH Modification time	Not Present
ETWS information	Not Present

SYSTEM INFORMATION BLOCK TYPE 5 / 5bis and 6 (Step 12)

The contents of SYSTEM INFORMATION TYPE 5/ 5bis and 6 Information Element are identical to the contents specified in initial conditions.

PAGING TYPE 1 (Step 15)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to the previously assigned SRNC identity
- S-RNTI	Set to previously assigned S-RNTI
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

PAGING TYPE 1 (Step 41)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	CN identity
- Paging Cause	Terminating Call with one of the supported services
- CN Domain Identity	Supported Domain (PS Domain or CS Domain)
- CHOICE UE Identity	Local (P)TMSI
- Routing parameter	Same as registered TMSI or P-TMSI
BCCH modification info	Not Present

CELL UPDATE CONFIRM (Step 17)

Use the message sub-type in default message content defined in [9] (TS 34.108) Clause 9, with the following exceptions.

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'

SYSTEM INFORMATION CHANGE INDICATION (Step 20)

Information Element	Value/remark
Message Type	
BCCH modification info	
- MIB Value Tag	Not Present
- BCCH Modification time	Not Present
ETWS information	
Warning Type	Warning Type Value=0000000 Emergency User Alert =1 Popup=1 Padding=0000000
Message Identifier	1100
Serial Number	GS=11 Message Code = 1100000000 Update Number = Update Number of previous message (containing ETWS information) +1

PHYSICAL CHANNEL RECONFIGURATION (Step 22)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in Annex A with following exceptions:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3

PAGING TYPE 1 (Step 24)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
MIB Value Tag	Set to Current MIB value tag
BCCH Modification time	Not Present
ETWS information	
Warning Type	Warning Type Value=0000010 Emergency User Alert =1 Popup=1 Padding=0000000
Message Identifier	1102
Serial Number	GS=11 Message Code = 1100000010 Update Number = Update Number of previous message (containing ETWS information) +1

PAGING TYPE 1 (Step 26)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to the previously assigned SRNC identity
- S-RNTI	Set to previously assigned S-RNTI
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE CONFIRM (Step 28)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
RRC State indicator	CELL_FACH
New C-RNTI	'1010 1010 1010 1011'

PAGING TYPE 1 (Step 36)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	Not Present
ETWS information	
Warning Type	Warning Type Value=0000010 Emergency User Alert =1 Popup=1 Padding=0000000
Message Identifier	1103
Serial Number	GS=11 Message Code = 1100000011 Update Number = Update Number of previous message (containing ETWS information) +1

PAGING TYPE 1 (Step 38)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
MIB Value Tag	Set to Current MIB value tag
BCCH Modification time	Not Present
ETWS information	
Warning Type	Warning Type Value=0000010 Emergency User Alert =1 Popup=1 Padding=0000000
Message Identifier	1101
Serial Number	GS=11 Message Code = 1100000001 Update Number = Update Number of previous message (containing ETWS information) +1

8.1.1.13.5 Test requirement

In step 5, UE shall not indicate the reception of ETWS Data 2.

In step10, UE shall indicate the reception of CB Data 1

In step14, UE shall not indicate the reception of CB Data 2

In step 25 and 40, UE shall indicate the reception of CB Data before CTCH FALSE, and UE shall not indicate the reception of CB Data after CTCH FALSE in SYSTEM INFORMATION BLOCK TYPE 5 / 5bis and 6.

In step 21, 25 and 40, UE shall indicate the reception of ETWS Data 1.

In step 37, UE shall not indicate the reception of ETWS Data 3.

8.1.1.14 Void

8.1.1.15 Void

8.1.1.16 Void

8.1.1.17 Void

8.1.1.18 Void

8.1.1.19 ETWS primary and secondary notification / Cell reselection

8.1.1.19.1 Definition and applicability

All UEs which support FDD and ETWS

8.1.1.19.2 Conformance requirement

Upon modifications of system information blocks using value tags, UTRAN should notify the new value tag for the master information block in the IE "BCCH modification info", transmitted in the following way:

1> to reach UEs in idle mode, and in CELL_PCH state and URA_PCH state with S-CCPCH assigned, the IE "BCCH modification info" is contained in a PAGING TYPE 1 message transmitted on the PCCH in all paging occasions in the cell;

1> to reach UEs in CELL_PCH state and URA_PCH state with HS-DSCH assigned and no dedicated H-RNTI assigned, the IE "BCCH modification info" is contained in a PAGING TYPE 1 message transmitted on the PCCH in all paging occasions in the cell;

1> to reach UEs in CELL_FACH state or TDD UEs in CELL_DCH with S-CCPCH assigned, the IE "BCCH modification info" is contained in a SYSTEM INFORMATION CHANGE INDICATION message transmitted on the BCCH mapped on at least one FACH on every Secondary CCPCH in the cell;

1> for FDD and 1.28 Mcps TDD, to reach UEs in CELL_FACH state with HS-DSCH assigned and in CELL_PCH with HS-DSCH and dedicated H-RNTI assigned, the IE "BCCH modification info" is contained in a SYSTEM INFORMATION CHANGE INDICATION message transmitted on the BCCH mapped on the HS-PDSCH indicated with the first indexed HS-SCCH code by the BCCH specific H-RNTI.

…

UTRAN may also indicate to send Primary Notification for ETWS, by including in the IE "ETWS information" in the PAGING TYPE 1 message. In this case, UTRAN may omit the IEs "Paging record".

…

If the IE "ETWS information" is included and RRC is configured to receive ETWS without security, an ETWS capable UE in idle mode, CELL_PCH or URA_PCH state shall perform the actions as specified in subclause 8.6.8a.1 in addition to any actions caused by the IE "Paging record" or the IE "BCCH modification info" occurrences in the message as specified above.

…

If RRC is configured from upper layers to receive primary notification for ETWS without security, and if the IE "ETWS information" is received in a PAGING TYPE 1 or a SYSTEM INFORMATION CHANGE INDICATION message, an ETWS capable UE shall:

1> if the variable ETWS_DUPLICATE_DETECT_PARAM is set:

2> if the IE "Message Identifier" and the IE "Serial Number" included in the IE "ETWS information" have the same values as the corresponding IEs in an entry of the variable ETWS_DUPLICATE_DETECT_PARAM:

3> discard the IE "ETWS information".

1> otherwise;

2> set the IE "Message Identifier" and IE "Serial Number" in an entry of the variable ETWS_DUPLICATE_DETECT_PARAM;

2> forward the IE "ETWS information" to upper layers and indicate that the associated security information has not been received.

NOTE: The UE may receive the IE "ETWS information" also in an ETWS PRIMARY NOTIFICATION WITH SECURITY message. The UE behaviour is specified in subclause 8.1.17.4.

…

Upon the reception of the paging message, whether the UE is configured to receive ETWS warnings over paging message or not, the UE activates the reception of the broadcast messages containing the "warning message" as the secondary notification, as follows:

- If both the "digital signature" and "timestamp" are present in the "warning message" and security checks fail, then the UE notifies the user of this fact and stops the user alerting.

- If both the "digital signature" and "timestamp" are present and security checks pass, then the UE indicates the contents of the "warning message" to the user along with an indication that the message has been authenticated.

- In other cases, the UE indicates the contents of the "warning message" to the user along with an indication that the message has not been authenticated.

Reference

3GPP TS 25.331 clauses 8.1.1.7, 8.1.2.2, 8.1.2.3, 8.6.8a.1, TS 23.041 cl. 9.1.2.

8.1.1.19.3 Test purpose

To confirm that UE reselects a new cell which does not send ETWS primary/secondary notifications after the reception of ETWS primary/secondary notifications on an old cell and then UE behaviour on the new cell is not affected by the reception of ETWS primary/secondary notifications on an old cell.

To confirm that UE reselects a new cell which sends ETWS primary/secondary notifications from a cell which does not send ETWS primary/secondary notifications and then the UE receives ETWS primary/secondary notifications on the new cell.

8.1.1.19.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and 2

UE: URA_PCH state (state 6-13) as specified in clause 7.4 of TS 34.108, with a valid U-RNTI assigned by the SS. UE is configured to receive the CBS data messages.

Specific Message Contents

SYSTEM INFORMATION TYPE 5/ SYSTEM INFORMATION TYPE 5bis / SYSTEM INFORMATION TYPE 6

For Cell 1, use the same message as specified in 34.108, clause 6.1.2 with following exception.

Information Element	Value/remark
Secondary CCPCH system information	Second SCCPCH system information in the sCCPCH-SystemInformationList
- FACH/PCH information	Second FACH/PCH information in the fach-PCH-InformationList
- CTCH indicator	FALSE
CBS DRX Level 1 information	Not present

For Cell 2, use the same message as specified in 34.108, clause 6.1.0b.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports ETWS

Test Procedure

Table 8.1.1.19

Parameter	Unit	Cell 1			Cell 2		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			Mid Range Test Frequency		
CPICH Ec (FDD)	dBm/3.84MHz	-60	-69	-60	-69	-60	-69

The SS transmits PAGING TYPE 1 message with "ETWS information" on the S-CCPCH on Cell1. SS transmits PAGING TYPE 1 message with the same "Message Identifier" and the "Serial Number" in "ETWS information" on the S-CCPCH and UE discards the duplicate "ETWS information", no new primary notification indications occur (e.g. audible signal or message appearing on the UI). SS transmits PAGING TYPE 1 for BCCH modification before Cell1 changes SIB TYPE 5 / SIB TYPE 5bis / SIB TYPE 6 messages to set CTCH indicator to TRUE. SS transmits ETWS Secondary notification on Cell1. SS applies the downlink transmission power settings, according to the values in columns "T1" of Table 8.1.1.19. SS transmits PAGING TYPE 1 message with U-RNTI assigned to the UE on Cell 2. SS transmits CELL UPDATE CONFIRM message in response to CELL UPDATE message from the UE. SS applies the downlink transmission power settings, according to the values in columns "T2" of Table 8.1.1.19. SS transmits PAGING TYPE 1 message with the "Message Identifier" and the "Serial Number" in "ETWS information" on the S-CCPCH. SS transmits ETWS Secondary notification on Cell1. SS transmits PAGING TYPE 1 for BCCH modification. Cell1 changes SIB TYPE 5 / SIB TYPE 5bis / SIB TYPE 6 messages to set CTCH indicator to FALSE. SS transmits PAGING TYPE 1 for paging.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2			Void	
3	←		PAGING TYPE 1	SS transmits the message that includes IE "ETWS information" on Cell1.
4				After having received the PAGING TYPE 1, UE shall - indicate the reception of ETWS Data 1 and - alert or activate alerting the user
5	←		PAGING TYPE 1	SS transmits the message that includes IE "ETWS information" which includes same IE "Message Identifier" and the IE "Serial Number" to step3 in "ETWS information" on Cell1
6				UE shall - not indicate the reception of ETWS Data 2 and - not alert nor activate alerting the user within 40 seconds after step 4.
7	←		PAGING TYPE 1	SS transmits the message that includes the IE "BCCH modification info" ", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block on Cell1.
8			Void	
9			Void	
10			Void	
11	←		MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis / SYSTEM INFORMATION BLOCK TYPE 6	SS starts to transmit the MIB with the "MIB Value Tag" IE same as one included in PAGING TYPE 1 in step 7. At the same time, SS starts to transmit the affected SIB TYPE 5 / SIB TYPE 5bis / SIB TYPE 6 messages which indicate “CTCH Indicator” TRUE in TS 34.108 6.1.2 continuously on Cell1.
12				SS waits for about 5 s to make sure that the UE has time to read the system information.
13	←		BMC CBS Message	Activated CBS message with CB Data 1 message content as described by the manufacturer. This message shall be repeated "CPREP" times, Parameter: - Message ID, - Serial Number, - Data coding scheme, - CB-Data 1,
14				After having received the BMC CBS message the UE shall - indicate the reception of CB Data 1 and - alert or activate alerting the user.
15				SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.1.1.19
15a				SS waits 50s (to ensure that the UE has time to reselect the Cell2)

15b	←	PAGING TYPE 1	The SS transmits the PAGING TYPE 1 message with used paging identity being a UTRAN identity and including the UE's assigned U-RNTI on Cell 2
15c	→	CELL UPDATE	The UE enters the CELL_FACH state. UE performs cell updating procedure. The CELL UPDATE message shall contain the value "Cell Update Cause" set to "paging response".
15d	←	CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "URA_PCH".
15e			SS waits 5s (to ensure that the UE moves to URA_PCH state)
15f			SS applies the downlink transmission power settings, according to the values in columns "T2" of table 8.1.1.19.
16	←	PAGING TYPE 1	SS transmits the message that includes IE "ETWS information" on Cell1 after 50 seconds from step15f.
17			After having received the PAGING TYPE 1, UE shall - indicate the reception of ETWS Data 3 and - alert or activate alerting the user.
18		Void	
19		Void	
20		Void	
21	←	BMC CBS Message	Activated CBS message with CB Data 2 message content as described by the manufacturer. This message shall be repeated "CPREP" times, Parameter: - Message ID, - Serial Number, - Data coding scheme, - CB-Data 2,
22			After having received the BMC CBS message the UE shall - indicate the reception of CB Data 2 and - alert or activate alerting the user.
23	←	PAGING TYPE 1	SS transmits the message that includes the IE "BCCH modification info" ", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block on Cell1.
24	←	MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis / SYSTEM INFORMATION BLOCK TYPE 6	SS starts to transmit the MIB with the "MIB Value Tag" IE same as one included in PAGING TYPE 1 in step 23. At the same time, SS starts to transmit the affected SIB TYPE 5 / SIB TYPE 5bis/ SIB TYPE 6 messages which indicate “CTCH Indicator” FALSE continuously.
25	←	PAGING TYPE 1	The SS transmits the message with used paging identity being a UTRAN identity and including the UE's assigned U-RNTI

26	→	CELL UPDATE	The UE enters the CELL_FACH state. UE performs cell updating procedure. The CELL UPDATE message shall contain the value "Cell Update Cause" set to "paging response".
27	←	CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_FACH".
28	←	RRC CONNECTION RELEASE	
29	→	RRC CONNECTION RELEASE COMPLETE	UE enters the idle mode state

Note: The data indication and user alerting are the UE implementation issues.

Specific Message Contents

PAGING TYPE 1 (Steps 3 and 5)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	Not Present
ETWS information	
Warning Type	Warning Type Value=0000010 Emergency User Alert =1 Popup=1 Padding=0000000
Message Identifier	1102
Serial Number	GS=11 Message Code = 1100000001 Update Number = 0000

PAGING TYPE 1 (Steps 7 and 23)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
MIB Value Tag	Set to (Current MIB value tag + 1)
BCCH Modification time	Not Present
ETWS information	Not Present

PAGING TYPE 1 (Steps 15b and 25)

Use the default message type found in TS 34.108, clause 9.1.

Note that Separate message types are defined in TS 34.108 for the cases of TM (Speech in CS) and for TM (Packet in PS)

MASTER INFORMATION BLOCK for Cell 1 (Step 11)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 7
SIB 5 Cell Value tag	Set to (Current SIB5 value tag + 1)

SYSTEM INFORMATION BLOCK TYPE 5 / 5bis and 6 for Cell 1 (Step 11)

The contents of SYSTEM INFORMATION TYPE 5/ 5bis and 6 Information Element in this test case are identical to those of the default contents of layer 3 clause 6.1.2 in 34.108.

BMC CBS Message (Steps 13 and 21)

Information Element	Value/remark
Message Type	1 (CBS message)
Message ID	Bitstring (16) CB message ID, it shall fit to the stored Message ID in the SIM inserted in the UE (source and type) [see TS 23.041]
Serial Number	[see TS 23.041]
- Geographic Scope Indicator (2 bit)	11 (Normal Cell wide)
- Message Code (10 bit)	according with the Message ID
- Update Number (4 bit)	for a new message: 0000, incremented by one for each repetition
Data Coding Scheme	Default alphabet, English "00000001"B
CB Data	Octetstring, [see IXIT value: CB-Data 1 and 2]

PAGING TYPE 1 (Step 16)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	Not Present
ETWS information	
Warning Type	Warning Type Value=0000010 Emergency User Alert =1 Popup=1 Padding=0000000
Message Identifier	1100
Serial Number	GS=11 Message Code = 1100000001 Update Number = Update Number of previous message (containing ETWS information) +1

SYSTEM INFORMATION BLOCK TYPE 5 / 5bis and 6 for Cell 1 (Step 24) (FDD)

The contents of SYSTEM INFORMATION TYPE 5/ 5bis and 6 Information Element are identical to the contents specified in initial conditions.

CELL UPDATE (Steps 15c and 26)

Check to see if the same message type found in TS 34.108, clause 9 is received, with the following exceptions:

Information Element	Value/remark
U-RNTI	Checked to see if it is set to the same values as in the Paging Type 1 message.
- SRNC identity	
- S-RNTI	
Cell update cause	Paging response

CELL UPDATE CONFIRM (Step 15d)

Use the same message type found in TS 34.108, clause 9 with the following exceptions.

Information Element	Value/Remarks
RRC State indicator	URA_PCH
UTRAN DRX cycle length coefficient	7

MASTER INFORMATION BLOCK for Cell 1 (Step 24)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 23
SIB 5 Cell Value tag	Set to (Current SIB5 value tag + 1)

CELL UPDATE CONFIRM (Step 27)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
RRC State indicator	CELL_FACH
New C-RNTI	'1010 1010 1010 1011'

8.1.1.19.5 Test requirement

In step 4, UE shall indicate the reception of ETWS Data 1.

In step 6, UE shall not indicate the reception of ETWS Data 2.

In step14, UE shall indicate the reception of CB Data 1

In step 15c, UE shall transmit the CELL UPDATE message on Cell 2.

In step 17, UE shall indicate the reception of ETWS Data 3.

In step 22, UE shall indicate the reception of CB Data 2

8.1.2 RRC Connection Establishment

8.1.2.1 RRC Connection Establishment in CELL_DCH state: Success

8.1.2.1.1 Definition

8.1.2.1.2 Conformance requirement

The UE shall initiate the procedure when upper layers in the UE requests the establishment of a signalling connection and the UE is in idle mode (no RRC connection exists).

Upon initiation of the procedure, the UE shall:

…

1> set the contents of the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

1> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

1> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

1> submit the RRC CONNECTION REQUEST message for transmission on the uplink CCCH;

1> set counter V300 to 1; and

1> start timer T300 when the MAC layer indicates success or failure to transmit the message;

1> select a Secondary CCPCH according to TS 25.304;

1> start receiving all FACH transport channels mapped on the selected Secondary CCPCH.

….

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

1> set the IE "Establishment cause" to the value of the variable ESTABLISHMENT_CAUSE;

1> set the IE "Initial UE identity" to the value of the variable INITIAL_UE_IDENTITY;

…

The UE shall not include the IE "UE Specific Behaviour Information 1 idle".

….

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

If the values are different, the UE shall:

1> ignore the rest of the message.

If the values are identical, the UE shall:

1> stop timer T300, and act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified otherwise in the following:

2> if the UE, according to TS 25.331 subclause 8.6.3.3, will be in the CELL_FACH state at the conclusion of this procedure:

…

1> if the UE, according to TS 25.331 subclause 8.6.3.3, will be in the CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronization procedure A as specified in TS 25.214;

2> enter UTRA RRC connected mode, in a state according to TS 25.331 subclause 8.6.3.3;

1> submit an RRC CONNECTION SETUP COMPLETE message to the lower layers on the uplink DCCH after successful state transition per TS 25.331 subclause 8.6.3.3, with the contents set as specified below:

2> set the IE "RRC transaction identifier" to:

3> the value of "RRC transaction identifier" in the entry for the RRC CONNECTION SETUP message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> clear that entry.

…

2> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and then

2> include this in IE "UE radio access capability" and IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

2> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and then

2> include this in IE "UE system specific capability".

When the RRC CONNECTION SETUP COMPLETE message has been submitted to lower layers for transmission the UE shall:

1> consider the procedure to be successful;

And the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.3.2, 8.1.3.3 and 8.1.3.6

8.1.2.1.3 Test purpose

1. To confirm that the UE leaves the Idle Mode and correctly establishes signalling radio bearers on the DCCH.
2. To confirm that the UE indicates the requested UE radio access capabilities and UE system specific capabilities (may be used by UTRAN e.g. to configure inter RAT- measurements).
3. To confirm that the UE does not include the IE "UE Specific Behaviour Information 1 idle" in the RRC CONNECTION REQUEST message.

8.1.2.1.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by attempting to make an outgoing call. After SS receives this message, it assigns the necessary radio resources and U-RNTI to be used by the UE. SS then transmits an RRC CONNECTION SETUP message containing an IE "Initial UE Identity" that does not match the IE "Initial UE Identity" in the most recent RRC CONNECTION REQUEST message sent by the UE. UE receives the RRC CONNECTION SETUP message before timer T300 expires but discards it due to an IE "Initial UE Identity" mismatch. UE shall wait for timer T300 to time out before re-transmitting a RRC CONNECTION REQUEST message to the SS. SS again assigns the necessary radio resources and U-RNTI. SS then transmits a RRC CONNECTION SETUP message containing an IE "Initial UE Identity" that matches the IE "Initial UE Identity" in the most recent RRC CONNECTION REQUEST sent by the UE. SS then waits for the UE to transmit an RRC CONNECTION SETUP COMPLETE message on the DCCH. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		RRC CONNECTION REQUEST	By outgoing call operation. See specific message contents.
2	←		RRC CONNECTION SETUP	This message is not addressed to the UE. See specific message contents.
3	→		RRC CONNECTION REQUEST	UE shall re-transmit the request message again after a time out of T300 from step 1.
3a				SS checks IE "UE Specific Behaviour Information 1 idle" is not included in received RRC CONNECTION REQUEST message.
4	←		RRC CONNECTION SETUP	See specific message contents.
5				The UE configures the layer 2 and layer 1.
6	→		RRC CONNECTION SETUP COMPLETE	See specific message contents.
7	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

System Information Block type 11 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- Intra-frequency reporting quantity for RACH Reporting	
- SFN-SFN observed time difference reporting indicator	No report
- CHOICE *mode*	
- FDD	
- Reporting quantity	CPICH Ec/N0
- Maximum number of reported cells on RACH	current cell

System Information Block type 11 (TDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- Intra-frequency reporting quantity for RACH Reporting	
- SFN-SFN observed time difference reporting indicator	No report
- CHOICE *mode*	TDD
- Reporting quantity list	
- Reporting quantity	P-CCPCH RSCP
- Maximum number of reported cells on RACH	current cell

RRC CONNECTION REQUEST (Step 1) (FDD)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
UE Specific Behaviour Information 1 idle	Check if this IE is absent.
Measured results on RACH	Check to see if set in accordance with the IE "Intra-frequency reporting quantity for RACH Reporting" included in SYSTEM INFORMATION BLOCK Type 11
- Measurement result for current cell	
- CHOICE mode	
- FDD	
- CHOICE measurement quantity	
- CPICH Ec/N0	The actual reported value is not checked

RRC CONNECTION REQUEST (Step 1) (TDD)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Measured results on RACH	Check to see if set in accordance with the IE "Intra-frequency reporting quantity for RACH Reporting" included in SYSTEM INFORMATION BLOCK Type 11
- Measurement result for current cell	
- CHOICE mode	TDD
- CHOICE measurement quantity	
- P-CCPCH RSCP	The actual reported value is not checked

RRC CONNECTION SETUP (Step 2)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	Set to unmatched identity (incorrect IMSI)

RRC CONNECTION SETUP (Step 4)

Use the default message with the same message type and covering the scenario used in this test (Transition to CELL_DCH) specified in clause 9 of TS 34.108.

RRC CONNECTION SETUP COMPLETE (Step 6)

Use the default message with the same message type specified in clause 9 of TS 34.108 with the following exception.

Information Element	Value/remark
UE Radio Access Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE radio access capability extension	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE system specific Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.

8.1.2.1.5 Test requirement

After step 2 the UE shall re-transmit the RRC CONNECTION REQUEST message again in order to continue the RRC connection establishment procedure.

After step 3 the SS shall check IE "UE Specific Behaviour Information 1 idle" isn't included in received RRC CONNECTION REQUEST message.

After step 6 the UE shall establish an RRC connection and continue the procedure of the outgoing call on the DCCH.

8.1.2.1a RRC Connection Establishment in CELL_DCH state: Success (TDD Only)

8.1.2.1a.1 Definition

The features and operation of Multi-frequency and UpPCH shifting have been introduced to core specification (TS25.331 clause 8.6.6.1, 8.6.6.26, and 8.6.6.43) for LCR TDD.

8.1.2.1a.2 Conformance requirement

The UE shall initiate the procedure when upper layers in the UE requests the establishment of a signalling connection and the UE is in idle mode (no RRC connection exists).

Upon initiation of the procedure, the UE shall:

…

1> set the contents of the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

1> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

1> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

1> submit the RRC CONNECTION REQUEST message for transmission on the uplink CCCH;

1> set counter V300 to 1; and

1> start timer T300 when the MAC layer indicates success or failure to transmit the message;

1> select a Secondary CCPCH according to TS 25.304;

1> start receiving all FACH transport channels mapped on the selected Secondary CCPCH.

….

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

1> set the IE "Establishment cause" to the value of the variable ESTABLISHMENT_CAUSE;

1> set the IE "Initial UE identity" to the value of the variable INITIAL_UE_IDENTITY;

…

The UE shall not include the IE "UE Specific Behaviour Information 1 idle".

….

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

If the values are different, the UE shall:

1> ignore the rest of the message.

If the values are identical, the UE shall:

1> stop timer T300, and act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified otherwise in the following:

2> if the UE, according to TS 25.331 subclause 8.6.3.3, will be in the CELL_FACH state at the conclusion of this procedure:

…

1> if the UE, according to TS 25.331 subclause 8.6.3.3, will be in the CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronization procedure A as specified in TS 25.214;

2> enter UTRA RRC connected mode, in a state according to TS 25.331 subclause 8.6.3.3;

1> submit an RRC CONNECTION SETUP COMPLETE message to the lower layers on the uplink DCCH after successful state transition per TS 25.331 subclause 8.6.3.3, with the contents set as specified below:

2> set the IE "RRC transaction identifier" to:

3> the value of "RRC transaction identifier" in the entry for the RRC CONNECTION SETUP message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> clear that entry.

…

2> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and then

2> include this in IE "UE radio access capability" and IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

2> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and then

2> include this in IE "UE system specific capability".

When the RRC CONNECTION SETUP COMPLETE message has been submitted to lower layers for transmission the UE shall:

1> consider the procedure to be successful;

And the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.3.2, 8.1.3.3, 8.1.3.6, 8.6.6.1and 8.6.6.43.

8.1.2.1a.3 Test purpose

1. To confirm that the UE leaves the Idle Mode and correctly establishes signalling radio bearers on the DCCH of secondary frequency according to the downlink message sent by the network.
2. To confirm that the UE indicates the requested UE radio access capabilities and UE system specific capabilities (may be used by UTRAN e.g. to configure inter RAT- measurements).
3. To confirm that the UE does not include the IE "UE Specific Behaviour Information 1 idle" in the RRC CONNECTION REQUEST message.

8.1.2.1a.4 Method of test

Initial Condition

System Simulator: 1 cell, 3 frequency (one is primary frequency, others are secondary frequency).

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

Power on the UE, UE shall initialize the access procedure after receiving all system messages (CS: Location Update procedure or PS: GPRS ATTACH procedure). UE shall send SYNC UL in the position according to the indication of Uppch in SIB3, SS return corresponding FPACH message after receiving SYNC UL to indicate UE to send physical layer parameters for RACH. Then, SS send CON_SETUP_REJ message after receive CON_SETUP_REQ from UE to notify UE to end this access procedure.

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by attempting to make an outgoing call. After SS receives this message, it assigns the necessary radio resources and U-RNTI to be used by the UE. SS then transmits an RRC CONNECTION SETUP message containing an IE "Initial UE Identity" that does not match the IE "Initial UE Identity" in the most recent RRC CONNECTION REQUEST message sent by the UE. UE receives the RRC CONNECTION SETUP message before timer T300 expires but discards it due to an IE "Initial UE Identity" mismatch. UE shall wait for timer T300 to time out before re-transmitting a RRC CONNECTION REQUEST message to the SS. SS again assigns the necessary radio resources and U-RNTI. SS then transmits a RRC CONNECTION SETUP message containing an IE "Initial UE Identity" that matches the IE "Initial UE Identity" in the most recent RRC CONNECTION REQUEST sent by the UE. SS then waits for the UE to transmit an RRC CONNECTION SETUP COMPLETE message on the DCCH. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		Sync UL code	UE shall send this message according to the indication of mapping-LCR in SIB3, otherwise SS will ignore this message.
2	←		FPACH message	SS indicate UE sent Layer1 messages needed by RACH.
13	→		RRC CONNECTION REQUEST	By outgoing call operation. See specific message contents.
24	←		RRC CONNECTION SETUP	This message is not addressed to the UE. See specific message contents.
35	→		RRC CONNECTION REQUEST	UE shall re-transmit the request message again after a time out of T300 from step 13.
3a				SS checks IE "UE Specific Behaviour Information 1 idle" is not included in received RRC CONNECTION REQUEST message.
46	←		RRC CONNECTION SETUP	See specific message contents.
57				The UE configures the layer 2 and layer 1.
68	→		RRC CONNECTION SETUP COMPLETE	See specific message contents.
79	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

System Information Block type 11 3 (FDD1.28Mbps TDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
-v4b0NonCriticalExtensions- Intra-frequency reporting quantity for RACH Reporting	
-sysInfoType3-v4b0ext - SFN-SFN observed time difference reporting indicator	No report
-mapping-LCR - CHOICE *mode*	22
- FDD	
- Reporting quantity	CPICH Ec/N0
- Maximum number of reported cells on RACH	current cell

System Information Block type 11 (TDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- Intra-frequency reporting quantity for RACH Reporting	
- SFN-SFN observed time difference reporting indicator	No report
- CHOICE *mode*	TDD
- Reporting quantity list	
- Reporting quantity	P-CCPCH RSCP
- Maximum number of reported cells on RACH	current cell

RRC CONNECTION REQUEST (Step 1) (FDD)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
UE Specific Behaviour Information 1 idle	Check if this IE is absent.
Measured results on RACH	Check to see if set in accordance with the IE "Intra-frequency reporting quantity for RACH Reporting" included in SYSTEM INFORMATION BLOCK Type 11
- Measurement result for current cell	
- CHOICE mode	
- FDD	
- CHOICE measurement quantity	
- CPICH Ec/N0	The actual reported value is not checked

RRC CONNECTION REQUEST (Step 13) (TDD)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Measured results on RACH	Check to see if set in accordance with the IE "Intra-frequency reporting quantity for RACH Reporting" included in SYSTEM INFORMATION BLOCK Type 11
- Measurement result for current cell	
- CHOICE mode	TDD
- CHOICE measurement quantity	
- P-CCPCH RSCP	The actual reported value is not checked

RRC CONNECTION SETUP (Step 24)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	Set to unmatched identity (incorrect IMSI)
Uplink DPCH info	
-Uplink Timing Advance Control	
-Frequency info	
-UpPCH position info	22

RRC CONNECTION SETUP (Step 6)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
RRCConnectionSetup-r4-TDD128-add-ext-IEs	
frequencyInfo	Secondary frequency
Uplink DPCH info	
-Uplink Timing Advance Control	
-UpPCH position info	22

RRC CONNECTION SETUP (Step 4)

Use the default message with the same message type and covering the scenario used in this test (Transition to CELL_DCH) specified in clause 9 of TS 34.108.

RRC CONNECTION SETUP COMPLETE (Step 68)

Use the default message with the same message type specified in clause 9 of TS 34.108 with the following exception.

Information Element	Value/remark
UE Radio Access Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE radio access capability extension	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE system specific Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.

8.1.2.1a.5 Test requirement

After step 2 4 the UE shall re-transmit the RRC CONNECTION REQUEST message again in order to continue the RRC connection establishment procedure.

After step 3 the SS shall check IE "UE Specific Behaviour Information 1 idle" isn't included in received RRC CONNECTION REQUEST message.

After step 6 the UE shall establish an RRC connection and continue the procedure of the outgoing call on the DCCH of secondary frequency.

8.1.2.2 RRC Connection Establishment: Success after T300 timeout

8.1.2.2.1 Definition

8.1.2.2.2 Conformance requirement

If the UE has not yet received an RRC CONNECTION SETUP message with the value of the IE "Initial UE identity" equal to the value of the variable INITIAL_UE_IDENTITY; and

if expiry of timer T300 occurs:

the UE shall:

1> check the value of V300; and

2> if V300 is equal to or smaller than N300:

3> set the IEs in the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

3> submit a new RRC CONNECTION REQUEST message to lower layers for transmission on the uplink CCCH;

3> increment counter V300;

3> restart timer T300 when the MAC layer indicates success or failure to transmit the message.

2> if V300 is greater than N300:

…

Reference

3GPP TS 25.331 clause 8.1.3.5.

8.1.2.2.3 Test purpose

To confirm that the UE retries to establish the RRC connection until V300 is greater than N300 after the expiry of timer T300 when the SS transmits no response for an RRC CONNECTION REQUEST message.

8.1.2.2.4 Method of test

Initial Condition

System Simulator: 1 cell. SCCPCH configuration as specified in 6.1.0b of TS 34.108.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

NOTE: This test requires that N300 is bigger than 0, which is the case (see default contents of SIB 1, specified in TS 34.108). Expiry of timer T300 is verified only for N300 values exceeding 1.

Test Procedure

Before the test starts, SYSTEM INFORMATION BLOCK TYPE 1, SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis. and SYSTEM INFORMATION BLOCK TYPE 7 message are modified and this modification is notified to the UE. An internal counter K in SS is initialized to a value = 0. Following this, the UE shall transmit an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by use of selected PRACH from the available PRACH No.1 and PRACH No.2, after the operator attempts to make an outgoing call. SS ignores this message, increments K every time such a message is received and waits for T300 timer to expire. This cycle is repeated until K reaches N300. When K is equal to N300, the SS transmits an RRC CONNECTION SETUP message containing an IE “RRC state indicator” set to ‘CELL_PCH’ as specified in step 6 to the UE. The UE shall send another RRC CONNECTION REQUEST message on the uplink CCCH. SS replies with a valid RRC CONNECTION SETUP message. The UE shall then acknowledge the establishment of RRC connection by sending the RRC CONNECTION SETUP COMPLETE message on uplink DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PAGING TYPE 1	SS transmits the paging message which comprises IE "BCCH Modification Information", with the "Value Tag" different from the "MIB Value Tag" of the current Master Information Block. See specific message contents.
1a			Void	
1b	←		MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 1 SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis. SYSTEM INFORMATION BLOCK TYPE 7, SCHEDULING BLOCK 1	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting. At the same time, SS starts to transmit the affected SIB TYPE 1 , SIB TYPE 5 / SIB TYPE 5bis and SIB 7messages. See specific message contents.
1c				SS waits 5s (to ensure that the UE has time to read the new system information)
2				SS initializes counter K to 0. Operator is asked to make an outgoing call and SS starts to wait for RRC CONNECTION REQUEST on uplink CCCH.
3	→		RRC CONNECTION REQUEST	See the clause 9 in TS 34.108 on default message content
4				SS increments K.
5				SS checks to see if K is equal to N300. If so, goes to step 6. Else, continues to execute step 3.
6	←		RRC CONNECTION SETUP	IE “RRC state indicator” is set to ‘CELL_PCH’.
7	→		RRC CONNECTION REQUEST	See specific message contents.
8	←		RRC CONNECTION SETUP	This is a legal message. See the clause 9 in TS 34.108 on default message content for RRC.
9				The UE configures the layer 1 and layer 2.
10	→		RRC CONNECTION SETUP COMPLETE	See clause 9 in TS 34.108 on default message content

Specific Message Contents

PAGING TYPE 1 (Step 1)

Information Element	Value/remark
Message Type	
Paging record list	Not present
BCCH modification info	
- MIB Value Tag	Set to (Current MIB value tag + 1)
- BCCH Modification time	Not Present

MASTER INFORMATION BLOCK (Step 1b)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 1
SIB 1 Cell Value tag	Set to (Current SIB1 value tag + 1)
SIB 5 Cell Value tag	Set to (Current SIB5 value tag + 1)
SB 1 Cell Value tag	Set to (Current SB1 value tag + 1)

SCHEDULING BLOCK 1(Step 1b)

Information Element	Value/remark
SIB 6 Cell Value tag	Set to (Current SIB 6 value tag + 1)

SYSTEM INFORMATION TYPE 1 (Step 1b)

Use the default parameter values for the system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions:

- UE Timers and constants in idle mode	
-T300	2000 milliseconds
-N300	3
-T312	10 seconds
- N312	1

SYSTEM INFORMATION TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis (Step 1b) - (FDD)

Use the default parameter values for the system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/remark
- SIB6 indicator	FALSE
- PICH Power offset	-5 dB
- CHOICE Mode	FDD
- AICH Power offset	-5 dB
- Primary CCPCH info	Not present
- PRACH system information list	
- PRACH system information	2PRACHs
- PRACH info (PRACH No.1)	
- CHOICE mode	FDD
- Available Signature	'0000 0000 1111 1111'B
- Available SF	64
- Preamble scrambling code number	0
- Puncturing Limit	1.00
- Available Sub Channel number	'1111 1111 1111'B
- Transport Channel Identity	15
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	168
- Number of TB and TTI List	
- Number of Transport blocks	1
- CHOICE Mode	FDD
- CHOICE Logical Channel List	Configured
- RLC size	360
- Number of TB and TTI List	
- Number of Transport blocks	1
- CHOICE Mode	FDD
- CHOICE Logical Channel List	Configured
- Semi-static Transport Format information	
- Transmission time interval	20 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	
- Normal	
- TFCI Field 1 information	
- CHOICE TFCS representation	Complete reconfiguration
- TFCS addition information	
- CHOICE CTFC Size	2 bit
- CTFC information	0
- Power offset information	
- CHOICE Gain Factors	Computed Gain Factor
- Reference TFC ID	0
- CHOICE Mode	FDD
- Power offset Pp-m	0dB
- CTFC information	1
- Power offset information	
- CHOICE Gain Factors	Signalled Gain Factor
- Gain factor ßc	11
- Gain factor ßd	15
- Reference TFC ID	0
- CHOICE Mode	FDD
- Power offset Pp-m	0dB
- PRACH partitioning	
- Access Service Class	
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#1)
- Available signature End Index	7 (ASC#1)
- Assigned Sub-Channel Number	'1111'B

Information Element	Value/remark
	The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#3)
- Available signature End Index	7 (ASC#3)
- Assigned Sub-Channel Number	'1111'B
	The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#5)
- Available signature End Index	7 (ASC#5)
- Assigned Sub-Channel Number	'1111'B
	The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#7)
- Available signature End Index	7 (ASC#7)
- Assigned Sub-Channel Number	'1111'B
	The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	
- AC-to-ASC mapping	6 (AC0-9)
- AC-to-ASC mapping	5 (AC10)
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	0 (AC15)
CHOICE mode	FDD
- Primary CPICH DL TX power	31
- Constant value	–10
- PRACH power offset	
- Power Ramp Step	3dB
- Preamble Retrans Max	4
- RACH transmission parameters	
- Mmax	2
- NB01min	3 slot
- NB01max	10 slot
- AICH info	
- Channelisation code	3
- STTD indicator	FALSE
- AICH transmission timing	0
- PRACH info (PRACH No.2)	
- CHOICE mode	FDD
- Available Signature	'0000 0000 1111 1111'B
- Available SF	64
- Preamble scrambling code number	1
- Puncturing Limit	1.00
- Available Sub Channel number	'1111 1111 1111'B
- Transport Channel Identity	31
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	168

Information Element	Value/remark
- Number of TB and TTI List	
- Number of Transport blocks	1
- CHOICE Mode	FDD
- CHOICE Logical Channel List	Configured
- RLC size	360
- Number of TB and TTI List	
- Number of Transport blocks	1
- CHOICE Mode	FDD
- CHOICE Logical Channel List	Configured
- Semi-static Transport Format information	
- Transmission time interval	20 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	
- Normal	
- TFCI Field 1 information	
- CHOICE TFCS representation	Complete reconfiguration
- TFCS addition information	
- CHOICE CTFC Size	2 bit
- CTFC information	0
- Power offset information	
- CHOICE Gain Factors	Computed Gain Factor
- Reference TFC ID	0
- CHOICE Mode	FDD
- Power offset Pp-m	0 dB
- CTFC information	1
- Reference TFC ID	0
- Power offset information	
- CHOICE Gain Factors	Signalled Gain Factor
- Gain factor ßc	11
- Gain factor ßd	15
- Reference TFC ID	0
- CHOICE Mode	FDD
- Power offset Pp-m	0dB
- PRACH partitioning	
- Access Service Class	
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#1)
- Available signature End Index	7 (ASC#1)
- Assigned Sub-Channel Number	'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#3)
- Available signature End Index	7 (ASC#3)
- Assigned Sub-Channel Number	'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#5)
- Available signature End Index	7 (ASC#5)
- Assigned Sub-Channel Number	'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#7)
- Available signature End Index	7 (ASC#7)

Information Element	Value/remark
- Assigned Sub-Channel Number	'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	
- AC-to-ASC mapping	6 (AC0-9)
- AC-to-ASC mapping	5 (AC10)
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	0 (AC15)
CHOICE mode	FDD
- Primary CPICH DL TX power	31
- Constant value	–10
- PRACH power offset	
- Power Ramp Step	3dB
- Preamble Retrans Max	4
- RACH transmission parameters	
- Mmax	2
- NB01min	3 slot
- NB01max	10 slot
- AICH info	
- Channelisation code	13
- STTD indicator	FALSE
- AICH transmission timing	0

SYSTEM INFORMATION TYPE 5 (Step 1b) – 3.84 Mcps TDD

Use the default parameter values for the system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/remark
- PRACH system information	2PRACHs
- PRACH info (PRACH No.1)	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Timeslot Number	14
- PRACH Channelisation Code	
- CHOICE SF	8
- Channelisation Code List	
- Channelisation Code	8/1
- Channelisation Code	8/2
- Channelisation Code	8/3
- Channelisation Code	8/4
- PRACH Midamble	Direct
-PNBSCH allocation	Not Present
- Transport Channel Identity	15
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	168
- Number of TB and TTI List	
- Transport Time Interval	Not Present
- Number of Transport Blocks	1
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	Not Present
- PRACH partitioning	
- Access Service Class	
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#0)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#1)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#2)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#3)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#4)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#5)
- CHOICE subchannel size	Size1

Information Element	Value/remark
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#6)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#7)
- CHOICE subchannel size	Size1
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	
- AC-to-ASC mapping	6 (AC0-9)
- AC-to-ASC mapping	5 (AC10)
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	0 (AC15)
- CHOICE mode	TDD
- PRACH info (PRACH No.2)	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Timeslot Number	14
- PRACH Channelisation Code	
- CHOICE SF	8
- Channelisation Code List	
- Channelisation Code	8/5 where i denotes an unassigned code
- Channelisation Code	8/6 where i denotes an unassigned code
- Channelisation Code	8/7 where i denotes an unassigned code
- Channelisation Code	8/8 where i denotes an unassigned code
- PRACH Midamble	Direct
-PNBSCH allocation	Not Present
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	168
- Number of TB and TTI List	
- Transport Time Interval	Not Present
- Number of Transport Blocks	1
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	Not Present
- PRACH partitioning	
- Access Service Class	
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#0)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#1)
- CHOICE subchannel size	Size1
- ASC Setting	

Information Element	Value/remark
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#2)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#3)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#4)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#5)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#6)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#7)
- CHOICE subchannel size	Size1
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	
- AC-to-ASC mapping	6 (AC0-9)
- AC-to-ASC mapping	5 (AC10)
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	0 (AC15)
- CHOICE mode	TDD

SYSTEM INFORMATION TYPE 5 (Step 1b) – 1.28 Mcps TDD

Use the default parameter values for the system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/remark
- PRACH system information	2PRACHs
- PRACH info (PRACH No.1)	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- SYNC_UL info	
- SYNC_UL codes bitmap	'11110000'B
- $PRX_{UpPCHdes}$	10
- Power Ramping Step	3
- Max SYNC_UL Transmissions	8
- Mmax	32
- PRACH Definition	
- Timeslot Number	
- CHOICE TDD option	1.28 Mcps TDD
- Timeslot number	1
- PRACH Channelisation Code	
- Channelisation Code List	
- Channelisation Code	8/8
- Midamble shift and burst type	
- CHOICE TDD option	1.28 Mcps TDD
- Midamble Allocation Mode	Default
- Midamble Configuration	8
- Midamble Shift	Not Present
- FPACH info	
- Timeslot number	0
- Channelisation code	16/15
- Midamble Shift and burst type	
- CHOICE TDD option	1.28 Mcps TDD
- Midamble Allocation Mode	Default
- Midamble Configuration	8
- Midamble Shift	Not Present
- WT	4
- PNBSCH allocation	Not Present
- Transport Channel Identity	15
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	170
- Number of TB and TTI List	
- Transport Time Interval	Not Present
- Number of Transport Blocks	1
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	½
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	Not Present
- PRACH partitioning	
- Access Service Class	
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#0)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#1)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD

Information Element	Value/remark
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#2)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#3)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#4)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#5)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#6)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#7)
- CHOICE subchannel size	Size1
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	
- AC-to-ASC mapping	6 (AC0-9)
- AC-to-ASC mapping	5 (AC10)
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	0 (AC15)
- CHOICE mode	TDD
- PRACH info (PRACH No.2)	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- SYNC_UL info	
- SYNC_UL codes bitmap	'00001111'B
- $PRX_{UpPCHdes}$	10
- Power Ramping Step	1
- Max SYNC_UL Transmissions	8
- Mmax	32
- PRACH Definition	
- Timeslot Number	
- CHOICE TDD option	1.28 Mcps TDD
- Timeslot number	1
- PRACH Channelisation Code	
- Channelisation Code List	
- Channelisation Code	8/7
- Midamble shift and burst type	
- CHOICE TDD option	1.28 Mcps TDD
- Midamble Allocation Mode	Default
- Midamble Configuration	8
- Midamble Shift	Not Present
- FPACH info	
- Timeslot number	An available down-link timeslot

Information Element	Value/remark
- Channelisation code	16/16
- Midamble Shift and burst type	
- CHOICE TDD option	1.28 Mcps TDD
- Midamble Allocation Mode	Default
- Midamble Configuration	8
- Midamble Shift	Not Present
- WT	4
- PNBSCH allocation	Not Present
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	170
- Number of TB and TTI List	
- Transport Time Interval	Not Present
- Number of Transport Blocks	1
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	½
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	Not Present
- PRACH partitioning	
- Access Service Class	
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#0)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#1)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#2)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#3)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#4)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#5)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#6)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#7)
- CHOICE subchannel size	Size1
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)

Information Element	Value/remark
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	
- AC-to-ASC mapping	6 (AC0-9)
- AC-to-ASC mapping	5 (AC10)
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	0 (AC15)
- CHOICE mode	TDD

SYSTEM INFORMATION TYPE 5 (Step 1b) – 3.84 Mcps TDD

Use the default parameter values for the system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/remark
- PRACH system information	2PRACHs
- PRACH info (PRACH No.1)	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Timeslot Number	14
- PRACH Channelisation Code list VHCR	
- CHOICE SF	16
- Channelisation Code List	
- Channelisation Code	16/1
- Channelisation Code	16/2
- Channelisation Code	16/3
- Channelisation Code	16/4
- PRACH Midamble	Direct
-PNBSCH allocation	Not Present
- Transport Channel Identity	15
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	168
- Number of TB and TTI List	
- Transport Time Interval	Not Present
- Number of Transport Blocks	1
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	Not Present
- PRACH partitioning	
- Access Service Class	
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'1111000000000000'B (ASC#0)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'1111000000000000'B (ASC#1)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'1111000000000000'B (ASC#2)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'1111000000000000'B (ASC#3)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'1111000000000000'B (ASC#4)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'1111000000000000'B (ASC#5)
- CHOICE subchannel size	Size1

Information Element	Value/remark
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'1111000000000000'B (ASC#6)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'1111000000000000'B (ASC#7)
- CHOICE subchannel size	Size1
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	
- AC-to-ASC mapping	6 (AC0-9)
- AC-to-ASC mapping	5 (AC10)
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	0 (AC15)
- CHOICE mode	TDD
- PRACH info (PRACH No.2)	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Timeslot Number	14
- PRACH Channelisation Code list VHCR	
- CHOICE SF	16
- Channelisation Code List	
- Channelisation Code	16/5 where i denotes an unassigned code
- Channelisation Code	16/6 where i denotes an unassigned code
- Channelisation Code	16/7 where i denotes an unassigned code
- Channelisation Code	16/8 where i denotes an unassigned code
- PRACH Midamble	Direct
-PNBSCH allocation	Not Present
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	168
- Number of TB and TTI List	
- Transport Time Interval	Not Present
- Number of Transport Blocks	1
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	Not Present
- PRACH partitioning	
- Access Service Class	
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'0000111100000000'B (ASC#0)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'0000111100000000'B (ASC#1)
- CHOICE subchannel size	Size1
- ASC Setting	

Information Element	Value/remark
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'0000111100000000'B (ASC#2)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'0000111100000000'B (ASC#3)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'0000111100000000'B (ASC#4)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'0000111100000000'B (ASC#5)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'0000111100000000'B (ASC#6)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Available SYNC_UL codes indices	'0000111100000000'B (ASC#7)
- CHOICE subchannel size	Size1
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	
- AC-to-ASC mapping	6 (AC0-9)
- AC-to-ASC mapping	5 (AC10)
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	0 (AC15)
- CHOICE mode	TDD

Contents of System Information Block type 7 (FDD) – (Step 1b)

Use the default parameter values for the system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions:

- PRACHs listed in system information block type5 / system information block type 5bis	
- Dynamic persistence level	(2,2)
- PRACHs listed in system information block type6	Not present

RRC CONNECTION SETUP (Step 6)

SS sends a message containing an invalid RRC State Indicator

Information Element	Value/remark
RRC state indicator	CELL_PCH

RRC CONNECTION REQUEST (Step 7)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Protocol Error Indicator	Check to see if set to TRUE

8.1.2.2.5 Test requirement

After step 2 the UE shall select either PRACH No.1 or PRACH No.2 and transmit an RRC CONNECTION REQUEST message.

After step 6 the UE shall re-send another RRC CONNECTION REQUEST message.

After step 9 the UE shall transmit an RRC CONNECTION SETUP COMPLETE message and establish an RRC connection on the DCCH logical channel.

8.1.2.3 RRC Connection Establishment: Failure (V300 is greater than N300)

8.1.2.3.1 Definition

8.1.2.3.2 Conformance requirement

The UE shall initiate the procedure when upper layers in the UE requests the establishment of a signalling connection and the UE is in idle mode (no RRC connection exists).

Upon initiation of the procedure, the UE shall:

1> set the IE "Initial UE identity" in the variable INITIAL_UE_IDENTITY according to TS 25.331 subclause 8.5.1;

1> submit the RRC CONNECTION REQUEST message for transmission on the uplink CCCH;

1> set counter V300 to 1; and

1> start timer T300 when the MAC layer indicates success or failure to transmit the message;

1> select a Secondary CCPCH according to TS 25.304;

1> start receiving all FACH transport channels mapped on the selected Secondary CCPCH.

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

1> set the IE "Initial UE identity" to the value of the variable INITIAL_UE_IDENTITY;

…

1> if the UE has not yet received an RRC CONNECTION SETUP message with the value of the IE "Initial UE identity" equal to the value of the variable INITIAL_UE_IDENTITY; and

1> if cell re-selection or expiry of timer T300 occurs:

the UE shall:

1> check the value of V300; and

2> if V300 is equal to or smaller than N300:

…

3> set the IEs in the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

…

3> submit a new RRC CONNECTION REQUEST message to lower layers for transmission on the uplink CCCH;

3> increment counter V300;

3> restart timer T300 when the MAC layer indicates success or failure to transmit the message.

…

2> if V300 is greater than N300:

3> enter idle mode.

3> consider the procedure to be unsuccessful;

3> Other actions the UE shall perform when entering idle mode from connected mode are specified in TS 25.331 subclause 8.5.2;

3> the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.3.

8.1.2.3.3 Test purpose

To confirm that the UE stops retrying to establish the RRC connection if V300 is greater than N300 and goes back to idle mode.

8.1.2.3.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE. A Class A UE in manual mode will execute this test case on the CS domain.

Specific Message Contents

SYSTEM INFORMATION TYPE 1

Use the default parameter values for the system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions.

- UE Timers and constants in idle mode	
-T300	2000 milliseconds

Test Procedure

Before the test starts, SS initializes an internal counter K to 0. The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by an outgoing call operation. SS shall not respond to any RRC CONNECTION REQUEST message, instead the counter K is increased by 1 every time such a message is received. To arrive at the verdict, the SS checks that a total of (N300+1) such messages are received. SS calls for generic procedure C.1 to check that UE is in Idle Mode state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				SS initializes counter K to 0 and then prompts the operator to make an outgoing call.
2	→		RRC CONNECTION REQUEST	
3				SS increments K by 1.
4				If K is greater than N300, goes to step 5 else proceed to step 2.
5				SS monitor the uplink CCCH for a time period enough for UE to go back to idle state. SS waits for 5s.
6	←→		CALL C.1	If the test result of C.1 indicates that UE is in Idle Mode state, the test passes, otherwise it fails.

Specific Message Contents

None

8.1.2.3.5 Test requirement

After step 5, counter K shall be equal to (N300+1) and there shall be no uplink transmission in the monitoring period specified in step 5.

8.1.2.4 RRC Connection Establishment: Reject ("wait time" is not equal to 0)

8.1.2.4.1 Definition

8.1.2.4.2 Conformance requirement

When the UE receives an RRC CONNECTION REJECT message on the downlink CCCH, it shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION REJECT message with the value of the variable INITIAL_UE_IDENTITY:

If the values are different, the UE shall ignore the rest of the message;

If the values are identical, the UE shall stop timer T300 and:

1> if the IE "wait time" <> '0'; and

1> if the IE "frequency info" is present and:

2> if V300 is equal to or smaller than N300:

3> initiate cell selection on the designated UTRA carrier;

3> after having selected and camped on a cell:

4> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

4> set the contents of the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

4> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

4> transmit an RRC CONNECTION REQUEST message on the uplink CCCH;

4> reset counter V300;

4> start timer T300 when the MAC layer indicates success or failure in transmitting the message;

4> disable cell reselection to original carrier until the time stated in the IE "wait time" has elapsed;

3> if a cell selection on the designated carrier fails:

4> wait for the time stated in the IE "wait time";

4> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

4> set the IEs in the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

4> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

4> then submit a new RRC CONNECTION REQUEST message to the lower layers for transmission on the uplink CCCH of the original serving cell;

4> increment counter V300;

4> restart timer T300 when the MAC layer indicates success or failure to transmit the message;

2> if V300 is greater than N300:

3> enter idle mode;

3> perform the actions specified in TS 25.331 subclause 8.5.2 when entering idle mode from connected mode;

3> consider the RRC establishment procedure to be unsuccessful;

3> the procedure ends.

…

1> If the IEs "frequency info" not present……:

2> if V300 is equal to or smaller than N300:

3> wait at least the time stated in the IE "wait time";

3> set the IEs in the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.2;

3> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

3> submit a new RRC CONNECTION REQUEST message to the lower layers for transmission on the uplink CCCH;

3> increment counter V300;

3> restart timer T300 when the MAC layer indicates success or failure to transmit the message;

2> if V300 is greater than N300:

3> enter idle mode;

3> perform the actions specified in TS 25.331 subclause 8.5.2 when entering idle mode from connected mode;

3> consider the RRC establishment procedure to be unsuccessful;

3> the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.3.9.

8.1.2.4.3 Test purpose

To confirm that the UE retries to establish the RRC connection after the "wait time" elapses, if the UE receives an RRC CONNECTION REJECT message which includes the IE "wait time" not set to 0.

To confirm that the UE performs a cell reselection when receiving an RRC CONNECTION REJECT message, containing relevant frequency information of the target cell to be re-selected.

8.1.2.4.4 Method of test

Initial Condition

System Simulator: 2 cells – both cell 1 and cell 4 are active and suitable for camping, but cell 1 is transmitted using a larger power. Cell 1 and cell 4 are being transmitted from different 2 UARFCNs. The transmission power of cell 4 is 12 dB smaller than cell 1.

Table 8.1.2.4

Parameter	Unit	Cell 1	Cell 4
UTRA RF Channel Number		Mid Range Test Frequency	High Range Test Frequency
CPICH Ec (FDD)	dBm/3.84 MHz	-60	-72
P-CCPCH (TDD)	dBm	-60	-72

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by an outgoing call operation in cell 1. SS rejects the first request by transmitting an RRC CONNECTION REJECT message which indicates a non-zero wait time. In this message, frequency information for cell 4 is available. SS then waits for RRC CONNECTION REQUEST message on the uplink CCCH of cell 4. SS will also monitor the uplink of cell 1 simultaneously to ensure that all transmission activities from cell 1 have ceased. When the UE has successfully camp onto cell 4, it shall send an RRC CONNECTION REQUEST with the same establishment cause as its previous attempt in cell 1. SS responds with an RRC CONNECTION REJECT message, indicating a non-zero "wait time" and omitting the IE "Redirection Info". The UE shall observe the wait time period indicated. After the wait time has elapsed, the UE shall re-transmit RRC CONNECTION REQUEST again. Finally, SS transmits an RRC CONNECTION SETUP message to establish an RRC connection with the UE, and the UE replies with an RRC CONNECTION SETUP COMPLETE message and enters CELL_DCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		RRC CONNECTION REQUEST	SS prompts the operator to make an outgoing call in cell 1.
2	←		RRC CONNECTION REJECT	This message shall includes the IE "wait time" set to 5 seconds and IE "frequency info" set to the UARFCN of cell 4. Note: this wait time would apply after failure of the inter frequency cell re- selection, which is not verified in this test case
3				SS waits for a period of time sufficient for UE to reselect to cell 4. At the same time, it monitors the uplink of cell 1 to make sure that all transmissions have ceased.
4	→		RRC CONNECTION REQUEST	UE shall attempt to re-start an RRC connection establishment procedure in cell 4. The establishment cause shall remain unchanged.
5	←		RRC CONNECTION REJECT	This message shall include the IE "wait time" set to 5 seconds, but with IE "Redirection Info" absent.
6	→		RRC CONNECTION REQUEST	SS waits until the duration specified in IE "wait time" has elapsed and then listens to the uplink CCCH for a second RRC CONNECTION REQUEST message.
7	←		RRC CONNECTION SETUP	SS sends the message to UE to setup an RRC connection with the UE.
8				The UE shall configure the layer 2 and layer 1 in order to access the uplink and downlink DCCH assigned.
9	→		RRC CONNECTION SETUP COMPLETE	

Specific Message Contents

RRC CONNECTION REQUEST (Step 1, step 4 and step 6)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Must be "Originating Call"

RRC CONNECTION REJECT (Step 2) - FDD

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Wait time	5 seconds
Redirection Info	
- Frequency Info	
- CHOICE mode	FDD
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	Set to the UARFCN for downlink carrier of cell 4

RRC CONNECTION REJECT (Step 2) – TDD

Information Element	Value/remark
Wait time	5 seconds
Redirection Info	
Frequency Info	
CHOICE Mode	TDD
UARFCN (Nt)	Set to a different UARFCN from the carrier of cell 1

RRC CONNECTION REJECT (Step 5)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Wait time	5 seconds

8.1.2.4.5 Test requirement

After step 3 the UE shall have successfully re-selected to cell 4. UE shall trigger the start of RRC connection establishment by transmitting RRC CONNECTION REQUEST. The establishment cause shall be originating call.

After step 5 the UE shall observe the period specified in IE "wait time" of the RRC CONNECTION REJECT message and not transmit an RRC CONNECTION REQUEST message in this period.

After step 7 the UE shall transmit an RRC CONNECTION SETUP COMPLETE message to SS on uplink DCCH and then establish an RRC connection.

8.1.2.5 RRC Connection Establishment: Reject ("wait time" is not equal to 0 and V300 is greater than N300)

8.1.2.5.1 Definition

8.1.2.5.2 Conformance requirement

When the UE receives an RRC CONNECTION REJECT message on the downlink CCCH, it shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION REJECT message with the value of the variable INITIAL_UE_IDENTITY:

If the values are different, the UE shall ignore the rest of the message;

If the values are identical, the UE shall stop timer T300 and:

1> if the IE "wait time" <> '0'; and

1> if the IE "frequency info" is present and:

2> if V300 is equal to or smaller than N300:

3> initiate cell selection on the designated UTRA carrier;

3> after having selected and camped on a cell:

4> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

4> set the contents of the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

4> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

4> transmit an RRC CONNECTION REQUEST message on the uplink CCCH;

4> reset counter V300;

4> start timer T300 when the MAC layer indicates success or failure in transmitting the message;

4> disable cell reselection to original carrier until the time stated in the IE "wait time" has elapsed;

3> if a cell selection on the designated carrier fails:

4> wait for the time stated in the IE "wait time";

4> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

4> set the IEs in the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

4> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

4> then submit a new RRC CONNECTION REQUEST message to the lower layers for transmission on the uplink CCCH of the original serving cell;

4> increment counter V300;

4> restart timer T300 when the MAC layer indicates success or failure to transmit the message;

2> if V300 is greater than N300:

3> enter idle mode;

3> perform the actions specified in TS 25.331 subclause 8.5.2 when entering idle mode from connected mode;

3> consider the RRC establishment procedure to be unsuccessful;

3> the procedure ends.

…

1> If the IEs "frequency info" not present……:

2> if V300 is equal to or smaller than N300:

3> wait at least the time stated in the IE "wait time";

3> set the IEs in the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.2;

3> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

3> submit a new RRC CONNECTION REQUEST message to the lower layers for transmission on the uplink CCCH;

3> increment counter V300;

3> restart timer T300 when the MAC layer indicates success or failure to transmit the message;

2> if V300 is greater than N300:

3> enter idle mode;

3> perform the actions specified in TS 25.331 subclause 8.5.2 when entering idle mode from connected mode;

3> consider the RRC establishment procedure to be unsuccessful;

3> the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.3.9.

8.1.2.5.3 Test purpose

To confirm that the UE retries to establish the RRC connection after the "wait time" elapses if the UE receives an RRC CONNECTION REJECT message which specifies a non-zero IE "wait time".

To confirm that the UE stops retrying to establish the RRC connection if V300 is greater than N300 and goes back to idle mode.

8.1.2.5.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE

Test Procedure

Before the test starts, SS initializes an internal counter K to 0. The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH, triggered by an outgoing data call operation. SS rejects all requests by transmitting an RRC CONNECTION REJECT message which indicates a non-zero wait time and the counter K is increased by 1 every time such a message is received. To arrive at the verdict, the SS checks that a total of (N300+1) such messages are received and the UE enters idle state. SS calls for generic procedure C.1 to check that UE is in Idle Mode state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				SS initializes counter K to 0 and then prompts the operator to make an outgoing data call.
2	→		RRC CONNECTION REQUEST	Shall be sent on CCCH and contain the correct establishment cause.
3	←		RRC CONNECTION REJECT	This message includes the IE "wait time" set to 15 seconds.
4				SS increments K by 1.
5				If K is greater than N300, goes to step 6. Else SS waits for 15 sec before proceeding to step 2.
6				SS monitor the uplink CCCH for a time period enough for UE to goes back to idle state. SS waits for 5s.
7	←→		CALL C.1	If the test result of C.1 indicates that UE is in Idle Mode state, the test passes, otherwise it fails.

Specific Message Contents

RRC CONNECTION REQUEST (Step 2)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Must be "Originating Call"

RRC CONNECTION REJECT (Step 3)

Use the same message type found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
Wait time	15 seconds

8.1.2.5.5 Test requirement

After step 6, counter K shall be equals to (N300+1) and there shall be no uplink transmission in the monitoring period specified in step 6.

8.1.2.6 RRC Connection Establishment: Reject ("wait time" is set to 0)

8.1.2.6.1 Definition

8.1.2.6.2 Conformance requirement

When the UE receives an RRC CONNECTION REJECT message on the downlink CCCH, it shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION REJECT message with the value of the variable INITIAL_UE_IDENTITY:

If the values are different, the UE shall ignore the rest of the message;

If the UE has not yet received an RRC CONNECTION SETUP message with the value of the IE "Initial UE identity" equal to the value of the variable INITIAL_UE_IDENTITY; and

if expiry of timer T300 occurs:

the UE shall:

1> check the value of V300; and

2> if V300 is equal to or smaller than N300:

3> set the IEs in the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

3> submit a new RRC CONNECTION REQUEST message to lower layers for transmission on the uplink CCCH;

3> increment counter V300;

3> restart timer T300 when the MAC layer indicates success or failure to transmit the message.

2> if V300 is greater than N300:

…

Reference

3GPP TS 25.331 clause 8.1.3.9.

8.1.2.6.3 Test purpose

To confirm that the UE goes back to idle mode, if the SS transmits an RRC CONNECTION REJECT message which includes IE "wait time" set to 0. To confirm that the UE ignores an RRC CONNECT REJECT message not addressed to it. To confirm that the UE is capable of handling an erroneous RRC CONNECTION REJECT message correctly.

8.1.2.6.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by making an outgoing call. After the SS receives this message, it transmits an RRC CONNECTION REJECT message which is not addressed to the UE. The UE shall disregard this message and proceed to re-transmit RRC CONNECTION REQUEST message upon T300 timer expiry. SS answers the second RRC CONNECTION REQUEST message by transmitting an invalid RRC CONNECTION REJECT message. The UE shall continue to send the third RRC CONNECTION REQUEST message upon expiry of T300 timer. Next, the SS sends a legal RRC CONNECTION REJECT message which includes IE "wait time" which is set to '0'. To confirm that the UE goes back to idle mode immediately after receiving the reject message, SS shall monitor the uplink CCCH for the next 60 seconds and verify that there is no further transmission in the uplink direction.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		RRC CONNECTION REQUEST	Test operator is prompted to make an out-going call,
2	←		RRC CONNECTION REJECT	IE "Initial UE identity" contains an identity different from any of the UE identities available.
3	→		RRC CONNECTION REQUEST	UE shall send this message after T300 expires.
4	←		RRC CONNECTION REJECT	
5	→		RRC CONNECTION REQUEST	UE shall send this message after T300 expires.
6	←		RRC CONNECTION REJECT	IE "wait time" is set to 0.
7				The UE goes back to idle mode.

Specific Message Contents

RRC CONNECTION REQUEST (Step 1, 3 and 5)

Information Element	Value/remark
Message Type	
Initial UE Identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Checked to see if set to one of the supported originating call types
Protocol Error Indicator	Checked to see if set to "FALSE"
Measured Results on RACH	Checked to see if it is absent

RRC CONNECTION REJECT (Step 2)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	Set to the same type as in RRC CONNECTION REQUEST message (step 1) but with a different value.

RRC CONNECTION REJECT (Step 4)

Information Element	Value/remark
All IEs	Not Present

RRC CONNECTION REJECT (Step 6)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	Same as the type and value defined in RRC CONNECTION REQUEST message (step 5)
Reject Cause	Congestion
Wait time	0 second

8.1.2.6.5 Test requirement

After step 2 the UE shall transmit an RRC CONNECTION REQUEST message on uplink CCCH upon expiry of T300 timer.

After step 4 the UE shall re-transmit an RRC CONNECTION REQUEST message on the uplink CCCH upon expiry of T300 timer.

After step 6 the UE shall stop sending an RRC CONNECTION REQUEST message, go back to idle mode immediately and not transmit in the uplink direction again.

8.1.2.7 RRC Connection Establishment in CELL_FACH state: Success

8.1.2.7.1 Definition

8.1.2.7.2 Conformance requirement

The UE shall initiate the procedure when upper layers in the UE requests the establishment of a signalling connection and the UE is in idle mode (no RRC connection exists).

Upon initiation of the procedure, the UE shall:

…

1> set the contents of the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

1> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

1> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

1> submit the RRC CONNECTION REQUEST message for transmission on the uplink CCCH;

1> set counter V300 to 1; and

1> start timer T300 when the MAC layer indicates success or failure to transmit the message;

1> select a Secondary CCPCH according to TS 25.304;

1> start receiving all FACH transport channels mapped on the selected Secondary CCPCH.

….

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

1> set the IE "Establishment cause" to the value of the variable ESTABLISHMENT_CAUSE;

1> set the IE "Initial UE identity" to the value of the variable INITIAL_UE_IDENTITY;

…

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

If the values are different, the UE shall:

1> ignore the rest of the message.

If the values are identical, the UE shall:

1> stop timer T300, and act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified otherwise in the following:

2> if the UE, according to TS 25.331 subclause 8.6.3.3, will be in the CELL_FACH state at the conclusion of this procedure:

3> if the IE "Frequency info" is included:

4> select a suitable UTRA cell according to TS 25.304 on that frequency;

3> enter UTRA RRC connected mode;

3> select PRACH according to TS 25.331 subclause 8.5.17;

3> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

3> ignore the IE "UTRAN DRX cycle length coefficient" and stop using DRX.

1> if the UE, according to subclause 8.6.3.3, will be in the CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronization procedure as specified in TS 25.214 (FDD) or TS 25.224 (TDD);

2> enter UTRA RRC connected mode, in a state according to TS 25.331 subclause 8.6.3.3;

1> submit an RRC CONNECTION SETUP COMPLETE message to the lower layers on the uplink DCCH after successful state transition per TS 25.331 subclause 8.6.3.3, with the contents set as specified below:

2> set the IE "RRC transaction identifier" to:

3> the value of "RRC transaction identifier" in the entry for the RRC CONNECTION SETUP message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> clear that entry.

….

2> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and then

2> include this in IE "UE radio access capability" and IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

2> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and then

2> include this in IE "UE system specific capability".

When the RRC CONNECTION SETUP COMPLETE message has been submitted to lower layers for transmission the UE shall:

1> if the UE has entered CELL_FACH state:

2> start timer T305 using its initial value if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in system information block type 1.

….

1> consider the procedure to be successful;

And the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.3.2, 8.1.3.3 and 8.1.3.6.

8.1.2.7.3 Test Purpose

1. To confirm that the UE is able to enter CELL_FACH state and setup signalling radio bearers using common physical channels.
2. To confirm that the UE indicates the requested UE radio access capabilities (used by UTRAN to decide which RAB to establish) and UE system specific capabilities (may be used by UTRAN to configure inter RAT-measurements).

8.1.2.7.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by attempting to make an outgoing call. After the SS receives this message, it assigns the necessary radio resources and U-RNTI to be used by the UE, and then transmits an RRC CONNECTION SETUP message to the UE within timer T300. SS then waits for the UE to transmit an RRC CONNECTION SETUP COMPLETE message on the DCCH. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		RRC CONNECTION REQUEST	Test operator is requested to make an outgoing call. The UE shall transmit this message, indicating the correct establishment cause. See specific message contents.
2	←		RRC CONNECTION SETUP	See specific message contents.
3				The UE shall configure the layer 2 and layer 1.
4	→		RRC CONNECTION SETUP COMPLETE	UE shall send this message on the DCCH, carried by the assigned PRACH resources. See specific message contents. FDD or TDD
5	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Content

RRC CONNECTION REQUEST

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Originating Conversational Call or Originating Interactive Call or Originating Background Call or Originating Streaming Call or OriginatingSubscribedTrafficCall

RRC CONNECTION SETUP (FDD)

For this message, the contents of the message to be used are basically identical to the message sub-type entitled "RRC CONNECTION SETUP message (Transition to CELL_FACH)" found in TS 34.108, clause 9 with the following exception:

Information Element	Value/remark
Capability update requirement	
UE radio access FDD capability update requirement	TRUE
UE radio access TDD capability update requirement	FALSE
System specific capability update requirement list	gsm

RRC CONNECTION SETUP (3.84 Mcps TDD)

For this message, the contents of the message to be used are basically identical to the message sub-type entitled "RRC CONNECTION SETUP message (Transition to CELL_FACH)" found in TS 34.108, clause 9 with the following exception:

Information Element	Value/remark
Capability update requirement	
UE radio access FDD capability update requirement	FALSE
UE radio access TDD capability update requirement	TRUE
System specific capability update requirement list	gsm

RRC CONNECTION SETUP (1.28 Mcps TDD)

For this message, the contents of the message to be used are basically identical to the message sub-type entitled "RRC CONNECTION SETUP message (Transition to CELL_FACH)" found in TS 34.108, clause 9 with the following exception:

Information Element	Value/remark
Capability update requirement	
UE radio access FDD capability update requirement	FALSE
UE radio access3.84 Mcps TDD capability update requirement	FALSE
UE radio access 1.28 Mcps TDD capability update requirement	TRUE
System specific capability update requirement list	gsm

RRC CONNECTION SETUP (7.68 Mcps TDD)

For this message, the contents of the message to be used are basically identical to the message sub-type entitled "RRC CONNECTION SETUP message (Transition to CELL_FACH)" found in TS 34.108, clause 9 with the following exception:

Information Element	Value/remark
Capability update requirement	
UE radio access FDD capability update requirement	FALSE
UE radio access 3.84 Mcps TDD capability update requirement	FALSE
UE radio access 7.68 Mcps TDD capability update requirement	TRUE
UE radio access 1.28 Mcps TDD capability update requirement	FALSE
System specific capability update requirement list	gsm

RRC CONNECTION SETUP COMPLETE

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
UE Radio Access Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE radio access capability extension	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE system specific Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.

8.1.2.7.5 Test requirements

After step 3 the UE shall establish the RRC connection, and transmit RRC CONNECTION SETUP COMPLETE message on the DCCH using PRACH physical resource specified in system information block messages.

8.1.2.8 Void

8.1.2.9 RRC Connection Establishment: Success after Physical channel failure and Failure after Invalid configuration

8.1.2.9.1 Definition

8.1.2.9.2 Conformance requirement

If the UE failed to establish, per TS 25.331 subclause 8.5.4, the physical channel(s) indicated in the RRC CONNECTION SETUP message.

After having received an RRC CONNECTION SETUP message with the value of the IE "Initial UE identity" equal to the value of the variable INITIAL_UE_IDENTITY.

Before the RRC CONNECTION SETUP COMPLETE message is delivered to lower layers for transmission,

the UE shall:

1> clear the entry for the RRC CONNECTION SETUP message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> check the value of V300, and:

2> if V300 is equal to or smaller than N300:

3> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

3> set the IEs in the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

3> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

3> submit a new RRC CONNECTION REQUEST message to the lower layers for transmission on the uplink CCCH;

3> increment counter V300; and

3> restart timer T300 when the MAC layer indicates success or failure in transmitting the message.

2> if V300 is greater than N300:

…

If the UE receives an RRC CONNECTION SETUP message which contains an IE "Initial UE identity" with a value which is identical to the value of the variable INITIAL_UE_IDENTITY; and

the variable INVALID_CONFIGURATION becomes set to TRUE due to the received RRC CONNECTION SETUP message:

the UE shall:

1> clear the entry for the RRC CONNECTION SETUP message in the table "Accepted transactions" in the variable TRANSACTIONS and proceed as below;

1> if V300 is equal to or smaller than N300:

2> set the variable PROTOCOL_ERROR_INDICATOR to TRUE;

2> set the IEs in the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

2> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13; and

2> apply the given Access Service Class when accessing the RACH;

2> submit a new RRC CONNECTION REQUEST message to the lower layers for transmission on the uplink CCCH;

2> increment counter V300; and

2> restart timer T300 when the MAC layer indicates success or failure in transmitting the message.

1> if V300 is greater than N300:

…

Reference

3GPP TS 25.331 clause 8.1.3.

8.1.2.9.3 Test purpose

1. To confirm that the UE retries to establish the RRC connection until V300 is greater than N300 when a physical channel failure occurs because SS does not configure the physical channel that is specified in the transmitted RRC CONNECTION SETUP message.

2. To confirm that the UE retries to establish the RRC connection until V300 is greater than N300 when the transmitted RRC CONNECTION SETUP message causes invalid configuration in the UE.

8.1.2.9.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE. A Class A UE in manual mode will execute this test case on the CS domain.

Test Procedure

Before the test starts, SYSTEM INFORMATION BLOCK TYPE 1 is modified and this modification is notified to the UE. An internal counter K in SS is initialised to a value = 0. Following this, the UE shall transmit an RRC CONNECTION REQUEST message to the SS on the uplink CCCH, after the operator attempts to make an outgoing call. SS increments K every time such a message is received. Then, SS shall send a RRC CONNECTION SETUP message that contains an invalid configuration. UE shall then send RRC CONNECTION REQUEST message to SS again. This cycle is repeated until K reaches N300+1. When K is equal to N300+1, the SS again transmits an RRC CONNECTION SETUP message including an invalid configuration. Upon receiving this message the UE shall not send another RRC CONNECTION REQUEST message.

Next the SS re-initialises the internal counter K to value = 0, after which the operator attempts to make another outgoing call. Following this, the UE shall transmit an RRC CONNECTION REQUEST message to the SS on the uplink CCCH. SS increments K every time such a message is received. SS transmits an RRC CONNECTION SETUP message to make the UE configure the physical channel in order to communicate on the DCCH but SS does not configure the physical channel. Then the UE detects the physical channel failure and transmits an RRC CONNECTION REQUEST message. This cycle is repeated until K reaches N300+1. When K is equal to N300+1, the SS transmits the RRC CONNECTION SETUP message and configures the physical channel. The UE shall detect "in-sync" from physical layer and then acknowledge the establishment of RRC connection by sending the RRC CONNECTION SETUP COMPLETE message on uplink DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0		←	PAGING TYPE 1	SS transmits the paging message which comprises IE "BCCH Modification Information", with the "Value Tag" different from the "MIB Value Tag" of the current Master Information Block. See specific message contents.
0a		←	MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 1	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting. At the same time, SS starts to transmit the affected SIB TYPE 1 messages. See specific message contents.
				SS waits 5s (to ensure that the UE has time to read the new system information)
1				SS initialises counter K to 0. Operator is asked to make an outgoing call and SS starts to wait for RRC CONNECTION REQUEST on uplink CCCH.
2		→	RRC CONNECTION REQUEST	See specific message contents.
2a				SS increments K by 1 for every RRC CONNECTION REQUEST message received in step 2
2b		←	RRC CONNECTION SETUP	See specific message contents.
3				SS checks to see if K is equal to N300+1. If so, goes to step 3a. Else, continues to execute step 2.
3a				SS waits to verify that the UE does not send any further RRC CONNECTION REQUEST message

Step	Direction		Message	Comment
	UE	SS		
3b				SS re-initialises counter K to 0. Operator is asked to make another outgoing call and SS starts to wait for RRC CONNECTION REQUEST on uplink CCCH.
3c	→		RRC CONNECTION REQUEST	See specific message contents.
3d				SS increments K by 1 for every RRC CONNECTION REQUEST message received in step 3c
3e				SS checks to see if K is equal to N300+1. If so, goes to step 6. Else, continues to execute step 4
4	←		RRC CONNECTION SETUP	Use the default message with the same message sub-type specified in clause 9 in TS 34.108. SS does not configure the physical channel.
5				The next step is step 3c.
6	←		RRC CONNECTION SETUP	Use the default message with the same message sub-type specified in clause 9 in TS 34.108. SS configures the physical channel.
7				The UE configures the layer 1 and layer 2.
8	→		RRC CONNECTION SETUP COMPLETE	Use the default message with the same message sub-type specified in clause 9 in TS 34.108.

Specific Message Contents

PAGING TYPE 1 (Step 0)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
- MIB Value Tag	Set to (Current MIB value tag + 1)
- BCCH Modification time	Not Present

MASTER INFORMATION BLOCK (Step 0a)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 0
SIB 1 Cell Value tag	Set to (Current SIB1 value tag + 1)

SYSTEM INFORMATION TYPE 1 (Step 0a)

Use the default parameter values for the system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions:

- UE Timers and constants in idle mode	
-T300	2000 milliseconds
-N300	3
-T312	7 seconds
- N312	1

RRC CONNECTION REQUEST (Step 2 & step 3c, K=0)

The same message sub-type found in clause 9 of TS 34.108 applies, with the following exceptions:

Information Element	Value/remark
Initial UE identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Originating Interactive Call or Originating Background Call or Originating Streaming Call or Originating Conversational Call or OriginatingSubscribedTrafficCall

RRC CONNECTION REQUEST (Step 2 & step 3c, K>0)

The same message sub-type found in clause 9 of TS 34.108 applies, with the following exceptions:

Information Element	Value/remark
Initial UE identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Originating Interactive Call or Originating Background Call or Originating Streaming Call or Originating Conversational Call or OriginatingSubscribedTrafficCall
Protocol error indicator	Not Checked

RRC CONNECTION SETUP (Step 2b)

Use the same message sub-type found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_DCH
Uplink DPCH info	Not present

8.1.2.9.5 Test requirement

After step 3a the UE shall not send any further RRC CONNECTION REQUEST message.

After step 8 the UE shall transmit an RRC CONNECTION SETUP COMPLETE message and establish an RRC connection.

8.1.2.10 RRC connection establishment in CELL_DCH on another frequency

8.1.2.10.1 Definition

8.1.2.10.2 Conformance requirement

1. The UE shall, in the transmitted RRC CONNECTION REQUEST message:

   1> set the IE "Establishment cause" to the value of the variable ESTABLISHMENT_CAUSE;

   1> set the IE "Initial UE identity" to the value of the variable INITIAL_UE_IDENTITY;

   1> set the IE "Protocol error indicator" to the value of the variable PROTOCOL_ERROR_INDICATOR;

   1> include a measurement report in the IE "Measured results on RACH", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in System Information Block type 11; and

   1> include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported; and

   1> take care that the maximum allowed message size is not exceeded when forming the IE "Measured results on RACH".

   ….

2. The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

   …

If the values are identical, the UE shall:

   …

   1> if the UE, according to subclause 8.6.3.3, will be in the CELL_DCH state at the conclusion of this procedure:

      2> perform the physical layer synchronisation procedure A as specified in [29] (FDD only).

Reference

3GPP TS 25.331 clauses 8.1.3.3, 8.1.3.6

8.1.2.10.3 Test Purpose

To confirm that the UE manages to establish an RRC CONNECTION on another frequency when so required by SS in the RRC CONNECTION SETUP message.

8.1.2.10.4 Method of test

Initial condition

System simulator: 2 cells – Cell 1 on UARFCN 1 and Cell 4 on UARFCN 4.

UE: "Registered idle mode on CS" (state 2) or "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE. If the UE supports both CS and PS domains, the initial state shall be "Registered idle mode on CS/PS" (state 7).

Specific Message Content

For system information block 11 for Cell 1 (gives IE's which are different from defaults given in 34.108 sec 6.1) to be transmitted before idle update preamble.

System Information Block type 11

Use same message sub-clause 6.1 of TS34.108, with following exception:

Information Element	Value/remark
SIB12 indicator	FALSE
Measurement control system information	
- Intra-frequency measurement system information	
- Intra-frequency reporting quantity for RACH reporting	
- SFN-SFN observed time difference reporting indicator	No report
- CHOICE mode	FDD
- Reporting quantity	CPICH Ec/No
- Maximum number of reported cells on RACH	Current Cell
- Reporting information for state CELL_DCH	Not present

System Information Block type 11 (TDD)

Use same message sub-clause 6.1 of TS34.108, with following exception:

Information Element	Value/remark
- SIB12 indicator	FALSE
Measurement control system information	
- Intra-frequency measurement system information	
- Intra-frequency reporting quantity for RACH reporting	
- SFN-SFN observed time difference reporting indicator	No report
- CHOICE mode	TDD
- Reporting quantity	Primary CCPCH RSCP
- Maximum number of reported cells on RACH	Current Cell
- Reporting information for state CELL_DCH	Not present

Test procedure

The UE is initially in idle mode and is camping on cell 1. SIB 11 is broadcast in cell 1.

SS prompts the operator to make an outgoing call of a supported traffic class. The UE shall transmit an RRC CONNECTION REQUEST on the CCCH, and SS replies with the RRC CONNECTION SETUP, in which the IEs are set as described below. The UE shall send the RRC CONNECTION SETUP COMPLETE back to SS in cell 4 on the DPCH described in the RRC CONNECTION SET UP message received from the SS. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Note: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		RRC CONNECTION REQUEST	By outgoing call operation
2	←		RRC CONNECTION SETUP	Indicating frequency of cell 4 and IE "Primary CPICH info" set to Primary Scrambling Code assigned to P-CPICH of cell 4 for FDD / IE "Cell Parameters ID" set to cell 4 for LCR TDD.
3				The UE configures the layer 2 and layer 1.
4	→		RRC CONNECTION SETUP COMPLETE	This message is sent to SS on the frequency indicated in the RRC CONNECTION SETUP message
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific message content

All messages indicated below shall use the same content as found in TS 34.108 clause 6.1 with the following exceptions:

RRC CONNECTION REQUEST (Step 1) (FDD)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Measured results on RACH	Check that the Ec/No for the cell 1 is reported.

RRC CONNECTION REQUEST (Step 1) (TDD)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Measured results on RACH	Check that the P-CCPCH RSCP for the cell 1 is reported.

RRC CONNECTION SETUP (Step 2) (FDD)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Frequency info	
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink(Nd)	UARFCN downlink of cell 4
Downlink information for each radio links	
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for cell 4

RRC CONNECTION SETUP (Step 2) (TDD)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Frequency info - UARFCN(Nt)	UARFCN of the cell 4
Downlink information for each radio link list - Downlink information for each radio link - Choice mode TDD - Primary CCPCH info - CHOICE mode TDD - Cell parameters ID	Cell parameters ID of the cell 4

8.1.2.10.5 Test requirement

In step 4, the UE shall send the RRC CONNECTION SETUP COMPLETE message on the frequency indicated in the RRC CONNECTION SETUP message.

8.1.2.10a RRC connection establishment in CELL_DCH on another frequency in a different frequency band

8.1.2.10a.1 Definition

This test case is identical to test case 8.1.2.10 except that the target cell is on a different frequency band.

8.1.2.10a.2 Conformance requirement

Same conformance requirement as in clause 8.1.2.10.2.

8.1.2.10a.3 Test Purpose

Same test purpose as in clause 8.1.2.10.3 except that the target cell is on a different frequency band.

8.1.2.10a.4 Method of test

Initial condition

Same initial conditions as in clause 8.1.2.10.4 except that cell 1 and cell 4 use the UARFCNs in two different frequency bands. The frequency bands for cell 1 and cell 4 are selected according to PIXIT parameters.

Related ICS/IXIT statement(s)

- UE supports multiple bands simultaneously yes/no

Specific message content

Same specific message content for system information as in clause 8.1.2.10.4.

Test procedure

Same test procedure as in clause 8.1.2.10.4.

Note: If the UE supports more than 2 frequency bands, the test may be executed for various band combinations.

Specific message content

Same specific message content as in clause 8.1.2.10.4.

8.1.2.10a.5 Test requirement

Same test requirement as in clause 8.1.2.10.5.

8.1.2.10b RRC connection establishment in CELL_DCH on another frequency in a different frequency band (TDD a-f band)

8.1.2.10b.1 Definition

This test case is identical to test case 8.1.2.10 except that the target cell is on a different frequency band.

8.1.2.10b.2 Conformance requirement

Same conformance requirement as in clause 8.1.2.10.2.

8.1.2.10b.3 Test Purpose

Same test purpose as in clause 8.1.2.10.3 except that the target cell is on a different frequency band.

8.1.2.10b.4 Method of test

Initial condition

Same initial conditions as in clause 8.1.2.10.4 except that carriers for cell 1 and cell 4 in two different frequency bands. The frequency bands for cell 1 and cell 4 are selected according to PIXIT parameters.

Related ICS/IXIT statement(s)

- UE supports multiple bands simultaneously yes/no

Specific message content

Same specific message content for system information as in clause 8.1.2.10.4.

Test procedure

Same test procedure as in clause 8.1.2.10.4.

Note: If the UE supports more than 2 frequency bands, the test may be executed for various band combinations.

Specific message content

Same specific message content as in clause 8.1.2.10.4.

8.1.2.10b.5 Test requirement

Same test requirement as in clause 8.1.2.10.5.

8.1.2.11 RRC Connection Establishment in FACH state (Frequency modification): Success

8.1.2.11.1 Definition

8.1.2.11.2 Conformance requirement

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the UE storing "Initial UE identity".

If the values are different, the UE shall:

1> ignore the rest of the message.

If the values are identical, the UE shall:

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified otherwise in the following:

2> if the UE, according to subclause 8.6.3.3, will be in the CELL_FACH state at the conclusion of this procedure:

3> if the IE "Frequency info" is included:

4> select a suitable UTRA cell according to TS25.304 on that frequency;

3> enter UTRA RRC connected mode;

3> select PRACH according to TS25.331 subclause 8.5.17;

3> select Secondary CCPCH according to TS5.331 subclause 8.5.19;

3> ignore the IE "UTRAN DRX cycle length coefficient" and stop using DRX.

1> if the UE, according to subclause 8.6.3.3, will be in the CELL_DCH state at the conclusion of this procedure:

….

2> enter UTRA RRC connected mode, in a state according to TS25.331 subclause 8.6.3.3;

1> submit an RRC CONNECTION SETUP COMPLETE message to the lower layers on the uplink DCCH after successful state transition per TS25.331 subclause 8.6.3.3, with the contents set as specified below:

….

And the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.3.6.

8.1.2.11.3 Test purpose

To confirm that the UE enters to CELL_FACH state and correctly establishes signalling radio bearers using common physical channels of a cell within the frequency band specified by SS in RRC CONNECTION SETUP message.

8.1.2.11.4 Method of test

Initial Condition

System Simulator: 2 cells–Cells 1 is active and cell 6 is inactive.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Specific Message Content

For system information block 3 for Cell 1 (gives IE's which are different from defaults given in 34.108 sec 6.1) to be transmitted before idle update preamble.

System Information Block type 3 (1.28Mcps TDD)

Use same message sub-clause 6.1 of TS34.108, with following exception:

Information Element	Value/remark
- Cell selection and re-selection info	
- CHOICE mode	TDD
-- Qrxlevmin	-103 dBm

For system information block 11 for Cell 1 (gives IE's which are different from defaults given in 34.108 sec 6.1) to be transmitted before idle update preamble.

System Information Block type 11

Use same message sub-clause 6.1 of TS34.108, with following exception:

Information Element	Value/remark
- Intra-frequency reporting quantity for RACH Reporting	
- SFN-SFN observed time difference reporting indicator	No report
- CHOICE *mode*	
- FDD	
- Reporting quantity	CPICH Ec/N0
- Maximum number of reported cells on RACH	current cell

System Information Block type 11 (TDD)

Use same message sub-clause 6.1 of TS34.108, with following exception:

Information Element	Value/remark
- Intra-frequency reporting quantity for RACH Reporting	
-SFN-SFN observed time difference reporting indicator	No report
- CHOICE mode	TDD
- CHOICE measurement quantity	PCCPCH RSCP
- Maximum number of reported cells on RACH	current cell

Test Procedure

Table 8.1.2.11

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-55	-72	Off	-72
P-CCPCH RSCP (TDD)	dBm	-55	-72	Off	-72

Table 8.1.2.11 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings from columns "T0" to "T1", whenever the description in multi-cell condition specifies the transmission power settings for cell 1 and cell 6.

The UE is in Idle mode of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.1.2.11. The SS switches its downlink transmission power settings to columns "T1" and the UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by attempting to make an outgoing call. After SS receives this message, it assigns the necessary radio resources and U-RNTI to be used by the UE. The SS then transmits an RRC CONNECTION SETUP message containing an IE "frequency info" IE "Frequency info" set to uplink/downlink UARFCN as used for cell 6 and IE "Primary CPICH info" set to Primary Scrambling Code assigned to P-CPICH of cell 6 for FDD mode, and UARFCN as used for cell 6 and IE "Primary CCPCH RSCP info" set as assigned in cell 6 for TDD mode. The SS monitors all uplink RACH channels of cell 6.The UE transmitting an RRC CONNECTION SETUP COMPLETE message on the DCCH (mapped onto RACH) of cell 6.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The initial state of UE is in Idle mode of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.1.2.11.
2				The SS switches its downlink transmission power settings to columns "T1" in table 8.1.2.11.
3	→		RRC CONNECTION REQUEST	Operator makes an outgoing call. The UE shall transmit this message, indicating the proper establishment cause.
4	←		RRC CONNECTION SETUP	Including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CPICH info" set to Primary Scrambling Code assigned to P-CPICH of cell 6 for FDD mode, and IE "Primary CCPCH RSCP info" set as assigned in cell 6 for TDD mode.
5	→		RRC CONNECTION SETUP COMPLETE	UE shall send this message on the DCCH, carried by the assigned PRACH resources in cell 6.

Specific Message Content

RRC CONNECTION REQUEST (Step 3) (FDD)

Use the same message type found in clause 9 of TS 34.108, with the following exception:

Information Element	Value/remark
Initial UE identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Originating Interactive Call or Originating Background Call or Originating Streaming Call or Originating Conversational Call or OriginatingSubscribedTrafficCall
Measured results on RACH	Check to see if set in accordance with the IE "Intra-frequency reporting quantity for RACH Reporting" included in SYSTEM INFORMATION BLOCK Type 11
- Measurement result for current cell - CHOICE mode - FDD - CHOICE measurement quantity - CPICH Ec/N0	The actual reported value is not checked

RRC CONNECTION REQUEST (Step 3) (TDD)

Use the same message type found in clause 9 of TS 34.108, with the following exception:

Information Element	Value/remark
Initial UE identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Originating Interactive Call or Originating Background Call or Originating Streaming Call or Originating Conversational Call or OriginatingSubscribedTrafficCall
Measured results on RACH	Check to see if set in accordance with the IE "Intra-frequency reporting quantity for RACH Reporting" included in SYSTEM INFORMATION BLOCK Type 11
- Measurement result for current cell	
- CHOICE mode	TDD
- CHOICE measurement quantity	
- P-CCPCH RSCP	The actual reported value is not checked

RRC CONNECTION SETUP (Step 4) (FDD)

For this message, the contents of the message to be used are basically identical to the message sub-type entitled "RRC CONNECTION SETUP message (Transition to CELL_FACH)" found in [9] TS 34.108 clause 9 with the following exception:

Information Element	Value/remark
Frequency info	
- UARFCN uplink(Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
Downlink information for each radio links	
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for cell 6

RRC CONNECTION SETUP (Step 4) (TDD)

For this message, the contents of the message to be used are basically identical to the message sub-type entitled "RRC CONNECTION SETUP message (Transition to CELL_FACH)" found in [9] TS 34.108 clause 9 with the following exception:

Information Element	Value/remark
Frequency info	
- UARFCN (Nt)	Same UARFCN as used for cell 6
Downlink information for each radio links	
- Primary CCPCH info	
- Cell parameters ID	As used for cell 6

RRC CONNECTION SETUP COMPLETE (Step 5)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
UE Radio Access Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE radio access capability extension	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE system specific Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.

8.1.2.11.5 Test requirement

After step 5 the UE shall transmit RRC CONNECTION SETUP COMPLETE message on the uplink DCCH in cell 6.

8.1.2.12 RRC Connection Establishment: Reject with interRATInfo is set to GSM

8.1.2.12.1 Definition

8.1.2.12.2 Conformance requirement

When the UE receives an RRC CONNECTION REJECT message on the downlink CCCH, it shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION REJECT message with the value of the variable INITIAL_UE_IDENTITY:

If the values are different, the UE shall ignore the rest of the message;

If the values are identical, the UE shall:

1> stop timer T300; and

1> clear the entry for the RRC CONNECTION REJECT message in the table "Accepted transactions" in the variable TRANSACTIONS;

...

1> if the IE "inter-RAT info" is present and:

2> if V300 is equal to or smaller than N300:

3> select a suitable cell belonging to the selected PLMN or any PLMN indicated to be equivalent to that PLMN in the designated RAT;

3> after having selected and camped on a suitable cell on the designated RAT:

4> disable cell reselection to the original RAT until the time stated in the IE "wait time" has elapsed.

8.1.2.12.3 Test Purpose

To verify that the UE shall select the GSM cell when RRC Connection Reject with Inter-RAT info set to GSM is received in response to RRC connection request.

Reference

3GPP TS 25.331, section 8.1.3.9

8.1.2.12.4 Method of test

Initial condition

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 9 is GSM. GSM 51.010 clause 40 shall be referenced for the default parameters, and clause 26.6.5.1 shall be referenced for cell allocation of cell 9. The Inter-RAT Cell Info List of Cell 1 refers to Cell 9. The 3G Neighbour Cell Description List of Cell 9 refers to Cell 1.

UE: Idle state (state 2) as specified in clause 7.4 of TS 34.108

Related ICS/IXIT statement(s)

- UE supports both GSM and UTRAN Radio Access Technologies,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-850, GSM-PCS.
- PS Supported yes/no
- Support of automatic PS attach procedure at switch on yes/no

Test procedure

The UE transmits an RRC CONNECTION REQUEST message for making an MO call. After the SS receives this message, it transmits an RRC CONNECTION REJECT message with interRATInfo set to "GSM" and wait time set to 10 seconds. UE then selects GSM cell specified in SIB11 and sends a CHANNEL REQUEST for making an MO call. RR connection is successfully established. Thereafter an MO call is established in the GSM cell.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				Prompt the operator to make an outgoing call.
2	→		RRC CONNECTION REQUEST	
3	←		RRC CONNECTION REJECT	See specific message contents.
4	UE			UE selects the GSM cell specified in the SIB11.
5	→		CHANNEL REQUEST	UE requests for RR connection to establish the MO call.
6	←		IMMEDIATE ASSIGNMENT	RR connection is established. Thereafter UE proceeds with the MO call establishment. SS completes the call establishment procedure.
7	SS			It is verified that the MO call is successfully established by sending a STATUS ENQUIRY message. The UE shall respond with a STATUS message indicating that it is in state U10.

Specific message contents

RRC CONNECTION REJECT in step 4:

Wait time	10 seconds
Redirectioninfo	
InterRATInfo	GSM

8.1.2.12.5 Test requirement

1) At step 5, UE should respond on GSM cell.

2) At step 7, UE should be in CC state U10 in the GSM cell.

8.1.2.13 RRC Connection Establishment: Reject with InterRATInfo is set to GSM and selection to the designated system fails

8.1.2.13.1 Definition

8.1.2.13.2 Conformance requirement

When the UE receives an RRC CONNECTION REJECT message on the downlink CCCH, it shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION REJECT message with the value of the variable INITIAL_UE_IDENTITY:

If the values are different, the UE shall ignore the rest of the message;

If the values are identical, the UE shall:

1> stop timer T300; and

1> clear the entry for the RRC CONNECTION REJECT message in the table "Accepted transactions" in the variable TRANSACTIONS;

...

1> if the IE "inter-RAT info" is present and:

2> if V300 is equal to or smaller than N300:

3> if no suitable cell in the designated RAT is found:

4> wait at least the time stated in the IE "wait time";

4> set CFN in relation to SFN of current cell according to subclause 8.5.15;

4> set the IEs in the RRC CONNECTION REQUEST message according to subclause 8.1.3.2.

4> perform the mapping of the Access Class to an Access Service Class as specified in subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

4> then submit a new RRC CONNECTION REQUEST message to the lower layers for transmission on the uplink CCCH;

4> increment counter V300;

4> restart timer T300 when the MAC layer indicates success or failure to transmit the message;

....

2> if V300 is greater than N300:

3> enter idle mode;

3> perform the actions specified in subclause 8.5.2 when entering idle mode from connected mode;

3> consider the RRC establishment procedure to be unsuccessful;

3> the procedure ends.

8.1.2.13.3 Test Purpose

To verify that the UE upon receiving RRC Connection Reject with Inter-RAT info set to GSM and failing to select the designated GSM system shall reselect UTRAN cell only after the wait time specified in RRC Connection Reject. The UE shall then continue with the RRC CONNECTION establishment procedure.

Reference

3GPP TS 25.331, section 8.1.3.9

8.1.2.13.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, the value of N300 is set to 1. Cell 9 is GSM. GSM 51.010 clause 40 shall be referenced for the default parameters, and clause 26.6.5.1 shall be referenced for cell allocation of cell 9. The Inter-RAT Cell Info List of Cell 1 refers to Cell 9. The 3G Neighbour Cell Description List of Cell 9 refers to Cell 1.

UE: Idle state (state 2) as specified in clause 7.4 of TS 34.108

Related ICS/IXIT statement(s)

- UE supports both GSM and UTRAN Radio Access Technologies,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-850, GSM-PCS.
- PS Supported yes/no
- Support of automatic PS attach procedure at switch on yes/no

Test procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by making an outgoing call. After the SS receives this message, it transmits an RRC CONNECTION REJECT message with interRATInfo set to “GSM” and wait time set to 10 seconds. The GSM cell is switched off; therefore UE fails to select the GSM cell. UE reselects UTRAN cell only after waiting for duration specified in wait time. It then retransmits RRC CONNECTION REQUEST.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				Prompt the operator to make an outgoing call.
2	→		RRC CONNECTION REQUEST	Shall be sent on CCCH and contain the correct establishment cause.
3	←		RRC CONNECTION REJECT	See specific message contents.
4				Cell 9 is switched off
5	→		RRC CONNECTION REQUEST	SS verifies that RRC connection is received only after wait time.
6	←		RRC CONNECTION REJECT	SS sends the message to bring the UE to idle mode.

Specific message contents

RRC CONNECTION REJECT in step 3:

Wait time	10 seconds
Redirectioninfo	
InterRATInfo	GSM

8.1.2.13.5 Test requirement

1) At step 5, RRC connection request is received after wait time.

8.1.2.14 RRC Connection Establishment using the default configuration for 3.4 kbps signalling bearers

8.1.2.14.1 Definition

8.1.2.14.2 Conformance requirement

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

If the values are different, the UE shall:

1> ignore the rest of the message.

If the values are identical, the UE shall:

2> if IE "Specification mode" is set to "Preconfiguration" and IE "Preconfiguration mode" is set to "Default configuration":

3> initiate the radio bearer and transport channel configuration in accordance with the default parameters identified by the IE "Default configuration mode" and IE "Default configuration identity";

3> initiate the physical channels in accordance with the received physical channel information elements.

NOTE: IE "Default configuration mode" specifies whether the FDD or TDD version of the default configuration shall be used.

Reference

3GPP TS 25.331 clause 8.1.3.6, clause 13.7

8.1.2.14.3 Test purpose

To confirm that the UE establishes the radio bearer and transport channel configuration for 3.4kbps signalling radio bearers in accordance with the stored default parameters as identified by the IE “Default configuration identity” specified in the RRC Connection Setup Message

8.1.2.14.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE shall transmit a RRC CONNECTION REQUEST message to the SS on the uplink CCCH, after the operator attempts to make an outgoing call. SS shall send a RRC CONNECTION SETUP message that contains the stored default configuration identity 0 (for 3.4kbps signalling radio bearers). The UE accepts the message, configuring the radio bearer and transport channel configuration in accordance with the stored default parameters and acknowledges the establishment of RRC connection by sending the RRC CONNECTION SETUP COMPLETE message on uplink DCCH.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1				Operator is asked to make an outgoing call.
2	→		RRC CONNECTION REQUEST	
3	←		RRC CONNECTION SETUP	DefaultConfigIdentity used is '0'
4	→		RRC CONNECTION SETUP COMPLETE	
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state the test passes, otherwise it fails.

Specific Message Contents

RRC CONNECTION REQUEST (Step 2)

The same message sub-type found in clause 9 of TS 34.108 applies, with the following exceptions:

Information Element	Value/remark
Initial UE identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Originating Interactive Call or Originating Background Call or Originating Streaming Call or Originating Conversational Call or OriginatingSubscribedTrafficCall

RRC CONNECTION SETUP (Step 3) (FDD)

Use the same message sub-type found in clause 9 of TS 34.108 (Transition to CELL_DCH), with the following exceptions:

Information Element	Value/remark
Choice Specification Mode	Preconfiguration
- Choice Preconfig Mode	Default Config
- Default Config Mode	FDD
-Default Config Identity	0
Uplink DPCH info	
- Uplink DPCH power control info	
- DPCCH power offset	-40 (-80 dB)
- PC Preamble	1 frame
- SRB delay	7 frames
- Power Control Algorithm	Algorithm1
- TPC step size	0 (1 dB)
- Scrambling code type	Long
- Scrambling code number	0 (0 to 16777215)
- Number of DPDCH	Not Present(1)
- Spreading factor	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- TFCI existence	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- Number of FBI bit	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- Puncturing Limit	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing Indication	Initialize
- CFN-targetSFN frame offset	Not Present
- CHOICE mode	FDD
- Downlink DPCH power control information	
- DPC mode	0 (single)
- Power offset P Pilot-DPDCH	0
- DL rate matching restriction information	Not Present
- Spreading factor	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- Fixed or Flexible Position	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- TFCI existence	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- CHOICE SF	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- DPCH compressed mode info	Not Present
- TX Diversity mode	None
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
Downlink information for each radio links list	
- Downlink information for each radio links	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Reference to clause 6.1 "Default settings (FDD)"
- Downlink DPCH info for each RL	
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Set to value: Default DPCH Offset Value mod 38 400
- Secondary CPICH info	Not Present
- DL channelisation code	
- Secondary scrambling code	1
- Spreading factor	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- Code number	0
- Scrambling code change	Not Present
- TPC combination index	0
- Closed loop timing adjustment mode	Not Present

RRC CONNECTION SETUP (Step 3)(1.28Mcps TDD)

Use the same message sub-type found in clause 9 of TS 34.108 (Transition to CELL_DCH), with the following exceptions:

Information Element	Value/remark
Choice Specification Mode	Preconfiguration
- Choice Preconfig Mode	Default Config
- Default Config Mode	TDD
-Default Config Identity	0

RRC CONNECTION SETUP COMPLETE (Step 4)

Use the same message sub-type found in clause 9 of TS 34.108.

8.1.2.14.5 Test requirement

In step 4 the UE shall transmit a RRC CONNECTION SETUP COMPLETE message on Radio Bearer Id: 2 and establish a RRC connection.

8.1.2.15 RRC Connection Establishment using the default configuration for 13.6 kbps signalling bearers

8.1.2.15.1 Definition

8.1.2.15.2 Conformance requirement

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

If the values are different, the UE shall:

1> ignore the rest of the message.

If the values are identical, the UE shall:

2> if IE "Specification mode" is set to "Preconfiguration" and IE "Preconfiguration mode" is set to "Default configuration":

3> initiate the radio bearer and transport channel configuration in accordance with the default parameters identified by the IE "Default configuration mode" and IE "Default configuration identity";

3> initiate the physical channels in accordance with the received physical channel information elements.

NOTE: IE "Default configuration mode" specifies whether the FDD or TDD version of the default configuration shall be used.

Reference

3GPP TS 25.331 clause 8.1.3.6, clause 13.7

8.1.2.15.3 Test purpose

To confirm that the UE establishes the radio bearer and transport channel configuration for 13.6kbps signalling radio bearers in accordance with the stored default parameters as identified by the IE “Default configuration identity” specified in the RRC Connection Setup Message

8.1.2.15.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE shall transmit a RRC CONNECTION REQUEST message to the SS on the uplink CCCH, after the operator attempts to make an outgoing call. SS shall send a RRC CONNECTION SETUP message that contains the stored default configuration identity 1 for Rel-5, or 22 for Rel-6 onwards (for 13.6kbps signalling radio bearers). The UE accepts the message, configuring the radio bearer and transport channel configuration in accordance with the stored default parameters and acknowledge the establishment of RRC connection by sending the RRC CONNECTION SETUP COMPLETE message on uplink DCCH.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1				Operator is asked to make an outgoing call.
2	→		RRC CONNECTION REQUEST	
3	←		RRC CONNECTION SETUP	DefaultConfigIdentity used is '1' for Rel-5, or '22' for Rel-6 onwards
4	→		RRC CONNECTION SETUP COMPLETE	
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state the test passes, otherwise it fails.

Specific Message Contents

RRC CONNECTION REQUEST (Step 2)

The same message sub-type found in clause 9 of TS 34.108 applies, with the following exceptions:

Information Element	Value/remark
Initial UE identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Originating Interactive Call or Originating Background Call or Originating Streaming Call or Originating Conversational Call or OriginatingSubscribedTrafficCall

RRC CONNECTION SETUP (Step 3, Rel-5) (FDD)

Use the same message sub-type found in clause 9 of TS 34.108 (Transition to CELL_DCH), with the following exceptions:

Information Element	Value/remark
Choice Specification Mode	Preconfiguration
- Choice Preconfig Mode	Default Config
- Default Config Mode	FDD
-Default Config Identity	1

RRC CONNECTION SETUP (Step 3, Rel-6 onwards) (FDD)

Use the same message sub-type found in clause 9 of TS 34.108 (Transition to CELL_DCH), with the following exceptions:

Information Element	Value/remark
Choice Specification Mode	Preconfiguration
- Choice Preconfig Mode	Default Config
- Default Config Mode	FDD
-Default Config Identity	22

RRC CONNECTION SETUP (Step 3)(1.28Mcps TDD)

Use the same message sub-type found in clause 9 of TS 34.108 (Transition to CELL_DCH), with the following exceptions:

Information Element	Value/remark
Choice Specification Mode	Preconfiguration
- Choice Preconfig Mode	Default Config
- Default Config Mode	TDD
-Default Config Identity	22

RRC CONNECTION SETUP COMPLETE (Step 4)

Use the same message sub-type found in clause 9 of TS 34.108

8.1.2.15.5 Test requirement

In step 4 the UE shall transmit a RRC CONNECTION SETUP COMPLETE message on Radio Bearer Id: 2 and establish an RRC connection.

8.1.2.16 RRC Connection Establishment / Domain Specific Access Control: Success

8.1.2.16.1 Definition

This test case is applicable for Rel-5 UEs supporting DSAC and Rel-6 or later UEs.

8.1.2.16.2 Conformance requirement

Access Class related cell access restrictions shall be checked by the UE before sending an RRC CONNECTION REQUEST message when entering Connected Mode from UTRAN Idle mode.

…

With respect to Domain Specific Access Control, the UE shall:

1> if the IE "Multiple PLMN List" is not included in the Master Information Block:

2> apply the domain specific access restrictions as indicated by the IE "Domain Specific Access Restriction Parameters for PLMN of MIB".

…

The UE shall apply the following handling with respect to any Access Class Barring information:

1> if in idle mode and any Access Class Barring information is indicated:

2> if no Domain Specific Access Restriction Parameters are included in System Information Block Type 3, the UE shall:

3> act on the IE "Access Class Barred list" when initiating RRC Connection establishment as specified in [4] (TS25.304).

2> if the Domain Specific Access Restriction Parameters to be applied are included in System Information Block Type 3 the UE shall:

3> act on the IE "Domain Specific Access Class Barred List" if indicated in the IE "CS Domain Specific Access Restriction" when initiating RRC Connection establishment to send an INITIAL DIRECT TRANSFER message to the CS domain, as specified in [4] (TS25.304);

3> act on the IE "Domain Specific Access Class Barred List" if indicated in the IE "PS Domain Specific Access Restriction" when initiating RRC Connection establishment to send an INITIAL DIRECT TRANSFER message to the PS domain, as specified in [4] (TS25.304);

3> upon transition to UTRA RRC connected, the UE shall:

4> store that Domain Specific Access Restriction Parameters to the variable "DSAC_PARAM" and maintain the variable until it is cleared, the PLMN chosen by the UE is changed or the RRC connection is released;

4> act on the stored IE "Domain Specific Access Class Barred List" if indicated in the IE "CS Domain Specific Access Restriction" when initiating an INITIAL DIRECT TRANSFER message to the CS domain, as specified in [4] (TS25.304);

4> act on the stored IE "Domain Specific Access Class Barred List" if indicated in the IE "PS Domain Specific Access Restriction" when initiating an INITIAL DIRECT TRANSFER message to the PS domain, as specified in [4] (TS25.304);

1> if in connected mode:

2> if no Access Class Barring information is indicated:

3> if the variable "DSAC_PARAM" is set, the UE shall

4> clear the variable "DSAC_PARAM";

4> act as if no Access Class is barred.

2> else if the Domain Specific Access Restriction Parameters to be applied is not included in System Information Block Type 3:

3> if the variable "DSAC_PARAM" is set, the UE shall:

4> clear the variable "DSAC_PARAM";

4> act as if no Access Class is barred.

2> else if the Domain Specific Access Restriction Parameters to be applied are included in the System Information Block Type 3:

3> if the variable "DSAC_PARAM is not set, the UE shall:

4> store that Domain Specific Access Restriction Parameters to the variable "DSAC_PARAM" and maintain the variable until it is cleared, the PLMN chosen by the UE is changed or the RRC connection is released;

4> act on the stored IE "Domain Specific Access Class Barred List" if indicated in the IE "CS Domain Specific Access Restriction" when initiating an INITIAL DIRECT TRANSFER message to the CS, as specified in [4] (TS25.304);

4> act on the stored IE "Domain Specific Access Class Barred List" if indicated in the IE "PS Domain Specific Access Restriction" when initiating an INITIAL DIRECT TRANSFER message to the PS domain, as specified in [4] (TS25.304).

3> else (the access class barring information is stored) UE shall:

4> update the variable "DSAC_PARAM" with that Domain Specific Access Restriction Parameters;

4> act on the updated IE "Domain Specific Access Class Barred List" if indicated in the IE "CS Domain Specific Access Restriction" when initiating an INITIAL DIRECT TRANSFER message to the CS domain, as specified in [4] (TS25.304);

4> act on the updated IE "Domain Specific Access Class Barred List" if indicated in the IE "PS Domain Specific Access Restriction" when initiating an INITIAL DIRECT TRANSFER message to the PS domain, as specified in [4] (TS25.304).

….

Reference

3GPP TS25.304 clause 5.3.1.2, TS 25.331 clause 8.1.1.6.3

8.1.2.16.3 Test purpose

To confirm that the UE establishes a RRC Connection on the non-barred domain under the Domain Specific Access Restriction.

8.1.2.16.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 7) as specified in clause 7.4 of TS 34.108

Related ICS/IXIT statements

The- Support of DSAC Yes/No.

Support of DSAC Yes/No.Test Procedure

The UE is in idle mode. The SS transmits a PAGING TYPE 1 message to inform the UE to change the system information and it needs to read new blocks of SYSTEM INFORMATION, in which the IE “Domain Specific Access Restriction Parameters” to be applied are included in SYSTEM INFORMATION BLOCK TYPE 3. The UE transmits a RRC CONNECTION REQUEST message to the SS on the uplink CCCH by an outgoing call operation on the other non-barred domain. Then the SS transmits a RRC CONNECTION SETUP message to establish a RRC Connection with the UE and the UE replies to send a RRC CONNECTION SETUP COMPLETE message and an INITIAL DIRECT TRANSFER message.

This test case shall be run twice:

Case1) The system information block type 3 indicates that only the CS domain is barred at step2.

Case2) The system information block type 3 indicates that only the PS domain is barred at step2.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1		←	PAGING TYPE1	The SS transmits the message including the IE "BCCH Modification Information".
2		←	MASTER INFORMATION BLOCK	The SS starts to transmit the MIB with the "MIB value tag" IE different from the original setting.
		←	SYSTEM INFORMATION BLOCK TYPE3	The SS transmits the new SIB3 to indicate that one of the supported domains in the cell is barred.
3				The SS waits 5 sec (to ensure that the UE has time to read the new system information).
4		→	RRC CONNECTION REQUEST	The SS prompts the test operator to make an outgoing call on the other non-barred domain.
5		←	RRC CONNECTION SETUP	
6		→	RRC CONNECTION SETUP COMPLETE	
7		→	INITIAL DIRECT TRANSFER	

Specific Message Content

PAGING TYPE 1 (Step 1)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
- MIB Value Tag	Set to (Current MIB value tag + 1)
- BCCH Modification time	Not Present

MASTER INFORMATION BLOCK (Step 2)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 1
SIB 3 Cell Value tag	Set to (Current SIB3 value tag + 1)

System Information Block type 3 (Step 2)

For Case 1 i.e. when only the CS domain is barred.

Use the same message type found in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Access Class Barred List	
- Access Class Barred0	barred
- Access Class Barred1	barred
- Access Class Barred2	barred
- Access Class Barred3	barred
- Access Class Barred4	barred
- Access Class Barred5	barred
- Access Class Barred6	barred
- Access Class Barred7	barred
- Access Class Barred8	barred
- Access Class Barred9	barred
- Access Class Barred10	barred
- Access Class Barred11	barred
- Access Class Barred12	barred
- Access Class Barred13	barred

- Access Class Barred14	barred
- Access Class Barred15	barred
Domain Specific Access Restriction Parameters For PLMN Of MIB	
-CS Domain Specific Access Restriction	restriction
-Domain Specific Access Class Barred List	
-Access Class Barred List	
- Access Class Barred0	barred
- Access Class Barred1	barred
- Access Class Barred2	barred
- Access Class Barred3	barred
- Access Class Barred4	barred
- Access Class Barred5	barred
- Access Class Barred6	barred
- Access Class Barred7	barred
- Access Class Barred8	barred
- Access Class Barred9	barred
- Access Class Barred10	barred
- Access Class Barred11	barred
- Access Class Barred12	barred
- Access Class Barred13	barred
- Access Class Barred14	barred
- Access Class Barred15	barred
-PS Domain Specific Access Restriction	restriction
-Domain Specific Access Class Barred List	
-Access Class Barred List	
- Access Class Barred0	not barred
- Access Class Barred1	not barred
- Access Class Barred2	not barred
- Access Class Barred3	not barred
- Access Class Barred4	not barred
- Access Class Barred5	not barred
- Access Class Barred6	not barred
- Access Class Barred7	not barred
- Access Class Barred8	not barred
- Access Class Barred9	not barred
- Access Class Barred10	not barred
- Access Class Barred11	not barred
- Access Class Barred12	not barred
- Access Class Barred13	not barred
- Access Class Barred14	not barred
- Access Class Barred15	not barred

System Information Block type 3 (Step 2)

For Case 2 i.e. when only the PS domain is barred

Use the same message type found in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Access Class Barred List	
- Access Class Barred0	barred
- Access Class Barred1	barred
- Access Class Barred2	barred
- Access Class Barred3	barred
- Access Class Barred4	barred
- Access Class Barred5	barred
- Access Class Barred6	barred
- Access Class Barred7	barred
- Access Class Barred8	barred
- Access Class Barred9	barred
- Access Class Barred10	barred
- Access Class Barred11	barred
- Access Class Barred12	barred
- Access Class Barred13	barred

- Access Class Barred14	barred
- Access Class Barred15	barred
Domain Specific Access Restriction Parameters For PLMN Of MIB	
-CS Domain Specific Access Restriction	restriction
-Domain Specific Access Class Barred List	
-Access Class Barred List	
- Access Class Barred0	not barred
- Access Class Barred1	not barred
- Access Class Barred2	not barred
- Access Class Barred3	not barred
- Access Class Barred4	not barred
- Access Class Barred5	not barred
- Access Class Barred6	not barred
- Access Class Barred7	not barred
- Access Class Barred8	not barred
- Access Class Barred9	not barred
- Access Class Barred10	not barred
- Access Class Barred11	not barred
- Access Class Barred12	not barred
- Access Class Barred13	not barred
- Access Class Barred14	not barred
- Access Class Barred15	not barred
-PS Domain Specific Access Restriction	restriction
-Domain Specific Access Class Barred List	
-Access Class Barred List	
- Access Class Barred0	barred
- Access Class Barred1	barred
- Access Class Barred2	barred
- Access Class Barred3	barred
- Access Class Barred4	barred
- Access Class Barred5	barred
- Access Class Barred6	barred
- Access Class Barred7	barred
- Access Class Barred8	barred
- Access Class Barred9	barred
- Access Class Barred10	barred
- Access Class Barred11	barred
- Access Class Barred12	barred
- Access Class Barred13	barred
- Access Class Barred14	barred
- Access Class Barred15	barred

INITIAL DIRECT TRANSFER (Step 7)

Use the same message type found in clause 9.1 of TS 34.108, with the following exception:

Information Element	Value/remark
CN domain identity	Check to see if it is not the barred domain.

8.1.2.16.5 Test requirement

At step4, the UE transmits a RRC CONNECTION REQUEST message to the SS for establishing the non-barred domain service.

At step6, the UE transmits a RRC CONNECTION SETUP COMPLETE message to the SS on uplink DCCH.

8.1.2.17 RRC Connection Establishment for transition from Idle Mode to CELL_DCH: Success (start of E-DCH transmission)

8.1.2.17.1 Definition and applicability

All UEs which support FDD and HS-PDSCH and E-DCH and fully support F-DPCH or all UEs which support TDD and HS-PDSCH and E-PUCH.

8.1.2.17.2 Conformance requirement

In case the procedure was triggered by reception of a RRC CONNECTION SETUP message, the UE shall:

1> transmit a RRC CONNECTION SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable E_DCH_TRANSMISSION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in Idle Mode;

1> the variable E_RNTI includes either the Primary E-RNTI or the Secondary E-RNTI or both the Primary and the Secondary E-RNTI;

1> For FDD:

2> the UE has stored the following IEs:

- IE "E-DCH Transmission Time Interval";
- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-DPCCH info" and the IE "E-DPDCH info".
- one of the radio links in the active set is configured as the serving E-DCH radio link, and for this radio link the UTRAN has configured the IE "E-HICH configuration" and the IE "E-AGCH info".

1> For TDD:

2> for non-scheduled transmission, the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-PUCH info";
- IE "Non-scheduled transmission grant info";

2> for scheduled transmission, the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-RUCCH info" and the IE "E-PUCH info";
- IE "E-HICH info";
- IE "E-AGCH info".

1> there is at least one logical channel mapped to E-DCH for which:

2> the corresponding E-DCH MAC-d flow is configured, i.e. the IEs "E-DCH MAC-d flow power offset" and "E-DCH MAC-d flow maximum number of retransmissions", and the transmission grant type are configured.

If any of the above conditions is not met and the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> set the variable E_DCH_TRANSMISSION to FALSE;

1> stop any E-AGCH, E-HICH and E-RGCH reception procedures;

1> For FDD:

2> stop any E-RGCH reception procedures.

1> For FDD:

2> stop any E-DPCCH and E-DPDCH transmission procedures.

1> For TDD:

2> stop any E-RUCCH and E-PUCH transmission procedures.

1> clear the variable E_RNTI;

1> release all E-DCH HARQ resources;

1> no longer consider any radio link to be the serving E-DCH radio link.

Whenever the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1>For FDD:

2> perform E_AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI" and the IE "New Secondary E-RNTI".

2> perform E-HICH reception procedures for all radio links in the active set for which an E-HICH configuration has been provided;

2> perform E-RGCH reception procedures for all radio links in the active set for which an E-RGCH configuration has been provided;

2> perform E-DPCCH transmission procedures according to the stored E-DPCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-DPCCH Info";

2> perform E-DPDCH transmission procedures according to the stored E-DPDCH configuration as stated in:

3> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

3> subclause 8.6.5.17 for the IE "HARQ info for E-DCH".

3> subclause 8.6.6.37 for the IE "E-DPDCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

1>For TDD:

2> if scheduled transmission is configured, perform E-AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI".

2> Perform E-HICH reception;

2> for 3.84/7.68 Mcps TDD, perform E-RUCCH transmission procedures according to the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

2> for 1.28 Mcps TDD, if scheduled transmission is configured, perform E-RUCCH transmission procedure according to the stored PRACH configuration (see [60]) and the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

NOTE 1: The PRACH configuration is signalled directly to the UE in "E-RUCCH Info" IE in case of E-DCH serving cell change.

2> Perform E-PUCH transmission procedures according to the stored E-PUCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-PUCH Info".

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

2> obtain and format the appropriate information on E-UCCH (see [15]). For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, the UE shall use the lowest E-DCH capability category, as specified in [35], to signal the UL control information on E-UCCH.

NOTE 2: For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, UTRAN should use the lowest E-DCH capability category when performing configuration, scheduling and reading the control information on E-UCCH, as it is not possible for Node B to be aware of the UE's E-DCH capability category during this period.

Whenever the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> not perform E-AICH, E-HICH and E-RGCH reception procedures;

1> not perform E-DPCCH and E-DPDCH transmission procedures.

…

If the IE "New Primary E-RNTI" and/or the IE "New Secondary E-RNTI" are/is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the new value(s) in the variable E_RNTI;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2>use the value of the Primary E-RNTI and/or Secondary E-RNTI stored in the variable E_RNTI as UE identities in the E-AGCH reception procedure in the physical layer.

1> for TDD:

2> use the value of New Primary E-RNTI stored in the variable E_RNTI as the UE identity in the E-AGCH reception procedure and the E-RUCCH transmission procedure in the physical layer.

…

If the IE "Added or Reconfigured UL TrCH information" is included then the UE shall:

1> for the transport channel identified by the IE "UL Transport Channel Identity" and IE "Uplink transport channel type":

2> perform the actions for the IE "Transport Format Set" as specified in subclause 8.6.5.1.

NOTE: The UE stores the UL transport channel configuration until it is explicitly deleted by a message containing the IE "Deleted UL TrCH information" or the UE leaves RRC Connected mode.

1> if the choice "UL parameters" is set to 'EDCH':

2> for FDD:

3> apply the values of the IE "E-DCH Transmission Time Interval" and the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

2> for TDD:

3> apply the value of the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

2> if the IE "HARQ Info" is included:

3> perform the actions specified in subclause 8.6.5.17.

2> if the IE "Added or Reconfigured E-DCH MAC-d Flow" is included:

3> for each MAC-d flow identified by the IE "Mac-d flow identity":

4> perform the actions as specified in subclause 8.6.5.18.

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

NOTE: In case of multiple E-DCH MAC-d flows, IE "Added or Reconfigured UL TrCH information" is only included once. If the IE "Added or Reconfigured UL TrCH information" is included more than once with the IE "Uplink transport channel type" set to 'E-DCH', the UE behaviour is unspecified.

…

If the IE "E-DCH Transmission Time Interval" is included, the UE shall:

1> store the received TTI;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> apply the TTI as signalled in the IE "E-DCH Transmission Time Interval" on the E-DPDCH.

If the received "E-DCH Transmission Time Interval" is 2 ms and the previously stored TTI was 10 ms:

1> not send any data on E-DPDCH in first 8 TTIs after activation time of new TTI.

…

If the IE "HARQ Info for E-DCH" is included, the UE shall:

1> store the received configuration;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> use a redundancy version for each HARQ transmission as configured by the IE "HARQ RV Configuration".

…

If the IE "Added or reconfigured E-DCH MAC-d flow" is included, the UE shall:

1> if the IE "E-DCH MAC-d flow power offset" is included:

2> configure the power offset indicated in the IE "E-DCH MAC-d flow power offset" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow maximum number of retransmissions" is included:

2> configure the maximum number of retransmissions indicated in the IE "E-DCH MAC-d flow maximum number of retransmissions" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> for 1.28 Mcps TDD, if the IE "E-DCH MAC-d flow retransmission timer" is included:

2> configure the retransmission timer for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow multiplexing list" is included:

2> only multiplex MAC-d PDU’s from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU’s from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed in accordance to the IE "E-DCH MAC-d flow multiplexing list".

1> else:

2> if previously the IE "E-DCH MAC-d flow multiplexing list" was already received for this E-DCH MAC-d flow:

3> continue to only multiplex E-DCH PDU’s from the E-DCH MAC-d flow indicated in the IE “E-DCH MAC-d flow identity” with MAC-d PDU’s from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed according to the previously received IE “E-DCH MAC-d flow multiplexing list”.

2> else (never received the IE "E-DCH MAC-d flow multiplexing list" for this E-DCH MAC-d flow):

3> allow multiplexing of MAC-d PDU’s from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU’s from any other E-DCH MAC-d flow in the same MAC-e PDU.

1> for FDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> if the TTI configured on the E-DCH equals 2ms, and the IE "2ms non-scheduled transmission grant HARQ process allocation" is configured for this MAC-d flow:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e or MAC-i PDU transmitted by HARQ processes allowed by the IE "2ms non-scheduled transmission grant HARQ process allocation", with a total contribution from this MAC-d flow (i.e. including MAC-e/es or MAC-i/is headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

3> else:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall be included in a MAC-e or MAC-i PDU transmitted by any HARQ process, with a total contribution from this MAC-d flow (i.e. including MAC-e/es or MAC-i/is headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDU's for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH/E-RGCH (see [15]).

1> for TDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e or MAC-i PDU transmitted by HARQ processes designated as non scheduled (Ids 4 – 7) in the TTIs indicated (for 3.84 Mcps TDD and 7.68 Mcps TDD, as determined from the IEs "Activation Time", "Resource Duration" and "Resource Periodicity"; for 1.28Mcps TDD, as determined from the IEs "Activation Time", "Subframe number", "Resource Duration" and "Resource Periodicity", and the calculation of assigned Non-scheduled transmission grant is specified in subclause 8.6.6.16a).

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDUs for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH (see [15]).

1> perform the actions as specified in subclause 8.5.21;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

1> if the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> if the UE is in TDD mode and shared transport channels are assigned to the UE:

3> start to receive the indicated Secondary CCPCH.

2> if the UE is in TDD mode and no shared transport channels are assigned to the UE:

3> set the variable UNSUPPORTED_CONFIGURATION to TRUE.

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link and no longer consider any other radio link as serving HS-DSCH radio link.

2> For FDD:

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link and no longer consider any other radio link as serving E-DCH radio link.

3> if the IE "E-AGCH Info" is included for the serving E-DCH radio link:

4> store the newly received E-AGCH configuration.

NOTE: The UTRAN should always include the IE "E-AGCH info" if the serving E-DCH radio link indicated in the message is another radio link than the serving E-DCH radio link prior to the procedure.

3> if the IE "E-HICH information" is included:

4> store this E-HICH configuration for the concerning radio link.

3> if the IE "E-HICH information" is included or previously stored:

4> store this E-RGCH configuration for the concerning radio link, if included.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> for TDD:

3> if the IE "E-AGCH Info" is included:

4> store the newly received E-AGCH configuration.

3> if the IE "E-HICH information" is included:

4> store the E-HICH configuration.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> act on the other IEs contained in the IE "Downlink information for each radio link" as specified in subclause 8.6 applied on this radio link.

1> in addition, if the message was received in CELL_DCH state and the UE remains in CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link;

4> if the serving HS-DSCH radio link was another radio link than this radio link prior to reception of the message and the IE "H-RNTI" is not included:

5> clear the variable H_RNTI.

3> if the IE "Serving HS-DSCH radio link indicator" is set to ‘FALSE’ and this radio link was considered the serving HS-DSCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving HS-DSCH radio link.

3> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25;

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link;

4> if the serving E-DCH radio link was another radio link than this radio link prior to reception of the message:

5> if the IE "New Primary E-RNTI" is not included:

6> clear the Primary E-RNTI stored in the variable E_RNTI.

5> if the IE "New Secondary E-RNTI" is not included:

6> clear the Secondary E-RNTI stored in the variable E_RNTI.

3> if the IE "Serving E-DCH radio link indicator" is set to ‘FALSE’ and this radio link was considered the serving E-DCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving E-DCH radio link.

3> if the IE "E-HICH release indicator" is present:

4> delete the stored E-HICH, E-AGCH and E-RGCH (if any) configurations.

3> if the IE "E-RGCH release indicator" is present:

4> delete the stored E-RGCH configuration for this RL.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> For TDD:

3> if the IE "H-RNTI" is not included and the primary CCPCH has changed:

4> clear the variable H_RNTI.

3> determine the value for the HS-DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

2> for TDD:

3> if the IE "New Primary E-RNTI" is not included:

4> clear the variable E_RNTI.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> for each optional IE part of the IE "Downlink information for each radio link" that is not present:

3> do not change its current downlink physical channel configuration corresponding to the IE, which is absent, if not stated otherwise elsewhere.

NOTE: The Release '99 RADIO BEARER RECONFIGURATION message always includes at least one IE "Downlink information for each radio link" containing the mandatory IEs, even if UTRAN does not require the reconfiguration of any radio link.

1> if the UE would enter either the CELL_FACH, CELL_PCH or URA_PCH state according to subclause 8.6.3.3 applied on the received message:

2> if IEs other than the IE "Primary CPICH info" (for FDD) or the IE "Primary CCPCH info" (for TDD) are included in the IE "Downlink information for each radio link":

3> ignore these IEs.

2> act on the other IEs contained in the IE "Downlink information for each radio link" as specified in subclause 8.6 applied on this radio link.

…

If the IE "E-DCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> for FDD:

2> if the IE "E-DPCCH Info" is included:

3> store the newly received E-DPCCH configuration.

2> if the IE "E-DPDCH Info" is included:

3> store the newly received E-DPDCH configuration.

2> if the IE "UL 16QAM settings" is not included:

3> indicate to lower layers to stop any operation in 16QAM mode.

1> for 3.84/7.68 Mcps TDD:

2> if the IE "E-RUCCH Info" is included:

3> store the newly received E-RUCCH configuration.

2> if the IE "E-PUCH Info" is included:

NOTE 1: The UTRAN should ensure the ordering of the E-TFCI table in strictly increasing order of transmission power prior to quantization, by correct setting of the reference E-TFCI power offsets otherwise the UE behaviour is unspecified.

NOTE 2: If a reference E-TFCI signalled to the UE is outside the UE physical channel capability, the UE behaviour is unspecified.

NOTE 2a: If E-TFCI boost is signalled to the UE and a reference E-TFCI <= E-TFCI Boost is signalled to the UE with a Reference E-TFCI PO of value 30 or 31, the UE behaviour is unspecified.

1> if the IE "MAC-es/e reset indicator" is included:

2> reset the MAC-es/e or MAC-i/is entity [15].

NOTE 3: If the IE "MAC-es/e reset indicator" is not set to TRUE in case the IE "E-DCH Transmission Time Interval" is reconfigured, the UE behaviour is unspecified.

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> configure the UL E-DPCCH in accordance with the stored IE "E-DPCCH" configuration;

2> configure the MAC with the stored IE "E-DPDCH" configuration and/or the information contained in IE "Scheduled Transmission configuration".

1> for TDD:

2> configure the E-RUCCH with the stored E-RUCCH configuration;

2> configure the MAC with the stored E-PUCH configuration.

Reference

3GPP TS 25.331 clauses 8.5.28, 8.6.3.14, 8.6.5.5, 8.6.5.16, 8.6.5.17, 8.6.5.18, 8.6.6.4, 8.6.6.37

8.1.2.17.3 Test purpose

To confirm that the UE establishes a signalling radio bearer mapped to HS-DSCH and E-DCH according to the received RRC CONNECTION SETUP message.

8.1.2.17.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Registered Idle Mode on PS (state 3), or CS/PS (state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports E-DPDCH (FDD) or E-PUCH (TDD)
- UE fully supports F-DPCH (FDD only)

Test Procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH, after the test operator makes an out-going call. The SS transmits a RRC CONNECTION SETUP message to the UE. This message requests

the establishment of a signalling radio bearer with SRB mapping to HS-DSCH and E-DCH. After the UE receives this message, it establishes a signalling radio bearer and maps it to the HS-DSCH and E-DCH. Finally the UE transmits a RRC CONNECTION SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		RRC CONNECTION REQUEST	The SS prompts the operator makes an out-going call. The UE shall transmit this message, indicating the proper establishment cause.
2	←		RRC CONNECTION SETUP	
3	→		RRC CONNECTION SETUP COMPLETE	
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RRC CONNECTION REQUEST (Step 1)

The same message sub-type found in clause 9 of TS 34.108 applies, with the following exceptions:

Information Element	Value/remark
Initial UE identity	Registered TMSI or P-TMSI
Establishment Cause	Originating Interactive Call or Originating Background Call or Originating Streaming Call or OriginatingSubscribedTrafficCall.

RRC CONNECTION SETUP (Step 2)

Use the same message as specified for "Stand-alone SRBs mapped on E-DCH and HS-DSCH" in 34.108.

RRC CONNECTION SETUP COMPLETE (Step 3)

Use the same message sub-type found in clause 9 of TS 34.108

8.1.2.17.5 Test requirements

After step 2, the UE shall transmit a RRC CONNECTION SETUP COMPLETE message.

8.1.2.18 RRC Connection Establishment using the default configuration for HS-DSCH / E-DCH signalling bearers

8.1.2.18.1 Definition

All UEs which support FDD and HS-PDSCH and E-DCH and fully support F-DPCH or all UEs which support TDD and HS-PDSCH and E-PUCH.

8.1.2.18.2 Conformance requirement

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

If the values are different, the UE shall:

1> ignore the rest of the message.

If the values are identical, the UE shall:

2> if IE "Specification mode" is set to "Preconfiguration" and IE "Preconfiguration mode" is set to "Default configuration":

3> initiate the radio bearer and transport channel configuration in accordance with the default parameters identified by the IE "Default configuration mode" and IE "Default configuration identity";

3> initiate the physical channels in accordance with the received physical channel information elements.

NOTE: IE "Default configuration mode" specifies whether the FDD or TDD version of the default configuration shall be used.

Reference

3GPP TS 25.331 clause 8.1.3.6, clause 13.7

8.1.2.18.3 Test purpose

To confirm that the UE establishes the radio bearer and transport channel configuration for HS-DSCH / E-DCH signalling radio bearers in accordance with the stored default parameters as identified by the IE “Default configuration identity” specified in the RRC Connection Setup Message

8.1.2.18.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Idle state (state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports E-DPDCH (FDD) or E-PUCH (1.28Mcps TDD)
- UE fully supports F-DPCH (FDD only)

Test Procedure

The UE shall transmit a RRC CONNECTION REQUEST message to the SS on the uplink CCCH, after the operator attempts to make an outgoing call. SS shall send a RRC CONNECTION SETUP message that contains the stored default configuration identity 17 (for standalone HS-DSCH / E-DCH signalling radio bearers). The UE accepts the message, configuring the radio bearer and transport channel configuration in accordance with the stored default parameters and acknowledge the establishment of RRC connection by sending the RRC CONNECTION SETUP COMPLETE message on uplink DCCH.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1				Operator is asked to make an outgoing call.
2	→		RRC CONNECTION REQUEST	
3	←		RRC CONNECTION SETUP	DefaultConfigIdentity used is '17'
4	→		RRC CONNECTION SETUP COMPLETE	
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state the test passes, otherwise it fails.

Specific Message Contents

RRC CONNECTION REQUEST (Step 2)

The same message sub-type found in clause 9 of TS 34.108 applies, with the following exceptions:

Information Element	Value/remark
Initial UE identity	Same as the registered TMSI or P-TMSI
Establishment Cause	Originating Interactive Call or Originating Background Call or Originating Streaming Call or OriginatingSubscribedTrafficCall.

RRC CONNECTION SETUP (Step 3) (FDD)

Use the same message sub-type found in clause 9 of TS 34.108 (Transition to CELL_DCH), for condition "Stand-alone SRBs mapped on E-DCH and HS-DSCH" with the following exceptions:

Information Element	**Value/remark**
Choice Specification Mode	Preconfiguration
- Choice Preconfig Mode	Default Config
- Default Config Mode	FDD
-Default Config Identity	17

RRC CONNECTION SETUP (Step 3) (1.28Mcps TDD)

Use the same message sub-type found in clause 9 of TS 34.108 (Transition to CELL_DCH), for condition "Stand-alone SRBs mapped on E-DCH and HS-DSCH" with the following exceptions:

Information Element	**Value/remark**
Choice Specification Mode	Preconfiguration
- Choice Preconfig Mode	Default Config
- Default Config Mode	TDD
-Default Config Identity	17

RRC CONNECTION SETUP COMPLETE (Step 4)

Use the same message sub-type found in clause 9 of TS 34.108

8.1.2.18.5 Test requirement

At step 4 the UE shall transmit a RRC CONNECTION SETUP COMPLETE message on Radio Bearer Id: 2 and establish an RRC connection.

8.1.2.19 RRC Connection Establishment for transition from Idle Mode to CELL_DCH: Success (start of discontinuous uplink transmission and downlink reception)

8.1.2.19.1 Definition and applicability

All UEs which support FDD and UL DTX.

8.1.2.19.2 Conformance requirement

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

If the values are different, the UE shall:

1> ignore the rest of the message.

If the values are identical, the UE shall:

…

1> submit an RRC CONNECTION SETUP COMPLETE message to the lower layers on the uplink DCCH after successful state transition per subclause 8.6.3.3, with the contents set as specified below:

…

If the UE receives RRC CONNECTION SETUP, ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> the UE shall determine the value for the DTX_DRX_STATUS variable.

The variable DTX_DRX_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> both variables HS_DSCH RECEPTION and E_DCH_TRANSMISSION are set to TRUE;

1> no DCH transport channel is configured;

1> the variable DTX_DRX_PARAMS is set;

1> the UE has received the IE "DTX-DRX timing information".

If any of the above conditions is not met and the variable DTX_DRX_STATUS is set to TRUE, the UE shall:

1> set the variable DTX_DRX_STATUS to FALSE;

1> clear the variable DTX_DRX_PARAMS;

1> stop DTX-DRX mode related activities.

If variable DTX_DRX_STATUS is set to true and the serving HS-DSCH cell was changed as a result of the received message the UE shall instruct the physical layer to consider HS-SCCH orders were never received.

Whenever the variable DTX_DRX_STATUS is set to TRUE after receiving this message and the value of IE "DTX-DRX timing information" included in this message is not "Continue", the UE shall:

1> if the variable DTX_DRX_STATUS was set to TRUE before receiving this message:

2> re-configure the physical layer to perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration;

2> let the MAC layer continue with the current restriction on E-DCH transmission and monitoring of absolute and relative grant channels from the frame boundary where the uplink transmission starts with the new configuration and for the duration of the IE "Enabling Delay".

1> else:

2> perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations by configuring the physical layer according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration.

1> configure the MAC layer to start restricting E-DCH transmissions and monitor absolute and relative grant channels at the CFN corresponding to the frame boundary that is offset by the value of IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration taking into account the IEs "UE DTX DRX Offset", "MAC DTX Cycle", "MAC Inactivity Threshold" and "Inactivity Threshold for UE Grant Monitoring".

…

If the IE "DTX-DRX timing information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the CHOICE "timing" is set to "New timing":

2> use the newly received DTX-DRX timing configuration.

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

…

If the IE "DTX–DRX information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the contents of the IE in the variable DTX_DRX_PARAMS;

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34;

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple of the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple or a divisor of the value of the IE "CQI Feedback cycle, k"; or

1> if the value of the IE "UE DPCCH burst 1" is greater than the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DPCCH burst 2" is greater than the value of the IE "UE DTX cycle 2"; or

1> if the IE "UE DTX long preamble length" is set to 4 or 15 slots and the value of the IE "Inactivity Threshold for UE DTX cycle 2" is less than 4 TTIs (for 10ms E-DCH TTI) or 8 TTIs (for 2ms E-DCH TTI); or

1> if the IE "UE DRX cycle" is not an integer multiple or a divisor of the value of the IE "UE DTX cycle 1"; or

1> if the IE "DRX Information" is included in this message while the IE "DTX information" is not included in this message; or

1> if the value of the IE "UE DTX cycle 1" is not an integer multiple or a divisor of the value of the IE "MAC DTX cycle":

2> the UE behaviour is unspecified.

Reference

3GPP TS 25.331 clauses 8.1.3.6, 8.5.34, 8.6.6.38, 8.6.6.39

8.1.2.19.3 Test purpose

To confirm that the UE establishes a signalling radio bearer mapped to HS-DSCH and E-DCH, with discontinuous transmission and reception according to the received RRC CONNECTION SETUP message.

8.1.2.19.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Registered Idle Mode on PS (state 3), or CS/PS (state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports DPCCH Discontinuous Transmission

Test Procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH, after the test operator makes an out-going call. The SS transmits a RRC CONNECTION SETUP message to the UE. This message requests the establishment of a signalling radio bearer with SRB mapping to HS-DSCH and E-DCH and provides DTX and DRX parameters. After the UE receives this message, it establishes a signalling radio bearer and maps it to the HS-DSCH (with DRX enabled if supported) and E-DCH (with DTX enabled). Finally the UE transmits a RRC CONNECTION SETUP COMPLETE message using AM RLC. The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 400ms. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		RRC CONNECTION REQUEST	The SS prompts the operator makes an out-going call. The UE shall transmit this message, indicating the proper establishment cause.
2	←		RRC CONNECTION SETUP	Requests establishment of SRBs mapped to HS-DSCH/E-DCH with DTX-DRX information,
3	→		RRC CONNECTION SETUP COMPLETE	
4	SS			The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 400ms (i.e. duration of 10 consecutive DTX cycle 2).
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RRC CONNECTION REQUEST (Step 1)

The same message sub-type found in clause 9 of TS 34.108 applies, with the following exceptions:

Information Element	Value/remark
Initial UE identity	Registered TMSI or P-TMSI
Establishment Cause	Originating Interactive Call or Originating Background Call or Originating Streaming Call or OriginatingSubscribedTrafficCall.

RRC CONNECTION SETUP (Step 2)

Use the same message as specified for "Stand-alone SRBs mapped on E-DCH and HS-DSCH" in 34.108, with the following exceptions:

Information Element	Value/remark
Added or Reconfigured UL TrCH information	
- Uplink transport channel type	E-DCH
- CHOICE UL parameters	E-DCH
- E-DCH Transmission Time Interval	10ms
DTX-DRX timing information CHOICE *timing* - New timing - Enabling Delay - UE DTX DRX Offset DTX-DRX Information DTX information - CHOICE *E-DCH TTI length* - UE DTX cycle 1 - UE DTX cycle 2 - MAC DTX cycle - Inactivity Threshold for UE DTX cycle 2 - UE DTX long preamble length - MAC Inactivity Threshold - CQI DTX Timer - UE DPCCH burst_1 - UE DPCCH burst_2 DRX Information - UE DRX cycle - Inactivity Threshold for UE DRX cycle - Inactivity Threshold for UE Grant Monitoring - UE DRX Grant Monitoring Uplink DPCCH slot format information	 16 0 10ms 10 20 10 8 4 8 32 1 1 10 32 8 TRUE 1

RRC CONNECTION SETUP COMPLETE (Step 3)

Use the same message sub-type found in clause 9 of TS 34.108

8.1.2.19.5 Test requirements

At step 3, the UE shall transmit a RRC CONNECTION SETUP COMPLETE message.

At step 4 the time between 11 consecutive CQI indications shall be 400ms.

8.1.2.20 RRC Connection Establishment for transition from Idle Mode to CELL_FACH: Success (Start of HS-DSCH Reception)

8.1.2.20.1 Definition and applicability

All UEs which support FDD and HS-PDSCH in CELL_FACH.

8.1.2.20.2 Conformance requirement

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

…

1> if the UE supports HS-DSCH reception in CELL_FACH state:

2> include the IE "HS-PDSCH in CELL_FACH" and set it to TRUE.

…

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

If the values are different, the UE shall:

1> ignore the rest of the message.

If the values are identical, the UE shall:

…

2> if IE "Specification mode" is set to "Complete specification":

…

3> if the IE "HS-DSCH common system information" is not included in System Information Block type 5 or System Information Block type 5bis:

4> select Secondary CCPCH according to subclause 8.5.19;

3> else:

4> set variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED to FALSE;

4> if the RBs have the multiplexing option with transport channel type "HS-DSCH" for the DL and transport channel type “RACH” in the UL; and

4> if "new H-RNTI" and "new C-RNTI" are included:

5> store the "new H-RNTI" according to subclause 8.6.3.1b;

5> store the "new C-RNTI" according to subclause 8.6.3.9;

5> and start to receive HS-DSCH according to the procedure in subclause 8.5.36.

4> else:

5> clear variable C_RNTI and delete any stored C-RNTI value;

5> clear variable H_RNTI and delete any stored H-RNTI value;

5> clear any stored IE "HARQ Info";

5> set the variable INVALID_CONFIGURATION to TRUE.

…

1> submit an RRC CONNECTION SETUP COMPLETE message to the lower layers on the uplink DCCH after successful state transition per subclause 8.6.3.3, with the contents set as specified below:

2> set the IE "RRC transaction identifier" to:

3> the value of "RRC transaction identifier" in the entry for the RRC CONNECTION SETUP message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> clear that entry.

2> if the USIM or SIM is present:

3> set the "START" for each CN domain in the IE "START list" in the RRC CONNECTION SETUP COMPLETE message with the corresponding START value that is stored in the USIM [50] if present, or as stored in the UE if the SIM is present; and then

3> set the START value stored in the USIM [50] if present, and as stored in the UE if the SIM is present for any CN domain to the value "THRESHOLD" of the variable START_THRESHOLD.

…

The variable HS_DSCH_RECEPTION_CELL_FACH_STATE shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_FACH;

1> the variable H_RNTI is set;

1> the variable C_RNTI is set;

1> System Information Block type 5 or System Information Block type 5bis includes IE "HS-DSCH common system information".

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_CELL_FACH_STATE to FALSE;

1> if the UE is in CELL_FACH and variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to FALSE:

2> set the variable HS_DSCH_RECEPTION_GENERAL to FALSE;

2> stop any HS_SCCH reception procedures;

2> stop any HS-DSCH reception procedures;

2> clear the variable H_RNTI and remove any stored H-RNTI;

2> reset the MAC-ehs entity [15];

2> release all HARQ resources;

2> clear any stored IEs "HARQ info";

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

1> use the IE "HS-DSCH common system information" in System Information Block type 5 or System Information Block type 5bis;

1> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving cell applying the scrambling code as received in the IE "DL Scrambling code" as received in IE "HS-DSCH common system information";

1> perform HS-DSCH reception procedures:

2> if the UE has a stored IE "HARQ info":

3> act on subclause 8.6.5.6b for the stored IE "HARQ info".

2> else:

3> act on subclause 8.6.5.20 for the IE "HARQ System info" as received in IE "HS-DSCH common system information".

2> and use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

1> and for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH code listed in the IE "HS-SCCH channelisation code" with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to FALSE, the UE shall:

1> if the UE is in CELL_FACH and variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to FALSE:

2> not perform HS_SCCH reception procedures;

2> not perform HS-DSCH reception procedures.

…

When UE does not support HS-DSCH reception or when the IE "HS-DSCH common system information" is not included in System Information Block type 5 or System Information Block type 5bis, the UE shall:

1> set HS_DSCH_RECEPTION_OF_CCCH_ENABLED to FALSE;

1> set the variable HS_DSCH_RECEPTION_GENERAL to FALSE.

When HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

1> use the IE "HS-DSCH common system information" in System Information Block type 5 or System Information Block type 5bis;

1> configure the HARQ according to IE "HARQ System info" as defined in subclause 8.6.5.20;

1> configure the common MAC-ehs reordering queues according to IE "Common MAC-ehs reordering queues" as defined in subclauses 8.6.5.22; and then

1> receive the CCCH according to IE "CCCH mapping info" as defined in subclause 8.6.5.21;

1> if the UE is RRC Connected mode:

2> select a common H-RNTI as specified in 8.5.38;

2> receive the SRB1 according to IE "SRB1 mapping info" as defined in subclause 8.6.5.19.

1> else:

2> select a common H-RNTI as specified in [4].

1> and start to receive the HS-SCCH(s) with selected H-RNTI according to the IE "HS-SCCH channelisation code" on the selected cell applying the scrambling code as received in the IE "DL Scrambling code";

1> configure the MAC flow for BCCH reception as specified in [15];

1> and start to receive the first indexed HS-SCCH code listed in the IE "HS-SCCH channelisation code" with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

Reference

3GPP TS 25.331 clauses 8.1.3.3, 8.1.3.6, 8.5.36, 8.5.37

8.1.2.20.3 Test purpose

To confirm that the UE establishes a signalling radio bearer mapped to HS-DSCH and RACH according to the received RRC CONNECTION SETUP message.

8.1.2.20.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Registered Idle Mode on PS (state 3), or CS/PS (state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH in CELL_FACH

Test Procedure

The SS transmits System Information Type 5 including configuration for HS-DSCH reception in CELL_FACH state.

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH, after the test operator makes an out-going call.

The SS transmits a RRC CONNECTION SETUP message to the UE on RB0 mapped to HS-DSCH. This message requests the establishment of a signalling radio bearer with SRB mapping to HS-DSCH and RACH. After the UE receives this message, it establishes a signalling radio bearer and maps it to the HS-DSCH and RACH. Finally the UE transmits a RRC CONNECTION SETUP COMPLETE message using AM RLC on the RACH channel.

SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←		SYSTEM INFORMATION TYPE 5	Includes configuration for HS-DSCH reception in CELL_FACH state
1	→		RRC CONNECTION REQUEST	The SS prompts the operator makes an out-going call. The UE shall transmit this message, indicating the correct establishment cause and support of HS-PDSCH in CELL_FACH
2	←		RRC CONNECTION SETUP	Transmitted on HS-DSCH, requests establishment of SRBs mapped to HS-DSCH/RACH,
3	→		RRC CONNECTION SETUP COMPLETE	
4	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

SYSTEM INFORMATION TYPE 5

Use default message in 34.108 section 6.1.0b, condition B1.RRC CONNECTION REQUEST (Step 1)

Use the same message type found in clause 9 of TS 34.108, with the following exceptions.

Information Element	Value/remark
Initial UE identity	Same as the registered TMSI or P-TMSI
Establishment Cause	Originating Interactive Call or Originating Background Call or Originating Streaming Call or OriginatingSubscribedTrafficCall
HS-PDSCH in CELL_FACH	Check to see if set to TRUE

RRC CONNECTION SETUP (Step 2)

Use default message in 34.108 section 9.1.1, condition A4.RRC CONNECTION SETUP COMPLETE (Step 3)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
UE Radio Access Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE radio access capability extension	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE system specific Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.

8.1.2.20.5 Test requirements

After step 3 the UE shall establish the RRC connection, and transmit RRC CONNECTION SETUP COMPLETE message on the DCCH using PRACH physical resource specified in system information block messages.

8.1.2.21 RRC Connection Establishment: Reject with Frequency Info set to the same frequency band – Successful case

8.1.2.21.1 Definition

8.1.2.21.2 Conformance requirement

When the UE receives an RRC CONNECTION REJECT message on the downlink CCCH, it shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION REJECT message with the value of the variable INITIAL_UE_IDENTITY:

If the values are different, the UE shall ignore the rest of the message;

If the values are identical, the UE shall:

1> stop timer T300 or T318, whichever one is running; and

1> clear the entry for the RRC CONNECTION REJECT message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> if the UE has disabled cell reselection to a UTRA carrier due to an earlier RRC CONNECTION REJECT message, the UE shall resume cell reselection to that UTRA carrier;

1> if the Rejection Cause is 'unspecified' and the IE "Counting Completion" is present, the UE shall terminate an ongoing MBMS counting procedure according to subclause 8.7.4.4;

1> if the IE "wait time" <> '0'; and

1> if the IE "frequency info" is present and:

2> if V300 is equal to or smaller than N300:

3> select a suitable UTRA cell according to [4] on that frequency;

3> after having selected and camped on a suitable cell on the designated UTRA carrier:

4> set CFN in relation to SFN of current cell according to subclause 8.5.15;

4> set the contents of the RRC CONNECTION REQUEST message according to subclause 8.1.3.3;

4> perform the mapping of the Access Class to an Access Service Class as specified in subclause 8.5.13, and apply the given Access Service Class when accessing the RACH or the common E-DCH (for the Enhanced Uplink in CELL_FACH and Idle mode);

4> transmit an RRC CONNECTION REQUEST message on the uplink CCCH;

4> reset counter V300;

4> start timer T300 when the MAC layer indicates success or failure in transmitting the message;

4> disable cell reselection to original UTRA carrier until the time stated in the IE "wait time" has elapsed or until the RRC connection establishment procedure ends, whichever occurs first;

Reference

3GPP TS 25.331 clause 8.1.3.9.

8.1.2.21.3 Test purpose

To confirm that the UE retries to establish RRC connection in a suitable cell on the designated UTRA carrier, if it receives an RRC CONNECTION REJECT message including the optional IE "redirection info" referencing frequencies in the same band, but having different Qrxlevmin values and if a suitable cell on the designated UTRA carrier is found.8.1.2.21.4 Method of test

Initial Condition

System Simulator: 2 cells – both cell 1 and cell 4 are active and suitable for camping, but cell 1 is transmitted using a larger power. The Qrxlevmin of cell 4 is 10dB higher than that of cell 1.

Table 8.1.2.21

Parameter	Unit	Cell 1			Cell 4		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			High Range Test Frequency		
CPICH Ec (FDD)	dBm/3.84 MHz	-60	-60	-60	--70	Off	-70
Qrxlevmin	dBm	-89			-79		

UE: Switched off (state 1 as specified in clause 7.4 of TS 34.108).

Related ICS/IXIT statement(s)

None

Specific message content

For system information block 11 for Cell 1 (gives IE's which are different from defaults given in 34.108 sec 6.1) to be transmitted before idle update preamble.

System Information Block type 11

Use same message sub-clause 6.1 of TS34.108, with following exception:

Information Element	Value/remark
SIB12 indicator	FALSE
Measurement control system information	
- Intra-frequency measurement system information	
- Intra-frequency reporting quantity for RACH reporting	
- SFN-SFN observed time difference reporting indicator	No report
- CHOICE mode	FDD
- Reporting quantity	CPICH Ec/N0
- Maximum number of reported cells on RACH	Current Cell
- Reporting information for state CELL_DCH	Not present

Test Procedure

SS adjusts the power setting for the cells according to “T0” in table 8.1.2.21. The UE is switched on.

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH for registration on cell 1. SS rejects the first request by transmitting an RRC CONNECTION REJECT message which includes the IE “Redirection Info” indicating frequency information for cell 4. SS then waits for RRC CONNECTION REQUEST message on the uplink CCCH of cell 4. SS will also monitor the uplink of cell 1 simultaneously to ensure that all transmission activities from cell 1 have ceased. When the UE has successfully selected cell 4, it shall send an RRC CONNECTION REQUEST with the same establishment cause as its previous attempt in cell 1. Finally, SS transmits an RRC CONNECTION SETUP message to establish an RRC connection with the UE, and the UE replies with an RRC CONNECTION SETUP COMPLETE message. UE is brought to Idle state (state 2 or state 3 or state 7) in cell 4 as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE. SS adjust the power setting for cells according to “T1” in table 8.1.2.21.

SS adjusts the power setting for the cells accordingly to “T2” in table 8.1.2.21. The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by an outgoing call operation in cell 1. SS rejects the first request by transmitting an RRC CONNECTION REJECT message which includes the IE “Redirection Info” indicating frequency information for cell 4. SS will also monitor the uplink of cell 1 simultaneously to ensure that all transmission activities from cell 1 have ceased. When the UE has successfully selected cell 4, it shall send an RRC CONNECTION REQUEST with the same establishment cause as its previous attempt in cell 1. Finally, SS transmits an RRC CONNECTION SETUP message to establish an RRC connection with the UE, and the UE replies with an RRC CONNECTION SETUP COMPLETE message.

NOTE: If the UE fails the test because of a failure to reselect to the right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	UE			The UE is powered up or switched on, (see ICS)
2	→		RRC CONNECTION REQUEST	The establishment cause must be “Registration”
3	←		RRC CONNECTION REJECT	This message shall include the IE "wait time" set to 5 seconds and IE "frequency info" set to the UARFCN of cell 4. Note: this wait time would apply after failure of the inter frequency cell re- selection, which is not verified in this test case
4				SS waits for a period of time sufficient for UE to select to cell 4. At the same time, it monitors the uplink of cell 1 to make sure that all transmissions have ceased.
5	→		RRC CONNECTION REQUEST	UE shall attempt to re-start an RRC connection establishment procedure in cell 4. The establishment cause shall remain unchanged.
6	←		RRC CONNECTION SETUP	SS sends the message to UE to setup an RRC connection with the UE.
7				The UE shall configure the layer 2 and layer 1 in order to access the uplink and downlink DCCH assigned.
8	→		RRC CONNECTION SETUP COMPLETE	
9				UE is brought to Idle state (state 2 or state 3 or state 7) in cell 4 as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE
10				The SS switches its downlink transmission power settings to columns "T1" in table 8.1.2.21.
11				The UE will reselect to cell 1. The SS switches its downlink transmission power settings to columns "T2" in table 8.1.2.21.
12	→		RRC CONNECTION REQUEST	SS prompts the operator to make an outgoing call in cell 1.
13	←		RRC CONNECTION REJECT	This message shall includes the IE "wait time" set to 5 seconds and IE "frequency info" set to the UARFCN of cell 4. Note: this wait time would apply after failure of the inter frequency cell re- selection, which is not verified in this test case
14				SS waits for a period of time sufficient for UE to select to cell 4. At the same time, it monitors the uplink of cell 1 to make sure that all transmissions have ceased.
15	→		RRC CONNECTION REQUEST	UE shall attempt to start an RRC connection establishment procedure in cell 4. The establishment cause shall be same as the one sent in step 10.

16	←	RRC CONNECTION SETUP	SS sends the message to UE to setup an RRC connection with the UE.
17			The UE shall configure the layer 2 and layer 1 in order to access the uplink and downlink DCCH assigned.
18	→	RRC CONNECTION SETUP COMPLETE	
19	←→	CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RRC CONNECTION REQUEST (Step 2 and Step 5)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	Same as the IMSI stored in the TEST USIM card, or the previously registered TMSI or P-TMSI
Establishment Cause	Must be "Registration"

RRC CONNECTION REJECT (Step 3 and Step 13)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Rejection cause	Congestion
Wait time	5 seconds
Redirection Info	
- Frequency Info	
- CHOICE mode	FDD
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	Set to the UARFCN for downlink carrier of cell 4

RRC CONNECTION REQUEST (Step 12 and Step 15)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	Same as the registered TMSI or P-TMSI
Establishment Cause	Must be "Originating Call"

8.1.2.21.5 Test requirement

After step 4 the UE shall have successfully selected cell 4. UE shall trigger the start of RRC connection establishment by transmitting RRC CONNECTION REQUEST. The establishment cause shall be registration.

In step 8, the UE shall send the RRC CONNECTION SETUP COMPLETE message on the frequency indicated in the RRC CONNECTION SETUP message.

After step 14 the UE shall have successfully selected to cell 4. UE shall trigger the start of RRC connection establishment by transmitting RRC CONNECTION REQUEST. The establishment cause shall be originating call.

In step 18, the UE shall send the RRC CONNECTION SETUP COMPLETE message on the frequency indicated in the RRC CONNECTION SETUP message.

8.1.2.21a RRC Connection Establishment: Reject with Frequency Info set to a different frequency band – Successful case

8.1.2.21a.1 Definition

This test case is identical to test case 8.1.2.21 except that the RRC CONNECTION REJECT message shall indicate a cell on a different frequency band and a different IE “Wait time”.

8.1.2.21a.2 Conformance requirement

Same conformance requirement as in clause 8.1.2.21.2.

8.1.2.21a.3 Test purpose

Same test purpose as in clause 8.1.2.21.3 except that the optional IE "redirection info" is on a different frequency band.

8.1.2.21a.4 Method of test

Initial Condition

Same initial conditions as in clause 8.1.2.21.4 except that cells 1 and 4 use the UARFCNs in two different frequency bands. The frequency bands for cell 1 and cell 4 are selected according to PIXIT parameter.

Related ICS/IXIT statement(s)

- UE supports multiple bands simultaneously yes/no

Specific message content

Same specific message content for system information as in clause 8.1.2.21.4.

Test Procedure

Same test procedure as in clause 8.1.2.21.4.

NOTE: If the UE supports more than 2 frequency bands, the test may be executed for various band combinations.

Specific Message Contents

Same specific message content as in clause 8.1.2.21.4 except:

RRC CONNECTION REJECT (Step 3 and Step 13)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Rejection cause	Congestion
Wait time	15 seconds
Redirection Info	
- Frequency Info	
- CHOICE mode	FDD
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	Set to the UARFCN for downlink carrier of cell 4

8.1.2.21a.5 Test requirement

Same test requirement as in clause 8.1.2.21.5.

8.1.2.22 RRC Connection Establishment: Reject with Frequency Info set to the same frequency band – Unsuccessful case

8.1.2.22.1 Definition

8.1.2.22.2 Conformance requirement

When the UE receives an RRC CONNECTION REJECT message on the downlink CCCH, it shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION REJECT message with the value of the variable INITIAL_UE_IDENTITY:

If the values are different, the UE shall ignore the rest of the message;

If the values are identical, the UE shall:

1> stop timer T300 or T318, whichever one is running; and

1> clear the entry for the RRC CONNECTION REJECT message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> if the UE has disabled cell reselection to a UTRA carrier due to an earlier RRC CONNECTION REJECT message, the UE shall resume cell reselection to that UTRA carrier;

1> if the Rejection Cause is 'unspecified' and the IE "Counting Completion" is present, the UE shall terminate an ongoing MBMS counting procedure according to subclause 8.7.4.4;

1> if the IE "wait time" <> '0'; and

1> if the IE "frequency info" is present and:

2> if V300 is equal to or smaller than N300:

3> select a suitable UTRA cell according to [4] on that frequency;

3> after having selected and camped on a suitable cell on the designated UTRA carrier:

4> set CFN in relation to SFN of current cell according to subclause 8.5.15;

4> set the contents of the RRC CONNECTION REQUEST message according to subclause 8.1.3.3;

4> perform the mapping of the Access Class to an Access Service Class as specified in subclause 8.5.13, and apply the given Access Service Class when accessing the RACH or the common E-DCH (for the Enhanced Uplink in CELL_FACH and Idle mode);

4> transmit an RRC CONNECTION REQUEST message on the uplink CCCH;

4> reset counter V300;

4> start timer T300 when the MAC layer indicates success or failure in transmitting the message;

4> disable cell reselection to original UTRA carrier until the time stated in the IE "wait time" has elapsed or until the RRC connection establishment procedure ends, whichever occurs first;

3> if no suitable cell on the designated UTRA carrier is found:

4> wait for at least the time stated in the IE "wait time";

4> set CFN in relation to SFN of current cell according to subclause 8.5.15;

4> set the IEs in the RRC CONNECTION REQUEST message according to subclause 8.1.3.3;

4> perform the mapping of the Access Class to an Access Service Class as specified in subclause 8.5.13, and apply the given Access Service Class when accessing the RACH or the common E-DCH (for the Enhanced Uplink in CELL_FACH and Idle mode);

4> then submit a new RRC CONNECTION REQUEST message to the lower layers for transmission on the uplink CCCH of the original serving cell;

4> increment counter V300;

4> restart timer T300 when the MAC layer indicates success or failure to transmit the message;

2> if V300 is greater than N300:

3> enter idle mode;

3> perform the actions specified in subclause 8.5.2 when entering idle mode from connected mode;

3> consider the RRC establishment procedure to be unsuccessful;

3> the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.3.9.

8.1.2.22.3 Test purpose

To confirm that the UE retries to establish RRC connection in the original serving cell, if it receives an RRC CONNECTION REJECT message including the optional IE "redirection info" referencing frequencies in the same band, but having different Qrxlevmin values and if no suitable cell on the designated UTRA carrier is found.8.1.2.22.4 Method of test

Initial Condition

System Simulator: 2 cells – cell 1 is active and suitable for camping and cell 4 is non-suitable cell. Cell 1 is transmitted using a larger power. The transmission power of cell 4 is 6 dB lower than the default and the Qrxlevmin of cell 4 is 10dB higher than that of cell 1.

Table 8.1.2.22

Parameter	Unit	Cell 1	Cell 4
UTRA RF Channel Number		Mid Range Test Frequency	High Range Test Frequency
CPICH Ec (FDD)	dBm/3.84 MHz	-60	-66
Qrxlevmin	dBm	-69	-59

Switched off (state 1 as specified in clause 7.4 of TS 34.108).

Related ICS/IXIT statement(s)

None.

Specific message content

For system information block 11 for Cell 1 (gives IE's which are different from defaults given in 34.108 sec 6.1) to be transmitted before idle update preamble.

System Information Block type 11

Use same message sub-clause 6.1 of TS34.108, with following exception:

Information Element	Value/remark
SIB12 indicator	FALSE
Measurement control system information	
- Intra-frequency measurement system information	
- Intra-frequency reporting quantity for RACH reporting	
- SFN-SFN observed time difference reporting indicator	No report
- CHOICE mode	FDD
- Reporting quantity	CPICH Ec/N0
- Maximum number of reported cells on RACH	Current Cell
- Reporting information for state CELL_DCH	Not present

Test Procedure

The UE is switched on.

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH for registration on cell 1. The SS rejects the first request by transmitting an RRC CONNECTION REJECT message which includes the IE "Redirection Info" indicating frequency information for cell 4. UE will not reselect to cell 4 as cell 4 does not satisfy cell selection criteria. It then waits for a second RRC CONNECTION REQUEST message and ensures that it is on the uplink CCCH of cell 1 and ensures that the "wait time" has been observed. Finally, the SS transmits an RRC CONNECTION SETUP message to establish an RRC connection with the UE, and the UE replies with an RRC CONNECTION SETUP COMPLETE message and enters CELL_DCH state. UE is brought to Idle state (state 2 or state 3 or state 7) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by an outgoing call operation in cell 1. SS rejects the first request by transmitting an RRC CONNECTION REJECT message which includes the IE "Redirection Info" indicating frequency information for cell 4. It then waits for a second RRC CONNECTION REQUEST message and ensures that it is on the uplink CCCH of cell 1 and ensures that the "wait time" has been observed. Finally, the SS transmits an RRC CONNECTION SETUP message to establish an RRC connection with the UE, and the UE replies with an RRC CONNECTION SETUP COMPLETE message and enters CELL_DCH state.

NOTE: If the UE fails the test because of a failure to select to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	UE			The UE is powered up or switched on, (see ICS)
2	→		RRC CONNECTION REQUEST	The establishment cause must be “Registration”
3	←		RRC CONNECTION REJECT	This message shall includes the IE "wait time" set to 5 seconds and IE "frequency info" set to the UARFCN of cell 4.
4				UE will not reselect to cell 4 as cell 4 does not satisfy cell selection criteria. SS checks that UE does not select cell 4 and send any access request on cell 4. The SS monitors the uplink of cell 1 for the duration specified in the IE “wait time” to make sure that all transmissions have ceased.
5	→		RRC CONNECTION REQUEST	UE shall send a second RRC connection request to cell 1. The establishment cause shall remain unchanged.
6	←		RRC CONNECTION SETUP	SS sends the message to UE to setup an RRC connection with the UE.
7				The UE shall configure the layer 2 and layer 1 in order to access the uplink and downlink DCCH assigned.
8	→		RRC CONNECTION SETUP COMPLETE	
9				UE is brought to Idle state (state 2 or state 3 or state 7) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE
10	→		RRC CONNECTION REQUEST	SS prompts the operator to make an outgoing call in cell 1.
11	←		RRC CONNECTION REJECT	This message shall includes the IE "wait time" set to 5 seconds and IE "frequency info" set to the UARFCN of cell 4.
12				UE will not reselect to cell 4 as cell 4 does not satisfy cell selection criteria. SS checks that UE does not select cell 4 and send any access request on cell 4. The SS monitors the uplink of cell 1 for the duration specified in the IE “wait time” to make sure that all transmissions have ceased.
13	→		RRC CONNECTION REQUEST	UE shall attempt to start an RRC connection establishment procedure in cell 1. The establishment cause shall be same as the one sent in step 10.
14	←		RRC CONNECTION SETUP	SS sends the message to UE to setup an RRC connection with the UE.

15			The UE shall configure the layer 2 and layer 1 in order to access the uplink and downlink DCCH assigned.
16	→	RRC CONNECTION SETUP COMPLETE	
17	←→	CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RRC CONNECTION REQUEST (Step 2 and Step 5)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	Same as the IMSI stored in the TEST USIM card, or the previously registered TMSI or P-TMSI
Establishment Cause	Must be "Registration"

RRC CONNECTION REJECT (Step 3 and Step 11)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Rejection cause	Congestion
Wait time	5 seconds
Redirection Info	
- Frequency Info	
- CHOICE mode	FDD
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	Set to the UARFCN for downlink carrier of cell 4

RRC CONNECTION REQUEST (Step 10 and Step 13)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	Same as the registered TMSI or P-TMSI
Establishment Cause	Must be "Originating Call"

8.1.2.22.5 Test requirement

After step 3 the UE shall have determined that the redirection is not possible and adhere to the “wait time” before re-transmitting an RRC CONNECTION REQUEST. The establishment cause shall be registration.

In step 8, the UE shall send the RRC CONNECTION SETUP COMPLETE message on the frequency indicated in the RRC CONNECTION SETUP message.

After step 11 the UE shall have determined that the redirection is not possible and adhere to the “wait time” before re-transmitting an RRC CONNECTION REQUEST. The establishment cause shall be originating call.

In step 16, the UE shall send the RRC CONNECTION SETUP COMPLETE message on the frequency indicated in the RRC CONNECTION SETUP message.

8.1.2.22a RRC Connection Establishment: Reject with Frequency Info set to a different frequency band – Unsuccessful case

8.1.2.22a.1 Definition

This test case is identical to test case 8.1.2.22 except that the RRC CONNECTION REJECT message shall indicate a cell on a different frequency band and a different IE “Wait time”.

8.1.2.22a.2 Conformance requirement

Same conformance requirement as in clause 8.1.2.22.2.

8.1.2.22a.3 Test purpose

Same test purpose as in clause 8.1.2.22.3 except that the optional IE "redirection info" is on a different frequency band.

8.1.2.22a.4 Method of test

Initial Condition

Same initial conditions as in clause 8.1.2.22.4 except that cells 1and 4 use the UARFCNs in two different frequency bands. The frequency bands for cell 1 and cell 4 are selected according to PIXIT parameter.

Related ICS/IXIT statement(s)

- UE supports multiple bands simultaneously yes/no

Specific message content

Same specific message content for system information as in clause 8.1.2.22.4.

Test Procedure

Same test procedure as in clause 8.1.2.22.4.

NOTE: If the UE supports more than 2 frequency bands, the test may be executed for various band combinations.

Specific Message Contents

Same specific message content as in clause 8.1.2.22.4 except:

RRC CONNECTION REJECT (Step 3 and Step 11)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Rejection cause	Congestion
Wait time	15 seconds
Redirection Info	
- Frequency Info	
- CHOICE mode	FDD
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	Set to the UARFCN for downlink carrier of cell 4

8.1.2.22a.5 Test requirement

Same test requirement as in clause 8.1.2.22.5.

8.1.2.23 Void

8.1.2.23a Void

8.1.2.24 Void

8.1.2.24a Void

8.1.2.25 RRC Connection Establishment for transition from Idle Mode to CELL_FACH: Success (Start of E-DCH and HS-DSCH Reception)

8.1.2.25.1 Definition and applicability

All UEs which support 1.28Mcps TDD and E-DCH and HS-PDSCH in CELL_FACH.

8.1.2.25.2 Conformance requirement

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

…

1> if the UE supports MAC-ehs:

2> include the IE "MAC-ehs support" and set it to TRUE.

1> if the UE supports HS-DSCH reception in CELL_FACH state:

2> include the IE "HS-PDSCH in CELL_FACH" and set it to TRUE.

1> if the UE supports Enhanced Uplink in CELL_FACH state and Idle mode:

2> include the IE "Support of common E-DCH" and set it to TRUE.

NOTE: In 1.28 Mcps TDD, UE supporting HS-DSCH reception in CELL_FACH state always supports Enhanced Uplink in CELL_FACH state and Idle mode, and vice versa.

1> if the UE supports MAC-i/is:

2> include the IE "Support of MAC-i/is" and set it to TRUE.

…

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

If the values are different, the UE shall:

1> ignore the rest of the message.

If the values are identical, the UE shall:

…

1> if IE "Default configuration for CELL_FACH" is set:

2> act in accordance with the default parameters according to section 13.8.

1> clear the variable ESTABLISHMENT_CAUSE;

1> for FDD and 1.28 Mcps TDD, if the HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to TRUE:

2> set the variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED to FALSE.

1> stop timer T300 or T318, whichever one is running, and act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following:

2> if the UE, according to subclause 8.6.3.3, will be in the CELL_FACH state at the conclusion of this procedure:

3> if the IE "Frequency info" is included:

4> select a suitable UTRA cell according to [4] on that frequency.

3> enter UTRA RRC connected mode;

3> determine the value for the READY_FOR_COMMON_EDCH variable and take the corresponding actions as described in subclause 8.5.47;

3> determine the value for the COMMON_E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.46;

3> if variable READY_FOR_COMMON_EDCH is set to FALSE:

4> select PRACH according to subclause 8.5.17;

3> else:

4> configure the Enhanced Uplink in CELL_FACH state and Idle mode as specified in subclause 8.5.45 for FDD and 8.5.45a for 1.28 Mcps TDD.

3> for 3.84 Mcps and 7.68 Mcps TDD; or

3> for FDD and 1.28 Mcps TDD, if the UE does not support HS-DSCH reception in CELL_FACH state; or

3> if the IE "HS-DSCH common system information" is not included in System Information Block type 5 or System Information Block type 5bis; or

3> for 1.28 Mcps TDD, if the IE "Common E-DCH system info" is not included in System Information Block type 5:

4> select Secondary CCPCH according to subclause 8.5.19;

3> else:

4> set variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED to FALSE;

4> For FDD if variable READY_FOR_COMMON_EDCH is set to FALSE:

5> if the RBs have the multiplexing option with transport channel type "HS-DSCH" for the DL and transport channel type “RACH” in the UL; and

5> if "new H-RNTI" and "new C-RNTI" are included:

6> store the "new H-RNTI" according to subclause 8.6.3.1b;

6> store the "new C-RNTI" according to subclause 8.6.3.9;

6> and start to receive HS-DSCH according to the procedure in subclause 8.5.36.

5> else:

6> clear variable C_RNTI and delete any stored C-RNTI value;

6> clear variable H_RNTI and delete any stored H-RNTI value;

6> clear any stored IE "HARQ Info";

6> set the variable INVALID_CONFIGURATION to TRUE.

4> else:

5> if the RBs have the multiplexing option with transport channel type "HS-DSCH" for the DL and transport channel type "E-DCH" in the UL; and

5> if the IEs "new Primary E-RNTI", "new H-RNTI" and "new C-RNTI" are included:

6> store the "new Primary E-RNTI" according to subclause 8.6.3.14;

6> store the "new H-RNTI" according to subclause 8.6.3.1b;

6> store the "new C-RNTI" according to subclause 8.6.3.9;

6> configure Enhanced Uplink in CELL_FACH state and Idle mode according to subclause 8.5.45 for FDD and 8.5.45a for 1.28 Mcps TDD;

6> and start to receive HS-DSCH according to the procedure in subclause 8.5.36.

5> else:

6> clear variable C_RNTI and delete any stored C-RNTI value;

6> clear variable H_RNTI and delete any stored H-RNTI value;

6> clear variable E_RNTI and delete any stored E-RNTI value;

6> clear any stored IE "HARQ Info";

6> set the variable INVALID_CONFIGURATION to TRUE.

3> ignore the IE "UTRAN DRX cycle length coefficient" and stop using DRX.

…

1> submit an RRC CONNECTION SETUP COMPLETE message to the lower layers on the uplink DCCH after successful state transition per subclause 8.6.3.3, with the contents set as specified below:

2> set the IE "RRC transaction identifier" to:

3> the value of "RRC transaction identifier" in the entry for the RRC CONNECTION SETUP message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> clear that entry.

2> if the USIM or SIM is present:

3> set the "START" for each CN domain in the IE "START list" in the RRC CONNECTION SETUP COMPLETE message with the corresponding START value that is stored in the USIM [50] if present, or as stored in the UE if the SIM is present; and then

3> set the START value stored in the USIM [50] if present, and as stored in the UE if the SIM is present for any CN domain to the value "THRESHOLD" of the variable START_THRESHOLD.

…

The variable HS_DSCH_RECEPTION_CELL_FACH_STATE shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_FACH;

1> the variable H_RNTI is set;

1> the variable C_RNTI is set;

1> System Information Block type 5 or System Information Block type 5bis includes IE "HS-DSCH common system information";

1> for 1.28 Mcps TDD, System Information Block type 5 includes IE "Common E-DCH system info".

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_CELL_FACH_STATE to FALSE;

1> if the UE is in CELL_FACH and variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to FALSE:

2> set the variable HS_DSCH_RECEPTION_OF_ETWS_ENABLED to FALSE;

2> set the variable HS_DSCH_RECEPTION_GENERAL to FALSE;

2> stop any HS-SCCH reception procedures;

2> stop any HS-DSCH reception procedures;

2> clear the variable H_RNTI and remove any stored H-RNTI;

2> reset the MAC-ehs entity [15];

2> release all HARQ resources;

2> clear any stored IEs "HARQ info";

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

1> use the IE "HS-DSCH common system information" in System Information Block type 5 or System Information Block type 5bis;

1> for FDD, receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving cell applying the scrambling code as received in the IE "DL Scrambling code" as received in IE "HS-DSCH common system information";

1> for 1.28 Mcps TDD, receive the HS-SCCH(s) according to the stored HS-SCCH configuration, applying the HS-PDSCH midamble code according to the stored HS-PDSCH midamble configuration;

1> perform HS-DSCH reception procedures:

2> if the UE has a stored IE "HARQ info":

3> act on subclause 8.6.5.6b for the stored IE "HARQ info".

2> else:

3> act on subclause 8.6.5.20 for the IE "HARQ System info" as received in IE "HS-DSCH common system information".

2> and use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

1> and for FDD, for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH code listed in the IE "HS-SCCH channelisation code" with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

1> and for 1.28 Mcps TDD, for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH according to the stored HS-SCCH configuration with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

NOTE : For 1.28 Mcps TDD, when performing HS-DSCH reception in CELL_FACH state, the UE shall use the table of transport block size for the HS-DSCH physical layer category 9 as specified in [15].

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to FALSE, the UE shall:

1> if the UE is in CELL_FACH and variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to FALSE:

2> not perform HS-SCCH reception procedures;

2> not perform HS-DSCH reception procedures.

…

When UE does not support HS-DSCH reception in CELL_FACH state or when the IE "HS-DSCH common system information" is not included in System Information Block type 5 or System Information Block type 5bis, the UE shall:

1> set the variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED to FALSE;

1> set the variable HS_DSCH_RECEPTION_OF_ETWS_ENABLED to FALSE;

1> set the variable HS_DSCH_RECEPTION_GENERAL to FALSE.

When the variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED or the variable HS_DSCH_RECEPTION_OF_ETWS_ENABLED is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

1> use the IE "HS-DSCH common system information" in System Information Block type 5 or System Information Block type 5bis;

1> configure the HARQ according to IE "HARQ System info" as defined in subclause 8.6.5.20;

1> configure the common MAC-ehs reordering queues according to IE "Common MAC-ehs reordering queues" as defined in subclauses 8.6.5.22; and then

1> receive the CCCH according to IE "CCCH mapping info" as defined in subclause 8.6.5.21;

1> if the UE is RRC Connected mode:

2> select a common H-RNTI as specified in 8.5.38;

2> if the variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to TRUE:

3> receive the SRB1 according to IE "SRB1 mapping info" as defined in subclause 8.6.5.19.

1> else:

2> select a common H-RNTI as specified in [4].

1> and for FDD, start to receive the HS-SCCH(s) with selected H-RNTI according to the IE "HS-SCCH channelisation code" on the selected cell applying the scrambling code as received in the IE "DL Scrambling code";

1> and for 1.28 Mcps TDD, start to receive the HS-SCCH(s) with selected H-RNTI according to the IE "HS-SCCH system info" on primary frequency in the selected cell applying the midamble code as received in the IE "HS-PDSCH Midamble Configuration";

1> configure the MAC flow for BCCH reception as specified in [15];

1> and for FDD, start to receive the first indexed HS-SCCH code listed in the IE "HS-SCCH channelisation code" with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

1> and for 1.28 Mcps TDD, for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH according to the IE "HS-SCCH system info" with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

NOTE : For 1.28 Mcps TDD, when performing HS-DSCH reception in CELL_FACH state, the UE shall use the table of transport block size for the HS-DSCH physical layer category 9 as specified in [15].

Reference

3GPP TS 25.331 clauses 8.1.3.3, 8.1.3.6, 8.5.36, 8.5.37

8.1.2.25.3 Test purpose

To confirm that the UE establishes a signalling radio bearer mapped to HS-DSCH and E-DCH according to the received RRC CONNECTION SETUP message.

8.1.2.25.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Registered Idle Mode on PS (state 3), or CS/PS (state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports 1.28Mcps TDD
- UE supports HS-PDSCH in CELL_FACH
- UE supports E-DCH in CELL_FACH

Test Procedure

The SS transmits System Information Type 5 including configuration for E-DCH and HS-DSCH reception in CELL_FACH state.

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH, after the test operator makes an out-going call.

The SS transmits a RRC CONNECTION SETUP message to the UE on RB0 mapped to HS-DSCH. This message requests the establishment of a signalling radio bearer with SRB mapping to HS-DSCH and E-DCH. After the UE receives this message, it establishes a signalling radio bearer and maps it to the HS-DSCH and E-DCH. Finally the UE transmits a RRC CONNECTION SETUP COMPLETE message using AM RLC on the E-DCH channel.

SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←		SYSTEM INFORMATION TYPE 5	Includes configuration for E-DCH and HS-DSCH reception in CELL_FACH state
1	→		RRC CONNECTION REQUEST	The SS prompts the operator makes an out-going call. The UE shall transmit this message, indicating the correct establishment cause and support of E-DCH and HS-PDSCH in CELL_FACH
2	←		RRC CONNECTION SETUP	Transmitted on HS-DSCH, requests establishment of SRBs mapped to HS-DSCH/E-DCH,
3	→		RRC CONNECTION SETUP COMPLETE	
4	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

SYSTEM INFORMATION TYPE 5

Use default message in 34.108 section 6.1.0b, condition B1.RRC CONNECTION REQUEST (Step 1)

Use the same message type found in clause 9 of TS 34.108, with the following exceptions.

Information Element	Value/remark
Initial UE identity	Same as the registered TMSI or P-TMSI
Establishment Cause	Originating Interactive Call or Originating Background Call or Originating Streaming Call or OriginatingSubscribedTrafficCall
HS-PDSCH in CELL_FACH	Check to see if set to TRUE
MAC-ehs support	Check to see if set to TRUE
Support of common E-DCH	Check to see if set to TRUE
Support of MAC-i/is	Check to see if set to TRUE

RRC CONNECTION SETUP (Step 2)

Use default message in 34.108 section 9.1.1, condition A4.RRC CONNECTION SETUP COMPLETE (Step 3)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
UE Radio Access Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE radio access capability extension	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE system specific Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.

8.1.2.25.5 Test requirements

After step 3 the UE shall establish the RRC connection, and transmit RRC CONNECTION SETUP COMPLETE message on the DCCH using common E-DCH physical resource specified in system information block messages.

8.1.2.26 RRC Connection Establishment / Paging Permission with Access Control: Success

8.1.2.26.1 Definition

This test case is applicable for Rel-8 or later UEs.

8.1.2.26.2 Conformance requirement

Access Class related cell access restrictions shall be checked by the UE before sending an RRC CONNECTION REQUEST message when entering Connected Mode from UTRAN Idle mode. Access Class related cell access restrictions, if it is sent as a part of Domain Specific Access Restriction parameters, shall also be checked by the UE before sending INITIAL DIRECT TRANSFER message. Access Class related cell access restrictions, if it is sent as a part of Paging Permission with Access Control Parameters, shall be checked by the UE before sending a response to Paging message or before initiating a Location/Registration procedure. Otherwise, cell access restrictions associated with the Access Classes shall not apply for a UE which already is in Connected Mode.

…

With respect to Domain Specific Access Control and Paging Permission with Access Control, the UE shall:

1> if the IE "Multiple PLMN List" is not included in the Master Information Block:

2> apply the domain specific access restrictions as indicated by the IE "Domain Specific Access Restriction Parameters For PLMN Of MIB", and the paging permission with access control as indicated by the IE "Paging Permission with Access Control Parameters for PLMN Of MIB".

…

The UE shall apply the following handling with respect to any Access Class Barring information:

1> if in idle mode:

2> if the IE "Paging Permission with Access Control Parameters For PLMN Of MIB", the IE "Paging Permission with Access Control Parameters For OperatorN" or the IE "Paging Permission with Access Control Parameters For All" to be applied according to the requirements above is included in System Information Block Type 3, the UE shall:

3> if Paging Response Restriction Indication is set to "None":

4> when sending a response to any PAGING TYPE 1 message, Paging message specified in [67] or CS SERVICE NOTIFICATION message specified in [79], act as if no Access Class is barred in the IE "Access Class Barred List" as specified in [4].

3> if Paging Response Restriction Indication is set to "PS":

4> when sending a response to any PAGING TYPE 1 message, Paging message specified in [67] or CS SERVICE NOTIFICATION message specified in [79] from CS domain, act as if no Access Class is barred in the IE "Access Class Barred List" as specified in [4];

4> when sending a response to any PAGING TYPE 1 message, Paging message specified in [67] or CS SERVICE NOTIFICATION message specified in [79] from PS domain, act on the IE "Domain Specific Access Class Barred List" if indicated in the IE "PS Domain Specific Access Restriction" (or IE "Access Class Barred list" if IE "Domain Specific Access Class Barred List" is not present) as specified in [4].

3> if Paging Response Restriction Indication is set to "CS":

4> when sending a response to any PAGING TYPE 1 message, Paging message specified in [67] or CS SERVICE NOTIFICATION message specified in [79] from PS domain, act as if no Access Class is barred in the IE "Access Class Barred List" as specified in [4];

4> when sending a response to any PAGING TYPE 1 message, Paging message specified in [67] or CS SERVICE NOTIFICATION message specified in [79] from CS domain, act on the IE "Domain Specific Access Class Barred List" if indicated in the IE "CS Domain Specific Access Restriction" (or IE "Access Class Barred list" if IE "Domain Specific Access Class Barred List" is not present) as specified in [4].

3> else (if Paging Response Restriction Indication is set to "All"):

4> when sending a response to any PAGING TYPE 1 message, Paging message specified in [67] or CS SERVICE NOTIFICATION message specified in [79] from CS domain, act on the IE "Domain Specific Access Class Barred List" if indicated in the IE "CS Domain Specific Access Restriction" as specified in [4];

4> when sending a response to any PAGING TYPE 1 message, Paging message specified in [67] or CS SERVICE NOTIFICATION message specified in [79] from PS domain, act on the IE "Domain Specific Access Class Barred List" if indicated in the IE "PS Domain Specific Access Restriction" as specified in [4];

4> when sending a response to any PAGING TYPE 1 message, Paging message specified in [67] or CS SERVICE NOTIFICATION message specified in [79] from PS or CS domain, act on the IE "Access Class Barred list" if the IE "Domain Specific Access Class Barred List" is not present.

Reference

3GPP TS25.304 clause 5.3.1.2, TS 25.331 clause 8.1.1.6.3

8.1.2.26.3 Test purpose

To confirm that the UE responds to a paging request even when under access class barring.

8.1.2.26.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 7) as specified in clause 7.4 of TS 34.108

Test Procedure

The UE is in idle mode. The SS transmits a PAGING TYPE 1 message to inform the UE to change the system information and it needs to read new blocks of SYSTEM INFORMATION, in which the IE “Paging Permission with Access Control Parameters” to be applied are included in SYSTEM INFORMATION BLOCK TYPE 3. The SS transmits a PAGING TYPE 1 message, which includes a matched CN UE identity for the UE in the idle state. During transmission of PAGING TYPE 1 messages, SS selects the correct paging indicator on the PICH in order to allow the UE to respond to paging. Then the UE transmits an RRC CONNECTION REQUEST to the SS on the uplink CCCH by a terminating call operation on the other non-barred domain. Then the SS transmits a RRC CONNECTION SETUP message to establish a RRC Connection with the UE and the UE replies to send an RRC CONNECTION SETUP COMPLETE message and an INITIAL DIRECT TRANSFER message. The SS releases the RRC connection: The SS pages the UE for the barred domain, and the UE does not respond to the paging by sending a RRC CONNECTION REQUEST.

This test case shall be run twice:

Case 1) The system information block type 3 indicates that the UE is only allowed to respond to paging from PS domain at step 2.

Case 2) The system information block type 3 indicates that the UE is only allowed to respond to paging from CS domain at step 2.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1		←	PAGING TYPE1	The SS transmits the message including the IE "BCCH Modification Information".
2		←	MASTER INFORMATION BLOCK	The SS starts to transmit the MIB with the "MIB value tag" IE different from the original setting.
		←	SYSTEM INFORMATION BLOCK TYPE3	The SS transmits the new SIB3 to indicate that one of the supported domains in the cell is barred.
3				The SS waits 5 sec (to ensure that the UE has time to read the new system information).
4		←	PAGING TYPE 1	The SS transmits the message, which includes a matched identity.
5		→	RRC CONNECTION REQUEST	
6		←	RRC CONNECTION SETUP	The SS assigns DPCH resources to allow UE to establish an RRC connection.
7		→	RRC CONNECTION SETUP COMPLETE	
8		→	INITIAL DIRECT TRANSFER	
9		←	RRC CONNECTION RELEASE	The SS releases the RRC CONNECTION.
10		→	RRC CONNECTION RELEASE COMPLETE	SS waits for the arrival of N308 + 1 such message with an interval time of T308, using unacknowledged mode.
11		←	PAGING TYPE 1	SS pages the UE for the barred domain
12		→		No RRC CONNECTION REQUEST sent to the SS as the domain is barred. The SS waits 30 seconds.

Specific Message Content

PAGING TYPE 1 (Step 1)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
- MIB Value Tag	Set to (Current MIB value tag + 1)
- BCCH Modification time	Not Present

MASTER INFORMATION BLOCK (Step 2)

Information Element	Value/remark
MIB Value tag	As in PAGING TYPE 1 in step 1
SIB 3 Cell Value tag	Set to (Current SIB3 value tag + 1)

System Information Block type 3 (Step 2)

For Case 1 i.e. when the UE is only allowed to respond to paging from PS domain.

Use the same message type found in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Access Class Barred List	
- Access Class Barred0	barred
- Access Class Barred1	barred
- Access Class Barred2	barred
- Access Class Barred3	barred
- Access Class Barred4	barred
- Access Class Barred5	barred
- Access Class Barred6	barred
- Access Class Barred7	barred
- Access Class Barred8	barred
- Access Class Barred9	barred
- Access Class Barred10	barred
- Access Class Barred11	barred
- Access Class Barred12	barred
- Access Class Barred13	barred
- Access Class Barred14	barred
- Access Class Barred15	barred
Domain Specific Access Restriction Parameters For PLMN Of MIB	
-CS Domain Specific Access Restriction	restriction
-Domain Specific Access Class Barred List	
-Access Class Barred List	
- Access Class Barred0	barred
- Access Class Barred1	barred
- Access Class Barred2	barred
- Access Class Barred3	barred
- Access Class Barred4	barred
- Access Class Barred5	barred
- Access Class Barred6	barred
- Access Class Barred7	barred
- Access Class Barred8	barred
- Access Class Barred9	barred
- Access Class Barred10	barred
- Access Class Barred11	barred
- Access Class Barred12	barred
- Access Class Barred13	barred
- Access Class Barred14	barred
- Access Class Barred15	barred
-PS Domain Specific Access Restriction	restriction
-Domain Specific Access Class Barred List	
-Access Class Barred List	
- Access Class Barred0	barred
- Access Class Barred1	barred
- Access Class Barred2	barred
- Access Class Barred3	barred
- Access Class Barred4	barred
- Access Class Barred5	barred
- Access Class Barred6	barred
- Access Class Barred7	barred
- Access Class Barred8	barred
- Access Class Barred9	barred
- Access Class Barred10	barred
- Access Class Barred11	barred
- Access Class Barred12	barred
- Access Class Barred13	barred
- Access Class Barred14	barred
- Access Class Barred15	barred
Paging Permission with Access Control Parameters For PLMN Of MIB	
- Paging Response Restriction Indication	CS
- Location/Registration Restriction Indicator	All
- Location/Registration	
- Location/Registration Access Restriction	no restriction

System Information Block type 3 (Step 2)

For Case 2 i.e. when the UE is only allowed to respond to paging from CS domain.

Use the same message type found in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Access Class Barred List	
- Access Class Barred0	barred
- Access Class Barred1	barred
- Access Class Barred2	barred
- Access Class Barred3	barred
- Access Class Barred4	barred
- Access Class Barred5	barred
- Access Class Barred6	barred
- Access Class Barred7	barred
- Access Class Barred8	barred
- Access Class Barred9	barred
- Access Class Barred10	barred
- Access Class Barred11	barred
- Access Class Barred12	barred
- Access Class Barred13	barred
- Access Class Barred14	barred
- Access Class Barred15	barred
Domain Specific Access Restriction Parameters For PLMN Of MIB	
-CS Domain Specific Access Restriction	restriction
-Domain Specific Access Class Barred List	
-Access Class Barred List	
- Access Class Barred0	barred
- Access Class Barred1	barred
- Access Class Barred2	barred
- Access Class Barred3	barred
- Access Class Barred4	barred
- Access Class Barred5	barred
- Access Class Barred6	barred
- Access Class Barred7	barred
- Access Class Barred8	barred
- Access Class Barred9	barred
- Access Class Barred10	barred
- Access Class Barred11	barred
- Access Class Barred12	barred
- Access Class Barred13	barred
- Access Class Barred14	barred
- Access Class Barred15	barred
-PS Domain Specific Access Restriction	restriction
-Domain Specific Access Class Barred List	
-Access Class Barred List	
- Access Class Barred0	barred
- Access Class Barred1	barred
- Access Class Barred2	barred
- Access Class Barred3	barred
- Access Class Barred4	barred
- Access Class Barred5	barred
- Access Class Barred6	barred
- Access Class Barred7	barred
- Access Class Barred8	barred
- Access Class Barred9	barred
- Access Class Barred10	barred
- Access Class Barred11	barred
- Access Class Barred12	barred
- Access Class Barred13	barred
- Access Class Barred14	barred
- Access Class Barred15	barred
Paging Permission with Access Control Parameters For PLMN Of MIB	
- Paging Response Restriction Indication	PS
- Location/Registration Restriction Indicator	All
- Location/Registration	
- Location/Registration Access Restriction	no restriction

PAGING TYPE 1 (Step 4)

For Case 1 i.e. when the UE is only allowed to respond to paging from PS domain.

Use the same message type found in clause 9.1 Contents of PAGING TYPE 1 message: TM (Packet in PS) of TS 34.108:

PAGING TYPE 1 (Step 4)

For Case 2 i.e. when the UE is only allowed to respond to paging from CS domain.

Use the same message type found in clause 9.1 Contents of PAGING TYPE 1 message: TM (Speech in CS) of TS 34.108:

PAGING TYPE 1 (Step 10)

For Case 1 i.e. when the UE should NOT respond to paging from CS domain.

Use the same message type found in clause 9.1 Contents of PAGING TYPE 1 message: TM (Speech in CS) of TS 34.108

PAGING TYPE 1 (Step 10)

For Case 2 i.e. when the UE should NOT respond to paging from PS domain.

Use the same message type found in clause 9.1 Contents of PAGING TYPE 1 message: TM (Packet in PS) of TS 34.108:

INITIAL DIRECT TRANSFER (Step 8)

Use the same message type found in clause 9.1 of TS 34.108, with the following exception:

Information Element	Value/remark
CN domain identity	Check to see if it is not the barred domain.

8.1.2.26.5 Test requirement

At step 5, the UE transmits an RRC CONNECTION REQUEST message to the SS for establishing the non-barred domain service on uplink CCCH.

At step 7, the UE transmits an RRC CONNECTION SETUP COMPLETE message to the SS on uplink DCCH.

At step 12, the UE does not transmit an RRC CONNECTION REQUEST message to the SS.

8.1.2.27 RRC Connection Establishment using the default configuration#23 for HS-DSCH / E-DCH signalling bearers

8.1.2.27.1 Definition

All UEs which support FDD and HS-PDSCH and E-DCH and fully support F-DPCH or all UEs which support TDD and HS-PDSCH and E-PUCH. This test is applicable for Rel-9 onwards UEs.

8.1.2.27.2 Conformance requirement

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

If the values are different, the UE shall:

1> ignore the rest of the message.

If the values are identical, the UE shall:

...

2> if IE "Specification mode" is set to "Preconfiguration" and IE "Preconfiguration mode" is set to "Default configuration":

3> initiate the radio bearer and transport channel configuration in accordance with the default parameters identified by the IE "Default configuration mode" and IE "Default configuration identity";

3> initiate the physical channels in accordance with the received physical channel information elements.

NOTE: IE "Default configuration mode" specifies whether the FDD or TDD version of the default configuration shall be used.

Reference

3GPP TS 25.331 clause 8.1.3.6, clause 13.7

8.1.2.27.3 Test purpose

To confirm that the UE establishes the radio bearer and transport channel configuration (HS-DSCH / E-DCH) for signalling radio bearers in accordance with the stored default parameters identified by the IE “Default configuration identity” specified as 23 in the RRC Connection Setup Message

8.1.2.27.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Idle state (state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports E-DPDCH (FDD) or E-PUCH (1.28Mcps TDD)
- UE fully supports F-DPCH (FDD only)

Test Procedure

The UE shall transmit a RRC CONNECTION REQUEST message to the SS on the uplink CCCH, after the operator attempts to make an outgoing call. SS shall send a RRC CONNECTION SETUP message that contains the stored default configuration identity 23 (for standalone HS-DSCH / E-DCH signalling radio bearers). The UE accepts the message, configuring the radio bearer and transport channel configuration in accordance with the stored default parameters and acknowledge the establishment of RRC connection by sending the RRC CONNECTION SETUP COMPLETE message on uplink DCCH.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1				Operator is asked to make an outgoing call.
2	→		RRC CONNECTION REQUEST	
3	←		RRC CONNECTION SETUP	DefaultConfigIdentity used is '23'
4	→		RRC CONNECTION SETUP COMPLETE	
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state the test passes, otherwise it fails.

Specific Message Contents

RRC CONNECTION REQUEST (Step 2)

The same message sub-type found in clause 9 of TS 34.108 applies, with the following exceptions:

Information Element	Value/remark
Initial UE identity	Same as the registered TMSI or P-TMSI
Establishment Cause	Originating Interactive Call or Originating Background Call or Originating Streaming Call or OriginatingSubscribedTrafficCall.

RRC CONNECTION SETUP (Step 3) (FDD)

Use the same message sub-type found in clause 9 of TS 34.108 (Transition to CELL_DCH), for condition "Stand-alone SRBs mapped on E-DCH and HS-DSCH" with the following exceptions:

Information Element	Value/remark
Choice Specification Mode	Preconfiguration
- Choice Preconfig Mode	Default Config
- Default Config Mode	FDD
-Default Config Identity	23

RRC CONNECTION SETUP (Step 3) (1.28Mcps TDD)

Use the same message sub-type found in clause 9 of TS 34.108 (Transition to CELL_DCH), for condition "Stand-alone SRBs mapped on E-DCH and HS-DSCH" with the following exceptions:

Information Element	Value/remark
Choice Specification Mode	Preconfiguration
- Choice Preconfig Mode	Default Config
- Default Config Mode	TDD
-Default Config Identity	23

RRC CONNECTION SETUP COMPLETE (Step 4)

Use the same message sub-type found in clause 9 of TS 34.108

8.1.2.27.5 Test requirement

At step 4 the UE shall transmit a RRC CONNECTION SETUP COMPLETE message on Radio Bearer Id: 2 and establish an RRC connection successfully.

8.1.3 RRC Connection Release

8.1.3.1 RRC Connection Release in CELL_DCH state: Success

8.1.3.1.1 Definition

8.1.3.1.2 Conformance requirement

1. The UE shall receive and act on an RRC CONNECTION RELEASE message in states CELL_DCH and CELL_FACH. Furthermore this procedure can interrupt any ongoing procedures with the UE in the above listed states.

   When the UE receives the first RRC CONNECTION RELEASE message, it shall:

   …

   - in state CELL_DCH:
     - initialise the counter V308 to zero;

     …

     - submit an RRC CONNECTION RELEASE COMPLETE message to the lower layers for transmission using UM RLC on the DCCH to the UTRAN;

       …

     - start timer T308 when the RRC CONNECTION RELEASE COMPLETE message is sent on the radio interface.

2. When in state CELL_DCH and the timer T308 expires, the UE shall:

   - increment V308 by one;
   - if V308 is equal to or smaller than N308:
     - retransmit the RRC CONNECTION RELEASE COMPLETE message, without incrementing "Uplink RRC Message sequence number" for signalling radio bearer RB1 in the variable INTEGRITY_PROTECTION_INFO;
   - if V308 is greater than N308:
     - release all its radio resources;

     …

     - enter idle mode;
     - perform the actions specified in TS 25.331 clause 8.5.2 when entering idle mode;
     - and the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.4.3, 8.1.4.6

8.1.3.1.3 Test purpose

To verify:

1. that the UE when receiving an RRC CONNECTION RELEASE message transmits N308+1 RRC CONNECTION RELEASE COMPLETE messages before release of radio resources and entering into idle mode
2. that the time between UE transmissions of the RRC CONNECTION RELEASE COMPLETE message is equal to the value of the T308 timer.

8.1.3.1.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_DCH state (state 6-1 or state 6-3) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE

Test Procedure

The UE is brought to the CELL_DCH state by prompting the operator to initiate an outgoing call. After the DCCH is established, on reception of (CM) service request message from the UE, the SS will Send CM Service Reject message (for state 6-1) or Service Reject message (for state 6-3) to complete the (CM) service Request procedure. After the UE is brought into the stable state, SS transmits an RRC CONNECTION RELEASE message to the UE to disconnect the connection. SS then waits for the UE to transmit an RRC CONNECTION RELEASE COMPLETE message using unacknowledged mode. SS checks to see if UE re-transmit this message at each expiry of T308 timer and if N308+1 RRC CONNECTION RELEASE COMPLETE message have been received. SS calls for generic procedure C.1 to check that UE is in Idle Mode state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the CELL_DCH state after a successful RRC connection establishment by virtue of the operator making an outgoing call.
2	←		RRC CONNECTION RELEASE	SS disconnect the connection established. The value in IE "N308" is arbitrarily chosen from 1 to 8.
3	→		RRC CONNECTION RELEASE COMPLETE	SS waits for the arrival of N308 + 1 such message with an interval time of T308, using unacknowledged mode.
4				SS verifies that the UE release its L2 signalling radio bearer and dedicated resources and enters idle mode.
5	←→		CALL C.1	If the test result of C.1 indicates that UE is in Idle Mode state, the test passes, otherwise it fails.

Specific Message Content

RRC CONNECTION RELEASE (Step 2)

Use the same message type found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
N308	Arbitrarily chosen between 1 and 8

8.1.3.1.5 Test requirement

After step 2 the UE shall transmit N308 + 1 RRC CONNECTION RELEASE COMPLETE messages. The time between the transmissions shall be equal to the T308 timer value.

After step 3 the UE shall initiate the release of the L2 signalling radio bearer and dedicated resources and enter idle mode.

8.1.3.2 RRC Connection Release using on DCCH in CELL_FACH state: Success

8.1.3.2.1 Definition

8.1.3.2.2 Conformance requirement

The UE shall receive and act on an RRC CONNECTION RELEASE message in states CELL_DCH and CELL_FACH. Furthermore this procedure can interrupt any ongoing procedures with the UE in the above listed states.

When the UE receives the first RRC CONNECTION RELEASE message; and

1> if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or

1> if the message is received on DCCH:

the UE shall:

…

1> in state CELL_FACH:

2> if the RRC CONNECTION RELEASE message was received on the DCCH:

3> set the IE "RRC transaction identifier" in the RRC CONNECTION RELEASE COMPLETE message to the value of "RRC transaction identifier" in the entry for the RRC CONNECTION RELEASE message in the table "Accepted transactions" in the variable TRANSACTIONS;

3> submit an RRC CONNECTION RELEASE COMPLETE message to the lower layers for transmission using AM RLC on the DCCH to the UTRAN.

3> when the successful transmission of the RRC CONNECTION RELEASE COMPLETE message has been confirmed by the lower layers:

4> release all its radio resources; and

4> indicate the release of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers; and

4> clear any entry for the RRC CONNECTION RELEASE message in the tables "Accepted transactions" and "Rejected transactions" in the variable TRANSACTIONS;

4> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

4> clear the variable ESTABLISHED_RABS;

4> pass the value of the IE "Release cause" received in the RRC CONNECTION RELEASE message to upper layers;

4> enter idle mode;

4> perform the actions specified in TS 25.331 subclause 8.5.2 when entering idle mode.

3> and the procedure ends.

…

Reference

3GPP TS 25.331 clause 8.1.4.3.

8.1.3.2.3 Test purpose

To confirm that the UE releases the L2 signalling radio bearer and resources and goes back to the idle state after it receives an RRC CONNECTION RELEASE message on downlink DCCH from the SS. It shall transmit an RRC CONNECTON RELEASE COMPLETE message using acknowledged mode on uplink DCCH to the SS.

8.1.3.2.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH state (state 6-2 or state 6-4) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to an initial state of CELL_FACH. After the successful establishment of the RRC connection, on reception of (CM) service request message from the UE, the SS will send CM Service Reject message (for state 6-2) or Service Reject message (for state 6-4) to complete the (CM) service Request procedure. After the UE is brought into the stable state, the SS transmits an RRC CONNECTION RELEASE message to the UE to disconnect the radio link. When the UE receives this message the UE transmits an RRC CONNECTION RELEASE COMPLETE message using acknowledged mode to the SS. Finally, SS checks that the UE performs proper release of all radio resources and then goes back to idle mode.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to the CELL_FACH state.
2	←		RRC CONNECTION RELEASE	SS sends this message using unacknowledged mode RLC operations on the uplink DCCH.
3	→		RRC CONNECTION RELEASE COMPLETE	The UE transmits this message using acknowledged mode.
4				The UE releases L2 signalling radio bearer and radio resources. Then the UE goes to idle mode.

Specific Message Contents

None.

8.1.3.2.5 Test requirement

After step 2 the UE shall transmit an RRC CONNECTION RELEASE COMPLETE message using acknowledged mode then it shall receive a response for this message from the SS-RLC.

After step 3 the UE shall release its L2 signalling radio bearers and radio resources, and then it shall go back to idle mode.

8.1.3.3 RRC Connection Release using on CCCH in CELL_FACH state: Success

8.1.3.3.1 Definition

8.1.3.3.2 Conformance requirement

The UE shall receive and act on an RRC CONNECTION RELEASE message in states CELL_DCH and CELL_FACH. Furthermore this procedure can interrupt any ongoing procedures with the UE in the above listed states.

When the UE receives the first RRC CONNECTION RELEASE message; and

1> if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or

1> if the message is received on DCCH:

the UE shall:

…

1> in state CELL_FACH:

…

2> if the RRC CONNECTION RELEASE message was received on the CCCH:

3> release all its radio resources;

3> indicate the release of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to the upper layers;

3> clear any entry for the RRC CONNECTION RELEASE message in the tables "Accepted transactions" and "Rejected transactions" in the variable TRANSACTIONS;

3> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

3> clear the variable ESTABLISHED_RABS;

3> pass the value of the IE "Release cause" received in the RRC CONNECTION RELEASE message to upper layers;

3> enter idle mode;

3> perform the actions specified in TS 25.331 subclause 8.5.2 when entering idle mode;

3> and the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.4.3.

8.1.3.3.3 Test purpose

To confirm that the UE releases all its radio resources upon the reception of a RRC CONNECTION RELEASE message on the downlink CCCH, without transmitting RRC CONNECTION RELEASE COMPLETE message on the uplink.

8.1.3.3.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH state (state 6-2 or state 6-4) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to an initial state of CELL_FACH. After the successful establishment of the RRC connection, on reception of (CM) service request message from the UE, the SS will send CM Service Reject message (for state 6-2) or Service Reject message (for state 6-4) to complete the (CM) service Request procedure. After the UE is brought into the stable state, the SS transmits an RRC CONNECTION RELEASE message on the downlink CCCH. The UE shall

terminate the RRC connection and release all radio resources allocated to it. SS monitors the uplink DCCH and CCCH to verify that no transmission is detected. SS calls for generic procedure C.1 to check that UE is in Idle Mode state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to the CELL_FACH state.
2	←		RRC CONNECTION RELEASE	SS transmits this message with the contents identical to that found in TS 34.108 clause 9 on downlink CCCH.
3				SS waits for a period equivalent to 60 seconds. The UE shall not send any response message on uplink direction during this period. It shall release the radio resources allocated and return to idle mode.
4	←→		CALL C.1	If the test result of C.1 indicates that UE is in Idle Mode state, the test passes, otherwise it fails.

Specific Message Contents

None.

8.1.3.3.5 Test requirement

After step 2 the UE shall release all its radio resources, return to idle mode, without transmitting RRC CONNECTION RELEASE COMPLETE message on the uplink direction.

8.1.3.4 RRC Connection Release in CELL_FACH state: Failure

8.1.3.4.1 Definition

8.1.3.4.2 Conformance requirement

When acknowledged mode was used and RLC does not succeed in transmitting the RRC CONNECTION RELEASE COMPLETE message, the UE shall:

1> release all its radio resources;

1> indicate the release of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers;

1> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

1> clear the variable ESTABLISHED_RABS;

1> enter idle mode;

1> perform the actions specified in TS 25.331 subclause 8.5.2 when entering idle mode;

1> and the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.4.9.

8.1.3.4.3 Test purpose

To confirm that the UE releases all its radio resources and enters idle mode when the UE does not succeed in transmitting the RRC CONNECTION RELEASE COMPLETE message using acknowledged mode to the SS (i.e. the UE-RLC does not receive an acknowledgement for the transmission of the RRC CONNECTION RELEASE COMPLETE message from SS).

8.1.3.4.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_FACH state (state 6-2 or state 6-4) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE

Test Procedure

At the start of the test, the UE is brought to CELL_FACH state. When the RRC connection has been established, on reception of (CM) service request message from the UE, the SS will send CM Service Reject message (for state 6-2) or Service Reject message (for state 6-4) to complete the (CM) service Request procedure. After the UE is brought into the stable state, the SS transmits an RRC CONNECTION RELEASE message to the UE to disconnect the radio link. When the UE receives this message the UE transmits an RRC CONNECTION RELEASE COMPLETE message using acknowledged mode to the SS. The SS ignores the message and does not transmit an RLC STATUS PDU to acknowledge this message. SS checks to see that UE continues to release all its radio resources and then enters idle mode.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought into CELL_FACH state by asking the operator to perform an outgoing call attempt.
2	←		RRC CONNECTION RELEASE	SS ask to disconnect the radio link
3	→		RRC CONNECTION RELEASE COMPLETE	The UE transmits this message using acknowledged mode. The SS shall not transmit an RLC STATUS PDU to acknowledge this message.
4				SS checks to make sure that UE releases all its radio resources and enters idle mode.
5	←→		CALL C.1	If the test result of C.1 indicates that UE is in Idle Mode state, the test passes, otherwise it fails.

Specific Message Contents

None

8.1.3.4.5 Test requirement

After step 3 the UE shall release its L2 signalling radio bearers and radio resources then it shall go to idle mode.

8.1.3.5 RRC Connection Release in CELL_FACH state: Invalid message

8.1.3.5.1 Definition

8.1.3.5.2 Conformance requirement

If the RRC CONNECTION RELEASE message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to TS 25.331 clause 9, and if the "protocol error cause" in PROTOCOL_ERROR_INFORMATION is set to any cause value except "ASN.1 violation or encoding error", the UE shall perform procedure specific error handling as follows:

The UE shall:

1> ignore any IE(s) causing the error but treat the rest of the RRC CONNECTION RELEASE message as normal according to TS 25.331 subclause 8.1.4.3, with an addition of the following actions:

2> if the RRC CONNECTION RELEASE message was received on the DCCH:

3> set the IE "RRC transaction identifier" in the RRC CONNECTION RELEASE COMPLETE message to the value of "RRC transaction identifier" in the entry for the RRC CONNECTION RELEASE message in the table "Rejected transactions" in the variable TRANSACTIONS;

3> include the IE "Error indication" in the RRC CONNECTION RELEASE COMPLETE message with:

4> the IE "Failure cause" set to the cause value "Protocol error"; and

4> the IE "Protocol error information" set to the value of the variable PROTOCOL_ERROR_INFORMATION.

…

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent via a radio access technology other than UTRAN, containing an undefined critical message extension, the UE shall:

1> set the variable PROTOCOL_ERROR_REJECT to TRUE;

1> set the IE "Protocol error cause" in the variable PROTOCOL_ERROR_INFORMATION to "Message extension not comprehended";

1> if the IE "Message Type" of the received message is not present in the table "Rejected transactions" in the variable TRANSACTIONS:

2> store the IE "Message type" of the received message in the table "Rejected transactions" in the variable TRANSACTIONS; and

2> set the IE "RRC transaction identifier" to zero in that table entry.

1> perform procedure specific error handling according to TS 25.331 clause 8.

Reference

3GPP TS 25.331 clause 8.1.4 and 9.3b.

8.1.3.5.3 Test purpose

When the UE receives an invalid RRC CONNECTION RELEASE message on the downlink DCCH, it shall transmit an RRC CONNECTION RELEASE COMPLETE message that includes the appropriate error cause on the uplink DCCH.

8.1.3.5.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_FACH state (state 6-2 or state 6-4) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is initially in CELL FACH state. on reception of (CM) service request message from the UE, the SS will Send CM Service Reject message (for state 6-2) or Service Reject message (for state 6-4) to complete the (CM) service Request procedure. After the UE is brought into the stable state, the SS transmits an RRC CONNECTION RELEASE message containing an unexpected critical message extension on the DCCH to request the UE to disconnect the RRC connection. The UE shall transmit an RRC CONNECTION RELEASE COMPLETE message on the uplink DCCH, which includes the IE "Error indication". This IE shall contain the "Protocol error information" IE which in turn contains the IE “Protocol error cause” set to "Message extension not comprehended". Upon completion of the procedure, the SS calls for generic procedure C.1 to check that UE is in IDLE state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2			Void	
3			Void	
4			Void	
5			Void	
6			Void	
7			Void	
8	←		RRC CONNECTION RELEASE	See specific message contents for this message
9	→		RRC CONNECTION RELEASE COMPLETE	See specific message contents for this message This message is sent using acknowledged mode.
10			Void	
11			Void	
12			Void	
13	←→		CALL C.1	If the test result of C.1 indicates that UE is in IDLE state, the test passes, otherwise it fails.

Specific Message Contents

RRC CONNECTION RELEASE (Step 8)

This message must be recognised by the UE as an RRC CONNECTION RELEASE message. However, it shall be constructed (see TS 25.331 clause 10.1.1) such that the UE will detect critical extensions not defined for the protocol release supported by the UE:

Information Element	Value/remark
Message Type	
RRC transaction identifier Integrity check info Critical extensions	Arbitrarily selects an integer between 0 and 3 Not present ’FF’H

RRC CONNECTION RELEASE COMPLETE (Step 9)

Check to see if the same message type found in clause 9 of TS 34.108 is received, with the following exceptions:

Information Element	Value/remark
Error indication - Failure cause - Protocol error information - CHOICE diagnostics type - Protocol error cause	 'Protocol error' Protocol error cause Check to see if set to 'Message extension not comprehended'

8.1.3.5.5 Test requirement

After step 8 the UE shall transmit an RRC CONNECTION RELEASE COMPLETE message which includes the appropriate cause values in IE "Protocol error information".

After step 12 the UE shall be in IDLE state.

8.1.3.6 RRC Connection Release in CELL_DCH state (Frequency modification): Success

8.1.3.6.1 Definition

8.1.3.6.2 Conformance requirement

If the UE first receives an RRC CONNECTION RELEASE message in CELL_DCH state, it shall:

- initialize the counter V308 to zero;
- submit an RRC CONNECTION RELEASE COMPLETE message to the lower layers for transmission using UM RLC on the DCCH to the UTRAN;
- start timer T308 when the RRC CONNECTION RELEASE COMPLETE message is sent on the radio interface.

If the timer T308 expires, the UE shall:

- increment V308 by one;
- if V308 is equal to or smaller than N308:
  - retransmit the RRC CONNECTION RELEASE COMPLETE message;
- if V308 is greater than N308:
  - release all its radio resources;
  - enter idle mode;
  - perform cell-selection according to TS25.304;
  - procedure end;

Reference

3GPP TS 25.331 clause 8.1.4.

8.1.3.6.3 Test purpose

To confirm that when the UE receives an RRC CONNECTION RELEASE message the UE transmits N308+1 RRC CONNECTION RELEASE COMPLETE messages using UM on DCCH.

To confirm that the UE enters into idle mode with performing cell-selection and selecting new cell configured by SS.

8.1.3.6.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 is active and cell 6 is inactive

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE

Specific Message Content

For system information block 11 for Cell 1 (gives IE's which are different from defaults given in 34.108 sec 6.1) to be transmitted before idle update preamble.

System Information Block type 11

Use same message sub-clause 6.1 of TS 34.108, with following exception:

Information Element	Value/remark
- SIB12 indicator	FALSE
- Intra-frequency measurement system information	Not Present
- Inter-frequency measurement system information	
- Inter-frequency cell info list	
- New inter-frequency cell id	
- Inter frequency cell id	6
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to apply the default duplex distance defined for the operating frequency according to 25.101
- UARFCN downlink(Nd)	Reference to table 6.1.2 of TS34.108 for Cell 6
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.6 (FDD)" in clause 6.1.4 of TS34.108
- Primary CPICH Tx power	Not present
- Cell Selection and Re-selection Info	
- $Qoffset1_{s,n}$	0dB
- Qoffset2s,n	Not present
- Maximum allowed UL TX power	Reference to table 6.1.1
- HCS neighbouring cell information	Not present
- CHOICE mode	FDD
- Qqualmin	Reference to table 6.1.1
- Qrxlevmin	Reference to table 6.1.1
- Cells for measurement	Not present

System Information Block type 11 (TDD)

Use same message sub-clause 6.1 of TS34.108, with following exception:

Information Element	Value/remark
- SIB12 indicator	FALSE
- Intra-frequency measurement system information	Not Present
- Inter-frequency measurement system information	
- Inter-frequency cell info list	
- New inter-frequency cell id	
- Inter frequency cell id	4
- Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Reference to TS34.108 for Cell 4
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH info	Reference clause 6.1,TS34.108,Default settings for cell 4
- Cell parameters ID	Reference clause 6.1,TS34.108,Default settings for cell 4
- Primary CPICH TX power	Not present
- Timeslot list	Not present
- Cell Selection and Re-selection Info	Not present For neighbouring cell, if HCS is not used and all the parameters in cell selection and re-selection info are Default value, this IE is absent.
- $Qoffset1_{s,n}$	0dB
- Maximum allowed UL TX power	Reference to table 6.1.6, TS34.108
- HCS neighbouring cell information	Not present
- CHOICE mode	TDD
- Qrxlevmin	Reference to table 6.1.6, TS 34.108
- Cells for measurement	Not present

Test Procedure

Table 8.1.3.6

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-55	-55	Off	-55
P-CCPCH RSCP (TDD)	dBm	-55	-55	Off	-55

Table 8.1.3.6 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 6.

The UE is in CELL_DCH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.1.3.6. The SS switches its downlink transmission power settings to columns "T1". The SS modify contents of SIB3 in cell 6. The SS transmits an RRC CONNECTION RELEASE message. After the SS transmits an RRC CONNECTION RELEASE message to the UE, the SS waits for the UE to transmit RRC CONNECTION RELEASE COMPLETE messages using UM on DCCH and checks to see if N308+1 such messages has been received. The UE leaves connected mode and enters idle mode in cell 1. The UE shall perform cell reselection and camp on cell 6 after reading the system information. The SS calls for generic procedure C.1 to check that UE is in Idle state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the CELL_DCH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.1.3.6.
2				The SS switches its downlink transmission power settings to columns "T1" in table 8.1.3.6.
3			Void	
4			Void	
5	←		System Information Block type 3	The SS modifies SIB 3 in cell 1 to indicate that the cell is barred.
6				The SS waits for 5 s.
7	←		RRC CONNECTION RELEASE	
8	→		RRC CONNECTION RELEASE COMPLETE	The SS waits for the arrival of N308+1 such messages send on UM RLC.
9				The UE releases signalling radio bearer and dedicated resources. Then the UE goes to idle mode in cell 1.
10				The UE select s cell 6 and camp on it.
11				The SS waits for 15 s after receiving the last RRC CONNECTION RELEASE COMPLETE message.
12	←→		CALL C.1	If the test result of C.1 indicates that UE is in idle mode state, the test passes, otherwise it fails.

Specific Message Content

System Information Block type 3 (Step 5)

Use the same message type found in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- Cell Access Restriction	
- Cell barred	Barred
- Intra-frequency cell re-selection indicator	Not allowed
- Tbarred	10[s]
- Cell Reserved for operator use	Not reserved
- Cell Reservation Extension	Not reserved
- Access Class Barred List	
- Access Class Barred0	barred
- Access Class Barred1	barred
- Access Class Barred2	barred
- Access Class Barred3	barred
- Access Class Barred4	barred
- Access Class Barred5	barred
- Access Class Barred6	barred
- Access Class Barred7	barred
- Access Class Barred10	barred
- Access Class Barred11	barred
- Access Class Barred12	barred
- Access Class Barred13	barred
- Access Class Barred14	barred
- Access Class Barred15	barred

RRC CONNECTION RELEASE (Step 6)

Use the same message type found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
N308	Arbitrarily chosen between 1 and 8

8.1.3.6.5 Test requirement

After step 6 the UE shall start to transmit N308 + 1 times RRC CONNECTION RELEASE COMPLETE messages using UM on DCCH.

After step 11 the UE shall be in Idle mode in cell 6.

8.1.3.7 RRC Connection Release in CELL_FACH state (Frequency modification): Success

8.1.3.7.1 Definition

8.1.3.7.2 Conformance requirement

When the UE receives the first RRC CONNECTION RELEASE message

the UE shall:

1> in state CELL_FACH:

2> if the RRC CONNECTION RELEASE message was received on the DCCH:

3> when the successful transmission of the RRC CONNECTION RELEASE COMPLETE message has been confirmed by the lower layers:

4> release all its radio resources; and

4> indicate the release of the established signalling connections; and

4> pass the value of the IE "Release cause" received in the RRC CONNECTION RELEASE message to upper layers;

4> enter idle mode;

4> perform the actions specified in TS25.331 subclause 8.5.2 when entering idle mode.

a) 3> and the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.4.

8.1.3.7.3 Test purpose

To confirm that when the UE receives an RRC CONNECTION RELEASE message, the UE releases signalling radio bearer and its radio resources and goes back to the idle.

To confirm that the UE enters into idle mode with by performing cell-selection and selecting other cell than the UE selecting cell in connected mode.

8.1.3.7.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 is active and cell 6 is inactive

UE: "Registered idle mode on CS" (state 2) or "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

Table 8.1.3.7

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-60	off	-60
P-CCPCH RSCP (TDD)	dBm	-60	-60	off	-60

Table 8.1.3.7 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 6.

The UE is in idle mode of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.1.3.7. SS request operator to make an outgoing call. The SS and UE execute procedure P4 or P6. Next The SS and the UE execute procedure P8 or P10. The SS switches its downlink transmission power settings to columns "T1" and then modifies SIB 3 to indicate that cell 1 is barred. The SS transmits an RRC CONNECTION RELEASE message on DCCH. The UE shall transmit an RRC CONNECTION RELEASE COMPLETE message using AM on DCCH and try to enter idle mode state in cell 1. On selecting cell 1 the UE reads system information block 3 and is aware that cell 1 is barred cell. Hence the UE selects cell 6 and camp on cell 6. Upon completion of the procedure, the SS calls for generic procedure C.1 to check that UE is in idle mode.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the CELL_FACH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.1.3.7. SS requests operator to make an outgoing call.
2			SS executes procedure P4 (clause 7.4.2.1.2) or P6 (clause 7.4.2.2.2) specified in TS 34.108.	
3			SS executes procedure P8 (clause 7.4.2.3.2) or P10 (clause 7.4.2.4.2) specified in TS 34.108.	
4				The SS switches its downlink transmission power settings to columns "T1" in table 8.1.3.7.
5	←		System Information Block type 3	The SS modifies SIB 3 in cell 1 to indicate that the cell is barred.
6				The SS waits for 5 s
7	←		RRC CONNECTION RELEASE	
8	→		RRC CONNECTION RELEASE COMPLETE	
9				The SS waits for 5s
10	←→		CALL C.1	If the test result of C.1 indicates that UE is in idle mode, the test passes, otherwise it fails.

Specific Message Content

System Information Block type 3 (Step 5)

Use the same message type found in clause 6 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- Cell Access Restriction	
- Cell barred	Barred
- Intra-frequency cell re-selection indicator	Not allowed
- Tbarred	10[s]
- Cell Reserved for operator use	Not reserved
- Cell Reservation Extension	Not reserved
- Access Class Barred List	
- Access Class Barred0	barred
- Access Class Barred1	barred
- Access Class Barred2	barred
- Access Class Barred3	barred
- Access Class Barred4	barred
- Access Class Barred5	barred
- Access Class Barred6	barred
- Access Class Barred7	barred
- Access Class Barred10	barred
- Access Class Barred11	barred
- Access Class Barred12	barred
- Access Class Barred13	barred
- Access Class Barred14	barred
- Access Class Barred15	barred

8.1.3.7.5 Test requirement

After step 3 the UE shall transmit RRC CONNECTION RELEASE COMPLETE messages using AM on DCCH.

After step 9 the UE shall be in idle mode of cell 6.

8.1.3.8 Void

8.1.3.9 RRC Connection Release in CELL_DCH state (Network Authentication Failure): Success

8.1.3.9.1 Definition

8.1.3.9.2 Conformance requirement

1. TS 25.331

If the upper layers request the release of the RRC connection, the UE shall:

1> release all its radio resources;

1> enter idle mode;

1> perform other actions when entering idle mode from connected mode as specified in subclause 8.5.2;

1> if the UE was in CELL_DCH state prior to entering idle mode:

2> consider all cells that were in the active set prior to entering idle mode to be barred according to [4]; and

2> consider the barred cells as using the value "allowed" in the IE "Intra-frequency cell re-selection indicator", and the maximum value in the IE "T_{barred}".

2. TS 24.008

Following a UMTS authentication challenge, the MS may reject the core network on the grounds of an incorrect AUTN parameter (see 3GPP TS 33.102). This parameter contains two possible causes for authentication failure:

….

SQN failure:

If the MS considers the SQN (supplied by the core network in the AUTN parameter) to be out of range, it shall send a AUTHENTICATION FAILURE message to the network, with the reject cause 'Synch failure' and a re-synchronization token AUTS provided by the SIM (see 3GPP TS 33.102). The MS shall then follow the procedure described in clause 4.3.2.6 (d) of TS 24.008.

….

Authentication failure (reject cause 'synch failure'):

The MS shall send an AUTHENTICATION FAILURE message, with reject cause 'synch failure,' to the network and start the timer T3216.

….

If the timer T3216 expires, then the MS shall behave as described in clause 4.3.2.6.1 of TS 24.008.

Reference

3GPP TS 25.331 clause 8.1.4a.

3GPP TS 24.008 clause 4.3.2.5.1, 4.3.2.6

8.1.3.9.3 Test purpose

To confirm that when the upper layers request the release of the RRC connection, the UE releases signalling radio bearer and its radio resources and goes back to idle mode.

To confirm that the UE enters idle mode, bars the cell for a period T_{barred} and hence performs cell-selection to another (non-barred) cell.

8.1.3.9.4 Method of test

Initial Condition

System Simulator: 3 cells – Cell 1, 2 and 3 are active.

UE: "CS-DCCH+DTCH_DCH" (state 6-9) or " PS-DCCH+DTCH_DCH " (state 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Test Procedure

Table 8.1.3.9 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Column marked "T0" denotes the initial conditions, while columns marked "T1" are to be applied subsequently. The exact instants on which these values shall be applied are described in the text in this clause.

Table 8.1.3.9

Parameter	Unit	Cell 1		Cell 2		Cell 3	
		T0	T1	T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec	dBm/3.84 MHz	-60	-60	-85	-62	-85	-65
PCCPCH RSCP	dBm	-60	-60	-85	-62	-85	-65

SS switches the downlink transmission power of the 3 cells to the columns "T1" in Table 8.1.3.9. UE transmits a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 and 3 according to IE "Intra-frequency event identity", which is set to '1a' for FDD mode in the SYSTEM INFORMATION BLOCK TYPE 11. For FDD, in steps 2 and 3, after the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 2 and then the SS transmits to the UE in cell 1 an ACTIVE SET UPDATE message which includes IE "Radio Link Addition Information", indicating the addition of cell 2 into the active set, on DCCH using AM RLC.

When the UE receives this message, the UE shall configure layer 1 to begin reception without affecting the current uplink and downlink activities of existing radio links. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

The SS transmits a DOWNLINK DIRECT TRANSFER message. This message contains a NAS message (AUTHENTICATION REQUEST for CS domain or AUTHENTICATION AND CIPHERING REQUEST for PS domain) and an invalid SQN. The UE shall transmit an UPLINK DIRECT TRANSFER message using AM on DCCH. After SS acknowledges the UPLINK DIRECT TRANSFER message, SS shall wait for T3216 or T3320 to expire in the UE. The UE shall then deem that the network has failed the authentication check, release the RRC connection, enter idle mode, bar cell 1 and 2 and perform cell re- selection. Then SS wait for 5 s. SS transmits PAGING TYPE 1 message. The UE shall respond with RRC CONNECTION REQUEST message in cell 3. SS then transmit RRC CONNECTION REJECT message back to UE. SS then waits for T_{barred} to expire (22 minutes) before SS execute generic procedure C.1 in cell 1 to check that UE is in idle mode in cell 1.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		MEASUREMENT REPORT	See specific message contents for this message. This step will be only applicable for FDD.
2	←		ACTIVE SET UPDATE	The SS transmit this message on downlink DCCH using AM RLC which includes IE "Radio Link Addition Information" for cell 2. This step will be only applicable for FDD.
3	→		ACTIVE SET UPDATE COMPLETE	The UE adds the radio link in cell 2. This step will be only applicable for FDD.
4	←		DOWNLINK DIRECT TRANSFER	Depending on supported CN domain, AUTHENTICATION AND CIPHERING REQUEST message (PS domain) or AUTHENTICATION REQUEST (CS domain) message is embedded in DOWNLINK DIRECT TRANSFER message. An invalid SQN is provided in this message.
5	→		UPLINK DIRECT TRANSFER	After SS acknowledged this message, SS waits for T3216 or T3320 to expire.
6				The SS waits for 5s
7	←		PAGING TYPE 1	
8	→		RRC CONNECTION REQUEST	SS checks that the UE sends this message in cell 3
9	←		RRC CONNECTION REJECT	
10				SS waits 22 minutes for T_{barred} to expire.
11	←→		CALL C.1	SS execute this generic procedure in cell 1. If the test result of C.1 indicates that UE is in idle mode, the test passes, otherwise it fails.

Specific Message Content

MEASUREMENT REPORT (Step 1) (FDD)

Note1: UE may send the Measured Results for Cell 1, 2 and 3 in any order.

Note2: UE may include the Cell Measurement Event Results for cell 3.

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- SFN-SFN observed time difference	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- SFN-SFN observed time difference	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- SFN-SFN observed time difference	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 2) (FDD only)

The message to be used in this test is defined in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark	Version
Radio link addition information		
- Primary CPICH Info		
- Primary Scrambling Code	Set to same code as assigned for cell 2	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH can be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not Present	
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	1	
- Spreading factor	Refer to TS 34.108 clause 6.10.2.4 "Typical radio parameter sets"	
- Code Number	For each DPCH, assign the same code number in the current code given in cell 1.	
- Scrambling code change	Not Present	
- TPC Combination Index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Close loop timing adjustment mode	Not Present	
- TFCI Combining Indicator	FALSE	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

ACTIVE SET UPDATE COMPLETE (Step 3) (FDD only)

Only the message type of this message is checked.

DOWNLINK DIRECT TRANSFER (Step 4)

Use the same message sub-type as found in TS 34.108 clause 9, with the following exceptions.

Information Element	Value/remark
CN domain identity	CS domain or PS domain
NAS message	AUTHENTICATION REQUEST (CS domain) or AUTHENTICATION AND CIPHERING REQUEST (PS domain) with an invalid SQN value.

UPLINK DIRECT TRANSFER (Step 5)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
CN domain identity	CS domain or PS domain
NAS message	AUTHENTICATION FAILURE(CS domain) or AUTHENTICATION AND CIPHERING FAILURE (PS domain)
Measured results on RACH	Not checked

8.1.3.9.5 Test requirement

At step 1 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 2 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH.

After step 4 the UE shall transmit an UPLINK DIRECT TRANSFER messages using AM on DCCH.

After step 7, the UE shall transmit RRC CONNECTION REQUEST message using TM RLC on CCCH in cell 3.

After step 10 the UE shall be in idle mode in cell 1.

8.1.4 Void

8.1.5 UE capability

8.1.5.1 UE Capability in CELL_DCH state: Success

8.1.5.1.1 Definition

8.1.5.1.2 Conformance requirement

The UE shall initiate the UE capability update procedure in the following situations:

1> the UE receives a UE CAPABILITY ENQUIRY message from the UTRAN;

…

If the UE CAPABILITY INFORMATION message is sent in response to a UE CAPABILITY ENQUIRY message, the UE shall:

1> include the IE "RRC transaction identifier"; and

1> set it to the value of "RRC transaction identifier" in the entry for the UE CAPABILITY ENQUIRY message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE radio access capability" and in IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

1> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE system specific capability".

The UE RRC shall submit the UE CAPABILITY INFORMATION message to the lower layers for transmission on the uplink DCCH using AM RLC. When the message has been delivered to lower layers for transmission the UE RRC shall start timer T304 and set counter V304 to 1.

Upon reception of a UE CAPABILITY INFORMATION CONFIRM message, the UE shall:

1> stop timer T304;

…

1> and the procedure ends.

If the UE receives a UE CAPABILITY INFORMATION CONFIRM message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to TS 25.331 clause 9, the UE shall perform procedure specific error handling as follows:

1> stop timer T304;

1> transmit an RRC STATUS message on the uplink DCCH using AM RLC;

1> include the IE "Identification of received message"; and

1> set the IE "Received message type" to UE CAPABILITY INFORMATION CONFIRM; and

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the UE CAPABILITY INFORMATION CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;

1> when the RRC STATUS message has been submitted to lower layers for transmission:

2> restart timer T304 and continue with any ongoing procedures or processes as if the invalid UE CAPABILITY INFORMATION CONFIRM message has not been received.

…

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent via a radio access technology other than UTRAN, containing an undefined critical message extension, the UE shall:

1> set the variable PROTOCOL_ERROR_REJECT to TRUE;

1> set the IE "Protocol error cause" in the variable PROTOCOL_ERROR_INFORMATION to "Message extension not comprehended";

1> if the IE "Message Type" of the received message is not present in the table "Rejected transactions" in the variable TRANSACTIONS:

2> store the IE "Message type" of the received message in the table "Rejected transactions" in the variable TRANSACTIONS; and

2> set the IE "RRC transaction identifier" to zero in that table entry.

1> perform procedure specific error handling according to TS 25.331 clause 8.

Reference

3GPP TS 25.331 clauses 8.1.6, 8.1.7 and 9.3b.

8.1.5.1.3 Test purpose

1. To confirm that the UE transmits a UE CAPABILITY INFORMATION message after it receives a UE CAPABILITY ENQUIRY message from the SS.

2. To confirm that the UE indicates an invalid message reception when invalid UE CAPABILITY ENQUIRY and UE CAPABILITY INFORMATION CONFIRM messages are received. The UE shall transmit RRC STATUS message with the correct error cause value to SS.

8.1.5.1.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH state (state 6-9 or state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to the CELL_DCH state after a successful outgoing call attempt. The SS transmits a UE CAPABILITY ENQUIRY message containing an unexpected critical message extension. After receiving such a message, the UE shall report the error using RRC STATUS message with the appropriate error cause specified. Then SS transmits a correct UE CAPABILITY ENQUIRY message, the UE receives this message and transmits a UE CAPABILITY INFORMATION message on the uplink DCCH which includes the requested capabilities. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the UE capability enquiry procedure.

Then SS initiates another UE capability enquiry procedure. The UE shall reply with a UE CAPABILITY INFORMATION message on the uplink DCCH. When SS receives this message, it transmits a UE CAPABILITY INFORMATION CONFIRM message containing an unexpected critical message extension. The UE shall detect an error and send an RRC STATUS message to report this event. After submitting this message to lower layers for transmission, the UE shall re-transmit a UE CAPABILITY INFORMATION message on the uplink DCCH after the expiry of restarted T304. SS then hen transmits an error-free UE CAPABILITY INFORMATION CONFIRM message similar to the message sent in step 6.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_DCH state after an outgoing call has been established successfully.
2	←		UE CAPABILITY ENQUIRY	See specific message contents for this message
3	→		RRC STATUS	See specific message contents for this message
4	←		UE CAPABILITY ENQUIRY	See specific message contents for this message.
5	→		UE CAPABILITY INFORMATION	See specific message contents for this message.
6	←		UE CAPABILITY INFORMATION CONFIRM	Use default message.
7	←		UE CAPABILITY ENQUIRY	Same as in step 4.
8	→		UE CAPABILITY INFORMATION	Shall be the same message content as in step 5.
9	←		UE CAPABILITY INFORMATION CONFIRM	See specific message contents for this message
10	→		RRC STATUS	UE shall detect an error and then transmit this message.
11	→		UE CAPABILITY INFORMATION	UE shall re-transmit this message after the restarted T304 expires.
12	←		UE CAPABILITY INFORMATION CONFIRM	SS sends an error-free message to acknowledge the receipt of the uplink message.

Specific Message Contents

UE CAPABILITY ENQUIRY (Step 2)

SS sends a message containing a critical extension not defined for the protocol release supported by the UE, as indicated in the IE "Access stratum release indicator":

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Critical extensions	'FF'H

RRC STATUS (Step 3)

Check to see if the same message type found in TS 34.108, clause 9 is received, with the following exceptions:

Information Element	Value/remark
Identification of received message	
- Received message type	UE Capability Enquiry
- RRC transaction identifier	0
Protocol Error Information	Message extension not comprehended
- Protocol Error Cause	

Information Element	Value/remark
Identification of received message	
- Received message type	UE Capability Enquiry
- RRC transaction identifier	Checked to see if the value is identical to the same IE in the downlink UE CAPABILITY ENQUIRY message.
Protocol Error Information	
- Protocol Error Cause	Message extension not comprehended

UE CAPABILITY ENQUIRY (Steps 4) (FDD)

Use the UE CAPABILITY ENQUIRY message as defined in [9] (TS 34.108) Clause 9, with the following exceptions:

Information Element	Value/remark
Capability update requirement	
- UE radio access FDD capability update requirement	TRUE
- UE radio access TDD capability update requirement	FALSE
- System specific capability update requirement list	Gsm

UE CAPABILITY ENQUIRY (Steps 4) (3.84 Mcps TDD)

Use the UE CAPABILITY ENQUIRY message as defined in [9] (TS 34.108) Clause 9, with the following exceptions:

Information Element	Value/remark
Capability update requirement	
- UE radio access FDD capability update requirement	FALSE
- UE radio access TDD capability update requirement	TRUE
- System specific capability update requirement list	Gsm

UE CAPABILITY ENQUIRY (Steps 4) (1.28 Mcps TDD)

Use the UE CAPABILITY ENQUIRY message as defined in [9] (TS 34.108) Clause 9, with the following exceptions.

Information Element	Value/remark
Capability update requirement - UE radio access FDD capability update requirement - UE radio access TDD capability update requirement UE radio access 1.28 Mcps TDD capability update requirement	 FALSE TRUE TRUE
- System specific capability update requirement list	Gsm

UE CAPABILITY ENQUIRY (Steps 4) (7.68 Mcps TDD)

Use the UE CAPABILITY ENQUIRY message as defined in [9] (TS 34.108) Clause 9, with the following exceptions:

Information Element	Value/remark
Capability update requirement - UE radio access FDD capability update requirement - UE radio access 3.84 Mcps TDD capability update requirement - UE radio access 7.68 Mcps TDD capability update requirement	 FALSE FALSE TRUE
- UE radio access 1.28 Mcps TDD capability update requirement	FALSE
- System specific capability update requirement list	Gsm

UE CAPABILITY INFORMATION (Step 5)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark
UE system specific capability	Presence and value will be checked. Stated capability must be compatible with 34.123-2 (ICS statements) and the user settings

UE CAPABILITY INFORMATION CONFIRM (Step 9)

SS sends a message containing a critical extension not defined for the protocol release supported by the UE, as indicated in the IE "Access stratum release indicator". Use the UE CAPABILITY INFORMATION CONFIRM message as defined in [9] (TS 34.108) Clause 9, with the following addition:

Information Element	Value/remark
Critical extensions	'FF'H

RRC STATUS (Step 10)

Check to see if the same message type found in TS 34.108, clause 9 is received, with the following exceptions:

Information Element	Value/remark
Identification of received message - Received message type - RRC transaction identifier Protocol Error Information - Protocol Error Cause	 UE Capability Information Confirm 0 Message extension not comprehended

8.1.5.1.5 Test requirement

After step 2, the UE shall transmit a RRC STATUS message on the uplink DCCH, reporting the error with protocol error cause set to "Message extension not comprehended" correct transaction identifier.

After step 4 and 7 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH to respond to the UE CAPABILITY ENQUIRY message with correct contents.

After step 9, the UE shall transmit a RRC STATUS message on the uplink DCCH. The protocol error cause shall be set to "Message extension not comprehended" and the transaction identifier set to the same value as used in the UE CAPABILITY ENQUIRY message of step 7.

After step 10, the UE shall re-transmit the UE CAPABILITY INFORMATION message with a similar content as in step 8 after the expiry of restarted T304.

8.1.5.2 UE Capability in CELL_DCH state: Success after T304 timeout

8.1.5.2.1 Definition

8.1.5.2.2 Conformance requirement

The UE shall initiate the UE capability update procedure in the following situations:

1> the UE receives a UE CAPABILITY ENQUIRY message from the UTRAN on the DCCH using UM or AM RLC;

1> while in connected mode the UE capabilities change compared to those stored in the variable UE_CAPABILITY_TRANSFERRED.

If the UE CAPABILITY INFORMATION message is sent in response to a UE CAPABILITY ENQUIRY message, the UE shall:

1> include the IE "RRC transaction identifier"; and

1> set it to the value of "RRC transaction identifier" in the entry for the UE CAPABILITY ENQUIRY message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE radio access capability" and in IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

1> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE system specific capability".

If the UE CAPABILITY INFORMATION message is sent because one or more of the UE capabilities change compared to those stored in the variable UE_CAPABILITY_TRANSFERRED while in connected state, the UE shall include the information elements associated with the capabilities that have changed in the UE CAPABILITY INFORMATION message.

…

The UE RRC shall submit the UE CAPABILITY INFORMATION message to the lower layers for transmission on the uplink DCCH using AM RLC. When the message has been delivered to lower layers for transmission the UE RRC shall start timer T304 and set counter V304 to 1.

Upon expiry of timer T304, the UE shall check the value of V304 and:

1> if V304 is smaller than or equal to N304:

2> prior to retransmitting the UE CAPABILITY INFORMATION message:

3> if the IE "Status" in the variable INTEGRITY_PROTECTION_INFO has the value "Started":

4> include the same IEs as in the last unsuccessful attempt of this message, except for the IE "Integrity check info", which is modified as follows:

5> increment the "Uplink RRC Message sequence number" for signalling radio bearer RB2 in the variable INTEGRITY_PROTECTION_INFO by one;

5> set the IE "RRC Message sequence number" in the IE "Integrity check info" by the value of the "Uplink RRC Message sequence number" for signalling radio bearer RB2 in the variable INTEGRITY_PROTECTION_INFO in this message;

5> recalculate the IE "Message authentication code" in the IE "Integrity check info" in this message, in accordance with TS 25.331 subclause 8.5.10.3.

3> else:

4> include the same IEs as in the last unsuccessful attempt of this message.

2> send the UE CAPABILITY INFORMATION message on signalling radio bearer RB2;

2> restart timer T304;

2> increment counter V304.

…

Reference

3GPP TS 25.331 clause 8.1.6 and 8.1.7.

8.1.5.2.3 Test purpose

To confirm that the UE re-transmits a UE CAPABILITY INFORMATION message until V304 is greater than N304, after the expiry of timer T304 when the UE cannot receive a UE CAPABILITY INFORMATION CONFIRM message in response to a UE CAPABILITY INFORMATION message.

8.1.5.2.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH state (state 6-9 or state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to CELL_DCH state. When the SS transmits a UE CAPABILITY ENQUIRY message which includes the "Capability update requirement" IE, the UE shall reply with a UE CAPABILITY INFORMATION message on the uplink DCCH which includes the "UE radio access capability" IE. The SS does not transmit a UE CAPABILITY INFORMATION CONFIRM message to the UE, resulting in the T304 timer to expire. SS shall observe that the UE attempts to transmit a UE CAPABILITY INFORMATION message again. The UE shall re-transmit N304 times, and SS transmits a UE CAPABILITY INFORMATION CONFIRM message to answer the last request and completes this test procedure.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_DCH state. SS sets internal counter K =0
2	←		UE CAPABILITY ENQUIRY	Including the IE "Capability update requirement".
3	→		UE CAPABILITY INFORMATION	Including the "UE radio access capability".
4				If K is equal to N304, then proceed to step 6.
5				The SS does not transmit a response and wait for T304 timer to expire. K=K+1 and goes to step 3.
6	←		UE CAPABILITY INFORMATION CONFIRM	Use default message contents

Specific Message Contents

None

8.1.5.2.5 Test requirement

After step 3 the UE shall re-transmits a UE CAPABILITY INFORMATION message on the uplink DCCH, after each expiry of timer T304. The UE CAPABILITY INFORMATION message shall contain IE "UE radio access capability" indicating the settings found in PIC/PIXIT statements. After (N304) re-transmissions, the UE shall receive a UE CAPABILITY INFORMATION CONFIRM message.

8.1.5.3 UE Capability in CELL_DCH state: Failure (After N304 re-transmissions)

8.1.5.3.1 Definition

8.1.5.3.2 Conformance requirement

The UE shall initiate the UE capability update procedure in the following situations:

1> the UE receives a UE CAPABILITY ENQUIRY message from the UTRAN on the DCCH using UM or AM RLC;

1> while in connected mode the UE capabilities change compared to those stored in the variable UE_CAPABILITY_TRANSFERRED.

If the UE CAPABILITY INFORMATION message is sent in response to a UE CAPABILITY ENQUIRY message, the UE shall:

1> include the IE "RRC transaction identifier"; and

1> set it to the value of "RRC transaction identifier" in the entry for the UE CAPABILITY ENQUIRY message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE radio access capability" and in IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

1> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE system specific capability".

If the UE CAPABILITY INFORMATION message is sent because one or more of the UE capabilities change compared to those stored in the variable UE_CAPABILITY_TRANSFERRED while in connected state, the UE shall

include the information elements associated with the capabilities that have changed in the UE CAPABILITY INFORMATION message.

…

The UE RRC shall submit the UE CAPABILITY INFORMATION message to the lower layers for transmission on the uplink DCCH using AM RLC. When the message has been delivered to lower layers for transmission the UE RRC shall start timer T304 and set counter V304 to 1.

Upon expiry of timer T304, the UE shall check the value of V304 and:

1> if V304 is smaller than or equal to N304:

2> prior to retransmitting the UE CAPABILITY INFORMATION message:

3> if the IE "Status" in the variable INTEGRITY_PROTECTION_INFO has the value "Started":

4> include the same IEs as in the last unsuccessful attempt of this message, except for the IE "Integrity check info", which is modified as follows:

5> increment the "Uplink RRC Message sequence number" for signalling radio bearer RB2 in the variable INTEGRITY_PROTECTION_INFO by one;

5> set the IE "RRC Message sequence number" in the IE "Integrity check info" by the value of the "Uplink RRC Message sequence number" for signalling radio bearer RB2 in the variable INTEGRITY_PROTECTION_INFO in this message;

5> recalculate the IE "Message authentication code" in the IE "Integrity check info" in this message, in accordance with TS 25.331 subclause 8.5.10.3.

3> else:

4> include the same IEs as in the last unsuccessful attempt of this message.

2> send the UE CAPABILITY INFORMATION message on signalling radio bearer RB2;

2> restart timer T304;

2> increment counter V304.

1> if V304 is greater than N304:

2> initiate the Cell update procedure as specified in TS 25.331 subclause 8.3.1, using the cause "Radio link failure".

Reference

3GPP TS 25.331 clauses 8.1.6 and 8.1.7.

8.1.5.3.3 Test purpose

To confirm that the UE stops retrying to transmit a UE CAPABILITY INFORMATION message if V304 is greater than N304. It then initiates cell update procedure.

8.1.5.3.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH state (state 6-9 or state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is brought to CELL_DCH state. When the SS transmits a UE CAPABILITY ENQUIRY message which includes the "Capability update requirement" IE, the UE receives this message and transmits a UE CAPABILITY INFORMATION message on the uplink DCCH which includes the "UE radio access capability" IE. The SS does not respond with a UE CAPABILITY INFORMATION CONFIRM message but keeps a count on the number of messages received. When the T304 timer expires, the UE shall transmit a UE CAPABILITY INFORMATION message again. After sending (N304+1) messages, the UE shall stop sending UE CAPABILITY INFORMATION messages and initiates the cell update procedure. SS allows UE to return to "connected state" by issuing CELL UPDATE CONFIRM message on the downlink DCCH. Then the UE shall reconfigure its physical channel according to the CELL UPDATE CONFIRM message and respond with PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to SS.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE starts from CELL_DCH state. SS sets counter K to 0
2	←		UE CAPABILITY ENQUIRY	Use default message
3	→		UE CAPABILITY INFORMATION	Use default message
4				The SS does not transmit a response and allows T304 timer to expire. SS increments counter K If K is greater than N304, proceeds to step 5 else returns to 3.
5	→		CELL UPDATE	The UE assumes that radio link failure has occurred and transmits this message which includes IE "Cell update cause" set to "radio link failure".
6	←		CELL UPDATE CONFIRM	This message includes IE "Physical channel information elements".
7				The SS configure the dedicated physical channel according to the IE "Physical channel information elements" included in the CELL UPDATE CONFIRM message.
8	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	

Specific Message Contents

CELL UPDATE CONFIRM (Step 6) - FDD

The contents of CELL UPDATE CONFIRM message are identical as "CELL UPDATE CONFIRM message" as found in clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark	Version
U-RNTI	Same as CELL UPDATE message in step 5	
RRC State indicator	CELL_DCH	
Frequency info		
- CHOICE mode	FDD	
- UARFCN uplink(Nu)	Reference to TS34.108 clause 5.1 Test frequencies	
- UARFCN downlink(Nd)	Reference to TS34.108 clause 5.1 Test frequencies	
Maximum allowed UL TX power	33dBm	
CHOICE Mode	FDD	
Downlink information for each radio links		
- Primary CPICH info		
- Primary scrambling code	100	
- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only
- PDSCH code mapping	Not Present	R99 and Rel-4 only
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	0 chips	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	2	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	SF-1(SF is reference to TS34.108 clause 6.10 Parameter Set)	
- Scrambling code change	No change	
- TPC combination index	0	
- SSDT Cell Identity	-a	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

CELL UPDATE CONFIRM (Step 6) – 3.84 Mcps TDD

The contents of CELL UPDATE CONFIRM message are identical as "CELL UPDATE CONFIRM message" as found in clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark
U-RNTI	Same as CELL UPDATE message in step 5
RRC State indicator	CELL_DCH
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Reference to TS34.108 clause 5.1 Test frequencies
Maximum allowed UL TX power	30dBm
CHOICE Mode	TDD
Downlink information for each radio links	
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- CHOICE SyncCase	Not Present
- Cell Parameters ID	Not Present
- Block STTD indicator	FALSE
- Downlink DPCH info for each RL	
- CHOICE mode	TDD
- DL CCTrCh List	
- TFCS ID	1
- Time info	
- Activation time	Not Present (default)
- Duration	Not Present (default)
- Common timeslot info	Not Present (default)
- Downlink DPCH timeslots and codes	Not Present (default)
- UL CCTrCH TPC List	Not Present (default)

CELL UPDATE CONFIRM (Step 6) – 1.28 Mcps TDD

The contents of CELL UPDATE CONFIRM message are identical as "CELL UPDATE CONFIRM message" as found in clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark
U-RNTI	Same as CELL UPDATE message in step 5
RRC State indicator	CELL_DCH
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Reference to TS34.108 clause 5.1 Test frequencies
Maximum allowed UL TX power	30dBm
CHOICE Mode	TDD
Downlink information for each radio links	
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- TSTD indicator	FALSE
- Cell Parameters ID	Not Present
- Block STTD indicator	FALSE
- Downlink DPCH info for each RL	
- CHOICE mode	TDD
- DL CCTrCh List	
- TFCS ID	1
- Time info	
- Activation time	Not Present (default)
- Duration	Not Present (default)
- Common timeslot info	Not Present (default)
- Downlink DPCH timeslots and codes	Not Present (default)
- UL CCTrCH TPC List	Not Present (default)

CELL UPDATE CONFIRM (Step 6) – 7.68 Mcps TDD

The contents of CELL UPDATE CONFIRM message are identical as "CELL UPDATE CONFIRM message" as found in clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark
U-RNTI	Same as CELL UPDATE message in step 5
RRC State indicator	CELL_DCH
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Reference to TS34.108 clause 5.1 Test frequencies
Maximum allowed UL TX power	30dBm
CHOICE Mode	TDD
Downlink information for each radio links	
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- CHOICE SyncCase	Not Present
- Cell Parameters ID	Not Present
- Block STTD indicator	FALSE
- Downlink DPCH info for each RL	
- CHOICE mode	TDD
- DL CCTrCh List	
- TFCS ID	1
- Time info	
- Activation time	Not Present (default)
- Duration	Not Present (default)
- Common timeslot info	Not Present (default)
- Downlink DPCH timeslots and codes	Not Present (default)
- UL CCTrCH TPC List	Not Present (default)

8.1.5.3.5 Test requirement

After step 2, the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH. The UE shall re-transmit this message for N304 times.

After step 4, the UE shall initiate the cell update procedure.

After step 6, UE shall respond with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message after it has configured L1 according to the CELL UPDATE CONFIRM message in step 6.

8.1.5.4 UE Capability in CELL_FACH state: Success

8.1.5.4.1 Definition

8.1.5.4.2 Conformance requirement

The UE shall initiate the UE capability update procedure in the following situations:

1> the UE receives a UE CAPABILITY ENQUIRY message from the UTRAN;

…

If the UE CAPABILITY INFORMATION message is sent in response to a UE CAPABILITY ENQUIRY message, the UE shall:

1> include the IE "RRC transaction identifier"; and

1> set it to the value of "RRC transaction identifier" in the entry for the UE CAPABILITY ENQUIRY message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE radio access capability" and in IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

1> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE system specific capability".

The UE RRC shall submit the UE CAPABILITY INFORMATION message to the lower layers for transmission on the uplink DCCH using AM RLC. When the message has been delivered to lower layers for transmission the UE RRC shall start timer T304 and set counter V304 to 1.

Upon reception of a UE CAPABILITY INFORMATION CONFIRM message, the UE shall:

1> stop timer T304;

…

1> and the procedure ends.

If the UE receives a UE CAPABILITY INFORMATION CONFIRM message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to TS 25.331 clause 9, the UE shall perform procedure specific error handling as follows:

1> stop timer T304;

1> transmit an RRC STATUS message on the uplink DCCH using AM RLC;

1> include the IE "Identification of received message"; and

1> set the IE "Received message type" to UE CAPABILITY INFORMATION CONFIRM; and

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the UE CAPABILITY INFORMATION CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;

1> when the RRC STATUS message has been submitted to lower layers for transmission:

2> restart timer T304 and continue with any ongoing procedures or processes as if the invalid UE CAPABILITY INFORMATION CONFIRM message has not been received.

…

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent via a radio access technology other than UTRAN, containing an undefined critical message extension, the UE shall:

1> set the variable PROTOCOL_ERROR_REJECT to TRUE;

1> set the IE "Protocol error cause" in the variable PROTOCOL_ERROR_INFORMATION to "Message extension not comprehended";

1> if the IE "Message Type" of the received message is not present in the table "Rejected transactions" in the variable TRANSACTIONS:

2> store the IE "Message type" of the received message in the table "Rejected transactions" in the variable TRANSACTIONS; and

2> set the IE "RRC transaction identifier" to zero in that table entry.

1> perform procedure specific error handling according to TS 25.331 clause 8.

Reference

3GPP TS 25.331 clauses 8.1.6, 8.1.7 and 9.3b.

8.1.5.4.3 Test purpose

1. To confirm that the UE transmits a UE CAPABILITY INFORMATION message after it receives a UE CAPABILITY ENQUIRY message from the SS.

2. To confirm that the UE indicates an invalid message reception when invalid UE CAPABILITY ENQUIRY and UE CAPABILITY INFORMATION CONFIRM messages are received. The UE shall transmit RRC STATUS message with the correct error cause value to SS.

8.1.5.4.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH state (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is brought to the CELL_FACH state after a successful outgoing call attempt. The SS transmits a UE CAPABILITY ENQUIRY message containing an unexpected critical message extension. After receiving such a message, the UE shall report an error using RRC STATUS message with the appropriate error cause specified. Then SS transmits a UE CAPABILITY ENQUIRY message which includes the IE "Capability update requirement". After UE receives this message, it transmits a UE CAPABILITY INFORMATION message on the uplink DCCH, which includes the requested capabilities. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the UE capability enquiry procedure.

Then SS initiates another UE capability enquiry procedure. The UE shall reply with a UE CAPABILITY INFORMATION message on the uplink DCCH. When SS receives this message, it transmits a UE CAPABILITY INFORMATION CONFIRM message containing an unexpected critical message extension. The UE shall detect an error and send an RRC STATUS message to report this event. After submitting this message to lower layers for transmission, the UE shall re-transmit a UE CAPABILITY INFORMATION message on the uplink DCCH upon the expiry of restarted T304. SS completes this test by sending an error-free UE CAPABILITY INFORMATION CONFIRM message similar to the message sent in step 6.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_FACH state after an outgoing call has been established successfully.
2	←		UE CAPABILITY ENQUIRY	See specific message contents for this message
3	→		RRC STATUS	See specific message contents for this message.
4	←		UE CAPABILITY ENQUIRY	Use default message.
5	→		UE CAPABILITY INFORMATION	Use default message.
6	←		UE CAPABILITY INFORMATION CONFIRM	Use default message.
7	←		UE CAPABILITY ENQUIRY	Same as in step 4.
8	→		UE CAPABILITY INFORMATION	The message content shall be the same as in step 5.
9	←		UE CAPABILITY INFORMATION CONFIRM	See specific message contents for this message
10	→		RRC STATUS	UE shall detect an error and then transmit this message on uplink DCCH.
11	→		UE CAPABILITY INFORMATION	UE shall re-transmit this message after the restarted T304 expires.
12	←		UE CAPABILITY INFORMATION CONFIRM	SS sends an error-free message to acknowledge the receipt of the uplink message.

Specific Message Contents

UE CAPABILITY ENQUIRY (Step 2)

Use the UE CAPABILITY ENQUIRY message as defined in [9] (TS 34.108) Clause 9, with the following exceptions:

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Critical extensions	'FF'H

RRC STATUS (Step 3)

Check to be the same message type found in TS 34.108, clause 9 is received, with the following exceptions:

Information Element	Value/remark
Identification of received message	
- Received message type	UE Capability Enquiry
RRC transaction identifier	0
Protocol Error Information	
- Protocol Error Cause	Message extension not comprehended

UE CAPABILITY INFORMATION CONFIRM (Step 9)

SS sends a message containing a critical extension not defined for the protocol release supported by the UE, as indicated in the IE "Access stratum release indicator". Use the UE CAPABILITY INFORMATION CONFIRM message as defined in [9] (TS 34.108) Clause 9, with the following addition:

Information Element	Value/remark
Critical extensions	'FF'H

RRC STATUS (Step 10)

Check to see if the same message type found in TS 34.108, clause 9 is received, with the following exceptions:

Information Element	Value/remark
Identification of received message	
- Received message type	UE Capability Information Confirm
- RRC transaction identifier	0
Protocol Error Information	
- Protocol Error Cause	Message extension not comprehended

8.1.5.4.5 Test requirement

After step 2, the UE shall transmit a RRC STATUS message on the uplink DCCH, reporting the error with protocol error cause set to "Message extension not comprehended" correct transaction identifier.

After step 4 and 7 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH to respond to the downlink UE CAPABILITY ENQUIRY message with correct contents.

After step 9, the UE shall transmit a RRC STATUS message on the uplink DCCH. The protocol error cause shall be set to "Message extension not comprehended" and the transaction identifier set to the same value as used in the UE CAPABILITY ENQUIRY message of step 7.

After step 10, the UE shall re-transmit the UE CAPABILITY INFORMATION message with a similar content as in step 8 upon the expiry of restarted T304.

8.1.5.5 UE Capability in CELL_FACH state: Success after T304 timeout

8.1.5.5.1 Definition

8.1.5.5.2 Conformance requirement

The UE shall initiate the UE capability update procedure in the following situations:

1> the UE receives a UE CAPABILITY ENQUIRY message from the UTRAN on the DCCH using UM or AM RLC;

1> while in connected mode the UE capabilities change compared to those stored in the variable UE_CAPABILITY_TRANSFERRED.

If the UE CAPABILITY INFORMATION message is sent in response to a UE CAPABILITY ENQUIRY message, the UE shall:

1> include the IE "RRC transaction identifier"; and

1> set it to the value of "RRC transaction identifier" in the entry for the UE CAPABILITY ENQUIRY message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE radio access capability" and in IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

1> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE system specific capability".

If the UE CAPABILITY INFORMATION message is sent because one or more of the UE capabilities change compared to those stored in the variable UE_CAPABILITY_TRANSFERRED while in connected state, the UE shall include the information elements associated with the capabilities that have changed in the UE CAPABILITY INFORMATION message.

…

The UE RRC shall submit the UE CAPABILITY INFORMATION message to the lower layers for transmission on the uplink DCCH using AM RLC. When the message has been delivered to lower layers for transmission the UE RRC shall start timer T304 and set counter V304 to 1.

Upon expiry of timer T304, the UE shall check the value of V304 and:

1> if V304 is smaller than or equal to N304:

2> prior to retransmitting the UE CAPABILITY INFORMATION message:

3> if the IE "Status" in the variable INTEGRITY_PROTECTION_INFO has the value "Started":

4> include the same IEs as in the last unsuccessful attempt of this message, except for the IE "Integrity check info", which is modified as follows:

5> increment the "Uplink RRC Message sequence number" for signalling radio bearer RB2 in the variable INTEGRITY_PROTECTION_INFO by one;

5> set the IE "RRC Message sequence number" in the IE "Integrity check info" by the value of the "Uplink RRC Message sequence number" for signalling radio bearer RB2 in the variable INTEGRITY_PROTECTION_INFO in this message;

5> recalculate the IE "Message authentication code" in the IE "Integrity check info" in this message, in accordance with TS 25.331 subclause 8.5.10.3.

3> else:

4> include the same IEs as in the last unsuccessful attempt of this message.

2> send the UE CAPABILITY INFORMATION message on signalling radio bearer RB2;

2> restart timer T304;

2> increment counter V304.

…

Reference

3GPP TS 25.331 clauses 8.1.6 and 8.1.7.

8.1.5.5.3 Test purpose

To confirm that the UE re-transmits a UE CAPABILITY INFORMATION message until V304 is greater than N304, after the expiry of timer T304 when it fails to receive a downlink UE CAPABILITY INFORMATION CONFIRM message in response to the uplink UE CAPABILITY INFORMATION message sent.

8.1.5.5.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH state (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is brought to CELL_FACH state. When the SS transmits a UE CAPABILITY ENQUIRY message which includes the IE "Capability update requirement", the UE shall reply with a UE CAPABILITY INFORMATION message on the uplink DCCH that contains the IE "UE radio access capability". The SS waits and does not transmit a UE CAPABILITY INFORMATION CONFIRM message to the UE, resulting in the T304 timer to expire. SS shall observe that the UE attempts to transmit a UE CAPABILITY INFORMATION message again. The UE shall re-transmit N304 times, and SS transmits a UE CAPABILITY INFORMATION CONFIRM message to answer the last request and completes this test procedure.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_FACH state. SS sets internal counter K =0
2	←		UE CAPABILITY ENQUIRY	Including the IE "Capability update requirement".
3	→		UE CAPABILITY INFORMATION	Including the IE "UE radio access capability".
4				If K equals N304, then proceeds to step 6. Else, continue with step 5.
5				The SS does not transmit a response and wait for T304 timer to expire. K=K+1 and goes to step 3.
6	←		UE CAPABILITY INFORMATION CONFIRM	Use default message contents

Specific Message Contents

None

8.1.5.5.5 Test requirement

After step 3 the UE shall re-transmit a UE CAPABILITY INFORMATION message on the uplink DCCH, after each expiry of timer T304. The UE CAPABILITY INFORMATION message shall contain IE "UE radio access capability" with the value matching those stated in the ICS/IXIT statements. After (N304) re-transmissions, the UE shall receive a UE CAPABILITY INFORMATION CONFIRM message.

8.1.5.6 UE Capability Information/ Reporting Of InterRAT Specific UE RadioAccessCapability.

8.1.5.6.1 Definition

8.1.5.6.2 Conformance requirement

The UE shall initiate the UE capability update procedure in the following situations:

1> the UE receives a UE CAPABILITY ENQUIRY message from the UTRAN;

…

If the UE CAPABILITY INFORMATION message is sent in response to a UE CAPABILITY ENQUIRY message, the UE shall:

1> include the IE "RRC transaction identifier"; and

1> set it to the value of "RRC transaction identifier" in the entry for the UE CAPABILITY ENQUIRY message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE radio access capability" and in IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

1> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE system specific capability".

Reference

3GPP TS 25.331 clauses 8.1.6

8.1.5.6.3 Test purpose

To confirm that a multi-RAT UE responds with a UE CAPABILITY INFORMATION message after it receives a UE CAPABILITY ENQUIRY message from the UTRAN and it includes the inter-RAT-specific UE radio access capability information element.

8.1.5.6.4 Method of test

Initial Condition

System Simulator: 1 cell - Cell 1 is UTRAN.

UE: CELL_DCH state (state 6-9) as specified in clause 7.4 of TS 34.108

Related ICS/IXIT statement(s)

- UE supports both GSM and UTRAN Radio Access Technologies,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480.

Test Procedure

The SS starts the UTRAN cell .The UE is brought into the CELL_DCH state after a successful outgoing call attempt on the UTRAN cell. The SS transmits a UE CAPABILITY ENQUIRY message with System Specific Cap Update Req set to GSM. The UE shall respond with a UE CAPABILITY INFORMATION message on the uplink DCCH that includes the requested capabilities. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the UE capability enquiry procedure.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_DCH 6-9 state after an outgoing call has been established successfully.
2	←		UE CAPABILITY ENQUIRY	See specific message contents
3	→		UE CAPABILITY INFORMATION	See specific message contents
4	←		UE CAPABILITY INFORMATION CONFIRM	Use default message.

Specific Message Contents

UE CAPABILITY ENQUIRY (Step 2)

Use the UE CAPABILITY ENQUIRY message as defined in (TS 34.108) Clause 9, with the following exceptions:

Information Element	Value/remark
Capability update requirement	
- UE radio access FDD capability update requirement	TRUE
- UE radio access TDD capability update requirement	FALSE
- System specific capability update requirement list	GSM

UE CAPABILITY INFORMATION (Step 3)

Check to see if the same message type found in (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark
UE_RadioAccessCapability	This IE should reflect the corresponding fdd capability and the IE UE_MultimodeRATCapability should indicate GSM capability according to PICS.
InterRAT_UE_RadioAccessCapability	GSM GSM Classmark 2 GSM Classmark 3 Presence and value will be checked. Stated capability must be compatible with 34.123-3 (ICS statements) and the user settings

8.1.5.6.5 Test requirement

After step 2 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH to respond to the UE CAPABILITY ENQUIRY message as per the specific message contents.

8.1.5.7 UE Capability Information / Audit of UE Capabilities

8.1.5.7.1 Definition

8.1.5.7.2 Conformance requirement

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

…

1> if the UE only supports HS-DSCH but not E-DCH:

2> include the IE "UE capability indication" and set it to the "HS-DSCH" value.

1> if the UE supports HS-DSCH and E-DCH:

2> include the IE "UE capability indication" and set it to the "HS-DSCH+E-DCH" value.

1> if, according to [4], the High-mobility state is applicable and it has been detected by the UE:

2> include the IE "UE Mobility State Indicator" and set it to the "High-MobilityDetected" value.

…

1> if the UE supports MAC-ehs:

2> include the IE "MAC-ehs support" and set it to TRUE.

1> if the UE supports HS-DSCH reception in CELL_FACH state:

2> include the IE "HS-PDSCH in CELL_FACH" and set it to TRUE.

1> if the UE supports Enhanced Uplink in CELL_FACH state and Idle mode:

2> include the IE "Support of common E-DCH" and set it to TRUE.

NOTE: In 1.28 Mcps TDD, UE supporting HS-DSCH reception in CELL_FACH state always supports Enhanced Uplink in CELL_FACH state and Idle mode, and vice versa.

1> if the UE supports MAC-i/is:

2> include the IE "Support of MAC-i/is" and set it to TRUE.

1> if the UE supports E-UTRA:

2> if the variable EUTRA_FREQUENCY_INFO_LIST contains no E-UTRA frequencies:

3> include the IE "Pre-Redirection info";

3> if the UE supports E-UTRA FDD:

4> set the IE "Support of E-UTRA FDD" to TRUE.

3> if the UE supports E-UTRA TDD:

4> set the IE "Support of E-UTRA TDD" to TRUE.

2> if the UE supports any of the bands that the E-UTRA frequencies included in the variable EUTRA_FREQUENCY_INFO_LIST belong to:

3> include the IE "Pre-Redirection info";

3> if the UE supports any of the bands that the E-UTRA FDD frequencies included in the variable EUTRA_FREQUENCY_INFO_LIST belong to:

4> set the IE "Support of E-UTRA FDD" to TRUE.

3> if the UE supports any of the bands that the E-UTRA TDD frequencies included in the variable EUTRA_FREQUENCY_INFO_LIST belong to:

4> set the IE "Support of E-UTRA TDD" to TRUE.

1> if the UE supports dual cell operation on adjacent frequencies

2> include the IE "Multi cell support" and set it to TRUE.

1> if the UE supports CS voice over HSPA

2> include the IE "Support for CS Voice over HSPA" and set it to TRUE.

The UE shall not include the IE "UE Specific Behaviour Information 1 idle".

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

…

1> submit an RRC CONNECTION SETUP COMPLETE message to the lower layers on the uplink DCCH after successful state transition per subclause 8.6.3.3, with the contents set as specified below:

2> …

2> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and then

2> include this in IE "UE radio access capability" and IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

2> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and then

2> include this in IE "UE system specific capability";

…

The UE shall initiate the UE capability update procedure in the following situations:

1> the UE receives a UE CAPABILITY ENQUIRY message from the UTRAN;

…

If the UE CAPABILITY INFORMATION message is sent in response to a UE CAPABILITY ENQUIRY message, the UE shall:

1> include the IE "RRC transaction identifier"; and

1> set it to the value of "RRC transaction identifier" in the entry for the UE CAPABILITY ENQUIRY message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> for the UE capabilities defined prior to REL-6:

2> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

2> include this in IE "UE radio access capability" and in IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

2> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

2> include this in IE "UE system specific capability".

1> for the UE capabilities defined in REL-6 or later:

2> include the information elements associated with the capabilities included in the variable UE_CAPABILITY_REQUESTED and the variable UE_CAPABILITY_TRANSFERRED.

…

If the UE is MAC-ehs or dual cell capable, the UE shall signal a value in the "HS-DSCH physical layer category extension" IE.

If the UE signals an "HS-DSCH physical layer category extension" of 13, 15, 17 or 19, it shall signal an "HS-DSCH physical layer category" of 9.

If the UE signals an "HS-DSCH physical layer category extension" of 14, 16, 18 or 20, it shall signal an "HS-DSCH physical layer category" of 10.

If the UE is dual cell capable, the UE shall signal a value in the "HS-DSCH physical layer category extension 2" IE.

If the UE signals an "HS-DSCH physical layer category extension 2" of 21, it shall signal an "HS-DSCH physical layer category extension" of 9, 10, 13, 14, 15, 16, 17 or 18.

If the UE signals an "HS-DSCH physical layer category extension 2" of 22, it shall signal an "HS-DSCH physical layer category extension" of 10, 14, 16 or 18.

If the UE signals an "HS-DSCH physical layer category extension 2" of 23, it shall signal an "HS-DSCH physical layer category extension" of 13, 14, 17, 18, 19 or 20.

If the UE signals an "HS-DSCH physical layer category extension 2" of 24, it shall signal an "HS-DSCH physical layer category extension" of 14, 18 or 20.

The UE shall use the "Total number of soft channel bits" (defined in Table 5.1a of [35]) for the category it has signalled, as follows:

1> If MAC-hs is configured, the UE uses the category it has signalled in the IE "HS-DSCH physical layer category";

1> If MAC-ehs is configured without dual cell operation, the UE uses the category it has signalled in the IE "HS-DSCH physical layer category extension";

1> If dual cell operation is configured, the UE uses the category it has signalled in the IE "HS-DSCH physical layer category extension 2".

Reference

3GPP TS 25.331 clauses 8.1.3.3, 8.1.3.6, 8.1.6.2

8.1.5.7.3 Test purpose

To check that the entire UE capabilities the UE reported in RRC CONNECTION REQUEST, RRC CONNECTION SETUP COMPLETE and UE CAPABILITY INFORMATION messages are compatible with the ICS statements in 3GPP TS 34.123-2[3], TS 36.523-2[46], TS 51.010-2[45] and with IXIT statements in TS 34.123-3[12]and TS 36.523-3[47].

8.1.5.7.4 Method of test

Initial Condition

System Simulator: 1 cell - Cell 1 is UTRAN.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by attempting to make an outgoing call. SS then transmits a RRC CONNECTION SETUP message containing an IE "Initial UE Identity" that matches the IE "Initial UE Identity". SS then waits for the UE to transmit an RRC CONNECTION SETUP COMPLETE message on the DCCH. The SS transmits a UE CAPABILITY ENQUIRY message. The UE shall respond with a UE CAPABILITY INFORMATION message on the uplink DCCH that includes the requested capabilities. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the UE capability enquiry procedure.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		RRC CONNECTION REQUEST (CCCH)	
2	←		RRC CONNECTION SETUP	
3	→		RRC CONNECTION SETUP COMPLETE	See specific message contents
4	←		UE CAPABILITY ENQUIRY	See specific message contents
5	→		UE CAPABILITY INFORMATION	See specific message contents
6	←		UE CAPABILITY INFORMATION CONFIRM	Use default message.

Step 2 is release-branched (R99, Rel-5, Rel-6, Rel-7, Rel-8, Rel-9).Specific Message Contents

RRC CONNECTION REQUEST (Step 1) (FDD)

Information Element	Value/remark	Version

Message Type		
Predefined configuration status information	Not checked	Rel-5
Initial UE identity		
- CHOICE UE id type		
- TMSI and LAI (GSM-MAP)	Set to the UE's TMSI and LAI.	
Establishment cause	To be checked against requirement if specified	
Protocol error indicator	FALSE	
UE Specific Behaviour Information 1 idle	Not present	
UE capability indication	To be checked against ICS statements pc_HSDPA and pc_HSUPA	Rel-6
MBMS Selected Services	Not present	Rel-6
Support for F-DPCH	To be checked against ICS statements pc_Full_FDPCH	Rel-6
UE Mobility State Indicator	Not Present	Rel-7
Support for Enhanced F-DPCH	To be checked against ICS statements pc_EnhancedF_DPCH	Rel-7
HS-PDSCH in CELL_FACH	To be checked against ICS statements pc_HS_FACH	Rel-7
MAC-ehs support	To be checked against ICS statements pc_MAC_ehs	Rel-7
DPCCH Discontinuous Transmission support	To be checked against ICS statements pc_UL_DTX	Rel-7
Support of common E-DCH	To be checked against ICS statements pc_HS_RACH_EDCH	Rel-8
Multi cell support	To be checked against ICS statements pc_DualCell	Rel-8
Dual cell MIMO support	To be checked against ICS statements pc_DualCellMIMO	Rel-9
More than two cell support	To be checked against ICS statements pc_MultiCell, pc_ThreeCellMIMO, pc_FourCellMIMO, pc_ThreeCell, pc_FourCell	Rel-10
Pre-redirection info	To be checked against ICS statements in 36.523-2 pc_eFDD / pc_eTDD	Rel-8
Support of MAC-i/is	To be checked against ICS statements pc_MAC_iis	Rel-8
Support of SPS operation	TDD not checked	Rel-8
Support for CS Voice over HSPA	To be checked against ICS statements pc_CSVoHS	Rel-7
Measured results on RACH	Not checked	
Access stratum release indicator	Value used for test case execution	Rel-4

RRC CONNECTION SETUP COMPLETE (Step 3) (FDD)

Information Element	Value/remark	Version
Message Type		
RRC transaction identifier	The value of this IE is checked to see that it matches the value of the same IE transmitted in the downlink RRC CONNECTION SETUP message.	
START list	This IE is checked to see if it is present.	
UE radio access capability	See detail content below	
UE radio access capability extension	See detail content below	Rel-5
UE system specific capability		
>Inter-RAT UE radio access capability	See detail content below	
Deferred measurement control reading	Not checked	Rel-7
Logged Meas Available	Not checked	Rel-10
ANR Logging Results Available	Not checked	Rel-10

UE CAPABILITY ENQUIRY (Step 4) (FDD)

Use the UE CAPABILITY ENQUIRY message as defined in (TS 34.108) Clause 9, with the following exceptions:

Information Element	Value/remark
Capability update requirement	
- UE radio access FDD capability update requirement	TRUE
- UE radio access 3.84 Mcps TDD capability update requirement	TRUE
- UE radio access 7.68 Mcps TDD capability update requirement	TRUE
- UE radio access 1.28 Mcps TDD capability update requirement	TRUE
- System specific capability update requirement list	GSM, GERAN Iu, E-UTRA

UE CAPABILITY INFORMATION (Step 5) (FDD)

Check to see if the same message type found in (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark
UE_RadioAccessCapability	See detail content below
UE radio access capability extension	See detail content below
UE system specific capability	See detail content below
>InterRAT_UE_RadioAccessCapability	See detail content below

UE radio access capability content (Step 3 and 5) (FDD)

Information Element	Value/remark	Version
Access stratum release indicator	Shall be the same value as in RRC CONNECTION REQUEST received in step 1.	Rel-4
DL capability with simultaneous HS-DSCH configuration	To be checked against ICS statements pc_CapabilityWithSimultaneousHS_DSCHConfig	Rel-5
PDCP capability		
> Support for lossless SRNS relocation	To be checked against ICS statements pc_LosslessSRNS_Reloc	
> Support for lossless DL RLC PDU size change	Not checked	Rel-5
> Support for RFC2507	To be checked against ICS statements pc_RFC2507	
> Max HC context space	To be checked against ICS statements pc_MaxHcContextSpace_r5_ext	
> Support for RFC 3095	To be checked against ICS statements pc_RFC3095	Rel-4
>> Maximum number of ROHC context sessions	To be checked against IXIT statements px_MaxNumberROHC_ContextSessions	Rel-4
>>Reverse decompression depth	Not checked	Rel-4
>>Support for RFC 3095 context relocation	To be checked against ICS statements pc_SupportForRfc3095ContextRelocation	Rel-5
> Support for CS Voice over HSPA	To be checked against ICS statements pc_CSVoHS	Rel-7
RLC capability	To be checked against ICS/IXIT statements px_TotalRLC_AM_BufferSize px_MaxRLC_WindowSize px_MaxAM_EntityNumberRLC_Cap	
Transport channel capability	To be checked against ICS/IXIT statements px_DL_MaxTB_Bits px_DL_MaxCC_TB_Bits pc_DL_TC px_DL_MaxTrCHs px_DL_MaxCCTrCH px_DL_MaxTTI_TB px_DL_MaxTFS px_DL_MaxTF px_UL_MaxTB_Bits px_UL_MaxCC_TB_Bits pc_UL_TC px_UL_MaxTrCHs px_UL_MaxTTI_TB px_UL_MaxTFS	

	px_UL_MaxTF	
RF capability FDD > UE power class > Tx/Rx frequency separation	 To be checked against IXIT statements px_UE_PowerClass default TxRx separation	
RF capability TDD	TDD Not checked	Rel-4
RF capability TDD 1.28 Mcps	TDD Not checked	Rel-4
Physical channel capability > FDD downlink physical channel capability >>Max no DPCH codes >>Max no physical channel bits received >>Support for SF 512 and 80 ms TTI for DPCH >>CHOICE *Support of HS-PDSCH* >>>Supported >>>>HS-DSCH physical layer category >>>>HS-DSCH physical layer category extension >>>>HS-DSCH physical layer category extension 2 >>>>HS-DSCH physical layer category extension 3 >>>HS-DSCH physical layer category extension 4 >>>HS-DSCH physical layer category extension 5 >>>HS-SCCHless HS-DSCH operation support >>>Enhanced F-DPCH support >>>HS-PDSCH in CELL_FACH >>>HS-PDSCH in CELL_PCH and URA_PCH >>>Target Cell Pre-Configuration >>>Support of HS-DSCH DRX operation >>>Support of MIMO only with single stream restriction >3.84 Mcps TDD downlink physical channel capability >7.68 Mcps TDD downlink physical channel capability >1.28 Mcps TDD downlink physical channel capability > Uplink physical channel capability information elements >> FDD uplink physical channel capability >>> Maximum number of DPDCH bits transmitted per 10 ms >>>CHOICE *Support of E-DCH* >>>>Supported >>>>>E-DCH physical layer category >>>>>E-DCH physical layer category extension >>>E-DCH physical layer category extension 2 >>>>>DPCCH Discontinuous Transmission support	 To be checked against IXIT statements px_MaxNoDPCH_PDSCH_Codes To be checked against IXIT statements px_MaxNoPhysChBitsReceived To be checked against ICS statements pc_SupportForSF_512 To be checked against ICS statements pc_HSDPA To be checked against ICS statements pc_HSDSCH_UE_Category To be checked against ICS statements pc_HSDSCH_UE_Category_Extension pc_MAC_ehs To be checked against ICS statements pc_HSDSCH_UE_Category_Extension2 pc_DualCell To be checked against ICS statements pc_HSDSCH_UE_Category_Extension3 To be checked against ICS statements pc_HSDSCH_UE_Category_Extension4 To be checked against ICS statements pc_HSDSCH_UE_Category_Extension5 To be checked against ICS statements pc_HS_SCCH_less To be checked against ICS statements pc_EnhancedF_DPCH To be checked against ICS statements pc_HS_FACH To be checked against ICS statements pc_HS_PCH To be checked against ICS statements pc_TargetCell_PreConf_HSDSCH To be checked against ICS statements pc_HS_FACH_DRX Not checked TDD Not checked TDD Not checked TDD Not checked To be checked against IXIT statements px_MaxNoDPDCH_BitsTransmitted To be checked against ICS statements pc_HSUPA To be checked against ICS statements pc_EDCH_UE_Category To be checked against ICS statements pc_UL_16QAM To be checked against ICS statements pc_EDCH_UE_Category_ Extension2 To be checked against ICS statements pc_UL_DTX	 Rel-5 Rel-5 Rel-7 Rel-8 Rel-9 Rel-10 Rel-10 Rel-7 Rel-7 Rel-7 Rel-7 Rel-8 Rel-8 Rel-9 Rel-5 Rel-7 Rel-4 Rel-6 Rel-6 Rel-6 Rel-7 Rel-9 Rel-7

>>>>Slot Format #4 support	To be checked against ICS statements pc_SlotFormat4	Rel-7
>>3.84 Mcps TDD uplink physical channel capability	TDD Not checked	Rel-4
>>7.68 Mcps TDD uplink physical channel capability	TDD Not checked	Rel-7
>>1.28 Mcps TDD uplink physical channel capability	TDD Not checked	Rel-4
UE multi-mode/multi-RAT capability		
> Support of GSM	To be checked against ICS statements pc_UMTS_GSM	
> Support of multi-carrier	To be checked against ICS statements pc_SupportOfMultiCarrier	
> Multi-mode capability	Fdd	
> Support of UTRAN to GERAN NACC	To be checked against ICS statements pc_SupportOfUTRAN_ToGERAN_NACC	Rel-5
> Support of Handover to GAN	To be checked against ICS statements in 51.010-2 TSPC_UTRAN_TO_GAN_CS_Handover	Rel-6
> Support of Inter-RAT PS handover	To be checked against ICS statements in 51.010-2 TSPC_PS_Handover	Rel-6
> Support of PS Handover to GAN	To be checked against ICS statements TSPC_PS_Handover_To_GAN	Rel-7
> Support of E-UTRA FDD	To be checked against ICS statements in 36.523-2 pc_eFDD	Rel-8
> Support of Inter-RAT PS Handover to E-UTRA FDD	To be checked against ICS statements pc_HO_from_UTRA pc_eFDD in 36.523-2	Rel-8
> Support of E-UTRA TDD	To be checked against ICS statements in 36.523-2 pc_eTDD	Rel-8
> Support of Inter-RAT PS Handover to E-UTRA TDD	To be checked against ICS statements pc_HO_from_UTRA pc_eTDD in 36.523-2	
> EUTRA Feature Group Indicators	To be checked against ICS statements pc_PCH_StatesToEUTRA_IdleReselection pc_EUTRAN_MeasurementInConnected	Rel-8
Security capability	To be checked against ICS statements pc_UEA2_UIA2	
UE positioning capability	To be checked against ICS/IXIT statements pc_UE_PositioningStandaloneLocMethodsSup pc_UE_PositioningBasedOTDOA_Sup px_UE_PositioningNetworkAssistedGPS_Sup pc_UE_PositioningGPS_TimingOfCellFramesSup pc_UE_PositioningIPDL_Sup	
Measurement capability		
> Need for downlink compressed mode		
>> FDD measurements	Checked it is present pc_InterFreq_DL_CompressedModeRequired	
>>3.84 Mcps TDD measurements	TDD Not checked	Rel-4
>>7.68 Mcps TDD measurements	TDD Not checked	Rel-7
>>1.28 Mcps TDD measurements	TDD Not checked	Rel-4
>> GSM measurements		
>>>GSM 900	To be checked against ICS statements pc_DL_CompressedModeRequiredForGSM_900P	
>>>DCS 1800	To be checked against ICS statements pc_DL_CompressedModeRequiredForDCS_1800	
>>>GSM 1900	To be checked against ICS statements pc_DL_CompressedModeRequiredForGSM_1900	
>>Multi-carrier measurement	To be checked against ICS statements pc_DL_CompressedModeRequiredForMultiCarrier_Meas	
>>Adjacent Frequency measurements without compressed mode	To be checked against ICS statements pc_DL_CompressedModeRequiredForAdjacentCarriers	Rel-8
>>Inter-band Frequency measurements without compressed mode	Not checked	Rel-9
>>Enhanced inter-frequency measurements without compressed mode	Not checked	Rel-10
>> Frequency specific compressed mode	Not checked	Rel-10
>Need for uplink compressed mode		
>>FDD measurements	Checked it is present	

	pc_InterFreq_UL_CompressedModeRequired	
>>3.84 Mcps TDD measurements	TDD Not checked	Rel-4
>>7.68 Mcps TDD measurements	TDD Not checked	Rel-7
>>1.28 Mcps TDD measurements	TDD Not checked	Rel-4
>> GSM measurements		
>>>GSM 900	To be checked against ICS statements pc_UL_CompressedModeRequiredForGSM_900P	
>>>DCS 1800	To be checked against ICS statements pc_UL_CompressedModeRequiredForDCS_1800	
>>>GSM 1900	To be checked against ICS statements pc_UL_CompressedModeRequiredForGSM_1900	
>> Multi-carrier measurement	To be checked against ICS statements pc_ UL_CompressedModeRequiredForMultiCarrier_Meas	
Measurement capability TDD	TDD Not checked	Rel-8
Device type	To be checked against ICS statements pc_DeviceType	Rel-6
Support for System Information Block type 11bis	To be checked against ICS statements pc_SupportSIB11bis	Rel-6
Support for F-DPCH	To be checked against ICS statements pc_Full_FDPCH	Rel-6
MAC-ehs support	To be checked against ICS statements pc_MAC_ehs	Rel-7
UE specific capability Information LCR TDD **Support for E-DPCCH Power Boosting**	TDD Not checked Not checked	Rel-7 Rel-7
Support of common E-DCH	To be checked against ICS statements pc_HS_RACH_EDCH	Rel-8
Support of MAC-i/is	To be checked against ICS statements pc_MAC_iis	Rel-8
Support of SPS operation	TDD Not checked	Rel-8
Support of Control Channel DRX operation	TDD Not checked	Rel-8
Support of CSG	To be checked against ICS statements pc_CSG	Rel-8
Support for Two DRX schemes in URA_PCH and CELL_PCH	To be checked against ICS statements pc_TwoDRX_InPCH_States	Rel-7
Support for E-DPDCH power interpolation formula	Not checked	Rel-7
Support for absolute priority based cell re-selection in UTRAN	To be checked against ICS statements pc_AbsolutePriorityReselection	Rel-8
Support of MU-MIMO	Not checked	Rel-10
Radio Access Capability Band Combination List		Rel-9
>Band Combination	To be checked against ICS statements pc_DB_DC_HSDPA_Band1_8 pc_DB_DC_HSDPA_Band2_4 pc_DB_DC_HSDPA_Band1_5	Rel-9
>Supported Carrier Combination		
>>Carrier Combination (1,2)	Not checked	Rel-10
>>Carrier Combination (2,1)	Not checked	Rel-10
>>Carrier Combination (1,3)	Not checked	Rel-10
>>Carrier Combination (3,1)	Not checked	Rel-10
>>Carrier Combination (2,2)	Not checked	Rel-10
Support of TX Diversity on DL Control Channels by MIMO Capable UE when MIMO operation is active	Not checked	Rel-7
Support of enhanced TS0	TDD Not checked	Rel-9
Support for cell-specific Tx diversity configuration for dual-cell operation	Not checked	Rel-8
CSG proximity indication capability		Rel-9
> Support of intra-frequency proximity indication	Not checked	Rel-9
> Support of inter-frequency proximity indication	Not checked	Rel-9
> Support of E-UTRA proximity indication	Not checked	Rel-9
Neighbour Cell SI acquisition capability		Rel-9
> Support of intra-frequency SI acquisition for HO	Not checked	Rel-9
> Support of inter-frequency SI acquisition for HO	Not checked	Rel-9
> Support of E-UTRA SI acquisition for HO	Not checked	Rel-9

Extended measurements Support	Not checked	Rel-10
Support for dual cell with MIMO operation in different bands	Not checked	Rel-10
UE based network performance measurements parameters		Rel-10
>Support of Logged Measurements Idle PCH	pc_Loggedmeasurements_idle_PCH	Rel-10
Support of UTRAN ANR	To be checked against ICS statements pc_UTRAN ANR	Rel-10

UE radio access capability extension (Step 3 and 5) (FDD)

Information Element	Value/remark	Version
Frequency band specific capability list		
>Frequency band	To be checked against ICS statements pc_BandXX_Supp (indicating the coded supporting bands) It is not checked against ICS statement pc_Band6_Supp (indicating the coded supporting band VI)	
>Frequency band 2	To be checked against ICS statements pc_BandXX_Supp (indicating the coded supporting bands)	
>Frequency band 3	To be checked against ICS statements pc_BandXX_Supp (indicating the coded supporting bands)	Rel-10
>RF capability FDD extension		
>> UE power class	To be checked against IXIT statements px_UE_PowerClass	
>> Tx/Rx frequency separation	default TxRx separation	
>Measurement capability extension		
>> FDD measurements		
>>>FDD Frequency band	To be checked against ICS statements pc_BandXX_Supp (indicating the coded supporting bands) It is not checked against ICS statement pc_Band6_Supp (indicating the coded supporting band VI)	
>>>FDD Frequency band 2	To be checked against ICS statements pc_BandXX_Supp (indicating the coded supporting bands)	
>>>FDD Frequency band 3	To be checked against ICS statements pc_BandXX_Supp (indicating the coded supporting bands)	Rel-10
>>>Need for DL compressed mode	Not checked	
>>>Need for UL compressed mode	Not checked	
>> TDD measurements	TDD Not checked	
>> GSM measurements		
>>>GSM Frequency band	To be checked against ICS statements in 51.010-2 [45] with the exception mentioned below TSPC_Type_GSM_450_Band TSPC_Type_GSM_480_Band TSPC_Type_GSM_850_Band If (TSPC_Type_GSM_P_Band is TRUE and TSPC_Type_GSM_E_Band is FALSE) GSM900P must be present in the list of supported GSM frequency bands ELSE the settings of TSPC_Type_GSM_P_Band and the presence of GSM900P is not checked against each other TSPC_Type_GSM_E_Band TSPC_Type_DCS_Band TSPC_Type_PCS_Band	
>>>Need for DL compressed mode	Not checked	
>>>Need for UL compressed mode	Not checked	
>> Multi-carrier measurement		
>>>Need for DL compressed mode	Not checked	
>>>Need for UL compressed mode	Not checked	
>> E-UTRA measurements		Rel-8
>>>E-UTRA Frequency band	To be checked against ICS statements in 36.523-2 [46]	Rel-8

>>>Need for compressed mode	pc_eBandX_Supp Checked it is present	Rel-8
>Additional Secondary Cells		Rel-10
>Non-contiguous multi-cell		Rel-10
>>Aggregated cells	Not checked	Rel-10
>>Gap size	Not checked	Rel-10
>>Non-contiguous multi-cell Combination (2,2)	Not checked	Rel-10
>>Non-contiguous multi-cell Combination (3,1) (1,3)	Not checked	Rel-10

Inter-RAT UE radio access capability (Step 3 and 5) (FDD)

Information Element	Value/remark	Version
CHOICE *system*		
>GSM		
>>Mobile Station Classmark 2	To be checked against ICS/IXIT statements px_MS_ClsmkRevLvl px_MS_ClsmkESIND pc_UMTS_GSM pc_MS_ClsmkPS_Cap pc_SS_Phase2Supp pc_MS_ClsmkSM_Cap pc_MS_ClsmkVBS pc_MS_ClsmkVGCS pc_MS_ClsmkCM3 pc_MS_ClsmkLCSVA_Cap pc_MS_ClsmkUCS2 pc_MS_ClsmkSoLSA pc_MS_ClsmkCMSP pc_MS_ClsmkA5_3_CS	
>>Mobile Station Classmark 3	To be checked against ICS statements pc_FDD, pc_TDD, pc_UTRAN384_TDD pc_CDMA2000 pc_SupportOfEUTRA_FDD pc_SupportOfEUTRA_TDD pc_P_GSM_900_BAND pc_E_GSM_900_BAND pc_R_GSM_900_BAND pc_DCS_1800_BAND pc_PCS_1900_BAND pc_GSM_450_BAND pc_GSM_480_BAND pc_GSM_710_BAND, pc_GSM_750_BAND, pc_T_GSM_810_BAND, pc_GSM_850_BAND, pc_Feat_A54, pc_DTM_SingleSlotAllocation, pc_EOTD_Assist, pc_UeAssistedAgps, pc_UeBasedAgps, pc_Conv_GPS, pc_EOTD_MS_Based, pc_GERANFeaturePackage1, pc_GERANFeaturePackage2, pc_FLOIuCapability, pc_DTMEnhancedCap, pc_TAOffset, pc_8PSK_Struct, pc_8PSKPowerProfile1, pc_8PSKPowerProfile2, pc_8PSKPowerProfile3, pc_GMSKPowerProfile1, pc_GMSKPowerProfile2,	

	pc_GMSKPowerProfile3, pc_EGPRS_8PSK_uplink, pc_CipherModeSetCap, pc_AddPositionCap, pc_EUTRA_MeasReporting, pc_PriorityBasedCellReselection, pc_G_HSCSD_MultislotClass, pc_ECSD_MultislotClass, pc_SMS_Value, pc_SM_Value, pc_GERANIuModeCapability, pc_TypeDCSClass1 pc_TypeDCSClass2 pc_TypeDCSClass3 pc_TypeGSMClass2 pc_TypeGSMClass3 pc_TypeGSMClass4 pc_TypeGSMClass5 pc_DTM_Multislotclass5 pc_DTM_Multislotclass6 pc_DTM_Multislotclass9 pc_DTM_Multislotclass10 pc_DTM_Multislotclass11 pc_DTM_Multislotclass31 pc_DTM_Multislotclass32 pc_DTM_Multislotclass33 pc_DTM_Multislotclass36 pc_DTM_Multislotclass37 pc_DTM_Multislotclass38 pc_DTM_Multislotclass41 pc_DTM_Multislotclass42 pc_DTM_Multislotclass43 pc_DTM_Multislotclass44 pc_DTM_EGPRS_Multislotclass5 pc_DTM_EGPRS_Multislotclass9 pc_DTM_EGPRS_Multislotclass11 pc_EGPRS_Multislotclass31 pc_EGPRS_Multislotclass32 pc_EGPRS_Multislotclass36 pc_EGPRS_Multislotclass37 pc_EGPRS_Multislotclass33 pc_EGPRS_Multislotclass38 px_ExtDTM_EGPRS_MultiSlotClass px_HighMultiSlotCap pc_TypeGSMClassE1 pc_TypeGSM850ClassE1 pc_TypeGSMClassE2 pc_TypeGSM850ClassE2 pc_TypeGSMClassE3 pc_TypeGSM850ClassE3 pc_TypeDCSClassE1 pc_TypePCSClassE1 pc_TypeDCSClassE2 pc_TypePCSClassE2 pc_TypeDCSClassE3 pc_TypePCSClassE3 pc_DARP_Phase1 pc_DARP_Phase2 pc_ExtMeasCap, pc_MS_ClsmkUCS2, pc_RepeatedFACCH pc_RepeatedSACCH pc_TypeGSM400Class2 pc_TypeGSM400Class3 pc_TypeGSM400Class4 pc_TypeGSM400Class5 pc_TypeTGSM400Class2 pc_TypeTGSM400Class3 pc_TypeTGSM400Class4		

	pc_TypeTGSM400Class5 pc_TypeGSM710Class2 pc_TypeGSM710Class3 pc_TypeGSM710Class4 pc_TypeGSM710Class5 pc_TypeGSM750Class2 pc_TypeGSM750Class3 pc_TypeGSM750Class4 pc_TypeGSM750Class5 pc_TypeTGSM810Class2 pc_TypeTGSM810Class3 pc_TypeTGSM810Class4 pc_TypeTGSM810Class5 pc_TypeGSM850Class2 pc_TypeGSM850Class3 pc_TypeGSM850Class4 pc_TypeGSM850Class5 pc_TypePCSClass1 pc_TypePCSClass2 pc_TypePCSClass3 pc_T_GSM_380_BAND, pc_T_GSM_410_BAND	
>>MS Radio Access Capability	See detail content below	Rel-6
>GERAN Iu		Rel-5
>>MS GERAN Iu mode Radio Access Capability	See detail content below	Rel-5
>cdma2000	CDMA Not checked	
>E-UTRA		Rel-8
>>UE E-UTRA Capability		
>>> accessStratumRelease	Shall be the same value as in RRC CONNECTION REQUEST received in step 1.	
>>> ue-Category	To be checked against IXIT statements in 36.523-3 px_eUE_Category_Type	
>>> pdcp-Parameters		
>>>> supportedROHC-Profiles	Checked it is present	
>>>> maxNumberROHC-ContextSessions	Checked it is present	
>>> phyLayerParameters		
>>>> ul-AntennaSelectionSupported	Checked it is present	
>>>> ue-SpecificRefSigsSupported	Checked it is present	
>>> rf-Parameters		
>>>> supportedEUTRA-BandList		
>>>>> eutra-Band	To be checked against ICS statements in 36.523-2 pc_eBandXX_Supp (indicating the coded supporting bands)	
>>>>> halfDuplex	Checked it is present	
>>> measParameters		
>>>> eutra-BandList		
>>>>> interFreqBandList	Checked it is present	
>>>>> interRAT-BandList	Not checked	
>>> featureGroupIndicators	To be checked against ICS statements pcFeatGrp_1 to pcFeatGrp_27, other bits shall be set to 0.	
>>> interRAT-Parameters		
>>>> utraFDD	To be checked against ICS statements pc_FDD pc_BandXX (indicating the coded supporting bands)	
>>>> utraTDD128	TDD Not checked	
>>>> utraTDD384	TDD Not checked	
>>>> utraTDD768	TDD Not checked	
>>>> geran	To be checked against ICS statements pc_UMTS_GSM	
>>>> cdma2000-HRPD	CDMA Not checked	
>>>> cdma2000-1xRTT	CDMA Not checked	

MS Radio Access Capability (Step 3 and 5) (FDD)

Information Element	Value/remark	Version

if Access Technology Type exclude 1111:	Value not checked	
Access Capabilities:		
> Length	Not checked	
> RF Power Capability	px_GMSK_PowerCap	
> **A5 Bits:**		
>> A5/1	'0'B	
>> A5/2	The MS shall set this bit to '0'.	
>> A5/3	TSPC_Feat_A53	
>> A5/4	TSPC_Feat_A54	
>> A5/5	not checked does not exist	
>> A5/6	not checked does not exist	
>> A5/7	not checked does not exist	
> ESIND	px_MS_ClsmkESIND	
> PS	pc_MS_ClsmkPS_Cap	
> VGCS	pc_MS_ClsmkVGCS	
> VBS	pc_MS_ClsmkVBS	
> **MultiSlot Capability:**		
>> HSCSD Multislot Class	pc_G_HSCSD_MultislotClass	
>> GPRS Multislot Class	px_GPRS_MultislotClass	
>>> GPRS Extended Dynamic Allocation Capability	if (TSPC_Type_GPRS_Multislot_Class11, TSPC_Type_GPRS_Multislot_Class32, TSPC_Type_GPRS_Multislot_Class33, TSPC_Type_GPRS_Multislot_Class37, TSPC_Type_GPRS_Multislot_Class38, TSPC_Type_GPRS_Multislot_Class42, TSPC_Type_GPRS_Multislot_Class43 or TSPC_Type_GPRS_Multislot_Class44) then 1	
>> SMS Value	TSPC_SMS_VALUE_SMS	
>>> SM Value	TSPC_SMS_VALUE_SM	
>> ECSD Multislot Class	TSPC_Type_ECSD_Multislot_Class	
>> EGPRS Multislot Class	px_EGPRS_MultislotClass	
>>> EGPRS Extended Dynamic Allocation Capability	if (TSPC_Type_EGPRS_Multislot_Class11, TSPC_Type_EGPRS_Multislot_Class32, TSPC_Type_EGPRS_Multislot_Class33, TSPC_Type_EGPRS_Multislot_Class37, TSPC_Type_EGPRS_Multislot_Class38, TSPC_Type_EGPRS_Multislot_Class42, TSPC_Type_EGPRS_Multislot_Class43 or TSPC_Type_EGPRS_Multislot_Class44) then 1	
>> DTM GPRS Multislot Class	TSPC_DTM_GPRS_Multislot_Class_5, TSPC_DTM_GPRS_Multislot_Class_9 TSPC_DTM_GPRS_Multislot_Class_11	
>>> Single Slot DTM	TSPC_DTM_GPRS_Singleslot_Allocation	
>>> DTM EGPRS Multislot Class	TSPC_DTM_EGPRS_Multislot_Class_xx (indicating the coded supporting class)	
> 8PSK Power Capability	px_8PSK_PowerCap	
> COMPACT Interference Measurement Capability	TSPC_COMPACT	
> Revision Level Indicator	'1'B	
> UMTS FDD Radio Access Technology Capability	'1'B	
> UMTS 3.84 Mcps TDD Radio Access Technology Capability	pc_TDD_HCR	
> CDMA 2000 Radio Access Technology Capability	CDMA not checked	
> UMTS 1.28 Mcps TDD Radio Access Technology Capability	pc_TDD	
> GERAN Feature Package 1	TSPC_GERAN_FEATURE_PACKAGE_1	
> Extended DTM GPRS Multislot Class	TSPC_DTM_GPRS_Multislot_Class_xx (indicating the coded supporting class) as in CLSMK3	
>> Extended DTM EGPRS Multislot Class	px_ExtDTM_EGPRS_MultiSlotClass	
> Modulation Based Multislot Class Support	TSPC_Type_EGPRS_8PSK_uplink	
> High Multislot Capability	px_HighMultiSlotCap	
> **GERAN Iu Mode Capabilities:**		
>> Length	Not checked	

>> FLO Iu Capability	TSPC_FLO_Iu_Capability	
> GMSK Multislot Power Profile	pc_GMSKPowerProfile1, pc_GMSKPowerProfile2, pc_GMSKPowerProfile3	
> 8-PSK Multislot Power Profile	pc_8PSKPowerProfile1, pc_8PSKPowerProfile2, pc_8PSKPowerProfile3	
> Multiple TBF Capability	TSPC_Multiple_TBF	
> Downlink Advanced Receiver Performance	pc_DARP_Phase1, pc_DARP_Phase2	
> Extended RLC/MAC Control Message Segmentation Capability	TSPC_Xtd_Ctrl_Message_Segmentation	
> DTM Enhancements Capability	TSPC_Enhanced_DTM_CS	
> DTM GPRS high Multi Slot Class	TSPC_DTM_GPRS_Multislot_Class_xx (indicating the coded supporting class)	
>> DTM EGPRS high Multi Slot Class	TSPC_DTM_EGPRS_Multislot_Class_XX (indicating the coded supporting class)	
> PS Handover Capability	TSPC_PS_Handover	
> DTM Handover Capability	Not checked	
> Multislot Capability Reduction for Downlink Dual Carrier	px_Multislot_Capability_Reduction_for_Downlink_Dual_Carrier	
>> Downlink Dual Carrier for DTM Capability	TSPC_Downlink_DualCarrier	
> Flexible Timeslot Assignment	TSPC_Flexible_Timeslot	
> GAN PS Handover Capability	Not checked	
> RLC Non-persistent Mode	Not checked	
> Reduced Latency Capability	TSPC_Latency_Reductions	
> Uplink EGPRS2	Not checked	
> Downlink EGPRS2	Not checked	
> E-UTRA FDD support	pc_SupportOfEUTRA_FDD	
> E-UTRA TDD support	pc_SupportOfEUTRA_TDD	
> GERAN to E-UTRA support in GERAN packet transfer mode	px_GERAN_to_EUTRA_Support	
> Priority-based reselection support	TSPC_Priority_Based_Cell_Reselection	
> **Enhanced Flexible Timeslot Assignment:**		
>> Alternative EFTA Multislot Class	Not checked	
> Indication of Upper Layer PDU Start Capability for RLC UM	TSPC_UpperLayer_PDU_Start_Ind	
> EMST Capability	TSPC_EMST	
MTTI capability	TSPC_MTTI	
if Access Technology Type equals 1111:	1111	
Length		
Additional Access Technologies:	Repeated Structure	
> Access Technology Type	Value not checked	
> GMSK Power Class	px_GMSK_PowerCap	
> 8-PSK Power Class	px_8PSK_PowerCap	

MS GERAN Iu mode Radio Access Capability (Step 3 and 5) (FDD)

Information Element	Value/remark	Version

MS GERAN Iu Mode Radio Access Capability length	Not checked	
MS RF Capability GSM:		
> MS RF Capability Length	Not checked	
> **RF Capability Group:**		
>> Access Technology Type	Value not checked	
>> Additional Acess Technology Type	Value not checked	
>> **Common Access Capabilities:**		
>>> Access Capabilities Length	Not checked	
>>> GMSK Power Capability	px_GMSK_PowerCap	
>>>> 8-PSK Power Capability	px_8PSK_PowerCap	
>>> Pseudo Synchronisation	TSPC_AddInfo_PseudoSynch	
>>> **Multislot Capability:**	If both values are the same, the combined option will be present, otherwise, both values are included separately	
>>>> Combined GMSK and 8-PSK Multislot Class	px_GPRS_MultislotClass	
>>>> GMSK Multislot Class	px_GPRS_MultislotClass	
>>>>> 8-PSK Multislot Class	px_EGPRS_MultislotClass	
>> **Additional Access Technology:**	Repeated structure	
>>> Additional Access Technology Length	Not checked	
>>> Access Technology Type	Value not checked	
>>> GMSK Power Class	px_GMSK_PowerCap	
>>> 8-PSK Power Class	px_8PSK_PowerCap	
> **Additional RF Capability Group.**	repeat of above structure	
MS GERAN Iu Mode RLC Capability:		
> MS GERAN Iu Mode RLC Capability length	Not checked	
> Maximum number of RLC-AM entities	Not checked	
> Maximum number of RLC-UM entities	Not checked	
> Maximum number of RLC-T entities	Not checked	
PDCP Capability:		
> PDCP Capability length	Not checked	
> Support for lossless serving BSC relocation	pc_LosslessSRNS_Reloc	
> Support for RFC2507	pc_RFC2507	
>> Max HC context space	px_MaxHcContextSpace	
> Support for RFC3095	pc_RFC3095	
>> Maximum number of ROHC context sessions	px_MaxROHC_ContextSession	
>> Reverse decompression depth	pc_ReverserDecompressionDepth	
>> Support for RFC 3095 context relocation	pc_SupportForRfc3095ContextRelocation	
MS Multi-Mode and Multi-RAT Capability:		
> Support of GERAN A/Gb	pc_UMTS_GSM	
> Support of Multi-Carrier	pc_SupportOfMultiCarrier	
> Support of UMTS FDD	pc_FDD	
> Support of UMTS 1.28 Mcps TDD	pc_TDD_LCR	
> Support of UMTS 3.84 Mcps TDD	pc_TDD_HCR	
> Support of CDMA 2000	TSPC_CDMA2000	
Security Capability:		
> Security Capability Length	Not checked	
> **Iu Mode Ciphering algorithm capability:**		
>> UEA0 support	TRUE	
>> UEA0 support	TRUE	
> **Iu Mode Integrity protection algorithm capability:**		
>> UIA1 support	TRUE	
MS Positioning Capability:		
> MS Positioning Capability Length	Not checked	
> OTD-A support	TSPC_EOTD_ASSIST	
> OTD-B support	TSPC_EOTD_MS_BASED	
> GPS-A support	TSPC_A_GPS_Assist	
> GPS-B support	TSPC_A_GPS_Based	
> GPS-C support	TSPC_Conv-GPS	
> RRLP Positioning Indication support	TSPC_MS_RRLP_RELEASE	
MS Measurement Capability:		
> MS Measurement Capability Length	Not checked	
> Extended Measurement Capability	TSPC_Extended_Measurement_Capability	
> SMS value	TSPC_SMS_VALUE_SMS	

> SM value	TSPC_SMS_VALUE_SM	
FLO Iu Capability	TSPC_FLO_Iu_Capability	

8.1.5.7.5 Test requirement

At step 5 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH to respond to the UE CAPABILITY ENQUIRY message as per the specific message contents.

All ICS and IXIT parameters concerned shall be correctly set to those values which are reported by the UE so that the whole ICS / IXIT values can be used as the audit file of the UE entire capabilities.

8.1.6 Direct Transfer

8.1.6.1 Direct Transfer in CELL DCH state (invalid message reception and no signalling connection exists)

8.1.6.1.1 Definition

8.1.6.1.2 Conformance requirement

If the UE receives a DOWNLINK DIRECT TRANSFER message, and the signalling connection identified with the IE "CN domain identity" does not exist according to the variable ESTABLISHED_SIGNALLING_CONNECTIONS, the UE shall:

1> ignore the content of the DOWNLINK DIRECT TRANSFER message;

1> transmit an RRC STATUS message on the uplink DCCH using AM RLC;

1> include the IE "Identification of received message"; and

1> set the IE "Received message type" to DOWNLINK DIRECT TRANSFER; and

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the DOWNLINK DIRECT TRANSFER message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> include the IE "Protocol error information" with the IE "Protocol error cause" set to "Message not compatible with receiver state".

…

If the UE receives a DOWNLINK DIRECT TRANSFER message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to TS 25.331 clause 9, the UE shall perform procedure specific error handling as follows:

1> transmit an RRC STATUS message on the uplink DCCH using AM RLC;

1> include the IE "Identification of received message"; and

1> set the IE "Received message type" to DOWNLINK DIRECT TRANSFER; and

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the DOWNLINK DIRECT TRANSFER message in the table "Rejected transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

When the RRC STATUS message has been submitted to lower layers for transmission, the UE shall:

1> continue with any ongoing processes and procedures as if the DOWNLINK DIRECT TRANSFER message has not been received.

…

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent via a radio access technology other than UTRAN, containing an undefined critical message extension, the UE shall:

1> set the variable PROTOCOL_ERROR_REJECT to TRUE;

1> set the IE "Protocol error cause" in the variable PROTOCOL_ERROR_INFORMATION to "Message extension not comprehended";

Reference

3GPP TS 25.331 clause 8.1.9.3a, 8.1.9.4, 9.3b.

8.1.6.1.3 Test purpose

To confirm that the UE transmits an RRC STATUS message on the DCCH using AM RLC if it receives a DOWNLINK DIRECT TRANSFER message with a non comprehended critical extension. To confirm that the UE transmits an RRC STATUS message on the DCCH using AM RLC if it receives a DOWNLINK DIRECT TRANSFER message which includes an invalid IE "CN domain identity".

8.1.6.1.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH (state 6-9 or state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in the CELL_DCH state. The SS transmits an invalid DOWNLINK DIRECT TRANSFER message to the UE. The UE shall transmit an RRC STATUS message on the DCCH using AM RLC. The error type "Message extension not comprehended" shall be indicated in IE "Protocol error cause". The SS transmits a DOWNLINK DIRECT TRANSFER message that contains an invalid IE "CN domain identity" to the UE. The UE shall transmit an RRC STATUS message on the DCCH using AM RLC. The error type "Message not compatible with receiver state" shall be indicated in IE "Protocol error cause".

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1		←	DOWNLINK DIRECT TRANSFER	See specific message content
2	→		RRC STATUS	
3		←	DOWNLINK DIRECT TRANSFER	Sent from a new CN domain.
4	→		RRC STATUS	

Specific Message Contents

DOWNLINK DIRECT TRANSFER (Step 1)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Critical extensions	'FF'H

RRC STATUS (Step 2)

Message content is the same as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Identification of received message type - Received message type - RRC transaction identifier Protocol error information – Protocol error cause	 DOWNLINK DIRECT TRANSFER 0 Message extension not comprehended

DOWNLINK DIRECT TRANSFER (Step 3)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
CN domain identity NAS message	CS domain or PS domain as unselected domain Arbitrary message.

RRC STATUS (Step 4)

Message content is the same as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Identification of received message type - Received message type - RRC transaction identifier Protocol error information – Protocol error cause	 DOWNLINK DIRECT TRANSFER Same value in the DOWNLINK DIRECT TRANSFER message in step 3. Message not compatible with receiver state

8.1.6.1.5 Test requirement

After step 1 the UE shall transmit an RRC STATUS message on the DCCH using AM RLC setting "Message extension not comprehended" in IE "Protocol error cause" and "DOWNLINK DIRECT TRANSFER" in IE "Received message type".

After step 3 the UE shall transmit a n RRC STATUS message on the DCCH using AM RLC setting "Message not compatible with receiver state" in IE "Protocol error cause" and "DOWNLINK DIRECT TRANSFER" in IE "Received message type".

8.1.6.2 Direct Transfer in CELL FACH state (invalid message reception and no signalling connection exists)

8.1.6.2.1 Definition

8.1.6.2.2 Conformance requirement

If the UE receives a DOWNLINK DIRECT TRANSFER message, and the signalling connection identified with the IE "CN domain identity" does not exist according to the variable ESTABLISHED_SIGNALLING_CONNECTIONS, the UE shall:

1> ignore the content of the DOWNLINK DIRECT TRANSFER message;

1> transmit an RRC STATUS message on the uplink DCCH using AM RLC;

1> include the IE "Identification of received message"; and

1> set the IE "Received message type" to DOWNLINK DIRECT TRANSFER; and

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the DOWNLINK DIRECT TRANSFER message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> include the IE "Protocol error information" with the IE "Protocol error cause" set to "Message not compatible with receiver state".

…

If the UE receives a DOWNLINK DIRECT TRANSFER message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to TS 25.331 clause 9, the UE shall perform procedure specific error handling as follows:

1> transmit an RRC STATUS message on the uplink DCCH using AM RLC;

1> include the IE "Identification of received message"; and

1> set the IE "Received message type" to DOWNLINK DIRECT TRANSFER; and

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the DOWNLINK DIRECT TRANSFER message in the table "Rejected transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

When the RRC STATUS message has been submitted to lower layers for transmission, the UE shall:

1> continue with any ongoing processes and procedures as if the DOWNLINK DIRECT TRANSFER message has not been received.

…

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent via a radio access technology other than UTRAN, containing an undefined critical message extension, the UE shall:

1> set the variable PROTOCOL_ERROR_REJECT to TRUE;

1> set the IE "Protocol error cause" in the variable PROTOCOL_ERROR_INFORMATION to "Message extension not comprehended";

Reference

3GPP TS 25.331 clause 8.1.9.3a, 8.1.9.4, 9.3b.

8.1.6.2.3 Test purpose

To confirm that the UE transmits an RRC STATUS message on the DCCH using AM RLC if it receives a DOWNLINK DIRECT TRANSFER message which does not include any IEs except IE "Message Type". To confirm that the UE transmits an RRC STATUS message on the DCCH using AM RLC if it receives a DOWNLINK DIRECT TRANSFER message which includes an invalid IE "CN domain identity".

8.1.6.2.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH_FACH (state 6-6) or PS_DCCH_FACH (state 6-8) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in the CELL_FACH state. The SS transmits an invalid DOWNLINK DIRECT TRANSFER message to the UE. The UE shall transmit an RRC STATUS message on the DCCH using AM RLC. The error type "Message extension not comprehended" shall be indicated in IE "Protocol error cause". The SS transmits a DOWNLINK DIRECT TRANSFER message that contains an invalid IE "CN domain identity" to the UE. The UE shall transmit an RRC STATUS message on the DCCH using AM RLC. The error type "Message not compatible with receiver state" shall be indicated in IE "Protocol error cause".

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		DOWNLINK DIRECT TRANSFER	See specific message content
2	→		RRC STATUS	
3	←		DOWNLINK DIRECT TRANSFER	Sent from a new CN domain.
4	→		RRC STATUS	

Specific Message Contents

DOWNLINK DIRECT TRANSFER (Step 1)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Critical extensions	'FF'H

RRC STATUS (Step 2)

Message content is the same as found in Clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Identification of received message type - Received message type - RRC transaction identifier Protocol error information – Protocol error cause	 DOWNLINK DIRECT TRANSFER 0 Message extension not comprehended

DOWNLINK DIRECT TRANSFER (Step 3)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
CN domain identity NAS message	CS domain or PS domain as unselected domain Arbitrary message.

RRC STATUS (Step 4)

Message content is the same as found in Clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Identification of received message type - Received message type - RRC transaction identifier Protocol error information – Protocol error cause	 DOWNLINK DIRECT TRANSFER Same value in the DOWNLINK DIRECT TRANSFER message in step 3. Message not compatible with receiver state

8.1.6.2.5 Test requirement

After step 1 the UE shall transmit an RRC STATUS message on the DCCH using AM RLC setting "Message extension not comprehended" in IE "Protocol error cause" and "DOWNLINK DIRECT TRANSFER" in IE "Received message type".

After step 3 the UE shall transmit a n RRC STATUS message on the DCCH using AM RLC setting "Message not compatible with receiver state" in IE "Protocol error cause" and "DOWNLINK DIRECT TRANSFER" in IE "Received message type".

8.1.6.3 Measurement Report on INITIAL DIRECT TRANSFER message and UPLINK DIRECT TRANSFER message

8.1.6.3.1 Definition

8.1.6.3.2 Conformance requirement

In CELL_FACH state, the UE shall:

1> include a measurement report in the IE "Measured results on RACH", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in System Information Block type 12 (or "System Information Block Type 11" if "System Information Block Type 12" is not being broadcast);

1> include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported.

Reference

3GPP TS 25.331, clause 8.1.8.2, 8.1.10.2

8.1.6.3.3 Test Purpose

To confirm that the UE reports measured results on RACH messages, if it receives IE "Intra-frequency reporting quantity for RACH reporting" and IE "Maximum number of reported cells on RACH" from System Information Block Type 11 or 12 upon a transition from idle mode to CELL_FACH state.

8.1.6.3.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108. If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Related ICS/IXIT statement(s)

- Support of automatic PS attach procedure at switch on yes/no

Specific Message Content

For system information block 11 for Cell 1 (gives IE's which are different from defaults given in 34.108 sec 6.1) to be transmitted before idle update preamble.

System Information Block type 11 (Step 1) (FDD)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/remark
SIB12 indicator	FALSE
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	5
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cells	
- Intra-frequency cell id	0
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 1
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	Not present
- Intra-frequency Measurement quantity	
- Filter Coefficient	0
- Measurement quantity	CPICH RSCP
- Intra-frequency measurement for RACH reporting	
- SFN-SFN observed time difference	No report
- Reporting quantity	CPICH RSCP
- Maximum number of reported cells on RACH	Current cell
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	TRUE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not present
- Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1a
- Triggering condition 1	Not Present
- Triggering condition 2	Monitored set cells
- Reporting Range Constant	29 (15 dB)
- Cells forbidden to affect reporting range	Not Present
- W	0.0
- Hysteresis	2 (1.0 dB)
- Threshold used frequency	Not Present
- Reporting deactivation threshold	0
- Replacement activation threshold	Not Present
- Time to trigger	60 ms
- Amount of reporting	Infinity
- Reporting interval	16 seconds
- Reporting Cell Status	

- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Inter-frequency measurement system information	Not Present
- Traffic volume measurement system information	Not Present

System Information Block type 11 (Step 1) (TDD)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/remark
SIB12 indicator	FALSE
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	5
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cells	
- Intra-frequency cell id	0
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	Set to same as used for cell 1
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	Not present
- Intra-frequency Measurement quantity	
- Filter Coefficient	0
- Measurement quantity	PCCPCH RSCP
- Intra-frequency measurement for RACH reporting	
- SFN-SFN observed time difference	No report
- Reporting quantity	PCCPCH RSCP
- Maximum number of reported cells on RACH	Current cell
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- PCCPCH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	TRUE
- Cell identity reporting indicator	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not present
- Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1g
- Reporting Range Constant	29 (15 dB)
- Cells forbidden to affect reporting range	Not Present
- W	0 (0.0)
- Hysteresis	2 (1.0 dB)
- Time to trigger	60 ms
- Amount of reporting	Infinity
- Reporting interval	16 seconds
- Reporting Cell Status	
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Inter-frequency measurement system information	Not Present
- Traffic volume measurement system information	Not Present

Test Procedure

The UE is initially in idle mode and camps on cell 1. SS prompts the operator to make an outgoing call for one of the traffic classes supported by the UE. SS and UE shall execute out going call procedure. During this procedure UE transmits INITIAL DIRECT TRANSFER and UPLINK DIRECT TRANSFER messages with IE "Measured results on RACH" which is set to measured CPICH RSCP" (for FDD) or "Primary CCPCH info" (for TDD) in the current cell. After that SS releases a RRC connection.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in idle mode and camps onto cell 1.
2				SS prompts the test operator to make an outgoing call.
3	→		RRC CONNECTION REQUEST	
4	←		RRC CONNECTION SETUP	See default message content (Transition to CELL_FACH)
5	→		RRC CONNECTION SETUP COMPLETE	See default message content
6	→		INITIAL DIRECT TRANSFER (SERVICE REQUEST)	See specific message content
7	←		DOWNLINK DIRECT TRANSFER(AUTHENTICATION AND CIPHERING REQUEST)	
8	→		UPLINK DIRECT TRANSFER(AUTHENTICATION AND CIPHERING RESPONSE)	See specific message content
9	←		SECURITY MODE COMMAND	See default message content
10	→		SECURITY MODE COMPLETE	See default message content
11	→		UPLINK DIRECT TRANSFER(ACTIVATE PDP CONTEXT REQUEST)	See specific message content
11a	←		DOWNLINK DIRECT TRANSFER (ACTIVATE PDP CONTEXT REJECT)	Cause set to “Activation rejected, unspecified”
A11a	→		UPLINK DIRECT TRANSFER (DETACH REQUEST)	This step is performed only when UE is in manual attach mode: The UE may (optionally) send a Detach Request (only Note 1).
A11b	←		DOWNLINK DIRECT TRANSFER (DETACH ACCEPT)	This step is performed only when UE is in manual attach mode: SS responds with DETACH ACCEPT message as a Detach Request was transmitted by the UE.
12	←		RRC CONNECTION RELEASE	See default message content
13	→		RRC CONNECTION RELEASE COMPLETE	See default message content
Note 1: Support of automatic PS attach procedure at switch on – no				

Specific Message Content

RRC CONNECTION REQUEST (Step 3) (FDD)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Measured results on RACH	
- Measurement result for current cell	
- CHOICE measurement quantity	Check to see if set to 'CPICH RSCP'
- CPICH RSCP	Checked to see if set to within an acceptable range.
- Measurement results for monitored cells	Checked to see if this IE is absent.

RRC CONNECTION REQUEST (Step 3) (TDD)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Measured results on RACH	
- Measurement result for current cell	
- CHOICE measurement quantity	Check to see if set to 'PCCPCH RSCP'
- PCCPCH RSCP	Checked to see if set to within an acceptable range.
- Measurement results for monitored cells	Checked to see if this IE is absent.

INITIAL DIRECT TRANSFER (SERVICE REQUEST) (Step 6) (FDD)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Measured results on RACH	
- Measurement result for current cell	
- CHOICE measurement quantity	Check to see if set to 'CPICH RSCP'
- CPICH RSCP	Checked to see if set to within an acceptable range.
- Measurement results for monitored cells	Checked to see if this IE is absent.

INITIAL DIRECT TRANSFER (SERVICE REQUEST) (Step 6) (TDD)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Measured results on RACH	
- Measurement result for current cell	
- CHOICE measurement quantity	Check to see if set to 'PCCPCH RSCP'
- PCCPCH RSCP	Checked to see if set to within an acceptable range.
- Measurement results for monitored cells	Checked to see if this IE is absent.

UPLINK DIRECT TRANSFER (AUTHENTICATION AND CIPHERING RESPONSE) (Step 8)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Measured results on RACH	
- Measurement result for current cell	
- CHOICE measurement quantity	Check to see if set to 'CPICH RSCP'
- CPICH RSCP	Checked to see if set to within an acceptable range.
- Measurement results for monitored cells	Checked to see if this IE is absent.

UPLINK DIRECT TRANSFER (AUTHENTICATION AND CIPHERING RESPONSE) (Step 8) (TDD)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Measured results on RACH	
- Measurement result for current cell	
- CHOICE measurement quantity	Check to see if set to 'PCCPCH RSCP'
- PCCPCH RSCP	Checked to see if set to within an acceptable range.
- Measurement results for monitored cells	Checked to see if this IE is absent.

UPLINK DIRECT TRANSFER (ACTIVATE PDP CONTEXT REQUEST) (Step 11) (FDD)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Measured results on RACH - Measurement result for current cell - CHOICE measurement quantity - CPICH RSCP - Measurement results for monitored cells	 Check to see if set to 'CPICH RSCP' Checked to see if set to within an acceptable range. Checked to see if this IE is absent.

UPLINK DIRECT TRANSFER (ACTIVATE PDP CONTEXT REQUEST) (Step 11) (TDD)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Measured results on RACH - Measurement result for current cell - CHOICE measurement quantity - PCCPCH RSCP - Measurement results for monitored cells	 Check to see if set to 'PCCPCH RSCP' Checked to see if set to within an acceptable range. Checked to see if this IE is absent.

8.1.6.3.5 Test Requirement

After step 2 the UE shall transmit a RRC CONNECTION REQUEST message which includes IE "measured results on RACH", containing the measurement value for cell 1's CPICH RSCP (FDD mode) or PCCPCH RSCP (TDD mode).

After step 5 the UE shall transmit a INITIAL DIRECT TRANSFER (SERVICE REQUEST) message which includes IE "measured results on RACH", containing the measurement value for cell 1's CPICH RSCP.

After step 7 the UE shall transmit a UPLINK DIRECT TRANSFER(AUTHENTICATION AND CIPHERING RESPONSE) message which includes IE "measured results on RACH", containing the measurement value for cell 1's CPICH RSCP (FDD mode) or PCCPCH RSCP (TDD mode).

After step 10 the UE shall transmit a UPLINK DIRECT TRANSFER(ACTIVATE PDP CONTEXT REQUEST) message which includes IE "measured results on RACH", containing the measurement value for cell 1's CPICH RSCP (FDD mode) or PCCPCH RSCP (TDD mode).

8.1.6.4 UPLINK Direct Transfer (RLC re-establishment)

8.1.6.4.1 Definition

8.1.6.4.2 Conformance requirement

If signalling radio bearer RB n (where n equals to 3 or 4) was used when transmitting the UPLINK DIRECT TRANSFER message and a re-establishment of RLC on same signalling radio bearer RB n occurs before the successful delivery of the UPLINK DIRECT TRANSFER message has been confirmed by RLC, the UE shall:

1> retransmit the UPLINK DIRECT TRANSFER message on the uplink DCCH using AM RLC on signalling radio bearer RB n.

Reference

3GPP TS 25.331 clause 8.1.10.2a.

8.1.6.4.3 Test purpose

To confirm that the UE transmits a second UPLINK DIRECT TRANSFER message after the re-establishment of RLC on RB3 which occurs before the successful delivery of the first UPLINK DIRECT TRANSFER message.

8.1.6.4.4 Method of test

Initial Condition

System Simulator: 1 cell – Cell 1 is active.

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

Specific Message Contents

For RRC CONNECTION SETUP message to be transmitted in the initial setup, use the default message given in TS 34.108 subclause 9 with the following exceptions:

RRC CONNECTION SETUP

Information Element	Value/Remarks
Signalling RB information to setup	(AM DCCH for NAS_DT High priority)
- RB identity	Not Present
- CHOICE RLC info type	
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	1
- Polling info	
- Timer_poll_prohibit	1000
- Timer_poll	1000
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	5
- Logical channel identity	3
- CHOICE RLC size list	Configured
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit List
- RLC size index	According to TS34.108 clause 6.10.2.4.1.3 for FDD, 6.10.3.4.1.3 for TDD 3.84 Mcps option or 6.11.5.4.1.3 for TDD 1.28 Mcps option or 6.11.6. 4.1.3 for TDD 7.68 Mcps option (standalone 13.6 kbps signalling radio bearer)
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3

Test Procedure

UE is in CELL_DCH. SS set the RLC entity for SRB3 to stop. SS requests operator to deactivate the established PDP context. Then the UE shall transmit an UPLINK DIRECT TRANSFER message on the uplink DCCH. SS does not acknowledge the AM PDUs carrying UPLINK DIRECT TRANSFER message. The SS then sends a UTRAN MOBILITY INFORMATION message on SRB1 requesting the UE to do a SRNS relocation, 5s after asking the operator to deactivate the established PDP context. The UE shall send a UTRAN MOBILITY INFORMATION CONFIRM message on SRB2. The SS set the RLC entity for SRB3 to continue upon receiving UTRAN MOBILITY INFORMATION CONFIRM message. Then UE shall retransmit an UPLINK DIRECT TRANSFER message on the uplink DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				SS set the RLC entity for SRB3 to stop. SS requests the operator to initiate a PDP context deactivation.
2	→		UPLINK DIRECT TRANSFER	.
3	←		UTRAN MOBILITY INFORMATION	
4	→		UTRAN MOBILITY INFORMATION CONFIRM	UE sends this message on uplink DCCH on AM RLC. After the reception, SS configures RB 3 to continue.
5	→		UPLINK DIRECT TRANSFER	DEACTIVATE PDP CONTEXT REQUEST message is embedded in UPLINK DIRECT TRANSFER message.

Specific Message Contents

UTRAN MOBILITY INFORMATION (Step 3)

Use the same message sub-type found in [9] TS 34.108 clause 9 with the following exception:

Information Element	Value/remark
Ciphering mode info	This presence of this IE is dependent on IXIT statements in TS 34.123-2. If ciphering is indicated to be active, this IE presents with the values of the sub IEs as stated below. Else, this IE is omitted.
- Ciphering mode command	Start/restart
- Ciphering algorithm	UEA0 or UEA1. The indicated algorithm must be one of the algorithms supported by the UE as indicated in the IE "security capability" in the RRC CONNECTION SETUP COMPLETE message.
- Ciphering activation time for DPCH	(256+CFN-(CFN MOD 8 + 8))MOD 256, this IE is set to "Not present" if only PS RABs are established during the initial setup procedure.
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN + 2
- RB identity	2
- RLC sequence number	Current RLC SN + 2
- RB identity	3
- RLC sequence number	Current RLC SN + 2
- RB identity	4
- RLC sequence number	Current RLC SN + 2
- RB identity	20, this IE is set to "Not present" if PS RAB is not established during the initial setup procedure.
- RLC sequence number	Current RLC SN + 2
Integrity protection mode info	
- Integrity protection mode command	Start
- Downlink integrity protection activation info	Not Present
- Integrity protection algorithm	UIA1
- Integrity protection initialisation number	SS selects an arbitrary 32 bits number for FRESH. The first/ leftmost bit of the bit string contains the most significant bit of the FRESH.
New U-RNTI	
- SRNC identity	0000 0000 0010B
- S-RNTI	0000 0000 0000 0000 0001B

UTRAN MOBILITY INFORMATION CONFIRM (Step 4)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9.

UPLINK DIRECT TRANSFER (Step 5)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
CN domain identity	PS domain
NAS message	DEACTIVATE PDP CONTEXT REQUEST
Measured results on RACH	Not checked

8.1.6.4.5 Test requirement

After step 3, the UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message using uplink DCCH on AM RLC and then retransmit UPLINK DIRECT TRANSFER message on the uplink DCCH.

8.1.6.5 Initial Direct Transfer: Inclusion of establishment cause

8.1.6.5.1 Definition

8.1.6.5.2 Conformance requirement

In the UE, the initial direct transfer procedure shall be initiated, when the upper layers request establishment of a signalling connection. This request also includes a request for the transfer of a NAS message.

Upon initiation of the initial direct transfer procedure the UE shall:

1> set the variable ESTABLISHMENT_CAUSE to the cause for establishment indicated by upper layers.

…

The UE shall, in the INITIAL DIRECT TRANSFER message:

1> set the IE "NAS message" as received from upper layers; and

1> set the IE "CN domain identity" as indicated by the upper layers; and

1> set the IE "Intra Domain NAS Node Selector" as follows:

2> derive the IE "Intra Domain NAS Node Selector" from TMSI/PMTSI, IMSI, or IMEI; and

2> provide the coding of the IE "Intra Domain NAS Node Selector" according to the following priorities:

1. Derive the routing parameter for IDNNS from TMSI (CS domain) or PTMSI (PS domain) whenever a valid TMSI/PTMSI is available;
2. base the routing parameter for IDNNS on IMSI when no valid TMSI/PTMSI is available;
3. base the routing parameter for IDNNS on IMEI only if no (U)SIM is inserted in the UE.

1> if the variable ESTABLISHMENT_CAUSE_ is initialised:

2> set the IE "Establishment cause" to the value of the variable ESTABLISHMENT_CAUSE;

2> clear the variable ESTABLISHMENT_CAUSE.

Reference

3GPP TS 25.331 clause 8.1.8.2

8.1.6.5.3 Test purpose

To confirm that, in the case the UE wants to start a new signalling connection while the UE is already in CELL_DCH state, the UE shall include the IE “Establishment cause” in the Initial Direct Transfer message.

8.1.6.5.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports PS+CS

Test Procedure

The UE has a PS radio bearer set up in CELL_DCH state. Then, the test operator is prompted to make an out-going CS call. The UE shall transmit an Initial Direct Transfer message with the IE "Establishment cause" set to "Originating conversational call". After reception of CM Service Request message from the UE, the SS will send CM Service Reject to complete the Service Request procedure.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				SS prompts the test operator to make an outgoing CS call.
2	→		INITIAL DIRECT TRANSFER (CM SERVICE REQUEST)	The UE sets the IE "Establishment cause" to "Originating conversational call".
3	←		DOWNLINK DIRECT TRANSFER (CM SERVICE REJECT)	
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

INITIAL DIRECT TRANSFER (Step 2)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
CN Domain Identity	CS domain
Establishment cause	Originating conversational call

8.1.6.5.5 Test requirements

At step 2, the UE shall transmit an Initial Direct Transfer message with the IE "Establishment cause" set to "Originating conversational call".

8.1.7 Security mode command

8.1.7.1 Security mode command in CELL_DCH state (CS Domain)

8.1.7.1.1 Definition

8.1.7.1.2 Conformance requirement

1. This procedure is used to trigger or start of ciphering or to command the restart of ciphering with the new ciphering configuration for the signalling radio bearers and any radio bearers of a particular CN Domain. It is also used to start integrity protection or modify integrity protection configuration for the signalling radio bearers.
2. When the UE receives a SECURITY MODE COMMAND message from the UTRAN, which indicates a downlink activation time for each effected SRB and RB, and new ciphering mode configuration, the UE shall

apply the old ciphering configuration, for a particular SRB or RB, before the stated downlink activation time. It shall start to decipher using the new ciphering configuration at the downlink activation time.

3. After the UE has transmitted a SECURITY MODE COMPLETE message using the new integrity protection configuration which includes uplink activation time, it shall start to cipher transmission in the uplink using the new configuration at the respective uplink activation time for each SRB or RB.

Reference

3GPP TS 25.331 clauses 8.1.12, 8.6.3.4, 8.6.3.5.

8.1.7.1.3 Test purpose

To confirm that the UE activates the new ciphering configurations after the stated activation time. To confirm that after the UE receives a SECURITY MODE COMMAND message, it transmits a SECURITY MODE COMPLETE message to the UTRAN using the old ciphering configuration together with the application of the new integrity protection configuration. To confirm that UE send SECURITY MODE FAILURE message when SS transmits a SECURITY MODE COMMAND message that causes an invalid configuration. To confirm that the UE sends a SECURITY MODE FAILURE message when the UE receives an invalid SECURITY MODE COMMAND message.

8.1.7.1.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH (state 6-9) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_DCH state. The SS initiates an Authentication procedure, which will result in the generation of a new security keyset (CK/IK). The SS transmits a SECURITY MODE COMMAND message which contains an unexpected critical message extension. The UE shall respond by sending SECURITY MODE FAILURE message on the DCCH. Then SS transmits a SECURITY MODE COMMAND message with IE's "Ciphering mode info" and "Integrity protection mode info both omitted". Again the UE shall not trigger any ciphering algorithm and it shall respond by sending SECURITY MODE FAILURE message on the DCCH. Next, the SS transmits a valid SECURITY MODE COMMAND message which includes the correct downlink activation times and "Integrity check info" IE. Then the UE shall check the integrity check info and shall start to configure ciphering in downlink according to the first valid SECURITY MODE COMMAND message. The UE shall transmit a SECURITY MODE COMPLETE message which contains the correct uplink activation times and also "Integrity check info" IE using the new integrity protection configuration. The SS records the uplink ciphering activation time for RB 2. Next, the SS transmits UE CAPABILITY ENQUIRY message repeatedly on the downlink DCCH using RLC-AM mode. The UE shall respond to each downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS then send UE CAPABILITY INFORMATION CONFIRM message to the UE. This cycle repeats itself until both the uplink and downlink ciphering activation time for RB 2 has elapsed. SS checks all uplink UE CAPABILITY INFORMATION messages are integrity-protected by UIA algorithm, and that the messages contain the correct values for "Integrity check info" IE. This can be verified in the SS through the reception of a correctly ciphered and integrity-protected UE CAPABILITY INFORMATION message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				RRC connected state on DCH_state.
1a	←		AUTHENTICATION REQUEST	MM message which will result in the generation of a new security keyset
1b	→		AUTHENTICATION RESPONSE	MM
2	←		SECURITY MODE COMMAND	See message content.
3	→		SECURITY MODE FAILURE	IE "Failure Cause" shall be set to "Protocol Error" and IE "Protocol Error Information" shall be set to "Message extension not comprehended".
4	←		SECURITY MODE COMMAND	See message content.
5	→		SECURITY MODE FAILURE	IE "Failure Cause" shall be set to "invalid configuration".
6	←		SECURITY MODE COMMAND	See specific message contents.
7			Void	
8			Void	
9	→		SECURITY MODE COMPLETE	SS verifies that this message is sent using the old ciphering configuration. SS records the uplink ciphering activation time for RB 2.
10	←		UE CAPABILITY ENQUIRY	SS repeats step 10, 11 and 12 until its internal uplink and downlink RLC SN have both surpassed the uplink and downlink ciphering activation time specified for RB2. This message is sent on the downlink DCCH using RLC-AM.
11	→		UE CAPABILITY INFORMATION	UE shall send this message on the uplink DCCH using RLC-AM. SS verifies that the last UE CAPABILITY INFORMATION message is both integrity-protected and ciphered correctly.
12	←		UE CAPABILITY INFORMATION CONFIRM	

Specific Message Contents

SECURITY MODE COMMAND (Step 2)

Information Element	Value/remark
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
Critical extensions	'FF'H

SECURITY MODE FAILURE (Step 3)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink DCCH, with the exception of the following IEs:

Information Element	Value/remark
Failure cause	
Failure cause	Protocol error
Protocol error information	
Protocol error cause	Message extension not comprehended

SECURITY MODE COMMAND (Step 4)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
Security Capability	Same as originally sent by UE (and stored in SS)
Ciphering mode info	Not Present
- Ciphering mode command	
Integrity protection mode info	Not Present
CN domain identity	CS Domain
UE system specific security capability	Not Present in condition A1
UE system specific security capability	Present In condition A2
- Inter-RAT UE security capability	
- CHOICE *system*	GSM
- GSM security capability	The indicated algorithms must be the same as the algorithms supported by the UE as indicated in the IE " UE system specific capability " in the RRC CONNECTION SETUP COMPLETE message.

Condition	Explanation
A1	UE not supporting GSM
A2	UE supporting GSM

SECURITY MODE FAILURE (Step 5)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink DCCH, with the exception of the following IEs:

Information Element	Value/remark
Failure cause	
Failure cause	Invalid configuration

SECURITY MODE COMMAND (Step 6)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
Security Capability	Same as originally sent by UE (and stored in SS)
Ciphering mode info	
Ciphering mode command	Start/restart
Ciphering algorithm	UEA1
Activation time for DPCH	(256+CFN-(CFN MOD 8 + 8))MOD 256
Radio bearer downlink ciphering activation time info	
RB Identity	1
RLC sequence number	Current RLC SN
RB Identity	2
RLC sequence number	Current RLC SN + 2
RB Identity	3
RLC sequence number	Current RLC SN
RB Identity	4
RLC sequence number	Current RLC SN
Integrity protection mode info	
Integrity protection mode command	Modify
Downlink integrity protection activation info	
	Current RRC SN for SRB0 Current RRC SN for SRB1 Current RRC SN for SRB2 Current RRC SN for SRB3 Current RRC SN for SRB4
Integrity protection algorithm	UIA1
CN domain identity	CS Domain
UE system specific security capability	Not Present in condition A1
UE system specific security capability	Present In condition A2
- Inter-RAT UE security capability	
- CHOICE *system*	GSM
- GSM security capability	The indicated algorithms must be the same as the algorithms supported by the UE as indicated in the IE " UE system specific capability " in the RRC CONNECTION SETUP COMPLETE message.

Condition	Explanation
A1	UE not supporting GSM
A2	UE supporting GSM

SECURITY MODE COMPLETE (Step 9)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
- Message Authentication code	Checked to see if present. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	Checked to see if present
Uplink integrity protection activation info	
- RRC message sequence number list	Check to see if the RRC SN for RB 0 to RB 4 are present
Radio bearer uplink ciphering activation info	
- RB Identity other than RB2	Check to see if the RLC SN for RB1, 3 and 4 are present
- RB Identity	2
- RLC sequence number	SS records this value. See step 10 in 'expected sequence'

8.1.7.1.5 Test requirement

After step 2 the UE shall transmit a SECURITY MODE FAILURE message to report the protocol error detected in the first SECURITY MODE COMMAND message.

After step 4 the UE shall transmit a SECURITY MODE FAILURE message to report on the invalid configuration detected in the second SECURITY MODE COMMAND message.

After step 8 the SS checks that the SECURITY MODE COMPLETE message is received ciphered using the old configuration and that the calculated "integrity check info" IE is correct.

After step 9 SS verifies that all uplink signalling messages on RB2 are integrity protected with UIA1 algorithm.

After uplink ciphering activation time has lapsed, SS verifies that the UE CAPABILITY INFORMATION message received is integrity protected with UIA algorithm and ciphered with the new ciphering configuration and algorithm indicated in the SECURITY MODE COMMAND (Step 6) message.

After downlink ciphering activation time has lapsed, SS shall apply ciphering to all downlink messages using the new configuration. At least one more cycle between step 10 and step 12 shall be repeated correctly after activation time on both directions has lapsed and the messages on both directions shall be ciphered and integrity protected.

8.1.7.1b Security mode command in CELL_DCH state (PS Domain)

8.1.7.1b.1 Definition

8.1.7.1b.2 Conformance requirement

Upon reception of the SECURITY MODE COMMAND message, the UE shall:

1> if neither IE "Ciphering mode info" nor IE "Integrity protection mode info" is included in the SECURITY MODE COMMAND:

2> set the variable INVALID_CONFIGURATION to TRUE.

…

1> prior to sending the SECURITY MODE COMPLETE message:

…

2> if the SECURITY MODE COMMAND message contained the IE "Integrity protection mode info":

3> include and set the IE "Uplink integrity protection activation info" to the value of the variable INTEGRITY_PROTECTION_ACTIVATION_INFO for each signalling radio bearer;

…

2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted SECURITY MODE COMPLETE message;

2> transmit the SECURITY MODE COMPLETE message on the uplink DCCH in AM RLC;

…

If the IE "Ciphering mode info" is present and if the IE "Reconfiguration" in the variable CIPHERING_STATUS is set to FALSE, the UE shall:

…

1> apply the new ciphering configuration in the lower layers for all RBs that belong to a CN domain for which the IE "Status" of the variable SECURITY_MODIFICATION is set to "Affected" and all signalling radio bearers:

1> apply the new ciphering configuration as follows:

2> consider an activation time in downlink to be pending:

…

3> for AM-RLC until all AMD PDUs with sequence numbers up to and including activation time –1 have been received;

2> if the IE "Radio bearer downlink ciphering activation time info" is present:

3> apply the following procedure for each radio bearer and signalling radio bearers using RLC-AM or RLC-UM indicated by the IE "RB identity":

…

4> select an "RLC send sequence number" at which (activation) time the new ciphering configuration shall be applied in uplink for that radio bearer according to the following:

…

6> set a suitable value that would ensure a minimised delay in the change to the latest security configuration.

…

5> use the old ciphering configuration for the transmitted and received RLC PDUs with RLC sequence numbers smaller than the corresponding RLC sequence numbers indicated in the IE "Radio bearer uplink ciphering activation time info" sent to UTRAN and in the received IE "Radio bearer downlink ciphering activation time info" received from UTRAN, respectively;

5> use the new ciphering configuration for the transmitted and received RLC PDUs with RLC sequence numbers greater than or equal to the corresponding RLC sequence numbers indicated in the IE "Radio bearer uplink ciphering activation time info" sent to UTRAN and in the received IE "Radio bearer downlink ciphering activation time info" received from UTRAN, respectively;

…

If the IE "Integrity protection mode info" is present and if the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO is set to FALSE, the UE shall:

…

1> if IE "Integrity protection mode command" has the value "modify" and the IE "Status" in the variable INTEGRITY_PROTECTION_INFO has the value "Started" and this IE was included in SECURITY MODE COMMAND:

…

2> start applying the new integrity protection configuration in the downlink at the RRC sequence number, for each signalling radio bearer n, indicated by the entry for signalling radio bearer n in the "RRC message sequence number list" in the IE "Downlink integrity protection activation info", included in the IE "Integrity protection mode info";

…

4> select a value of the RRC sequence number at which (activation) time the new integrity protection configuration shall be applied in uplink for that signalling radio bearer according to the following:

…

6> set a suitable value that would ensure a minimised delay in the change to the latest integrity protection configuration.

…

2> start applying the new integrity protection configuration in the uplink at the RRC sequence number, for each RBn, except for signalling radio bearer RB2, indicated by the entry for signalling radio bearer n in the "RRC message sequence number list" in the IE "Uplink integrity protection activation info", included in the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;

2> start applying the new integrity protection configuration in the uplink at the RRC sequence number for signalling radio bearer RB2, as specified for the procedure initiating the integrity protection reconfiguration;

2> start applying the new integrity protection configuration in the downlink at the RRC sequence number, for each RBn, except for signalling radio bearer RB2, indicated by the entry for signalling radio bearer n in the "RRC message sequence number list" in the IE "Downlink integrity protection activation info";

NOTE: For signalling radio bearers that have a pending activation time as set for integrity protection by a previous procedure changing the integrity protection configuration, UTRAN should set this value in IE "Downlink integrity protection activation info".

2> start applying the new integrity protection configuration in the downlink at the RRC sequence number for signalling radio bearer RB2, as specified for the procedure initiating the integrity protection reconfiguration.

Reference

3GPP TS 25.331 clauses 8.1.12.3, 8.6.3.4, 8.6.3.5.

8.1.7.1b.3 Test purpose

To confirm that the UE modifies an integrity protection configuration and applies new keys on reception of a correct SECURITY MODE COMMAND message.

To confirm that the UE modifies a ciphering configuration in the uplink and downlink and applies new keys according to transmitted activation times. Also confirms that the UE accepts a new ciphering configuration for a RB when ciphering is started for SRBs.

To confirm that after the UE receives a SECURITY MODE COMMAND message, it transmits a SECURITY MODE COMPLETE message to the UTRAN using the old ciphering configuration and new integrity protection configuration.

To confirm that UE send SECURITY MODE FAILURE message when SS transmits a SECURITY MODE COMMAND message with a non comprehended critical extension.

To confirm that the UE sends a SECURITY MODE FAILURE message when UE receives an invalid SECURITY MODE COMMAND message.

8.1.7.1b.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_DCH state with integrity protection and ciphering started for SRBs. The SS initiates an Authentication and Ciphering procedure, which will result in the generation of a new security keyset (CK/IK).

The SS transmits a SECURITY MODE COMMAND message which contains an unexpected critical message extension. The UE shall respond by sending SECURITY MODE FAILURE message on the DCCH.

Then SS transmits a SECURITY MODE COMMAND message with IEs "Ciphering mode info" and "Integrity protection mode info both omitted". Again the UE shall not trigger any ciphering algorithm and it shall respond by sending SECURITY MODE FAILURE message on the DCCH.

Next, the SS transmits a valid SECURITY MODE COMMAND message which includes the correct downlink activation times and "Integrity check info" IE. The UE shall check the integrity check info and shall start to configure ciphering in downlink according to the SECURITY MODE COMMAND message.

Then UE shall transmit a SECURITY MODE COMPLETE message which contains uplink activation times and also the correct "Integrity check info" IE using the new integrity protection configuration. SS records the uplink ciphering activation time for RB 2.

Next, the SS transmits UE CAPABILITY ENQUIRY message repeatedly on the downlink DCCH using RLC-AM mode. The UE shall respond to each downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS shall send UE CAPABILITY INFORMATION CONFIRM messages to the UE for each received UE CAPABILITY INFORMATION message from the UE.

This cycle repeats itself until both the uplink and downlink ciphering activation time for RB 2 has elapsed. SS checks all uplink UE CAPABILITY INFORMATION messages are integrity-protected by UIA algorithm, and that the messages contain the correct values for "Integrity check info" IE. This can be verified in the SS through the reception of a correctly ciphered and integrity-protected UE CAPABILITY INFORMATION message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				RRC connected state on DCH_state.
1a	←		AUTHENTICATION AND CIPHERING REQUEST	GMM message which will result in the generation of a new security keyset
1b	→		AUTHENTICATION AND CIPHERING RESPONSE	GMM
2	←		SECURITY MODE COMMAND	See message content.
3	→		SECURITY MODE FAILURE	IE "Failure Cause" shall be set to "Protocol Error" and IE "Protocol Error Information" shall be set to "Message extension not comprehended".
4	←		SECURITY MODE COMMAND	See message content.
5	→		SECURITY MODE FAILURE	IE "Failure Cause" shall be set to "invalid configuration".
6	←		SECURITY MODE COMMAND	See specific message contents.
7	→		SECURITY MODE COMPLETE	SS verifies that this message is sent using the old ciphering configuration and with the new integrity protection configuration. SS records the uplink ciphering activation time for RB 2.
8	←		UE CAPABILITY ENQUIRY	SS repeats step 8, 9 and 10 until its internal uplink and downlink RLC SN have both surpassed the uplink and downlink ciphering activation time specified for RB2. This message is sent on the downlink DCCH using RLC-AM.
9	→		UE CAPABILITY INFORMATION	UE shall send this message on the uplink DCCH using RLC-AM. SS verifies that the last UE CAPABILITY INFORMATION message is both integrity-protected and ciphered correctly.
10	←		UE CAPABILITY INFORMATION CONFIRM	

Specific Message Contents

SECURITY MODE COMMAND (Step 2)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
Critical extensions	'FF'H

SECURITY MODE FAILURE (Step 3)

Message content is the same as found in Clause 9 of TS 34.108, with the exception of the following IEs:

Information Element	Value/remark
Failure cause	
Failure cause	Protocol error
Protocol error information	
Protocol error cause	Message extension not comprehended

SECURITY MODE COMMAND (Step 4)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
Security Capability	Same as originally sent by UE (and stored in SS)
Ciphering mode info	Not Present
Integrity protection mode info	Not Present
CN domain identity	PS Domain

SECURITY MODE FAILURE (Step 5)

Message content is the same as found in Clause 9 of TS 34.108, with the exception of the following IEs:

Information Element	Value/remark
Failure cause	
Failure cause	Invalid configuration

SECURITY MODE COMMAND (Step 6)

Information Element	Condition	Value/remark
RRC transaction identifier	A1, A2	0
Integrity check info		
Message authentication code		Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number		Next RRC SN
Security Capability		Same as originally sent by UE (and stored in SS)
Ciphering mode info		
Ciphering mode command		Start/restart
Ciphering algorithm		UEA1
Activation time for DPCH		Not Present
Radio bearer downlink ciphering activation time info		
RB Identity		1
RLC sequence number		Current RLC SN
RB Identity		2
RLC sequence number		Current RLC SN + 2
RB Identity		3
RLC sequence number		Current RLC SN
RB Identity		4
RLC sequence number		Current RLC SN
RB Identity		20
RLC sequence number		Current RLC SN
Integrity protection mode info		
Integrity protection mode command		Modify
Downlink integrity protection activation info		Current RRC SN for SRB0 Current RRC SN for SRB1 0 Current RRC SN for SRB3 Current RRC SN for SRB4
Integrity protection algorithm		UIA1
CN domain identity		PS Domain
UE system specific security capability	A1	Not Present
UE system specific security capability	A2	
- Inter-RAT UE security capability		
- CHOICE *system*		GSM
- GSM security capability		The indicated algorithms must be the same as the algorithms supported by the UE as indicated in the IE " UE system specific capability " in the RRC CONNECTION SETUP COMPLETE message.

Condition	Explanation
A1	UE not supporting GSM
A2	UE supporting GSM

NOTE: "Current RLC SN" is defined as the value of VT(S) in the SS at the time when the SECURITY MODE COMMAND is submitted to RLC for transmission, that is, the RLC send sequence number of the next transmitted RLC PDU on the particular radio bearer. "Current RRC SN" is defined as the RRC message sequence number of the next transmitted RRC message on the particular radio bearer.

SECURITY MODE COMPLETE (Step 7)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
- Message Authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Uplink integrity protection activation info	
- RRC message sequence number list	
-RRC message sequence number	Check to see if the RRC SN for RB 0 is present
-RRC message sequence number	Check to see if the RRC SN for RB 1 is present
-RRC message sequence number	Check to see if the RRC SN for RB 2 is present
-RRC message sequence number	Check to see if the RRC SN for RB 3 is present
-RRC message sequence number	Check to see if the RRC SN for RB 4 is present
Radio bearer uplink ciphering activation time info	
- Radio bearer activation time	
- RB Identity	1
- RLC sequence number	Check to see if the RLC SN for RB1is present
- RB Identity	2
- RLC sequence number	SS records this value. See step 8 in 'expected sequence'
- RB Identity	3
- RLC sequence number	Check to see if the RLC SN for RB3 is present
- RB Identity	4
- RLC sequence number	Check to see if the RLC SN for RB4 is present
- RB Identity	20
- RLC sequence number	Check to see if the RLC SN for RB20 is present

8.1.7.1b.5 Test requirement

After step 2 the UE shall transmit a SECURITY MODE FAILURE message to report the protocol error detected in the first SECURITY MODE COMMAND message.

After step 4 the UE shall transmit a SECURITY MODE FAILURE message to report on the invalid configuration detected in the second SECURITY MODE COMMAND message.

At step 7 SS checks that the SECURITY MODE COMPLETE message is received ciphered using the old configuration and that the calculated "integrity check info" IE is correct according to the new integrity protection configuration (new key and HFN set to zero).

After step 7 SS verifies that all uplink signalling messages on RB2 are integrity protected with the new integrity protection configuration.

After uplink ciphering activation time has elapsed, SS verifies that the UE CAPABILITY INFORMATION message received is ciphered with the new ciphering configuration as indicated in the SECURITY MODE COMMAND (Step 6) message.

After downlink ciphering activation time has elapsed, SS shall apply ciphering to all downlink messages using the new ciphering configuration. At least one more cycle between step 8 and step 10 shall be repeated correctly after activation time on both directions has elapsed and the messages on both directions shall be ciphered and integrity protected.

8.1.7.1c Security mode control in CELL_DCH state (CN Domain switch and new keys at RRC message sequence number wrap around)

8.1.7.1c.1 Definition

8.1.7.1c.2 Conformance requirement

Upon reception of the SECURITY MODE COMMAND message, the UE shall:

…

2> set the variable LATEST_CONFIGURED_CN_DOMAIN equal to the IE "CN domain identity";

2> set the IE "Status" in the variable SECURITY_MODIFICATION for the CN domain indicated in the IE "CN domain identity" in the received SECURITY MODE COMMAND to the value "Affected";

…

If a new security key set (new ciphering and integrity protection keys) has been received from the upper layers [40] for the CN domain as indicated in the variable LATEST_CONFIGURED_CN_DOMAIN, the UE shall:

1> set the START value for the CN domain indicated in the variable LATEST_CONFIGURED_CN_DOMAIN to zero;

1> if the SECURITY MODE COMMAND message contained the IE "Integrity protection mode info":

2> for integrity protection in the downlink on each signalling radio bearer except RB2:

3> if IE "Integrity protection mode command" has the value "start":

…

3> else:

4> for the first message for which the RRC sequence number in a received RRC message for this signalling radio bearer is equal to or greater than the activation time as indicated in IE "Downlink integrity protection activation info" as included in the IE "Integrity protection mode info":

5> start using the new integrity key;

5> for this signalling radio bearer:

6> set the IE "Downlink RRC HFN" in the variable INTEGRITY_PROTECTION_INFO of the downlink COUNT-I to zero.

2> for integrity protection in the uplink on each signalling radio bearer except RB2:

3> for the first message for which the RRC sequence number in a to be transmitted RRC message for this signalling radio bearer is equal to the activation time as indicated in IE "Uplink integrity protection activation info" included in the transmitted SECURITY MODE COMPLETE message:

4> start using the new integrity key;

4> for this signalling radio bearer:

5> set the IE "Uplink RRC HFN" in the variable INTEGRITY_PROTECTION_INFO of the uplink COUNT-I to zero.

2> for integrity protection in the downlink on signalling radio bearer RB2:

3> at the received SECURITY MODECOMMAND:

4> start using the new integrity key;

4> set the IE "Downlink RRC HFN" in the variable INTEGRITY_PROTECTION_INFO of the downlink COUNT-I to zero.

2> for integrity protection in the uplink on signalling radio bearer RB2 :

3> at the transmitted SECURITY MODE COMPLETE:

4> start using the new integrity key;

4> set the IE "Uplink RRC HFN" in the variable INTEGRITY_PROTECTION_INFO of the uplink COUNT-I to zero.

1> if the SECURITY MODE COMMAND message contained the IE "Ciphering mode info":

2> for each signalling radio bearer and for each radio bearer for the CN domain indicated in the variable LATEST_CONFIGURED_CN_DOMAIN:

3> if the IE "Status" in the variable CIPHERING_STATUS has the value "Started" for this CN domain, then for ciphering on radio bearers using RLC-TM:

4> at the CFN as indicated in the IE "Ciphering activation time for DPCH" in the IE "Ciphering mode info":

5> start using the new key in uplink and downlink;

5> set the HFN component of the COUNT-C to zero.

3> if the IE "Status" in the variable CIPHERING_STATUS has the value "Started" for this CN domain, then for ciphering on radio bearers and signalling radio bearers using RLC-AM and RLC-UM:

4> in the downlink, at the RLC sequence number indicated in IE "Radio bearer downlink ciphering activation time info" in the IE "Ciphering mode info":

5> start using the new key;

5> set the HFN component of the downlink COUNT-C to zero.

4> in the uplink, at the RLC sequence number indicated in IE "Radio bearer uplink ciphering activation time info":

5> start using the new key;

5> set the HFN component of the uplink COUNT-C to zero.

1> consider the value of the latest transmitted START value to be zero.

…

If the IE "Ciphering mode info" is present and if the IE "Reconfiguration" in the variable CIPHERING_STATUS is set to FALSE, the UE shall:

1> apply the new ciphering configuration in the lower layers for all RBs that belong to a CN domain for which the IE "Status" of the variable SECURITY_MODIFICATION is set to "Affected" and all signalling radio bearers:

2> using the ciphering algorithm (UEA [40]) indicated by the IE "Ciphering algorithm" as part of the new ciphering configuration;

2> for each radio bearer that belongs to a CN domain for which the IE "Status" of the variable SECURITY_MODIFICATION is set to "Affected" and all signalling radio bearers:

3> using the value of the IE "RB identity" in the variable ESTABLISHED_RABS minus one as the value of BEARER [40] in the ciphering algorithm.

…

If the IE "Integrity protection mode info" is present and if the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO is set to FALSE, the UE shall:

1> set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to TRUE;

1> if IE "Integrity protection mode command" has the value "modify" and the IE "Status" in the variable INTEGRITY_PROTECTION_INFO has the value "Started" and this IE was included in SECURITY MODE COMMAND:

…

2> start applying the new integrity protection configuration in the downlink at the RRC sequence number, for each signalling radio bearer n, indicated by the entry for signalling radio bearer n in the "RRC message sequence number list" in the IE "Downlink integrity protection activation info", included in the IE "Integrity protection mode info";

2> set the content of the variable INTEGRITY_PROTECTION_ACTIVATION_INFO according to the following:

…

2> start applying the new integrity protection configuration in the uplink at the RRC sequence number, for each RBn, except for signalling radio bearer RB2, indicated by the entry for signalling radio bearer n in the "RRC message sequence number list" in the IE "Uplink integrity protection activation info", included in the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;

2> start applying the new integrity protection configuration in the uplink at the RRC sequence number for signalling radio bearer RB2, as specified for the procedure initiating the integrity protection reconfiguration;

2> start applying the new integrity protection configuration in the downlink at the RRC sequence number, for each RBn, except for signalling radio bearer RB2, indicated by the entry for signalling radio bearer n in the "RRC message sequence number list" in the IE "Downlink integrity protection activation info";

2> start applying the new integrity protection configuration in the downlink at the RRC sequence number for signalling radio bearer RB2, as specified for the procedure initiating the integrity protection reconfiguration.

Reference

3GPP TS 25.331 clauses 8.1.12.3, 8.6.3.4, 8.6.3.5.

8.1.7.1c.3 Test purpose

To verify that the UE correctly modifies the integrity protection and ciphering configuration with a newly generated PS domain keyset for when previously using the CS domain keyset.

To verify that the UE can handle change of integrity protection key when the RRC message sequence number wraps around when the SECURITY MODE COMMAND is received.

8.1.7.1c.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: has entered PS+CS-DCCH+DTCH_DCH (state 6-14) using procedure P24 as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_DCH state.

The SS transmits UE CAPABILITY ENQUIRY message repeatedly on the downlink DCCH using RLC-UM mode on SRB1. The UE shall respond to each downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS then sends UE CAPABILITY INFORMATION CONFIRM message to the UE using RLC-AM. This procedure is repeated until the RRC message sequence number for SRB 2 in downlink equals 15.

The SS initiates an Authentication procedure, which will result in the generation of a new security keyset (CK/IK). The SS transmits a valid SECURITY MODE COMMAND message which includes the correct downlink activation times and "Integrity check info" IE.

Then the UE shall check the integrity check info and shall start to configure ciphering in downlink according to the first valid SECURITY MODE COMMAND message. The UE shall transmit a SECURITY MODE COMPLETE message which contains the correct uplink activation times and also "Integrity check info" IE using the new integrity protection configuration.

The SS records the uplink ciphering activation time for RB 2.

Next, the SS transmits UE CAPABILITY ENQUIRY message repeatedly on the downlink DCCH using RLC-AM mode. The UE shall respond to each downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS then send UE CAPABILITY INFORMATION CONFIRM message to the UE. This cycle repeats itself until both the uplink and downlink ciphering activation time for RB 2 has elapsed. SS checks all uplink UE CAPABILITY INFORMATION messages are integrity-protected by UIA algorithm, and that the messages contain the correct values for "Integrity check info" IE. This can be verified in the SS through the reception of a correctly ciphered and integrity-protected UE CAPABILITY INFORMATION message.

The SS transmits UE CAPABILITY ENQUIRY message on the downlink DCCH using RLC-UM mode on SRB1. The UE shall respond to this message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS then send UE CAPABILITY INFORMATION CONFIRM message to the UE.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_DCH state.
2	←		UE CAPABILITY ENQUIRY	The SS repeats step 2, 3 and 4 until its internal downlink RRC message sequence number for RB 2 has the value 15.
3	→		UE CAPABILITY INFORMATION	The UE shall send this message on the uplink DCCH using RLC-AM. SS verifies that the last UE CAPABILITY INFORMATION message is both integrity-protected and ciphered correctly.
4	←		UE CAPABILITY INFORMATION CONFIRM	
5	←		AUTHENTICATION and CIPHERING REQUEST	GMM message which will result in the generation of a new security keyset
6	→		AUTHENTICATION AND CIPHERING RESPONSE	GMM
7	←		SECURITY MODE COMMAND	See specific message contents.
8	→		SECURITY MODE COMPLETE	The SS verifies that this message is sent using the old ciphering configuration. SS records the uplink ciphering activation time for RB 2.
9	←		UE CAPABILITY ENQUIRY	The SS repeats step 9, 10 and 11 until its internal uplink and downlink RLC SN have both surpassed the uplink and downlink ciphering activation time specified for RB2. This message is sent on the downlink DCCH using RLC-AM.
10	→		UE CAPABILITY INFORMATION	The UE shall send this message on the uplink DCCH using RLC-AM. SS verifies that the last UE CAPABILITY INFORMATION message is both integrity-protected and ciphered correctly.
11	←		UE CAPABILITY INFORMATION CONFIRM	
12	←		UE CAPABILITY ENQUIRY	The SS sends this message with the downlink RRC message sequence number for SRB 1 with the value 0.
13	→		UE CAPABILITY INFORMATION	The UE shall send this message on the uplink DCCH using RLC-AM. SS verifies that the last UE CAPABILITY INFORMATION message is both integrity-protected and ciphered correctly.
14	←		UE CAPABILITY INFORMATION CONFIRM	

Specific Message Contents

SECURITY MODE COMMAND (Step 7)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
Security Capability	Same as originally sent by UE (and stored in SS)
Ciphering mode info	
Ciphering mode command	Start/restart
Ciphering algorithm	UEA1
Radio bearer downlink ciphering activation time info	
RB Identity	1
RLC sequence number	Current RLC SN
RB Identity	2
RLC sequence number	Current RLC SN + 2
RB Identity	3
RLC sequence number	Current RLC SN
RB Identity	4
RLC sequence number	Current RLC SN
RB Identity	20
RLC sequence number	Current RLC SN
Integrity protection mode info	
Integrity protection mode command	Modify
Downlink integrity protection activation info	
	Current RRC SN for SRB0
	Current RRC SN for SRB1
	0
	Current RRC SN for SRB3
	Current RRC SN for SRB4
Integrity protection algorithm	UIA1
CN domain identity	PS Domain

NOTE: "Current RLC SN" is defined as the value of VT(S) in the SS at the time when the SECURITY MODE COMMAND is submitted to RLC for transmission, that is, the RLC send sequence number of the next transmitted RLC PDU on the particular radio bearer. "Current RRC SN" is defined as the RRC message sequence number of the next transmitted RRC message on the particular radio bearer.

SECURITY MODE COMPLETE (Step 8)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
- Message Authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.
Uplink integrity protection activation info	
- RRC message sequence number list	Check to see if the RRC SN for RB 0 to RB 4 are present
-RRC message sequence number	Check to see if the RRC SN for RB 0 is present
-RRC message sequence number	Check to see if the RRC SN for RB 1 is present
-RRC message sequence number	Check to see if the RRC SN for RB 2 is present
-RRC message sequence number	Check to see if the RRC SN for RB 3 is present
-RRC message sequence number	Check to see if the RRC SN for RB 4 is present
Radio bearer uplink ciphering activation time info	
- Radio bearer activation time	
- RB Identity	1
- RLC sequence number	Check to see if the RLC SN for RB1 is present
- RB Identity	2
- RLC sequence number	SS records this value. See step 10 in 'expected sequence'
- RB Identity	3
- RLC sequence number	Check to see if the RLC SN for RB3 is present
- RB Identity	4
- RLC sequence number	Check to see if the RLC SN for RB4 is present
- RB Identity	20
- RLC sequence number	Check to see if the RLC SN for RB20 is present

8.1.7.1c.5 Test requirement

After step 7 the SS checks that the SECURITY MODE COMPLETE message is received ciphered using the old configuration and that the calculated "integrity check info" IE is correct.

After step 8 SS verifies that all uplink signalling messages on RB2 are integrity protected with UIA1 algorithm.

After uplink ciphering activation time has lapsed, SS verifies that the UE CAPABILITY INFORMATION message received is integrity protected with UIA algorithm and ciphered with the new ciphering configuration and algorithm indicated in the SECURITY MODE COMMAND (Step 7) message.

After downlink ciphering activation time has lapsed, SS shall apply ciphering to all downlink messages using the new configuration. At least one more cycle between step 9 and step 11 shall be repeated correctly after activation time on both directions has lapsed and the messages on both directions shall be ciphered and integrity protected..

8.1.7.1d Security mode control in CELL_DCH state interrupted by a cell update

8.1.7.1d.1 Definition

8.1.7.1d.2 Conformance requirement

If:

- a cell update procedure according to subclause 8.3.1 is initiated; and
- the received SECURITY MODE COMMAND message causes either,
  - the IE "Reconfiguration" in the variable CIPHERING_STATUS to be set to TRUE; and/or

- the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to be set to TRUE:

the UE shall:

1> abort the ongoing integrity and/or ciphering reconfiguration;

1> resume data transmission on any suspended radio bearer and signalling radio bearer mapped on RLC-AM or RLC-UM;

1> allow the transmission of RRC messages on all signalling radio bearers with any RRC SN;

1> when the response message has been submitted to lower layers for transmission:

2> if the SECURITY MODE COMMAND message contained the IE "Ciphering mode info":

3> set the IE "Reconfiguration" in the variable CIPHERING_STATUS to FALSE; and

3> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;

2> if the SECURITY MODE COMMAND message contained the IE "Integrity protection mode info":

3> set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to FALSE; and

3> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO.

2> continue with any ongoing processes and procedures as if the invalid SECURITY MODE COMMAND message has not been received; and

2> clear the variable SECURITY_MODIFICATION;

2> the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.12.4b,

8.1.7.1d.3 Test purpose

To confirm that the UE aborts the ongoing integrity and ciphering configuration and the security mode control procedure in case it is interrupted by a cell update procedure.

8.1.7.1d.4 Method of test

Initial Condition

System Simulator: 1 cell.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

The RRC CONNECTION SETUP message used in the initial setup should be as shown under Specific Message Contents below.

Test Procedure

The UE is in CELL_DCH state. The SS initiates an Authentication and Ciphering procedure, which will result in the generation of a new security keyset (CK/IK).

The SS transmits a valid SECURITY MODE COMMAND message which includes the correct downlink activation times and "Integrity check info" IE..

Then SS turns off the power in the cell after the UE has received the Security Mode Command , but before the UE could complete this security procedure to change over to the new security configuration. The UE will initiate the cell reselection procedure.

The UE shall then abort the Security procedure and is expected to continue to use the old security configuration..

Then after 6 seconds the power is turned on in the cell again.

The UE sends a CELL UPDATE message which includes the value "Radio link failure" set in IE "Cell update cause". The SS verifies that this message is integrity-protected correctly with the old security configuration. The SS shall transmit a CELL UPDATE CONFIRM message which includes "Physical channel information elements", on downlink DCCH after receiving CELL UPDATE message. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using RLC-AM. SS verifies that this message is both integrity-protected and ciphered correctly with the old security configuration.

Next, the SS transmits UE CAPABILITY ENQUIRY message on the downlink DCCH using RLC-AM mode. The UE shall respond to with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM using the same old integrity and ciphering configuration as used before the SECURITY MODE COMMAND was received.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_DCH state.
2	←		AUTHENTICATION AND CIPHERING REQUEST	GMM message which will result in the generation of a new security keyset
3	→		AUTHENTICATION AND CIPHERING RESPONSE	GMM
4	←		SECURITY MODE COMMAND	See specific message contents. The SS transmits a valid SECURITY MODE COMMAND message which includes the correct downlink activation times and "Integrity check info" IE.
5				SS turns off power in the cell after the UE has received the Security Mode Command , but before the UE could complete this security procedure to change over to the new security configuration.
6				The UE starts cell reselection
7				After waiting for 6 seconds, the SS turns on power in the cell.
8	→		CELL UPDATE	This message includes the value "Radio link failure" set in IE "Cell update cause". The SS verifies that message is integrity-protected correctly with the old security configuration
9	←		CELL UPDATE CONFIRM	This message includes "Physical channel information elements".
10	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE shall send this message on the uplink DCCH using RLC-AM. SS verifies that message is both integrity-protected and ciphered correctly with the old security configuration
11	←		UE CAPABILITY ENQUIRY	The SS repeats step 11, 12 and 13 until its internal uplink and downlink RLC SN have both surpassed the uplink and downlink ciphering activation time specified for RB2. This message is sent on the downlink DCCH using RLC-AM.
12	→		UE CAPABILITY INFORMATION	The UE shall send this message on the uplink DCCH using RLC-AM. SS verifies that the last UE CAPABILITY INFORMATION message is both integrity-protected and ciphered correctly.
13	←		UE CAPABILITY INFORMATION CONFIRM	

Specific Message Contents

RRC CONNECTION SETUP (message used in the initial setup)

Use the same message type and contents as found in clause 9 of TS 34.108 with the following exception:

Signalling RB information to setup	(AM DCCH for RRC)
- RB identity	Not Present
- CHOICE RLC info type	
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	32
- Timer_RST	500
- Max_RST	1
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	OMIT
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

SECURITY MODE COMMAND (Step 4)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
Security Capability	Same as originally sent by UE (and stored in SS)
Ciphering mode info	
Ciphering mode command	Start/restart
Ciphering algorithm	UEA1
Activation time for DPCH	Not Present
Radio bearer downlink ciphering activation time info	
RB Identity	1
RLC sequence number	Current RLC SN
RB Identity	2
RLC sequence number	Current RLC SN + 2
RB Identity	3
RLC sequence number	Current RLC SN
RB Identity	4
RLC sequence number	Current RLC SN
RB Identity	20
RLC sequence number	Current RLC SN
Integrity protection mode info	
Integrity protection mode command	Modify
Downlink integrity protection activation info	
	Current RRC SN for SRB0
	Current RRC SN for SRB1
	Current RRC SN for SRB2
	Current RRC SN for SRB3
	Current RRC SN for SRB4
Integrity protection algorithm	UIA1
CN domain identity	PS Domain

NOTE: "Current RLC SN" is defined as the value of VT(S) in the SS at the time when the SECURITY MODE COMMAND is submitted to RLC for transmission, that is, the RLC send sequence number of the next transmitted RLC PDU on the particular radio bearer. "Current RRC SN" is defined as the RRC message sequence number of the next transmitted RRC message on the particular radio bearer.

CELL UPDATE (Step 8)

The contents of CELL UPDATE message are identical as "Contents of CELL UPDATE message" as found in clause 9 of TS 34.108 Annex A with the following exceptions:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0000 0001'
Cell Update Cause	"Radio link failure"

CELL UPDATE CONFIRM (Step 9) (FDD)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in Annex A with the following exceptions:

Information Element	Value/remark
U-RNTI	Same as CELL UPDATE message in step 8
RRC State indicator	CELL_DCH
CHOICE channel requirement	Uplink DPCH info
-UplinkDPCH Info	Same as RADIO BEARER SETUP message used to move to initial condition
Downlink information common for all radio links	Same as RADIO BEARER SETUP message used to move to initial condition
Downlink information for each radio links	Same as RADIO BEARER SETUP message used to move to initial condition

CELL UPDATE CONFIRM (Step 9) (TDD)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in clause 9 of TS 34.108 Annex A with the following exceptions:

Information Element	Value/remark
U-RNTI	Same as CELL UPDATE message in step 8
RRC State indicator	CELL_DCH
UplinkDPCH timeslots and codes	Same as RADIO BEARER SETUP message used to move to initial condition
Downlink information for each radio links	Same as RADIO BEARER SETUP message used to move to initial condition

8.1.7.1d.5 Test requirement

After uplink ciphering activation time has lapsed, SS verifies that the UE CAPABILITY INFORMATION message received at step 12 is integrity protected with UIA algorithm and ciphered with the old ciphering configuration and algorithm and not the one indicated in the SECURITY MODE COMMAND (Step 4) message.

8.1.7.2 Security mode command in CELL_FACH state

8.1.7.2.1 Definition

8.1.7.2.2 Conformance requirement

1. This procedure is used to trigger the start of ciphering, or to command the restart of ciphering with the new ciphering configuration for the signalling radio bearers and any radio bearers of a particular CN Domain. It is also used to start integrity protection or modify integrity protection configuration for signalling radio bearers.

2. When the UE receives a SECURITY MODE COMMAND message from the UTRAN, which indicates the downlink activation time for each effected SRB and RB, and new ciphering mode configuration, the UE shall apply the old ciphering configuration, for a particular SRB or RB, before the stated downlink activation time. It shall start to decipher using the new ciphering configuration at the downlink activation time.

3. The UE shall transmit SECURITY MODE COMPLETE message using the new integrity protection configuration stated in the received SECURITY MODE COMMAND message. The SECURITY MODE COMPLETE message shall include the ciphering uplink activation time. The UE shall start to apply the new ciphering configuration on the uplink direction, after the uplink activation time has elapsed respectively for each SRB or RB.

Reference

3GPP TS 25.331 clauses 8.1.12, 8.6.3.4, 8.6.3.5.

8.1.7.2.3 Test purpose

To confirm that after the UE receives a SECURITY MODE COMMAND message, it transmits a SECURITY MODE COMPLETE message to the UTRAN using the old ciphering configuration together with the application of the new integrity protection configuration. To confirm that the UE applies the old ciphering configuration in the downlink prior to the activation time; and uses the new ciphering configuration on and after the activation time. To confirm that the UE starts to cipher its uplink transmissions after the uplink activation time stated in SECURITY MODE COMPLETE message is reached. To confirm that the UE sends a SECURITY MODE FAILURE message when the UE receives an invalid SECURITY MODE COMMAND message.

8.1.7.2.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. The SS initiates an Authentication and Ciphering procedure, which will result in the generation of a new security keyset (CK/IK). The SS transmits a SECURITY MODE COMMAND message which contains an unexpected critical message extension. The UE shall respond by sending SECURITY MODE FAILURE message on the DCCH. Next, SS transmits a valid SECURITY MODE COMMAND message which includes the correct downlink activation times and IE "Integrity check info". The UE shall check the integrity check info. It shall start to configure ciphering in downlink and transmit a SECURITY MODE COMPLETE message, which contains the correct uplink activation times using the new integrity protection configuration. This message shall contain the IE "Integrity check info". SS records the uplink ciphering activation time for RB 2. Next, SS transmits UE CAPABILITY ENQUIRY message repeatedly on the downlink DCCH using RLC-AM mode. The UE shall respond to each downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS checks all uplink messages are integrity-protected by UIA1 algorithm, and that the messages contain the correct values for "Integrity check info" IE by sending a UE CAPABILITY INFORMATION CONFIRM. This cycle repeats itself until both the uplink and downlink ciphering activation time for RB 2 have elapsed. After both the uplink and downlink ciphering activation time for RB 2 have passed, the UE shall be able to communicate with the SS using the new ciphering configurations. This can be verified in SS through the reception of a correctly ciphered and integrity-protected UE CAPABILITY INFORMATION message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				UE is initially in CELL_FACH state.
1a	←		AUTHENTICATION AND CIPHERING REQUEST	GMM message which will result in the generation of a new security keyset
1b	→		AUTHENTICATION AND CIPHERING RESPONSE	GMM
2	←		SECURITY MODE COMMAND	See specific message content
3	→		SECURITY MODE FAILURE	IE "Failure Cause" shall be set to "Protocol Error" and IE "Protocol Error Information" shall be set to "Message extension not comprehended".
4			Void	
5			Void	
6			Void	
7			Void	
8	←		SECURITY MODE COMMAND	See specific message contents.
9	→		SECURITY MODE COMPLETE	SS verifies that this message is sent using the old ciphering configuration. SS records the uplink ciphering activation time for RB 2.
10	←		UE CAPABILITY ENQUIRY	SS repeats step 10, 11 and 12 until its internal uplink and downlink RLC SN have both surpassed the uplink and downlink ciphering activation time specified for RB2. This message is sent on the downlink DCCH using RLC-AM.
11	→		UE CAPABILITY INFORMATION	UE shall send this message on the uplink DCCH using RLC-AM. SS verifies that the last UE CAPABILITY INFORMATION message is both integrity-protected and ciphered correctly.
12	←		UE CAPABILITY INFORMATION CONFIRM	

Specific Message Contents

SECURITY MODE COMMAND (Step 2)

Information Element	Value/remark
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
Critical extensions	'FF'H

SECURITY MODE COMMAND (Step 8)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
Security Capability	Same as originally sent by UE (and stored in SS)
Ciphering mode info	
Ciphering mode command	Start/restart
Ciphering algorithm	UEA1
Activation time for DPCH	Not Present
Radio bearer downlink ciphering activation time info	
RB Identity	1
RLC sequence number	Current RLC SN
RB Identity	2
RLC sequence number	Current RLC SN + 2
RB Identity	3
RLC sequence number	Current RLC SN
RB Identity	4
RLC sequence number	Current RLC SN
RB Identity	20
RLC sequence number	Current RLC SN
Integrity protection mode info	
Integrity protection mode command	Modify
Downlink integrity protection activation info	
	Current RRC SN for SRB0 Current RRC SN for SRB1 Current RRC SN for SRB2 Current RRC SN for SRB3 Current RRC SN for SRB4
Integrity protection algorithm	UIA1
CN domain identity	PS Domain
UE system specific security capability	Not Present in condition A1
UE system specific security capability	Present In condition A2
- Inter-RAT UE security capability	
- CHOICE *system*	GSM
- GSM security capability	The indicated algorithms must be the same as the algorithms supported by the UE as indicated in the IE "UE system specific capability" in the RRC CONNECTION SETUP COMPLETE message.

Condition	Explanation
A1	UE not supporting GSM
A2	UE supporting GSM

SECURITY MODE COMPLETE (Step 9)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
- Message Authentication code	Checked to see if present. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	Checked to see if present
Uplink integrity protection activation info	
- RRC message sequence number list	Check to see if it the RRC SN for RB 0 to RB 4 are present
Radio bearer uplink ciphering activation info	
- RB Identity other than RB2	Check to see if the RLC SN for RB1, 3 , 4 and 20 are present
- RB Identity	2
- RLC sequence number	SS records this value. See step 10 in 'expected sequence'

8.1.7.2.5 Test requirement

After step 2 the UE shall transmit a SECURITY MODE FAILURE message to report the protocol error detected in the first SECURITY MODE COMMAND message.

After step 8 the SS checks that the SECURITY MODE COMPLETE message is received ciphered using the old configuration and that the calculated MAC-I values in "integrity check info" IE is correct.

After step 9 SS verifies that all uplink signalling messages on RB2 are integrity protected with UIA1 algorithm.

After uplink ciphering activation time has lapsed, SS verifies that the UE CAPABILITY INFORMATION message received is integrity protected with UIA algorithm and ciphered with the new ciphering configuration and algorithm indicated in the SECURITY MODE COMMAND (Step 8) message.

After downlink ciphering activation time has lapsed, SS shall apply ciphering to all downlink messages using the new configuration. At least one more cycle between step 10 and step 12 shall be repeated correctly after activation time on both directions has lapsed and the messages on both directions shall be ciphered and integrity protected.

8.1.7.3 Security mode command in CELL_DCH state (UEA2/UIA2, CS Domain)

8.1.7.3.1 Definition

Applicable to all Rel-7 UEs which support FDD and CS domain services.

8.1.7.3.2 Conformance requirement

Same conformance requirement as clause 8.1.7.1.2.

8.1.7.3.3 Test purpose

Same test purpose as clause 8.1.7.1.3 except that ciphering algorithm used is UEA2 and integrity protection algorithm used is UIA2.

8.1.7.3.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH (state 6-9) as specified in clause 7.4 of TS 34.108.

Test Procedure

Same test procedure as clause 8.1.7.1.4 except that ciphering algorithm used is UEA2 and integrity protection algorithm used is UIA2.

Expected sequence

Same expected sequence as clause 8.1.7.1.4

Specific Message Contents

Same specific message contents as clause 8.1.7.1.4 except for the following:

SECURITY MODE COMMAND (Step 6)

Information Element	Value/remark
Ciphering mode info	
Ciphering algorithm	UEA2
Integrity protection mode info	
Integrity protection algorithm	UIA2

8.1.7.3.5 Test requirement

After step 2 the UE shall transmit a SECURITY MODE FAILURE message to report the protocol error detected in the first SECURITY MODE COMMAND message.

After step 4 the UE shall transmit a SECURITY MODE FAILURE message to report on the invalid configuration detected in the second SECURITY MODE COMMAND message.

After step 8 the SS checks that the SECURITY MODE COMPLETE message is received ciphered using the old configuration and that the calculated "integrity check info" IE is correct.

After step 9 SS verifies that all uplink signalling messages on RB2 are integrity protected using UIA2 algorithm.

After uplink ciphering activation time has lapsed, SS verifies that the UE CAPABILITY INFORMATION message received is integrity protected with UIA2 algorithm and ciphered with the new ciphering configuration and algorithm UEA2 indicated in the SECURITY MODE COMMAND (Step 6) message.

After downlink ciphering activation time has lapsed, SS shall apply ciphering to all downlink messages using the new configuration using UEA2. At least one more cycle between step 10 and step 12 shall be repeated correctly after activation time on both directions has lapsed and the messages on both directions shall be ciphered using UEA2 and integrity protected using UIA2.

8.1.7.3b Security mode command in CELL_DCH state (UEA2/UIA2, PS Domain)

8.1.7.3b.1 Definition

Applicable to all Rel-7 UEs which support FDD and PS domain services.

8.1.7.3b.2 Conformance requirement

Same conformance requirement as clause 8.1.7.1b.2.

8.1.7.3b.3 Test purpose

Same test purpose as clause 8.1.7.1b.3 except that ciphering algorithm used is UEA2 and integrity protection algorithm used is UIA2.

8.1.7.3b.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

Test Procedure

Same test procedure as clause 8.1.7.1b.4 except that ciphering algorithm used is UEA2 and integrity protection algorithm used is UIA2.

Expected sequence

Same expected sequence as clause 8.1.7.1b.4

Specific Message Contents

Same specific message contents as clause 8.1.7.1b.4 except for the following:

SECURITY MODE COMMAND (Step 6)

Information Element	Value/remark
Ciphering mode info Ciphering algorithm	UEA2
Integrity protection mode info Integrity protection algorithm	UIA2

8.1.7.3b.5 Test requirement

After step 2 the UE shall transmit a SECURITY MODE FAILURE message to report the protocol error detected in the first SECURITY MODE COMMAND message.

After step 4 the UE shall transmit a SECURITY MODE FAILURE message to report on the invalid configuration detected in the second SECURITY MODE COMMAND message.

At step 7 SS checks that the SECURITY MODE COMPLETE message is received ciphered using the old configuration and that the calculated "integrity check info" IE is correct according to the new integrity protection configuration (new key and HFN set to zero).

After step 7 SS verifies that all uplink signalling messages on RB2 are integrity protected with the new integrity protection configuration using UIA2.

After uplink ciphering activation time has elapsed, SS verifies that the UE CAPABILITY INFORMATION message received is ciphered with the new ciphering configuration using UEA2 as indicated in the SECURITY MODE COMMAND (Step 6) message.

After downlink ciphering activation time has elapsed, SS shall apply ciphering to all downlink messages using the new ciphering configuration using UEA2. At least one more cycle between step 8 and step 10 shall be repeated correctly after activation time on both directions has elapsed and the messages on both directions shall be ciphered using UEA2 and integrity protected using UIA2.

8.1.7.3c Security mode control in CELL_DCH state (UEA2/UIA2, CN Domain switch and new keys at RRC message sequence number wrap around)

8.1.7.3c.1 Definition

Applicable to all Rel-7 UEs which support FDD and CS domain services and PS domain services.

8.1.7.3c.2 Conformance requirement

Same conformance requirement as clause 8.1.7.1c.2.

8.1.7.3c.3 Test purpose

Same test purpose as clause 8.1.7.1c.3 except that ciphering algorithm used is UEA2 and integrity protection algorithm used is UIA2.

8.1.7.3c.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: has entered PS+CS-DCCH+DTCH_DCH (state 6-14) using procedure P24 as specified in clause 7.4 of TS 34.108, UEA2 and UIA2 are configured.

Test Procedure

Same test procedure as clause 8.1.7.1c.4 except that ciphering algorithm used is UEA2 and integrity protection algorithm used is UIA2.

Expected sequence

Same expected sequence as clause 8.1.7.1c.4

Specific Message Contents

Same specific message contents as clause 8.1.7.1c.4 except for the following:

SECURITY MODE COMMAND (Step 7)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Ciphering mode info	
Ciphering algorithm	UEA2
Integrity protection mode info	
Integrity protection algorithm	UIA2

8.1.7.3c.5 Test requirement

After step 7 the SS checks that the SECURITY MODE COMPLETE message is received ciphered using the old configuration and that the calculated "integrity check info" IE is correct.

After step 8 SS verifies that all uplink signalling messages on RB2 are integrity protected with UIA2 algorithm.

After uplink ciphering activation time has lapsed, SS verifies that the UE CAPABILITY INFORMATION message received is integrity protected with UIA2 algorithm and ciphered with the new ciphering configuration and algorithm UEA2 indicated in the SECURITY MODE COMMAND (Step 7) message.

After downlink ciphering activation time has lapsed, SS shall apply ciphering to all downlink messages using the new configuration using UEA2. At least one more cycle between step 9 and step 11 shall be repeated correctly after activation time on both directions has lapsed and the messages in both directions shall be ciphered using UEA2 and integrity protected using UIA2.

8.1.7.3d Security mode control in CELL_DCH state interrupted by a cell update (UEA2/UIA2)

8.1.7.3d.1 Definition

Applicable to all Rel-7 UEs which support FDD and PS domain services.

8.1.7.3d.2 Conformance requirement

Same conformance requirement as clause 8.1.7.1d.2.

8.1.7.3d.3 Test purpose

Same test purpose as clause 8.1.7.1d.3 except that ciphering algorithm used is UEA2 and integrity protection algorithm used is UIA2.

8.1.7.3d.4 Method of test

Initial Condition

System Simulator: 1 cell.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

The RRC CONNECTION SETUP message used in the initial setup should be as shown under Specific Message Contents in clause 8.1.7.1d.4.

Test Procedure

Same test procedure as clause 8.1.7.1d.4 except that ciphering algorithm used is UEA2 and integrity protection algorithm used is UIA2.

Expected sequence

Same expected sequence as clause 8.1.7.1d.4

Specific Message Contents

Same specific message contents as clause 8.1.7.1d.4 except for the following:

SECURITY MODE COMMAND (Step 4)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Ciphering mode info	
Ciphering algorithm	UEA2
Integrity protection mode info	
Integrity protection algorithm	UIA2

8.1.7.3d.5 Test requirement

After uplink ciphering activation time has lapsed, SS verifies that the UE CAPABILITY INFORMATION message received at step 12 is integrity protected with UIA2 algorithm and ciphered with the old ciphering configuration and algorithm UEA2 and not the one indicated in the SECURITY MODE COMMAND (Step 4) message.

8.1.7.4 Security mode command in CELL_FACH state (UEA2/UIA2)

8.1.7.4.1 Definition

Applicable to all Rel-7 UEs which support FDD and PS domain services.

8.1.7.4.2 Conformance requirement

Same conformance requirement as clause 8.1.7.2.2.

8.1.7.4.3 Test purpose

Same test purpose as clause 8.1.7.2.3.

8.1.7.4.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

Same test procedure as clause 8.1.7.2.4 except that ciphering algorithm used is UEA2 and integrity protection algorithm used is UIA2.

Expected sequence

Same expected sequence as clause 8.1.7.2.4

Specific Message Contents

Same specific message contents as clause 8.1.7.2.4 except for the following:

SECURITY MODE COMMAND (Step 8)

Information Element	Value/remark
Ciphering mode info Ciphering algorithm	 UEA2
Integrity protection mode info	
Integrity protection algorithm	UIA2

8.1.7.4.5 Test requirement

After step 2 the UE shall transmit a SECURITY MODE FAILURE message to report the protocol error detected in the first SECURITY MODE COMMAND message.

After step 8 the SS checks that the SECURITY MODE COMPLETE message is received ciphered using the old configuration and that the calculated MAC-I values in "integrity check info" IE is correct.

After step 9 SS verifies that all uplink signalling messages on RB2 are integrity protected with UIA2 algorithm.

After uplink ciphering activation time has lapsed, SS verifies that the UE CAPABILITY INFORMATION message received is integrity protected with UIA2 algorithm and ciphered with the new ciphering configuration and algorithm using UEA2 indicated in the SECURITY MODE COMMAND (Step 8) message.

After downlink ciphering activation time has lapsed, SS shall apply ciphering using UEA2 to all downlink messages using the new configuration. At least one more cycle between step 10 and step 12 shall be repeated correctly after activation time on both directions has lapsed and the messages on both directions shall be ciphered using UEA2 and integrity protected using UIA2.

8.1.8 Counter check

8.1.8.1 Counter check in CELL_DCH state, with symmetric RAB

8.1.8.1.1 Definition

8.1.8.1.2 Conformance requirement

When the UE receives a COUNTER CHECK message it shall compare the COUNT-C MSB values received in the IE "RB COUNT-C MSB information" in the COUNTER CHECK message to the COUNT-C MSB values of the corresponding radio bearers.

The UE shall:

1> set the IE "RRC transaction identifier" in the COUNTER CHECK RESPONSE message to the value of "RRC transaction identifier" in the entry for the COUNTER CHECK message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry.

If:

- there is one or more radio bearer(s) using UM or AM RLC mode stored in the variable ESTABLISHED_RABS, which is (are) not included in the IE "RB COUNT-C MSB information"; or

- there is one or more radio bearer(s) included in the IE "RB COUNT-C MSB information", which is (are) not stored in the variable ESTABLISHED_RABS; or

- for any radio bearer (excluding signalling radio bearers) using UM or AM RLC mode stored in the variable ESTABLISHED_RABS and included in the IE "RB COUNT-C MSB information" with COUNT-C MSB values different from the MSB part of the COUNT-C values in the UE:

the UE shall:

1> include these radio bearers in the IE "RB COUNT-C information" in the COUNTER CHECK RESPONSE message. For any RB which is included in the IE "RB COUNT-C MSB information" in the COUNTER CHECK message but not stored in the variable ESTABLISHED_RABS in the UE, the MSB part of COUNT-C values in the COUNTER CHECK RESPONSE message shall be set identical to COUNT-C-MSB values in the COUNTER CHECK message. The LSB part shall be filled with zeroes.

The UE shall:

1> submit a COUNTER CHECK RESPONSE message to lower layers for transmission on the uplink DCCH using AM RLC.

When the COUNTER CHECK RESPONSE message has been submitted to lower layers for transmission the procedure ends.

If the UE receives a COUNTER CHECK message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to TS 25.331 clause 9, the UE shall perform procedure specific error handling as follows. The UE shall:

1> transmit an RRC STATUS message on the uplink DCCH using AM RLC;

1> include the IE "Identification of received message"; and

1> set the IE "Received message type" to COUNTER CHECK; and

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the UE COUNTER CHECK message in the table "Rejected transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;

1> when the RRC STATUS message has been submitted to lower layers for transmission:

2> continue with any ongoing processes and procedures as if the invalid COUNTER CHECK message has not been received.

Reference

3GPP TS 25.331 clause 8.1.15.

8.1.8.1.3 Test purpose

To confirm that the UE transmits a COUNTER CHECK RESPONSE message after it receives a COUNTER CHECK message from the SS. To confirm that the UE responds to the reception of an invalid downlink COUNTER CHECK message by transmitting a RRC STATUS message on the uplink DCCH, stating the correct error cause value in message.

8.1.8.1.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_DCH state (state 6-10) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is brought to the CELL_DCH state after a successful outgoing call attempt. The SS transmits an invalid COUNTER CHECK message. This message contains an unexpected critical message extension. The UE shall detect a protocol error and send RRC STATUS message to report this event. Next, the SS transmits a COUNTER CHECK message that includes the current COUNT-C MSB information in each radio access bearer. The UE shall react by sending a COUNTER CHECK RESPONSE message on the uplink DCCH, which does not include "RB COUNT-C information" IE. The SS transmits a COUNTER CHECK message which includes the current COUNT-C MSB information reversed all the bits in each radio bearer. The UE shall send a COUNTER CHECK RESPONSE message on the uplink DCCH, specifying the current COUNT-C information for each radio access bearer established. The SS transmits a COUNTER CHECK message which includes a different radio bearer. The UE shall send a COUNTER CHECK RESPONSE message on the uplink DCCH, specifying the current COUNT-C information for each radio access bearer established.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_DCH state after an outgoing call has been established successfully.
2	←		COUNTER CHECK	See specific message contents for this message
3	→		RRC STATUS	UE shall detect a protocol error and then transmit this message.
4	←		COUNTER CHECK	See specific message content.
5	→		COUNTER CHECK RESPONSE	The message shall not include the IE "RB COUNT-C information".
6	←		COUNTER CHECK	See specific message content.
7	→		COUNTER CHECK RESPONSE	The message shall include the IE "RB COUNT-C information".
8	←		COUNTER CHECK	See specific message content.
9	→		COUNTER CHECK RESPONSE	The message shall include the IE "RB COUNT-C information".

Specific Message Contents

COUNTER CHECK (Step 2)

Information Element	Value/remark
Critical extensions	'FF'H

RRC STATUS (Step 3)

Use the same message type found in Annex A, with the following exception.

Information Element	Value/remark
Protocol Error Information - Protocol Error Cause	Message extension not comprehended

COUNTER CHECK (Step 4)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
RB COUNT-C MSB information	
- RB identity	20
- COUNT-C MSB uplink	Current COUNT-C MSB for RB#20 in uplink
- COUNT-C MSB downlink	Current COUNT-C MSB for RB#20 in downlink

COUNTER CHECK RESPONSE (Step 5)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	Check to if this IE is absent

COUNTER CHECK (Step 6)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
RB COUNT-C MSB information	
- RB identity	Check to see if set to 20
- COUNT-C MSB uplink	Toggle all bits of the current COUNT-C MSB in uplink for RB#20
- COUNT-C MSB downlink	Toggle all bits of the current COUNT-C MSB in downlink for RB#20

COUNTER CHECK RESPONSE (Step 7)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	
- RB identity	Check to see if set to 20
- COUNT-C uplink	Check to see if set to Current COUNT-C for RB#20 in uplink
- COUNT-C downlink	Check to see if set to COUNT-C for RB#20 in downlink

COUNTER CHECK (Step 8)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
RB COUNT-C MSB information	
- RB identity	Check to see if set to 25
- COUNT-C MSB uplink	Arbitrary COUNT-C MSB in uplink for RB#25
- COUNT-C MSB downlink	Arbitrary COUNT-C MSB in downlink for RB#25

COUNTER CHECK RESPONSE (Step 9)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	
- RB identity	Check to see if set to 20
- COUNT-C uplink	Check to see if set to Current COUNT-C for RB#20 in uplink
- COUNT-C downlink	Check to see if set to COUNT-C for RB#20 in downlink
- RB identity	Check to see if set to 25
- COUNT-C uplink	Check to see if COUNT-C MSB is set to COUNT-C MSB in uplink for RB#25 in step 8 and LSB is fill with '0'
- COUNT-C downlink	Check to see if COUNT-C MSB is set to COUNT-C MSB in downlink for RB#25 in step 8 and LSB is fill with '0'

8.1.8.1.5 Test requirement

After step 2, the UE shall transmit a RRC STATUS message on the uplink DCCH. The protocol error cause shall be set to "Message extension not comprehended".

After step 4 the UE shall transmit a COUNTER CHECK RESPONSE message which does not includes the IE "RB COUNT-C information" to indicate that a matched comparison result is obtained.

After step 6, the UE shall transmit a COUNTER CHECK RESPONSE message which includes the IE "RB COUNT-C information" to report that a mismatch in COUNT-C value is detected in RB#20.

After step 8, the UE shall transmit a COUNTER CHECK RESPONSE message which includes the IE "RB COUNT-C information" to report that RB#25 is not found in variable ESTABLISHED_RABS and RB#20 is not found in IE "RB COUNT-C MSB information".

8.1.8.2 Counter check in CELL_FACH state

8.1.8.2.1 Definition

8.1.8.2.2 Conformance requirement

When the UE receives a COUNTER CHECK message it shall compare the COUNT-C MSB values received in the IE "RB COUNT-C MSB information" in the COUNTER CHECK message to the COUNT-C MSB values of the corresponding radio bearers.

The UE shall:

1> set the IE "RRC transaction identifier" in the COUNTER CHECK RESPONSE message to the value of "RRC transaction identifier" in the entry for the COUNTER CHECK message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry.

If:

- there is one or more radio bearer(s) using UM or AM RLC mode stored in the variable ESTABLISHED_RABS, which is (are) not included in the IE "RB COUNT-C MSB information"; or
- there is one or more radio bearer(s) included in the IE "RB COUNT-C MSB information", which is (are) not stored in the variable ESTABLISHED_RABS; or
- for any radio bearer (excluding signalling radio bearers) using UM or AM RLC mode stored in the variable ESTABLISHED_RABS and included in the IE "RB COUNT-C MSB information" with COUNT-C MSB values different from the MSB part of the COUNT-C values in the UE:

the UE shall:

1> include these radio bearers in the IE "RB COUNT-C information" in the COUNTER CHECK RESPONSE message. For any RB which is included in the IE "RB COUNT-C MSB information" in the COUNTER CHECK message but not stored in the variable ESTABLISHED_RABS in the UE, the MSB part of COUNT-C values in the COUNTER CHECK RESPONSE message shall be set identical to COUNT-C-MSB values in the COUNTER CHECK message. The LSB part shall be filled with zeroes.

The UE shall:

1> submit a COUNTER CHECK RESPONSE message to lower layers for transmission on the uplink DCCH using AM RLC.

When the COUNTER CHECK RESPONSE message has been submitted to lower layers for transmission the procedure ends.

If the UE receives a COUNTER CHECK message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to TS 25.331 clause 9, the UE shall perform procedure specific error handling as follows. The UE shall:

1> transmit an RRC STATUS message on the uplink DCCH using AM RLC;

1> include the IE "Identification of received message"; and

1> set the IE "Received message type" to COUNTER CHECK; and

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the UE COUNTER CHECK message in the table "Rejected transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;

1> when the RRC STATUS message has been submitted to lower layers for transmission:

2> continue with any ongoing processes and procedures as if the invalid COUNTER CHECK message has not been received.

Reference

3GPP TS 25.331 clause 8.1.15.

8.1.8.2.3 Test purpose

To confirm that the UE transmits a COUNTER CHECK RESPONSE message after it receives a COUNTER CHECK message from the SS. To confirm that the UE responds to the reception of an invalid downlink COUNTER CHECK message by transmitting a RRC STATUS message on the uplink DCCH, stating the correct error cause value in message.

8.1.8.2.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_FACH state (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is brought to the CELL_FACH state after a successful outgoing call attempt. The SS transmits an invalid COUNTER CHECK message. This message contains an unexpected critical message extension. The UE shall detect a protocol error and send RRC STATUS message to report this event. Next, the SS transmits a COUNTER CHECK message that includes the current COUNT-C MSB information in each radio access bearer. The UE shall react by sending a COUNTER CHECK RESPONSE message on the uplink DCCH, which does not include "RB COUNT-C information" IE. The SS transmits a COUNTER CHECK message, which includes the current COUNT-C MSB information for each radio bearer but with all the bits reversed. The UE shall send a COUNTER CHECK RESPONSE message on the uplink DCCH, specifying the current COUNT-C information for each radio access bearer established. The SS transmits a COUNTER CHECK message which includes a different radio bearer. The UE shall send a COUNTER CHECK RESPONSE message on the uplink DCCH, specifying the current COUNT-C information for each radio access bearer established.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_FACH state after an outgoing call has been established successfully.
2	←		COUNTER CHECK	See specific message contents for this message
3	→		RRC STATUS	UE shall detect a protocol error and then transmit this message.
4	←		COUNTER CHECK	See specific message content.
5	→		COUNTER CHECK RESPONSE	The message shall not include the IE "RB COUNT-C information".
6	←		COUNTER CHECK	See specific message content.
7	→		COUNTER CHECK RESPONSE	The message shall include the IE "RB COUNT-C information".
8	←		COUNTER CHECK	See specific message content.
9	→		COUNTER CHECK RESPONSE	The message shall include the IE "RB COUNT-C information".

Specific Message Contents

COUNTER CHECK (Step 2)

Information Element	Value/remark
Critical extensions	'FF'H

RRC STATUS (Step 3)

Information Element	Value/remark
Message Type	
Protocol Error Information	
- Protocol Error Cause	Message extension not comprehended

COUNTER CHECK (Step 4)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
RB COUNT-C MSB information	
- RB identity	20
- COUNT-C MSB uplink	Current COUNT-C MSB for RB#20 in uplink
- COUNT-C MSB downlink	Current COUNT-C MSB for RB#20 in downlink

COUNTER CHECK RESPONSE (Step 5)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	Check to if this IE is absent

COUNTER CHECK (Step 6)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
RB COUNT-C MSB information	
- RB identity	20
- COUNT-C MSB uplink	Toggle all bits of the current COUNT-C MSB in uplink for RB#20
- COUNT-C MSB downlink	Toggle all bits of the current COUNT-C MSB in downlink for RB#20

COUNTER CHECK RESPONSE (Step 7)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	
- RB identity	Check to see if set to 20
- COUNT-C uplink	Check to see if set to Current COUNT-C for RB#20 in uplink
- COUNT-C downlink	Check to see if set to COUNT-C for RB#20 in downlink

COUNTER CHECK (Step 8)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
RB COUNT-C MSB information	
- RB identity	Check to see if set to 25
- COUNT-C MSB uplink	Arbitrary COUNT-C MSB in uplink for RB#25
- COUNT-C MSB downlink	Arbitrary COUNT-C MSB in downlink for RB#25

COUNTER CHECK RESPONSE (Step 9)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	
- RB identity	Check to see if set to 20
- COUNT-C uplink	Check to see if set to Current COUNT-C for RB#20 in uplink
- COUNT-C downlink	Check to see if set to COUNT-C for RB#20 in downlink
- RB identity	Check to see if set to 25
- COUNT-C uplink	Check to see if COUNT-C MSB is set to COUNT-C MSB in uplink for RB#25 in step 8 and LSB is fill with '0'
- COUNT-C downlink	Check to see if COUNT-C MSB is set to COUNT-C MSB in downlink for RB#25 in step 8 and LSB is fill with '0'

8.1.8.2.5 Test requirement

After step 2, the UE shall transmit a RRC STATUS message on the uplink DCCH. The protocol error cause shall be set to "Message extension not comprehended".

After step 4 the UE shall transmit a COUNTER CHECK RESPONSE message which does not includes the IE "RB COUNT-C information" to indicate that a matched comparison result is obtained.

After step 6, the UE shall transmit a COUNTER CHECK RESPONSE message which includes the IE "RB COUNT-C information" to report that a mismatch in COUNT-C value is detected in RB#20.

After step 8, the UE shall transmit a COUNTER CHECK RESPONSE message which includes the IE "RB COUNT-C information" to report that RB#25 is not found in variable ESTABLISHED_RABS and RB#20 is not found in IE "RB COUNT-C MSB information".

8.1.8.3 Counter check in CELL_DCH state, with asymmetric RAB

8.1.8.3.1 Definition

8.1.8.3.2 Conformance requirement

When the UE receives a COUNTER CHECK message it shall compare the COUNT-C MSB values received in the IE "RB COUNT-C MSB information" in the COUNTER CHECK message to the COUNT-C MSB values of the corresponding radio bearers.

The UE shall:

1> if no COUNT-C exists for a radio bearer for a given direction (uplink or downlink) because:

2> it is a uni-directional radio bearer configured only for the other direction (downlink or uplink respectively), or

2> it has been configured to RLC-TM mode in one direction (uplink or downlink) and RLC-UM in the other (downlink or uplink respectively),

3> set the COUNT-C in the IE "RB COUNT-C information" in the COUNTER CHECK RESPONSE message, to any value;

1> submit a COUNTER CHECK RESPONSE message to lower layers for transmission on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.1.15.

8.1.8.3.3 Test purpose

To confirm that the UE transmits a COUNTER CHECK RESPONSE message even if COUNT-C does not exist for a radio bearer for a given direction for reasons given in the above section.

8.1.8.3.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CS-DCCH_DCH (state 6-5) or PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108, depending on the domain supported by the UE.

Test Procedure

The UE is brought to the CELL_DCH state after a successful outgoing call attempt. SS sends a RADIO BEARER SETUP message to set up an asymmetric radio bearer. UE shall configure accordingly and then reply with a RADIO BEARER SETUP COMPLETE message. Then SS transmits a COUNTER CHECK message. The UE shall send a COUNTER CHECK RESPONSE message on the uplink DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_DCH state after an outgoing call has been established successfully.
2	←		RADIO BEARER SETUP	See specific message contents for this message
3	→		RADIO BEARER SETUP COMPLETE	
4	←		COUNTER CHECK	See specific message content.
5	→		COUNTER CHECK RESPONSE	The message shall include the IE "RB COUNT-C information".

Specific Message Contents

RADIO BEARER SETUP (Step 2) (FDD)

The contents of RADIO BEARER SETUP message in this test case is identical to the message sub-type indicated by "Non speech from CELL_DCH to CELL_DCH in CS" or "Speech from CELL_DCH to CELL_DCH in CS" or "Packet to CELL_DCH from CELL_DCH in PS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
RAB information for setup	
- RAB info	
- RAB identity	0000 0101B (for PS domain) or 0000 0001B (for CS domain) The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain or CS domain (depending on the domain supported by the UE)
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	UseT315 (for PS domain) or UseT314 (for CS domain)
- RB information to setup	
- RB identity	9
- PDCP info	
- Support for lossless SRNS relocation	FALSE
- Max PDCP SN window size	Not present
- PDCP PDU header	Absent
- Header compression information	Not present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	TM RLC
- Transmission RLC discard	Not Present
- Segmentation indication	False
- CHOICE Downlink RLC mode	UM RLC
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- Logical channel identity	Not Present
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	9
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	Not Present
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit List
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
Added or Reconfigured TrCH information list	1 DCH added
- Added or Reconfigured UL TrCH information	
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to TS34.108 clause 6.10 Parameter Set

Information Element	Value/remark
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE Logical Channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to TS34.108 clause 6.10 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6.10 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6.10 Parameter Set
- Rate matching attribute	Reference to TS34.108 clause 6.10 Parameter Set
- CRC size	Reference to TS34.108 clause 6.10 Parameter Set
Added or Reconfigured TrCH information list	1 DCH
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	DCH
- DL Transport channel identity	9
- CHOICE DL parameters	Same as UL
- Uplink transport channel type	DCH
- UL TrCH identity	1
- DCH quality target	
- BLER Quality value	-20 (-2.0)

RADIO BEARER SETUP (Step 2) (3.84 Mcps TDD)

The contents of RADIO BEARER SETUP message in this test case is identical to the message sub-type indicated by "Non speech from CELL_DCH to CELL_DCH in CS" or "Speech from CELL_DCH to CELL_DCH in CS" or "Packet to CELL_DCH from CELL_DCH in PS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
RAB information for setup	
- RAB info	
- RAB identity	0000 0101B (for PS domain) or 0000 0001B (for CS domain) The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain or CS domain (depending on the domain supported by the UE)
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	UseT315 (for PS domain) or UseT314 (for CS domain)
- RB information to setup	
- RB identity	9
- PDCP info	
- Support for lossless SRNS relocation	FALSE
- Max PDCP SN window size	Not present
- PDCP PDU header	Absent
- Header compression information	Not present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	TM RLC
- Transmission RLC discard	Not Present
- Segmentation indication	False
- CHOICE Downlink RLC mode	UM RLC
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- Logical channel identity	Not Present
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	9
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	Not Present
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit List
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7

Information Element	Value/remark
Added or Reconfigured TrCH information list	1 DCH added
- Added or Reconfigured UL TrCH information	
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to TS34.108 clause 6.10 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE Logical Channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to TS34.108 clause 6.10 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6.10 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6.10 Parameter Set
- Rate matching attribute	Reference to TS34.108 clause 6.10 Parameter Set
- CRC size	Reference to TS34.108 clause 6.10 Parameter Set
Added or Reconfigured TrCH information list	1 DCH
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	DCH
- DL Transport channel identity	9
- CHOICE DL parameters	Same as UL
- Uplink transport channel type	DCH
- UL TrCH identity	1
- DCH quality target	
- BLER Quality value	-20 (-2.0)

RADIO BEARER SETUP (Step 2) (1.28 Mcps TDD)

The contents of RADIO BEARER SETUP message in this test case is identical to the message sub-type indicated by "Non speech from CELL_DCH to CELL_DCH in CS" or "Speech from CELL_DCH to CELL_DCH in CS" or "Packet to CELL_DCH from CELL_DCH in PS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
RAB information for setup	
- RAB info	
- RAB identity	0000 0101B (for PS domain) or 0000 0001B (for CS domain) The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain or CS domain (depending on the domain supported by the UE)
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	UseT315 (for PS domain) or UseT314 (for CS domain)
- RB information to setup	
- RB identity	9
- PDCP info	
- Support for lossless SRNS relocation	FALSE
- Max PDCP SN window size	Not present
- PDCP PDU header	Absent
- Header compression information	Not present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	TM RLC
- Transmission RLC discard	Not Present
- Segmentation indication	False
- CHOICE Downlink RLC mode	UM RLC
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- Logical channel identity	Not Present
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	9
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	Not Present
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit List
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7

Information Element	Value/remark
Added or Reconfigured TrCH information list	1 DCH added
- Added or Reconfigured UL TrCH information	
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to TS34.108 clause 6.11 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to TS34.108 clause 6.11 Parameter Set
- CHOICE Logical Channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to TS34.108 clause 6.11 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6.11 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6.11 Parameter Set
- Rate matching attribute	Reference to TS34.108 clause 6.11 Parameter Set
- CRC size	Reference to TS34.108 clause 6.11 Parameter Set
Added or Reconfigured TrCH information list	1 DCH
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	DCH
- DL Transport channel identity	9
- CHOICE DL parameters	Same as UL
- Uplink transport channel type	DCH
- UL TrCH identity	1
- DCH quality target	
- BLER Quality value	-20 (-2.0)

RADIO BEARER SETUP (Step 2) (7.68 Mcps TDD)

The contents of RADIO BEARER SETUP message in this test case is identical to the message sub-type indicated by "Non speech from CELL_DCH to CELL_DCH in CS" or "Speech from CELL_DCH to CELL_DCH in CS" or "Packet to CELL_DCH from CELL_DCH in PS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
RAB information for setup	
- RAB info	
- RAB identity	0000 0101B (for PS domain) or 0000 0001B (for CS domain) The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain or CS domain (depending on the domain supported by the UE)
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	UseT315 (for PS domain) or UseT314 (for CS domain)
- RB information to setup	
- RB identity	9
- PDCP info	
- Support for lossless SRNS relocation	FALSE
- Max PDCP SN window size	Not present
- PDCP PDU header	Absent
- Header compression information	Not present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	TM RLC
- Transmission RLC discard	Not Present
- Segmentation indication	False
- CHOICE Downlink RLC mode	UM RLC
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- Logical channel identity	Not Present
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	9
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	Not Present
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit List
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7

Information Element	Value/remark
Added or Reconfigured TrCH information list	1 DCH added
- Added or Reconfigured UL TrCH information	
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to TS34.108 clause 6.11.6 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to TS34.108 clause 6.11.6 Parameter Set
- CHOICE Logical Channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to TS34.108 clause 6.11.6 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6.11.6 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6.11.6 Parameter Set
- Rate matching attribute	Reference to TS34.108 clause 6.11.6 Parameter Set
- CRC size	Reference to TS34.108 clause 6.11.6 Parameter Set
Added or Reconfigured TrCH information list	1 DCH
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	DCH
- DL Transport channel identity	9
- CHOICE DL parameters	Same as UL
- Uplink transport channel type	DCH
- UL TrCH identity	1
- DCH quality target	
- BLER Quality value	-20 (-2.0)

COUNTER CHECK (Step 4)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
RB COUNT-C MSB information	
- RB COUNT-C MSB information	
- RB identity	9
- COUNT-C MSB uplink	Arbitrary
- COUNT-C MSB downlink	Set to current COUNT-C for RB#9 in downlink

COUNTER CHECK RESPONSE (Step 5)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	
- RB identity	Check to see if set to 9
- COUNT-C uplink	Check to see if it is present
- COUNT-C downlink	Check to see if it is present

8.1.8.3.5 Test requirement

After step 2, the UE shall transmit a RADIO BEARER SETUP COMPLETE message on the uplink DCCH.

After step 4, the UE shall transmit a COUNTER CHECK RESPONSE message.

8.1.9 Signalling Connection Release Indication

8.1.9.1 Definition

8.1.9.2 Conformance requirement

The UE shall, on receiving a request to release (abort) the signalling connection from upper layers for a specific CN domain:

1> if a signalling connection in the variable ESTABLISHED_SIGNALLING_CONNECTIONS for the specific CN domain identified with the IE "CN domain identity" exists:

2> initiate the signalling connection release indication procedure.

1> otherwise:

…

The UE shall:

1> set the IE "CN Domain Identity" to the value indicated by the upper layers. The value of the IE indicates the CN domain whose associated signalling connection the upper layers are indicating to be released;

1> remove the signalling connection with the identity indicated by upper layers from the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

1> transmit a SIGNALLING CONNECTION RELEASE INDICATION message on DCCH using AM RLC.

When the SIGNALLING CONNECTION RELEASE INDICATION message has been submitted to lower layers for transmission the procedure ends.

In order to establish an MM connection, the mobile station proceeds as follows (TS 24 008 clause 4.5.1.1, 4.5.1.2, 4.5.3.1)

If no RR connection exists, the MM sublayer requests the RR sublayer to establish an RR connection and enters MM sublayer state WAIT FOR RR CONNECTION (MM CONNECTION). This request contains an establishment cause and a CM SERVICE REQUEST message. When the establishment of an RR connection is indicated by the RR sublayer, the MM sublayer of the mobile station starts timer T3230, gives an indication to the CM entity that requested the MM connection establishment, and enters MM sublayer state WAIT FOR OUTGOING MM CONNECTION.

If T3230 expires (i.e. no response is given but a RR connection is available) the MM connection establishment is aborted and the requesting CM sublayer is informed. If no other MM connection exists then the mobile station shall proceed as described in clause 4.5.3.1 for release of the RR connection. Otherwise the mobile station shall return to the MM sublayer state where the request of an MM connection was received, i.e. to MM sublayer state MM connection active. Other ongoing MM connections (if any) shall not be affected.

If all MM connections are released by their CM entities, and no RRLP procedure (see 3GPP TS 04.31 [23b]) and no LCS procedure over RRC (see 3GPP TS 25.331 [23c]) is ongoing, the mobile station shall set timer T3240 and enter the state WAIT FOR NETWORK COMMAND, expecting the release of the RR connection.

The UE initiates the Service request procedure by sending a SERVICE REQUEST message. The timer T3317 shall be started after the SERVICE REQUEST message has been sent and the UE enters the GMM-SERVICE-REQUEST-INITIATED is entered. The SERVICE REQUEST message shall contain the valid P-TMSI and the Service type shall indicate either signalling or paging response(TS 24.008 clause 4.7.13.1). The following abnormal cases can be identified(TS 24.008 clause 4.7.13.5).

c) T3317 expired

The UE shall enter GMM-REGISTERED state.

If the UE is in PMM-IDLE state then the procedure shall be aborted and the UE shall initiate a PS signalling connection release.

Reference

3GPP TS 25.331 clause 8.1.14, TS 24.008 clause 4.5.1.1, 4.5.1.2, 4.5.3.1, 4.7.13.1, 4.7.13.5.

8.1.9.3 Test purpose

To confirm that the UE transmits a SIGNALLING CONNECTION RELEASE INDICATION message after upper layer requests to release its signalling connection.

8.1.9.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by attempting to make an outgoing call. Then the UE shall establish an RRC connection and transmit a SERVICE REQUEST message or a CM SERVICE REQUEST message using the INITIAL DIRECT TRANSFER message depending on supported CN domain. The SS does not respond to this message, and the UE shall send a SIGNALLING CONNECTION RELEASE INDICATION message which includes the CN domain identity with the same value as that in the INITIAL DIRECT TRANSFER message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE initiates an outgoing call.
2	→		RRC CONNECTION REQUEST	
3	←		RRC CONNECTION SETUP	
4				The UE configures the layer 2 and layer 1.
5	→		RRC CONNECTION SETUP COMPLETE	
6	→		INITIAL DIRECT TRANSFER	Depending on supported CN domain, includes SERVICE REQUEST message (PS domain) or CM SERVICE REQUEST message (CS domain) is embedded in INITIAL DIRECT TRANSFER message.
7				The SS does not respond and waits for T3317 (PS domain) or T3230+T3240 (CS domain).
8	→		SIGNALLING CONNECTION RELEASE INDICATION	The timing of this message is not checked.

Specific Message Content

SIGNALLING CONNECTION RELEASE INDICATION (Step 8)

Information Element	Value/remark
CN domain identity	Check to see if this value is the same as in the uplink INITIAL DIRECT TRANSFER message.

8.1.9.5 Test requirement

After step 7 the UE shall transmit a SIGNALLING CONNECTION RELEASE INDICATION message which includes the same CN domain identity as that found in the INITIAL DIRECT TRANSFER message.

8.1.9a Signalling Connection Release Indication (RLC re-establishment): CS signalling connection release

8.1.9a.1 Definition

8.1.9a.2 Conformance requirement

If a re-establishment of RLC on signalling radio bearer RB2 occurs before the successful delivery of the SIGNALLING CONNECTION RELEASE INDICATION message has been confirmed by RLC, the UE shall:

1> retransmit the SIGNALLING CONNECTION RELEASE INDICATION message on the uplink DCCH using AM RLC on signalling radio bearer RB2.

Reference

3GPP TS 25.331 clause 8.1.14.2a.

8.1.9a.3 Test purpose

To confirm that the UE re-transmits a SIGNALLING CONNECTION RELEASE INDICATION message after it re-establishes the RLC entity on signalling radio bearer RB2 if SRNS relocation occurs before the successful delivery of SIGNALLING CONECTION RELEASE INDICATION message.

8.1.9a.4 Method of test

Initial Condition

System Simulator: 1 cells – Cell 1.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH mode. The SS transmits a DOWNLINK DIRECT TRANSFER message. This message contains a NAS message (AUTHENTICATION REQUEST for CS domain or AUTHENTICATION AND CIPHERING REQUEST for PS domain). The UE shall transmit an UPLINK DIRECT TRANSFER message (AUTHENTICATION RESPONSE) using AM on DCCH. After SS responses with a DOWNLINK DIRECT TRANSFER message (AUTHENTICATION REJECT), SS shall set the RLC entity for SRB2 to stop and wait for T3240 to expire in the UE. The UE shall send a SIGNALLING CONNECTION RELEASE INDICATION message which includes the CN domain identity with the same value as that in the UPLINK DIRECT TRANSFER message. But SS do not respond with STATUS PDU for the AM DATA PDU with POLL. The SS then sends a UTRAN MOBILITY INFORMATION message on SRB1 requesting the UE to do a SRNS relocation. SS shall set the RLC entity for SRB2 to continue. The UE shall send a UTRAN MOBILITY INFORMATION CONFIRM message. The UE shall re-transmit a SIGNALLING CONNECTION RELEASE INDICATION message on the uplink DCCH using AM RLC.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		DOWNLINK DIRECT TRANSFER (AUTHENTICATION REQUEST)	Depending on supported CN domain, AUTHENTICATION AND CIPHERING REQUEST message (PS domain) or AUTHENTICATION REQUEST (CS domain) message is embedded in DOWNLINK DIRECT TRANSFER message. An invalid SQN is provided in this message.
2	→		UPLINK DIRECT TRANSFER (AUTHENTICATION RESPONSE)	
3	←		DOWNLINK DIRECT TRANSFER (AUTHENTICATION REJECT)	After SS transmits this message, SS sets the RLC entity for SRB2 to stop and waits for T3240 to expire.
4	→		SIGNALLING CONNECTION RELEASE INDICATION	
5	←		UTRAN MOBILITY INFORMATION	. SS sets RLC for SRB2 to continue.
6	→		UTRAN MOBILITY INFORMATION CONFIRM	UE sends this message on uplink DCCH on AM.
7	→		SIGNALLING CONNECTION RELEASE INDICATION	UE re-transmits this message.

Specific Message Content

DOWNLINK DIRECT TRANSFER (Step 1)

Use the same message sub-type as found in TS 34.108 clause 9, with the following exceptions.

Information Element	Value/remark
CN domain identity	CS domain or PS domain
NAS message	AUTHENTICATION REQUEST (CS domain) or AUTHENTICATION AND CIPHERING REQUEST (PS domain)

UPLINK DIRECT TRANSFER (Step 2)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
CN domain identity	CS domain or PS domain
NAS message	AUTHENTICATION FAILURE(CS domain) or AUTHENTICATION AND CIPHERING FAILURE (PS domain)
Measured results on RACH	Not checked

UTRAN MOBILITY INFORMATION (Step 5)

Use the same message sub-type found in [9] TS 34.108 clause 9 with the following exception:

Information Element	Value/remark
Ciphering mode info	This presence of this IE is dependent on IXIT statements in TS 34.123-2. If ciphering is indicated to be active, this IE present with the values of the sub IEs as stated below. Else, this IE is omitted.
- Ciphering mode command	Start/restart
- Ciphering algorithm	UEA0 or UEA1. The indicated algorithm must be one of the algorithms supported by the UE as indicated in the IE "security capability" in the RRC CONNECTION SETUP COMPLETE message.
- Ciphering activation time for DPCH	(256+CFN-(CFN MOD 8 + 8))MOD 256, this IE is set to "Not present" if only PS RABs are established during the initial setup procedure.
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN + 2
- RB identity	2
- RLC sequence number	Current RLC SN + 2
- RB identity	3
- RLC sequence number	Current RLC SN + 2
- RB identity	4
- RLC sequence number	Current RLC SN + 2
- RB identity	20, this IE is set to "Not present" if PS RAB is not established during the initial setup procedure.
- RLC sequence number	Current RLC SN + 2
Integrity protection mode info	
- Integrity protection mode command	Start
- Downlink integrity protection activation info	Not Present
- Integrity protection algorithm	UIA1
- Integrity protection initialisation number	SS selects an arbitrary 32 bits number for FRESH. The first/ leftmost bit of the bit string contains the most significant bit of the FRESH.
New U-RNTI	
- SRNC identity	0000 0000 0010B
- S-RNTI	0000 0000 0000 0000 0001B

UTRAN MOBILITY INFORMATION CONFIRM (Step 6)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9.

SIGNALLING CONNECTION RELEASE INDICATION (Step 7)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
CN domain identity	Check to see if this value is the same as in the UPLINK DIRECT TRANSFER message.

8.1.9a.5 Test requirement

After step 1 the UE shall transmit UPLINK DIRECT TRANSFER messages using AM on DCCH.

After step 5, the UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message using uplink DCCH on AM RLC.

After step 6 the UE shall re-transmit a SIGNALLING CONNECTION RELEASE INDICATION message which includes the same CN domain identity as that found in the UPLINK DIRECT TRANSFER message.

8.1.9b Signalling Connection Release Indication (RLC re-establishment): PS signalling connection release

8.1.9b.1 Definition

8.1.9b.2 Conformance requirement

If a re-establishment of RLC on signalling radio bearer RB2 occurs before the successful delivery of the SIGNALLING CONNECTION RELEASE INDICATION message has been confirmed by RLC, the UE shall:

1> retransmit the SIGNALLING CONNECTION RELEASE INDICATION message on the uplink DCCH using AM RLC on signalling radio bearer RB2.

Reference

3GPP TS 25.331 clause 8.1.14.2a.

8.1.9b.3 Test purpose

To confirm that the UE re-transmits a SIGNALLING CONNECTION RELEASE INDICATION message after it re-establishes the RLC entity on signalling radio bearer RB2 if SRNS relocation occurs before the successful delivery of SIGNALLING CONECTION RELEASE INDICATION message.

8.1.9b.4 Method of test

Initial Condition

System Simulator: 1 cells – Cell 1 is active.

UE: Registered Idle Mode on PS (state 3) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in idle mode of cell 1. SS requests operator to initial an outgoing PS call. UE shall send RRC CONNECTION REQUEST message on the uplink CCCH. Then the SS shall respond with a RRC CONNECTION SETUP message, which request the UE to enter CELL_DCH state, on a downlink CCCH. The UE shall then send a RRC CONNECTION SETUP COMPLETE message on the uplink DCCH. After this, the UE shall send a INITIAL DIRECT TRANSFER message to SS. This message contains a NAS message (SERVICE REQUEST). After the SS has acknowledged the INITIAL DIRECT TRANSFER message, the SS shall set the RLC entity for SRB3 to stop wait for T3317 to expire in the UE. The UE shall send a SIGNALLING CONNECTION RELEASE INDICATION message which includes the CN domain identity with the same value as that in the INITIAL DIRECT TRANSFER message. But SS do not respond with STATUS PDU for the AM DATA PDU with POLL. The SS then sends a UTRAN MOBILITY INFORMATION message requesting the UE to do SRNS relocation. The UE shall send a UTRAN MOBILITY INFORMATION CONFIRM message. The UE shall re-transmit a SIGNALLING CONNECTION RELEASE INDICATION message on the uplink DCCH using AM RLC.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		RRC CONNECTION REQUEST	SS request the operator to make an outgoing PS call.
2	←		RRC CONNECTION SETUP	
3	→		RRC CONNECTION SETUP COMPLETE	
4	→		INITIAL DIRECT TRANSFER (SERVICE REQUEST)	After SS acknowledges this message, SS set the RLC entity for SRB2 to stop and waits for T3317to expire.
5	→		SIGNALLING CONNECTION RELEASE INDICATION	SS do not send any RLC response (STATUS PDU).
6	←		UTRAN MOBILITY INFORMATION	SS sets RLC for SRB2 to continue.
7	→		UTRAN MOBILITY INFORMATION CONFIRM	
8	→		SIGNALLING CONNECTION RELEASE INDICATION	UE re-transmits this message.

Specific Message Content

RRC CONNECTION REQUEST (Step 1)

Check that the UE sends the same message sub-type as found in TS 34.108 clause 9, with the following exceptions.

Information Element	Value/remark
Establishment cause	Originating Interactive Call or Originating Background Call or OriginatingSubscribedTrafficCall
Measured results on RACH	Not checked.

RRC CONNECTION SETUP (Step 2)

Use the same message sub-type "RRC CONNECTION SETUP message: UM (Transition to CELL_DCH)"as found in TS 34.108 clause 9.

RRC CONNECTION SETUP COMPLETE (Step 3)

Check that the UE sends the same message sub-type as found in TS 34.108 clause 9.

INITIAL DIRECT TRANSFER (Step 4)

Check that the UE sends the same message sub-type as found in TS 34.108 clause 9, with the following exceptions.

Information Element	Value/remark
CN domain identity	PS domain
NAS message	SERVICE REQUEST

UTRAN MOBILITY INFORMATION (Step 5)

Use the same message sub-type found in [9] TS 34.108 clause 9 with the following exception:

Information Element	Value/remark
Ciphering mode info	This presence of this IE is dependent on IXIT statements in TS 34.123-2. If ciphering is indicated to be active, this IE present with the values of the sub IEs as stated below. Else, this IE is omitted.
- Ciphering mode command	Start/restart
- Ciphering algorithm	UEA0 or UEA1. The indicated algorithm must be one of the algorithms supported by the UE as indicated in the IE "security capability" in the RRC CONNECTION SETUP COMPLETE message.
- Ciphering activation time for DPCH	(256+CFN-(CFN MOD 8 + 8))MOD 256, this IE is set to "Not present" if only PS RABs are established during the initial setup procedure.
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN + 2
- RB identity	2
- RLC sequence number	Current RLC SN + 2
- RB identity	3
- RLC sequence number	Current RLC SN + 2
- RB identity	4
- RLC sequence number	Current RLC SN + 2
- RB identity	20, this IE is set to "Not present" if PS RAB is not established during the initial setup procedure.
- RLC sequence number	Current RLC SN + 2
Integrity protection mode info	
- Integrity protection mode command	Start
- Downlink integrity protection activation info	Not Present
- Integrity protection algorithm	UIA1
- Integrity protection initialisation number	SS selects an arbitrary 32 bits number for FRESH. The first/ leftmost bit of the bit string contains the most significant bit of the FRESH.
New U-RNTI	
- SRNC identity	0000 0000 0010B
- S-RNTI	0000 0000 0000 0000 0001B

UTRAN MOBILITY INFORMATION CONFIRM (Step 4)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9.

SIGNALLING CONNECTION RELEASE INDICATION (Step 8)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
CN domain identity	Check to see if this value is the same as in the INITIAL DIRECT TRANSFER message.

8.1.9b.5 Test requirement

In step 1, the UE shall transmit RRC CONNECTION REQUEST message using TM RLC on uplink CCCH.

After step 2, the UE shall transmit RRC CONNECTION SETUP COMPLETE message using AM RLC on uplink DCCH.

After step 3 the UE shall transmit INITIAL DIRECT TRANSFER messages using AM on DCCH.

After step 6, the UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message using uplink DCCH on AM RLC.

After step 7 the UE shall re-transmit a SIGNALLING CONNECTION RELEASE INDICATION message which includes the same CN domain identity as that found in the INITIAL DIRECT TRANSFER message.

8.1.9c Signalling Connection Release Indication in Cell_FACH/Cell_DCH state when the upper layers of the UE indicate that there is no more PS data for a prolonged period

8.1.9c.1 Definition

The UE behaves correctly when in Cell_FACH/Cell_DCH and the upper layers of the UE indicate that there is no more PS data for a prolonged period.

8.1.9c.2 Conformance requirement

In addition, if the timer T323 value is stored in the IE "UE Timers and constants in connected mode" in the variable TIMERS_AND_CONSTANTS, and if there is no CS domain connection indicated in the variable ESTABLISHED_SIGNALLING_CONNECTIONS, the UE may:

1> if the upper layers indicate that there is no more PS data for a prolonged period:

2> if timer T323 is not running:

3> if the UE is in CELL_DCH state or CELL_FACH state; or

3> if the UE is in CELL_PCH state or URA_PCH state and the DRX cycle length in use is shorter than the shorter CN domain specific DRX cycle length for the PS domain and CS domain; or

3> if the UE is in CELL_PCH state or URA_PCH state and the DRX cycle length in use is equal to or longer than the shorter CN domain specific DRX cycle length for the PS domain and CS domain, and V316 < 1:

4> if the UE is in CELL_PCH state or URA_PCH state and the DRX cycle length in use is equal to or longer than the shorter CN domain specific DRX cycle length for the PS domain and CS domain:

5> increment V316 by 1.

4> set the IE "CN Domain Identity" to PS domain;

4> set the IE "Signalling Connection Release Indication Cause" to "UE Requested PS Data session end";

4> transmit a SIGNALLING CONNECTION RELEASE INDICATION message on DCCH using AM RLC;

4> start the timer T323;

3> the procedure ends.

The UE shall be inhibited from sending the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" whilst timer T323 is running.

The UE shall not locally release the PS signalling connection after it has sent the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end".

At transmission or reception of PS data or signalling on SRB3 or upwards, or entering RRC Connected mode, or successful SRNS relocation, the UE shall set V316 to zero.

…

When timer T323 expires:

1> the UE may determine whether any subsequent indications from upper layers that there is no more PS data for a prolonged period in which case it triggers the transmission of a single SIGNALLING CONNECTION RELEASE INDICATION message according with clause 8.1.14.2;

Reference

3GPP TS 25.331 clauses 8.1.14.2 and 8.1.14.4

8.1.9c.3 Test purpose

1. To confirm that when the UE is in Cell_FACH/Cell_DCH and the upper layers of the UE indicate that there is no more PS data for a prolonged period and the UE transmits the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end":
   - the IE "CN Domain Identity" is set to PS domain
   - the UE transmits the SIGNALLING CONNECTION RELEASE INDICATION message on DCCH using AM RLC
2. To confirm that when the upper layers of the UE indicate that there is no more PS data for a prolonged period the UE does not transmit the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" while T323 is running.
3. To confirm that after the UE transmits the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" it does not release the signalling connection.
4. To confirm that after the UE transmits the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" the UE can be successfully reconfigured to cell_PCH state.

8.1.9c.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE:

IF the UE supports transmitting Signalling Connection Release Indication with IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" in cell_DCH

The UE is in state PS-DCCH+DTCH-DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

ELSE

The UE is in state PS-DCCH+DTCH-FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

T323 is not running

Test Procedure

The upper layers of the UE indicate that there is no more PS data for a prolonged period.
The UE transmits a SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" on DCCH using AM RLC.
Before timer T323 expires the upper layers of the UE indicate that there is no more PS data for a prolonged period. The UE shall not transmit a SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" before T323 expires.
To confirm that the UE has not released its PS signalling connection the SS sends a IDENTITY REQUEST with IE "Identity type" set to IMSI. The UE answers with a IDENTITY RESPONSE with the IE "Mobile identity" set to IMSI.
The UE is transitioned to cell_PCH state
The SS releases the RRC connection.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is triggered to indicate that there is no more PS data for a prolonged period. (Note 1)
2	→		SIGNALLING CONNECTION RELEASE INDICATION	IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end". The message is sent on DCCH using AM/RLC. (Note 2)
3				The UE is triggered to indicate that there is no more PS data for a prolonged period. (Note 1) before T323 expires.
4				Wait until T323 expires. (Note 3)
5	←		IDENTITY REQUEST	Identity type = IMSI
6	→		IDENTITY RESPONSE	Mobile identity = IMSI
7				The UE is transitioned to cell_PCH state using procedure from clause 7.4.2.7.1 TS 34.108.
8			CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.
Note 1: This indication may be triggered with the AT command +CNMPSD or any alternative way. Note 2: The timing between steps 1 and 2 is not checked. Note 3: After T323 expiry the UE might send a SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end". The message shall be ignored by the SS.				

Specific Message Content

System Information Block type 1 (preamble)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T323	s120

SIGNALLING CONNECTION RELEASE INDICATION on DCCH (Step 2)

Information Element	Value/remark
CN information elements	
CN domain identity	PS domain
Signalling Connection Release Indication Cause	UE Requested PS Data session end

IDENTITY REQUEST (Step 5)

Information Element	Value/remark
Identity type 2	IMSI

IDENTITY RESPONSE (Step 6)

Information Element	Value/remark
Mobile identity	IMSI

8.1.9c.5 Test requirement

In Step 2 the UE transmits the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" on DCCH using RLC AM.

In Step 4 the UE does not transmit the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" while T323 is running.

In Step 6 the UE transmits a IDENTITY RESPONSE message.

In Step 8 procedure C.4 confirms that the UE is in CELL_PCH state.

8.1.9d No Signalling connection release indication in CELL_DCH state when the upper layers of the UE indicate that there is no more PS data for a prolonged period, CS connection exists

8.1.9d.1 Definition

The UE behaves correctly when in CELL_DCH and a CS domain signalling connection exists and the upper layers of the UE indicate that there is no more PS data for a prolonged period.

8.1.9d.2 Conformance requirement

In addition, if the timer T323 value is stored in the IE "UE Timers and constants in connected mode" in the variable TIMERS_AND_CONSTANTS, and if there is no CS domain connection indicated in the variable ESTABLISHED_SIGNALLING_CONNECTIONS, the UE may:

1> if the upper layers indicate that there is no more PS data for a prolonged period:

2> if timer T323 is not running:

3> if the UE is in CELL_DCH state or CELL_FACH state; or

3> if the UE is in CELL_PCH state or URA_PCH state and the DRX cycle length in use is shorter than the shorter CN domain specific DRX cycle length for the PS domain and CS domain; or

3> if the UE is in CELL_PCH state or URA_PCH state and the DRX cycle length in use is equal to or longer than the shorter CN domain specific DRX cycle length for the PS domain and CS domain, and V316 < 1:

4> if the UE is in CELL_PCH state or URA_PCH state and the DRX cycle length in use is equal to or longer than the shorter CN domain specific DRX cycle length for the PS domain and CS domain:

5> increment V316 by 1.

4> set the IE "CN Domain Identity" to PS domain;

4> set the IE "Signalling Connection Release Indication Cause" to "UE Requested PS Data session end";

4> transmit a SIGNALLING CONNECTION RELEASE INDICATION message on DCCH using AM RLC;

4> start the timer T323;

3> the procedure ends.

The UE shall be inhibited from sending the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" whilst timer T323 is running.

The UE shall not locally release the PS signalling connection after it has sent the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end".

At transmission or reception of PS data or signalling on SRB3 or upwards, or entering RRC Connected mode, or successful SRNS relocation, the UE shall set V316 to zero.

…

When timer T323 expires:

1> the UE may determine whether any subsequent indications from upper layers that there is no more PS data for a prolonged period in which case it triggers the transmission of a single SIGNALLING CONNECTION RELEASE INDICATION message according with clause 8.1.14.2;

1> the procedure ends.

Reference

3GPP TS 25.331 clauses 8.1.14.2, 8.1.14.4

8.1.9d.3 Test purpose

1. To confirm thatt when the UE does not transmit the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" after T323 expires when:
- the UE is in CELL_DCH, and
- before T323 expiry and before the CS domain connection is set up the upper layers of the UE indicate that there is no more PS data for a prolonged period, and
- a CS domain connection is set up before T323 expiresy

2. To confirm that when the UE does not transmit the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" when:
- the UE is in CELL_DCH, and
- a CS domain connection exists, and
- the upper layers of the UE indicate that there is no more PS data for a prolonged.

3. To confirm that when the UE is in CELL_DCH when the upper layers of the UE indicate that there is no more PS data for a prolonged period the UE does not release its PS signalling connection.

8.1.9d.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: The UE is in state PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

T323 is not running

Test Procedure

The upper layers of the UE indicate that there is no more PS data for a prolonged period.
The UE transmits a SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" on DCCH using AM RLC and starts timer T323.
Before T323 expires the upper layers of the UE indicate that there is no more PS data for a prolonged period.
Before T323 expires the UE is transitioned to state 6-14 (PS+CS-DCCH+DTCH_DCH) using procedure P24.
Wait 25s to confirm that the UE does not transmits a SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end".
The upper layers of the UE indicate that there is no more PS data for a prolonged period.
Wait 25s to confirm that the UE does not transmits a SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end".
To confirm that the UE has not released its PS signalling connection the SS sends aan IDENTITY REQUEST with IE “Identity type” set to IMSI. The UE answers with aan IDENTITY RESPONSE with the IE “Mobile identity” set to IMSI.
The SS releases the RRC connection.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is triggered to indicate that there is no more PS data for a prolonged period. (Note 1)
2	→		SIGNALLING CONNECTION RELEASE INDICATION	IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end". The message is sent on DCCH using AM/RLC.
3				Before T323 expires the UE is triggered to indicate that there is no more PS data for a prolonged period. (Note 1)
4				Before T323 expires The UE is transitioned to state 6-14 (PS+CS-DCCH+DTCH_DCH) as specified in procedure P24 in clause 7.4.2.9 in TS 34.108
5				Wait 25s. The UE does not transmit SIGNALLING CONNECTION RELEASE INDICATION message with the IE “Signalling Connection Release Indication Cause” set to “UE Requested PS Data session end”.
6				The UE is triggered to indicate that there is no more PS data for a prolonged period. (Note 1)
7				Wait 25s. The UE does not transmit SIGNALLING CONNECTION RELEASE INDICATION message with the IE “Signalling Connection Release Indication Cause” set to “UE Requested PS Data session end”.
8	←		IDENTITY REQUEST	Identity type = IMSI Message is sent over the PS domain.
9	→		IDENTITY RESPONSE	Mobile identity = IMSI Message is received over the PS domain.
10	←		RRC Connection Release	The SS releases the RRC connection.
11	→		RRC Connection Release Complete	
Note 1: This indication may be triggered with the AT command +CNMPSD or any alternative way.				

Specific Message Content

System Information Block type 1 (preamble)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T323	s20

IDENTITY REQUEST (Step 8)

Information Element	Value/remark
Identity type 2	IMSI

IDENTITY RESPONSE (Step 9)

Information Element	Value/remark
Mobile identity	IMSI

8.1.9d.5 Test requirement

After Step 3 the UE does not transmit the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end.

At Step 9 the UE transmits aan IDENTITY RESPONSE message over the PS domain.

8.1.9e Signalling Connection Release Indication in CELL_PCH state when the upper layers of the UE indicate that there is no more PS data for a prolonged period

8.1.9e.1 Definition

The UE behaves correctly when in CELL_PCH and the upper layers of the UE indicate that there is no more PS data for a prolonged period.

8.1.9e.2 Conformance requirement

In addition, if the timer T323 value is stored in the IE "UE Timers and constants in connected mode" in the variable TIMERS_AND_CONSTANTS, and if there is no CS domain connection indicated in the variable ESTABLISHED_SIGNALLING_CONNECTIONS, the UE may:

1> if the upper layers indicate that there is no more PS data for a prolonged period:

2> if timer T323 is not running:

3> if the UE is in CELL_DCH state or CELL_FACH state; or

3> if the UE is in CELL_PCH state or URA_PCH state and the DRX cycle length in use is shorter than the shorter CN domain specific DRX cycle length for the PS domain and CS domain; or

3> if the UE is in CELL_PCH state or URA_PCH state and the DRX cycle length in use is equal to or longer than the shorter CN domain specific DRX cycle length for the PS domain and CS domain, and V316 < 1:

4> if the UE is in CELL_PCH state or URA_PCH state and the DRX cycle length in use is equal to or longer than the shorter CN domain specific DRX cycle length for the PS domain and CS domain:

5> increment V316 by 1.

4> set the IE "CN Domain Identity" to PS domain;

4> set the IE "Signalling Connection Release Indication Cause" to "UE Requested PS Data session end";

4> transmit a SIGNALLING CONNECTION RELEASE INDICATION message on DCCH using AM RLC;

4> start the timer T323;

3> the procedure ends.

The UE shall be inhibited from sending the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" whilst timer T323 is running.

The UE shall not locally release the PS signalling connection after it has sent the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end".

At transmission or reception of PS data or signalling on SRB3 or upwards, or entering RRC Connected mode, or successful SRNS relocation, the UE shall set V316 to zero.

…

When timer T323 expires:

1> the UE may determine whether any subsequent indications from upper layers that there is no more PS data for a prolonged period in which case it triggers the transmission of a single SIGNALLING CONNECTION RELEASE INDICATION message according with clause 8.1.14.2;

1> the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.14.2, 8.1.14.4

8.1.9e.3 Test purpose

1. To confirm that when the UE is in CELL_PCH state and the DRX cycle length in use is equal to or longer than the shorter CN domain specific DRX cycle length for the PS domain and CS domain, and V316 >= 1 the UE does not send the SIGNALLING CONNECTION RELEASE INDICATION with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end".

8.1.9e.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE:

The UE is in state CELL_PCH (state 6-12) as specified in clause 7.4 of TS 34.108. PDP context is activated.

T323 is not running and V316=0.

Test Procedure

The upper layers of the UE indicate that there is no more PS data for a prolonged period.
The UE transitions to CELL_FACH state and transmits a CELL UPDATE message with the cause set to "uplink data transmission" in IE "Cell update cause".
The SS sends a CELL UPDATE CONFIRM message to the UE with the RRC state indicator set to CELL_FACH and a new C-RNTI.
The UE transmits a UTRAN MOBILITY INFORMATION CONFIRM and stays in CELL_FACH state.
The UE transmits a SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" on DCCH using AM RLC and starts timer T323. V316 is incremented.
The SS sends a RADIO BEARER RECONFIGURATION message to the UE with RRC State Indicator set to CELL_PCH. The UE sends a RADIO BEARER RECONFIGURATION COMPLETE message to the SS and transitions to CELL_PCH state.
After timer T323 expires the upper layers of the UE are triggered to indicate that there is no more PS data for a prolonged period.
The SS waits 10s. The UE shall not transmit a SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end".
The SS confirms that the UE is in CELL_PCH state.

The SS releases the RRC connection.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is triggered to indicate that there is no more PS data for a prolonged period. (Note 1) (V316=0)
2	→		CELL UPDATE	The UE moves to CELL FACH state and transmit this message which is set to "uplink data transmission" in IE "Cell update cause".
3	←		CELL UPDATE CONFIRM	Includes C-RNTI
4	→		UTRAN MOBILITY INFORMATION CONFIRM	
5	→		SIGNALLING CONNECTION RELEASE INDICATION	IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end". The message is sent on DCCH using AM/RLC. (V316 is incremented by 1 and T323 is started)
6	←		RADIO BEARER RECONFIGURATION	RRC State Indicator = CELL_PCH
7	→		RADIO BEARER RECONFIGURATION COMPLETE	
8				After T323 expires, the UE is triggered to indicate that there is no more PS data for a prolonged period. (Note 1)
9				Wait for 10s. The UE does not transmit SIGNALLING CONNECTION RELEASE INDICATION message with the IE “Signalling Connection Release Indication Cause” set to “UE Requested PS Data session end” as V316 = 1
10			CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.
Note 1: This indication may be triggered with the AT command +CNMPSD or any alternative way				

Specific Message Content

System Information Block type 1 (preamble)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T323	s5

PHYSICAL CHANNEL RECONFIGURATION (procedure 6-12 preamble)

Information Element	Value/remark
UTRAN DRX cycle length coefficient	7

CELL UPDATE (Step 2)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
Cell Update Cause	Check to see if set to 'uplink data transmission'

CELL UPDATE CONFIRM(Step 3)

Information Element	Value/remark
RRC State Indicator New C-RNTI	CELL_FACH '1010 1010 1010 1010'

SIGNALLING CONNECTION RELEASE INDICATION on DCCH(Step 5)

Information Element	Value/remark
CN information elements	
CN domain identity	PS domain
Signalling Connection Release Indication Cause	UE Requested PS Data session end

RADIO BEARER RECONFIGURATION (Step 6)

Information Element	Value/remark
RRC State Indicator	CELL_PCH
Cell id	Cell id of Cell 1
Frequency info	Not present

8.1.9e.5 Test requirement

In Step 5 the UE transmits the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end" on DCCH using RLC AM.

After Step 5 the UE does not transmit the SIGNALLING CONNECTION RELEASE INDICATION message with the IE "Signalling Connection Release Indication Cause" set to "UE Requested PS Data session end".

At Step 10 procedure C.4 confirms that the UE is in CELL_PCH state.

8.1.10 Broadcast of system information

8.1.10.1 Dynamic change of segmentation, concatenation & scheduling and handling of unsupported information blocks

8.1.10.1.1 Definition

8.1.10.1.2 Conformance requirement

1. The RRC layer in the UE shall perform re-assembly of segments. All segments belonging to the same master information block, scheduling block or system information block shall be assembled in ascending order with respect to the segment index. When all segments of the master information block, scheduling block or a system information block have been received, the UE shall perform decoding of the complete master information block, scheduling block or system information block.

2. For all system information blocks or scheduling blocks that are supported by the UE referenced in the master information block or the scheduling blocks, the UE shall perform the following actions:

   ……..

   - read and store the IEs of that system information block;

NOTE: There are options with and without scheduling blocks.

3. For system information blocks, not supported by the UE…….

   - skip reading this system information block;

   - skip monitoring changes to this system information block.

4. However, to enable future introduction of new system information blocks, the UE shall also be able to receive system information blocks other than the ones indicated within the scheduling information. The UE may ignore contents of such system information block.

Reference

3GPP TS 25.331 clause 8.1.1.1.4, 8.1.1.5 and 8.1.1.6.

8.1.10.1.3 Test Purpose

1. To verify that dynamic change of System Information is identified, new information read and used.
2. To verify that the UE can support all segment types and "all" segment combinations.
3. To verify that the UE can dynamically use different configurations
4. To verify that the UE properly uses combinations of Default and assigned values.

NOTE: There are 4 segment types and 11 different SYSTEM INFORMATION segment combinations to interpret when re-assembling segments. There are many alternative SIB position offsets and repetition rates.

The allowed segment types are:

- First segment
- Subsequent segment
- Last segment
- Complete

The allowed segment combinations are:

1. No segment
2. First segment
3. Subsequent segment
4. Last segment
5. Last segment + First segment
6. Last segment + one or several Complete
7. Last segment + one or several Complete + First segment
8. One or several Complete
9. One or several Complete + First segment
10. One Complete of size 215 to 226 (not fully tested)

11. Last segment of size 215 to 222

NOTE: Segment combinations 10 and 11 are more difficult to test as they require SIBs of a very specific size.

8.1.10.1.4 Method of test

Alternate two sets of System Information and generate a call after one or the other set has been broadcasted.

These two sets of System Information are based on the System Information specified in 34.108, section 6.

A "Minimum" configuration and a "Maximum" configuration of System Information are defined. The "Minimum" configuration does not contain all of the Information Blocks defined for Configuration 1 in section 6 of 34.108. On the other hand the "Maximum" configuration, defined by the scheduling information in Table 2, contains extra optional information blocks to ensure that the SIB configuration is consistent with the defined scheduling The contents of the SIBs remains the same (the contents of SIB11 changes for the "Maximum" configuration) while the contents of the MIB and SB is altered depending on the nature of the test, i.e. the schedule changes between the "Minimum" and "Maximum" configurations.

The four segment types and the eleven segment combinations are tested using the two configurations.

NOTE: The decoding of system information in the UE is only measurable by functional tests. A large number of functions utilize system information. An extensive test of the system information decoding thus creates a large number of functional tests, which is impractical. This test specification uses a "sample test", where only a few functions are invoked.

Initial Condition

System Simulator: 2 cells (Cell 1, Cell 2), settings for Cell 1 and Cell 2 according to TS 34.108, clause 6.1.5, table 6.1.2 (Cell 1 configured as the serving cell). The Minimum Configuration System Information is being broadcast in Cell 1. The Maximum Configuration System Information is being broadcast in Cell 2.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108 with a CN UE identity (set to IMSI), depending on the CN domain(s) supported by the UE.

Test procedure

Table 8.1.10.1-1 illustrates the downlink power to be applied for the 2 cells.

Table 8.1.10.1-1

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec	dBm/3.84 MHz	-60	-60	OFF	-60
P-CCPCH RSCP (TDD)	dBm	-60	-60	OFF	-60

Columns marked T0 denote the initial conditions.

The UE is in C1 in Camped Normally state. UE starts establishing a MO call/session. SS disconnects the call. UE shall enter IDLE state. The SS waits for a 2 sec interval and then sets the Cell Barred Indicator in SIB3 to "Barred". The SS notifies the UE of the changed System Information by sending the Paging Type 1 message including the IE BCCH Modification Info indicating that new System Information is available. SS applies the downlink power settings, according to the values in the columns “T1” of table 8.1.10.1-1. Based on the updated information in SIB3, the UE performs a cell reselection to Cell 2. The UE reads the System Information in Cell 2, i.e. Maximum Configuration System Information. UE starts establishing a MO call/session.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	UE			Mobile originated call/session establishment
2	SS			Disconnection of call
2a	SS			SS waits for a 2 second to allow UE to enter Idle state.
3	←		System Information (Minimum Configuration)	System Information message is sent in Cell 1 with the Cell Barred Indicator in SIB3 set to "Barred".
3a			Void	SS applies the downlink power settings, according to the values in the columns “T1” of table 8.1.10.1-1
4	←		Paging Type 1	This message is to inform the UE in Idle State that System Information has been updated.
5	UE			Mobile originated call /session establishment
6	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific message content for "Minimum" configuration

The Minimum configuration is the same as the Configuration 1 System Information on 34.108, section 6 with some differences:

- Only SIB1, SIB3, SIB5/SIB5bis, SIB7, SIB11 are used, i.e. the Minimum number of SIBs is used.
- No SB is used; all scheduling information is contained in the MIB. The contents of this changed MIB are shown below.
- A different schedule is used. Details below.
- SIB11 lists eight cells (one serving cell and seven neighbouring cells). Only the first two of these are considered relevant.

Other characteristics of the Minimum configuration are:

- An unknown future System Information Block (SIB-F1) is included. SIB-F1 is used to test segment combination 10. However, it should be noted that, based on the scheduling information in the MIB, UEs may decide not to read segment combinations associated with SIBs that they do not support/comprehend. Hence, the use of SIB-F1 does not fully cover the verification of combinations 10. The tests really just verify that UE ignores it. There is no real verification that the UE can support segment combinations 10.

The following tables show (based on SIB_REP and SIB_POS in the MIB and SB) the schedule used for the Minimum configuration.

Table 1: The schedule in this table incorporates segment combinations 1, 2, 3, 4, 7, 8, 10.

Block Type	MIB	SIB1	SIB3	SIB5/ SIB5bis	SIB7	SIB11
SIB_REP	8	64	64	64	16	64
SEG_ COUNT	1	1	1	3	1	3

Frame No / SIB_POS	0	2	4	6	8	10	12	14
Block Type	MIB		SIB7		MIB			

Frame No / SIB_POS	16	18	20	22	24	26	28	30
Block Type	MIB		SIB7/SIB3	SIB1	MIB		SIB-F1	SIB5 / SIB5bis

Frame No / SIB_POS	32	34	36	38	40	42	44	46
Block Type	MIB	SIB5/SIBbis	SIB5/SIB5bis/SIB7/SIB11	SIB11	MIB	SIB11		

Frame No / SIB_POS	48	50	52	54	56	58	60	62
Block Type	MIB		SIB7		MIB			

Table 1a: The schedule in this table incorporates segment combinations 1, 2, 3, 4, 7, 8, 10 (1.28Mcps TDD).

Block Type	MIB	SIB1	SIB3	SIB5/SIB5bis	SIB7	SIB11
SIB_REP	8	64	64	64	16	64
SEG_COUNT	1	1	1	5	1	3

Frame No / SIB_POS	0	2	4	6	8	10	12	14
Block Type	MIB		SIB7		MIB			

Frame No / SIB_POS	16	18	20	22	24	26	28	30
Block Type	MIB		SIB7/SIB3	SIB1	MIB		SIB-F1	SIB5 / SIB5bis

Frame No / SIB_POS	32	34	36	38	40	42	44	46
Block Type	MIB	SIB5/SIBbis	SIB5/SIB5bis/SIB7	SIB11	MIB	SIB11	SIB5	SIB5

Frame No / SIB_POS	48	50	52	54	56	58	60	62
Block Type	MIB		SIB7		MIB			SIB11

Contents of Master Information Block PLMN type is the case of GSM-MAP

- MIB value tag	A valid MIB value tag as defined in TS 25.331
- Supported PLMN types	
- PLMN type	GSM-MAP
- PLMN identity	
- MCC digit	Set to the same Mobile Country Codes stored in the test USIM card (TS 34.108 clause 8.3.2.2 EF IMSI(IMSI)).
- MNC digit	Set to the same Mobile Network Codes stored in the test USIM card (TS 34.108 clause 8.3.2.2 EF IMSI(IMSI)).
- ANSI-41 Core Network information	Not Present
- References to other system information blocks and scheduling blocks	
- References to other system information blocks	
- Scheduling information	
- CHOICE Value tag	PLMN Value tag
- PLMN Value tag	A valid PLMN value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	22
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 1
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	20
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 3
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	3
- SIB_REP	64
- SIB_POS	30
- SIB_POS offset info	
- SIB_OFF	4
- SIB_OFF	2
- SIB type	System Information Type 5 / System Information Type 5bis
- Scheduling information	
- CHOICE Value tag	Not Present
- SEG_COUNT	1
- SIB_REP	16
- SIB_POS	4
- SIB_POS offset info	Not Present
- SIB and SB type	System Information Type 7
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	3
- SIB_REP	64
- SIB_POS	36
- SIB_POS offset info	
- SIB_OFF	2
- SIB_OFF	4
- SIB and SB type	System Information Type 11
- Scheduling information	
- CHOICE Value tag	Not Present
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	28
- SIB_POS offset info	Not Present – use default
- SIB and SB type	System Information Type F1

Contents of Master Information Block PLMN type is the case of GSM-MAP (1.28Mcps TDD)

- MIB value tag	A valid MIB value tag as defined in TS 25.331
- Supported PLMN types	
- PLMN type	GSM-MAP
- PLMN identity	
- MCC digit	Set to the same Mobile Country Codes stored in the test USIM card (TS 34.108 clause 8.3.2.2 EF IMSI(IMSI)).
- MNC digit	Set to the same Mobile Network Codes stored in the test USIM card (TS 34.108 clause 8.3.2.2 EF IMSI(IMSI)).
- ANSI-41 Core Network information	Not Present
- References to other system information blocks and scheduling blocks	
- References to other system information blocks	
- Scheduling information	
- CHOICE Value tag	PLMN Value tag
- PLMN Value tag	A valid PLMN value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	22
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 1
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	20
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 3
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	5
- SIB_REP	64
- SIB_POS	30
- SIB_POS offset info	
- SIB_OFF	4
- SIB_OFF	2
- SIB_OFF	8
- SIB_OFF	2
- SIB type	System Information Type 5 / System Information Type 5bis
- Scheduling information	
- CHOICE Value tag	Not Present
- SEG_COUNT	1
- SIB_REP	16
- SIB_POS	4
- SIB_POS offset info	Not Present
- SIB and SB type	System Information Type 7
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	3
- SIB_REP	64
- SIB_POS	38
- SIB_POS offset info	
- SIB_OFF	4
- SIB_OFF	20
- SIB and SB type	System Information Type 11
- Scheduling information	
- CHOICE Value tag	Not Present
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	28
- SIB_POS offset info	Not Present – use default
- SIB and SB type	System Information Type F1

Contents of System Information Block type 5 (FDD)

Use the same message type found in clause 6.1 of TS 34.108, with the following exception:

- PRACH partitioning	A1, A2, A3	
- Access Service Class		
- ASC Setting		Not Present
- ASC Setting		
- CHOICE mode		FDD
- Available signature Start Index		0 (ASC#1)
- Available signature End Index		7 (ASC#1)
- Assigned Sub-Channel Number		'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting		Not Present
- ASC Setting		Not Present
- ASC Setting		Not Present
- ASC Setting		Not Present
- ASC Setting		Not Present
- ASC Setting		Not Present

Condition	Explanation
A1	Band I, Band II, Band III
A2	Band V, Band VI, Band VII
A3	Band VIII & bands beyond Band X

Contents of System Information Block type 5bis (FDD)

The message structure of the System information block type 5bis should be the same as System information block type 5 defined above with the following exceptions as given below.

- Frequency Band Indicator	A1	FDD Band under test
- Frequency Band Indicator 2		Not Present
- Frequency Band Indicator	A2	Extension indicator
- Frequency Band Indicator 2		FDD Band under test

Condition	Explanation
A1	Band IV
A2	Band IX & Band X

Contents of System Information Block type 11

Use the same message type found in clause 6.1 of TS 34.108, with the exception of event 1a being disabled.

Specific message content for "Maximum" configuration

The Maximum configuration is the same as the Configuration 1 System Information on 34.108, section 6 with some differences:

- A different schedule is used. Details below.
- SIB11 lists eight cells (one serving cell and seven neighbouring cells). Only the first two of these are considered relevant. It should also include some of the optional IE's to fit the scheduling information for maximum configuration.
- SIB6 and SIB12 includes some of the optional IEs even if having same values as correspondent IEs in SIB5 and SIB11 respectively (to facilitate implementation of the test case for the Maximum configuration) to fit the scheduling information for maximum configuration.

Other characteristics of the Maximum configuration are:

- one "unknown future" block (SIB-F2) is included. This SIB is concatenated with another SIB and is used to verify that the UE can receive an Information Block that it does not support and still process the Information Blocks that it does support in the correct way.

- The test of the segment combination 9 is verified if the UE is able to read SIB7 and the first segment of SIB5 in position 4.

- The test of the segment combination 11 is verified if the UE is able to read the last segment of SIB 5 / SIB 5bis. The SS ensures that this last segment shall have the length between 215 and 222 bits. Depending on the length of SIB 5 / SIB 5bis, the combination 11 occurs either in SIB_position 6, or in the most cases in SIB_position 10

The following tables show (based on SIB_REP and SIB_POS in the MIB and SB) the schedule used for the Maximum configuration.

Table 2: The schedule in this table incorporates segment combinations 1, 2, 3, 5, 6, 8, 9, 11.

Block Type	MIB	SB1	SIB1	SIB2	SIB3	SIB4	SIB5/ SIB5bis	SIB6	SIB7	SIB11	SIB12	SIB18
SIB_REP	8	16	64	64	64	64	64	64	32	64	64	64
SEG_ COUNT	1	1	1	1	1	1	3	3	1	4	4	1

Frame No / SIB_POS	0	2	4	6	8	10	12	14
Block Type	MIB	SB1	SIB7/ SIB5	SIB5/SIB 5bis	MIB	SIB5	SIB3/SIB-F2	SIB11

Frame No / SIB_POS	16	18	20	22	24	26	28	30
Block Type	MIB	SB1	SIB11	SIB11	MIB	SIB11/SIB12	SIB12	SIB12

Frame No / SIB_POS	32	34	36	38	40	42	44	46
Block Type	MIB	SB1	SIB7/SIB18	SIB12	MIB	SIB6	SIB6	SIB6/SIB2

Frame No / SIB_POS	48	50	52	54	56	58	60	62
Block Type	MIB	SB1	SIB4		MIB	SIB1		

Table 2a: The schedule in this table incorporates segment combinations 1, 2, 3, 5, 6, 8, 9, 11 (1.28Mcps TDD).

Block Type	MIB	SB1	SIB1	SIB2	SIB3	SIB4	SIB5/ SIB5bis	SIB6	SIB7	SIB11	SIB12	SIB18
SIB_REP	8	16	64	64	64	64	64	64	32	64	64	64
SEG_ COUNT	1	1	1	1	1	1	5	5	1	4	4	1

Frame No / SIB_POS	0	2	4	6	8	10	12	14
Block Type	MIB	SB1	SIB7/ SIB5	SIB5/SIB 5bis	MIB	SIB5	SIB3/SIB-F2	SIB11

Frame No / SIB_POS	16	18	20	22	24	26	28	30
Block Type	MIB	SB1	SIB11	SIB11	MIB	SIB11/SIB12	SIB5	SIB5

Frame No / SIB_POS	32	34	36	38	40	42	44	46
Block Type	MIB	SB1	SIB7/SIB18	SIB12	MIB	SIB6	SIB6	SIB6/SIB2

Frame No / SIB_POS	48	50	52	54	56	58	60	62
Block Type	MIB	SB1	SIB12	SIB12	MIB	SIB1/SIB4	SIB6	SIB6

Contents of Master Information Block PLMN type is the case of GSM-MAP

Information Element	Value/remark
- MIB value tag	A valid MIB value tag as defined in TS 25.331
- Supported PLMN types	
- PLMN type	GSM-MAP
- PLMN identity	
- MCC digit	Set to the same Mobile Country Codes stored in the test USIM card (TS 34.108 clause 8.3.2.2 EF IMSI(IMSI)).
- MNC digit	Set to the same Mobile Network Codes stored in the test USIM card (TS 34.108 clause 8.3.2.2 EF IMSI(IMSI)).
- ANSI-41 Core Network information	Not Present
- References to other system information blocks and scheduling blocks	
- References to other system information blocks	
- Scheduling information	
- CHOICE Value tag	Cell Value Tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- Scheduling	
- SEG_COUNT	1
- SIB_REP	16
- SIB_POS	2
- SIB_POS offset info	Not Present – use default
- SIB type	Scheduling Block 1
- Scheduling information	
- CHOICE Value tag	PLMN Value tag
- PLMN Value tag	A valid PLMN value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	58
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 1
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	46
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 2
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	12
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 3
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	52
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 4
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	3
- SIB_REP	64
- SIB_POS	4
- SIB_POS offset info	
- SIB_OFF	2
- SIB_OFF	4
- SIB type	System Information Type 5 / System Information Type 5bis

Contents of Master Information Block PLMN type is the case of GSM-MAP (1.28Mcps TDD)

Information Element	Value/remark
- MIB value tag	A valid MIB value tag as defined in TS 25.331
- Supported PLMN types	
- PLMN type	GSM-MAP
- PLMN identity	
- MCC digit	Set to the same Mobile Country Codes stored in the test USIM card (TS 34.108 clause 8.3.2.2 EF IMSI(IMSI)).
- MNC digit	Set to the same Mobile Network Codes stored in the test USIM card (TS 34.108 clause 8.3.2.2 EF IMSI(IMSI)).
- ANSI-41 Core Network information	Not Present
- References to other system information blocks and scheduling blocks	
- References to other system information blocks	
- Scheduling information	
- CHOICE Value tag	Cell Value Tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- Scheduling	
- SEG_COUNT	1
- SIB_REP	16
- SIB_POS	2
- SIB_POS offset info	Not Present – use default
- SIB type	Scheduling Block 1
- Scheduling information	
- CHOICE Value tag	PLMN Value tag
- PLMN Value tag	A valid PLMN value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	58
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 1
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	46
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 2
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	12
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 3
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	58
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 4
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	5
- SIB_REP	64
- SIB_POS	4
- SIB_POS offset info	
- SIB_OFF	2
- SIB_OFF	4
- SIB_OFF	18
- SIB_OFF	2
- SIB type	System Information Type 5 / System Information Type 5bis

Contents of Scheduling Block 1 (FDD)

Information Element	Value/remark
- References to other system information blocks	
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	3
- SIB_REP	64
- SIB_POS	42
- SIB_POS offset info	
- SIB_OFF	2
- SIB_OFF	2
- SIB and SB type	System Information Type 6
- Scheduling information	
- CHOICE Value tag	Not Present
- SEG_COUNT	1
- SIB_REP	32
- SIB_POS	4
- SIB_POS offset info	Not Present
- SIB and SB type	System Information Type 7
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	4
- SIB_REP	64
- SIB_POS	14
- SIB_POS offset info	
- SIB_OFF	6
- SIB_OFF	2
- SIB_OFF	4
- SIB and SB type	System Information Type 11
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	4
- SIB_REP	64
- SIB_POS	26
- SIB_POS offset info	
- SIB_OFF	2
- SIB_OFF	2
- SIB_OFF	8
- SIB and SB type	System Information Type 12
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	36
- SIB_POS offset info	Not Present
- SIB and SB type	System Information Type 18
- Scheduling information	
- CHOICE Value tag	Not Present
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	12
- SIB_POS offset info	Not Present
- SIB and SB type	System Information Type F2

Contents of Scheduling Block 1 (1.28 Mcps TDD)

Information Element	Value/remark
- References to other system information blocks	
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	5
- SIB_REP	64
- SIB_POS	42
- SIB_POS offset info	
- SIB_OFF	2
- SIB_OFF	2
- SIB_OFF	14
- SIB_OFF	2
- SIB and SB type	System Information Type 6
- Scheduling information	
- CHOICE Value tag	Not Present
- SEG_COUNT	1
- SIB_REP	32
- SIB_POS	4
- SIB_POS offset info	Not Present
- SIB and SB type	System Information Type 7
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	4
- SIB_REP	64
- SIB_POS	14
- SIB_POS offset info	
- SIB_OFF	6
- SIB_OFF	2
- SIB_OFF	4
- SIB and SB type	System Information Type 11
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	4
- SIB_REP	64
- SIB_POS	26
- SIB_POS offset info	
- SIB_OFF	12
- SIB_OFF	14
- SIB_OFF	2
- SIB and SB type	System Information Type 12
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	36
- SIB_POS offset info	Not Present
- SIB and SB type	System Information Type 18
- Scheduling information	
- CHOICE Value tag	Not Present
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	12
- SIB_POS offset info	Not Present
- SIB and SB type	System Information Type F2

Contents of Scheduling Block 1 (TDD 3.84 Mcps option and TDD 7.68 Mcps option)

Information Element	Value/remark
- References to other system information blocks	
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	4
- SIB_REP	128
- SIB_POS	3
- SIB_POS offset info	
- SIB_OFF	2
- SIB_OFF	2
- SIB and SB type	System Information Type 6
- Scheduling information	
- CHOICE Value tag	Not Present
- SEG_COUNT	1
- SIB_REP	16
- SIB_POS	2
- SIB_POS offset info	Not Present
- SIB type SIBs only	System Information Type 7
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	3
- SIB_REP	64
- SIB_POS	29
- SIB_POS offset info	
- SIB_OFF	2
- SIB_OFF	2
- SIB and SB type	System Information Type 11
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	3
- SIB_REP	64
- SIB_POS	13
- SIB_POS offset info	
- SIB_OFF	2
- SIB_OFF	2
- SIB and SB type	System Information Type 12
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	A valid Cell value tag as defined in TS 25.331
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	54
- SIB_POS offset info	Not Present
- SIB type SB	System Information Type 18
- Scheduling information	
- CHOICE Value tag	Not Present
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	6
- SIB_POS offset info	Not Present
- SIB and SB type	System Information Type F2

Contents of System Information Block type F1

Information Element	Value/remark
Data	Arbitrary data with a size of 226 bits

Contents of System Information Block type F2

Information Element	Value/remark
Data	Arbitrary data with a size of 50 bits

NOTE: For these future System Information Block types one of the available spare values for SIB type should be used

Contents of SYSTEM INFORMATION BLOCK TYPE 6 (FDD)

- PICH Power offset	-5 dB
- CHOICE Mode	FDD
- AICH Power offset	-5 dB
- Primary CCPCH info	present
- PRACH system information list	
- PRACH system information	
- PRACH info	
- CHOICE mode	FDD
- Available Signature	'0000 0000 1111 1111'B
- Available SF	64
- Preamble scrambling code number	0
- Puncturing Limit	1.00
- Available Sub Channel number	'1111 1111 1111'B
- Transport Channel Identity	15
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	168
- Number of TB and TTI List	
- Number of Transport blocks	1
- CHOICE Mode	FDD
- CHOICE Logical Channel List	Configured
- RLC size	360
- Number of TB and TTI List	
- Number of Transport blocks	1
- CHOICE Mode	FDD
- CHOICE Logical Channel List	Configured
- Semi-static Transport Format information	
- Transmission time interval	20 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	
- CHOICE TFCI signalling	Normal
- TFCI Field 1 information	
- CHOICE TFCS representation	Complete reconfiguration
- TFCS complete reconfiguration information	
- CHOICE CTFC Size	2 bit
- CTFC information	0
- Power offset information	
- CHOICE Gain Factors	Computed Gain Factor
- Reference TFC ID	0
- CHOICE Mode	FDD
- Power offset Pp-m	0 dB
- CTFC information	1
- Power offset information	
- CHOICE Gain Factors	Signalled Gain Factor
- CHOICE mode	FDD
- Gain factor ßc	11
- Gain factor ßd	15
- Reference TFC ID	0
- CHOICE Mode	FDD
- Power offset Pp-m	0 dB
- PRACH partitioning	
- Access Service Class	
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#1)
- Available signature End Index	7 (ASC#1)
- Assigned Sub-Channel Number	'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD

- Available signature Start Index	0 (ASC#3)
- Available signature End Index	7 (ASC#3)
- Assigned Sub-Channel Number	'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#5)
- Available signature End Index	7 (ASC#5)
- Assigned Sub-Channel Number	'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#7)
- Available signature End Index	7 (ASC#7)
- Assigned Sub-Channel Number	'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	
- AC-to-ASC mapping	6 (AC0-9)
- AC-to-ASC mapping	5 (AC10)
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	0 (AC15)
- CHOICE mode	FDD
- Primary CPICH TX power	31
- Constant value	-10
- PRACH power offset	
- Power Ramp Step	3dB
- Preamble Retrans Max	4
- RACH transmission parameters	
- Mmax	2
- NB01min	3 slot
- NB01max	10 slot
- AICH info	
- Channelisation code	3
- STTD indicator	FALSE
- AICH transmission timing	0
- Secondary CCPCH system information	
- Secondary CCPCH info	
- CHOICE mode	FDD
- Secondary scrambling code	Not Present
- STTD indicator	FALSE
- Spreading factor	64
- Code number	1
- Pilot symbol existence	FALSE
- TFCI existence	TRUE (default value)
- Fixed or Flexible position	Flexible (default value)
- Timing offset	0
- TFCS	(This IE is repeated for TFC number for PCH and FACH.)
- CHOICE TFCI signalling	Normal
- TFCI Field 1 information	
- CHOICE TFCS representation	Complete reconfiguration
- TFCS complete reconfiguration information	
- CHOICE CTFC Size	4 bit
- CTFC information	0
- Power offset information	Not Present

- CTFC information	1
- Power offset information	Not Present
- CTFC information	2
- Power offset information	Not Present
- CTFC information	3
- Power offset information	Not Present
- CTFC information	4
- Power offset information	Not Present
- CTFC information	5
- Power offset information	Not Present
- CTFC information	6
- Power offset information	Not Present
- CTFC information	8
- Power offset information	Not Present
- FACH/PCH information	
- TFS	(PCH)
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC Size	240
- Number of TB and TTI List	
- Number of Transport blocks	0
- Number of Transport blocks	1
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	230
- CRC size	16 bit
- Transport Channel Identity	12 (for PCH)
- CTCH indicator	FALSE
- TFS	(FACH)
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC Size	168
- Number of TB and TTI List	
- Number of Transport blocks	0
- Number of Transport blocks	1
- Number of Transport blocks	2
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	220
- CRC size	16 bit
- Transport Channel Identity	13 (for FACH)
- CTCH indicator	FALSE
- TFS	(FACH)
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC Size	360
- Number of TB and TTI List	
- Number of Transport blocks	0
- Number of Transport blocks	1
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Turbo
- Rate matching attribute	130
- CRC size	16bit
- Transport Channel Identity	14 (for FACH)
- CTCH indicator	FALSE
- PICH info	
- CHOICE mode	FDD
- Channelisation code	2
- Number of PI per frame	18
- STTD indicator	FALSE

- CBS DRX Level 1 information	Not Present

System Information Block type 7

Use the same System Information Block Type 7 message as found in clause 6.1.0b of TS 34.108, with the following exceptions:

- PRACHs listed in system information block type6 - Dynamic persistence level	 2

Contents of SYSTEM INFORMATION BLOCK TYPE 11 (FDD)

- Sib12 Indicator	TRUE
- FACH measurement occasion info	Present
- Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not Present Absence of this IE is equivalent to default value 1
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present (This IE shall be ignored by the UE for SIB11)
- New intra-frequency cells	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0 (0 dB)
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Present
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0 (0 dB)
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4
- Primary CPICH TX power	31
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Present
- Intra-frequency cell id	3
- Cell info	Same content as specified for Intra-frequency cell id=1 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1.4
- Intra-frequency cell id	7
- Cell info	Same content as specified for Intra-frequency cell id=1 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.7 (FDD)" in clause 6.1.4
- Intra-frequency cell id	8
- Cell info	Same content as specified for Intra-frequency cell id=1 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.8 (FDD)" in clause 6.1.4
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter coefficient	Not present Absence of this IE is equivalent to the default value 0
- CHOICE mode	FDD
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity for RACH Reporting	Not Present
- Maximum number of reported cells on RACH	Not Present

- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	TRUE
- CHOICE mode	FDD
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	TRUE
- Cell identity reporting indicator	TRUE
- CHOICE mode	FDD
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not Present
- Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Intra-frequency measurement reporting criteria	
- Parameters required for each event	2 kinds
- Intra-frequency event identity	1b
- Triggering condition 1	Active set cells
- Triggering condition 2	Not Present
- Reporting Range Constant	10 (5 dB)
- Cells forbidden to affect Reporting range	Not Present
- W	1 (0.1)
- Hysteresis	0.0
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	Not Present
- Time to trigger	640
- Amount of reporting	Not Present
- Reporting interval	Not Present
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
- Intra-frequency event identity	1c
- Triggering condition 1	Not Present
- Triggering condition 2	Not Present
- Reporting Range Constant	Not Present
- Cells forbidden to affect Reporting range	Not Present
- W	Not Present
- Hysteresis	0 (0.0)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	3
- Time to trigger	640
- Amount of reporting	4
- Reporting interval	4000
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
- Inter-frequency measurement system information	
- Inter-frequency cell info list	
- CHOICE Inter-frequency cell removal	Not present (This IE shall be ignored by the UE for SIB11)
- New inter-frequency cells	
- Inter frequency cell id	4
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]

- UARFCN downlink(Nd)	Reference to table 6.1.2 for Cell 4
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0 (0 dB)
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.4 (FDD)" in clause 6.1.4
- Primary CPICH Tx power	31
- TX Diversity Indicator	FALSE
- Cell Selection and Re-selection Info	present (same values as for serving cell applies)
- Inter frequency cell id	5
- Frequency info	Not Present Absence of this IE is equivalent to value of the previous "frequency info" in the list.
- Cell info	Same content as specified for Inter-frequency cell id=4 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.5 (FDD)" in clause 6.1.4
- Inter frequency cell id	6
- Frequency info	Not Present Absence of this IE is equivalent to value of the previous "frequency info" in the list.
- Cell info	Same content as specified for Inter-frequency cell id=4 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.6 (FDD)" in clause 6.1.4
- Cell for measurement	Not present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	
- Traffic volume measurement identity	5
- Traffic volume measurement object list	Not Present
- Traffic volume measurement quantity	
- Measurement quantity	RLC Buffer Payload
- Time Interval to take an average or a variance	Not Present
- Traffic volume reporting quantity	
- RLC Buffer Payload for each RB	TRUE
- Average of RLC Buffer Payload for each RB	FALSE
- Variance of RLC Buffer Payload for each RB	FALSE
- Measurement validity	Not Present
- Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Periodical trigger
- Report Criteria Sys Inf	
- Periodical Reporting Criteria	
- Reporting Amount	Infinity
- Reporting interval	8000

Contents of SYSTEM INFORMATION BLOCK TYPE 12 (FDD)

- FACH measurement occasion info	Present
- Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not Present Absence of this IE is equivalent to default value 1
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present (This IE shall be ignored by the UE for SIB11)
- New intra-frequency cells	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0 (0 dB)
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Present
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0 (0 dB)
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4
- Primary CPICH TX power	31
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Present
- Intra-frequency cell id	3
- Cell info	Same content as specified for Intra-frequency cell id=1 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1.4
- Intra-frequency cell id	7
- Cell info	Same content as specified for Intra-frequency cell id=1 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.7 (FDD)" in clause 6.1.4
- Intra-frequency cell id	8
- Cell info	Same content as specified for Intra-frequency cell id=1 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.8 (FDD)" in clause 6.1.4
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter coefficient	Not present Absence of this IE is equivalent to the default value 0
- CHOICE mode	FDD
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity for RACH Reporting	Not Present
- Maximum number of reported cells on RACH	Not Present
- Reporting information for state CELL_DCH	

- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	TRUE
- CHOICE mode	FDD
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	TRUE
- Cell identity reporting indicator	TRUE
- CHOICE mode	FDD
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not Present
- Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Intra-frequency measurement reporting criteria	
- Parameters required for each event	2 kinds
- Intra-frequency event identity	1b
- Triggering condition 1	Active set cells
- Triggering condition 2	Not Present
- Reporting Range Constant	10 (5 dB)
- Cells forbidden to affect Reporting range	Not Present
- W	1 (0.1)
- Hysteresis	0 (0.0)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	Not Present
- Time to trigger	640
- Amount of reporting	Not Present
- Reporting interval	Not Present
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
- Intra-frequency event identity	1c
- Triggering condition 1	Not Present
- Triggering condition 2	Not Present
- Reporting Range Constant	Not Present
- Cells forbidden to affect Reporting range	Not Present
- W	Not Present
- Hysteresis	0 (0.0)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	3
- Time to trigger	640
- Amount of reporting	4
- Reporting interval	4000
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
- Inter-frequency measurement system information	
- Inter-frequency cell info list	
- CHOICE Inter-frequency cell removal	Not present (This IE shall be ignored by the UE for SIB11)
- New inter-frequency cells	
- Inter frequency cell id	4
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to apply the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink(Nd)	Reference to table 6.1.2 for Cell 4

- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0 (0 dB)
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.4 (FDD)" in clause 6.1.4
- Primary CPICH Tx power	31
- TX Diversity Indicator	FALSE
- Cell Selection and Re-selection Info	present (same values as for serving cell applies)
- Inter frequency cell id	5
- Frequency info	Not Present Absence of this IE is equivalent to value of the previous "frequency info" in the list.
- Cell info	Same content as specified for Inter-frequency cell id=4 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.5 (FDD)" in clause 6.1.4
- Inter frequency cell id	6
- Frequency info	Not Present Absence of this IE is equivalent to value of the previous "frequency info" in the list.
- Cell info	Same content as specified for Inter-frequency cell id=4 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.6 (FDD)" in clause 6.1.4
- Cell for measurement	Not present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	
- Traffic volume measurement identity	5
- Traffic volume measurement object list	Not Present
- Traffic volume measurement quantity	
- Measurement quantity	RLC Buffer Payload
- Time Interval to take an average or a variance	Not Present
- Traffic volume reporting quantity	
- RLC Buffer Payload for each RB	TRUE
- Average of RLC Buffer Payload for each RB	FALSE
- Variance of RLC Buffer Payload for each RB	FALSE
- Measurement validity	Not Present
- Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Periodical trigger
- Report Criteria Sys Inf	
- Periodical Reporting Criteria	
- Reporting Amount	Infinity
- Reporting interval	8000

8.1.10.1.5 Test requirement

After step 1 the UE shall have a call/session established in Cell 1.

After step 5 the UE shall have a call/session established in Cell 2.

8.1.10.2 BCCH Mapping on HS-DSCH for Transmitting System Information Change Indication

8.1.10.2.1 Definition

All UEs which support FDD and HS-PDSCH in CELL_FACH.

8.1.10.2.2 Conformance requirement

Upon modifications of system information blocks using value tags, UTRAN should notify the new value tag for the master information block in the IE "BCCH modification info", transmitted in the following way:

…

1> for FDD and 1.28 Mcps TDD, to reach UEs in CELL_FACH state with HS-DSCH assigned and in CELL_PCH with HS-DSCH and dedicated H-RNTI assigned, the IE "BCCH modification info" is contained in a SYSTEM INFORMATION CHANGE INDICATION message transmitted on the BCCH mapped on the HS-PDSCH indicated with the first indexed HS-SCCH code by the BCCH specific H-RNTI.

Upon reception of a PAGING TYPE 1 message or a SYSTEM INFORMATION CHANGE INDICATION message containing the IE "BCCH modification info" containing the IE "MIB value tag" but not containing the IE "BCCH modification time", the UE shall perform actions as specified in subclause 8.1.1.7.3

…

The UE shall:

1> compare the value of IE "MIB value tag" in the IE "BCCH modification info" with the value tag stored for the master information block in variable VALUE_TAG.

1> if the value tags differ:

2> read the master information block on BCH;

2> if the value tag of the master information block in the system information is the same as the value in IE "MIB value tag" in "BCCH modification info" but different from the value tag stored in the variable VALUE_TAG:

3> perform actions as specified in subclause 8.1.1.5.

2> if the value tag of the master information block in the system information is the same as the value tag stored in the variable VALUE_TAG:

3> for the next occurrence of the master information block:

4> perform actions as specified in subclause 8.1.1.7.3 again.

2> if the value tag of the master information block in the system information is different from the value tag stored in the variable VALUE_TAG, and is different from the value in IE "MIB value tag" in "BCCH modification info":

3> perform actions as specified in subclause 8.1.1.5;

3> if (VTCI-VTMIB) mod 8 < 4, where VTCI is the value tag in the IE "MIB value tag" in "BCCH modification info" and VTMIB is the value tag of the master information block in the system information:

4> for the next occurrence of the master information block:

5> perform actions as specified in subclause 8.1.1.7.3 again.

…

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

…

1> and for FDD, for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH code listed in the IE "HS-SCCH channelisation code" with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

Reference

3GPP TS 25.331: 8.1.1.7.1, 8.1.1.7.3, 8.5.36

8.1.10.2.3 Test Purpose

1. To verify the correct use of system change indication for BCCH mapped on HS-DSCH
2. To verify operation of BCCH specific H-RNTI
3. To verify that BCCH reception on HS-DSCH uses the first indexed HS-SCCH code listed on the IE HS-SCCH channelisation code with BCCH specific H-RNTI

8.1.10.2.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_FACH state with DCCH/DTCH mapped onto HS-DSCH as specified in clause 7.4 of TS 34.108 with dedicated H-RNTI and C-RNTI assigned.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH in CELL_FACH

Test Procedure

The SS transmits the new SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis message. In the new SIB TYPE 5 / SIB TYPE 5bis message, the IE "HS-SCCH Channelisation Code" is different when compared to the original SIB TYPE 5 / SIB TYPE 5bis message. Master information block is transmitted with updated MIB value tag. Then SS transmits a SYSTEM INFORMATION CHANGE INDICATION message to the UE with BCCH mapped on HS-DSCH. The transmission of BCCH on HS-DSCH is performed by using BCCH-specific H-RNTI on the specific HS-SCCH code indicated in system information broadcast. The SYSTEM INFORMATION CHANGE INDICATION message shall include the IE "BCCH Modification Information" indicating the value tag of the modified master information block. After an elapsed time, required to read the new HS-SCCH channelization code in system information, the SS transmits a UE CAPABILITY ENQUIRY message on RB1 over HS-DSCH using HS-SCCH code 7. The UE does not respond to this. SS transmits a UE CAPABILITY ENQUIRY message on RB2 over HS-DSCH using HS-SCCH code 6. After receiving this message the UE should transmit a UE CAPABILITY INFORMATION message on the UL DCCH which indicates the requested capabilities. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the UE capability enquiry procedure.

The SS transmits modified SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis. In this message the IE "HS-SCCH Channelisation Code" is set to use HS-SCCH code 7. The Master information block is transmitted with updated MIB value tag. The SS transmits a SYSTEM INFORMATION CHANGE INDICATION message to the UE, This message is transmitted using HS-SCCH code 7. After an elapsed time, required to read the new HS-SCCH channelization code in system information, the SS transmits a UE CAPABILITY ENQUIRY message on RB1 over HS-DSCH using HS-SCCH code 7. The UE does not respond to this. SS transmits a UE CAPABILITY ENQUIRY message on RB2 over HS-DSCH using HS-SCCH code 5. After receiving this message the UE should transmit a UE CAPABILITY INFORMATION message on the UL DCCH which indicates the requested capabilities. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the UE capability enquiry procedure

The SS modifies SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis. In this message the IE "HS-SCCH Channelisation Code" is set to use HS-SCCH code 7. The Master information block is transmitted with updated MIB value tag. The SS transmits a SYSTEM INFORMATION CHANGE INDICATION message to the UE, This message is transmitted using HS-SCCH code 6. After an elapsed time, required to read the new HS-SCCH channelization code in system information. SS transmits a UE CAPABILITY ENQUIRY message on RB2 over HS-DSCH using HS-SCCH code 7. After receiving this message the UE should transmit a UE CAPABILITY INFORMATION message on the UL DCCH which indicates the requested capabilities. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the UE capability enquiry procedure

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_FACH state and configured for HS-DSCH reception with dedicated H-RNTI and C-RNTI assigned.
2		←	SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis	For FDD, at the same time, SS starts to transmit the affected SIB TYPE 5/ SIB TYPE 5bis continuously. The value of IE "HS-SCCH Channelisation Code" is changed from "7" to "6" for first indexed HS-SCCH code and to “5” for the second indexed HS-SCCH code.
3	←		MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting.
4		←	SYSTEM INFORMATION CHANGE INDICATION	SS transmits the RRC message which comprises IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block. BCCH is mapped on HS-DSCH. HS-SCCH code is 7 as defined in default SIB5 message.
5				SS waits 5s (to ensure that the UE has time to read the new system information)
6		←	UE CAPABILITY ENQUIRY	RRC message sent on DL SRB1. Use default message but using HS-SCCH channelisation Code 7. Use default message.
7				SS waits 10 seconds and checks that the UE does not respond.
8		←	UE CAPABILITY ENQUIRY	RRC message sent on DL SRB2. Use default message but using HS-SCCH channelisation Code 6. Use default message.
9		→	UE CAPABILITY INFORMATION	Use default message.
10		←	UE CAPABILITY INFORMATION CONFIRM	Use default message. SRB is sent on SRB2.
11		←	SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis	For FDD, at the same time, SS starts to transmit the affected SIB TYPE 5/ SIB TYPE 5bis continuously. The value of IE "HS-SCCH Channelisation Code" is changed back to 7.
12		←	MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the previous setting.
13		←	SYSTEM INFORMATION CHANGE INDICATION	SS transmits the RRC message which comprises IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block. BCCH is mapped on HS-DSCH. HS-SCCH code is 7.
14				SS waits 5s. A 3GPP compliant UE should not receive SYSTEM INFORMATION CHANGE INDICATION and not re-read System Information

15	←	UE CAPABILITY ENQUIRY	RRC message sent on DL SRB1. Use default message but using HS-SCCH channelisation Code 7. Use default message.
16			SS waits 10 seconds and checks that the UE does not respond.
17	←	UE CAPABILITY ENQUIRY	RRC message sent on DL SRB2. Use default message but using HS-SCCH channelisation Code 5. Use default message.
18	→	UE CAPABILITY INFORMATION	Use default message.
19	←	UE CAPABILITY INFORMATION CONFIRM	Use default message. SRB is sent on SRB2.
20	←	SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis	For FDD, at the same time, SS starts to transmit the affected SIB TYPE 5/ SIB TYPE 5bis continuously. The value of IE "HS-SCCH Channelisation Code" is set to 7.
21	←	MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the previous setting.
22	←	SYSTEM INFORMATION CHANGE INDICATION	SS transmits the RRC message which comprises IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block. BCCH is mapped on HS-DSCH. HS-SCCH code is 6.
			SS waits 5s (to ensure that the UE has time to read the new system information)
23	←	UE CAPABILITY ENQUIRY	RRC message sent on DL SRB2. Use default message but using HS-SCCH channelisation Code 7. Use default message.
24	→	UE CAPABILITY INFORMATION	Use default message.
25	←	UE CAPABILITY INFORMATION CONFIRM	Use default message. SRB is sent on SRB2.

Specific Message Contents

SYSTEM INFORMATION CHANGE INDICATION (Steps 4, 13, 22)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
- MIB Value Tag	Set to (Current MIB value tag + 1)
- BCCH Modification time	Not Present

MASTER INFORMATION BLOCK (Step 3, 12, 21)

Information Element	Value/remark
MIB Value tag	As in SYSTEM INFORMATION CHANGE INDICATION in step 2
SIB 5 Cell Value tag	Set to (Current SIB5 value tag + 1)

SYSTEM INFORMATION BLOCK TYPE 5/ SYSTEM INFORMATION BLOCK TYPE 5bis. (Step 2)(FDD)

Use the same message type found in clause 6.1.0b of TS 34.108, configuration for HS-DSCH reception in CELL_FACH, with the following exception.

Information Element	Value/remark
- HS-SCCH system info	
- DL Scrambling Code	Not Present
- HS-SCCH Channelisation Code Information	Use 2 HS-SCCH
- HS-SCCH Channelisation Code	6
- HS-SCCH Channelisation Code	5

SYSTEM INFORMATION BLOCK TYPE 5/ SYSTEM INFORMATION BLOCK TYPE 5bis. (Steps 11 & 20)(FDD)

Use the same message type found in clause 6.1.0b of TS 34.108, configuration for HS-DSCH reception in CELL_FACH

8.1.10.2.5 Test requirement

At step 7 the UE shall not respond to the UE CAPABILITY ENQUIRY message sent in step 6.

At step 9 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH to respond to the downlink UE CAPABILITY ENQUIRY message with correct contents.

At step 16 the UE shall not respond to the UE CAPABILITY ENQUIRY message sent in step 15.

At step 24 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH to respond to the downlink UE CAPABILITY ENQUIRY message with correct contents.

8.1.10.3 BCCH Mapping on HS-DSCH for Transmitting System Information Change Indication (1.28Mcps TDD)

8.1.10.3.1 Definition

All UEs which support 1.28Mcps TDD and HS-PDSCH in CELL_FACH.

8.1.10.3.2 Conformance requirement

Upon modifications of system information blocks using value tags, UTRAN should notify the new value tag for the master information block in the IE "BCCH modification info", transmitted in the following way:

…

1> for FDD and 1.28 Mcps TDD, to reach UEs in CELL_FACH state with HS-DSCH assigned and in CELL_PCH with HS-DSCH and dedicated H-RNTI assigned, the IE "BCCH modification info" is contained in a SYSTEM INFORMATION CHANGE INDICATION message transmitted on the BCCH mapped on the HS-PDSCH indicated with the first indexed HS-SCCH code by the BCCH specific H-RNTI.

Upon reception of a PAGING TYPE 1 message or a SYSTEM INFORMATION CHANGE INDICATION message containing the IE "BCCH modification info" containing the IE "MIB value tag" but not containing the IE "BCCH modification time", the UE shall perform actions as specified in subclause 8.1.1.7.3

…

The UE shall:

1> compare the value of IE "MIB value tag" in the IE "BCCH modification info" with the value tag stored for the master information block in variable VALUE_TAG.

1> if the value tags differ:

2> read the master information block on BCH;

2> if the value tag of the master information block in the system information is the same as the value in IE "MIB value tag" in "BCCH modification info" but different from the value tag stored in the variable VALUE_TAG:

3> perform actions as specified in subclause 8.1.1.5.

2> if the value tag of the master information block in the system information is the same as the value tag stored in the variable VALUE_TAG:

3> for the next occurrence of the master information block:

4> perform actions as specified in subclause 8.1.1.7.3 again.

2> if the value tag of the master information block in the system information is different from the value tag stored in the variable VALUE_TAG, and is different from the value in IE "MIB value tag" in "BCCH modification info":

3> perform actions as specified in subclause 8.1.1.5;

3> if (VTCI-VTMIB) mod 8 < 4, where VTCI is the value tag in the IE "MIB value tag" in "BCCH modification info" and VTMIB is the value tag of the master information block in the system information:

4> for the next occurrence of the master information block:

5> perform actions as specified in subclause 8.1.1.7.3 again.

…

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

…

1> and for 1.28 Mcps TDD, for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH according to the stored HS-SCCH configuration with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

NOTE : For 1.28 Mcps TDD, when performing HS-DSCH reception in CELL_FACH state, the UE shall use the table of transport block size for the HS-DSCH physical layer category 9 as specified in [15].

Reference

3GPP TS 25.331: 8.1.1.7.1, 8.1.1.7.3, 8.5.36

8.1.10.3.3 Test Purpose

4. To verify the correct use of system change indication for BCCH mapped on HS-DSCH
5. To verify operation of BCCH specific H-RNTI
6. To verify that BCCH reception on HS-DSCH uses the first indexed HS-SCCH code listed on the IE HS-SCCH channelisation code with BCCH specific H-RNTI

8.1.10.3.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_FACH state with DCCH/DTCH mapped onto HS-DSCH as specified in clause 7.4 of TS 34.108 with dedicated H-RNTI and C-RNTI assigned.

Related ICS/IXIT statement(s)

- UE supports 1.28Mcps TDD
- UE supports HS-PDSCH in CELL_FACH

Test Procedure

The SS transmits a SYSTEM INFORMATION CHANGE INDICATION message to the UE with BCCH mapped on HS-DSCH. The transmission of BCCH on HS-DSCH is performed by using BCCH-specific H-RNTI on the specific HS-SCCH code indicated in system information broadcast. The SYSTEM INFORMATION CHANGE INDICATION message shall include the IE "BCCH Modification Information" indicating the value tag of the modified master information block. Then SS transmits the new master information block followed by the new SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis message. In the new SIB TYPE 5 / SIB TYPE 5bis message, the IE "HS-SCCH Channelisation Code" is different when compared to the original SIB TYPE 5 / SIB TYPE 5bis message. After an elapsed time, required to read the new HS-SCCH channelization code in system information, the SS transmits a UE CAPABILITY ENQUIRY message on RB2 over HS-DSCH using second index HS-SCCH. The UE does not respond to this. SS transmits a UE CAPABILITY ENQUIRY message on RB2 over HS-DSCH using first index HS-SCCH. After receiving this message the UE should transmit a UE CAPABILITY INFORMATION message on the UL DCCH which indicates the requested capabilities. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the UE capability enquiry procedure

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_FACH state and configured for HS-DSCH reception with dedicated H-RNTI and C-RNTI assigned.
2	←		SYSTEM INFORMATION CHANGE INDICATION	SS transmits the RRC message which comprises IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block. BCCH is mapped on HS-DSCH. HS-SCCH code is 16/5 and 16/6 as defined in default SIB5 message.
3	←		MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting.
4	←		SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis	At the same time, SS starts to transmit the affected SIB TYPE 5/ SIB TYPE 5bis continuously. The value of IE "HS-SCCH Channelisation Code" is changed from "16/5"and “16/6” to "16/7" and “16/8” for first indexed HS-SCCH and to “16/9” and “16/10” for the second indexed HS-SCCH code.
5				SS waits 5s (to ensure that the UE has time to read the new system information)
.6	←		UE CAPABILITY ENQUIRY	RRC message sent on DL SRB2. Use default message but using HS-SCCH channelisation Code 16/5 and 16/6. Use default message.
7				SS waits 10 seconds and checks that the UE does not respond.
8	←		UE CAPABILITY ENQUIRY	RRC message sent on DL SRB2. Use default message but using HS-SCCH channelisation Code 16/7 and 16/8. Use default message.
9	→		UE CAPABILITY INFORMATION	Use default message.
10	←		UE CAPABILITY INFORMATION CONFIRM	Use default message. SRB is sent on SRB2.
11	←		SYSTEM INFORMATION CHANGE INDICATION	SS transmits the RRC message which comprises IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block. BCCH is mapped on HS-DSCH. HS-SCCH code is 16/9 and 16/10.
12	←		MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the previous setting.
13	←		SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis	At the same time, SS starts to transmit the affected SIB TYPE 5/ SIB TYPE 5bis continuously. The value of IE "HS-SCCH Channelisation Code" is changed back to 16/5 and 16/6.
14				SS waits 5s. A 3GPP compliant UE should not receive SYSTEM INFORMATION CHANGE INDICATION and not re-read System Information

15	←	UE CAPABILITY ENQUIRY	RRC message sent on DL SRB2. Use default message but using HS-SCCH channelisation Code 16/5 and 16/6. Use default message.
16			SS waits 10 seconds and checks that the UE does not respond.
17	←	UE CAPABILITY ENQUIRY	RRC message sent on DL SRB2. Use default message but using HS-SCCH channelisation Code 16/9 and 16/10. Use default message.
18	→	UE CAPABILITY INFORMATION	Use default message.
19	←	UE CAPABILITY INFORMATION CONFIRM	Use default message. SRB is sent on SRB2.
20	←	SYSTEM INFORMATION CHANGE INDICATION	SS transmits the RRC message which comprises IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block. BCCH is mapped on HS-DSCH. HS-SCCH code is 16/7 and 16/8.
21	←	MASTER INFORMATION BLOCK	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the previous setting.
22	←	SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis	At the same time, SS starts to transmit the affected SIB TYPE 5/ SIB TYPE 5bis continuously. The value of IE "HS-SCCH Channelisation Code" is set to 16/5 and 16/6.
			SS waits 5s (to ensure that the UE has time to read the new system information)
23	←	UE CAPABILITY ENQUIRY	RRC message sent on DL SRB2. Use default message but using HS-SCCH channelisation Code 16/5 and 16/6. Use default message.
24	→	UE CAPABILITY INFORMATION	Use default message.
25	←	UE CAPABILITY INFORMATION CONFIRM	Use default message. SRB is sent on SRB2.

Specific Message Contents

SYSTEM INFORMATION CHANGE INDICATION (Steps 2, 11, 20)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
- MIB Value Tag	Set to (Current MIB value tag + 1)
- BCCH Modification time	Not Present

MASTER INFORMATION BLOCK (Step 3, 12, 21)

Information Element	Value/remark
MIB Value tag	As in SYSTEM INFORMATION CHANGE INDICATION in step 2
SIB 5 Cell Value tag	Set to (Current SIB5 value tag + 1)

SYSTEM INFORMATION BLOCK TYPE 5/ SYSTEM INFORMATION BLOCK TYPE 5bis. (Step 4)

Use the same message type found in clause 6.1.0b of TS 34.108, configuration for HS-DSCH reception in CELL_FACH, with the following exception.

Information Element	Value/remark
- HS-SCCH Set Configuration	Use 2 HS-SCCH
- Timeslot number	0
- First Channelisation code	16/7
- Second Channelisation code	16/8
- Timeslot number	0
- First Channelisation code	16/9
- Second Channelisation code	16/10

SYSTEM INFORMATION BLOCK TYPE 5/ SYSTEM INFORMATION BLOCK TYPE 5bis. (Step 13, 22)

Use the same message type found in clause 6.1.0b of TS 34.108, configuration for HS-DSCH reception in CELL_FACH,

8.1.10.3.5 Test requirement

At step 7 the UE shall not respond to the UE CAPABILITY ENQUIRY message sent in step 6.

At step 9 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH to respond to the downlink UE CAPABILITY ENQUIRY message with correct contents.

At step 16 the UE shall not respond to the UE CAPABILITY ENQUIRY message sent in step 15.

At step 24 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH to respond to the downlink UE CAPABILITY ENQUIRY message with correct contents.

8.1.11 Signalling Connection Release (Invalid configuration)

8.1.11.1 Definition

8.1.11.2 Conformance requirement

Upon reception of a SIGNALLING CONNECTION RELEASE message, the UE shall:

1> indicate the release of the signalling connection and pass the value of the IE "CN domain identity" to upper layers;

1> remove the signalling connection with the identity indicated by the IE "CN domain identity" from the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

1> clear the entry for the SIGNALLING CONNECTION RELEASE message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> the procedure ends.

If radio access bearers for the CN domain indicated by the IE "CN domain identity" exist in the variable ESTABLISHED_RABS, the UE shall:

1> transmit an RRC STATUS message on the uplink DCCH using AM RLC;

1> include the IE "Identification of received message"; and

1> set the IE "Received message type" to SIGNALLING CONNECTION RELEASE; and

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the SIGNALLING CONNECTION RELEASE message in the table "Accepted transactions" in the variable TRANSACTIONS and clear that entry;

1> include the IE "Protocol error information" with contents set to the value "Message not compatible with receiver state";

1> when the RRC STATUS message has been submitted to lower layers for transmission:

2> continue with any ongoing processes and procedures as if the invalid SIGNALLING CONNECTION RELEASE message has not been received.

Reference

3GPP TS 25.331 clause 8.1.13.3 and 8.1.13.5.

8.1.11.3 Test purpose

To confirm that the UE ignores the SIGNALLING CONNECTION RELEASE REQUEST message which request the UE to release signalling connection of domain that contains established radio access bearers.

To confirm that the UE transmit a RRC STATUS message to SS after detecting an invalid configuration in the received message.

8.1.11.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS_DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

SS transmit MEASUREMENT CONTROL message to UE. In this message, SS requests UE to perform traffic volume measurement. Key measurement parameters are as follows: measurement quantity = "RLC Buffer Payload", report criteria = "periodic reporting criteria", reporting interval = "6 seconds", reporting amount = 'infinity'. UE shall begin traffic volume measurements, and shall send MEASUREMENT REPORT message after completing first measurement. UE shall send second MEASUREMENT REPORT message 6 seconds after first MEASUREMENT REPORT message. Then SS transmit SIGNALLING CONNECTION RELEASE message to UE. UE shall ignore the message and send a RRC STATUS message to SS. Then the UE shall send MEASUREMENT REPORT message to SS within the next 6 seconds.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		MEASUREMENT CONTROL	Periodical traffic volume measurement reporting is requested.
2	→		MEASUREMENT REPORT	
3	→		MEASUREMENT REPORT	Time difference between earlier and this MEASUREMENT REPORT message should be 6 seconds.
4	←		SIGNALLING CONNECTION RELEASE	If the initial condition of the UE is state 6-9, set the IE "CN domain identity" to "CS domain". If the initial condition of the UE is state 6-10, set the IE "CN domain identity" to "PS domain".
5	→		RRC STATUS	
6	→		MEASUREMENT REPORT	This message should be sent within 6 seconds after the previous message.

Specific Message Content

MEASUREMENT CONTROL (Step 1)

For MEASUREMENT CONTROL message in step 1, use the message sub-type as found in clause 9 of TS 34.108, with the exception of the following Information Elements:

Information Element	Value/Remark
Measurement Identity	1
Measurement Command	Setup
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	Periodic
Additional measurement list	Not Present
CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	
- Uplink transport channel type	DCH
- UL Target Transport Channel ID	5
- Traffic volume measurement quantity	
- Measurement quantity	RLC Buffer Payload
- Time Interval to take an average or a variance	Not Present
- Traffic volume reporting quantity	
- RLC Buffer Payload for each RB	True
- Average of RLC Buffer Payload for each RB	False
- Variance of RLC Buffer Payload for each RB	False
- Measurement validity	Not Present
- CHOICE Reporting criteria	Periodical Reporting Criteria
- Amount of reporting	Infinity
- Reporting interval	6 Sec
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 2, 3 and 6)

Check that the message received is the same as the message sub-type found in clause 9 of TS 34.108, with the following exceptions and the order in which the RBs are reported is not checked.

Information Element	Value/Remarks
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

SIGNALLING CONNECTION RELEASE (Step 4)

Information Element	Value/Remarks
Message Type	
RRC transaction identifier	0
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
CN domain identity	If the initial condition of the UE is state 6-9, set to "CS domain". If the initial condition of the UE is state 6-10, set to "PS domain".

RRC STATUS (Step 5)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Identification of received message	Not Checked
- Received message type	SIGNALLING CONNECTION RELEASE
- RRC transaction identifier	0
Protocol error information	
- Protocol error cause	Message not compatible with receiver state

8.1.11.5 Test requirement

After step 1 the UE shall transmit MEASUREMENT REPORT message twice at an interval of 6 seconds.

After step 4 the UE shall transmit a RRC STATUS message with protocol error cause set to "Message not compatible with receiver state".

After step 5 the UE shall transmit a MEASUREMENT REPORT within 6 seconds.

8.1.12 Integrity Protection

8.1.12.1 Definition

8.1.12.2 Conformance requirement

If the UE receives an RRC message on signalling radio bearer with RB identity n, the "Status" in the variable INTEGRITY_ PROTECTION_INFO has the value "Started" and the IE 'Integrity check info' is present the UE shall:

1> check the value of the IE "RRC message sequence number" included in the IE "Integrity check info";

2> if the "Downlink RRC Message sequence number" is not present in the variable INTEGRITY_PROTECTION_INFO:

3> initialise the "Downlink RRC Message sequence number" for signalling radio bearer RBn in the variable INTEGRITY_PROTECTION_INFO with the value of the IE "RRC message sequence number" included in the IE "Integrity check info" of the received message.

2> if the "Downlink RRC Message sequence number" is present in the variable INTEGRITY_PROTECTION_INFO:

3> if the RRC message sequence number is lower than the "Downlink RRC Message sequence number" for signalling radio bearer RBn in the variable INTEGRITY_PROTECTION_INFO:

4> increment "Downlink RRC HFN" for signalling radio bearer RBn in the variable INTEGRITY_PROTECTION_INFO with one.

3> if the RRC message sequence number is equal to the "Downlink RRC Message sequence number" for signalling radio bearer RBn in the variable INTEGRITY_PROTECTION_INFO:

4> discard the message.

1> calculate an expected message authentication code in accordance with subclause 8.5.10.3 of TS25.331;

1> compare the expected message authentication code with the value of the received IE "message authentication code" contained in the IE "Integrity check info";

2> if the expected message authentication code and the received message authentication code are the same, the integrity check is successful:

3> update the "Downlink RRC Message sequence number" for signalling radio bearer RBn in the variable INTEGRITY_PROTECTION_INFO with the value of the IE "RRC message sequence number" included in the IE "Integrity check info" of the received RRC message.

2> if the calculated expected message authentication code and the received message authentication code differ:

3> if the IE "RRC message sequence number" included in the IE "Integrity check info" is lower than the "Downlink RRC Message sequence number" for signalling radio bearer RBn in the variable INTEGRITY_PROTECTION_INFO (in this case the "Downlink RRC HFN" for signalling radio bearer RBn in the variable INTEGRITY_PROTECTION_INFO was incremented by one, as stated above):

4> decrement "Downlink RRC HFN" for signalling radio bearer RBn in the variable INTEGRITY_PROTECTION_INFO by one.

3> discard the message.

If the UE receives an RRC message on signalling radio bearer with identity n, the "Status" in the variable INTEGRITY_ PROTECTION_INFO has the value "Started" and the IE 'Integrity check info' is not present the UE shall:

1> discard the message.

Reference

3GPP TS 25.331 clause 8.5.10.

8.1.12.3 Test purpose

To confirm that the UE discards any RRC messages that include wrong message authentication code, or RRC message sequence number, or do not include the IE "Integrity Check Info" after integrity protection is activated.

8.1.12.4 Method of test

Initial Condition

System Simulator: 1cell.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS_DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE after integrity protection is activated on all SRBs.

Test Procedure

The UE is in CELL_DCH state, radio access bearer and integrity protection is already activated in generic setup procedure. The SS transmits UE CAPABILITY ENQUIRY message on the downlink DCCH using RLC-UM mode on SRB1. The UE shall respond to with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. The SS then sends UE CAPABILITY INFORMATION CONFIRM message to the UE. This procedure is used to initialise the downlink RRC message sequence number in the UE.

SS transmits RRC CONNECTION RELEASE message which does not include the IE "Integrity Check Info" on downlink DCCH. The UE shall discard this message and shall not respond using RRC CONNECTION RELEASE COMPLETE message.

Then SS transmits RRC CONNECTION RELEASE message which includes wrong message authentication code on downlink DCCH. The UE shall discard this message and shall not respond using RRC CONNECTION RELEASE COMPLETE message.

Then SS transmits RRC CONNECTION RELEASE message which includes IE"RRC Message sequence number" as set to the same sequence number as the number in previous received RRC message. The UE shall discard this message and shall not respond using RRC CONNECTION RELEASE COMPLETE message.

Then SS transmits RRC CONNECTION RELEASE message which includes correct RRC Message sequence number and message authentication code. The UE shall transmit RRC CONNECTION RELEASE COMPLETE message on uplink DCCH and enter the idle state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0				The UE is in CELL_DCH state.
0a	←		UE CAPABILITY ENQUIRY	The SS shall send this message to ensure correct initialisation of RRC message sequence number on downlink DCCH using RLC-UM
0b	→		UE CAPABILITY INFORMATION	The UE shall send this message on the uplink DCCH using RLC-AM
0c	←		UE CAPABILITY INFORMATION CONFIRM	
1	←		RRC CONNECTION RELEASE	See specific message content
2				During 5s after step 1, confirm that UE does not transmit RRC CONNECTION RELEASE COMPLETE message. If RRC CONNECTION RELEASE COMPLETE message is received, the test is ended as fail.
3	←		RRC CONNECTION RELEASE	See specific message content
4				During 5s after step 3, confirm that UE does not transmit RRC CONNECTION RELEASE COMPLETE message. If RRC CONNECTION RELEASE COMPLETE message is received, the test is end as fail.
5			Void	
6			Void	
7			Void	
8	←		RRC CONNECTION RELEASE	See specific message content
9				During 5s after step 8, confirm that UE does not transmit RRC CONNECTION RELEASE COMPLETE message. If RRC CONNECTION RELEASE COMPLETE message is received, the test is end as fail.
10	←		RRC CONNECTION RELEASE	Use default message content.
11	→		RRC CONNECTION RELEASE COMPLETE	SS waits for the arrival of N308 + 1 such messages using unacknowledged mode.
12	←→		CALL C.1	If the test result of C.1 indicates that UE is in Idle state, the test passes, otherwise it fails.

Specific Message Content

RRC CONNECTION RELEASE (Step 1)

Use the same message type found in clause 9 of TS 34.108, with the following exception:

Information Element	Value/remark
Integrity check info	Not Present

RRC CONNECTION RELEASE (Step 3)

Use the same message type found in clause 9 of TS 34.108, with the following exception:

Information Element	Value/remark
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and set different value from the calculated result to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter value.

RRC CONNECTION RELEASE (Step 8)

Use the same message type found in clause 9 of TS 34.108, with the following exception:

Information Element	Value/remark
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and set the result to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	SS provides the value of this IE equal to the value for the last message accepted by the UE on this radio bearer.

8.1.12.5 Test requirement

After step 1 the UE shall not transmit RRC CONNECTION RELEASE COMPLETE message on the uplink DCCH.

After step 3 the UE shall not transmit RRC CONNECTION RELEASE COMPLETE message on the uplink DCCH.

After step 8 the UE shall not transmit RRC CONNECTION RELEASE COMPLETE message on the uplink DCCH.

After step 10 the UE shall transmit RRC CONNECTION RELEASE COMPLETE message on the uplink DCCH.

8.2 Radio Bearer control procedure

8.2.1 Radio Bearer Establishment

8.2.1.1 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success

8.2.1.1.1 Definition

8.2.1.1.2 Conformance requirement

If the UE receives:

- a RADIO BEARER SETUP message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214 (FDD only);

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if the IE "Downlink information for each radio link" is absent, not change its current DL Physical channel configuration.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

- clear that entry;

1bis> in TDD, if the procedure is used to perform a handover to a cell where timing advance is enabled, and the UE can calculate the timing advance value in the new cell (i.e. in a synchronous TDD network):

2> set the IE "Uplink Timing Advance" according to subclause 8.6.6.26.In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.1.1.3 Test purpose

To confirm that the UE establishes a new radio bearer according to a RADIO BEARER SETUP message.

8.2.1.1.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CS-DCCH_DCH (state 6-5) or PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH state, after the test operator is prompted to make an out-going call. Before step 1, only signalling radio bearers have been established. The SS transmits a RADIO BEARER SETUP message to the UE . This message requests the establishment of radio access bearer. After the UE receives this message, it configures them and establishes a radio access bearer. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP

The contents of RADIO BEARER SETUP message in this test case is identical to the message sub-type indicated by "Non speech from CELL_DCH to CELL_DCH in CS" or "Speech from CELL_DCH to CELL_DCH in CS" or "Packet to CELL_DCH from CELL_DCH in PS" in [9] TS 34.108 clause 9.

8.2.1.1.5 Test requirement

After step 1 the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.1a Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (TDD Only)

8.2.1.1a.1 Definition

The features and operation of Multi-frequency and UpPCH shifting have been introduced to core specification (TS25.331 clause 8.6.6.1, 8.6.6.26, and 8.6.6.43) for LCR TDD.

8.2.1.1a.2 Conformance requirement

If the UE receives:

- a RADIO BEARER SETUP message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214 (FDD only);

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if the IE "Downlink information for each radio link" is absent, not change its current DL Physical channel configuration.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

- clear that entry;

1bis> in TDD, if the procedure is used to perform a handover to a cell where timing advance is enabled, and the UE can calculate the timing advance value in the new cell (i.e. in a synchronous TDD network):

2> set the IE "Uplink Timing Advance" according to subclause 8.6.6.26.In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4, 8.6.6.1, 8.6.6.26, and 8.6.6.43.

8.2.1.1a.3 Test purpose

To confirm that the UE establishes a new radio bearer according to a RADIO BEARER SETUP message.

8.2.1.1a.4 Method of test

Initial Condition

System Simulator: 1 cell, 3 frequency (one is primary frequency, others are secondary frequency), set UpPCH shifting=22.

UE: CS-DCCH_DCH (state 6-5) or PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH state, after the test operator is prompted to make an out-going call. Before step 1, only signalling radio bearers have been established. The SS transmits a RADIO BEARER SETUP message to the UE . This message requests the establishment of radio access bearer. After the UE receives this message, it configures them and establishes a radio access bearer. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP

The contents of RADIO BEARER SETUP message in this test case is identical to the message sub-type indicated by "Non speech from CELL_DCH to CELL_DCH in CS" or "Speech from CELL_DCH to CELL_DCH in CS" or "Packet to CELL_DCH from CELL_DCH in PS" in [9] TS 34.108 clause 9.

Information Element	Value/remark
RadioBearerSetup-r4-TDD128-add-ext-IEs	
frequencyInfo	Secondary frequency
UpPCHpositionInfo	22

8.2.1.1a.5 Test requirement

After step 1 the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.2 Void

8.2.1.3 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Failure (Unsupported configuration)

8.2.1.3.1 Definition

8.2.1.3.2 Conformance requirement

If the UTRAN instructs the UE to use a configuration, which it does not support and/or if the received message causes the variable UNSUPPORTED_CONFIGURATION to be set to TRUE, the UE shall:

1> transmit a failure response as specified in TS 25.331 subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "configuration unsupported".

1> set the variable UNSUPPORTED_CONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

The UE shall:

1> in case of reception of a RADIO BEARER SETUP message:

…

2> transmit a RADIO BEARER SETUP FAILURE as response message on the DCCH using AM RLC.

…

The UE should set the variable UNSUPPORTED_CONFIGURATION to TRUE if the received message is not according to the UE capabilities.

Reference

3GPP TS 25.331 clause8.2.2.6, 8.2.2.9, 8.5.20.

8.2.1.3.3 Test purpose

To confirm that the UE keeps its configuration and transmits a RADIO BEARER SETUP FAILURE message in case of receiving a RADIO BEARER SETUP message which includes parameters of its unsupported configuration.

8.2.1.3.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH_DCH (state 6-5) or PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108, depending on the domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH state. SS then send a MEASUREMENT CONTROL message to UE. The UE shall perform periodical traffic volume measurement according to this message and then transmit MEASUREMENT REPORT message back to SS. The SS transmits a RADIO BEARER SETUP message in which the frequency cannot be supported by the UE. After the UE receives this message, it transmits a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC . UE shall continue its traffic volume measurement and send MEASUREMENT REPORT messages back to SS periodically.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0a	←		MEASUREMENT CONTROL	SS requests UE to perform periodical traffic volume measurement.
0b	→		MEASUREMENT REPORT	
1	←		RADIO BEARER SETUP	Including the unsupported configuration for the UE.
2	→		RADIO BEARER SETUP FAILURE	The UE does not change the configuration.
3	→		MEASUREMENT REPORT	

Specific Message Contents

MEASUREMENT CONTROL (Step 0a)

Use the MEASUREMENT CONTROL message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/Remark
Measurement Identity	1
Measurement Command	Setup
Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurement list	Not Present
CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	
- Uplink transport channel type	DCH
- UL Target Transport Channel ID	5
- Traffic volume measurement quantity	
- Measurement quantity	RLC Buffer Payload
- Time Interval to take an average or a variance	Not Present
- Traffic volume reporting quantity	
- RLC Buffer Payload for each RB	True
- Average of RLC Buffer Payload for each RB	False
- Variance of RLC Buffer Payload for each RB	False
- Measurement validity	
- UE state	All states
- CHOICE Reporting criteria	Periodical Reporting Criteria
- Amount of reporting	Infinity
- Reporting interval	8000
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 0b and 3)

Check to see if the same message type found in [9] TS 34.108 Clause 9 is received, with the following exceptions and the order in which the RBs are reported is not checked.:

Information Element	Value/Remarks
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

RADIO BEARER SETUP (Step 1)

The contents of RADIO BEARER SETUP message in this test case is indicated as "Non-speech in CS" or the RADIO BEARER SETUP message as found in clause 9 of TS 34.108 with the following exceptions:

RADIO BEARER SETUP (FDD)

Information Element	Value/remark
Frequency info	
CHOICE mode	FDD
- UARFCN uplink (Nu)	0
- UARFCN downlink (Nd)	950

RADIO BEARER SETUP (TDD)

Information Element	Value/remark
Frequency info	
CHOICE mode	TDD
- UARFCN (Nt)	0

RADIO BEARER SETUP FAILURE (Step 2)

The contents of RADIO BEARER SETUP FAILURE message in this test case is the same as the RADIO BEARER SETUP FAILURE message as found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Message Type	
Failure cause	Not checked

8.2.1.3.5 Test requirement

After step 0a, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

After step 1 the UE transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC .

After step 2, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

8.2.1.4 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Failure (Physical channel Failure and successful reversion to old configuration)

8.2.1.4.1 Definition

8.2.1.4.2 Conformance requirement

When a physical dedicated channel establishment is initiated by the UE, the UE shall start a timer T312 and wait for layer 1 to indicate N312 "in sync" indications. On receiving N312 "in sync" indications, the physical channel is considered established and the timer T312 is stopped and reset.

If the timer T312 expires before the physical channel is established, the UE shall consider this as a "physical channel establishment failure".

NOTE: The criteria defined in this subclause only apply in case the UE performs synchronisation procedure A (FDD only).

…

If the received message caused the UE to be in CELL_DCH state and the UE according to subclause 8.5.4 failed to establish the dedicated physical channel(s) indicated in the received message the UE shall:

1> revert to the configuration prior to the reception of the message (old configuration);

…

1> transmit a failure response message as specified in TS 25.331 subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "physical channel failure".

1> set the variable ORDERED_RECONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

The UE shall:

1> in case of reception of a RADIO BEARER SETUP message:

…

2> transmit a RADIO BEARER SETUP FAILURE as response message on the DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.7, 8.2.2.9, 8.5.4.

8.2.1.4.3 Test purpose

To confirm that the UE reverts to the old configuration and transmits a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC, if the UE fails to reconfigure the radio bearer according to the RADIO BEARER SETUP message before timer T312 expires.

8.2.1.4.4 Method of test

Initial Condition

System Simulator: 2 cells. – Cell 1 is active and cell 2 is inactive.

UE: CS-DCCH_DCH (state 6-5) or PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108, depending on the domain(s) supported by the UE.

Test Procedure

Table 8.2.1.4

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-60	OFF	-75
P-CCPCH RSCP (TDD)	dBm	-60	-60	OFF	-75

Table 8.2.1.4 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 2.

The UE is in CELL_DCH state in cell 1. SS then send a MEASUREMENT CONTROL message to UE. The UE shall perform periodical traffic volume measurement according to this message and then transmit MEASUREMENT REPORT message back to SS. Then the SS configures its downlink transmission power settings according to column

"T1" in table 8.2.1.4. The SS transmits a RADIO BEARER SETUP message to the UE specifying a configuration in cell 2 and SS keeps its old dedicated channel configuration in cell 1. Then after T312 expiry, the UE reverts to the old configuration and transmits a RADIO BEARER SETUP FAILURE message on the DCCH in cell 1 using AM RLC which is set to "physical channel failure" in IE "failure cause". UE shall continue its traffic volume measurement and send MEASUREMENT REPORT messages back to SS periodically.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0a	←		MEASUREMENT CONTROL	SS requests UE to perform periodical traffic volume measurement.
0b	→		MEASUREMENT REPORT	
1	←		RADIO BEARER SETUP	The SS keeps its old L1 configuration in cell 1 and does not configure a physical channel in cell 2 after transmitting this message.
2				The UE does not configure the new radio access bearer and reverts to the old configuration.
3	→		RADIO BEARER SETUP FAILURE	UE shall transmit this message using the old configuration.
4	→		MEASUREMENT REPORT	

Specific Message Contents

MEASUREMENT CONTROL (Step 0a)

Use the MEASUREMENT CONTROL message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/Remark
Measurement Identity	1
Measurement Command	Setup
Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurement list	Not Present
CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	
- Uplink transport channel type	DCH
- UL Target Transport Channel ID	5
- Traffic volume measurement quantity	
- Measurement quantity	RLC Buffer Payload
- Traffic volume reporting quantity	
- RLC Buffer Payload for each RB	True
- Average of RLC Buffer Payload for each RB	False
- Variance of RLC Buffer Payload for each RB	False
- Measurement validity	
- UE state	All states
- CHOICE Reporting criteria	Periodical Reporting Criteria
- Amount of reporting	Infinity
- Reporting interval	8000
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 0b and 4)

Check to see if the same message type found in [9] TS 34.108 Clause 9 is received, with the following exceptions and the order in which the RBs are reported is not checked:

Information Element	Value/Remarks
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

RADIO BEARER SETUP (Step 1) (FDD)

The contents of the RADIO BEARER SETUP message in this test case is indicated as "Non speech to CELL_DCH from CELL_DCH in CS", "Speech to CELL_DCH from CELL_DCH in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in clause 9 of TS 34.108, with the following exceptions.

Information Element	Value/remark
Downlink information for each radio link list	
- Downlink information for each radio links	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary CPICH scrambling code	Ref. to the Default setting for cell 2 in TS34.108 clause 6.1 (FDD)

RADIO BEARER SETUP (Step 1) (TDD)

The contents of the RADIO BEARER SETUP message in this test case is indicated as "Non speech to CELL_DCH from CELL_DCH in CS", "Speech to CELL_DCH from CELL_DCH in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
CHOICE *channel requirement*	Uplink DPCH info
- Uplink DPCH timeslots and code	
- First individual timeslot info	
- Timeslot number	
- CHOICE TDD option	1.28 Mcps TDD
- Timeslot number	0
Downlink information for each radio link list	
- Downlink information for each radio links	
- CHOICE mode	TDD
- Primary CCPCH info	Ref. to the Default setting for cell 2 in TS34.108 clause 6.1 (TDD)

RADIO BEARER SETUP FAILURE (Step 3)

The contents of RADIO BEARER SETUP FAILURE message in this test case is the same as the RADIO BEARER SETUP FAILURE message as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Failure cause	Physical channel failure

8.2.1.4.5 Test requirement

After step 0a, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

After step 2 the UE shall transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC which is set to "physical channel failure" in IE "failure cause".

After step 3, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

8.2.1.4a Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (start of MIMO operation for 1.28Mcps TDD only)

8.2.1.4a.1 Definition and applicability

All UEs which support TDD and MIMO operation.

8.2.1.4a.2 Conformance requirement

If the UE receives:

- a RADIO BEARER SETUP message; or

…

it shall:

…

1> if any IEs related to MIMO are stored in the UE:

2> determine the value for the MIMO_STATUS variable and take the corresponding actions as described in subclause 8.5.33.

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message, the UE shall:

1> take actions related to the MIMO_PARAMS variable as specified in subclause 8.5.32;

1> determine the value of the MIMO_STATUS variable.

The MIMO_STATUS variable shall be set to TRUE only when all the following conditions are met:

1> The UE is in CELL_DCH state;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO N_cqi_typeA/M_cqi ratio"; and

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO pilot configuration".

1> for 1.28 Mcps TDD, the variable MIMO_PARAMS contains a value for the IE "MIMO SF Mode for HS-PDSCH dual stream".

If any of the above conditions is not met and the MIMO_STATUS variable is set to TRUE, the UE shall:

1> set the MIMO_STATUS variable to FALSE;

1> clear the MIMO_PARAMS variable;

1> trigger lower layers to stop operation in MIMO mode on the serving HS-DSCH cell.

Reference

3GPP TS 25.331 clauses 8.2.2.3, 8.5.33

8.2.1.4a.3 Test purpose

To confirm that the UE establishes a radio bearer mapped to HS-DSCH and enables MIMO operation according to the received RADIO BEARER SETUP message.

8.2.1.4a.4 Method of test

Initial Condition

System Simulator: 1 cells - Cell 1 is active

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports TDD
- UE supports MIMO

Test Procedure

The UE is in CELL_DCH state. Only signalling radio bearers have been established in cell 1.

The test operator is prompted to make an out-going call. The SS transmits a RADIO BEARER SETUP message to the UE . This message requests the establishment of radio access bearer mapped to HS-DSCH. After the UE receives this message, it configures them and establishes a radio access bearer and cell 1 shall be assigned as the serving HS-DSCH cell. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 3)

Use the same message as specified for “Packet to CELL_DCH / HS-DSCH with MIMO " in 34.108 .

8.2.1.4a.5 Test requirements

After step 3, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.4b Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (start of SPS operation)

8.2.1.4b.1 Definition and applicability

All UEs which support TDD and SPS operation.

8.2.1.4b.2 Conformance requirement

If the UE receives:

- a RADIO BEARER SETUP message; or

…

it shall:

…

1> for 1.28 Mcps TDD, if the IE "SPS information" is stored in the UE:

2> determine the value for the E_DCH_SPS_STATUS variable and take the corresponding actions as described in subclause 8.5.54;

2> determine the value for the HS_DSCH_SPS_STATUS variable and take the corresponding actions as described in subclause 8.5.55

If the UE receives RRC CONNECTION SETUP, CELL UPDATE CONFIRM, or any reconfiguration message:

1> the UE shall determine the value for the E_DCH_SPS_STATUS variable.

The variable E_DCH_SPS_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable E_DCH_TRANSMISSION is set to TRUE;

1> the IE "E-DCH SPS information" is included in the received message.

If any of the above conditions is not met and the variable E_DCH_SPS_STATUS is set to TRUE, the UE shall:

1> set the variable E_DCH_SPS_STATUS to FALSE;

1> clear the variable E_DCH_SPS_PARAMS;

1> stop all E-DCH SPS related activities.

Whenever the variable E_DCH_SPS_STATUS is set to TRUE, the UE shall:

1> configure the physical and MAC layers to operate according to the E_DCH_SPS_PARAMS.

If variable E_DCH_SPS_STATUS is set to TRUE and the serving E-DCH cell was changed as a result of the received message and the value of IE "E-DCH SPS Information" included in this message is "Continue E-DCH SPS operation", then UE behaviour is unspecified.

If the UE receives RRC CONNECTION SETUP, CELL UPDATE CONFIRM, or any reconfiguration message:

1> the UE shall determine the value for the HS_DSCH_SPS_STATUS variable.

The variable HS_DSCH_SPS_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> the IE "HS-DSCH SPS information" is included in the received message.

If any of the above conditions is not met and the variable HS_DSCH_SPS_STATUS is set to TRUE, the UE shall:

1> set the variable HS_DSCH_SPS_STATUS to FALSE;

1> clear the variable HS_DSCH_SPS_PARAMS;

1> stop all HS-DSCH SPS related activities.

Whenever the variable HS_DSCH_SPS_STATUS is set to TRUE, the UE shall:

1> configure the physical and MAC layers to operate according to the HS_DSCH_SPS_PARAMS.

If variable HS_DSCH_SPS_STATUS is set to TRUE and the serving HS-DSCH cell was changed as a result of the received message and the value of IE "HS-DSCH SPS information" included in this message is "Continue HS-DSCH SPS operation", then UE behaviour is unspecified.

Reference

3GPP TS 25.331 clauses 8.2.2.3, 8.5.54, 8.5.55

8.2.1.4b.3 Test purpose

To confirm that the UE establishes a radio bearer mapped to HS-DSCH and E-DCH and enables SPS operation according to the received RADIO BEARER SETUP message.

8.2.1.4b.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A12, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports TDD
- UE supports SPS operation

Test Procedure

The UE is in CELL_DCH state. Only signalling radio bearers have been established.

The test operator is prompted to make an out-going call. The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of a radio bearer with RB mapping to HS-DSCH and E-DCH and the start of SPS operation. After the UE receives this message, it establishes a radio bearer and maps it to the HS-DSCH and E-DCH. The UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. The SS transmits a UE CAPABILITY ENQUIRY message using SPS operation. The UE shall respond with a UE CAPABILITY INFORMATION message and finally the SS replies with UE CAPABILITY INFORMATION CONFIRM, send using SPS operation. The SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	With parameters for SPS operation
2	→		RADIO BEARER SETUP COMPLETE	
3	←		UE CAPABILITY ENQUIRY	The SS transmits this message using SPS operation
4	→		UE CAPABILITY INFORMATION	
5	←		UE CAPABILITY INFORMATION CONFIRM	The SS transmits this message using SPS operation
6	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

The contents of RADIO BEARER SETUP message in this test case are identical to the message sub-type indicated by " Packet to CELL_DCH / E-DCH / HS-DSCH with SPS operation "

8.2.1.4b.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE.

After step 3, the UE shall transmit a UE CAPABILITY INFORMATION message using SPS operation.

8.2.1.4c Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (start of Control Channel DRX operation)

8.2.2.4c.1 Definition and applicability

All UEs which support TDD and Control Channel DRX.

8.2.2.4c.2 Conformance requirement

If the UE receives:

- a RADIO BEARER SETUP message; or

…

it shall:

…

1> for 1.28 Mcps TDD, if the IEs "Control Channel DRX Information" is stored in the UE:

2> determine the value for the CONTROL_CHANNEL_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.53.

…

If the UE receives RRC CONNECTION SETUP, CELL UPDATE CONFIRM, or any reconfiguration message:

1> the UE shall determine the value for the CONTROL_CHANNEL_DRX_STATUS variable.

The variable CONTROL_CHANNEL_DRX_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable HS_DSCH RECEPTION is set to TRUE;

1> the IE "Control Channel DRX information" is included in the received message.

If any of the above conditions is not met and the variable CONTROL_CHANNEL_DRX_STATUS is set to TRUE, the UE shall:

1> set the variable CONTROL_CHANNEL_DRX_STATUS to FALSE;

1> clear the variable CONTROL_CHANNEL_DRX_PARAMS;

1> disable the Control Channel DRX related activities.

If variable CONTROL_CHANNEL_DRX_STATUS is set to TRUE and the serving HS-DSCH cell was changed as a result of the received message, the UE shall instruct the physical layer to consider HS-SCCH orders were never received.

Whenever the variable CONTROL_CHANNEL_DRX_STATUS is set to TRUE after receiving this message and the value of IE "Control Channel DRX information" included in this message is "Continue Control Channel DRX operation ", the UE shall:

1> continue the Control Channel DRX related activities with the IE in the variable CONTROL_CHANNEL_DRX_PARAMS.

Reference

3GPP TS 25.331 clauses 8.2.2.4, 8.5.53

8.2.2.4c.3 Test purpose

To confirm that the UE can support Control Channel DRX operation according to the received RADIO BEARER RECONFIGURATION message.

To confirm that the UE establishes a radio bearer mapped to HS-DSCH and E-DCH and enables discontinuous uplink DPCCH transmission according to the received RADIO BEARER SETUP message

8.2.2.4c.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A12, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports TDD
- UE supports Control Channel DRX

Test Procedure

The UE is in CELL_DCH state. Only signalling radio bearers have been established, mapped to DPCH.

The test operator is prompted to make an out-going call. The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of a radio bearer with RB mapping to HS-DSCH and E-DCH, with Control Channel DRX configured. After the UE receives this message, it establishes a radio bearer and maps it to the HS-DSCH and E-DCH. The UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	
3	SS			The SS waits to allow sufficient time for control channel DRX be active, and timer inactivity Threshold for HS-SCCH DRX cycle to expire, and then verifies that the DRX operation has been activated successfully.
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

The contents of RADIO BEARER SETUP message in this test case are identical to the message sub-type indicated by " Packet to CELL_DCH / E-DCH / HS-DSCH with Control Channel DRX operation "

Control Channel DRX information	
- CHOICE *Control Channel DRX operation*	New Control Channel DRX operation
- HS-SCCH DRX information	
- HS-SCCH DRX cycle	8
- Inactivity Threshold for HS-SCCH DRX cycle	16
- HS-SCCH DRX Offset	0
- E-AGCH DRX Information	
- CHOICE *E-AGCH DRX information type*	Same as HS-SCCH
- Enabling Delay	32

8.2.1.4c.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE.

At step 3, the control channel DRX operation has been activated successfully.

8.2.1.5 Void

8.2.1.6 Void

8.2.1.7 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Failure (Invalid message reception and Invalid configuration)

8.2.1.7.1 Definition

8.2.1.7.2 Conformance requirement

If the received reconfiguration message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to TS 25.331 clause 9, the UE shall perform procedure specific error handling as follows. The UE shall:

1> transmit a failure response message as specified in TS 25.331 subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Rejected transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to the cause value "protocol error";

2> include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

….

If the variable INVALID_CONFIGURATION is set to TRUE the UE shall:

1> keep the configuration existing before the reception of the message;

1> transmit a failure response message as specified in TS 25.331 subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

3> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> clear that entry.

2> set the IE "failure cause" to "invalid configuration".

1> set the variable INVALID_CONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

….

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent via a radio access technology other than UTRAN, containing an undefined critical message extension, the UE shall:

1> set the variable PROTOCOL_ERROR_REJECT to TRUE;

1> set the IE "Protocol error cause" in the variable PROTOCOL_ERROR_INFORMATION to "Message extension not comprehended";

1> if the IE "Message Type" of the received message is not present in the table "Rejected transactions" in the variable TRANSACTIONS:

2> store the IE "Message type" of the received message in the table "Rejected transactions" in the variable TRANSACTIONS; and

2> set the IE "RRC transaction identifier" to zero in that table entry.

1> perform procedure specific error handling according to TS 25.331 clause 8.

….

If the IE "RAB information for setup" is included, the procedure is used to establish radio bearers belonging to a radio access bearer, and the UE shall:

1> if several IEs "RAB information for setup" are included and the included IEs "CN domain identity" in the IE "RAB info" does not all have the same value:

2> set the variable INVALID_CONFIGURATION to TRUE.

….

The UE shall:

1> in case of reception of a RADIO BEARER SETUP message:

…

2> transmit a RADIO BEARER SETUP FAILURE as response message on the DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.13, 8.2.2.11, 8.2.2.9, 8.6.4.2 and 9.3b.

8.2.1.7.3 Test purpose

To confirm that the UE transmits a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC if it receives an invalid RADIO BEARER SETUP message which contains an unexpected critical message extension.

To confirm that the UE transmits a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC if it receives a RADIO BEARER SETUP message including an invalid configuration.

8.2.1.7.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CS-DCCH_DCH (state 6-5) or PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH state. SS then send a MEASUREMENT CONTROL message to UE. The UE shall perform periodical traffic volume measurement according to this message and then transmit MEASUREMENT REPORT message back to SS. The SS transmits an invalid RADIO BEARER SETUP message to the UE which contains an unexpected critical message extension. The UE keeps the old configuration and transmits a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC which is set to "protocol error" in IE "failure cause", and is set to "Message extension not comprehended" in IE "Protocol error cause". UE shall continue its traffic volume measurement and send MEASUREMENT REPORT messages back to SS periodically. The UE keeps current configuration after SS transmits a RADIO BEARER SETUP message including an invalid configuration. Then UE transmits a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC, setting the value "invalid configuration" to IE "failure cause". UE shall continue its traffic volume measurement and send MEASUREMENT REPORT messages back to SS periodically.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0a	←		MEASUREMENT CONTROL	SS requests UE to perform periodical traffic volume measurement.
0b	→		MEASUREMENT REPORT	
1	←		RADIO BEARER SETUP	See specific message content.
2	→		RADIO BEARER SETUP FAILURE	The UE does not change its configuration.
2a	→		MEASUREMENT REPORT	
3	←		RADIO BEARER SETUP	This message includes an invalid value.
4	→		RADIO BEARER SETUP FAILURE	The UE does not change its configuration.
5	→		MEASUREMENT REPORT	

Specific Message Contents

MEASUREMENT CONTROL (Step 0a)

Use the MEASUREMENT CONTROL message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/Remark
Measurement Identity	1
Measurement Command	Setup
Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurement list	Not Present
CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	
- Uplink transport channel type	DCH
- UL Target Transport Channel ID	5
- Traffic volume measurement quantity	
- Measurement quantity	RLC Buffer Payload
- Traffic volume reporting quantity	
- RLC Buffer Payload for each RB	True
- Average of RLC Buffer Payload for each RB	False
- Variance of RLC Buffer Payload for each RB	False
- Measurement validity	
- UE state	All states
- CHOICE Reporting criteria	Periodical Reporting Criteria
- Amount of reporting	Infinity
- Reporting interval	8000
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 0b, 2a and 5)

Check to see if the same message type found in [9] TS 34.108 Clause 9 is received, with the following exceptions and the order in which the RBs are reported is not checked:

Information Element	Value/Remarks
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

RADIO BEARER SETUP (Step 1)

Use the RADIO BEARER SETUP message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Critical extensions	'FF'H

RADIO BEARER SETUP FAILURE (Step 2)

Information Element	Value/remark
Message Type	
Failure cause	
- Failure cause	Protocol error
- Protocol error information	
- Protocol error cause	Message extension not comprehended
Other information element	Not checked

RADIO BEARER SETUP (Step 3)

The contents of RADIO BEARER SETUP message in this test case is identical as "Non speech from CELL_DCH to CELL_DCH in CS", Speech to CELL_DCH from CELL_DCH in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in clause 9 of TS 34.108 with the following exceptions:

RADIO BEARER SETUP (Step 3)

Information Element	Value/remark
RAB information for setup list	
- RAB information for setup	This IE is set as defined in message "RADIO BEARER SETUP message: AM or UM (Speech in CS)"
- RAB information for setup	This IE is set as defined in message "RADIO BEARER SETUP message: AM or UM (Packet to CELL_DCH from CELL_DCH in PS)"

RADIO BEARER SETUP FAILURE (Step 4)

The contents of RADIO BEARER SETUP FAILURE message in this test case is the same as the RADIO BEARER SETUP FAILURE message as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Failure cause	Invalid configuration

8.2.1.7.5 Test requirement

After step 0a, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

After step 1 the UE shall keep its old configuration and transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC which is set to "protocol error" in IE "failure cause" and set to "Message extension not comprehended" in IE "Protocol error cause".

After step 2, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

After step 3 the UE shall keep its old configuration and transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC, setting the value "invalid configuration" to IE "failure cause".

After step 4, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

8.2.1.8 Radio Bearer Establishment for transition from CELL_DCH to CELL_FACH: Success

8.2.1.8.1 Definition

8.2.1.8.2 Conformance requirement

If the UE receives:

- a RADIO BEARER SETUP message; or

it shall:

1> perform the physical layer synchronisation procedure as specified in TS 25.214 (FDD only);

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS 25.304 on that frequency.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS 25.304.

1> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

2> initiate a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

2> when the cell update procedure completed successfully:

3> if the UE is in CELL_PCH or URA_PCH state:

4> initiate a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Uplink data transmission";

4> proceed as below.

1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in system information block type 1;

1> select PRACH according to TS 25.331 subclause 8.5.17;

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> use the transport format set given in system information;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> ignore that IE and stop using DRX.

1> if the contents of the variable C_RNTI is empty:

2> perform a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

2> when the cell update procedure completed successfully:

3> if the UE is in CELL_PCH or URA_PCH state:

4> initiate a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Uplink data transmission";

4> proceed as below.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.1.8.3 Test purpose

To confirm that the UE establishes a new radio bearer according to a RADIO BEARER SETUP message.

8.2.1.8.4 Method of test

Initial Condition

System Simulator: 1 cell.

NOTE: The ‘timer poll’ value in the SS RLC transmit entity should be set to 800 ms.

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_DCH state, after the test operator is asked to initiate a packet-switched data call. The SS transmits a RADIO BEARER SETUP message to the UE. After the UE receives this message, it transits from CELL_DCH to CELL_FACH state. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. Then the UE and the SS enters the communicating state. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	SS requests test operator to make an outgoing packet-switched data call.
2	→		RADIO BEARER SETUP COMPLETE	The UE selects PRACH and S-CCPCH indicated in SIB5/SIB5bis or SIB6 after entering CELL FACH state.
3	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

For RADIO BEARER SETUP message in step 1, use the message sub-type indicated as "Packet to CELL_FACH from CELL_DCH in PS" found in [9] TS 34.108 clause 9 with the following exception:

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B

8.2.1.8.5 Test requirement

After step 1 the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.9 Radio Bearer Establishment for transition from CELL_DCH to CELL_FACH: Success (Cell re-selection)

8.2.1.9.1 Definition

8.2.1.9.2 Conformance requirement

1. If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

   ……

   - if the contents of the variable C_RNTI is empty:
     - perform a cell update procedure according to clause 8.3.1 using the cause "Cell reselection";

2. If the CELL UPDATE CONFIRM message

   - does not include "RB information elements"; and
   - does not include "Transport channel information elements"; and
   - does not include "Physical channel information elements"; and
   - includes "CN information elements"; or
   - includes the IE "Ciphering mode info"; or
   - includes the IE "Integrity protection mode info"; or
   - includes the IE "New C-RNTI"; or
   - includes the IE "New U-RNTI":

   the UE shall:

   - transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

3. In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

   - transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC;

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.3.1.7, 8.2.2.4.

8.2.1.9.3 Test purpose

1. To verify that the UE when receiving a RADIO BEARER SETUP message not including a value for C-RNTI initiate a cell update procedure and indicating the cause "Cell reselection".

2. To verify that the UE when the CELL UPDATE CONFIRM message does not include "RB information elements", "Transport channel information elements" nor "Physical channel information elements" but include the IE "New C-RNTI" transmit a UTRAN MOBILITY INFORMATION CONFIRM message.

3. To confirm that the UE transmits RADIO BEARER SETUP COMPLETE message after it completes the cell update procedure.

8.2.1.9.4 Method of test

Initial Condition

System Simulator: 1 cell- Cell 1 is active.

NOTE: The 'timer poll' value in the SS RLC transmit entity should be set to 800 ms.

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_DCH state. The SS transmits a RADIO BEARER SETUP message which includes IE "Primary CPICH info" and no dedicated physical channel information, to request the UE to transit from CELL_DCH to CELL_FACH. Due to absence of the C-RNTI in the RADIO BEARER SETUP message the UE shall initiate the cell update procedure even if the UE selects the same cell as indicated by the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD). The UE transmits a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". The SS shall transmit a CELL UPDATE CONFIRM message on downlink DCCH after receiving CELL UPDATE message. The UE transmits a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC. The UE transmits a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2			Void	
3	←		RADIO BEARER SETUP	Assigned the transition from CELL_DCH to CELL_FACH
4	→		CELL UPDATE	The value "cell reselection" set in IE "Cell update cause".
5	←		CELL UPDATE CONFIRM	C-RNTI included
6	→		UTRAN MOBILITY INFORMATION CONFIRM	
7	→		RADIO BEARER SETUP COMPLETE	
8	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 3)

The contents of RADIO BEARER SETUP message in this test case is identical as "Packet to CELL_FACH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/Remarks
New C-RNTI	Not present

CELL UPDATE (Step 4)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Cell Update Cause	"cell reselection"

CELL UPDATE CONFIRM (Step 5)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in [9] TS 34.108 clause 9. with the following exceptions:

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B

UTRAN MOBILITY INFORMATION CONFIRM (Step 6)

The contents of UTRAN MOBILITY INFORMATION CONFIRM message is identical as "UTRAN MOBILITY INFORMATION CONFIRM message" as found in [9] TS 34.108 clause 9.

RADIO BEARER SETUP COMPLETE (Step 7)

The contents of RADIO BEARER SETUP COMPLETE message is identical as "RADIO BEARER SETUP COMPLETE message" as found in [9] TS 34.108 clause 9.

8.2.1.9.5 Test requirement

1. After step 3 the UE shall transmit a CELL UPDATE message on the CCCH with IE "Cell update cause" set to "cell reselection".
2. After step 5 the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC.
3. After step 6 the UE shall transmit a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC.

8.2.1.10 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Success

8.2.1.10.1 Definition

8.2.1.10.2 Conformance requirement

If the UE receives:

- a RADIO BEARER SETUP message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214 (FDD only);

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If after state transition the UE enters CELL_DCH state, the UE shall, after the state transition:

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.1.10.3 Test purpose

To confirm that the UE establishes a new radio bearer according to a RADIO BEARER SETUP message.

8.2.1.10.4 Method of test

Initial Condition

System Simulator: 1 cell.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH_FACH (state 6-8) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state, after SS prompts the test operator to initiate a packet-switched data call. The SS transmits a RADIO BEARER SETUP message to the UE . After the UE receives this message, it configures them and establishes the required radio bearers. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

RADIO BEARER SETUP

The contents of RADIO BEARER SETUP message in this test case is identical the message sub-type indicated by "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9.

8.2.1.10.5 Test requirement

After step 1 the UE shall transmit a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC.

8.2.1.10a Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Success (TDD Only)

8.2.1.10.1a Definition

The features and operation of Multi-frequency and UpPCH shifting have been introduced to core specification (TS25.331 clause 8.6.6.1, 8.6.6.26, and 8.6.6.43) for LCR TDD.

8.2.1.10.2a Conformance requirement

If the UE receives:

- a RADIO BEARER SETUP message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If after state transition the UE enters CELL_DCH state, the UE shall, after the state transition:

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4, 8.6.6.1, 8.6.6.26, and 8.6.6.43.

8.2.1.10.3a Test purpose

To confirm that the UE establishes a new radio bearer according to a RADIO BEARER SETUP message.

8.2.1.10.4a Method of test

Initial Condition

System Simulator: 1 cell. Configure 3 carriers, one is primary carrier, the others are secondary carriers.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH_FACH (state 6-8) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state, after SS prompts the test operator to initiate a packet-switched data call. The SS transmits a RADIO BEARER SETUP message to the UE . After the UE receives this message, it configures them and establishes the required radio bearers in secondary carriers.. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP

The contents of RADIO BEARER SETUP message in this test case is identical the message sub-type indicated by "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Uplink DPCH info	
-Uplink Timing Advance Control	
- Frequency info	secondary carriers
-UpPCH position info	0

8.2.1.10.5a Test requirement

After step 1 the UE shall transmit a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC.

8.2.1.11 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Failure (Unsupported configuration)

8.2.1.11.1 Definition

8.2.1.11.2 Conformance requirement

If the UTRAN instructs the UE to use a configuration, which it does not support and/or if the received message causes the variable UNSUPPORTED_CONFIGURATION to be set to TRUE, the UE shall:

1> transmit a failure response as specified in TS 25.331 subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "configuration unsupported".

1> set the variable UNSUPPORTED_CONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

The UE shall:

1> in case of reception of a RADIO BEARER SETUP message:

…

2> transmit a RADIO BEARER SETUP FAILURE as response message on the DCCH using AM RLC.

…

The UE should set the variable UNSUPPORTED_CONFIGURATION to TRUE if the received message is not according to the UE capabilities.

Reference

3GPP TS 25.331 clause 8.2.2.6, 8.2.2.9, 8.5.20.

8.2.1.11.3 Test purpose

To confirm that the UE keeps its configuration and transmits a RADIO BEARER SETUP FAILURE message in case of it receiving a RADIO BEARER SETUP message, which includes parameters of an unsupported configuration.

8.2.1.11.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH_FACH (state 6-8) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. SS then send a MEASUREMENT CONTROL message to UE. The UE shall perform periodical traffic volume measurement according to this message and then transmit MEASUREMENT REPORT message back to SS. The SS transmits a RADIO BEARER SETUP message with a stated frequency that cannot be supported by the UE. After the UE receives this message, it shall transmit a RADIO BEARER SETUP FAILURE

message on the DCCH using AM RLC . UE shall continue its traffic volume measurement and send MEASUREMENT REPORT messages back to SS periodically.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0a	←		MEASUREMENT CONTROL	SS requests UE to perform periodical traffic volume measurement.
0b	→		MEASUREMENT REPORT	
1	←		RADIO BEARER SETUP	This message includes an unsupported configuration for the UE.
2	→		RADIO BEARER SETUP FAILURE	The UE shall transmit this message using RLC-AM mode and do not change the current configuration.
3	→		MEASUREMENT REPORT	

Specific Message Contents

MEASUREMENT CONTROL (Step 0a)

Use the MEASUREMENT CONTROL message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/Remark	Version
Measurement Identity	1	
Measurement Command	Setup	
Measurement reporting mode		
- Measurement Report Transfer Mode	Acknowledged mode RLC	
- Periodical Reporting / Event Trigger Reporting Mode	Periodical Reporting	
Additional measurement list	Not Present	
CHOICE measurement type	Traffic Volume Measurement	
- Traffic volume measurement object list		
- Uplink transport channel type	RACHorCPCH	R99 and Rel-4 only
	RACH	Rel-5
- UL Target Transport Channel ID	Not Present	
- Traffic volume measurement quantity		
- Measurement quantity	RLC Buffer Payload	
- Time Interval to take an average or a variance	Not Present	
- Traffic volume reporting quantity		
- RLC Buffer Payload for each RB	True	
- Average of RLC Buffer Payload for each RB	False	
- Variance of RLC Buffer Payload for each RB	False	
- Measurement validity		
- UE state	All states	
- CHOICE Reporting criteria	Periodical Reporting Criteria	
- Amount of reporting	Infinity	
- Reporting interval	8000	
DPCH compressed mode status	Not Present	

MEASUREMENT REPORT (Step 0b and 3)

Check to see if the same message type found in [9] TS 34.108 Clause 9 is received, with the following exceptions and the order in which the RBs are reported is not checked:

Information Element	Value/Remarks
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

RADIO BEARER SETUP (Step 1)

The contents of RADIO BEARER SETUP message in this test case is indicated as "Packet to CELL_DCH from CELL_FACH in PS" as found in [9] TS 34.108 Clause 9 with the following exceptions:

RADIO BEARER SETUP (FDD)

Information Element	Value/remark
Frequency info	
- CHOICE mode	FDD
- UARFCN uplink (Nu)	0
- UARFCN downlink (Nd)	950

RADIO BEARER SETUP (TDD)

Information Element	Value/remark
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	0

RADIO BEARER SETUP FAILURE (Step 2)

The contents of RADIO BEARER SETUP FAILURE message in this test case is the same as the RADIO BEARER SETUP FAILURE message as found in [9] TS 34.108 Clause 9, with the following exceptions:

Information Element	Value/remark
Message Type	
Failure cause	Not checked

8.2.1.11.5 Test requirement

After step 0a, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on RACH at every 8s interval.

After step 1 the UE shall transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM .

After step 2, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on RACH at every 8s interval.

8.2.1.12 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Failure (Physical channel Failure and successful reversion to old configuration)

8.2.1.12.1 Definition

8.2.1.12.2 Conformance requirement

When a physical dedicated channel establishment is initiated by the UE, the UE shall start a timer T312 and wait for layer 1 to indicate N312 "in sync" indications. On receiving N312 "in sync" indications, the physical channel is considered established and the timer T312 is stopped and reset.

If the timer T312 expires before the physical channel is established, the UE shall consider this as a "physical channel establishment failure".

….

If the received message caused the UE to be in CELL_DCH state and the UE failed to establish the dedicated physical channel(s) indicated in the received message the UE shall:

1> revert to the configuration prior to the reception of the message (old configuration);

…

1> transmit a failure response message as specified in TS 25.331 subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "physical channel failure".

1> set the variable ORDERED_RECONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

….

The UE shall:

1> in case of reception of a RADIO BEARER SETUP message:

…

2> transmit a RADIO BEARER SETUP FAILURE as response message on the DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.7, 8.2.2.9, 8.5.4.

8.2.1.12.3 Test purpose

To confirm that the UE reverts to the old configuration and transmits a RADIO BEARER SETUP FAILURE message when the UE fails to configure the new radio bearer after it detects physical channel failure, followed by the T312 expiry.

8.2.1.12.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH_FACH (state 6-8) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. SS then send a MEASUREMENT CONTROL message to UE. The UE shall perform periodical traffic volume measurement according to this message and then transmit MEASUREMENT REPORT message back to SS. The SS transmits a RADIO BEARER SETUP message to the UE and keeps its old physical channel configuration. After T312 expiry, the UE shall perform cell reselection procedure and detect the same serving cell only. Then the UE shall transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC. The content of the message shall indicate "physical channel failure" in IE "failure cause". UE shall continue its traffic volume measurement and send MEASUREMENT REPORT messages back to SS periodically.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0a	←		MEASUREMENT CONTROL	SS requests UE to perform periodical traffic volume measurement.
0b	→		MEASUREMENT REPORT	
1	←		RADIO BEARER SETUP	The SS keep its old configuration.
2	→		RADIO BEARER SETUP FAILURE	The UE does not configure a new radio bearer and reverts to the old configuration.
3	→		MEASUREMENT REPORT	

Specific Message Contents

MEASUREMENT CONTROL (Step 0a)

Use the MEASUREMENT CONTROL message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/Remark	Version
Measurement Identity	1	
Measurement Command	Setup	
Measurement reporting mode		
- Measurement Report Transfer Mode	Acknowledged mode RLC	
- Periodical Reporting / Event Trigger Reporting Mode	Periodical Reporting	
Additional measurement list	Not Present	
CHOICE measurement type	Traffic Volume Measurement	
- Traffic volume measurement object list		
- Uplink transport channel type	RACHorCPCH	R99 and Rel-4 only
	RACH	Rel-5
- UL Target Transport Channel ID	Not Present	
- Traffic volume measurement quantity		
- Measurement quantity	RLC Buffer Payload	
- Traffic volume reporting quantity		
- RLC Buffer Payload for each RB	True	
- Average of RLC Buffer Payload for each RB	False	
- Variance of RLC Buffer Payload for each RB	False	
- Measurement validity		
- UE state	All states	
- CHOICE Reporting criteria	Periodical Reporting Criteria	
- Amount of reporting	Infinity	
- Reporting interval	8000	
DPCH compressed mode status	Not Present	

MEASUREMENT REPORT (Step 0b and 3)

Check to see if the same message type found in [9] TS 34.108 Clause 9 is received, with the following exceptions and the order in which the RBs are reported is not checked:

Information Element	Value/Remarks
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

RADIO BEARER SETUP (Step 1)

The contents of RADIO BEARER SETUP message in this test case is identical to the message sub-type indicated by "Packet to CELL_DCH from CELL_FACH in PS" clause 9 of TS 34.108.

RADIO BEARER SETUP FAILURE (Step 2)

The contents of RADIO BEARER SETUP FAILURE message in this test case is the same as the RADIO BEARER SETUP FAILURE message as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Failure cause	Physical channel failure

8.2.1.12.5 Test requirement

After step 0a, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on RACH at every 8s interval.

After step 1 the UE shall transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC which is set to "physical channel failure" in IE "failure cause".

After step 2, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on RACH at every 8s interval.

8.2.1.13 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Failure (Physical channel Failure and cell reselection)

8.2.1.13.1 Definition

8.2.1.13.2 Conformance requirement

When a physical dedicated channel establishment is initiated by the UE, the UE shall start a timer T312 and wait for layer 1 to indicate N312 "in sync" indications. On receiving N312 "in sync" indications, the physical channel is considered established and the timer T312 is stopped and reset.

If the timer T312 expires before the physical channel is established, the UE shall consider this as a "physical channel failure".

….

If the received message caused the UE to be in CELL_DCH state and the UE according to subclause 8.5.4 failed to establish the dedicated physical channel(s) indicated in the received message the UE shall:

1> If the CM_PATTERN_ACTIVATION_ABORTED flag is not set to TRUE the UE shall:…

1> if the old configuration does not include dedicated physical channels (CELL_FACH state):

2> select a suitable UTRA cell according to TS 25.304;

2> if the UE selects another cell than the cell the UE camped on upon reception of the reconfiguration message:

3> initiate a cell update procedure according to TS 25.331 subclause 8.3.1, using the cause "Cell reselection";

3> after the cell update procedure has completed successfully:

4> proceed as below.

1> transmit a failure response message as specified in TS 25.331 subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "physical channel failure".

1> set the variable ORDERED_RECONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

….

If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list", nor the IE "RB information to reconfigure list", nor the IE "RB information to be affected list"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or

includes the IE "New U-RNTI":

- includes the IE "Downlink counter synchronisation info" and the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

….

The UE shall:

1> in case of reception of a RADIO BEARER SETUP message:

…

2> transmit a RADIO BEARER SETUP FAILURE as response message on the DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.7, 8.2.2.9, 8.3.1.7, 8.5.4.

8.2.1.13.3 Test purpose

To confirm that the UE transmit a RADIO BEARER SETUP FAILURE message after it completes a cell update for the physical channel failure in the radio bearer establishment procedure.

8.2.1.13.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and 2 are active.

UE: PS-DCCH_FACH (state 6-8) as specified in clause 7.4 of TS 34.108 in cell 1.

Test Procedure

Table 8.2.1.13

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84 MHz	-60	-75	-75	-60
P-CCPICH RSCP (TDD)	dBm	-60	-75	-75	-60

Table 8.2.1.13 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies reverse of the transmission power settings for cell 1 and cell 2.

The UE is in CELL_FACH state in cell 1. SS then send a MEASUREMENT CONTROL message to UE. The UE shall perform periodical traffic volume measurement according to this message and then transmit MEASUREMENT REPORT message back to SS. The SS transmits a RADIO BEARER SETUP message to the UE. After transmitting the RADIO BEARER SETUP message, the SS shall not configure its DL dedicated physical channel in accordance with the setting in the message and release its current configuration. At the same time, the SS configures its downlink transmission power settings according to columns "T1" in table 8.2.1.13. The UE recognize that it cannot synchronize with the SS on the new radio bearer. The UE performs cell re-selection and transmits a CELL UPDATE message on uplink CCCH with IE "Cell update cause" which is set to "cell reselection". The SS shall transmit a CELL UPDATE CONFIRM message on downlink DCCH after receiving a CELL UPDATE message. The UE transmits a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC and subsequently transmits a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC, setting the value "physical channel failure" to IE "failure cause". UE shall continue its traffic volume measurement and send MEASUREMENT REPORT messages back to SS periodically.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0a	←		MEASUREMENT CONTROL	SS requests UE to perform periodical traffic volume measurement.
0b	→		MEASUREMENT REPORT	
1	←		RADIO BEARER SETUP	
2				The SS does not configure the new radio bearer in accordance with the settings in the message and applies the downlink transmission power settings, according to the values in columns "T1" of table 8.2.1.13.
3			Void	
4				The UE select the cell 2.
5	→		CELL UPDATE	The value "cell reselection" shall be set in IE "Cell update cause".
6	←		CELL UPDATE CONFIRM	This message include IE "new U-RNTI" and IE "new C-RNTI".
7	→		UTRAN MOBILITY INFORMATION CONFIRM	
8	→		RADIO BEARER SETUP FAILURE	The IE "failure cause" shall be set to "physical channel failure"
9	→		MEASUREMENT REPORT	

Specific Message Contents

MEASUREMENT CONTROL (Step 0a)

Use the MEASUREMENT CONTROL message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/Remark	Version
Measurement Identity	1	
Measurement Command	Setup	
Measurement reporting mode		
- Measurement Report Transfer Mode	Acknowledged mode RLC	
- Periodical Reporting / Event Trigger Reporting Mode	Periodical Reporting	
Additional measurement list	Not Present	
CHOICE measurement type	Traffic Volume Measurement	
- Traffic volume measurement object list		
- Uplink transport channel type	RACHorCPCH	R99 and Rel-4 only
	RACH	Rel-5
- UL Target Transport Channel ID	Not Present	
- Traffic volume measurement quantity		
- Measurement quantity	RLC Buffer Payload	
- Traffic volume reporting quantity		
- RLC Buffer Payload for each RB	True	
- Average of RLC Buffer Payload for each RB	False	
- Variance of RLC Buffer Payload for each RB	False	
- Measurement validity		
- UE state	All states	
- CHOICE Reporting criteria	Periodical Reporting Criteria	
- Amount of reporting	Infinity	
- Reporting interval	8000	
DPCH compressed mode status	Not Present	

MEASUREMENT REPORT (Step 0b and 9)

Check to see if the same message type found in [9] TS 34.108 Clause 9 is received, with the following exceptions and the order in which the RBs are reported is not checked:

Information Element	Value/Remarks
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

RADIO BEARER SETUP (Step 1)

The contents of RADIO BEARER SETUP message in this test case is identical to the message sub-type "Packet to CELL_DCH from CELL_FACH in PS" found in clause 9 of TS 34.108.

CELL UPDATE (Step 5)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark
Cell Update Cause	"cell reselection"

CELL UPDATE CONFIRM (Step 6)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM" message as found in clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark
U-RNTI	Same as CELL UPDATE message in step 5
New U-RNTI	
- SRNC Identity	'0000 0000 0000 0001'
- S-RNTI	Different from previous S-RNTI
New C-RNTI	Different from previous C-RNTI

RADIO BEARER SETUP FAILURE (Step 8)

The contents of RADIO BEARER SETUP FAILURE message in this test case is the same as the RADIO BEARER SETUP FAILURE message as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Failure cause	"physical channel failure"

8.2.1.13.5 Test requirement

After step 0a, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on RACH at every 8s interval.

After step 4 the UE shall transmit a CELL UPDATE message on the CCCH with IE "Cell update cause" set to "cell reselection".

After step 6 the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 7 the UE shall transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC, setting the IE "failure cause" to "physical channel failure".

After step 8, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on RACH at every 8s interval.

8.2.1.14 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Failure (Incompatible simultaneous reconfiguration)

8.2.1.14.1 Definition

8.2.1.14.2 Conformance requirement

If the received message is any of the messages:

- RADIO BEARER SETUP; or

…

the UE shall:

2> if the variable ORDERED_RECONFIGURATION is set to TRUE; or

…

3> if the IE "RRC transaction identifier" of the received message is identical to the "RRC transaction identifier" stored for the same "Message Type" as the received message in the table "Accepted transactions" in the variable TRANSACTIONS:

…

3> else:

4> reject the transaction; and

4> if the IE "Message Type" of the received message is not present in the table "Rejected transactions" in the variable TRANSACTIONS:

5> store the IE "Message type" and the IE "RRC transaction identifier" of the received message in the table "Rejected transactions" in the variable TRANSACTIONS.

…

If the table "Rejected transactions" in the variable TRANSACTIONS is set due to the received message and the variable PROTOCOL_ERROR_REJECT is set to FALSE, the UE shall:

1> not apply the configuration contained in the received reconfiguration message;

1> transmit a failure response message as specified in subclause TS 25.331 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Rejected transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "incompatible simultaneous reconfiguration".

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

The UE shall:

1> in case of reception of a RADIO BEARER SETUP message:

…

2> transmit a RADIO BEARER SETUP FAILURE as response message on the DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.9, 8.2.2.12, clause 8.6.3.11.

8.2.1.14.3 Test purpose

To confirm that if the UE receives a RADIO BEARER SETUP message during a reconfiguring procedure due to a radio bearer message other than RADIO BEARER SETUP, it shall keep its configuration as if the RADIO BEARER SETUP message had not been received and complete the reconfiguration procedure according to the previously received message.

8.2.1.14.4 Method of test

Initial Condition

System Simulator: 1 cell

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE. The SS transmits a RADIO BEARER SETUP message before the "activation time" indicated in the RADIO BEARER RECONFIGURATION message expires. When the UE receives the RADIO BEARER SETUP message, the UE shall keep its current configuration as if it had not received the RADIO BEARER SETUP message and shall transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC with IE "failure cause" set to "incompatible simultaneous reconfiguration". After the SS acknowledges the RADIO BEARER SETUP FAILURE message, the UE reconfigures the new physical channel parameters upon the specified activation time and transmits a RADIO BEARER RECONFIGURATION COMPLETE message on DCCH using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	
2	←		RADIO BEARER SETUP	
3	→		RADIO BEAER SETUP FAILURE	The UE does not change the configuration because of the RADIO BEARER SETUP message, and transmit this message on its uplink DCCH using the same RLC-AM mode radio bearer before step 1.
4	→		RADIO BEARER RECONFIGURATION COMPLETE	This message is on DCCH using AM RLC.
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

RADIO BEARER RECONFIGURATION (Step 1) (FDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case are identical as "Packet to CELL_DCH from CELL_FACH in PS" as found in clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark
Activation Time	Not present
Uplink DPCH Info	
- Scrambling code number	1

RADIO BEARER RECONFIGURATION (Step 1) (TDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case are identical as "Packet to CELL_DCH from CELL_FACH in PS" as found in clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark
Activation Time	Not present
- Uplink DPCH timeslots and codes	
- First timeslot code list	Assigned in step 1

RADIO BEARER SETUP (for Step 2) (FDD)

For this message, use the message sub-type entitled "Packet to CELL_DCH from CELL_FACH in PS" in the default message content. Information element(s) to be changed are listed below:

Information Element	Value/remark
Activation Time	Not present
Uplink DPCH Info	
- Scrambling code number	2

RADIO BEARER SETUP (for Step 2) (TDD)

For this message, use the message sub-type entitled "Packet to CELL_DCH from CELL_FACH in PS" in the default message content. Information element(s) to be changed are listed below:

Information Element	Value/remark
Activation Time	Not Present
- Uplink DPCH timeslots and codes	
- First timeslot code list	A different code combination than used in step 1.

RADIO BEARER SETUP FAILURE

The contents of RADIO BEARER SETUP FAILURE message in this test case is the same as the RADIO BEARER SETUP FAILURE message as found in Annex A, with the following exceptions:

Information Element	Value/remark
Message Type Failure cause	 Incompatible simultaneous reconfiguration

8.2.1.14.5 Test requirement

After step 2 the UE shall transmit a RADIO BEARER SETUP FAILURE message on the DCCH using AM RLC with IE "failure cause" set to "Incompatible simultaneous reconfiguration".

After step 3 the UE shall configure the new configuration on the activation time and transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

8.2.1.15 Void

8.2.1.16 Radio Bearer Establishment for transition from CELL_FACH to CELL_FACH: Success

8.2.1.16.1 Definition

8.2.1.16.2 Conformance requirement

If the UE receives:

- a RADIO BEARER SETUP message; or

it shall:

1> perform the physical layer synchronisation procedure as specified in TS 25.214;

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If the UE was in CELL_FACH state upon reception of the reconfiguration message and remains in CELL_FACH state, the UE shall:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS 25.304 on that frequency;

2> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selected another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

…

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.1.16.3 Test purpose

To confirm that the UE establishes a new radio access bearer according to a RADIO BEARER SETUP message.

8.2.1.16.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH_FACH (state 6-8) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state, after the test operator is being prompted to make an outgoing packet-switched call. The SS transmits a RADIO BEARER SETUP message to the UE. After the UE receives this message, it configures them and establishes a new radio access bearer. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	The UE select PRACH and S-CCPCH using SIB5/SIB5bis or SIB6.
3	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

None.

8.2.1.16.5 Test requirement

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.17 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: success (Subsequently received)

8.2.1.17.1 Definition

8.2.1.17.2 Conformance requirement

If the IE "RRC transaction identifier" is included in a received message, the UE shall perform the actions below. The UE shall:

If the received message is any of the messages:

- RADIO BEARER SETUP; or

  …

the UE shall:

2> if the variable ORDERED_RECONFIGURATION is set to TRUE; or

2> if the variable CELL_UPDATE_STARTED is set to TRUE; or

2> if the table "Accepted transactions" in the variable TRANSACTIONS contains an entry with an IE "Message Type" set to ACTIVE SET UPDATE; or

2> if the received message contains a protocol error according to TS 25.331 clause 9 causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE:

3> if the IE "RRC transaction identifier" of the received message is identical to the "RRC transaction identifier" stored for the same "Message Type" as the received message in the table "Accepted transactions" in the variable TRANSACTIONS:

4> ignore the transaction; and

4> continue with any ongoing processes and procedures as the message was not received;

4> and end the procedure.

3> else:

…

Reference

3GPP TS 25.331 clause 8.6.3.11.

8.2.1.17.3 Test purpose

To confirm that if the UE receives a new RADIO BEARER SETUP message before the UE completes the configuration of the radio bearer according to a previous RADIO BEARER SETUP message, it ignores the new RADIO BEARER SETUP message and configures according to the previous RADIO BEARER SETUP message received.

8.2.1.17.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH_DCH (state 6-5) or PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH state. SS transmits a RADIO BEARER SETUP message to the UE before the UE completes the configuration of the radio bearer according to the RADIO BEARER SETUP message prior to this new message. The UE ignores the new RADIO BEARER SETUP message and configures according to the former RADIO BEARER SETUP message. On completion of radio bearer configuration, the UE shall transmit a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	Scrambling code number is set to "1" for FDD mode.
2	←		RADIO BEARER SETUP	SS send this message before the expiry of activation time specified in RADIO BEARER SETUP message of step 1. For FDD the IE "Scrambling code number" is set to "2" and for TDD mode a different code combination to that used in step 11 is used.
3	→		RADIO BEARER SETUP COMPLETE	The UE ignores the RADIO BEARER SETUP message in step 2 and completes configuration according to the RADIO BEARER SETUP message in step 1.
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1) (FDD)

For RADIO BEARER SETUP in step 1, use the message sub-type indicated as "Non speech to CELL_DCH from CELL_DCH in CS" or "Speech to CELL_DCH from CELL_DCH in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in clause 9 of TS 34.108, with the exception of the following Information Elements:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time	[256+Current CFN-[current CFN mod 8 + 8]]MOD 256
- Uplink DPCH Info	
- Scrambling code number	1

RADIO BEARER SETUP (Step 1) (TDD)

For RADIO BEARER SETUP in step 1, use the message sub-type indicated as "Non speech in CS" as found in clause 9 of TS 34.108, with the exception of the following Information Elements:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time	[256+Current CFN-[current CFN mod 8 + 8]]MOD 256
- Uplink DPCH timeslots and codes	
- First timeslot code list	Assigned in step 1

RADIO BEARER SETUP (Step 2) (FDD)

For RADIO BEARER SETUP in step 2, use the message sub-type indicated as "Non speech to CELL_DCH from CELL_DCH in CS" or "Speech to CELL_DCH from CELL_DCH in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in clause 9 of TS 34.108, with the exception of the following:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time	Not Present
- Uplink DPCH Info	
- Scrambling code number	2

RADIO BEARER SETUP (Step 2) (TDD)

For RADIO BEARER SETUP in step 2, use the message sub-type indicated as "Non speech in CS" as found in clause 9 of TS 34.108, with the exception of the following:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time	Not Present
- Uplink DPCH timeslots and codes	
- First timeslot code list	A different code combination to that used in step 1.

8.2.1.17.5 Test requirement

After step 2 the UE shall transmit a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC.

8.2.1.18 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Success (Subsequently received)

8.2.1.18.1 Definition

8.2.1.18.2 Conformance requirement

If the IE "RRC transaction identifier" is included in a received message, the UE shall perform the actions below. The UE shall:

If the received message is any of the messages:

- RADIO BEARER SETUP; or

…

the UE shall:

2> if the variable ORDERED_RECONFIGURATION is set to TRUE; or

2> if the variable CELL_UPDATE_STARTED is set to TRUE; or

2> if the table "Accepted transactions" in the variable TRANSACTIONS contains an entry with an IE "Message Type" set to ACTIVE SET UPDATE; or

2> if the received message contains a protocol error according to TS 25.331 clause 9 causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE:

3> if the IE "RRC transaction identifier" of the received message is identical to the "RRC transaction identifier" stored for the same "Message Type" as the received message in the table "Accepted transactions" in the variable TRANSACTIONS:

4> ignore the transaction; and

4> continue with any ongoing processes and procedures as the message was not received;

4> and end the procedure.

3> else:

Reference

3GPP TS 25.331 clause 8.6.3.11.

8.2.1.18.3 Test purpose

To confirm that if the UE receives a new RADIO BEARER SETUP message before the UE completes the configuration of the radio bearer according to a previous RADIO BEARER SETUP message, it ignores the new RADIO BEARER SETUP message and configures according to the previous RADIO BEARER SETUP message received.

8.2.1.18.4 Method of test

Initial Condition

System Simulator: 1 cell.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH_FACH (state 6-8) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. The SS transmits a RADIO BEARER SETUP message, requesting the UE to setup radio bearers using DPCH physical channels. SS transmits another RADIO BEARER SETUP message before the activation time specified in the first message has lapsed. The UE ignores the new RADIO BEARER SETUP message and configures the radio bearers according to the former RADIO BEARER SETUP message. On completion of radio bearer configuration, the UE shall transmit a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	Scrambling code number is set to "1" for FDD mode.
2	←		RADIO BEARER SETUP	For FDD mode the IE "Scrambling code number" is set to "2" and for TDD mode a different code combination to that used in step 1 is used.
3	→		RADIO BEARER SETUP COMPLETE	The UE ignores the RADIO BEARER SETUP message in step 2 and confirms configuration according to the RADIO BEARER SETUP message in step 1.
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

RADIO BEARER SETUP (Step 1) (FDD)

For this message, use the message sub-type entitled "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9.

Information Element	Value/remark
RRC transaction identifier	0
Activation Time	Not present
- Uplink DPCH Info	
- Scrambling code number	1

RADIO BEARER SETUP (Step 1) (TDD)

For this message, use the message sub-type indicated as " Packet to CELL_DCH from CELL_FACH in PS " as found in clause 9 of TS 34.108, with the exception of the following Information Elements:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time	Not present
- Uplink DPCH timeslots and codes	
- First timeslot code list	Assigned in step 1

RADIO BEARER SETUP (for Step 2) (FDD)

For this message, use the message sub-type entitled "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time	Not Present
- Uplink DPCH Info	
- Scrambling code number	2

RADIO BEARER SETUP (Step 2) (TDD)

For this message , use the message sub-type indicated as " Packet to CELL_DCH from CELL_FACH in PS " as found in clause 9 of TS 34.108, with the exception of the following:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time	Not Present
- Uplink DPCH timeslots and codes	
- First timeslot code list	A different code combination to that used in step 1.

8.2.1.18.5 Test requirement

After step 2 the UE shall transmit a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC specified in step 1.

After step 3 the UE shall communicate with the SS on the radio bearer specified in the RADIO BEARER SETUP message in step 1.

8.2.1.19 Void

8.2.1.20 Void

8.2.1.21 Void

8.2.1.22 Radio Bearer Establishment for transition from CELL_DCH to CELL_FACH (Frequency modification): Success

8.2.1.22.1 Definition

-

8.2.1.22.2 Conformance requirement

If the UE receives:

-a RADIO BEARER SETUP message;

it shall:

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

1> enter a state according to TS25.331 subclause 8.6.3.3.

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS5.304 on that frequency.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS5.304.

1> if the received reconfiguration message included the IE "Primary CPICH info", and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (FDD only):

2> initiate a cell update procedure according to TS25.331 subclause 8.3.1 using the cause "Cell reselection";

2> when the cell update procedure completed successfully:

3> if the UE is in CELL_PCH or URA_PCH state:

4> initiate a cell update procedure according to TS25.331 subclause 8.3.1 using the cause "Uplink data transmission";

4> proceed as below.

1> select PRACH according to TS25.331 subclause 8.5.17;

1> select Secondary CCPCH according to TS25.331 subclause 8.5.19;

1> use the transport format set given in system information;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> ignore that IE and stop using DRX.

1> if the contents of the variable C_RNTI is empty:

2> perform a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

2> when the cell update procedure completed successfully:

3> if the UE is in CELL_PCH or URA_PCH state:

4> initiate a cell update procedure according to TS25.331 subclause 8.3.1 using the cause "Uplink data transmission";

4> proceed as below.

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE message on the uplink DCCH using AM RLC, using the new configuration after the state transition.

1> the procedure ends.

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.1.22.3 Test purpose

1. To confirm that the UE transits from CELL_DCH to CELL_FACH according to the RADIO BEARER SETUP message.
2. To confirm that the UE transmits RADIO BEARER SETUP COMPLETE message on the uplink DCCH using AM RLC on a common physical channel in a different frequency.

8.2.1.22.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 is active and cell 6 is inactive.

UE: "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108. If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

Table 8.2.1.22

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-55	-72	Off	-55
P-CCPCH RSCP (TDD)	dBm	-55	-72	Off	-55

Table 8.2.1.22 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 6.

The UE is in idle mode state of cell 1 and the SS configures its downlink transmission power setting according to columns "T0" in table 8.2.1.22. The SS and UE execute procedure P5. Next The SS and the UE execute procedure P9. The SS switches its downlink transmission power settings to columns "T1"and transmits a RADIO BEARER SETUP message with no IE "Frequency info" to the UE. After the UE receives this message, it transits from CELL_DCH in cell 1 to CELL_FACH state in cell 6, and initiates CELL UPDATE procedure with IE "Cell update cause" set to "cell reselection". Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC in cell 6. The SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1a	←→		SS executes procedure P5 (clause 7.4.2.2.2) specified in TS 34.108.	
1b	←→		SS executes procedure) P9 (clause 7.4.2.4.2) specified in TS 34.108.	
2				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.1.22.
3			Void	
4	←		RADIO BEARER SETUP	Not including frequency information.
5	→		CELL UPDATE	The IE "Cell update cause" is set to "cell reselection".
6	←		CELL UPDATE CONFIRM	Including the IE" New C-RNTI"
7	→		UTRAN MOBILITY INFORMATION CONFIRM	
8	→		RADIO BEARER SETUP COMPLETE	The UE sends this message on a common physical channel in cell 6.
9	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 4)

Use the message sub-type indicated as "Packet to CELL_FACH from CELL_DCH in PS" found in [9] TS 34.108 clause 9 with the following exception:

Information Element	Value/remark
Frequency info	Not Present
Downlink information for each radio link	Not Present

CELL UPDATE (Step 5)

The contents of CELL UPDATE message are identical as "Contents of CELL UPDATE message" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Cell Update Cause	"cell reselection"

CELL UPDATE CONFIRM (Step 6)

The contents of CELL UPDATE CONFIRM message are identical as "CELL UPDATE CONFIRM message" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B

UTRAN MOBILITY UPDATE CONFIRM (Step 7)

The contents of UTRAN MOBILITY UPDATE CONFIRM message are identical as "UTRAN MOBILITY UPDATE CONFIRM message" as found in [9] TS 34.108 clause 9.

8.2.1.22.5 Test requirement

After step 4 the UE shall transmit a CELL UPDATE message on the CCCH in cell 6.

After step 6 the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC in cell 6.

After step 7 the UE shall transmit a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC in cell 6.

After step 8 the UE shall be in CELL_FACH state of cell 6.

8.2.1.23 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH (Frequency modification): Success

8.2.1.23.1 Definition

-

8.2.1.23.2 Conformance requirement

If the UE receives:

-a RADIO BEARER SETUP message;

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS25.214 (for FDD only);

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS25.331 subclause 8.6.3.3.

If after state transition the UE enters CELL_DCH state, the UE shall, after the state transition:

1> remove any C-RNTI from MAC;

1> clear the C_RNTI.

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE message on the uplink DCCH using AM RLC, using the new configuration after the state transition.

1> the procedure ends.

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.1.23.3 Test purpose

1. To confirm that the UE transits from CELL_FACH to CELL_DCH according to the RADIO BEARER SETUP message.

2. To confirm that the UE transmits RADIO BEARER SETUP COMPLETE message on the uplink DCCH using AM RLC on a dedicated physical channel in a different frequency.

8.2.1.23.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 is active and cell 6 is inactive.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: CS-DCCH_FACH (state 6-6) or PS_DCCH_FACH (state 6-8) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

Table 8.2.1.23

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-55	-55	Off	-55
P-CCPCH RSCP (TDD)	dBm	-55	-55	Off	-55

Table 8.2.1.23 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings from columns "T0" to "T1", whenever the description in multi-cell condition specifies the transmission power settings for cell 1 and cell 6.

The UE is in CELL_FACH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.1.23. The SS switches its downlink transmission power settings to columns "T1" and transmits a RADIO BEARER SETUP message including new frequency information to the UE. After the UE receives this message, it configures them and establishes the required radio access bearers and moves into cell 6. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. The SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The initial state of UE is in CELL_FACH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.1.23.
2				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.1.23.
3	←		RADIO BEARER SETUP	Including new frequency information.
4	→		RADIO BEARER SETUP COMPLETE	The UE sends this message in cell 6.
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

RADIO BEARER SETUP (Step 3) (FDD)

The contents of RADIO BEARER SETUP message in this test case is identical the message sub-type indicated by "Packet to CELL_DCH from CELL_FACH in PS" or "Non speech from CELL_FACH to CELL_DCH in CS" or "Speech from CELL_FACH to CELL_DCH in CS" in [9] TS 34.108 clause 9 , with the following exception:

Information Element	Value/remark
Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 6
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
Downlink information for each radio links	
- Primary CPICH info	
- Primary Scrambling Code	350

RADIO BEARER SETUP (Step 3) (TDD)

The contents of RADIO BEARER SETUP message in this test case is identical the message sub-type indicated by "Packet to CELL_DCH from CELL_FACH in PS" or "Non speech from CELL_FACH to CELL_DCH in CS" or "Speech from CELL_FACH to CELL_DCH in CS" in [9] TS 34.108 clause 9 , with the following exception:

Information Element	Value/remark
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Same UARFCN as used for cell 6
Downlink information for each radio links	
- Primary CCPCH info	
- Cell parameters ID	As used for cell 6

8.2.1.23.5 Test requirement

After step 3 the UE shall transmit a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC in cell 6.

After step 4 the UE shall be in CELL_DCH state of cell 6.

8.2.1.24 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH (Frequency modification): Success

8.2.1.24.1 Definition

-

8.2.1.24.2 Conformance requirement

If the UE receives:

- a RADIO BEARER SETUP message;

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214 (for FDD only);

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

1> enter a state according to TS25.331 subclause 8.6.3.3.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if the IE "Downlink information for each radio link" is absent, not change its current DL Physical channel configuration.

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.1.24.3 Test purpose

1. To confirm that the UE transits from CELL_DCH to CELL_DCH according to the RADIO BEARER SETUP message.
2. To confirm that the UE transmits the RADIO BEARER SETUP COMPLETE message on the uplink DCCH using AM RLC on a dedicated physical channel in a different frequency.

8.2.1.24.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 is active and cell 6 is inactive.

CS-DCCH_DCH (state 6-5) or PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

Table 8.2.1.24

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-55	-72	Off	-55
P-CCPCH RSCP (TDD)	dBm	-55	-72	Off	-55

Table 8.2.1.24 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings from columns "T0" to "T1", whenever the description in multi-cell condition specifies the transmission power settings for cell 1 and cell 6.

The UE is in CELL_DCH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.1.24. For FDD, the SS switches its downlink transmission power settings to columns "T1" and transmits a RADIO BEARER SETUP message including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CPICH info" set to Primary Scrambling Code which is assigned to P-CPICH of cell. For TDD, the SS switches its downlink transmission power settings to columns "T1" and transmits a RADIO BEARER SETUP message including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CCPCH info" set to cell 6 parameters. The UE selects cell 6 and establish a radio access bearer after receiving this message, and then remains CELL_DCH state. The UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC after completes configuration according to receiving RADIO BEARER SETUP message. Upon completion of the procedure, the SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_DCH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.1.24.
2				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.1.24.
3	←		RADIO BEARER SETUP	For FDD, including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CPICH info" set to Primary Scrambling Code assigned to P-CPICH of cell 6. For TDD, including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CCPCH info" set cell 6 parameters.
4				The UE select cell 6 and establish a radio access bearer.
5	→		RADIO BEARER SETUP COMPLETE	The UE sends this message on a dedicated physical channel in cell 6.
6	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 3) (FDD)

The contents of RADIO BEARER SETUP message in this test case is identical the message sub-type indicated by "Packet to CELL_DCH from CELL_DCH in PS" or "Speech in CS" in TS34.108 clause 9 Default Message Contents, or identical the message sub-type indicated by "Non speech in CS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
- CHOICE mode	FDD
Frequency info	
- UARFCN uplink(Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
Downlink information for each radio links	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for cell 6
- DPCH frame offset	The Value is calculated based on internal SS timing difference

RADIO BEARER SETUP (Step 3) (TDD)

The contents of RADIO BEARER SETUP message in this test case is identical the message sub-type indicated by "Packet to CELL_DCH from CELL_DCH in PS" or "Speech in CS" in TS34.108 clause 9 Default Message Contents, or identical the message sub-type indicated by "Non speech in CS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Same UARFCN as used for cell 6
Downlink information for each radio links	
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	As used for cell 6

8.2.1.24.5 Test requirement

After step 4 the UE shall transmit a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC in cell 6.

After step 5 the UE shall be in CELL_DCH state of cell 6.

8.2.1.24a Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH (Inter band handover): Success

8.2.1.24a.1 Definition

This test case is identical to test case 8.2.1.24 except that the cells belong to different frequency bands.

8.2.1.24a.2 Conformance requirement

Same conformance requirement as in clause 8.2.1.24.2

8.2.1.24a.3 Test purpose

1. To confirm that the UE transits from CELL_DCH to CELL_DCH according to the RADIO BEARER SETUP message.
2. To confirm that the UE transmits the RADIO BEARER SETUP COMPLETE message on the uplink DCCH using AM RLC on a dedicated physical channel in a different frequency band cell.

8.2.1.24a.4 Method of test

Initial Condition

Same initial conditions as in clause 8.2.1.24.4 except that cell 1 and cell 6 belong to different frequency bands.

Related ICS/IXIT statement(s)

- UE supports multiple bands simultaneously yes/no

Test Procedure

Same test procedure as in clause 8.2.1.24.4

Note: If the UE supports more than 2 frequency bands, the test may be executed for various band combinations.

Expected sequence

Same expected sequence as in clause 8.2.1.24.4

Specific Message Contents

Same specific message contents as in clause 8.2.1.24.4

8.2.1.24a.5 Test requirement

Same test requirements as in clause 8.2.1.24.5

8.2.1.24b Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH (Inter band handover): Success(TDD a-f band)

8.2.1.24b.1 Definition

This test case is identical to test case 8.2.1.24 except that the cells belong to different frequency bands.

8.2.1.24b.2 Conformance requirement

Same conformance requirement as in clause 8.2.1.24.2

8.2.1.24b.3 Test purpose

1. To confirm that the UE transits from CELL_DCH to CELL_DCH according to the RADIO BEARER SETUP message.
2. To confirm that the UE transmits the RADIO BEARER SETUP COMPLETE message on the uplink DCCH using AM RLC on a dedicated physical channel in a different frequency band cell.

8.2.1.24b.4 Method of test

Initial Condition

Same initial conditions as in clause 8.2.1.24.4 except that cell 1 and cell 6 belong to different frequency bands.

Related ICS/IXIT statement(s)

- UE supports multiple bands simultaneously yes/no

Test Procedure

Same test procedure as in clause 8.2.1.24.4

Note: If the UE supports more than 2 frequency bands, the test may be executed for various band combinations.

Expected sequence

Same expected sequence as in clause 8.2.1.24.4

Specific Message Contents

Same specific message contents as in clause 8.2.1.24.4

8.2.1.24b.5 Test requirement

Same test requirements as in clause 8.2.1.24.5

8.2.1.25 Radio Bearer Establishment for transition from CELL_FACH to CELL_FACH (Frequency modification): Success

8.2.1.25.1 Definition

-

8.2.1.25.2 Conformance requirement

If the UE receives:

-a RADIO BEARER SETUP message;

it shall:

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

1> enter a state according to TS25.331 subclause 8.6.3.3.

If the UE was in CELL_FACH state upon reception of the reconfiguration message and remains in CELL_FACH state, the UE shall:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304 on that frequency;

2> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selected another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

3> initiate a cell update procedure according to TS25.331 subclause 8.3.1 using the cause "cell reselection";

3> when the cell update procedure completed successfully:

4> proceed as below.

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.1.25.3 Test purpose

1. To confirm that the UE transits from CELL_FACH to CELL_FACH according to the RADIO BEARER SETUP message.

2. To confirm that the UE transmits RADIO BEARER SETUP COMPLETE message on the uplink DCCH using AM RLC on a common physical channel in a different frequency.

8.2.1.25.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 is active and cell 6 is inactive.

UE: "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE. If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS".

Test Procedure

Table 8.2.1.25

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-55	-72	Off	-55
P-CCPCH RSCP (TDD)	dBm	-55	-72	Off	-55

Table 8.2.1.25 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 6.

The UE is in CELL_FACH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.1.25. SS asks operator to make an outgoing call. The SS and UE execute procedure P6. Next The SS and the UE execute procedure P10. The SS switches its downlink transmission power settings to columns "T1" and transmits a RADIO BEARER SETUP message including IE "Frequency info" set to frequency information of cell 6 and no IE "Primary CPICH info" for FDD and no IE "Primary CCPCH info" for TDD. The UE selects cell 6 and initiates CELL UPDATE procedure with IE "Cell update cause" set to "cell reselection". The UE remains CELL_FACH state. The UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC after completes configuration according to receiving RADIO BEARER SETUP message. Upon completion of the procedure, the SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.1.25. SS requests operator to make an outgoing call.
2	←→		SS executes procedure P6 (clause 7.4.2.2.2) specified in TS 34.108.	
3	←→		SS executes procedure P10 (clause 7.4.2.4.2) specified in TS 34.108.	
4				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.1.25.
5	←		RADIO BEARER SETUP	Including IE "Frequency info" set to frequency information of cell 6 and no IE "Primary CPICH info" for FDD and no IE "Primary CCPCH info" for TDD.
6	→		CELL UPDATE	The IE "Cell update cause" is set to "cell reselection".
7	←		CELL UPDATE CONFIRM	Including the IE" New C-RNTI"
8	→		UTRAN MOBILITY INFORMATION CONFIRM	
9	→		RADIO BEARER SETUP COMPLETE	The UE sends this message on a common physical channel in cell 6.
10	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

CELL UPDATE (Step 6)

The contents of CELL UPDATE message are identical as "Contents of CELL UPDATE message" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Cell Update Cause	"cell reselection"

CELL UPDATE CONFIRM (Step 7)

The contents of CELL UPDATE CONFIRM message are identical as "CELL UPDATE CONFIRM message" as found in [9] TS 34.108 clause 9. with the following exceptions:

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B

UTRAN MOBILITY UPDATE CONFIRM (Step 8)

The contents of UTRAN MOBILITY UPDATE CONFIRM message are identical as "UTRAN MOBILITY UPDATE CONFIRM message" as found in [9] TS 34.108 clause 9.

8.2.1.25.5 Test requirement

After step 5 the UE shall transmit a CELL UPDATE message on the CCCH in cell 6.

After step 7 the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC in cell 6.

After step 8 the UE shall transmit a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC in cell 6.

After step 9 the UE shall be in CELL_FACH state in cell 6.

8.2.1.26 Void

8.2.1.27 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (two radio links, start of HS-DSCH reception)

8.2.1.27.1 Definition and applicability

All UEs which support FDD and HS-PDSCH.

8.2.1.27.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

…

If the IE "New H-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the value in the variable H_RNTI;

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

…

If the IE "Added or Reconfigured DL TrCH information" is included then for the transport channel identified by the IE "DL Transport Channel Identity" the UE shall:

1> if the choice "DL parameters" is set to 'HSDSCH':

2> if the IE "HARQ Info" is included:

3> perform the actions specified in subclause 8.6.5.6b.

…

If the IE "HS-SCCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the received configuration.

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> in the case of FDD:

2> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving HS-DSCH radio link applying the scrambling code as received in the IE "DL Scrambling code".

…

If the IE "Measurement Feedback Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the received configuration.

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.25, 8.6.3.1, 8.6.3.1b, 8.6.5.6, 8.6.6.33, 8.6.6.34

8.2.1.27.3 Test purpose

To confirm that the UE establishes a radio bearer mapped to HS-DSCH according to the received RADIO BEARER SETUP message when having two radio links established.

8.2.1.27.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and 2 are active

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH

Test Procedure

Table 8.2.1.27

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-60	-60	-70	-60

Table 8.2.1.27 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE is in CELL_DCH state. Only signalling radio bearers have been established in cell 1.

SS configures its downlink transmission power settings according to columns "T1" in table 8.2.1.27. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. The SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC to add cell 2 to the active set. When the UE receives this message, the UE shall configure layer 1 to begin reception without affecting the current uplink and downlink activities of existing radio links. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

The test operator is prompted to make an out-going call. The SS transmits a RADIO BEARER SETUP message to the UE . This message requests the establishment of radio access bearer mapped to HS-DSCH. After the UE receives this message, it configures them and establishes a radio access bearer and cell 1 shall be assigned as the serving HS-DSCH cell. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0a				SS configures its downlink transmission power settings according to columns "T1" in table 8.2.1.27.
0b	→		MEASUREMENT REPORT	See specific message contents for this message
1	←		ACTIVE SET UPDATE	The SS instructs the UE to add cell 2 in the active set.
2	→		ACTIVE SET UPDATE COMPLETE	The UE adds the radio link in cell 2.
3	←		RADIO BEARER SETUP	
4	→		RADIO BEARER SETUP COMPLETE	
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

MEASUREMENT REPORT (Step 0b)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 1)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark	Version
Radio link addition information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 2	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not present	
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	1	
- Spreading factor	Refer to the parameter set in TS 34.108	
- Code number	For each DPCH, assign the same code number in the current code given in cell 1.	
- Scrambling code change	Not present	
- TPC combination index	1	
- SSDT cell identity	Not present	R99 and Rel-4 only
- Close loop timing adjustment mode	Not present	
- TFCI combining indicator	FALSE	
- SCCPCH information for FACH	Not present	R99 and Rel-4 only

RADIO BEARER SETUP (Step 3)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark	Version
Frequency info	Not present	
Maximum allowed UL TX power	Not present	
Downlink information for each radio link list		
- Downlink information for each radio link	(for cell 1)	
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in TS34.108 clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	1	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	0	
- Scrambling code change	No change	
- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only
- Downlink information for each radio link	(for cell 2)	
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in TS34.108 clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	FALSE	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	1	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	0	
- Scrambling code change	No change	
- TPC combination index	1	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

8.2.1.27.5 Test requirements

After step 3, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.27a Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (start of HS-DSCH reception)

8.2.1.27a.1 Definition and applicability

All UEs which support TDD and HS-PDSCH.

8.2.1.27a.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link, for TDD add/remove H-RNTI upon hard handover.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

…

If the IE "New H-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the value in the variable H_RNTI;

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

…

If the IE "Added or Reconfigured DL TrCH information" is included then for the transport channel identified by the IE "DL Transport Channel Identity" the UE shall:

1> if the choice "DL parameters" is set to 'HSDSCH':

2> if the IE "HARQ Info" is included:

3> perform the actions specified in subclause 8.6.5.6b.

…

If the IE "HS-SCCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> in the case of FDD:

2> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving HS-DSCH radio link applying the scrambling code as received in the IE "DL Scrambling code".

1> in the case of TDD:

2> receive the HS-SCCH(s) according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> transmit the HS-SICH according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> for HS-SCCH power control the UE shall use the "BLER target" signalled in the first occurrence of the "HS-SCCH Set Configuration".

2> in 1.28 Mcps TDD:

3> use the IE " $PRX_{HS-SICH}$ " and "ACK-NAK power offset" to calculate and set an initial uplink transmission power;

3> use the IE " TPC step size" upon reception of TPC commands for closed loop power control.

…

If the IE "Measurement Feedback Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the received configuration.

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.25, 8.6.3.1, 8.6.3.1b, 8.6.5.6, 8.6.6.33, 8.6.6.34

8.2.1.27a.3 Test purpose

To confirm that the UE establishes a radio bearer mapped to HS-DSCH according to the received RADIO BEARER SETUP message.

8.2.1.27a.4 Method of test

Initial Condition

System Simulator: 1 cells - Cell 1 is active

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports TDD
- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_DCH state. Only signalling radio bearers have been established in cell 1.

The test operator is prompted to make an out-going call. The SS transmits a RADIO BEARER SETUP message to the UE . This message requests the establishment of radio access bearer mapped to HS-DSCH. After the UE receives this message, it configures them and establishes a radio access bearer and cell 1 shall be assigned as the serving HS-DSCH cell. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0a			void	
0b			void	
1			void	
2			void	
3	←		RADIO BEARER SETUP	
4	→		RADIO BEARER SETUP COMPLETE	
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 3)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108.

8.2.1.27a.5 Test requirements

After step 3, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.27b Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (start of HS-DSCH reception) (TDD only)

8.2.1.27b.1 Definition and applicability

All UEs which support TDD and HS-PDSCH.

8.2.1.27b.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link, for TDD add/remove H-RNTI upon hard handover.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

…

If the IE "New H-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the value in the variable H_RNTI;

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

…

If the IE "Added or Reconfigured DL TrCH information" is included then for the transport channel identified by the IE "DL Transport Channel Identity" the UE shall:

1> if the choice "DL parameters" is set to 'HSDSCH':

2> if the IE "HARQ Info" is included:

3> perform the actions specified in subclause 8.6.5.6b.

…

If the IE "HS-SCCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> in the case of TDD:

2> receive the HS-SCCH(s) according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> transmit the HS-SICH according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> for HS-SCCH power control the UE shall use the "BLER target" signalled in the first occurrence of the "HS-SCCH Set Configuration".

2> in 1.28 Mcps TDD:

3> use the IE " $PRX_{HS\text{-}SICH}$ " and "ACK-NAK power offset" to calculate and set an initial uplink transmission power;

3> use the IE " TPC step size" upon reception of TPC commands for closed loop power control.

…

If the IE "Measurement Feedback Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the received configuration.

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.25, 8.6.3.1, 8.6.3.1b, 8.6.5.6, 8.6.6.33, 8.6.6.34

8.2.1.27b.3 Test purpose

To confirm that the UE establishes a radio bearer mapped to HS-DSCH according to the received RADIO BEARER SETUP message. The establishment is on the secondary carrier.

To confirm the UE recognizes correctly the position of UpPCH indicated by the network and completes the access procedure according to the configuration sent by the network.

8.2.1.27b.4 Method of test

Initial Condition

System Simulator: 1 cells - Cell 1 is active and configure three carriers, one primary carrier with two secondary carriers.

UE: PS_DCCH_DCH (state 6-7 on the secondary carrier) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports TDD
- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_DCH state . Only signalling radio bearers have been established in cell 1 on the secondary carrier.

The test operator is prompted to make an out-going call. The SS transmits a RADIO BEARER SETUP message to the UE . This message requests the establishment of radio access bearer mapped to HS-DSCH on the secondary carrier. After the UE receives this message, it configures them and establishes a radio access bearer on the secondary carrier and cell 1 shall be assigned as the serving HS-DSCH cell. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0a			void	
0b			void	
1			void	
2			void	
3	←		RADIO BEARER SETUP	
4	→		RADIO BEARER SETUP COMPLETE	
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 3)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, with the following exceptions

Information Element	Value/remark
RadioBearerSetup-r5-TDD128-add-ext-IEs	
frequencyInfo	Secondary carrier frequency
UpPCHpositionInfo	22

8.2.1.27b.5 Test requirements

After step 3, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.27c Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (inter-band frequency hard handover, start of HS-DSCH reception, LCR TDD band a-f)

8.2.1.27c.1 Definition and applicability

All UEs which support TDD and HS-PDSCH.

8.2.1.27c.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link, for TDD add/remove H-RNTI upon hard handover.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

…

If the IE "New H-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the value in the variable H_RNTI;

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

…

If the IE "Added or Reconfigured DL TrCH information" is included then for the transport channel identified by the IE "DL Transport Channel Identity" the UE shall:

1> if the choice "DL parameters" is set to 'HSDSCH':

2> if the IE "HARQ Info" is included:

3> perform the actions specified in subclause 8.6.5.6b.

…

If the IE "HS-SCCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> in the case of TDD:

2> receive the HS-SCCH(s) according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> transmit the HS-SICH according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> for HS-SCCH power control the UE shall use the "BLER target" signalled in the first occurrence of the "HS-SCCH Set Configuration".

2> in 1.28 Mcps TDD:

3> use the IE " $PRX_{HS-SICH}$ " and "ACK-NAK power offset" to calculate and set an initial uplink transmission power;

3> use the IE " TPC step size" upon reception of TPC commands for closed loop power control.

…

If the IE "Measurement Feedback Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the received configuration.

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.25, 8.6.3.1, 8.6.3.1b, 8.6.5.6, 8.6.6.33, 8.6.6.34

8.2.1.27c.3 Test purpose

To confirm that the UE establishes a radio bearer mapped to HS-DSCH according to the received RADIO BEARER SETUP message. The establishment is on the secondary carrier.

To confirm the UE recognizes correctly the position of UpPCH indicated by the network and completes the access procedure according to the configuration sent by the network.

To confirm that the UE transmits the RADIO BEARER SETUP COMPLETE message on the uplink DCCH using AM RLC on a dedicated physical channel in a different frequency band cell.

8.2.1.27c.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 is active and cell 6 is inactive. cell 1 and cell 6 belong to different frequency bands. Cell 1 is active and configure three carriers, one primary carrier with two secondary carriers.

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports TDD
- UE supports HS-PDSCH

Test Procedure

Table 8.2.1.27c

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency of the band a		Mid Range Test Frequency of the band f	
P-CCPCH RSCP (TDD)	dBm	-55	-72	Off	-55

Table 8.2.1.27 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings from columns "T0" to "T1", whenever the description in multi-cell condition specifies the transmission power settings for cell 1 and cell 6.

SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.1.27c.The test operator is prompted to make an out-going call. The SS transmits a RADIO BEARER SETUP message to the UE . This message requests the establishment of radio access bearer mapped to HS-DSCH. After the UE receives this message, it configures them and establishes a radio access bearer and cell 1 shall be assigned as the serving HS-DSCH cell. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

UE support a+f frequency band, the SS switches its downlink transmission power settings to columns "T1" and transmits a RADIO BEARER SETUP message including IE "Frequency info" set to frequency information of cell 6 and

IE "Primary CCPCH info" set to cell 6 parameters. The UE selects cell 6 and establish a radio access bearer after receiving this message, and then remains CELL_DCH state. The UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC after completes configuration according to receiving RADIO BEARER SETUP message. Upon completion of the procedure, the SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			void	
2			void	The SS switches its downlink transmission power settings to columns "T1" in table 8.2.1.27c.
3	←		RADIO BEARER SETUP	Including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CCPCH info" set cell 6 parameters.
				The UE select cell 6 and establish a radio access bearer.
4	→		RADIO BEARER SETUP COMPLETE	The UE sends this message on a dedicated physical channel in cell 6.
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 3)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, with the following exceptions

Information Element	Value/remark
RadioBearerSetup-r5-TDD128-add-ext-IEs	
frequencyInfo	Secondary carrier frequency of cell 6.
UpPCHpositionInfo	22

8.2.1.27c.5 Test requirements

After step 3, the UE shall transmit a RADIO BEARER SETUP COMPLETE message on cell 6 and check that UpPCHposition is 22.

8.2.1.27d Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (start of HS-DSCH reception) (In a different frequency band)

8.2.1.27d.1 Definition and applicability

Same conformance requirement as in clause 8.2.1.27b except that UE is support for different frequency band.

8.2.1.27d.2 Conformance requirement

Same conformance requirement as in clause 8.2.1.27b.

8.2.1.27d.3 Test purpose

Same conformance requirement as in clause 8.2.1.27b. except that UE can work in different frequency band.

8.2.1.27d.4 Method of test

Same conformance requirement as in clause 8.2.1.27b except for Expected sequence.

Expected sequence

Step	Direction		Message	Comment	Specific Message Contents
	UE	SS			
0a			void		
0b			void		
1			void		
2			void		RADIO BEARER SETUP (Step 3)
3	←		RADIO BEARER SETUP		
4	→		RADIO BEARER SETUP COMPLETE		
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.	
				UE will run test procedure for 2 kinds of condition. The first,. primary carrier and the secondary carriers of the UE work in same frequency band. Secondly,, primary carrier and the secondary carriers of the UE work in different frequency band.	

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, with the following exceptions

Information Element	Value/remark
RadioBearerSetup-r5-TDD128-add-ext-IEs	
frequencyInfo	Secondary carrier in same frequency band or different frequency band

8.2.1.27d.5 Test requirements

Same conformance requirement as in clause 8.2.1.27b

8.2.1.28 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (RB mapping for both DL DCH and HS-DSCH in cell without HS-DSCH support)

8.2.1.28.1 Definition and applicability

All UEs which support FDD or TDD and HS-PDSCH.

8.2.1.28.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link, for TDD add/remove H-RNTI upon hard handover.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

…

If the IE "New H-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the IE "Downlink HS-PDSCH Information" is also included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 of TS 25.331 applied on the received message:

2> store the value in the variable H_RNTI.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

…

If the IE "Added or Reconfigured DL TrCH information" is included then for the transport channel identified by the IE "DL Transport Channel Identity" the UE shall:

1> if the choice "DL parameters" is set to 'HSDSCH':

2> if the IE "HARQ Info" is included:

3> perform the actions specified in subclause 8.6.5.6b of TS 25.331.

…

If the IE "HS-SCCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the received configuration.

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> in the case of FDD:

2> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving HS-DSCH radio link applying the scrambling code as received in the IE "DL Scrambling code".

1> in the case of TDD:

2> receive the HS-SCCH(s) according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> transmit the HS-SICH according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> for HS-SCCH power control the UE shall use the "BLER target" signalled in the first occurrence of the "HS-SCCH Set Configuration".

2> in 1.28 Mcps TDD:

3> use the IE " $PRX_{HS-SICH}$ " and "ACK-NAK power offset" to calculate and set an initial uplink transmission power;

3> use the IE " TPC step size" upon reception of TPC commands for closed loop power control.

…

If the IE "Measurement Feedback Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the received configuration.

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.25, 8.6.3.1, 8.6.3.1b, 8.6.5.6, 8.6.6.33, 8.6.6.34

8.2.1.28.3 Test purpose

To confirm that the UE establishes a radio bearer mapped to DCH and HS-DSCH according to the received RADIO BEARER SETUP message in a cell without HS-DSCH.

8.2.1.28.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_DCH state. Only signalling radio bearers have been established.

The test operator is prompted to make an out-going call. The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of radio bearer with RB mapping to DCH and HS-DSCH. After the UE receives this message, it establishes a radio bearer and maps it to the DCH. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
New H-RNTI	Not present
RAB information for setup	
- RAB info	(high-speed AM DTCH for PS domain)
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	useT315
- RB information to setup	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108
DL Transport channel information common for all transport channel	Same as specified for "Packet to CELL_DCH from CELL_DCH in PS" in TS 34.108
Added or Reconfigured DL TrCH information	Same as specified for "Packet to CELL_DCH from CELL_DCH in PS" in TS 34.108
CHOICE channel requirement	Same as specified for "Packet to CELL_DCH from CELL_DCH in PS" in TS 34.108
Downlink HS-PDSCH Information	Not Present
Downlink information common for all radio links	Same as specified for "Packet to CELL_DCH from CELL_DCH in PS" in TS 34.108
Downlink information per radio link list	Same as specified for "Packet to CELL_DCH from CELL_DCH in PS" in TS 34.108

8.2.1.28.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.29 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialized hard handover to another frequency, uplink TFCS restriction and start of HS-DSCH reception)

8.2.1.29.1 Definition and applicability

All UEs which support FDD or TDD and HS-PDSCH.

8.2.1.29.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If IE "Timing indication" has the value "initialise", UE shall:

1> execute the Timing Re-initialised hard handover procedure by following the procedure indicated in the subclause relevant to the procedure chosen by the UTRAN.

…

If the IE "New H-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the value in the variable H_RNTI;

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

…

If the IE "Added or Reconfigured DL TrCH information" is included then for the transport channel identified by the IE "DL Transport Channel Identity" the UE shall:

1> if the choice "DL parameters" is set to 'HSDSCH':

2> if the IE "HARQ Info" is included:

3> perform the actions specified in subclause 8.6.5.6b.

2> if the value of the IE "MAC-hs reset indicator" is TRUE:

3> reset the MAC-hs entity.

…

If the IE "HS-SCCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the received configuration.

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> in the case of FDD:

2> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving HS-DSCH radio link applying the scrambling code as received in the IE "DL Scrambling code".

1> in the case of TDD:

2> receive the HS-SCCH(s) according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> transmit the HS-SICH according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> for HS-SCCH power control the UE shall use the "BLER target" signalled in the first occurrence of the "HS-SCCH Set Configuration".

2> in 3.84 Mcps TDD and 7.68 Mcps TDD:

3> use the parameters specified in the IE "HS-SICH power control info" for open loop power control as defined in subclause 8.5.7.

2> in 1.28 Mcps TDD:

3> use the IE "$PRX_{HS-SICH}$" to calculate and set an initial uplink transmission power;

3> use the IE "TPC step size" upon reception of TPC commands for closed loop power control;

3> use default value of "Uplink synchronisation frequency" and same value of "Uplink synchronisation step size" in "Uplink DPCH info" for HS-SICH upon reception of SS commands for closed loop uplink synchronisation on HS-SICH.

If the IE "Measurement Feedback Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the received configuration.

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.3.5.1.2, 8.5.25, 8.6.3.1b, 8.6.5.6, 8.6.6.33, 8.6.6.34

8.2.1.29.3 Test purpose

To confirm that the UE establishes a radio bearer mapped to HS-DSCH using uplink TFCS restriction according to the received RADIO BEARER SETUP message.

8.2.1.29.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 is active and cell 6 is inactive.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH

Test Procedure

Table 8.2.1.29

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-55	-55	OFF	-55
P-CCPCH RSCP (TDD)	dBm	-55	-55	OFF	-55

Table 8.2.1.29 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Column marked "T0" denote the initial conditions.

The UE is in CELL_DCH state, after the test operator is prompted to make an out-going call. Before step1, only signalling radio bearers have been established. SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.1.29. Then SS switches its downlink transmission power setting to columns "T1".

The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of radio access bearer mapped to HS-DSCH using a 384 kbps uplink DCH restricted to 64 kbps (FDD) or a 64kbps uplink DCH restricted to 16kbps (1.28Mcps TDD). After the UE receives this message, it configures them and establishes a radio access bearer in cell 6. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	SS receives this message from cell 6.
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

RADIO BEARER SETUP (Step 1) (FDD)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" and the radio bearer configuration for “Interactive or background / UL:384 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH” in 34.108, except for the following:

Information Element	Value/remark
Activation time	Now
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
UL Transport channel information for all transport channels - UL DCH TFCS	 Set according to the radio bearer configuration for “Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH” in 34.108 clause 6.10 Parameter Set.
CHOICE channel requirement	Uplink DPCH info
- Uplink DPCH power control info	Same contents as a RADIO BEARER SETUP message used in "Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS"
- CHOICE mode	FDD
- Scrambling code type	Long
- Scrambling code number	0 (0 to 16777215)
- Number of DPDCH	Not Present
- Spreading factor	Set according to the radio bearer configuration for “Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH” in 34.108 clause 6.10 Parameter Set.
- TFCI existence	Set according to the radio bearer configuration for “Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH” in 34.108 clause 6.10 Parameter Set.
- Number of FBI bit	Not Present
- Puncturing Limit	Set according to the radio bearer configuration for “Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH” in 34.108 clause 6.10 Parameter Set.
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Frequency info - UARFCN uplink (Nu) - UARFCN downlink (Nd)	 This IE should be present, if the default duplex distance defined for the operating frequency band is not used. Same downlink UARFCN as used for cell 6
Downlink information common for all radio links	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Downlink information for each radio links - Primary CPICH info - Primary Scrambling Code	 350

RADIO BEARER SETUP (Step 1) (1.28Mcps TDD)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" and the radio bearer configuration for “Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH” in 34.108, except for the following:

Information Element	Value/remark
Activation time	Now
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
UL Transport channel information common for all transport channels	
- PRACH TFCS	Not Present
- CHOICE mode	TDD
- Individual UL CCTrCH information	
- UL TFCS Identity	
- TFCS ID	1
- Shared Channel Indicator	FALSE
- UL TFCS	
- CHOICE TFCI signalling	Normal
- TFCI Field 1 Information	
- CHOICE TFCS representation	Complete reconfiguration
- TFCS complete reconfiguration information	
- CHOICE CTFC Size	4
- CTFC information	
- CTFC	0
- Power offset information	OMIT
- CTFC information	
- CTFC	1
- Power offset information	OMIT
- CTFC information	
- CTFC	2
- Power offset information	OMIT
- CTFC information	
- CTFC	5
- Power offset information	OMIT
- CTFC information	
- CTFC	6
- Power offset information	OMIT
- CTFC information	
- CTFC	7
- Power offset information	OMIT
- TFC subset	
- CHOICE Subset representation	Full transport format combination set
- TFC subset list	Not Present
- Uplink channel requirement	Set according to the radio bearer configuration for “Interactive or background / UL:16 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH” in 34.108 clause 6.11 Parameter Set.
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Frequency info	
- Choice mode	TDD
- UARFCN (Nt)	Same UARFCN as used for cell 6
Downlink information per radio link list	
- Choice mode	TDD
- Primary CCPCH info	
- Choice mode	TDD
- Choice TDD Option	1.28 Mcps TDD
- TSTD indicator	FALSE
- Cell parameters ID	Same Cell parameters ID as used for cell 6
- SCTD indicator	FALSE

- Downlink DPCH info for each RL	Set according to the radio bearer configuration for "Interactive or background / UL:16 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH" in 34.108 clause 6.11 Parameter Set.

8.2.1.29.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.30 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialised hard handover to another frequency, start of HS-DSCH reception)

8.2.1.30.1 Definition and applicability

All UEs which support FDD or TDD and HS-PDSCH.

8.2.1.30.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> the UE has a stored IE "HARQ info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor;

1> for 3.84 Mcps TDD or 7.68 Mcps TDD, the UE has stored the IE "HS-PDSCH Timeslot Configuration" and either of the following conditions are met:

2> a dedicated physical channel is allocated to the UE in the downlink;

2> the UE has stored $D_{hs\text{-}sync}$.

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link, for TDD add/remove H-RNTI upon hard handover.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If IE "Timing indication" has the value "initialise", UE shall:

1> execute the Timing Re-initialised hard handover procedure by following the procedure indicated in the subclause relevant to the procedure chosen by the UTRAN.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

…

If the IE "New H-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the value in the variable H_RNTI;

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

…

If the IE "Added or Reconfigured DL TrCH information" is included then for the transport channel identified by the IE "DL Transport Channel Identity" the UE shall:

1> if the choice "DL parameters" is set to 'HSDSCH':

2> if the IE "HARQ Info" is included:

3> perform the actions specified in subclause 8.6.5.6b.

2> if the value of the IE "MAC-hs reset indicator" is TRUE:

3> reset the MAC-hs entity.

…

If the IE "HS-SCCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the received configuration.

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> in the case of FDD:

2> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving HS-DSCH radio link applying the scrambling code as received in the IE "DL Scrambling code".

1> in the case of TDD:

2> receive the HS-SCCH(s) according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> transmit the HS-SICH according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> for HS-SCCH power control the UE shall use the "BLER target" signalled in the first occurrence of the "HS-SCCH Set Configuration".

2> in 3.84 Mcps TDD and 7.68 Mcps TDD:

3> use the parameters specified in the IE "HS-SICH power control info" for open loop power control as defined in subclause 8.5.7.

2> in 1.28 Mcps TDD:

3> use the IE "$PRX_{HS-SICH}$" to calculate and set an initial uplink transmission power;

3> use the IE "TPC step size" upon reception of TPC commands for closed loop power control;

3> use default value of "Uplink synchronisation frequency" and same value of "Uplink synchronisation step size" in "Uplink DPCH info" for HS-SICH upon reception of SS commands for closed loop uplink synchronisation on HS-SICH.

…

If the IE "Measurement Feedback Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the received configuration.

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.3.5.1.2, 8.5.25, 8.6.3.1, 8.6.3.1b, 8.6.5.6, 8.6.6.33, 8.6.6.34

8.2.1.30.3 Test purpose

To confirm that the UE establishes a radio bearer mapped to HS-DSCH and starts HS-DSCH reception in conjunction with a interfrequency hard handover without prior measurement on the target frequency according to the received RADIO BEARER SETUP message.

8.2.1.30.4 Method of test

Initial Condition

System Simulator: 2 cells–Cells 1 and 6 are active.

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_DCH state. Only signalling radio bearers have been established in cell 1.

The test operator is prompted to make an out-going call. The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of radio bearer with RB mapping to HS-DSCH as well as a timing re-initialised interfrequency hard handover to cell 6. After the UE receives this message, it establishes the radio bearer and the physical channels in cell 6. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC in cell 6. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1) (FDD)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info		
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]	
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	0	
- Downlink DPCH power control information	Not Present	
- Downlink rate matching restriction information	Not Present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Fixed or flexible position	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set	
- DPCH compressed mode info	Not present	
- TX Diversity mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
- MAC-hs reset indicator	TRUE	
Downlink information per radio link list	1 radio link	
Downlink information for each radio link		
- CHOICE mode	FDD	
- Primary CPICH info	Set to the scrambling code for cell 6	
- Serving HS-DSCH radio link indicator	TRUE	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value of DPCH Frame Offset modulo 38400	
- Secondary CPICH info	Not present	
- DL channelisation code	Reference to TS34.108 clause 6.10 Parameter Set	
- Secondary scrambling code	1	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	Any value between 0 and Spreading factor-1	
- Scrambling code change	Not Present	
- TPC combination index	0	
- SSDT cell identity	Not present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not present	

RADIO BEARER SETUP (Step 1) (1.28Mcps TDD)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info		
- Choice mode	TDD	
- UARFCN (Nt)	Same UARFCN as used for cell 6	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	0	
- Downlink DPCH power control information	Reference to TS 34.108 clause 6.11 Parameter Set	
- Default DPCH Offset Value	0	
- MAC-hs reset indicator	TRUE	
Downlink information per radio link list	1 radio link	
- Downlink information for each radio link		
- CHOICE mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	1.28Mcps TDD	
- TSTD indicator	FALSE	
- Cell parameters ID	Same Cell parameters ID as used for cell 6	
- SCTD indicator	FALSE	
- Downlink DPCH info for each RL	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9.	

RADIO BEARER SETUP (Step 1) (3.84Mcps TDD)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info		
- Choice mode	TDD	
- UARFCN (Nt)	Same UARFCN as used for cell 6	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	0	
- Downlink DPCH power control information	Reference to TS 34.108 clause 6.11 Parameter Set	
- Default DPCH Offset Value	0	
- MAC-hs reset indicator	TRUE	
Downlink information per radio link list	1 radio link	
- Downlink information for each radio link		
- CHOICE mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	3.84Mcps TDD	
- Choice Sync case	Sync Case 2	
- Timeslot	0	
- Cell parameters ID	Same Cell parameters ID as used for cell 6	
- SCTD indicator	FALSE	
- Downlink DPCH info for each RL	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9.	

RADIO BEARER SETUP (Step 1) (3.84Mcps TDD)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info		
- Choice mode	TDD	
- UARFCN (Nt)	Same UARFCN as used for cell 6	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	0	
- Downlink DPCH power control information	Reference to TS 34.108 clause 6.11 Parameter Set	
- Default DPCH Offset Value	0	
- MAC-hs reset indicator	TRUE	
Downlink information per radio link list	1 radio link	
- Downlink information for each radio link		
- CHOICE mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	7.68 Mcps TDD	
- Choice Sync case	Sync Case 2	
- Timeslot	0	
- Cell parameters ID	Same Cell parameters ID as used for cell 6	
- SCTD indicator	FALSE	
- Downlink DPCH info for each RL	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9.	

8.2.1.30.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE message using AM RLC in cell 6.

8.2.1.31 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Success (start of HS-DSCH reception)

8.2.1.31.1 Definition and applicability

All UEs which support FDD or TDD and HS-PDSCH.

8.2.1.31.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration in FDD or 1.28 Mcps TDD caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for an HS-DSCH related reconfiguration in 3.84 Mcps TDD or 7.68 Mcps TDD caused by the received message:

3> start using, at activation time T, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: In FDD an "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

…

If the IE "New H-RNTI" is included, the UE shall:

1> if the IE "Downlink HS-PDSCH Information" is also included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 of TS 25.331 applied on the received message:

2> store the value in the variable H_RNTI.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

…

If the IE "Added or Reconfigured DL TrCH information" is included then for the transport channel identified by the IE "DL Transport Channel Identity" the UE shall:

1> if the choice "DL parameters" is set to 'HSDSCH':

2> if the IE "HARQ Info" is included:

3> perform the actions specified in subclause 8.6.5.6b of TS 25.331.

2> if the IE “Added or reconfigured MAC-d flow” is included:

3> perform the actions specified in subclause 8.6.5.5a of TS 25.331.

…

If the IE “Downlink information common for all radio links” is included, the UE shall:

1> if the value of the IE “MAC-hs reset indicator” is TRUE:

2> reset the MAC-hs entity.

…

If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 of TS 25.331 applied on the received message, the UE shall:

1> if the IE "New H-RNTI" is included:

2> perform the actions as specified in subclause 8.6.3.1b of TS 25.331.

1> if the IE "HS-SCCH Info" is included:

2> act as specified in subclause 8.6.6.33 of TS 25.331.

1> if the IE "Measurement Feedback Info" is included:

2> act as specified in subclause 8.6.6.34 of TS 25.331.

1> if the IE "HS-DSCH Timeslot Configuration" or "HS-PDSCH Midamble Configuration" is included:

2> store the received configuration;

2> determine the value for the HS_DSCH_RECEPTION variable and take actions as described in subclause 8.5.25.

1> For FDD, if, as a result of the received message, the variable H_RNTI is set and the UE has a stored IE "HS-SCCH Info" and a stored IE "Measurement Feedback Info"; and

1> For FDD, if the UE has received IE "Uplink DPCH Power Control Info" and stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor; and

1> For FDD, if the UE has stored IEs "MAC-hs queue to add or reconfigure list", "MAC-d PDU size Info" and "RB Mapping Info" corresponding to the HS-PDSCH configuration;

2> set the variable HS_DSCH_RECEPTION to TRUE;

2> start HS-DSCH reception procedures according to the stored HS-PDSCH configuration:

3> as stated in subclause 8.6.3.1b of TS 25.331 for the IE "H-RNTI";

3> in subclause 8.6.6.33 of TS 25.331 for the IE "HS-SCCH Info"; and

3> in subclause 8.6.6.34 of TS 25.331 for the IE "Measurement Feedback Info".

…

If the IE "HS-SCCH Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> in the case of FDD:

2> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving HS-DSCH radio link applying the scrambling code as received in the IE "DL Scrambling code".2> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving HS-DSCH radio link applying the scrambling code as received in the IE "DL Scrambling code".

1> in the case of TDD:

2> receive the HS-SCCH(s) according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> transmit the HS-SICH according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> for HS-SCCH power control the UE shall use the "BLER target" signalled in the first occurrence of the "HS-SCCH Set Configuration".

2> in 3.84 Mcps TDD and 7.68 Mcps TDD:

3> use the parameters specified in the IE "HS-SICH power control info" for open loop power control as defined in subclause 8.5.7.

2> in 1.28 Mcps TDD:

3> use the IE " $PRX_{HS-SICH}$ " and "ACK-NAK power offset" to calculate and set an initial uplink transmission power;

3> use the IE " TPC step size" upon reception of TPC commands for closed loop power control

…

If the IE "Measurement Feedback Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.6.3.1, 8.6.3.1b, 8.6.5.6, 8.6.6.32, 8.6.6.33, 8.6.6.34

8.2.1.31.3 Test purpose

To confirm that the UE establishes a radio bearer mapped to HS-DSCH according to the received RADIO BEARER SETUP message.

8.2.1.31.4 Method of test

Initial Condition

System Simulator: 1 cell

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS_DCCH_FACH (state 6-8) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_FACH state. Only signalling radio bearers have been established.

The test operator is prompted to make an out-going call. The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of radio access bearer mapped to HS-DSCH using a 384 kbps uplink DCH restricted to 64 kbps for FDD,3.84 Mcps TDD and 7.68Mcps TDD or using 64 kbps uplink DCH for 1.28Mcps TDD. After the UE receives this message, it configures them and establishes a radio access bearer. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

RADIO BEARER SETUP (Step 1) (FDD)

Use the same message as specified for “Packet to CELL_DCH / HS-DSCH from CELL_FACH in PS”, with the following exception:

Information Element	Value/remark
RAB information for setup - PDCP info - Transmission RLC discard - MAX_DAT - Transmission window size - Timer_RST - Max_RST - Timer_poll_prohibit - Timer_poll - Poll_Windows - Receiving window size - Downlink RLC status info - Timer_status_prohibit	 Not present 10 256 1000 12 50 400 80 2047 50
UL Transport channel Information for all transport channels - UL DCH TFCS - CHOICE Gain Factors - Gain factorβc - Gain factorβd	 Include only the CTFC’s from the default message that restrict the uplink transmission rate to 64 kbps. Computed Gain Factors (The last TFC is set to Signalled Gain Factors) 10 (below 64 kbps) 8 (higher than 64 kbps) 15 (Not Present if the CHOICE Gain Factors is set to Computed Gain Factors)
Maximum allowed UL TX power	24dBm
CHOICE channel requirement - Δ_{ACK} - Δ_{NACK}	 6 6
Downlink HS-PDSCH Information - Measurement Feedback Info - POhsdsch - CQI Feedback cycle, k - Δ_{CQI}	 9dB 10ms 3

RADIO BEARER SETUP (Step 1)(1.28 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH / HS-DSCH from CELL_FACH in PS", with the following exception:

Information Element	Value/remark
RAB information for setup - PDCP info - Transmission RLC discard - MAX_DAT - Transmission window size - Timer_RST - Max_RST - Timer_poll_prohibit - Timer_poll - Poll_Windows - Receiving window size - Downlink RLC status info - Timer_status_prohibit	 Not present 10 256 1000 12 50 400 80 2047 50
UL Transport channel Information common for all transport channels - UL TFCS	 I Set according to the radio bearer configuration for "Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH" in 34.108 clause 6.11 Parameter Set.
Maximum allowed UL TX power	24dBm

RADIO BEARER SETUP (Step 1) (3.84 Mcps TDD and 7.68Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH / HS-DSCH from CELL_FACH in PS", with the following exception:

Information Element	Value/remark
RAB information for setup - PDCP info - Transmission RLC discard - MAX_DAT - Transmission window size - Timer_RST - Max_RST - Timer_poll_prohibit - Timer_poll - Poll_Windows - Receiving window size - Downlink RLC status info - Timer_status_prohibit	 Not present 10 256 1000 12 50 400 80 2047 50
UL Transport channel Information for all transport channels - UL TFCS Maximum allowed UL TX power	 Include only the CTFC's from the default message that restrict the uplink transmission rate to 64 kbps. 24dBm

8.2.1.31.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.32 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Success (start of HS-DSCH reception with frequency modification)

8.2.1.32.1 Definition and applicability

All UEs which support FDD or TDD and HS-PDSCH.

8.2.1.32.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> the UE has a stored IE "HARQ info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> for 3.84 Mcps TDD or 7.68 Mcps TDD, the UE has stored the IE "HS-PDSCH Timeslot Configuration" and either of the following conditions are met:

2> a dedicated physical channel is allocated to the UE in the downlink;

2> the UE has stored $D_{hs\text{-}sync}$.

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link, for TDD add/remove H-RNTI upon hard handover.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: In FDD an "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

…

If the IE "New H-RNTI" is included, the UE shall:

1> if the IE "Downlink HS-PDSCH Information" is also included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> store the value in the variable H_RNTI.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

…

If the IE "Added or Reconfigured DL TrCH information" is included then for the transport channel identified by the IE "DL Transport Channel Identity" the UE shall:

1> if the choice "DL parameters" is set to 'HSDSCH':

2> if the IE "HARQ Info" is included:

3> perform the actions specified in subclause 8.6.5.6b.

2> if the value of the IE "MAC-hs reset indicator" is TRUE:

3> reset the MAC-hs entity.

…

If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message, the UE shall:

1> if the IE "New H-RNTI" is included:

2> perform the actions as specified in subclause 8.6.3.1b.

1> if the IE "HS-SCCH Info" is included:

2> act as specified in subclause 8.6.6.33.

1> if the IE "Measurement Feedback Info" is included:

2> act as specified in subclause 8.6.6.34.

1> if the IE "HS-DSCH Timeslot Configuration" or "HS-PDSCH Midamble Configuration" is included:

2> store the received configuration;

2> determine the value for the HS_DSCH_RECEPTION variable and take actions as described in subclause 8.5.25.

1> For FDD, if, as a result of the received message, the variable H_RNTI is set and the UE has a stored IE "HS-SCCH Info" and a stored IE "Measurement Feedback Info"; and

1> For FDD, if the UE has received IE "Uplink DPCH Power Control Info" and stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor; and

1> For FDD, if the UE has stored IEs "MAC-hs queue to add or reconfigure list", "MAC-d PDU size Info" and "RB Mapping Info" corresponding to the HS-PDSCH configuration;

2> set the variable HS_DSCH_RECEPTION to TRUE;

2> start HS-DSCH reception procedures according to the stored HS-PDSCH configuration:

3> as stated in subclause 8.6.3.1b for the IE "H-RNTI";

3> in subclause 8.6.6.33 for the IE "HS-SCCH Info"; and

3> in subclause 8.6.6.34 for the IE "Measurement Feedback Info".

…

If the IE "HS-SCCH Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> in the case of FDD:

2> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving HS-DSCH radio link applying the scrambling code as received in the IE "DL Scrambling code".

1> in the case of TDD:

2> receive the HS-SCCH(s) according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> transmit the HS-SICH according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> for HS-SCCH power control the UE shall use the "BLER target" signalled in the first occurrence of the "HS-SCCH Set Configuration".

2> in 3.84 Mcps TDD and 7.68 Mcps TDD:

3> use the parameters specified in the IE "HS-SICH power control info" for open loop power control as defined in subclause 8.5.7.

2> in 1.28 Mcps TDD:

3> use the IE " $PRX_{HS-SICH}$ " and "ACK-NAK power offset" to calculate and set an initial uplink transmission power;

3> use the IE " TPC step size" upon reception of TPC commands for closed loop power control

…

If the IE "Measurement Feedback Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link.

Reference

3GPP TS 25.331 clauses 8.2.2, 8,6,3,1, 8.6.3.1b, 8.6.5.6, 8.6.6.32, 8.6.6.33, 8.6.6.34

8.2.1.32.3 Test purpose

To confirm that the UE establishes a radio bearer mapped to HS-DSCH according to the received RADIO BEARER SETUP message.

8.2.1.32.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 is active and cell 6 is inactive.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

SYSTEM INFORMATION BLOCK TYPE 3 (see specific message contents)

UE: PS_DCCH_FACH (state 6-8) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH

Test Procedure

Table 8.2.1.32

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-55	-55	Off	-55
P-CCPCH RSCP (TDD)	dBm	-55	-55	Off	-55

Table 8.2.1.32 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings from columns "T0" to "T1", whenever the description in multi-cell condition specifies the transmission power settings for cell 1 and cell 6.

The UE is in CELL_FACH state of cell 1 and only signalling radio bearers have been established. SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.1.32. The SS switches its downlink transmission power settings to columns "T1".

The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of radio access bearer mapped to HS-DSCH using a 384 kbps and uplink DCH restricted to 64 kbps for FDD, 3.84 Mcps TDD and 7.68 Mcps TDD or using 64 kbps uplink DCH for 1.28Mcps TDD. After the UE receives this message, it configures them and establishes a radio access bearer in cell 6. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	SS receives this message from Cell 6.
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

RADIO BEARER SETUP (Step 1)(FDD)

Use the same message as specified in clause 9 TS 34.108 for “Packet to CELL_DCH / HS-DSCH from CELL_FACH in PS", with the following exceptions:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, with the following exceptions;
- PDCP info	Not present
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	10
- Transmission window size	256
- Timer_RST	1000
- Max_RST	12
- Timer_poll_prohibit	50
- Timer_poll	400
- Poll_Windows	80
- Receiving window size	2047
- Downlink RLC status info	
- Timer_status_prohibit	50
UL Transport channel information for all transport channels	
- CHOICE Gain Factors	Computed Gain Factors (The last TFC is set to Signalled Gain Factors)
- Gain factorβc	10 (below 64 kbps) 8 (higher than 64 kbps)
- Gain factorβd	15 (Not Present if the CHOICE Gain Factors is set to Computed Gain Factors)
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	This IE should be present, if the default duplex distance defined for the operating frequency band is not used.
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
Maximum allowed UL TX power	24dBm
CHOICE channel requirement	
- Δ_{ACK}	6
- Δ_{NACK}	6
Downlink HS-PDSCH Information	
- Measurement Feedback Info	
- POhsdsch	9dB
- CQI Feedback cycle, k	10ms
- Δ_{CQI}	3
Downlink information for each radio links	
- Primary CPICH info	
- Primary Scrambling Code	350

RADIO BEARER SETUP (Step 1)(3.84 Mcps TDD and 7.68 Mcps TDD)

Use the same message as specified in clause 9 TS 34.108 for “Packet to CELL_DCH / HS-DSCH from CELL_FACH in PS", with the following exceptions:

Information Element	Value/remark
RAB information for setup - PDCP info - Transmission RLC discard - CHOICE SDU discard mode - MAX_DAT - Transmission window size - Timer_RST - Max_RST - Timer_poll_prohibit - Timer_poll - Poll_Windows - Receiving window size - Downlink RLC status info - Timer_status_prohibit	 Not present No Discard 10 256 1000 12 50 400 80 2047 50
UL Transport channel information for all transport channels - UL TFCS	 Include only the CTFC’s from the default message that restrict the uplink transmission rate to 64 kbps.
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
Frequency info - CHOICE mode - UARFCN (Nt)	 TDD Same UARFCN as used for cell 6

RADIO BEARER SETUP (Step 1) 1.28 Mcps TDD

Use the same message as specified for “Packet to CELL_DCH / HS-DSCH from CELL_FACH in PS”, with the following exception:

Information Element	Value/remark
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
Frequency info - Choice mode - UARFCN (Nt) Downlink information per radio link list - Choice mode - Primary CCPCH info - Choice mode - Choice TDD Option - TSTD indicator - Cell parameters ID - SCTD indicator - Downlink DPCH info for each RL	 TDD Same UARFCN as used for cell 6 TDD TDD 1.28 Mcps TDD FALSE Same Cell parameters ID as used for cell 6 FALSE Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9

8.2.1.32.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.33 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (Unsynchronised RL Reconfiguration)

8.2.1.33.1 Definition

-

8.2.1.33.2 Conformance requirement

If the UE receives:

- a RADIO BEARER SETUP message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214 (FDD only);

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if the IE "Downlink information for each radio link" is absent, not change its current DL Physical channel configuration.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

- clear that entry;

1bis> in TDD, if the procedure is used to perform a handover to a cell where timing advance is enabled, and the UE can calculate the timing advance value in the new cell (i.e. in a synchronous TDD network):

2> set the IE "Uplink Timing Advance" according to subclause 8.6.6.26.In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…

(Note: From TS25.433 clause 8.3.5.1)

The Unsynchronised Radio Link Reconfiguration procedure is used to reconfigure Radio Link(s) related to one UE-UTRAN connection within a Node B.

The Unsynchronised Radio Link Reconfiguration procedure is used when there is no need to synchronise the time of the switching from the old to the new configuration in one Node B used for a UE-UTRAN connection with any other Node B also used for the UE–UTRAN connection.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4 and TS25.433 clause 8.3.5.1.

8.2.1.33.3 Test purpose

To confirm that the UE establishes a new radio bearer according to a RADIO BEARER SETUP message.

8.2.1.33.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CS-DCCH_DCH (state 6-5) or PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Specific Message Content

For SIB type 1 message to be transmitted throughout the test, use the message titled “System Information Block type 1 (supported PLMN type is GSM-MAP)” as found in TS 34.108 clause 6, with the following exception.

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

Test Procedure

The UE is in CELL_DCH state, after the test operator is prompted to make an out-going call. Before step 1, only signalling radio bearers have been established.

The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of radio access bearer. After the UE receives this message, it configures them and establishes a radio access bearer. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

The contents of RADIO BEARER SETUP message in this test case is identical to the message sub-type indicated by "Non speech from CELL_DCH to CELL_DCH in CS" or "Speech from CELL_DCH to CELL_DCH in CS" or "Packet to CELL_DCH from CELL_DCH in PS" in [9] TS 34.108 clause 9, except for the following;

Information Element	Value/remark
Activation time	Now

8.2.1.33.5 Test requirement

After step 1 the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.34 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (Unsynchronised RL Reconfiguration with frequency modification)

8.2.1.34.1 Definition

8.2.1.34.2 Conformance requirement

If the UE receives:

- a RADIO BEARER SETUP message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214 (FDD only);

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if the IE "Downlink information for each radio link" is absent, not change its current DL Physical channel configuration.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

- clear that entry;

1bis> in TDD, if the procedure is used to perform a handover to a cell where timing advance is enabled, and the UE can calculate the timing advance value in the new cell (i.e. in a synchronous TDD network):

2> set the IE "Uplink Timing Advance" according to subclause 8.6.6.26.In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…

(Note: From TS25.433 clause 8.3.5.1)

The Unsynchronised Radio Link Reconfiguration procedure is used to reconfigure Radio Link(s) related to one UE-UTRAN connection within a Node B.

The Unsynchronised Radio Link Reconfiguration procedure is used when there is no need to synchronise the time of the switching from the old to the new configuration in one Node B used for a UE-UTRAN connection with any other Node B also used for the UE–UTRAN connection.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4 and TS25.433 clause 8.3.5.1.

8.2.1.34.3 Test purpose

To confirm that the UE establishes a new radio bearer according to a RADIO BEARER SETUP message.

8.2.1.34.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 is active and cell 6 is inactive.

UE: CS-DCCH_DCH (state 6-5) or PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Specific Message Content

For SIB type 1 message to be transmitted throughout the test, use the message titled "System Information Block type 1 (supported PLMN type is GSM-MAP)" as found in TS 34.108 clause 6, with the following exception.

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

Test Procedure

Table 8.2.1.34

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-55	-55	OFF	-55
P-CCPCH RSCP (TDD)	dBm	-55	-55	OFF	-55

Table 8.2.1.34 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Column marked "T0" denote the initial conditions.

The UE is in CELL_DCH state, after the test operator is prompted to make an out-going call. Before step 1, only signalling radio bearers have been established. SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.1.34. Then SS switches its downlink transmission power setting to columns "T1".

The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of radio access bearer. After the UE receives this message, it configures them and establishes a radio access bearer in cell6. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	SS receives this message from cell 6.
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

The contents of RADIO BEARER SETUP message in this test case is identical to the message sub-type indicated by "Non speech from CELL_DCH to CELL_DCH in CS" or "Speech from CELL_DCH to CELL_DCH in CS" or "Packet to CELL_DCH from CELL_DCH in PS" in [9] TS 34.108 clause 9, except for the followings:

Information Element	Value/remark
Activation time	Now
Frequency info - UARFCN uplink (Nu) - UARFCN downlink (Nd)	 Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21] Same downlink UARFCN as used for cell 6
Downlink information for each radio links - Primary CPICH info - Primary Scrambling Code - DPCH frame offset	 350 The Value is calculated based on internal SS timing difference

8.2.1.34.5 Test requirement

After step 1 the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.34a Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (Unsynchronised RL Reconfiguration with inter band handover)

8.2.1.34a.1 Definition

This test case is identical to test case 8.2.1.34 except that the cells belong to different frequency bands.

8.2.1.34a.2 Conformance requirement

Same conformance requirement as in clause 8.2.1.34.2

8.2.1.34a.3 Test purpose

To confirm that the UE establishes a new radio bearer according to a RADIO BEARER SETUP message in a different frequency band cell.

8.2.1.34a.4 Method of test

Initial Condition

Same initial condition as in clause 8.2.1.34.4 except that cells 1 and 6 belong to different frequency bands.

Related ICS/IXIT statement(s)

- UE supports multiple bands simultaneously yes/no

Specific Message Content

Same specific message contents as in clause 8.2.1.34.4

Test Procedure

Same test procedure as in clause 8.2.1.34.4

Note: If UE supports more than 2 frequency bands, the test may be executed for various band combinations.

Expected sequence

Same expected sequence as in clause 8.2.1.34.4

Specific Message Contents

Same specific message contents as in clause 8.2.1.34.4

8.2.1.34a.5 Test requirement

Same test requirements as in clause 8.2.1.34.5

8.2.1.34b Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (Unsynchronised RL Reconfiguration with inter band handover)(TDD a-f band)

8.2.1.34b.1 Definition

This test case is identical to test case 8.2.1.34 except that the cells belong to different frequency bands.

8.2.1.34b.2 Conformance requirement

Same conformance requirement as in clause 8.2.1.34.2

8.2.1.34b.3 Test purpose

To confirm that the UE establishes a new radio bearer according to a RADIO BEARER SETUP message in a different frequency band cell.

8.2.1.34b.4 Method of test

Initial Condition

Same initial condition as in clause 8.2.1.34.4 except that cells 1 and 6 belong to different frequency bands.

Related ICS/IXIT statement(s)

- UE supports multiple bands simultaneously yes/no

Specific Message Content

Same specific message contents as in clause 8.2.1.34.4

Test Procedure

Same test procedure as in clause 8.2.1.34.4

Note: If UE supports more than 2 frequency bands, the test may be executed for various band combinations.

Expected sequence

Same expected sequence as in clause 8.2.1.34.4

Specific Message Contents

Same specific message contents as in clause 8.2.1.34.4

8.2.1.34b.5 Test requirement

Same test requirements as in clause 8.2.1.34.5

8.2.1.35 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (start of E-DCH transmission)

8.2.1.35.1 Definition and applicability

All UEs which support FDD or TDD and HS-PDSCH and E-DCH and all UEs which support TDD and HS-PDSCH and E-PUCH.

8.2.1.35.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable E_DCH_TRANSMISSION shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable E_RNTI includes either the Primary E-RNTI or the Secondary E-RNTI or both the Primary and the Secondary E-RNTI;

1> For FDD:

2> the UE has stored the following IEs:

- IE "E-DCH Transmission Time Interval";
- IE "HARQ info for E-DCH";
- IE "E-DCH info", including the IE "E-DPCCH info" and the IE "E-DPDCH info".
- one of the radio links in the active set is configured as the serving E-DCH radio link, and for this radio link the UTRAN has configured the IE "E-HICH configuration" and the IE "E-AGCH info".

1> For TDD:

2> the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-RUCCH info" and the IE "E-PUCH info";
- IE "E-HICH info";
- IE "E-AGCH info".

1> there is at least one logical channel mapped to E-DCH for which:

2> the corresponding E-DCH MAC-d flow is configured, i.e. the IEs "E-DCH MAC-d flow power offset" and "E-DCH MAC-d flow maximum number of retransmissions", and the transmission grant type are configured.

If any of the above conditions is not met and the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> set the variable E_DCH_TRANSMISSION to FALSE;

1> stop any E-AGCH and E-HICH reception procedures;

1> For FDD:

2> stop any E-RGCH reception procedures.

1> For FDD:

2> stop any E-DPCCH and E-DPDCH transmission procedures.

1> For TDD:

2> stop any E-RUCCH and E-PUCH transmission procedures.

1> clear the variable E_RNTI;

1> act as if the IE "MAC-es/e reset indicator" was received and set to TRUE;

1> release all E-DCH HARQ resources;

1> no longer consider any radio link to be the serving E-DCH radio link.

Whenever the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1>For FDD:

2> perform E_AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI" and the IE "New Secondary E-RNTI".

2> perform E-HICH reception procedures for all radio links in the E-DCH active set;

2> perform E-RGCH reception procedures for all radio links in the active set for which an E-RGCH configuration has been provided;

2> perform E-DPCCH transmission procedures according to the stored E-DPCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-DPCCH Info".

2> perform E-DPDCH transmission procedures according to the stored E-DPDCH configuration as stated in:

3> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

3> subclause 8.6.5.17 for the IE "HARQ info for E-DCH";

3> subclause 8.6.6.37 for the IE "E-DPDCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

1>For TDD:

2>perform E-AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New E-RNTI".

2> Perform E-HICH reception;

2> for 3.84/7.68 Mcps TDD, perform E-RUCCH transmission procedures according to the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

2> for 1.28 Mcps TDD, perform E-RUCCH transmission procedure according to the stored PRACH configuration (see [60]) and the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

NOTE 1: The PRACH configuration is signalled directly to the UE in "E-RUCCH Info" IE in case of E-DCH serving cell change.

2> Perform E-PUCH transmission procedures according to the stored E-PUCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-PUCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

2> obtain and format the appropriate information on E-UCCH (see [15]). For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, the UE shall use the lowest E-DCH capability category, as specified in [35], to signal the UL control information on E-UCCH.

NOTE 2: For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, UTRAN should use the lowest E-DCH capability category when performing configuration, scheduling and reading the control information on E-UCCH, as it is not possible for Node B to be aware of the UE's E-DCH capability category during this period.

Whenever the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> not perform E-AICH, E-HICH and E-RGCH reception procedures;

1> not perform E-DPCCH and E-DPDCH transmission procedures.

…

1> for FDD:

2> if the IE "New Primary E-RNTI" and/or the IE "New Secondary E-RNTI" are/is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

3> store the new value(s) in the variable E_RNTI;

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

1> for TDD:

2> if the IE "New E-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

3> store the new value in the variable E_RNTI;

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

If, after the completion of this procedure, the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> clear the variable E-RNTI.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> use the value of the Primary E-RNTI and/or Secondary E-RNTI stored in the variable E_RNTI as UE identities in the E-AGCH reception procedure in the physical layer.

1> for TDD:

2> use the value of New E-RNTI stored in the variable E_RNTI as the UE identity in the E-AGCH reception procedure and the E-RUCCH transmission procedure in the physical layer.

…

If the IE "Added or Reconfigured UL TrCH information" is included then the UE shall:

1> for the transport channel identified by the IE "UL Transport Channel Identity" and IE "Uplink transport channel type":

2> perform the actions for the IE "Transport Format Set" as specified in subclause 8.6.5.1.

NOTE: The UE stores the UL transport channel configuration until it is explicitly deleted by a message containing the IE "Deleted UL TrCH information" or the UE leaves RRC Connected mode.

1> if the choice "UL parameters" is set to 'E-DCH':

2> for FDD:

3> apply the values of the IE "E-DCH Transmission Time Interval" and the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

2> for TDD:

3> apply the value of the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

2> for the IE "HARQ Info for E-DCH":

3> perform the actions specified in subclause 8.6.5.17.

2> if the IE "Added or Reconfigured E-DCH MAC-d Flow list " is included:

3> for each MAC-d flow identified by the IE "Mac-d flow identity":

4> perform the actions as specified in subclause 8.6.5.18.

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "E-DCH Transmission Time Interval" is included, the UE shall:

1> store the received TTI;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> apply the TTI as signalled in the IE "E-DCH Transmission Time Interval" on the E-DPDCH.

If the received "E-DCH Transmission Time Interval" is 2 ms and the previously stored TTI was 10 ms:

1> not send any data on E-DPDCH in first 8 TTIs after activation time of new TTI.

…

If the IE "HARQ Info for E-DCH" is included, the UE shall:

1> store the received configuration;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> use a redundancy version for each HARQ transmission as configured by the IE "HARQ RV Configuration".

…

If the IE "Added or reconfigured E-DCH MAC-d flow" is included, the UE shall:

1> if the IE "E-DCH MAC-d flow power offset" is included:

2> configure the power offset indicated in the IE "E-DCH MAC-d flow power offset" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow maximum number of retransmissions" is included:

2> configure the maximum number of retransmissions indicated in the IE "E-DCH MAC-d flow maximum number of retransmissions" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> for 1.28 Mcps TDD, if the IE "E-DCH MAC-d flow retransmission timer" is included:

2> configure the retransmission timer for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow multiplexing list" is included:

2> only multiplex MAC-d PDU’s from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU’s from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed in accordance to the IE "E-DCH MAC-d flow multiplexing list".

1> else:

2> if previously the IE "E-DCH MAC-d flow multiplexing list" was already received for this E-DCH MAC-d flow:

3> continue to only multiplex E-DCH PDU’s from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU’s from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed according to the previously received IE "E-DCH MAC-d flow multiplexing list".

2> else (never received the IE "E-DCH MAC-d flow multiplexing list" for this E-DCH MAC-d flow):

3> allow multiplexing of MAC-d PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from any other E-DCH MAC-d flow in the same MAC-e PDU.

1> for FDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> if the TTI configured on the E-DCH equals 2ms, and the IE "2ms non-scheduled transmission grant HARQ process allocation" is configured for this MAC-d flow:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e PDU transmitted by HARQ processes allowed by the IE "2ms non-scheduled transmission grant HARQ process allocation", with a total contribution from this MAC-d flow (i.e. including MAC-e/es headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

3> else:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall be included in a MAC-e PDU transmitted by any HARQ process, with a total contribution from this MAC-d flow (i.e. including MAC-e/es headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDU's for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH/E-RGCH (see [15]).

1> for TDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e PDU transmitted by HARQ processes designated as non scheduled (Ids 4 – 7) in the TTIs indicated (as determined from the IEs "Activation Time", "Resource Duration" and "Resource Periodicity").

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDUs for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH (see [15]).

1> perform the actions as specified in subclause 8.5.21;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

1> if the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> if the UE is in TDD mode and shared transport channels are assigned to the UE:

3> start to receive the indicated Secondary CCPCH.

2> if the UE is in TDD mode and no shared transport channels are assigned to the UE:

3> set the variable UNSUPPORTED_CONFIGURATION to TRUE.

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link and no longer consider any other radio link as serving HS-DSCH radio link.

2> For FDD:

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link and no longer consider any other radio link as serving E-DCH radio link.

3> if the IE "E-AGCH Info" is included for the serving E-DCH radio link:

4> store the newly received E-AGCH configuration.

NOTE: The UTRAN should always include the IE "E-AGCH info" if the serving E-DCH radio link indicated in the message is another radio link than the serving E-DCH radio link prior to the procedure.

3> if the IE "E-HICH information" is included:

4> store this E-HICH configuration for the concerning radio link.

3> if the IE "E-HICH information" is included or previously stored:

4> store this E-RGCH configuration for the concerning radio link, if included.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> for TDD:

3> if the IE "E-AGCH Info" is included:

4> store the newly received E-AGCH configuration.

3> if the IE "E-HICH information" is included:

4> store the E-HICH configuration.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> act on the other IEs contained in the IE "Downlink information for each radio link" as specified in subclause 8.6 applied on this radio link.

1> in addition, if the message was received in CELL_DCH state and the UE remains in CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link;

4> if the serving HS-DSCH radio link was another radio link than this radio link prior to reception of the message and the IE "H-RNTI" is not included:

5> clear the variable H_RNTI.

3> if the IE "Serving HS-DSCH radio link indicator" is set to ‘FALSE’ and this radio link was considered the serving HS-DSCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving HS-DSCH radio link.

3> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25;

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link;

4> if the serving E-DCH radio link was another radio link than this radio link prior to reception of the message:

5> if the IE "New Primary E-RNTI" is not included:

6> clear the Primary E-RNTI stored in the variable E_RNTI.

5> if the IE "New Secondary E-RNTI" is not included:

6> clear the Secondary E-RNTI stored in the variable E_RNTI.

3> if the IE "Serving E-DCH radio link indicator" is set to ‘FALSE’ and this radio link was considered the serving E-DCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving E-DCH radio link.

3> if the IE "E-HICH release indicator" is present:

4> delete the stored E-HICH, E-AGCH and E-RGCH (if any) configurations.

3> if the IE "E-RGCH release indicator" is present:

4> delete the stored E-RGCH configuration for this RL.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> For TDD:

3> if the IE "H-RNTI" is not included and the primary CCPCH has changed:

4> clear the variable H_RNTI.

3> determine the value for the HS-DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

2> for TDD:

3> if the IE "New E-RNTI" is not included:

4> clear the variable E_RNTI.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> for each optional IE part of the IE "Downlink information for each radio link" that is not present:

3> do not change its current downlink physical channel configuration corresponding to the IE, which is absent, if not stated otherwise elsewhere.

…

If the IE "E-DCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> for FDD:

2> if the IE "E-DPCCH Info" is included:

3> store the newly received E-DPCCH configuration.

2> if the IE "E-DPDCH Info" is included:

3> store the newly received E-DPDCH configuration.

2> if the IE "UL 16QAM settings" is not included:

3> indicate to lower layers to stop any operation in 16QAM mode.

1> for 3.84/7.68 Mcps TDD:

2> if the IE "E-RUCCH Info" is included:

3> store the newly received E-RUCCH configuration.

2> if the IE "E-PUCH Info" is included:

NOTE 1: The UTRAN should ensure the ordering of the E-TFCI table in increasing transmission power, by correct setting of the reference E-TFCI power offsets.

NOTE 2: If a reference E-TFCI signalled to the UE is outside the UE physical channel capability, the UE behaviour is unspecified.

NOTE 2a: If E-TFCI boost is signalled to the UE and a reference E-TFCI <= E-TFCI Boost is signalled to the UE with a Reference E-TFCI PO of value 30 or 31, the UE behaviour is unspecified.

1> if the IE "MAC-es/e reset indicator" is included:

2> reset the MAC-es/e entity [15].

NOTE 3: If the IE "MAC-es/e reset indicator" is not set to TRUE in case the IE "E-DCH Transmission Time Interval" is reconfigured, the UE behaviour is unspecified.

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> configure the UL E-DPCCH in accordance with the stored IE "E-DPCCH" configuration;

2> configure the MAC with the stored IE "E-DPDCH" configuration and/or the information contained in IE "Scheduled Transmission configuration".

1> for TDD:

2> configure the E-RUCCH with the stored E-RUCCH configuration;

2> configure the MAC with the stored E-PUCH configuration.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.28, 8.6.3.14, 8.6.5.5, 8.6.5.16, 8.6.5.17, 8.6.5.18, 8.6.6.4, 8.6.6.37

8.2.1.35.3 Test purpose

To confirm that the UE establishes a radio bearer mapped to HS-DSCH and E-DCH according to the received RADIO BEARER SETUP message.

8.2.1.35.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports E-DPDCH (FDD only)
- UE supports E-PUCH (TDD only)

Test Procedure

The UE is in CELL_DCH state. Only signalling radio bearers have been established.

The test operator is prompted to make an out-going call. The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of a radio bearer with RB mapping to HS-DSCH and E-DCH. After the UE receives this message, it establishes a radio bearer and maps it to the HS-DSCH and E-DCH. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for "Packet to CELL_DCH / E-DCH / HS-DSCH using three multiplexing options (3/3) and SRBs mapped on DCH/DCH" in 34.108.

8.2.1.35.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.35a Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (start of E-DCH transmission, in the multi-frequency network environment, for 1.28 Mcps TDD only)

8.2.1.35a.1 Definition and applicability

All UEs which support 1.28 Mcps TDD and HS-PDSCH and E-PUCH.

8.2.1.35a.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable E_DCH_TRANSMISSION shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable E_RNTI includes either the Primary E-RNTI or the Secondary E-RNTI or both the Primary and the Secondary E-RNTI;

1> For FDD:

2> the UE has stored the following IEs:

- IE "E-DCH Transmission Time Interval";
- IE "HARQ info for E-DCH";
- IE "E-DCH info", including the IE "E-DPCCH info" and the IE "E-DPDCH info".
- one of the radio links in the active set is configured as the serving E-DCH radio link, and for this radio link the UTRAN has configured the IE "E-HICH configuration" and the IE "E-AGCH info".

1> For TDD:

2> the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-RUCCH info" and the IE "E-PUCH info";
- IE "E-HICH info";
- IE "E-AGCH info".

1> there is at least one logical channel mapped to E-DCH for which:

2> the corresponding E-DCH MAC-d flow is configured, i.e. the IEs "E-DCH MAC-d flow power offset" and "E-DCH MAC-d flow maximum number of retransmissions", and the transmission grant type are configured.

If any of the above conditions is not met and the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> set the variable E_DCH_TRANSMISSION to FALSE;

1> stop any E-AGCH and E-HICH reception procedures;

1> For FDD:

2> stop any E-RGCH reception procedures.

1> For FDD:

2> stop any E-DPCCH and E-DPDCH transmission procedures.

1> For TDD:

2> stop any E-RUCCH and E-PUCH transmission procedures.

1> clear the variable E_RNTI;

1> act as if the IE "MAC-es/e reset indicator" was received and set to TRUE;

1> release all E-DCH HARQ resources;

1> no longer consider any radio link to be the serving E-DCH radio link.

Whenever the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1>For FDD:

2> perform E_AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI" and the IE "New Secondary E-RNTI".

2> perform E-HICH reception procedures for all radio links in the E-DCH active set;

2> perform E-RGCH reception procedures for all radio links in the active set for which an E-RGCH configuration has been provided;

2> perform E-DPCCH transmission procedures according to the stored E-DPCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-DPCCH Info".

2> perform E-DPDCH transmission procedures according to the stored E-DPDCH configuration as stated in:

3> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

3> subclause 8.6.5.17 for the IE "HARQ info for E-DCH";

3> subclause 8.6.6.37 for the IE "E-DPDCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

1>For TDD:

2>perform E-AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New E-RNTI".

2> Perform E-HICH reception;

2> for 3.84/7.68 Mcps TDD, perform E-RUCCH transmission procedures according to the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

2> for 1.28 Mcps TDD, perform E-RUCCH transmission procedure according to the stored PRACH configuration (see [60]) and the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

NOTE 1: The PRACH configuration is signalled directly to the UE in "E-RUCCH Info" IE in case of E-DCH serving cell change.

2> Perform E-PUCH transmission procedures according to the stored E-PUCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-PUCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

2> obtain and format the appropriate information on E-UCCH (see [15]). For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, the UE shall use the lowest E-DCH capability category, as specified in [35], to signal the UL control information on E-UCCH.

NOTE 2: For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, UTRAN should use the lowest E-DCH capability category when performing configuration, scheduling and reading the control information on E-UCCH, as it is not possible for Node B to be aware of the UE's E-DCH capability category during this period.

Whenever the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> not perform E-AICH, E-HICH and E-RGCH reception procedures;

1> not perform E-DPCCH and E-DPDCH transmission procedures.

…

1> for FDD:

2> if the IE "New Primary E-RNTI" and/or the IE "New Secondary E-RNTI" are/is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

3> store the new value(s) in the variable E_RNTI;

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

1> for TDD:

2> if the IE "New E-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

3> store the new value in the variable E_RNTI;

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

If, after the completion of this procedure, the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> clear the variable E-RNTI.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> use the value of the Primary E-RNTI and/or Secondary E-RNTI stored in the variable E_RNTI as UE identities in the E-AGCH reception procedure in the physical layer.

1> for TDD:

2> use the value of New E-RNTI stored in the variable E_RNTI as the UE identity in the E-AGCH reception procedure and the E-RUCCH transmission procedure in the physical layer.

…

If the IE "Added or Reconfigured UL TrCH information" is included then the UE shall:

1> for the transport channel identified by the IE "UL Transport Channel Identity" and IE "Uplink transport channel type":

2> perform the actions for the IE "Transport Format Set" as specified in subclause 8.6.5.1.

NOTE: The UE stores the UL transport channel configuration until it is explicitly deleted by a message containing the IE "Deleted UL TrCH information" or the UE leaves RRC Connected mode.

1> if the choice "UL parameters" is set to 'E-DCH':

2> for FDD:

3> apply the values of the IE "E-DCH Transmission Time Interval" and the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

2> for TDD:

3> apply the value of the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

2> for the IE "HARQ Info for E-DCH":

3> perform the actions specified in subclause 8.6.5.17.

2> if the IE "Added or Reconfigured E-DCH MAC-d Flow list " is included:

3> for each MAC-d flow identified by the IE "Mac-d flow identity":

4> perform the actions as specified in subclause 8.6.5.18.

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "E-DCH Transmission Time Interval" is included, the UE shall:

1> store the received TTI;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> apply the TTI as signalled in the IE "E-DCH Transmission Time Interval" on the E-DPDCH.

If the received "E-DCH Transmission Time Interval" is 2 ms and the previously stored TTI was 10 ms:

1> not send any data on E-DPDCH in first 8 TTIs after activation time of new TTI.

…

If the IE "HARQ Info for E-DCH" is included, the UE shall:

1> store the received configuration;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> use a redundancy version for each HARQ transmission as configured by the IE "HARQ RV Configuration".

…

If the IE "Added or reconfigured E-DCH MAC-d flow" is included, the UE shall:

1> if the IE "E-DCH MAC-d flow power offset" is included:

2> configure the power offset indicated in the IE "E-DCH MAC-d flow power offset" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow maximum number of retransmissions" is included:

2> configure the maximum number of retransmissions indicated in the IE "E-DCH MAC-d flow maximum number of retransmissions" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> for 1.28 Mcps TDD, if the IE "E-DCH MAC-d flow retransmission timer" is included:

2> configure the retransmission timer for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow multiplexing list" is included:

2> only multiplex MAC-d PDU’s from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU’s from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed in accordance to the IE "E-DCH MAC-d flow multiplexing list".

1> else:

2> if previously the IE "E-DCH MAC-d flow multiplexing list" was already received for this E-DCH MAC-d flow:

3> continue to only multiplex E-DCH PDU’s from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU’s from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed according to the previously received IE "E-DCH MAC-d flow multiplexing list".

2> else (never received the IE "E-DCH MAC-d flow multiplexing list" for this E-DCH MAC-d flow):

3> allow multiplexing of MAC-d PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from any other E-DCH MAC-d flow in the same MAC-e PDU.

1> for FDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> if the TTI configured on the E-DCH equals 2ms, and the IE "2ms non-scheduled transmission grant HARQ process allocation" is configured for this MAC-d flow:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e PDU transmitted by HARQ processes allowed by the IE "2ms non-scheduled transmission grant HARQ process allocation", with a total contribution from this MAC-d flow (i.e. including MAC-e/es headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

3> else:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall be included in a MAC-e PDU transmitted by any HARQ process, with a total contribution from this MAC-d flow (i.e. including MAC-e/es headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDU's for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH/E-RGCH (see [15]).

1> for TDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e PDU transmitted by HARQ processes designated as non scheduled (Ids 4 – 7) in the TTIs indicated (as determined from the IEs "Activation Time", "Resource Duration" and "Resource Periodicity").

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDUs for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH (see [15]).

1> perform the actions as specified in subclause 8.5.21;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

1> if the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> if the UE is in TDD mode and shared transport channels are assigned to the UE:

3> start to receive the indicated Secondary CCPCH.

2> if the UE is in TDD mode and no shared transport channels are assigned to the UE:

3> set the variable UNSUPPORTED_CONFIGURATION to TRUE.

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link and no longer consider any other radio link as serving HS-DSCH radio link.

2> For FDD:

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link and no longer consider any other radio link as serving E-DCH radio link.

3> if the IE "E-AGCH Info" is included for the serving E-DCH radio link:

4> store the newly received E-AGCH configuration.

NOTE: The UTRAN should always include the IE "E-AGCH info" if the serving E-DCH radio link indicated in the message is another radio link than the serving E-DCH radio link prior to the procedure.

3> if the IE "E-HICH information" is included:

4> store this E-HICH configuration for the concerning radio link.

3> if the IE "E-HICH information" is included or previously stored:

4> store this E-RGCH configuration for the concerning radio link, if included.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> for TDD:

3> if the IE "E-AGCH Info" is included:

4> store the newly received E-AGCH configuration.

3> if the IE "E-HICH information" is included:

4> store the E-HICH configuration.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> act on the other IEs contained in the IE "Downlink information for each radio link" as specified in subclause 8.6 applied on this radio link.

1> in addition, if the message was received in CELL_DCH state and the UE remains in CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link;

4> if the serving HS-DSCH radio link was another radio link than this radio link prior to reception of the message and the IE "H-RNTI" is not included:

5> clear the variable H_RNTI.

3> if the IE "Serving HS-DSCH radio link indicator" is set to ‘FALSE’ and this radio link was considered the serving HS-DSCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving HS-DSCH radio link.

3> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25;

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link;

4> if the serving E-DCH radio link was another radio link than this radio link prior to reception of the message:

5> if the IE "New Primary E-RNTI" is not included:

6> clear the Primary E-RNTI stored in the variable E_RNTI.

5> if the IE "New Secondary E-RNTI" is not included:

6> clear the Secondary E-RNTI stored in the variable E_RNTI.

3> if the IE "Serving E-DCH radio link indicator" is set to ‘FALSE’ and this radio link was considered the serving E-DCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving E-DCH radio link.

3> if the IE "E-HICH release indicator" is present:

4> delete the stored E-HICH, E-AGCH and E-RGCH (if any) configurations.

3> if the IE "E-RGCH release indicator" is present:

4> delete the stored E-RGCH configuration for this RL.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> For TDD:

3> if the IE "H-RNTI" is not included and the primary CCPCH has changed:

4> clear the variable H_RNTI.

3> determine the value for the HS-DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

2> for TDD:

3> if the IE "New E-RNTI" is not included:

4> clear the variable E_RNTI.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> for each optional IE part of the IE "Downlink information for each radio link" that is not present:

3> do not change its current downlink physical channel configuration corresponding to the IE, which is absent, if not stated otherwise elsewhere.

…

If the IE "E-DCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> for FDD:

2> if the IE "E-DPCCH Info" is included:

3> store the newly received E-DPCCH configuration.

2> if the IE "E-DPDCH Info" is included:

3> store the newly received E-DPDCH configuration.

2> if the IE "UL 16QAM settings" is not included:

3> indicate to lower layers to stop any operation in 16QAM mode.

1> for 3.84/7.68 Mcps TDD:

2> if the IE "E-RUCCH Info" is included:

3> store the newly received E-RUCCH configuration.

2> if the IE "E-PUCH Info" is included:

NOTE 1: The UTRAN should ensure the ordering of the E-TFCI table in increasing transmission power, by correct setting of the reference E-TFCI power offsets.

NOTE 2: If a reference E-TFCI signalled to the UE is outside the UE physical channel capability, the UE behaviour is unspecified.

NOTE 2a: If E-TFCI boost is signalled to the UE and a reference E-TFCI <= E-TFCI Boost is signalled to the UE with a Reference E-TFCI PO of value 30 or 31, the UE behaviour is unspecified.

1> if the IE "MAC-es/e reset indicator" is included:

2> reset the MAC-es/e entity [15].

NOTE 3: If the IE "MAC-es/e reset indicator" is not set to TRUE in case the IE "E-DCH Transmission Time Interval" is reconfigured, the UE behaviour is unspecified.

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> configure the UL E-DPCCH in accordance with the stored IE "E-DPCCH" configuration;

2> configure the MAC with the stored IE "E-DPDCH" configuration and/or the information contained in IE "Scheduled Transmission configuration".

1> for TDD:

2> configure the E-RUCCH with the stored E-RUCCH configuration;

2> configure the MAC with the stored E-PUCH configuration.

…

If, after completion of the procedure, the UE will be in CELL_DCH state, the UE shall:

1> for FDD, 3.84 Mcps TDD and 7.68 Mcps TDD, if the IE "Frequency info" is included; or

1> for 1.28 Mcps TDD, if the IE "Frequency info" is included and the "Second Frequency info" is not included:

2> if the frequency is different from the currently used frequency:

3> store and use the frequency indicated by the IE "Frequency Info";

3> if the received message is used to perform a Timing-maintained hard handover (see subclause 8.3.5.2),and IE "Timing maintained Synchronization indicator" is included:

4> not perform any physical layer synchronisation procedure (FDD only);

3> else:

4> perform the physical layer synchronisation procedure A as specified in [29] (FDD only).

2> if the frequency is the same as the currently used frequency:

3> continue to use the currently used frequency;

3> perform the physical layer synchronisation procedure A as specified in [29] (FDD only).

1> for 1.28 Mcps TDD, if both the IE "Frequency info" and the IE "Second Frequency info" are included:

2> the frequency in IE "Frequency info" is used as the primary frequency, and the frequency in IE "Second Frequency info" is used as the secondary frequency;

2> store the primary frequency;

2> if the secondary frequency is different with the currently used frequency:

3> store and use the secondary frequency.

2> if the secondary frequency is the same as the currently used frequency:

3> continue to use the currently used frequency.

1> if the IE "Frequency info" is not included and the UE has a currently used frequency:

2> continue to use the currently used frequency;

…

If the IE "Second Frequency info" is included, the UE shall:

1> act as specified in section 8.6.6.1.

If the IE "FPACH Frequency info" is included, the UE shall:

1> store the FPACH frequency indicated in the IE "FPACH Frequency info".

If the IE "UpPCH Position Info" is included:

1> store and use the UpPCH position indicated by the IE "UpPCH Position Info ". The calculation of the uplink access position is described in [33].

If the IE "UpPCH Position Info" is not included:

1> use the UpPTS as the default UpPCH position.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.28, 8.6.3.14, 8.6.5.5, 8.6.5.16, 8.6.5.17, 8.6.5.18, 8.6.6.1,8.6.6.4, 8.6.6.37, 8.6.6.43.

8.2.1.35a.3 Test purpose

To confirm that the UE establishes a radio bearer mapped to HS-DSCH and E-DCH according to the received RADIO BEARER SETUP message in the multi-frequency network environment.

8.2.1.35a.4 Method of test

Initial Condition

System Simulator: 1 cell, 3 frequency (one is primary frequency, others are secondary frequency).

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports 1.28Mcps TDD
- UE supports HS-PDSCH
- UE supports E-PUCH

Test Procedure

The UE is in CELL_DCH state at the primary frequency. Only signalling radio bearers have been established.

The test operator is prompted to make an out-going call. The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of a radio bearer with RB mapping to HS-DSCH and E-DCH at the secondary frequency. After the UE receives this message, it establishes a radio bearer and maps it to the HS-DSCH and E-DCH. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for "Packet to CELL_DCH / E-DCH / HS-DSCH using three multiplexing options (3/3) and SRBs mapped on DCH/DCH" in 34.108 except for the following:

Information Element	Value/remark	Version
Frequency info		
- UARFCN (Nt)	Same as primary frequency of the cell	
Multi-frequency Info		
- Second Frequency Info	Same as one secondary frequency of the cell	
- FPACH Frequency Info	Not present	
- UpPCH Position Info	Not present	

8.2.1.35a.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.36 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (hard handover to another frequency, start of E-DCH transmission)

8.2.1.36.1 Definition

All UEs which support FDD and HS-PDSCH and E-DPDCH and all UEs which support TDD and HS-PDSCH and E-PUCH.

8.2.1.36.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable E_DCH_TRANSMISSION shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable E_RNTI includes either the Primary E-RNTI or the Secondary E-RNTI or both the Primary and the Secondary E-RNTI;

1> For FDD:

2> the UE has stored the following IEs:

- IE "E-DCH Transmission Time Interval";
- IE "HARQ info for E-DCH";
- IE "E-DCH info", including the IE "E-DPCCH info" and the IE "E-DPDCH info".
- one of the radio links in the active set is configured as the serving E-DCH radio link, and for this radio link the UTRAN has configured the IE "E-HICH configuration" and the IE "E-AGCH info".

1> For TDD:

2> the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-RUCCH info" and the IE "E-PUCH info";
- IE "E-HICH info";

- IE "E-AGCH info".

1> there is at least one logical channel mapped to E-DCH for which:

2> the corresponding E-DCH MAC-d flow is configured, i.e. the IEs "E-DCH MAC-d flow power offset" and "E-DCH MAC-d flow maximum number of retransmissions", and the transmission grant type are configured.

If any of the above conditions is not met and the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> set the variable E_DCH_TRANSMISSION to FALSE;

1> stop any E-AGCH and E-HICH reception procedures;

1> For FDD:

2> stop any E-RGCH reception procedures.

1> For FDD:

2> stop any E-DPCCH and E-DPDCH transmission procedures.

1> For TDD:

2> stop any E-RUCCH and E-PUCH transmission procedures.

1> clear the variable E_RNTI;

1> act as if the IE "MAC-es/e reset indicator" was received and set to TRUE;

1> release all E-DCH HARQ resources;

1> no longer consider any radio link to be the serving E-DCH radio link.

Whenever the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1>For FDD:

2> perform E_AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI" and the IE "New Secondary E-RNTI".

2> perform E-HICH reception procedures for all radio links in the E-DCH active set;

2> perform E-RGCH reception procedures for all radio links in the active set for which an E-RGCH configuration has been provided;

2> perform E-DPCCH transmission procedures according to the stored E-DPCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-DPCCH Info".

2> perform E-DPDCH transmission procedures according to the stored E-DPDCH configuration as stated in:

3> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

3> subclause 8.6.5.17 for the IE "HARQ info for E-DCH";

3> subclause 8.6.6.37 for the IE "E-DPDCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

1>For TDD:

2>perform E-AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New E-RNTI".

2> Perform E-HICH reception;

2> for 3.84/7.68 Mcps TDD, perform E-RUCCH transmission procedures according to the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

2> for 1.28 Mcps TDD, perform E-RUCCH transmission procedure according to the stored PRACH configuration (see [60]) and the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

NOTE 1: The PRACH configuration is signalled directly to the UE in "E-RUCCH Info" IE in case of E-DCH serving cell change.

2> Perform E-PUCH transmission procedures according to the stored E-PUCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-PUCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

2> obtain and format the appropriate information on E-UCCH (see [15]). For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, the UE shall use the lowest E-DCH capability category, as specified in [35], to signal the UL control information on E-UCCH.

NOTE 2: For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, UTRAN should use the lowest E-DCH capability category when performing configuration, scheduling and reading the control information on E-UCCH, as it is not possible for Node B to be aware of the UE's E-DCH capability category during this period.

Whenever the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> not perform E-AICH, E-HICH and E-RGCH reception procedures;

1> not perform E-DPCCH and E-DPDCH transmission procedures.

…

1> for FDD:

2> if the IE "New Primary E-RNTI" and/or the IE "New Secondary E-RNTI" are/is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

3> store the new value(s) in the variable E_RNTI;

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

1> for TDD:

2> if the IE "New E-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

3> store the new value in the variable E_RNTI;

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

If, after the completion of this procedure, the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> clear the variable E-RNTI.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> use the value of the Primary E-RNTI and/or Secondary E-RNTI stored in the variable E_RNTI as UE identities in the E-AGCH reception procedure in the physical layer.

1> for TDD:

2> use the value of New E-RNTI stored in the variable E_RNTI as the UE identity in the E-AGCH reception procedure and the E-RUCCH transmission procedure in the physical layer.

…

If the IE "Added or Reconfigured UL TrCH information" is included then the UE shall:

1> for the transport channel identified by the IE "UL Transport Channel Identity" and IE "Uplink transport channel type":

2> perform the actions for the IE "Transport Format Set" as specified in subclause 8.6.5.1.

NOTE: The UE stores the UL transport channel configuration until it is explicitly deleted by a message containing the IE "Deleted UL TrCH information" or the UE leaves RRC Connected mode.

1> if the choice "UL parameters" is set to 'E-DCH':

2> for FDD:

3> apply the values of the IE "E-DCH Transmission Time Interval" and the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

2> for TDD:

3> apply the value of the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

2> for the IE "HARQ Info for E-DCH":

3> perform the actions specified in subclause 8.6.5.17.

2> if the IE "Added or Reconfigured E-DCH MAC-d Flow list " is included:

3> for each MAC-d flow identified by the IE "Mac-d flow identity":

4> perform the actions as specified in subclause 8.6.5.18.

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "E-DCH Transmission Time Interval" is included, the UE shall:

1> store the received TTI;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> apply the TTI as signalled in the IE "E-DCH Transmission Time Interval" on the E-DPDCH.

If the received "E-DCH Transmission Time Interval" is 2 ms and the previously stored TTI was 10 ms:

1> not send any data on E-DPDCH in first 8 TTIs after activation time of new TTI.

…

If the IE "HARQ Info for E-DCH" is included, the UE shall:

1> store the received configuration;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> use a redundancy version for each HARQ transmission as configured by the IE "HARQ RV Configuration".

…

If the IE "Added or reconfigured E-DCH MAC-d flow" is included, the UE shall:

1> if the IE "E-DCH MAC-d flow power offset" is included:

2> configure the power offset indicated in the IE "E-DCH MAC-d flow power offset" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow maximum number of retransmissions" is included:

2> configure the maximum number of retransmissions indicated in the IE "E-DCH MAC-d flow maximum number of retransmissions" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> for 1.28 Mcps TDD, if the IE "E-DCH MAC-d flow retransmission timer" is included:

2> configure the retransmission timer for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow multiplexing list" is included:

2> only multiplex MAC-d PDU’s from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU’s from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed in accordance to the IE "E-DCH MAC-d flow multiplexing list".

1> else:

2> if previously the IE "E-DCH MAC-d flow multiplexing list" was already received for this E-DCH MAC-d flow:

3> continue to only multiplex E-DCH PDU’s from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU’s from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed according to the previously received IE "E-DCH MAC-d flow multiplexing list".

2> else (never received the IE "E-DCH MAC-d flow multiplexing list" for this E-DCH MAC-d flow):

3> allow multiplexing of MAC-d PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from any other E-DCH MAC-d flow in the same MAC-e PDU.

1> for FDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> if the TTI configured on the E-DCH equals 2ms, and the IE "2ms non-scheduled transmission grant HARQ process allocation" is configured for this MAC-d flow:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e PDU transmitted by HARQ processes allowed by the IE "2ms non-scheduled transmission grant HARQ process allocation", with a total contribution from this MAC-d flow (i.e. including MAC-e/es headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

3> else:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall be included in a MAC-e PDU transmitted by any HARQ process, with a total contribution from this MAC-d flow (i.e. including MAC-e/es headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDU's for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH/E-RGCH (see [15]).

1> for TDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e PDU transmitted by HARQ processes designated as non scheduled (Ids 4 – 7) in the TTIs indicated (as determined from the IEs "Activation Time", "Resource Duration" and "Resource Periodicity").

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDUs for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH (see [15]).

1> perform the actions as specified in subclause 8.5.21;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

1> if the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> if the UE is in TDD mode and shared transport channels are assigned to the UE:

3> start to receive the indicated Secondary CCPCH.

2> if the UE is in TDD mode and no shared transport channels are assigned to the UE:

3> set the variable UNSUPPORTED_CONFIGURATION to TRUE.

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link and no longer consider any other radio link as serving HS-DSCH radio link.

2> For FDD:

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link and no longer consider any other radio link as serving E-DCH radio link.

3> if the IE "E-AGCH Info" is included for the serving E-DCH radio link:

4> store the newly received E-AGCH configuration.

NOTE: The UTRAN should always include the IE "E-AGCH info" if the serving E-DCH radio link indicated in the message is another radio link than the serving E-DCH radio link prior to the procedure.

3> if the IE "E-HICH information" is included:

4> store this E-HICH configuration for the concerning radio link.

3> if the IE "E-HICH information" is included or previously stored:

4> store this E-RGCH configuration for the concerning radio link, if included.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> for TDD:

3> if the IE "E-AGCH Info" is included:

4> store the newly received E-AGCH configuration.

3> if the IE "E-HICH information" is included:

4> store the E-HICH configuration.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> act on the other IEs contained in the IE "Downlink information for each radio link" as specified in subclause 8.6 applied on this radio link.

1> in addition, if the message was received in CELL_DCH state and the UE remains in CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link;

4> if the serving HS-DSCH radio link was another radio link than this radio link prior to reception of the message and the IE "H-RNTI" is not included:

5> clear the variable H_RNTI.

3> if the IE "Serving HS-DSCH radio link indicator" is set to ‘FALSE’ and this radio link was considered the serving HS-DSCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving HS-DSCH radio link.

3> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25;

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link;

4> if the serving E-DCH radio link was another radio link than this radio link prior to reception of the message:

5> if the IE "New Primary E-RNTI" is not included:

6> clear the Primary E-RNTI stored in the variable E_RNTI.

5> if the IE "New Secondary E-RNTI" is not included:

6> clear the Secondary E-RNTI stored in the variable E_RNTI.

3> if the IE "Serving E-DCH radio link indicator" is set to 'FALSE' and this radio link was considered the serving E-DCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving E-DCH radio link.

3> if the IE "E-HICH release indicator" is present:

4> delete the stored E-HICH, E-AGCH and E-RGCH (if any) configurations.

3> if the IE "E-RGCH release indicator" is present:

4> delete the stored E-RGCH configuration for this RL.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> For TDD:

3> if the IE "H-RNTI" is not included and the primary CCPCH has changed:

4> clear the variable H_RNTI.

3> determine the value for the HS-DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

2> for TDD:

3> if the IE "New E-RNTI" is not included:

4> clear the variable E_RNTI.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> for each optional IE part of the IE "Downlink information for each radio link" that is not present:

3> do not change its current downlink physical channel configuration corresponding to the IE, which is absent, if not stated otherwise elsewhere.

…

If the IE "E-DCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> for FDD:

2> if the IE "E-DPCCH Info" is included:

3> store the newly received E-DPCCH configuration.

2> if the IE "E-DPDCH Info" is included:

3> store the newly received E-DPDCH configuration.

2> if the IE "UL 16QAM settings" is not included:

3> indicate to lower layers to stop any operation in 16QAM mode.

1> for 3.84/7.68 Mcps TDD:

2> if the IE "E-RUCCH Info" is included:

3> store the newly received E-RUCCH configuration.

2> if the IE "E-PUCH Info" is included:

NOTE 1: The UTRAN should ensure the ordering of the E-TFCI table in increasing transmission power, by correct setting of the reference E-TFCI power offsets.

NOTE 2: If a reference E-TFCI signalled to the UE is outside the UE physical channel capability, the UE behaviour is unspecified.

NOTE 2a: If E-TFCI boost is signalled to the UE and a reference E-TFCI <= E-TFCI Boost is signalled to the UE with a Reference E-TFCI PO of value 30 or 31, the UE behaviour is unspecified.

1> if the IE "MAC-es/e reset indicator" is included:

2> reset the MAC-es/e entity [15].

NOTE 3: If the IE "MAC-es/e reset indicator" is not set to TRUE in case the IE "E-DCH Transmission Time Interval" is reconfigured, the UE behaviour is unspecified.

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> configure the UL E-DPCCH in accordance with the stored IE "E-DPCCH" configuration;

2> configure the MAC with the stored IE "E-DPDCH" configuration and/or the information contained in IE "Scheduled Transmission configuration".

1> for TDD:

2> configure the E-RUCCH with the stored E-RUCCH configuration;

2> configure the MAC with the stored E-PUCH configuration.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.28, 8.6.3.14, 8.6.5.5, 8.6.5.16, 8.6.5.17, 8.6.5.18, 8.6.6.4, 8.6.6.37

8.2.1.36.3 Test purpose

To confirm that the UE performs a hard handover to another frequency, establishes a radio bearer mapped on E-DCH and starts E-DCH transmission according to the received a RADIO BEARER SETUP message. Un-synchronised RB Setup is tested here.

8.2.1.36.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 is active and cell 6 is inactive.

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statements

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports E-DPDCH (FDD only)
- UE supports E-PUCH (TDD only)

Specific Message Content

For SIB type 1 message to be transmitted throughout the test, use the message titled “System Information Block type 1 (supported PLMN type is GSM-MAP)” as found in TS 34.108 clause 6, with the following exception.

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

Test Procedure

Table 8.2.1.36

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-70	-70	-60
P-CCPCH RSCP (TDD)	dBm	-60	-70	-70	-60

Table 8.2.1.36 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings from columns "T0" to "T1", whenever the description in multi-cell condition specifies the transmission power settings for cell 1 and cell 6.

The UE is in CELL_DCH state of cell 1 and only signalling radio bearers have been established. The SS has configured its downlink transmission power setting according to columns “T0” in table 8.2.1.36. Then the SS switches its downlink transmission power setting to columns “T1” and transmits a RADIO BEARER SETUP message including the IE “Frequency info” set to frequency information of cell 6 and IE “Primary CPICH info” set to Primary Scrambling Code which is assigned to P-CPICH of cell. This message requests the establishment of a radio bearer with RB mapping to HS-DSCH and E-DCH. After the UE receives this message, it establishes a radio bearer and maps it to the HS-DSCH and E-DCH. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1) (FDD)

Use the same message as specified for "Packet to CELL_DCH / E-DCH / HS-DSCH using three multiplexing options (3/3) and SRBs mapped on DCH/DCH" in TS34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Activation time	Not Present
Frequency info - UARFCN uplink(Nu) - UARFCN downlink(Nd)	 Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21] Same downlink UARFCN as used for cell 6
Downlink information for each radio links - CHOICE mode - Primary CPICH info - Primary Scrambling Code	 FDD Set to same code as used for cell 6

RADIO BEARER SETUP (Step 1)(1.28Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH / E-DCH / HS-DSCH using three multiplexing options (3/3) and SRBs mapped on DCH/DCH" in TS34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Activation time	Not Present
Frequency info - CHOICE mode - UARFCN (Nt)	 TDD Same UARFCN as used for cell 6
Downlink information for each radio links Downlink information for each radio link - Choice mode - Primary CCPCH info - Cell parameters ID	 TDD Set to the same as cell 6

RADIO BEARER SETUP (Step 1) (3.84Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH / E-DCH / HS-DSCH using three multiplexing options (3/3) and SRBs mapped on DCH/DCH" in TS34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Activation time	Not Present
Frequency info - CHOICE mode - UARFCN (Nt)	 TDD Same UARFCN as used for cell 6
Downlink information for each radio link - CHOICE mode - Primary CCPCH info - CHOICE mode - Cell parameters ID	 TDD TDD Set to same cell parameters ID as cell 6

8.2.1.36.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.36a Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH using F-DPCH: Success (hard handover to another frequency, start of E-DCH transmission, F-DPCH configured)

8.2.1.36a.1 Definition

All UEs which support FDD and HS-PDSCH and E-DPDCH and fully support F-DPCH.

8.2.1.36a.2 Conformance requirement

Same conformance requirement as in clause 8.2.1.36.2

8.2.1.36a.3 Test purpose

Same test purpose as in clause 8.2.1.36.3.

8.2.1.36a.4 Method of test

Initial Condition

Same initial conditions as in clause 8.2.1.36.4

Related ICS/IXIT statements

- UE supports FDD
- UE supports HS-PDSCH
- UE supports E-DPDCH
- UE fully supports F-DPCH

Test Procedure

Same test procedure as in clause 8.2.1.36.4 except that the UE transmits RADIO BEARER SETUP COMPLETE using AM RLC on E-DCH.

Expected sequence

Same expected sequence as in clause 8.2.1.36.4

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for "Packet to CELL_DCH / E-DCH / HS-DSCH using one multiplexing option (1/1) and SRBs mapped on E-DCH/HS-DSCH" in TS34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Activation time	Not Present
Frequency info - UARFCN uplink(Nu) - UARFCN downlink(Nd)	 Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21] Same downlink UARFCN as used for cell 6
Downlink information for each radio links - CHOICE mode - Primary CPICH info - Primary Scrambling Code	 FDD Set to same code as used for cell 6

8.2.1.36a.5 Test requirements

Same test requirements as in clause 8.2.1.36.5

8.2.1.36b Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (hard handover to another frequency in the multi-frequency network environment, start of E-DCH transmission, for 1.28Mcps TDD only)

8.2.1.36b.1 Definition

All UEs which support 1.28Mcps TDD and HS-PDSCH and E-PUCH.

8.2.1.36b.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable E_DCH_TRANSMISSION shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable E_RNTI includes either the Primary E-RNTI or the Secondary E-RNTI or both the Primary and the Secondary E-RNTI;

1> For FDD:

2> the UE has stored the following IEs:

- IE "E-DCH Transmission Time Interval";
- IE "HARQ info for E-DCH";
- IE "E-DCH info", including the IE "E-DPCCH info" and the IE "E-DPDCH info".
- one of the radio links in the active set is configured as the serving E-DCH radio link, and for this radio link the UTRAN has configured the IE "E-HICH configuration" and the IE "E-AGCH info".

1> For TDD:

2> the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-RUCCH info" and the IE "E-PUCH info";
- IE "E-HICH info";
- IE "E-AGCH info".

1> there is at least one logical channel mapped to E-DCH for which:

2> the corresponding E-DCH MAC-d flow is configured, i.e. the IEs "E-DCH MAC-d flow power offset" and "E-DCH MAC-d flow maximum number of retransmissions", and the transmission grant type are configured.

If any of the above conditions is not met and the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> set the variable E_DCH_TRANSMISSION to FALSE;

1> stop any E-AGCH and E-HICH reception procedures;

1> For FDD:

2> stop any E-RGCH reception procedures.

1> For FDD:

2> stop any E-DPCCH and E-DPDCH transmission procedures.

1> For TDD:

2> stop any E-RUCCH and E-PUCH transmission procedures.

1> clear the variable E_RNTI;

1> act as if the IE "MAC-es/e reset indicator" was received and set to TRUE;

1> release all E-DCH HARQ resources;

1> no longer consider any radio link to be the serving E-DCH radio link.

Whenever the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1>For FDD:

2> perform E_AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI" and the IE "New Secondary E-RNTI".

2> perform E-HICH reception procedures for all radio links in the E-DCH active set;

2> perform E-RGCH reception procedures for all radio links in the active set for which an E-RGCH configuration has been provided;

2> perform E-DPCCH transmission procedures according to the stored E-DPCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-DPCCH Info".

2> perform E-DPDCH transmission procedures according to the stored E-DPDCH configuration as stated in:

3> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

3> subclause 8.6.5.17 for the IE "HARQ info for E-DCH";

3> subclause 8.6.6.37 for the IE "E-DPDCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

1>For TDD:

2>perform E-AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New E-RNTI".

2> Perform E-HICH reception;

2> for 3.84/7.68 Mcps TDD, perform E-RUCCH transmission procedures according to the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

2> for 1.28 Mcps TDD, perform E-RUCCH transmission procedure according to the stored PRACH configuration (see [60]) and the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

NOTE 1: The PRACH configuration is signalled directly to the UE in "E-RUCCH Info" IE in case of E-DCH serving cell change.

2> Perform E-PUCH transmission procedures according to the stored E-PUCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-PUCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

2> obtain and format the appropriate information on E-UCCH (see [15]). For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, the UE shall use the lowest E-DCH capability category, as specified in [35], to signal the UL control information on E-UCCH.

NOTE 2: For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, UTRAN should use the lowest E-DCH capability category when performing configuration, scheduling and reading the control information on E-UCCH, as it is not possible for Node B to be aware of the UE's E-DCH capability category during this period.

Whenever the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> not perform E-AICH, E-HICH and E-RGCH reception procedures;

1> not perform E-DPCCH and E-DPDCH transmission procedures.

…

1> for FDD:

2> if the IE "New Primary E-RNTI" and/or the IE "New Secondary E-RNTI" are/is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

3> store the new value(s) in the variable E_RNTI;

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

1> for TDD:

2> if the IE "New E-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

3> store the new value in the variable E_RNTI;

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

If, after the completion of this procedure, the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> clear the variable E-RNTI.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> use the value of the Primary E-RNTI and/or Secondary E-RNTI stored in the variable E_RNTI as UE identities in the E-AGCH reception procedure in the physical layer.

1> for TDD:

2> use the value of New E-RNTI stored in the variable E_RNTI as the UE identity in the E-AGCH reception procedure and the E-RUCCH transmission procedure in the physical layer.

…

If the IE "Added or Reconfigured UL TrCH information" is included then the UE shall:

1> for the transport channel identified by the IE "UL Transport Channel Identity" and IE "Uplink transport channel type":

2> perform the actions for the IE "Transport Format Set" as specified in subclause 8.6.5.1.

NOTE: The UE stores the UL transport channel configuration until it is explicitly deleted by a message containing the IE "Deleted UL TrCH information" or the UE leaves RRC Connected mode.

1> if the choice "UL parameters" is set to 'E-DCH':

2> for FDD:

3> apply the values of the IE "E-DCH Transmission Time Interval" and the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

2> for TDD:

3> apply the value of the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

2> for the IE "HARQ Info for E-DCH":

3> perform the actions specified in subclause 8.6.5.17.

2> if the IE "Added or Reconfigured E-DCH MAC-d Flow list " is included:

3> for each MAC-d flow identified by the IE "Mac-d flow identity":

4> perform the actions as specified in subclause 8.6.5.18.

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "E-DCH Transmission Time Interval" is included, the UE shall:

1> store the received TTI;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> apply the TTI as signalled in the IE "E-DCH Transmission Time Interval" on the E-DPDCH.

If the received "E-DCH Transmission Time Interval" is 2 ms and the previously stored TTI was 10 ms:

1> not send any data on E-DPDCH in first 8 TTIs after activation time of new TTI.

…

If the IE "HARQ Info for E-DCH" is included, the UE shall:

1> store the received configuration;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> use a redundancy version for each HARQ transmission as configured by the IE "HARQ RV Configuration".

…

If the IE "Added or reconfigured E-DCH MAC-d flow" is included, the UE shall:

1> if the IE "E-DCH MAC-d flow power offset" is included:

2> configure the power offset indicated in the IE "E-DCH MAC-d flow power offset" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow maximum number of retransmissions" is included:

2> configure the maximum number of retransmissions indicated in the IE "E-DCH MAC-d flow maximum number of retransmissions" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> for 1.28 Mcps TDD, if the IE "E-DCH MAC-d flow retransmission timer" is included:

2> configure the retransmission timer for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow multiplexing list" is included:

2> only multiplex MAC-d PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed in accordance to the IE "E-DCH MAC-d flow multiplexing list".

1> else:

2> if previously the IE "E-DCH MAC-d flow multiplexing list" was already received for this E-DCH MAC-d flow:

3> continue to only multiplex E-DCH PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed according to the previously received IE "E-DCH MAC-d flow multiplexing list".

2> else (never received the IE "E-DCH MAC-d flow multiplexing list" for this E-DCH MAC-d flow):

3> allow multiplexing of MAC-d PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from any other E-DCH MAC-d flow in the same MAC-e PDU.

1> for FDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> if the TTI configured on the E-DCH equals 2ms, and the IE "2ms non-scheduled transmission grant HARQ process allocation" is configured for this MAC-d flow:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e PDU transmitted by HARQ processes allowed by the IE "2ms non-scheduled transmission grant HARQ process allocation", with a total contribution from this MAC-d flow (i.e. including MAC-e/es headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

3> else:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall be included in a MAC-e PDU transmitted by any HARQ process, with a total contribution from this MAC-d flow (i.e. including MAC-e/es headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDU's for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH/E-RGCH (see [15]).

1> for TDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e PDU transmitted by HARQ processes designated as non scheduled (Ids 4 – 7) in the TTIs indicated (as determined from the IEs "Activation Time", "Resource Duration" and "Resource Periodicity").

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDUs for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH (see [15]).

1> perform the actions as specified in subclause 8.5.21;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

1> if the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> if the UE is in TDD mode and shared transport channels are assigned to the UE:

3> start to receive the indicated Secondary CCPCH.

2> if the UE is in TDD mode and no shared transport channels are assigned to the UE:

3> set the variable UNSUPPORTED_CONFIGURATION to TRUE.

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link and no longer consider any other radio link as serving HS-DSCH radio link.

2> For FDD:

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link and no longer consider any other radio link as serving E-DCH radio link.

3> if the IE "E-AGCH Info" is included for the serving E-DCH radio link:

4> store the newly received E-AGCH configuration.

NOTE: The UTRAN should always include the IE "E-AGCH info" if the serving E-DCH radio link indicated in the message is another radio link than the serving E-DCH radio link prior to the procedure.

3> if the IE "E-HICH information" is included:

4> store this E-HICH configuration for the concerning radio link.

3> if the IE "E-HICH information" is included or previously stored:

4> store this E-RGCH configuration for the concerning radio link, if included.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> for TDD:

3> if the IE "E-AGCH Info" is included:

4> store the newly received E-AGCH configuration.

3> if the IE "E-HICH information" is included:

4> store the E-HICH configuration.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> act on the other IEs contained in the IE "Downlink information for each radio link" as specified in subclause 8.6 applied on this radio link.

1> in addition, if the message was received in CELL_DCH state and the UE remains in CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link;

4> if the serving HS-DSCH radio link was another radio link than this radio link prior to reception of the message and the IE "H-RNTI" is not included:

5> clear the variable H_RNTI.

3> if the IE "Serving HS-DSCH radio link indicator" is set to ‘FALSE’ and this radio link was considered the serving HS-DSCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving HS-DSCH radio link.

3> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25;

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link;

4> if the serving E-DCH radio link was another radio link than this radio link prior to reception of the message:

5> if the IE "New Primary E-RNTI" is not included:

6> clear the Primary E-RNTI stored in the variable E_RNTI.

5> if the IE "New Secondary E-RNTI" is not included:

6> clear the Secondary E-RNTI stored in the variable E_RNTI.

3> if the IE "Serving E-DCH radio link indicator" is set to ‘FALSE’ and this radio link was considered the serving E-DCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving E-DCH radio link.

3> if the IE "E-HICH release indicator" is present:

4> delete the stored E-HICH, E-AGCH and E-RGCH (if any) configurations.

3> if the IE "E-RGCH release indicator" is present:

4> delete the stored E-RGCH configuration for this RL.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> For TDD:

3> if the IE "H-RNTI" is not included and the primary CCPCH has changed:

4> clear the variable H_RNTI.

3> determine the value for the HS-DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

2> for TDD:

3> if the IE "New E-RNTI" is not included:

4> clear the variable E_RNTI.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> for each optional IE part of the IE "Downlink information for each radio link" that is not present:

3> do not change its current downlink physical channel configuration corresponding to the IE, which is absent, if not stated otherwise elsewhere.

…

If the IE "E-DCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> for FDD:

2> if the IE "E-DPCCH Info" is included:

3> store the newly received E-DPCCH configuration.

2> if the IE "E-DPDCH Info" is included:

3> store the newly received E-DPDCH configuration.

2> if the IE "UL 16QAM settings" is not included:

3> indicate to lower layers to stop any operation in 16QAM mode.

1> for 3.84/7.68 Mcps TDD:

2> if the IE "E-RUCCH Info" is included:

3> store the newly received E-RUCCH configuration.

2> if the IE "E-PUCH Info" is included:

NOTE 1: The UTRAN should ensure the ordering of the E-TFCI table in increasing transmission power, by correct setting of the reference E-TFCI power offsets.

NOTE 2: If a reference E-TFCI signalled to the UE is outside the UE physical channel capability, the UE behaviour is unspecified.

NOTE 2a: If E-TFCI boost is signalled to the UE and a reference E-TFCI <= E-TFCI Boost is signalled to the UE with a Reference E-TFCI PO of value 30 or 31, the UE behaviour is unspecified.

1> if the IE "MAC-es/e reset indicator" is included:

2> reset the MAC-es/e entity [15].

NOTE 3: If the IE "MAC-es/e reset indicator" is not set to TRUE in case the IE "E-DCH Transmission Time Interval" is reconfigured, the UE behaviour is unspecified.

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> configure the UL E-DPCCH in accordance with the stored IE "E-DPCCH" configuration;

2> configure the MAC with the stored IE "E-DPDCH" configuration and/or the information contained in IE "Scheduled Transmission configuration".

1> for TDD:

2> configure the E-RUCCH with the stored E-RUCCH configuration;

2> configure the MAC with the stored E-PUCH configuration.

…

If, after completion of the procedure, the UE will be in CELL_DCH state, the UE shall:

1> for FDD, 3.84 Mcps TDD and 7.68 Mcps TDD, if the IE "Frequency info" is included; or

1> for 1.28 Mcps TDD, if the IE "Frequency info" is included and the "Second Frequency info" is not included:

2> if the frequency is different from the currently used frequency:

3> store and use the frequency indicated by the IE "Frequency Info";

3> if the received message is used to perform a Timing-maintained hard handover (see subclause 8.3.5.2),and IE "Timing maintained Synchronization indicator" is included:

4> not perform any physical layer synchronisation procedure (FDD only);

3> else:

4> perform the physical layer synchronisation procedure A as specified in [29] (FDD only).

2> if the frequency is the same as the currently used frequency:

3> continue to use the currently used frequency;

3> perform the physical layer synchronisation procedure A as specified in [29] (FDD only).

1> for 1.28 Mcps TDD, if both the IE "Frequency info" and the IE "Second Frequency info" are included:

2> the frequency in IE "Frequency info" is used as the primary frequency, and the frequency in IE "Second Frequency info" is used as the secondary frequency;

2> store the primary frequency;

2> if the secondary frequency is different with the currently used frequency:

3> store and use the secondary frequency.

2> if the secondary frequency is the same as the currently used frequency:

3> continue to use the currently used frequency.

1> if the IE "Frequency info" is not included and the UE has a currently used frequency:

2> continue to use the currently used frequency;

…

If the IE "Second Frequency info" is included, the UE shall:

1> act as specified in section 8.6.6.1.

If the IE "FPACH Frequency info" is included, the UE shall:

1> store the FPACH frequency indicated in the IE "FPACH Frequency info".

If the IE "UpPCH Position Info" is included:

1> store and use the UpPCH position indicated by the IE "UpPCH Position Info ". The calculation of the uplink access position is described in [33].

If the IE "UpPCH Position Info" is not included:

1> use the UpPTS as the default UpPCH position.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.28, 8.6.3.14, 8.6.5.5, 8.6.5.16, 8.6.5.17, 8.6.5.18, 8.6.6.1, 8.6.6.4, 8.6.6.37, 8.6.6.43

8.2.1.36b.3 Test purpose

To confirm that the UE performs a hard handover to another frequency, establishes a radio bearer mapped on E-DCH and starts E-DCH transmission according to the received a RADIO BEARER SETUP message in the multi-frequency network environment. Un-synchronised RB Setup is tested here.

8.2.1.36b.4 Method of test

Initial Condition

System Simulator:

2 cells

– Cell 1 is active,1 frequency

–Cell 6 is inactive, 3 frequency (one is primary frequency, others are secondary frequency)

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statements

- UE supports 1.28Mcps TDD
- UE supports HS-PDSCH
- UE supports E-PUCH

Specific Message Content

For SIB type 1 message to be transmitted throughout the test, use the message titled “System Information Block type 1 (supported PLMN type is GSM-MAP)” as found in TS 34.108 clause 6, with the following exception.

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

Test Procedure

Table 8.2.1.36b

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
P-CCPCH RSCP (TDD)	dBm	-60	-70	-70	-60

Table 8.2.1.36b illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings from columns "T0" to "T1", whenever the description in multi-cell condition specifies the transmission power settings for cell 1 and cell 6.

The UE is in CELL_DCH state of cell 1 and only signalling radio bearers have been established. The SS has configured its downlink transmission power setting according to columns “T0” in table 8.2.1.36b. Then the SS switches its downlink transmission power setting to columns “T1” and transmits a RADIO BEARER SETUP message including IE "Frequency info " set as primary frequency of cell 6, IE "Multi-frequency Info " set as one secondary frequency of cell 6 and IE “Cell parameters ID” set as Cell ID of cell 6. This message requests the establishment of a radio bearer with RB mapping to HS-DSCH and E-DCH. After the UE receives this message, it establishes a radio bearer and maps it to the HS-DSCH and E-DCH. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)(1.28Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH / E-DCH / HS-DSCH using three multiplexing options (3/3) and SRBs mapped on DCH/DCH" in TS34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Activation time	Not Present
Frequency info - UARFCN (Nt) Multi-frequency Info - Second Frequency Info - FPACH Frequency Info - UpPCH Position Info Downlink information for each radio links Downlink information for each radio link - Choice mode - Primary CCPCH info - Cell parameters ID	 Same as primary frequency of the cell 6 Same as one secondary frequency of the cell 6 Not present Not present TDD Set to the same as cell 6

8.2.1.36b.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.37 Void

8.2.1.38 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (start of discontinuous uplink transmission)

8.2.1.38.1 Definition and applicability

All UEs which support FDD and UL DTX.

8.2.1.38.2 Conformance requirement

1> if any of the IEs "DTX-DRX timing information" or "DTX-DRX information" are stored in the UE:

2> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

…

If the UE receives RRC CONNECTION SETUP, ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> the UE shall determine the value for the DTX_DRX_STATUS variable.

The variable DTX_DRX_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> both variables HS_DSCH RECEPTION and E_DCH_TRANSMISSION are set to TRUE;

1> no DCH transport channel is configured;

1> the variable DTX_DRX_PARAMS is set;

1> the UE has received the IE "DTX-DRX timing information".

If any of the above conditions is not met and the variable DTX_DRX_STATUS is set to TRUE, the UE shall:

1> set the variable DTX_DRX_STATUS to FALSE;

1> clear the variable DTX_DRX_PARAMS;

1> stop DTX-DRX mode related activities.

If variable DTX_DRX_STATUS is set to true and the serving HS-DSCH cell was changed as a result of the received message the UE shall instruct the physical layer to consider HS-SCCH orders were never received.

Whenever the variable DTX_DRX_STATUS is set to TRUE after receiving this message and the value of IE "DTX-DRX timing information" included in this message is not "Continue", the UE shall:

1> if the variable DTX_DRX_STATUS was set to TRUE before receiving this message:

2> re-configure the physical layer to perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration;

2> let the MAC layer continue with the current restriction on E-DCH transmission and monitoring of absolute and relative grant channels from the frame boundary where the uplink transmission starts with the new configuration and for the duration of the IE "Enabling Delay".

1> else:

2> perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations by configuring the physical layer according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration.

1> configure the MAC layer to start restricting E-DCH transmissions and monitor absolute and relative grant channels at the CFN corresponding to the frame boundary that is offset by the value of IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration taking into account the IEs "UE DTX DRX Offset", "MAC DTX Cycle", "MAC Inactivity Threshold" and "Inactivity Threshold for UE Grant Monitoring".

…

If the IE "DTX-DRX timing information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the CHOICE "timing" is set to "New timing":

2> use the newly received DTX-DRX timing configuration.

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

…

If the IE "DTX–DRX information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the contents of the IE in the variable DTX_DRX_PARAMS;

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34;

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple of the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple or a divisor of the value of the IE "CQI Feedback cycle, k"; or

1> if the value of the IE "UE DPCCH burst 1" is greater than the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DPCCH burst 2" is greater than the value of the IE "UE DTX cycle 2"; or

1> if the IE "UE DTX long preamble length" is set to 4 or 15 slots and the value of the IE "Inactivity Threshold for UE DTX cycle 2" is less than 4 TTIs (for 10ms E-DCH TTI) or 8 TTIs (for 2ms E-DCH TTI); or

1> if the IE "UE DRX cycle" is not an integer multiple or a divisor of the value of the IE "UE DTX cycle 1"; or

1> if the IE "DRX Information" is included in this message while the IE "DTX information" is not included in this message; or

1> if the value of the IE "UE DTX cycle 1" is not an integer multiple or a divisor of the value of the IE "MAC DTX cycle":

2> the UE behaviour is unspecified.

Reference

3GPP TS 25.331 clauses 8.2.2.3, 8.5.34, 8.6.6.38, 8.6.6.39

8.2.1.38.3 Test purpose

To confirm that the UE establishes a radio bearer mapped to HS-DSCH and E-DCH and enables discontinuous uplink DPCCH transmission according to the received RADIO BEARER SETUP message.

8.2.1.38.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports DPCCH Discontinuous Transmission

Test Procedure

The UE is in CELL_DCH state. Only signalling radio bearers have been established, mapped to DPCH.

The test operator is prompted to make an out-going call. The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of a radio bearer with RB mapping to HS-DSCH and E-DCH, with UL DTX configured. After the UE receives this message, it establishes a radio bearer and maps it to the HS-DSCH and E-DCH. The UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	
3	SS			The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used (i.e. duration of 10 consecutive DTX cycle 2).
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

The contents of RADIO BEARER SETUP message in this test case are identical to the message sub-type indicated by "Packet to CELL_DCH / E-DCH / HS-DSCH with DTX/DRX using one multiplexing option (1/1) and SRBs mapped on E-DCH/HS-DSCH" with the following exceptions:

RB information to be reconfigured	
- RB identity	1 (UM DCCH for RRC)
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	1
- RB identity	2 (AM DCCH for RRC)
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	2
- RB identity	3 (AM DCCH for NAS High Priority)
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1

- Logical channel identity	3
- RB identity	4 (AM DCCH for NAS Low Priority)
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	4
Deleted UL TrCH information	
- Uplink transport channel type	DCH
- UL transport channel identity	5
Deleted DL TrCH information	
- Downlink transport channel type	DCH
- DL Transport channel identity	10
DTX-DRX timing information	
- CHOICE *timing*	
- New timing	
- Enabling Delay	16
- UE DTX DRX Offset	1 if 2ms TTI selected, otherwise 0

8.2.1.38.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE.

At step 3 the time between 11 consecutive CQI indications shall be 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used.

8.2.1.39 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (start of HS-SCCH less operation)

8.2.1.39.1 Definition and applicability

All UEs which support FDD and HS-SCCH less operation.

8.2.1.39.2 Conformance requirement

If the UE receives:

- a RADIO BEARER SETUP message; or

…

it shall:

…

1> if any of the IEs "DTX-DRX timing information" or "DTX-DRX information" are stored in the UE:

2> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

…

If the UE receives RRC CONNECTION SETUP, ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message;

1> the UE shall determine the value for the HS_SCCH_LESS_STATUS variable.

The variable HS_SCCH_LESS_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> no DCH transport channel is configured;

1> the variable HS_SCCH_LESS_PARAMS is set;

1> the UE has received IE "HS-SCCH less information".

If any of the above conditions is not met and the variable HS_SCCH_LESS_STATUS is set to TRUE and the value of IE "HS-SCCH less information" included in this message is not "Continue HS-SCCH less operation", the UE shall:

1> set the variable HS_SCCH_LESS_STATUS to FALSE;

1> clear the variable HS_SCCH_LESS_PARAMS;

1> stop all HS-SCCH less related activities.

Whenever the variable HS_SCCH_LESS_STATUS is set to TRUE, the UE shall:

1> configure the physical and MAC layers to operate according to the HS_SCCH_LESS_PARAMS.

…

If the IE "HS-SCCH less information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the CHOICE "HS-SCCH less operation" is set to "New HS-SCCH less operation":

2> store the contents of the IE in the variable HS_SCCH_LESS_PARAMS.

1> determine the value for the HS_SCCH_LESS_STATUS variable and take the corresponding actions as described in subclause 8.5.35.

Reference

3GPP TS 25.331 clauses 8.2.2.3, 8.5.34, 8.6.6.40

8.2.1.39.3 Test purpose

To confirm that the UE establishes a radio bearer mapped to HS-DSCH and E-DCH and enables HS-SCCH less operation according to the received RADIO BEARER SETUP message.

8.2.1.39.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-SCCHless HS-DSCH

Test Procedure

The UE is in CELL_DCH state. Only signalling radio bearers have been established.

The test operator is prompted to make an out-going call. The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of a radio bearer with RB mapping to HS-DSCH and E-DCH and the start of HS-SCCH less operation. After the UE receives this message, it establishes a radio bearer and maps it to the HS-DSCH and E-DCH. The UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. The SS transmits a UE CAPABILITY ENQUIRY message using HS-SCCHless operation. The UE shall respond with a UE CAPABILITY INFORMATION message and finally the SS replies with UE CAPABILITY INFORMATION CONFIRM, send using HS-SCCHless operation. The SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	With parameters for HS-SCCH less operation
2	→		RADIO BEARER SETUP COMPLETE	
3	←		UE CAPABILITY ENQUIRY	The SS transmits this message using HS-SCCHless operation
4	→		UE CAPABILITY INFORMATION	
5	←		UE CAPABILITY INFORMATION CONFIRM	The SS transmits this message using HS-SCCHless operation
6	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

The contents of RADIO BEARER SETUP message in this test case are identical to the message sub-type indicated by "Packet to CELL_DCH / E-DCH / HS-DSCH with DTX/DRX using one multiplexing option (1/1) and SRBs mapped on E-DCH/HS-DSCH" with the following exceptions:

Information Element	Value/remark
DTX-DRX timing information	Not Present
DTX-DRX Information	Not Present
HS-SCCH less information	
CHOICE HS-SCCH less operation	
- New HS-SCCH less operation	
- HS-PDSCH Code Index	14
- Transport Block Size List	4 elements
- Transport Block Size Index	20 [365, sufficient for 1 MAC-d PDU of 336 + MAC-hs header of 21]
- HS-PDSCH Second Code Support	FALSE
- Transport Block Size Index	48 [699, sufficient for 2 MAC-d PDU of 336 + MAC-hs header of 21]
- HS-PDSCH Second Code Support	FALSE
- Transport Block Size Index	70[1036, sufficient for 3 MAC-d PDU of 336 + MAC-hs header of 21]
- HS-PDSCH Second Code Support	TRUE
- Transport Block Size Index	86 [1380, sufficient for 4 MAC-d PDU of 336 + MAC-hs header of 21]
- HS-PDSCH Second Code Support	TRUE

8.2.1.39.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE.

After step 3, the UE shall transmit a UE CAPABILITY INFORMATION message.

8.2.1.40 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (hard handover to another frequency, start of discontinuous uplink transmission)

8.2.1.40.1 Definition

All UEs which support FDD and UL DTX.

8.2.1.40.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…

If the UE receives RRC CONNECTION SETUP, ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> the UE shall determine the value for the DTX_DRX_STATUS variable.

The variable DTX_DRX_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> both variables HS_DSCH RECEPTION and E_DCH_TRANSMISSION are set to TRUE;

1> no DCH transport channel is configured;

1> the variable DTX_DRX_PARAMS is set;

1> the UE has received the IE "DTX-DRX timing information".

If any of the above conditions is not met and the variable DTX_DRX_STATUS is set to TRUE, the UE shall:

1> set the variable DTX_DRX_STATUS to FALSE;

1> clear the variable DTX_DRX_PARAMS;

1> stop DTX-DRX mode related activities.

If variable DTX_DRX_STATUS is set to true and the serving HS-DSCH cell was changed as a result of the received message the UE shall instruct the physical layer to consider HS-SCCH orders were never received.

Whenever the variable DTX_DRX_STATUS is set to TRUE after receiving this message and the value of IE "DTX-DRX timing information" included in this message is not "Continue", the UE shall:

1> if the variable DTX_DRX_STATUS was set to TRUE before receiving this message:

2> re-configure the physical layer to perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration;

2> let the MAC layer continue with the current restriction on E-DCH transmission and monitoring of absolute and relative grant channels from the frame boundary where the uplink transmission starts with the new configuration and for the duration of the IE "Enabling Delay".

1> else:

2> perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations by configuring the physical layer according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration.

1> configure the MAC layer to start restricting E-DCH transmissions and monitor absolute and relative grant channels at the CFN corresponding to the frame boundary that is offset by the value of IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration taking into account the IEs "UE DTX DRX Offset", "MAC DTX Cycle", "MAC Inactivity Threshold" and "Inactivity Threshold for UE Grant Monitoring".

…

If the IE "DTX-DRX timing information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the CHOICE "timing" is set to "New timing":

2> use the newly received DTX-DRX timing configuration.

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

…

If the IE "DTX–DRX information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the contents of the IE in the variable DTX_DRX_PARAMS;

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34;

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple of the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple or a divisor of the value of the IE "CQI Feedback cycle, k"; or

1> if the value of the IE "UE DPCCH burst 1" is greater than the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DPCCH burst 2" is greater than the value of the IE "UE DTX cycle 2"; or

1> if the IE "UE DTX long preamble length" is set to 4 or 15 slots and the value of the IE "Inactivity Threshold for UE DTX cycle 2" is less than 4 TTIs (for 10ms E-DCH TTI) or 8 TTIs (for 2ms E-DCH TTI); or

1> if the IE "UE DRX cycle" is not an integer multiple or a divisor of the value of the IE "UE DTX cycle 1"; or

1> if the IE "DRX Information" is included in this message while the IE "DTX information" is not included in this message; or

1> if the value of the IE "UE DTX cycle 1" is not an integer multiple or a divisor of the value of the IE "MAC DTX cycle":

2> the UE behaviour is unspecified.

Reference

3GPP TS 25.331 clauses 8.2.2.2, 8.5.34, 8.6.6.38, 8.6.6.39

8.2.1.40.3 Test purpose

To confirm that the UE performs a hard handover to another frequency, establishes a radio bearer mapped to HS-DSCH and E-DCH and enables discontinuous uplink DPCCH transmission according to the received RADIO BEARER SETUP message. Un-synchronised RB Setup is tested here.

8.2.1.40.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 is active and cell 6 is inactive.

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statements

- UE supports FDD
- UE supports DPCCH Discontinuous Transmission

Specific Message Content

For SIB type 1 message to be transmitted throughout the test, use the message titled “System Information Block type 1 (supported PLMN type is GSM-MAP)” as found in TS 34.108 clause 6, with the following exception.

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

Test Procedure

Table 8.2.1.36

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-60	-70	-70	-60

Table 8.2.1.36 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings from columns "T0" to "T1", whenever the description in multi-cell condition specifies the transmission power settings for cell 1 and cell 6.

The UE is in CELL_DCH state of cell 1 and only signalling radio bearers have been established. The SS has configured its downlink transmission power setting according to columns “T0” in table 8.2.1.36. Then the SS switches its downlink transmission power setting to columns “T1” and transmits a RADIO BEARER SETUP message including the IE “Frequency info” set to frequency information of cell 6 and IE “Primary CPICH info” set to Primary Scrambling Code which is assigned to P-CPICH of cell. This message requests the establishment of a radio bearer with RB mapping to HS-DSCH and E-DCH, with UL DTX configured. After the UE receives this message, it establishes a radio bearer and maps it to the HS-DSCH and E-DCH. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC.

The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	
3	SS			The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used (i.e. duration of 10 consecutive DTX cycle 2).
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

The contents of RADIO BEARER SETUP message in this test case are identical to the message sub-type indicated by "Packet to CELL_DCH / E-DCH / HS-DSCH with DTX/DRX using one multiplexing option (1/1) and SRBs mapped on E-DCH/HS-DSCH" with the following exceptions:

Information Element	Value/remark
Activation time	Not Present
Frequency info - UARFCN uplink(Nu) - UARFCN downlink(Nd)	 Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21] Same downlink UARFCN as used for cell 6
Downlink information common for all radio links	
- MAC-hs reset indicator	TRUE
Downlink information for each radio links - CHOICE mode - Primary CPICH info - Primary Scrambling Code	 FDD Set to same code as used for cell 6

8.2.1.40.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

At step 3 the time between 11 consecutive CQI indications shall be 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used.

8.2.1.41 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (UL DPCCH slot format #4)

8.2.1.41.1 Definition and applicability

All UEs which support FDD and Slot Format #4.

8.2.1.41.2 Conformance requirement

If the IE "Uplink DPCH info" is included, the UE shall:

For FDD:

1> release any active uplink physical channels and activate the given physical channels;

1> if the IE "Number of FBI bits" is not included:

2> use 0 FBI bits in the Uplink DPCH.

1> if the IE "Number of TPC bits" is not included:

2> use 2 TPC bits in the Uplink DPCH.

1> else:

2> if F-DPCH is not configured then the UE behaviour is unspecified.

1> use an SF equal to or greater than the minimum SF indicated in the IE "Spreading Factor" during uncompressed frames or compressed frames by HL scheduling;

1> use an SF equal to or greater than the minimum SF divided by 2 during compressed frames by SF reduction.

Reference

3GPP TS 25.331 clauses 8.6.6.6

8.2.1.41.3 Test purpose

To confirm that the UE is able to establish a radio bearer mapped on E-DCH/HS-DSCH, with signalling radio bearers mapped on E-DCH/HS-DSCH together with use of F-DPCH and UL DPCCH slot format #4, according to the received RADIO BEARER SETUP message.

8.2.1.41.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports Slot Format #4

Test Procedure

The UE is in CELL_DCH state. Only signalling radio bearers have been established.

The test operator is prompted to make an out-going call. The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of a radio bearer mapped on E-DCH/HS-DSCH, with signalling radio bearers mapped on E-DCH/HS-DSCH together with use of F-DPCH and UL DPCCH slot format #4. After the UE receives this message, it establishes a radio bearer and maps it to the E-DCH/HS-DSCH. The UE shall transmit a RADIO BEARER SETUP COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1		←	RADIO BEARER SETUP	
2		→	RADIO BEARER SETUP COMPLETE	
3		←→	CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for "Packet to CELL_DCH / E-DCH / HS-DSCH using one multiplexing option (1/1) and SRBs mapped on E-DCH/HS-DSCH" (condition A14) in TS 34.108 clause 9, except for the following:

Information Element	Value/remark
Uplink DPCH info	
- Number of TPC bits	4

8.2.1.41.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE.

8.2.1.42 Radio Bearer Establishment for transition from CELL_FACH (Enhanced UL/DL) to CELL_DCH : Success (with ongoing HS-DSCH reception and E-DCH transmission)

8.2.1.42.1 Definition and applicability

UE supports FDD and Enhanced Uplink in CELL_FACH state.

8.2.1.42.2 Conformance requirement

Extract from 25.331

If after state transition the UE enters CELL_DCH state, the UE shall, after the state transition:

1> in FDD; or

1> in TDD when "Primary CCPCH Info" is included indicating a new target cell and "New C-RNTI" is not specified:

2> remove any C-RNTI from MAC;

2> clear the variable C_RNTI.

1> determine the value for the READY_FOR_COMMON_EDCH variable and take the corresponding actions as described in subclause 8.5.47;

1> determine the value for the COMMON_E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.46;

1> if the IE "E-DCH info" was not included in the message:

2> for FDD:

3> stop any E-AGCH, E-RGCH and E-HICH reception procedures;

3> stop any E-DPCCH and E-DPDCH transmission procedures;

3> act as if the IE "MAC-es/e reset indicator" was received and set to TRUE;

3> release all E-DCH HARQ resources;

3> no longer consider any radio link to be the serving E-DCH radio link.

2> for 1.28 Mcps TDD:

3> stop any E-AGCH and E-HICH reception procedures;

3> stop any E-RUCCH and E-PUCH transmission procedure;

3> act as if the IE "MAC-es/e reset indicator" was received and set to TRUE;

3> release all E-DCH HARQ resources;

3> no longer consider any radio link to be the serving E-DCH radio link.

Reference

3GPP TS 25.331 clauses 8.2.2.3

8.2.1.42.3 Test Purpose

1. To confirm that the UE, moves to CELL_DCH state from Enhanced CELL_FACH state and transmits RADIO BEARER SETUP COMPLETE message with ongoing HS-DSCH reception and E-DCH transmission..

8.2.1.42.4 Method of test

Initial Conditions

System Simulator: 1 cell.

UE: PS-DCCH Enhanced CELL_FACH (state 6-8) as specified in clause 7.4 of TS 34.108 with SRB mapping on common E-DCH /HS-DSCH

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports of common E-DCH

Test Procedure

The UE is in Enhanced CELL_FACH state, Only signalling radio bearers have been established

The test operator is prompted to make an out-going call. The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of a user plane bearer on E-DCH/HS-DSCH, with signalling radio bearers mapped on E-DCH/HS-DSCH using dedicated resources. The UE shall transmit a RADIO BEARER SETUP COMPLETE message using AM RLC and transit to CELL_DCH state. SS calls generic procedure C.3 to check that the UE is in CELL_DCH state.

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	User plane radio bearer mapping onto E-DCH/HS-DSCH with SRB mapped onto E-DCH/HS-DSCH using dedicated resources
2	→		RADIO BEARER SETUP COMPLETE	UE transits to CELL_DCH state.
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 5 (FDD) (Step 6)

Use the same message type found in clause 6.1 of TS 34.108 condition B3 “Only for cells which configure common E-DCH and HS-DSCH reception in CELL_FACH”.

RADIO BEARER SETUP (Step 1)

Use the same message as specified for “Packet to CELL_DCH from Enhanced CELL_FACH in PS with SRBs mapped on E-DCH (MAC-i/is)/HS-DSCH(MAC-ehs)" (condition A30) in TS 34.108 clause 9.1.1.

8.2.1.42.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.43 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (start of E-DCH transmission with enhanced TS0) (1.28 Mcps TDD)

8.2.1.43.1 Definition and applicability

All UEs which support 1.28Mcps TDD and HS-PDSCH and E-DCH and enhanced TS0.

8.2.1.43.2 Conformance requirement

Same conformance requirement as in clause 8.2.1.35.2

8.2.1.43.3 Test purpose

To confirm that the UE establishes a radio bearer mapped to HS-DSCH(include TS0) and E-DCH according to the received RADIO BEARER SETUP message.

8.2.1.43.4 Method of test

Initial Condition

System Simulator: 1 cell, cell1 configures 3 carrier frequency, one is primary frequency, other are secondary frequencies. The frequency relation show as below:

Parameter	Cell 1
UTRA RF Channel Number1	Ch. 1
UTRA RF Channel Number2	Ch. 2
UTRA RF Channel Number3	Ch.3

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports TDD
- UE supports HS-PDSCH
- UE supports E-PUCH
- UE supports enhanced TS0

Test Procedure

The UE is in CELL_DCH state. Only signalling radio bearers have been established.

The test operator is prompted to make an out-going call. The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of a radio bearer with RB mapping to HS-DSCH(TS0 Indicator is TRUE) and E-DCH. After the UE receives this message, it establishes a radio bearer and maps it to the HS-DSCH and E-DCH. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for "Packet to CELL_DCH / E-DCH / HS-DSCH using three multiplexing options (3/3) and SRBs mapped on DCH/DCH" in 34.108 with the following exceptions:

Information Element	Value/remark
Downlink HS-PDSCH Information	Not Present
- CHOICE mode	TDD
- CHOICE *TDD option*	1.28 Mcps
- TS0 Indicator	TRUE
Multi-frequency Info	
- Second Frequency Info	UTRA RF Channel Number2

8.2.1.43.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.44 Radio Bearer Establishment for transition between CELL_DCH & CELL_DCH with SRB on R99: Successful Activation of 3C-HSDPA and 4C-HSDPA for different bands

8.2.1.44.1 Definition and applicability

All UE categories (Cat 29 and 31) which support combination of 3C-HSDPA or 4C-HSDPA, and 64 QAM.

UE supports FDD and F-DPCH or Enhanced F-DPCH.

8.2.1.44.2 Conformance requirement

If the UE receives:

- a RADIO BEARER SETUP message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214 (FDD only);

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

- clear that entry;

1bis> in TDD, if the procedure is used to perform a handover to a cell where timing advance is enabled, and the UE can calculate the timing advance value in the new cell (i.e. in a synchronous TDD network):

2> set the IE "Uplink Timing Advance" according to subclause 8.6.6.26.In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…..

The UE shall:

1> be able to receive any of the following messages:

2> RADIO BEARER SETUP message; or

2> RADIO BEARER RECONFIGURATION message; or

2> RADIO BEARER RELEASE message; or

…...

If the UE receives:

- a RADIO BEARER SETUP message; or
- a RADIO BEARER RECONFIGURATION message; or
- a RADIO BEARER RELEASE message; or

…

it shall:

1> stop and reset timer T324 if running;

1> stop monitoring target cell HS-SCCH;

1> set the variable ORDERED_RECONFIGURATION to TRUE;

…

The UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

The UE may first release the physical channel configuration used at reception of the reconfiguration message. The UE shall then:

1> enter a state according to subclause 8.6.3.3.

…

In case the UE receives a RADIO BEARER SETUP message with the IE "Specification mode" not set to "Complete Specification", the UE behaviour is unspecified.

The UE shall:

1> if IE "Default configuration for CELL_FACH" is set:

2> if the message is RADIO BEARER RECONFIGURATION:

3> if IE "new U-RNTI" is included:

4> act in accordance with the default parameters according to section 13.8.

3> else:

4> the UE behaviour is unspecified.

For FDD: in CELL_DCH state, in case the UE receives a Target cell HS-SCCH order the UE shall:

1> ignore RADIO BEARER SETUP, RADIO BEARER RECONFIGURATION, TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION messages as described in subclause 8.6.3.11.

If after state transition the UE enters CELL_DCH state, the UE shall, after the state transition:

1> in FDD; or

…

1> determine the value for the READY_FOR_COMMON_EDCH variable and take the corresponding actions as described in subclause 8.5.47;

1> determine the value for the COMMON_E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.46;

1> if the IE "E-DCH info" was not included in the message:

2> for FDD:

3> stop any E-AGCH, E-RGCH and E-HICH reception procedures;

3> stop any E-DPCCH and E-DPDCH transmission procedures;

3> act as if the IE "MAC-es/e reset indicator" was received and set to TRUE;

3> release all E-DCH HARQ resources;

3> no longer consider any radio link to be the serving E-DCH radio link.

…

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…

An entry in the variable SECONDARY_CELL_HS_DSCH_RECEPTION shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the corresponding IE "Downlink Secondary Cell Info FDD" is included;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> either of the following conditions are met:

2> the IE "Memory Partitioning" is set to 'Implicit' in the IE "HARQ Info"; or

2> the IE "Memory Partitioning" is set to 'Explicit' in the IE "HARQ Info" and MIMO is configured on all or none of the serving HS-DSCH cell and the secondary serving HS-DSCH cells.

…

If there are more than one entry in the variable SECONDARY_CELL_HS_DSCH_RECEPTION set to TRUE and the corresponding entries in the variable DOWNLINK_SECONDARY_CELL_INFO indicate that the network has configured non-contiguous multi-cell operation together with dual band operation:

1> the UE behaviour is not specified.

If there is at least one entry in the variable SECONDARY_CELL_HS_DSCH_RECEPTION set to TRUE, the UE shall:

1> apply the i-th entry in the variables DOWNLINK_SECONDARY_CELL_INFO, SECONDARY_CELL_HS_DSCH_RECEPTION, and SECONDARY_CELL_MIMO_STATUS to the i-th secondary serving HS-DSCH cell.

1> After the new configuration is applied, the UE shall renumber the configured secondary serving HS-DSCH cells and the corresponding entries in the above variables, starting from 1, contiguously, by skipping empty entries in the above variables. The secondary serving HS-DSCH cells are numbered in the order their configuration IEs appears in the message. The RRC Layer shall pass the new numbering of the secondary serving HS-DSCH cells to the lower layers.

1> partition the soft memory buffer in the MAC-ehs, used for the secondary serving HS-DSCH cells reception, using the information in the IE "HARQ Info" of the serving HS-DSCH cell and performing the procedure described in subclause 8.6.5.6b;

1> determine the value for the SECONDARY_CELL_E_DCH_TRANSMISSION and take the corresponding actions as described in subclause 8.5.58.

1> determine the configuration of "TSN field extension" for MAC-ehs entity as specified in subclause 8.5.60.

For each entry in the variable SECONDARY_CELL_HS_DSCH_RECEPTION which is set to TRUE, the UE shall:

1> receive the HS-SCCH(s) according to the corresponding IE "Downlink Secondary Cell Info FDD" on the serving HS-DSCH radio link applying the scrambling code as received in the corresponding IE "DL Scrambling code";

1> perform HS-DSCH reception procedures for the corresponding secondary serving HS-DSCH cell according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info";

2> subclause 8.6.6.45 for the IE "Downlink Secondary Cell Info FDD";

1> use the relevant CQI reporting table as stated in subclause 8.5.44.

…

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4, 8.5.51

8.2.1.44.3 Test purpose

To confirm that the UE establishes radio bearer mapped to HS-DSCH, transits from CELL_DCH to CELL_DCH state, and starts simultaneous 64QAM reception over multi Carriers (3C or 4C) according to the received RADIO BEARER SETUP message.

8.2.1.44.4 Method of test

Initial Condition

System Simulator:

SS configures cells as per Table 5.0aC of TS 25.101

There are two configurations that will be tested as follows:

1. SubTest1: 3 cells –Cell 1/2/3 3C HSDPA cell(s) with Cell 1(Anchor Carrier), Cell 2 and Cell 3 (Secondary Carriers) – One Anchor Carrier on DL Band A and Two Secondary Carriers on DL Band B (Dual Band 3C HSDPA)

2. SubTest2: 4 cells –Cell 1/2/3/4 4C HSDPA cell(s) with Cell 1 (Anchor Carrier) and Cell 2, Cell 3 and Cell 4 (Secondary Carriers) – One Anchor Carrier and One Secondary Carrier on DL Band A and Two Secondary Carriers on DL Band B (Dual Band 4C HSDPA)

UE: CELL_DCH (state 6-5 or state 6-7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports FDD

- UE category supports combined 64QAM, Multi-Cell (3 Cells or 4 Cells) (UE HS-DSCH Category 29 or 31)

- UE supports F-DPCH or Enhanced F-DPCH

Test Procedure

The UE is in CELL_DCH state. Before step 1, only signalling radio bearers have been established. The SS transmits a RADIO BEARER SETUP message to the UE. This message includes RAB information to configure PS domain RB on E-DCH/HSDPA (with 3C-HSDPA or 4C-HSDPA, and 64 QAM simultaneously configured for L1). SRB is mapped to DCH/DCH. After the UE receives this message, it configures RAB accordingly and transmits a RADIO BEARER SETUP COMPLETE message using AM RLC.

To check that the UE has activated 3C HSDPA, the SS sends UE CAPABILITY ENQUIRY on both Anchor Carrier Cell and Secondary Carrier Cell using SRB2 mapped onto DCH. The UE shall respond to each message in turn with

UE CAPABILITY INFORMATION message sent to Anchor Carrier Cell 1. In that RRC message, it should include the IE "*HS-DSCH physical layer category extension 4*". The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message.

To check that the UE has activated 4C HSDPA, the SS sends UE CAPABILITY ENQUIRY on both Anchor Carrier Cell and Secondary Carrier Cell using SRB2 mapped onto DCH. The UE shall respond to each message in turn with UE CAPABILITY INFORMATION message sent to Anchor Carrier Cell 1. In that RRC message, it should include the IE "*HS-DSCH physical layer category extension 5*". The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message.

Depending on the System Simulator configuration,

SS checks that UE sends composite CQI reports on each stream for Cell 1, Cell 2 and Cell 3 (Subtest 1).

Or

SS checks that UE sends composite CQI reports on each stream for Cell 1, Cell 2, Cell 3 and Cell 4 (Subtest 2).

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
				SubTest1: SS configures three cells.
1	←		RADIO BEARER SETUP	Configuration of PS RB on E-DCH/HSDPA , using 3C-HSDPA, and 64QAM configuration
2	→		RADIO BEARER SETUP COMPLETE	
3	←		UE CAPABILITY ENQUIRY	Use default message. SRB2 on DCH from Anchor Cell 1.
4	→		UE CAPABILITY INFORMATION	
5				SS should check for composite CQI Type A reports (all three carriers) at every 4 ms period with composite CQI Type A Report for Anchor Carrier (Cell 1) first followed by composite CQI Type A Report for Secondary Carrier 1 (Cell 2) and Secondary Carrier 2 (Cell 3).
6	←		UE CAPABILITY INFORMATION CONFIRM	
7	←		UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on DCH from Secondary Carrier 1 (Cell 2).
8	→		UE CAPABILITY INFORMATION	
9	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on DCH from Cell 2.
10	←		UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on DCH from Secondary Carrier 2 (Cell 3).
11	→		UE CAPABILITY INFORMATION	
12	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on DCH from Cell 3.
13				SS calls for generic procedure C.3 to check that UE is in CELL_DCH END of SubTest1
14				SubTest2: Following Steps are applicable to UEs that support Four Carrier Operation.
15				SS configures four cells according to Table 5.0aC of TS 25.101. UE brought to CELL_DCH (state 6-5 or state 6-7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.
16	←		RADIO BEARER SETUP	Configuration of PS RB on E-DCH/HSDPA , using 4C-HSDPA, and 64QAM configuration
17	→		RADIO BEARER SETUP COMPLETE	
18	←		UE CAPABILITY ENQUIRY	Use default message. SRB2 on DCH from Anchor Cell 1.
19	→		UE CAPABILITY INFORMATION	

20			SS should check for CQI reports (all four carriers) at every 4 ms period with composite CQI Type A Report for Anchor Carrier (Cell 1) and Secondary Carrier 2 (Cell 3) followed by composite CQI Type A Report for Secondary Carrier 1 (Cell 2) and Secondary Carrier 3 (Cell 4).
21	←	UE CAPABILITY INFORMATION CONFIRM	
22	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on DCH from Secondary Carrier 1 (Cell 2).
23	→	UE CAPABILITY INFORMATION	
24	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on DCH from Cell 2.
25	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on DCH from Secondary Carrier 2 (Cell 3).
26	→	UE CAPABILITY INFORMATION	
27	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on DCH from Cell 3.
28	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on DCH from Secondary Carrier 3 on Cell 4.
29	→	UE CAPABILITY INFORMATION	
30	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on DCH from Cell 4.
31			SS calls for generic procedure C.3 to check that UE is in CELL_DCH

Specific Message Contents

RADIO BEARER SETUP (Step 1, Step 16)

A35

8.2.1.44.5 Test requirements

At step 2 and 17 the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

At step 5 and 20 the UE shall transmit two composite CQI reports of Type A.

At step 4, 8, 11, 19, 23, 26 and 29 the UE should transmit UE CAPABILITY INFORMATION on SRB2.8.2.2 Radio Bearer Reconfiguration

8.2.2.1 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success

8.2.2.1.1 Definition

8.2.2.1.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RECONFIGURATION message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214 (FDD only);

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if the IE "Downlink information for each radio link" is absent, not change its current DL Physical channel configuration.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.2.1.3 Test purpose

To confirm that the UE reconfigures the radio bearers according to a RADIO BEARER RECONFIGURATION message, which indicates a change of UL scrambling code and change of RLC parameters.

8.2.2.1.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH state. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE, which commands a change of UL scrambling code (for FDD) and UL channelisation code (for 1.28 Mcps TDD) and change of RLC parameters to be performed. The UE reconfigures the new parameter and transmits a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

The SS transmits a new RADIO BEARER RECONFIGURATION message to the UE, which commands the UE to reconfigure RLC parameters. The UE reconfigures the new parameters and transmits a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2			Void	
3	←		RADIO BEARER RECONFIGURATION	UL scrambling code is modified. RLC configuration is modified.
4	→		RADIO BEARER RECONFIGURATION COMPLETE	
5			Void	
6	←		RADIO BEARER RECONFIGURATION	RLC configuration is modified.
7			RADIO BEARER RECONFIGURATION COMPLETE	
8			Void	
9	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (FDD) (Step 3)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical to the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Condition	Value/remark	Version
RB information to reconfigure list			
- RB information to reconfigure		(AM DCCH for RRC)	
- RB identity		2	
- PDCP info		Not Present	
- PDCP SN info		Not Present	
- RLC info			
- CHOICE Uplink RLC mode		AM RLC	
- Transmission RLC discard			
- SDU discard mode		No discard	
- MAX_DAT		15	
- Transmission window size		128	
- Timer_RST		400	
- Max_RST		4	
- Polling info			
- Timer_poll_prohibit		150	
- Timer_poll		150	
- Poll_PDU		Not present	
- Poll_SDU		1	
- Last transmission PDU poll		TRUE	
- Last retransmission PDU poll		TRUE	
- Poll_Window		99	
- Timer_poll_periodic		Not Present	
- CHOICE Downlink RLC mode		AM RLC	
- In-sequence delivery		TRUE	
- Receiving window size		128	
- Downlink RLC status info			
- Timer_status_prohibit		200	
- Timer_EPC		Not present	
- Missing PDU indicator		TRUE	
- Timer_STATUS_periodic		400	
- RB mapping info		Not Present	
- RB stop/continue		Not Present	
- RB information to reconfigure		(AM DCCH for NAS_DT High priority)	
- RB identity		3	
- PDCP info		Not Present	
- PDCP SN info		Not Present	
- RLC info			
- CHOICE Uplink RLC mode		AM RLC	
- Transmission RLC discard			
- SDU discard mode		No discard	
- MAX_DAT		15	
- Transmission window size		128	
- Timer_RST		400	
- Max_RST		4	
- Polling info			
- Timer_poll_prohibit		150	
- Timer_poll		150	
- Poll_PDU		Not present	
- Poll_SDU		1	
- Last transmission PDU poll		TRUE	
- Last retransmission PDU poll		TRUE	
- Poll_Window		99	
- Timer_poll_periodic		Not Present	
- CHOICE Downlink RLC mode		AM RLC	
- In-sequence delivery		TRUE	
- Receiving window size		128	
- Downlink RLC status info			
- Timer_status_prohibit		200	

- Timer_EPC		Not present	
- Missing PDU indicator		TRUE	
- Timer_STATUS_periodic		400	
- RB mapping info		Not Present	
- RB stop/continue		Not Present	
- RB information to reconfigure		(AM DCCH for NAS_DT Low priority)	
- RB identity		4	
- PDCP info		Not Present	
- PDCP SN info		Not Present	
- RLC info			
- CHOICE Uplink RLC mode		AM RLC	
- Transmission RLC discard			
- SDU discard mode		No discard	
- MAX_DAT		15	
- Transmission window size		128	
- Timer_RST		400	
- Max_RST		4	
- Polling info			
- Timer_poll_prohibit		150	
- Timer_poll		150	
- Poll_PDU		Not present	
- Poll_SDU		1	
- Last transmission PDU poll		TRUE	
- Last retransmission PDU poll		TRUE	
- Poll_Window		99	
- Timer_poll_periodic		Not Present	
- CHOICE Downlink RLC mode		AM RLC	
- In-sequence delivery		TRUE	
- Receiving window size		128	
- Downlink RLC status info			
- Timer_status_prohibit		200	
- Timer_EPC		Not Present	
- Missing PDU indicator		TRUE	
- Timer_STATUS_periodic		400	
- RB mapping info		Not Present	
- RB stop/continue		Not Present	
- RB information to reconfigure	A3	(AM DTCH)	
- RB identity		20	
- PDCP info		Not Present	
- PDCP SN info		Not Present	
- RLC info			
- CHOICE Uplink RLC mode		AM RLC	
- Transmission RLC discard			
- SDU discard mode		No discard	
- MAX_DAT		15	
- Transmission window size		128	
- Timer_RST		400	
- Max_RST		4	
- Polling info			
- Timer_poll_prohibit		150	
- Timer_poll		150	
- Poll_PDU		Not Present	
- Poll_SDU		1	
- Last transmission PDU poll		TRUE	
- Last retransmission PDU poll		TRUE	
- Poll_Window		99	
- Timer_poll_periodic		Not Present	
- CHOICE Downlink RLC mode		AM RLC	
- In-sequence delivery		TRUE	
- Receiving window size		128	
- Downlink RLC status info			
- Timer_status_prohibit		200	
- Timer_EPC		Not Present	
- Missing PDU indicator		TRUE	
- Timer_STATUS_periodic		400	
- RB mapping info		Not Present	
- RB stop/continue		Not Present	
UL Transport channel information for all transport		Not Present	

channels			
Added or Reconfigured UL TrCH information		Not Present	
CHOICE mode		Not Present	
DL Transport channel information common for all transport channel		Not Present	
Deleted DL TrCH information		Not Present	
Added or Reconfigured DL TrCH information		Not Present	
Frequency info		Not Present	
Maximum allowed UL TX power		Not Present	
CHOICE channel requirement - Scrambling code number		Uplink DPCH info 1	
CHOICE Mode - Downlink PDSCH information		FDD Not Present	R99 and Rel-4 only
Downlink information common for all radio links Downlink information per radio link list -Downlink information for each radio link - Primary CPICH info - Primary scrambling code		Not present Set to same code as used for cell 1	

Condition	Explanation
A1	This IE need for "Non speech in CS"
A2	This IE need for "Speech in CS"
A3	This IE need for "Packet to CELL_DCH from CELL_DCH in PS"

RADIO BEARER RECONFIGURATION (TDD)(Step 3)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical to the message sub-type titled "Packet to CELL_DCH from CELL_DCH in PS" in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
CHOICE mode	TDD
Uplink DPCH timeslots and codes	
- First timeslot code list	Assigned by SS
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing Indicator	Maintain

RADIO BEARER RECONFIGURATION (1.28 Mcps TDD) (Step 3)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical to the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Condition	Value/remark
RB information to reconfigure list		
- RB information to reconfigure		(AM DCCH for RRC)
- RB identity		2
- PDCP info		Not Present
- PDCP SN info		Not Present
- RLC info		
- CHOICE Uplink RLC mode		AM RLC
- Transmission RLC discard		
- SDU discard mode		No discard
- MAX_DAT		15
- Transmission window size		128
- Timer_RST		400
- Max_RST		4
- Polling info		
- Timer_poll_prohibit		150
- Timer_poll		150
- Poll_PDU		Not present
- Poll_SDU		1
- Last transmission PDU poll		TRUE
- Last retransmission PDU poll		TRUE
- Poll_Window		99
- Timer_poll_periodic		Not Present
- CHOICE Downlink RLC mode		AM RLC
- In-sequence delivery		TRUE
- Receiving window size		128
- Downlink RLC status info		
- Timer_status_prohibit		200
- Timer_EPC		Not present
- Missing PDU indicator		TRUE
- Timer_STATUS_periodic		400
- RB mapping info		Not Present
- RB stop/continue		Not Present
- RB information to reconfigure		(AM DCCH for NAS_DT High priority)
- RB identity		3
- PDCP info		Not Present
- PDCP SN info		Not Present
- RLC info		
- CHOICE Uplink RLC mode		AM RLC
- Transmission RLC discard		
- SDU discard mode		No discard
- MAX_DAT		15
- Transmission window size		128
- Timer_RST		400
- Max_RST		4
- Polling info		
- Timer_poll_prohibit		150
- Timer_poll		150
- Poll_PDU		Not present
- Poll_SDU		1
- Last transmission PDU poll		TRUE
- Last retransmission PDU poll		TRUE
- Poll_Window		99
- Timer_poll_periodic		Not Present
- CHOICE Downlink RLC mode		AM RLC
- In-sequence delivery		TRUE
- Receiving window size		128
- Downlink RLC status info		
- Timer_status_prohibit		200
- Timer_EPC		Not present
- Missing PDU indicator		TRUE
- Timer_STATUS_periodic		400

- RB mapping info		Not Present
- RB stop/continue		Not Present
- RB information to reconfigure		(AM DCCH for NAS_DT Low priority)
- RB identity		4
- PDCP info		Not Present
- PDCP SN info		Not Present
- RLC info		
- CHOICE Uplink RLC mode		AM RLC
- Transmission RLC discard		
- SDU discard mode		No discard
- MAX_DAT		15
- Transmission window size		128
- Timer_RST		400
- Max_RST		4
- Polling info		
- Timer_poll_prohibit		150
- Timer_poll		150
- Poll_PDU		Not present
- Poll_SDU		1
- Last transmission PDU poll		TRUE
- Last retransmission PDU poll		TRUE
- Poll_Window		99
- Timer_poll_periodic		Not Present
- CHOICE Downlink RLC mode		AM RLC
- In-sequence delivery		TRUE
- Receiving window size		128
- Downlink RLC status info		
- Timer_status_prohibit		200
- Timer_EPC		Not Present
- Missing PDU indicator		TRUE
- Timer_STATUS_periodic		400
- RB mapping info		Not Present
- RB stop/continue		Not Present
- RB information to reconfigure	A3	(AM DTCH)
- RB identity		20
- PDCP info		Not Present
- PDCP SN info		Not Present
- RLC info		
- CHOICE Uplink RLC mode		AM RLC
- Transmission RLC discard		
- SDU discard mode		No discard
- MAX_DAT		15
- Transmission window size		128
- Timer_RST		400
- Max_RST		4
- Polling info		
- Timer_poll_prohibit		150
- Timer_poll		150
- Poll_PDU		Not Present
- Poll_SDU		1
- Last transmission PDU poll		TRUE
- Last retransmission PDU poll		TRUE
- Poll_Window		99
- Timer_poll_periodic		Not Present
- CHOICE Downlink RLC mode		AM RLC
- In-sequence delivery		TRUE
- Receiving window size		128
- Downlink RLC status info		
- Timer_status_prohibit		200
- Timer_EPC		Not Present
- Missing PDU indicator		TRUE
- Timer_STATUS_periodic		400
- RB mapping info		Not Present
- RB stop/continue		Not Present
UL Transport channel information for all transport channels		Not Present
Added or Reconfigured UL TrCH information		Not Present
CHOICE mode		Not Present

DL Transport channel information common for all transport channel		Not Present
Deleted DL TrCH information		Not Present
Added or Reconfigured DL TrCH information		Not Present
Frequency info		Not Present
Maximum allowed UL TX power		Not Present
UL Channel Requirement - UL TS ChannelisationCodeList		Uplink DPCH info
- UL TS_ChannelisationCode		cc8_2
Downlink information common for all radio links Downlink information per radio link list		Not present Not present

Condition	Explanation
A1	This IE need for "Non speech in CS"
A2	This IE need for "Speech in CS"
A3	This IE need for "Packet to CELL_DCH from CELL_DCH in PS"

RADIO BEARER RECONFIGURATION (FDD) (Step 6)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical to the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Condition	Value/remark	Version
RB information to reconfigure list			
- RB information to reconfigure		(AM DCCH for RRC)	
- RB identity		2	
- PDCP info		Not Present	
- PDCP SN info		Not Present	
- RLC info			
- CHOICE Uplink RLC mode		AM RLC	
- Transmission RLC discard			
- SDU discard mode		No discard	
- MAX_DAT		15	
- Transmission window size		128	
- Timer_RST		500	
- Max_RST		4	
- Polling info			
- Timer_poll_prohibit		200	
- Timer_poll		200	
- Poll_PDU		Not present	
- Poll_SDU		1	
- Last transmission PDU poll		TRUE	
- Last retransmission PDU poll		TRUE	
- Poll_Window		99	
- Timer_poll_periodic		Not Present	
- CHOICE Downlink RLC mode		AM RLC	
- In-sequence delivery		TRUE	
- Receiving window size		128	
- Downlink RLC status info			
- Timer_status_prohibit		200	
- Timer_EPC		Not present	
- Missing PDU indicator		TRUE	
- Timer_STATUS_periodic		Not Present	
- RB mapping info		Not Present	
- RB stop/continue		Not Present	
- RB information to reconfigure		(AM DCCH for NAS_DT High priority)	
- RB identity		3	
- PDCP info		Not Present	
- PDCP SN info		Not Present	
- RLC info			
- CHOICE Uplink RLC mode		AM RLC	
- Transmission RLC discard			
- SDU discard mode		No discard	

Information Element	Condition	Value/remark	Version
- MAX_DAT		15	
- Transmission window size		128	
- Timer_RST		500	
- Max_RST		4	
- Polling info			
- Timer_poll_prohibit		200	
- Timer_poll		200	
- Poll_PDU		Not present	
- Poll_SDU		1	
- Last transmission PDU poll		TRUE	
- Last retransmission PDU poll		TRUE	
- Poll_Window		99	
- Timer_poll_periodic		Not Present	
- CHOICE Downlink RLC mode		AM RLC	
- In-sequence delivery		TRUE	
- Receiving window size		128	
- Downlink RLC status info			
- Timer_status_prohibit		200	
- Timer_EPC		Not present	
- Missing PDU indicator		TRUE	
- Timer_STATUS_periodic		Not Present	
- RB mapping info		Not Present	
- RB stop/continue		Not Present	
- RB information to reconfigure		(AM DCCH for NAS_DT Low priority)	
- RB identity		4	
- PDCP info		Not Present	
- PDCP SN info		Not Present	
- RLC info			
- CHOICE Uplink RLC mode		AM RLC	
- Transmission RLC discard			
- SDU discard mode		No discard	
- MAX_DAT		15	
- Transmission window size		128	
- Timer_RST		500	
- Max_RST		4	
- Polling info			
- Timer_poll_prohibit		200	
- Timer_poll		200	
- Poll_PDU		Not present	
- Poll_SDU		1	
- Last transmission PDU poll		TRUE	
- Last retransmission PDU poll		TRUE	
- Poll_Window		99	
- Timer_poll_periodic		Not Present	
- CHOICE Downlink RLC mode		AM RLC	
- In-sequence delivery		TRUE	
- Receiving window size		128	
- Downlink RLC status info			
- Timer_status_prohibit		200	
- Timer_EPC		Not Present	
- Missing PDU indicator		TRUE	
- Timer_STATUS_periodic		Not Present	
- RB mapping info		Not Present	
- RB stop/continue		Not Present	
- RB information to reconfigure	A3	(AM DTCH)	
- RB identity		20	
- PDCP info		Not Present	
- PDCP SN info		Not Present	
- RLC info			
- CHOICE Uplink RLC mode		AM RLC	
- Transmission RLC discard			
- SDU discard mode		No discard	
- MAX_DAT		15	
- Transmission window size		128	
- Timer_RST		500	
- Max_RST		4	
- Polling info			

Information Element	Condition	Value/remark	Version
- Timer_poll_prohibit		200	
- Timer_poll		200	
- Poll_PDU		Not Present	
- Poll_SDU		1	
- Last transmission PDU poll		TRUE	
- Last retransmission PDU poll		TRUE	
- Poll_Window		99	
- Timer_poll_periodic		Not Present	
- CHOICE Downlink RLC mode		AM RLC	
- In-sequence delivery		TRUE	
- Receiving window size		128	
- Downlink RLC status info			
- Timer_status_prohibit		200	
- Timer_EPC		Not Present	
- Missing PDU indicator		TRUE	
- Timer_STATUS_periodic		Not Present	
- RB mapping info		Not Present	
- RB stop/continue		Not Present	
UL Transport channel information for all transport channels		Not Present	
Added or Reconfigured UL TrCH information		Not Present	
CHOICE mode		Not Present	
DL Transport channel information common for all transport channel		Not Present	
Deleted DL TrCH information		Not Present	
Added or Reconfigured DL TrCH information		Not Present	
Frequency info		Not Present	
Maximum allowed UL TX power		Not Present	
CHOICE channel requirement		Not Present	
CHOICE Mode - Downlink PDSCH information		FDD Not Present	 R99 and Rel-4 only
Downlink information common for all radio links Downlink information per radio link list - Downlink information for each radio link - Primary CPICH info - Primary scrambling code		Not Present Set to same code as used for cell 1	

Condition	Explanation
A1	This IE need for "Non speech in CS"
A2	This IE need for "Speech in CS"
A3	This IE need for "Packet to CELL_DCH from CELL_DCH in PS"

RADIO BEARER RECONFIGURATION (TDD) (Step 6)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical to the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
CHOICE mode	TDD
Uplink DPCH timeslots and codes	
- First timeslot code list	Assigned by SS
Downlink information common for all radio links	Not Present
Downlink information per radio link list	
- Downlink information for each radio link	
- Primary CCPCH info	Set to same as used for cell 1

8.2.2.1.5 Test requirement

After step 3 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the new DPCH after the specified activation time has expired.

After step 6, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

8.2.2.1a Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (TDD Only)

8.2.2.1a.1 Definition

The features and operation of UpPCH shifting have been introduced to core specification (TS25.331 clause 8.6.6.26) for LCR TDD.

8.2.2.1a.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RECONFIGURATION message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214 (FDD only);

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if the IE "Downlink information for each radio link" is absent, not change its current DL Physical channel configuration.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> 1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

When UE is in the stage of RB Reconfiguring, it shall perform RB setup procedure to the neighbour cell and enter CELL_DCH state according to neighbour cell parameters and UpPCH position indicated by the RADIO BEARER RECONFIGURATION message.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.2.1a.3 Test purpose

To confirm that the UE reconfigures the radio bearers according to a RADIO BEARER RECONFIGURATION message, which indicates a change of UL scrambling code and change of RLC parameters.

To verify the UE successfully identify the UpPCH position of neighbour cell in RB RECONFIG message and perform RB reconfigure procedure to the neighbour cell based on the configuration from SS.

8.2.2.1a.4 Method of test

Initial Condition

System Simulator: 1 2 cells. Cell 1 is in the UARFCN 1 and Cell 4 is in the UARFCN 4. UpPCH shifting=22 in the cell 4 of UARFCN 4.

UE: CS-DCCH +DTCH_DCH (state 6-59) or PS-DCCH+DTCH_DCH (state 6-107) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

Parameter	Unit	Cell 1		Cell 4	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
P-CCPCH RSCP(TDD)	dBm	-55	-72	Off	-55

The UE is in CELL_DCH state. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE, which commands a change of UL scrambling code (for FDD) and UL channelization code (for 1.28 Mcps TDD) and change of RLC parameters to be performed. The UE reconfigures the new parameter and transmits a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

The SS transmits a new RADIO BEARER RECONFIGURATION message to the UE, which commands the UE to reconfigure RLC parameters. The UE reconfigures the new parameters and transmits a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

UE is in the CELL_DCH state. SS send RADIO BEARER RECONFIGURATION to UE containing the parameters of destination cell and a change of RLC parameter. UE reconfigures the new parameter and transmits a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH of CELL 4 using AM RLC.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2			Void	
3	←		RADIO BEARER RECONFIGURATION	UL scrambling code is modified. RLC configuration is modified.
4	→		RADIO BEARER RECONFIGURATION COMPLETE	
5			Void	
6	←		RADIO BEARER RECONFIGURATION	RLC configuration is modified.
7			RADIO BEARER RECONFIGURATION COMPLETE	
8			Void	
9	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.
10	←		RADIO BEARER RECONFIGURATION	Notify UE setup radio bearer in Cell 4 and indicate frequency of neighbour cell and UpPCH position
11	→		RADIO BEARER RECONFIGURATION COMPLETE	
12	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (FDD1.28Mcps TDD) (Step 3)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical to the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Condition	Value/remark	Version
RB information to reconfigure list			
- RB information to reconfigure		(AM DCCH for RRC)	
- RB identity		2	
- PDCP info		Not Present	
- PDCP SN info		Not Present	
- RLC info			
- CHOICE Uplink RLC mode		AM RLC	
- Transmission RLC discard			
- SDU discard mode		No discard	
- MAX_DAT		15	
- Transmission window size		128	
- Timer_RST		400	
- Max_RST		4	
- Polling info			
- Timer_poll_prohibit		150	
- Timer_poll		150	
- Poll_PDU		Not present	
- Poll_SDU		1	
- Last transmission PDU poll		TRUE	
- Last retransmission PDU poll		TRUE	
- Poll_Window		99	
- Timer_poll_periodic		Not Present	
- CHOICE Downlink RLC mode		AM RLC	
- In-sequence delivery		TRUE	
- Receiving window size		128	
- Downlink RLC status info			
- Timer_status_prohibit		200	
- Timer_EPC		Not present	
- Missing PDU indicator		TRUE	
- Timer_STATUS_periodic		400	
- RB mapping info		Not Present	
- RB stop/continue		Not Present	
- RB information to reconfigure		(AM DCCH for NAS_DT High priority)	
- RB identity		3	
- PDCP info		Not Present	
- PDCP SN info		Not Present	
- RLC info			
- CHOICE Uplink RLC mode		AM RLC	
- Transmission RLC discard			
- SDU discard mode		No discard	
- MAX_DAT		15	
- Transmission window size		128	
- Timer_RST		400	
- Max_RST		4	
- Polling info			
- Timer_poll_prohibit		150	
- Timer_poll		150	
- Poll_PDU		Not present	
- Poll_SDU		1	
- Last transmission PDU poll		TRUE	
- Last retransmission PDU poll		TRUE	
- Poll_Window		99	
- Timer_poll_periodic		Not Present	
- CHOICE Downlink RLC mode		AM RLC	
- In-sequence delivery		TRUE	
- Receiving window size		128	
- Downlink RLC status info			
- Timer_status_prohibit		200	

- Timer_EPC		Not present	
- Missing PDU indicator		TRUE	
- Timer_STATUS_periodic		400	
- RB mapping info		Not Present	
- RB stop/continue		Not Present	
- RB information to reconfigure		(AM DCCH for NAS_DT Low priority)	
- RB identity		4	
- PDCP info		Not Present	
- PDCP SN info		Not Present	
- RLC info			
- CHOICE Uplink RLC mode		AM RLC	
- Transmission RLC discard			
- SDU discard mode		No discard	
- MAX_DAT		15	
- Transmission window size		128	
- Timer_RST		400	
- Max_RST		4	
- Polling info			
- Timer_poll_prohibit		150	
- Timer_poll		150	
- Poll_PDU		Not present	
- Poll_SDU		1	
- Last transmission PDU poll		TRUE	
- Last retransmission PDU poll		TRUE	
- Poll_Window		99	
- Timer_poll_periodic		Not Present	
- CHOICE Downlink RLC mode		AM RLC	
- In-sequence delivery		TRUE	
- Receiving window size		128	
- Downlink RLC status info			
- Timer_status_prohibit		200	
- Timer_EPC		Not Present	
- Missing PDU indicator		TRUE	
- Timer_STATUS_periodic		400	
- RB mapping info		Not Present	
- RB stop/continue		Not Present	
- RB information to reconfigure	A3	(AM DTCH)	
- RB identity		20	
- PDCP info		Not Present	
- PDCP SN info		Not Present	
- RLC info			
- CHOICE Uplink RLC mode		AM RLC	
- Transmission RLC discard			
- SDU discard mode		No discard	
- MAX_DAT		15	
- Transmission window size		128	
- Timer_RST		400	
- Max_RST		4	
- Polling info			
- Timer_poll_prohibit		150	
- Timer_poll		150	
- Poll_PDU		Not Present	
- Poll_SDU		1	
- Last transmission PDU poll		TRUE	
- Last retransmission PDU poll		TRUE	
- Poll_Window		99	
- Timer_poll_periodic		Not Present	
- CHOICE Downlink RLC mode		AM RLC	
- In-sequence delivery		TRUE	
- Receiving window size		128	
- Downlink RLC status info			
- Timer_status_prohibit		200	
- Timer_EPC		Not Present	
- Missing PDU indicator		TRUE	
- Timer_STATUS_periodic		400	
- RB mapping info		Not Present	
- RB stop/continue		Not Present	
UL Transport channel information for all transport		Not Present	

channels			
Added or Reconfigured UL TrCH information		Not Present	
CHOICE mode		Not Present	
DL Transport channel information common for all transport channel		Not Present	
Deleted DL TrCH information		Not Present	
Added or Reconfigured DL TrCH information		Not Present	
Frequency info		Not Present	
Maximum allowed UL TX power		Not Present	
CHOICE UL channel requirement - UL TS_ChannelisationCodeListScrambling code number		Uplink DPCH info 1	
CHOICE Mode		FDD	
- Downlink PDSCH informationUL TS_ChannelisationCode		Not Presentcc8_2	R99 and Rel-4 only
Downlink information common for all radio links Downlink information per radio link list -Downlink information for each radio link - Primary CPICH info - Primary scrambling code		Not present Not present Set to same code as used for cell 1	

Condition	Explanation
A1	This IE need for "Non speech in CS"
A2	This IE need for "Speech in CS"
A3	This IE need for "Packet to CELL_DCH from CELL_DCH in PS"

RADIO BEARER RECONFIGURATION (TDD)(Step 3)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical to the message sub-type titled "Packet to CELL_DCH from CELL_DCH in PS" in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
CHOICE mode	TDD
Uplink DPCH timeslots and codes	
- First timeslot code list	Assigned by SS
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing Indicator	Maintain

RADIO BEARER RECONFIGURATION (1.28 Mcps TDD) (Step 36)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical to the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	400
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	150
- Timer_poll	150
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	400
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	400
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	150
- Timer_poll	150
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	400

- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	400
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	150
- Timer_poll	150
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	400
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DTCH)
- RB identity	20
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	400
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	150
- Timer_poll	150
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	400
- RB mapping info	Not Present
- RB stop/continue	Not Present
UL Transport channel information for all transport channels	Not Present
Added or Reconfigured UL TrCH information	Not Present
CHOICE mode	TDD

Uplink DPCH timeslots and codesDL Transport channel information common for all transport channel	Not Present
- First timeslot code listDeleted DL TrCH information	Not Present
Downlink information common for all radio linksAdded or Reconfigured DL TrCH information	Not present
Downlink information per radio link listFrequency info	Not Present
-Downlink information for each radio linkMaximum allowed UL TX power	Not Present
-Primary CCPCH infoUL Channel Requirement Uplink DPCH info - UL TS ChannelisationCodeList	Previous setting Uplink DPCH info
-Uplink Timing Advance Control - UL TS_ChannelisationCode	cc8_2
-Frequency infoDownlink information common for all radio links	Not present
UpPCH position infoDownlink information per radio link list	Not present

Condition	Explanation
A1	This IE need for "Non speech in CS"
A2	This IE need for "Speech in CS"
A3	This IE need for "Packet to CELL_DCH from CELL_DCH in PS"

RADIO BEARER RECONFIGURATION (FDD) (Step 6)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical to the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Condition	Value/remark	Version
RB information to reconfigure list			
- RB information to reconfigure		(AM DCCH for RRC)	
- RB identity		2	
- PDCP info		Not Present	
- PDCP SN info		Not Present	
- RLC info			
- CHOICE Uplink RLC mode		AM RLC	
- Transmission RLC discard			
- SDU discard mode		No discard	
- MAX_DAT		15	
- Transmission window size		128	
- Timer_RST		500	
- Max_RST		4	
- Polling info			
- Timer_poll_prohibit		200	
- Timer_poll		200	
- Poll_PDU		Not present	
- Poll_SDU		1	
- Last transmission PDU poll		TRUE	
- Last retransmission PDU poll		TRUE	
- Poll_Window		99	
- Timer_poll_periodic		Not Present	
- CHOICE Downlink RLC mode		AM RLC	
- In-sequence delivery		TRUE	
- Receiving window size		128	
- Downlink RLC status info			
- Timer_status_prohibit		200	
- Timer_EPC		Not present	
- Missing PDU indicator		TRUE	
- Timer_STATUS_periodic		Not Present	
- RB mapping info		Not Present	
- RB stop/continue		Not Present	
- RB information to reconfigure		(AM DCCH for NAS_DT High priority)	
- RB identity		3	

Information Element	Condition	Value/remark	Version
- PDCP info		Not Present	
- PDCP SN info		Not Present	
- RLC info			
- CHOICE Uplink RLC mode		AM RLC	
- Transmission RLC discard			
- SDU discard mode		No discard	
- MAX_DAT		15	
- Transmission window size		128	
- Timer_RST		500	
- Max_RST		4	
- Polling info			
- Timer_poll_prohibit		200	
- Timer_poll		200	
- Poll_PDU		Not present	
- Poll_SDU		1	
- Last transmission PDU poll		TRUE	
- Last retransmission PDU poll		TRUE	
- Poll_Window		99	
- Timer_poll_periodic		Not Present	
- CHOICE Downlink RLC mode		AM RLC	
- In-sequence delivery		TRUE	
- Receiving window size		128	
- Downlink RLC status info			
- Timer_status_prohibit		200	
- Timer_EPC		Not present	
- Missing PDU indicator		TRUE	
- Timer_STATUS_periodic		Not Present	
- RB mapping info		Not Present	
- RB stop/continue		Not Present	
- RB information to reconfigure		(AM DCCH for NAS_DT Low priority)	
- RB identity		4	
- PDCP info		Not Present	
- PDCP SN info		Not Present	
- RLC info			
- CHOICE Uplink RLC mode		AM RLC	
- Transmission RLC discard			
- SDU discard mode		No discard	
- MAX_DAT		15	
- Transmission window size		128	
- Timer_RST		500	
- Max_RST		4	
- Polling info			
- Timer_poll_prohibit		200	
- Timer_poll		200	
- Poll_PDU		Not present	
- Poll_SDU		1	
- Last transmission PDU poll		TRUE	
- Last retransmission PDU poll		TRUE	
- Poll_Window		99	
- Timer_poll_periodic		Not Present	
- CHOICE Downlink RLC mode		AM RLC	
- In-sequence delivery		TRUE	
- Receiving window size		128	
- Downlink RLC status info			
- Timer_status_prohibit		200	
- Timer_EPC		Not Present	
- Missing PDU indicator		TRUE	
- Timer_STATUS_periodic		Not Present	
- RB mapping info		Not Present	
- RB stop/continue		Not Present	
- RB information to reconfigure	A3	(AM DTCH)	
- RB identity		20	
- PDCP info		Not Present	
- PDCP SN info		Not Present	
- RLC info			
- CHOICE Uplink RLC mode		AM RLC	
- Transmission RLC discard			

Information Element	Condition	Value/remark	Version
- SDU discard mode		No discard	
- MAX_DAT		15	
- Transmission window size		128	
- Timer_RST		500	
- Max_RST		4	
- Polling info			
- Timer_poll_prohibit		200	
- Timer_poll		200	
- Poll_PDU		Not Present	
- Poll_SDU		1	
- Last transmission PDU poll		TRUE	
- Last retransmission PDU poll		TRUE	
- Poll_Window		99	
- Timer_poll_periodic		Not Present	
- CHOICE Downlink RLC mode		AM RLC	
- In-sequence delivery		TRUE	
- Receiving window size		128	
- Downlink RLC status info			
- Timer_status_prohibit		200	
- Timer_EPC		Not Present	
- Missing PDU indicator		TRUE	
- Timer_STATUS_periodic		Not Present	
- RB mapping info		Not Present	
- RB stop/continue		Not Present	
UL Transport channel information for all transport channels		Not Present	
Added or Reconfigured UL TrCH information		Not Present	
CHOICE mode		Not Present	
DL Transport channel information common for all transport channel		Not Present	
Deleted DL TrCH information		Not Present	
Added or Reconfigured DL TrCH information		Not Present	
Frequency info		Not Present	
Maximum allowed UL TX power		Not Present	
CHOICE channel requirement		Not Present	
CHOICE Mode - Downlink PDSCH information		FDD Not Present	 R99 and Rel-4 only
Downlink information common for all radio links Downlink information per radio link list - Downlink information for each radio link - Primary CPICH info - Primary scrambling code		Not Present Set to same code as used for cell 1	

Condition	Explanation
A1	This IE need for "Non speech in CS"
A2	This IE need for "Speech in CS"
A3	This IE need for "Packet to CELL_DCH from CELL_DCH in PS"

RADIO BEARER RECONFIGURATION (TDD) (Step 610)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical to the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
CHOICE modeRadioBearerSetup-r4-IEs	TDD
…	
Frequency info	
-CHOICE mode	TDD
- UARFCN(Nt)	Same UARFCN as used for cell 4
Uplink DPCH timeslots and codes	
- First timeslot code list	Assigned by SS
Downlink information common for all radio links	Not Present
- CHOICE mode Downlink information per radio link list	TDD
- Primary CCPCH info- Downlink information for each radio link	
- Cell parameters ID - Primary CCPCH info	Set to same as used for cell 1As used for cell 4
…	
RadioBearerSetup-r4-add-ext	
radioBearerSetup-r4-TDD128-add-ext	
UpPCHpositionInfo	22

8.2.2.1a.5 Test requirement

After step 3 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the new DPCH after the specified activation time has expired.

After step 611, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message and enter the state of CELL_DCH in Cell 4.

8.2.2.2 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Failure (Unsupported configuration)

8.2.2.2.1 Definition

8.2.2.2.2 Conformance requirement

If the UTRAN instructs the UE to use a configuration, which it does not support and/or if the received message causes the variable UNSUPPORTED_CONFIGURATION to be set to TRUE, the UE shall:

1> transmit a failure response as specified in TS 25.331 subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "configuration unsupported".

1> set the variable UNSUPPORTED_CONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

…

The UE shall:

1> in case of reception of a RADIO BEARER RECONFIGURATION message:

…

2> transmit a RADIO BEARER RECONFIGURATION FAILURE as response message on the DCCH using AM RLC.

…

The UE should set the variable UNSUPPORTED_CONFIGURATION to TRUE if the received message is not according to the UE capabilities.

Reference

3GPP TS 25.331 clause 8.2.2.6, 8.2.2.9, 8.5.20.

8.2.2.2.3 Test purpose

To confirm that the UE transmits a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC if the received RADIO BEARER RECONFIGURATION message includes unsupported configuration parameters.

8.2.2.2.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH state. SS then send a MEASUREMENT CONTROL message to UE. The UE shall perform periodical traffic volume measurement according to this message and then transmit MEASUREMENT REPORT message back to SS. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE, which includes unsupported configuration parameters for the UE. The UE shall transmit a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC. UE shall continue its traffic volume measurement and send MEASUREMENT REPORT messages back to SS periodically.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0a	←		MEASUREMENT CONTROL	SS requests UE to perform periodical traffic volume measurement.
0b	→		MEASUREMENT REPORT	
1	←		RADIO BEARER RECONFIGURATION	Including unsupported configuration by the UE
2	→		RADIO BEARER RECONFIGURATION FAILURE	The UE does not change the radio bearer.
3	→		MEASUREMENT REPORT	

Specific Message Contents

MEASUREMENT CONTROL (Step 0a)

Use the MEASUREMENT CONTROL message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/Remark
Measurement Identity	1
Measurement Command	Setup
Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurement list	Not Present
CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	
- Uplink transport channel type	DCH
- UL Target Transport Channel ID	5
- Traffic volume measurement quantity	
- Measurement quantity	RLC Buffer Payload
- Traffic volume reporting quantity	
- RLC Buffer Payload for each RB	True
- Average of RLC Buffer Payload for each RB	False
- Variance of RLC Buffer Payload for each RB	False
- Measurement validity	
- UE state	All states
- CHOICE Reporting criteria	Periodical Reporting Criteria
- Amount of reporting	Infinity
- Reporting interval	8000
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 0b and 3)

Check to see if the same message type found in [9] TS 34.108 Clause 9 is received, with the following exceptions and the order in which the RBs are reported is not checked:

Information Element	Value/Remarks
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

RADIO BEARER RECONFIGURATION (FDD) (Step 1)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark
Frequency info - CHOICE mode - UARFCN uplink (Nu) - UARFCN downlink (Nd)	 FDD 0 950

RADIO BEARER RECONFIGURATION (TDD) (Step 1)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark
Frequency info - CHOICE mode - UARFCN (Nt)	 TDD 0

RADIO BEARER RECONFIGURATION FAILURE (Step 2)

The contents of RADIO BEARER RECONFIGURATION FAILURE message in this test case is the same as the RADIO BEARER RECONFIGURATION FAILURE message as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Message Type Failure cause	 Not checked

8.2.2.2.5 Test requirement

After step 0a, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

After step 1 the UE shall transmit a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC .

After step 2, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

8.2.2.3 Void

8.2.2.4 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Failure (Physical channel failure and cell reselection)

8.2.2.4.1 Definition

8.2.2.4.2 Conformance requirement

If the received message caused the UE to be in CELL_DCH state and the UE failed to establish the dedicated physical channel(s) indicated in the received message the UE shall:

1> revert to the configuration prior to the reception of the message (old configuration);

1> if the old configuration includes dedicated physical channels (CELL_DCH state) and the UE is unable to revert to the old configuration:

2> initiate a cell update procedure according to TS 25.331 subclause 8.3.1, using the cause "radio link failure";

2> after the cell update procedure has completed successfully:

3> proceed as below.

…

1> transmit a failure response message as specified in TS 25.331 subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "physical channel failure".

1> set the variable ORDERED_RECONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

…

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- includes "Physical channel information elements":

the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message using AM RLC.

…

The UE shall:

1> in case of reception of a RADIO BEARER RECONFIGURATION message:

…

2> transmit a RADIO BEARER RECONFIGURATION FAILURE as response message on the DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.7, 8.2.2.9, 8.3.1.7.

8.2.2.4.3 Test purpose

To confirm that the UE transmits a RADIO BEARER RECONFIGURATION FAILURE message after it completes a cell update procedure when the UE cannot reconfigure the new radio bearer and a subsequent failure to revert to the old configuration.

8.2.2.4.4 Method of test

Initial Condition

System Simulator: 1 cell.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH state. SS then send a MEASUREMENT CONTROL message to UE. The UE shall perform periodical traffic volume measurement according to this message and then transmit MEASUREMENT REPORT message back to SS. The SS transmits a RADIO BEARER RECONFIGURATION message, which includes the new radio bearer parameters, to the UE. After the reception of the acknowledgement for the RADIO BEARER RECONFIGURATION message in SS, the SS shall not reconfigure dedicated physical channel in accordance with the settings in the message and release the previous configuration. The UE discovers that it cannot reconfigure the new radio bearer and wants to revert to the old configuration, but the UE cannot revert to the old configuration. The UE transmits a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "radio link failure". The SS shall transmit a CELL UPDATE CONFIRM message on downlink DCCH after receiving a CELL UPDATE message. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC and subsequently transmits a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC, setting the value "physical channel failure" to IE "failure cause". UE shall continue its traffic volume measurement and send MEASUREMENT REPORT messages back to SS periodically.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0a	←		MEASUREMENT CONTROL	SS requests UE to perform periodical traffic volume measurement.
0b	→		MEASUREMENT REPORT	
1	←		RADIO BEARER RECONFIGURATION	
2				The SS does not reconfigure the dedicated physical channel in accordance with the RADIO BEARER RECONFIGURATION message and shall release the old configuration.
3	→		CELL UPDATE	The value "radio link failure" shall be set in IE "Cell update cause".
4				The SS configures the dedicated physical channel according to the IE "Physical channel information elements" included in the CELL UPDATE CONFIRM message.
5	←		CELL UPDATE CONFIRM	This message include IE "Physical channel information elements".
6	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
7	→		RADIO BEARER RECONFIGURATION FAILURE	The IE "failure cause" shall be set to "physical channel failure"
8	→		MEASUREMENT REPORT	

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

MEASUREMENT CONTROL (Step 0a)

Use the MEASUREMENT CONTROL message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/Remark
Measurement Identity	7
Measurement Command	Setup
Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurement list	Not Present
CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	
- Uplink transport channel type	DCH
- UL Target Transport Channel ID	5
- Traffic volume measurement quantity	
- Measurement quantity	RLC Buffer Payload
- Time Interval to take an average or a variance	Not Present
- Traffic volume reporting quantity	
- RLC Buffer Payload for each RB	True
- Average of RLC Buffer Payload for each RB	False
- Variance of RLC Buffer Payload for each RB	False
- Measurement validity	
- UE state	All states
- CHOICE Reporting criteria	Periodical Reporting Criteria
- Amount of reporting	Infinity
- Reporting interval	8000
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 0b and 8)

Check to see if the same message type found in [9] TS 34.108 Clause 9 is received, with the following exceptions and the order in which the RBs are reported is not checked:

Information Element	Value/Remarks
Measurement identity	7
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

RADIO BEARER RECONFIGURATION message (Step 1) (FDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical to the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in Clause 9 of TS 34.108 with the following exceptions

Information Element	Value/remark
CHOICE channel requirement	
Scrambling code number	Set to different value other then the one specified in Radio Bearer Setup message
- Downlink information for each radio links	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary CPICH scrambling code	Ref. to the Default setting for cell 2 in TS34.108 clause 6.1 (FDD)

RADIO BEARER RECONFIGURATION message (Step 1) (TDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical to the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in Clause 9 of TS 34.108 with the following exceptions

Information Element	Value/remark
Downlink information for each radio link list	
- Downlink information for each radio links	
- CHOICE mode	TDD
- Primary CCPCH info	Ref. to the Default setting for cell 2 in TS34.108 clause 6.1 (TDD)

CELL UPDATE (Step 3)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in Clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark
Cell Update Cause	"radio link failure"

CELL UPDATE CONFIRM (Step 5) (FDD)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in Clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark
RRC State indicator	CELL_DCH
CHOICE channel requirement	Uplink DPCH info
- UplinkDPCH Info	Same as RADIO BEARER SETUP message used to move to initial condition
Downlink information common for all radio links	Same as RADIO BEARER SETUP message used to move to initial condition
Downlink information for each radio links	Same as RADIO BEARER SETUP message used to move to initial condition

CELL UPDATE CONFIRM (Step 5) (TDD)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in Clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_DCH
Uplink DPCH timeslots and codes	Same as RADIO BEARER SETUP message used to move to initial condition
Downlink information common for all radio links	Same as RADIO BEARER SETUP message used to move to initial condition
Downlink information for each radio links	Same as RADIO BEARER SETUP message used to move to initial condition

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Step 6)

Use the same message found in TS 34.108 clause 9, with the exceptions of the following IEs:

Information Element	Value/remark
Uplink counter synchronisation info	This IE is not checked.

RADIO BEARER RECONFIGURATION FAILURE (Step 7)

The contents of RADIO BEARER RECONFIGURATION FAILURE message in this test case is the same as the RADIO BEARER RECONFIGURATION FAILURE message as found in Clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Failure cause	"physical channel failure"

8.2.2.4.5 Test requirement

After step 0a, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

After step 2 the UE shall transmit a CELL UPDATE message on the CCCH with IE "Cell update cause" set to "radio link failure".

After step 5 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE on the uplink DCCH using AM RLC.

After step 6 the UE shall transmit a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC, setting the IE "failure cause" to "physical channel failure".

After step 7, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

8.2.2.5 Void

8.2.2.6 Void

8.2.2.7 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (Continue and stop)

8.2.2.7.1 Definition

8.2.2.7.2 Conformance requirement

If the IE "RB information to reconfigure" is included, the UE shall apply the following actions on the radio bearer identified with the value of the IE "RB identity". The UE shall:

…

- if the IE "RB stop/continue" is included; and
  - if the "RB identity" has a value greater than 2; and
    - if the value of the IE "RB stop/continue" is "stop":
      - configure the RLC entity for the radio bearer to stop;
      - set the IE "RB started" in the variable ESTABLISHED_RABS to "stopped" for that radio bearer;
    - if the value of the IE "RB stop/continue" is "continue":

- configure the RLC entity for the radio bearer to continue;
- set the IE "RB started" in the variable ESTABLISHED_RABS to "started" for that radio bearer;

Reference

3GPP TS 25.331 clause 8.2.2, 8.6.4.5.

8.2.2.7.3 Test purpose

To confirm that the UE reconfigures new radio bearer and stop the transmission and reception of the RLC entity belonging to the RB identity specified in the RADIO BEARER RECONFIGURATION message.

To confirm that the UE reconfigures new radio bearer and restart the transmission and reception of the RLC entity belonging to the RB identity specified in the RADIO BEARER RECONFIGURATION message.

8.2.2.7.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH+DTCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH state. The SS transmits a RADIO BEARER RECONFIGURATION message including IE "RB stop/continue" set to "continue" for radio bearer with RB identity '3'. The UE reconfigures new radio bearer and transmits a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC. Then, the SS transmits an IDENTITY REQUEST message using AM RLC, the UE responds a IDENTITY RESPONSE message. The SS transmits a RADIO BEARER RECONFIGURATION message including IE "RB stop/continue" set to "stop" for radio bearer with RB identity "3". The UE reconfigures new radio bearer and transmits a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC. Then, the SS transmits a IDENTITY REQUEST message using AM RLC, the UE does not acknowledge this message and also does not respond with a IDENTITY RESPONSE message. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	This message include IE "RB stop/continue" set to "continue".
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3	←		IDENTITY REQUEST	
3a	→		IDENTITY RESPONSE	
4	←		RADIO BEARER RECONFIGURATION	This message include IE "RB stop/continue" set to "stop".
5	→		RADIO BEARER RECONFIGURATION COMPLETE	
6	←		IDENTITY REQUEST	
7	→			The SS shall not receive any data from the UE.
8	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1)(FDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark	Version
RB information to reconfigure list RB information to reconfigure -RB identity -RB stop/continue	 3 "continue"	
UL Transport channel information for all transport channels	Not Present	
Added or Reconfigured UL TrCH information	Not Present	
CHOICE mode	Not Present	
DL Transport channel information common for all transport channel	Not Present	
Deleted DL TrCH information	Not Present	
Added or Reconfigured DL TrCH information	Not Present	
Frequency info	Not Present	
CHOICE channel requirement	Not Present	
CHOICE Mode - Downlink PDSCH information	FDD Not Present	 R99 and Rel-4 only
Downlink information common for all radio links	Not Present	
Downlink information per radio link list		
-Downlink information for each radio link - Primary CPICH info - Primary scrambling code	 Set to same code as used for cell 1	

RADIO BEARER RECONFIGURATION (Step 1) (TDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
RB information to reconfigure list RB information to reconfigure -RB identity -RB stop/continue	 3 "continue"
UL Transport channel information for all transport channels	Not Present
Added or Reconfigured UL TrCH information	Not Present
CHOICE mode	Not Present
DL Transport channel information common for all transport channel	Not Present
Deleted DL TrCH information	Not Present
Added or Reconfigured DL TrCH information	Not Present
Frequency info	Not Present
CHOICE channel requirement	Not Present
CHOICE Mode - Downlink PDSCH information	TDD Not Present
Downlink information common for all radio links	Not Present
Downlink information per radio link list	
-Downlink information for each radio link - Primary CCPCH info	 Set to same code as used for cell 1

RADIO BEARER RECONFIGURATION (Step 4)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
RB information to reconfigure list RB information to reconfigure -RB identity -RB stop/continue	 3 "stop"

8.2.2.7.5 Test requirement

After step 3 the UE shall respond with a IDENTITY RESPONSE message.

After step 6 the UE shall not respond with a IDENTITY RESPONSE message on the stopped RB.

8.2.2.8 Radio Bearer Reconfiguration from CELL_DCH to CELL_FACH: Success

8.2.2.8.1 Definition

8.2.2.8.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RECONFIGURATION message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214 (for FDD only);

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS 25.304 on that frequency.

1> select PRACH according to TS 25.331 subclause 8.5.17;

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> use the transport format set given in system information;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> ignore that IE and stop using DRX.

1> if the contents of the variable C_RNTI is empty:

2> perform a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

…

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.2.8.3 Test purpose

To confirm that the UE establishes the reconfigured radio bearer(s) using common physical channel, after UE receives a RADIO BEARER RECONFIGURATION message.

8.2.2.8.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_DCH state. The SS transmits a RADIO BEARER RECONFIGURATION message, which invoke a transition from CELL_DCH to CELL_FACH. The UE reconfigures the radio bearers and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	
2	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE selects PRACH and S-CCPCH indicated in SIB5/SIB5bis and SIB6 after entering CELL FACH state.
3	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1)(FDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in clause 9 of TS 34.108, with the following exception:

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B
RB information to reconfigure list	
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present

Information Element	Value/remark
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DTCH)
- RB identity	20
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
Frequency info	Not Present

Information Element	Value/remark
Maximum allowed UL TX power	Not Present
Downlink information per radio link list	
-Downlink information for each radio link	
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 1

RADIO BEARER RECONFIGURATION (Step 1) (TDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in clause 9 of TS 34.108, with the following exception:

Frequency info	Not Present
Downlink information per radio link list	
-Downlink information for each radio link	
- Primary CCPCH info	Set to same as used for cell 1

8.2.2.8.5 Test requirement

After step 1 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

8.2.2.9 Radio Bearer Reconfiguration from CELL_DCH to CELL_FACH: Success (Cell re-selection)

8.2.2.9.1 Definition

8.2.2.9.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RECONFIGURATION message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214 (for FDD only);

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

1> enter a state according to subclause 8.6.3.3.

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to [4] on that frequency.

1> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

2> initiate a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

2> when the cell update procedure completed successfully:

1> select PRACH according to subclause 8.5.17;

1> select Secondary CCPCH according to subclause 8.5.19;

1> use the transport format set given in system information;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> ignore that IE and stop using DRX.

The UE shall transmit a response message as specified in subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

…

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

…

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.3.1.7, 8.2.2.4.

8.2.2.9.3 Test purpose

To confirm that the UE transmits RADIO BEARER RECONFIGURATION COMPLETE message after it completes a cell update procedure.

8.2.2.9.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

NOTE: The 'timer poll' value in the SS RLC transmit entity should be set to 800 ms.

Test Procedure

The UE is in CELL_DCH state. The SS transmits a RADIO BEARER RECONFIGURATION message, which includes IE "Primary CPICH info" and no dedicated physical channel information to transit from CELL_DCH to CELL_FACH. As the UE selects another cell than the specified cell, the UE shall initiate the cell update procedure. The UE transmits a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". The SS shall transmit a CELL UPDATE CONFIRM message on downlink DCCH after receiving a CELL UPDATE message. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2			Void	
3	←		RADIO BEARER RECONFIGURATION	Assign a transition from CELL_DCH to CELL_FACH.
4	→		CELL UPDATE	The value "cell reselection" shall be set in IE "Cell update cause".
5	←		CELL UPDATE CONFIRM	See message content.
6	→		UTRAN MOBILITY INFORMATION CONFIRM	
7	→		RADIO BEARER RECONFIGURATION COMPLETE	
8	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 3) (FDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Packet to CELL_FACH from CELL_DCH in PS" found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B
RB information to reconfigure list	
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	

Information Element	Value/remark
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present

Information Element	Value/remark
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DTCH)
- RB identity	20
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
Frequency info	Not Present
Maximum allowed UL TX power	Not Present
Downlink information per radio link list	
- Downlink information for each radio links	
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 2

RADIO BEARER RECONFIGURATION (Step 3) (TDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Packet to CELL_FACH from CELL_DCH in PS" found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Downlink information for each radio links - Primary CCPCH info	 4 Set to same as used for cell 2

CELL UPDATE (Step 4)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in Annex A with the following exceptions:

Information Element	Value/remark
Cell Update Cause	"Cell reselection"

CELL UPDATE CONFIRM (Step 5)

Use the same message type found in clause Annex A, with the following exceptions.

Information Element	Value/Remarks
New C-RNTI	'1010 1010 1010 1010'

UTRAN MOBILITY INFORMATION CONFIRM (Step 6)

Only the message type is checked.

8.2.2.9.5 Test requirement

After step 3, the UE shall transmit CELL UPDATE message on the CCCH with IE "Cell update cause" set to "cell reselection".

After step 5, the UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message and then followed by RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

8.2.2.10 Radio Bearer Reconfiguration: from CELL_FACH to CELL_DCH including modification of previously signalled CELL_DCH configuration: Success

8.2.2.10.1 Definition

8.2.2.10.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RECONFIGURATION message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214 (for FDD only);

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.2.10.3 Test purpose

To confirm that the UE applies a previously signalled configuration for CELL_DCH and in addition modifies the parameters for which reconfiguration is requested in the RADIO BEARER RECONFIGURATION message that is used to initiate transition from CELL_FACH to CELL_DCH.8.2.2.10.4 Method of test

Initial Condition

System Simulator: 1 cell.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE. The UE reconfigures the radio bearers and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	This message includes IE "Uplink DPCH Info"
2				Reconfiguration of radio bearer
3	→		RADIO BEARER RECONFIGURATION COMPLETE	
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

RADIO BEARER RECONFIGURATION (Step 1)

Use the same message sub-type titled "Packet to CELL_DCH from CELL_FACH in PS" in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	400
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	150
- Timer_poll	150
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	400
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	150
- Timer_poll	150
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present

Information Element	Value/remark
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	400
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	150
- Timer_poll	150
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DTCH)
- RB identity	20
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	400
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	150
- Timer_poll	150
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present

Information Element	Value/remark
UL Transport channel information for all transport channels	Not Present
Added or Reconfigured UL TrCH information	Not Present
DL Transport channel information common for all transport channels	Not Present
Added or Reconfigured DL TrCH information	Not Present

8.2.2.10.5 Test requirement

After step 2 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

8.2.2.11 Radio Bearer Reconfiguration from CELL_FACH to CELL_DCH: Failure (Unsupported configuration)

8.2.2.11.1 Definition

8.2.2.11.2 Conformance requirement

If the UTRAN instructs the UE to use a configuration, which it does not support and/or if the received message causes the variable UNSUPPORTED_CONFIGURATION to be set to TRUE, the UE shall:

1> transmit a failure response as specified in subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "configuration unsupported".

1> set the variable UNSUPPORTED_CONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

The procedure ends.

…

The UE should set the variable UNSUPPORTED_CONFIGURATION to TRUE if the received message is not according to the UE capabilities.

Reference

3GPP TS 25.331 subclause 8.2.2.6, 8.5.20.

8.2.2.11.3 Test purpose

To confirm that the UE transmits a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC if the received RADIO BEARER RECONFIGURATION message includes unsupported configuration parameters.

8.2.2.11.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. The SS transmits a RADIO BEARER RECONFIGURATION message, which includes unsupported configuration parameters, to the UE. The UE shall transmit a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	The message includes an unsupported configuration for the UE
2	→		RADIO BEARER RECONFIGURATION FAILURE	The UE does not change the radio bearer.

Specific Message Contents

RADIO BEARER RECONFIGURATION (FDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Packet to CELL_DCH from CELL_FACH in PS" found in TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Frequency info	
- CHOICE mode	FDD
- UARFCN uplink (Nu)	0
- UARFCN downlink (Nd)	950

RADIO BEARER RECONFIGURATION (TDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Packet to CELL_DCH from CELL_FACH in PS" found in TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	0

RADIO BEARER RECONFIGURATION FAILURE

The contents of RADIO BEARER RECONFIGURATION FAILURE message in this test case is the same as the RADIO BEARER RECONFIGURATION FAILURE message as found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Failure cause	Not checked.

8.2.2.11.5 Test requirement

After step 1 the UE shall transmit a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC.

8.2.2.11a Radio Bearer Reconfiguration from CELL_FACH to CELL_DCH: Failure (Unsupported configuration) (1.28 Mcps TDD Only)

8.2.2.11a.1 Definition

8.2.2.11a.2 Conformance requirement

If the UTRAN instructs the UE to use a configuration, which it does not support and/or if the received message causes the variable UNSUPPORTED_CONFIGURATION to be set to TRUE, the UE shall:

1> transmit a failure response as specified in subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "configuration unsupported".

1> set the variable UNSUPPORTED_CONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

The procedure ends.

…

The UE should set the variable UNSUPPORTED_CONFIGURATION to TRUE if the received message is not according to the UE capabilities.

Reference

3GPP TS 25.331 subclause 8.2.2.6, 8.5.20.

8.2.2.11a.3 Test purpose

To confirm that the UE transmits a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC if the received RADIO BEARER RECONFIGURATION message includes unsupported configuration parameters.

8.2.2.11a.4 Method of test

Initial Condition

System Simulator: 1 cell. Configure 3 carriers, one is the primary carrier, the other two are secondary carriers.

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. The SS transmits a RADIO BEARER RECONFIGURATION message, which includes unsupported configuration parameters, to the UE. The UE shall transmit a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC. Then the SS transmits a RADIO BEARER RECONFIGURATION message to order UE to go into CELL_DCH state of secondary carrier. The UE shall transmit a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH and keep in CELL_DCH state.

Expected sequence:

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	The message includes an unsupported configuration for the UE.
2	→		RADIO BEARER RECONFIGURATION FAILURE	The UE does not change the radio bearer.
3	←		RADIO BEARER RECONFIGURATION	The message includes information about secondary carrier1
4	→		RADIO BEARER RECONFIGURATION COMPLETE	UE goes into CELL_DCH state of secondary carrier
5	←		RADIO BEARER RECONFIGURATION	The message includes information about secondary carrier2（different from the carrier information in step3）
6	→		RADIO BEARER RECONFIGURATION COMPLETE	UE goes into CELL_DCH state of secondary carrier2
7	←		RADIO BEARER RECONFIGURATION	The message includes information about primary carrier
8	→		RADIO BEARER RECONFIGURATION COMPLETE	UE goes into CELL_DCH state of primary carrier.

Specific Message Contents:

RADIO BEARER RECONFIGURATION (TDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Packet to CELL_DCH from CELL_FACH in PS" found in TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Frequency info - CHOICE mode - UARFCN (Nt)	 TDD 0

RADIO BEARER RECONFIGURATION FAILURE

The contents of RADIO BEARER RECONFIGURATION FAILURE message in this test case is the same as the RADIO BEARER RECONFIGURATION FAILURE message as found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Failure cause	Not checked.

RADIO BEARER RECONFIGURATION (step 3)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Packet to CELL_DCH from CELL_FACH in PS" found in TS 34.108 clause 9 with the following exceptions

Information Element	Value/remark
RadioBearerReconfiguration-r4-TDD128-add-ext-IEs	
frequencyInfo	secondary carrier 1frequency

RADIO BEARER RECONFIGURATION (step 5)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Packet to CELL_DCH from CELL_FACH in PS" found in TS 34.108 clause 9 with the following exceptions.

Information Element	Value/remark
RadioBearerSetup-r4-TDD128-add-ext-IEs	
frequencyInfo	secondary carrier 2 frequency

RADIO BEARER RECONFIGURATION (step 7)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Packet to CELL_DCH from CELL_FACH in PS" found in TS 34.108 clause 9 with the following exceptions.

Information Element	Value/remark
Frequency info - CHOICE mode - UARFCN (Nt)	 TDD primary carrier frequency

8.2.2.11a.5 Test requirement

After step 1 the UE shall transmit a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC.

After step 4 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH of secondary carrier1 using AM RLC.

After step 6 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH of secondary carrier 2 using AM RLC

After step 8 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH of primary carrier using AM RLC.

8.2.2.12 Void

8.2.2.13 Void

8.2.2.14 Void

8.2.2.15 Void

8.2.2.16 Void

8.2.2.17 Radio Bearer Reconfiguration from CELL_FACH to CELL_FACH: Success

8.2.2.17.1 Definition

8.2.2.17.2 Conformance requirement

If the UE was in CELL_FACH state upon reception of the reconfiguration message and remains in CELL_FACH state, the UE shall:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS 25.304 on that frequency;

2> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selected another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

…

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.2.17.3 Test purpose

To confirm that the UE establishes radio bearers according to a RADIO BEARER RECONFIGURATION message.

8.2.2.17.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. The SS transmits a RADIO BEARER RECONFIGURATION message, to the UE. The UE configures the common physical channel and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	
2			Void	
3	→		RADIO BEARER RECONFIGURATION COMPLETE	
4	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with the following exceptions.

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE

Information Element	Value/remark
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DTCH)
- RB identity	20
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
Maximum allowed UL TX power	Not Present

8.2.2.17.5 Test requirement

After step 2 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

8.2.2.18 Radio Bearer Reconfiguration from CELL_FACH to CELL_FACH: Success (Cell re-selection)

8.2.2.18.1 Definition

8.2.2.18.2 Conformance requirement

If the UE performs cell re-selection during the reconfiguration procedure, the UE shall:

1> initiate a cell update procedure, as specified in subclause 8.3.1;

1> continue with the reconfiguration procedure.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4, 8.2.2.8, 8.3.1.7.

8.2.2.18.3 Test purpose

To confirm that the UE transmits RADIO BEARER RECONFIGURATION COMPLETE message in cell 2 when a cell re-selection occurs after receiving a RADIO BEARER RECONFIGURATION message.

8.2.2.18.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and 2 are active.

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.2.2.18

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-75	-75	-60
P-CCPCH (TDD)	dBm	-60	-75	-75	-60

Table 8.2.2.18 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 2.

The UE is in CELL_FACH state in cell 1. The SS configures RB2 to stop transmission and reception of RLC PDUs. On transmitting a RADIO BEARER RECONFIGURATION message to the UE on RB 1, the SS configures its downlink transmission power settings according to columns "T1" in table 8.2.2.18. The UE shall initiate the cell reselection procedure, which may occur either before or after submitting the RADIO BEARER RECONFIGURATION COMPLETE message for transmission on the DCCH using AM RLC. The UE transmits a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". The SS shall transmit a CELL UPDATE CONFIRM message on downlink DCCH and configure RB2 to continue transmission and reception of RLC PDUs after receiving CELL UPDATE message. Any RADIO BEARER RECONFIGURATION COMPLETE message that was previously submitted for transmission in the UE will now be received by the SS. UE transmit a UTRAN MOBILTY INFORMATION CONFIRM message on the DCCH using AM RLC. If not already done so, the UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

NOTE 1: The RADIO BEARER RECONFIGURATION COMPLETE message may be received by the SS either after reception of CELL UPDATE CONFIRM (Option 1) or after transmitting UTRAN MOBILITY INFORMATION CONFIRM (Option 2).

NOTE 2: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	SS			The SS configures RB 2 to stop transmission and reception of RLC PDUs.
1	←		RADIO BEARER RECONFIGURATION	The message is transmitted on RB 1.
2				The SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.2.2.18.
3			Void	
				The following messages are transmitted in cell 2.
4	→		CELL UPDATE	The value "cell reselection" shall be set in IE "cell update cause".
5	←		CELL UPDATE CONFIRM	See message content.
5a	SS			The SS configures RB 2 to continue transmission and reception of RLC PDUs.
5b	→		RADIO BEARER RECONFIGURATION COMPLETE (Option 1)	
6	→		UTRAN MOBILITY INFORMATION CONFIRM	
7	→		RADIO BEARER RECONFIGURATION COMPLETE (Option 2)	
8	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE

- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DTCH)
- RB identity	20
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
Maximum allowed UL TX power	Not Present

CELL UPDATE (Step 4)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Cell Update Cause	"cell reselection"

CELL UPDATE CONFIRM (Step 5)

Use the same message type found in clause 9 of TS 34.108, with the following exceptions.

Information Element	Value/Remarks
New C-RNTI	'1010 1010 1010 1010'

UTRAN MOBILITY INFORMATION CONFIRM (Step 6)

Only the message type is checked.

8.2.2.18.5 Test requirement

After step 2 the UE shall transmit a CELL UPDATE message on the CCCH with IE "cell update cause" set to "cell reselection".

After step 5 UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC.

The UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC. This message may be received by the SS earliest after step 5a and at latest after step 6.

8.2.2.19 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (Subsequently received)

8.2.2.19.1 Definition

8.2.2.19.2 Conformance requirement

If the IE "RRC transaction identifier" is included in a received message, the UE shall perform the actions below. The UE shall:

If the received message is any of the messages:

- RADIO BEARER RECONFIGURATION; or

  …

the UE shall:

2> if the variable ORDERED_RECONFIGURATION is set to TRUE; or

2> if the variable CELL_UPDATE_STARTED is set to TRUE; or

2> if the table "Accepted transactions" in the variable TRANSACTIONS contains an entry with an IE "Message Type" set to ACTIVE SET UPDATE; or

2> if the received message contains a protocol error according to TS 25.331 clause 9 causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE:

3> if the IE "RRC transaction identifier" of the received message is identical to the "RRC transaction identifier" stored for the same "Message Type" as the received message in the table "Accepted transactions" in the variable TRANSACTIONS:

4> ignore the transaction; and

4> continue with any ongoing processes and procedures as the message was not received;

4> and end the procedure.

3> else:

…

Reference

3GPP TS 25.331 clause 8.6.3.11.

8.2.2.19.3 Test purpose

To confirm that if the UE receives a new RADIO BEARER RECONFIGURATION message before the UE configures the radio bearer according to a previous RADIO BEARER RECONFIGURATION message, it ignores the new RADIO BEARER RECONFIGURATION message and configures the radio bearer according to the previous RADIO BEARER RECONFIGURATION message received.

8.2.2.19.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH state. SS transmits a RADIO BEARER RECONFIGURATION message to the UE before the UE configures the radio bearer according to the RADIO BEARER RECONFIGURATION message prior to this new message. The UE ignores the new RADIO BEARER RECONFIGURATION message and configures according to the former RADIO BEARER RECONFIGURATION message. On completion of radio bearer configuration, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	Periodic RLC STATUS PDU transmission is activated. For FDD, the UL scrambling code is set to "1". For TDD, the code combination is assigned by SS.
2	←		RADIO BEARER RECONFIGURATION	Sent before the "activation time" in step 1 has elapsed. Periodic RLC STATUS PDU transmission is not activated. For FDD, the UL scrambling code is set to "2".For TDD the code combination assigned is different to that assigned in step 1.
3	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE ignores the RADIO BEARER RECONFIGURATION message in step 2 and performs configuration according to the RADIO BEARER RECONFIGURATION message in step 1.
4			Void	
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1) (FDD and PS Domain)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Packet to CELL_DCH from CELL_DCH in PS" as found in TS 34.108 clause 9.1 with the following exceptions:

Information Element	Value/remark	Version
RRC transaction identifier	0	
Activation Time	[256+Current CFN-[current CFN mod 8 + 8]]MOD 256	
RB information to reconfigure list		
- RB information to reconfigure	(AM DCCH for RRC)	
- RB identity	2	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	400	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	150	
- Timer_poll	150	
- Poll_PDU	Not present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	400	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)	
- RB identity	3	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	400	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	150	
- Timer_poll	150	
- Poll_PDU	Not present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		

Information Element	Value/remark	Version
- Timer_status_prohibit	200	
- Timer_EPC	Not present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	400	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)	
- RB identity	4	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	400	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	150	
- Timer_poll	150	
- Poll_PDU	Not present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	400	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DTCH)	
- RB identity	20	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	400	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	150	
- Timer_poll	150	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	400	
- RB mapping info	Not Present	

Information Element	Value/remark	Version
- RB stop/continue	Not Present	
UL Transport channel information for all transport channels	Not Present	
Added or Reconfigured UL TrCH information	Not Present	
CHOICE mode	Not Present	
DL Transport channel information common for all transport channel	Not Present	
Deleted DL TrCH information	Not Present	
Added or Reconfigured DL TrCH information	Not Present	
Frequency info	Not Present	
Maximum allowed UL TX power	Not Present	
CHOICE channel requirement	Uplink DPCH info	
- CHOICE mode	FDD	
- Scrambling code number	1	
CHOICE Mode	FDD	
- Downlink PDSCH information	Not Present	R99 and Rel-4 only
Downlink information common for all radio links	Not Present	
Downlink information per radio link list	Not Present	Rel-4 or later
Downlink information per radio link list		R99
-Downlink information for each radio link		
- Primary CPICH info		
- Primary scrambling code	Set to same code as used for cell 1	

RADIO BEARER RECONFIGURATION (Step 1) (FDD and CS Domain)

The contents of the RADIO BEARER RECONFIGURATION message in this test case are identical to those specified for "Speech in CS" or "Non speech in CS" as found in TS 34.108 clause 9.1 with the following exceptions:

Information Element	Value/remark	Version
RRC transaction identifier	0	
Activation Time	[256+Current CFN-[current CFN mod 8 + 8]]MOD 256	
RB information to reconfigure list		
- RB information to reconfigure	(AM DCCH for RRC)	
- RB identity	2	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	400	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	150	
- Timer_poll	150	
- Poll_PDU	Not present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	400	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)	
- RB identity	3	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	400	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	150	
- Timer_poll	150	
- Poll_PDU	Not present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not present	

Information Element	Value/remark	Version
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	400	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)	
- RB identity	4	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	400	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	150	
- Timer_poll	150	
- Poll_PDU	Not present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	400	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
UL Transport channel information for all transport channels	Not Present	
Added or Reconfigured UL TrCH information	Not Present	
CHOICE mode	Not Present	
DL Transport channel information common for all transport channel	Not Present	
Deleted DL TrCH information	Not Present	
Added or Reconfigured DL TrCH information	Not Present	
Frequency info	Not Present	
Maximum allowed UL TX power	Not Present	
CHOICE channel requirement	Uplink DPCH info	
- CHOICE mode	FDD	
- Scrambling code number	1	
CHOICE Mode	FDD	
- Downlink PDSCH information	Not Present	R99 and Rel-4 only
Downlink information common for all radio links	Not Present	
Downlink information per radio link list	Not Present	Rel-4 or later
Downlink information per radio link list		R99
-Downlink information for each radio link		
- Primary CPICH info		
- Primary scrambling code	Set to same code as used for cell 1	

RADIO BEARER RECONFIGURATION (Step 1) (TDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in TS 34.108 clause 9.1 with the following exceptions:

Information Element	Value/remark	Version
RRC transaction identifier	0	
Activation Time	[256+Current CFN-[current CFN mod 8 + 8]]MOD 256	
CHOICE mode	TDD	
- Uplink DPCH timeslots and codes		
- First timeslot code list	Assigned by SS	
Downlink information common for all radio links	Not Present	
Downlink information per radio link list	Not Present	Rel-4 or later
Downlink information per radio link list		R99
-Downlink information for each radio link		
- Primary CCPCH info	Set to same as used for cell 1	

RADIO BEARER RECONFIGURATION (Step 2) (FDD and PS Domain)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Packet to CELL_DCH from CELL_DCH in PS" as found in TS 34.108 clause 9.1 with the following exceptions:

Information Element	Value/remark	Version
RRC transaction identifier	0	
Activation Time	Not Present	
RB information to reconfigure list		
- RB information to reconfigure	(AM DCCH for RRC)	
- RB identity	2	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	400	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	150	
- Timer_poll	150	
- Poll_PDU	Not present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)	
- RB identity	3	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	400	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	150	
- Timer_poll	150	
- Poll_PDU	Not present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not present	
- Missing PDU indicator	TRUE	

Information Element	Value/remark	Version
- Timer_STATUS_periodic	Not Present	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)	
- RB identity	4	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	400	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	150	
- Timer_poll	150	
- Poll_PDU	Not present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DTCH)	
- RB identity	20	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	400	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	150	
- Timer_poll	150	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
UL Transport channel information for all transport channels	Not Present	

Information Element	Value/remark	Version
Added or Reconfigured UL TrCH information	Not Present	
CHOICE mode	Not Present	
DL Transport channel information common for all transport channel	Not Present	
Deleted DL TrCH information	Not Present	
Added or Reconfigured DL TrCH information	Not Present	
Frequency info	Not Present	
Maximum allowed UL TX power	Not Present	
CHOICE channel requirement	Uplink DPCH infoN	
- CHOICE mode	FDD	
- Scrambling code number	2	
CHOICE Mode	FDD	
- Downlink PDSCH information	Not Present	R99 and Rel-4 only
Downlink information common for all radio links	Not Present	
Downlink information per radio link list	Not Present	Rel-4 or later
Downlink information per radio link list		R99
-Downlink information for each radio link		
- Primary CPICH info		
- Primary scrambling code	Set to same code as used for cell 1	

RADIO BEARER RECONFIGURATION (Step 2) (FDD and CS Domain)

The contents of the RADIO BEARER RECONFIGURATION message in this test case are identical to those specified for "Speech in CS" or "Non speech in CS" as found in TS 34.108 clause 9.1 with the following exceptions:

Information Element	Value/remark	Version
RRC transaction identifier	0	
Activation Time	Not Present	
RB information to reconfigure list		
- RB information to reconfigure	(AM DCCH for RRC)	
- RB identity	2	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	400	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	150	
- Timer_poll	150	
- Poll_PDU	Not present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)	
- RB identity	3	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	400	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	150	
- Timer_poll	150	
- Poll_PDU	Not present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not present	
- Missing PDU indicator	TRUE	

Information Element	Value/remark	Version
- Timer_STATUS_periodic	Not Present	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)	
- RB identity	4	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	400	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	150	
- Timer_poll	150	
- Poll_PDU	Not present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
UL Transport channel information for all transport channels	Not Present	
Added or Reconfigured UL TrCH information	Not Present	
CHOICE mode	Not Present	
DL Transport channel information common for all transport channel	Not Present	
Deleted DL TrCH information	Not Present	
Added or Reconfigured DL TrCH information	Not Present	
Frequency info	Not Present	
Maximum allowed UL TX power	Not Present	
CHOICE channel requirement	Uplink DPCH info	
- CHOICE mode	FDD	
- Scrambling code number	2	
CHOICE Mode	FDD	
- Downlink PDSCH information	Not Present	R99 and Rel-4 only
Downlink information common for all radio links	Not Present	
Downlink information per radio link list	Not Present	Rel-4 or later
Downlink information per radio link list		R99
-Downlink information for each radio link		
- Primary CPICH info		
- Primary scrambling code	Set to same code as used for cell 1	

RADIO BEARER RECONFIGURATION (Step 2) (TDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Packet to CELL_DCH from CELL_DCH in PS" found in TS 34.108 clause 9.1 with the following exceptions:

Information Element	Value/remark	Version
RRC transaction identifier	0	
Activation Time	Not Present	
CHOICE mode	TDD	
- Uplink DPCH timeslots and codes - First timeslot code list	A different code combination to that used in step 1.	
Downlink information common for all radio links	Not Present	Rel-4 or later
Downlink information per radio link list	Not Present	R99
Downlink information per radio link list		
-Downlink information for each radio link - Primary CCPCH info	Set to same as used for cell 1	

8.2.2.19.5 Test requirement

After step 2 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

8.2.2.20 Void

8.2.2.21 Void

8.2.2.22 Void

8.2.2.23 Radio Bearer Reconfiguration from CELL_FACH to CELL_PCH: Success

8.2.2.23.1 Definition

8.2.2.23.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RECONFIGURATION message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214 (for FDD only);

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If after state transition the UE enters CELL_PCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS 25.304 on that frequency.

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in TS 25.331 subclause 8.6.3.2.

1> if the IE "UTRAN DRX cycle length coefficient" is not included in the same message:

2> set the variable INVALID_CONFIGURATION to TRUE.

…

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.2.23.3 Test purpose

To confirm that the UE transmits RADIO BEARER RECONFIGURATION COMPLETE message and enters CELL_PCH state after it received a RADIO BEARER RECONFIGURATION message, which invoke the UE to transit from CELL_FACH to CELL_PCH.

8.2.2.23.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. The SS transmits a RADIO BEARER RECONFIGURATION message. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC and enters CELL_PCH state. SS calls for generic procedure C.4 to check that UE is in CELL_PCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3	SS			The UE is in CELL_PCH state.
4	←→		CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in9 of TS 34.108 with following exceptions:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
RB information to reconfigure list	
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	500
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	

Information Element	Value/remark
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	500
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	500
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DTCH)
- RB identity	20
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	500
- RB mapping info	Not Present

Information Element	Value/remark
- RB stop/continue	Not Present
Maximum allowed UL TX power	Not Present

8.2.2.23.5 Test requirement

After step 1 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on uplink DCCH using AM RLC.

8.2.2.24 Void

8.2.2.25 Void

8.2.2.26 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (Incompatible Simultaneous Reconfiguration)

8.2.2.26.1 Definition

8.2.2.26.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RECONFIGURATION message; or

…

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

…

If the IE "Ciphering mode info" is present and if the IE "Reconfiguration" in the variable CIPHERING_STATUS is set to TRUE, the UE shall:

1> ignore this second attempt to change the ciphering configuration; and

1> set the variable INCOMPATIBLE_SECURITY_RECONFIGURATION to TRUE.

If the IE "Ciphering mode info" is present and if the IE "Reconfiguration" in the variable CIPHERING_STATUS is set to FALSE, the UE shall:

1> set the IE "Reconfiguration" in the variable CIPHERING_STATUS to TRUE;

…

If the variable INCOMPATIBLE_SECURITY_RECONFIGURATION is set to TRUE due to the received reconfiguration message, the UE shall:

1> transmit a failure response message as specified in TS 25.331 subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to the cause value "incompatible simultaneous reconfiguration".

1> set the variable INCOMPATIBLE_SECURITY_RECONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

The procedure ends.

Reference

3GPP TS 25.331 clause 8.2.2.12a, clause 8.6.3.4.

8.2.2.26.3 Test purpose

1. To confirm that the UE ignores the subsequent security reconfiguration information which is contained in the RADIO BEARER RECONFIGURATION message.
2. To confirm that the UE reconfigures according to the SECURITY MODE COMMAND message.
3. To confirm that the UE transmits RADIO BEARER RECONFIGURATION FAILURE message on the uplink DCCH using AM RLC.
4. To confirm that the UE transmits SECURITY MODE COMPLETE message on the uplink DCCH using AM RLC.

8.2.2.26.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH state. The SS transmits a SECURITY MODE COMMAND message. SS then transmits a RADIO BEARER RECONFIGURATION message. The UE ignores the RADIO BEARER RECONFIGURATION message and transmits a RADIO BEARER RECONFIGURATION FAILURE message and configures the radio bearers according to the SECURITY MODE COMMAND message. On completion of ciphering reconfiguration, the UE shall transmit a SECURITY MODE COMPLETE message on the DCCH using AM RLC.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		SECURITY MODE COMMAND	This message includes IE "Ciphering mode info".
2	←		RADIO BEARER RECONFIGURATION	SS send this message before the activation time in step 1 expires. This message includes IE "Ciphering mode info".
3	→		RADIO BEARER RECONFIGURATION FAILURE	The UE ignores the ciphering mode information in step 2.
4	→		SECURITY MODE COMPLETE	

Specific Message Contents

SECURITY MODE COMMAND (Step 1)

If the initial state of the UE is state 6-9, use the message sub-type in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Ciphering mode info	
- Ciphering mode command	Start/restart
- Ciphering algorithm	Use one of the supported ciphering algorithms
- Ciphering activation time for DPCH	(256+CFN-(CFN MOD 8 + 8))MOD 256
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN+X (Note 1)
- RB identity	2
- RLC sequence number	Current RLC SN+4
- RB identity	3
- RLC sequence number	Current RLC SN+X (Note 1)
- RB identity	4
- RLC sequence number	Current RLC SN+X (Note 1)

If the initial state of the UE is state 6-10, use the message sub-type in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Ciphering mode info	
- Ciphering mode command	Start/restart
- Ciphering algorithm	Use one of the supported ciphering algorithms
- Ciphering activation time for DPCH	(256+CFN-(CFN MOD 8 + 8))MOD 256
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN+X (Note 1)
- RB identity	2
- RLC sequence number	Current RLC SN+4
- RB identity	3
- RLC sequence number	Current RLC SN+X (Note 1)
- RB identity	4
- RLC sequence number	Current RLC SN+X (Note 1)
- RB identity	20
- RLC sequence number	Current RLC SN+X (Note 1)

RADIO BEARER RECONFIGURATION (for Step 2)

If the initial state of the UE is state 6-9, use the message sub-type entitled "Speech in CS" or "Non-speech in CS" in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Ciphering mode info	
- Ciphering mode command	Start/restart
- Ciphering algorithm	Use one of the supported ciphering algorithms
- Ciphering activation time for DPCH	(256+CFN-(CFN MOD 8 + 8))MOD 256
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN+X (Note 1)
- RB identity	2
- RLC sequence number	Current RLC SN+4
- RB identity	3
- RLC sequence number	Current RLC SN+X (Note 1)
- RB identity	4
- RLC sequence number	Current RLC SN+X (Note 1)

If the initial state of the UE is state 6-10, use the message sub-type entitled "Packet to CELL_DCH from CELL_DCH in PS" in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Ciphering mode info	
- Ciphering mode command	Start/restart
- Ciphering algorithm	Use one of the supported ciphering algorithms
- Ciphering activation time for DPCH	(256+CFN-(CFN MOD 8 + 8))MOD 256
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN+X (Note 1)
- RB identity	2
- RLC sequence number	Current RLC SN+4
- RB identity	3
- RLC sequence number	Current RLC SN+X (Note 1)
- RB identity	4
- RLC sequence number	Current RLC SN+X (Note 1)
- RB identity	20
- RLC sequence number	Current RLC SN+X (Note 1)

NOTE 1: X is set to 1.

RADIO BEARER RECONFIGURATION FAILURE (for Step 3)

Check that the message received is the same as the message sub-type found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Failure cause	incompatible simultaneous reconfiguration

8.2.2.26.5 Test requirement

After step 2 the UE shall transmit a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC and set the failure cause to "incompatible simultaneous reconfiguration".

After step 3 the UE shall transmit a SECURITY MODE COMPLETE message on the DCCH using AM RLC specified in step 1.

8.2.2.27 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH (Frequency modification): Success

8.2.2.27.1 Definition

-

8.2.2.27.2 Conformance requirement

If the UE receives:

-a RADIO BEARER RECONFIGURATION message;

it shall:

1> perform the physical layer synchronisation procedure as specified in TS 25.214 for FDD and TS 25.224 for TDD;

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

1> enter a state according to TS25.331 subclause 8.6.3.3.

In case the UE receives a RADIO BEARER RECONFIGURATION message including the IE "RB information to reconfigure" that only includes the IE "RB identity", the UE shall:

1> handle the message as if IE "RB information to reconfigure" was absent.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if the IE "Downlink information for each radio link" is absent, not change its current DL Physical channel configuration.

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.2.27.3 Test purpose

1. To confirm that the UE transits from CELL_DCH to CELL_DCH according to the RADIO BEARER RECONFIGURATION message.
2. To confirm that the UE transmits the RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC on a dedicated physical channel in a different frequency.

8.2.2.27.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 is active and cell 6 is inactive.

UE: CS-DCCH_DTCH_DCH (state 6-9) or PS_DCCH_DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

Table 8.2.2.27

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-55	-72	Off	-55
P-CCPCH RSCP (TDD)	dBm	-55	-72	Off	-55

Table 8.2.2.27 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings from columns "T0" to "T1", whenever the description in multi-cell condition specifies the transmission power settings for cell 1 and cell 6.

The UE is in CELL_DCH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.2.27. For FDD mode, the SS switches its downlink transmission power settings to columns "T1" and transmits a RADIO BEARER RECONFIGURATION message including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CPICH info" set to Primary Scrambling Code which is assigned to P-CPICH of cell 6. For TDD mode, the SS switches its downlink transmission power settings to columns "T1" and transmits a RADIO BEARER RECONFIGURATION message including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CCPCH info" set to cell 6 parameters. The UE shall selects cell 6 and reconfigure its radio access bearer after receiving this message, and then remains in CELL_DCH state. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC after complete configuration according to receiving RADIO BEARER RECONFIGURATION message. Upon completion of the procedure, the SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The initial state of UE is in CELL_DCH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.2.27.
2				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.2.27.
3	←		RADIO BEARER RECONFIGURATION	Including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CPICH info" set to Primary Scrambling Code assigned to P-CPICH of cell 6 for FDD mode or IE "Primary CCPCH info" set to cell 6 parameters.
4	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE sends this message on a dedicated physical channel in cell 6.
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 3) (FDD)

The contents RADIO BEARER RECONFIGURATION message in this test case is identical the message sub-type indicated by "Packet to in PS" or "Speech in CS" or "Non speech from CELL_DCH to CELL_DCH in CS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
Frequency info	
CHOICE mode	FDD
- UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 6
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
Downlink information for each radio links	
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for cell 6

RADIO BEARER RECONFIGURATION (Step 3) (TDD)

The contents RADIO BEARER RECONFIGURATION message in this test case is identical the message sub-type indicated by "Packet to in PS" or "Speech in CS" or "Non speech from CELL_DCH to CELL_DCH in CS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
Frequency info	
CHOICE mode	TDD
- UARFCN (Nt)	Same UARFCN as used for cell 6
Downlink information for each radio links	
- Primary CCPCH info	
- Cell parameters ID	As used for cell 6

8.2.2.27.5 Test requirement

After step 3 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC in cell 6.

After step 4 the UE shall be in CELL_DCH state in cell 6.

8.2.2.28 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_FACH (Transport channel type switching with frequency modification): Success

8.2.2.28.1 Definition

-

8.2.2.28.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RECONFIGURATION message;

it shall:

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

1> enter a state according to TS25.331 subclause 8.6.3.3.

In case the UE receives a RADIO BEARER RECONFIGURATION message including the IE "RB information to reconfigure" that only includes the IE "RB identity", the UE shall:

1> handle the message as if IE "RB information to reconfigure" was absent.

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304 on that frequency.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304.

1> if the received reconfiguration message included the IE "Primary CPICH info" for FDD or the IE "Primary CCPCH info" for TDD, and the UE selects another cell than indicated by this IE:

2> initiate a cell update procedure according to TS25.331 subclause 8.3.1 using the cause "Cell reselection";

1> select PRACH according to TS25.331 subclause 8.5.17;

1> select Secondary CCPCH according to TS25.331 subclause 8.5.19;

1> use the transport format set given in system information;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> ignore that IE and stop using DRX.

1> if the contents of the variable C_RNTI is empty:

2> perform a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE on the uplink DCCH using AM RLC, using the new configuration after the state transition.

1> the procedure ends.

Reference

3GPP TS 25.331 clause 8.2.2.

8.2.2.28.3 Test purpose

1. To confirm that the UE transits from CELL_DCH to CELL_FACH according to the RADIO BEARER RECONFIGURATION message.
2. To confirm that the UE transmits RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC on a common physical channel in a different frequency.

8.2.2.28.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 in active and cell 6 is inactive.

UE: "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

Table 8.2.2.28

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-55	-72	Off	-55
P-CCPCH RSCP (TDD)	dBm	-55	-72	Off	-55

Table 8.2.2.28 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 6.

The UE is in idle mode of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.2.28. SS requests operator to make an outgoing call. The SS and UE execute procedure P5. Next The SS and the UE execute procedure P9 and then execute procedure P13. For FDD mode, the SS switches its downlink transmission power settings to columns "T1" and transmits a RADIO BEARER RECONFIGURATION message including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CPICH info" set to Primary Scrambling Code assigned to P-CPICH of cell 6. For TDD mode, the SS switches its downlink transmission power settings to columns "T1" and transmits a RADIO BEARER RECONFIGURATION message including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CCPCH info" set to cell 6 parameters. On receiving the RADIO BEARER RECONFIGURATION message, the UE shall select cell 6 and transmit a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC after complete configuration according to the RADIO BEARER RECONFIGURATION message. Upon completion of the procedure, the SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.2.28. SS requests operator to make an outgoing call.
2	←→		SS executes procedure P5 (clause 7.4.2.2.2) specified in TS 34.108.	
3	←→		SS executes procedure) P9 (clause 7.4.2.4.2) specified in TS 34.108.	
4	←→		SS executes procedure P13 (clause 7.4.2.6.2) specified in TS 34.108.	
5				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.2.28.
6	←		RADIO BEARER RECONFIGURATION	Including IE "Frequency info" and IE "Primary CPICH info" set to Primary Scrambling Code assigned to P-CPICH of cell 6 for FDD mode or IE "Primary CCPCH info" set to cell 6 parameters.
7	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE transmits this message on the common physical channel in cell 6.
8	←→		CALL C.2	f the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 5) (FDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9with the following exception:

Information Element	Value/remark
Frequency info	
CHOICE mode	FDD
- UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 6
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
Downlink information for each radio link	
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for cell 6

RADIO BEARER RECONFIGURATION (Step 5) (TDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9with the following exception:

Information Element	Value/remark
Frequency info	
CHOICE mode	TDD
- UARFCN (Nt)	Same UARFCN as used for cell 6
Downlink information for each radio links	
- Primary CCPCH info	
- Cell parameters ID	As used for cell 6

8.2.2.28.5 Test requirement

After step 6 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 7 the UE shall be in CELL_FACH state.

8.2.2.29 Void

8.2.2.30 Void

8.2.2.31 Radio Bearer Reconfiguration for transition from CELL_FACH to CELL_DCH (Frequency modification): Success

8.2.2.31.1 Definition

-

8.2.2.31.2 Conformance requirement

If the UE receives:

…

-a RADIO BEARER RECONFIGURATION message; or

…

it shall:

…

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214 (FDD only);

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

…

1> enter a state according to TS25.331 subclause 8.6.3.3.

In case the UE receives a RADIO BEARER RECONFIGURATION message including the IE "RB information to reconfigure" that only includes the IE "RB identity", the UE shall:

1> handle the message as if IE "RB information to reconfigure" was absent.

NOTE: The RADIO BEARER RECONFIGURATION message always includes the IE "RB information to reconfigure". UTRAN has to include it even if it does not require the reconfiguration of any RB.

If after state transition the UE enters CELL_DCH state, the UE shall, after the state transition:

1> in FDD; or

1> in TDD when "Primary CCPCH Info" is included indicating a new target cell and "New C-RNTI" is not specified:

2> remove any C-RNTI from MAC;

2> clear the variable C_RNTI.

…

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

…

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.2.31.3 Test purpose

1. To confirm that the UE transits from CELL_FACH to CELL_DCH according to the RADIO BEARER RECONFIGURATION message.

2. To confirm that the UE transmits RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC on a dedicated physical channel in a different frequency.

8.2.2.31.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 is active and cell 6 is inactive.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS_DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.2.2.31

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-60	Off	-60
P-CCPCH RSCP (TDD)	dBm	-60	-60	Off	-60

Table 8.2.2.31 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings from columns "T0" to "T1", whenever the description in multi-cell condition specifies the transmission power settings for cell 1 and cell 6.

The UE is in CELL_FACH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.2.31. For FDD mode, the SS switches its downlink transmission power settings to columns "T1" and transmits a RADIO BEARER RECONFIGURATION message IE "Frequency info" set to frequency information of cell 6 and IE "Primary CPICH info" set to Primary Scrambling Code assigned to P-CPICH of cell 6. For TDD mode, the SS switches its downlink transmission power settings to columns "T1" and transmits a RADIO BEARER RECONFIGURATION message including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CCPCH info" set to cell 6 parameters. The UE shall select cell 6 and then enter CELL_DCH state according to receiving RADIO BEARER RECONFIGURATION message. Finally the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. Upon completion of the procedure, the SS calls for generic procedure C.3 to check that UE is in CELL_DCH state in cell 6.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_FACH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.2.31.
2				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.2.31.
3	←		RADIO BEARER RECONFIGURATION	Including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CPICH info" set to Primary Scrambling Code assigned to P-CPICH of cell 6 for FDD mode or IE "Primary CCPCH info" set to cell 6 parameters.
4	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE sends this message on a dedicated physical channel in cell 6.
5	←→		Call C.3	If the test result of C.3 indicates that UE is in CELL_DCH state in cell 6, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

RADIO BEARER RECONFIGURATION (Step 3 for FDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case are identical the message sub-type indicated by "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
Frequency info	
CHOICE mode	FDD
- UARFCN uplink(Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
Downlink information for each radio links	
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for cell 6

RADIO BEARER RECONFIGURATION (Step 3 for TDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case are identical the message sub-type indicated by "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
Frequency info	
CHOICE mode	TDD
- UARFCN (Nt)	Same UARFCN as used for cell 6
Downlink information for each radio links	
- Primary CCPCH info	
- Cell parameters ID	As used for cell 6

8.2.2.31.5 Test requirement

After step 3 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC in cell 6.

After step 4 the UE shall be in CELL_DCH state in cell 6.

8.2.2.32 Radio Bearer Reconfiguration for transition from CELL_FACH to CELL_FACH (Frequency modification): Success

8.2.2.32.1 Definition

-

8.2.2.32.2 Conformance requirement

If the UE receives:

-a RADIO BEARER RECONFIGURATION message;

it shall:

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

1> enter a state according to TS25.331 subclause 8.6.3.3.

In case the UE receives a RADIO BEARER RECONFIGURATION message including the IE "RB information to reconfigure" that only includes the IE "RB identity", the UE shall:

1> handle the message as if IE "RB information to reconfigure" was absent.

If the UE was in CELL_FACH state upon reception of the reconfiguration message and remains in CELL_FACH state, the UE shall:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304 on that frequency;

2> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selected another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

3> initiate a cell update procedure according to TS25.331 subclause 8.3.1 using the cause "cell reselection";

3> when the cell update procedure completed successfully:

4> proceed as below.

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.2.32.3 Test purpose

1. To confirm that the UE transits from CELL_FACH to CELL_FACH according to the RADIO BEARER RECONFIGURATION message.
2. To confirm that the UE transmits RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC on a common physical channel in a different frequency.

8.2.2.32.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 is active and cell 6 is inactive.

UE: "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE. If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS".

Test Procedure

Table 8.2.2.32

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-55	-72	Off	-55
P-CCPCH RSCP (TDD)	dBm	-55	-72	Off	-55

Table 8.2.2.32 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 6.

The UE is in CELL_FACH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.2.32. SS requests operator to make an outgoing call. The SS and UE execute procedure P6. Next The SS and the UE execute procedure P10 and then execute procedure P14. For FDD mode, the SS switches its downlink transmission power settings to columns "T1" and transmits a RADIO BEARER RECONFIGURATION message including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CPICH info" set to Primary Scrambling Code assigned to P-CPICH of cell 6. For TDD mode, the SS switches its downlink transmission power settings to columns "T1" and transmits a RADIO BEARER RECONFIGURATION message including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CCPCH info" set to cell 6 parameters. The UE shall select cell 6 and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC after it completes configuration according to the received RADIO BEARER RECONFIGURATION message. Upon completion of the procedure, the SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.2.32. SS requests operator to make an outgoing call.
2	←→		SS executes procedure P6 (clause 7.4.2.2.2) specified in TS 34.108.	
3	←→		SS executes procedure) P10 (clause 7.4.2.4.2) specified in TS 34.108.	
4	←→		SS executes procedure P14 (clause 7.4.2.6.2) specified in TS 34.108.	
5				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.2.32.
6	←		RADIO BEARER RECONFIGURATION	Including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CPICH info" set to Primary Scrambling Code assigned to P-CPICH of cell 6 for FDD mode or IE "Primary CCPCH info" set to cell 6 parameters.
7	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE sends this message on a common physical channel in cell 6.
8	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 6) (FDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case are identical the message sub-type indicated by "Packet to CELL_FACH from CELL_FACH in PS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
Frequency info	
CHOICE mode	FDD
- UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 6
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
Downlink information for each radio links	
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for cell 6

RADIO BEARER RECONFIGURATION (Step 6) (TDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case are identical the message sub-type indicated by "Packet to CELL_FACH from CELL_FACH in PS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
Frequency info	
CHOICE mode	TDD
- UARFCN (Nt)	Same UARFCN as used for cell 6
Downlink information for each radio links	
- Primary CCPCH info	
- Cell parameters ID	As used for cell 6

8.2.2.32.5 Test requirement

After step 6 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC in cell 6.

After step 7 the UE shall be in CELL_FACH state of cell 6.

8.2.2.33 Void

8.2.2.34 Radio Bearer Reconfiguration for transition from CELL_FACH to URA_PCH (Frequency modification): Success

8.2.2.34.1 Definition

8.2.2.34.2 Conformance requirement

If the UE receives:

-a RADIO BEARER RECONFIGURATION message;

it shall:

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

1> enter a state according to TS25.331 subclause 8.6.3.3.

In case the UE receives a RADIO BEARER RECONFIGURATION message including the IE "RB information to reconfigure" that only includes the IE "RB identity", the UE shall:

1> handle the message as if IE "RB information to reconfigure" was absent.

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE on the uplink DCCH using AM RLC, using the old configuration before the state transition.

If after state transition the UE enters URA_PCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304 on that frequency.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304.

1> prohibit periodical status transmission in RLC;

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI;

1> select Secondary CCPCH according to TS25.331 subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in TS25.331 subclause 8.6.3.2.

1> if the IE "UTRAN DRX cycle length coefficient" is not included in the same message:

2> keep the configuration existing before the reception of the message and transmit a failure response message as specified in TS25.331subclause 8.2.2.9

1> if the UE enters URA_PCH state, and after cell selection the criteria for URA update caused by "URA reselection" according to subclause TS25.331 8.3.1 is fulfilled:

2> initiate a URA update procedure according to TS25.331 subclause 8.3.1 using the cause "URA reselection";

2> when the URA update procedure is successfully completed:

3> the procedure ends.

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.2.34.3 Test purpose

1. To confirm that the UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.
2. To confirm that the UE transits from CELL_FACH to URA_PCH according to the RADIO BEARER RECONFIGURATION message.
3. To confirm that the UE selects a common physical channel in a different frequency.

8.2.2.34.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 is active and cell 6 are active

UE: Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

Table 8.2.2.34

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-55	-72	Off	-55
P-CCPCH RSCP (TDD)	dBm	-55	-72	Off	-55

Table 8.2.2.34 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 6.

The UE is in CELL_FACH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.2.34. SS requests operator to make an outgoing call. The SS and UE execute procedure P6. Next The SS and the UE execute procedure P10 and then execute procedure P14. For FDD mode, the SS switches its downlink transmission power settings to columns "T1" and transmits a RADIO BEARER RECONFIGURATION message including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CPICH info" set to Primary Scrambling Code assigned to P-CPICH of cell 6. For TDD mode, the SS switches its downlink transmission power settings to columns "T1" and transmits a RADIO BEARER RECONFIGURATION message including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CCPCH info" set to cell 6 parameters. The UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC and enter URA_PCH state of cell 6. Upon completion of the procedure, the SS calls for generic procedure C.5 to check that UE is in URA_PCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		System Information Block type 11	The UE is in idle mode and camped on cell 1. The contents of System Information Block type 11 message are different from the default settings and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.2.34. SS requests operator to make an outgoing call.
2	←→		SS executes procedure P6 (clause 7.4.2.2.2) specified in TS 34.108.	
3	←→		SS executes procedure P10 (clause 7.4.2.4.2) specified in TS 34.108.	
4	←→		SS executes procedure P14 (clause 7.4.2.6.2) specified in TS 34.108.	
5				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.2.34.
6	←		RADIO BEARER RECONFIGURATION	Including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CPICH info" set to Primary Scrambling Code assigned to P-CPICH of cell 6 for FDD mode or IE "Primary CCPCH info" set to cell 6 parameters.
7	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE transmit this message on the common physical channel. n cell 1.
8				The SS waits for 5 s.
9	←→		CALL C.5	If the test result of C.5 indicates that UE is in URA_PCH state, the test passes, otherwise it fails

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 6) (FDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
RRC State Indicator	URA_PCH
UTRAN DRX cycle length coefficient	3
Frequency info	
CHOICE mode	FDD
- UARFCN uplink (Nu)	Same uplink UARFCN as used for cell 6
- UARFCN downlink (Nd)	Same downlink UARFCN as used for cell 6
Downlink information for each radio link	
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 6

RADIO BEARER RECONFIGURATION (Step 6) (TDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
RRC State Indicator	URA_PCH
UTRAN DRX cycle length coefficient	3
Frequency info	
CHOICE mode	TDD
- UARFCN (Nt)	Same UARFCN as used for cell 6
Downlink information for each radio links	
- Primary CCPCH info	
- Cell parameters ID	As used for cell 6

8.2.2.34.5 Test requirement

After step 6 the UE shall transmits a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC in cell 1.

After step 8 the UE shall be in URA_PCH state in cell 6.

8.2.2.35 Radio Bearer Reconfiguration from CELL_DCH to CELL_FACH: Successful channel switching with multiple PS RABs established

8.2.2.35.1 Definition

8.2.2.35.2 Conformance requirement

If the IE "RB information to release" is included, the UE shall apply the following actions on the radio bearer identified with the value of the IE "RB identity". The UE shall:

1> if the IE "RB identity" is set to a value less than 4:

2> set the variable INVALID_CONFIGURATION to TRUE.

1> if the IE "RB identity" refers to a signalling radio bearer:

2> release the RLC entity for the signalling radio bearer;

2> delete the information about the signalling radio bearer from the variable ESTABLISHED_RABS.

1> if the IE "RB identity" refers to a radio bearer:

2> release the PDCP and RLC entities for that radio bearer;

2> indicate release of the RAB subflow associated with the radio bearer to upper layers;

2> delete the information about the radio bearer from the variable ESTABLISHED_RABS;

2> when all radio bearers belonging to the same radio access bearer have been released:

3> indicate release of the radio access bearer to upper layers providing the "CN domain identity" together with the "RAB identity" stored in the variable ESTABLISHED_RABS;

3> delete all information about the radio access bearer from the variable ESTABLISHED_RABS.

…

If the IE "RB mapping info" is included, the UE shall:

1> for each multiplexing option of the RB:

2> if a transport channel that would not exist as a result of the message (i.e. removed in the same message in IE "Deleted DL TrCH information" and IE "Deleted UL TrCH information") is referred to:

3> set the variable INVALID_CONFIGURATION to TRUE.

2> if a multiplexing option that maps a logical channel corresponding to a TM-RLC entity onto RACH, FACH or DSCH is included:

3> set the variable INVALID_CONFIGURATION to TRUE.

2> if the multiplexing option realises the radio bearer on the uplink (resp. on the downlink) using two logical channels with different values of the IE "Uplink transport channel type" (resp. of the IE "Downlink transport channel type"):

3> set the variable INVALID_CONFIGURATION to TRUE.

2> if that RB is using TM and the IE "Segmentation indication" is set to TRUE and, based on the multiplexing configuration resulting from this message, the logical channel corresponding to it is mapped onto the same transport channel as another logical channel:

3> set the variable INVALID_CONFIGURATION to TRUE.

2> if the transport channel considered in that multiplexing option is different from RACH and if that RB is using AM and the set of RLC sizes applicable to the logical channel transferring data PDUs has more than one element:

3> set the variable INVALID_CONFIGURATION to TRUE.

2> if that RB is using UM or TM and the multiplexing option realises it using two logical channels:

3> set the variable INVALID_CONFIGURATION to TRUE.

2> for each logical channel in that multiplexing option:

3> if the value of the IE "RLC size list" is set to "Explicit list":

4> if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is included in the same message, and the value (index) of any IE "RLC size index" in the IE "Explicit list" does not correspond to an "RLC size" in the IE transport format set of that transport channel given in the message; or

4> if the transport channel this logical channel is mapped on in this multiplexing option is different from RACH, and if a "Transport format set" for that transport channel is not included in the same message, and the value (index) of any IE "RLC size index" in the IE "Explicit list" does not correspond to an "RLC size" in the stored transport format set of that transport channel; or

4> if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is included in the same message, and the value of any IE "Logical channel list" in the transport format set is not set to "Configured"; or

4> if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is not included in the same message, and the value of any IE "Logical channel list" in the stored transport format set of that transport channel is not set to "Configured":

5> set the variable INVALID_CONFIGURATION to TRUE.

3> if the value of the IE "RLC size list" is set to "All":

4> if the transport channel this logical channel is mapped on is RACH; or

4> if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is included in the same message, and the value of any IE "Logical channel list" in the transport format set is not set to "Configured"; or

4> if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is not included in the same message, and the value of any IE "Logical channel list" in the stored transport format set of that transport channel is not set to "Configured":

5> set the variable INVALID_CONFIGURATION to TRUE.

3> if the value of the IE "RLC size list" is set to "Configured":

4> if the transport channel this logical channel is mapped on is RACH; or

4> if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is included in the same message, and for none of the RLC sizes defined for that transport channel in the "Transport format set", the "Logical Channel List" is set to "All" or given as an "Explicit List" which contains this logical channel; or

4> if a "Transport format set" for the transport channel this logical channel is mapped on in this multiplexing option is not included in the same message, and for none of the RLC sizes defined in the transport format set stored for that transport channel, the "Logical Channel List" is set to "All" or given as an "Explicit List" which contains this logical channel:

5> set the variable INVALID_CONFIGURATION to TRUE.

1> if, as a result of the message this IE is included in, several radio bearers can be mapped onto the same transport channel, and the IE "Logical Channel Identity" was not included in the RB mapping info of any of those radio bearers for a multiplexing option on that transport channel or the same "Logical Channel Identity" was used more than once in the RB mapping info of those radio bearers for the multiplexing options on that transport channel:

2> set the variable INVALID_CONFIGURATION to TRUE.

1> delete all previously stored multiplexing options for that radio bearer;

1> store each new multiplexing option for that radio bearer;

1> if the IE "Uplink transport channel type" is set to the value "RACH":

2> refer the IE "RLC size index" to the RACH Transport Format Set of the first PRACH received in the IE "PRACH system information list" received in System Information Block type 5 or System Information Block type 6.

1> determine the sets of RLC sizes that apply to the logical channels used by that RB, based on the IEs "RLC size list" and/or the IEs "Logical Channel List" included in the applicable "Transport format set" (either the ones received in the same message or the ones stored if none were received); and

1> in case the selected multiplexing option is a multiplexing option on RACH:

2> ignore the RLC size indexes that do not correspond to any RLC size within the Transport Format Set stored for RACH.

1> if RACH is the transport channel to be used on the uplink, if that RB has a multiplexing option on RACH and if it is using AM:

2> apply the largest size amongst the ones derived according to the previous bullet for the RLC size (or RLC sizes in case the RB is realised using two logical channels) for the corresponding RLC entity.

NOTE: The IE "RB mapping info" is only included in IE "Predefined RB configurations" in system information when used for Inter-RAT handover to UTRAN and there is no AM RLC size change involved in this case.

1> if that RB is using AM and the RLC size applicable to the logical channel transporting data PDUs is different from the one derived from the previously stored configuration:

2> re-establish the corresponding RLC entity;

2> configure the corresponding RLC entity with the new RLC size;

2> for each AM RLC radio bearer in the CN domain as indicated in the IE "CN domain identity" in the IE "RAB info" in the variable ESTABLISHED_RABS whose RLC size is changed; and

2> for each AM RLC signalling radio bearer in the CN domain as indicated in the IE "CN domain identity" in the variable LATEST_CONFIGURED_CN_DOMAIN whose RLC size is changed:

3> if the IE "Status" in the variable CIPHERING_STATUS of this CN domain is set to "Started":

4> if this IE was included in CELL UPDATE CONFIRM:

5> set the HFN values for the corresponding RLC entity equal to the value of the IE "START" included in the latest transmitted CELL UPDATE message for this CN domain.

4> if this IE was included in a reconfiguration message:

5> set the HFN values for the corresponding RLC entity equal to the value of the IE "START" that will be included in the reconfiguration complete message for this CN domain.

1> if that RB is using UM:

2> indicate the largest applicable RLC size to the corresponding RLC entity.

1> configure MAC multiplexing according to the selected multiplexing option (MAC multiplexing shall only be configured for a logical channel if the transport channel it is mapped on according to the selected multiplexing option is the same as the transport channel another logical channel is mapped on according to the multiplexing option selected for it);

1> configure the MAC with the logical channel priorities according to selected multiplexing option;

1> configure the MAC with the set of applicable RLC Sizes for each of the logical channels used for that RB;

1> if there is no multiplexing option applicable for the transport channels to be used in the RRC state indicated in the IE "RRC State Indicator" included in the received message:

2> set the variable INVALID_CONFIGURATION to TRUE.

1> if there is more than one multiplexing option applicable for the transport channels to be used in the RRC state indicated in the IE "RRC State Indicator" included in the received message:

2> set the variable INVALID_CONFIGURATION to TRUE.

In case IE "RLC info" includes IE "Downlink RLC mode " ("DL RLC logical channel info" is mandatory present) but IE "Number of downlink RLC logical channels" is absent in the corresponding IE "RB mapping info", the parameter values are exactly the same as for the corresponding UL logical channels. In case two multiplexing options are specified for the UL, the first options shall be used as default for the DL. As regards the IE "Channel type", the following rule should be applied to derive the DL channel type from the UL channel included in the IE:

Channel used in UL	DL channel type implied by "same as"
DCH	DCH
RACH	FACH
USCH	DSCH

If ciphering is applied, UTRAN should not map Transparent Mode RBs of different CN domains on the same transport channel. In such case the UE behaviour is not specified.

Reference

3GPP TS 25.331 clause 8.6.4.6, 8.6.4.8.

8.2.2.35.3 Test purpose

To confirm that the UE transit from CELL_DCH to CELL_FACH state according to a RADIO BEARER RECONFIGURATION message when having two radio access bearers established.

To confirm that the UE transit from CELL_FACH to CELL_DCH state according to a RADIO BEARER RECONFIGURATION message when having two radio access bearers established.

To confirm that the UE release two radio access bearers included in a single RADIO BEARER RELEASE message.

8.2.2.35.4 Method of test

Initial Condition

System Simulator: 1 cell.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH + DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108

Related ICS/IXIT statements

Support of PS service	Yes/No
Secondary PDP context activation procedure	Yes/No

Test Procedure

The UE is in CELL_DCH state of cell 1. The UE initiates the activation of a second PDP context, upon which the SS establishes a PS domain RAB and confirms the PDP context activation. The Radio Bearer Configuration will be based on the reference configuration in 34.108 section 6.10.2.4.1.57.(Interactive or background / UL:64 DL:64 kbps / PS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH).

Next, the SS transmits a RADIO BEARER RECONFIGURATION message to move the UE to CELL_FACH state. The UE shall apply the new configuration and return the RADIO BEARER RECONFIGURATION COMPLETE message.

The SS will then transmit a RADIO BEARER RECONFIGURATION message to move the UE to CELL_DCH state. The UE shall apply the new configuration and return the RADIO BEARER RECONFIGURATION COMPLETE message.

A DEACTIVATE PDP CONTEXT REQUEST message is then sent by the SS to request the UE to deactivate both PDP contexts. The UE shall reply with a DEACTIVATE PDP CONTEXT ACCEPT message. After this procedure, the SS transmits a RADIO BEARER RELEASE. The UE shall release both radio bearers and transmit a RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The initial state of UE is in CELL_DCH state of cell 1.
2	→		UPLINK DIRECT TRANSFER (ACTIVATE SECONDARY PDP CONTEXT REQUEST)	SM
3	←		RADIO BEARER SETUP	Establishment of second PS domain RAB
4	→		RADIO BEARER SETUP COMPLETE	
5	←		DOWNLINK DIRECT TRANSFER (ACTIVATE SECONDARY PDP CONTEXT ACCEPT)	SM
6	←		RADIO BEARER RECONFIGURATION	To move the UE to CELL_FACH. RB reconfiguration procedure is used to: - Modify RLC timer values The message includes a C-RNTI and the Primary Scrambling code of cell 1.
7	→		RADIO BEARER RECONFIGURATION COMPLETE	
8	←		RADIO BEARER RECONFIGURATION	To move the UE to CELL_DCH. RB reconfiguration procedure is used to: - Re- specify the DCH configuration (don't re- use stored multiplexing option) - Modify RLC timer values
9	→		RADIO BEARER RECONFIGURATION COMPLETE	
10	←		DEACTIVATE PDP CONTEXT REQUEST	Request a deactivation both PDP contexts
11	→		DEACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context deactivation
12	←		RADIO BEARER RELEASE	Release of two PS domain RABs
13	→		RADIO BEARER RELEASE COMPLETE	

For Steps 2, 3, 4, 5 see also Test Case 12.9.13 "Service Request / RAB re-establishment / UE initiated / multiple PDP contexts" for additional details.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

RADIO BEARER SETUP (Step 3)

The contents of RADIO BEARER SETUP message in this test case are identical the message sub-type indicated by "Packet to CELL_DCH from CELL_DCH in PS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
RAB information for setup	
- RAB identity	0000 0110B or a value that is different from the one used for setting up the primary PDP Context. The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
RB information to setup	
- RB identity	22
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- Logical channel identity	8
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	6
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	8
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	8
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	8
RB information to be affected	
- RB identity	20
- RB mapping info	
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- Logical channel identity	7
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	6
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	Not Present
- Logical channel identity	7
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1

- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7

RADIO BEARER RECONFIGURATION (Step 6) (FDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case are identical the message sub-type indicated by "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B
RB information to reconfigure list	
- RB information to reconfigure	
- RB identity	20
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	700
- Max_RST	6
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	Not Present
- Timer_EPC	Not Present
- Missing PDU indicator	FALSE
- Timer_STATUS_periodic	Not Present
- RB information to reconfigure	
- RB identity	22
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	700
- Max_RST	6
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	Not Present
- Timer_EPC	Not Present
- Missing PDU indicator	FALSE
- Timer_STATUS_periodic	Not Present
Downlink information per radio link list	
-Downlink information for each radio link	
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 1

RADIO BEARER RECONFIGURATION (Step 6) (TDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case are identical the message sub-type indicated by "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B
RB information to reconfigure list	
- RB information to reconfigure	
- RB identity	20
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	700
- Max_RST	6
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	Not Present
- Timer_EPC	Not Present
- Missing PDU indicator	FALSE
- Timer_STATUS_periodic	Not Present
- RB information to reconfigure	
- RB identity	22
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	700
- Max_RST	6
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	Not Present
- Timer_EPC	Not Present
- Missing PDU indicator	FALSE
- Timer_STATUS_periodic	Not Present
Downlink information per radio link list	
-Downlink information for each radio link	
- Primary CCPCH info	Set to same as used for cell 1

RADIO BEARER RECONFIGURATION (Step 8) (FDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case are identical the message sub-type indicated by "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	
- RB identity	20
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- Logical channel identity	7
- CHOICE RLC size list	Configured
- MAC logical channel priority	6
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	6
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB information to reconfigure	
- RB identity	22
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99

Information Element	Value/remark
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB mapping info	
- Information for each multiplexing option	
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- Logical channel identity	8
- CHOICE RLC size list	Configured
- MAC logical channel priority	6
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	6
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	8
Downlink information per radio link list	
-Downlink information for each radio link	
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 1

RADIO BEARER RECONFIGURATION (Step 8) (TDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case are identical the message sub-type indicated by "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	
- RB identity	20
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- Logical channel identity	7
- CHOICE RLC size list	Configured
- MAC logical channel priority	6
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	6
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB information to reconfigure	
- RB identity	22
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99

Information Element	Value/remark
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB mapping info	
- Information for each multiplexing option	
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- Logical channel identity	8
- CHOICE RLC size list	Configured
- MAC logical channel priority	6
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	6
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	8
Downlink information per radio link list	
-Downlink information for each radio link	
- Primary CCPCH info	Set to same as used for cell 1

RADIO BEARER RELEASE (Step 12)

The contents of RADIO BEARER RELEASE message in this test case are identical the message sub-type indicated by "Packet to CELL_DCH from CELL_DCH in PS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
RB information to release	
- RB identity	20
RB information to release	
- RB identity	22

8.2.2.35.5 Test requirement

After step 3 the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

After step 6 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

After step 7 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

After step 12 the UE shall transmit a RADIO BEARER RELEASE COMPLETE message.

8.2.2.36 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Start and stop of HS-DSCH reception)

8.2.2.36.1 Definition and applicability

All UEs which support FDD or TDD and HS-PDSCH.

8.2.2.36.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> the UE has a stored IE "HARQ info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";

- IE "Uplink DPCH Power Control Info" including stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor;

1> for 3.84 Mcps TDD or 7.68 Mcps TDD, the UE has stored the IE "HS-PDSCH Timeslot Configuration" and either of the following conditions are met:

2> a dedicated physical channel is allocated to the UE in the downlink;

2> the UE has stored $D_{hs\text{-}sync}$.

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link, for TDD add/remove H-RNTI upon hard handover.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration in FDD or 1.28 Mcps TDD caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for an HS-DSCH related reconfiguration in 3.84 Mcps TDD or 7.68 Mcps TDD caused by the received message:

3> start using, at activation time T, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.25, 8.6.3.1

8.2.2.36.3 Test purpose

To confirm that the UE starts and stops receiving the HS-DSCH according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.36.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS_DCCH_DTCH_HS_DSCH (state 6-17) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established. The SS transmits a RADIO BEARER RECONFIGURATION message instructing the UE to stop the reception of HS-DSCH. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

The SS transmits a RADIO BEARER RECONFIGURATION message instructing the UE to start the reception of HS-DSCH. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	Stop of HS-DSCH reception
2				At the activation time, SS stops HS-DSCH transmission to the UE.
3	→		RADIO BEARER RECONFIGURATION COMPLETE	
4	←		RADIO BEARER RECONFIGURATION	Start of HS-DSCH reception
5				At the activation time, SS resumes HS-DSCH transmission to the UE.
6	→		RADIO BEARER RECONFIGURATION COMPLETE	
	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (step 1)(FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following.

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	Not Present
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	Not Present
- MAC-hs queue to delete list	
- MAC-hs queue Id	0
- DCH quality target	Not Present
- Downlink transport channel type	
- DL Transport channel identity	6
- CHOICE DL parameters	Explicit
- TFS	
- CHOICE Transport channel type	Dedicated transport channel
- Dynamic transport format information	
- RLC Size	Reference to clause 6.10 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Dynamic transport format information	
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.10 Parameter Set
- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.10 Parameter Set
- Type of channel coding	Reference to clause 6.10 Parameter Set
- Coding Rate	Reference to clause 6.10 Parameter Set
- Rate matching attribute	Reference to clause 6.10 Parameter Set

Information Element	Value/remark
- CRC size	Reference to clause 6.10 Parameter Set
- DCH quality target	
- BLER Quality value	-20 (-2.0)

RADIO BEARER RECONFIGURATION (step 1) (1.28 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following.

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	Not Present
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	Not Present
- MAC-hs queue to delete list	
- MAC-hs queue Id	0
- DCH quality target	Not Present
- Downlink transport channel type	
- DL Transport channel identity	6
- CHOICE DL parameters	Explicit
- TFS	
- CHOICE Transport channel type	Dedicated transport channel
- Dynamic transport format information	
- RLC Size	Reference to clause 6.11 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Dynamic transport format information	
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.11 Parameter Set
- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.11 Parameter Set
- Type of channel coding	Reference to clause 6.11 Parameter Set
- Coding Rate	Reference to clause 6.11 Parameter Set
- Rate matching attribute	Reference to clause 6.11 Parameter Set
- CRC size	Reference to clause 6.11 Parameter Set
- DCH quality target	
- BLER Quality value	-2.0

RADIO BEARER RECONFIGURATION (step 1) (3.84 Mcps TDD)

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	Not Present
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	Not Present
- MAC-hs queue to delete list	
- MAC-hs queue Id	0
- DCH quality target	Not Present
- Downlink transport channel type	
- DL Transport channel identity	6
- CHOICE DL parameters	Explicit
- TFS	
- CHOICE Transport channel type	Dedicated transport channel
- Dynamic transport format information	
- RLC Size	Reference to clause 6.10 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Dynamic transport format information	
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.10 Parameter Set
- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.10 Parameter Set
- Type of channel coding	Reference to clause 6.10 Parameter Set
- Coding Rate	Reference to clause 6.10 Parameter Set
- Rate matching attribute	Reference to clause 6.10 Parameter Set
- CRC size	Reference to clause 6.10 Parameter Set
- DCH quality target	
- BLER Quality value	-2.0

RADIO BEARER RECONFIGURATION (step 1) (7.68 Mcps TDD)

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	Not Present
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	Not Present
- MAC-hs queue to delete list	
- MAC-hs queue Id	0
- DCH quality target	Not Present
- Downlink transport channel type	
- DL Transport channel identity	6
- CHOICE DL parameters	Explicit
- TFS	
- CHOICE Transport channel type	Dedicated transport channel
- Dynamic transport format information	
- RLC Size	Reference to clause 6.11.6 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Dynamic transport format information	
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.11.6 Parameter Set
- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.11.6 Parameter Set
- Type of channel coding	Reference to clause 6.11.6 Parameter Set
- Coding Rate	Reference to clause 6.11.6 Parameter Set
- Rate matching attribute	Reference to clause 6.11.6 Parameter Set
- CRC size	Reference to clause 6.11.6 Parameter Set
- DCH quality target	
- BLER Quality value	-2.0

RADIO BEARER RECONFIGURATION (step 4)(FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
Deleted DL TrCH information	
- Downlink transport channel type	DCH
- Transport channel identity	6
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	Not Present
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	
- MAC-hs queue Id	0
- MAC-d Flow Identity	0
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	336
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not Present
- DCH quality target	Not Present
Downlink information for each radio link	
- Serving HS-DSCH radio link indicator	TRUE

RADIO BEARER RECONFIGURATION (step 4) (1.28 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
Deleted DL TrCH information	
- Downlink transport channel type	DCH
- Transport channel identity	6
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	Not Present
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	
- MAC-hs queue Id	0
- MAC-d Flow Identity	0
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	336
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not Present
- DCH quality target	Not Present

RADIO BEARER RECONFIGURATION (step 4) (3.84 Mcps TDD and 7.68 Mcps TDD)

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
Deleted DL TrCH information	
- Downlink transport channel type	DCH
- Transport channel identity	6
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	Not Present
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	
- MAC-hs queue Id	0
- MAC-d Flow Identity	0
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	336
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not Present
- DCH quality target	Not Present
Downlink information for each radio link	
- Serving HS-DSCH radio link indicator	TRUE

8.2.2.36.5 Test requirements

After step 2, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

After step 5, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

8.2.2.36a Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Start and stop of HS-DSCH reception) (TDD only)

8.2.2.36a.1 Definition and applicability

All UEs which support TDD and HS-PDSCH.

8.2.2.36a.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> the UE has a stored IE "HARQ info";

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for TDD add/remove H-RNTI upon hard handover.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration in FDD or 1.28 Mcps TDD caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for an HS-DSCH related reconfiguration in 3.84 Mcps TDD or 7.68 Mcps TDD caused by the received message:

3> start using, at activation time T, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.25, 8.6.3.1

8.2.2.36a.3 Test purpose

To confirm that the UE starts and stops receiving the HS-DSCH on the secondary carrier according to the received RADIO BEARER RECONFIGURATION message.

To confirm the UE recognizes correctly the position of UpPCH indicated by the network and completes the access procedure according to the configuration sent by the network.

8.2.2.36a.4 Method of test

Initial Condition

System Simulator: 1 cell configures three carriers, one primary carrier with two secondary carriers.

UE: PS_DCCH_DTCH_HS_DSCH (state 6-17 on the secondary carrier) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports TDD

- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_DCH state on the secondary carrier and has a radio bearer mapped on HS-DSCH established. The SS transmits a RADIO BEARER RECONFIGURATION message instructing the UE to stop the reception of HS-DSCH. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

The SS transmits a RADIO BEARER RECONFIGURATION message instructing the UE to start the reception of HS-DSCH. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	Stop of HS-DSCH reception
2				At the activation time, SS stops HS-DSCH transmission to the UE.
3	→		RADIO BEARER RECONFIGURATION COMPLETE	
4	←		RADIO BEARER RECONFIGURATION	Start of HS-DSCH reception
5				At the activation time, SS resumes HS-DSCH transmission to the UE.
6	→		RADIO BEARER RECONFIGURATION COMPLETE	
	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (step 1) (1.28 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following.

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	Not Present
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	Not Present
- MAC-hs queue to delete list	
- MAC-hs queue Id	0
- DCH quality target	Not Present
- Downlink transport channel type	
- DL Transport channel identity	6
- CHOICE DL parameters	Explicit
- TFS	
- CHOICE Transport channel type	Dedicated transport channel
- Dynamic transport format information	
- RLC Size	Reference to clause 6.11 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Dynamic transport format information	
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.11 Parameter Set
- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.11 Parameter Set
- Type of channel coding	Reference to clause 6.11 Parameter Set
- Coding Rate	Reference to clause 6.11 Parameter Set
- Rate matching attribute	Reference to clause 6.11 Parameter Set
- CRC size	Reference to clause 6.11 Parameter Set
- DCH quality target	
- BLER Quality value	-2.0

RADIO BEARER RECONFIGURATION (step 4) (1.28 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
Deleted DL TrCH information	
- Downlink transport channel type	DCH
- Transport channel identity	6
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	Not Present
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	
- MAC-hs queue Id	0
- MAC-d Flow Identity	0
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	336
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not Present
- DCH quality target	Not Present

8.2.2.36a.5 Test requirements

After step 2, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

After step 5, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

8.2.2.36b Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success ((inter-band frequency hard handover, Start and stop of HS-DSCH reception, LCR TDD band a-f))

8.2.2.36b.1 Definition and applicability

All UEs which support LCR TDD and HS-PDSCH.

8.2.2.36b.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> the UE has a stored IE "HARQ info";

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for TDD add/remove H-RNTI upon hard handover.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration in FDD or 1.28 Mcps TDD caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for an HS-DSCH related reconfiguration in 3.84 Mcps TDD or 7.68 Mcps TDD caused by the received message:

3> start using, at activation time T, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.25, 8.6.3.1

8.2.2.36b.3 Test purpose

To confirm that the UE starts and stops receiving the HS-DSCH according to the received RADIO BEARER RECONFIGURATION message both in LCR TDD band A and band F in conjunction with a inter-band frequency hard handover without prior measurement on the target frequency according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.36b.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 is active and cell 6 is inactive. cell 1 and cell 6 belong to different frequency bands.

UE: PS_DCCH_DTCH_HS_DSCH (state 6-17) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports LCR TDD

- UE supports HS-PDSCH

Test Procedure

Table 8.2.2.36b.4

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
P-CCPCH RSCP (TDD)	dBm	-55	-72	Off	-55

Table 8.2.2.36b.4 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings from columns "T0" to "T1", whenever the description in multi-cell condition specifies the transmission power settings for cell 1 and cell 6.

SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.2.36b.4 The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established. The SS transmits a RADIO BEARER RECONFIGURATION message instructing the UE to stop the reception of HS-DSCH. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. The SS transmits a RADIO BEARER RECONFIGURATION message instructing the UE to start the reception of HS-DSCH. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

SS switches its downlink transmission power settings to columns "T1" and transmits a RADIO BEARER RECONFIGURATION message instructing the UE to stop the reception of HS-DSCH .It includes IE "Frequency info" set to frequency information of cell 6 and IE "Primary CCPCH info" set to cell 6 parameters. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.. The SS transmits a RADIO BEARER RECONFIGURATION message instructing the UE to start the reception of HS-DSCH. It includes IE "Frequency info" set to frequency information of cell 6 and IE "Primary CCPCH info" set to cell 6 parameters. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	Stop of HS-DSCH reception
2				At the activation time, SS stops HS-DSCH transmission to the UE.
3	→		RADIO BEARER RECONFIGURATION COMPLETE	
4	←		RADIO BEARER RECONFIGURATION	Start of HS-DSCH reception
5				At the activation time, SS resumes HS-DSCH transmission to the UE.
6	→		RADIO BEARER RECONFIGURATION COMPLETE	
				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.2.36b.4.
7	←		RADIO BEARER RECONFIGURATION	Stop of HS-DSCH reception. including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CCPCH info" set cell 6 parameters.
8				At the activation time, SS stops HS-DSCH transmission to the UE.
9	→		RADIO BEARER RECONFIGURATION COMPLETE	
10	←		RADIO BEARER RECONFIGURATION	Start of HS-DSCH reception. including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CCPCH info" set cell 6 parameters.
11				At the activation time, SS resumes HS-DSCH transmission to the UE.
12	→		RADIO BEARER RECONFIGURATION COMPLETE	
	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (step 1) (1.28 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following.

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	Not Present
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	Not Present
- MAC-hs queue to delete list	
- MAC-hs queue Id	0
- DCH quality target	Not Present
- Downlink transport channel type	
- DL Transport channel identity	6
- CHOICE DL parameters	Explicit
- TFS	
- CHOICE Transport channel type	Dedicated transport channel
- Dynamic transport format information	
- RLC Size	Reference to clause 6.11 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Dynamic transport format information	
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.11 Parameter Set
- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.11 Parameter Set
- Type of channel coding	Reference to clause 6.11 Parameter Set
- Coding Rate	Reference to clause 6.11 Parameter Set
- Rate matching attribute	Reference to clause 6.11 Parameter Set
- CRC size	Reference to clause 6.11 Parameter Set
- DCH quality target	

Information Element	Value/remark
- BLER Quality value	-2.0

RADIO BEARER RECONFIGURATION (step 4) (1.28 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
Deleted DL TrCH information	
- Downlink transport channel type	DCH
- Transport channel identity	6
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	Not Present
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	
- MAC-hs queue Id	0
- MAC-d Flow Identity	0
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	336
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not Present
- DCH quality target	Not Present

RADIO BEARER RECONFIGURATION (step 7)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following.

Information Element	Value/remark	Version
Activation time	Now	
RB information to reconfigure list		
- RB information to reconfigure	(high-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	200	
- Timer_poll	200	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
Deleted DL TrCH information		
- Downlink transport channel type	HS-DSCH	
- DL HS-DSCH MAC-d flow identity	0	
Frequency info		
- Choice mode	TDD	
- UARFCN (Nt)	Same UARFCN as used for cell 6	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	0	
- Downlink DPCH power control information	Not Present	
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
Downlink information per radio link list	1 radio link	
- Downlink information for each radio link		
- CHOICE mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	1.28Mcps TDD	
- TSTD indicator	FALSE	
- Cell parameters ID	Same Cell parameters ID as used for cell 6	
- SCTD indicator	FALSE	

RADIO BEARER RECONFIGURATION (step 10)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
RB information to reconfigure list		
- RB information to reconfigure	(high-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	100	
- Timer_poll	100	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set	
- In-sequence delivery	TRUE	
- Receiving window size	768	
- Downlink RLC status info		
- Timer_status_prohibit	100	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
Added or Reconfigured DL TrCH information		
- Downlink transport channel type	HS-DSCH	
- DL Transport channel identity	Not Present	
- CHOICE DL parameters	HS-DSCH	
- HARQ Info	Not Present	
- Added or reconfigured MAC-d flow		
- MAC-hs queue to add or reconfigure list		
- MAC-hs queue Id	0	
- MAC-d Flow Identity	0	
- T1	50	
- MAC-hs window size	16	
- MAC-d PDU size Info		
- MAC-d PDU size	336	
- MAC-d PDU size index	0	
- MAC-hs queue to delete list	Not Present	
- DCH quality target	Not Present	
Frequency info		
- Choice mode	TDD	
- UARFCN (Nt)	Same UARFCN as used for cell 6	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	0	
- Downlink DPCH power control information	Not Present	
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	

Information Element	Value/remark	Version
- MAC-hs reset indicator	TRUE	
Downlink information per radio link list	1 radio link	
Downlink information for each radio link		
- CHOICE mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	1.28Mcps TDD	
- TSTD indicator	FALSE	
- Cell parameters ID	Same Cell parameters ID as used for cell 6	
- SCTD indicator	FALSE	

8.2.2.36b.5 Test requirements

After step 2, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on cell 1.

After step 5, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on cell 1.

After step 9, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on cell 6.

After step 12, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on cell 6.

8.2.2.36c Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Start and stop of HS-DSCH reception)(In a different frequency band)

8.2.2.36c.1 Definition and applicability

Same definition and applicability as in clause 8.2.2.36a except that UE supports different frequency bands for TDD.

8.2.2.36c.2 Conformance requirement

Same conformance requirement as in clause 8.2.2.36a.

8.2.2.36c.3 Test purpose

Same test purpose as in clause 8.2.2.36a. except that UE can work in different frequency band.

8.2.2.36c.4 Method of test

Same method of test as in clause 8.2.2.36a except for Expected sequence

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	Stop of HS-DSCH reception
2				At the activation time, SS stops HS-DSCH transmission to the UE.
3	→		RADIO BEARER RECONFIGURATION COMPLETE	
4	←		RADIO BEARER RECONFIGURATION	Start of HS-DSCH reception
5				At the activation time, SS resumes HS-DSCH transmission to the UE.
6	→		RADIO BEARER RECONFIGURATION COMPLETE	
	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.
				UE will run test procedure for 2 kinds of condition. The first,. primary carrier and the secondary carriers of the UE work in same frequency band. Secondly,, primary carrier and the secondary carriers of the UE work in different frequency band.

8.2.2.36c.5 Test requirements

Same test requirements as in clause 8.2.2.36a.

8.2.2.37 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_FACH and from CELL_FACH to CELL_DCH: Success (start and stop of HS-DSCH reception)

8.2.2.37.1 Definition and applicability

All UEs which support FDD or TDD and HS-PDSCH.

8.2.2.37.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> the UE has a stored IE "HARQ info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";

- IE "Uplink DPCH Power Control Info" including stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor;

1> for 3.84 Mcps TDD or 7.68 Mcps TDD, the UE has stored the IE "HS-PDSCH Timeslot Configuration" and either of the following conditions are met:

2> a dedicated physical channel is allocated to the UE in the downlink;

2> the UE has stored $D_{hs\text{-}sync}$.

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link, for TDD add/remove H-RNTI upon hard handover.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If after state transition the UE leaves CELL_DCH state, the UE shall, after the state transition:

1> clear any stored IE "Downlink HS-PDSCH information";

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.25

8.2.2.37.3 Test purpose

To confirm that the UE transits to CELL_FACH state from CELL_DCH state and stops receiving the HS-DSCH according to the received RADIO BEARER RECONFIGURATION message.

To confirm that the UE transits to CELL_DCH state from CELL_FACH state and starts receiving the HS-DSCH according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.37.4 Method of test

Initial Condition

System Simulator: 1 cell

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS_DCCH_FACH (state 6-8) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_FACH state and SS establishes a radio bearer mapped on HS-DSCH by transmitting a RADIO BEARER SETUP message. The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it stops HS-DSCH reception, moves to CELL_FACH state and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

Then, SS transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it moves to CELL_DCH state, resumes HS-DSCH reception and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	
3	←		ACTIVATE PDP CONTEXT ACCEPT	
4	←		RADIO BEARER RECONFIGURATION	Stop of HS-DSCH reception and transit to CELL_FACH state,
5	→		RADIO BEARER RECONFIGURATION COMPLETE	
6	←		RADIO BEARER RECONFIGURATION	Start of HS-DSCH reception and transit to CELL_DCH state
7	→		RADIO BEARER RECONFIGURATION COMPLETE	
8	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

RADIO BEARER SETUP (Step 1)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_FACH in PS" in 34.108.

RADIO BEARER RECONFIGURATION (Step 4)(FDD)

Use the same message as specified for "Packet to CELL_FACH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B
RB information to reconfigure list	
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15

Information Element	Value/remark
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128

Information Element	Value/remark
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB stop/continue	Not Present
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
Frequency info	Not Present
Maximum allowed UL TX power	Not Present
Downlink information per radio link list	
-Downlink information for each radio link	
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 1

RADIO BEARER RECONFIGURATION (Step 4) (1.28 Mcps TDD)

Use the same message as specified for "Packet to CELL_FACH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B
RB information to reconfigure list	
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15

Information Element	Value/remark
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128

Information Element	Value/remark
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH

Information Element	Value/remark
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB stop/continue	Not Present
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
Frequency info	Not Present
Maximum allowed UL TX power	Not Present
Downlink information per radio link list	
-Downlink information for each radio link	
- CHOICE mode	TDD
- Cell parameters ID	Set to the Cell parameters ID for cell 6

RADIO BEARER RECONFIGURATION (Step 4) (3.84 Mcps TDD and 7.68 Mcps TDD)

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B
RB information to reconfigure list	
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	

Information Element	Value/remark
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250

Information Element	Value/remark
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB stop/continue	Not Present
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
Frequency info	Not Present
Maximum allowed UL TX power	Not Present
Downlink information per radio link list	
-Downlink information for each radio link	
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 1

RADIO BEARER RECONFIGURATION (Step 6)(FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_FACH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	

Information Element	Value/remark
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
- RB stop/continue	Not Present
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not Present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- POhsdsch	6 dB
- CQI Feedback cycle, k	4 ms
- CQI repetition factor	1
- Δ_{CQI}	-3 dB
- CHOICE mode	FDD (no data)
Downlink information for each radio link	
- Serving HS-DSCH radio link indicator	TRUE

RADIO BEARER RECONFIGURATION (Step 6) (1.28 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_FACH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present

Information Element	Value/remark
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
- RB stop/continue	Not Present
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.

RADIO BEARER RECONFIGURATION (Step 6) (3.84 Mcps TDD and 7.68 Mcps)

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.

Information Element	Value/remark
- RB stop/continue	Not Present
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Downlink information for each radio link	
- Serving HS-DSCH radio link indicator	TRUE

8.2.2.37.5 Test requirements

After step 4, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

After step 6, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

8.2.2.38 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (with active HS-DSCH reception)

8.2.2.38.1 Definition and applicability

All UEs which support FDD or TDD and HS-PDSCH.

8.2.2.38.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link, for TDD add/remove H-RNTI upon hard handover.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.6.3.1, 8.2.2.3, 8.5.25

8.2.2.38.3 Test purpose

To confirm that the UE reconfigures the radio bearer while being mapped to HS-DSCH according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.38.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS_DCCH_DTCH_HS_DSCH (state 6-17) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it reconfigures the radio bearer and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1)(FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
UL Transport channel information for all transport channels	Not present
Added or Reconfigured UL TrCH information	Not present
DL Transport channel information common for all transport channel	Not present
Added or Reconfigured DL TrCH information	Not present
CHOICE channel requirement	Not present
Downlink information common for all radio links	Not present
Downlink information for each radio link	
- Serving HS-DSCH radio link indicator	TRUE

RADIO BEARER RECONFIGURATION (Step 1) (1.28 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
UL Transport channel information for all transport channels	Not present
Added or Reconfigured UL TrCH information	Not present
DL Transport channel information common for all transport channel	Not present
Added or Reconfigured DL TrCH information	Not present
CHOICE channel requirement	Not present
Downlink information common for all radio links	Not present

8.2.2.38.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

8.2.2.39 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialised hard handover to another frequency, start and stop of HS-DSCH reception)

8.2.2.39.1 Definition and applicability

All UEs which support FDD or TDD and HS-PDSCH.

8.2.2.39.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link, for TDD add/remove H-RNTI upon hard handover.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If IE "Timing indication" has the value "initialise", UE shall:

1> execute the Timing Re-initialised hard handover procedure by following the procedure indicated in the subclause relevant to the procedure chosen by the UTRAN.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.3.5.1.2, 8.5.25, 8.6.3.1

8.2.2.39.3 Test purpose

To confirm that the UE starts and stops receiving the HS-DSCH in conjunction with a interfrequency hard handover without prior measurement on the target frequency according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.39.4 Method of test

Initial Condition

System Simulator: 2 cells–Cells 1 and 6 are active.

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH

Test Procedure

Table 8.2.2.39

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency (f_1)		High Range Test Frequency (f_2)	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-70	-70	-60
P-CCPCH RSCP (TDD)	dBm	-60	-70	-70	-60

Table 8.2.2.39 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The SS has configured its downlink transmission power settings according to columns "T0" in table 8.2.2.39. SS initiates P25 to make the UE move to state 6-17 as specified in TS34.108 clause7.4. The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established in cell 1. The SS switches its downlink transmission power settings to columns "T1" and transmits a RADIO BEARER RECONFIGURATION message instructing the UE to perform a timing re-initialised interfrequency hard handover to cell 6 and stop the reception of HS-DSCH. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC in cell 6.

The SS switches its downlink transmission power settings to columns "T0" and transmits a RADIO BEARER RECONFIGURATION message instructing the UE to perform an interfrequency hard handover to cell 1 and start the reception of HS-DSCH. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC in cell 1.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message (Step 0)
0a	SS			The SS switches its downlink transmission power settings to columns "T1" in table 8.2.2.39.
1	←		RADIO BEARER RECONFIGURATION	Hard handover, stop of HS-DSCH reception
2	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE sends this message on a dedicated physical channel in cell 6.
2a	SS			The SS switches its downlink transmission power settings to columns "T0" in table 8.2.2.39.
3	←		RADIO BEARER RECONFIGURATION	Hard handover, start of HS-DSCH reception
4	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE sends this message on a dedicated physical channel in cell 1.
	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 0)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.

RADIO BEARER RECONFIGURATION (step 1) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following.

Information Element	Value/remark	Version
RB information to reconfigure list		
- RB information to reconfigure	(high-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	200	
- Timer_poll	200	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not Present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	DCH	
- UL Transport channel identity	1	
- Logical channel identity	Not Present	
- CHOICE RLC size list	Configured	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	DCH	
- DL DCH Transport channel identity	6	
- Logical channel identity	Not Present	
- RB stop/continue	Not Present	
Deleted DL TrCH information		
- Downlink transport channel type	HS-DSCH	
- DL HS-DSCH MAC-d flow identity	0	
Frequency info		
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to applying the	

Information Element	Value/remark	Version
	default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]	
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	0	
- Downlink DPCH power control information	Not Present	
- Downlink rate matching restriction information	Not Present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Fixed or flexible position	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set	
- DPCH compressed mode info	Not present	
- TX Diversity mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
- MAC-hs reset indicator	TRUE	
Downlink information per radio link list	1 radio link	
Downlink information for each radio link		
- CHOICE mode	FDD	
- Primary CPICH info	Set to the scrambling code for cell 6	
- Cell ID	Not present	
- Serving HS-DSCH radio link indicator	FALSE	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value of DPCH Frame Offset modulo 38400	
- Secondary CPICH info	Not present	
- DL channelisation code	Reference to TS34.108 clause 6.10 Parameter Set	
- Secondary scrambling code	2	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	Any value between 0 and Spreading factor-1	
- Scrambling code change	Not Present	
- TPC combination index	0	
- SSDT cell identity	Not present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not present	

RADIO BEARER RECONFIGURATION (step 1) (1.28Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following.

Information Element	Value/remark	Version
RB information to reconfigure list		
- RB information to reconfigure	(high-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	

Information Element	Value/remark	Version
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	200	
- Timer_poll	200	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not Present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	DCH	
- UL Transport channel identity	1	
- Logical channel identity	Not Present	
- CHOICE RLC size list	Configured	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	DCH	
- DL DCH Transport channel identity	6	
- Logical channel identity	Not Present	
- RB stop/continue	Not Present	
Deleted DL TrCH information		
- Downlink transport channel type	HS-DSCH	
- DL HS-DSCH MAC-d flow identity	0	
Frequency info		
- Choice mode	TDD	
- UARFCN (Nt)	Same UARFCN as used for cell 6	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	0	
- Downlink DPCH power control information	Not Present	
- Choice mode	TDD	
- Choice TDD Option	1.28 Mcps TDD	
- TSTD indicator	FALSE	R99 and Rel-4 only
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
- MAC-hs reset indicator	TRUE	
Downlink information per radio link list	1 radio link	
- Downlink information for each radio link		
- CHOICE mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	1.28Mcps TDD	
- TSTD indicator	FALSE	
- Cell parameters ID	Set to Cell parameters ID for cell 6	
- SCTD indicator	FALSE	

RADIO BEARER RECONFIGURATION (step 3) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
RB information to reconfigure list		
- RB information to reconfigure	(high-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	100	
- Timer_poll	100	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set	
- In-sequence delivery	TRUE	
- Receiving window size	768	
- Downlink RLC status info		
- Timer_status_prohibit	100	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- RB mapping info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.	
- RB stop/continue	Not Present	
Deleted DL TrCH information		
- Downlink transport channel type	DCH	
- Transport channel identity	6	
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.	
Frequency info		
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]	
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 1	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	0	
- Downlink DPCH power control information	Not Present	
- Downlink rate matching restriction information	Not Present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Fixed or flexible position	Reference to TS34.108 clause 6.10 Parameter Set	

Information Element	Value/remark	Version
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set	
- DPCH compressed mode info	Not present	
- TX Diversity mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
- MAC-hs reset indicator	TRUE	
Downlink information per radio link list	1 radio link	
Downlink information for each radio link		
- CHOICE mode	FDD	
- Primary CPICH info	Set to the scrambling code for cell 1	
- Cell ID	Not present	
- Serving HS-DSCH radio link indicator	TRUE	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value of DPCH Frame Offset modulo 38400	
- Secondary CPICH info	Not present	
- DL channelisation code	Reference to TS34.108 clause 6.10 Parameter Set	
- Secondary scrambling code	2	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	Any value between 0 and Spreading factor-1	
- Scrambling code change	Not Present	
- TPC combination index	0	
- SSDT cell identity	Not present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not present	

RADIO BEARER RECONFIGURATION (step 3) (1.28Mcp TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
RB information to reconfigure list		
- RB information to reconfigure	(high-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	100	
- Timer_poll	100	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	

Information Element	Value/remark	Version
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set	
- In-sequence delivery	TRUE	
- Receiving window size	768	
- Downlink RLC status info		
- Timer_status_prohibit	100	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- RB mapping info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.	
- RB stop/continue	Not Present	
Deleted DL TrCH information		
- Downlink transport channel type	DCH	
- Transport channel identity	6	
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.	
Frequency info		
- Choice mode	TDD	
- UARFCN (Nt)	Same UARFCN as used for cell 1	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	0	
- Downlink DPCH power control information	Not Present	
- Choice mode	TDD	
- Choice TDD Option	1.28 Mcps TDD	
- TSTD indicator	FALSE	R99 and Rel-4 only
- Default DPCH Offset Value	0	
- MAC-hs reset indicator	TRUE	
Downlink information per radio link list	1 radio link	
- Downlink information for each radio link		
- CHOICE mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	1.28Mcps TDD	
- TSTD indicator	FALSE	
- Cell parameters ID	Reference clause 6.1.4 Default settings for cell 1	
- SCTD indicator	FALSE	

8.2.2.39.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message in cell 6.

After step 3, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message in cell 1.

8.2.2.40 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_FACH and from CELL_FACH to CELL_DCH: Success (frequency modification, start and stop of HS-DSCH reception)

8.2.2.40.1 Definition and applicability

All UEs which support FDD or TDD and HS-PDSCH.

8.2.2.40.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if "DPCH frame offset" is included for one or more RLs in the active set:

2> use its value to determine the beginning of the DPCH frame in accordance with the following:

3> if the received IE "DPCH frame offset" is across the value range border compared to the DPCH frame offset currently used by the UE:

4> consider it to be a request to adjust the timing with 256 chips across the frame border (e.g. if the UE receives value 0 while the value currently used is 38144 consider this as a request to adjust the timing with +256 chips).

3> if after taking into account value range borders, the received IE "DPCH frame offset" corresponds to a request to adjust the timing with a step exceeding 256 chips:

4> set the variable INVALID_CONFIGURATION to TRUE.

3> and the procedure ends.

2> adjust the radio link timing accordingly.

…

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.25, 8.6.3.1

8.2.2.40.3 Test purpose

To confirm that the UE transits to CELL_FACH state from CELL_DCH state in another cell and frequency and stops receiving the HS-DSCH according to the received RADIO BEARER RECONFIGURATION message.

To confirm that the UE transits to CELL_DCH state from CELL_FACH state in another cell and frequency and starts receiving the HS-DSCH according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.40.4 Method of test

Initial Condition

System Simulator: 2 cells–Cells 1 and 6 are active.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH

Test Procedure

Table 8.2.2.40

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency (f_1)		High Range Test Frequency (f_2)	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-65	Off	-60
PCCPCH (1.28Mcps TDD)	dBM	-60	-65	Off	-60

Table 8.2.2.40 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

SS initiates P25 to make the UE move to state 6-17 as specified in TS34.108 clause7.4. The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established in cell 1. The SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.2.40.

The SS then applies the power levels according to “T1” in table 8.2.2.40 and transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it stops HS-DSCH reception, moves to CELL_FACH state in cell 6 and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

Then, SS transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it moves to CELL_DCH state in cell 1, resumes HS-DSCH reception and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message (Step 0)
1	SS			The SS applies the power settings according to “T1” in table 8.2.2.40.
2	←		RADIO BEARER RECONFIGURATION	Stop of HS-DSCH reception and transit to CELL_FACH state in cell 6,
3	→		RADIO BEARER RECONFIGURATION COMPLETE	
4	←		RADIO BEARER RECONFIGURATION	Start of HS-DSCH reception and transit to CELL_DCH state in cell 1
5	→		RADIO BEARER RECONFIGURATION COMPLETE	
6	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

RADIO BEARER SETUP (Step 0)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.

RADIO BEARER RECONFIGURATION (Step 2) (FDD)

Use the same message as specified for "Packet to CELL_FACH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B
RB information to reconfigure list	
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200

Information Element	Value/remark
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present

Information Element	Value/remark
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB stop/continue	Not Present
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
Frequency info	Set to the frequency of cell 6
Maximum allowed UL TX power	Not Present
Downlink information per radio link list	
-Downlink information for each radio link	
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 6

RADIO BEARER RECONFIGURATION (Step 2) (1.28Mcps TDD)

Use the same message as specified for "Packet to CELL_FACH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B
RB information to reconfigure list	
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present

Information Element	Value/remark
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE

Information Element	Value/remark
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB stop/continue	Not Present
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
Frequency info	
- Choice mode	TDD
- UARFCN (Nt)	Same UARFCN as used for cell 6
Maximum allowed UL TX power	Not Present
Downlink information per radio link list	
-Downlink information for each radio link	
- Choice mode	TDD
- Primary CCPCH info	
- Choice mode	TDD
- Choice TDD Option	1.28 Mcps TDD
- TSTD indicator	FALSE
- Cell parameters ID	Same Cell parameters ID as used for cell 6

Information Element	Value/remark
- SCTD indicator	FALSE

RADIO BEARER RECONFIGURATION (Step 4) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_FACH in PS" in 34.108 except for the following:

Information Element	Value/remark	Vesrion
New H-RNTI	'0101 0101 0101 0101'	
RB information to reconfigure list		
- RB information to reconfigure	(AM DCCH for RRC)	
- RB identity	2	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	400	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	150	
- Timer_poll	150	
- Poll_PDU	Not present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)	
- RB identity	3	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	400	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	150	
- Timer_poll	150	
- Poll_PDU	Not present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set	

Information Element	Value/remark	Vesrion
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)	
- RB identity	4	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	400	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	150	
- Timer_poll	150	
- Poll_PDU	Not present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
- RB information to reconfigure	(high-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	100	
- Timer_poll	100	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set	
- In-sequence delivery	TRUE	

Information Element	Value/remark	Vesrion
- Receiving window size	768	
- Downlink RLC status info		
- Timer_status_prohibit	100	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- RB mapping info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.	
- RB stop/continue	Not Present	
UL Transport channel information for all transport channels	Not Present	
Added or Reconfigured UL TrCH information	Not Present	
DL Transport channel information common for all transport channel	Not Present	
Added or Reconfigured DL TrCH information		
- Downlink transport channel type	HS-DSCH	
- DL Transport channel identity	Not Present	
- CHOICE DL parameters	HS-DSCH	
- HARQ Info		
- Number of Processes	6	
- CHOICE *Memory Partitioning*	Implicit	
- Added or reconfigured MAC-d flow		
- MAC-hs queue to add or reconfigure list	(one queue)	
- MAC-hs queue Id	0	
- MAC-d Flow Identity	0	
- T1	50	
- MAC-hs window size	16	
- MAC-d PDU size Info		
- MAC-d PDU size	336	
- MAC-d PDU size index	0	
- MAC-hs queue to delete list	Not present	
- DCH quality target	Not present	
Frequency info	Set to the frequency of cell 1	
Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not Present	
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- POhsdsch	6 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	0 dB	
- CHOICE mode	FDD (no data)	
CHOICE channel requirement	Uplink DPCH info	
- Uplink DPCH power control info		
- DPCCH power offset	-40 (-80 dB)	
- PC Preamble	1 frame	
- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- TPC step size	0 (1 dB)	
- Δ_{ACK}	3	
- Δ_{NACK}	3	
- Ack-Nack repetition factor	1	
- Scrambling code type	Long	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	

Information Element	Value/remark	Vesrion
- Number of FBI bit	Reference to TS34.108 clause 6.10 Parameter Set	
- Puncturing Limit	Reference to TS34.108 clause 6.10 Parameter Set	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indicator	Initialise	
- CFN-targetSFN frame offset	Not Present	
- Downlink DPCH power control information		
- DPC mode	0 (single)	
- CHOICE mode	FDD	
- Power offset PPilot-DPDCH	0	
- DL rate matching restriction information	Not Present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Fixed or Flexible Position	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE mode	FDD	
- DPCH compressed mode info	Not Present	
- TX Diversity mode	None	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Not Present	
- MAC-hs reset indicator	TRUE	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in TS34.108 clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	1	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	0	
- Scrambling code change	No change	
- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

RADIO BEARER RECONFIGURATION (Step 4) (1.28Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_FACH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
RB information to reconfigure list	
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present

Information Element	Value/remark
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	400
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	150
- Timer_poll	150
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	400
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	150
- Timer_poll	150
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present

Information Element	Value/remark
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	400
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	150
- Timer_poll	150
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
- RB stop/continue	Not Present
UL Transport channel information for all transport channels	Not Present
Added or Reconfigured UL TrCH information	Not Present

Information Element	Value/remark
DL Transport channel information common for all transport channel	Not Present
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	
- Number of Processes	6
- CHOICE *Memory Partitioning*	Implicit
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	(one queue)
- MAC-hs queue Id	0
- MAC-d Flow Identity	0
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	336
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not present
- DCH quality target	Not present
Frequency info	
- Choice mode	TDD
- UARFCN (Nt)	Same UARFCN as used for cell 1
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indication	Initialise
- CFN-targetSFN frame offset	Not Present
- Downlink DPCH power control information	Reference to TS34.108 clause 6.11 Parameter Set
- MAC-hs reset indicator	TRUE
Downlink information per radio link list	1 radio link
- Choice mode	TDD
- Primary CCPCH info	
- Choice mode	TDD
- Choice TDD Option	1.28 Mcps TDD
- TSTD indicator	FALSE
- Cell parameters ID	Same Cell parameters ID as used for cell 1
- SCTD indicator	FALSE

8.2.2.40.5 Test requirements

After step 2, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC on the uplink DCCH in cell 6.

After step 4, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC on the uplink DCCH in cell 1.

8.2.2.41 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Start and stop of HS-DSCH reception, during an active CS bearer)

8.2.2.41.1 Definition and applicability

All UEs which support FDD or TDD, HS-PDSCH and simultaneous CS domain speech or transparent CS data services and PS services.

8.2.2.41.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link, for TDD add/remove H-RNTI upon hard handover.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.25, 8.6.3.1

8.2.2.41.3 Test purpose

To confirm that the UE starts and stops receiving the HS-DSCH according to the received RADIO BEARER RECONFIGURATION message when a circuit-switched radio bearer is established and mapped to DCH.

8.2.2.41.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports CS domain speech or transparent CS data services and PS services

Test Procedure

The UE has only signalling radio bearers established. A PS radio bearer is established mapped to HS-DSCH with HS-DSCH reception activated. Then, a CS radio bearer is established.

The SS transmits a RADIO BEARER RECONFIGURATION message instructing the UE to stop the reception of HS-DSCH. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

The SS transmits a RADIO BEARER RECONFIGURATION message instructing the UE to start the reception of HS-DSCH. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←→		P25	SS establishes a PS RAB mapped to HS-DSCH. See below for the specific message content used in the RADIO BEARER SETUP message.
2	←→			SS establishes a CS RAB.
3	←		RADIO BEARER RECONFIGURATION	Stop of HS-DSCH reception
4				At the activation time, SS stops HS-DSCH transmission to the UE.
5	→		RADIO BEARER RECONFIGURATION COMPLETE	
6	←		RADIO BEARER RECONFIGURATION	Start of HS-DSCH reception
7				At the activation time, SS resumes HS-DSCH transmission to the UE.
8	→		RADIO BEARER RECONFIGURATION COMPLETE	
	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10, except for the following
- Uplink transport channel type	DCH
- UL Transport channel identity	4
Added or Reconfigured UL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10, except for the following
- Uplink transport channel type	DCH
- UL Transport channel identity	4
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.

RADIO BEARER RECONFIGURATION (step 3)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following.

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- Logical channel identity	Not Present
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	9
- Logical channel identity	Not Present
- RB stop/continue	Not Present
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0

RADIO BEARER RECONFIGURATION (step 6) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as the set defined in RADIO BEARER SETUP message in Step 1.
- RB stop/continue	Not Present
Deleted DL TrCH information	
- Downlink transport channel type	DCH
- Transport channel identity	9
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	Not Present
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	
- MAC-hs queue Id	0
- MAC-d Flow Identity	0
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	336
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not Present
- DCH quality target	Not Present
Downlink information for each radio link	
- Serving HS-DSCH radio link indicator	TRUE

RADIO BEARER RECONFIGURATION (step 6) (1.28 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as the set defined in RADIO BEARER SETUP message in Step 1.
- RB stop/continue	Not Present
Deleted DL TrCH information	
- Downlink transport channel type	DCH
- Transport channel identity	9
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	Not Present
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	
- MAC-hs queue Id	0
- MAC-d Flow Identity	0
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	336
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not Present
- DCH quality target	Not Present

8.2.2.41.5 Test requirements

After step 4, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

After step 7, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

8.2.2.42 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialised hard handover to another frequency, start and stop of HS-DSCH reception, during an active CS bearer)

8.2.2.42.1 Definition and applicability

All UEs which support FDD or TDD, HS-PDSCH and simultaneous CS domain speech or transparent CS data services and PS services.

8.2.2.42.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link, for TDD add/remove H-RNTI upon hard handover.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If IE "Timing indication" has the value "initialise", UE shall:

1> execute the Timing Re-initialised hard handover procedure by following the procedure indicated in the subclause relevant to the procedure chosen by the UTRAN.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.3.5.1.2, 8.5.25, 8.6.3.1

8.2.2.42.3 Test purpose

To confirm that the UE starts and stops receiving the HS-DSCH in conjunction with a interfrequency hard handover without prior measurement on the target frequency according to the received RADIO BEARER RECONFIGURATION message when a circuit-switched radio bearer is established and mapped to DCH.

8.2.2.42.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 is active and cell 6 is inactive.

UE: PS_DCCH_DTCH_HS_DSCH (state 6-17) as specified in clause 7.4 of TS 34.108.

System Information Block type 1 (Cell 1 and Cell 6)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports CS domain speech or transparent CS data services and PS services

Test Procedure

Table 8.2.2.42

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-55	-55	OFF	-55
P-CCPCH RSCP (TDD)	dBm	-55	-55	OFF	-55

Table 8.2.2.42 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

SS has configured its downlink transmission power setting according to columns “T0” in table 8.2.2.42. The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established. Then, a CS radio bearer is established.

SS switches its downlink transmission power setting to columns “T1” in table 8.2.2.42.

The SS transmits a RADIO BEARER RECONFIGURATION message instructing the UE to perform a timing re-initialised interfrequency hard handover to cell 6 and stop the reception of HS-DSCH. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC in cell 6.

The SS transmits a RADIO BEARER RECONFIGURATION message instructing the UE to perform an interfrequency hard handover to cell 1 and start the reception of HS-DSCH. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC in cell 1.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←→			SS establishes a CS RAB.
2	SS			SS switches its downlink transmission power setting to columns “T1” in table 8.2.2.42.
3	←		RADIO BEARER RECONFIGURATION	Hard handover, stop of HS-DSCH reception
4	→		RADIO BEARER RECONFIGURATION COMPLETE	This message is received in cell 6.
5	←		RADIO BEARER RECONFIGURATION	Hard handover, start of HS-DSCH reception
6	→		RADIO BEARER RECONFIGURATION COMPLETE	This message is received in cell 1.
7	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (step 3) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following.

Information Element	Value/remark	Version
Activation time	Now	
RB information to reconfigure list		
- RB information to reconfigure	(high-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	200	
- Timer_poll	200	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
Deleted DL TrCH information		
- Downlink transport channel type	HS-DSCH	
- DL HS-DSCH MAC-d flow identity	0	
Frequency info		
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]	
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	0	
- Downlink DPCH power control information	Not Present	
- Downlink rate matching restriction information	Not Present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Fixed or flexible position	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE SF	Reference to TS34.108 clause 6.10	

Information Element	Value/remark	Version
	Parameter Set	
- DPCH compressed mode info	Not present	
- TX Diversity mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
- MAC-hs reset indicator	TRUE	
Downlink information per radio link list	1 radio link	
Downlink information for each radio link		
- CHOICE mode	FDD	
- Primary CPICH info	Set to the scrambling code for cell 6	
- Cell ID	Not present	
- Serving HS-DSCH radio link indicator	FALSE	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value of DPCH Frame Offset modulo 38400	
- Secondary CPICH info	Not present	
- DL channelisation code	Reference to TS34.108 clause 6.10 Parameter Set	
- Secondary scrambling code	2	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	Any value between 0 and Spreading factor-1	
- Scrambling code change	Not Present	
- TPC combination index	0	
- SSDT cell identity	Not present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not present	

RADIO BEARER RECONFIGURATION (step 3) (1.28Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following.

Information Element	Value/remark	Version
Activation time	Now	
RB information to reconfigure list		
- RB information to reconfigure	(high-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	200	
- Timer_poll	200	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
Deleted DL TrCH information		
- Downlink transport channel type	HS-DSCH	
- DL HS-DSCH MAC-d flow identity	0	
Frequency info		
- Choice mode	TDD	
- UARFCN (Nt)	Same UARFCN as used for cell 6	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	0	
- Downlink DPCH power control information	Not Present	
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
Downlink information per radio link list	1 radio link	
- Downlink information for each radio link		
- CHOICE mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	1.28Mcps TDD	
- TSTD indicator	FALSE	
- Cell parameters ID	Same Cell parameters ID as used for cell 6	
- SCTD indicator	FALSE	

RADIO BEARER RECONFIGURATION COMPLETE (steps 4 and 6) (FDD)

Use the same message as specified in 34.108, except for the following.

Information Element	Value/remark	Version
Uplink counter synchronization info	This IE is checked to see if it is present in the case ciphering is activated	

RADIO BEARER RECONFIGURATION (step 5) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
RB information to reconfigure list		
- RB information to reconfigure	(high-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	100	
- Timer_poll	100	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set	
- In-sequence delivery	TRUE	
- Receiving window size	768	
- Downlink RLC status info		
- Timer_status_prohibit	100	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
Added or Reconfigured DL TrCH information		
- Downlink transport channel type	HS-DSCH	
- DL Transport channel identity	Not Present	
- CHOICE DL parameters	HS-DSCH	
- HARQ Info	Not Present	
- Added or reconfigured MAC-d flow		
- MAC-hs queue to add or reconfigure list		
- MAC-hs queue Id	0	
- MAC-d Flow Identity	0	
- T1	50	
- MAC-hs window size	16	
- MAC-d PDU size Info		
- MAC-d PDU size	336	
- MAC-d PDU size index	0	
- MAC-hs queue to delete list	Not Present	
- DCH quality target	Not Present	
Frequency info		
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]	
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 1	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	

Information Element	Value/remark	Version
- CFN-targetSFN frame offset	0	
- Downlink DPCH power control information	Not Present	
- Downlink rate matching restriction information	Not Present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Fixed or flexible position	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set	
- DPCH compressed mode info	Not present	
- TX Diversity mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
- MAC-hs reset indicator	TRUE	
Downlink information per radio link list	1 radio link	
Downlink information for each radio link		
- CHOICE mode	FDD	
- Primary CPICH info	Set to the scrambling code for cell 1	
- Cell ID	Not present	
- Serving HS-DSCH radio link indicator	TRUE	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value of DPCH Frame Offset modulo 38400	
- Secondary CPICH info	Not present	
- DL channelisation code	Reference to TS34.108 clause 6.10 Parameter Set	
- Secondary scrambling code	2	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	Any value between 0 and Spreading factor-1	
- Scrambling code change	Not Present	
- TPC combination index	0	
- SSDT cell identity	Not present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not present	

RADIO BEARER RECONFIGURATION (step 5) (1.28Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
RB information to reconfigure list		
- RB information to reconfigure	(high-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	100	
- Timer_poll	100	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set	
- In-sequence delivery	TRUE	
- Receiving window size	768	
- Downlink RLC status info		
- Timer_status_prohibit	100	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
Added or Reconfigured DL TrCH information		
- Downlink transport channel type	HS-DSCH	
- DL Transport channel identity	Not Present	
- CHOICE DL parameters	HS-DSCH	
- HARQ Info	Not Present	
- Added or reconfigured MAC-d flow		
- MAC-hs queue to add or reconfigure list		
- MAC-hs queue Id	0	
- MAC-d Flow Identity	0	
- T1	50	
- MAC-hs window size	16	
- MAC-d PDU size Info		
- MAC-d PDU size	336	
- MAC-d PDU size index	0	
- MAC-hs queue to delete list	Not Present	
- DCH quality target	Not Present	
Frequency info		
- Choice mode	TDD	
- UARFCN (Nt)	Same UARFCN as used for cell 1	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	0	
- Downlink DPCH power control information	Not Present	
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	

Information Element	Value/remark	Version
- MAC-hs reset indicator	TRUE	
Downlink information per radio link list	1 radio link	
Downlink information for each radio link		
- CHOICE mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	1.28Mcps TDD	
- TSTD indicator	FALSE	
- Cell parameters ID	Same Cell parameters ID as used for cell 1	
- SCTD indicator	FALSE	

8.2.2.42.5 Test requirements

After step 3, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message in cell 6.

After step 5, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message in cell 1.

8.2.2.43 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Seamless SRNS relocation, without pending of ciphering, frequency modification)

8.2.2.43.1 Definition

8.2.2.43.2 Conformance requirement

1> if the reconfiguration procedure is simultaneous with SRNS relocation procedure:

2> if the transmitted message is a RADIO BEARER RECONFIGURATION:

3> include the IE "New U-RNTI".

The UE shall:

1> if the received reconfiguration message is a RADIO BEARER RECONFIGURATION and the IE "New U-RNTI" is included:

2> re-establish the RLC entity for RB2;

2> set the new uplink and downlink HFN component of COUNT-C of RB2 to MAX(uplink HFN component of COUNT-C of RB2, downlink HFN component of COUNT-C of RB2);

2> increment by one the downlink and uplink values of the HFN component of COUNT-C for RB2;

2> calculate the START value according to subclause 8.5.9 in TS 25.331;

2> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info".

1> if the IE "Integrity protection mode info" was present in the received reconfiguration message:

2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted response message.

If the new state is CELL_DCH or CELL_FACH, the response message shall be transmitted using the new configuration after the state transition, and the UE shall:

1> if the received reconfiguration message is a RADIO BEARER RECONFIGURATION and the IE "New U-RNTI" is included:

2> when RLC has confirmed the successful transmission of the response message:

3> re-establish all AM and UM RLC entities with RB identities larger than 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the corresponding CN domain;

3> re-establish the RLC entities with RB identities 1, 3 and 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the CN domain stored in the variable LATEST_CONFIGURED_CN_DOMAIN;

3> set the remaining bits of the HFN component of COUNT-C values of all UM RLC entities to zero;

3> re-initialise the PDCP header compression entities of each radio bearer in the variable ESTABLISHED_RABS as specified in TS 25.323.

…

The UE shall:

1> if IE "Integrity protection mode command" has the value "start" and the IE "Status" in the variable INTEGRITY_PROTECTION_INFO has the value "Started" and this IE was not included SECURITY MODE COMMAND:

NOTE: This case is used in SRNS relocation and in handover from GERAN *Iu mode*.

2> perform integrity protection on the received message, applying the new integrity protection configuration, as described in subclause 8.5.10.1 in TS 25.331 by:

3> using the algorithm (UIA [TS 33.102]) indicated by the IE "Integrity protection algorithm" contained in the IE "Integrity protection mode info";

3> using the IE "Integrity protection initialisation number", contained in the IE "Integrity protection mode info" as the value of FRESH [TS 33.102].

2> let RBm be the signalling radio bearer where the reconfiguration message was received and let RBn be the signalling radio bearer where the response message is transmitted;

2> for the downlink, for each signalling radio bearer, if for the signalling radio bearer, a security configuration triggered by a previous SECURITY MODE COMMAND has not yet been applied, due to the activation time for the signalling radio bearer not having been reached:

3> set "Down link RRC Message sequence number" for this signalling radio bearer in the variable INTEGRITY_PROTECTION_INFO to (activation time -1), where the activation time is the corresponding activation time for this signalling radio bearer;

3> if the previous SECURITY MODE COMMAND was received due to new keys being received:

4> consider the new integrity protection configuration to include the received new keys.

3> else if the previous SECURITY MODE COMMAND caused a change in LATEST_CONFIGURED_CN_DOMAIN:

4> consider the new Integrity Protection configuration to include the keys associated with the LATEST_CONFIGURED_CN_DOMAIN associated with the previously received SECURITY MODE COMMAND.

2> start applying the new integrity protection configuration in the downlink for each signalling radio bearer in the IE "ESTABLISHED_RABS" except RBm at the next received RRC message for the corresponding signalling radio bearer;

2> start applying the new integrity protection configuration in the downlink for signalling radio bearer RBm from and including the received configuration message;

2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RBn from and including the transmitted response message;

2> start applying the new integrity protection configuration in the uplink for signalling radio bearers other than RBn from the first message onwards.

Reference

3GPP TS 25.331 clause 8.2.2, .8.6.3.5.2.

8.2.2.43.3 Test purpose

1. To confirm that the UE performs a combined inter-frequency hard handover and SRNS relocation and then transmit a RADIO BEARER RECONFIGURATION COMPLETE message in the new cell.
2. To confirm that the UE correctly applies integrity protection after the SRNS relocation.
3. To confirm that the UE accepts a gap in the downlink RRC message sequence numbering for integrity protection on signalling radio bearer 3 after SRNS relocation.
4. In the case that ciphering is applied by the network, to confirm that the UE restarts ciphering following a successful SRNS relocation.

8.2.2.43.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 and 6

UE: PS-DCCH+DTCH_DCH (state 6-10) or CS-DCCH+DTCH_DCH (state 6-9) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

Table 8.2.2.43

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-75	-75	-60
P-CCPCH (TDD)	dBm	-60	-75	-75	-60

Table 8.2.2.43 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions.

The UE is in the CELL_DCH state, camping onto cell 1. SS configures its downlink transmission power settings according to columns "T1" in table 8.2.2.43. The SS sends a RADIO BEARER RECONFIGURATION message requesting the UE to do a timing re-initialised inter-frequency hard handover combined with SRNS relocation. This message includes the IE "RRC State Indicator" set to "CELL_DCH", IE “New U-RNTI”, the IE “Integrity protection mode info” and the IE “Timing Indication” set to “initialise”.

UE shall reselect to cell 6 and SS verifies that the UE sends RADIO BEARER RECONFIGURATION COMPLETE message. This message also includes a calculated new START value according to the formula “$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the most recently configured CK_X and IK_X}) + 2”, a calculated IE ”Integrity Check Info” using a new FRESH value as included in IE “Integrity protection initialisation number” in the IE “Integrity protection mode info” in the RADIO BEARER RECONFIGURATION message and a COUNT-I that includes subsequent HFN as used in the old integrity protection configuration.

SS then send IDENTITY REQUEST message on the DCCH using RLC-AM (SRB3) in order to confirm that the UE can communicate on SRB3 by using new integrity protection configuration, including using a gap in the downlink RRC message sequence number. The UE shall respond with an IDENTITY RESPONSE message on the uplink DCCH using RLC-AM (SRB3).

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	SS			SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.2.2.43.
2	←		RADIO BEARER RECONFIGURATION	If IE “Ciphering mode info” is present in the SECURITY MODE COMMAND during initial condition set-up, this message is sent after last ciphering activation time has elapsed and there is no pending ciphering activation time. New integrity protection configuration is applied on DL SRB2. LAI and RAI of cell 6 are given to the UE, and are the same as cell 1.
3	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE shall transmit this message after it reselects to cell 6. New calculated START value is included. New integrity protection configuration is applied on UL SRB2.
4	←		DOWNLINK DIRECT TRANSFER	NAS message embedded in this is IDENTITY REQUEST. New integrity protection configuration is applied on DL SRB3.
5	→		UPLINK DIRECT TRANSFER	NAS message embedded in this is IDENTITY RESPONSE. SS confirms that new integrity protection configuration is applied on UL SRB3 by UE. SS uses a gap in the downlink RRC message sequence numbering.

Specific Message Contents

System Information Block type 1 (Cell 1)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

RADIO BEARER RECONFIGURATION (Step 2) – for PS domain testing only (FDD)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "Packet to CELL_DCH from CELL_DCH in PS", with the following exception:

Information Element	Value/remark	Version
Integrity protection mode info		
- Integrity protection mode command	Start	
- Downlink integrity protection activation info	Not Present	
- Integrity protection algorithm	UIA1	
- Integrity protection initialisation number	SS selects an arbitrary 32 bit number for FRESH	
Activation time	Not present	
New U-RNTI		
- SRNC identity	0000 0000 0010B	
- S-RNTI	0000 0000 0000 0000 0001B	
CN Information info		
- PLMN identity	Not present	
- CN common GSM-MAP NAS system information		
- GSM-MAP NAS system information	00 01H	
- CN domain related information		
- CN domain identity	PS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	05 00H	
- CN domain identity	CS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	1E 01H	
RB information to reconfigure list		
- RB information to reconfigure	(UM DCCH for RRC)	
- RB identity	1	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "Signalling RB	
- RB mapping info	information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for RRC)	
- RB identity	2	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "Signalling RB	
- RB mapping info	information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)	
- RB identity	3	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "Signalling RB	
- RB mapping info	information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)	
- RB identity	4	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "Signalling RB	
- RB mapping info	information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DTCH)	
- RB identity	20	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "RB information to	

Information Element	Value/remark	Version
- RB mapping info	setup" for the corresponding radio bearer for the case "Packet to CELL_DCH from CELL_DCH in PS" in the default RADIO BEARER SETUP message in TS 34.108.	
- RB stop/continue	Not Present	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indicator	Initialise	
- MAC-d HFN initial value	Not present	
- CFN-targetSFN frame offset	Not Present	
- Downlink DPCH power control information		
- DPC mode	0 (single)	
- CHOICE mode	FDD	
- Power offset $P_{Pilot-DPDCH}$	0	
- DL rate matching restriction information	Not Present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Fixed or Flexible Position	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set	
- DPCH compressed mode info	Not Present	
- TX Diversity mode	None	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
Frequency info		
CHOICE mode	FDD	
- UARFCN uplink (Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]	
- UARFCN downlink (Nd)	Same downlink UARFCN as used for cell 6	
Downlink information per radio link list		
-Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Set to same code as used for cell 6	
- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only
- PDSCH code mapping	Not Present	R99 and Rel-4 only
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	2	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	0	
- Scrambling code change	No change	
- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

RADIO BEARER RECONFIGURATION (Step 2) – for PS domain testing only (3.84 Mcps TDD)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "Packet to CELL_DCH from CELL_DCH in PS", with the following exception:

Information Element	Value/remark	Version
Integrity protection mode info		
- Integrity protection mode command	Start	
- Downlink integrity protection activation info	Not Present	
- Integrity protection algorithm	UIA1	
- Integrity protection initialisation number	SS selects an arbitrary 32 bit number for FRESH	
Activation time	Not present	
New U-RNTI		
- SRNC identity	0000 0000 0010B	
- S-RNTI	0000 0000 0000 0000 0001B	
CN Information info		
- PLMN identity	Not present	
- CN common GSM-MAP NAS system information		
- GSM-MAP NAS system information	00 01H	
- CN domain related information		
- CN domain identity	PS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	05 00H	
- CN domain identity	CS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	1E 01H	
RB information to reconfigure list		
- RB information to reconfigure	(UM DCCH for RRC)	
- RB identity	1	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "Signalling RB information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for RRC)	
- RB identity	2	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "Signalling RB information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)	
- RB identity	3	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "Signalling RB information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)	
- RB identity	4	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "Signalling RB information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DTCH)	

Information Element	Value/remark	Version
- RB identity	20	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “RB information to setup” for the corresponding radio bearer for the case "Packet to CELL_DCH from CELL_DCH in PS" in the default RADIO BEARER SETUP message in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indicator	Initialise	
- MAC-d HFN initial value	Not present	
- CFN-targetSFN frame offset	Not Present	
- Downlink DPCH power control information		
- DPC mode	0 (single)	
- CHOICE mode	TDD	
- CHOICE *TDD option*	3.84 Mcps TDD (No Data)	REL-4
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
Downlink counter synchronisation info		
- RB with PDCP information list	Not Present.	
Frequency info		
CHOICE mode	TDD	
- UARFCN (Nt)	Same UARFCN as used for cell 6	
Downlink information per radio link list		
-Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- CHOICE *mode*	TDD	
- CHOICE *TDD option*	3.84 Mcps TDD	REL-4
- CHOICE *SyncCase*	Sync Case 1	
- Timeslot	0	
- Cell parameters ID	Set to same code as used for cell 6	
- SCTD indicator	FALSE	
- Downlink DPCH info for each RL		
- CHOICE *mode*	TDD	
- DL CCTrCh List	Set to agree with Cell 6 if different than Cell 1	
- DL CCTrCH List to Remove	Set to agree with Cell 1 if different than Cell 6	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

RADIO BEARER RECONFIGURATION (Step 2) – for PS domain testing only (1.28 Mcps TDD)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "Packet to CELL_DCH from CELL_DCH in PS", with the following exception:

Information Element	Value/remark	Version
Integrity protection mode info		
- Integrity protection mode command	Start	
- Downlink integrity protection activation info	Not Present	
- Integrity protection algorithm	UIA1	
- Integrity protection initialisation number	SS selects an arbitrary 32 bit number for FRESH	
Activation time	Not present	
New U-RNTI		
- SRNC identity	0000 0000 0010B	
- S-RNTI	0000 0000 0000 0000 0001B	
CN Information info		
- PLMN identity	Not present	
- CN common GSM-MAP NAS system information		
- GSM-MAP NAS system information	00 01H	
- CN domain related information		
- CN domain identity	PS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	05 00H	
- CN domain identity	CS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	1E 01H	
RB information to reconfigure list		
- RB information to reconfigure	(UM DCCH for RRC)	
- RB identity	1	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "Signalling RB information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for RRC)	
- RB identity	2	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "Signalling RB information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)	
- RB identity	3	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "Signalling RB information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)	
- RB identity	4	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "Signalling RB information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DTCH)	

Information Element	Value/remark	Version
- RB identity - PDCP info - PDCP SN info - RLC info - RB mapping info - RB stop/continue	20 Not Present Not Present Values as specified for the IE “RB information to setup” for the corresponding radio bearer for the case "Packet to CELL_DCH from CELL_DCH in PS" in the default RADIO BEARER SETUP message in TS 34.108. Not Present	
Downlink information common for all radio links - Downlink DPCH info common for all RL - Timing indicator - MAC-d HFN initial value - CFN-targetSFN frame offset - Downlink DPCH power control information - DPC mode - CHOICE mode - CHOICE *TDD option* - TSTD indicator - Default DPCH Offset Value	 Initialise Not present Not Present 0 (single) TDD 1.28 Mcps TDD FALSE Arbitrary set to value 0..306688 by step of 512	 REL-4
Downlink counter synchronisation info - RB with PDCP information list	 Not Present.	
Frequency info CHOICE mode - UARFCN (Nt)	 TDD Same UARFCN as used for cell 6	
Downlink information per radio link list -Downlink information for each radio link - Choice mode - Primary CCPCH info - CHOICE *mode* - CHOICE *TDD option* - TSTD indicator - Cell parameters ID - SCTD indicator - Downlink DPCH info for each RL - CHOICE *mode* - DL CCTrCh List - DL CCTrCH List to Remove - SCCPCH information for FACH	 TDD TDD 1.28 Mcps TDD FALSE Set to same code as used for cell 6 FALSE TDD Set to agree with Cell 6 if different than Cell 1 Set to agree with Cell 1 if different than Cell 6 Not Present	 REL-4 R99 and Rel-4 only

RADIO BEARER RECONFIGURATION (Step 2) – for PS domain testing only (7.68 Mcps TDD)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "Packet to CELL_DCH from CELL_DCH in PS", with the following exception:

Information Element	Value/remark	Version
Integrity protection mode info		
- Integrity protection mode command	Start	
- Downlink integrity protection activation info	Not Present	
- Integrity protection algorithm	UIA1	
- Integrity protection initialisation number	SS selects an arbitrary 32 bit number for FRESH	
Activation time	Not present	
New U-RNTI		
- SRNC identity	0000 0000 0010B	
- S-RNTI	0000 0000 0000 0000 0001B	
CN Information info		
- PLMN identity	Not present	
- CN common GSM-MAP NAS system information		
- GSM-MAP NAS system information	00 01H	
- CN domain related information		
- CN domain identity	PS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	05 00H	
- CN domain identity	CS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	1E 01H	
RB information to reconfigure list		
- RB information to reconfigure	(UM DCCH for RRC)	
- RB identity	1	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "Signalling RB information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for RRC)	
- RB identity	2	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "Signalling RB information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)	
- RB identity	3	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "Signalling RB information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)	
- RB identity	4	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "Signalling RB information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DTCH)	

Information Element	Value/remark	Version
- RB identity	20	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “RB information to setup” for the corresponding radio bearer for the case "Packet to CELL_DCH from CELL_DCH in PS" in the default RADIO BEARER SETUP message in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
Downlink information common for all radio links		
- CHOICE DPCH info	Downlink DPCH info common for all RL	
- Timing indicator	Initialise	
- MAC-d HFN initial value	Not present	
- Downlink DPCH power control information		
- CHOICE mode	TDD	
- TPC step size	1	
- CHOICE mode	TDD	
- CHOICE mode	TDD	
- CHOICE TDD option	7.68 Mcps TDD	Rel-7
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
- MAC-hs reset indicator	Not Present	Rel-5
- Post-verification period	Not Present	Rel-6
Downlink counter synchronisation info		
- RB with PDCP information list	Not Present.	
Frequency info		
- CHOICE mode	TDD	
- UARFCN (Nt)	Same UARFCN as used for cell 6	
Downlink information per radio link list		
-Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- CHOICE *mode*	TDD	
- CHOICE *TDD option*	7.68 Mcps TDD	REL-7
- CHOICE *SyncCase*	Sync Case 1	
- Timeslot	0	
- Cell parameters ID	Set to same code as used for cell 6	
- SCTD indicator	FALSE	
- CHOICE DPCH info	Downlink DPCH info for each RL	Rel-6
- CHOICE *mode*	7.68 Mcps TDD	
- DL CCTrCh List	Set to agree with Cell 6 if different than Cell 1	
- DL CCTrCH List to Remove	Set to agree with Cell 1 if different than Cell 6	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

RADIO BEARER RECONFIGURATION (Step 2) – for CS domain testing only (FDD)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled “Non speech in CS” or “Speech in CS”, with the following exception:

Information Element	Value/remark	Version
Integrity protection mode info		
- Integrity protection mode command	Start	
- Downlink integrity protection activation info	Not Present	
- Integrity protection algorithm	UIA1	
- Integrity protection initialisation number	SS selects an arbitrary 32 bit number for FRESH	
Activation time	Not present	
New U-RNTI		
- SRNC identity	0000 0000 0010B	
- S-RNTI	0000 0000 0000 0000 0001B	
CN Information info		
- PLMN identity	Not present	
- CN common GSM-MAP NAS system information		
- GSM-MAP NAS system information	00 01H	
- CN domain related information		
- CN domain identity	PS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	05 00H	
- CN domain identity	CS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	1E 01H	
RB information to reconfigure list		
- RB information to reconfigure	(UM DCCH for RRC)	
- RB identity	1	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “Signalling RB information to setup” for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for RRC)	
- RB identity	2	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “Signalling RB information to setup” for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)	
- RB identity	3	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “Signalling RB information to setup” for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)	
- RB identity	4	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “Signalling RB information to setup” for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure		

Information Element	Value/remark	Version
- RB identity - PDCP info - PDCP SN info - RLC info - RB mapping info - RB information to reconfigure - RB identity - PDCP info - PDCP SN info - RLC info - RB mapping info - RB information to reconfigure - RB identity - PDCP info - PDCP SN info - RLC info - RB mapping info	10 Not Present Not Present Values as specified for the IE “RB information to setup” for the corresponding radio bearer for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108. 11 Not Present Not Present Values as specified for the IE “RB information to setup” for the corresponding radio bearer for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108. 12 Not Present Not Present Values as specified for the IE “RB information to setup” for the corresponding radio bearer for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
UL Transport channel information for all transport channels	Values as specified for the corresponding IE for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
Added or Reconfigured UL TrCH information	Values as specified for the corresponding IE for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
DL Transport channel information common for all transport channel	Values as specified for the corresponding IE for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
Added or Reconfigured DL TrCH information	Values as specified for the corresponding IE for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
Frequency info CHOICE mode - UARFCN uplink (Nu) - UARFCN downlink (Nd)	 FDD Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21] Same downlink UARFCN as used for cell 6	
Downlink information common for all radio links - Downlink DPCH info common for all RL - Timing indicator - MAC-d HFN initial value - CFN-targetSFN frame offset - Downlink DPCH power control information - DPC mode - CHOICE mode - Power offset $P_{Pilot-DPDCH}$ - DL rate matching restriction information - Spreading factor - Fixed or Flexible Position - TFCI existence - CHOICE SF	 Initialise Not present Not Present 0 (single) FDD 0 Not Present Reference to TS34.108 clause 6.10 Parameter Set Reference to TS34.108 clause 6.10 Parameter Set Reference to TS34.108 clause 6.10 Parameter Set Reference to TS34.108 clause 6.10 Parameter Set	

Information Element	Value/remark	Version
- DPCH compressed mode info	Not Present	
- TX Diversity mode	None	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
Downlink information per radio link list		
-Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Set to same code as used for cell 6	
- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only
- PDSCH code mapping	Not Present	R99 and Rel-4 only
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	2	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	0	
- Scrambling code change	No change	
- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

RADIO BEARER RECONFIGURATION (Step 2) – for CS domain testing only (3.84 Mcps TDD)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "Non speech in CS" or "Speech in CS", with the following exception:

Information Element	Value/remark	Version
Integrity protection mode info		
- Integrity protection mode command	Start	
- Downlink integrity protection activation info	Not Present	
- Integrity protection algorithm	UIA1	
- Integrity protection initialisation number	SS selects an arbitrary 32 bit number for FRESH	
Activation time	Not present	
New U-RNTI		
- SRNC identity	0000 0000 0010B	
- S-RNTI	0000 0000 0000 0000 0001B	
CN Information info		
- PLMN identity	Not present	
- CN common GSM-MAP NAS system information		
- GSM-MAP NAS system information	00 01H	
- CN domain related information		
- CN domain identity	PS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	05 00H	
- CN domain identity	CS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	1E 01H	
RB information to reconfigure list		
- RB information to reconfigure	(UM DCCH for RRC)	
- RB identity	1	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "Signalling RB information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for RRC)	
- RB identity	2	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "Signalling RB information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)	
- RB identity	3	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "Signalling RB information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)	
- RB identity	4	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "Signalling RB information to setup" for the corresponding radio	

	bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure		
- RB identity	10	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “RB information to setup” for the corresponding radio bearer for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
- RB mapping info		
- RB information to reconfigure		
- RB identity	11	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “RB information to setup” for the corresponding radio bearer for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
- RB mapping info		
- RB information to reconfigure		
- RB identity	12	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “RB information to setup” for the corresponding radio bearer for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
- RB mapping info		
UL Transport channel information for all transport channels	Values as specified for the corresponding IE for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
Added or Reconfigured UL TrCH information	Values as specified for the corresponding IE for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
DL Transport channel information common for all transport channel	Values as specified for the corresponding IE for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
Added or Reconfigured DL TrCH information	Values as specified for the corresponding IE for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
Frequency info		
CHOICE mode	TDD	
- UARFCN (Nt)	Same UARFCN as used for cell 6	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indicator	Initialise	
- MAC-d HFN initial value	Not present	
- CFN-targetSFN frame offset	Not Present	
- Downlink DPCH power control information		
- DPC mode	0 (single)	
- CHOICE mode	TDD	
- CHOICE *TDD option*	3.84 Mcps TDD (No Data)	REL-4
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
Downlink counter synchronisation info		
- RB with PDCP information list	Not Present.	

Downlink information per radio link list		
-Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- CHOICE *mode*	TDD	
- CHOICE *TDD option*	3.84 Mcps TDD	REL-4
- CHOICE *SyncCase*	Sync Case 1	
- Timeslot	0	
- Cell parameters ID	Set to same code as used for cell 6	
- SCTD indicator	FALSE	
- Downlink DPCH info for each RL		
- CHOICE *mode*	TDD	
- DL CCTrCh List	Set to agree with Cell 6 if different than Cell 1	
- DL CCTrCH List to Remove	Set to agree with Cell 1 if different than Cell 6	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

RADIO BEARER RECONFIGURATION (Step 2) – for CS domain testing only (1.28 Mcps TDD)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled “Non speech in CS” or “Speech in CS”, with the following exception:

Information Element	Value/remark	Version
Integrity protection mode info		
- Integrity protection mode command	Start	
- Downlink integrity protection activation info	Not Present	
- Integrity protection algorithm	UIA1	
- Integrity protection initialisation number	SS selects an arbitrary 32 bit number for FRESH	
Activation time	Not present	
New U-RNTI		
- SRNC identity	0000 0000 0010B	
- S-RNTI	0000 0000 0000 0000 0001B	
CN Information info		
- PLMN identity	Not present	
- CN common GSM-MAP NAS system information		
- GSM-MAP NAS system information	00 01H	
- CN domain related information		
- CN domain identity	PS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	05 00H	
- CN domain identity	CS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	1E 01H	
RB information to reconfigure list		
- RB information to reconfigure	(UM DCCH for RRC)	
- RB identity	1	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “Signalling RB information to setup” for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for RRC)	
- RB identity	2	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “Signalling RB information to setup” for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)	
- RB identity	3	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “Signalling RB information to setup” for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)	
- RB identity	4	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “Signalling RB information to setup” for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure		
- RB identity	10	
- PDCP info	Not Present	
- PDCP SN info	Not Present	

Information Element	Value/remark	Version
- RLC info - RB mapping info	Values as specified for the IE “RB information to setup” for the corresponding radio bearer for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
- RB information to reconfigure - RB identity - PDCP info - PDCP SN info - RLC info - RB mapping info	 11 Not Present Not Present Values as specified for the IE “RB information to setup” for the corresponding radio bearer for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
- RB information to reconfigure - RB identity - PDCP info - PDCP SN info - RLC info - RB mapping info	 12 Not Present Not Present Values as specified for the IE “RB information to setup” for the corresponding radio bearer for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
UL Transport channel information for all transport channels	Values as specified for the corresponding IE for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
Added or Reconfigured UL TrCH information	Values as specified for the corresponding IE for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
DL Transport channel information common for all transport channel	Values as specified for the corresponding IE for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
Added or Reconfigured DL TrCH information	Values as specified for the corresponding IE for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
Frequency info CHOICE mode - UARFCN (Nt)	 TDD Same UARFCN as used for cell 6	
Downlink information common for all radio links - Downlink DPCH info common for all RL - Timing indicator - MAC-d HFN initial value - CFN-targetSFN frame offset - Downlink DPCH power control information - DPC mode - CHOICE mode - CHOICE *TDD option* - TSTD indicator - Default DPCH Offset Value	 Initialise Not present Not Present 0 (single) TDD 1.28 Mcps TDD FALSE Arbitrary set to value 0..306688 by step of 512	 REL-4
Downlink counter synchronisation info - RB with PDCP information list	 Not Present.	
Downlink information per radio link list -Downlink information for each radio link - Choice mode - Primary CCPCH info - CHOICE *mode* - CHOICE *TDD option* - TSTD indicator - Cell parameters ID - SCTD indicator - Downlink DPCH info for each RL - CHOICE *mode* - DL CCTrCh List	 TDD TDD 1.28 Mcps TDD FALSE Set to same code as used for cell 6 FALSE TDD Set to agree with Cell 6 if different than Cell 1	 REL-4

Information Element	Value/remark	Version
- DL CCTrCH List to Remove - SCCPCH information for FACH	Set to agree with Cell 1 if different than Cell 6 Not Present	 R99 and Rel-4 only

RADIO BEARER RECONFIGURATION (Step 2) – for CS domain testing only (7.68 Mcps TDD)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled “Non speech in CS” or “Speech in CS”, with the following exception:

Information Element	Value/remark	Version
Integrity protection mode info		
- Integrity protection mode command	Start	
- Downlink integrity protection activation info	Not Present	
- Integrity protection algorithm	UIA1	
- Integrity protection initialisation number	SS selects an arbitrary 32 bit number for FRESH	
Activation time	Not present	
New U-RNTI		
- SRNC identity	0000 0000 0010B	
- S-RNTI	0000 0000 0000 0000 0001B	
CN Information info		
- PLMN identity	Not present	
- CN common GSM-MAP NAS system information		
- GSM-MAP NAS system information	00 01H	
- CN domain related information		
- CN domain identity	PS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	05 00H	
- CN domain identity	CS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	1E 01H	
RB information to reconfigure list		
- RB information to reconfigure	(UM DCCH for RRC)	
- RB identity	1	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “Signalling RB information to setup” for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for RRC)	
- RB identity	2	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “Signalling RB information to setup” for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)	
- RB identity	3	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “Signalling RB information to setup” for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)	
- RB identity	4	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “Signalling RB information to setup” for the corresponding radio	

	bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure		
- RB identity	10	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “RB information to setup” for the corresponding radio bearer for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
- RB mapping info		
- RB information to reconfigure		
- RB identity	11	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “RB information to setup” for the corresponding radio bearer for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
- RB mapping info		
- RB information to reconfigure		
- RB identity	12	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “RB information to setup” for the corresponding radio bearer for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
- RB mapping info		
UL Transport channel information for all transport channels	Values as specified for the corresponding IE for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
Added or Reconfigured UL TrCH information	Values as specified for the corresponding IE for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
DL Transport channel information common for all transport channel	Values as specified for the corresponding IE for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
Added or Reconfigured DL TrCH information	Values as specified for the corresponding IE for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
Frequency info		
- CHOICE mode	TDD	
- UARFCN (Nt)	Same UARFCN as used for cell 6	
Downlink information common for all radio links		
- CHOICE DPCH info	Downlink DPCH info common for all RL	
- Timing indicator	Initialise	
- MAC-d HFN initial value	Not present	
- Downlink DPCH power control information		
- CHOICE mode	TDD	
- TPC step size	1	
- CHOICE mode	TDD	
- CHOICE mode	TDD	
- CHOICE TDD option	7.68 Mcps TDD	Rel-7
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
- MAC-hs reset indicator	Not Present	Rel-5
- Post-verification period	Not Present	Rel-6
Downlink counter synchronisation info		
- RB with PDCP information list	Not Present.	

Downlink information per radio link list		
-Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- CHOICE *mode*	TDD	
- CHOICE *TDD option*	7.68 Mcps TDD	REL-4
- CHOICE *SyncCase*	Sync Case 1	
- Timeslot	0	
- Cell parameters ID	Set to same code as used for cell 6	
- SCTD indicator	FALSE	
- CHOICE DPCH info	Downlink DPCH info for each RL	Rel-6
- CHOICE *mode*	TDD	
- DL CCTrCh List	Set to agree with Cell 6 if different than Cell 1	
- DL CCTrCH List to Remove	Set to agree with Cell 1 if different than Cell 6	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

RADIO BEARER RECONFIGURATION COMPLETE (Step 3) – for PS domain testing only

Check that the UE uses the same message sub-type found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
Uplink counter synchronisation info	
- RB with PDCP information list	Not present
- START list	Check that this IE is present.

RADIO BEARER RECONFIGURATION COMPLETE (Step 3) – for CS domain testing only

Check that the UE uses the same message sub-type found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
COUNT-C activation time	Check that this IE is present.
Uplink counter synchronisation info	
- RB with PDCP information list	Not present
- START list	Check that this IE is present.

DOWNLINK DIRECT TRANSFER (Step 4)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Current RRC SN + 3
CN domain identity	CS domain or PS domain (whichever applicable)
NAS message	IDENTITY REQUEST

NOTE: "Current RRC SN" is defined as the RRC message sequence number of the next transmitted RRC message on the particular radio bearer.

8.2.2.43.5 Test requirement

After step 2, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC which includes a calculated new START value according to the formula "$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the most recently configured CK_X and IK_X}) + 2", calculated IE "Integrity Check Info" using the new FRESH value as included in IE "Integrity protection initialisation number" in IE "Integrity protection mode info" in RADIO BEARER RECONFIGURATION message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration. The UE, further more, shall apply the new integrity protection configuration for the first received/sent RRC message on SRB0, SRB3, and SRB4 after receiving the RADIO BEARER RECONFIGURATION message (i.e. immediately). For SRB2 the new

integrity protection configuration shall be applied from and including the received RADIO BEARER RECONFIGURATION message (DL) and the sent RADIO BEARER RECONFIGURATION COMPLETE message (UL).

After step 3, the UE shall respond with an IDENTITY RESPONSE message to SS and apply the new integrity protection configuration on this message.

8.2.2.43a Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Seamless SRNS relocation, UEA2/UIA2, without pending of ciphering, frequency modification)

8.2.2.43a.1 Definition

Applicable to all Rel-7 UEs which support FDD.

8.2.2.43a.2 Conformance requirement

Same conformance requirement as clause 8.2.2.43.2.

8.2.2.43a.3 Test purpose

1. To confirm that the UE performs a combined inter-frequency hard handover and SRNS relocation and then transmit a RADIO BEARER RECONFIGURATION COMPLETE message in the new cell.
2. To confirm that the UE correctly applies integrity protection using UIA2 after the SRNS relocation.
3. To confirm that the UE accepts a gap in the downlink RRC message sequence numbering for integrity protection using UIA2 on signalling radio bearer 3 after SRNS relocation.
4. To confirm that the UE restarts ciphering using UEA2 following a successful SRNS relocation.

8.2.2.43a.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 and 6

UE: PS-DCCH+DTCH_DCH (state 6-10) or CS-DCCH+DTCH_DCH (state 6-9) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE, UEA2 and UIA2 are configured.

Test Procedure

Same test procedure as clause 8.2.2.43.4 except that ciphering algorithm used is UEA2 and integrity protection algorithm used is UIA2.

Expected sequence

Same expected sequence as clause 8.2.2.43.4

Specific Message Contents

Same specific message contents as clause 8.2.2.43.4 except for the following:

RADIO BEARER RECONFIGURATION (Step 2) – for PS domain testing only (FDD)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled “Packet to CELL_DCH from CELL_DCH in PS”, with the following exception:

Information Element	Value/remark	Version
Integrity protection mode info - Integrity protection algorithm	UIA2	

RADIO BEARER RECONFIGURATION (Step 2) – for CS domain testing only (FDD)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled “Non speech in CS” or “Speech in CS”, with the following exception:

Information Element	Value/remark	Version
Integrity protection mode info - Integrity protection algorithm	UIA2	

8.2.2.43a.5 Test requirement

Same test requirement as clause 8.2.2.43.5.

8.2.2.43b Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Seamless SRNS relocation, change of ciphering and integrity protection algorithms, frequency modification)

8.2.2.43b.1 Definition

Applicable to all Rel-7 UEs which support FDD.

8.2.2.43b.2 Conformance requirement

1> if the reconfiguration procedure is simultaneous with SRNS relocation procedure:

2> if the transmitted message is a RADIO BEARER RECONFIGURATION:

3> include the IE "New U-RNTI".

The UE shall:

1> if the received reconfiguration message is a RADIO BEARER RECONFIGURATION and the IE "New U-RNTI" is included:

2> if the variable PDCP_SN_INFO is empty:

3> configure the corresponding RLC entity for all AM and UM radio bearers and AM and UM signalling radio bearers except RB2 to "stop".

2> else:

3> configure the RLC entity for signalling radio bearers RB1, RB3 and RB4 to "stop";

3> configure the RLC entity for UM and AM radio bearers for which the IE "PDCP SN Info" is not included to "stop".

2> re-establish the RLC entity for RB2;

2> for the downlink and the uplink, apply the ciphering configuration as follows:

3> if the received re-configuration message included the IE "Ciphering Mode Info":

4> use the ciphering configuration in the received message when transmitting the response message.

3> if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because the activation times not having been reached:

4> if the previous SECURITY MODE COMMAND was received due to new keys being received:

5> consider the new ciphering configuration to include the received new keys;

5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 as indicated in subclause 8.1.12.3.1.

4> else if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because of the corresponding activation times not having been reached and the previous SECURITY MODE COMMAND caused a change in LATEST_CONFIGURED_CN_DOMAIN:

5> consider the new ciphering configuration to include the keys associated with the LATEST_CONFIGURED_CN_DOMAIN;

5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 to the most recently transmitted IE "START list" or IE "START" for the LATEST_CONFIGURED_CN_DOMAIN at the reception of the previous SECURITY MODE COMMAND.

4> apply the new ciphering configuration immediately following RLC re-establishment.

3> else:

4> continue using the current ciphering configuration.

2> set the new uplink and downlink HFN component of COUNT-C of RB2 to MAX(uplink HFN component of COUNT-C of RB2, downlink HFN component of COUNT-C of RB2);

2> increment by one the downlink and uplink values of the HFN of COUNT-C for RB2;

2> calculate the START value according to subclause 8.5.9;

2> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info".

…

1> if the received reconfiguration message contained the IE "Ciphering mode info" or contained the IE "Integrity protection mode info":

2> set the IE "Status" in the variable SECURITY_MODIFICATION for all the CN domains in the variable SECURITY_MODIFICATION to "Affected".

1> if the received reconfiguration message contained the IE "Ciphering mode info":

2> if the reconfiguration message is not used to perform SRNS relocation or a handover from GERAN *Iu mode* with change of ciphering algorithm:

3> the UE behaviour is not specified.

2> if the message is used to perform a timing re-initialised hard handover:

3> if IE "Ciphering activation time for DPCH" is included:

4> the UE behaviour is not specified.

2> else:

3> if the reconfiguration message is used to setup radio bearer(s) using RLC-TM; or

3> if radio bearer(s) using RLC-TM already exist:

4> if IE "Ciphering activation time for DPCH" is not included:

5> the UE behaviour is not specified.

1> if the received reconfiguration message contained the IE "Integrity Protection mode info":

2> if the reconfiguration message is not used to perform SRNS relocation or a handover from GERAN *Iu mode*:

3> the UE behaviour is not specified.

1> if the received reconfiguration message did not contain the IE "Ciphering activation time for DPCH" in IE "Ciphering mode info":

2> if prior to this procedure there exist no transparent mode RLC radio bearers:

3> if, at the conclusion of this procedure, the UE will be in CELL_DCH state; and

3> if, at the conclusion of this procedure, at least one transparent mode RLC radio bearer exists:

4> include the IE "COUNT-C activation time" and specify a CFN value for this IE that is a multiple of 8 frames (CFN mod 8 = 0) and lies at least 200 frames ahead of the CFN in which the response message is first transmitted.

NOTE: UTRAN should not include the IE "Ciphering mode info" in any reconfiguration message unless it is also used to perform an SRNS relocation with change of ciphering algorithm.

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> if the variable PDCP_SN_INFO is not empty:

2> include the IE "RB with PDCP information list" and set it to the value of the variable PDCP_SN_INFO.

1> in TDD, if the procedure is used to perform a handover to a cell where timing advance is enabled, and the UE can calculate the timing advance value in the new cell (i.e. in a synchronous TDD network):

2> set the IE "Uplink Timing Advance" according or the IE "Extended UL Timing Advance" to subclause 8.6.6.26.

1> if the IE "Integrity protection mode info" was present in the received reconfiguration message:

2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted response message.

…

If the new state is CELL_DCH or CELL_FACH, the response message shall be transmitted using the new configuration after the state transition, and the UE shall:

1> if the IE "Downlink counter synchronisation info" was included in the reconfiguration message; or

1> if the received reconfiguration message is a RADIO BEARER RECONFIGURATION and the IE "New U-RNTI" is included:

2> when RLC has confirmed the successful transmission of the response message:

3> if the variable PDCP_SN_INFO is empty:

4> configure the RLC entity for all AM and UM radio bearers and AM and UM signalling radio bearers except RB2 to "continue".

3> else:

4> configure the RLC entity for signalling radio bearers RB1, RB3 and RB4 to "continue";

4> configure the RLC entity for UM and AM radio bearers for which the IE "PDCP SN Info" is not included to "continue".

3> re-establish all AM and UM RLC entities with RB identities larger than 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the corresponding CN domain;

3> re-establish the RLC entities with RB identities 1, 3 and 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the CN domain stored in the variable LATEST_CONFIGURED_CN_DOMAIN;

3> set the remaining bits of the HFN component of COUNT-C values of all UM RLC entities to zero;

3> if the IE "PDCP context relocation info" is not present:

4> re-initialise the PDCP header compression entities of each radio bearer in the variable ESTABLISHED_RABS as specified in [36].

3> if the IE "PDCP context relocation info" is present:

4> perform the actions as specified in subclause 8.6.4.13.

…

1> set the IE "Status" in the variable CIPHERING_STATUS of the CN domains for which the IE "Status" of the variable SECURITY_MODIFICATION is set to "Affected" to "Started";

1> apply the new ciphering configuration in the lower layers for all RBs that belong to a CN domain for which the IE "Status" of the variable SECURITY_MODIFICATION is set to "Affected" and all signalling radio bearers:

2> using the ciphering algorithm (UEA [40]) indicated by the IE "Ciphering algorithm" as part of the new ciphering configuration;

2> for each radio bearer that belongs to a CN domain for which the IE "Status" of the variable SECURITY_MODIFICATION is set to "Affected" and all signalling radio bearers:

3> using the value of the IE "RB identity" in the variable ESTABLISHED_RABS minus one as the value of BEARER [40] in the ciphering algorithm.

1> for the downlink and the uplink, apply the new ciphering configuration as follows:

2> if the ciphering configuration for a AM or UM radio bearer or signalling radio bearer from a previously received SECURITY MODE COMMAND has not yet been applied because of the corresponding activation times not having been reached and the current received message includes the IE "DL Counter Synch Info" or the current received message is a RADIO BEARER RECONFIGURATION message and includes the IE "New U-RNTI":

3> if the previous SECURITY MODE COMMAND was received due to new keys being received:

4> consider the new ciphering configuration to include the received new keys.

3> else if the previous SECURITY MODE COMMAND caused a change in LATEST_CONFIGURED_CN_DOMAIN:

4> consider the new ciphering configuration to include the keys associated with the LATEST_CONFIGURED_CN_DOMAIN.

3> apply the new ciphering configuration in uplink and downlink immediately following RLC re-establishment.

2> if the IE "Ciphering activation time for DPCH" is present in the IE "Ciphering mode info" and the UE was in CELL_DCH state prior to this procedure:

3> for radio bearers using RLC-TM:

4> apply the old ciphering configuration for CFN less than the number indicated in the IE "Ciphering activation time for DPCH";

4> apply the new ciphering configuration for CFN greater than or equal to the number indicated in IE "Ciphering activation time for DPCH".

2> if the IE "Radio bearer downlink ciphering activation time info" is present:

3> apply the following procedure for each radio bearer and signalling radio bearers using RLC-AM or RLC-UM indicated by the IE "RB identity":

4> suspend uplink transmission on the radio bearer or the signalling radio bearer (except for the SRB where the response message is transmitted) according to the following:

5> do not transmit RLC PDUs with sequence number greater than or equal to the uplink activation time, where the uplink activation time is selected according to the rules below.

4> select an "RLC sequence number" at which (activation) time the new ciphering configuration shall be applied in uplink for that radio bearer according to the following:

5> consider a ciphering activation time in uplink to be pending until the RLC sequence number of the next RLC PDU to be transmitted for the first time is equal to or larger than the selected activation time;

5> for each radio bearer and signalling radio bearer that has no pending ciphering activation time in uplink as set by a previous procedure changing the security configuration:

6> set a suitable value that would ensure a minimised delay in the change to the latest ciphering configuration.

5> for each radio bearer and signalling radio bearer that has a pending ciphering activation time in uplink as set by a previous procedure changing the security configuration:

6> for radio bearers and signalling radio bearers except SRB2:

7> set the same value as the pending ciphering activation time.

6> for signalling radio bearer SRB2:

7> set a suitable value that would ensure a minimised delay in the change to the latest ciphering configuration.

4> store the selected "RLC sequence number" for that radio bearer in the entry for the radio bearer in the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;

4> switch to the new ciphering configuration according to the following:

5> use the old ciphering configuration for the transmitted and received RLC PDUs with RLC sequence numbers smaller than the corresponding RLC sequence numbers indicated in the IE "Radio bearer uplink ciphering activation time info" sent to UTRAN and in the received IE "Radio bearer downlink ciphering activation time info" received from UTRAN, respectively;

5> use the new ciphering configuration for the transmitted and received RLC PDUs with RLC sequence numbers greater than or equal to the corresponding RLC sequence numbers indicated in the IE "Radio bearer uplink ciphering activation time info" sent to UTRAN and in the received IE "Radio bearer downlink ciphering activation time info" received from UTRAN, respectively;

5> for a radio bearer using RLC-AM, when the RLC sequence number indicated in the IE "Radio bearer downlink ciphering activation time info" falls below the RLC receiving window and the RLC sequence number indicated in the IE "Radio bearer uplink ciphering activation time info" falls below the RLC transmission window, the UE may release the old ciphering configuration for that radio bearer;

5> if an RLC reset or re-establishment of the transmitting side of an RLC entity occurs before the activation time for the new ciphering configuration has been reached in uplink, ignore the activation time and apply the new ciphering configuration in uplink immediately after the RLC reset or RLC re-establishment;

5> if an RLC reset or re-establishment of the receiving side of an RLC entity occurs before the activation time for the new ciphering configuration has been reached in downlink, ignore the activation time and apply the new ciphering configuration in downlink immediately after the RLC reset or RLC re-establishment.

2> if the current received message includes the IE "Downlink counter synchronisation info" or the current received message is a RADIO BEARER RECONFIGURATION message and includes the IE "New U-RNTI":

3> apply the new ciphering configuration in uplink and downlink immediately following RLC re-establishment.

…

The UE shall:

1> if IE "Integrity protection mode command" has the value "start" and the IE "Status" in the variable INTEGRITY_PROTECTION_INFO has the value "Started" and this IE was not included SECURITY MODE COMMAND:

NOTE: This case is used in SRNS relocation and in handover from GERAN *Iu mode*.

2> perform integrity protection on the received message, applying the new integrity protection configuration, as described in subclause 8.5.10.1 in TS 25.331 by:

3> using the algorithm (UIA [TS 33.102]) indicated by the IE "Integrity protection algorithm" contained in the IE "Integrity protection mode info";

3> using the IE "Integrity protection initialisation number", contained in the IE "Integrity protection mode info" as the value of FRESH [TS 33.102].

2> let RBm be the signalling radio bearer where the reconfiguration message was received and let RBn be the signalling radio bearer where the response message is transmitted;

2> for the downlink, for each signalling radio bearer, if for the signalling radio bearer, a security configuration triggered by a previous SECURITY MODE COMMAND has not yet been applied, due to the activation time for the signalling radio bearer not having been reached:

3> set "Down link RRC Message sequence number" for this signalling radio bearer in the variable INTEGRITY_PROTECTION_INFO to (activation time -1), where the activation time is the corresponding activation time for this signalling radio bearer;

3> if the previous SECURITY MODE COMMAND was received due to new keys being received:

4> consider the new integrity protection configuration to include the received new keys.

3> else if the previous SECURITY MODE COMMAND caused a change in LATEST_CONFIGURED_CN_DOMAIN:

4> consider the new Integrity Protection configuration to include the keys associated with the LATEST_CONFIGURED_CN_DOMAIN associated with the previously received SECURITY MODE COMMAND.

2> start applying the new integrity protection configuration in the downlink for each signalling radio bearer in the IE "ESTABLISHED_RABS" except RBm at the next received RRC message for the corresponding signalling radio bearer;

2> start applying the new integrity protection configuration in the downlink for signalling radio bearer RBm from and including the received configuration message;

2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RBn from and including the transmitted response message;

2> start applying the new integrity protection configuration in the uplink for signalling radio bearers other than RBn from the first message onwards.

Reference

3GPP TS 25.331 clause 8.2.2, 8.6.3.4, 8.6.3.5.2.

8.2.2.43b.3 Test purpose

1. To confirm that the UE performs a combined inter-frequency hard handover and SRNS relocation and then transmit a RADIO BEARER RECONFIGURATION COMPLETE message in the new cell.
2. To confirm that the UE correctly applies new ciphering and integrity protection algorithms after the SRNS relocation from UEA1/UIA1 to UEA2/UIA2
3. To confirm that the UE correctly applies new ciphering and integrity protection algorithms after the SRNS relocation from UEA2/UIA2 to UEA1/UIA1

8.2.2.43b.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 and 6

UE: PS-DCCH+DTCH_DCH (state 6-10) or CS-DCCH+DTCH_DCH (state 6-9) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE. UEA1 and UIA1 are configured.

Test Procedure

Table 8.2.2.43b

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-75	-75	-60

Table 8.2.2.43b illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions.

The UE is in the CELL_DCH state, camping onto cell 1 with UEA1 and UIA1 configured. SS configures its downlink transmission power settings according to columns "T1" in table 8.2.2.43b. The SS sends a RADIO BEARER RECONFIGURATION message requesting the UE to do a timing re-initialised inter-frequency hard handover combined with SRNS relocation, with change of ciphering and integrity algorithms. This message includes the IE "RRC State Indicator" set to "CELL_DCH", IE “New U-RNTI”, the IE “Integrity protection mode info” with UIA2, the UE “Ciphering Mode Info” with UEA2, and the IE “Timing Indication” set to “initialise”.

UE shall reselect to cell 6 and SS verifies that the UE sends RADIO BEARER RECONFIGURATION COMPLETE message. This message also includes a calculated new START value according to the formula “$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the most recently configured CK_X and IK_X}) + 2”, a calculated IE ”Integrity Check Info” using a new FRESH value as included in IE “Integrity protection initialisation number” in the IE “Integrity protection mode info” in the RADIO BEARER RECONFIGURATION message and a COUNT-I that includes subsequent HFN as used in the old integrity protection configuration.

SS then send IDENTITY REQUEST message on the DCCH using RLC-AM (SRB3) in order to confirm that the UE can communicate on SRB3 by using new integrity protection configuration, including using a gap in the downlink RRC message sequence number. The UE shall respond with an IDENTITY RESPONSE message on the uplink DCCH using RLC-AM (SRB3).

SS configures its downlink transmission power settings according to columns "T0" in table 8.2.2.43b. The SS sends a RADIO BEARER RECONFIGURATION message requesting the UE to do a timing re-initialised inter-frequency hard handover to Cell 1 combined with SRNS relocation, with change of ciphering and integrity algorithms. This message includes the IE "RRC State Indicator" set to "CELL_DCH", IE “New U-RNTI”, the IE “Integrity protection mode info” with UIA1, the UE “Ciphering Mode Info” with UEA1, and the IE “Timing Indication” set to “initialise”.

UE shall reselect to cell 1 and SS verifies that the UE sends RADIO BEARER RECONFIGURATION COMPLETE message. This message also includes a calculated new START value according to the formula “$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the most recently configured CK_X and IK_X}) + 2”, a calculated IE ”Integrity Check Info” using a new FRESH value as included in IE “Integrity protection

initialisation number" in the IE "Integrity protection mode info" in the RADIO BEARER RECONFIGURATION message and a COUNT-I that includes subsequent HFN as used in the old integrity protection configuration.

SS then send IDENTITY REQUEST message on the DCCH using RLC-AM (SRB3) in order to confirm that the UE can communicate on SRB3 by using new integrity protection configuration, including using a gap in the downlink RRC message sequence number. The UE shall respond with an IDENTITY RESPONSE message on the uplink DCCH using RLC-AM (SRB3).

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	SS			SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.2.2.43.
2	←		RADIO BEARER RECONFIGURATION	This message is sent after last ciphering activation time has elapsed and there is no pending ciphering activation time, to configure UEA2 and UIA2. LAI and RAI of cell 6 are given to the UE, and are the same as cell 1.
3	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE shall transmit this message after it reselects to cell 6. New calculated START value is included. New integrity protection configuration using UIA2 is applied on UL SRB2.
4	←		DOWNLINK DIRECT TRANSFER	NAS message embedded in this is IDENTITY REQUEST. New integrity protection configuration is applied on DL SRB3.
5	→		UPLINK DIRECT TRANSFER	NAS message embedded in this is IDENTITY RESPONSE. SS confirms that new integrity protection configuration UIA2 and ciphering algorithm UEA2 is applied on UL SRB3 by UE.
6	SS			SS applies the downlink transmission power settings, according to the values in columns "T0" of table 8.2.2.43.
7	←		RADIO BEARER RECONFIGURATION	To configure UEA1 and UIA1. LAI and RAI of cell 1 are given to the UE, and are the same as cell 6.
8	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE shall transmit this message after it reselects to cell 1. New calculated START value is included. New integrity protection configuration using UIA1 is applied on UL SRB2.
9	←		DOWNLINK DIRECT TRANSFER	NAS message embedded in this is IDENTITY REQUEST. New integrity protection configuration is applied on DL SRB3.
10	→		UPLINK DIRECT TRANSFER	NAS message embedded in this is IDENTITY RESPONSE. SS confirms that new integrity protection configuration UIA1 and ciphering algorithm UEA1 is applied on UL SRB3 by UE.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 2) – for PS domain testing only (FDD)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled “Packet to CELL_DCH from CELL_DCH in PS”, with the following exception:

Information Element	Value/remark	Version
Integrity protection mode info		
- Integrity protection mode command	Start	
- Downlink integrity protection activation info	Not Present	
- Integrity protection algorithm	UIA2	
- Integrity protection initialisation number	SS selects an arbitrary 32 bit number for FRESH	
Ciphering mode info		
Ciphering mode command	Start/restart	
Ciphering algorithm	UEA2	
Radio bearer downlink ciphering activation time info	Not present	
Activation time	Not present	
New U-RNTI		
- SRNC identity	0000 0000 0010B	
- S-RNTI	0000 0000 0000 0000 0001B	
CN Information info		
- PLMN identity	Not present	
- CN common GSM-MAP NAS system information		
- GSM-MAP NAS system information	00 01H	
- CN domain related information		
- CN domain identity	PS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	05 00H	
- CN domain identity	CS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	1E 01H	
RB information to reconfigure list		
- RB information to reconfigure	(UM DCCH for RRC)	
- RB identity	1	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “Signalling RB	
- RB mapping info	information to setup” for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for RRC)	
- RB identity	2	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “Signalling RB	
- RB mapping info	information to setup” for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)	
- RB identity	3	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “Signalling RB	
- RB mapping info	information to setup” for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)	
- RB identity	4	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “Signalling RB	

Information Element	Value/remark	Version
- RB mapping info	information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DTCH)	
- RB identity	20	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "RB information to setup" for the corresponding radio bearer for the case "Packet to CELL_DCH from CELL_DCH in PS" in the default RADIO BEARER SETUP message in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indicator	Initialise	
- MAC-d HFN initial value	Not present	
- CFN-targetSFN frame offset	Not Present	
- Downlink DPCH power control information		
- DPC mode	0 (single)	
- CHOICE mode	FDD	
- Power offset $P_{Pilot-DPDCH}$	0	
- DL rate matching restriction information	Not Present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Fixed or Flexible Position	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set	
- DPCH compressed mode info	Not Present	
- TX Diversity mode	None	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
Frequency info		
CHOICE mode	FDD	
- UARFCN uplink (Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]	
- UARFCN downlink (Nd)	Same downlink UARFCN as used for cell 6	
Downlink information per radio link list		
-Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Set to same code as used for cell 6	
- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only
- PDSCH code mapping	Not Present	R99 and Rel-4 only
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	2	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	0	
- Scrambling code change	No change	
- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

RADIO BEARER RECONFIGURATION (Step 2) – for CS domain testing only (FDD)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled “Non speech in CS” or “Speech in CS”, with the following exception:

Information Element	Value/remark	Version
Integrity protection mode info		
- Integrity protection mode command	Start	
- Downlink integrity protection activation info	Not Present	
- Integrity protection algorithm	UIA2	
- Integrity protection initialisation number	SS selects an arbitrary 32 bit number for FRESH	
Ciphering mode info		
Ciphering mode command	Start/restart	
Ciphering algorithm	UEA2	
Radio bearer downlink ciphering activation time info	Not present	
Activation time	Not present	
New U-RNTI		
- SRNC identity	0000 0000 0010B	
- S-RNTI	0000 0000 0000 0000 0001B	
CN Information info		
- PLMN identity	Not present	
- CN common GSM-MAP NAS system information		
- GSM-MAP NAS system information	00 01H	
- CN domain related information		
- CN domain identity	PS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	05 00H	
- CN domain identity	CS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	1E 01H	
RB information to reconfigure list		
- RB information to reconfigure	(UM DCCH for RRC)	
- RB identity	1	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “Signalling RB	
- RB mapping info	information to setup” for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for RRC)	
- RB identity	2	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “Signalling RB	
- RB mapping info	information to setup” for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)	
- RB identity	3	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “Signalling RB	
- RB mapping info	information to setup” for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)	
- RB identity	4	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “Signalling RB	

Information Element	Value/remark	Version
- RB mapping info	information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB stop/continue	Not Present	
- RB information to reconfigure		
- RB identity	10	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "RB information to setup" for the corresponding radio bearer for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
- RB mapping info		
- RB information to reconfigure		
- RB identity	11	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "RB information to setup" for the corresponding radio bearer for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
- RB mapping info		
- RB information to reconfigure		
- RB identity	12	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "RB information to setup" for the corresponding radio bearer for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
- RB mapping info		
UL Transport channel information for all transport channels	Values as specified for the corresponding IE for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
Added or Reconfigured UL TrCH information	Values as specified for the corresponding IE for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
DL Transport channel information common for all transport channel	Values as specified for the corresponding IE for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
Added or Reconfigured DL TrCH information	Values as specified for the corresponding IE for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
Frequency info		
CHOICE mode	FDD	
- UARFCN uplink (Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]	
- UARFCN downlink (Nd)	Same downlink UARFCN as used for cell 6	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indicator	Initialise	
- MAC-d HFN initial value	Not present	
- CFN-targetSFN frame offset	Not Present	
- Downlink DPCH power control information		
- DPC mode	0 (single)	
- CHOICE mode	FDD	
- Power offset $P_{Pilot-DPDCH}$	0	
- DL rate matching restriction information	Not Present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	

Information Element	Value/remark	Version
- Fixed or Flexible Position	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set	
- DPCH compressed mode info	Not Present	
- TX Diversity mode	None	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
Downlink information per radio link list		
-Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Set to same code as used for cell 6	
- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only
- PDSCH code mapping	Not Present	R99 and Rel-4 only
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	2	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	0	
- Scrambling code change	No change	
- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

RADIO BEARER RECONFIGURATION (Step 7) – for PS domain testing only (FDD)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "Packet to CELL_DCH from CELL_DCH in PS", with the following exception:

Information Element	Value/remark	Version
Integrity protection mode info		
- Integrity protection mode command	Start	
- Downlink integrity protection activation info	Not Present	
- Integrity protection algorithm	UIA1	
- Integrity protection initialisation number	SS selects an arbitrary 32 bit number for FRESH	
Ciphering mode info		
Ciphering mode command	Start/restart	
Ciphering algorithm	UEA1	
Radio bearer downlink ciphering activation time info	Not present	
Activation time	Not present	
New U-RNTI		
- SRNC identity	0000 0000 0010B	
- S-RNTI	0000 0000 0000 0000 0001B	
CN Information info		
- PLMN identity	Not present	
- CN common GSM-MAP NAS system information		
- GSM-MAP NAS system information	00 01H	
- CN domain related information		
- CN domain identity	PS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	05 00H	
- CN domain identity	CS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	1E 01H	
RB information to reconfigure list		
- RB information to reconfigure	(UM DCCH for RRC)	
- RB identity	1	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "Signalling RB	
- RB mapping info	information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for RRC)	
- RB identity	2	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "Signalling RB	
- RB mapping info	information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)	
- RB identity	3	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "Signalling RB	
- RB mapping info	information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)	
- RB identity	4	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "Signalling RB	
- RB mapping info	information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB stop/continue	Not Present	

Information Element	Value/remark	Version
- RB information to reconfigure	(AM DTCH)	
- RB identity	20	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “RB information to setup” for the corresponding radio bearer for the case "Packet to CELL_DCH from CELL_DCH in PS" in the default RADIO BEARER SETUP message in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indicator	Initialise	
- MAC-d HFN initial value	Not present	
- CFN-targetSFN frame offset	Not Present	
- Downlink DPCH power control information		
- DPC mode	0 (single)	
- CHOICE mode	FDD	
- Power offset $P_{Pilot-DPDCH}$	0	
- DL rate matching restriction information	Not Present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Fixed or Flexible Position	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set	
- DPCH compressed mode info	Not Present	
- TX Diversity mode	None	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
Frequency info		
CHOICE mode	FDD	
- UARFCN uplink (Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]	
- UARFCN downlink (Nd)	Same downlink UARFCN as used for cell 1	
Downlink information per radio link list		
-Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Set to same code as used for cell 1	
- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only
- PDSCH code mapping	Not Present	R99 and Rel-4 only
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	2	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	0	
- Scrambling code change	No change	
- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

RADIO BEARER RECONFIGURATION (Step 7) – for CS domain testing only (FDD)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled “Non speech in CS” or “Speech in CS”, with the following exception:

Information Element	Value/remark	Version
Integrity protection mode info		
- Integrity protection mode command	Start	
- Downlink integrity protection activation info	Not Present	
- Integrity protection algorithm	UIA1	
- Integrity protection initialisation number	SS selects an arbitrary 32 bit number for FRESH	
Ciphering mode info		
Ciphering mode command	Start/restart	
Ciphering algorithm	UEA1	
Radio bearer downlink ciphering activation time info	Not present	
Activation time	Not present	
New U-RNTI		
- SRNC identity	0000 0000 0010B	
- S-RNTI	0000 0000 0000 0000 0001B	
CN Information info		
- PLMN identity	Not present	
- CN common GSM-MAP NAS system information		
- GSM-MAP NAS system information	00 01H	
- CN domain related information		
- CN domain identity	PS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	05 00H	
- CN domain identity	CS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	1E 01H	
RB information to reconfigure list		
- RB information to reconfigure	(UM DCCH for RRC)	
- RB identity	1	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “Signalling RB information to setup” for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for RRC)	
- RB identity	2	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “Signalling RB information to setup” for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)	
- RB identity	3	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “Signalling RB information to setup” for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)	
- RB identity	4	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “Signalling RB	

Information Element	Value/remark	Version
- RB mapping info	information to setup" for the corresponding radio bearer in the default RRC CONNECTION SETUP message (Transition to CELL_DCH) in TS 34.108.	
- RB stop/continue	Not Present	
- RB information to reconfigure		
- RB identity	10	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "RB information to setup" for the corresponding radio bearer for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
- RB mapping info		
- RB information to reconfigure		
- RB identity	11	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "RB information to setup" for the corresponding radio bearer for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
- RB mapping info		
- RB information to reconfigure		
- RB identity	12	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE "RB information to setup" for the corresponding radio bearer for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
- RB mapping info		
UL Transport channel information for all transport channels	Values as specified for the corresponding IE for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
Added or Reconfigured UL TrCH information	Values as specified for the corresponding IE for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
DL Transport channel information common for all transport channel	Values as specified for the corresponding IE for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
Added or Reconfigured DL TrCH information	Values as specified for the corresponding IE for the case "Speech to CELL_DCH from CELL_DCH in CS" in the default RADIO BEARER SETUP message in TS 34.108.	
Frequency info		
CHOICE mode	FDD	
- UARFCN uplink (Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]	
- UARFCN downlink (Nd)	Same downlink UARFCN as used for cell 1	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indicator	Initialise	
- MAC-d HFN initial value	Not present	
- CFN-targetSFN frame offset	Not Present	
- Downlink DPCH power control information		
- DPC mode	0 (single)	
- CHOICE mode	FDD	
- Power offset $P_{Pilot-DPDCH}$	0	
- DL rate matching restriction information	Not Present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	

Information Element	Value/remark	Version
- Fixed or Flexible Position	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set	
- DPCH compressed mode info	Not Present	
- TX Diversity mode	None	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
Downlink information per radio link list		
-Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Set to same code as used for cell 1	
- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only
- PDSCH code mapping	Not Present	R99 and Rel-4 only
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	2	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	0	
- Scrambling code change	No change	
- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

RADIO BEARER RECONFIGURATION COMPLETE (Steps 3 and 8) – for PS domain testing only

Check that the UE uses the same message sub-type found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
Uplink counter synchronisation info	
- RB with PDCP information list	Not present
- START list	Check that this IE is present.

RADIO BEARER RECONFIGURATION COMPLETE (Steps 3 and 8) – for CS domain testing only

Check that the UE uses the same message sub-type found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
COUNT-C activation time	Check that this IE is present.
Uplink counter synchronisation info	
- RB with PDCP information list	Not present
- START list	Check that this IE is present.

DOWNLINK DIRECT TRANSFER (Steps 4 and 9)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Current RRC SN + 3
CN domain identity	CS domain or PS domain (whichever applicable)
NAS message	IDENTITY REQUEST

NOTE: "Current RRC SN" is defined as the RRC message sequence number of the next transmitted RRC message on the particular radio bearer.

8.2.2.43.5 Test requirement

After step 2, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC which includes a calculated new START value according to the formula "$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the most recently configured CK_X and IK_X}) + 2", calculated IE "Integrity Check Info" using the new FRESH value as included in IE "Integrity protection initialisation number" in IE "Integrity protection mode info" in RADIO BEARER RECONFIGURATION message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration. The UE, further more, shall apply the new integrity protection configuration for the first received/sent RRC message on SRB0, SRB3, and SRB4 after receiving the RADIO BEARER RECONFIGURATION message (i.e. immediately). For SRB2 the new integrity protection configuration shall be applied from and including the received RADIO BEARER RECONFIGURATION message (DL) and the sent RADIO BEARER RECONFIGURATION COMPLETE message (UL).

After step 4, the UE shall respond with an IDENTITY RESPONSE message to SS and apply the new integrity protection algorithm UIA2 and ciphering algorithm UEA1 on this message.

After step 7, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC which includes a calculated new START value according to the formula "$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the most recently configured CK_X and IK_X}) + 2", calculated IE "Integrity Check Info" using the new FRESH value as included in IE "Integrity protection initialisation number" in IE "Integrity protection mode info" in RADIO BEARER RECONFIGURATION message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration. The UE, further more, shall apply the new integrity protection configuration for the first received/sent RRC message on SRB0, SRB3, and SRB4 after receiving the RADIO BEARER RECONFIGURATION message (i.e. immediately). For SRB2 the new integrity protection configuration shall be applied from and including the received RADIO BEARER RECONFIGURATION message (DL) and the sent RADIO BEARER RECONFIGURATION COMPLETE message (UL).

After step 9, the UE shall respond with an IDENTITY RESPONSE message to SS and apply the new integrity protection algorithm UIA1 and ciphering algorithm UEA1 on this message.

8.2.2.44 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (With active E-DCH transmission)

8.2.2.44.1 Definition and applicability

All UEs which support FDD and HS-PDSCH and E-DPDCH and all UEs which support TDD and HS-PDSCH and E-PUCH.

8.2.2.44.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable E_DCH_TRANSMISSION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable E_RNTI includes either the Primary E-RNTI or the Secondary E-RNTI or both the Primary and the Secondary E-RNTI;

1> For FDD:

2> the UE has stored the following IEs:

- IE "E-DCH Transmission Time Interval";
- IE "HARQ info for E-DCH";
- IE "E-DCH info", including the IE "E-DPCCH info" and the IE "E-DPDCH info";
- one of the radio links in the active set is configured as the serving E-DCH radio link, and for this radio link the UTRAN has configured the IE "E-HICH configuration" and the IE "E-AGCH info".

1> For TDD:

2> for non-scheduled transmission, the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-PUCH info";
- IE "Non-scheduled transmission grant info".

2> for scheduled transmission, the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-RUCCH info" and the IE "E-PUCH info";
- IE "E-HICH info";
- IE "E-AGCH info".

1> there is at least one logical channel mapped to E-DCH for which:

2> the corresponding E-DCH MAC-d flow is configured, i.e. the IEs "E-DCH MAC-d flow power offset" and "E-DCH MAC-d flow maximum number of retransmissions", and the transmission grant type are configured.

If any of the above conditions is not met and the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> set the variable E_DCH_TRANSMISSION to FALSE;

1> stop any E-AGCH and E-HICH reception procedures;

1> For FDD:

2> stop any E-RGCH reception procedures.

1> For FDD:

2> stop any E-DPCCH and E-DPDCH transmission procedures.

1> For TDD:

2> stop any E-RUCCH and E-PUCH transmission procedures.

1> clear the variable E_RNTI;

1> act as if the IE "MAC-es/e reset indicator" was received and set to TRUE;

1> release all E-DCH HARQ resources;

1> no longer consider any radio link to be the serving E-DCH radio link.

Whenever the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1>For FDD:

2> perform E_AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI" and the IE "New Secondary E-RNTI".

2> perform E-HICH reception procedures for all radio links in the E-DCH active set;

2> perform E-RGCH reception procedures for all radio links in the active set for which an E-RGCH configuration has been provided;

2> perform E-DPCCH transmission procedures according to the stored E-DPCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-DPCCH Info".

2> perform E-DPDCH transmission procedures according to the stored E-DPDCH configuration as stated in:

3> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

3> subclause 8.6.5.17 for the IE "HARQ info for E-DCH";

3> subclause 8.6.6.37 for the IE "E-DPDCH Info".

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

1>For TDD:

2> if scheduled transmission is configured, perform E-AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI".

2> Perform E-HICH reception;

2> for 3.84/7.68 Mcps TDD, perform E-RUCCH transmission procedures according to the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

2> for 1.28 Mcps TDD, if scheduled transmission is configured, perform E-RUCCH transmission procedure according to the stored PRACH configuration (see [60]) and the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

NOTE 1: The PRACH configuration is signalled directly to the UE in "E-RUCCH Info" IE in case of E-DCH serving cell change.

2> Perform E-PUCH transmission procedures according to the stored E-PUCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-PUCH Info".

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

2> obtain and format the appropriate information on E-UCCH (see [15]). For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, the UE shall use the lowest E-DCH capability category, as specified in [35], to signal the UL control information on E-UCCH.

NOTE 2: For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, UTRAN should use the lowest E-DCH capability category when performing configuration, scheduling and reading the control information on E-UCCH, as it is not possible for Node B to be aware of the UE's E-DCH capability category during this period.

Whenever the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> not perform E-AICH, E-HICH and E-RGCH reception procedures;

1> not perform E-DPCCH, E-DPDCH, E-RUCCH and/or E-PUCH transmission procedures.

Reference

3GPP TS 25.331 clauses 8.2.2.4, 8.5.28

8.2.2.44.3 Test purpose

To confirm that the UE reconfigures radio bearer parameters during active E-DCH transmission according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.44.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A12, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports E-DPDCH (FDD only)
- UE supports E-PUCH (TDD only)

Test Procedure

The UE is in CELL_DCH state and has a user radio bearer mapped on E-DCH/HS-DSCH established in cell 1.

The SS transmits a RADIO BEARER RECONFIGURATION message to the UE, to reconfigure Timer_poll_prohibit_, Timer_poll & Timer_status_prohibit to 200ms. After the UE receives this message, it reconfigures the radio bearer and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
UL Transport channel information for all transport channels	Not present
Added or Reconfigured UL TrCH information	Not present
DL Transport channel information common for all transport channel	Not present
Added or Reconfigured DL TrCH information	Not present
Uplink channel requirement	Not present
Downlink information common for all radio links	Not present
Downlink information for each radio link	Not present

8.2.2.44.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

8.2.2.44a Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (With active E-DCH transmission, F-DPCH configured)

8.2.2.44a.1 Definition and applicability

All UEs which support FDD and HS-PDSCH and E-DPDCH and fully support F-DPCH.

8.2.2.44a.2 Conformance requirement

Same conformance requirement as in clause 8.2.2.44.2

8.2.2.44a.3 Test purpose

Same test purpose as in clause 8.2.2.44.3

8.2.2.44a.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A14, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH
- UE supports E-DPDCH
- UE fully supports F-DPCH

Test Procedure

Same test procedure as in clause 8.2.2.44.4 except that the UE transmits RADIO BEARER RECONFIGURATION COMPLETE using AM RLC on E-DCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

Same specific message content as in clause 8.2.2.44.4

8.2.2.44a.5 Test requirements

Same test requirements as in clause 8.2.2.44.5.

8.2.2.45 Radio Bearer Reconfiguration for transition from CELL_FACH to CELL_DCH and CELL_DCH to CELL_FACH: Success (start and stop of E-DCH transmission)

8.2.2.45.1 Definition and applicability

All UEs which support FDD and HS-PDSCH and E-DPDCH or all UEs which support TDD and HS-PDSCH and E-PUCH.

8.2.2.45.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable E_DCH_TRANSMISSION shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable E_RNTI includes either the Primary E-RNTI or the Secondary E-RNTI or both the Primary and the Secondary E-RNTI;

1> For FDD:

2> the UE has stored the following IEs:

- IE "E-DCH Transmission Time Interval";
- IE "HARQ info for E-DCH";
- IE "E-DCH info", including the IE "E-DPCCH info" and the IE "E-DPDCH info".
- one of the radio links in the active set is configured as the serving E-DCH radio link, and for this radio link the UTRAN has configured the IE "E-HICH configuration" and the IE "E-AGCH info".

1> For TDD:

2> the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-RUCCH info" and the IE "E-PUCH info";
- IE "E-HICH info";
- IE "E-AGCH info".

1> there is at least one logical channel mapped to E-DCH for which:

2> the corresponding E-DCH MAC-d flow is configured, i.e. the IEs "E-DCH MAC-d flow power offset" and "E-DCH MAC-d flow maximum number of retransmissions", and the transmission grant type are configured.

If any of the above conditions is not met and the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> set the variable E_DCH_TRANSMISSION to FALSE;

1> stop any E-AGCH and E-HICH reception procedures;

1> For FDD:

2> stop any E-RGCH reception procedures.

1> For FDD:

2> stop any E-DPCCH and E-DPDCH transmission procedures.

1> For TDD:

2> stop any E-RUCCH and E-PUCH transmission procedures.

1> clear the variable E_RNTI;

1> act as if the IE "MAC-es/e reset indicator" was received and set to TRUE;

1> release all E-DCH HARQ resources;

1> no longer consider any radio link to be the serving E-DCH radio link.

Whenever the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1>For FDD:

2> perform E_AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI" and the IE "New Secondary E-RNTI".

2> perform E-HICH reception procedures for all radio links in the E-DCH active set;

2> perform E-RGCH reception procedures for all radio links in the active set for which an E-RGCH configuration has been provided;

2> perform E-DPCCH transmission procedures according to the stored E-DPCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-DPCCH Info".

2> perform E-DPDCH transmission procedures according to the stored E-DPDCH configuration as stated in:

3> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

3> subclause 8.6.5.17 for the IE "HARQ info for E-DCH";

3> subclause 8.6.6.37 for the IE "E-DPDCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

1>For TDD:

2>perform E-AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New E-RNTI".

2> Perform E-HICH reception;

2> for 3.84/7.68 Mcps TDD, perform E-RUCCH transmission procedures according to the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

2> for 1.28 Mcps TDD, perform E-RUCCH transmission procedure according to the stored PRACH configuration (see [60]) and the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

NOTE 1: The PRACH configuration is signalled directly to the UE in "E-RUCCH Info" IE in case of E-DCH serving cell change.

2> Perform E-PUCH transmission procedures according to the stored E-PUCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-PUCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

2> obtain and format the appropriate information on E-UCCH (see [15]). For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, the UE shall use the lowest E-DCH capability category, as specified in [35], to signal the UL control information on E-UCCH.

NOTE 2: For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, UTRAN should use the lowest E-DCH capability category when performing configuration, scheduling and reading the control information on E-UCCH, as it is not possible for Node B to be aware of the UE's E-DCH capability category during this period.

Whenever the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> not perform E-AGCH, E-HICH and E-RGCH reception procedures;

1> not perform E-DPCCH and E-DPDCH transmission procedures.

…

1> for FDD:

2> if the IE "New Primary E-RNTI" and/or the IE "New Secondary E-RNTI" are/is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

3> store the new value(s) in the variable E_RNTI;

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

1> for TDD:

2> if the IE "New E-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

3> store the new value in the variable E_RNTI;

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

If, after the completion of this procedure, the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> clear the variable E-RNTI.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> use the value of the Primary E-RNTI and/or Secondary E-RNTI stored in the variable E_RNTI as UE identities in the E-AGCH reception procedure in the physical layer.

1> for TDD:

2> use the value of New E-RNTI stored in the variable E_RNTI as the UE identity in the E-AGCH reception procedure and the E-RUCCH transmission procedure in the physical layer.

…

If the IE "Added or Reconfigured UL TrCH information" is included then the UE shall:

1> for the transport channel identified by the IE "UL Transport Channel Identity" and IE "Uplink transport channel type":

2> perform the actions for the IE "Transport Format Set" as specified in subclause 8.6.5.1.

NOTE: The UE stores the UL transport channel configuration until it is explicitly deleted by a message containing the IE "Deleted UL TrCH information" or the UE leaves RRC Connected mode.

1> if the choice "UL parameters" is set to 'E-DCH':

2> for FDD:

3> apply the values of the IE "E-DCH Transmission Time Interval" and the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

2> for TDD:

3> apply the value of the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

2> for the IE "HARQ Info for E-DCH":

3> perform the actions specified in subclause 8.6.5.17.

2> if the IE "Added or Reconfigured E-DCH MAC-d Flow list " is included:

3> for each MAC-d flow identified by the IE "Mac-d flow identity":

4> perform the actions as specified in subclause 8.6.5.18.

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "E-DCH Transmission Time Interval" is included, the UE shall:

1> store the received TTI;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> apply the TTI as signalled in the IE "E-DCH Transmission Time Interval" on the E-DPDCH.

…

If the IE "HARQ Info for E-DCH" is included, the UE shall:

1> store the received configuration;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> use a redundancy version for each HARQ transmission as configured by the IE "HARQ RV Configuration".

…

If the IE "Added or reconfigured E-DCH MAC-d flow" is included, the UE shall:

1> if the IE "E-DCH MAC-d flow power offset" is included:

2> configure the power offset indicated in the IE "E-DCH MAC-d flow power offset" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow maximum number of retransmissions" is included:

2> configure the maximum number of retransmissions indicated in the IE "E-DCH MAC-d flow maximum number of retransmissions" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> for 1.28 Mcps TDD, if the IE "E-DCH MAC-d flow retransmission timer" is included:

2> configure the retransmission timer for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow multiplexing list" is included:

2> only multiplex MAC-d PDU’s from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU’s from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed in accordance to the IE "E-DCH MAC-d flow multiplexing list".

1> else:

2> if previously the IE "E-DCH MAC-d flow multiplexing list" was already received for this E-DCH MAC-d flow:

3> continue to only multiplex E-DCH PDU’s from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU’s from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed according to the previously received IE "E-DCH MAC-d flow multiplexing list".

2> else (never received the IE "E-DCH MAC-d flow multiplexing list" for this E-DCH MAC-d flow):

3> allow multiplexing of MAC-d PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from any other E-DCH MAC-d flow in the same MAC-e PDU.

1> for FDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> if the TTI configured on the E-DCH equals 2ms, and the IE "2ms non-scheduled transmission grant HARQ process allocation" is configured for this MAC-d flow:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e PDU transmitted by HARQ processes allowed by the IE "2ms non-scheduled transmission grant HARQ process allocation", with a total contribution from this MAC-d flow (i.e. including MAC-e/es headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

3> else:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall be included in a MAC-e PDU transmitted by any HARQ process, with a total contribution from this MAC-d flow (i.e. including MAC-e/es headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDU's for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH/E-RGCH (see [15]).

1> for TDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e PDU transmitted by HARQ processes designated as non scheduled (Ids 4 – 7) in the TTIs indicated (as determined from the IEs "Activation Time", "Resource Duration" and "Resource Periodicity").

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDUs for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH (see [15]).

1> perform the actions as specified in subclause 8.5.21;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

1> if the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> if the UE is in TDD mode and shared transport channels are assigned to the UE:

3> start to receive the indicated Secondary CCPCH.

2> if the UE is in TDD mode and no shared transport channels are assigned to the UE:

3> set the variable UNSUPPORTED_CONFIGURATION to TRUE.

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link and no longer consider any other radio link as serving HS-DSCH radio link.

2> For FDD:

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link and no longer consider any other radio link as serving E-DCH radio link.

3> if the IE "E-AGCH Info" is included for the serving E-DCH radio link:

4> store the newly received E-AGCH configuration.

NOTE: The UTRAN should always include the IE "E-AGCH info" if the serving E-DCH radio link indicated in the message is another radio link than the serving E-DCH radio link prior to the procedure.

3> if the IE "E-HICH information" is included:

4> store this E-HICH configuration for the concerning radio link.

3> if the IE "E-HICH information" is included or previously stored:

4> store this E-RGCH configuration for the concerning radio link, if included.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> for TDD:

3> if the IE "E-AGCH Info" is included:

4> store the newly received E-AGCH configuration.

3> if the IE "E-HICH information" is included:

4> store the E-HICH configuration.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> act on the other IEs contained in the IE "Downlink information for each radio link" as specified in subclause 8.6 applied on this radio link.

1> in addition, if the message was received in CELL_DCH state and the UE remains in CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link;

4> if the serving HS-DSCH radio link was another radio link than this radio link prior to reception of the message and the IE "H-RNTI" is not included:

5> clear the variable H_RNTI.

3> if the IE "Serving HS-DSCH radio link indicator" is set to ‘FALSE’ and this radio link was considered the serving HS-DSCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving HS-DSCH radio link.

3> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25;

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link;

4> if the serving E-DCH radio link was another radio link than this radio link prior to reception of the message:

5> if the IE "New Primary E-RNTI" is not included:

6> clear the Primary E-RNTI stored in the variable E_RNTI.

5> if the IE "New Secondary E-RNTI" is not included:

6> clear the Secondary E-RNTI stored in the variable E_RNTI.

3> if the IE "Serving E-DCH radio link indicator" is set to ‘FALSE’ and this radio link was considered the serving E-DCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving E-DCH radio link.

3> if the IE "E-HICH release indicator" is present:

4> delete the stored E-HICH, E-AGCH and E-RGCH (if any) configurations.

3> if the IE "E-RGCH release indicator" is present:

4> delete the stored E-RGCH configuration for this RL.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> For TDD:

3> if the IE "H-RNTI" is not included and the primary CCPCH has changed:

4> clear the variable H_RNTI.

3> determine the value for the HS-DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

2> for TDD:

3> if the IE "New E-RNTI" is not included:

4> clear the variable E_RNTI.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> for each optional IE part of the IE "Downlink information for each radio link" that is not present:

3> do not change its current downlink physical channel configuration corresponding to the IE, which is absent, if not stated otherwise elsewhere.

…

If the IE "E-DCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> for FDD:

2> if the IE "E-DPCCH Info" is included:

3> store the newly received E-DPCCH configuration.

2> if the IE "E-DPDCH Info" is included:

3> store the newly received E-DPDCH configuration.

2> if the IE "UL 16QAM settings" is not included:

3> indicate to lower layers to stop any operation in 16QAM mode.

1> for 3.84/7.68 Mcps TDD:

2> if the IE "E-RUCCH Info" is included:

3> store the newly received E-RUCCH configuration.

2> if the IE "E-PUCH Info" is included:

NOTE 1: The UTRAN should ensure the ordering of the E-TFCI table in increasing transmission power, by correct setting of the reference E-TFCI power offsets.

NOTE 2: If a reference E-TFCI signalled to the UE is outside the UE physical channel capability, the UE behaviour is unspecified.

NOTE 2a: If E-TFCI boost is signalled to the UE and a reference E-TFCI <= E-TFCI Boost is signalled to the UE with a Reference E-TFCI PO of value 30 or 31, the UE behaviour is unspecified.

1> if the IE "MAC-es/e reset indicator" is included:

2> reset the MAC-es/e entity [15].

NOTE 3: If the IE "MAC-es/e reset indicator" is not set to TRUE in case the IE "E-DCH Transmission Time Interval" is reconfigured, the UE behaviour is unspecified.

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> configure the UL E-DPCCH in accordance with the stored IE "E-DPCCH" configuration;

2> configure the MAC with the stored IE "E-DPDCH" configuration and/or the information contained in IE "Scheduled Transmission configuration".

1> for TDD:

2> configure the E-RUCCH with the stored E-RUCCH configuration;

2> configure the MAC with the stored E-PUCH configuration.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.28, 8.6.3.14, 8.6.5.5, 8.6.5.16, 8.6.5.17, 8.6.5.18, 8.6.6.4, 8.6.6.37

8.2.2.45.3 Test purpose

1 To confirm that the UE reconfigures radio bearer parameters, transits from CELL_FACH to CELL_DCH state, and starts E-DCH transmission according to the received RADIO BEARER RECONFIGURATION message.

2 To confirm that the UE reconfigures radio bearer parameters, transits from CELL_DCH to CELL_FACH state, and stops E-DCH transmission according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.45.4 Method of test

Initial Condition

System Simulator: 1 cell

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH +DTCH_HS-DSCH +DTCH_E-DCH (state 6-18) under condition A13 (FDD or 3.84Mcps TDD or 7.68Mcps TDD)/A11(1.28Mcps TDD) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports E-DPDCH (FDD only)
- UE supports E-PUCH (TDD only)

Test Procedure

The UE has a radio bearer mapped to the E-DCH/HS-DSCH and the signalling radio bearers mapped on E-DCH/DCH.

The SS transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it stops E-DCH transmission and HS-DSCH reception, moves to CELL_FACH state and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

Then, SS transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it moves to CELL_DCH state, resumes E-DCH transmission and HS-DSCH reception and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that the UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	Stop of E-DCH transmission and HS-DSCH reception and transit to CELL_FACH state,
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3	←		RADIO BEARER RECONFIGURATION	Start of E-DCH transmission and HS-DSCH reception and transit to CELL_DCH state
4	→		RADIO BEARER RECONFIGURATION COMPLETE	
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

RADIO BEARER RECONFIGURATION (Step 1)

Use the same message as specified for "Packet to CELL_FACH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC

Information Element	Value/remark
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128

Information Element	Value/remark
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH

Information Element	Value/remark
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB stop/continue	Not Present
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
Frequency info	Not Present
Maximum allowed UL TX power	Not Present

RADIO BEARER RECONFIGURATION (Step 3) (FDD or 3.84Mcps TDD or 7.68Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_FACH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New Primary E-RNTI	'1010 1010 1010 1010'
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not present
- DL HS-DSCH MAC-d flow identity	Not present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present

Information Element	Value/remark
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	Not Present
- Logical channel identity	3

Information Element	Value/remark
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100

Information Element	Value/remark
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not present
- DL HS-DSCH MAC-d flow identity	0
- Logical channel identity	Not Present
- RB stop/continue	Not Present
Added or Reconfigured UL TrCH information	Same as the set defined in RADIO BEARER SETUP
Added or Reconfigured DL TrCH information	message found in TS 34.108 clause 9 under condition
Uplink DPCH info	A13.
E-DCH info	
Downlink HS-PDSCH Information	
Downlink information for each radio link list	

RADIO BEARER RECONFIGURATION (Step 3)(1.28Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_FACH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New Primary E-RNTI	'1010 1010 1010 1010'
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size

Information Element	Value/remark
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not present
- DL HS-DSCH MAC-d flow identity	Not present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	

Information Element	Value/remark
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present

Information Element	Value/remark
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7

Information Element	Value/remark
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not present
- DL HS-DSCH MAC-d flow identity	0
- Logical channel identity	Not Present
- RB stop/continue	Not Present
Added or Reconfigured UL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
Added or Reconfigured DL TrCH information	
Uplink DPCH info	
E-DCH info	
Downlink HS-PDSCH Information	
Downlink information for each radio link list	

8.2.2.45.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

After step 3, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

8.2.2.45a Radio Bearer Reconfiguration for transition from CELL_FACH to CELL_DCH and CELL_DCH to CELL_FACH: Success (start and stop of E-DCH transmission, in the multi-frequency network environment, for 1.28Mcps TDD only)

8.2.2.45a.1 Definition and applicability

All UEs which support 1.28Mcps TDD and HS-PDSCH and E-PUCH.

8.2.2.45a.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable E_DCH_TRANSMISSION shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable E_RNTI includes either the Primary E-RNTI or the Secondary E-RNTI or both the Primary and the Secondary E-RNTI;

1> For FDD:

2> the UE has stored the following IEs:

- IE "E-DCH Transmission Time Interval";
- IE "HARQ info for E-DCH";
- IE "E-DCH info", including the IE "E-DPCCH info" and the IE "E-DPDCH info".

- one of the radio links in the active set is configured as the serving E-DCH radio link, and for this radio link the UTRAN has configured the IE "E-HICH configuration" and the IE "E-AGCH info".

1> For TDD:

2> the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-RUCCH info" and the IE "E-PUCH info";
- IE "E-HICH info";
- IE "E-AGCH info".

1> there is at least one logical channel mapped to E-DCH for which:

2> the corresponding E-DCH MAC-d flow is configured, i.e. the IEs "E-DCH MAC-d flow power offset" and "E-DCH MAC-d flow maximum number of retransmissions", and the transmission grant type are configured.

If any of the above conditions is not met and the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> set the variable E_DCH_TRANSMISSION to FALSE;

1> stop any E-AGCH and E-HICH reception procedures;

1> For FDD:

2> stop any E-RGCH reception procedures.

1> For FDD:

2> stop any E-DPCCH and E-DPDCH transmission procedures.

1> For TDD:

2> stop any E-RUCCH and E-PUCH transmission procedures.

1> clear the variable E_RNTI;

1> act as if the IE "MAC-es/e reset indicator" was received and set to TRUE;

1> release all E-DCH HARQ resources;

1> no longer consider any radio link to be the serving E-DCH radio link.

Whenever the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1>For FDD:

2> perform E_AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI" and the IE "New Secondary E-RNTI".

2> perform E-HICH reception procedures for all radio links in the E-DCH active set;

2> perform E-RGCH reception procedures for all radio links in the active set for which an E-RGCH configuration has been provided;

2> perform E-DPCCH transmission procedures according to the stored E-DPCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-DPCCH Info".

2> perform E-DPDCH transmission procedures according to the stored E-DPDCH configuration as stated in:

3> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

3> subclause 8.6.5.17 for the IE "HARQ info for E-DCH";

3> subclause 8.6.6.37 for the IE "E-DPDCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

1>For TDD:

2>perform E-AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New E-RNTI".

2> Perform E-HICH reception;

2> for 3.84/7.68 Mcps TDD, perform E-RUCCH transmission procedures according to the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

2> for 1.28 Mcps TDD, perform E-RUCCH transmission procedure according to the stored PRACH configuration (see [60]) and the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

NOTE 1: The PRACH configuration is signalled directly to the UE in "E-RUCCH Info" IE in case of E-DCH serving cell change.

2> Perform E-PUCH transmission procedures according to the stored E-PUCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-PUCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

2> obtain and format the appropriate information on E-UCCH (see [15]). For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, the UE shall use the lowest E-DCH capability category, as specified in [35], to signal the UL control information on E-UCCH.

NOTE 2: For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, UTRAN should use the lowest E-DCH capability category when performing configuration, scheduling and reading the control information on E-UCCH, as it is not possible for Node B to be aware of the UE's E-DCH capability category during this period.

Whenever the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> not perform E-AGCH, E-HICH and E-RGCH reception procedures;

1> not perform E-DPCCH and E-DPDCH transmission procedures.

…

1> for FDD:

2> if the IE "New Primary E-RNTI" and/or the IE "New Secondary E-RNTI" are/is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

3> store the new value(s) in the variable E_RNTI;

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

1> for TDD:

2> if the IE "New E-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

3> store the new value in the variable E_RNTI;

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

If, after the completion of this procedure, the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> clear the variable E-RNTI.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> use the value of the Primary E-RNTI and/or Secondary E-RNTI stored in the variable E_RNTI as UE identities in the E-AGCH reception procedure in the physical layer.

1> for TDD:

2> use the value of New E-RNTI stored in the variable E_RNTI as the UE identity in the E-AGCH reception procedure and the E-RUCCH transmission procedure in the physical layer.

…

If the IE "Added or Reconfigured UL TrCH information" is included then the UE shall:

1> for the transport channel identified by the IE "UL Transport Channel Identity" and IE "Uplink transport channel type":

2> perform the actions for the IE "Transport Format Set" as specified in subclause 8.6.5.1.

NOTE: The UE stores the UL transport channel configuration until it is explicitly deleted by a message containing the IE "Deleted UL TrCH information" or the UE leaves RRC Connected mode.

1> if the choice "UL parameters" is set to 'E-DCH':

2> for FDD:

3> apply the values of the IE "E-DCH Transmission Time Interval" and the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

2> for TDD:

3> apply the value of the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

2> for the IE "HARQ Info for E-DCH":

3> perform the actions specified in subclause 8.6.5.17.

2> if the IE "Added or Reconfigured E-DCH MAC-d Flow list " is included:

3> for each MAC-d flow identified by the IE "Mac-d flow identity":

4> perform the actions as specified in subclause 8.6.5.18.

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "E-DCH Transmission Time Interval" is included, the UE shall:

1> store the received TTI;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> apply the TTI as signalled in the IE "E-DCH Transmission Time Interval" on the E-DPDCH.

…

If the IE "HARQ Info for E-DCH" is included, the UE shall:

1> store the received configuration;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> use a redundancy version for each HARQ transmission as configured by the IE "HARQ RV Configuration".

…

If the IE "Added or reconfigured E-DCH MAC-d flow" is included, the UE shall:

1> if the IE "E-DCH MAC-d flow power offset" is included:

2> configure the power offset indicated in the IE "E-DCH MAC-d flow power offset" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow maximum number of retransmissions" is included:

2> configure the maximum number of retransmissions indicated in the IE "E-DCH MAC-d flow maximum number of retransmissions" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> for 1.28 Mcps TDD, if the IE "E-DCH MAC-d flow retransmission timer" is included:

2> configure the retransmission timer for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow multiplexing list" is included:

2> only multiplex MAC-d PDU’s from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU’s from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed in accordance to the IE "E-DCH MAC-d flow multiplexing list".

1> else:

2> if previously the IE "E-DCH MAC-d flow multiplexing list" was already received for this E-DCH MAC-d flow:

3> continue to only multiplex E-DCH PDU’s from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU’s from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed according to the previously received IE "E-DCH MAC-d flow multiplexing list".

2> else (never received the IE "E-DCH MAC-d flow multiplexing list" for this E-DCH MAC-d flow):

3> allow multiplexing of MAC-d PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from any other E-DCH MAC-d flow in the same MAC-e PDU.

1> for FDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> if the TTI configured on the E-DCH equals 2ms, and the IE "2ms non-scheduled transmission grant HARQ process allocation" is configured for this MAC-d flow:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e PDU transmitted by HARQ processes allowed by the IE "2ms non-scheduled transmission grant HARQ process allocation", with a total contribution from this MAC-d flow (i.e. including MAC-e/es headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

3> else:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall be included in a MAC-e PDU transmitted by any HARQ process, with a total contribution from this MAC-d flow (i.e. including MAC-e/es headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDU's for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH/E-RGCH (see [15]).

1> for TDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e PDU transmitted by HARQ processes designated as non scheduled (Ids 4 – 7) in the TTIs indicated (as determined from the IEs "Activation Time", "Resource Duration" and "Resource Periodicity").

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDUs for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH (see [15]).

1> perform the actions as specified in subclause 8.5.21;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

1> if the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> if the UE is in TDD mode and shared transport channels are assigned to the UE:

3> start to receive the indicated Secondary CCPCH.

2> if the UE is in TDD mode and no shared transport channels are assigned to the UE:

3> set the variable UNSUPPORTED_CONFIGURATION to TRUE.

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link and no longer consider any other radio link as serving HS-DSCH radio link.

2> For FDD:

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link and no longer consider any other radio link as serving E-DCH radio link.

3> if the IE "E-AGCH Info" is included for the serving E-DCH radio link:

4> store the newly received E-AGCH configuration.

NOTE: The UTRAN should always include the IE "E-AGCH info" if the serving E-DCH radio link indicated in the message is another radio link than the serving E-DCH radio link prior to the procedure.

3> if the IE "E-HICH information" is included:

4> store this E-HICH configuration for the concerning radio link.

3> if the IE "E-HICH information" is included or previously stored:

4> store this E-RGCH configuration for the concerning radio link, if included.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> for TDD:

3> if the IE "E-AGCH Info" is included:

4> store the newly received E-AGCH configuration.

3> if the IE "E-HICH information" is included:

4> store the E-HICH configuration.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> act on the other IEs contained in the IE "Downlink information for each radio link" as specified in subclause 8.6 applied on this radio link.

1> in addition, if the message was received in CELL_DCH state and the UE remains in CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link;

4> if the serving HS-DSCH radio link was another radio link than this radio link prior to reception of the message and the IE "H-RNTI" is not included:

5> clear the variable H_RNTI.

3> if the IE "Serving HS-DSCH radio link indicator" is set to ‘FALSE’ and this radio link was considered the serving HS-DSCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving HS-DSCH radio link.

3> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25;

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link;

4> if the serving E-DCH radio link was another radio link than this radio link prior to reception of the message:

5> if the IE "New Primary E-RNTI" is not included:

6> clear the Primary E-RNTI stored in the variable E_RNTI.

5> if the IE "New Secondary E-RNTI" is not included:

6> clear the Secondary E-RNTI stored in the variable E_RNTI.

3> if the IE "Serving E-DCH radio link indicator" is set to 'FALSE' and this radio link was considered the serving E-DCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving E-DCH radio link.

3> if the IE "E-HICH release indicator" is present:

4> delete the stored E-HICH, E-AGCH and E-RGCH (if any) configurations.

3> if the IE "E-RGCH release indicator" is present:

4> delete the stored E-RGCH configuration for this RL.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> For TDD:

3> if the IE "H-RNTI" is not included and the primary CCPCH has changed:

4> clear the variable H_RNTI.

3> determine the value for the HS-DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

2> for TDD:

3> if the IE "New E-RNTI" is not included:

4> clear the variable E_RNTI.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> for each optional IE part of the IE "Downlink information for each radio link" that is not present:

3> do not change its current downlink physical channel configuration corresponding to the IE, which is absent, if not stated otherwise elsewhere.

…

If the IE "E-DCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> for FDD:

2> if the IE "E-DPCCH Info" is included:

3> store the newly received E-DPCCH configuration.

2> if the IE "E-DPDCH Info" is included:

3> store the newly received E-DPDCH configuration.

2> if the IE "UL 16QAM settings" is not included:

3> indicate to lower layers to stop any operation in 16QAM mode.

1> for 3.84/7.68 Mcps TDD:

2> if the IE "E-RUCCH Info" is included:

3> store the newly received E-RUCCH configuration.

2> if the IE "E-PUCH Info" is included:

NOTE 1: The UTRAN should ensure the ordering of the E-TFCI table in increasing transmission power, by correct setting of the reference E-TFCI power offsets.

NOTE 2: If a reference E-TFCI signalled to the UE is outside the UE physical channel capability, the UE behaviour is unspecified.

NOTE 2a: If E-TFCI boost is signalled to the UE and a reference E-TFCI <= E-TFCI Boost is signalled to the UE with a Reference E-TFCI PO of value 30 or 31, the UE behaviour is unspecified.

1> if the IE "MAC-es/e reset indicator" is included:

2> reset the MAC-es/e entity [15].

NOTE 3: If the IE "MAC-es/e reset indicator" is not set to TRUE in case the IE "E-DCH Transmission Time Interval" is reconfigured, the UE behaviour is unspecified.

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> configure the UL E-DPCCH in accordance with the stored IE "E-DPCCH" configuration;

2> configure the MAC with the stored IE "E-DPDCH" configuration and/or the information contained in IE "Scheduled Transmission configuration".

1> for TDD:

2> configure the E-RUCCH with the stored E-RUCCH configuration;

2> configure the MAC with the stored E-PUCH configuration.

…

If, after completion of the procedure, the UE will be in CELL_DCH state, the UE shall:

1> for FDD, 3.84 Mcps TDD and 7.68 Mcps TDD, if the IE "Frequency info" is included; or

1> for 1.28 Mcps TDD, if the IE "Frequency info" is included and the "Second Frequency info" is not included:

2> if the frequency is different from the currently used frequency:

3> store and use the frequency indicated by the IE "Frequency Info";

3> if the received message is used to perform a Timing-maintained hard handover (see subclause 8.3.5.2),and IE "Timing maintained Synchronization indicator" is included:

4> not perform any physical layer synchronisation procedure (FDD only);

3> else:

4> perform the physical layer synchronisation procedure A as specified in [29] (FDD only).

2> if the frequency is the same as the currently used frequency:

3> continue to use the currently used frequency;

3> perform the physical layer synchronisation procedure A as specified in [29] (FDD only).

1> for 1.28 Mcps TDD, if both the IE "Frequency info" and the IE "Second Frequency info" are included:

2> the frequency in IE "Frequency info" is used as the primary frequency, and the frequency in IE "Second Frequency info" is used as the secondary frequency;

2> store the primary frequency;

2> if the secondary frequency is different with the currently used frequency:

3> store and use the secondary frequency.

2> if the secondary frequency is the same as the currently used frequency:

3> continue to use the currently used frequency.

1> if the IE "Frequency info" is not included and the UE has a currently used frequency:

2> continue to use the currently used frequency;

…

If the IE "Second Frequency info" is included, the UE shall:

1> act as specified in section 8.6.6.1.

If the IE "FPACH Frequency info" is included, the UE shall:

1> store the FPACH frequency indicated in the IE "FPACH Frequency info".

If the IE "UpPCH Position Info" is included:

1> store and use the UpPCH position indicated by the IE "UpPCH Position Info ". The calculation of the uplink access position is described in [33].

If the IE "UpPCH Position Info" is not included:

1> use the UpPTS as the default UpPCH position.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.28, 8.6.3.14, 8.6.5.5, 8.6.5.16, 8.6.5.17, 8.6.5.18, 8.6.6.1,8.6.6.4, 8.6.6.37, 8.6.6.43.

8.2.2.45a.3 Test purpose

1 To confirm that the UE reconfigures radio bearer parameters, transits from CELL_FACH to CELL_DCH state, and starts E-DCH transmission according to the received RADIO BEARER RECONFIGURATION message, in the multi-frequency network environment.

2 To confirm that the UE reconfigures radio bearer parameters, transits from CELL_DCH to CELL_FACH state, and stops E-DCH transmission according to the received RADIO BEARER RECONFIGURATION message, in the multi-frequency network environment.

8.2.2.45a.4 Method of test

Initial Condition

System Simulator: 1 cell, 3 frequency (one is primary frequency, others are secondary frequency)

UE: PS-DCCH +DTCH_HS-DSCH +DTCH_E-DCH (state 6-18) under condition A11(1.28Mcps TDD) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports TDD
- UE supports HS-PDSCH

- UE supports E-PUCH

Test Procedure

The UE has a radio bearer mapped to the E-DCH/HS-DSCH and the signalling radio bearers mapped on E-DCH/DCH on one secondary frequency of cell 1.

The SS transmits a RADIO BEARER RECONFIGURATION message to the UE, and IE "Frequency info" set as primary frequency of cell 1. After the UE receives this message, it stops E-DCH transmission and HS-DSCH reception, moves to CELL_FACH state and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

Then, SS transmits a RADIO BEARER RECONFIGURATION message to the UE, and IE "Frequency info " set as primary frequency of cell 1,and IE "Multi-frequency Info" set as one secondary frequency of cell 1. After the UE receives this message, it moves to CELL_DCH state, resumes E-DCH transmission and HS-DSCH reception and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that the UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	Stop of E-DCH transmission and HS-DSCH reception and transit to CELL_FACH state,
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3	←		RADIO BEARER RECONFIGURATION	Start of E-DCH transmission and HS-DSCH reception and transit to CELL_DCH state
4	→		RADIO BEARER RECONFIGURATION COMPLETE	
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1)

Use the same message as specified for "Packet to CELL_FACH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present

Information Element	Value/remark
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present

Information Element	Value/remark
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1

Information Element	Value/remark
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB stop/continue	Not Present

Information Element	Value/remark
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
Frequency info	
- UARFCN (Nt)	Same as primary frequency of the cell 1
Multi-frequency Info	Not Present
Maximum allowed UL TX power	Not Present

RADIO BEARER RECONFIGURATION (Step 3)

Use the same message as specified for "Packet to CELL_DCH from CELL_FACH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New Primary E-RNTI	'1010 1010 1010 1010'
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not present
- DL HS-DSCH MAC-d flow identity	Not present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE

Information Element	Value/remark
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1

Information Element	Value/remark
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present

Information Element	Value/remark
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not present
- DL HS-DSCH MAC-d flow identity	0
- Logical channel identity	Not Present
- RB stop/continue	Not Present
Added or Reconfigured UL TrCH information Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
Frequency info	
- UARFCN (Nt)	Same as primary frequency of the cell 1
Multi-frequency Info	
- Second Frequency Info	Same as one secondary frequency of the cell 1
- FPACH Frequency Info	Not present
- UpPCH Position Info	Not present
Uplink DPCH info E-DCH info Downlink HS-PDSCH Information Downlink information for each radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.

8.2.2.45a.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

After step 3, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

8.2.2.46 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (hard handover to another frequency, start and stop of E-DCH transmission)

8.2.2.46.1 Definition and applicability

All UEs which support FDD and HS-PDSCH and E-DPDCH or all UEs which support TDD and HS-PDSCH and E-PUCH.

8.2.2.46.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable E_DCH_TRANSMISSION shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable E_RNTI includes either the Primary E-RNTI or the Secondary E-RNTI or both the Primary and the Secondary E-RNTI;

1> For FDD:

2> the UE has stored the following IEs:

- IE "E-DCH Transmission Time Interval";
- IE "HARQ info for E-DCH";
- IE "E-DCH info", including the IE "E-DPCCH info" and the IE "E-DPDCH info".
- one of the radio links in the active set is configured as the serving E-DCH radio link, and for this radio link the UTRAN has configured the IE "E-HICH configuration" and the IE "E-AGCH info".

1> For TDD:

2> the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-RUCCH info" and the IE "E-PUCH info";
- IE "E-HICH info";
- IE "E-AGCH info".

1> there is at least one logical channel mapped to E-DCH for which:

2> the corresponding E-DCH MAC-d flow is configured, i.e. the IEs "E-DCH MAC-d flow power offset" and "E-DCH MAC-d flow maximum number of retransmissions", and the transmission grant type are configured.

If any of the above conditions is not met and the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> set the variable E_DCH_TRANSMISSION to FALSE;

1> stop any E-AGCH and E-HICH reception procedures;

1> For FDD:

2> stop any E-RGCH reception procedures.

1> For FDD:

2> stop any E-DPCCH and E-DPDCH transmission procedures.

1> For TDD:

2> stop any E-RUCCH and E-PUCH transmission procedures.

1> clear the variable E_RNTI;

1> act as if the IE "MAC-es/e reset indicator" was received and set to TRUE;

1> release all E-DCH HARQ resources;

1> no longer consider any radio link to be the serving E-DCH radio link.

Whenever the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1>For FDD:

2> perform E_AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI" and the IE "New Secondary E-RNTI".

2> perform E-HICH reception procedures for all radio links in the E-DCH active set;

2> perform E-RGCH reception procedures for all radio links in the active set for which an E-RGCH configuration has been provided;

2> perform E-DPCCH transmission procedures according to the stored E-DPCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-DPCCH Info".

2> perform E-DPDCH transmission procedures according to the stored E-DPDCH configuration as stated in:

3> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

3> subclause 8.6.5.17 for the IE "HARQ info for E-DCH";

3> subclause 8.6.6.37 for the IE "E-DPDCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

1>For TDD:

2>perform E-AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New E-RNTI".

2> Perform E-HICH reception;

2> for 3.84/7.68 Mcps TDD, perform E-RUCCH transmission procedures according to the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

2> for 1.28 Mcps TDD, perform E-RUCCH transmission procedure according to the stored PRACH configuration (see [60]) and the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

NOTE 1: The PRACH configuration is signalled directly to the UE in "E-RUCCH Info" IE in case of E-DCH serving cell change.

2> Perform E-PUCH transmission procedures according to the stored E-PUCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-PUCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

2> obtain and format the appropriate information on E-UCCH (see [15]). For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, the UE shall use the lowest E-DCH capability category, as specified in [35], to signal the UL control information on E-UCCH.

NOTE 2: For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, UTRAN should use the lowest E-DCH capability category when performing configuration, scheduling and reading the control information on E-UCCH, as it is not possible for Node B to be aware of the UE's E-DCH capability category during this period.

Whenever the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> not perform E-AGCH, E-HICH and E-RGCH reception procedures;

1> not perform E-DPCCH and E-DPDCH transmission procedures.

…

1> for FDD:

2> if the IE "New Primary E-RNTI" and/or the IE "New Secondary E-RNTI" are/is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

3> store the new value(s) in the variable E_RNTI;

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

1> for TDD:

2> if the IE "New E-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

3> store the new value in the variable E_RNTI;

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

If, after the completion of this procedure, the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> clear the variable E-RNTI.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> use the value of the Primary E-RNTI and/or Secondary E-RNTI stored in the variable E_RNTI as UE identities in the E-AGCH reception procedure in the physical layer.

1> for TDD:

2> use the value of New E-RNTI stored in the variable E_RNTI as the UE identity in the E-AGCH reception procedure and the E-RUCCH transmission procedure in the physical layer.

…

If the IE "Added or Reconfigured UL TrCH information" is included then the UE shall:

1> for the transport channel identified by the IE "UL Transport Channel Identity" and IE "Uplink transport channel type":

2> perform the actions for the IE "Transport Format Set" as specified in subclause 8.6.5.1.

NOTE: The UE stores the UL transport channel configuration until it is explicitly deleted by a message containing the IE "Deleted UL TrCH information" or the UE leaves RRC Connected mode.

1> if the choice "UL parameters" is set to 'E-DCH':

2> for FDD:

3> apply the values of the IE "E-DCH Transmission Time Interval" and the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

2> for TDD:

3> apply the value of the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

2> for the IE "HARQ Info for E-DCH":

3> perform the actions specified in subclause 8.6.5.17.

2> if the IE "Added or Reconfigured E-DCH MAC-d Flow list " is included:

3> for each MAC-d flow identified by the IE "Mac-d flow identity":

4> perform the actions as specified in subclause 8.6.5.18.

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "E-DCH Transmission Time Interval" is included, the UE shall:

1> store the received TTI;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> apply the TTI as signalled in the IE "E-DCH Transmission Time Interval" on the E-DPDCH.

…

If the IE "HARQ Info for E-DCH" is included, the UE shall:

1> store the received configuration;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> use a redundancy version for each HARQ transmission as configured by the IE "HARQ RV Configuration".

…

If the IE "Added or reconfigured E-DCH MAC-d flow" is included, the UE shall:

1> if the IE "E-DCH MAC-d flow power offset" is included:

2> configure the power offset indicated in the IE "E-DCH MAC-d flow power offset" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow maximum number of retransmissions" is included:

2> configure the maximum number of retransmissions indicated in the IE "E-DCH MAC-d flow maximum number of retransmissions" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> for 1.28 Mcps TDD, if the IE "E-DCH MAC-d flow retransmission timer" is included:

2> configure the retransmission timer for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow multiplexing list" is included:

2> only multiplex MAC-d PDU’s from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU’s from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed in accordance to the IE "E-DCH MAC-d flow multiplexing list".

1> else:

2> if previously the IE "E-DCH MAC-d flow multiplexing list" was already received for this E-DCH MAC-d flow:

3> continue to only multiplex E-DCH PDU’s from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU’s from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed according to the previously received IE "E-DCH MAC-d flow multiplexing list".

2> else (never received the IE "E-DCH MAC-d flow multiplexing list" for this E-DCH MAC-d flow):

3> allow multiplexing of MAC-d PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from any other E-DCH MAC-d flow in the same MAC-e PDU.

1> for FDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> if the TTI configured on the E-DCH equals 2ms, and the IE "2ms non-scheduled transmission grant HARQ process allocation" is configured for this MAC-d flow:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e PDU transmitted by HARQ processes allowed by the IE "2ms non-scheduled transmission grant HARQ process allocation", with a total contribution from this MAC-d flow (i.e. including MAC-e/es headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

3> else:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall be included in a MAC-e PDU transmitted by any HARQ process, with a total contribution from this MAC-d flow (i.e. including MAC-e/es headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDU's for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH/E-RGCH (see [15]).

1> for TDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e PDU transmitted by HARQ processes designated as non scheduled (Ids 4 – 7) in the TTIs indicated (as determined from the IEs "Activation Time", "Resource Duration" and "Resource Periodicity").

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDUs for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH (see [15]).

1> perform the actions as specified in subclause 8.5.21;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

1> if the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> if the UE is in TDD mode and shared transport channels are assigned to the UE:

3> start to receive the indicated Secondary CCPCH.

2> if the UE is in TDD mode and no shared transport channels are assigned to the UE:

3> set the variable UNSUPPORTED_CONFIGURATION to TRUE.

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link and no longer consider any other radio link as serving HS-DSCH radio link.

2> For FDD:

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link and no longer consider any other radio link as serving E-DCH radio link.

3> if the IE "E-AGCH Info" is included for the serving E-DCH radio link:

4> store the newly received E-AGCH configuration.

NOTE: The UTRAN should always include the IE "E-AGCH info" if the serving E-DCH radio link indicated in the message is another radio link than the serving E-DCH radio link prior to the procedure.

3> if the IE "E-HICH information" is included:

4> store this E-HICH configuration for the concerning radio link.

3> if the IE "E-HICH information" is included or previously stored:

4> store this E-RGCH configuration for the concerning radio link, if included.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> for TDD:

3> if the IE "E-AGCH Info" is included:

4> store the newly received E-AGCH configuration.

3> if the IE "E-HICH information" is included:

4> store the E-HICH configuration.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> act on the other IEs contained in the IE "Downlink information for each radio link" as specified in subclause 8.6 applied on this radio link.

1> in addition, if the message was received in CELL_DCH state and the UE remains in CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link;

4> if the serving HS-DSCH radio link was another radio link than this radio link prior to reception of the message and the IE "H-RNTI" is not included:

5> clear the variable H_RNTI.

3> if the IE "Serving HS-DSCH radio link indicator" is set to ‘FALSE’ and this radio link was considered the serving HS-DSCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving HS-DSCH radio link.

3> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25;

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link;

4> if the serving E-DCH radio link was another radio link than this radio link prior to reception of the message:

5> if the IE "New Primary E-RNTI" is not included:

6> clear the Primary E-RNTI stored in the variable E_RNTI.

5> if the IE "New Secondary E-RNTI" is not included:

6> clear the Secondary E-RNTI stored in the variable E_RNTI.

3> if the IE "Serving E-DCH radio link indicator" is set to ‘FALSE’ and this radio link was considered the serving E-DCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving E-DCH radio link.

3> if the IE "E-HICH release indicator" is present:

4> delete the stored E-HICH, E-AGCH and E-RGCH (if any) configurations.

3> if the IE "E-RGCH release indicator" is present:

4> delete the stored E-RGCH configuration for this RL.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> For TDD:

3> if the IE "H-RNTI" is not included and the primary CCPCH has changed:

4> clear the variable H_RNTI.

3> determine the value for the HS-DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

2> for TDD:

3> if the IE "New E-RNTI" is not included:

4> clear the variable E_RNTI.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> for each optional IE part of the IE "Downlink information for each radio link" that is not present:

3> do not change its current downlink physical channel configuration corresponding to the IE, which is absent, if not stated otherwise elsewhere.

…

If the IE "E-DCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> for FDD:

2> if the IE "E-DPCCH Info" is included:

3> store the newly received E-DPCCH configuration.

2> if the IE "E-DPDCH Info" is included:

3> store the newly received E-DPDCH configuration.

2> if the IE "UL 16QAM settings" is not included:

3> indicate to lower layers to stop any operation in 16QAM mode.

1> for 3.84/7.68 Mcps TDD:

2> if the IE "E-RUCCH Info" is included:

3> store the newly received E-RUCCH configuration.

2> if the IE "E-PUCH Info" is included:

NOTE 1: The UTRAN should ensure the ordering of the E-TFCI table in increasing transmission power, by correct setting of the reference E-TFCI power offsets.

NOTE 2: If a reference E-TFCI signalled to the UE is outside the UE physical channel capability, the UE behaviour is unspecified.

NOTE 2a: If E-TFCI boost is signalled to the UE and a reference E-TFCI <= E-TFCI Boost is signalled to the UE with a Reference E-TFCI PO of value 30 or 31, the UE behaviour is unspecified.

1> if the IE "MAC-es/e reset indicator" is included:

2> reset the MAC-es/e entity [15].

NOTE 3: If the IE "MAC-es/e reset indicator" is not set to TRUE in case the IE "E-DCH Transmission Time Interval" is reconfigured, the UE behaviour is unspecified.

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> configure the UL E-DPCCH in accordance with the stored IE "E-DPCCH" configuration;

2> configure the MAC with the stored IE "E-DPDCH" configuration and/or the information contained in IE "Scheduled Transmission configuration".

1> for TDD:

2> configure the E-RUCCH with the stored E-RUCCH configuration;

2> configure the MAC with the stored E-PUCH configuration.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.28, 8.6.3.14, 8.6.5.5, 8.6.5.16, 8.6.5.17, 8.6.5.18, 8.6.6.4, 8.6.6.37

8.2.2.46.3 Test purpose

To confirm that the UE starts and stops transmitting the E-DCH, while maintaining HS-DSCH reception, in conjunction with a interfrequency hard handover without prior measurement on the target frequency according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.46.4 Method of test

Initial Condition

System Simulator: 2 cells–Cells 1 and 6 are active.

UE: PS-DCCH +DTCH_HS-DSCH +DTCH_E-DCH (state 6-18) under condition A12 (FDD or 3.84Mcps TDD or 7.68Mcps TDD)/A11(1.28Mcps TDD) in cell 1 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports E-DPDCH (FDD only)
- UE supports E-PUCH (TDD only)

Test Procedure

Table 8.2.2.46

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency (f_1)		High Range Test Frequency (f_2)	
CPICH Ec	dBm/3.84MHz	-60	-70	-70	-60
P-CCPCH RSCP (TDD)	dBm	-60	-70	-70	-60

Table 8.2.2.46 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The SS has configured its downlink transmission power settings according to columns "T0" in table 8.2.2.46.

The UE is in cell 1 and has a radio bearer mapped to the E-DCH/HS-DSCH and the signalling radio bearers mapped on DCH/DCH.

The SS switches its downlink transmission power settings to columns "T1" and transmits a RADIO BEARER RECONFIGURATION message instructing the UE to perform a timing re-initialised interfrequency hard handover to cell 6 and stop E-DCH transmission but keep HS-DSCH reception. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC in cell 6.

The SS switches its downlink transmission power settings to columns "T0" and transmits a RADIO BEARER RECONFIGURATION message instructing the UE to perform an interfrequency hard handover to cell 1 and resume E-DCH transmission. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC in cell 1.

SS calls for generic procedure C.3 to check that the UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1		SS		The SS switches its downlink transmission power settings to columns "T1" in table 8.2.2.46.
2	←		RADIO BEARER RECONFIGURATION	Hard handover to another frequency and stop of E-DCH transmission,
3	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE transmits this message in cell 6.
4		SS		The SS switches its downlink transmission power settings to columns "T0" in table 8.2.2.46.
5	←		RADIO BEARER RECONFIGURATION	Hard handover to another frequency and start of E-DCH transmission.
6	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE transmits this message in cell 1.
7	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 2) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following.

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE

Information Element	Value/remark
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as the set defined for RB25 in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
- RB stop/continue	Not Present
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
DL Transport channel information common for all transport channel	Not Present
Added or Reconfigured DL TrCH information	Not Present
Frequency info	
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indication	Initialise
- CFN-targetSFN frame offset	0
- Downlink DPCH power control information	Not Present
- Downlink rate matching restriction information	Not Present
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Fixed or flexible position	Reference to TS34.108 clause 6.10 Parameter Set
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set
- DPCH compressed mode info	Not present
- TX Diversity mode	Not Present
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
- MAC-hs reset indicator	TRUE
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- CHOICE mode	FDD
- Primary CPICH info	Set to the scrambling code for cell 6
- Cell ID	Not present
- Serving HS-DSCH radio link indicator	TRUE
- Serving E-DCH radio link indicator	FALSE
- Downlink DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Set to value of DPCH Frame Offset modulo 38400
- Secondary CPICH info	Not present
- DL channelisation code	Reference to TS34.108 clause 6.10 Parameter Set
- Secondary scrambling code	2
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Code number	Any value between 0 and Spreading factor-1
- Scrambling code change	Not Present
- TPC combination index	0
- Closed loop timing adjustment mode	Not present

RADIO BEARER RECONFIGURATION (Step 2) (3.84Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following.

Information Element	Value/remark

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as the set defined for RB25 in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
- RB stop/continue	Not Present
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
DL Transport channel information common for all transport channel	Not Present
Added or Reconfigured DL TrCH information	Not Present
Frequency info	
- CHOICE mode	TDD
- UARFCN downlink(Nt)	Same downlink UARFCN as used for cell 6
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indication	Initialise
- CFN-targetSFN frame offset	0
- Downlink DPCH power control information	Not Present
- CHOICE mode	TDD
- CHOICE mode	TDD
- CHOICE TDD option	3.84Mcps
- Default DPCH Offset Value	Arbitrary set to value 0..7
- MAC-hs reset indicator	TRUE
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Set to the same as cell 6

RADIO BEARER RECONFIGURATION (Step 2) (7.68Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following.

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as the set defined for RB25 in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
- RB stop/continue	Not Present
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
DL Transport channel information common for all transport channel	Not Present
Added or Reconfigured DL TrCH information	Not Present
Frequency info	
- CHOICE mode	TDD
- UARFCN downlink(Nt)	Same downlink UARFCN as used for cell 6
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indication	Initialise
- CFN-targetSFN frame offset	0
- Downlink DPCH power control information	Not Present
- CHOICE mode	TDD
- CHOICE mode	TDD
- CHOICE TDD option	7.68Mcps
- Default DPCH Offset Value	Arbitrary set to value 0..7
- MAC-hs reset indicator	TRUE
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Set to the same as cell 6

RADIO BEARER RECONFIGURATION (Step 2) (1.28Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following.

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as the set defined for RB25 in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
- RB stop/continue	Not Present
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
DL Transport channel information common for all transport channel	Not Present
Added or Reconfigured DL TrCH information	Not Present
Frequency info	
- CHOICE mode	TDD
- UARFCN downlink(Nt)	Same downlink UARFCN as used for cell 6
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indication	Initialise
- CFN-targetSFN frame offset	0
- Downlink DPCH power control information	Not Present
- CHOICE mode	TDD
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- TSTD indicator	FALSE
- Default DPCH Offset Value	Arbitrary set to value 0..7
- MAC-hs reset indicator	TRUE
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Set to the same as cell 6

RADIO BEARER RECONFIGURATION (Step 5)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New Primary E-RNTI	'1010 1010 1010 1010'
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as the set defined for RB25 in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
- RB stop/continue	Not Present

Information Element	Value/remark
UL Transport channel information common for all transport channels	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
Added or Reconfigured UL TrCH information	To achieve the same set as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12: 1 E-DCH added, 1 DCH reconfigured.
- Uplink transport channel type	E-DCH
- CHOICE UL parameters	E-DCH
- E-DCH Transmission Time Interval	10 ms
- HARQ info for E-DCH	
- HARQ RV Configuration	rvtable
- Added or reconfigured E-DCH MAC-d flow	
- E-DCH MAC-d flow identity	2
- E-DCH MAC-d flow power offset	0
- E-DCH MAC-d flow maximum number of retransmissions	7
- E-DCH MAC-d flow multiplexing list	Not Present
- CHOICE transmission grant type	Scheduled grant info
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to TS34.108 clause 6.10 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE Logical channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to TS34.108 clause 6.10 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6.10 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6.10 Parameter Set
- Rate matching attribute	Reference to TS34.108 clause 6.10 Parameter Set
- CRC size	Reference to TS34.108 clause 6.10 Parameter Set
DL Transport channel information common for all transport channel	Not Present
Added or Reconfigured DL TrCH information	Not Present
Frequency info	
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 1
Uplink DPCH info	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12 but without HARQ information which is already stored in the UE
- Uplink DPCH power control info	
- DPCCH power offset	-40 (-80dB)
- PC Preamble	1 frame
- SRB delay	7 frames
- Power Control Algorithm	Algorithm1
- TPC step size	0 (1dB)
- Δ_{ACK}	Not Present
- Δ_{NACK}	Not Present
- Ack-Nack repetition factor	Not Present
- HARQ_preamble_mode	0
- Scrambling code type	Long
- Scrambling code number	0 (0 to 16777215)
- Number of DPDCH	Not Present(1)
- spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set
- Number of FBI bit	Reference to TS34.108 clause 6.10 Parameter Set
- Puncturing Limit	Reference to TS34.108 clause 6.10 Parameter Set
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indication	Initialise
- CFN-targetSFN frame offset	0

Information Element	Value/remark
- Downlink DPCH power control information	Not Present
- Downlink rate matching restriction information	Not Present
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Fixed or flexible position	Reference to TS34.108 clause 6.10 Parameter Set
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set
- DPCH compressed mode info	Not present
- TX Diversity mode	Not Present
- SSDT information	Not Present
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
- MAC-hs reset indicator	TRUE
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- CHOICE mode	FDD
- Primary CPICH info	Set to the scrambling code for cell 1
- Cell ID	Not present
- Serving HS-DSCH radio link indicator	TRUE
- Serving E-DCH radio link indicator	TRUE
- Downlink DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Set to value of DPCH Frame Offset modulo 38400
- Secondary CPICH info	Not present
- DL channelisation code	Reference to TS34.108 clause 6.10 Parameter Set
- Secondary scrambling code	2
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Code number	Any value between 0 and Spreading factor-1
- Scrambling code change	Not Present
- TPC combination index	0
- SSDT cell identity	Not present
- Closed loop timing adjustment mode	Not present
- E-AGCH Info	
- E-AGCH Channelisation Code	10
- CHOICE E-HICH Information	
- E-HICH Information	
- Channelisation code	4
- Signature sequence	1
- CHOICE E-RGCH Information	
- E-RGCH Information	
- Signature Sequence	0
- RG combination index	0

RADIO BEARER RECONFIGURATION (Step 5) (1.28Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New Primary E-RNTI	'1010 1010 1010 1010'
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	

Information Element	Value/remark
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as the set defined for RB25 in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
- RB stop/continue	Not Present
UL Transport channel information common for all transport channels	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
Added or Reconfigured UL TrCH information	To achieve the same set as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A11: 1 E-DCH added, 1 DCH reconfigured.
- Uplink transport channel type	E-DCH
- CHOICE UL parameters	E-DCH
- CHOICE	TDD
- HARQ info for E-DCH	
- HARQ RV Configuration	rvtable
- Added or reconfigured E-DCH MAC-d flow	
- E-DCH MAC-d flow identity	2
- E-DCH MAC-d flow power offset	0
- E-DCH MAC-d flow maximum number of retransmissions	7
- E-DCH MAC-d flow multiplexing list	Not Present
- CHOICE transmission grant type	Scheduled grant info
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to TS34.108 clause 6.11 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to TS34.108 clause 6.11 Parameter Set
- CHOICE Logical channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to TS34.108 clause 6.11 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6.11 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6.11 Parameter Set
- Rate matching attribute	Reference to TS34.108 clause 6.11 Parameter Set
- CRC size	Reference to TS34.108 clause 6.11 Parameter Set
DL Transport channel information common for all transport channel	Not Present
Added or Reconfigured DL TrCH information	Not Present
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Same UARFCN as used for cell 1
Uplink DPCH info	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A11 but without HARQ information which is already stored in the UE
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	

Information Element	Value/remark
- Timing indication	Initialise
- CFN-targetSFN frame offset	0
- Downlink DPCH power control information	
- CHOICE mode	TDD
- TPC Step Size	1
- MAC-d HFN initial value	Not Present
- CHOICE mode	TDD
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- TSTD indicator	FALSE
- Default DPCH Offset Value	Not Present
- MAC-hs reset indicator	TRUE
- MAC-hs reset indicator	1
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- Choice mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Set to the same as cell 1

RADIO BEARER RECONFIGURATION (Step 5) (3.84Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New Primary E-RNTI	'1010 1010 1010 1010'
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as the set defined for RB25 in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
- RB stop/continue	Not Present

Information Element	Value/remark
UL Transport channel information common for all transport channels	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
Added or Reconfigured UL TrCH information	To achieve the same set as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12: 1 E-DCH added, 1 DCH reconfigured.
- Uplink transport channel type	E-DCH
- CHOICE UL parameters	E-DCH
- CHOICE	TDD
- HARQ info for E-DCH	
- HARQ RV Configuration	rvtable
- Added or reconfigured E-DCH MAC-d flow	
- E-DCH MAC-d flow identity	2
- E-DCH MAC-d flow power offset	0
- E-DCH MAC-d flow maximum number of retransmissions	7
- E-DCH MAC-d flow multiplexing list	Not Present
- CHOICE transmission grant type	Scheduled grant info
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to TS34.108 clause 6.10 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE Logical channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to TS34.108 clause 6.10 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6.10 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6.10 Parameter Set
- Rate matching attribute	Reference to TS34.108 clause 6.10 Parameter Set
- CRC size	Reference to TS34.108 clause 6.10 Parameter Set
DL Transport channel information common for all transport channel	Not Present
Added or Reconfigured DL TrCH information	Not Present
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Same UARFCN as used for cell 1
Uplink DPCH info	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12 but without HARQ information which is already stored in the UE
- Uplink DPCH power control info	
- CHOICE mode	-40 (-80dB)
- UL target SIR	1 frame
- CHOICE UL OL PC info	7 frames
- CHOICE mode	Algorithm1
- Uplink Timing Advance Control	0 (1dB)
- CHOICE Timing Advance	Not Present
- CHOICE TDD option	Not Present
- UL Timing Advance	Not Present
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indication	Initialise
- CFN-targetSFN frame offset	0
- Downlink DPCH power control information	Not Present
- Downlink rate matching restriction information	Not Present
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Fixed or flexible position	Reference to TS34.108 clause 6.10 Parameter Set
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set
- DPCH compressed mode info	Not present
- TX Diversity mode	Not Present
- SSDT information	Not Present
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
- MAC-hs reset indicator	TRUE

Information Element	Value/remark
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- CHOICE mode	TDD
- Primary CPICH info	Set to the scrambling code for cell 1
- Cell ID	Not present
- Serving HS-DSCH radio link indicator	TRUE
- Serving E-DCH radio link indicator	TRUE
- Downlink DPCH info for each RL	
- CHOICE mode	TDD
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Set to value of DPCH Frame Offset modulo 38400
- Secondary CPICH info	Not present
- DL channelisation code	Reference to TS34.108 clause 6.10 Parameter Set 2
- Secondary scrambling code	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Code number	Any value between 0 and Spreading factor-1
- Scrambling code change	Not Present
- TPC combination index	0
- SSDT cell identity	Not present
- Closed loop timing adjustment mode	Not present
- E-AGCH Info	
- E-AGCH Channelisation Code	10
- CHOICE E-HICH Information	
- E-HICH Information	
- Channelisation code	4
- Signature sequence	1
- CHOICE E-RGCH Information	
- E-RGCH Information	
- Signature Sequence	0
- RG combination index	0

8.2.2.46.5 Test requirements

After step 2, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message in cell 6.

After step 5, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message in cell 1.

8.2.2.46a Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH Success (inter-band frequency hard handover, start and stop of E-DCH transmission, LCR TDD band a-f)

8.2.2.46a.1 Definition and applicability

All UEs which support LCR TDD and both band a and band f.

8.2.2.46.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable E_DCH_TRANSMISSION shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable E_RNTI includes either the Primary E-RNTI or the Secondary E-RNTI or both the Primary and the Secondary E-RNTI;

…

1> For TDD:

2> the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-RUCCH info" and the IE "E-PUCH info";
- IE "E-HICH info";
- IE "E-AGCH info".

1> there is at least one logical channel mapped to E-DCH for which:

2> the corresponding E-DCH MAC-d flow is configured, i.e. the IEs "E-DCH MAC-d flow power offset" and "E-DCH MAC-d flow maximum number of retransmissions", and the transmission grant type are configured.

If any of the above conditions is not met and the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> set the variable E_DCH_TRANSMISSION to FALSE;

1> stop any E-AGCH and E-HICH reception procedures;

…

1> For TDD:

2> stop any E-RUCCH and E-PUCH transmission procedures.

1> clear the variable E_RNTI;

1> act as if the IE "MAC-es/e reset indicator" was received and set to TRUE;

1> release all E-DCH HARQ resources;

1> no longer consider any radio link to be the serving E-DCH radio link.

Whenever the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

…

1>For TDD:

2>perform E-AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New E-RNTI".

2> Perform E-HICH reception;

2> for 3.84/7.68 Mcps TDD, perform E-RUCCH transmission procedures according to the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

2> for 1.28 Mcps TDD, perform E-RUCCH transmission procedure according to the stored PRACH configuration (see [60]) and the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

NOTE 1: The PRACH configuration is signalled directly to the UE in "E-RUCCH Info" IE in case of E-DCH serving cell change.

2> Perform E-PUCH transmission procedures according to the stored E-PUCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-PUCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

2> obtain and format the appropriate information on E-UCCH (see [15]). For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, the UE shall use the lowest E-DCH capability category, as specified in [35], to signal the UL control information on E-UCCH.

NOTE 2: For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, UTRAN should use the lowest E-DCH capability category when performing configuration, scheduling and reading the control information on E-UCCH, as it is not possible for Node B to be aware of the UE's E-DCH capability category during this period.

Whenever the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> not perform E-AGCH, E-HICH and E-RGCH reception procedures;

1> not perform E-DPCCH and E-DPDCH transmission procedures.

…

1> for TDD:

…

2> if the IE "New E-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

3> store the new value in the variable E_RNTI;

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

If, after the completion of this procedure, the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> clear the variable E-RNTI.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

…

1> for TDD:

2> use the value of New E-RNTI stored in the variable E_RNTI as the UE identity in the E-AGCH reception procedure and the E-RUCCH transmission procedure in the physical layer.

…

If the IE "Added or Reconfigured UL TrCH information" is included then the UE shall:

1> for the transport channel identified by the IE "UL Transport Channel Identity" and IE "Uplink transport channel type":

2> perform the actions for the IE "Transport Format Set" as specified in subclause 8.6.5.1.

NOTE: The UE stores the UL transport channel configuration until it is explicitly deleted by a message containing the IE "Deleted UL TrCH information" or the UE leaves RRC Connected mode.

1> if the choice "UL parameters" is set to 'E-DCH':

…

2> for TDD:

3> apply the value of the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

2> for the IE "HARQ Info for E-DCH":

3> perform the actions specified in subclause 8.6.5.17.

2> if the IE "Added or Reconfigured E-DCH MAC-d Flow list " is included:

3> for each MAC-d flow identified by the IE "Mac-d flow identity":

4> perform the actions as specified in subclause 8.6.5.18.

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "E-DCH Transmission Time Interval" is included, the UE shall:

1> store the received TTI;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> apply the TTI as signalled in the IE "E-DCH Transmission Time Interval" on the E-DPDCH.

…

If the IE "HARQ Info for E-DCH" is included, the UE shall:

1> store the received configuration;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> use a redundancy version for each HARQ transmission as configured by the IE "HARQ RV Configuration".

…

If the IE "Added or reconfigured E-DCH MAC-d flow" is included, the UE shall:

1> if the IE "E-DCH MAC-d flow power offset" is included:

2> configure the power offset indicated in the IE "E-DCH MAC-d flow power offset" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow maximum number of retransmissions" is included:

2> configure the maximum number of retransmissions indicated in the IE "E-DCH MAC-d flow maximum number of retransmissions" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> for 1.28 Mcps TDD, if the IE "E-DCH MAC-d flow retransmission timer" is included:

2> configure the retransmission timer for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow multiplexing list" is included:

2> only multiplex MAC-d PDU’s from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU’s from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed in accordance to the IE "E-DCH MAC-d flow multiplexing list".

1> else:

2> if previously the IE "E-DCH MAC-d flow multiplexing list" was already received for this E-DCH MAC-d flow:

3> continue to only multiplex E-DCH PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed according to the previously received IE "E-DCH MAC-d flow multiplexing list".

2> else (never received the IE "E-DCH MAC-d flow multiplexing list" for this E-DCH MAC-d flow):

3> allow multiplexing of MAC-d PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from any other E-DCH MAC-d flow in the same MAC-e PDU.

…

1> for TDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e PDU transmitted by HARQ processes designated as non scheduled (Ids 4 – 7) in the TTIs indicated (as determined from the IEs "Activation Time", "Resource Duration" and "Resource Periodicity").

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDUs for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH (see [15]).

1> perform the actions as specified in subclause 8.5.21;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

1> if the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> if the UE is in TDD mode and shared transport channels are assigned to the UE:

3> start to receive the indicated Secondary CCPCH.

2> if the UE is in TDD mode and no shared transport channels are assigned to the UE:

3> set the variable UNSUPPORTED_CONFIGURATION to TRUE.

…

2> for TDD:

3> if the IE "E-AGCH Info" is included:

4> store the newly received E-AGCH configuration.

3> if the IE "E-HICH information" is included:

4> store the E-HICH configuration.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> act on the other IEs contained in the IE "Downlink information for each radio link" as specified in subclause 8.6 applied on this radio link.

1> in addition, if the message was received in CELL_DCH state and the UE remains in CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

…

2> For TDD:

3> if the IE "H-RNTI" is not included and the primary CCPCH has changed:

4> clear the variable H_RNTI.

3> determine the value for the HS-DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

2> for each optional IE part of the IE "Downlink information for each radio link" that is not present:

3> do not change its current downlink physical channel configuration corresponding to the IE, which is absent, if not stated otherwise elsewhere.

…

If the IE "E-DCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

…

1> if the IE "MAC-es/e reset indicator" is included:

2> reset the MAC-es/e entity [15].

NOTE 3: If the IE "MAC-es/e reset indicator" is not set to TRUE in case the IE "E-DCH Transmission Time Interval" is reconfigured, the UE behaviour is unspecified.

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

…

1> for TDD:

2> configure the E-RUCCH with the stored E-RUCCH configuration;

2> configure the MAC with the stored E-PUCH configuration.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.28, 8.6.3.14, 8.6.5.5, 8.6.5.16, 8.6.5.17, 8.6.5.18, 8.6.6.4, 8.6.6.37

8.2.2.46a.3 Test purpose

To confirm that the UE starts and stops transmitting the E-DCH, while maintaining HS-DSCH reception, in conjunction with a inter-band frequency hard handover without prior measurement on the target frequency according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.46a.4 Method of test

Initial Condition

System Simulator: 2 cells–Cells 1 and 6 are active.

UE: PS-DCCH +DTCH_HS-DSCH +DTCH_E-DCH (state 6-18) under condition A11(1.28Mcps TDD) in cell 1 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports TDD

- UE supports HS-PDSCH
- UE supports E-PUCH
- UE supports band a and band f

Test Procedure

Table 8.2.2.46a: Time instances of cell power level

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency of the band a		Mid Range Test Frequency of the band f	
P-CCPCH RSCP (TDD)	dBm/1.28MHz	-60	-70	-70	-60

Table 8.2.2.46 illustrate the downlink power to be applied for the 2 cells at various time instants of the test execution.

The SS has configured its downlink transmission power settings according to columns "T0" in table 8.2.2.46.

The UE is in cell 1 and has a radio bearer mapped to the E-DCH/HS-DSCH and the signalling radio bearers mapped on DCH/DCH.

The SS switches its downlink transmission power settings to columns "T1" in table 8.2.2.46 and transmits a RADIO BEARER RECONFIGURATION message instructing the UE to perform a timing re-initialised interfrequency hard handover to cell 6 and stop E-DCH transmission but keep HS-DSCH reception. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC in cell 6.

The SS switches its downlink transmission power settings to columns "T0" in the table 8.2.2.46 and transmits a RADIO BEARER RECONFIGURATION message instructing the UE to perform an interfrequency hard handover to cell 1 and resume E-DCH transmission. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC in cell 1.

SS calls for generic procedure C.3 to check that the UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1		SS		The SS switches its downlink transmission power settings to columns "T1" in table 8.2.2.46
2	←		RADIO BEARER RECONFIGURATION	Hard handover to another frequency and stop of E-DCH transmission,
3	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE transmits this message in cell 6.
4		SS		The SS switches its downlink transmission power settings to columns "T0" in table 8.2.2.46.
5	←		RADIO BEARER RECONFIGURATION	Hard handover to another frequency and start of E-DCH transmission.
6	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE transmits this message in cell 1.
7	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 2) (1.28Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following.

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as the set defined for RB25 in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
- RB stop/continue	Not Present
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
DL Transport channel information common for all transport channel	Not Present
Added or Reconfigured DL TrCH information	Not Present
Frequency info	
- CHOICE mode	TDD
- UARFCN downlink(Nt)	Same downlink UARFCN as used for cell 6
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indication	Initialise
- CFN-targetSFN frame offset	0
- Downlink DPCH power control information	Not Present
- CHOICE mode	TDD
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- TSTD indicator	FALSE
- Default DPCH Offset Value	Arbitrary set to value 0..7
- MAC-hs reset indicator	TRUE
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- CHOICE mode	TDD

Information Element	Value/remark
- Primary CCPCH info - Cell parameters ID	 Set to the same as cell 6

RADIO BEARER RECONFIGURATION (Step 5) (1.28Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New Primary E-RNTI	'1010 1010 1010 1010'
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as the set defined for RB25 in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
- RB stop/continue	Not Present

Information Element	Value/remark
UL Transport channel information common for all transport channels	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
Added or Reconfigured UL TrCH information	To achieve the same set as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A11: 1 E-DCH added, 1 DCH reconfigured.
- Uplink transport channel type	E-DCH
- CHOICE UL parameters	E-DCH
- CHOICE	TDD
- HARQ info for E-DCH	
- HARQ RV Configuration	rvtable
- Added or reconfigured E-DCH MAC-d flow	
- E-DCH MAC-d flow identity	2
- E-DCH MAC-d flow power offset	0
- E-DCH MAC-d flow maximum number of retransmissions	7
- E-DCH MAC-d flow multiplexing list	Not Present
- CHOICE transmission grant type	Scheduled grant info
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to TS34.108 clause 6.11 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to TS34.108 clause 6.11 Parameter Set
- CHOICE Logical channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to TS34.108 clause 6.11 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6.11 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6.11 Parameter Set
- Rate matching attribute	Reference to TS34.108 clause 6.11 Parameter Set
- CRC size	Reference to TS34.108 clause 6.11 Parameter Set
DL Transport channel information common for all transport channel	Not Present
Added or Reconfigured DL TrCH information	Not Present
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Same UARFCN as used for cell 1
Uplink DPCH info	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A11 but without HARQ information which is already stored in the UE
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indication	Initialise
- CFN-targetSFN frame offset	0
- Downlink DPCH power control information	
- CHOICE mode	TDD
- TPC Step Size	1
- MAC-d HFN initial value	Not Present
- CHOICE mode	TDD
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- TSTD indicator	FALSE
- Default DPCH Offset Value	Not Present
- MAC-hs reset indicator	TRUE
- MAC-hs reset indicator	1
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- Choice mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Set to the same as cell 1

8.2.2.46a.5 Test requirements

After step 2, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message in cell 6.

After step 5, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message in cell 1.

8.2.2.47 Radio Bearer Reconfiguration for transition from CELL_FACH to CELL_DCH and CELL_DCH to CELL_FACH: Success (frequency modification, start and stop of E-DCH transmission)

8.2.2.47.1 Definition

All UEs which support FDD and HS-PDSCH and E-DPDCH and all UEs which support TDD and HS-PDSCH and E-PUCH.

8.2.2.47.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable E_DCH_TRANSMISSION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable E_RNTI includes either the Primary E-RNTI or the Secondary E-RNTI or both the Primary and the Secondary E-RNTI;

1> For FDD:

2> the UE has stored the following IEs:

- IE "E-DCH Transmission Time Interval";
- IE "HARQ info for E-DCH";
- IE "E-DCH info", including the IE "E-DPCCH info" and the IE "E-DPDCH info";
- one of the radio links in the active set is configured as the serving E-DCH radio link, and for this radio link the UTRAN has configured the IE "E-HICH configuration" and the IE "E-AGCH info".

1> For TDD:

2> for non-scheduled transmission, the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-PUCH info";
- IE "Non-scheduled transmission grant info".

2> for scheduled transmission, the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-RUCCH info" and the IE "E-PUCH info";
- IE "E-HICH info";
- IE "E-AGCH info".

1> there is at least one logical channel mapped to E-DCH for which:

2> the corresponding E-DCH MAC-d flow is configured, i.e. the IEs "E-DCH MAC-d flow power offset" and "E-DCH MAC-d flow maximum number of retransmissions", and the transmission grant type are configured.

If any of the above conditions is not met and the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> set the variable E_DCH_TRANSMISSION to FALSE;

1> stop any E-AGCH and E-HICH reception procedures;

1> For FDD:

2> stop any E-RGCH reception procedures.

1> For FDD:

2> stop any E-DPCCH and E-DPDCH transmission procedures.

1> For TDD:

2> stop any E-RUCCH and E-PUCH transmission procedures.

1> clear the variable E_RNTI;

1> release all E-DCH HARQ resources;

1> no longer consider any radio link to be the serving E-DCH radio link.

Whenever the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1>For FDD:

2> perform E_AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI" and the IE "New Secondary E-RNTI".

2> perform E-HICH reception procedures for all radio links in the E-DCH active set;

2> perform E-RGCH reception procedures for all radio links in the active set for which an E-RGCH configuration has been provided;

2> perform E-DPCCH transmission procedures according to the stored E-DPCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-DPCCH Info".

2> perform E-DPDCH transmission procedures according to the stored E-DPDCH configuration as stated in:

3> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

3> subclause 8.6.5.17 for the IE "HARQ info for E-DCH";

3> subclause 8.6.6.37 for the IE "E-DPDCH Info".

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

1>For TDD:

2> if scheduled transmission is configured, perform E-AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI".

2> Perform E-HICH reception;

2> for 3.84/7.68 Mcps TDD, perform E-RUCCH transmission procedures according to the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

2> for 1.28 Mcps TDD, if scheduled transmission is configured, perform E-RUCCH transmission procedure according to the stored PRACH configuration (see [60]) and the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

NOTE 1: The PRACH configuration is signalled directly to the UE in "E-RUCCH Info" IE in case of E-DCH serving cell change.

2> Perform E-PUCH transmission procedures according to the stored E-PUCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-PUCH Info".

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

2> obtain and format the appropriate information on E-UCCH (see [15]). For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, the UE shall use the lowest E-DCH capability category, as specified in [35], to signal the UL control information on E-UCCH.

NOTE 2: For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, UTRAN should use the lowest E-DCH capability category when performing configuration, scheduling and reading the control information on E-UCCH, as it is not possible for Node B to be aware of the UE's E-DCH capability category during this period.

Whenever the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> not perform E-AICH, E-HICH and E-RGCH reception procedures;

1> not perform E-DPCCH, E-DPDCH, E-RUCCH and/or E-PUCH transmission procedures.

…

If the IE "New Primary E-RNTI" and/or the IE "New Secondary E-RNTI" (FDD only) are/is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the new value(s) in the variable E_RNTI;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

If, after the completion of this procedure, the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> clear the variable E-RNTI.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> use the value of the Primary E-RNTI and/or Secondary E-RNTI stored in the variable E_RNTI as UE identities in the E-AGCH reception procedure in the physical layer.

1> for TDD:

2> use the value of New Primary E-RNTI stored in the variable E_RNTI as the UE identity in the E-AGCH reception procedure and the E-RUCCH transmission procedure in the physical layer.

…

If the IE "Added or Reconfigured UL TrCH information" is included then the UE shall:

1> for the transport channel identified by the IE "UL Transport Channel Identity" and IE "Uplink transport channel type":

2> perform the actions for the IE "Transport Format Set" as specified in subclause 8.6.5.1.

NOTE: The UE stores the UL transport channel configuration until it is explicitly deleted by a message containing the IE "Deleted UL TrCH information" or the UE leaves RRC Connected mode.

1> if the choice "UL parameters" is set to 'E-DCH':

2> for FDD:

3> apply the values of the IE "E-DCH Transmission Time Interval" and the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

2> for TDD:

3> apply the value of the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

2> for the IE "HARQ Info for E-DCH":

3> perform the actions specified in subclause 8.6.5.17.

2> if the IE "Added or Reconfigured E-DCH MAC-d Flow list " is included:

3> for each MAC-d flow identified by the IE "Mac-d flow identity":

4> perform the actions as specified in subclause 8.6.5.18.

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

NOTE: In case of multiple E-DCH MAC-d flows, IE "Added or Reconfigured UL TrCH information" is only included once. If the IE "Added or Reconfigured UL TrCH information" is included more than once with the IE "Uplink transport channel type" set to 'E-DCH', the UE behaviour is unspecified.

…

If the IE "Deleted UL TrCH information" is included the UE shall:

1> if an E-DCH MAC-d flow is requested to be deleted:

2> delete any information about the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity";

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "E-DCH Transmission Time Interval" is included, the UE shall:

1> store the received TTI;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> apply the TTI as signalled in the IE "E-DCH Transmission Time Interval" on the E-DPDCH.

If the received "E-DCH Transmission Time Interval" is 2 ms and the previously stored TTI was 10 ms:

1> not send any data on E-DPDCH in first 8 TTIs after activation time of new TTI.

…

If the IE "HARQ Info for E-DCH" is included, the UE shall:

1> store the received configuration;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> use a redundancy version for each HARQ transmission as configured by the IE "HARQ RV Configuration".

…

If the IE "Added or reconfigured E-DCH MAC-d flow" is included, the UE shall:

1> if the IE "E-DCH MAC-d flow power offset" is included:

2> configure the power offset indicated in the IE "E-DCH MAC-d flow power offset" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow maximum number of retransmissions" is included:

2> configure the maximum number of retransmissions indicated in the IE "E-DCH MAC-d flow maximum number of retransmissions" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> for 1.28 Mcps TDD, if the IE "E-DCH MAC-d flow retransmission timer" is included:

2> configure the retransmission timer for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow multiplexing list" is included:

2> only multiplex MAC-d PDU’s from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU’s from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed in accordance to the IE "E-DCH MAC-d flow multiplexing list".

1> else:

2> if previously the IE "E-DCH MAC-d flow multiplexing list" was already received for this E-DCH MAC-d flow:

3> continue to only multiplex E-DCH PDU’s from the E-DCH MAC-d flow indicated in the IE “E-DCH MAC-d flow identity” with MAC-d PDU’s from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed according to the previously received IE “E-DCH MAC-d flow multiplexing list”.

2> else (never received the IE "E-DCH MAC-d flow multiplexing list" for this E-DCH MAC-d flow):

3> allow multiplexing of MAC-d PDU’s from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU’s from any other E-DCH MAC-d flow in the same MAC-e PDU.

1> for FDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> if the TTI configured on the E-DCH equals 2ms, and the IE "2ms non-scheduled transmission grant HARQ process allocation" is configured for this MAC-d flow:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e or MAC-i PDU transmitted by HARQ processes allowed by the IE "2ms non-scheduled transmission grant HARQ process allocation", with a total contribution from this MAC-d flow (i.e. including MAC-e/es or MAC-i/is headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

3> else:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall be included in a MAC-e or MAC-i PDU transmitted by any HARQ process, with a total contribution from this MAC-d flow (i.e. including MAC-e/es or MAC-i/is headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDU's for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH/E-RGCH (see [15]).

1> for TDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e or MAC-i PDU transmitted by HARQ processes designated as non scheduled (Ids 4 – 7) in the TTIs indicated (for 3.84 Mcps TDD and 7.68 Mcps TDD, as determined from the IEs "Activation Time", "Resource Duration" and "Resource Periodicity"; for 1.28 Mcps TDD, as determined from the IEs "Activation Time", "Subframe number", "Resource Duration" and "Resource Periodicity", and the calculation of assigned Non-scheduled transmission grant is specified in subclause 8.6.6.16a).

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDUs for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH (see [15]).

1> perform the actions as specified in subclause 8.5.21;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

1> if the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> if the UE is in TDD mode and shared transport channels are assigned to the UE:

3> start to receive the indicated Secondary CCPCH.

2> if the UE is in TDD mode and no shared transport channels are assigned to the UE:

3> set the variable UNSUPPORTED_CONFIGURATION to TRUE.

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link and no longer consider any other radio link as serving HS-DSCH radio link.

2> For FDD:

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link and no longer consider any other radio link as serving E-DCH radio link.

3> if the IE "E-AGCH Info" is included for the serving E-DCH radio link:

4> store the newly received E-AGCH configuration.

NOTE: The UTRAN should always include the IE "E-AGCH info" if the serving E-DCH radio link indicated in the message is another radio link than the serving E-DCH radio link prior to the procedure.

3> if the IE "E-HICH information" is included:

4> store this E-HICH configuration for the concerning radio link.

3> if the IE "E-HICH information" is included or previously stored:

4> store this E-RGCH configuration for the concerning radio link, if included.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> for TDD:

3> if the IE "E-AGCH Info" is included:

4> store the newly received E-AGCH configuration.

3> if the IE "E-HICH information" is included:

4> store the E-HICH configuration.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> act on the other IEs contained in the IE "Downlink information for each radio link" as specified in subclause 8.6 applied on this radio link.

1> in addition, if the message was received in CELL_DCH state and the UE remains in CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link;

4> if the serving HS-DSCH radio link was another radio link than this radio link prior to reception of the message and the IE "H-RNTI" is not included:

5> clear the variable H_RNTI.

3> if the IE "Serving HS-DSCH radio link indicator" is set to ‘FALSE’ and this radio link was considered the serving HS-DSCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving HS-DSCH radio link.

3> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25;

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link;

4> if the serving E-DCH radio link was another radio link than this radio link prior to reception of the message:

5> if the IE "New Primary E-RNTI" is not included:

6> clear the Primary E-RNTI stored in the variable E_RNTI.

5> if the IE "New Secondary E-RNTI" is not included:

6> clear the Secondary E-RNTI stored in the variable E_RNTI.

3> if the IE "Serving E-DCH radio link indicator" is set to 'FALSE' and this radio link was considered the serving E-DCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving E-DCH radio link.

3> if the IE "E-HICH release indicator" is present:

4> delete the stored E-HICH, E-AGCH and E-RGCH (if any) configurations.

3> if the IE "E-RGCH release indicator" is present:

4> delete the stored E-RGCH configuration for this RL.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> For TDD:

3> if the IE "H-RNTI" is not included and the primary CCPCH has changed:

4> clear the variable H_RNTI.

3> determine the value for the HS-DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

2> for TDD:

3> if the IE "New Primary E-RNTI" is not included:

4> clear the variable E_RNTI.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> for each optional IE part of the IE "Downlink information for each radio link" that is not present:

3> do not change its current downlink physical channel configuration corresponding to the IE, which is absent, if not stated otherwise elsewhere.

…

If the IE "E-DCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> for FDD:

2> if the IE "E-DPCCH Info" is included:

3> store the newly received E-DPCCH configuration.

2> if the IE "E-DPDCH Info" is included:

3> store the newly received E-DPDCH configuration.

2> if the IE "UL 16QAM settings" is not included:

3> indicate to lower layers to stop any operation in 16QAM mode.

1> for 3.84/7.68 Mcps TDD:

2> if the IE "E-RUCCH Info" is included:

3> store the newly received E-RUCCH configuration.

2> if the IE "E-PUCH Info" is included:

NOTE 1: The UTRAN should ensure the ordering of the E-TFCI table in strictly increasing order of transmission power prior to quantization, by correct setting of the reference E-TFCI power offsets otherwise the UE behaviour is unspecified.

NOTE 2: If a reference E-TFCI signalled to the UE is outside the UE physical channel capability, the UE behaviour is unspecified.

NOTE 2a: If E-TFCI boost is signalled to the UE and a reference E-TFCI <= E-TFCI Boost is signalled to the UE with a Reference E-TFCI PO of value 30 or 31, the UE behaviour is unspecified.

1> if the IE "MAC-es/e reset indicator" is included:

2> reset the MAC-es/e or MAC-i/is entity [15].

NOTE 3: If the IE "MAC-es/e reset indicator" is not set to TRUE in case the IE "E-DCH Transmission Time Interval" is reconfigured, the UE behaviour is unspecified.

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> configure the UL E-DPCCH in accordance with the stored IE "E-DPCCH" configuration;

2> configure the MAC with the stored IE "E-DPDCH" configuration and/or the information contained in IE "Scheduled Transmission configuration".

1> for TDD:

2> configure the E-RUCCH with the stored E-RUCCH configuration;

2> configure the MAC with the stored E-PUCH configuration.

Reference

3GPP TS 25.331 clauses 8.2.2.4, 8.5.28, 8.6.3.14, 8.6.5.5, 8.6.5.7, 8.6.5.16 (FDD only), 8.6.5.17, 8.6.5.18, 8.6.6.4, 8.6.6.37

8.2.2.47.3 Test purpose

1) To confirm that the UE reconfigures radio bearer parameters, transits from CELL_DCH to CELL_FACH state with frequency modification and stops E-DCH transmission according to the received a RADIO BEARER RECONFIGURATION message.

2) To confirm that the UE reconfigures radio bearer parameters, transits from CELL_FACH to CELL_DCH state with frequency modification and starts E-DCH transmission according to the received a RADIO BEARER RECONFIGURATION message.

8.2.2.47.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 is active and cell 6 is inactive.

UE: PS_DCCH_DTCH_E-DCH/HS-DSCH (state 6-18) under condition A13, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statements

- UE supports FDD or TDD
- UE supports HS-PDSCH

- UE supports E-DPDCH (FDD only)
- UE supports E-PUCH (TDD only)

Test Procedure

Table 8.2.2.47

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency (f_1)		High Range Test Frequency (f_2)	
CPICH Ec	dBm/3.84MHz	-60	-70	-70	-60
P-CCPCH RSCP (TDD)	dBm	-60	-70	-60	-70

Table 8.2.2.47 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH and E-DCH in cell 1.The SS has configured its downlink transmission power setting according to columns “T0” in table 8.2.2.47.

The SS then applies the power level according to “T1” in table 8.2.2.47 and transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it stops HS-DSCH reception and E-DCH transmission, moves to CELL_FACH state in cell 6 and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

Then, the SS transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it moves to CELL_DCH state in cell 1, resumes the HS-DSCH reception and E-DCH transmission and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. The SS calls for generic procedure C.3 to check the UE is in CELL_DCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	Stop of HS-DSCH reception and E-DCH transmission
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3	←		RADIO BEARER RECONFIGURATION	Start of HS-DSCH reception and E-DCH transmission
4	→		RADIO BEARER RECONFIGURATION COMPLETE	
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1) (FDD)

Use the same message as specified for "Packet to CELL_FACH from CELL_DCH in PS" in TS34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RB MuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RB MuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH

Information Element	Value/remark
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250

Information Element	Value/remark
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH for PS domain)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present

Information Element	Value/remark
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB stop/continue	Not Present
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
Frequency info	
- UARFCN uplink (Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS25.101 [11]
- UARFCN downlink (Nd)	Set to the frequency of cell 6
Maximum allowed UL TX power	Not Present
Downlink information per radio link list	
-Downlink information for each radio link	
- Primary CPICH info	
- Primary scrambling code	Set to the same code as used for cell 6

RADIO BEARER RECONFIGURATION (Step 1)(1.28Mcps TDD)

Use the same message as specified for "Packet to CELL_FACH from CELL_DCH in PS" in TS34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RB MuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present

Information Element	Value/remark
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RB MuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE

Information Element	Value/remark
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4

Information Element	Value/remark
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH for PS domain)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB stop/continue	Not Present
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
Frequency info	

Information Element	Value/remark
- CHOICE mode	TDD
- UARFCN downlink(Nt)	Same downlink UARFCN as used for cell 6
Maximum allowed UL TX power	Not Present
Downlink information per radio link list	
Downlink information for each radio link	
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Set to the same as cell 6

RADIO BEARER RECONFIGURATION (Step 1) (3.84Mcps TDD and 7.68Mcps TDD)

Use the same message as specified for "Packet to CELL_FACH from CELL_DCH in PS" in TS34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RB MuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.3.4.5.1 (3.84Mcps TDD), 6.11.6.4.5.1 (7.68Mcps TDD)
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200

Information Element	Value/remark
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RB MuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.3.4.5.1 (3.84Mcps TDD), 6.11.6.4.5.1 (7.68Mcps TDD)
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.3.4.5.1 (3.84Mcps TDD), 6.11.6.4.5.1 (7.68Mcps TDD)
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH

Information Element	Value/remark
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.3.4.5.1 (3.84Mcps TDD), 6.11.6.4.5.1 (7.68Mcps TDD)
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH for PS domain)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250

Information Element	Value/remark
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB stop/continue	Not Present
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
Frequency info	
- Choice Mode	TDD
- UARFCN (Nt)	Set to the frequency of cell 6
Maximum allowed UL TX power	Not Present
Downlink information per radio link list	
-Downlink information for each radio link	
- Choice Mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Set to the same as used for cell 6

RADIO BEARER RECONFIGURATION (Step 3) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_FACH in PS" in TS34.108 clause 9 with the following exceptions:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New Primary E-RNTI	'1010 1010 1010 1010'
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size

Information Element	Value/remark
- RLC PDU size	144bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	

Information Element	Value/remark
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH for PS domain)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE

Information Element	Value/remark
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	0
- Logical channel identity	Not Present
- RB stop/continue	Not Present
UL Transport channel information common for all transport channels	Not Present
Added or Reconfigured UL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13.
DL Transport channel information common for all transport channels	Not Present
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13.
Frequency info	
- UARFCN uplink (Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS25.101 [11]
- UARFCN downlink (Nd)	Set to the frequency of cell 1
Maximum allowed UL TX power	Not Present
Uplink DPCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13.
E-DCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13.
Downlink HS-PDSCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13.
Downlink information per radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13 with the following exception:
-Downlink information for each radio link	
- Primary CPICH info	
- Primary scrambling code	Set to the same code as used for cell 1

RADIO BEARER RECONFIGURATION (Step 3)(1.28Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_FACH in PS" in TS34.108 clause 9 with the following exceptions:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New Primary E-RNTI	'1010 1010 1010 1010'
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size

Information Element	Value/remark
- RLC PDU size	144bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	

Information Element	Value/remark
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH for PS domain)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE

Information Element	Value/remark
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	0
- Logical channel identity	Not Present
- RB stop/continue	Not Present
UL Transport channel information common for all transport channels	Not Present
Added or Reconfigured UL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
DL Transport channel information common for all transport channels	Not Present
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
Frequency info	
- CHOICE mode	TDD
- UARFCN downlink (Nd)	Set to the frequency of cell 1
Maximum allowed UL TX power	Not Present
Uplink DPCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
E-DCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
Downlink HS-PDSCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
Downlink information per radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12 with the following exception:
Downlink information for each radio link	
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Set to the same as cell 1

RADIO BEARER RECONFIGURATION (Step 3) (3.84Mcps TDD and 7.68Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_FACH in PS" in TS34.108 clause 9 with the following exceptions:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New Primary E-RNTI	'1010 1010 1010 1010'
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size

Information Element	Value/remark
- RLC PDU size	144bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	

Information Element	Value/remark
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH for PS domain)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE

Information Element	Value/remark
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	0
- Logical channel identity	Not Present
- RB stop/continue	Not Present
UL Transport channel information common for all transport channels	Not Present
Added or Reconfigured UL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13.
DL Transport channel information common for all transport channels	Not Present
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13.
Frequency info	
- Choice Mode	TDD
- UARFCN (Nt)	Set to the frequency of cell 1
Maximum allowed UL TX power	Not Present
Uplink DPCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13.
E-DCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13.
Downlink HS-PDSCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13.
Downlink information per radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13 with the following exception:
-Downlink information for each radio link	
- Choice Mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Set to the same as used for cell 1

8.2.2.47.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

After step 3, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

8.2.2.47a Radio Bearer Reconfiguration for transition from CELL_FACH to CELL_DCH and CELL_DCH to CELL_FACH: Success (frequency modification, start and stop of E-DCH transmission, F-DPCH Configured)

8.2.2.47a.1 Definition

All UEs which support FDD and HS-PDSCH and E-DPDCH.

8.2.2.47a.2 Conformance requirement

Same conformance requirement as in clause 8.2.2.47.2

8.2.2.47a.3 Test purpose

Same test purpose as in clause 8.2.2.47.3

8.2.2.47a.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 is active and cell 6 is inactive.

UE: PS_DCCH_DTCH_E-DCH/HS-DSCH (state 6-18) under condition A14, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statements

- UE supports FDD
- UE supports HS-PDSCH
- UE supports E-DPDCH
- UE fully supports F-DPCH

Test Procedure

Same test procedure as in clause 8.2.2.47.4

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1)

Use the same message as specified for "Packet to CELL_FACH from CELL_DCH in PS" in TS34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RB MuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	1
- Downlink RLC logical channel info	

Information Element	Value/remark
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RB MuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	

Information Element	Value/remark
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	

Information Element	Value/remark
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH for PS domain)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB stop/continue	Not Present
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1

Information Element	Value/remark
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	1
Frequency info	
- UARFCN uplink (Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS25.101 [11]
- UARFCN downlink (Nd)	Set to the frequency of cell 6
Maximum allowed UL TX power	Not Present
Downlink information per radio link list	
-Downlink information for each radio link	
- Primary CPICH info	
- Primary scrambling code	Set to the same code as used for cell 6

RADIO BEARER RECONFIGURATION (Step 3)

Use the same message as specified for "Packet to CELL_DCH from CELL_FACH in PS" in TS34.108 clause 9 with the following exceptions:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New Primary E-RNTI	'1010 1010 1010 1010'
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	1
- RB stop/continue	Not Present

Information Element	Value/remark
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present

Information Element	Value/remark
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	

Information Element	Value/remark
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH for PS domain)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present

Information Element	Value/remark
- DL HS-DSCH MAC-d flow identity	0
- Logical channel identity	Not Present
- RB stop/continue	Not Present
UL Transport channel information common for all transport channels	Not Present
Added or Reconfigured UL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A14.
DL Transport channel information common for all transport channels	Not Present
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A14.
Frequency info	
- UARFCN uplink (Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS25.101 [11]
- UARFCN downlink (Nd)	Set to the frequency of cell 1
Maximum allowed UL TX power	Not Present
Uplink DPCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A14.
E-DCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A14.
Downlink HS-PDSCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A14.
Downlink information per radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A14 with the following exception;
-Downlink information for each radio link	
- Primary CPICH info	
- Primary scrambling code	Set to the same code as used for cell 1

8.2.2.47a.5 Test requirements

Same test requirement as in clause 8.2.2.47.5

8.2.2.47b Radio Bearer Reconfiguration for transition from CELL_FACH to CELL_DCH and CELL_DCH to CELL_FACH: Success (frequency modification in the multi-frequency network environment, start and stop of E-DCH transmission, for 1.28Mcps TDD only)

8.2.2.47b.1 Definition

All UEs which support 1.28Mcps TDD and HS-PDSCH and E-PUCH.

8.2.2.47b.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable E_DCH_TRANSMISSION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable E_RNTI includes either the Primary E-RNTI or the Secondary E-RNTI or both the Primary and the Secondary E-RNTI;

1> For FDD:

2> the UE has stored the following IEs:

- IE "E-DCH Transmission Time Interval";
- IE "HARQ info for E-DCH";
- IE "E-DCH info", including the IE "E-DPCCH info" and the IE "E-DPDCH info";
- one of the radio links in the active set is configured as the serving E-DCH radio link, and for this radio link the UTRAN has configured the IE "E-HICH configuration" and the IE "E-AGCH info".

1> For TDD:

2> for non-scheduled transmission, the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-PUCH info";
- IE "Non-scheduled transmission grant info".

2> for scheduled transmission, the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-RUCCH info" and the IE "E-PUCH info";
- IE "E-HICH info";
- IE "E-AGCH info".

1> there is at least one logical channel mapped to E-DCH for which:

2> the corresponding E-DCH MAC-d flow is configured, i.e. the IEs "E-DCH MAC-d flow power offset" and "E-DCH MAC-d flow maximum number of retransmissions", and the transmission grant type are configured.

If any of the above conditions is not met and the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> set the variable E_DCH_TRANSMISSION to FALSE;

1> stop any E-AGCH and E-HICH reception procedures;

1> For FDD:

2> stop any E-RGCH reception procedures.

1> For FDD:

2> stop any E-DPCCH and E-DPDCH transmission procedures.

1> For TDD:

2> stop any E-RUCCH and E-PUCH transmission procedures.

1> clear the variable E_RNTI;

1> release all E-DCH HARQ resources;

1> no longer consider any radio link to be the serving E-DCH radio link.

Whenever the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1>For FDD:

2> perform E_AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI" and the IE "New Secondary E-RNTI".

2> perform E-HICH reception procedures for all radio links in the E-DCH active set;

2> perform E-RGCH reception procedures for all radio links in the active set for which an E-RGCH configuration has been provided;

2> perform E-DPCCH transmission procedures according to the stored E-DPCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-DPCCH Info".

2> perform E-DPDCH transmission procedures according to the stored E-DPDCH configuration as stated in:

3> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

3> subclause 8.6.5.17 for the IE "HARQ info for E-DCH";

3> subclause 8.6.6.37 for the IE "E-DPDCH Info".

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

1>For TDD:

2> if scheduled transmission is configured, perform E-AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI".

2> Perform E-HICH reception;

2> for 3.84/7.68 Mcps TDD, perform E-RUCCH transmission procedures according to the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

2> for 1.28 Mcps TDD, if scheduled transmission is configured, perform E-RUCCH transmission procedure according to the stored PRACH configuration (see [60]) and the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

NOTE 1: The PRACH configuration is signalled directly to the UE in "E-RUCCH Info" IE in case of E-DCH serving cell change.

2> Perform E-PUCH transmission procedures according to the stored E-PUCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-PUCH Info".

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

2> obtain and format the appropriate information on E-UCCH (see [15]). For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, the UE shall use the lowest E-DCH capability category, as specified in [35], to signal the UL control information on E-UCCH.

NOTE 2: For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, UTRAN should use the lowest E-DCH capability category when performing configuration, scheduling and reading the control information on E-UCCH, as it is not possible for Node B to be aware of the UE's E-DCH capability category during this period.

Whenever the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> not perform E-AICH, E-HICH and E-RGCH reception procedures;

1> not perform E-DPCCH, E-DPDCH, E-RUCCH and/or E-PUCH transmission procedures.

…

If the IE "New Primary E-RNTI" and/or the IE "New Secondary E-RNTI" (FDD only) are/is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the new value(s) in the variable E_RNTI;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

If, after the completion of this procedure, the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> clear the variable E-RNTI.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> use the value of the Primary E-RNTI and/or Secondary E-RNTI stored in the variable E_RNTI as UE identities in the E-AGCH reception procedure in the physical layer.

1> for TDD:

2> use the value of New Primary E-RNTI stored in the variable E_RNTI as the UE identity in the E-AGCH reception procedure and the E-RUCCH transmission procedure in the physical layer.

…

If the IE "Added or Reconfigured UL TrCH information" is included then the UE shall:

1> for the transport channel identified by the IE "UL Transport Channel Identity" and IE "Uplink transport channel type":

2> perform the actions for the IE "Transport Format Set" as specified in subclause 8.6.5.1.

NOTE: The UE stores the UL transport channel configuration until it is explicitly deleted by a message containing the IE "Deleted UL TrCH information" or the UE leaves RRC Connected mode.

1> if the choice "UL parameters" is set to 'E-DCH':

2> for FDD:

3> apply the values of the IE "E-DCH Transmission Time Interval" and the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

2> for TDD:

3> apply the value of the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

2> for the IE "HARQ Info for E-DCH":

3> perform the actions specified in subclause 8.6.5.17.

2> if the IE "Added or Reconfigured E-DCH MAC-d Flow list " is included:

3> for each MAC-d flow identified by the IE "Mac-d flow identity":

4> perform the actions as specified in subclause 8.6.5.18.

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

NOTE: In case of multiple E-DCH MAC-d flows, IE "Added or Reconfigured UL TrCH information" is only included once. If the IE "Added or Reconfigured UL TrCH information" is included more than once with the IE "Uplink transport channel type" set to 'E-DCH', the UE behaviour is unspecified.

…

If the IE "Deleted UL TrCH information" is included the UE shall:

1> if an E-DCH MAC-d flow is requested to be deleted:

2> delete any information about the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity";

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "E-DCH Transmission Time Interval" is included, the UE shall:

1> store the received TTI;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> apply the TTI as signalled in the IE "E-DCH Transmission Time Interval" on the E-DPDCH.

If the received "E-DCH Transmission Time Interval" is 2 ms and the previously stored TTI was 10 ms:

1> not send any data on E-DPDCH in first 8 TTIs after activation time of new TTI.

…

If the IE "HARQ Info for E-DCH" is included, the UE shall:

1> store the received configuration;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> use a redundancy version for each HARQ transmission as configured by the IE "HARQ RV Configuration".

…

If the IE "Added or reconfigured E-DCH MAC-d flow" is included, the UE shall:

1> if the IE "E-DCH MAC-d flow power offset" is included:

2> configure the power offset indicated in the IE "E-DCH MAC-d flow power offset" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow maximum number of retransmissions" is included:

2> configure the maximum number of retransmissions indicated in the IE "E-DCH MAC-d flow maximum number of retransmissions" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> for 1.28 Mcps TDD, if the IE "E-DCH MAC-d flow retransmission timer" is included:

2> configure the retransmission timer for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow multiplexing list" is included:

2> only multiplex MAC-d PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed in accordance to the IE "E-DCH MAC-d flow multiplexing list".

1> else:

2> if previously the IE "E-DCH MAC-d flow multiplexing list" was already received for this E-DCH MAC-d flow:

3> continue to only multiplex E-DCH PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed according to the previously received IE "E-DCH MAC-d flow multiplexing list".

2> else (never received the IE "E-DCH MAC-d flow multiplexing list" for this E-DCH MAC-d flow):

3> allow multiplexing of MAC-d PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from any other E-DCH MAC-d flow in the same MAC-e PDU.

1> for FDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> if the TTI configured on the E-DCH equals 2ms, and the IE "2ms non-scheduled transmission grant HARQ process allocation" is configured for this MAC-d flow:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e or MAC-i PDU transmitted by HARQ processes allowed by the IE "2ms non-scheduled transmission grant HARQ process allocation", with a total contribution from this MAC-d flow (i.e. including MAC-e/es or MAC-i/is headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

3> else:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall be included in a MAC-e or MAC-i PDU transmitted by any HARQ process, with a total contribution from this MAC-d flow (i.e. including MAC-e/es or MAC-i/is headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDU's for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH/E-RGCH (see [15]).

1> for TDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e or MAC-i PDU transmitted by HARQ processes designated as non scheduled (Ids 4 – 7) in the TTIs indicated (for 3.84 Mcps TDD and 7.68 Mcps TDD, as determined from the IEs "Activation Time", "Resource Duration" and "Resource Periodicity"; for 1.28 Mcps TDD, as determined from the IEs "Activation Time", "Subframe number", "Resource Duration" and "Resource Periodicity", and the calculation of assigned Non-scheduled transmission grant is specified in subclause 8.6.6.16a).

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDUs for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH (see [15]).

1> perform the actions as specified in subclause 8.5.21;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

1> if the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> if the UE is in TDD mode and shared transport channels are assigned to the UE:

3> start to receive the indicated Secondary CCPCH.

2> if the UE is in TDD mode and no shared transport channels are assigned to the UE:

3> set the variable UNSUPPORTED_CONFIGURATION to TRUE.

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link and no longer consider any other radio link as serving HS-DSCH radio link.

2> For FDD:

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link and no longer consider any other radio link as serving E-DCH radio link.

3> if the IE "E-AGCH Info" is included for the serving E-DCH radio link:

4> store the newly received E-AGCH configuration.

NOTE: The UTRAN should always include the IE "E-AGCH info" if the serving E-DCH radio link indicated in the message is another radio link than the serving E-DCH radio link prior to the procedure.

3> if the IE "E-HICH information" is included:

4> store this E-HICH configuration for the concerning radio link.

3> if the IE "E-HICH information" is included or previously stored:

4> store this E-RGCH configuration for the concerning radio link, if included.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> for TDD:

3> if the IE "E-AGCH Info" is included:

4> store the newly received E-AGCH configuration.

3> if the IE "E-HICH information" is included:

4> store the E-HICH configuration.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> act on the other IEs contained in the IE "Downlink information for each radio link" as specified in subclause 8.6 applied on this radio link.

1> in addition, if the message was received in CELL_DCH state and the UE remains in CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link;

4> if the serving HS-DSCH radio link was another radio link than this radio link prior to reception of the message and the IE "H-RNTI" is not included:

5> clear the variable H_RNTI.

3> if the IE "Serving HS-DSCH radio link indicator" is set to ‘FALSE’ and this radio link was considered the serving HS-DSCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving HS-DSCH radio link.

3> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25;

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link;

4> if the serving E-DCH radio link was another radio link than this radio link prior to reception of the message:

5> if the IE "New Primary E-RNTI" is not included:

6> clear the Primary E-RNTI stored in the variable E_RNTI.

5> if the IE "New Secondary E-RNTI" is not included:

6> clear the Secondary E-RNTI stored in the variable E_RNTI.

3> if the IE "Serving E-DCH radio link indicator" is set to ‘FALSE’ and this radio link was considered the serving E-DCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving E-DCH radio link.

3> if the IE "E-HICH release indicator" is present:

4> delete the stored E-HICH, E-AGCH and E-RGCH (if any) configurations.

3> if the IE "E-RGCH release indicator" is present:

4> delete the stored E-RGCH configuration for this RL.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> For TDD:

3> if the IE "H-RNTI" is not included and the primary CCPCH has changed:

4> clear the variable H_RNTI.

3> determine the value for the HS-DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

2> for TDD:

3> if the IE "New Primary E-RNTI" is not included:

4> clear the variable E_RNTI.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> for each optional IE part of the IE "Downlink information for each radio link" that is not present:

3> do not change its current downlink physical channel configuration corresponding to the IE, which is absent, if not stated otherwise elsewhere.

…

If the IE "E-DCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> for FDD:

2> if the IE "E-DPCCH Info" is included:

3> store the newly received E-DPCCH configuration.

2> if the IE "E-DPDCH Info" is included:

3> store the newly received E-DPDCH configuration.

2> if the IE "UL 16QAM settings" is not included:

3> indicate to lower layers to stop any operation in 16QAM mode.

1> for 3.84/7.68 Mcps TDD:

2> if the IE "E-RUCCH Info" is included:

3> store the newly received E-RUCCH configuration.

2> if the IE "E-PUCH Info" is included:

NOTE 1: The UTRAN should ensure the ordering of the E-TFCI table in strictly increasing order of transmission power prior to quantization, by correct setting of the reference E-TFCI power offsets otherwise the UE behaviour is unspecified.

NOTE 2: If a reference E-TFCI signalled to the UE is outside the UE physical channel capability, the UE behaviour is unspecified.

NOTE 2a: If E-TFCI boost is signalled to the UE and a reference E-TFCI <= E-TFCI Boost is signalled to the UE with a Reference E-TFCI PO of value 30 or 31, the UE behaviour is unspecified.

1> if the IE "MAC-es/e reset indicator" is included:

2> reset the MAC-es/e or MAC-i/is entity [15].

NOTE 3: If the IE "MAC-es/e reset indicator" is not set to TRUE in case the IE "E-DCH Transmission Time Interval" is reconfigured, the UE behaviour is unspecified.

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> configure the UL E-DPCCH in accordance with the stored IE "E-DPCCH" configuration;

2> configure the MAC with the stored IE "E-DPDCH" configuration and/or the information contained in IE "Scheduled Transmission configuration".

1> for TDD:

2> configure the E-RUCCH with the stored E-RUCCH configuration;

2> configure the MAC with the stored E-PUCH configuration.

…

If, after completion of the procedure, the UE will be in CELL_DCH state, the UE shall:

1> for FDD, 3.84 Mcps TDD and 7.68 Mcps TDD, if the IE "Frequency info" is included; or

1> for 1.28 Mcps TDD, if the IE "Frequency info" is included and the "Second Frequency info" is not included:

2> if the frequency is different from the currently used frequency:

3> store and use the frequency indicated by the IE "Frequency Info";

3> if the received message is used to perform a Timing-maintained hard handover (see subclause 8.3.5.2),and IE "Timing maintained Synchronization indicator" is included:

4> not perform any physical layer synchronisation procedure (FDD only);

3> else:

4> perform the physical layer synchronisation procedure A as specified in [29] (FDD only).

2> if the frequency is the same as the currently used frequency:

3> continue to use the currently used frequency;

3> perform the physical layer synchronisation procedure A as specified in [29] (FDD only).

1> for 1.28 Mcps TDD, if both the IE "Frequency info" and the IE "Second Frequency info" are included:

2> the frequency in IE "Frequency info" is used as the primary frequency, and the frequency in IE "Second Frequency info" is used as the secondary frequency;

2> store the primary frequency;

2> if the secondary frequency is different with the currently used frequency:

3> store and use the secondary frequency.

2> if the secondary frequency is the same as the currently used frequency:

3> continue to use the currently used frequency.

1> if the IE "Frequency info" is not included and the UE has a currently used frequency:

2> continue to use the currently used frequency;

…

If the IE "Second Frequency info" is included, the UE shall:

1> act as specified in section 8.6.6.1.

If the IE "FPACH Frequency info" is included, the UE shall:

1> store the FPACH frequency indicated in the IE "FPACH Frequency info".

If the IE "UpPCH Position Info" is included:

1> store and use the UpPCH position indicated by the IE "UpPCH Position Info ". The calculation of the uplink access position is described in [33].

If the IE "UpPCH Position Info" is not included:

1> use the UpPTS as the default UpPCH position.

Reference

3GPP TS 25.331 clauses 8.2.2.4, 8.5.28, 8.6.3.14, 8.6.5.5, 8.6.5.7, 8.6.5.16, 8.6.5.17, 8.6.5.18, 8.6.6.1, 8.6.6.4, 8.6.6.37, 8.6.6.43.

8.2.2.47b.3 Test purpose

1) To confirm that the UE reconfigures radio bearer parameters, transits from CELL_DCH to CELL_FACH state with frequency modification and stops E-DCH transmission according to the received a RADIO BEARER RECONFIGURATION message in the multi-frequency network environment.

2) To confirm that the UE reconfigures radio bearer parameters, transits from CELL_FACH to CELL_DCH state with frequency modification and starts E-DCH transmission according to the received a RADIO BEARER RECONFIGURATION message in the multi-frequency network environment.

8.2.2.47b.4 Method of test

Initial Condition

System Simulator:

2 cells

- Cell 1 is active, 3 frequency (one is primary frequency, others are secondary frequency)
- Cell 6 is inactive, 1 frequency

UE: PS_DCCH_DTCH_E-DCH/HS-DSCH (state 6-18) under condition A13, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statements

- UE supports 1.28Mcps TDD
- UE supports HS-PDSCH
- UE supports E-PUCH

Test Procedure

Table 8.2.2.47b

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
P-CCPCH RSCP	dBm	-60	-70	-60	-70

Table 8.2.2.47b illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH and E-DCH at the secondary frequency in cell 1.The SS has configured its downlink transmission power setting according to columns “T0” in table 8.2.2.47b.

The SS then applies the power level according to “T1” in table 8.2.2.47b and transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it stops HS-DSCH reception and E-DCH transmission, moves to CELL_FACH state in cell 6 and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

Then, the SS transmits a RADIO BEARER RECONFIGURATION message to the UE, and IE "Frequency info " set as primary frequency of cell 1 , IE "Multi-frequency Info " set as one secondary frequency of cell 1 and IE “Cell parameters ID” set as Cell ID of cell 1. After the UE receives this message, it moves to CELL_DCH state in cell 1, resumes the HS-DSCH reception and E-DCH transmission and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. The SS calls for generic procedure C.3 to check the UE is in CELL_DCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	Stop of HS-DSCH reception and E-DCH transmission
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3	←		RADIO BEARER RECONFIGURATION	Start of HS-DSCH reception and E-DCH transmission
4	→		RADIO BEARER RECONFIGURATION COMPLETE	
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1)

Use the same message as specified for "Packet to CELL_FACH from CELL_DCH in PS" in TS34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RB MuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present

Information Element	Value/remark
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RB MuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE

Information Element	Value/remark
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4

Information Element	Value/remark
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH for PS domain)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB stop/continue	Not Present
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
Frequency info	

Information Element	Value/remark
- CHOICE mode	TDD
- UARFCN downlink(Nt)	Same as used for cell 6
Multi-frequency Info	Not Present
Maximum allowed UL TX power	Not Present
Downlink information per radio link list	
Downlink information for each radio link	
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Set to the same as cell 6

RADIO BEARER RECONFIGURATION (Step 3)

Use the same message as specified for "Packet to CELL_DCH from CELL_FACH in PS" in TS34.108 clause 9 with the following exceptions:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New Primary E-RNTI	'1010 1010 1010 1010'
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set

Information Element	Value/remark
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size

Information Element	Value/remark
- RLC PDU size	144bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH for PS domain)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	

Information Element	Value/remark
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	0
- Logical channel identity	Not Present
- RB stop/continue	Not Present
UL Transport channel information common for all transport channels	Not Present
Added or Reconfigured UL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
DL Transport channel information common for all transport channels	Not Present
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
Frequency info	
- CHOICE mode	TDD
- UARFCN downlink (Nd)	Set to the primary frequency of cell 1
Multi-frequency Info	
- Second Frequency Info	Same as one secondary frequency of cell 1
- FPACH Frequency Info	Not present
- UpPCH Position Info	Not present
Maximum allowed UL TX power	Not Present
Uplink DPCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
E-DCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition

Information Element	Value/remark
Downlink HS-PDSCH information	A12. Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
Downlink information per radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12 with the following exception:
Downlink information for each radio link - CHOICE mode	TDD
- Primary CCPCH info - Cell parameters ID	Set to the same as cell 1

8.2.2.47b.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

After step 3, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

8.2.2.48 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Start and stop of E-DCH transmission)

8.2.2.48.1 Definition and applicability

All UEs which support FDD and HS-PDSCH and E-DPDCH and all UEs which support TDD and HS-PDSCH and E-PUCH.

8.2.2.48.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…….

The variable E_DCH_TRANSMISSION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable E_RNTI includes either the Primary E-RNTI or the Secondary E-RNTI or both the Primary and the Secondary E-RNTI;

1> For FDD:

2> the UE has stored the following IEs:

- IE "E-DCH Transmission Time Interval";
- IE "HARQ info for E-DCH";
- IE "E-DCH info", including the IE "E-DPCCH info" and the IE "E-DPDCH info";
- one of the radio links in the active set is configured as the serving E-DCH radio link, and for this radio link the UTRAN has configured the IE "E-HICH configuration" and the IE "E-AGCH info".

1> For TDD:

2> for non-scheduled transmission, the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-PUCH info";

- IE "Non-scheduled transmission grant info".

2> for scheduled transmission, the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-RUCCH info" and the IE "E-PUCH info";
- IE "E-HICH info";
- IE "E-AGCH info".

1> there is at least one logical channel mapped to E-DCH for which:

2> the corresponding E-DCH MAC-d flow is configured, i.e. the IEs "E-DCH MAC-d flow power offset" and "E-DCH MAC-d flow maximum number of retransmissions", and the transmission grant type are configured.

If any of the above conditions is not met and the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> set the variable E_DCH_TRANSMISSION to FALSE;

1> stop any E-AGCH and E-HICH reception procedures;

1> For FDD:

2> stop any E-RGCH reception procedures.

1> For FDD:

2> stop any E-DPCCH and E-DPDCH transmission procedures.

1> For TDD:

2> stop any E-RUCCH and E-PUCH transmission procedures.

1> clear the variable E_RNTI;

1> release all E-DCH HARQ resources;

1> no longer consider any radio link to be the serving E-DCH radio link.

Whenever the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1>For FDD:

2> perform E_AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI" and the IE "New Secondary E-RNTI".

2> perform E-HICH reception procedures for all radio links in the E-DCH active set;

2> perform E-RGCH reception procedures for all radio links in the active set for which an E-RGCH configuration has been provided;

2> perform E-DPCCH transmission procedures according to the stored E-DPCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-DPCCH Info".

2> perform E-DPDCH transmission procedures according to the stored E-DPDCH configuration as stated in:

3> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

3> subclause 8.6.5.17 for the IE "HARQ info for E-DCH";

3> subclause 8.6.6.37 for the IE "E-DPDCH Info".

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

1>For TDD:

2> if scheduled transmission is configured, perform E-AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI".

2> Perform E-HICH reception;

2> for 3.84/7.68 Mcps TDD, perform E-RUCCH transmission procedures according to the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

2> for 1.28 Mcps TDD, if scheduled transmission is configured, perform E-RUCCH transmission procedure according to the stored PRACH configuration (see [60]) and the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

NOTE 1: The PRACH configuration is signalled directly to the UE in "E-RUCCH Info" IE in case of E-DCH serving cell change.

2> Perform E-PUCH transmission procedures according to the stored E-PUCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-PUCH Info".

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

2> obtain and format the appropriate information on E-UCCH (see [15]). For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, the UE shall use the lowest E-DCH capability category, as specified in [35], to signal the UL control information on E-UCCH.

NOTE 2: For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, UTRAN should use the lowest E-DCH capability category when performing configuration, scheduling and reading the control information on E-UCCH, as it is not possible for Node B to be aware of the UE's E-DCH capability category during this period.

Whenever the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> not perform E-AICH, E-HICH and E-RGCH reception procedures;

1> not perform E-DPCCH, E-DPDCH, E-RUCCH and/or E-PUCH transmission procedures.

…….

If the IE "Added or reconfigured E-DCH MAC-d flow" is included, the UE shall:

1> if the IE "E-DCH MAC-d flow power offset" is included:

2> configure the power offset indicated in the IE "E-DCH MAC-d flow power offset" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow maximum number of retransmissions" is included:

2> configure the maximum number of retransmissions indicated in the IE "E-DCH MAC-d flow maximum number of retransmissions" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> for 1.28 Mcps TDD, if the IE "E-DCH MAC-d flow retransmission timer" is included:

2> configure the retransmission timer for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow multiplexing list" is included:

2> only multiplex MAC-d PDU’s from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU’s from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed in accordance to the IE "E-DCH MAC-d flow multiplexing list".

1> else:

2> if previously the IE "E-DCH MAC-d flow multiplexing list" was already received for this E-DCH MAC-d flow:

3> continue to only multiplex E-DCH PDU’s from the E-DCH MAC-d flow indicated in the IE “E-DCH MAC-d flow identity” with MAC-d PDU’s from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed according to the previously received IE “E-DCH MAC-d flow multiplexing list”.

2> else (never received the IE "E-DCH MAC-d flow multiplexing list" for this E-DCH MAC-d flow):

3> allow multiplexing of MAC-d PDU’s from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU’s from any other E-DCH MAC-d flow in the same MAC-e PDU.

1> for FDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> if the TTI configured on the E-DCH equals 2ms, and the IE "2ms non-scheduled transmission grant HARQ process allocation" is configured for this MAC-d flow:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e or MAC-i PDU transmitted by HARQ processes allowed by the IE "2ms non-scheduled transmission grant HARQ process allocation", with a total contribution from this MAC-d flow (i.e. including MAC-e/es or MAC-i/is headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

3> else:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall be included in a MAC-e or MAC-i PDU transmitted by any HARQ process, with a total contribution from this MAC-d flow (i.e. including MAC-e/es or MAC-i/is headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDU's for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH/E-RGCH (see [15]).

1> for TDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e or MAC-i PDU transmitted by HARQ processes designated as non scheduled (Ids 4 – 7) in the TTIs indicated (for 3.84 Mcps TDD and 7.68 Mcps TDD, as determined from the IEs "Activation Time",

"Resource Duration" and "Resource Periodicity"; for 1.28 Mcps TDD, as determined from the IEs "Activation Time", "Subframe number", "Resource Duration" and "Resource Periodicity", and the calculation of assigned Non-scheduled transmission grant is specified in subclause 8.6.6.16a).

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDUs for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH (see [15]).

1> perform the actions as specified in subclause 8.5.21;

……..

If the IE "Deleted UL TrCH information" is included the UE shall:

1> if an Uplink transport channel is requested to be deleted:

2> delete any information about the transport channel identified by the IE "UL TrCH identity" and the IE "Uplink transport channel type".

1> if an E-DCH MAC-d flow is requested to be deleted:

2> delete any information about the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity";

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

Reference

3GPP TS 25.331 clauses 8.2.2.4, 8.5.28, 8.6.5.18 , 8.6.5.7

8.2.2.48.3 Test purpose

1. To confirm that the UE reconfigures the radio bearer parameters and stops E-DCH transmission according to the received RADIO BEARER RECONFIGURATION message.

2. To confirm that the UE reconfigures the radio bearer parameters and starts E-DCH transmission according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.48.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A12 (FDD) /A11(1.28Mcps TDD), as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports E-DPDCH (FDD only)
- UE supports E-PUCH (TDD only)

Test Procedure

The UE is in CELL_DCH state and has a user radio bearer mapped on E-DCH/HS-DSCH established in cell 1.

The SS transmits a RADIO BEARER RECONFIGURATION message instructing the UE to stop the transmission on E-DCH. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

The SS transmits a RADIO BEARER RECONFIGURATION message instructing the UE to start the transmission on E-DCH. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	Stop of E-DCH transmission
2				At the activation time, SS stops E-DCH reception from the UE.
3	→		RADIO BEARER RECONFIGURATION COMPLETE	
4	←		RADIO BEARER RECONFIGURATION	Start of E-DCH transmission
5				At the activation time, SS resumes E-DCH reception from the UE.
6	→		RADIO BEARER RECONFIGURATION COMPLETE	
7	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
Deleted UL TrCH information	
- CHOICE UL TrCH identity	E-DCH
- E-DCH MAC-d flow identity	2
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	Not Present
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	Not Present
- MAC-hs queue to delete list	
- MAC-hs queue Id	0
- DCH quality target	Not present
- Downlink transport channel type	DCH
- DL Transport channel identity	6
- CHOICE DL parameters	Explicit
- TFS	
- CHOICE Transport channel type	Dedicated transport channel
- Dynamic transport format information	
- RLC Size	Reference to clause 6.10 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Dynamic transport format information	
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.10 Parameter Set
- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.10 Parameter Set

- Type of channel coding	Reference to clause 6.10 Parameter Set
- Coding Rate	Reference to clause 6.10 Parameter Set
- Rate matching attribute	Reference to clause 6.10 Parameter Set
- CRC size	Reference to clause 6.10 Parameter Set
- DCH quality target	
- BLER Quality value	-20 (-2.0)

RADIO BEARER RECONFIGURATION (Step 1)(1.28Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
Deleted UL TrCH information	
- CHOICE UL TrCH identity	E-DCH
- E-DCH MAC-d flow identity	2
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	Not Present
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	Not Present
- MAC-hs queue to delete list	
- MAC-hs queue Id	0
- DCH quality target	Not present
- Downlink transport channel type	DCH
- DL Transport channel identity	6
- CHOICE DL parameters	Explicit
- TFS	
- CHOICE Transport channel type	Dedicated transport channel
- Dynamic transport format information	
- RLC Size	Reference to clause 6.11 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Dynamic transport format information	
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.11 Parameter Set
- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.11 Parameter Set
- Type of channel coding	Reference to clause 6.11 Parameter Set
- Coding Rate	Reference to clause 6.11 Parameter Set

- Rate matching attribute	Reference to clause 6.11 Parameter Set
- CRC size	Reference to clause 6.11 Parameter Set
- DCH quality target	
- BLER Quality value	-20 (-2.0)

RADIO BEARER RECONFIGURATION (Step 1) (3.84Mcps TDD and 7.68Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
Deleted UL TrCH information	
- CHOICE UL TrCH identity	E-DCH
- E-DCH MAC-d flow identity	2
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	Not Present
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	Not Present
- MAC-hs queue to delete list	
- MAC-hs queue Id	0
- DCH quality target	Not present
- Downlink transport channel type	DCH
- DL Transport channel identity	6
- CHOICE DL parameters	Explicit
- TFS	
- CHOICE Transport channel type	Dedicated transport channel
- Dynamic transport format information	
- RLC Size	Reference to clause 6.10 Parameter Set for 3.84Mcps TDD. Reference to clause 6.11 Parameter Set for 7.68Mcps TDD.
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Dynamic transport format information	
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.10 Parameter Set for 3.84Mcps TDD. Reference to clause 6.11 Parameter Set for 7.68Mcps TDD.

- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.10 Parameter Set for 3.84Mcps TDD. Reference to clause 6.11 Parameter Set for 7.68Mcps TDD.
- Type of channel coding	Reference to clause 6.10 Parameter Set for 3.84Mcps TDD. Reference to clause 6.11 Parameter Set for 7.68Mcps TDD.
- Coding Rate	Reference to clause 6.10 Parameter Set for 3.84Mcps TDD. Reference to clause 6.11 Parameter Set for 7.68Mcps TDD.
- Rate matching attribute	Reference to clause 6.10 Parameter Set for 3.84Mcps TDD. Reference to clause 6.11 Parameter Set for 7.68Mcps TDD.
- CRC size	Reference to clause 6.10 Parameter Set for 3.84Mcps TDD. Reference to clause 6.11 Parameter Set for 7.68Mcps TDD.
- DCH quality target	
- BLER Quality value	-20 (-2.0)

RADIO BEARER RECONFIGURATION (Step 4) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H –RNTI	'1010 1010 1010 1010'
New Primary E –RNTI	'1010 1010 1010 1010'
New Secondary E-RNTI	Not Present
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
UL Transport channel information common for all transport channels	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12
Deleted UL TrCH information	
- CHOICE UL TrCH identity	DCH-USCH
- UL TrCH type	DCH
- UL TrCH identity	1
Added or Reconfigured UL TrCH information	1 E-DCH added
- Uplink transport channel type	E-DCH
- CHOICE UL parameters	E-DCH
- E-DCH Transmission Time Interval	10 ms
- HARQ info for E-DCH	
- HARQ RV Configuration	rvtable
- Added or reconfigured E-DCH MAC-d flow	
- E-DCH MAC-d flow identity	2
- E-DCH MAC-d flow power offset	0
- E-DCH MAC-d flow maximum number of retransmissions	7
- E-DCH MAC-d flow multiplexing list	Not Present
- CHOICE transmission grant type	Scheduled grant info
DL Transport channel information common for all transport channel	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12
Deleted DL TrCH information	
- CHOICE DL TrCH type	DCH
- DL Transport channel identity	6

Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	Not Present
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	
- MAC-hs queue Id	0
- MAC-d Flow Identity	0
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	336
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not Present
- DCH quality target	Not Present
Uplink DPCH info	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12 but without HARQ information which is already stored in the UE
- Uplink DPCH power control info	
- DPCCH power offset	-40 (-80dB)
- PC Preamble	1 frame
- SRB delay	7 frames
- Power Control Algorithm	Algorithm1
- TPC step size	0 (1dB)
- Δ_{ACK}	Not Present
- Δ_{NACK}	Not Present
- Ack-Nack repetition factor	Not Present
- HARQ_preamble_mode	0
- Scrambling code type	Long
- Scrambling code number	0 (0 to 16777215)
- Number of DPDCH	Not Present(1)
- spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set
- Number of FBI bit	Reference to TS34.108 clause 6.10 Parameter Set
- Puncturing Limit	Reference to TS34.108 clause 6.10 Parameter Set
Downlink information common for all radio links	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12
Downlink information for each radio link	
- Serving HS-DSCH radio link indicator	TRUE
- Serving E-DCH radio link indicator	TRUE
- E-AGCH Info	
- E-AGCH Channelisation Code	10
- CHOICE E-HICH Information	
- E-HICH Information	
- Channelisation code	4
- Signature sequence	1
- CHOICE E-RGCH Information	
- E-RGCH Information	
- Signature Sequence	0
- RG combination index	0

RADIO BEARER RECONFIGURATION (Step 4)(1.28Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H –RNTI	'1010 1010 1010 1010'
New Primary E –RNTI	'1010 1010 1010 1010'
New Secondary E-RNTI	Not Present
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
UL Transport channel information common for all transport channels	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12
Deleted UL TrCH information	
- UL TrCH type	DCH
- UL TrCH identity	1
Added or Reconfigured UL TrCH information	1 E-DCH added
- Uplink transport channel type	E-DCH
- CHOICE UL parameters	E-DCH
- HARQ info for E-DCH	
- HARQ RV Configuration	rvtable
- Added or reconfigured E-DCH MAC-d flow	
- E-DCH MAC-d flow identity	2
- E-DCH MAC-d flow power offset	0
- E-DCH MAC-d flow maximum number of retransmissions	7
- E-DCH MAC-d flow multiplexing list	Not Present
- CHOICE transmission grant type	Scheduled grant info
DL Transport channel information common for all transport channel	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A11
Deleted DL TrCH information	
- CHOICE DL TrCH type	DCH
- DL Transport channel identity	6
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH

- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	Not Present
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	
- MAC-hs queue Id	0
- MAC-d Flow Identity	0
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	336
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not Present
- DCH quality target	Not Present
Uplink DPCH info	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A11 but without HARQ information which is already stored in the UE
Downlink information common for all radio links	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A11
Downlink information for each radio link	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A11

RADIO BEARER RECONFIGURATION (Step 4) (3.84Mcps TDD and 7.68Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H –RNTI	'1010 1010 1010 1010'
New Primary E –RNTI	'1010 1010 1010 1010'
New Secondary E-RNTI	Not Present
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
UL Transport channel information common for all transport channels	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12
Deleted UL TrCH information	
- CHOICE UL TrCH identity	DCH-USCH
- UL TrCH type	DCH
- UL TrCH identity	1
Added or Reconfigured UL TrCH information	1 E-DCH added
- Uplink transport channel type	E-DCH
- CHOICE UL parameters	E-DCH
- CHOICE mode	TDD
- HARQ info for E-DCH	
- HARQ RV Configuration	rvtable
- Added or reconfigured E-DCH MAC-d flow	
- E-DCH MAC-d flow identity	2
- E-DCH MAC-d flow power offset	0
- E-DCH MAC-d flow maximum number of retransmissions	7
- E-DCH MAC-d flow multiplexing list	Not Present
- CHOICE transmission grant type	Scheduled grant info
DL Transport channel information common for all transport channel	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12
Deleted DL TrCH information	
- CHOICE DL TrCH type	DCH
- DL Transport channel identity	6

Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	Not Present
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	
- MAC-hs queue Id	0
- MAC-d Flow Identity	0
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	336
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not Present
- DCH quality target	Not Present
Uplink DPCH info	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12 but without HARQ information which is already stored in the UE
- Uplink DPCH power control info	
- CHOICE mode	TDD
- UL target SIR	Not Present
- CHOICE UL OL PC info	Broadcast UL OL PC info
- CHOICE mode	TDD
- Uplink Timing Advance Control	
- CHOICE Timing Advance	Enabled
- CHOICE TDD option	3.84 Mcps TDD
- UL Timing Advance	Determined by observed timing deviation of the RACH at the node B
- UL CCTrCH List	1 CCTrCh
- TFCS Id	1
- UL target SIR	+20dB
- Activation time	Not present
- Duration	Not present
- Common timeslot info	
- 2nd interleaving mode	Reference to clause 6.10 Parameter Set (3.84Mcps TDD), 6.11 Parameter Set (7.68Mcps TDD)
- TFCI coding	Reference to clause 6.10 Parameter Set (3.84Mcps TDD), 6.11 Parameter Set (7.68Mcps TDD)
- Puncturing Limit	Reference to clause 6.10 Parameter Set (3.84Mcps TDD), 6.11 Parameter Set (7.68Mcps TDD)
- Repetition Period	Reference to clause 6.10 Parameter Set (3.84Mcps TDD), 6.11 Parameter Set (7.68Mcps TDD)
- Repetition Length	Reference to clause 6.10 Parameter Set (3.84Mcps TDD), 6.11 Parameter Set (7.68Mcps TDD)
- Uplink DPCH timeslots and codes	
- Dynamic SF usage	TRUE
- Timeslot number	The number of an uplink timeslot that has unassigned codes.
- TFCI existence	TRUE
- Midamble shift and burst type	
- CHOICE TDD option	3.84 Mcps
- CHOICE Burst Type	Reference to clause 6.10 Parameter Set (3.84Mcps TDD), 6.11 Parameter Set (7.68Mcps TDD)
- Midamble Allocation Mode	Default
- Midamble configuration	Choose lowest possible Kcell value given burst type
- CHOICE TDD option	3.84 Mcps TDD or 7.68 Mcps TDD
- First timeslot Code List	Repeated (1,2) for each channelisation code assigned in the slot to meet the needs of clause 6.10 Parameter Set (3.84Mcps TDD), 6.11 Parameter Set (7.68Mcps TDD).
- Channelisation code	(i/SF) where i denotes an unassigned code matching the SF specified in clause 6.10 Parameter Set (3.84Mcps TDD), 6.11 Parameter Set (7.68Mcps TDD).
- CHOICE more timeslots	The presence of this IE depends upon the number of resources specified in clause 6.10 Parameter Set (3.84Mcps TDD), 6.11 Parameter Set (7.68Mcps TDD) and the number of slots in which they are being assigned.

- UL CCTrCH List to Remove	Not present
- Uplink DPCH power control info	
- CHOICE mode	TDD
- UL target SIR	Not Present
- CHOICE UL OL PC info	Broadcast UL OL PC info
- CHOICE mode	TDD
- Uplink Timing Advance Control	
- CHOICE Timing Advance	Enabled
- CHOICE TDD option	3.84 Mcps TDD
- UL Timing Advance	Determined by observed timing deviation of the RACH at the node B
- UL CCTrCH List	1 CCTrCh
- TFCS Id	1
- UL target SIR	+20dB
- Activation time	Not present
- Duration	Not present
- Common timeslot info	
- 2nd interleaving mode	Reference to clause 6.10 Parameter Set (3.84Mcps TDD), 6.11 Parameter Set (7.68Mcps TDD)
- TFCI coding	Reference to clause 6.10 Parameter Set (3.84Mcps TDD), 6.11 Parameter Set (7.68Mcps TDD)
- Puncturing Limit	Reference to clause 6.10 Parameter Set (3.84Mcps TDD), 6.11 Parameter Set (7.68Mcps TDD)
- Repetition Period	Reference to clause 6.10 Parameter Set (3.84Mcps TDD), 6.11 Parameter Set (7.68Mcps TDD)
- Repetition Length	Reference to clause 6.10 Parameter Set (3.84Mcps TDD), 6.11 Parameter Set (7.68Mcps TDD)
- Uplink DPCH timeslots and codes	
- Dynamic SF usage	TRUE
- Timeslot number	The number of an uplink timeslot that has unassigned codes.
- TFCI existence	TRUE
- Midamble shift and burst type	
- CHOICE TDD option	3.84 Mcps
- CHOICE Burst Type	Reference to clause 6.10 Parameter Set
- Midamble Allocation Mode	Default
- Midamble configuration	Choose lowest possible Kcell value given burst type
- CHOICE TDD option	3.84 Mcps TDD or 7.68Mcps
- First timeslot Code List	Repeated (1,2) for each channelisation code assigned in the slot to meet the needs of clause 6.10 Parameter Set. (3.84Mcps TDD), 6.11 Parameter Set (7.68Mcps TDD)
- Channelisation code	(i/SF) where i denotes an unassigned code matching the SF specified in clause 6.10 Parameter Set (3.84Mcps TDD), 6.11 Parameter Set (7.68Mcps TDD).
- CHOICE more timeslots	The presence of this IE depends upon the number of resources specified in clause 6.10 Parameter Set (3.84Mcps TDD), 6.11 Parameter Set (7.68Mcps TDD) and the number of slots in which they are being assigned.
- UL CCTrCH List to Remove	Not present
Downlink information common for all radio links	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12
Downlink information for each radio link	
- Choice mode	TDD
- Primary CCPCH info	
- Choice mode	TDD
- CHOICE TDD option	3.84 Mcps TDD or 7.68 Mcps TDD
- CHOICE SyncCase	Sync Case 2
- Timeslot	0
- Cell parameters ID	10
- SCTD indicator	FALSE
- CHOICE DPCH info	Not present
- E-AGCH Info	Present
- CHOICE mode	TDD
- CHOICE TDD option	3.84Mcps
- Long Term Grant Indicator	FALSE
- Length of TTRI field	Reference to clause 6.10 Parameter Set (3.84Mcps TDD), 6.11 Parameter Set (7.68Mcps TDD)
- E-AGCH set configuration	Reference to clause 6.10 Parameter Set (3.84Mcps TDD),

	6.11 Parameter Set (7.68Mcps TDD)
- TS number	Reference to clause 6.10 Parameter Set (3.84Mcps TDD), 6.11 Parameter Set (7.68Mcps TDD)
- Channelisation code	Reference to clause 6.10 Parameter Set
- CHOICE Burst Type	Reference to clause 6.10 Parameter Set (3.84Mcps TDD), 6.11 Parameter Set (7.68Mcps TDD)
- Midamble allocation	Reference to clause 6.10 Parameter Set (3.84Mcps TDD), 6.11 Parameter Set (7.68Mcps TDD)
- E-AGCH BLER Target	-2
- CHOICE mode	TDD
- E-HICH info	Present
- CHOICE mode	TDD
- CHOICE TDD option	3.84Mcps or 7.68Mcps
- N_{E-HICH}	4
- TS Number	Reference to clause 6.10 Parameter Set (3.84Mcps TDD), 6.11 Parameter Set (7.68Mcps TDD)
- Channelisation code	Reference to clause 6.10 Parameter Set (3.84Mcps TDD), 6.11 Parameter Set (7.68Mcps TDD)
- Burst Type	Reference to clause 6.10 Parameter Set (3.84Mcps TDD), 6.11 Parameter Set (7.68Mcps TDD)
- Midamble allocation mode	Reference to clause 6.10 Parameter Set (3.84Mcps TDD), 6.11 Parameter Set (7.68Mcps TDD)

8.2.2.48.5 Test requirements

After step 2, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

After step 5, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

8.2.2.49 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_PCH: Success (stop of E-DCH transmission)

8.2.2.49.1 Definition and applicability

All UEs which support FDD, HS-PDSCH and E-DPDCH and all UEs which support TDD and HS-PDSCH and E-PUCH.

8.2.2.49.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable E_DCH_TRANSMISSION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable E_RNTI includes either the Primary E-RNTI or the Secondary E-RNTI or both the Primary and the Secondary E-RNTI;

1> For FDD:

2> the UE has stored the following IEs:

- IE "E-DCH Transmission Time Interval";
- IE "HARQ info for E-DCH";
- IE "E-DCH info", including the IE "E-DPCCH info" and the IE "E-DPDCH info";

- one of the radio links in the active set is configured as the serving E-DCH radio link, and for this radio link the UTRAN has configured the IE "E-HICH configuration" and the IE "E-AGCH info".

1> For TDD:

2> for non-scheduled transmission, the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-PUCH info";
- IE "Non-scheduled transmission grant info".

2> for scheduled transmission, the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-RUCCH info" and the IE "E-PUCH info";
- IE "E-HICH info";
- IE "E-AGCH info".

1> there is at least one logical channel mapped to E-DCH for which:

2> the corresponding E-DCH MAC-d flow is configured, i.e. the IEs "E-DCH MAC-d flow power offset" and "E-DCH MAC-d flow maximum number of retransmissions", and the transmission grant type are configured.

If any of the above conditions is not met and the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> set the variable E_DCH_TRANSMISSION to FALSE;

1> stop any E-AGCH and E-HICH reception procedures;

1> For FDD:

2> stop any E-RGCH reception procedures.

1> For FDD:

2> stop any E-DPCCH and E-DPDCH transmission procedures.

1> For TDD:

2> stop any E-RUCCH and E-PUCH transmission procedures.

1> clear the variable E_RNTI;

1> act as if the IE "MAC-es/e reset indicator" was received and set to TRUE;

1> release all E-DCH HARQ resources;

1> no longer consider any radio link to be the serving E-DCH radio link.

Whenever the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1>For FDD:

2> perform E_AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI" and the IE "New Secondary E-RNTI".

2> perform E-HICH reception procedures for all radio links in the E-DCH active set;

2> perform E-RGCH reception procedures for all radio links in the active set for which an E-RGCH configuration has been provided;

2> perform E-DPCCH transmission procedures according to the stored E-DPCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-DPCCH Info".

2> perform E-DPDCH transmission procedures according to the stored E-DPDCH configuration as stated in:

3> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

3> subclause 8.6.5.17 for the IE "HARQ info for E-DCH";

3> subclause 8.6.6.37 for the IE "E-DPDCH Info".

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

1>For TDD:

2> if scheduled transmission is configured, perform E-AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI".

2> Perform E-HICH reception;

2> for 3.84/7.68 Mcps TDD, perform E-RUCCH transmission procedures according to the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

2> for 1.28 Mcps TDD, if scheduled transmission is configured, perform E-RUCCH transmission procedure according to the stored PRACH configuration (see [60]) and the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

NOTE 1: The PRACH configuration is signalled directly to the UE in "E-RUCCH Info" IE in case of E-DCH serving cell change.

2> Perform E-PUCH transmission procedures according to the stored E-PUCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-PUCH Info".

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

2> obtain and format the appropriate information on E-UCCH (see [15]). For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, the UE shall use the lowest E-DCH capability category, as specified in [35], to signal the UL control information on E-UCCH.

NOTE 2: For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, UTRAN should use the lowest E-DCH capability category when performing configuration, scheduling and reading the control information on E-UCCH, as it is not possible for Node B to be aware of the UE's E-DCH capability category during this period.

Whenever the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> not perform E-AGCH, E-HICH and E-RGCH reception procedures;

1> not perform E-DPCCH, E-DPDCH, E-RUCCH and/or E-PUCH transmission procedures.

…

If the IE "RB information to reconfigure" is included, the UE shall apply the following actions on the radio bearer identified with the value of the IE "RB identity". The UE shall:

1> perform the actions for the IE "RB mapping info", according to subclause 8.6.4.8, applied for the radio bearer;

…

If the IE "Deleted UL TrCH information" is included the UE shall:

1> if an Uplink transport channel is requested to be deleted:

2> delete any information about the transport channel identified by the IE "UL TrCH identity" and the IE" Uplink transport channel type".

1> if an E-DCH MAC-d flow is requested to be deleted:

2> delete any information about the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity";

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "Deleted DL TrCH information" is included the UE shall:

1> if a Downlink transport channel is requested to be deleted:

2> delete any information about the transport channel identified by the IE "DL TrCH identity".

1> if a DL MAC-d flow is requested to be deleted:

2> delete any information about the DL HS-DSCH MAC-d flow identified by the IE "MAC-d Flow Identity", i.e. delete any information about MAC-hs queue(s) mapped onto this MAC-d flow.

2> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

If after state transition the UE leaves CELL_DCH state, the UE shall, after the state transition:

1> clear any stored IE "Downlink HS-PDSCH information";

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25;

1> clear any stored IE "E-DCH information";

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

Reference

3GPP TS 25.331 clauses 8.2.2.3, 8.5.28, 8.6.4.5, 8.6.5.7, 8.6.5.8,.

8.2.2.49.3 Test purpose

To confirm that the UE reconfigures radio bearer parameters, transits from CELL_DCH to CELL_PCH state, and stops E-DCH transmission and HS-DSCH reception according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.49.4 Method of test

Initial Condition

System Simulator: 1 cell

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH +DTCH_HS-DSCH +DTCH_E-DCH (state 6-18) under condition A13 (FDD) /A12 (1.28Mcps TDD) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports E-DPDCH (FDD only)
- UE supports E-PUCH (TDD only)

Test Procedure

The UE has a radio bearer mapped to the E-DCH/HS-DSCH and the signalling radio bearers mapped on E-DCH/DCH.

The SS transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it stops E-DCH transmission and HS-DSCH reception, transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC and moves to CELL_PCH state.

SS calls for generic procedure C.4 to check that the UE is in CELL_PCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	
2	→		RADIO BEARER RECONFIGURATION COMPLETE	Stop of E-DCH transmission and HS-DSCH reception and transit to CELL_PCH state.
3	←→		CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

RADIO BEARER RECONFIGURATION (Step 1) (FDD)

Use the same message as specified for "Packet to CELL_FACH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH

Information Element	Value/remark
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	

Information Element	Value/remark
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	

Information Element	Value/remark
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB stop/continue	Not Present
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
Frequency info	Not Present
Maximum allowed UL TX power	Not Present

RADIO BEARER RECONFIGURATION (Step 1) (3.84Mcps TDD and 7.68Mcps TDD)

Use the same message as specified for "Packet to CELL_FACH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)

Information Element	Value/remark
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.3.4.5.1 for 3.84Mcps TDD or clause 6.11.6.4.5.1 for 7.68Mcps TDD
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE

Information Element	Value/remark
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.3.4.5.1 for 3.84Mcps TDD or clause 6.11.6.4.5.1 for 7.68Mcps TDD
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present

Information Element	Value/remark
- Logical channel identity	4
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.3.4.5.1 for 3.84Mcps TDD or clause 6.11.6.4.5.1 for 7.68Mcps TDD
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB stop/continue	Not Present

Information Element	Value/remark
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
Frequency info	Not Present
Maximum allowed UL TX power	Not Present

8.2.2.49.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

8.2.2.50 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (from speech to speech plus PS data with modification of downlink spreading factor)

8.2.2.50.1 Definition

-

8.2.2.50.2 Conformance requirement

If the UE receives:

- a RADIO BEARER SETUP message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214 (FDD only);

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if the IE "Downlink information for each radio link" is absent, not change its current DL Physical channel configuration.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

- clear that entry;

1bis> in TDD, if the procedure is used to perform a handover to a cell where timing advance is enabled, and the UE can calculate the timing advance value in the new cell (i.e. in a synchronous TDD network):

2> set the IE "Uplink Timing Advance" according to subclause 8.6.6.26.In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.2.50.3 Test purpose

To confirm that the UE reconfigures the radio bearers according to a RADIO BEARER RECONFIGURATION message, which indicates a change of radio bearer configuration from a single radio bearer (speech) to a multi radio bearer configuration (speech + PS data) including reconfiguration of downlink spreading factor.

8.2.2.50.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (State 7) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is brought to the CELL_DCH state after a successful incoming call attempt. The SS follows the procedure in TS 34.108 clause 7.1.3 (Mobile Terminated), to set up a user radio bearer, but with the default radio bearer replaced by the one specified in TS 34.108, clause 6.10.2.4.1.9: Conversational / speech / UL:5.9 DL:5.9 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (the speech RB uses DL SF=256). The radio bearer is placed into UE test loop mode 1 as described in 34.109 clause 5.3. The SS sends RLC SDUs on the speech radio bearer in downlink and verifies that the UE returns RLC SDUs with the same content in uplink. The SS opens the UE test loop.

A PS service request is triggered by a PAGING TYPE 2 message from the SS causing a SERVICE REQUEST to be sent from the UE to the SS. The SS transmits a RADIO BEARER SETUP message, which commands the UE to reconfigure its user RB from the speech radio bearer to the combined speech and PS radio bearer as specified in TS 34.108, clause 6.10.2.4.1.40: Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH. This reconfiguration involves reconfiguration of the downlink spreading factor from 256 to 128. The radio bearers are placed into UE test loop mode 1 as described in 34.109 clause 5.3. The SS sends RLC SDUs on the speech and PS radio bearers in downlink and verifies that the UE returns RLC SDUs with the same content in uplink on both the speech and PS radio bearers. The SS opens the UE test loop.

SS calls for the generic procedure C.3 to check that the UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PAGING TYPE 1 (PCCH)	RRC
2	→		RRC CONNECTION REQUEST	RRC
3	←		RRC CONNECTION SETUP	RRC
4	→		RRC CONNECTION SETUP COMPLETE	RRC
5	→		PAGING RESPONSE	RRC
6	←		AUTHENTICATION AND CIPHERING REQUEST	RRC
7	→		AUTHENTICATION AND CIPHERING RESPONSE	RRC
8	←		SECURITY MODE COMMAND	RRC
9	→		SECURITY MODE COMPLETE	RRC
10	←		ACTIVATE RB TEST MODE	TC
11	→		ACTIVATE RB TEST MODE COMPLETE	TC
12	←		RADIO BEARER SETUP	RRC The 5.9 kbps speech RB (DL SF=256) is configured.
13	→		RADIO BEARER SETUP COMPLETE	RRC
14	←		CLOSE UE TEST LOOP	TC UE Test Loop Mode1
15	→		CLOSE UE TEST LOOP COMPLETE	TC
16	→ ←		Data	The SS sends data on the speech RB in downlink and verifies that the UE returned data in uplink has the same content as sent in downlink.
17	←		OPEN UE TEST LOOP	TC
18	→		OPEN UE TEST LOOP COMPLETE	TC
19	←		PAGING TYPE 2 (DCCH)	TMSI (GSM-MAP)/ P-TMSI
20	→		SERVICE REQUEST	GMM
21	←		SECURITY MODE COMMAND	RRC see note 1
22	→		SECURITY MODE COMPLETE	RRC see note 1
23	←		RADIO BEARER SETUP	RRC The 12.2 kbps speech (DL SF=128) + 64 kbps PS RB is configured. See specific message contents for this message
24	→		RADIO BEARER SETUP COMPLETE	
25	←		CLOSE UE TEST LOOP	TC UE Test Loop Mode1
26	→		CLOSE UE TEST LOOP COMPLETE	TC
27	→ ←		Data	The SS sends data on the speech RB and the PS RB and verifies that the UE returned data in uplink for the speech RB and the PS RB has the same content as sent in downlink.
28	←		OPEN UE TEST LOOP	TC
29	→		OPEN UE TEST LOOP COMPLETE	TC
30	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Note 1. The SECURITY MODE COMMAND procedure in steps 20 and 21 is performed in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.

Specific Message Contents

RADIO BEARER SETUP (Step 12)

The contents of RADIO BEARER SETUP message in this test case is identical to the message sub-type titled as "Speech in CS" as found in clause 9 of TS 34.108 using the speech RB as specified in TS 34.108, clause 6.10.2.4.1.9: Conversational / speech / UL:5.9 DL:5.9 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs.

RADIO BEARER SETUP (Step 23)

The contents of RADIO BEARER SETUP message in this test case is identical to the message sub-type titled as "Packet RAB Setup after Speech RAB Setup in CELL_DCH" (condition A11) as found in clause 9 of TS 34.108 using the speech RB + PS RB as specified in TS 34.108, clause 6.10.2.4.1.40: Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH, except for the following:

Information Element	Value/remark
Added or Reconfigured UL TrCH information	1 DCH added, 3 DCHs reconfigured (all for DTCH)
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to clause 6.10 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.10 Parameter Set
- CHOICE Logical channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.10 Parameter Set
- Type of channel coding	Reference to clause 6.10 Parameter Set
- Coding Rate	Reference to clause 6.10 Parameter Set
- Rate matching attribute	Reference to clause 6.10 Parameter Set
- CRC size	Reference to clause 6.10 Parameter Set
- Uplink transport channel type	DCH
- UL Transport channel identity	2
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to clause 6.10 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.10 Parameter Set
- CHOICE Logical channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.10 Parameter Set
- Type of channel coding	Reference to clause 6.10 Parameter Set
- Coding Rate	Reference to clause 6.10 Parameter Set
- Rate matching attribute	Reference to clause 6.10 Parameter Set
- CRC size	Reference to clause 6.10 Parameter Set
- Uplink transport channel type	DCH
- UL Transport channel identity	3
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to clause 6.10 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.10 Parameter Set
- CHOICE Logical channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.10 Parameter Set
- Type of channel coding	Reference to clause 6.10 Parameter Set
- Coding Rate	Reference to clause 6.10 Parameter Set
- Rate matching attribute	Reference to clause 6.10 Parameter Set
- CRC size	Reference to clause 6.10 Parameter Set
- Uplink transport channel type	DCH

- UL Transport channel identity	4
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to clause 6.10 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.10 Parameter Set
- CHOICE Logical channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.10 Parameter Set
- Type of channel coding	Reference to clause 6.10 Parameter Set
- Coding Rate	Reference to clause 6.10 Parameter Set
- Rate matching attribute	Reference to clause 6.10 Parameter Set
- CRC size	Reference to clause 6.10 Parameter Set
Added or Reconfigured DL TrCH information	1 DCH added, 3 DCHs reconfigured (all for DTCH)
- Downlink transport channel type	DCH
- DL Transport channel identity	6
- CHOICE DL parameters	Explicit
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to clause 6.10 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Dynamic transport format information	
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.10 Parameter Set
- CHOICE Logical channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.10 Parameter Set
- Type of channel coding	Reference to clause 6.10 Parameter Set
- Coding Rate	Reference to clause 6.10 Parameter Set
- Rate matching attribute	Reference to clause 6.10 Parameter Set
- CRC size	Reference to clause 6.10 Parameter Set
- DCH quality target	
- BLER Quality value	Not Present
- Downlink transport channel type	DCH
- DL Transport channel identity	7
- CHOICE DL parameters	Same as UL
- Uplink transport channel type	DCH
- UL TrCH identity	2

- DCH quality target	
- BLER Quality value	Not Present
- Downlink transport channel type	DCH
- DL Transport channel identity	8
- CHOICE DL parameters	Same as UL
- Uplink transport channel type	DCH
- UL TrCH identity	3
- BLER Quality value	Not Present
- Downlink transport channel type	DCH
- DL Transport channel identity	9
- CHOICE DL parameters	Explicit
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to clause 6.10 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Dynamic transport format information	
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.10 Parameter Set
- CHOICE Logical channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.10 Parameter Set
- Type of channel coding	Reference to clause 6.10 Parameter Set
- Coding Rate	Reference to clause 6.10 Parameter Set
- Rate matching attribute	Reference to clause 6.10 Parameter Set
- CRC size	Reference to clause 6.10 Parameter Set
- DCH quality target	
- BLER Quality value	-20 (-2.0)

8.2.2.50.5 Test requirement

At step 16 the UE shall return data on the speech RB in uplink with the same content as sent by the SS in downlink.

At step 26 the UE shall return data on the speech RB and the PS RB in uplink with the same content as sent by the SS in downlink.

8.2.2.51 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (With active discontinuous uplink transmission)

8.2.2.51.1 Definition and applicability

All UEs which support FDD and UL DTX.

8.2.2.51.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…

If the UE receives RRC CONNECTION SETUP, ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> the UE shall determine the value for the DTX_DRX_STATUS variable.

The variable DTX_DRX_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> both variables HS_DSCH RECEPTION and E_DCH_TRANSMISSION are set to TRUE;

1> no DCH transport channel is configured;

1> the variable DTX_DRX_PARAMS is set;

1> the UE has received the IE "DTX-DRX timing information".

If any of the above conditions is not met and the variable DTX_DRX_STATUS is set to TRUE, the UE shall:

1> set the variable DTX_DRX_STATUS to FALSE;

1> clear the variable DTX_DRX_PARAMS;

1> stop DTX-DRX mode related activities.

If variable DTX_DRX_STATUS is set to true and the serving HS-DSCH cell was changed as a result of the received message the UE shall instruct the physical layer to consider HS-SCCH orders were never received.

Whenever the variable DTX_DRX_STATUS is set to TRUE after receiving this message and the value of IE "DTX-DRX timing information" included in this message is not "Continue", the UE shall:

1> if the variable DTX_DRX_STATUS was set to TRUE before receiving this message:

2> re-configure the physical layer to perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration;

2> let the MAC layer continue with the current restriction on E-DCH transmission and monitoring of absolute and relative grant channels from the frame boundary where the uplink transmission starts with the new configuration and for the duration of the IE "Enabling Delay".

1> else:

2> perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations by configuring the physical layer according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration.

1> configure the MAC layer to start restricting E-DCH transmissions and monitor absolute and relative grant channels at the CFN corresponding to the frame boundary that is offset by the value of IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration taking into account the IEs "UE DTX DRX Offset", "MAC DTX Cycle", "MAC Inactivity Threshold" and "Inactivity Threshold for UE Grant Monitoring".

…

If the IE "DTX-DRX timing information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the CHOICE "timing" is set to "New timing":

2> use the newly received DTX-DRX timing configuration.

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

…

If the IE "DTX–DRX information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the contents of the IE in the variable DTX_DRX_PARAMS;

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34;

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple of the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple or a divisor of the value of the IE "CQI Feedback cycle, k"; or

1> if the value of the IE "UE DPCCH burst 1" is greater than the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DPCCH burst 2" is greater than the value of the IE "UE DTX cycle 2"; or

1> if the IE "UE DTX long preamble length" is set to 4 or 15 slots and the value of the IE "Inactivity Threshold for UE DTX cycle 2" is less than 4 TTIs (for 10ms E-DCH TTI) or 8 TTIs (for 2ms E-DCH TTI); or

1> if the IE "UE DRX cycle" is not an integer multiple or a divisor of the value of the IE "UE DTX cycle 1"; or

1> if the IE "DRX Information" is included in this message while the IE "DTX information" is not included in this message; or

1> if the value of the IE "UE DTX cycle 1" is not an integer multiple or a divisor of the value of the IE "MAC DTX cycle":

2> the UE behaviour is unspecified.

Reference

3GPP TS 25.331 clauses 8.2.2.4, 8.5.34, 8.6.6.38, 8.6.6.39

8.2.2.51.3 Test purpose

To confirm that the UE reconfigures radio bearer parameters during active DPCCH discontinuous transmission according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.51.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A20, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports DPCCH Discontinuous Transmission

Test Procedure

The UE is in CELL_DCH state and has a user radio bearer mapped on E-DCH/HS-DSCH established in cell 1, DTX and, if supported, DRX are active.

The SS transmits a RADIO BEARER RECONFIGURATION message to the UE, to reconfigure Timer_poll_prohibit_, Timer_poll & Timer_status_prohibit to 200ms. After the UE receives this message, it reconfigures the radio bearer and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3	SS			The SS waits to allow sufficient time for DTX cycle 2 to be active, and then verifies that the time between 11 consecutive CQI indications is 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used (i.e. duration of 10 consecutive DTX cycle 2).
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- CHOICE RLC info type	RLC info

- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Not Present
- RB stop/continue	Not Present
UL Transport channel information for all transport channels	Not present
Added or Reconfigured UL TrCH information	Not present
DL Transport channel information common for all transport channel	Not present
Added or Reconfigured DL TrCH information	Not present
Frequency info	Not present
DTX-DRX timing information	
- CHOICE Timing	Continue
Uplink channel requirement	Not present
Downlink information common for all radio links	Not present
Downlink information for each radio link	Not present

8.2.2.51.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

At step 3 the time between 11 consecutive CQI indications shall be 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used.

8.2.2.52 Radio Bearer Reconfiguration for transition from CELL_FACH to CELL_DCH and CELL_DCH to CELL_FACH: Success (start and stop of discontinuous uplink transmission)

8.2.2.52.1 Definition and applicability

All UEs which support FDD and UL DTX.

8.2.2.52.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…

If the UE receives RRC CONNECTION SETUP, ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> the UE shall determine the value for the DTX_DRX_STATUS variable.

The variable DTX_DRX_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> both variables HS_DSCH RECEPTION and E_DCH_TRANSMISSION are set to TRUE;

1> no DCH transport channel is configured;

1> the variable DTX_DRX_PARAMS is set;

1> the UE has received the IE "DTX-DRX timing information".

If any of the above conditions is not met and the variable DTX_DRX_STATUS is set to TRUE, the UE shall:

1> set the variable DTX_DRX_STATUS to FALSE;

1> clear the variable DTX_DRX_PARAMS;

1> stop DTX-DRX mode related activities.

If variable DTX_DRX_STATUS is set to true and the serving HS-DSCH cell was changed as a result of the received message the UE shall instruct the physical layer to consider HS-SCCH orders were never received.

Whenever the variable DTX_DRX_STATUS is set to TRUE after receiving this message and the value of IE "DTX-DRX timing information" included in this message is not "Continue", the UE shall:

1> if the variable DTX_DRX_STATUS was set to TRUE before receiving this message:

2> re-configure the physical layer to perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration;

2> let the MAC layer continue with the current restriction on E-DCH transmission and monitoring of absolute and relative grant channels from the frame boundary where the uplink transmission starts with the new configuration and for the duration of the IE "Enabling Delay".

1> else:

2> perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations by configuring the physical layer according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration.

1> configure the MAC layer to start restricting E-DCH transmissions and monitor absolute and relative grant channels at the CFN corresponding to the frame boundary that is offset by the value of IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration taking into account the IEs "UE DTX DRX Offset", "MAC DTX Cycle", "MAC Inactivity Threshold" and "Inactivity Threshold for UE Grant Monitoring".

…

If the IE "DTX-DRX timing information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the CHOICE "timing" is set to "New timing":

2> use the newly received DTX-DRX timing configuration.

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

…

If the IE "DTX–DRX information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the contents of the IE in the variable DTX_DRX_PARAMS;

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34;

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple of the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple or a divisor of the value of the IE "CQI Feedback cycle, k"; or

1> if the value of the IE "UE DPCCH burst 1" is greater than the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DPCCH burst 2" is greater than the value of the IE "UE DTX cycle 2"; or

1> if the IE "UE DTX long preamble length" is set to 4 or 15 slots and the value of the IE "Inactivity Threshold for UE DTX cycle 2" is less than 4 TTIs (for 10ms E-DCH TTI) or 8 TTIs (for 2ms E-DCH TTI); or

1> if the IE "UE DRX cycle" is not an integer multiple or a divisor of the value of the IE "UE DTX cycle 1"; or

1> if the IE "DRX Information" is included in this message while the IE "DTX information" is not included in this message; or

1> if the value of the IE "UE DTX cycle 1" is not an integer multiple or a divisor of the value of the IE "MAC DTX cycle":

2> the UE behaviour is unspecified.

Reference

3GPP TS 25.331 clauses 8.2.2.4, 8.5.34, 8.6.6.38, 8.6.6.39

8.2.2.52.3 Test purpose

1 To confirm that the UE reconfigures radio bearer parameters, transits from CELL_FACH to CELL_DCH state, and starts E-DCH / DPCCH discontinuous transmission according to the received RADIO BEARER RECONFIGURATION message.

2 To confirm that the UE reconfigures radio bearer parameters, transits from CELL_DCH to CELL_FACH state, and stops E-DCH / DPCCH discontinuous transmission according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.52.4 Method of test

Initial Condition

System Simulator: 1 cell

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A20 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports DPCCH Discontinuous Transmission

Test Procedure

The UE has a radio bearer mapped to the E-DCH/HS-DSCH and the signalling radio bearers mapped on E-DCH/HS-DSCH, E-DCH transmission Time Interval is set to 10ms, DTX and, if supported, DRX are active.

The SS transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it stops E-DCH / DPCCH discontinuous transmission and HS-DSCH reception, moves to CELL_FACH state and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

Then, SS transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it moves to CELL_DCH state, resumes E-DCH transmission with DTX and HS-DSCH reception (with DRX if supported) and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 400ms. SS calls for generic procedure C.3 to check that the UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	Stop of E-DCH transmission with DTX and HS-DSCH reception and transit to CELL_FACH state,
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3	←		RADIO BEARER RECONFIGURATION	Start of E-DCH transmission with DTX and HS-DSCH reception (with DRX if supported) and transit to CELL_DCH state
4	→		RADIO BEARER RECONFIGURATION COMPLETE	
5	SS			The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 400ms (i.e. duration of 10 consecutive DTX cycle 2).
6	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

RADIO BEARER RECONFIGURATION (Step 1)

Use the same message as specified for "Packet to CELL_FACH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present

Information Element	Value/remark
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present

Information Element	Value/remark
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE

Information Element	Value/remark
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7

Information Element	Value/remark
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB stop/continue	Not Present
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	1
Frequency info	Not Present
Maximum allowed UL TX power	Not Present

RADIO BEARER RECONFIGURATION (Step 3)

Use the same message as specified for "Packet to CELL_DCH from CELL_FACH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New Primary E-RNTI	'1010 1010 1010 1010'
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15

Information Element	Value/remark
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128

Information Element	Value/remark
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits

Information Element	Value/remark
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not present
- DL HS-DSCH MAC-d flow identity	0
- Logical channel identity	Not Present
- RB stop/continue	Not Present
Added or Reconfigured UL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.
Added or Reconfigured DL TrCH information	
DTX-DRX timing information	
CHOICE *timing*	
- New timing	

Information Element	Value/remark
- Enabling Delay	16
- UE DTX DRX Offset	0
DTX-DRX Information	
DTX information	
- CHOICE *E-DCH TTI length*	10ms
- UE DTX cycle 1	10
- UE DTX cycle 2	20
- MAC DTX cycle	10
- Inactivity Threshold for UE DTX cycle 2	8
- UE DTX long preamble length	4
- MAC Inactivity Threshold	8
- CQI DTX Timer	32
- UE DPCCH burst_1	1
- UE DPCCH burst_2	1
DRX Information	
- UE DRX cycle	10
- Inactivity Threshold for UE DRX cycle	32
- Inactivity Threshold for UE Grant Monitoring	8
- UE DRX Grant Monitoring	TRUE
Uplink DPCCH slot format information	1
HS-SCCH less information	Not Present
Uplink DPCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.
E-DCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.
Downlink HS-PDSCH Information	
Downlink information common for all radio links	
- Downlink F-DPCH info common for all RL	
- Timing Indication	Maintain
- Timing maintained Synchronization indicator	FALSE
- Downlink F-DPCH power control information	
- DPC mode	0 (single)
- TPC command error rate target	0.04
- CHOICE mode	FDD
- DPCH compressed mode info	Not Present
- TX Diversity mode	None
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
- MAC-hs reset indicator	Not Present
Downlink information for each radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.

8.2.2.52.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

After step 3, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

At step 5 the time between 11 consecutive CQI indications shall be 400ms.

8.2.2.53 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (hard handover to another frequency, start and stop of discontinuous uplink transmission)

8.2.2.53.1 Definition and applicability

All UEs which support FDD and UL DTX.

8.2.2.53.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…

If the UE receives RRC CONNECTION SETUP, ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> the UE shall determine the value for the DTX_DRX_STATUS variable.

The variable DTX_DRX_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> both variables HS_DSCH RECEPTION and E_DCH_TRANSMISSION are set to TRUE;

1> no DCH transport channel is configured;

1> the variable DTX_DRX_PARAMS is set;

1> the UE has received the IE "DTX-DRX timing information".

If any of the above conditions is not met and the variable DTX_DRX_STATUS is set to TRUE, the UE shall:

1> set the variable DTX_DRX_STATUS to FALSE;

1> clear the variable DTX_DRX_PARAMS;

1> stop DTX-DRX mode related activities.

If variable DTX_DRX_STATUS is set to true and the serving HS-DSCH cell was changed as a result of the received message the UE shall instruct the physical layer to consider HS-SCCH orders were never received.

Whenever the variable DTX_DRX_STATUS is set to TRUE after receiving this message and the value of IE "DTX-DRX timing information" included in this message is not "Continue", the UE shall:

1> if the variable DTX_DRX_STATUS was set to TRUE before receiving this message:

2> re-configure the physical layer to perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration;

2> let the MAC layer continue with the current restriction on E-DCH transmission and monitoring of absolute and relative grant channels from the frame boundary where the uplink transmission starts with the new configuration and for the duration of the IE "Enabling Delay".

1> else:

2> perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations by configuring the physical layer according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration.

1> configure the MAC layer to start restricting E-DCH transmissions and monitor absolute and relative grant channels at the CFN corresponding to the frame boundary that is offset by the value of IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration taking into account the IEs "UE DTX DRX Offset", "MAC DTX Cycle", "MAC Inactivity Threshold" and "Inactivity Threshold for UE Grant Monitoring".

…

If the IE "DTX-DRX timing information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the CHOICE "timing" is set to "New timing":

2> use the newly received DTX-DRX timing configuration.

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

…

If the IE "DTX–DRX information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the contents of the IE in the variable DTX_DRX_PARAMS;

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34;

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple of the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple or a divisor of the value of the IE "CQI Feedback cycle, k"; or

1> if the value of the IE "UE DPCCH burst 1" is greater than the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DPCCH burst 2" is greater than the value of the IE "UE DTX cycle 2"; or

1> if the IE "UE DTX long preamble length" is set to 4 or 15 slots and the value of the IE "Inactivity Threshold for UE DTX cycle 2" is less than 4 TTIs (for 10ms E-DCH TTI) or 8 TTIs (for 2ms E-DCH TTI); or

1> if the IE "UE DRX cycle" is not an integer multiple or a divisor of the value of the IE "UE DTX cycle 1"; or

1> if the IE "DRX Information" is included in this message while the IE "DTX information" is not included in this message; or

1> if the value of the IE "UE DTX cycle 1" is not an integer multiple or a divisor of the value of the IE "MAC DTX cycle":

2> the UE behaviour is unspecified.

Reference

3GPP TS 25.331 clauses 8.2.2.4, 8.5.34, 8.6.6.38, 8.6.6.39

8.2.2.53.3 Test purpose

To confirm that the UE starts and stops transmitting the E-DCH (with DTX), while maintaining HS-DSCH reception, in conjunction with a interfrequency hard handover without prior measurement on the target frequency according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.53.4 Method of test

Initial Condition

System Simulator: 2 cells–Cells 1 and 6 are active.

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A20 in cell 1 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports DPCCH Discontinuous Transmission

Test Procedure

Table 8.2.2.53

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency (f_1)		High Range Test Frequency (f_2)	
CPICH Ec	dBm/3.84MHz	-60	-70	-70	-60

Table 8.2.2.53 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The SS has configured its downlink transmission power settings according to columns "T0" in table 8.2.2.53.

The UE is in cell 1 and has a radio bearer mapped to the E-DCH/HS-DSCH and the signalling radio bearers mapped on E-DCH/ HS-DSCH, E-DCH transmission Time Interval is set to 10ms, DTX and, if supported, DRX are active. .

The SS switches its downlink transmission power settings to columns "T1" and transmits a RADIO BEARER RECONFIGURATION message instructing the UE to perform a timing re-initialised interfrequency hard handover to cell 6 and stop E-DCH / DPCCH discontinuous transmission but keep HS-DSCH reception (DRX will be deactivated if enabled by the UE). The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC in cell 6.

The SS switches its downlink transmission power settings to columns "T0" and transmits a RADIO BEARER RECONFIGURATION message instructing the UE to perform an interfrequency hard handover to cell 1 and resume E-DCH transmission with DTX. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC in cell 1.

The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 400ms.

SS calls for generic procedure C.3 to check that the UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	SS			The SS switches its downlink transmission power settings to columns "T1" in table 8.2.2.53.
2	←		RADIO BEARER RECONFIGURATION	Hard handover to another frequency and stop of E-DCH transmission with DTX,
3	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE transmits this message in cell 6.
4	SS			The SS switches its downlink transmission power settings to columns "T0" in table 8.2.2.53.
5	←		RADIO BEARER RECONFIGURATION	Hard handover to another frequency and start of E-DCH transmission with DTX (and DRX if supported).
6	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE transmits this message in cell 1.
7	SS			The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 400ms (i.e. duration of 10 consecutive DTX cycle 2).
8	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 2)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following.

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	Same as the set defined for SRB1 in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250

Information Element	Value/remark
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as the set defined for SRB2 in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as the set defined for SRB3 in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4

Information Element	Value/remark
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as the set defined for SRB4 in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
- RB stop/continue	Not Present
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as the set defined for RB25 in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
- RB stop/continue	Not Present

Information Element	Value/remark
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
Added or Reconfigured UL TrCH information	2 DCHs added
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to clause 6.10 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.10 Parameter Set
- CHOICE Logical channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.10 Parameter Set
- Type of channel coding	Reference to clause 6.10 Parameter Set
- Coding Rate	Reference to clause 6.10 Parameter Set
- Rate matching attribute	Reference to clause 6.10 Parameter Set
- CRC size	Reference to clause 6.10 Parameter Set
- Uplink transport channel type	DCH
- UL Transport channel identity	5
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to clause 6.10 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.10 Parameter Set
- CHOICE Logical channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.10 Parameter Set
- Type of channel coding	Reference to clause 6.10 Parameter Set
- Coding Rate	Reference to clause 6.10 Parameter Set
- Rate matching attribute	Reference to clause 6.10 Parameter Set
- CRC size	Reference to clause 6.10 Parameter Set
DL Transport channel information common for all transport channel	Same as the set defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	1
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	DCH
- DL Transport channel identity	10
- CHOICE DL parameters	Same as UL
- Uplink transport channel type	DCH
- UL TrCH Identity	5
- DCH quality target	
- BLER Quality value	-20 (-2.0)
Frequency info	
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
Uplink DPCH info	Same as the set defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Downlink information common for all radio links	Same as the set defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Downlink information per radio link list	Same as the set defined for in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.

RADIO BEARER RECONFIGURATION (Step 5)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New Primary E-RNTI	'1010 1010 1010 1010'
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present

Information Element	Value/remark
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	3

Information Element	Value/remark
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100

Information Element	Value/remark
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not present
- DL HS-DSCH MAC-d flow identity	0
- Logical channel identity	Not Present
- RB stop/continue	Not Present
Deleted UL TrCH information	
- CHOICE UL TrCH identity	
- UL TrCH type	DCH
- UL TrCH identity	1
- UL TrCH type	DCH
- UL TrCH identity	5
UL Transport channel information common for all transport channels	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.
Added or Reconfigured UL TrCH information	Same set as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20
Deleted DL TrCH information	
- CHOICE DL TrCH type	DCH
- DL Transport channel identity	10
DL Transport channel information common for all transport channels	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.
Added or Reconfigured DL TrCH information	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.
Frequency info	
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 1
DTX-DRX timing information	
CHOICE *timing*	
- New timing	
- Enabling Delay	32
- UE DTX DRX Offset	0
DTX-DRX Information	
DTX information	

Information Element	Value/remark
- CHOICE *E-DCH TTI length*	10ms
- UE DTX cycle 1	10
- UE DTX cycle 2	20
- MAC DTX cycle	10
- Inactivity Threshold for UE DTX cycle 2	8
- UE DTX long preamble length	4
- MAC Inactivity Threshold	8
- CQI DTX Timer	32
- UE DPCCH burst_1	1
- UE DPCCH burst_2	1
DRX Information	
- UE DRX cycle	10
- Inactivity Threshold for UE DRX cycle	32
- Inactivity Threshold for UE Grant Monitoring	8
- UE DRX Grant Monitoring	TRUE
Uplink DPCCH slot format information	1
HS-SCCH less information	Not Present
Uplink DPCH info	Not Present
E-DCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20
Downlink HS-PDSCH Information	
Downlink information common for all radio links	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20
Downlink information for each radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20

8.2.2.53.5 Test requirements

After step 2, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message in cell 6.

After step 5, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message in cell 1.

At step 7 the time between 11 consecutive CQI indications shall be 400ms.

8.2.2.54 Radio Bearer Reconfiguration for transition from CELL_FACH to CELL_DCH and CELL_DCH to CELL_FACH: Success (frequency modification, start and stop of discontinuous uplink transmission)

8.2.2.54.1 Definition

All UEs which support FDD and UL DTX.

8.2.2.54.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…

If the UE receives RRC CONNECTION SETUP, ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> the UE shall determine the value for the DTX_DRX_STATUS variable.

The variable DTX_DRX_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> both variables HS_DSCH RECEPTION and E_DCH_TRANSMISSION are set to TRUE;

1> no DCH transport channel is configured;

1> the variable DTX_DRX_PARAMS is set;

1> the UE has received the IE "DTX-DRX timing information".

If any of the above conditions is not met and the variable DTX_DRX_STATUS is set to TRUE, the UE shall:

1> set the variable DTX_DRX_STATUS to FALSE;

1> clear the variable DTX_DRX_PARAMS;

1> stop DTX-DRX mode related activities.

If variable DTX_DRX_STATUS is set to true and the serving HS-DSCH cell was changed as a result of the received message the UE shall instruct the physical layer to consider HS-SCCH orders were never received.

Whenever the variable DTX_DRX_STATUS is set to TRUE after receiving this message and the value of IE "DTX-DRX timing information" included in this message is not "Continue", the UE shall:

1> if the variable DTX_DRX_STATUS was set to TRUE before receiving this message:

2> re-configure the physical layer to perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration;

2> let the MAC layer continue with the current restriction on E-DCH transmission and monitoring of absolute and relative grant channels from the frame boundary where the uplink transmission starts with the new configuration and for the duration of the IE "Enabling Delay".

1> else:

2> perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations by configuring the physical layer according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration.

1> configure the MAC layer to start restricting E-DCH transmissions and monitor absolute and relative grant channels at the CFN corresponding to the frame boundary that is offset by the value of IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration taking into account the IEs "UE DTX DRX Offset", "MAC DTX Cycle", "MAC Inactivity Threshold" and "Inactivity Threshold for UE Grant Monitoring".

…

If the IE "DTX-DRX timing information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the CHOICE "timing" is set to "New timing":

2> use the newly received DTX-DRX timing configuration.

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

…

If the IE "DTX–DRX information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the contents of the IE in the variable DTX_DRX_PARAMS;

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34;

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple of the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple or a divisor of the value of the IE "CQI Feedback cycle, k"; or

1> if the value of the IE "UE DPCCH burst 1" is greater than the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DPCCH burst 2" is greater than the value of the IE "UE DTX cycle 2"; or

1> if the IE "UE DTX long preamble length" is set to 4 or 15 slots and the value of the IE "Inactivity Threshold for UE DTX cycle 2" is less than 4 TTIs (for 10ms E-DCH TTI) or 8 TTIs (for 2ms E-DCH TTI); or

1> if the IE "UE DRX cycle" is not an integer multiple or a divisor of the value of the IE "UE DTX cycle 1"; or

1> if the IE "DRX Information" is included in this message while the IE "DTX information" is not included in this message; or

1> if the value of the IE "UE DTX cycle 1" is not an integer multiple or a divisor of the value of the IE "MAC DTX cycle":

2> the UE behaviour is unspecified.

Reference

3GPP TS 25.331 clauses 8.2.2.4, 8.5.34, 8.6.6.38, 8.6.6.39

8.2.2.54.3 Test purpose

1) To confirm that the UE reconfigures radio bearer parameters, transits from CELL_DCH to CELL_FACH state with frequency modification and stops E-DCH / DPCCH discontinuous transmission according to the received a RADIO BEARER RECONFIGURATION message.

2) To confirm that the UE reconfigures radio bearer parameters, transits from CELL_FACH to CELL_DCH state with frequency modification and starts E-DCH / DPCCH discontinuous transmission according to the received a RADIO BEARER RECONFIGURATION message.

8.2.2.54.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 is active and cell 6 is inactive.

UE: PS_DCCH_DTCH_E-DCH/HS-DSCH (state 6-18) under condition A20, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statements

- UE supports FDD
- UE supports DPCCH Discontinuous Transmission

Test Procedure

Table 8.2.2.54

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency (f_1)		High Range Test Frequency (f_2)	
CPICH Ec	dBm/3.84MHz	-60	-70	-70	-60

Table 8.2.2.54 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH and E-DCH in cell 1, E-DCH transmission Time Interval is set to 10ms, DTX and, if supported, DRX are active. .The SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.2.54.

The SS then applies the power level according to "T1" in table 8.2.2.54 and transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it stops HS-DSCH reception and E-DCH / DPCCH discontinuous transmission, moves to CELL_FACH state in cell 6 and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

Then, the SS transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it moves to CELL_DCH state in cell 1, resumes the HS-DSCH reception and E-DCH transmission, with DTX (and DRX if supported) and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 400ms. The SS calls for generic procedure C.3 to check the UE is in CELL_DCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	Stop of HS-DSCH reception (with DRX if supported) and E-DCH transmission with DTX
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3	←		RADIO BEARER RECONFIGURATION	Start of HS-DSCH reception and E-DCH transmission with DTX/DRX
4	→		RADIO BEARER RECONFIGURATION COMPLETE	
5	SS			The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 400ms (i.e. duration of 10 consecutive DTX cycle 2).
6	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1)

Use the same message as specified for "Packet to CELL_FACH from CELL_DCH in PS" in TS34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RB MuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1

Information Element	Value/remark
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RB MuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15

Information Element	Value/remark
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present

Information Element	Value/remark
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH for PS domain)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7

Information Element	Value/remark
- RB stop/continue	Not Present
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	1
Frequency info	
- UARFCN uplink (Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS25.101 [11]
- UARFCN downlink (Nd)	Set to the frequency of cell 6
Maximum allowed UL TX power	Not Present
Downlink information per radio link list	
-Downlink information for each radio link	
- Primary CPICH info	
- Primary scrambling code	Set to the same code as used for cell 6

RADIO BEARER RECONFIGURATION (Step 3)

Use the same message as specified for "Packet to CELL_DCH from CELL_FACH in PS" in TS34.108 clause 9 with the following exceptions:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New Primary E-RNTI	'1010 1010 1010 1010'
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	1
- RB stop/continue	Not Present

Information Element	Value/remark
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present

Information Element	Value/remark
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	

Information Element	Value/remark
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH for PS domain)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present

Information Element	Value/remark
- DL HS-DSCH MAC-d flow identity	0
- Logical channel identity	Not Present
- RB stop/continue	Not Present
UL Transport channel information common for all transport channels	Not Present
Added or Reconfigured UL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.
DL Transport channel information common for all transport channels	Not Present
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.
Frequency info	
- UARFCN uplink (Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS25.101 [11]
- UARFCN downlink (Nd)	Set to the frequency of cell 1
DTX-DRX timing information	
CHOICE *timing*	
- New timing	
- Enabling Delay	32
- UE DTX DRX Offset	0
DTX-DRX Information	
DTX information	
- CHOICE *E-DCH TTI length*	10ms
- UE DTX cycle 1	10
- UE DTX cycle 2	20
- MAC DTX cycle	10
- Inactivity Threshold for UE DTX cycle 2	8
- UE DTX long preamble length	4
- MAC Inactivity Threshold	8
- CQI DTX Timer	32
- UE DPCCH burst_1	1
- UE DPCCH burst_2	1
DRX Information	
- UE DRX cycle	10
- Inactivity Threshold for UE DRX cycle	32
- Inactivity Threshold for UE Grant Monitoring	8
- UE DRX Grant Monitoring	TRUE
Uplink DPCCH slot format information	1
HS-SCCH less information	Not Present
Maximum allowed UL TX power	Not Present
Uplink DPCH info	Not Present
E-DCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.
Downlink HS-PDSCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.
Downlink information common for all radio links	
- Downlink F-DPCH info common for all RL	
- Timing Indication	Initialise
- Downlink F-DPCH power control information	
- DPC mode	0 (single)
- TPC command error rate target	0.04
- CHOICE mode	FDD
- DPCH compressed mode info	Not Present
- TX Diversity mode	None
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
- MAC-hs reset indicator	Not Present
Downlink information per radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20 with the following exception:
-Downlink information for each radio link	
- Primary CPICH info	
- Primary scrambling code	Set to the same code as used for cell 1

8.2.2.54.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

After step 3, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

At step 5 the time between 11 consecutive CQI indications shall be 400ms.

8.2.2.55 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Start and stop of discontinuous uplink transmission)

8.2.2.55.1 Definition and applicability

All UEs which support FDD and UL DTX.

8.2.2.55.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…

If the UE receives RRC CONNECTION SETUP, ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> the UE shall determine the value for the DTX_DRX_STATUS variable.

The variable DTX_DRX_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> both variables HS_DSCH RECEPTION and E_DCH_TRANSMISSION are set to TRUE;

1> no DCH transport channel is configured;

1> the variable DTX_DRX_PARAMS is set;

1> the UE has received the IE "DTX-DRX timing information".

If any of the above conditions is not met and the variable DTX_DRX_STATUS is set to TRUE, the UE shall:

1> set the variable DTX_DRX_STATUS to FALSE;

1> clear the variable DTX_DRX_PARAMS;

1> stop DTX-DRX mode related activities.

If variable DTX_DRX_STATUS is set to true and the serving HS-DSCH cell was changed as a result of the received message the UE shall instruct the physical layer to consider HS-SCCH orders were never received.

Whenever the variable DTX_DRX_STATUS is set to TRUE after receiving this message and the value of IE "DTX-DRX timing information" included in this message is not "Continue", the UE shall:

1> if the variable DTX_DRX_STATUS was set to TRUE before receiving this message:

2> re-configure the physical layer to perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration;

2> let the MAC layer continue with the current restriction on E-DCH transmission and monitoring of absolute and relative grant channels from the frame boundary where the uplink transmission starts with the new configuration and for the duration of the IE "Enabling Delay".

1> else:

2> perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations by configuring the physical layer according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration.

1> configure the MAC layer to start restricting E-DCH transmissions and monitor absolute and relative grant channels at the CFN corresponding to the frame boundary that is offset by the value of IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration taking into account the IEs "UE DTX DRX Offset", "MAC DTX Cycle", "MAC Inactivity Threshold" and "Inactivity Threshold for UE Grant Monitoring".

…

If the IE "DTX-DRX timing information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the CHOICE "timing" is set to "New timing":

2> use the newly received DTX-DRX timing configuration.

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

…

If the IE "DTX–DRX information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the contents of the IE in the variable DTX_DRX_PARAMS;

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34;

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple of the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple or a divisor of the value of the IE "CQI Feedback cycle, k"; or

1> if the value of the IE "UE DPCCH burst 1" is greater than the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DPCCH burst 2" is greater than the value of the IE "UE DTX cycle 2"; or

1> if the IE "UE DTX long preamble length" is set to 4 or 15 slots and the value of the IE "Inactivity Threshold for UE DTX cycle 2" is less than 4 TTIs (for 10ms E-DCH TTI) or 8 TTIs (for 2ms E-DCH TTI); or

1> if the IE "UE DRX cycle" is not an integer multiple or a divisor of the value of the IE "UE DTX cycle 1"; or

1> if the IE "DRX Information" is included in this message while the IE "DTX information" is not included in this message; or

1> if the value of the IE "UE DTX cycle 1" is not an integer multiple or a divisor of the value of the IE "MAC DTX cycle":

2> the UE behaviour is unspecified.

Reference

3GPP TS 25.331 clauses 8.2.2.4, 8.5.34, 8.6.6.38, 8.6.6.39

8.2.2.55.3 Test purpose

1. To confirm that the UE reconfigures the radio bearer parameters and stops E-DCH / DPCCH discontinuous transmission according to the received RADIO BEARER RECONFIGURATION message.

2. To confirm that the UE reconfigures the radio bearer parameters and starts E-DCH / DPCCH discontinuous transmission according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.55.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A20, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports DPCCH Discontinuous Transmission

Test Procedure

The UE is in CELL_DCH state and has a user radio bearer mapped on E-DCH/HS-DSCH established in cell 1, E-DCH transmission Time Interval is set to 10ms, DTX and, if supported, DRX are active.

The SS transmits a RADIO BEARER RECONFIGURATION message instructing the UE to stop the discontinuous transmission on E-DCH. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

The SS transmits a RADIO BEARER RECONFIGURATION message instructing the UE to start the discontinuous transmission on E-DCH. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 400ms.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	Stop of E-DCH transmission and HS-DSCH reception.
2				At the activation time, SS stops E-DCH reception with DTX from the UE.
3	→		RADIO BEARER RECONFIGURATION COMPLETE	
4	←		RADIO BEARER RECONFIGURATION	Start of E-DCH transmission with DTX and HS-DSCH reception (with DRX if supported)
5				At the activation time, SS resumes E-DCH reception with DTX from the UE.
6	→		RADIO BEARER RECONFIGURATION COMPLETE	
7	SS			The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 400ms (i.e. duration of 10 consecutive DTX cycle 2).
8	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	Same as the set defined for RB25 in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A3.
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE

- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as the set defined for RB25 in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A3.
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as the set defined for RB25 in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A3.
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1

- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as the set defined for RB25 in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A3.
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as the set defined for RB25 in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A3.
- RB stop/continue	Not Present
Deleted UL TrCH information	
- CHOICE UL TrCH identity	E-DCH
- E-DCH MAC-d flow identity	1
- CHOICE UL TrCH identity	E-DCH
- E-DCH MAC-d flow identity	2
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	1
Maximum allowed UL TX power	Not Present
Uplink DPCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A3.
E-DCH info	Not Present
Downlink HS-PDSCH information	Not Present
Downlink information common for all radio links	Same as the set defined in RADIO BEARER SETUP

Downlink information per radio link list	message found in TS 34.108 clause 9 under condition A3. Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A3 with the following exception:

RADIO BEARER RECONFIGURATION (Step 4)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H –RNTI	'1010 1010 1010 1010'
New Primary E –RNTI	'1010 1010 1010 1010'
New Secondary E-RNTI	Not Present
RB information to reconfigure list	
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500

- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20
- RB stop/continue	Not Present
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC

- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20
- RB stop/continue	Not Present
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20
- RB stop/continue	Not Present
Deleted UL TrCH information	

- CHOICE UL TrCH identity	
- UL TrCH type	DCH
- UL TrCH identity	1
- UL TrCH type	DCH
- UL TrCH identity	5
UL Transport channel information common for all transport channels	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20
Added or Reconfigured UL TrCH information	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20
DL Transport channel information common for all transport channel	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20
Deleted DL TrCH information	
- CHOICE DL TrCH type	DCH
- DL Transport channel identity	6
- CHOICE DL TrCH type	DCH
- DL Transport channel identity	10
Added or Reconfigured DL TrCH information	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20
DTX-DRX timing information	
CHOICE *timing*	
- New timing	
- Enabling Delay	16
- UE DTX DRX Offset	0
DTX-DRX Information	
DTX information	
- CHOICE *E-DCH TTI length*	10ms
- UE DTX cycle 1	10
- UE DTX cycle 2	20
- MAC DTX cycle	10
- Inactivity Threshold for UE DTX cycle 2	8
- UE DTX long preamble length	4
- MAC Inactivity Threshold	8
- CQI DTX Timer	32
- UE DPCCH burst_1	1
- UE DPCCH burst_2	1
DRX Information	
- UE DRX cycle	10
- Inactivity Threshold for UE DRX cycle	32
- Inactivity Threshold for UE Grant Monitoring	8
- UE DRX Grant Monitoring	TRUE
Uplink DPCCH slot format information	1
HS-SCCH less information	Not Present
Uplink DPCH info	Not Present
Downlink information common for all radio links	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20
Downlink information for each radio link	Same as defined in the RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20
- Serving HS-DSCH radio link indicator	TRUE
- Serving E-DCH radio link indicator	TRUE

8.2.2.55.5 Test requirements

After step 2, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

After step 5, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

At step 7 the time between 11 consecutive CQI indications shall be 400ms.

8.2.2.56 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_PCH: Success (stop of discontinuous uplink transmission)

8.2.2.56.1 Definition and applicability

All UEs which support FDD and UL DTX.

8.2.2.56.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

…

If the UE receives RRC CONNECTION SETUP, ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> the UE shall determine the value for the DTX_DRX_STATUS variable.

The variable DTX_DRX_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> both variables HS_DSCH RECEPTION and E_DCH_TRANSMISSION are set to TRUE;

1> no DCH transport channel is configured;

1> the variable DTX_DRX_PARAMS is set;

1> the UE has received the IE "DTX-DRX timing information".

If any of the above conditions is not met and the variable DTX_DRX_STATUS is set to TRUE, the UE shall:

1> set the variable DTX_DRX_STATUS to FALSE;

1> clear the variable DTX_DRX_PARAMS;

1> stop DTX-DRX mode related activities.

If variable DTX_DRX_STATUS is set to true and the serving HS-DSCH cell was changed as a result of the received message the UE shall instruct the physical layer to consider HS-SCCH orders were never received.

Whenever the variable DTX_DRX_STATUS is set to TRUE after receiving this message and the value of IE "DTX-DRX timing information" included in this message is not "Continue", the UE shall:

1> if the variable DTX_DRX_STATUS was set to TRUE before receiving this message:

2> re-configure the physical layer to perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration;

2> let the MAC layer continue with the current restriction on E-DCH transmission and monitoring of absolute and relative grant channels from the frame boundary where the uplink transmission starts with the new configuration and for the duration of the IE "Enabling Delay".

1> else:

2> perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations by configuring the physical layer according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration.

1> configure the MAC layer to start restricting E-DCH transmissions and monitor absolute and relative grant channels at the CFN corresponding to the frame boundary that is offset by the value of IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration taking into account the IEs "UE DTX DRX Offset", "MAC DTX Cycle", "MAC Inactivity Threshold" and "Inactivity Threshold for UE Grant Monitoring".

…

If the IE "DTX-DRX timing information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the CHOICE "timing" is set to "New timing":

2> use the newly received DTX-DRX timing configuration.

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

…

If the IE "DTX–DRX information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the contents of the IE in the variable DTX_DRX_PARAMS;

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34;

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple of the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple or a divisor of the value of the IE "CQI Feedback cycle, k"; or

1> if the value of the IE "UE DPCCH burst 1" is greater than the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DPCCH burst 2" is greater than the value of the IE "UE DTX cycle 2"; or

1> if the IE "UE DTX long preamble length" is set to 4 or 15 slots and the value of the IE "Inactivity Threshold for UE DTX cycle 2" is less than 4 TTIs (for 10ms E-DCH TTI) or 8 TTIs (for 2ms E-DCH TTI); or

1> if the IE "UE DRX cycle" is not an integer multiple or a divisor of the value of the IE "UE DTX cycle 1"; or

1> if the IE "DRX Information" is included in this message while the IE "DTX information" is not included in this message; or

1> if the value of the IE "UE DTX cycle 1" is not an integer multiple or a divisor of the value of the IE "MAC DTX cycle":

2> the UE behaviour is unspecified.

Reference

3GPP TS 25.331 clauses 8.2.2.4, 8.5.34, 8.6.6.38, 8.6.6.39

8.2.2.56.3 Test purpose

To confirm that the UE reconfigures radio bearer parameters, transits from CELL_DCH to CELL_PCH state, and stops E-DCH / DPCCH discontinuous transmission and HS-DSCH reception according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.56.4 Method of test

Initial Condition

System Simulator: 1 cell

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A20 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports DPCCH Discontinuous Transmission

Test Procedure

The UE has a radio bearer mapped to the E-DCH/HS-DSCH and the signalling radio bearers mapped on E-DCH/HS-DSCH, DTX and, if supported, DRX are active.

The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications shall be 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used.

The SS transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it stops E-DCH / DPCCH discontinuous transmission and HS-DSCH reception, transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC and moves to CELL_PCH state.

SS calls for generic procedure C.4 to check that the UE is in CELL_PCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
				The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used (i.e. duration of 10 consecutive DTX cycle 2).
1	←		RADIO BEARER RECONFIGURATION	
2	→		RADIO BEARER RECONFIGURATION COMPLETE	Stop of E-DCH transmission and HS-DSCH reception with DTX (and DRX if supported) and transit to CELL_ PCH state.
3	←→		CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

RADIO BEARER RECONFIGURATION (Step 1)

Use the same message as specified for "Packet to CELL_FACH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH

Information Element	Value/remark
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	

Information Element	Value/remark
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	

Information Element	Value/remark
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB stop/continue	Not Present
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	1
Frequency info	Not Present
Maximum allowed UL TX power	Not Present

8.2.2.56.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

8.2.2.57 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (Reconfiguration between fixed and flexible AM RLC, Serving HS-DSCH cell change between MAC-hs and MAC-ehs)

8.2.2.57.1 Definition and applicability

All UEs which support FDD or 1.28Mcps TDD and MAC-ehs.

8.2.2.57.2 Conformance requirement

Upon reception of the IE "RLC Info", the UE shall:

[…]

1> if the IE "Downlink RLC mode" is present and is set to "AM RLC":

2> if IE "DL RLC PDU size" is not present:

3> determining the downlink RLC PDU size will be handled at RLC level as described in [16], without any configuration from RRC.

NOTE: The case where this mandatory IE is not present is meant to handle the interaction with a network using an earlier release of the specification.

2> else, if the IE "DL RLC PDU size" is present, the DL RLC PDU size is set to "fixed size" and no downlink RLC PDU size is currently set in the RLC entity:

3> configure the corresponding RLC entity with the downlink RLC PDU size.

2> else, if the DL RLC PDU size is set to "flexible size" and no downlink RLC PDU size is currently set in the RLC entity:

3> configure the corresponding RLC entity with the RLC length indicator size indicated in the IE "Length indicator size".

2> else, if the DL RLC PDU size is changed to "flexible size" from "fixed size" and the indicated RLC length indicator size is 7 bits:

3> configure the corresponding RLC entity with flexible RLC PDU size and the RLC length indicator size indicated in the IE "Length indicator size".

2> else, if the IE "DL RLC PDU size" is present, the DL RLC PDU size is set to "fixed size" and DL RLC PDU size value is different from the one currently set in the RLC entity; or

2> the DL RLC PDU size is set to "flexible size" and the indicated RLC length indicator size is different from the one currently set in the RLC entity; or

2> the DL RLC PDU size is changed to" fixed size" from "flexible size"; or

2> the DL RLC PDU size is changed to "flexible size" from "fixed size" and the indicated RLC length indicator size is 15 bits:

NOTE: The downlink RLC PDU size set in the RLC entity can either be explicitly configured or, in case no explicit configuration is provided, derived by the first received RLC PDU [16].

3> if the IE "one sided RLC re-establishment" is set to TRUE:

4> re-establish the receiving side of the corresponding RLC entity.

3> else:

4> re-establish the corresponding RLC entity.

3> if the DL RLC PDU size is set to "fixed size":

4> configure the corresponding RLC entity with the new downlink RLC PDU size.

3> if the DL RLC PDU size is set to "flexible size":

4> configure the corresponding RLC entity with the RLC length indicator size indicated in the IE "Length indicator size".

3> if the UE supports the lossless DL RLC PDU size change and PDCP was configured for that radio bearer with the IE "Support for lossless SRNS relocation or for lossless DL RLC PDU size change" set to TRUE:

4> include the current DL PDCP receive sequence number and the radio bearer identity for that radio bearer in the variable PDCP_SN_INFO.

3> if the IE "Status" in the variable CIPHERING_STATUS of the CN domain as indicated in the IE "CN domain identity" in the IE "RAB info" for this radio bearer is set to "Started":

4> if the RLC re-establishment is caused by a CELL UPDATE CONFIRM:

5> if only the receiving side of the RLC entity was re-established:

6> set the HFN values for the corresponding RLC entity in downlink equal to the value of the IE "START" included in the latest transmitted CELL UPDATE message for this CN domain.

5> if the whole RLC entity was re-established:

6> set the HFN values for the corresponding RLC entity in uplink and downlink equal to the value of the IE "START" included in the latest transmitted CELL UPDATE message for this CN domain.

4> if the RLC re-establishment is caused by a reconfiguration message:

5> if only the receiving side of the RLC entity was re-established:

6> set the HFN values for the corresponding RLC entity in downlink equal to the value of the IE "START" that will be included in the reconfiguration complete message for this CN domain.

5> if the whole RLC entity was re-established:

6> set the HFN values for the corresponding RLC entity in uplink and downlink equal to the value of the IE "START" that will be included in the reconfiguration complete message for this CN domain.

…

1> if the received reconfiguration message did not include the IE "Downlink counter synchronisation info":

2> if the variable START_VALUE_TO_TRANSMIT is set:

3> include and set the IE "START" to the value of that variable.

2> if the variable START_VALUE_TO_TRANSMIT is not set and the IE "New U-RNTI" is included:

3> calculate the START value according to subclause 8.5.9;

3> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info".

2> if the received reconfiguration message caused a change in the RLC PDU size, a change from flexible to fixed DL RLC PDU size or a change of the RLC LI size for any RB using RLC-AM:

3> calculate the START value according to subclause 8.5.9;

3> include the calculated START values for the CN domain associated with the corresponding RB identity in the IE "START list" in the IE "Uplink counter synchronisation info".

…

The variable HS_DSCH_RECEPTION shall be set to TRUE only when all the following conditions are met:

1> for FDD and 1.28 Mcps TDD:

2> the UE is in CELL_DCH state.

1> for 3.84 Mcps TDD or 7.68 Mcps TDD:

2> a dedicated physical channel is allocated to the UE in the uplink.

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> the UE has a stored IE "HARQ info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored Δ_{ACK}, Δ_{NACK} and Ack-NACK Repetition factor.

1> for 3.84 Mcps TDD or 7.68 Mcps TDD, the UE has stored the IE "HS-PDSCH Timeslot Configuration" and either of the following conditions are met:

2> a dedicated physical channel is allocated to the UE in the downlink;

2> the UE has stored $D_{hs\text{-}sync}$.

1> for 1.28 Mcps TDD, the UE has stored the IE "HS-PDSCH Midamble Configuration" and either of the following conditions are met:

2> a dedicated physical channel is allocated to the UE in the downlink;

2> the UE has stored "PLCCH Info".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RBs mapped to HS-DSCH, there is either:

2> at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow; or

2> at least one MAC-ehs reordering queue configured for the associated logical channel.

NOTE 1: For TDD and for FDD in CELL_DCH, to enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the concerning MAC-ehs reordering queue, add/remove the serving HS-DSCH radio link or, for TDD add/remove H-RNTI upon hard handover.

NOTE 2: For TDD and for FDD in CELL_DCH, if HS_DSCH_RECEPTION is set to TRUE and a reconfiguration, an inter-RAT handover from UTRAN, or a cell change order procedure is initiated, the UE checks the conditions only when the reconfiguration, inter-RAT handover from UTRAN, or cell change order procedure is successfully completed. Doing so ensures that, in case of failure in the reconfiguration, inter-RAT handover from UTRAN, or cell change order procedure, the UE can return to the old configuration as if the message was not received, e.g. without performing a MAC-HS reset.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> for TDD and for FDD in CELL_DCH:

2> set the variable HS_DSCH_RECEPTION_GENERAL to FALSE;

2> stop any HS_SCCH reception procedures;

2> stop any HS-DSCH reception procedures;

2> clear the variable H_RNTI and remove any stored H-RNTI;

2> reset the MAC-hs/ehs entity [15];

2> release all HARQ resources;

2> no long consider any radio link to be the HS-DSCH serving radio link.

1> for 3.84 Mcps TDD or 7.68 Mcps TDD, if no downlink DPCH is assigned the UE shall clear the uplink DPCH configuration and initiate the Cell Update procedure according to subclause 8.3.1, cause "radio link failure".

NOTE 3: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "Added or Reconfigured MAC-ehs reordering queue", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

2> for 1.28 Mcps TDD, when performing reception on signalling radio bearer before RAB has been established.

3> if MAC-ehs is not configured,

4> use the table of transport block size for the HS-DSCH physical layer category 1 as specified in [15], and consider the UE capability "Total number of soft channel bits in HS-DSCH" equal to that of the HS-DSCH physical layer category 1 as specified in [35].

3> else,

4> use the table of transport block size for the HS-DSCH physical layer category 9 as specified in [15], and consider the UE capability "Total number of soft channel bits in HS-DSCH" equal to that of the HS-DSCH physical layer category 9 as specified in [35].

NOTE 4: For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, UTRAN should use the lowest HSDPA capability category, as specified in [35], when performing scheduling and signalling the control information on HS-SCCH, as it is not possible for Node B to be aware of the UE's HSDPA capability category during this period.

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

1> use the relevant CQI reporting table as stated in subclause 8.5.44.

In CELL_DCH, whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

1> if the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

[…]

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link and no longer consider any other radio link as serving HS-DSCH radio link.

[…]

2> act on the other IEs contained in the IE "Downlink information for each radio link" as specified in subclause 8.6 applied on this radio link.

1> in addition, if the message was received in CELL_DCH state and the UE remains in CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link;

4> if the serving HS-DSCH radio link was another radio link than this radio link prior to reception of the message and the IE "H-RNTI" is not included:

5> clear the variable H_RNTI.

3> if the IE "Serving HS-DSCH radio link indicator" is set to ‘FALSE’ and this radio link was considered the serving HS-DSCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving HS-DSCH radio link.

3> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25;

[…]

2> For TDD:

3> if the IE "H-RNTI" is not included and the primary CCPCH has changed:

4> clear the variable H_RNTI.

3> determine the value for the HS-DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

[…]

2> for each optional IE part of the IE "Downlink information for each radio link" that is not present:

3> do not change its current downlink physical channel configuration corresponding to the IE, which is absent, if not stated otherwise elsewhere.

NOTE: The Release '99 RADIO BEARER RECONFIGURATION message always includes at least one IE "Downlink information for each radio link" containing the mandatory IEs, even if UTRAN does not require the reconfiguration of any radio link.

…

If the IE "Downlink information common for all radio links " is included the UE shall:

1> if the IE "Downlink DPCH info common for all RL" is included:

2> perform actions as specified in subclause 8.6.6.28.

1> if the IE "Downlink F-DPCH info common for all RL" is included:

2> perform actions as specified in subclause 8.6.6.28a.

1> if the IE choice "mode" is set to 'FDD':

2> perform actions for the IE "DPCH compressed mode info" as specified in subclause 8.6.6.15;

2> perform actions for the IE "Tx Diversity mode" as specified in subclause 8.6.6.24.

1> if the IE "MAC-hs reset indicator" is included:

2> if the serving HS-DSCH radio link is the same radio link as prior to the reception of the message; and

2> if, as a result of the reconfiguration message where this IE is received, the MAC header type (i.e., either MAC-hs or MAC-ehs) is unchanged:

3> the UE behaviour is unspecified.

2> reset the MAC-hs/ehs entity [15].

NOTE: If the MAC header type is changed, either from MAC-hs to MAC-ehs or from MAC-ehs to MAC-hs, UTRAN should include the IE "MAC-hs reset indicator" in order to ensure a reset of the MAC-hs/ehs entity in the UE prior to MAC-hs/ehs reconfiguration, otherwise the UE behaviour is unspecified.

Reference

3GPP TS 25.331 clauses 8.6.4.9, 8.2.2.3, 8.5.25, 8.6.6.4, 8.6.6.27.

8.2.2.57.3 Test purpose

1. To verify that the UE is able to successfully perform an AM data RB reconfiguration from fixed RLC to flexible RLC, and that:
   a. When the RLC Length Indicator size is unchanged, the RLC AM entity is not re-established.
   b. When the RLC Length Indicator size is changed, the RLC AM entity is re-established.

2. To verify that the UE is able to successfully perform an AM data RB reconfiguration from flexible RLC to fixed RLC and that the RLC AM entity is re-established.

3. To verify that the UE is able to successfully perform a serving HS-DSCH cell change:
   a. With reconfiguration from using a MAC-hs entity to using a MAC-ehs entity.
   b. With reconfiguration from using a MAC-ehs entity to using a MAC-hs entity.

8.2.2.57.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 is active and Cell 2 is inactive.

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A14 (FDD)/A13(1.28Mcps TDD), as specified in clause 7.4 of TS 34.108.

System Information Block type 11 (Cell 1)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not Present Absence of this IE is equivalent to default value 1
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present (This IE shall be ignored by the UE for SIB11)
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0 dB
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Not Present (The IE shall be absent as this is the serving cell)
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0dB
- Reference time difference to cell	Not present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Not present For neighbouring cell, if HCS is not used and all the parameters in cell selection and re-selection info are Default value, this IE is absent.
- Intra-frequency cell id	3
- Cell info	Same content as specified for Intra-frequency cell id=2 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1.4
- Intra-frequency cell id	7
- Cell info	Same content as specified for Intra-frequency cell id=2 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.7 (FDD)" in clause 6.1.4 Note that this cell can also be configured as an inter-frequency cell on f3.
- Intra-frequency cell id	8
- Cell info	Same content as specified for Intra-frequency cell id=2 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.8 (FDD)" in clause 6.1.4 Note that this cell can also be configured as an inter-frequency cell on f3.
- Intra-frequency cell id	11
- Cell info	Same content as specified for Intra-frequency cell id=2 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.11 (FDD)" in clause 6.1.4

Related ICS/IXIT statement(s)

- UE supports FDD or 1.28Mcps TDD
- UE supports MAC-ehs

Test Procedure

Table 8.2.2.57

Parameter	Unit	Cell 1			Cell 2		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			Mid Range Test Frequency		
CPICH Ec (FDD)	dBm/3.84MHz	-60	-60	OFF	OFF	-60	-60
P-CCPCH RSCP	dBm	-60	-66		-66	-60	

Table 8.2.2.57 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0", "T1" and "T2", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for Cell 1 and Cell 2. Columns marked "T0" denote the initial conditions.

The UE is initially in CELL_DCH state with the SRBs and a PS RAB mapped on E-DCH/HS-DSCH (MAC-hs).

The SS configures its downlink transmission power settings according to columns "T1" in table 8.2.2.57. The UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for Cell 2. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE to request the UE to perform a timing maintained hard handover with serving HS-DSCH cell change to Cell 2 with the SRBs and the PS RAB mapped on E-DCH/HS-DSCH (MAC-ehs), and with reconfiguration of the AM data RB from fixed to flexible with no change of LI size. The UE shall move to Cell 2 at the Activation Time signalled in the RADIO BEARER RECONFIGURATION message and transmit a RADIO BEARER RECONFIGURATION COMPLETE message on Cell 2. The SS shall not re-establish its configured DL AM RLC entities. The SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2. The UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE.

The SS configures its downlink transmission power settings according to columns "T2" and then after a wait time of 5 seconds SS configures its downlink transmission power settings according to columns "T1" in table 8.2.2.57. The UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for Cell 1. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE to request the UE to perform a timing maintained hard handover with serving HS-DSCH cell change to Cell 1 with the SRBs and the PS RAB mapped on E-DCH/HS-DSCH (MAC-hs), and with reconfiguration of the AM data RB from flexible to fixed with no change of LI size. The UE shall move to Cell 1 at the Activation Time signalled in the RADIO BEARER RECONFIGURATION message and transmit a RADIO BEARER RECONFIGURATION COMPLETE message on Cell 1. The SS shall re-establish its configured AM RLC entities. The SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2. The UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE.

The SS configures its downlink transmission power settings according to columns "T0" and then after a wait time of 5 seconds SS configures its downlink transmission power settings according to columns "T1" in table 8.2.2.57. The UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for Cell 2. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE to request the UE to perform a timing maintained hard handover with serving HS-DSCH cell change to Cell 2 with the SRBs and the PS RAB mapped on E-DCH/HS-DSCH (MAC-ehs), and with reconfiguration of the AM data RB from fixed to flexible with change of LI size (from 7 bits LI to 15 bits LI). The UE shall move to Cell 2 at the Activation Time signalled in the RADIO BEARER RECONFIGURATION message and transmit a RADIO BEARER RECONFIGURATION COMPLETE message on Cell 2. The SS shall re-establish its configured AM RLC entities. The SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2. The UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE.

The SS calls generic procedure C.3 to check that the UE is in CELL_DCH state on Cell 2.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	SS			SS configures its downlink transmission power settings according to columns "T1" in table 8.2.2.57
1a	→		MEASUREMENT REPORT	Reporting event 1A (FDD) / 1g (1.28Mcps TDD).
2	←		RADIO BEARER RECONFIGURATION	
3	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE transmits this message in Cell 2.
4	←		UE CAPABILITY ENQUIRY	
5	→		UE CAPABILITY INFORMATION	
6	←		UE CAPABILITY INFORMATION CONFIRM	
7	SS			SS configures its downlink transmission power settings according to columns "T2" in table 8.2.2.57. Then after a wait time of 5 seconds SS configures its downlink transmission power settings according to columns "T1" in table 8.2.2.57.
7a	→		MEASUREMENT REPORT	Reporting event 1A (FDD) / 1g (1.28Mcps TDD).
8	←		RADIO BEARER RECONFIGURATION	
9	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE transmits this message in Cell 1. SS applies the new start value for RB 25 in UL and DL.
10	←		UE CAPABILITY ENQUIRY	
11	→		UE CAPABILITY INFORMATION	
12	←		UE CAPABILITY INFORMATION CONFIRM	
13	SS			SS configures its downlink transmission power settings according to columns "T0" in table 8.2.2.57. Then after a wait time of 5 seconds SS configures its downlink transmission power settings according to columns "T1" in table 8.2.2.57.
13a	→		MEASUREMENT REPORT	Reporting event 1A (FDD) / 1g (1.28Mcps TDD).
14	←		RADIO BEARER RECONFIGURATION	
15	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE transmits this message in Cell 2. SS applies the new start value for 25 in UL and DL.
16	←		UE CAPABILITY ENQUIRY	
17	→		UE CAPABILITY INFORMATION	
18	←		UE CAPABILITY INFORMATION CONFIRM	
19	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

MEASUREMENT REPORT (Steps 1a and 13a) (FDD)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

MEASUREMENT REPORT (Steps 1a and 13a)(1.28Mcps TDD)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 1
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 2
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1g
- Cell measurement event results	
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 2

RADIO BEARER RECONFIGURATION (Step 2) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following.

Information Element	Value/remark

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not Present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	32
- Timer_RST	500
- Max_RST	1
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE DL RLC PDU size	Fixed size
- DL RLC PDU size	144 bits
- In-sequence delivery	TRUE
- Receiving window size	32
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2

Information Element	Value/remark
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	32
- Timer_RST	500
- Max_RST	1
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE DL RLC PDU size	Fixed size
- DL RLC PDU size	144 bits
- In-sequence delivery	TRUE
- Receiving window size	32
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4

Information Element	Value/remark
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	32
- Timer_RST	500
- Max_RST	1
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE DL RLC PDU size	Fixed size
- DL RLC PDU size	144 bits
- In-sequence delivery	TRUE
- Receiving window size	32
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1

Information Element	Value/remark
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE DL RLC PDU size	Flexible size
- Length indicator size	7-bit
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- Logical channel identity	7
- RB stop/continue	Not Present
UL Transport channel information common for all transport channels	Not Present
Deleted UL TrCH information	Not Present
Added or Reconfigured UL TrCH information	Not Present
DL Transport channel information common for all transport channel	Not Present
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- CHOICE DL MAC header type	MAC-hs
- DL HS-DSCH MAC-d flow identity	0
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH
- CHOICE DL parameters	HS-DSCH
- HARQ Info	
- Number of Processes	Reference to clause 6.10.2.4.5 Parameter Set
- CHOICE *Memory Partitioning*	Implicit
- CHOICE DL MAC header type	MAC-ehs
- Added or reconfigured MAC-ehs reordering queue	
- MAC-ehs queue to add or reconfigure list	
- MAC-ehs queue id	0
- T1	50
- Treset	2
- MAC-ehs window size	16
- MAC-ehs queue id	1
- T1	50
- Treset	2
- MAC-ehs window size	16
- MAC-ehs queue to delete list	Not Present
Frequency info	
- UARFCN uplink(Nu)	Not present

Information Element	Value/remark
	Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink(Nd)	Same downlink UARFCN as used for Cell 2
CHOICE channel requirement	Not Present
E-DCH Info	Not Present
CHOICE Mode	FDD
- Downlink PDSCH information	Not Present
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- POhsdsch	6 dB
- CQI Feedback cycle, k	4 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
- Downlink 64QAM configured	Not present
Downlink information common for all radio links	
- Downlink F-DPCH info common for all RL	Downlink F-DPCH info common for all RL
- Timing Indication	Maintain
- Timing maintained Synchronization indicator	FALSE
- Downlink F-DPCH power control information	
- CHOICE mode	FDD
- DPC Mode	Single TPC
- CHOICE mode	FDD
- DPCH compressed mode info	Not Present
- TX Diversity Mode	Not Present
- Default DPCH Offset Value	Not present
- MAC-hs reset indicator	TRUE
Downlink information per radio link list	1 radio link
- Downlink information for each radio link	
- CHOICE mode	FDD
- Primary CPICH info	Set to the scrambling code for Cell 2
- Cell ID	Not present
- Serving HS-DSCH radio link indicator	TRUE
- Serving E-DCH radio link indicator	TRUE
- Downlink DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Calculated value from Cell synchronisation information
- Secondary CPICH info	Not present
- DL channelisation code	Reference to TS34.108 clause 6.10 Parameter Set
- Secondary scrambling code	2
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Code number	Any value between 0 and Spreading factor-1
- Scrambling code change	Not Present
- TPC combination index	0
- Closed loop timing adjustment mode	Not present

RADIO BEARER RECONFIGURATION (Step 2)(1.28Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, “Downlink HS-PDSCH Information”“Downlink information common for all radio links”“Downlink information per radio link list” are same as A16a, except for the following.

Information Element	Value/remark

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not Present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	32
- Timer_RST	500
- Max_RST	1
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE DL RLC PDU size	Flexible size
- Length indicator size	7-bit
- In-sequence delivery	TRUE
- Receiving window size	32
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2

Information Element	Value/remark
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	32
- Timer_RST	500
- Max_RST	1
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE DL RLC PDU size	Flexible size
- Length indicator size	7-bit
- In-sequence delivery	TRUE
- Receiving window size	32
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4

Information Element	Value/remark
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	32
- Timer_RST	500
- Max_RST	1
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE DL RLC PDU size	Flexible size
- Length indicator size	7-bit
- In-sequence delivery	TRUE
- Receiving window size	32
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1

Information Element	Value/remark
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE DL RLC PDU size	Flexible size
- Length indicator size	7-bit
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- Logical channel identity	7
- RB stop/continue	Not Present
UL Transport channel information common for all transport channels	Not Present
Deleted UL TrCH information	Not Present
Added or Reconfigured UL TrCH information	Not Present
DL Transport channel information common for all transport channel	Not Present
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- CHOICE DL MAC header type	MAC-hs
- DL HS-DSCH MAC-d flow identity	0
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH
- CHOICE DL parameters	HS-DSCH
- HARQ Info	
- Number of Processes	Reference to clause 6.10.2.4.5 Parameter Set
- CHOICE *Memory Partitioning*	Implicit
- CHOICE DL MAC header type	MAC-ehs
- Added or reconfigured MAC-ehs reordering queue	
- MAC-ehs queue to add or reconfigure list	
- MAC-ehs queue id	0
- T1	50
- Treset	2
- MAC-ehs window size	16
- MAC-ehs queue id	1
- T1	50
- Treset	2
- MAC-ehs window size	16
- MAC-ehs queue to delete list	Not Present
Frequency info	
- CHOICE mode	TDD

Information Element	Value/remark
	Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN (Nt)	Same UARFCN as used for Cell 2
CHOICE channel requirement	Not Present
E-DCH Info	Not Present

RADIO BEARER RECONFIGURATION COMPLETE (Step 3)

Use the same message sub-type found in TS 34.108 clause 9.

UE CAPABILITY ENQUIRY (Steps 4, 10, 16)

Use the same message sub-type found in TS 34.108 clause 9.

UE CAPABILITY INFORMATION (Steps 5, 11, 17)

Use the same message sub-type found in TS 34.108 clause 9.

UE CAPABILITY INFORMATION CONFIRM (Steps 6, 12, 18)

Use the same message sub-type found in TS 34.108 clause 9.

MEASUREMENT REPORT (Step 7a) (FDD)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108

MEASUREMENT REPORT (Step 7a)(1.28Mcps TDD)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 2
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 1
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1g
- Cell measurement event results	
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 1

RADIO BEARER RECONFIGURATION (Step 8) (FDD)

Use the same message as specified in step 2, except for the following.

Information Element	Value/remark

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB mapping info	
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- CHOICE DL MAC header type	MAC-hs
- DL HS-DSCH MAC-d flow identity	1
- RB information to reconfigure	(AM DCCH for RRC)
- RB mapping info	
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- CHOICE DL MAC header type	MAC-hs
- DL HS-DSCH MAC-d flow identity	1
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB mapping info	
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- CHOICE DL MAC header type	MAC-hs
- DL HS-DSCH MAC-d flow identity	1
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB mapping info	
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- CHOICE DL MAC header type	MAC-hs
- DL HS-DSCH MAC-d flow identity	1
- RB information to reconfigure	(high-speed AM DTCH)
- RLC info	
- CHOICE Downlink RLC mode	AM RLC
- CHOICE DL RLC PDU size	Fixed size
- DL RLC PDU size	336 bits
- RB mapping info	
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- CHOICE DL MAC header type	MAC-hs
- DL HS-DSCH MAC-d flow identity	0
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- Downlink transport channel type	HS-DSCH
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
Added or Reconfigured DL TrCH information	
- CHOICE DL MAC header type	MAC-hs
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	(two queues)
- MAC-hs queue Id	0 (for DTCH)
- MAC-d Flow Identity	0
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	336
- MAC-d PDU size index	0
- MAC-hs queue Id	1 (for DCCH)
- MAC-d Flow Identity	1
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	148
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not present
Downlink information per radio link list	1 radio link

Information Element	Value/remark
- Downlink information for each radio link	
- CHOICE mode	FDD
- Primary CPICH info	Set to the scrambling code for Cell 1

RADIO BEARER RECONFIGURATION (Step 8)(1.28Mcps TDD)

Use the same message as specified in step 2, except for the following.

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB mapping info	
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- CHOICE DL MAC header type	MAC-hs
- DL HS-DSCH MAC-d flow identity	1
- RB information to reconfigure	(AM DCCH for RRC)
- RLC info	
- CHOICE Downlink RLC mode	AM RLC
- CHOICE DL RLC PDU size	Fixed size
- DL RLC PDU size	144 bits
- RB mapping info	
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- CHOICE DL MAC header type	MAC-hs
- DL HS-DSCH MAC-d flow identity	1
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RLC info	
- CHOICE Downlink RLC mode	AM RLC
- CHOICE DL RLC PDU size	Fixed size
- DL RLC PDU size	144 bits
- RB mapping info	
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- CHOICE DL MAC header type	MAC-hs
- DL HS-DSCH MAC-d flow identity	1
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RLC info	
- CHOICE Downlink RLC mode	AM RLC
- CHOICE DL RLC PDU size	Fixed size
- DL RLC PDU size	144 bits
- RB mapping info	
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- CHOICE DL MAC header type	MAC-hs
- DL HS-DSCH MAC-d flow identity	1
- RB information to reconfigure	(high-speed AM DTCH)
- RLC info	
- CHOICE Downlink RLC mode	AM RLC
- CHOICE DL RLC PDU size	Fixed size
- DL RLC PDU size	336 bits
- RB mapping info	
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- CHOICE DL MAC header type	MAC-hs
- DL HS-DSCH MAC-d flow identity	0
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- Downlink transport channel type	HS-DSCH

Information Element	Value/remark
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
Added or Reconfigured DL TrCH information	
- CHOICE DL MAC header type	MAC-hs
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	(two queues)
- MAC-hs queue Id	0 (for DTCH)
- MAC-d Flow Identity	0
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	336
- MAC-d PDU size index	0
- MAC-hs queue Id	1 (for DCCH)
- MAC-d Flow Identity	1
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	148
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not present
Downlink information per radio link list	1 radio link
- Downlink information for each radio link	
- CHOICE mode	TDD
- Primary CCPCH info	
- CHOICE mode	TDD
- Cell parameters ID	Set to the Cell parameters ID for Cell 1

RADIO BEARER RECONFIGURATION COMPLETE (Steps 9, 15)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Uplink counter synchronisation info	
- RB with PDCP information list	Not present
- START list	Check that this IE is present.

RADIO BEARER RECONFIGURATION (Step 14)

Use the same message as specified in step 2, except for the following.

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RLC info	
- CHOICE Downlink RLC mode	AM RLC
- CHOICE DL RLC PDU size	Flexible size
- Length indicator size	15-bit

8.2.2.57.5 Test requirements

After step 2, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC (verifies test purpose 3a).

After step 4, the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH using AM RLC (verifies test purpose 1a).

After step 8, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC (verifies test purpose 3b).

After step 10, the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH using AM RLC (verifies test purpose 2).

After step 14, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC (verifies test purpose 3a).

After step 16, the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH using AM RLC (verifies test purpose 1b).

8.2.2.57a Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (Reconfiguration between fixed and flexible AM RLC, Serving HS-DSCH cell change between MAC-hs and MAC-ehs) with SRBs mapped on E-DCH/DCH

8.2.2.57a.1 Definition and applicability

All UEs which support FDD and MAC-ehs or 1.28Mcps TDD and MAC-ehs.

8.2.2.57a.2 Conformance requirement

Upon reception of the IE "RLC Info", the UE shall:

[…]

1> if the IE "Downlink RLC mode" is present and is set to "AM RLC":

2> if IE "DL RLC PDU size" is not present:

3> determining the downlink RLC PDU size will be handled at RLC level as described in [16], without any configuration from RRC.

NOTE: The case where this mandatory IE is not present is meant to handle the interaction with a network using an earlier release of the specification.

2> else, if the IE "DL RLC PDU size" is present, the DL RLC PDU size is set to "fixed size" and no downlink RLC PDU size is currently set in the RLC entity:

3> configure the corresponding RLC entity with the downlink RLC PDU size.

2> else, if the DL RLC PDU size is set to "flexible size" and no downlink RLC PDU size is currently set in the RLC entity:

3> configure the corresponding RLC entity with the RLC length indicator size indicated in the IE "Length indicator size".

2> else, if the DL RLC PDU size is changed to "flexible size" from "fixed size" and the indicated RLC length indicator size is 7 bits:

3> configure the corresponding RLC entity with flexible RLC PDU size and the RLC length indicator size indicated in the IE "Length indicator size".

2> else, if the IE "DL RLC PDU size" is present, the DL RLC PDU size is set to "fixed size" and DL RLC PDU size value is different from the one currently set in the RLC entity; or

2> the DL RLC PDU size is set to "flexible size" and the indicated RLC length indicator size is different from the one currently set in the RLC entity; or

2> the DL RLC PDU size is changed to "fixed size" from "flexible size"; or

2> the DL RLC PDU size is changed to "flexible size" from "fixed size" and the indicated RLC length indicator size is 15 bits:

NOTE: The downlink RLC PDU size set in the RLC entity can either be explicitly configured or, in case no explicit configuration is provided, derived by the first received RLC PDU [16].

3> if the IE "one sided RLC re-establishment" is set to TRUE:

4> re-establish the receiving side of the corresponding RLC entity.

3> else:

4> re-establish the corresponding RLC entity.

3> if the DL RLC PDU size is set to "fixed size":

4> configure the corresponding RLC entity with the new downlink RLC PDU size.

3> if the DL RLC PDU size is set to "flexible size":

4> configure the corresponding RLC entity with the RLC length indicator size indicated in the IE "Length indicator size".

3> if the UE supports the lossless DL RLC PDU size change and PDCP was configured for that radio bearer with the IE "Support for lossless SRNS relocation or for lossless DL RLC PDU size change" set to TRUE:

4> include the current DL PDCP receive sequence number and the radio bearer identity for that radio bearer in the variable PDCP_SN_INFO.

3> if the IE "Status" in the variable CIPHERING_STATUS of the CN domain as indicated in the IE "CN domain identity" in the IE "RAB info" for this radio bearer is set to "Started":

4> if the RLC re-establishment is caused by a CELL UPDATE CONFIRM:

5> if only the receiving side of the RLC entity was re-established:

6> set the HFN values for the corresponding RLC entity in downlink equal to the value of the IE "START" included in the latest transmitted CELL UPDATE message for this CN domain.

5> if the whole RLC entity was re-established:

6> set the HFN values for the corresponding RLC entity in uplink and downlink equal to the value of the IE "START" included in the latest transmitted CELL UPDATE message for this CN domain.

4> if the RLC re-establishment is caused by a reconfiguration message:

5> if only the receiving side of the RLC entity was re-established:

6> set the HFN values for the corresponding RLC entity in downlink equal to the value of the IE "START" that will be included in the reconfiguration complete message for this CN domain.

5> if the whole RLC entity was re-established:

6> set the HFN values for the corresponding RLC entity in uplink and downlink equal to the value of the IE "START" that will be included in the reconfiguration complete message for this CN domain.

…

1> if the received reconfiguration message did not include the IE "Downlink counter synchronisation info":

2> if the variable START_VALUE_TO_TRANSMIT is set:

3> include and set the IE "START" to the value of that variable.

2> if the variable START_VALUE_TO_TRANSMIT is not set and the IE "New U-RNTI" is included:

3> calculate the START value according to subclause 8.5.9;

3> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info".

2> if the received reconfiguration message caused a change in the RLC PDU size, a change from flexible to fixed DL RLC PDU size or a change of the RLC LI size for any RB using RLC-AM:

3> calculate the START value according to subclause 8.5.9;

3> include the calculated START values for the CN domain associated with the corresponding RB identity in the IE "START list" in the IE "Uplink counter synchronisation info".

…

The variable HS_DSCH_RECEPTION shall be set to TRUE only when all the following conditions are met:

1> for FDD and 1.28 Mcps TDD:

2> the UE is in CELL_DCH state.

1> for 3.84 Mcps TDD or 7.68 Mcps TDD:

2> a dedicated physical channel is allocated to the UE in the uplink.

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> the UE has a stored IE "HARQ info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";

- IE "Uplink DPCH Power Control Info" including stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor.

1> for 3.84 Mcps TDD or 7.68 Mcps TDD, the UE has stored the IE "HS-PDSCH Timeslot Configuration" and either of the following conditions are met:

2> a dedicated physical channel is allocated to the UE in the downlink;

2> the UE has stored $D_{hs\text{-}sync}$.

1> for 1.28 Mcps TDD, the UE has stored the IE "HS-PDSCH Midamble Configuration" and either of the following conditions are met:

2> a dedicated physical channel is allocated to the UE in the downlink;

2> the UE has stored "PLCCH Info".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RBs mapped to HS-DSCH, there is either:

2> at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow; or

2> at least one MAC-ehs reordering queue configured for the associated logical channel.

NOTE 1: For TDD and for FDD in CELL_DCH, to enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the concerning MAC-ehs reordering queue, add/remove the serving HS-DSCH radio link or, for TDD add/remove H-RNTI upon hard handover.

NOTE 2: For TDD and for FDD in CELL_DCH, if HS_DSCH_RECEPTION is set to TRUE and a reconfiguration, an inter-RAT handover from UTRAN, or a cell change order procedure is initiated, the UE checks the conditions only when the reconfiguration, inter-RAT handover from UTRAN, or cell change order procedure is successfully completed. Doing so ensures that, in case of failure in the reconfiguration, inter-RAT handover from UTRAN, or cell change order procedure, the UE can return to the old configuration as if the message was not received, e.g. without performing a MAC-HS reset.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> for TDD and for FDD in CELL_DCH:

2> set the variable HS_DSCH_RECEPTION_GENERAL to FALSE;

2> stop any HS_SCCH reception procedures;

2> stop any HS-DSCH reception procedures;

2> clear the variable H_RNTI and remove any stored H-RNTI;

2> reset the MAC-hs/ehs entity [15];

2> release all HARQ resources;

2> no long consider any radio link to be the HS-DSCH serving radio link.

1> for 3.84 Mcps TDD or 7.68 Mcps TDD, if no downlink DPCH is assigned the UE shall clear the uplink DPCH configuration and initiate the Cell Update procedure according to subclause 8.3.1, cause "radio link failure".

NOTE 3: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "Added or Reconfigured MAC-ehs reordering queue", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

2> for 1.28 Mcps TDD, when performing reception on signalling radio bearer before RAB has been established.

3> if MAC-ehs is not configured,

4> use the table of transport block size for the HS-DSCH physical layer category 1 as specified in [15], and consider the UE capability "Total number of soft channel bits in HS-DSCH" equal to that of the HS-DSCH physical layer category 1 as specified in [35].

3> else,

4> use the table of transport block size for the HS-DSCH physical layer category 9 as specified in [15], and consider the UE capability "Total number of soft channel bits in HS-DSCH" equal to that of the HS-DSCH physical layer category 9 as specified in [35].

NOTE 4: For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, UTRAN should use the lowest HSDPA capability category, as specified in [35], when performing scheduling and signalling the control information on HS-SCCH, as it is not possible for Node B to be aware of the UE's HSDPA capability category during this period.

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

1> use the relevant CQI reporting table as stated in subclause 8.5.44.

In CELL_DCH, whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

1> if the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

[…]

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link and no longer consider any other radio link as serving HS-DSCH radio link.

[…]

2> act on the other IEs contained in the IE "Downlink information for each radio link" as specified in subclause 8.6 applied on this radio link.

1> in addition, if the message was received in CELL_DCH state and the UE remains in CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link;

4> if the serving HS-DSCH radio link was another radio link than this radio link prior to reception of the message and the IE "H-RNTI" is not included:

5> clear the variable H_RNTI.

3> if the IE "Serving HS-DSCH radio link indicator" is set to ‘FALSE’ and this radio link was considered the serving HS-DSCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving HS-DSCH radio link.

3> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25;

[…]

2> For TDD:

3> if the IE "H-RNTI" is not included and the primary CCPCH has changed:

4> clear the variable H_RNTI.

3> determine the value for the HS-DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

[…]

2> for each optional IE part of the IE "Downlink information for each radio link" that is not present:

3> do not change its current downlink physical channel configuration corresponding to the IE, which is absent, if not stated otherwise elsewhere.

NOTE: The Release '99 RADIO BEARER RECONFIGURATION message always includes at least one IE "Downlink information for each radio link" containing the mandatory IEs, even if UTRAN does not require the reconfiguration of any radio link.

…

If the IE "Downlink information common for all radio links " is included the UE shall:

1> if the IE "Downlink DPCH info common for all RL" is included:

2> perform actions as specified in subclause 8.6.6.28.

1> if the IE "Downlink F-DPCH info common for all RL" is included:

2> perform actions as specified in subclause 8.6.6.28a.

1> if the IE choice "mode" is set to 'FDD':

2> perform actions for the IE "DPCH compressed mode info" as specified in subclause 8.6.6.15;

2> perform actions for the IE "Tx Diversity mode" as specified in subclause 8.6.6.24.

1> if the IE "MAC-hs reset indicator" is included:

2> if the serving HS-DSCH radio link is the same radio link as prior to the reception of the message; and

2> if, as a result of the reconfiguration message where this IE is received, the MAC header type (i.e., either MAC-hs or MAC-ehs) is unchanged:

3> the UE behaviour is unspecified.

2> reset the MAC-hs/ehs entity [15].

NOTE: If the MAC header type is changed, either from MAC-hs to MAC-ehs or from MAC-ehs to MAC-hs, UTRAN should include the IE "MAC-hs reset indicator" in order to ensure a reset of the MAC-hs/ehs entity in the UE prior to MAC-hs/ehs reconfiguration, otherwise the UE behaviour is unspecified.

Reference

3GPP TS 25.331 clauses 8.6.4.9, 8.2.2.3, 8.5.25, 8.6.6.4, 8.6.6.27.

8.2.2.57a.3 Test purpose

1. To verify that the UE is able to successfully perform an RLC AM reconfiguration from fixed RLC to flexible RLC, and that:
   a. When the RLC Length Indicator size is unchanged, the RLC AM entity is not re-established.
   b. When the RLC Length Indicator size is changed, the RLC AM entity is re-established.

2. To verify that the UE is able to successfully perform an RLC AM reconfiguration from flexible RLC to fixed RLC and that the RLC AM entity is re-established.

3. To verify that the UE is able to successfully perform a serving HS-DSCH cell change:
   a. With reconfiguration from using a MAC-hs entity to using a MAC-ehs entity.
   b. With reconfiguration from using a MAC-ehs entity to using a MAC-hs entity.

8.2.2.57a.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 is active and Cell 2 is inactive.

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A13 (FDD)/A13(1.28Mcps TDD), as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or 1.28Mcps TDD
- UE supports MAC-ehs

Test Procedure

Table 8.2.2.57a-1

Parameter	Unit	Cell 1			Cell 2		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			Mid Range Test Frequency		
CPICH Ec (FDD)	dBm/3.84MHz	-60	-60	OFF	OFF	-60	-60
P-CCPCH RSCP	dBm	-60	-66		-66	-60	

Table 8.2.2.57a-1 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0", "T1" and "T2", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for Cell 1 and Cell 2. Columns marked "T0" denote the initial conditions.

The UE is initially in CELL_DCH state with the SRBs and a PS RAB mapped on E-DCH/HS-DSCH (MAC-hs).

The SS configures its downlink transmission power settings according to columns "T1" in table 8.2.2.57a-1. The UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for Cell 2. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE to request the UE to perform a timing maintained hard handover with serving HS-DSCH cell change to Cell 2 with the SRBs and the PS RAB mapped on E-DCH/HS-DSCH (MAC-ehs), and with reconfiguration of the AM data RBs from fixed to flexible with no change of LI size. The UE shall move to Cell 2 at the Activation Time signalled in the RADIO BEARER RECONFIGURATION message and transmit a RADIO BEARER RECONFIGURATION COMPLETE message on Cell 2. The SS shall not re-establish its configured DL AM RLC entities.

The SS configures its downlink transmission power settings according to columns "T2" and then after a wait time of 5 seconds SS configures its downlink transmission power settings according to columns "T1" in table 8.2.2.57a-1. The UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for Cell 1. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE to request the UE to perform a timing maintained hard handover with serving HS-DSCH cell change to Cell 1 with the SRBs and the PS RAB mapped on E-DCH/HS-DSCH (MAC-hs), and with reconfiguration of the AM data RBs from flexible to fixed with no change of LI size. The UE shall move to Cell 1 at the Activation Time signalled in the RADIO BEARER RECONFIGURATION message and transmit a RADIO BEARER RECONFIGURATION COMPLETE message on Cell 1. The SS shall re-establish its configured AM RLC entities.

The SS configures its downlink transmission power settings according to columns "T0" and then after a wait time of 5 seconds SS configures its downlink transmission power settings according to columns "T1" in table 8.2.2.57a-1. The UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for Cell 2. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE to request the UE to perform a timing maintained hard handover with serving HS-DSCH cell change to Cell 2 with the SRBs and the PS RAB mapped on E-DCH/HS-DSCH (MAC-ehs), and with reconfiguration of the AM data RBs from fixed to flexible with change of LI size (from 7 bits LI to 15 bits LI). The UE shall move to Cell 2 at the Activation Time signalled in the RADIO BEARER RECONFIGURATION message and transmit a RADIO BEARER RECONFIGURATION COMPLETE message on Cell 2. The SS shall re-establish its configured AM RLC entities.

The SS calls generic procedure C.3 to check that the UE is in CELL_DCH state on Cell 2.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	SS			SS configures its downlink transmission power settings according to columns "T1" in table 8.2.2.57a-1
2	→		MEASUREMENT REPORT	Reporting event 1a (FDD) / 1g (1.28Mcps TDD).
3	←		ACTIVATE RB TEST MODE	
4	→		ACTIVATE RB TEST MODE COMPLETE	
5	←		CLOSE UE TEST LOOP	Loop back mode 1 is activated
6	→		CLOSE UE TEST LOOP COMPLETE	
7	←		RADIO BEARER RECONFIGURATION	
8	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE transmits this message in Cell 2.
9	→ ←		Data	The SS sends data on the RB25 in downlink and verifies that the UE returned data in uplink has the same content as sent in downlink.
10	SS			SS configures its downlink transmission power settings according to columns "T2" in table 8.2.2.57a-1. Then after a wait time of 5 seconds SS configures its downlink transmission power settings according to columns "T1" in table 8.2.2.57a-1.
11	→		MEASUREMENT REPORT	Reporting event 1a (FDD) / 1g (1.28Mcps TDD).
12	←		RADIO BEARER RECONFIGURATION	
13	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE transmits this message in Cell 1. SS applies the new start value for RB25 in UL and DL.
14	→ ←		Data	The SS sends data on the RB25 in downlink and verifies that the UE returned data in uplink has the same content as sent in downlink.
15	SS			SS configures its downlink transmission power settings according to columns "T0" in table 8.2.2.57a-1. Then after a wait time of 5 seconds SS configures its downlink transmission power settings according to columns "T1" in table 8.2.2.57a-1.
16	→		MEASUREMENT REPORT	Reporting event 1a (FDD) / 1g (1.28Mcps TDD).
17	←		RADIO BEARER RECONFIGURATION	
18	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE transmits this message in Cell 2. SS applies the new start value for RB25 in UL and DL.
19	→ ←		Data	The SS sends data on the RB25 in downlink and verifies that the UE returned data in uplink has the same content as sent in downlink.

20	←→	CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

MEASUREMENT REPORT (Steps 2 and 16) (FDD)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

MEASUREMENT REPORT (Steps 2 and 16)(1.28Mcps TDD)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 1
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 2
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1g
- Cell measurement event results	
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 2

RADIO BEARER RECONFIGURATION (Step 7) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following.

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	
- Support for lossless SRNS relocation	FALSE
- Max PDCP SN window size	Not Present
- PDCP PDU Header	Absent
- Header Compression information	Not Present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4

Information Element	Value/remark
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE DL RLC PDU size	Flexible Size
- Length indicator size	7-bit
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- Logical channel identity	7
- RB stop/continue	Not Present
UL Transport channel information common for all transport channels	Not Present
Deleted UL TrCH information	Not Present
Added or Reconfigured UL TrCH information	Not Present
DL Transport channel information common for all transport channel	Not Present
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- CHOICE DL MAC header type	MAC-hs
- DL HS-DSCH MAC-d flow identity	0
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH
- CHOICE DL parameters	HS-DSCH
- HARQ Info	
- Number of Processes	Reference to clause 6.10.2.4.5 Parameter Set
- CHOICE *Memory Partitioning*	Implicit
- CHOICE DL MAC header type	MAC-ehs
- Added or reconfigured MAC-ehs reordering queue	
- MAC-ehs queue to add or reconfigure list	
- MAC-ehs queue id	0
- T1	50
- Treset	2
- MAC-ehs window size	16
- MAC-ehs queue to delete list	Not Present
Frequency info	
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to

Information Element	Value/remark
	3GPP TS 25.101 [21]
- UARFCN downlink(Nd)	Same downlink UARFCN as used for Cell 2
CHOICE channel requirement	Not Present
E-DCH Info	Not Present
CHOICE Mode	FDD
- Downlink PDSCH information	Not Present
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Pohsdsch	6 dB
- CQI Feedback cycle, k	4 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
- Downlink 64QAM configured	Not present
Downlink information per radio link list	1 radio link
- Downlink information for each radio link	
- CHOICE mode	FDD
- Primary CPICH info	Set to the scrambling code for Cell 2
- Cell ID	Not present
- Serving HS-DSCH radio link indicator	TRUE
- Serving E-DCH radio link indicator	FALSE
- Downlink DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Set to value Default DPCH Offset Value
- Secondary CPICH info	Not present
- DL channelisation code	
- Secondary scrambling code	Not Present
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Code number	13
- Scrambling code change	Not Present
- TPC combination index	0
- Closed loop timing adjustment mode	Not present

RADIO BEARER RECONFIGURATION (Step 7)(1.28Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, “Downlink HS-PDSCH Information”“Downlink information common for all radio links”“Downlink information per radio link list” are same as A16a, except for the following.

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present

Information Element	Value/remark
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE DL RLC PDU size	Flexible size
- Length indicator size	7-bit
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- Logical channel identity	7
- RB stop/continue	Not Present
UL Transport channel information common for all transport channels	Not Present
Deleted UL TrCH information	Not Present
Added or Reconfigured UL TrCH information	Not Present
DL Transport channel information common for all transport channel	Not Present
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- CHOICE DL MAC header type	MAC-hs
- DL HS-DSCH MAC-d flow identity	0
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH
- CHOICE DL parameters	HS-DSCH
- HARQ Info	
- Number of Processes	Reference to clause 6.10.2.4.5 Parameter Set
- CHOICE *Memory Partitioning*	Implicit
- CHOICE DL MAC header type	MAC-ehs
- Added or reconfigured MAC-ehs reordering queue	
- MAC-ehs queue to add or reconfigure list	
- MAC-ehs queue id	0
- T1	50
- Treset	2
- MAC-ehs window size	16
- MAC-ehs queue to delete list	Not Present
Frequency info	
- CHOICE mode	TDD Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]

Information Element	Value/remark
- UARFCN (Nt)	Same UARFCN as used for Cell 2
CHOICE channel requirement	Not Present
E-DCH Info	Not Present

RADIO BEARER RECONFIGURATION COMPLETE (Step 8)

Use the same message sub-type found in TS 34.108 clause 9.

MEASUREMENT REPORT (Step 11) (FDD)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108

MEASUREMENT REPORT (Step 11)(1.28Mcps TDD)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 2
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 1
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1g
- Cell measurement event results	
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 1

RADIO BEARER RECONFIGURATION (Step 12) (FDD)

Use the same message as specified in step 7, except for the following.

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- RLC info	
- CHOICE Downlink RLC mode	AM RLC
- CHOICE DL RLC PDU size	Fixed size
- DL RLC PDU size	336 bits
- RB mapping info	
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- CHOICE DL MAC header type	MAC-hs
- DL HS-DSCH MAC-d flow identity	0
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
Added or Reconfigured DL TrCH information	
- CHOICE DL MAC header type	MAC-hs

Information Element	Value/remark
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	
- MAC-hs queue Id	0 (for DTCH)
- MAC-d Flow Identity	0
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	336
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not present
Downlink information per radio link list	1 radio link
- Downlink information for each radio link	
- CHOICE mode	FDD
- Primary CPICH info	Set to the scrambling code for Cell 1

RADIO BEARER RECONFIGURATION (Step 12)(1.28Mcps TDD)

Use the same message as specified in step 7, except for the following.

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RLC info	
- CHOICE Downlink RLC mode	AM RLC
- CHOICE DL RLC PDU size	Fixed size
- DL RLC PDU size	336 bits
- RB mapping info	
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- CHOICE DL MAC header type	MAC-hs
- DL HS-DSCH MAC-d flow identity	0
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
Added or Reconfigured DL TrCH information	
- CHOICE DL MAC header type	MAC-hs
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	
- MAC-hs queue Id	0 (for DTCH)
- MAC-d Flow Identity	0
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	336
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not present
Downlink information per radio link list	1 radio link
- Downlink information for each radio link	
- CHOICE mode	TDD
- Primary CCPCH info	
- CHOICE mode	TDD
- Cell parameters ID	Set to the Cell parameters ID for Cell 1

RADIO BEARER RECONFIGURATION COMPLETE (Steps 13, 18)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Uplink counter synchronisation info	
- RB with PDCP information list	Not present
- START list	Check that this IE is present.

RADIO BEARER RECONFIGURATION (Step 17)

Use the same message as specified in step 7, except for the following.

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- RLC info	
- CHOICE Downlink RLC mode	AM RLC
- CHOICE DL RLC PDU size	Flexible size
- Length indicator size	15-bit

8.2.2.57a.5 Test requirements

After step 7, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC (verifies test purpose 3a).

After step 8, the UE shall return data on the uplink DCCH using AM RLC has the same content as sent in downlink (verifies test purpose 1a).

After step 12, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC (verifies test purpose 3b).

After step 13, the UE shall return data on the uplink DCCH using AM RLC has the same content as sent in downlink (verifies test purpose 2).

After step 17, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC (verifies test purpose 3a).

After step 18, the UE shall return data on the uplink DCCH using AM RLC has the same content as sent in downlink (verifies test purpose 1b).

8.2.2.58 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Reconfigurations between CS voice over DCH and CS voice over HSPA)

8.2.2.58.1 Definition and applicability

All UEs which support FDD and CS voice over HSPA.

8.2.2.58.2 Conformance requirement

If the IE "RAB information for setup" is included, the procedure is used to establish or establish/release (only if CS domain RAB mapping is reconfigured between DCH and EDCH/HSPA) radio bearers belonging to a radio access bearer, and the UE shall:

1> if the radio access bearer identified with the IE "RAB info" does not exist in the variable ESTABLISHED_RABS:

2> create a new entry for the radio access bearer in the variable ESTABLISHED_RABS;

2> store the content of the IE "RAB info" in the entry for the radio access bearer in the variable ESTABLISHED_RABS;

2> indicate the establishment of each radio access bearer to the upper layer entity using the IE "CN domain identity", forwarding the content of the IE "RAB identity" and the IEs NAS Synchronization Indicator as well as the following IEs if included in the IE "RAB info": "MBMS Session identity" and/ or "MBMS Service Identity";

2> if prior to this procedure there exists no transparent mode radio bearer for the CN domain included in the IE "CN domain identity" and at least one transparent mode radio bearer is included in the IE "RB information to setup"; or

2> if at least one RLC-AM or RLC-UM radio bearer is included in the IE "RB information to setup":

3> calculate the START value only once during this procedure (the same START value shall be used on all new radio bearers created for this radio access bearer) according to subclause 8.5.9 for the CN domain as indicated in the IE "CN domain identity" in the IE "RAB info" part of the IE "RAB information to setup";

3> store the calculated START value in the variable START_VALUE_TO_TRANSMIT.

1> if the radio access bearer identified with the IE "RAB identity" in the IE "RAB info" already exists in the variable ESTABLISHED_RABS:

2> for each radio bearer in the variable ESTABLISHED_RABS for that radio access bearer:

3> release the PDCP and RLC entities for that radio bearer;

3> release the RAB subflow associated with the radio bearer;

3> delete the information about the radio bearer from the variable ESTABLISHED_RABS.

1> for each radio bearer in the IE "RB information to setup":

2> if the radio bearer identified with the IE "RB identity" does not exist in the variable ESTABLISHED_RABS:

3> perform the actions specified in subclause 8.6.4.3;

3> store information about the new radio bearer in the entry for the radio access bearer identified by "RAB info" in the variable ESTABLISHED_RABS;

3> create a new RAB subflow for the radio access bearer;

3> number the RAB subflow in ascending order, assigning the smallest number to the RAB subflow corresponding to the first radio bearer in the list;

3> if the IE "CN domain identity" in the IE "RAB info" is set to "PS domain" and the number of RAB subflows for the radio access bearer is greater than 1:

4> set the variable INVALID_CONFIGURATION to TRUE.

2> if the radio bearer identified with the IE "RB identity" already exists in the variable ESTABLISHED_RABS:

3> set the variable INVALID_CONFIGURATION to TRUE.

1> If CS voice service is configured over HSDPA and EDCH:

2> if the IE "UL AMR rate" is included in the IE "RAB information for setup", UE shall forward the content to upper layers;

2> if the IE "Max CS delay" is included in the IE "RAB information for setup", UE shall use the information in the IE "Max CS delay" to determine the maximum buffering of the voice frames (see [36]).

Reference

3GPP TS 25.331 clause 8.6.4.2

8.2.2.58.3 Test purpose

1 To confirm that the UE reconfigures CS domain RAB mapping from DCH to EDCH/HSPA according to the received RADIO BEARER SETUP message.

2 To confirm that the UE reconfigures CS domain RAB mapping from EDCH/HSPA to DCH according to the received RADIO BEARER SETUP message.

8.2.2.58.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CS-DCCH+DTCH_DCH (state 6-9) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports CS voice over HSPA

Test Procedure

The UE is in CELL_DCH state.

The SS transmits a RADIO BEARER SETUP message including the RAB Information for setup IE to reconfigure CS domain RAB mapping from DCH to EDCH/HSPA. The UE reconfigures the new bearers and transmits a RADIO BEARER SETUP COMPLETE on the DCCH.

Then, SS transmits a RADIO BEARER SETUP message including the RAB Information for setup IE to reconfigure CS domain RAB mapping from EDCH/HSPA to DCH. The UE reconfigures the new bearers and transmits a RADIO BEARER SETUP COMPLETE on the DCCH.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	Reconfiguration of CS RAB mapping from DCH to EDCH/HSPA
2	→		RADIO BEARER SETUP COMPLETE	
3	←		RADIO BEARER SETUP	Reconfiguration of CS RAB mapping from EDCH/HSPA to DCH
4	→		RADIO BEARER SETUP COMPLETE	
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for "Speech to CELL_DCH / E-DCH / HS-DSCH CS RAB with DTX/DRX and enhanced data rate using one multiplexing option (1/1) and SRBs mapped on E-DCH/HSDSCH" in 34.108, except for the following:

Information Element	Value/remark
- RAB information for setup	
- RAB info	(high-speed UM DTCH for CS domain)
- RAB identity	0000 0001B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
RB information to reconfigure list	
- RB identity	1 (UM DCCH for RRC)
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1

Information Element	Value/remark
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	1
- RB identity	2 (AM DCCH for RRC)
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	2
- RB identity	3 (AM DCCH for NAS High Priority)
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	3
- RB identity	4 (AM DCCH for NAS Low Priority)
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4

Information Element	Value/remark
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	4
Deleted UL TrCH information	
- Uplink transport channel type	DCH
- UL transport channel identity	5
- Uplink transport channel type	DCH
- UL transport channel identity	1
- Uplink transport channel type	DCH
- UL transport channel identity	2
- Uplink transport channel type	DCH
- UL transport channel identity	3
Deleted DL TrCH information	
- Downlink transport channel type	DCH
- DL Transport channel identity	10
- Downlink transport channel type	DCH
- DL Transport channel identity	6
- Downlink transport channel type	DCH
- DL Transport channel identity	7
- Downlink transport channel type	DCH
- DL Transport channel identity	8

RADIO BEARER SETUP (Step 3)

Use the same message as specified for "Speech to CELL_DCH from CELL_DCH in CS" in 34.108, except for the following:

RB information to reconfigure list	
- RB identity	1 (UM DCCH for RRC)
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL transport channel identity	5
- Logical channel identity	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- Logical channel identity	1
- RB identity	2 (AM DCCH for RRC)
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL transport channel identity	5
- Logical channel identity	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- Logical channel identity	2
- RB identity	3 (AM DCCH for NAS High Priority)
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL transport channel identity	5
- Logical channel identity	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- Logical channel identity	3
- RB identity	4 (AM DCCH for NAS Low Priority)
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL transport channel identity	5
- Logical channel identity	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- Logical channel identity	4
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1
- Uplink transport channel type	E-DCH

- E-DCH MAC-d flow identity	2
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-ehs Queue Id	0
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-ehs Queue Id	1

8.2.2.58.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

After step 3, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.2.59 Radio Bearer Reconfiguration from Cell FACH (Cell supporting HS-DSCH in Cell FACH) to CELL_FACH(Cell not supporting HS-DSCH in Cell FACH): Success (Cell re-selection)

8.2.2.59.1 Definition and applicability

All UEs which support FDD and HS-PDSCH in CELL_FACH.

8.2.2.59.2 Conformance requirement

If the UE performs cell re-selection during the reconfiguration procedure, the UE shall:

1> initiate a cell update procedure, as specified in subclause 8.3.1;

1> continue with the reconfiguration procedure.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable HS_DSCH_RECEPTION_CELL_FACH_STATE shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_FACH;

1> the variable H_RNTI is set;

1> the variable C_RNTI is set;

1> System Information Block type 5 or System Information Block type 5bis includes IE "HS-DSCH common system information".

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_CELL_FACH_STATE to FALSE;

1> if the UE is in CELL_FACH and variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to FALSE:

2> set the variable HS_DSCH_RECEPTION_GENERAL to FALSE;

2> stop any HS_SCCH reception procedures;

2> stop any HS-DSCH reception procedures;

2> clear the variable H_RNTI and remove any stored H-RNTI;

2> reset the MAC-ehs entity [15];

2> release all HARQ resources;

2> clear any stored IEs "HARQ info";

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

1> use the IE "HS-DSCH common system information" in System Information Block type 5 or System Information Block type 5bis;

1> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving cell applying the scrambling code as received in the IE "DL Scrambling code" as received in IE "HS-DSCH common system information";

1> perform HS-DSCH reception procedures:

2> if the UE has a stored IE "HARQ info":

3> act on subclause 8.6.5.6b for the stored IE "HARQ info".

2> else:

3> act on subclause 8.6.5.20 for the IE "HARQ System info" as received in IE "HS-DSCH common system information".

2> and use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

1> and for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH code listed in the IE "HS-SCCH channelisation code" with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to FALSE, the UE shall:

1> if the UE is in CELL_FACH and variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to FALSE:

2> not perform HS_SCCH reception procedures;

2> not perform HS-DSCH reception procedures.

3GPP TS 25.331 clauses 8.2.2.3, 8.2.2.4 ,8.2.2.8,8.3.1.7,8.5.36, 8.5.37

8.2.2.59.3 Test purpose

1. To confirm that the UE stops HS-DSCH reception, starts FACH reception on S-CCPCH, and transmits RADIO BEARER RECONFIGURATION COMPLETE message in cell 2 when a cell re-selection occurs after receiving a RADIO BEARER RECONFIGURATION message via HS-DSCH in CELL_FACH.

8.2.2.59.4 Method of test

Initial Condition

System Simulator: 2 cells: Cell 1 configures HS-DSCH for CELL_FACH in System Information Type 5/5bis, Cell 2 sends the default system information (HS-DSCH for CELL_FACH not configured)

UE:CELL_FACH state as specified in clause 7.4 of TS 34.108, with a valid H-RNTI

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH in CELL_FACH

SYSTEM INFORMATION BLOCK TYPE 5/5bis (see specific message contents).

Test Procedure

Table 8.2.2.59

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-75	-75	-60
P-CCPCH RSCP (TDD)	dBm	-60	-75	-75	-60

Table 8.2.2.59 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Column marked "T0" denote the initial conditions.

The UE is in CELL_FACH state in Cell 1 and has a radio bearer established that is mapped to HS-DSCH and RACH. The SS configures RB2 to stop transmission and reception of RLC PDUs. On transmitting a RADIO BEARER RECONFIGURATION message to the UE on RB 1 with radio bearers mapping information updated, the SS configures its downlink transmission power settings according to columns "T1" in table 8.2.2.59. The UE shall initiate the cell reselection procedure, which may occur either before or after submitting the RADIO BEARER RECONFIGURATION COMPLETE message for transmission on the DCCH using AM RLC. The UE transmits a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". The SS shall transmit a CELL UPDATE CONFIRM message on downlink DCCH and configure RB2 to continue transmission and reception of RLC PDUs after receiving CELL UPDATE message. Any RADIO BEARER RECONFIGURATION COMPLETE message that was previously submitted for transmission in the UE will now be received by the SS. UE transmit a UTRAN MOBILTY INFORMATION CONFIRM message on the DCCH using AM RLC. If not already done so, the UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

NOTE 1: The RADIO BEARER RECONFIGURATION COMPLETE message may be received by the SS either after transmission of CELL UPDATE CONFIRM (Option 1) or after reception UTRAN MOBILITY INFORMATION CONFIRM (Option 2).

NOTE 2: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	SS			The SS configures RB 2 to stop transmission and reception of RLC PDUs.
1	←		RADIO BEARER RECONFIGURATION	The message is transmitted on RB 1. Transmitted by the SS on HS-DSCH. IE "RRC State Indicator" is set to "CELL_FACH" and radio bearer mapped to RACH/SCCPCH
2				The SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.2.2.59.
				The following messages are transmitted in cell 2.
3	→		CELL UPDATE	Value "cell reselection" shall be indicated in IE "Cell update cause" and “HS-PDSCH in CELL_FACH” is set to TRUE.
4	←		CELL UPDATE CONFIRM	See message content.
5	SS			The SS configures RB 2 to continue transmission and reception of RLC PDUs.
6	→		RADIO BEARER RECONFIGURATION COMPLETE (Option 1)	Transmitted by the UE on RACH
7	→		UTRAN MOBILITY INFORMATION CONFIRM	Transmitted by the UE on RACH.
8	→		RADIO BEARER RECONFIGURATION COMPLETE (Option 2)	Transmitted by the UE on RACH.
9	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- Information for each multiplexing option	2 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present

- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4

- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	2
- Logical channel identity	7
- RB stop/continue	Not Present
Maximum allowed UL TX power	Not Present

CELL UPDATE (Step 3)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Cell Update Cause	Check to see if set to 'Cell Re-selection'
HS-PDSCH in CELL_FACH	Check to see if set to TRUE

CELL UPDATE CONFIRM (Step 4)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'

UTRAN MOBILITY INFORMATION CONFIRM (Step 7)

Only the message type is checked.

8.2.2.59.5 Test requirement

After step 2 the UE shall transmit a CELL UPDATE message on the CCCH with IE "cell update cause" set to "cell reselection" and “HS-PDSCH in CELL_FACH” set to TRUE.

After step 5 the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC.

The UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC. This message may be received by the SS earliest after step 5 and at latest after step 7.

8.2.2.59a Radio Bearer Reconfiguration from Cell FACH (Cell supporting E-DCH and HS-DSCH in Cell FACH) to CELL_FACH(Cell not supporting E-DCH and HS-DSCH in Cell FACH): Success (Cell re-selection)(1.28Mcps TDD only)

8.2.2.59a.1 Definition and applicability

All UEs which support 1.28Mcps TDD and E-DCH and HS-PDSCH in CELL_FACH.

8.2.2.59a.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

2> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

If the UE performs cell re-selection during the reconfiguration procedure, the UE shall:

1> initiate a cell update procedure, as specified in subclause 8.3.1;

1> continue with the reconfiguration procedure.

…

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and

- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":
- includes the IE "Downlink counter synchronisation info" and the IE "New U-RNTI":

NOTE: In the case of a cell update procedure during an ongoing reconfiguration procedure moving the UE into CELL_PCH/URA_PCH the CELL UPDATE CONFIRM message should include the IE "New C-RNTI".

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

…

The variable HS_DSCH_RECEPTION_CELL_FACH_STATE shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_FACH;

1> the variable H_RNTI is set;

1> the variable C_RNTI is set;

1> System Information Block type 5 or System Information Block type 5bis includes IE "HS-DSCH common system information".

1> for 1.28 Mcps TDD, System Information Block type 5 includes IE "Common E-DCH system info".

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_CELL_FACH_STATE to FALSE;

1> if the UE is in CELL_FACH and variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to FALSE:

2> set the variable HS_DSCH_RECEPTION_GENERAL to FALSE;

2> stop any HS_SCCH reception procedures;

2> stop any HS-DSCH reception procedures;

2> clear the variable H_RNTI and remove any stored H-RNTI;

2> reset the MAC-ehs entity [15];

2> release all HARQ resources;

2> clear any stored IEs "HARQ info";

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

1> use the IE "HS-DSCH common system information" in System Information Block type 5 or System Information Block type 5bis;

1> for FDD, receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving cell applying the scrambling code as received in the IE "DL Scrambling code" as received in IE "HS-DSCH common system information";

1> for 1.28 Mcps TDD, receive the HS-SCCH(s) according to the stored HS-SCCH configuration, applying the HS-PDSCH midamble code according to the stored HS-PDSCH midamble configuration;

1> perform HS-DSCH reception procedures:

2> if the UE has a stored IE "HARQ info":

3> act on subclause 8.6.5.6b for the stored IE "HARQ info".

2> else:

3> act on subclause 8.6.5.20 for the IE "HARQ System info" as received in IE "HS-DSCH common system information".

2> and use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

1> and for FDD, for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH code listed in the IE "HS-SCCH channelisation code" with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

1> and for 1.28 Mcps TDD, for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH according to the stored HS-SCCH configuration with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

NOTE: For 1.28 Mcps TDD, when performing HS-DSCH reception in CELL_FACH state, the UE shall use the table of transport block size for the HS-DSCH physical layer category 9 as specified in [15].

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to FALSE, the UE shall:

1> if the UE is in CELL_FACH and variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to FALSE:

2> not perform HS-SCCH reception procedures;

2> not perform HS-DSCH reception procedures.

3GPP TS 25.331 clauses 8.2.2.4 ,8.2.2.8,8.3.1.7,8.5.36

8.2.2.59a.3 Test purpose

1. To confirm that the UE stops E-DCH transmission and HS-DSCH reception, starts RACH transmission and FACH reception on S-CCPCH, and transmits RADIO BEARER RECONFIGURATION COMPLETE message in cell 2 when a cell re-selection occurs after receiving a RADIO BEARER RECONFIGURATION message via E-DCH and HS-DSCH in CELL_FACH.

8.2.2.59a.4 Method of test

Initial Condition

System Simulator: 2 cells: Cell 1 configures E-DCH and HS-DSCH for CELL_FACH in System Information Type 5/5bis, Cell 2 sends the default system information (E-DCH and HS-DSCH for CELL_FACH not configured)

UE:CELL_FACH state as specified in clause 7.4 of TS 34.108, with a valid H-RNTI

Related ICS/IXIT statement(s)

- UE supports 1.28Mcps TDD
- UE supports E-DCH and HS-PDSCH in CELL_FACH

SYSTEM INFORMATION BLOCK TYPE 5 (see specific message contents).

Test Procedure

Table 8.2.2.59a

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
P-CCPCH RSCP (TDD)	dBm	-60	-69	-69	-60

Table 8.2.2.59a illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Column marked "T0" denote the initial conditions.

The UE is in CELL_FACH state in Cell 1 and has a radio bearer established that is mapped to HS-DSCH and E-DCH. The SS configures RB2 to stop transmission and reception of RLC PDUs. On transmitting a RADIO BEARER RECONFIGURATION message to the UE on RB 1 with radio bearers mapped to RACH and SCCPCH, the SS configures its downlink transmission power settings according to columns "T1" in table 8.2.2.59a. The UE shall initiate the cell reselection procedure, which may occur either before or after submitting the RADIO BEARER RECONFIGURATION COMPLETE message for transmission on the DCCH using AM RLC. The UE transmits a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". The SS shall transmit a CELL UPDATE CONFIRM message on downlink DCCH and configure RB2 to continue transmission and reception of RLC PDUs after receiving CELL UPDATE message. Any RADIO BEARER RECONFIGURATION COMPLETE message that was previously submitted for transmission in the UE will now be received by the SS. UE transmit a UTRAN MOBILTY INFORMATION CONFIRM message on the DCCH using AM RLC. If not already done so, the UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

NOTE 1: The RADIO BEARER RECONFIGURATION COMPLETE message may be received by the SS either after transmission of CELL UPDATE CONFIRM (Option 1) or after reception UTRAN MOBILITY INFORMATION CONFIRM (Option 2).

NOTE 2: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	SS			The SS configures RB 2 to stop transmission and reception of RLC PDUs.
1	←		RADIO BEARER RECONFIGURATION	The message is transmitted on RB 1. Transmitted by the SS on HS-DSCH. IE "RRC State Indicator" is set to "CELL_FACH" and radio bearer mapped to RACH/SCCPCH
2				The SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.2.2.59a.
				The following messages are transmitted in cell 2.
3	→		CELL UPDATE	Value "cell reselection" shall be indicated in IE "Cell update cause" and “HS-PDSCH in CELL_FACH” is set to TRUE.
4	←		CELL UPDATE CONFIRM	See message content.
5	SS			The SS configures RB 2 to continue transmission and reception of RLC PDUs.
6	→		RADIO BEARER RECONFIGURATION COMPLETE (Option 1)	Transmitted by the UE on RACH
7	→		UTRAN MOBILITY INFORMATION CONFIRM	Transmitted by the UE on RACH.
8	→		RADIO BEARER RECONFIGURATION COMPLETE (Option 2)	Transmitted by the UE on RACH.
9	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.11
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.11
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.11

- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.11
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.11
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB stop/continue	Not Present
Maximum allowed UL TX power	Not Present

CELL UPDATE (Step 3)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Cell Update Cause	Check to see if set to 'Cell Re-selection'
HS-PDSCH in CELL_FACH	Check to see if set to TRUE

CELL UPDATE CONFIRM (Step 4)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'

UTRAN MOBILITY INFORMATION CONFIRM (Step 7)

Only the message type is checked.

8.2.2.59a.5 Test requirement

After step 2 the UE shall transmit a CELL UPDATE message on the CCCH with IE "cell update cause" set to "cell reselection" and “HS-PDSCH in CELL_FACH” set to TRUE.

After step 5 the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC.

The UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC. This message may be received by the SS earliest after step 5 and at latest after step 7.

8.2.2.60 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_FACH and CELL_FACH to CELL_DCH: Success (with HS-DSCH reception in Enhanced FACH DL)

8.2.2.60.1 Definition and applicability

All UEs which support FDD and HS-PDSCH in CELL_FACH.

8.2.2.60.2 Conformance requirement

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to [4] on that frequency;

2> if the UE finds a suitable UTRA cell on that frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> when the cell update procedure completed successfully:

5> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.

1> 2> else, if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> when the cell update procedure completed successfully:

4> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> 2> select a suitable UTRA cell according to [4];

3> 2> if the UE finds a suitable UTRA cell on the current frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> when the cell update procedure completed successfully:

5> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.

2> else, if the UE can not find a suitable UTRA cell on the current frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> when the cell update procedure completed successfully:

4> if the UE is in CELL_PCH or URA_PCH state, initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.

1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;

1> select PRACH according to subclause 8.5.17;

1> for TDD; or

1> for FDD, if the UE does not support HS-DSCH reception; or

1> if the IE "HS-DSCH common system information" is not included in System Information Block type 5 or System Information Block type 5bis:

2> select Secondary CCPCH according to subclause 8.5.19;

2> use the transport format set given in system information;

2> take the actions related to the HS_DSCH_RECEPTION_GENERAL variable as described in subclause 8.5.37a.

1> else:

2> if the RBs have the multiplexing option with transport channel type "HS-DSCH" for the DL and transport channel type "RACH" in the UL; and

2> if variable H_RNTI and variable C_RNTI are set:

3> start to receive HS-DSCH according to the procedure in subclause 8.5.36.

2> else:

3> clear variable C_RNTI and delete any stored C-RNTI value;

3> clear variable H_RNTI and delete any stored H-RNTI value;

3> clear any stored IE "HARQ Info".

…

If after state transition the UE enters CELL_DCH state, the UE shall, after the state transition:

1> in FDD; or

1> in TDD when "Primary CCPCH Info" is included indicating a new target cell and "New C-RNTI" is not specified:

2> remove any C-RNTI from MAC;

2> clear the variable C_RNTI.

If after state transition the UE leaves CELL_DCH state, the UE shall, after the state transition:

1> if any IEs related to HS-DSCH are stored in the UE:

2> clear any stored IE "Downlink HS-PDSCH information";

2> for 1.28Mcps TDD, clear the IE "HS-PDSCH Midamble Configuration" and the IE "HS-SCCH Set Configuration" in the IE "DL Multi Carrier Information";

2> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

1> if any IEs related to E-DCH are stored in the UE:

2> clear any stored IE "E-DCH info";

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

The variable HS_DSCH_RECEPTION shall be set to TRUE only when all the following conditions are met:

1> for FDD and 1.28 Mcps TDD:

4> 2> the UE is in CELL_DCH state.

1> for 3.84 Mcps TDD or 7.68 Mcps TDD:

5> 2> a dedicated physical channel is allocated to the UE in the uplink.

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> the UE has a stored IE "HARQ info";

1> for FDD:

6> 2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

7> 2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor.

…

The variable HS_DSCH_RECEPTION_CELL_FACH_STATE shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_FACH;

1> the variable H_RNTI is set;

1> the variable C_RNTI is set;

1> System Information Block type 5 or System Information Block type 5bis includes IE "HS-DSCH common system information".

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_CELL_FACH_STATE to FALSE;

1> if the UE is in CELL_FACH and variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to FALSE:

2> set the variable HS_DSCH_RECEPTION_GENERAL to FALSE;

2> stop any HS_SCCH reception procedures;

2> stop any HS-DSCH reception procedures;

2> clear the variable H_RNTI and remove any stored H-RNTI;

2> reset the MAC-ehs entity [15];

2> release all HARQ resources;

2> clear any stored IEs "HARQ info";

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

1> use the IE "HS-DSCH common system information" in System Information Block type 5 or System Information Block type 5bis;

1> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving cell applying the scrambling code as received in the IE "DL Scrambling code" as received in IE "HS-DSCH common system information";

1> perform HS-DSCH reception procedures:

2> if the UE has a stored IE "HARQ info":

3> act on subclause 8.6.5.6b for the stored IE "HARQ info".

2> else:

3> act on subclause 8.6.5.20 for the IE "HARQ System info" as received in IE "HS-DSCH common system information".

2> and use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

1> and for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH code listed in the IE "HS-SCCH channelisation code" with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to FALSE, the UE shall:

1> if the UE is in CELL_FACH and variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to FALSE:

2> not perform HS_SCCH reception procedures;

2> not perform HS-DSCH reception procedures.

Reference

3GPP TS 25.331 clauses 8.2.2.3, 8.5.25, 8.5.36

8.2.2.60.3 Test purpose

1 To confirm that the UE reconfigures radio bearer parameters, transits from CELL_DCH to CELL_FACH state and back again, according to the received RADIO BEARER RECONFIGURATION message.

2 To confirm that the UE reconfigures radio bearer parameters and transits from CELL_FACH to CELL_DCH state, and starts E-DCH transmission according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.60.4 Method of test

Initial Condition

System Simulator: 1 cell

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH in CELL_FACH
- UE supports E-DPDCH (FDD only)

Test Procedure

The UE is in CELL_DCH state. Only signalling radio bearers have been established.

The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of a radio bearer mapped on E-DCH/HS-DSCH, with signalling radio bearers mapped on E-DCH/HS-DSCH. After the UE receives this message, it establishes a radio bearer and maps it to the E-DCH/HS-DSCH. The UE shall transmit a RADIO BEARER SETUP COMPLETE message using AM RLC.

The SS transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it moves to CELL_FACH state and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

Then, SS transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it moves to CELL_DCH state, starts E-DCH transmission HS-DSCH reception and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that the UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	Radio bearer mapping onto E-DCH/HS-DSCH with SRB mapped onto E-DCH/HS-DSCH
2	→		RADIO BEARER SETUP COMPLETE	
3	←		RADIO BEARER RECONFIGURATION	Stop of E-DCH transmission, ongoing HS-DSCH transmission and transit to CELL_FACH state,
4	→		RADIO BEARER RECONFIGURATION COMPLETE	
5	←		RADIO BEARER RECONFIGURATION	Start of E-DCH transmission, ongoing HS-DSCH transmission and transit to CELL_DCH state
6	→		RADIO BEARER RECONFIGURATION COMPLETE	
7	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

RADIO BEARER SETUP (Step 1)

Use the same message as specified for "Packet to CELL_DCH / E-DCH / HS-DSCH (1/1) and SRBs mapped on E-DCH/HS-DSCH" (condition A14) in TS 34.108 clause 9, except for the following:

Information Element	Value/remark
RAB information for setup	
- RAB identity	(high-speed AM DTCH for PS domain) 0000 0101B
- CN domain identity	PS domain
- NAS Synchronisation	Not Present
- Re-establishment timer	Use T315
- RB information to setup	
- RB identity	25
- PDCP Info	Not Present
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- Length Indicator size	7
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- Alternative E-bit interpretation	Not Present
- Use special value of HE field	TRUE
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- UL Transport channel identity	Not Present
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC size	336 bits

Information Element	Value/remark
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	2
- Logical channel identity	7
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	2
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	Not Present
RB information to be affected	
- RB identity	1 (UM DCCH for RRC)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH Mac-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	1
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- RB identity	2 (AM DCCH for RRC)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present

Information Element	Value/remark
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH Mac-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	2
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	2
- RB identity	3 (AM DCCH for NAS High Priority)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH Mac-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	3
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs

Information Element	Value/remark
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	3
- RB identity	4 (AM DCCH for NAS Low Priority)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH Mac-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	4
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH Mac-d flow and one DTCH Mac-d flow. Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.
Added or Reconfigured DL TrCH information	1 TrCH (HS-DSCH for DCCH and DTCH).
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	
- Number of Processes	Reference to clause 6.10.2.4.5 Parameter Set
- CHOICE *Memory Partitioning*	Implicit
- CHOICE *DL MAC header type*	MAC-ehs
- Added or reconfigured MAC-ehs reordering queue	
- MAC-ehs queue to add or reconfigure list	(two queues)
- MAC-ehs queue Id	1 (for DCCH)
- T1	50
- MAC-ehs window size	16
- MAC-ehs queue Id	2 (for DTCH)
- T1	50
- MAC-ehs window size	16
- MAC-ehs queue to delete list	Not Present
- DCH quality target	Not Present
Downlink HS-PDSCH Information	
- HS-DSCH TB size table	Octet Aligned

RADIO BEARER RECONFIGURATION (Step 3)

Use the same message as specified for "Packet to CELL_FACH from CELL_DCH in PS" in 34.108 (condition A5) in TS 34.108 clause 9, except for the following, except for the following:

Information Element	Value/remark
Deleted UL TrCH information - Uplink transport channel type - E-DCH MAC-d flow identity - Uplink transport channel type - E-DCH MAC-d flow identity	 E-DCH 1 E-DCH 2
Frequency info	Not Present
Maximum allowed UL TX power	Not Present
Downlink information per radio link list	
-Downlink information for each radio link	
- Primary CPICH info	
- Primary scrambling code - Serving HS-DSCH radio link indicator	Set to same code as used for cell 1 TRUE

RADIO BEARER RECONFIGURATION (Step 5)

Use the same message as specified for "Packet to CELL_DCH from CELL_FACH in PS" in 34.108 (condition A4) in TS 34.108 clause 9, except for the following:

Information Element	Value/remark
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH Mac-d flow and one DTCH Mac-d flow. Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.
Uplink DPCH info E-DCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20 with the following exception
- HS-DSCH TB size table	Octet Aligned
Downlink information for each radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.

8.2.2.60.5 Test requirements

After step 3, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

After step 5, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

8.2.2.60a Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_FACH and CELL_FACH to CELL_DCH: Success (with ongoing E-DCH transmission and HS-DSCH reception) (1.28Mcps TDD only)

8.2.2.60a.1 Definition and applicability

All UEs which support 1.28Mcps TDD and E-DCH, HS-PDSCH in CELL_FACH.

8.2.2.60a.2 Conformance requirement

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

1> determine the value for the READY_FOR_COMMON_EDCH variable and take the corresponding actions as described in subclause 8.5.47;

1> determine the value for the COMMON_E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.46;

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to [4] on that frequency;

2> if the UE finds a suitable UTRA cell on that frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> when the cell update procedure completed successfully:

5> if the UE is in CELL_PCH or URA_PCH state:

6> if variable READY_FOR_COMMON_EDCH is set to TRUE:

7> move to CELL_FACH state and proceed as below.

6> else:

7> if variable H_RNTI and variable C_RNTI are set:

8> proceed as below.

7> else:

8> initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.

2> else, if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> when the cell update procedure completed successfully:

4> if the UE is in CELL_PCH or URA_PCH state:

5> if variable READY_FOR_COMMON_EDCH is set to TRUE:

6> move to CELL_FACH state and proceed as below.

5> else:

6> if variable H_RNTI and variable C_RNTI are set:

7> proceed as below.

6> else:

7> initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to [4];

2> if the UE finds a suitable UTRA cell on the current frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> when the cell update procedure completed successfully:

5> if the UE is in CELL_PCH or URA_PCH state:

6> if variable READY_FOR_COMMON_EDCH is set to TRUE:

7> move to CELL_FACH state and proceed as below.

6> else:

7> if variable H_RNTI and variable C_RNTI are set:

8> proceed as below.

7> else:

8> initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.

2> else, if the UE can not find a suitable UTRA cell on the current frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> when the cell update procedure completed successfully:

4> if the UE is in CELL_PCH or URA_PCH state:

5> if variable READY_FOR_COMMON_EDCH is set to TRUE:

6> move to CELL_FACH state and proceed as below.

5> else:

6> if variable H_RNTI and variable C_RNTI are set:

7> proceed as below.

6> else:

7> initiate a cell update procedure according to subclause 8.3.1 using the cause "Uplink data transmission" and proceed as below.

1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;

1> if variable READY_FOR_COMMON_EDCH is set to FALSE:

2> select PRACH according to subclause 8.5.17;

1> else:

2> configure the Enhanced Uplink in CELL_FACH state and Idle mode as specified in subclause 8.5.45 for FDD and 8.5.45a for 1.28 Mcps TDD.

1> for 3.84 Mcps and 1.28 Mcps TDD; or

1> for FDD, if the UE does not support HS-DSCH reception in CELL_FACH state; or

1> if the IE "HS-DSCH common system information" is not included in System Information Block type 5 or System Information Block type 5bis; or

1> for 1.28 Mcps TDD, if the IE "Common E-DCH system info" is not included in System Information Block type 5:

2> select Secondary CCPCH according to subclause 8.5.19;

2> use the transport format set given in system information;

2> take the actions related to the HS_DSCH_RECEPTION_GENERAL variable as described in subclause 8.5.37a.

1> else:

2> for FDD if variable READY_FOR_COMMON_EDCH is set to FALSE:

3> if the RBs have the multiplexing option with transport channel type "HS-DSCH" for the DL and transport channel type "RACH" in the UL; and

3> if variable H_RNTI and variable C_RNTI are set:

4> start to receive HS-DSCH according to the procedure in subclause 8.5.36.

3> else:

4> clear variable C_RNTI and delete any stored C-RNTI value;

4> clear variable H_RNTI and delete any stored H-RNTI value;

4> clear any stored IE "HARQ Info".

2> else:

3> if the RBs have the multiplexing option with transport channel type "HS-DSCH" for the DL and transport channel type "E-DCH" in the UL; and

3> if the IEs "new Primary E-RNTI", "new H-RNTI" and "new C-RNTI" are included:

4> store the "new Primary E-RNTI" according to subclause 8.6.3.14;

4> store the "new H-RNTI" according to subclause 8.6.3.1b;

4> store the "new C-RNTI" according to subclause 8.6.3.9;

4> and start to receive HS-DSCH according to the procedure in subclause 8.5.36.

3> else:

4> clear variable C_RNTI and delete any stored C-RNTI value;

4> clear variable H_RNTI and delete any stored H-RNTI value;

4> clear variable E_RNTI and delete any stored E-RNTI value;

4> clear any stored IE "HARQ Info";

4> set the variable INVALID_CONFIGURATION to TRUE.

…

If after state transition the UE enters CELL_DCH state, the UE shall, after the state transition:

1> in FDD; or

1> in TDD when "Primary CCPCH Info" is included indicating a new target cell and "New C-RNTI" is not specified:

2> remove any C-RNTI from MAC;

2> clear the variable C_RNTI.

1> determine the value for the READY_FOR_COMMON_EDCH variable and take the corresponding actions as described in subclause 8.5.47;

1> determine the value for the COMMON_E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.46;

1> if the IE "E-DCH info" was not included in the message:

2> for FDD:

3> stop any E-AGCH, E-RGCH and E-HICH reception procedures;

3> stop any E-DPCCH and E-DPDCH transmission procedures;

3> act as if the IE "MAC-es/e reset indicator" was received and set to TRUE;

3> release all E-DCH HARQ resources;

3> no longer consider any radio link to be the serving E-DCH radio link.

2> for 1.28 Mcps TDD:

3> stop any E-AGCH and E-HICH reception procedures;

3> stop any E-RUCCH and E-PUCH transmission procedure;

3> act as if the IE "MAC-es/e reset indicator" was received and set to TRUE;

3> release all E-DCH HARQ resources;

3> no longer consider any radio link to be the serving E-DCH radio link.

If after state transition the UE leaves CELL_DCH state, the UE shall, before state transition:

1> clear any stored IE "E-DCH info";

1> clear any stored IE "Secondary serving E-DCH cell info" and IE "Secondary E-DCH info common";

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

1> determine the value for the SECONDARY_CELL_E_DCH_TRANSMISSION and take the corresponding actions as described in subclause 8.5.58.

If after state transition the UE leaves CELL_DCH state, the UE shall, after the state transition:

1> if any IEs related to HS-DSCH are stored in the UE:

2> clear any stored IE "Downlink HS-PDSCH information";

2> clear any stored IE "Downlink Secondary Cell Info FDD";

2> clear all the entries from the variable TARGET_CELL_PRECONFIGURATION;

2> for 1.28Mcps TDD, clear the IE "HS-PDSCH Midamble Configuration" and the IE "HS-SCCH Set Configuration" in the IE "DL Multi Carrier Information";

2> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

1> if any IEs related to E-DCH are stored in the UE:

2> clear any stored IE "E-DCH info";

2> clear any stored IE "Secondary serving E-DCH cell info" and IE "Secondary E-DCH info common";

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> determine the value for the SECONDARY_CELL_E_DCH_TRANSMISSION and take the corresponding actions as described in subclause 8.5.58.

…

The variable HS_DSCH_RECEPTION shall be set to TRUE only when all the following conditions are met:

1> for FDD and 1.28 Mcps TDD:

2> the UE is in CELL_DCH state.

1> for 3.84 Mcps TDD or 7.68 Mcps TDD:

2> a dedicated physical channel is allocated to the UE in the uplink.

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> the UE has a stored IE "HARQ info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";

- IE "Uplink DPCH Power Control Info" including stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor.

1> for 3.84 Mcps TDD or 7.68 Mcps TDD, the UE has stored the IE "HS-PDSCH Timeslot Configuration" and either of the following conditions are met:

2> a dedicated physical channel is allocated to the UE in the downlink;

2> the UE has stored $D_{hs\text{-}sync}$.

1> for 1.28 Mcps TDD, the UE has stored the IE "HS-PDSCH Midamble Configuration":

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RBs mapped to HS-DSCH, there is either:

2> at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow; or

2> at least one MAC-ehs reordering queue configured for the associated logical channel.

NOTE 1: In CELL_DCH, to enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the concerning MAC-ehs reordering queue, add/remove the serving HS-DSCH radio link or, for TDD add/remove H-RNTI upon hard handover.

NOTE 2: In CELL_DCH, if HS_DSCH_RECEPTION is set to TRUE and a reconfiguration, an inter-RAT handover from UTRAN, or a cell change order procedure is initiated, the UE checks the conditions only when the reconfiguration, inter-RAT handover from UTRAN, or cell change order procedure is successfully completed. Doing so ensures that, in case of failure in the reconfiguration, inter-RAT handover from UTRAN, or cell change order procedure, the UE can return to the old configuration as if the message was not received, e.g. without performing a MAC-HS reset.

…

The variable HS_DSCH_RECEPTION_CELL_FACH_STATE shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_FACH;

1> the variable H_RNTI is set;

1> the variable C_RNTI is set;

1> System Information Block type 5 or System Information Block type 5bis includes IE "HS-DSCH common system information";

1> for 1.28 Mcps TDD, System Information Block type 5 includes IE "Common E-DCH system info".

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_CELL_FACH_STATE to FALSE;

1> if the UE is in CELL_FACH and variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to FALSE:

2> set the variable HS_DSCH_RECEPTION_OF_ETWS_ENABLED to FALSE;

2> set the variable HS_DSCH_RECEPTION_GENERAL to FALSE;

2> stop any HS-SCCH reception procedures;

2> stop any HS-DSCH reception procedures;

2> clear the variable H_RNTI and remove any stored H-RNTI;

2> reset the MAC-ehs entity [15];

2> release all HARQ resources;

2> clear any stored IEs "HARQ info";

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

1> use the IE "HS-DSCH common system information" in System Information Block type 5 or System Information Block type 5bis;

1> for FDD, receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving cell applying the scrambling code as received in the IE "DL Scrambling code" as received in IE "HS-DSCH common system information";

1> for 1.28 Mcps TDD, receive the HS-SCCH(s) according to the stored HS-SCCH configuration, applying the HS-PDSCH midamble code according to the stored HS-PDSCH midamble configuration;

1> perform HS-DSCH reception procedures:

2> if the UE has a stored IE "HARQ info":

3> act on subclause 8.6.5.6b for the stored IE "HARQ info".

2> else:

3> act on subclause 8.6.5.20 for the IE "HARQ System info" as received in IE "HS-DSCH common system information".

2> and use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

1> and for FDD, for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH code listed in the IE "HS-SCCH channelisation code" with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

1> and for 1.28 Mcps TDD, for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH according to the stored HS-SCCH configuration with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

NOTE: For 1.28 Mcps TDD, when performing HS-DSCH reception in CELL_FACH state, the UE shall use the table of transport block size for the HS-DSCH physical layer category 9 as specified in [15].

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to FALSE, the UE shall:

1> if the UE is in CELL_FACH and variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to FALSE:

2> not perform HS-SCCH reception procedures;

2> not perform HS-DSCH reception procedures.

Reference

3GPP TS 25.331 clauses 8.2.2.3, 8.5.25, 8.5.36

8.2.2.60a.3 Test purpose

1 To confirm that the UE reconfigures radio bearer parameters, transits from CELL_DCH to CELL_FACH state and back again, with ongoing E-DCH transmission and HS-DSCH reception, according to the received RADIO BEARER RECONFIGURATION message.

2 To confirm that the UE reconfigures radio bearer parameters and transits from CELL_FACH to CELL_DCH state, with ongoing E-DCH transmission and HS-DSCH reception according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.60a.4 Method of test

Initial Condition

System Simulator: 1 cell

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports 1.28Mcps TDD
- UE supports HS-PDSCH in CELL_FACH
- UE supports E-DCH

Test Procedure

The UE is in CELL_DCH state. Only signalling radio bearers have been established.

The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of a radio bearer mapped on E-DCH/HS-DSCH, with signalling radio bearers mapped on E-DCH/HS-DSCH. After the UE receives this message, it establishes a radio bearer and maps it to the E-DCH/HS-DSCH. The UE shall transmit a RADIO BEARER SETUP COMPLETE message using AM RLC.

The SS transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it moves to CELL_FACH state, with continuous E-DCH transmission, HS-DSCH reception, and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

Then, SS transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it moves to CELL_DCH state, starts E-DCH transmission whilst maintaining HS-DSCH reception and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that the UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	Radio bearer mapping onto E-DCH/HS-DSCH with SRB mapped onto E-DCH/HS-DSCH
2	→		RADIO BEARER SETUP COMPLETE	
3	←		RADIO BEARER RECONFIGURATION	Continue E-DCH transmission, HS-DSCH transmission and transit to CELL_FACH state,
4	→		RADIO BEARER RECONFIGURATION COMPLETE	
5	←		RADIO BEARER RECONFIGURATION	Start of E-DCH transmission, ongoing HS-DSCH transmission and transit to CELL_DCH state
6	→		RADIO BEARER RECONFIGURATION COMPLETE	
7	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

RADIO BEARER SETUP (Step 1)

Use the same message as specified for "Packet to CELL_DCH / E-DCH / HS-DSCH (1/1) and SRBs mapped on E-DCH/HS-DSCH" (condition A13) in TS 34.108 clause 9, except for the following:

Information Element	Value/remark
RAB information for setup	
- RAB identity	(high-speed AM DTCH for PS domain) 0000 0101B
- CN domain identity	PS domain
- NAS Synchronisation	Not Present
- Re-establishment timer	Use T315
- RB information to setup	
- RB identity	25
- PDCP Info	Not Present
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present

Information Element	Value/remark
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- Length Indicator size	7
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- Alternative E-bit interpretation	
- Use special value of HE field	TRUE
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- UL Transport channel identity	Not Present
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	7
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	Not Present
RB information to be affected	
- RB identity	1 (UM DCCH for RRC)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH Mac-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH

Information Element	Value/remark
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- Logical channel identity	1
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.11
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- RB identity	2 (AM DCCH for RRC)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH Mac-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- Logical channel identity	2
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.11
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- Logical channel identity	2
- RB identity	3 (AM DCCH for NAS High Priority)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH Mac-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size

Information Element	Value/remark
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- Logical channel identity	3
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.11
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- Logical channel identity	3
- RB identity	4 (AM DCCH for NAS Low Priority)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH Mac-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.11
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH Mac-d flow and one DTCH Mac-d flow. Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A18.
Added or Reconfigured DL TrCH information	1 TrCH (HS-DSCH for DCCH and DTCH).
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present

Information Element	Value/remark
- CHOICE DL parameters	HS-DSCH
- HARQ Info	
- Number of Processes	Reference to clause 6.11 Parameter Set
- CHOICE *Memory Partitioning*	Implicit
- CHOICE *DL MAC header type*	MAC-ehs
- Added or reconfigured MAC-ehs reordering queue	
- MAC-ehs queue to add or reconfigure list	(two queues)
- MAC-ehs queue Id	0 (for DCCH)
- T1	50
- MAC-ehs window size	16
- MAC-ehs queue Id	1 (for DTCH)
- T1	50
- MAC-ehs window size	16
- MAC-ehs queue to delete list	Not Present
- DCH quality target	Not Present

RADIO BEARER RECONFIGURATION (Step 3)

Use the same message as specified for "Packet to CELL_FACH from CELL_DCH in PS" in 34.108 (condition A5) in TS 34.108 clause 9, except for the following:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New E-RNTI	'1010 1010 1010 1010'
E-DCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A18.
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A18.

RADIO BEARER RECONFIGURATION (Step 5)

Use the same message as specified for "Packet to CELL_DCH from CELL_FACH in PS" in 34.108 (condition A4) in TS 34.108 clause 9, except for the following:

Information Element	Value/remark
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH Mac-d flow and one DTCH Mac-d flow. Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A18.
Uplink DPCH info E-DCH info Downlink HS-PDSCH Information Downlink information for each radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A18.

8.2.2.60a.5 Test requirements

After step 3, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

After step 5, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

8.2.2.61 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (Reconfiguration between fixed and flexible AM RLC, Serving E-DCH cell change between MAC-e/es and MAC-i/is)

8.2.2.61.1 Definition and applicability

All UEs which support FDD or 1.28Mcps TDD and MAC-i/is

8.2.2.61.2 Conformance requirement

1> if the uplink RLC PDU size is set to "flexible size" and no uplink RLC PDU size is currently set in the RLC entity:

2> configure the corresponding RLC entity with the RLC length indicator size indicated in the IE "Length indicator size".

1> if the uplink RLC PDU size is changed from "fixed" to "flexible size" and the RLC length indicator size is 7 bits:

2> configure the corresponding RLC entity with flexible RLC PDU size and the RLC length indicator size indicated in the IE "Length indicator size".

1> if that RB is using AM and the RLC size applicable to the uplink logical channel transporting data PDUs is different from the one derived from the previously stored configuration; or

1> if that RB is using AM and the RLC size applicable to the uplink logical channel transporting data PDUs changed from "flexible size" to "fixed size"; or

1> if that RB is using AM and "flexible size" RLC PDUs and the Length Indicator size applicable to the uplink logical channel transporting data PDUs is different from the one derived from the previously stored configuration; or

1> if that RB is using AM and the RLC PDU size applicable to the uplink logical channel transporting data PDUs changed from "fixed size" to "flexible size" and the indicated RLC length indicator size is 15 bits; and

1> none of the following conditions is met:

- the RLC size change is caused by a CELL UPDATE CONFIRM and the CELL UPDATE CONFIRM message includes the IE "Downlink counter synchronisation info".

- the RLC size change is caused by a reconfiguration message, and a cell update procedure occurs during the reconfiguration procedure and the CELL UPDATE CONFIRM message includes the IE "Downlink counter synchronisation info".

- the RLC size change is caused by a reconfiguration message, and a cell update procedure occurs during this reconfiguration procedure and the CELL UPDATE CONFIRM message includes the IE "RLC re-establish indicator" being set to TRUE for the corresponding radio bearer.

2> if the RLC size change is caused by a reconfiguration message or a CELL UPDATE CONFIRM; and

2> the IE "one sided RLC re-establishment" is included in that message and is set to TRUE:

3> re-establish the transmitting side of the corresponding RLC entity.

2> else:

3> re-establish the corresponding RLC entity.

2> if the RLC PDU size is set to "fixed size":

3> configure the corresponding RLC entity with the new uplink RLC size.

2> if the RLC PDU size is set to "flexible size":

3> configure the corresponding RLC entity with the RLC length indicator size indicated in the IE "Length indicator size".

2> for each AM RLC radio bearer in the CN domain as indicated in the IE "CN domain identity" in the IE "RAB info" in the variable ESTABLISHED_RABS whose RLC size is changed; and

2> for each AM RLC signalling radio bearer in the CN domain as indicated in the IE "CN domain identity" in the variable LATEST_CONFIGURED_CN_DOMAIN whose RLC size is changed:

3> if the IE "Status" in the variable CIPHERING_STATUS of this CN domain is set to "Started":

4> if the information causing the RLC re-establishment was included in system information:

5> set the HFN values for the corresponding RLC entity equal to the value of the IE "START" for this CN domain that will be included in the CELL UPDATE message following cell reselection.

NOTE: Since the UE cannot predict the START value at the time of the next CELL UPDATE transmission in the future, UTRAN should desist from changing the RLC size for a signalling radio bearer within a cell. Other than this case the change in RLC size for a signalling radio bearer is known to the UE when reading system information following cell reselection.

4> if the RLC re-establishment is caused by a CELL UPDATE CONFIRM:

5> if the whole RLC entity was re-established:

6> set the HFN values for the corresponding RLC entity in uplink and downlink equal to the value of the IE "START" included in the latest transmitted CELL UPDATE message for this CN domain.

5> if only the transmitting side of the RLC entity was re-established:

6> set the HFN value for the corresponding RLC entity in the uplink equal to the value of the IE "START" included in the latest transmitted CELL UPDATE message for this CN domain.

4> if the RLC re-establishment is caused by a reconfiguration message:

5> if the whole RLC entity was re-established:

6> set the HFN values for the corresponding RLC entity in uplink and downlink equal to the value of the IE "START" that will be included in the reconfiguration complete message for this CN domain.

5> if only the transmitting side of the RLC entity was re-established:

6> set the HFN value for the corresponding RLC entity in the direction uplink equal to the value of the IE "START" that will be included in the reconfiguration complete message for this CN domain.

NOTE1: If the UTRAN modifies the RLC size for RB2 on any reconfiguration message or Cell Update Confirm message, the UE behaviour is unspecified in this version of the specification.

NOTE2: The UE cannot rely on the configured Transport Formats to determine the RLC sizes to be used in downlink for a particular logical channel. This size can be signalled explicitly in the RLC Info IE.

1> if that RB is using AM or UM; and

1> MAC-i/is is configured and the RLC PDU size is set to "flexible size":

2> indicate the largest RLC size applicable for uplink to the corresponding RLC entity;

2> indicate the minimum RLC size applicable for the uplink to the corresponding RLC entity.

…

If the IE "E-DCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

[…]

1> if the IE "MAC-es/e reset indicator" is included:

2> reset the MAC-es/e or MAC-i/is entity [15].

NOTE 3: If the IE "MAC-es/e reset indicator" is not set to TRUE in case the IE "E-DCH Transmission Time Interval" is reconfigured, the UE behaviour is unspecified.

NOTE 4: If the IE "MAC-es/e reset indicator" is not set to TRUE in case the UL MAC header type is reconfigured from MAC-es/e to MAC-is/i or from MAC-is/i to MAC-e/es, the UE behaviour is unspecified.

NOTE 5: If the IE "MAC-es/e reset indicator" is not included in the IE "E-DCH Info" and 16QAM operation starts or stops, the UE behaviour is unspecified.

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> configure the UL E-DPCCH in accordance with the stored IE "E-DPCCH" configuration;

2> configure the MAC with the stored IE "E-DPDCH" configuration and/or the information contained in IE "Scheduled Transmission configuration".

1> for TDD:

2> configure the E-RUCCH with the stored E-RUCCH configuration;

2> configure the MAC with the stored E-PUCH configuration.

…

The variable E_DCH_TRANSMISSION shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable E_RNTI includes either the Primary E-RNTI or the Secondary E-RNTI or both the Primary and the Secondary E-RNTI;

1> For FDD:

2> the UE has stored the following IEs:

- IE "E-DCH Transmission Time Interval";
- IE "HARQ info for E-DCH";
- IE "E-DCH info", including the IE "E-DPCCH info" and the IE "E-DPDCH info";
- one of the radio links in the active set is configured as the serving E-DCH radio link, and for this radio link the UTRAN has configured the IE "E-HICH configuration" and the IE "E-AGCH info".

1> For TDD:

2> for non-scheduled transmission, the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-PUCH info";
- IE "Non-scheduled transmission grant info".

2> for scheduled transmission, the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-RUCCH info" and the IE "E-PUCH info";
- IE "E-HICH info";
- IE "E-AGCH info".

1> there is at least one logical channel mapped to E-DCH for which:

2> the corresponding E-DCH MAC-d flow is configured, i.e. the IEs "E-DCH MAC-d flow power offset" and "E-DCH MAC-d flow maximum number of retransmissions", and the transmission grant type are configured.

[…]

Whenever the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1>For FDD:

2> perform E_AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI" and the IE "New Secondary E-RNTI".

2> perform E-HICH reception procedures for all radio links in the E-DCH active set;

2> perform E-RGCH reception procedures for all radio links in the active set for which an E-RGCH configuration has been provided;

2> perform E-DPCCH transmission procedures according to the stored E-DPCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-DPCCH Info".

2> perform E-DPDCH transmission procedures according to the stored E-DPDCH configuration as stated in:

3> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

3> subclause 8.6.5.17 for the IE "HARQ info for E-DCH";

3> subclause 8.6.6.37 for the IE "E-DPDCH Info".

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

1>For TDD:

2> if scheduled transmission is configured, perform E-AGCH reception procedures according to the stored E-AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI".

2> Perform E-HICH reception;

2> for 3.84/7.68 Mcps TDD, perform E-RUCCH transmission procedures according to the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

2> for 1.28 Mcps TDD, if scheduled transmission is configured, perform E-RUCCH transmission procedure according to the stored PRACH configuration (see [60]) and the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

NOTE 1: The PRACH configuration is signalled directly to the UE in "E-RUCCH Info" IE in case of E-DCH serving cell change.

2> Perform E-PUCH transmission procedures according to the stored E-PUCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-PUCH Info".

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

2> obtain and format the appropriate information on E-UCCH (see [15]).

2> for 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established,

3> if MAC-i/is is not configured,

4> use the tables of transport block size for the E-DCH physical layer category 1 as specified in [15].

3> else,

4> use the tables of transport block size for the E-DCH physical layer category 3 as specified in [15].

NOTE 2: For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, UTRAN should use the same rules with the UE as described above, when performing configuration, scheduling and reading the control information on E-UCCH, as it is not possible for Node B to be aware of the UE's E-DCH capability category during this period.

Whenever the variable E_DCH_TRANSMISSION is set to FALSE, the UE in CELL_DCH state shall:

1> not perform E-AGCH, E-HICH and/or E-RGCH reception procedures;

…

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

1> if the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

[…]

2> For FDD:

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link and no longer consider any other radio link as serving E-DCH radio link.

3> if the IE "E-AGCH Info" is included for the serving E-DCH radio link:

4> store the newly received E-AGCH configuration.

NOTE: The UTRAN should always include the IE "E-AGCH info" if the serving E-DCH radio link indicated in the message is another radio link than the serving E-DCH radio link prior to the procedure.

3> if the IE "E-HICH information" is included:

4> store this E-HICH configuration for the concerning radio link.

3> if the IE "E-HICH information" is included or previously stored:

4> store this E-RGCH configuration for the concerning radio link, if included.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> for TDD:

3> if the IE "E-AGCH Info" is included:

4> store the newly received E-AGCH configuration.

3> if the IE "E-HICH information" is included:

4> store the E-HICH configuration.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

[…]

1> in addition, if the message was received in CELL_DCH state and the UE remains in CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link;

4> if the serving HS-DSCH radio link was another radio link than this radio link prior to reception of the message and the IE "H-RNTI" is not included:

5> clear the variable H_RNTI.

3> if the IE "Serving HS-DSCH radio link indicator" is set to ‘FALSE’ and this radio link was considered the serving HS-DSCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving HS-DSCH radio link.

3> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25;

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link;

4> if the serving E-DCH radio link was another radio link than this radio link prior to reception of the message:

5> if the IE "New Primary E-RNTI" is not included:

6> clear the Primary E-RNTI stored in the variable E_RNTI.

5> if the IE "New Secondary E-RNTI" is not included:

6> clear the Secondary E-RNTI stored in the variable E_RNTI.

3> if the IE "Serving E-DCH radio link indicator" is set to ‘FALSE’ and this radio link was considered the serving E-DCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving E-DCH radio link.

3> if the IE "E-HICH release indicator" is present:

4> delete the stored E-HICH, E-AGCH and E-RGCH (if any) configurations.

3> if the IE "E-RGCH release indicator" is present:

4> delete the stored E-RGCH configuration for this RL.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> For TDD:

3> if the IE "H-RNTI" is not included and the primary CCPCH has changed:

4> clear the variable H_RNTI.

3> determine the value for the HS-DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

2> for TDD:

3> if the IE "New Primary E-RNTI" is not included:

4> clear the variable E_RNTI.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

Reference

3GPP TS 25.331 clauses 8.5.21, 8.5.28, 8.6.6.4, 8.6.6.37,

8.2.2.61.3 Test purpose

1. To verify that the UE is able to successfully perform an AM data reconfiguration from fixed RLC to flexible RLC, and that:

a. When the RLC Length Indicator size is unchanged, the RLC AM entity is not re-established.

b. When the RLC Length Indicator size is changed, the RLC AM entity is re-established.

2. To verify that the UE is able to successfully perform an AM data reconfiguration from flexible RLC to fixed RLC and that the RLC AM entity is re-established.

3. To verify that the UE is able to successfully perform a serving E-DCH cell change:

a. With reconfiguration from using a MAC-e/es entity to using a MAC-i/is entity.

b. With reconfiguration from using a MAC-i/is entity to using a MAC-e/es entity.

8.2.2.61.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 is active and Cell 2 is inactive.

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Bearer is replaced with the RB according to 34.108 clause 6.10.2.4.6.3 (FDD) / 6.11.5.4.7.4 (1.28Mcps TDD) configured according to Alt 2 (Fixed RLC + MAC-e/es) with MAC-d flow, associated with PS RAB, configured for scheduled transmissions.

The radio bearer is placed into UE test loop mode 1.

Related ICS/IXIT statement(s)

- UE supports FDD or 1.28Mcps TDD
- UE supports MAC-i/is

Test Procedure

Table 8.2.2.61

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-70	-70	-60
P-CCPCH RSCP (TDD)	dBm	-60	-70	-70	-60

Table 8.2.2.61 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for Cell 1 and Cell 2.

The UE is initially in CELL_DCH state with the SRBs and a PS RAB mapped on E-DCH(MAC-e/es)/HS-DSCH.

The SS configures its downlink transmission power settings according to columns "T1" in table 8.2.2.61 and transmits a RADIO BEARER RECONFIGURATION message to the UE to request the UE to perform a timing re-initialized hard handover with serving E-DCH cell change to Cell 2 with the SRBs and the PS RAB mapped on E-DCH(MAC-i/is)/HS-DSCH, and with reconfiguration of the UL AM data RBs from fixed to flexible with no change of LI size. The UE shall move to Cell 2 at the Activation Time signalled in the RADIO BEARER RECONFIGURATION message and transmit a RADIO BEARER RECONFIGURATION COMPLETE message on Cell 2. The SS shall not re-establish its configured UL AM RLC entities. The SS initiates the data transmission on RB25 in the downlink which is returned by the UE on the uplink to verify the latest configured RLC .

The SS configures its downlink transmission power settings according to columns "T0" in table 8.2.2.61 and transmits a RADIO BEARER RECONFIGURATION message to the UE to request the UE to perform a timing re-initialized hard handover with serving E-DCH cell change to Cell 1 with the SRBs and the PS RAB mapped on E-DCH(MAC-e/es)/HS-DSCH, and with reconfiguration of the UL AM data RBs from flexible to fixed with no change of LI size. The UE shall move to Cell 1 at the Activation Time signalled in the RADIO BEARER RECONFIGURATION message and transmit a RADIO BEARER RECONFIGURATION COMPLETE message on Cell 1. The SS shall re-establish its configured AM RLC entities. The SS initiates the data transmission on RB25 in the downlink which is returned by the UE on the uplink to verify the latest configured RLC .

The SS configures its downlink transmission power settings according to columns "T1" in table 8.2.2.61 and transmits a RADIO BEARER RECONFIGURATION message to the UE to request the UE to perform a timing re-initialized hard handover with serving E-DCH cell change to Cell 2 with the SRBs and the PS RAB mapped on E-DCH(MAC-i/is)/HS-DSCH, and with reconfiguration of the AM data RBs from fixed to flexible with change of LI size (from 7 bits LI to 15 bits LI). The UE shall move to Cell 2 at the Activation Time signalled in the RADIO BEARER RECONFIGURATION message and transmit a RADIO BEARER RECONFIGURATION COMPLETE message on Cell 2. The SS shall re-establish its configured UL AM RLC entities. SS initiates the data transmission on RB25 in the downlink which is returned by the UE on the uplink. The SS calls generic procedure C.3 to check that the UE is in CELL_DCH state on Cell 2.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	SS			SS configures its downlink transmission power settings according to columns "T1" in table 8.2.2.61
2	←		RADIO BEARER RECONFIGURATION	Reconfigure RB 25 with uplink RLC PDU size as flexible size with length indicator size as 7-bit
3	→		RADIO BEARER RECONFIGURATION COMPLETE	
4		←	DOWNLINK RLC SDU	The SS sends data on the RB25 in downlink..
5	→		UPLINK RLC SDU	The SS verifies that the UE returned data in uplink has the same content as sent in downlink
6	SS			SS configures its downlink transmission power settings according to columns "T0" in table 8.2.2.61.
7	←		RADIO BEARER RECONFIGURATION	Reconfigure RB 25 with uplink RLC PDU size as fixed size
8	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE transmits this message in Cell 1. SS applies the new start value for RB 25 in UL and DL.
9		←	DOWNLINK RLC SDU	The SS sends data on the RB25 in downlink.
10	→		UPLINK RLC SDU	The SS verifies that the UE returned data in uplink has the same content as sent in downlink
11	SS			SS configures its downlink transmission power settings according to columns "T1" in table 8.2.2.61.
12	←		RADIO BEARER RECONFIGURATION	Reconfigure RB 25 with uplink RLC PDU size as flexible size with length indicator size as 15-bit
13	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE transmits this message in Cell 2. SS applies the new start value for RB 25 in UL and DL.
14	→	←	DOWNLINK RLC SDU	The SS sends data on the RB25 in downlink.
15	→		UPLINK RLC SDU	The SS verifies that the UE returned data in uplink has the same content as sent in downlink
16	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 2)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following.

Information Element	Value/remark
RB information to reconfigure list - RB information to reconfigure	 (high-speed AM DTCH)

Information Element	Value/remark
- RB identity	25
- RB mapping info	
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- CHOICE RLC PDU Size	Flexible size
- Length indicator size	7-bit
- Minimum UL RLC PDU size	See clause 6.10
- Largest UL RLC PDU size	See clause 6.10
Deleted TrCH information list	
- Deleted UL TrCH information	(for DCCH)
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1
- Deleted UL TrCH information	(for DTCH)
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
Added or Reconfigured UL TrCH information	
- Uplink transport channel type	E-DCH
- CHOICE UL parameters	E-DCH
- UL MAC header type	MAC-i/is
- CHOICE mode	FDD
- E-DCH Transmission Time interval	2
- HARQ info for E-DCH	Rvtable
- Added or reconfigured E-DCH MAC-d flow	(for DCCH)
- E-DCH MAC-d flow identity	1
- E-DCH MAC-d flow power offset	0
- E-DCH MAC-d flow maximum number of retransmissions	7
- E-DCH MAC-d flow multiplexing list	Not Present
- CHOICE transmission grant type	Non-scheduled transmission grant info
- CHOICE mode	FDD
- Max MAC-e PDU contents size	168
- 2ms non-scheduled transmission grant HARQ process allocation	Not Present
- Added or reconfigured E-DCH MAC-d flow	(for DTCH)
- E-DCH MAC-d flow identity	2
- E-DCH MAC-d flow power offset	0
- E-DCH MAC-d flow maximum number of retransmissions	7
- E-DCH MAC-d flow multiplexing list	Not Present
- CHOICE transmission grant type	Scheduled grant info
Downlink information per radio link list	1 radio link
- Downlink information for each radio link	
- CHOICE mode	FDD
- Primary CPICH info	Set to the scrambling code for Cell 1

RADIO BEARER RECONFIGURATION (Step 7) (FDD)

Use the same message as specified in "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following.

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- RB mapping info	
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- CHOICE *RLC PDU Size*	Fixed size
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
Deleted TrCH information list	
- Deleted UL TrCH information	(for DCCH)

Information Element	Value/remark
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1
- Deleted UL TrCH information	(for DTCH)
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
Added or Reconfigured UL TrCH information	
- Uplink transport channel type	E-DCH
- CHOICE UL parameters	E-DCH
- UL MAC header type	Not Present
- CHOICE mode	FDD
- E-DCH Transmission Time interval	2
- HARQ info for E-DCH	rvtable
- Added or reconfigured E-DCH MAC-d flow	(for DCCH)
- E-DCH MAC-d flow identity	1
- E-DCH MAC-d flow power offset	0
- E-DCH MAC-d flow maximum number of retransmissions	7
- E-DCH MAC-d flow multiplexing list	Not Present
- CHOICE transmission grant type	Non-scheduled transmission grant info
- CHOICE mode	FDD
- Max MAC-e PDU contents size	168
- 2ms non-scheduled transmission grant HARQ process allocation	Not Present
- Added or reconfigured E-DCH MAC-d flow	(for DTCH)
- E-DCH MAC-d flow identity	2
- E-DCH MAC-d flow power offset	0
- E-DCH MAC-d flow maximum number of retransmissions	7
- E-DCH MAC-d flow multiplexing list	Not Present
- CHOICE transmission grant type	Scheduled grant info
Downlink information per radio link list	1 radio link
- Downlink information for each radio link	
- CHOICE mode	FDD
- Primary CPICH info	Set to the scrambling code for Cell 1

RADIO BEARER RECONFIGURATION (Step 7)(1.28Mcps TDD)

Use the same message as specified in "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following.

Information Element	Value/remark

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- RB mapping info	
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- RB mapping info	
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- RB mapping info	
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- RB mapping info	
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- RB mapping info	
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
Deleted TrCH information list	
- Deleted UL TrCH information	(for DCCH)
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1
- Deleted UL TrCH information	(for DTCH)
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
Added or Reconfigured UL TrCH information	
- Uplink transport channel type	E-DCH
- CHOICE UL parameters	E-DCH
- UL MAC header type	Not Present
- CHOICE mode	TDD
- HARQ info for E-DCH	Rvtable
- Added or reconfigured E-DCH MAC-d flow	(for DCCH)
- E-DCH MAC-d flow identity	1
- E-DCH MAC-d flow power offset	0
- E-DCH MAC-d flow maximum number of retransmissions	7
- E-DCH MAC-d flow multiplexing list	Not Present
- CHOICE transmission grant type	Scheduled grant info
- Added or reconfigured E-DCH MAC-d flow	(for DTCH)

Information Element	Value/remark
- E-DCH MAC-d flow identity	2
- E-DCH MAC-d flow power offset	0
- E-DCH MAC-d flow maximum number of retransmissions	7
- E-DCH MAC-d flow multiplexing list	Not Present
- CHOICE transmission grant type	Scheduled grant info
Downlink information per radio link list	1 radio link
- Downlink information for each radio link	
- CHOICE mode	TDD
- Cell parameters ID	Set to the cell parameters id for Cell 1

RADIO BEARER RECONFIGURATION COMPLETE (Steps 3, 8, 13)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Uplink counter synchronisation info	
- RB with PDCP information list	Not present
- START list	Check that this IE is present.

RADIO BEARER RECONFIGURATION (Step 12)

Use the same message as specified in "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following.

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	25
- RB mapping info	
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- CHOICE *RLC PDU Size*	Flexible size
- Length indicator size	15-bit
- Minimum UL RLC PDU size	See clause 6.10
- Largest UL RLC PDU size	See clause 6.10

8.2.2.61.5 Test requirements

At step 3, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC (verifies test purpose 3a).

At step 5, the UE shall transmit loopback PDU to verify the flexible RLC configuration for uplink using AM data (verifies test purpose 1a).

At step 8, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC (verifies test purpose 3b).

At step 10, the UE shall transmit the loopback PDU to verify the flexible RLC configuration for uplink using AM data (verifies test purpose 2).

At step 13, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC (verifies test purpose 3a).

At step 15, the UE shall return data on the uplink DTCH using AM data has the same content as sent in downlink (verifies test purpose 1b).

8.2.2.62 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (activation and deactivation of MIMO)

8.2.2.62.1 Definition and applicability

All UE categories which support MIMO

8.2.2.62.2 Conformance requirement

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> if the IE "MIMO parameters" is not included:

2> clear the MIMO_PARAMS variable;

2> trigger lower layers to stop operation in MIMO mode.

1> otherwise:

2> for FDD, if the IE "MIMO N_cqi_typeA/M_cqi ratio" is included:

3> store the value of the IE "MIMO N_cqi_typeA/M_cqi ratio" in the MIMO_PARAMS variable.

2> for FDD, if the IE "MIMO pilot configuration" is included:

3> store the value of the IE "MIMO pilot configuration" in the MIMO_PARAMS variable.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message, the UE shall:

1> take actions related to the MIMO_PARAMS variable as specified in subclause 8.5.32;

1> determine the value of the MIMO_STATUS variable.

The MIMO_STATUS variable shall be set to TRUE only when all the following conditions are met:

1> The UE is in CELL_DCH state;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO N_cqi_typeA/M_cqi ratio"; and

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO pilot configuration".

1> for 1.28 Mcps TDD, the variable MIMO_PARAMS contains a value for the IE "MIMO SF Mode for HS-PDSCH dual stream".

If any of the above conditions is not met and the MIMO_STATUS variable is set to TRUE, the UE shall:

1> set the MIMO_STATUS variable to FALSE;

1> clear the MIMO_PARAMS variable;

1> trigger lower layers to stop operation in MIMO mode.

[…]

With the exception of the provisions of subclause 6A.3, the following shall apply when the UE is configured in MIMO mode:

1) The UE derives the PCI value as defined in subclause 6A.4 and either a type A or a type B CQI value as defined in subclause 6A.2.2 depending on which type of CQI shall be reported as defined below.

Reference

3GPP TS 25.331 clause 8.5.32, 8.5.33

3GPP TS 25.214 clause 6A.1.2.2

8.2.2.62.3 Test purpose

1. To confirm that the UE reconfigures the radio bearer parameters and starts MIMO reception according to the received RADIO BEARER SETUP message.

2. To confirm that the UE configures the physical channels to stop MIMO reception according to the received PHYSICAL CHANNEL RECONFIGURATION message.

8.2.2.62.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports MIMO

Test Procedure

The UE is in CELL_DCH state and only signalling radio bearers have been established.

The SS transmits a RADIO BEARER SETUP message including the RAB Information for setup IE to configure PS domain RAB and perform SRB mapping from DCH to EDCH/HSDPA (with MIMO configured for L1). The UE transmits a RADIO BEARER SETUP COMPLETE on DCCH. UE sends combined CQI/PCI reports of type A and B continuously every 2 ms.

Then, SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 using the MIMO configuration with single data streams for the SS transmit antennae. The UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, using MIMO configuration, to the UE to deactivate MIMO and reconfigure SRB and user plane bearers for normal HS-DSCH reception i.e. non MIMO. The UE shall respond with PHYSICAL CHANNEL RECONFIGURATION COMPLETE. UE sends CQI reports every 8ms.

Then, SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2. The UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	Setup PS RAB on EDCH/HSDPA. Reconfiguration of SRB mapping from DCH to EDCH/HSDPA
2	→		RADIO BEARER SETUP COMPLETE	
3				UE should transmit composite CQI/PCI reports of type A and type B. The SS should check that for 10 consecutive CQI reports, 5 are type A and 5 of type B
4	←		UE CAPABILITY ENQUIRY	Use default message. SRB2 is sent using the configured L1 MIMO configuration. i.e. single stream on antenna 1 and antenna 2 with separate modulation patterns on S-CPICH
5	→		UE CAPABILITY INFORMATION	
6	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH using configured L1 MIMO
7	←		PHYSICAL CHANNEL RECONFIGURATION	SRB2 on HS-DSCH with MIMO parameters absent
8	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
9				UE should transmit CQI reports without PCI values every 8ms
10	←		UE CAPABILITY ENQUIRY	Use default message. SRB2 sent on HS-DSCH
11	→		UE CAPABILITY INFORMATION	
12	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 on HS-DSCH

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for "Packet to CELL_DCH / HS-DSCH with enhanced data rate and RLC AM using one multiplexing option (1/1) and SRBs mapped on E-DCH/HS-DSCH (MAC-ehs)", condition A17b except for the following

Information Element	Value/remark

Information Element	Value/remark

Information Element	Value/remark

Information Element	Value/remark
MIMO Parameters	
- MIMO Operation	Start
- MIMO N_cqi_typeA/M_cqi ratio	1/2
- MIMO pilot configuration	
- CHOICE Second CPICH pattern	Antenna1 S-CPICH
- Channelisation code	13
Downlink HS-PDSCH Information	
- CHOICE mode	FDD
- DL Scrambling Code	Not Present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	12 (6 dB)
- CQI Feedback cycle, k	2 ms
- CQI repetition factor	1
- Δ_{CQI}	5
- Downlink 64QAM configured	Not Present
- HS-DSCH TB size table	Octet Aligned

UE CAPABILITY ENQUIRY (Steps 4, 10)

Use the same message sub-type found in TS 34.108 clause 9.1

UE CAPABILITY INFORMATION (Steps 5, 11)

Use the same message sub-type found in TS 34.108 clause 9.

UE CAPABILITY INFORMATION CONFIRM (Steps 6, 12)

Use the same message sub-type found in TS 34.108 clause 9.1

PHYSICAL CHANNEL RECONFIGURATION (Step 7) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
HARQ Info	
- Number of processes	6
- CHOICE *Memory Partitioning*	
- Implicit	
Frequency info	Not present
MIMO Parameters	Not Present
Maximum allowed UL TX power	Not present
Uplink DPCH info	Not present
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	12 (6 dB)
- CQI Feedback cycle, k	8 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
- Downlink 64QAM configured	Not Present
- HS-DSCH TB size table	Octet Aligned
Downlink information common for all radio links	Not Present
Downlink information for each radio link list	Not Present

8.2.2.62.5 Test requirements

At step 2, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

At step 3, the UE shall transmit CQI reports of type A and type B.

At step 5 and step 11, the UE shall transmit UE CAPABILITY INFORMATION using AM RLC.

At step 8, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

8.2.2.63 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (activation and de-activation of 64QAM)

8.2.2.63.1 Definition and Applicability

All UEs which support FDD ,mac-ehs and 64QAM

8.2.2.63.2 Conformance Requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Extract From 25.331 clause 8.6.6.36:

If the IE "Downlink HS-PDSCH Information" is included and the UE would be in CELL_DCH state after completion of this procedure, the UE shall:

1> for 1.28 Mcps TDD, if the HS-PDSCH has been configured by the IE "DL Multi-carrier information":

2> clear other stored carriers configuration in the IE "DL Multi-carrier information".

1> if the IE "HS-SCCH Info" is included:

2> act as specified in subclause 8.6.6.33.

1> if the IE "Measurement Feedback Info" is included:

2> act as specified in subclause 8.6.6.34.

1> if the IE "HS-DSCH Timeslot Configuration" or "HS-PDSCH Midamble Configuration" is included:

2> store the received configuration;

2> determine the value for the HS_DSCH_RECEPTION variable and take actions as described in subclause 8.5.25.

[…]

>FDD					
>>Downlink 64QAM configured	OP		Enumerated (TRUE)	Absence of this IE means that the HS-SCCH does not use the 64QAM format. The presence of this IE means the UE uses the octet aligned table [15].	REL-7
>>HS-DSCH TB size table	CV-*Not64QAM*		Enumerated (octet aligned)	If this IE is present, octet aligned table [15] is used, else bit aligned table [15] is used.	REL-7

Condition	Explanation
Not64QAM	This IE is optionally present if 64QAM is not configured and MAC-ehs is configured. Otherwise it is not needed.

Reference(s)

TS 25.331 clause 8.6.6.36, 10.3.6.23a

8.2.2.63.3 Test purpose

1. To confirm that the UE starts HS-DSCH transmission using DL 64QAM mode according to RADIO BEARER RECONFIGURATION message on DCCH.

2. To confirm that the UE stops HS-DSCH transmission using DL 64QAM mode according to RADIO BEARER RECONFIGURATION message on DCCH.

8.2.2.63.4 Method of test

Initial conditions

System Simulator:

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A17b, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD

- UE supports mac-ehs
- UE supports 64QAM

Test Procedure

The UE is initially in CELL_DCH state with the SRBs and a PS RAB mapped on E-DCH/HS-DSCH (MAC-ehs).

The SS transmits a RADIO BEARER RECONFIGURATION message to the UE, to reconfigure for DL 64QAM reception which includes IE " Downlink HS-PDSCH Information". After the UE receives this message, it reconfigures the radio bearer and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. The SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 using the configured 64QAM parameters. The UE shall respond with a UE CAPABILITY INFORMATION message. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE using 64QAM configuration. The SS transmits RADIO BEARER RECONFIGURATION message using SRB2 on HS-DSCH which omits DL 64 QAM settings. The UE shall deactivate DL 64 QAM and then transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH AM RLC. The SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 using HS-DSCH. The UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE using SRB2 on HS-DSCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	Activation of 64QAM on HS-DSCH Including IE "Downlink HS-PDSCH Information".
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3	←		UE CAPABILITY ENQUIRY	SRB2 on HS-DSCH using 64QAM
4	→		UE CAPABILITY INFORMATION	
5	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 on HS-DSCH using 64QAM
6	←		RADIO BEARER RECONFIGURATION	Deactivation of 64QAM on HS-DSCH.
7	→		RADIO BEARER RECONFIGURATION COMPLETE	
8	←		UE CAPABILITY ENQUIRY	SRB2 on HS-DSCH
9	→		UE CAPABILITY INFORMATION	
10	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 on HS-DSCH

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" under condition A3, as specified in clause 7.4 of TS 34.108, except for the following:

Information Element	Value/remark
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	Use 2 HS-SCCH
- HS-SCCH Channelisation Code	6
- HS-SCCH Channelisation Code	7

- Measurement Feedback Info	
- CHOICE mode	FDD
- Pohsdsch	6 dB
- CQI Feedback cycle, k	4 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
- Downlink 64QAM configured	TRUE
- HS-DSCH TB size table	Not Present

RADIO BEARER RECONFIGURATION (Step 6)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" under condition A3, as specified in clause 7.4 of TS 34.108, except for the following:

Information Element	Value/remark
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Pohsdsch	6 dB
- CQI Feedback cycle, k	4 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
- Downlink 64QAM configured	Not present
- HS-DSCH TB size table	Octet aligned

8.2.2.63.5 Test requirements

After step 1 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

At step 3 the UE should receive UE CAPABILITY ENQUIRY mapped on DL 64QAM HS-DSCH-mac-ehs

At step 5 the UE should receive UE CAPABILITY INFORMATION CONFIRM mapped on DL 64QAM HS-DSCH-mac-ehs

At step 7 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

At step 8 the UE should receive SRB UE CAPABILITY ENQUIRY mapped on DLQPSK HS-DSCH.

8.2.2.63a Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH with SRBs on E-DCH/DCH : Success (activation and de-activation of 64QAM)

8.2.2.63a.1 Definition and Applicability

All UEs which support FDD ,mac-ehs and 64QAM

8.2.2.63a.2 Conformance Requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

2> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Extract From 25.331 clause 8.6.6.36:

If the IE "Downlink HS-PDSCH Information" is included and the UE would be in CELL_DCH state after completion of this procedure, the UE shall:

1> for 1.28 Mcps TDD, if the HS-PDSCH has been configured by the IE "DL Multi-carrier information":

2> clear other stored carriers configuration in the IE "DL Multi-carrier information".

1> if the IE "HS-SCCH Info" is included:

2> act as specified in subclause 8.6.6.33.

1> if the IE "Measurement Feedback Info" is included:

2> act as specified in subclause 8.6.6.34.

2> if the IE "HS-DSCH Timeslot Configuration" or "HS-PDSCH Midamble Configuration" is included:

2> store the received configuration;

2> determine the value for the HS_DSCH_RECEPTION variable and take actions as described in subclause 8.5.25.

[…]

>FDD					
>>Downlink 64QAM configured	OP		Enumerated (TRUE)	Absence of this IE means that the HS-SCCH does not use the 64QAM format. The presence of this IE means the UE uses the octet aligned table [15].	REL-7
>>HS-DSCH TB size table	CV-*Not64QAM*		Enumerated (octet aligned)	If this IE is present, octet aligned table [15] is used, else bit aligned table [15] is used.	REL-7

Condition	Explanation
Not64QAM	This IE is optionally present if 64QAM is not configured and MAC-ehs is configured. Otherwise it is not needed.

Reference(s)

TS 25.331 clause 8.6.6.36, 10.3.6.23a

8.2.2.63a.3 Test purpose

1. To confirm that the UE starts HS-DSCH transmission using DL 64QAM mode according to RADIO BEARER RECONFIGURATION message on DCCH.
2. To confirm that the UE stops HS-DSCH transmission using DL 64QAM mode according to RADIO BEARER RECONFIGURATION message on DCCH.

8.2.2.63a.4 Method of test

Initial conditions

System Simulator:

UE: PS_DCCH_DCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A17e, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports mac-ehs
- UE supports 64QAM

Test Procedure

The UE is initially in CELL_DCH state with the SRBs and a PS RAB mapped on E-DCH/HS-DSCH (MAC-ehs).

The SS transmits a RADIO BEARER RECONFIGURATION message to the UE, to reconfigure for DL 64QAM reception which includes IE " Downlink HS-PDSCH Information". After the UE receives this message, it reconfigures the radio bearer and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. . The SS transmits RADIO BEARER RECONFIGURATION message using SRB2 and omits DL 64 QAM settings. The UE shall deactivate DL 64 QAM and then transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH AM RLC..

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	Activation of 64QAM on HS-DSCH Including IE "Downlink HS-PDSCH Information".
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3	←		RADIO BEARER RECONFIGURATION	Deactivation of 64QAM on HS-DSCH.
4	→		RADIO BEARER RECONFIGURATION COMPLETE	

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" under condition A3, as specified in clause 7.4 of TS 34.108, except for the following:

Information Element	Value/remark
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	Use 2 HS-SCCH
- HS-SCCH Channelisation Code	6
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Pohsdsch	6 dB
- CQI Feedback cycle, k	4 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
- Downlink 64QAM configured	TRUE
- HS-DSCH TB size table	Octet aligned

RADIO BEARER RECONFIGURATION (Step 3)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" under condition A3, as specified in clause 7.4 of TS 34.108, except for the following:

Information Element	Value/remark
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Pohsdsch	6 dB
- CQI Feedback cycle, k	4 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
- Downlink 64QAM configured	Not present
- HS-DSCH TB size table	Not present

8.2.2.63a.5 Test requirements

After step 1 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

At step 3 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

8.2.2.64 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (simultaneous activation and deactivation of 64QAM and MIMO)

8.2.2.64.1 Definition and applicability

UE category supports combined 64QAM and MIMO activation. UE support FDD and F-DPCH or Enhanced F-DPCH.

8.2.2.64.2 Conformance requirement

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> if the IE "MIMO parameters" is not included:

2> clear the MIMO_PARAMS variable;

2> trigger lower layers to stop operation in MIMO mode.

1> otherwise:

2> for FDD, if the IE "MIMO N_cqi_typeA/M_cqi ratio" is included:

3> store the value of the IE "MIMO N_cqi_typeA/M_cqi ratio" in the MIMO_PARAMS variable.

2> for FDD, if the IE "MIMO pilot configuration" is included:

4> store the value of the IE "MIMO pilot configuration" in the MIMO_PARAMS variable.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message, the UE shall:

1> take actions related to the MIMO_PARAMS variable as specified in subclause 8.5.32;

1> determine the value of the MIMO_STATUS variable.

The MIMO_STATUS variable shall be set to TRUE only when all the following conditions are met:

1> The UE is in CELL_DCH state;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO N_cqi_typeA/M_cqi ratio"; and

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO pilot configuration".

1> for 1.28 Mcps TDD, the variable MIMO_PARAMS contains a value for the IE "MIMO SF Mode for HS-PDSCH dual stream".

If any of the above conditions is not met and the MIMO_STATUS variable is set to TRUE, the UE shall:

1> set the MIMO_STATUS variable to FALSE;

1> clear the MIMO_PARAMS variable;

2> trigger lower layers to stop operation in MIMO mode.

[…]

With the exception of the provisions of subclause 6A.3, the following shall apply when the UE is configured in MIMO mode:

1) The UE derives the PCI value as defined in subclause 6A.4 and either a type A or a type B CQI value as defined in subclause 6A.2.2 depending on which type of CQI shall be reported as defined below.

[…]

>FDD					
>>Downlink 64QAM configured	OP		Enumerated (TRUE)	Absence of this IE means that the HS-SCCH does not use the 64QAM format. The presence of this IE means the UE uses the octet aligned table [15].	REL-7
>>HS-DSCH TB size table	CV-*Not64QAM*		Enumerated (octet aligned)	If this IE is present, octet aligned table [15] is used, else bit aligned table [15] is used.	REL-7

Condition	Explanation
Not64QAM	This IE is optionally present if 64QAM is not configured and MAC-ehs is configured. Otherwise it is not needed.

Reference

3GPP TS 25.331 clause 8.5.32, 8.5.33, 10.3.6.23a

3GPP TS 25.214 clause 6A.1.2.2

8.2.2.64.3 Test purpose

3. To confirm that the UE reconfigures the radio bearer parameters and starts simultaneous 64QAM and MIMO reception according to the received RADIO BEARER SETUP message.

4. To confirm that the UE configures the physical channels to stop simultaneous 64QAM and MIMO reception according to the received PHYSICAL CHANNEL RECONFIGURATION message.

8.2.2.64.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE category supports combined 64QAM and MIMO
- UE supports F-DPCH or Enhanced F-DPCH

Test Procedure

The UE is in CELL_DCH state and only signalling radio bearers have been established.

The SS transmits a RADIO BEARER SETUP message including the RAB Information for setup IE to configure PS domain RAB and perform SRB mapping from DCH to EDCH/HSDPA (with MIMO and 64QAM simultaneously configured for L1). The UE transmits a RADIO BEARER SETUP COMPLETE on DCCH. UE sends combined CQI/PCI reports of type A/B continuously every 2 ms.

Then, SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 using the MIMO and 64QAM configuration with separate parallel data streams for the SS transmit antennae. The UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, using MIMO and 64QAMconfiguration, to the UE to deactivate MIMO and reconfigure SRB and user plane bearers for normal HS-DSCH reception i.e. non MIMO, non 64QAM. The UE shall respond with PHYSICAL CHANNEL RECONFIGURATION COMPLETE. UE sends CQI reports every 8ms.

Then, SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2. The UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	Setup PS RAB on EDCH/HSDPA. Reconfiguration of SRB mapping from DCH to EDCH/HSDPA and configuration of 64QAM and MIMO
2	→		RADIO BEARER SETUP COMPLETE	
3				UE should transmit composite CQI/PCI reports of type A or type B. The SS should check that for 10 consecutive CQI reports, 5 are type A and 5 of type B
4	←		UE CAPABILITY ENQUIRY	Use default message. SRB2 is sent using the configured L1 MIMO configuration. i.e. parallel data stream on antenna 1 and antenna 2 with separate modulation patterns on P-CPICH and 64QAM
5	→		UE CAPABILITY INFORMATION	
6	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH using configured L1 MIMO and 64QAM
7	←		PHYSICAL CHANNEL RECONFIGURATION	SRB2 on HS-DSCH to deactivate MIMO and 64QAM
8	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
9				UE should transmit CQI reports without PCI values every 8ms
10	←		UE CAPABILITY ENQUIRY	Use default message. SRB2 sent on HS-DSCH
11	→		UE CAPABILITY INFORMATION	
12	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 on HS-DSCH

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for "Packet to CELL_DCH / HS-DSCH with enhanced data rate and RLC AM using one multiplexing option (1/1) and SRBs mapped on E-DCH/HS-DSCH (MAC-ehs)" except for the following

Information Element	Value/remark
Added or Reconfigured DL TrCH information	1 TrCH (HS-DSCH for DTCH and DCCH)
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	
- Number of Processes	12
- CHOICE *Memory Partitioning*	Implicit
- CHOICE *DL MAC header type*	
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	(two queues)
- MAC-ehs queue Id	0 (for DTCH)
- T1	50
- MAC-hs window size	16
- MAC-ehs queue Id	1 (for DCCH)
- MAC-d Flow Identity	1
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	148
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not present
- DCH quality target	Not present

Information Element	Value/remark
MIMO Parameters	
- MIMO Operation	Start
- CHOICE mode	FDD
- MIMO N_cqi_typeA/M_cqi ratio	1/2
- MIMO pilot configuration	
- CHOICE Second CPICH pattern	Antenna1 S-CPICH
- Channelisation code	13
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not Present
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- POhsdsch	6 dB
- CQI Feedback cycle, k	2 ms
- CQI repetition factor	1
- Δ_{CQI}	5
- CHOICE mode	FDD
- Downlink 64QAM configured	TRUE
- HS-DSCH TB size table	Not Present
- Downlink information for each radio link	
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Ref. to the Default setting (Condition 17b Radio Bearer Setup)
- Serving HS-DSCH radio link indicator	TRUE
- Serving E-DCH radio link indicator	TRUE
- Downlink DPCH info for each RL	Not Present
- Downlink F-DPCH info for each RL	
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400
- F-DPCH slot format	Not Present
- Secondary CPICH info	Not Present
- Secondary scrambling code	Not Present
- Code number	11
- TPC combination index	0
- E-AGCH Info	
- E-AGCH Channelisation Code	10
- CHOICE E-HICH Information	
- E-HICH Information	
- Channelisation code	4
- Signature sequence	1
- CHOICE E-RGCH Information	Not Present

UE CAPABILITY ENQUIRY (Steps 4, 10)

Use the same message sub-type found in TS 34.108 clause 9.1

UE CAPABILITY INFORMATION (Steps 5, 11, 17)

Use the same message sub-type found in TS 34.108 clause 9.

UE CAPABILITY INFORMATION CONFIRM (Steps 6, 12)

Use the same message sub-type found in TS 34.108 clause 9.1

PHYSICAL CHANNEL RECONFIGURATION (Step 7) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
HARQ Info	
- Number of processes	6
- CHOICE *Memory Partitioning*	
- Implicit	
Frequency info	Not present
MIMO Parameters	Not Present
Maximum allowed UL TX power	Not present
Uplink DPCH info	Not present
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	12 (6 dB)
- CQI Feedback cycle, k	8 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
- Downlink 64QAM configured	Not Present
- HS-DSCH TB size table	Octet Aligned
Downlink information common for all radio links	Not Present
Downlink information for each radio link list	Not Present

8.2.2.64.5 Test requirements

At step 2, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

At step 3, the UE shall transmit CQI reports of type A and type B.

At step 5 and step 11, the UE shall transmit UE CAPABILITY INFORMATION using AM RLC.

At step 8, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

8.2.2.65 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_FACH (Enhanced UL/DL) Success

8.2.2.65.1 Definition and applicability

UE supports FDD and Enhanced Uplink in CELL_FACH state.

8.2.2.65.2 Conformance requirement

Extract from 25.331

If variable READY_FOR_COMMON_EDCH is set to TRUE the UE shall:

1> configure and use the MAC and the physical layer for the PRACH preamble transmission according to the parameters included in the selected "PRACH preamble control parameters (for Enhanced Uplink)" IE according [15];

1> compile a list of candidate common E-DCH resource configuration in the order of appearance as contained in IE "Common E-DCH Resource Configuration information list".

If variable READY_FOR_COMMON_EDCH is set to TRUE, then after receiving the "E-DCH resource index" by MAC with the CMAC-STATUS primitive, the UE selects the Common E-DCH Resource Configuration from the list of candidate common E-DCH resource configuration as follows:

"Index of the selected Common E-DCH resource configuration" = "E-DCH resource index".

After selection of a common E-DCH resource configuration, the UE shall configure MAC and the physical layer for E-DCH and HSDPA transmission according to the following:

1> configure Uplink DPCH in accordance with the uplink DPCCH slot format 1 [26], the IE "Uplink DPCH code info" and IE "Uplink DPCH power control info";

1> if IE "ACK/NACK support on HS-DPCCH" is set to TRUE:

2> configure the HS-DPCCH in accordance with HS-DPCCH slot format [26], the HS-DPCCH code [28] and IE "Uplink DPCH power control info".

1> configure the common E-DCH MAC-d flows as described in subclause 8.6.5.24;

1> configure the UL E-DPCCH in accordance with the IE "E-DPCCH info" configuration;

1> apply the TTI as signalled in the IE "E-DCH Transmission Time Interval" on the E-DPDCH;

1> use a redundancy version for each HARQ transmission as configured by the IE "HARQ RV Configuration";

1> use the same scrambling code for F-DPCH, E-RGCH, E-HICH and E-AGCH reception as configured for the Primary CPICH;

1> use a channelization code for F-DPCH reception as configured by IE "F-DPCH Code number";

1> configure F-DPCH in accordance with the F-DPCH slot format #0 [26];

1> apply the DPC_Mode=0 for F-DPCH according to [29];

1> configure the MAC with the stored IE "E-DPDCH info" configuration and/or the information contained in IE "Scheduled Transmission configuration";

1> configure the E-HICH in accordance with the IE "E-HICH info" configuration;

1> configure the E-AGCH in accordance with the IE "E-AGCH info" configuration;

1> configure the E-RGCH in accordance with the IE "E-RGCH info" configuration if an E-RGCH configuration has been provided with the system information;

1> configure the radio link as the serving E-DCH radio link;

1> determine the value for the COMMON_E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.46.

[…]

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

1> determine the value for the READY_FOR_COMMON_EDCH variable and take the corresponding actions as described in subclause 8.5.47;

1> determine the value for the COMMON_E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.46;

[…]

The variable READY_FOR_COMMON_EDCH shall be set to TRUE only when all the following conditions are met:

1> if the UE is in CELL_FACH state or in Idle mode:

2> the UE supports E-DCH transmission in CELL_FACH state and Idle mode;

2> the IE "HS-DSCH common system information" is included in system information block type 5 or 5bis;

2> the IE "Common E-DCH system info" is included system information block type 5 or 5bis.

[…]

Reference

3GPP TS 25.331 clauses 8.2.2.3, 8.5.45, 8.5.46, 8.5.47,

8.2.2.65.3 Test Purpose

1. To confirm that the UE successfully transits to Enhanced CELL_FACH state (common E-DCH / HS-DSCH) from CELL_DCH, according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.65.4 Method of test

Initial Conditions

System Simulator: 1 cell.

UE: PS-DCCH+DTCH DCH (state 6-10) as specified in clause 7.4 of TS 34.108 with SRB and user plane mappings on E-DCH /HS-DSCH under condition A30 RADIO BEARER SETUP.

The SS transmits SIB5 with common E-DCH/HS-DSCH information.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports of common E-DCH

Test Procedure

The UE is in CELL_DCH state,

The SS transmits a RADIO BEARER RECONFIGURATION message to the UE to release dedicated resources and transit to Enhanced CELL_FACH state. After receiving this message, the UE transmits RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC with HS-DSCH reception and E-DCH transmission. UE shall obtain the configuration for Enhanced UL/DL for CELL_FACH from SIB5. The SS calls generic procedure C.2 to check that the UE is in CELL_FACH state.

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	Transit to CELL_FACH state and release dedicated resources.
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3	-		Void	
4	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 5 (FDD)

Use the same message type found in clause 6.1 of TS 34.108 condition B3 “Only for cells which configure common E-DCH and HS-DSCH reception in CELL_FACH”..

RADIO BEARER RECONFIGURATION (Step 1)

Use the same message as specified for "Packet to CELL_FACH from CELL_DCH in PS" in 34.108 (condition A5) in TS 34.108 clause 9, except for the following:

Information Element	Value/remark
- Signalling RB information to setup	
- RB identity	1
- CHOICE RLC info type	
- RLC info	
- CHOICE Uplink RLC mode	UM RLC
- Transmission RLC discard	Not Present
- CHOICE Downlink RLC mode	UM RLC
- DL UM RLC LI size	7 bit
- One sided RLC re-establishment	FALSE
- Alternative E-bit interpretation	TRUE
- Use special value of HE field	Not present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- CHOICE RLC PDU size	Fixed size
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	1
- RB information to reconfigure	
- RB identity	2
- CHOICE RLC info type	
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	32
- Timer_RST	500
- Max_RST	1
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to clause 6 Parameter Set
- Length indicator size	7
- In-sequence delivery	TRUE
- Receiving window size	32
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- Alternative E-bit interpretation	Not Present
- Use special value of HE field	TRUE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present

Information Element	Value/remark
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2
- CHOICE RLC PDU size	Fixed size
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	2
- RB information to reconfigure	
- RB identity	3
- CHOICE RLC info type	
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	32
- Timer_RST	500
- Max_RST	1
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to clause 6 Parameter Set
- Length indicator size	7
- In-sequence delivery	TRUE
- Receiving window size	32
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- Alternative E-bit interpretation	Not Present
- Use special value of HE field	TRUE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- CHOICE RLC PDU size	Fixed size
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present

Information Element	Value/remark
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	3
- RB information to reconfigure	
- RB identity	4
- CHOICE RLC info type	
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	32
- Timer_RST	500
- Max_RST	1
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to clause 6 Parameter Set
- Length indicator size	7
- In-sequence delivery	TRUE
- Receiving window size	32
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- Alternative E-bit interpretation	Not Present
- Use special value of HE field	TRUE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- CHOICE RLC PDU size	Fixed size
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	4
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	3
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs reordering queue	2
- Downlink transport channel type	HS-DSCH

Information Element	Value/remark
- DL HS-DSCH MAC-ehs reordering queue	3
Frequency info	Not Present
Maximum allowed UL TX power	Not Present
Downlink information per radio link list	
-Downlink information for each radio link	
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 1

8.2.2.65.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

At step 4, the UE shall be in Enhanced CELL_FACH state.

8.2.2.66 Radio Bearer Reconfiguration for transition from CELL_FACH to CELL_DCH and CELL_DCH to CELL_FACH: Success (start and stop of SPS operation)

8.2.2.66.1 Definition and applicability

All UEs which support TDD and SPS operation.

8.2.2.66.2 Conformance requirement

If the UE receives:

- a RADIO BEARER SETUP message; or
- a RADIO BEARER RECONFIGURATION message; or
- a RADIO BEARER RELEASE message; or
- a TRANSPORT CHANNEL RECONFIGURATION message; or
- a PHYSICAL CHANNEL RECONFIGURATION message; or

…

it shall:

…

1> for 1.28 Mcps TDD, if the IE "SPS information" is stored in the UE:

2> determine the value for the E_DCH_SPS_STATUS variable and take the corresponding actions as described in subclause 8.5.54;

2> determine the value for the HS_DSCH_SPS_STATUS variable and take the corresponding actions as described in subclause 8.5.55.

If the UE receives RRC CONNECTION SETUP, CELL UPDATE CONFIRM, or any reconfiguration message:

1> the UE shall determine the value for the E_DCH_SPS_STATUS variable.

The variable E_DCH_SPS_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable E_DCH_TRANSMISSION is set to TRUE;

1> the IE "E-DCH SPS information" is included in the received message.

If any of the above conditions is not met and the variable E_DCH_SPS_STATUS is set to TRUE, the UE shall:

1> set the variable E_DCH_SPS_STATUS to FALSE;

1> clear the variable E_DCH_SPS_PARAMS;

1> stop all E-DCH SPS related activities.

Whenever the variable E_DCH_SPS_STATUS is set to TRUE, the UE shall:

1> configure the physical and MAC layers to operate according to the E_DCH_SPS_PARAMS.

If variable E_DCH_SPS_STATUS is set to TRUE and the serving E-DCH cell was changed as a result of the received message and the value of IE "E-DCH SPS Information" included in this message is "Continue E-DCH SPS operation", then UE behaviour is unspecified.

If the UE receives RRC CONNECTION SETUP, CELL UPDATE CONFIRM, or any reconfiguration message:

1> the UE shall determine the value for the HS_DSCH_SPS_STATUS variable.

The variable HS_DSCH_SPS_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> the IE "HS-DSCH SPS information" is included in the received message.

If any of the above conditions is not met and the variable HS_DSCH_SPS_STATUS is set to TRUE, the UE shall:

1> set the variable HS_DSCH_SPS_STATUS to FALSE;

1> clear the variable HS_DSCH_SPS_PARAMS;

1> stop all HS-DSCH SPS related activities.

Whenever the variable HS_DSCH_SPS_STATUS is set to TRUE, the UE shall:

1> configure the physical and MAC layers to operate according to the HS_DSCH_SPS_PARAMS.

If variable HS_DSCH_SPS_STATUS is set to TRUE and the serving HS-DSCH cell was changed as a result of the received message and the value of IE "HS-DSCH SPS information" included in this message is "Continue HS-DSCH SPS operation", then UE behaviour is unspecified.

If the IE "SPS information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the IE "E-DCH SPS Information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

2> if the CHOICE "E-DCH SPS operation" is set to "New E-DCH SPS operation":

3> after the UE has received IE "E-HICH Information":

4> if the CHOICE "Configuration Mode" is set to "Implicit":

5> if the IE "EI" is included:

6> consider the E-HICH has the same configuration as that in the IE "E-HICH Info" for 1.28Mcps TDD which has the same value of EI indicated by the IE "EI" in this message.

5> else:

6> use the same configuration as the E-HICH for non-schedule transmission.

4> else:

5> store the E-HICH configuration according to the IEs "Timeslot Number", "Channelisation Code" and midamble configuration IEs.

4> store and use the Signature Sequence indicated by the IE "Signature Sequence Group Index".

3> if the IE "Transmission Pattern List" is included:

4> store the contents of the IE in the variable E_DCH_SPS_PARAMS.

3> if the IE "Initial SPS info for E-DCH" is included:

4> perform E-DCH SPS operation on the semi-persistent E-PUCH resource configured by the IE at the CFN determined by the IE "Activation Time" and the IE "Subframe number".

2> determine the value for the E_DCH_SPS_STATUS variable and take the corresponding actions as described in subclause 8.5.54.

1> else if the IE "E-DCH SPS Information" is not included, the UE shall:

2> set the variable E_DCH_SPS_STATUS to FALSE;

2> clear the variable E_DCH_SPS_PARAMS;

2> stop all E-DCH SPS related activities.

1> if the IE "HS-DSCH SPS Information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

2> if the CHOICE "HS-DSCH SPS operation" is set to "New HS-DSCH SPS operation":

3> if the IE "Transport Block Size List" or the IE "Reception Pattern List" is included:

4> store the contents of the IE in the variable HS_DSCH_SPS_PARAMS.

3> if the IE "HARQ Info for Semi-Persistent Scheduling" is included:

4> calculate the size of each virtual IR buffer according to following equation:

Size of virtual IR soft buffer = Total buffer for HS-SCCH SPS operation / N_{IR}

where

- Total buffer for HS-SCCH SPS operation is signalled in the IE "Process Memory size", and the IE is the total size of the virtual IR buffers which could be used in HS-SCCH SPS operation;

- N_{IR} is the value of the IE "Number of Processes", and the IE is the number of HARQ processes which could be used in HS-SCCH SPS operation.

3> after the UE has received IE "HS-SICH List":

4> if the CHOICE "Configuration Mode" is set to "Implicit":

5> transmit the HS-SICH according to the configuration in the IE "HS-SCCH Configuration" for 1.28Mcps TDD, of which the position listed in the IE "HS-SCCH Set Configuration" in ascending order is indicated by the IE "HS-SCCH Index" in this message.

4> else:

5> transmit the HS-SICH according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

3> if the IE "Initial SPS info for HS-DSCH" is included:

4> perform HS-SCCH SPS operation on the semi-persistent HS-PDSCH resource configured by the IE at the CFN determined by the IE "Activation Time" and the IE "Subframe number".

2> determine the value for the HS_DSCH_SPS_STATUS variable and take the corresponding actions as described in subclause 8.5.55.

1> else if the IE "HS-DSCH SPS Information" is not included, the UE shall:

2> set the variable HS_DSCH_SPS_STATUS to FALSE;

2> clear the variable HS_DSCH_SPS_PARAMS;

2> stop all HS-DSCH SPS related activities.

Reference

3GPP TS 25.331 clauses 8.2.2.3, 8.5.54, 8.5.55, 8.6.6.47

8.2.2.66.3 Test purpose

1 To confirm that the UE reconfigures radio bearer parameters, transits from CELL_DCH to CELL_FACH state, and stops SPS operation according to the received RADIO BEARER RECONFIGURATION message.

2 To confirm that the UE reconfigures radio bearer parameters, transits from CELL_FACH to CELL_DCH state, and starts SPS operation according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.66.4 Method of test

Initial Condition

System Simulator: 1 cell

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports 1.28Mcps TDD
- UE supports HS-PDSCH in CELL_FACH
- UE supports E-DCH
- UE supports SPS operation

Test Procedure

The UE is in CELL_DCH state. Only signalling radio bearers have been established.

The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of a radio bearer mapped on E-DCH/HS-DSCH, and configure the SPS operation. The UE shall transmit a RADIO BEARER SETUP COMPLETE message using AM RLC.

The SS transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it stops SPS operation, moves to CELL_FACH state and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

The SS transmits a UE CAPABILITY ENQUIRY message without SPS operation. The UE shall respond with a UE CAPABILITY INFORMATION message and finally the SS replies with UE CAPABILITY INFORMATION CONFIRM without SPS operation.

Then, SS transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it moves to CELL_DCH state, starts SPS operation and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

The SS transmits a UE CAPABILITY ENQUIRY message with SPS operation. The UE shall respond with a UE CAPABILITY INFORMATION message and finally the SS replies with UE CAPABILITY INFORMATION CONFIRM, send with SPS operation.

The SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	Radio bearer mapping onto E-DCH/HS-DSCH with SRB mapped onto E-DCH/HS-DSCH
2	→		RADIO BEARER SETUP COMPLETE	
3	←		RADIO BEARER RECONFIGURATION	Move to CELL_FACH state and stop of SPS operation
4	→		RADIO BEARER RECONFIGURATION COMPLETE	
5	←		UE CAPABILITY ENQUIRY	The SS transmits this message without SPS operation
6	→		UE CAPABILITY INFORMATION	
7	←		UE CAPABILITY INFORMATION CONFIRM	The SS transmits this message without SPS operation
8	←		RADIO BEARER RECONFIGURATION	Move to CELL_DCH state and start SPS operation
9	→		RADIO BEARER RECONFIGURATION COMPLETE	
10	←		UE CAPABILITY ENQUIRY	The SS transmits this message with SPS operation
11	→		UE CAPABILITY INFORMATION	
12	←		UE CAPABILITY INFORMATION CONFIRM	The SS transmits this message with SPS operation
13	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for "Packet to CELL_DCH / E-DCH / HS-DSCH (1/1) and SRBs mapped on E-DCH/HS-DSCH" (condition A13) in TS 34.108 clause 9, except for the following:

Information Element	Value/remark
RAB information for setup	
- RAB identity	(high-speed AM DTCH for PS domain) 0000 0101B
- CN domain identity	PS domain
- NAS Synchronisation	Not Present
- Re-establishment timer	Use T315
- RB information to setup	
- RB identity	25
- PDCP Info	Not Present
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set

Information Element	Value/remark
- Length Indicator size	7
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- Alternative E-bit interpretation	
- Use special value of HE field	TRUE
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- UL Transport channel identity	Not Present
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	7
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	Not Present
RB information to be affected	
- RB identity	1 (UM DCCH for RRC)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH Mac-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present

Information Element	Value/remark
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- Logical channel identity	1
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.11
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- RB identity	2 (AM DCCH for RRC)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH Mac-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- Logical channel identity	2
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.11
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- Logical channel identity	2
- RB identity	3 (AM DCCH for NAS High Priority)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH Mac-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE

Information Element	Value/remark
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- Logical channel identity	3
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.11
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- Logical channel identity	3
- RB identity	4 (AM DCCH for NAS Low Priority)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH Mac-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.11
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH Mac-d flow and one DTCH Mac-d flow. Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A18.
Added or Reconfigured DL TrCH information	1 TrCH (HS-DSCH for DCCH and DTCH).
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	

Information Element	Value/remark
- Number of Processes	Reference to clause 6.11 Parameter Set
- CHOICE *Memory Partitioning*	Implicit
- CHOICE *DL MAC header type*	MAC-ehs
- Added or reconfigured MAC-ehs reordering queue	
- MAC-ehs queue to add or reconfigure list	(two queues)
- MAC-ehs queue Id	0 (for DCCH)
- T1	50
- MAC-ehs window size	16
- MAC-ehs queue Id	1 (for DTCH)
- T1	50
- MAC-ehs window size	16
- MAC-ehs queue to delete list	Not Present
- DCH quality target	Not Present
SPS Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A19

RADIO BEARER RECONFIGURATION (Step 3)

Use the same message as specified for "Packet to CELL_FACH from CELL_DCH in PS" in 34.108 (condition A5) in TS 34.108 clause 9, except for the following, except for the following:

Information Element	Value/remark
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2

RADIO BEARER RECONFIGURATION (Step 8)

Use the same message as specified for "Packet to CELL_DCH from CELL_FACH in PS" in 34.108 (condition A4) in TS 34.108 clause 9, except for the following:

Information Element	Value/remark
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH Mac-d flow and one DTCH Mac-d flow. Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A18.
Uplink DPCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A18.
SPS Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A19

8.2.2.66.5 Test requirements

After step 3, the UE shall transmit a RADIO BEARER RECONFIGURATION.

After step 5, the UE shall transmit a UE CAPABILITY INFORMATION message without SPS operation.

After step 8, the UE shall transmit a RADIO BEARER RECONFIGURATION.

After step 10, the UE shall transmit a UE CAPABILITY INFORMATION message with SPS operation.

8.2.2.67 Radio Bearer Reconfiguration for transition from CELL_FACH to CELL_DCH and CELL_DCH to CELL_FACH: Success (start and stop of Control Channel DRX operation)

8.2.2.67.1 Definition and applicability

All UEs which support TDD and Control Channel DRX operation.

8.2.2.67.2 Conformance requirement

If the UE receives:

- a RADIO BEARER SETUP message; or
- a RADIO BEARER RECONFIGURATION message; or
- a RADIO BEARER RELEASE message; or
- a TRANSPORT CHANNEL RECONFIGURATION message; or
- a PHYSICAL CHANNEL RECONFIGURATION message; or

…

it shall:

…

1> for 1.28 Mcps TDD, if the IEs "Control Channel DRX Information" is stored in the UE:

2> determine the value for the CONTROL_CHANNEL_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.53.

…

If the UE receives RRC CONNECTION SETUP, CELL UPDATE CONFIRM, or any reconfiguration message:

1> the UE shall determine the value for the CONTROL_CHANNEL_DRX_STATUS variable.

The variable CONTROL_CHANNEL_DRX_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable HS_DSCH RECEPTION is set to TRUE;

1> the IE "Control Channel DRX information" is included in the received message.

If any of the above conditions is not met and the variable CONTROL_CHANNEL_DRX_STATUS is set to TRUE, the UE shall:

1> set the variable CONTROL_CHANNEL_DRX_STATUS to FALSE;

1> clear the variable CONTROL_CHANNEL_DRX_PARAMS;

1> disable the Control Channel DRX related activities.

If variable CONTROL_CHANNEL_DRX_STATUS is set to TRUE and the serving HS-DSCH cell was changed as a result of the received message, the UE shall instruct the physical layer to consider HS-SCCH orders were never received.

Whenever the variable CONTROL_CHANNEL_DRX_STATUS is set to TRUE after receiving this message and the value of IE "Control Channel DRX information" included in this message is "Continue Control Channel DRX operation ", the UE shall:

1> continue the Control Channel DRX related activities with the IE in the variable CONTROL_CHANNEL_DRX_PARAMS.

If the IE "Control Channel DRX information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the CHOICE "*Control Channel DRX operation*" is set to "New Control Channel DRX operation":

2> store the contents of the IE in the variable CONTROL_CHANNEL_DRX_PARAMS, replacing or clearing any previously stored "Control Channel DRX operation";

2> use the newly received Control Channel DRX configuration.

2> if the IE "E-AGCH DRX Information" is not included:

3> not perform E-AGCH discontinuous reception.

1> if the CHOICE "*Control Channel DRX operation*" is set to "Continue", and the message is used to perform a hard handover (as specified in subclause 8.6.6.3a):

2> the UE behaviour is unspecified.

1> determine the value for the CONTROL_CHANNEL_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.53.

1> if the IE "E-AGCH DRX Information" is included, and the variable E_DCH_TRANSMISSION is set to FALSE:

2> the UE behaviour is unspecified.

Reference

3GPP TS 25.331 clauses 8.2.2.4, 8.5.53, 8.6.6.46

8.2.2.67.3 Test purpose

1 To confirm that the UE reconfigures radio bearer parameters, transits from CELL_DCH to CELL_FACH state, and stops Control Channel DRX operation according to the received RADIO BEARER RECONFIGURATION message.

2 To confirm that the UE reconfigures radio bearer parameters, transits from CELL_FACH to CELL_DCH state, and starts Control Channel DRX operation according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.67.4 Method of test

Initial Condition

System Simulator: 1 cell

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports 1.28Mcps TDD
- UE supports HS-PDSCH in CELL_FACH
- UE supports E-DCH
- UE supports Control Channel DRX operation

Test Procedure

The UE is in CELL_DCH state. Only signalling radio bearers have been established.

The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of a radio bearer mapped on E-DCH/HS-DSCH, and configure the Control Channel DRX operation. The UE shall transmit a RADIO BEARER SETUP COMPLETE message using AM RLC.

The SS transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it stops Control Channel DRX operation, moves to CELL_FACH state and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

Then, SS transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it moves to CELL_DCH state, starts Control Channel DRX operation and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

The SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	Radio bearer mapping onto E-DCH/HS-DSCH with SRB mapped onto E-DCH/HS-DSCH
2	→		RADIO BEARER SETUP COMPLETE	
3	←		RADIO BEARER RECONFIGURATION	Move to CELL_FACH state and stop Control Channel DRX operation
4	→		RADIO BEARER RECONFIGURATION COMPLETE	
5	SS			The SS waits sufficient time and verifies that the DRX operation has not been activated.
6	←		RADIO BEARER RECONFIGURATION	Move to CELL_DCH state and start Control Channel DRX operation
7	→		RADIO BEARER RECONFIGURATION COMPLETE	
8	SS			The SS waits to allow sufficient time for control channel DRX be active, and timer inactivity Threshold for HS-SCCH DRX cycle to expire, and then verifies that the DRX operation has been activated successfully.
9	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for "Packet to CELL_DCH / E-DCH / HS-DSCH (1/1) and SRBs mapped on E-DCH/HS-DSCH" (condition A13) in TS 34.108 clause 9, except for the following:

Information Element	Value/remark
RAB information for setup	
- RAB identity	(high-speed AM DTCH for PS domain) 0000 0101B
- CN domain identity	PS domain
- NAS Synchronisation	Not Present
- Re-establishment timer	Use T315
- RB information to setup	
- RB identity	25
- PDCP Info	Not Present
- CHOICE Uplink RLC mode	AM RLC

Information Element	Value/remark
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- Length Indicator size	7
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- Alternative E-bit interpretation	
- Use special value of HE field	TRUE
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- UL Transport channel identity	Not Present
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	7
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	Not Present
RB information to be affected	
- RB identity	1 (UM DCCH for RRC)

Information Element	Value/remark
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH Mac-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- Logical channel identity	1
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.11
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- RB identity	2 (AM DCCH for RRC)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH Mac-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- Logical channel identity	2
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.11
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH

Information Element	Value/remark
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- Logical channel identity	2
- RB identity	3 (AM DCCH for NAS High Priority)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH Mac-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- Logical channel identity	3
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.11
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- Logical channel identity	3
- RB identity	4 (AM DCCH for NAS Low Priority)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH Mac-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit list

Information Element	Value/remark
- RLC size index	According to clause 6.11
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH Mac-d flow and one DTCH Mac-d flow. Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A18.
Added or Reconfigured DL TrCH information	1 TrCH (HS-DSCH for DCCH and DTCH).
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	
- Number of Processes	Reference to clause 6.11 Parameter Set
- CHOICE *Memory Partitioning*	Implicit
- CHOICE *DL MAC header type*	MAC-ehs
- Added or reconfigured MAC-ehs reordering queue	
- MAC-ehs queue to add or reconfigure list	(two queues)
- MAC-ehs queue Id	0 (for DCCH)
- T1	50
- MAC-ehs window size	16
- MAC-ehs queue Id	1 (for DTCH)
- T1	50
- MAC-ehs window size	16
- MAC-ehs queue to delete list	Not Present
- DCH quality target	Not Present
Control Channel DRX information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20

RADIO BEARER RECONFIGURATION (Step 3)

Use the same message as specified for "Packet to CELL_FACH from CELL_DCH in PS" in 34.108 (condition A5) in TS 34.108 clause 9, except for the following, except for the following:

Information Element	Value/remark
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2

RADIO BEARER RECONFIGURATION (Step 6)

Use the same message as specified for "Packet to CELL_DCH from CELL_FACH in PS" in 34.108 (condition A4) in TS 34.108 clause 9, except for the following:

Information Element	Value/remark
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH Mac-d flow and one DTCH Mac-d flow. Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A18.
Uplink DPCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A18.
Control Channel DRX information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20

8.2.2.67.5 Test requirements

After step 3, the UE shall transmit a RADIO BEARER RECONFIGURATION.

After step 5, the control channel DRX operation has not been activated.

After step 6, the UE shall transmit a RADIO BEARER RECONFIGURATION.

After step 8, the control channel DRX operation has been activated successfully.

8.2.2.68 Radio Bearer Reconfiguration for transition between CELL_FACH & CELL_DCH: Success (simultaneous activation and deactivation of Dual-Cell and MIMO)

8.2.2.68.1 Definition and applicability

All UE categories which support combination of DC-HSDPA and MIMO. UE supports FDD and F-DPCH or Enhanced F-DPCH.

8.2.2.68.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RECONFIGURATION message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214 (for FDD only);

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> if the IE "MIMO parameters" is not included:

2> clear the MIMO_PARAMS variable;

2> trigger lower layers to stop operation in MIMO mode.

1> otherwise:

2> for FDD, if the IE "MIMO N_cqi_typeA/M_cqi ratio" is included:

3> store the value of the IE "MIMO N_cqi_typeA/M_cqi ratio" in the MIMO_PARAMS variable.

2> for FDD, if the IE "MIMO pilot configuration" is included:

5> store the value of the IE "MIMO pilot configuration" in the MIMO_PARAMS variable.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message, the UE shall:

1> take actions related to the MIMO_PARAMS variable as specified in subclause 8.5.32;

1> determine the value of the MIMO_STATUS variable.

The MIMO_STATUS variable shall be set to TRUE only when all the following conditions are met:

1> The UE is in CELL_DCH state;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO N_cqi_typeA/M_cqi ratio"; and

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO pilot configuration".

1> for 1.28 Mcps TDD, the variable MIMO_PARAMS contains a value for the IE "MIMO SF Mode for HS-PDSCH dual stream".

If any of the above conditions is not met and the MIMO_STATUS variable is set to TRUE, the UE shall:

1> set the MIMO_STATUS variable to FALSE;

1> clear the MIMO_PARAMS variable;

3> trigger lower layers to stop operation in MIMO mode.

[…]

The variable SECONDARY_CELL_HS_DSCH_RECEPTION shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the IE "Downlink Secondary Cell Info FDD" is not empty;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> either of the following conditions are met:

2> the IE "Memory Partitioning" is set to 'Implicit' in the IE "HARQ Info"; or

2> the IE "Memory Partitioning" is set to 'Explicit' in the IE "HARQ Info" and MIMO is configured on both or neither of the serving HS-DSCH cell and the secondary serving HS-DSCH cell.

If any of the above conditions is not met and the variable SECONDARY_CELL_HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable SECONDARY_CELL_HS_DSCH_RECEPTION to FALSE;

1> clear the IE "Downlink Secondary Cell Info FDD";

1> flush the HARQ buffers of the HARQ entity associated to the secondary serving HS-DSCH cell;

1> release HARQ resources associated to the secondary serving HS-DSCH cell.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message which includes the IE "Downlink secondary cell info FDD" for the secondary serving HS-DSCH cell, the UE shall:

1> if the IE "Secondary cell MIMO parameters" is not included in the IE "Downlink secondary cell info FDD":

2> clear the SECONDARY_CELL_MIMO_PARAMS variable;

1> if the CHOICE "Configuration Info" in the IE "Secondary cell MIMO parameters" has the value "Continue":

2> continue using the stored parameters in the SECONDARY_CELL_MIMO_PARAMS variable;

1> otherwise:

2> if the IE "MIMO N_cqi_typeA/M_cqi ratio" is included:

3> store the value of the IE "MIMO N_cqi_typeA/M_cqi ratio" in the SECONDARY_CELL_MIMO_PARAMS variable.

2> if the IE "MIMO pilot configuration" is included:

3> store the value of the IE "MIMO pilot configuration" in the SECONDARY_CELL_MIMO_PARAMS variable.

1> determine the value of the SECONDARY_CELL_MIMO_STATUS variable.

[…]

Reference

3GPP TS 25.331 clause 8.5.32, 8.5.33, 8.5.51, 8.5.57

8.2.2.68.3 Test purpose

5. To confirm that the UE configures the physical channels, transits from CELL_DCH to CELL_FACH, and to stop simultaneous Dual-Cell, MIMO and 16QAM reception according to the received RADIO BEARER RECONFIGURATION message.

6. To confirm that the UE reconfigures the radio bearer parameters, transits from CELL_FACH to CELL_DCH state, and starts simultaneous Dual-Cell, MIMO and 16QAM reception according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.68.4 Method of test

Initial Condition

System Simulator: 2 cells –Cell 1/2 DC HSDPA cell(s) with Cell 1 (Anchor Carrier) and Cell 2 (Secondary Carrier)

UE: CELL_DCH (state 6-18 PS-DCCH+DTCH E-DCH/HS-DSCH) under the condition A31 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE category supports combined 16QAM, DC-HSDPA and MIMO
- UE supports F-DPCH or Enhanced F-DPCH

Test Procedure

The SS transmits a RADIO BEARER RECONFIGURATION message, using non-DC and non-MIMO configuration, to the UE to deactivate DC-HSDPA and MIMO feature. The UE shall respond with RADIO BEARER RECONFIGURATION COMPLETE. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

The UE is in CELL_FACH state. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE including RAB information to configure PS domain RB on EDCH/HSDPA (with DC-HSDPA and MIMO simultaneously configured for L1). SRB is mapped to EDCH/HSDPA. The UE reconfigures the radio bearers and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

SS checks that UE sends composite CQI/PCI reports on each stream for Cell 1 and Cell 2.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	Reconfigure PS RB + SRB to CELL_FACH which deactivate DC-HSDPA and MIMO.
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3				SS checks during 100ms that UE not should transmit any CQI reports.
4	←		RADIO BEARER RECONFIGURATION	Reconfiguration of PS RB + SRB from CELL_FACH state to CELL_DCH on EDCH/HSDPA, using DC-HSDPA and MIMO configuration
5	→		RADIO BEARER RECONFIGURATION COMPLETE	
6				SS starts monitoring CQI reports on HS-DPCCH received from the UE on Primary Cell 2 and Secondary Cell 3. SS waits for 10 CQI reports and verifies that UE on each stream transmits composite CQI/PCI reports.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1) (FDD)

Use the same message as specified for condition A5 "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9 with exception as follow:

Information Element	Value/remark	Version
RB information to reconfigure list		
- RB information to reconfigure	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	600	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	250	
- Timer_poll	250	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	

- RLC logical channel mapping indicator	Not Present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	RACH	
- UL Transport channel identity	Not Present	
- Logical channel identity	7	
- CHOICE RLC size list	Explicit list	
- RLC size index	Reference to TS34.108 clause 6 Parameter Set	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	FACH	
- DL DCH Transport channel identity	Not Present	
- DL DSCH Transport channel identity	Not Present	
- Logical channel identity	7	
- RB stop/continue	Not Present	
Deleted DL TrCH information		
- Downlink transport channel type	HS-DSCH	
- DL HS-DSCH MAC-d flow identity	0	

RADIO BEARER RECONFIGURATION (Step 4)

Use the same message as specified for A4 "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with the exception as follow:

Information Element	Value/remark	Version
RAB information to reconfigure	(high-speed AM DTCH for PS domain)	
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.	
- CN domain identity	PS domain	
- NAS Synchronization Indicator	Not Present	
RB information to reconfigure list		
- RB information to reconfig	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- CHOICE RLC info type	RLC info	
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	2047	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	100	
- Timer_poll	100	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	

- Poll_Windows	50	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to clause 6 Parameter Set	
- Length indicator size	This IE is present and set to “7” if Downlink RLC PDU Size is set to “Flexible”	
- In-sequence delivery	TRUE	
- Receiving window size	2047	
- Downlink RLC status info		
- Timer_status_prohibit	80	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- Alternative E-bit interpretation	Not present	
- Use special value of HE field	TRUE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	E-DCH	
- Logical channel identity	7	
- E-DCH MAC-d flow identity	2	
- CHOICE RLC PDU size	Flexible size	
- Length indicator size	15 bit	
- Minimum UL RLC PDU size	See clause 6.10	
- Largest UL RLC PDU size	See clause 6.10	
- Include in scheduling info	TRUE	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	HS-DSCH	
- DL DCH Transport channel identity	Not present	
- DL DSCH Transport channel identity	Not present	
- CHOICE *DL MAC header type*	MAC-ehs	
- DL HS-DSCH MAC-ehs Queue Id	0	
- Logical channel identity	7	
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH MAC-d flow and one DTCH MAC-d flow	
- Uplink transport channel type	E-DCH	
- CHOICE UL parameters	E-DCH	
- UL MAC header type	Not present	
- UL MAC header type	MAC-i/is	
- E-DCH Transmission Time Interval	set to 2ms if supported by the UE E-DCH category, or 10ms if the UE E-DCH category does not support 2ms TTI	
- HARQ info for E-DCH		
- HARQ RV Configuration	Rvtable	
- Added or reconfigured E-DCH MAC-d flow	(for DCCH)	
- E-DCH MAC-d flow identity	1	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Non-scheduled grant info	
- Max MAC-e PDU contents size	168 bits	
- Max MAC-e PDU contents size	162 bits	
- 2 ms non-scheduled transmission grant HARQ process allocation	Not Present	
- Added or reconfigured E-DCH MAC-d flow	(for DTCH)	
- E-DCH MAC-d flow identity	2	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Scheduled grant info	
Added or Reconfigured DL TrCH information list	2 TrCh (DCH for DCCH and HS-DSCH for DTCH)	

- Downlink transport channel type	DCH	
- DL Transport channel identity	10	
- CHOICE DL parameters	Same as UL	
- Uplink transport channel type	DCH	
- UL TrCH identity	5	
- DCH quality target		
- Downlink transport channel type	HS-DSCH	
- DL Transport channel identity	Not Present	
- CHOICE DL parameters	HS-DSCH	
- HARQ Info		
- Number of Processes	Reference to clause 6.10 Parameter Set	
- CHOICE *Memory Partitioning*	Implicit	
- CHOICE *DL MAC header type*	MAC-ehs	
- Added or reconfigured MAC-ehs reordering queue		
- MAC-ehs queue to add or reconfigure list	(one queue)	
- MAC-ehs queue Id	2 (for DTCH)	
- T1	50	
- MAC-ehs window size	64	
- DCH quality target	Not present	
Frequency info	Not Present	
MIMO parameters		
- MIMO operation	Start	
- CHOICE mode	FDD	
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
- CHOICE Second CPICH pattern	Antenna1 S-CPICH	
- Channelisation code	13	
- Power Offet for S-CPICH for MIMO	0	
- Precoding weight set restriction	True	
Maximum allowed UL TX power	Not Present	
Uplink DPCH info		
- Uplink DPCH power control info		
- DPCCH power offset	-40 (-80dB)	
- PC Preamble	1 frame	
- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- TPC step size	0 (1dB)	
- ΔACK	3	
- ΔNACK	3	
- Ack-Nack repetition factor	1	
- HARQ_preamble_mode	0	
- Scrambling code type	Short	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- spreading factor	Reference to clause 6.10 Parameter Set	
- TFCI existence	Reference to clause 6.10 Parameter Set	
- Number of FBI bit	Reference to clause 6.10 Parameter Set	
- Puncturing Limit	Reference to clause 6.10 Parameter Set	
E-DCH info		
- MAC-es/e reset indicator	TRUE	
- E-DPCCH info		
- E-DPCCH/DPCCH power offset	0	
- Happy bit delay condition	100 ms	
- E-TFC Boost Info	Not Present	
- E-DPDCH power interpolation	Not Present	
- E-DPDCH info		
- E-TFCI table index	0	
- E-DCH minimum set E-TFCI	9	
- Reference E-TFCIs	2 E-TFCIs	
- Reference E-TFCI	11	
- Reference E-TFCI PO	4	
- Reference E-TFCI	83	
- Reference E-TFCI PO	16	
- Maximum channelisation codes	2sf4	
- PLnon-max	0.84	
- Scheduling Information Configuration		
- Periodicity for Scheduling Info – no grant	Not present	

- Periodicity for Scheduling Info – grant	Not present	
- Power Offset for Scheduling Info	0	
- 3-Index-Step Threshold	Not present	
- 2-Index-Step Threshold	Not present	
- Scheduled Transmission configuration		
- 2ms scheduled transmission grant HARQ process allocation	Not present	
- Serving Grant	Not present	
-UL 16QAM settings	Not Present	
Uplink secondary cell info FDD	Not Present	Rel 9
Downlink HS-PDSCH Information		Rel 9
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not Present	
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	6	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	8 dB	
- CQI Feedback cycle, k	8 ms	
- CQI repetition factor	1	
- Δ_{CQI}	4 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD	
- Downlink 64QAM configured	Not Present	
- HS-DSCH TB size table	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	FALSE	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	Not Present	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	13	
- Scrambling code change	Not Present	
- TPC combination index	0	
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	
- CHOICE E-HICH Information	Not Present	
- CHOICE E-RGCH Information	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	TRUE	
- Downlink DPCH info for each RL	Not Present	
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Secondary scrambling code	Not Present	
- Code number	12	
- TPC combination index	0	
- E-AGCH Info		

- E-AGCH Channelisation Code	10	
- CHOICE E-HICH Information		
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	Not Present	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 3	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies	
Secondary cell MIMO parameters		Rel-9
- CHOICE *Configuration info*		
- Continue		
- New configuration		
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
-CHOICE *Second CPICH pattern*		
-Antenna2 P-CPICH	No data	
-Antenna1 S-CPICH		
-Channelisation code	15	
-Power Offset for S-CPICH for MIMO	0	

8.2.2.68.5 Test requirements

At step 2, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

At step 3, the UE shall not transmit any CQI report.

At step 5, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

At step 6, the UE shall on each stream on both Cell 1 and Cell 2 transmit CQI reports.

8.2.2.69 Radio Bearer Reconfiguration for transition between CELL_FACH & CELL_DCH: Success (simultaneous activation and deactivation of Dual-Cell, MIMO and 64QAM)

8.2.2.69.1 Definition and applicability

All UE categories which support combination of 64QAM, DC-HSDPA and MIMO. UE supports FDD and F-DPCH or Enhanced F-DPCH.

8.2.2.69.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RECONFIGURATION message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214 (for FDD only);

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> if the IE "MIMO parameters" is not included:

2> clear the MIMO_PARAMS variable;

2> trigger lower layers to stop operation in MIMO mode.

1> otherwise:

2> for FDD, if the IE "MIMO N_cqi_typeA/M_cqi ratio" is included:

3> store the value of the IE "MIMO N_cqi_typeA/M_cqi ratio" in the MIMO_PARAMS variable.

2> for FDD, if the IE "MIMO pilot configuration" is included:

6> store the value of the IE "MIMO pilot configuration" in the MIMO_PARAMS variable.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message, the UE shall:

1> take actions related to the MIMO_PARAMS variable as specified in subclause 8.5.32;

1> determine the value of the MIMO_STATUS variable.

The MIMO_STATUS variable shall be set to TRUE only when all the following conditions are met:

1> The UE is in CELL_DCH state;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO N_cqi_typeA/M_cqi ratio"; and

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO pilot configuration".

1> for 1.28 Mcps TDD, the variable MIMO_PARAMS contains a value for the IE "MIMO SF Mode for HS-PDSCH dual stream".

If any of the above conditions is not met and the MIMO_STATUS variable is set to TRUE, the UE shall:

1> set the MIMO_STATUS variable to FALSE;

1> clear the MIMO_PARAMS variable;

4> trigger lower layers to stop operation in MIMO mode.

[…]

The variable SECONDARY_CELL_HS_DSCH_RECEPTION shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the IE "Downlink Secondary Cell Info FDD" is not empty;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> either of the following conditions are met:

2> the IE "Memory Partitioning" is set to 'Implicit' in the IE "HARQ Info"; or

2> the IE "Memory Partitioning" is set to 'Explicit' in the IE "HARQ Info" and MIMO is configured on both or neither of the serving HS-DSCH cell and the secondary serving HS-DSCH cell.

If any of the above conditions is not met and the variable SECONDARY_CELL_HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable SECONDARY_CELL_HS_DSCH_RECEPTION to FALSE;

1> clear the IE "Downlink Secondary Cell Info FDD";

1> flush the HARQ buffers of the HARQ entity associated to the secondary serving HS-DSCH cell;

1> release HARQ resources associated to the secondary serving HS-DSCH cell.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message which includes the IE "Downlink secondary cell info FDD" for the secondary serving HS-DSCH cell, the UE shall:

1> if the IE "Secondary cell MIMO parameters" is not included in the IE "Downlink secondary cell info FDD":

2> clear the SECONDARY_CELL_MIMO_PARAMS variable;

1> if the CHOICE "Configuration Info" in the IE "Secondary cell MIMO parameters" has the value "Continue":

2> continue using the stored parameters in the SECONDARY_CELL_MIMO_PARAMS variable;

1> otherwise:

2> if the IE "MIMO N_cqi_typeA/M_cqi ratio" is included:

3> store the value of the IE "MIMO N_cqi_typeA/M_cqi ratio" in the SECONDARY_CELL_MIMO_PARAMS variable.

2> if the IE "MIMO pilot configuration" is included:

3> store the value of the IE "MIMO pilot configuration" in the SECONDARY_CELL_MIMO_PARAMS variable.

1> determine the value of the SECONDARY_CELL_MIMO_STATUS variable.

[…]

Reference

3GPP TS 25.331 clause 8.5.32, 8.5.33, 8.5.51, 8.5.57

8.2.2.69.3 Test purpose

1. To confirm that the UE configures the physical channels, transits from CELL_DCH to CELL_FACH, and to stop simultaneous 64QAM, Dual-Cell and MIMO reception according to the received RADIO BEARER RECONFIGURATION message.

2. To confirm that the UE reconfigures the radio bearer parameters, transits from CELL_FACH to CELL_DCH state, and starts simultaneous 64QAM, Dual-Cell and MIMO reception according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.69.4 Method of test

Initial Condition

System Simulator: 2 cells –Cell 1/2 DC HSDPA cell(s) with Cell 1 (Anchor Carrier) and Cell 2 (Secondary Carrier)

UE: CELL_DCH (state 6-18 PS-DCCH+DTCH E-DCH/HS-DSCH) under the condition A32 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE category supports combined 64QAM, DC-HSDPA and MIMO
- UE supports F-DPCH or Enhanced F-DPCH

Test Procedure

The SS transmits a RADIO BEARER RECONFIGURATION message, using non-DC and non-MIMO configuration, to the UE to deactivate DC-HSDPA and MIMO feature. The UE shall respond with RADIO BEARER RECONFIGURATION COMPLETE. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

The UE is in CELL_FACH state. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE including RAB information to configure PS domain RB on EDCH/HSDPA (with DC-HSDPA and MIMO simultaneously configured for L1). SRB is mapped to EDCH/HSDPA. The UE reconfigures the radio bearers and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

SS checks that UE sends composite CQI/PCI reports on each stream for Cell 1 and Cell 2.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	Reconfigure PS RB + SRB to CELL_FACH which deactivate DC-HSDPA and MIMO.
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3				SS checks during 100ms that UE not should transmit any CQI reports.
4	←		RADIO BEARER RECONFIGURATION	Reconfiguration of PS RB + SRB from CELL_FACH state to CELL_DCH on EDCH/HSDPA, using DC-HSDPA and MIMO configuration
5	→		RADIO BEARER RECONFIGURATION COMPLETE	
6				SS starts monitoring CQI reports on HS-DPCCH received from the UE on Primary Cell 2 and Secondary Cell 3. SS waits for 10 CQI reports and verifies that UE on each stream transmits composite CQI/PCI reports.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1) (FDD)

Use the same message as specified for condition A5 "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9 with exception as follow:

Information Element	Value/remark	Version
RB information to reconfigure list		
- RB information to reconfigure	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	600	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	250	
- Timer_poll	250	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not Present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	RACH	
- UL Transport channel identity	Not Present	
- Logical channel identity	7	
- CHOICE RLC size list	Explicit list	
- RLC size index	Reference to TS34.108 clause 6 Parameter Set	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	FACH	
- DL DCH Transport channel identity	Not Present	
- DL DSCH Transport channel identity	Not Present	
- Logical channel identity	7	
- RB stop/continue	Not Present	
Deleted DL TrCH information		
- Downlink transport channel type	HS-DSCH	
- DL HS-DSCH MAC-d flow identity	0	

RADIO BEARER RECONFIGURATION (Step 4)

Use the same message as specified for A4 "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with the exception as follow:

Information Element	Value/remark	Version
RAB information to reconfigure	(high-speed AM DTCH for PS domain)	
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.	

- CN domain identity	PS domain	
- NAS Synchronization Indicator	Not Present	
RB information to reconfigure list		
- RB information to reconfig	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- CHOICE RLC info type	RLC info	
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	2047	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	100	
- Timer_poll	100	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	50	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to clause 6 Parameter Set	
- Length indicator size	This IE is present and set to “7” if Downlink RLC PDU Size is set to “Flexible”	
- In-sequence delivery	TRUE	
- Receiving window size	2047	
- Downlink RLC status info		
- Timer_status_prohibit	80	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- Alternative E-bit interpretation	Not present	
- Use special value of HE field	TRUE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	E-DCH	
- Logical channel identity	7	
- E-DCH MAC-d flow identity	2	
- CHOICE RLC PDU size	Flexible size	
- Length indicator size	15 bit	
- Minimum UL RLC PDU size	See clause 6.10	
- Largest UL RLC PDU size	See clause 6.10	
- Include in scheduling info	TRUE	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	HS-DSCH	
- DL DCH Transport channel identity	Not present	
- DL DSCH Transport channel identity	Not present	
- CHOICE *DL MAC header type*	MAC-ehs	
- DL HS-DSCH MAC-ehs Queue Id	0	
- Logical channel identity	7	
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH MAC-d flow and one DTCH MAC-d flow	
- Uplink transport channel type	E-DCH	
- CHOICE UL parameters	E-DCH	

- UL MAC header type	Not present	
- UL MAC header type	MAC-i/is	
- E-DCH Transmission Time Interval	set to 2ms if supported by the UE E-DCH category, or 10ms if the UE E-DCH category does not support 2ms TTI	
- HARQ info for E-DCH		
- HARQ RV Configuration	rvtable	
- Added or reconfigured E-DCH MAC-d flow	(for DCCH)	
- E-DCH MAC-d flow identity	1	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Non-scheduled grant info	
- Max MAC-e PDU contents size	168 bits	
- Max MAC-e PDU contents size	162 bits	
- 2 ms non-scheduled transmission grant HARQ process allocation	Not Present	
- Added or reconfigured E-DCH MAC-d flow	(for DTCH)	
- E-DCH MAC-d flow identity	2	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Scheduled grant info	
Added or Reconfigured DL TrCH information list	2 TrCh (DCH for DCCH and HS-DSCH for DTCH)	
- Downlink transport channel type	DCH	
- DL Transport channel identity	10	
- CHOICE DL parameters	Same as UL	
- Uplink transport channel type	DCH	
- UL TrCH identity	5	
- DCH quality target		
- Downlink transport channel type	HS-DSCH	
- DL Transport channel identity	Not Present	
- CHOICE DL parameters	HS-DSCH	
- HARQ Info		
- Number of Processes	Reference to clause 6.10 Parameter Set	
- CHOICE *Memory Partitioning*	Implicit	
- CHOICE *DL MAC header type*	MAC-ehs	
- Added or reconfigured MAC-ehs reordering queue		
- MAC-ehs queue to add or reconfigure list	(one queue)	
- MAC-ehs queue Id	2 (for DTCH)	
- T1	50	
- MAC-ehs window size	64	
- DCH quality target	Not present	
Frequency info	Not Present	
MIMO parameters		
- MIMO operation	start	
- CHOICE mode	FDD	
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
- CHOICE Second CPICH pattern	Antenna1 S-CPICH	
- Channelisation code	13	
- Power Offet for S-CPICH for MIMO	0	
- Precoding weight set restriction	True	
Maximum allowed UL TX power	Not Present	
Uplink DPCH info		
- Uplink DPCH power control info		
- DPCCH power offset	-40 (-80dB)	
- PC Preamble	1 frame	
- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- TPC step size	0 (1dB)	
- ΔACK	3	
- ΔNACK	3	
- Ack-Nack repetition factor	1	

- HARQ_preamble_mode	0	
- Scrambling code type	Short	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- spreading factor	Reference to clause 6.10 Parameter Set	
- TFCI existence	Reference to clause 6.10 Parameter Set	
- Number of FBI bit	Reference to clause 6.10 Parameter Set	
- Puncturing Limit	Reference to clause 6.10 Parameter Set	
E-DCH info		
- MAC-es/e reset indicator	TRUE	
- E-DPCCH info		
- E-DPCCH/DPCCH power offset	0	
- Happy bit delay condition	100 ms	
- E-TFC Boost Info	Not Present	
- E-DPDCH power interpolation	Not Present	
- E-DPDCH info		
- E-TFCI table index	0	
- E-DCH minimum set E-TFCI	9	
- Reference E-TFCIs	2 E-TFCIs	
- Reference E-TFCI	11	
- Reference E-TFCI PO	4	
- Reference E-TFCI	83	
- Reference E-TFCI PO	16	
- Maximum channelisation codes	2sf4	
- PLnon-max	0.84	
- Scheduling Information Configuration		
- Periodicity for Scheduling Info – no grant	Not present	
- Periodicity for Scheduling Info – grant	Not present	
- Power Offset for Scheduling Info	0	
- 3-Index-Step Threshold	Not present	
- 2-Index-Step Threshold	Not present	
- Scheduled Transmission configuration		
- 2ms scheduled transmission grant HARQ process allocation	Not present	
- Serving Grant	Not present	
-UL 16QAM settings	Not Present	
Uplink secondary cell info FDD	Not Present	Rel 9
Downlink HS-PDSCH Information		Rel 9
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not Present	
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	6	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	8 dB	
- CQI Feedback cycle, k	8 ms	
- CQI repetition factor	1	
- Δ_{CQI}	4 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	FALSE	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	Not Present	
- Spreading factor	Reference to clause 6.10 Parameter Set	

- Code number	13	
- Scrambling code change	Not Present	
- TPC combination index	0	
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	
- CHOICE E-HICH Information	Not Present	
- CHOICE E-RGCH Information	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	TRUE	
- Downlink DPCH info for each RL	Not Present	
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Secondary scrambling code	Not Present	
- Code number	12	
- TPC combination index	0	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- CHOICE E-HICH Information		
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 3	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies	
Secondary cell MIMO parameters		Rel-9
- CHOICE *Configuration info*		
- Continue		
- New configuration		
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
-CHOICE *Second CPICH pattern*		
-Antenna2 P-CPICH	No data	
-Antenna1 S-CPICH		
-Channelisation code	15	
-Power Offset for S-CPICH for MIMO	0	

8.2.2.69.5 Test requirements

At step 2, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

At step 3, the UE shall not transmit any CQI report.

At step 5, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

At step 6, the UE shall on each stream on both Cell 1 and Cell 2 transmit CQI reports.

8.2.2.70 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH with PCI Restrictions and S-CPICH Power Offset IEs: Success (64QAM +MIMO)

8.2.2.70.1 Definition and applicability

All UE categories which support combined 64QAM and MIMO.

UE supports FDD and F-DPCH or Enhanced F-DPCH

8.2.2.70.2 Conformance requirement

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> if the IE "MIMO parameters" is not included:

2> clear the MIMO_PARAMS variable;

2> trigger lower layers to stop operation in MIMO mode.

1> otherwise:

2> for FDD, if the IE "MIMO N_cqi_type A/M_cqi ratio" is included:

3> store the value of the IE "MIMO N_cqi_type A/M_cqi ratio" in the MIMO_PARAMS variable.

2> for FDD, if the IE "MIMO pilot configuration" is included:

3> store the value of the IE "MIMO pilot configuration" in the MIMO_PARAMS variable.

2> for 1.28 Mcps TDD, if the IE "MIMO SF Mode for HS-PDSCH dual stream" is included:

3> store the value of the IE "MIMO SF Mode for HS-PDSCH dual stream" in the MIMO_PARAMS variable.

2> if the IE "MIMO operation" is set to "start":

3> for FDD, if the IE "Precoding weight set restriction" is included:

4> store the value of the IE "Precoding weight set restriction " in the MIMO_PARAMS variable. In addition, it shall be indicated to lower layers that precoding weight set restriction is configured.

3> else:

4> clear the value of the IE "Precoding weight set restriction" in the MIMO_PARAMS variable. In addition, it shall be indicated to lower layers that precoding weight set restriction is not configured.

2> else if the IE "MIMO operation" is set to "continue":

3> if the IE "Precoding weight set restriction" is included:

4> if the IE "Precoding weight set restriction" is already stored in the variable MIMO_PARAMS before receiving this message:

5> continue using "Precoding weight set restriction" for MIMO operation.

4> else:

5> UE behaviour is undefined.

3> else:

4> if the IE "Precoding weight set restriction" is already stored in the variable MIMO_PARAMS before receiving this message:

5> continue using "Precoding weight set restriction" for MIMO operation.

4> else:

5> continue MIMO operation without using "Precoding weight set restriction".

NOTE: This subclause applies to FDD and 1.28 Mcps TDD only.

[…]

1> for FDD, if the IE "Secondary CPICH Info" is included and if the IE "Channelisation code" in MIMO pilot configuration is different from the IE "Channelisation Code" in Secondary CPICH info:

2> the UE behavior is undefined.

1> for FDD, if the IE "Secondary CPICH Info" is included and if the IE "Power Offset For S-CPICH for MIMO" is provided, then pass the offset value received in the IE "Power Offset For S-CPICH for MIMO" to the lower layers.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message, the UE shall:

1> take actions related to the MIMO_PARAMS variable as specified in subclause 8.5.32;

1> determine the value of the MIMO_STATUS variable.

The MIMO_STATUS variable shall be set to TRUE only when all the following conditions are met:

1> The UE is in CELL_DCH state;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO N_cqi_type A/M_cqi ratio"; and

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO pilot configuration".

1> for 1.28 Mcps TDD, the variable MIMO_PARAMS contains a value for the IE "MIMO SF Mode for HS-PDSCH dual stream".

If any of the above conditions is not met and the MIMO_STATUS variable is set to TRUE, the UE shall:

1> set the MIMO_STATUS variable to FALSE;

1> clear the MIMO_PARAMS variable;

1> trigger lower layers to stop operation in MIMO mode.

[…]

With the exception of the provisions of subclause 6A.3, the following shall apply when the UE is configured in MIMO mode:

1) The UE derives the PCI value as defined in subclause 6A.4 and either a type A or a type B CQI value as

defined in subclause 6A.2.2 depending on which type of CQI shall be reported as defined below.

[…]

If the UE is not configured with precoding weight set restriction by the higher layers, the optimum precoding weight w_2^{pref} for antenna 2 is taken from the set:

$$w_2^{pref} \in \left\{ \frac{1+j}{2} \quad \frac{1-j}{2} \quad \frac{-1+j}{2} \quad \frac{-1-j}{2} \right\}$$

If the UE is configured with precoding weight set restriction by the higher layers, the optimum precoding vector weight w_2^{pref} for antenna 2 is taken from the set as defined in table 7J0.

Table 7J0 : Selection of the precoding weight set when the precoding weight set restriction is configured by higher layers

Number of Transport Blocks preferred in the composite PCI/CQI report	Precoding weight set from which the optimum precoding weight w_2^{pref} for antenna 2 is taken.
1	$w_2^{pref} \in \left\{ \frac{1+j}{2} \quad \frac{-1-j}{2} \right\}$
2	$w_2^{pref} \in \left\{ \frac{1+j}{2} \quad \frac{1-j}{2} \quad \frac{-1+j}{2} \quad \frac{-1-j}{2} \right\}$

The precoding weight w_2^{pref} is mapped to PCI values as defined in table 7J.

Table 7J: Mapping of preferred precoding weight w_2^{pref} to PCI values

w_2^{pref}	PCI value
$\frac{1+j}{2}$	0
$\frac{1-j}{2}$	1
$\frac{-1+j}{2}$	2
$\frac{-1-j}{2}$	3

Reference

3GPP TS 25.331 clause 8.5.32, 8.5.33,8.6.6.41

3GPP TS 25.214 clause 6A.1.2.2 , 6A.4

8.2.2.70.3 Test purpose

1. To confirm that the UE configures the lower layers with PCI restriction and S-CPICH Power offset IEs as signalled in RADIO BEARER SETUP message.

2. To confirm that the UE retains the PCI restriction and S-CPICH Power offset IEs when MIMO operation is set to “continue” according to the received RADIO BEARER RECONFIGURATION message (when PCI restriction and S-CPICH Power offset IEs are excluded).

3. To confirm that UE does not configure PCI restriction when the IE is not signalled and continue previously configured S-CPICH Power offset when MIMO operation is set to “start” according to the received RADIO BEARER RECONFIGURATION message.

4. To confirm that UE does not configure PCI restriction and continue previously configured S-CPICH Power offset upon receiving RADIO BEARER RECONFIGURATION message when PCI restriction and S-CPICH Power offset IEs are signaled but MIMO operation is set to “continue”.

8.2.2.70.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH DCH (state 6-7) under condition A28 as specified in clause 9 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE category supports combined 64QAM and MIMO
- UE supports F-DPCH or Enhanced F-DPCH

Test Procedure

Table 8.2.2.70-1

Parameter	Unit	Tx0-Rx0				Tx1-Rx1			
		T0	T1	T2	T3	T0	T1	T2	T3
CPICH Ec (FDD)	dBm/3.84MHz	-50	-50	-50	-50	-90	-90	-90	-90

The UE is in CELL_DCH state and only signalling radio bearers have been established.

The SS transmits a RADIO BEARER SETUP message including the RAB Information setup IE to configure PS domain RAB, and perform SRB mapping from DCH to E-DCH/HSDPA (with MIMO configured for L1with PCI restriction and S-CPICH power offset). The UE transmits a RADIO BEARER SETUP COMPLETE on DCCH. The UE shall configure the lower layers with signalled S-CPICH Power ofsset. UE sends combined CQI/PCI reports of type A/B continuously every 2 ms. The PCI values reported shall be restricted to 0 or 3 for type A CQIs where one transport block is preferred. For type A CQIs where two transport blocks are preferred, restriction shall not apply.

Then, SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 using the MIMO configuration with single data streams for the SS transmit antennae. The UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE.

The SS transmits a RADIO BEARER RECONFIGURATION message to the UE with MIMO operation set as CONTINUE (PCI restriction and S-CPICH Power offset IEs are excluded). The UE shall respond with RADIO BEARER RECONFIGURATION COMPLETE. UE shall continue to use the previously configured S-CPICH power offset IE signalled. UE sends combined CQI/PCI reports of type A/B continuously every 2 ms. The PCI values shall still be restricted to 0 or 3 for type A CQIs where one transport block is preferred. For type A CQIs where two transport blocks are preferred, restriction shall not apply.

Then, SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 using the MIMO configuration with single data streams for the SS transmit antennae. The UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE.

Then, SS transmits a RADIO BEARER RECONFIGURATION message, using MIMO configuration, to the UE to change the NM ratio and start MIMO operation with new parameters without PCI restriction and S-CPICH Power offset IEs being signalled. The UE shall respond with RADIO BEARER RECONFIGURATION COMPLETE. UE shall continue to use the previously configured S-CPICH power offset IE. UE sends combined CQI/PCI reports of type A/B continuously every 2 ms. The PCI values used for type A CQIs are no longer restricted and can range from values 0-3.

Then, SS transmits a RADIO BEARER RECONFIGURATION message to the UE with MIMO operation set as CONTINUE (PCI restriction and S-CPICH Power offset IEs are signalled). The UE shall respond with RADIO BEARER RECONFIGURATION COMPLETE. UE shall continue to use the previously configured S-CPICH power offset. UE sends combined CQI/PCI reports of type A/B continuously every 2 ms. The PCI values shall not be restricted and can range from values 0-3.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	Setup PS RAB on E-DCH/HSDPA. Reconfiguration of SRB mapping from DCH to E-DCH/HSDPA. PCI restriction and S-CPICH Power offset IEs are signalled.
2	→		RADIO BEARER SETUP COMPLETE	
3				UE shall transmit composite CQI/PCI reports of type A or type B. The SS shall check that for 500 consecutive CQI reports, 250 are type A and 250 of type B. PCI values of 0 or 3 shall be used by the UE for type A CQIs where one transport block is preferred. For type A CQIs where two transport blocks are preferred, the restriction does not apply. The UE shall configure the lower layers with signalled S-CPICH Power ofsset.
4	←		UE CAPABILITY ENQUIRY	Use default message. SRB2 is sent using the configured L1 MIMO configuration. i.e. single stream on antenna 1 and antenna 2 with separate modulation patterns on S-CPICH
5	→		UE CAPABILITY INFORMATION	
6	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH using configured L1 MIMO
7	←		RADIO BEARER RECONFIGURATION	SRB2 on HS-DSCH with MIMO operation set to CONTINUE. PCI restriction and S-CPICH Power offset IEs are excluded.
8	→		RADIO BEARER RECONFIGURATION COMPLETE	
9				UE shall transmit composite CQI/PCI reports of type A or type B. The SS shall check that for 500 consecutive CQI reports, 250 are type A and 250 of type B. PCI values of 0 or 3 shall be used by the UE for type A CQIs where one transport block is preferred. For type A CQIs where two transport blocks are preferred, the restriction does not apply.
10	←		UE CAPABILITY ENQUIRY	Use default message. SRB2 is sent using the configured L1 MIMO configuration. i.e. single stream on antenna 1 and antenna 2 with separate modulation patterns on S-CPICH
11	→		UE CAPABILITY INFORMATION	
12	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH using configured L1 MIMO
13	←		RADIO BEARER RECONFIGURATION	SRB2 on HS-DSCH with MIMO operation set to START, NM ratio changed to 4/5 and PCI restriction, S-CPICH Power offset IEs are excluded.
14	→		RADIO BEARER RECONFIGURATION COMPLETE	

15			UE shall transmit composite CQI/PCI reports of type A or type B. The SS shall check that for 500 consecutive CQI reports, 400 are type A and 100 of type B. PCI values of 0 - 3 shall be used by the UE for type A CQIs.
16	←	UE CAPABILITY ENQUIRY	Use default message. SRB2 is sent using the configured L1 MIMO configuration. i.e. single stream on antenna 1 and antenna 2 with separate modulation patterns on S-CPICH
17	→	UE CAPABILITY INFORMATION	
18	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH using configured L1 MIMO
19	←	RADIO BEARER RECONFIGURATION	SRB2 on HS-DSCH with MIMO operation set to CONTINUE, and PCI restriction, S-CPICH Power offset IEs are present.
20	→	RADIO BEARER RECONFIGURATION COMPLETE	
21			UE shall transmit composite CQI/PCI reports of type A or type B. The SS shall check that for 500 consecutive CQI reports, 400 are type A and 100 of type B. PCI values of 0 - 3 shall be used by the UE for type A CQIs.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for "Packet to CELL_DCH / HS-DSCH with enhanced data rate and RLC AM" and SRBs mapped on E-DCH/HS-DSCH(Mac-ehs) under condition A28 as specified in clause 9 in TS 34.108, except for the following

Information Element	Value/remark
Added or Reconfigured DL TrCH information	1 TrCH (HS-DSCH for DTCH and DCCH)
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	
- Number of Processes	12
- CHOICE *Memory Partitioning*	Implicit
- CHOICE *DL MAC header type*	
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	(two queues)
- MAC-ehs queue Id	0 (for DTCH)
- T1	50
- MAC-hs window size	16
- MAC-ehs queue Id	1 (for DCCH)
- MAC-d Flow Identity	1
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	148
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not present
- DCH quality target	Not present
MIMO Parameters	
- MIMO Operation	Start
- CHOICE mode	FDD
- MIMO N_cqi_type A/M_cqi ratio	½
- MIMO pilot configuration	

Information Element	Value/remark
- CHOICE Second CPICH pattern	Antenna1 S-CPICH
- Channelisation code	13
Downlink HS-PDSCH Information	
- CHOICE mode	FDD
- DL Scrambling Code	Not Present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	12 (6 dB)
- CQI Feedback cycle, k	2 ms
- CQI repetition factor	1
- Δ_{CQI}	5
- Downlink 64QAM configured	Present
- HS-DSCH TB size table	Octet Aligned
MIMO-PilotConfiguration-v7f0ext	
- s-cpich-PowerOffset-Mimo	-3
MIMO-Parameters-v7g0ext	
-precodingWeightSetRestriction	TRUE

UE CAPABILITY ENQUIRY (Steps 4, 10,16)

Use the same message sub-type found in TS 34.108 clause 9.1

UE CAPABILITY INFORMATION (Steps 5, 11,17)

Use the same message sub-type found in TS 34.108 clause 9.

UE CAPABILITY INFORMATION CONFIRM (Steps 6, 12,18)

Use the same message sub-type found in TS 34.108 clause 9.1

RADIO BEARER RECONFIGURATION (Step 7) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
HARQ Info	
- Number of processes	12
- CHOICE *Memory Partitioning*	
- Implicit	
Frequency info	Not present
MIMO Parameters	
- MIMO Operation	CONTINUE
- CHOICE mode	FDD
Maximum allowed UL TX power	Not present
Uplink DPCH info	Not present
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	12 (6 dB)
- CQI Feedback cycle, k	2 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
- Downlink 64QAM configured	Present
- HS-DSCH TB size table	Octet Aligned
Downlink information common for all radio links	Not Present
Downlink information for each radio link list	Not Present
MIMO-PilotConfiguration-v7f0ext	
- s-cpich-PowerOffset-Mimo	Not present
MIMO-Parameters-v7g0ext	
-precodingWeightSetRestriction	Not present

RADIO BEARER RECONFIGURATION (Step 13) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
HARQ Info	
- Number of processes	12
- CHOICE *Memory Partitioning*	
- Implicit	
Frequency info	Not present
MIMO Parameters	
- MIMO Operation	START
- CHOICE mode	FDD
- MIMO N_cqi_type A/M_cqi ratio	4/5
- MIMO pilot configuration	
- CHOICE Second CPICH pattern Antenna1	S-CPICH
- Channelisation code	13
Maximum allowed UL TX power	Not present
Uplink DPCH info	Not present
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	12 (6 dB)
- CQI Feedback cycle, k	2 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
- Downlink 64QAM configured	Present
- HS-DSCH TB size table	Octet Aligned
Downlink information common for all radio links	Not Present
Downlink information for each radio link list	Not Present
MIMO-PilotConfiguration-v7f0ext	
- s-cpich-PowerOffset-Mimo	Not present
MIMO-Parameters-v7g0ext	
-precodingWeightSetRestriction	Not present

RADIO BEARER RECONFIGURATION (Step 19) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
HARQ Info	
- Number of processes	12
- CHOICE *Memory Partitioning*	
- Implicit	
Frequency info	Not present
MIMO Parameters	
- MIMO Operation	CONTINUE
- CHOICE mode	FDD
Maximum allowed UL TX power	Not present
Uplink DPCH info	Not present
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	12 (6 dB)
- CQI Feedback cycle, k	2 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
- Downlink 64QAM configured	Present
- HS-DSCH TB size table	Octet Aligned
Downlink information common for all radio links	Not Present
Downlink information for each radio link list	Not Present
MIMO-PilotConfiguration-v7f0ext	
- s-cpich-PowerOffset-Mimo	-3
MIMO-Parameters-v7g0ext	
-precodingWeightSetRestriction	TRUE

8.2.2.70.5 Test requirements

At step 2, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

At step 3 and step 9, the UE shall transmit CQI reports of type A and type B. PCI values of 0 or 3 shall be used by the UE for type A CQIs where one transport block is preferred. For type A CQIs where two transport blocks are preferred, the restriction does not apply. The UE shall configure the lower layers with signalled S-CPICH Power ofsset.

At step 5 ,11 and 17 the UE shall transmit UE CAPABILITY INFORMATION using AM RLC.

At step 8, 14 and 20 , the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message

At step 15, the UE shall transmit CQI reports of type A and type B as per the signaled N_M Ratio. PCI values of 0 to 3 shall be used by the UE for type A CQIs being reported. The UE shall configure the lower layers with S-CPICH Power ofsset signalled previously i.e in RADIO BEARER SETUP message.

At step 21, the UE shall transmit CQI reports of type A and type B. PCI values of 0 to 3 shall be used by the UE for type A CQIs being reported. The UE shall configure the lower layers with S-CPICH Power ofsset signalled previously i.e in RADIO BEARER SETUP message.

8.2.2.71 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH with PCI Restrictions and S-CPICH Power Offset IEs: Success (16QAM +MIMO)

8.2.2.71.1 Definition and applicability

All UE categories which support MIMO.

UE supports FDD and F-DPCH or Enhanced F-DPCH

8.2.2.71.2 Conformance requirement

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> if the IE "MIMO parameters" is not included:

2> clear the MIMO_PARAMS variable;

2> trigger lower layers to stop operation in MIMO mode.

1> otherwise:

2> for FDD, if the IE "MIMO N_cqi_type A/M_cqi ratio" is included:

3> store the value of the IE "MIMO N_cqi_type A/M_cqi ratio" in the MIMO_PARAMS variable.

2> for FDD, if the IE "MIMO pilot configuration" is included:

3> store the value of the IE "MIMO pilot configuration" in the MIMO_PARAMS variable.

2> for 1.28 Mcps TDD, if the IE "MIMO SF Mode for HS-PDSCH dual stream" is included:

3> store the value of the IE "MIMO SF Mode for HS-PDSCH dual stream" in the MIMO_PARAMS variable.

2> if the IE "MIMO operation" is set to "start":

3> for FDD, if the IE "Precoding weight set restriction" is included:

4> store the value of the IE "Precoding weight set restriction " in the MIMO_PARAMS variable. In addition, it shall be indicated to lower layers that precoding weight set restriction is configured.

3> else:

4> clear the value of the IE "Precoding weight set restriction" in the MIMO_PARAMS variable. In addition, it shall be indicated to lower layers that precoding weight set restriction is not configured.

2> else if the IE "MIMO operation" is set to "continue":

3> if the IE "Precoding weight set restriction" is included:

4> if the IE "Precoding weight set restriction" is already stored in the variable MIMO_PARAMS before receiving this message:

5> continue using "Precoding weight set restriction" for MIMO operation.

4> else:

5> UE behaviour is undefined.

3> else:

4> if the IE "Precoding weight set restriction" is already stored in the variable MIMO_PARAMS before receiving this message:

5> continue using "Precoding weight set restriction" for MIMO operation.

4> else:

5> continue MIMO operation without using "Precoding weight set restriction".

NOTE: This subclause applies to FDD and 1.28 Mcps TDD only.

[…]

1> for FDD, if the IE "Secondary CPICH Info" is included and if the IE "Channelisation code" in MIMO pilot configuration is different from the IE "Channelisation Code" in Secondary CPICH info:

2> the UE behavior is undefined.

1> for FDD, if the IE "Secondary CPICH Info" is included and if the IE "Power Offset For S-CPICH for MIMO" is provided, then pass the offset value received in the IE "Power Offset For S-CPICH for MIMO" to the lower layers.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message, the UE shall:

1> take actions related to the MIMO_PARAMS variable as specified in subclause 8.5.32;

1> determine the value of the MIMO_STATUS variable.

The MIMO_STATUS variable shall be set to TRUE only when all the following conditions are met:

1> The UE is in CELL_DCH state;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO N_cqi_type A/M_cqi ratio"; and

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO pilot configuration".

1> for 1.28 Mcps TDD, the variable MIMO_PARAMS contains a value for the IE "MIMO SF Mode for HS-PDSCH dual stream".

If any of the above conditions is not met and the MIMO_STATUS variable is set to TRUE, the UE shall:

1> set the MIMO_STATUS variable to FALSE;

1> clear the MIMO_PARAMS variable;

1> trigger lower layers to stop operation in MIMO mode.

[…]

With the exception of the provisions of subclause 6A.3, the following shall apply when the UE is configured in MIMO mode:

2) The UE derives the PCI value as defined in subclause 6A.4 and either a type A or a type B CQI value as

defined in subclause 6A.2.2 depending on which type of CQI shall be reported as defined below.

[…]

If the UE is not configured with precoding weight set restriction by the higher layers, the optimum precoding weight w_2^{pref} for antenna 2 is taken from the set:

$$w_2^{\text{pref}} \in \left\{ \frac{1+j}{2} \quad \frac{1-j}{2} \quad \frac{-1+j}{2} \quad \frac{-1-j}{2} \right\}$$

If the UE is configured with precoding weight set restriction by the higher layers, the optimum precoding vector weight w_2^{pref} for antenna 2 is taken from the set as defined in table 7J0.

Table 7J0 : Selection of the precoding weight set when the precoding weight set restriction is configured by higher layers

Number of Transport Blocks preferred in the composite PCI/CQI report	Precoding weight set from which the optimum precoding weight w_2^{pref} for antenna 2 is taken.
1	$w_2^{pref} \in \left\{ \frac{1+j}{2} \quad \frac{-1-j}{2} \right\}$
2	$w_2^{pref} \in \left\{ \frac{1+j}{2} \quad \frac{1-j}{2} \quad \frac{-1+j}{2} \quad \frac{-1-j}{2} \right\}$

The precoding weight w_2^{pref} is mapped to PCI values as defined in table 7J.

Table 7J: Mapping of preferred precoding weight w_2^{pref} to PCI values

w_2^{pref}	PCI value
$\frac{1+j}{2}$	0
$\frac{1-j}{2}$	1
$\frac{-1+j}{2}$	2
$\frac{-1-j}{2}$	3

Reference

3GPP TS 25.331 clause 8.5.32, 8.5.33,8.6.6.41

3GPP TS 25.214 clause 6A.1.2.2 , 6A.4

8.2.2.71.3 Test purpose

1. To confirm that the UE configures the lower layers with PCI restriction and S-CPICH Power offset IEs as signalled in RADIO BEARER SETUP message.

2. To confirm that the UE retains the PCI restriction and S-CPICH Power offset IEs when MIMO operation is set to "CONTINUE" according to the received RADIO BEARER RECONFIGURATION message (when PCI restriction and S-CPICH Power offset IEs are excluded).

3. To confirm that UE does not configure PCI restriction when the IE is not signalled and continue previously configured S-CPICH Power offset when MIMO operation is set to "start" according to the received RADIO BEARER RECONFIGURATION message.

4. To confirm that UE does not configure PCI restriction and continue previously configured S-CPICH Power offset upon receiving RADIO BEARER RECONFIGURATION message when PCI restriction and S-CPICH Power offset IEs are signaled but MIMO operation is set to "CONTINUE".

8.2.2.71.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH E-DCH (state 6-18) under condition A28a as specified in clause 9 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE category supports MIMO
- UE supports F-DPCH or Enhanced F-DPCH

Test Procedure

Table 8.2.2.71-1

Parameter	Unit	Tx0-Rx0	Tx1-Rx1
CPICH Ec (FDD)	dBm/3.84MHz	-60	-63

The UE is in CELL_DCH state and only signalling radio bearers have been established.

The SS transmits a RADIO BEARER SETUP message including the RAB Information setup IE to configure PS domain RAB, and perform SRB mapping to E-DCH/HS-DSCH (with MIMO configured for L1with PCI restriction and S-CPICH power offset). The UE transmits a RADIO BEARER SETUP COMPLETE on DCCH. The UE shall configure the lower layers with signalled S-CPICH Power ofsset. UE sends combined CQI/PCI reports of type A/B continuously every 2 ms. The PCI values reported shall be restricted to 0 or 3 for type A CQIs where one transport block is preferred. For type A CQIs where two transport blocks are preferred, restriction shall not apply.

Then, SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 using the MIMO configuration with single data streams for the SS transmit antennae. The UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE.

The SS transmits a RADIO BEARER RECONFIGURATION message to the UE with MIMO operation set as “CONTINUE” (PCI restriction and S-CPICH Power offset IEs are excluded). The UE shall respond with RADIO BEARER RECONFIGURATION COMPLETE. UE shall continue to use the previously configured S-CPICH power offset IE signaled. UE sends combined CQI/PCI reports of type A/B continuously every 2 ms. The PCI values shall still be restricted to 0 or 3 for type A CQIs where one transport block is preferred. For type A CQIs where two transport blocks are preferred, restriction shall not apply.

Then, SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 using the MIMO configuration with single data streams for the SS transmit antennae. The UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE.

Then, SS transmits a RADIO BEARER RECONFIGURATION message, using MIMO configuration, to the UE to change the NM ratio and start MIMO operation with new parameters without PCI restriction and S-CPICH Power offset IEs being signalled. The UE shall respond with RADIO BEARER RECONFIGURATION COMPLETE. UE shall continue to use the previously configured S-CPICH power offset IE. UE sends combined CQI/PCI reports of type A/B continuously every 2 ms. The PCI values used for type A CQIs are no longer restricted and can range from values 0-3.

Then, SS transmits a RADIO BEARER RECONFIGURATION message to the UE with MIMO operation set as “continue” (PCI restriction and S-CPICH Power offset IEs are signalled). The UE shall respond with RADIO BEARER RECONFIGURATION COMPLETE. UE shall continue to use the previously configured S-CPICH power offset. UE sends combined CQI/PCI reports of type A/B continuously every 2 ms. The PCI values shall not be restricted and can range from values 0-3.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	Setup PS RAB on E-DCH/HS-DSCH. PCI restriction and S-CPICH Power offset IEs are signalled.
2	→		RADIO BEARER SETUP COMPLETE	
3				UE shall transmit composite CQI/PCI reports of type A or type B. The SS shall check that for 500 consecutive CQI reports, 250 are type A and 250 of type B. PCI values of 0 or 3 shall be used by the UE for type A CQIs where one transport block is preferred. For type A CQIs where two transport blocks are preferred, the restriction does not apply. The UE shall configure the lower layers with signalled S-CPICH Power ofsset.
4	←		UE CAPABILITY ENQUIRY	Use default message. SRB2 is sent using the configured L1 MIMO configuration. i.e. single stream on antenna 1 and antenna 2 with separate modulation patterns on S-CPICH
5	→		UE CAPABILITY INFORMATION	
6	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH using configured L1 MIMO
7	←		RADIO BEARER RECONFIGURATION	SRB2 on HS-DSCH with MIMO operation set to “continue”. PCI restriction and S-CPICH Power offset IEs are excluded.
8	→		RADIO BEARER RECONFIGURATION COMPLETE	
9				UE shall transmit composite CQI/PCI reports of type A or type B. The SS shall check that for 500 consecutive CQI reports, 250 are type A and 250 of type B. PCI values of 0 or 3 shall be used by the UE for type A CQIs where one transport block is preferred. For type A CQIs where two transport blocks are preferred, the restriction does not apply.
10	←		UE CAPABILITY ENQUIRY	Use default message. SRB2 is sent using the configured L1 MIMO configuration. i.e. single stream on antenna 1 and antenna 2 with separate modulation patterns on S-CPICH
11	→		UE CAPABILITY INFORMATION	
12	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH using configured L1 MIMO
13	←		RADIO BEARER RECONFIGURATION	SRB2 on HS-DSCH with MIMO operation set to START, NM ratio changed to 4/5 and PCI restriction, S-CPICH Power offset IEs are excluded.
14	→		RADIO BEARER RECONFIGURATION COMPLETE	

15			UE shall transmit composite CQI/PCI reports of type A or type B. The SS shall check that for 500 consecutive CQI reports, 400 are type A and 100 of type B. PCI values of 0 - 3 shall be used by the UE for type A CQIs.
16	←	UE CAPABILITY ENQUIRY	Use default message. SRB2 is sent using the configured L1 MIMO configuration. i.e. single stream on antenna 1 and antenna 2 with separate modulation patterns on S-CPICH
17	→	UE CAPABILITY INFORMATION	
18	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH using configured L1 MIMO
19	←	RADIO BEARER RECONFIGURATION	SRB2 on HS-DSCH with MIMO operation set to “continue”, and PCI restriction, S-CPICH Power offset IEs are present.
20	→	RADIO BEARER RECONFIGURATION COMPLETE	
21			UE shall transmit composite CQI/PCI reports of type A or type B. The SS shall check that for 500 consecutive CQI reports, 400 are type A and 100 of type B. PCI values of 0 - 3 shall be used by the UE for type A CQIs.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for "Packet to CELL_DCH / HS-DSCH with enhanced data rate and RLC AM” and SRBs mapped on E-DCH/HS-DSCH(Mac-ehs) under condition A28a as specified in clause 9 of TS34.108, except for the following

Information Element	Value/remark
Added or Reconfigured DL TrCH information	1 TrCH (HS-DSCH for DTCH and DCCH)
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	
- Number of Processes	12
- CHOICE *Memory Partitioning*	Implicit
- CHOICE *DL MAC header type*	
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	(two queues)
- MAC-ehs queue Id	0 (for DTCH)
- T1	50
- MAC-hs window size	16
- MAC-ehs queue Id	1 (for DCCH)
- MAC-d Flow Identity	1
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	148
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not present
- DCH quality target	Not present
MIMO Parameters	
- MIMO Operation	Start
- CHOICE mode	FDD
- MIMO N_cqi_type A/M_cqi ratio	½
- MIMO pilot configuration	

Information Element	Value/remark
- CHOICE Second CPICH pattern	Antenna1 S-CPICH
- Channelisation code	13
Downlink HS-PDSCH Information	
- CHOICE mode	FDD
- DL Scrambling Code	Not Present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	12 (6 dB)
- CQI Feedback cycle, k	2 ms
- CQI repetition factor	1
- Δ_{CQI}	5
- Downlink 64QAM configured	Not Present
- HS-DSCH TB size table	Octet Aligned
MIMO-PilotConfiguration-v7f0ext	
- s-cpich-PowerOffset-Mimo	-3
MIMO-Parameters-v7g0ext	
-precodingWeightSetRestriction	TRUE

UE CAPABILITY ENQUIRY (Steps 4, 10,16)

Use the same message sub-type found in TS 34.108 clause 9.1

UE CAPABILITY INFORMATION (Steps 5, 11,17)

Use the same message sub-type found in TS 34.108 clause 9.

UE CAPABILITY INFORMATION CONFIRM (Steps 6, 12,18)

Use the same message sub-type found in TS 34.108 clause 9.1

RADIO BEARER RECONFIGURATION (Step 7) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
HARQ Info	
- Number of processes	12
- CHOICE *Memory Partitioning*	
- Implicit	
Frequency info	Not present
MIMO Parameters	
- MIMO Operation	CONTINUE
- CHOICE mode	FDD
Maximum allowed UL TX power	Not present
Uplink DPCH info	Not present
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	12 (6 dB)
- CQI Feedback cycle, k	2 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
- Downlink 64QAM configured	Not Present
- HS-DSCH TB size table	Octet Aligned
Downlink information common for all radio links	Not Present
Downlink information for each radio link list	Not Present
MIMO-PilotConfiguration-v7f0ext	
- s-cpich-PowerOffset-Mimo	Not present
MIMO-Parameters-v7g0ext	
-precodingWeightSetRestriction	Not present

RADIO BEARER RECONFIGURATION (Step 13) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
HARQ Info	
- Number of processes	12
- CHOICE *Memory Partitioning*	
- Implicit	
Frequency info	Not present
MIMO Parameters	
- MIMO Operation	START
- CHOICE mode	FDD
- MIMO N_cqi_type A/M_cqi ratio	4/5
- MIMO pilot configuration	
- CHOICE Second CPICH pattern Antenna1	S-CPICH
- Channelisation code	13
Maximum allowed UL TX power	Not present
Uplink DPCH info	Not present
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	12 (6 dB)
- CQI Feedback cycle, k	2 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
- Downlink 64QAM configured	Not Present
- HS-DSCH TB size table	Octet Aligned
Downlink information common for all radio links	Not Present
Downlink information for each radio link list	Not Present
MIMO-PilotConfiguration-v7f0ext	
- s-cpich-PowerOffset-Mimo	Not present
MIMO-Parameters-v7g0ext	
-precodingWeightSetRestriction	Not present

RADIO BEARER RECONFIGURATION (Step 19) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
HARQ Info	
- Number of processes	12
- CHOICE *Memory Partitioning*	
- Implicit	
Frequency info	Not present
MIMO Parameters	
- MIMO Operation	CONTINUE
- CHOICE mode	FDD
Maximum allowed UL TX power	Not present
Uplink DPCH info	Not present
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	12 (6 dB)
- CQI Feedback cycle, k	2 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
- Downlink 64QAM configured	Not Present
- HS-DSCH TB size table	Octet Aligned
Downlink information common for all radio links	Not Present
Downlink information for each radio link list	Not Present
MIMO-PilotConfiguration-v7f0ext	
- s-cpich-PowerOffset-Mimo	-3
MIMO-Parameters-v7g0ext	
-precodingWeightSetRestriction	TRUE

8.2.2.71.5 Test requirements

At step 2, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

At step 3 and step 9, the UE shall transmit CQI reports of type A and type B. PCI values of 0 or 3 shall be used by the UE for type A CQIs where one transport block is preferred. For type A CQIs where two transport blocks are preferred, the restriction does not apply. The UE shall configure the lower layers with signalled S-CPICH Power offset.

At step 5, 11 and 17, the UE shall transmit UE CAPABILITY INFORMATION using AM RLC.

At step 8, 14 and 20, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message

At step 15, the UE shall transmit CQI reports of type A and type B as per the signaled N_M Ratio. PCI values of 0 to 3 shall be used by the UE for type A CQIs being reported. The UE shall configure the lower layers with S-CPICH Power offset signalled previously i.e in RADIO BEARER SETUP message.

At step 21, the UE shall transmit CQI reports of type A and type B. PCI values of 0 to 3 shall be used by the UE for type A CQIs being reported. The UE shall configure the lower layers with S-CPICH Power offset signalled previously i.e in RADIO BEARER SETUP message.

8.2.2.72 Radio Bearer Reconfiguration for S-CPICH based MIMO with DPCH in STTD: (16QAM +MIMO)

8.2.2.72.1 Definition and applicability

All UE categories which support MIMO.

UE supports FDD and F-DPCH or Enhanced F-DPCH

8.2.2.72.2 Conformance requirement

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> if the IE "MIMO parameters" is not included:

2> clear the MIMO_PARAMS variable;

2> trigger lower layers to stop operation in MIMO mode.

1> otherwise:

2> for FDD, if the IE "MIMO N_cqi_type A/M_cqi ratio" is included:

3> store the value of the IE "MIMO N_cqi_type A/M_cqi ratio" in the MIMO_PARAMS variable.

2> for FDD, if the IE "MIMO pilot configuration" is included:

3> store the value of the IE "MIMO pilot configuration" in the MIMO_PARAMS variable.

2> for 1.28 Mcps TDD, if the IE "MIMO SF Mode for HS-PDSCH dual stream" is included:

3> store the value of the IE "MIMO SF Mode for HS-PDSCH dual stream" in the MIMO_PARAMS variable.

2> if the IE "MIMO operation" is set to "start":

3> for FDD, if the IE "Precoding weight set restriction" is included:

4> store the value of the IE "Precoding weight set restriction" in the MIMO_PARAMS variable. In addition, it shall be indicated to lower layers that precoding weight set restriction is configured.

3> else:

4> clear the value of the IE "Precoding weight set restriction" in the MIMO_PARAMS variable. In addition, it shall be indicated to lower layers that precoding weight set restriction is not configured.

2> else if the IE "MIMO operation" is set to "continue":

3> if the IE "Precoding weight set restriction" is included:

4> if the IE "Precoding weight set restriction" is already stored in the variable MIMO_PARAMS before receiving this message:

5> continue using "Precoding weight set restriction" for MIMO operation.

4> else:

5> UE behaviour is undefined.

3> else:

4> if the IE "Precoding weight set restriction" is already stored in the variable MIMO_PARAMS before receiving this message:

5> continue using "Precoding weight set restriction" for MIMO operation.

4> else:

5> continue MIMO operation without using "Precoding weight set restriction".

NOTE: This subclause applies to FDD and 1.28 Mcps TDD only.

[…]

1> for FDD, if the IE "Secondary CPICH Info" is included and if the IE "Channelisation code" in MIMO pilot configuration is different from the IE "Channelisation Code" in Secondary CPICH info:

2> the UE behaviour is undefined.

1> for FDD, if the IE "Secondary CPICH Info" is included and if the IE "Power Offset For S-CPICH for MIMO" is provided, then pass the offset value received in the IE "Power Offset For S-CPICH for MIMO" to the lower layers.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message, the UE shall:

1> take actions related to the MIMO_PARAMS variable as specified in subclause 8.5.32;

1> determine the value of the MIMO_STATUS variable.

The MIMO_STATUS variable shall be set to TRUE only when all the following conditions are met:

1> The UE is in CELL_DCH state;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO N_cqi_type A/M_cqi ratio"; and

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO pilot configuration".

1> for 1.28 Mcps TDD, the variable MIMO_PARAMS contains a value for the IE "MIMO SF Mode for HS-PDSCH dual stream".

If any of the above conditions is not met and the MIMO_STATUS variable is set to TRUE, the UE shall:

1> set the MIMO_STATUS variable to FALSE;

1> clear the MIMO_PARAMS variable;

5> trigger lower layers to stop operation in MIMO mode.

[…]

If the IE "Tx Diversity Mode" is included the UE shall:

1> if the value of the IE "Tx Diversity Mode" is STTD:

2> configure the Layer 1 to use the Tx diversity mode indicated in the IE "Tx Diversity Mode" for the radio links for which the IE "Closed loop timing adjustment mode" is included, ignoring the actual value of IE "Closed loop timing adjustment mode".

1> if the value of the IE "Tx Diversity Mode" is closed loop mode 1:

2> configure the Layer 1 to use the Tx diversity mode indicated in the IE "Tx Diversity Mode" for the radio links for which the IE "Closed loop timing adjustment mode" is included, using the actual value of the IE "Closed loop timing adjustment mode".

1> if the value of the IE "Tx Diversity Mode" is "none":

2> configure the Layer 1 not to use Tx diversity for all radio links in the active set.

If the IE "Tx Diversity Mode" is not included, the UE shall:

1> continue to use the already configured Tx diversity mode;

1> in case no Tx diversity mode has been configured:

2> do not apply Tx diversity.

For F-DPCH the UE shall:

1> if the IE "STTD indication" is included in the IE "Downlink F-DPCH info for each RL":

2> use STTD for F-DPCH on the radio links for which the IE "STTD indication" is set to TRUE

Reference

3GPP TS 25.331 clause 8.5.32, 8.5.33, 8.6.6.41, 8.6.6.24

8.2.2.72.3 Test purpose

1. To confirm that the UE configures the radio bearer parameters and starts MIMO reception according to the received RADIO BEARER SETUP message and configures layer 1 to use STTD as Tx diversity mode for F-DPCH.
2. To confirm that the UE configures the radio bearers to stop MIMO reception according to the received RADIO BEARER RECONFIGURATION message and configures layer 1 to use STTD as Tx diversity mode for F-DPCH.

8.2.2.72.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH E-DCH (state 6-18) under condition A28a as specified in clause 9 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE category supports MIMO
- UE supports F-DPCH or Enhanced F-DPCH

Test Procedure

The UE is in CELL_DCH state and only signalling radio bearers have been established.

The SS transmits a RADIO BEARER SETUP message including the RAB Information setup IE to configure PS domain RAB, and perform SRB mapping to E-DCH/HS-DSCH (with MIMO configured for L1). The tx-diversity mode for F-DPCH shall be set to STTD.The UE transmits a RADIO BEARER SETUP COMPLETE on DCCH. UE sends combined CQI/PCI reports of type A/B continuously every 2 ms.

Then, SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 using the MIMO configuration with single data streams for the SS transmit antennae. The UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE.

The SS transmits a RADIO BEARER RECONFIGURATION message,using MIMO configuration to the UE to deactivate MIMO and configure user plane bearers for normal HS-DSCH reception i.e. non MIMO. The tx-diversity mode for F-DPCH shall be set to STTD.The UE shall respond with RADIO BEARER RECONFIGURATION COMPLETE. UE sends combined CQI/PCI reports of type A/B continuously every 8 ms.

Then, SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 using the MIMO configuration with single data streams for the SS transmit antennae. The UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE.

Then, SS transmits a RADIO BEARER RECONFIGURATION message, using MIMO configuration, to the UE to change the NM ratio and start MIMO operation. The tx-diversity mode for F-DPCH shall be set to STTD. The UE shall respond with RADIO BEARER RECONFIGURATION COMPLETE. UE sends combined CQI/PCI reports of type A/B continuously every 2 ms.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	Setup PS RAB on E-DCH/HS-DSCH. Tx-diversity mode for F-DPCH is set to STTD.
2	→		RADIO BEARER SETUP COMPLETE	
3				UE shall transmit composite CQI/PCI reports of type A or type B. The SS shall check that for 500 consecutive CQI reports, 250 are type A and 250 of type B.
4	←		UE CAPABILITY ENQUIRY	Use default message. SRB2 is sent using the configured L1 MIMO configuration. i.e. single stream on antenna 1 and antenna 2 with separate modulation patterns on S-CPICH
5	→		UE CAPABILITY INFORMATION	
6	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH using configured L1 MIMO
7	←		RADIO BEARER RECONFIGURATION	SRB2 on HS-DSCH with MIMO parameters absent
8	→		RADIO BEARER RECONFIGURATION COMPLETE	
9				UE should transmit CQI reports without PCI values every 8ms. Tx-diversity mode for F-DPCH is set to STTD.
10	←		UE CAPABILITY ENQUIRY	Use default message. SRB2 sent on HS-DSCH
11	→		UE CAPABILITY INFORMATION	
12	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 on HS-DSCH
13	←		RADIO BEARER RECONFIGURATION	SRB2 on HS-DSCH with MIMO operation set to START, NM ratio changed to 4/5 and Tx-diversity mode for F-DPCH set to STTD.
14	→		RADIO BEARER RECONFIGURATION COMPLETE	
15				UE shall transmit composite CQI/PCI reports of type A or type B. The SS shall check that for 500 consecutive CQI reports, 400 are type A and 100 of type B.
16	←		UE CAPABILITY ENQUIRY	Use default message. SRB2 is sent using the configured L1 MIMO configuration. i.e. single stream on antenna 1 and antenna 2 with separate modulation patterns on S-CPICH
17	→		UE CAPABILITY INFORMATION	
18	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH using configured L1 MIMO

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for "Packet to CELL_DCH / HS-DSCH with enhanced data rate and RLC AM" and SRBs mapped on E-DCH/HS-DSCH(Mac-ehs) under condition A28a as specified in clause 9 of TS34.108, except for the following

Information Element	Value/remark
Added or Reconfigured DL TrCH information	1 TrCH (HS-DSCH for DTCH and DCCH)
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	
- Number of Processes	12
- CHOICE *Memory Partitioning*	Implicit
- CHOICE *DL MAC header type*	
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	(two queues)
- MAC-ehs queue Id	0 (for DTCH)
- T1	50
- MAC-hs window size	16
- MAC-ehs queue Id	1 (for DCCH)
- MAC-d Flow Identity	1
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	148
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not present
- DCH quality target	Not present
MIMO Parameters	
- MIMO Operation	Start
- CHOICE mode	FDD
- MIMO N_cqi_type A/M_cqi ratio	½
- MIMO pilot configuration	
- CHOICE Second CPICH pattern	Antenna1 S-CPICH
- Channelisation code	13
Downlink HS-PDSCH Information	
- CHOICE mode	FDD
- DL Scrambling Code	Not Present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	12 (6 dB)
- CQI Feedback cycle, k	2 ms
- CQI repetition factor	1
- Δ_{CQI}	5
- Downlink 64QAM configured	Not Present
- HS-DSCH TB size table	Octet Aligned
DL-CommonInformation	
-dl-DPCH-InfoCommon	
-CHOICE mode	FDD
-tx-DiversityMode	STTD
DL-FDPCH-InfoPerRL-r7	
-sttdIndication	TRUE

UE CAPABILITY ENQUIRY (Steps 4, 10,16)

Use the same message sub-type found in TS 34.108 clause 9.1

UE CAPABILITY INFORMATION (Steps 5, 11,17)

Use the same message sub-type found in TS 34.108 clause 9.

UE CAPABILITY INFORMATION CONFIRM (Steps 6, 12,18)

Use the same message sub-type found in TS 34.108 clause 9.1

RADIO BEARER RECONFIGURATION (Step 7) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
HARQ Info	
- Number of processes	6
- CHOICE *Memory Partitioning*	
- Implicit	
Frequency info	Not present
MIMO Parameters	Not present
Maximum allowed UL TX power	Not present
Uplink DPCH info	Not present
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	12 (6 dB)
- CQI Feedback cycle, k	8 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
- Downlink 64QAM configured	Not Present
- HS-DSCH TB size table	Octet Aligned
DL-CommonInformation	
-dl-DPCH-InfoCommon	
-CHOICE mode	FDD
-tx-DiversityMode	STTD
DL-FDPCH-InfoPerRL-r7	
-sttdIndication	TRUE

RADIO BEARER RECONFIGURATION (Step 13) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
HARQ Info	
- Number of processes	12
- CHOICE *Memory Partitioning*	
- Implicit	
Frequency info	Not present
MIMO Parameters	
- MIMO Operation	START
- CHOICE mode	FDD
- MIMO N_cqi_type A/M_cqi ratio	4/5
- MIMO pilot configuration	
- CHOICE Second CPICH pattern Antenna1	S-CPICH
- Channelisation code	13
Maximum allowed UL TX power	Not present
Uplink DPCH info	Not present
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	12 (6 dB)
- CQI Feedback cycle, k	2 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
- Downlink 64QAM configured	Not Present
- HS-DSCH TB size table	Octet Aligned
DL-CommonInformation	
-dl-DPCH-InfoCommon	FDD
-CHOICE mode	STTD
-tx-DiversityMode	
DL-FDPCH-InfoPerRL-r7	TRUE
-sttdIndication	

8.2.2.72.5 Test requirements

At step 2, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

At step 3, the UE shall transmit CQI reports of type A and type B as per the signalled N_M ratio.

At step 5 ,11 and 17 the UE shall transmit UE CAPABILITY INFORMATION using AM RLC.

At step 8 and 14 , the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message

At step 15, the UE shall transmit CQI reports of type A and type B as per the signaled N_M Ratio.

8.2.2.73 FFS

8.2.2.74 Radio Bearer Reconfiguration for transition between CELL_FACH & CELL_DCH: Success Activation and Deactivation of Dual-Cell for different band.

8.2.2.74.1 Definition and applicability

All UE categories which support Dual Cell HSDPA. UE supports F-DPCH or Enhanced F-DPCH.

8.2.2.74.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RECONFIGURATION message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214 (for FDD only);

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

[…]

The variable SECONDARY_CELL_HS_DSCH_RECEPTION shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the IE "Downlink Secondary Cell Info FDD" is not empty;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> either of the following conditions are met:

2> the IE "Memory Partitioning" is set to 'Implicit' in the IE "HARQ Info"; or

2> the IE "Memory Partitioning" is set to 'Explicit' in the IE "HARQ Info" and MIMO is configured on both or neither of the serving HS-DSCH cell and the secondary serving HS-DSCH cell.

If any of the above conditions is not met and the variable SECONDARY_CELL_HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable SECONDARY_CELL_HS_DSCH_RECEPTION to FALSE;

1> clear the IE "Downlink Secondary Cell Info FDD";

1> flush the HARQ buffers of the HARQ entity associated to the secondary serving HS-DSCH cell;

1> release HARQ resources associated to the secondary serving HS-DSCH cell.

[…]

The UE shall initiate the UE capability update procedure in the following situations:

1> the UE receives a UE CAPABILITY ENQUIRY message from the UTRAN;

1> while in CELL_DCH or CELL_FACH state, the UE capabilities change compared to those stored in the variable UE_CAPABILITY_TRANSFERRED, and the variable RNC_CAPABILITY_CHANGE_SUPPORT is set to TRUE.

[…]

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.5.51, 8.1.6,

8.2.2.74.3 Test purpose

1. To confirm that the UE configures the physical channels, transits from CELL_DCH to CELL_FACH, and to stop simultaneous Dual-Band Dual-Cell and 16QAM reception according to the received RADIO BEARER RECONFIGURATION message.
2. To confirm that the UE reconfigures the radio bearer parameters, transits from CELL_FACH to CELL_DCH state, and starts simultaneous Dual-Band, Dual-Cell and 16QAM reception according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.74.4 Method of test

Initial Condition

System Simulator: 2 cells –Cell 1/2 DC HSDPA cell(s) with Cell 1 (Anchor Carrier) and Cell 2 (Secondary Carrier)

UE: CELL_DCH (state 6-18 PS-DCCH+DTCH E-DCH/HS-DSCH) under the condition A25 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports dual band operation
- UE category supports combined 16QAM and DC-HSDPA.
- UE supports F-DPCH or Enhanced F-DPCH

Test Procedure

The SS transmits a RADIO BEARER RECONFIGURATION message, using non-DB-DC configuration, to the UE to deactivate DB DC HSDPA feature. The UE shall respond with RADIO BEARER RECONFIGURATION COMPLETE. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

UE should not send any CQI report after this point. SS should verify this.

The UE is in CELL_FACH state. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE including RAB information to configure PS domain RB on EDCH/HSDPA (with DB DC HSDPA configured for L1). SRB is mapped to E-DCH/HSDPA. The UE reconfigures the radio bearers and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

To check that the UE has activated DB DC HSDPA, the SS sends UE CAPABILITY ENQUIRY on both Anchor Carrier Cell and Secondary Carrier Cell using SRB2 mapped onto HS-DSCH. The UE shall respond to each message in turn with UE CAPABILITY INFORMATION message sent to Anchor Carrier Cell 1. In that RRC message, it should include the IE "*HS-DSCH physical layer category extension 2*". The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message.

The UE sends two combined CQI reports at every 8 ms.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	Reconfigure PS RB + SRB to CELL_FACH which deactivate DB DC-HSDPA.
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3				SS checks during 100ms that UE not should transmit any CQI reports.
4	←		RADIO BEARER RECONFIGURATION	Reconfiguration of PS RB + SRB from CELL_FACH state to CELL_DCH on EDCH/HSDPA, using DC-HSDPA configuration
5	→		RADIO BEARER RECONFIGURATION COMPLETE	
6	←		UE CAPABILITY ENQUIRY	Use default message. SRB2 on HS-DSCH from Anchor Carrier Cell 1.
7	→		UE CAPABILITY INFORMATION	
8				SS should check that for a set of CQI reports (both carrier) at every 8 ms period.
9	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 1.
10	←		UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier Cell 2.
11	→		UE CAPABILITY INFORMATION	
12	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 2.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1) (FDD)

Use the same message as specified for condition A5 "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9 with exception as follow:

Information Element	Value/remark	Version
RB information to reconfigure list		
- RB information to reconfigure	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	600	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	250	
- Timer_poll	250	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not Present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	RACH	
- UL Transport channel identity	Not Present	
- Logical channel identity	7	
- CHOICE RLC size list	Explicit list	
- RLC size index	Reference to TS34.108 clause 6 Parameter Set	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	FACH	
- DL DCH Transport channel identity	Not Present	
- DL DSCH Transport channel identity	Not Present	
- Logical channel identity	7	
- RB stop/continue	Not Present	
Deleted DL TrCH information		
- Downlink transport channel type	HS-DSCH	
- DL HS-DSCH MAC-d flow identity	0	

RADIO BEARER RECONFIGURATION (Step 4)

Use the same message as specified for A4 "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with the exception as follow:

Information Element	Value/remark	Version
RAB information to reconfigure	(high-speed AM DTCH for PS domain)	
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.	

- CN domain identity	PS domain	
- NAS Synchronization Indicator	Not Present	
RB information to reconfigure list		
- RB information to reconfig	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- CHOICE RLC info type	RLC info	
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	2047	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	100	
- Timer_poll	100	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	50	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to clause 6 Parameter Set	
- Length indicator size	This IE is present and set to “7” if Downlink RLC PDU Size is set to “Flexible”	
- In-sequence delivery	TRUE	
- Receiving window size	2047	
- Downlink RLC status info		
- Timer_status_prohibit	80	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- Alternative E-bit interpretation	Not present	
- Use special value of HE field	TRUE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	E-DCH	
- Logical channel identity	7	
- E-DCH MAC-d flow identity	2	
- CHOICE RLC PDU size	Flexible size	
- Length indicator size	15 bit	
- Minimum UL RLC PDU size	See clause 6.10	
- Largest UL RLC PDU size	See clause 6.10	
- Include in scheduling info	TRUE	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	HS-DSCH	
- DL DCH Transport channel identity	Not present	
- DL DSCH Transport channel identity	Not present	
- CHOICE *DL MAC header type*	MAC-ehs	
- DL HS-DSCH MAC-ehs Queue Id	0	
- Logical channel identity	7	
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH MAC-d flow and one DTCH MAC-d flow	
- Uplink transport channel type	E-DCH	
- CHOICE UL parameters	E-DCH	

- UL MAC header type	Not present	
- UL MAC header type	MAC-i/is	
- E-DCH Transmission Time Interval	set to 2ms if supported by the UE E-DCH category, or 10ms if the UE E-DCH category does not support 2ms TTI	
- HARQ info for E-DCH		
- HARQ RV Configuration	rvtable	
- Added or reconfigured E-DCH MAC-d flow	(for DCCH)	
- E-DCH MAC-d flow identity	1	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Non-scheduled grant info	
- Max MAC-e PDU contents size	168 bits	
- Max MAC-e PDU contents size	162 bits	
- 2 ms non-scheduled transmission grant HARQ process allocation	Not Present	
- Added or reconfigured E-DCH MAC-d flow	(for DTCH)	
- E-DCH MAC-d flow identity	2	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Scheduled grant info	
Added or Reconfigured DL TrCH information list	2 TrCh (DCH for DCCH and HS-DSCH for DTCH)	
- Downlink transport channel type	DCH	
- DL Transport channel identity	10	
- CHOICE DL parameters	Same as UL	
- Uplink transport channel type	DCH	
- UL TrCH identity	5	
- DCH quality target		
- Downlink transport channel type	HS-DSCH	
- DL Transport channel identity	Not Present	
- CHOICE DL parameters	HS-DSCH	
- HARQ Info		
- Number of Processes	Reference to clause 6.10 Parameter Set	
- CHOICE *Memory Partitioning*	Implicit	
- CHOICE *DL MAC header type*	MAC-ehs	
- Added or reconfigured MAC-ehs reordering queue		
- MAC-ehs queue to add or reconfigure list	(one queue)	
- MAC-ehs queue Id	2 (for DTCH)	
- T1	50	
- MAC-ehs window size	32	
- DCH quality target	Not present	
Frequency info		
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [11]	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for DB DC HSDPA.	
MIMO parameters	Not present	
Maximum allowed UL TX power	Not Present	
Uplink DPCH info		
- Uplink DPCH power control info		
- DPCCH power offset	-40 (-80dB)	
- PC Preamble	1 frame	
- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- TPC step size	0 (1dB)	
- ΔACK	3	
- ΔNACK	3	
- Ack-Nack repetition factor	1	
- HARQ_preamble_mode	0	

- Scrambling code type	Short	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- spreading factor	Reference to clause 6.10 Parameter Set	
- TFCI existence	Reference to clause 6.10 Parameter Set	
- Number of FBI bit	Reference to clause 6.10 Parameter Set	
- Puncturing Limit	Reference to clause 6.10 Parameter Set	
E-DCH info		
- MAC-es/e reset indicator	TRUE	
- E-DPCCH info		
- E-DPCCH/DPCCH power offset	0	
- Happy bit delay condition	100 ms	
- E-TFC Boost Info	Not Present	
- E-DPDCH power interpolation	Not Present	
- E-DPDCH info		
- E-TFCI table index	0	
- E-DCH minimum set E-TFCI	9	
- Reference E-TFCIs	2 E-TFCIs	
- Reference E-TFCI	11	
- Reference E-TFCI PO	4	
- Reference E-TFCI	83	
- Reference E-TFCI PO	16	
- Maximum channelisation codes	2sf4	
- PLnon-max	0.84	
- Scheduling Information Configuration		
- Periodicity for Scheduling Info – no grant	Not present	
- Periodicity for Scheduling Info – grant	Not present	
- Power Offset for Scheduling Info	0	
- 3-Index-Step Threshold	Not present	
- 2-Index-Step Threshold	Not present	
- Scheduled Transmission configuration		
- 2ms scheduled transmission grant HARQ process allocation	Not present	
- Serving Grant	Not present	
-UL 16QAM settings	Not Present	
Uplink secondary cell info FDD	Not Present	Rel 9
Downlink HS-PDSCH Information		Rel 9
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not Present	
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	6	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	8 dB	
- CQI Feedback cycle, k	8 ms	
- CQI repetition factor	1	
- Δ_{CQI}	4 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD	
- Downlink 64QAM configured	Not Present	
- HS-DSCH TB size table	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	FALSE	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	Not Present	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	13	

- Scrambling code change	Not Present	
- TPC combination index	0	
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	
- CHOICE E-HICH Information	Not Present	
- CHOICE E-RGCH Information	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	TRUE	
- Downlink DPCH info for each RL	Not Present	
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Secondary scrambling code	Not Present	
- Code number	12	
- TPC combination index	0	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- CHOICE E-HICH Information		
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	Not Present	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 3	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for DB DC HSDPA	
Secondary cell MIMO parameters	Not present	Rel-9

8.2.2.74.5 Test requirements

At step 2, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

At step 3, the UE shall not transmit any CQI report.

At step 5, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

At step 7, the UE should transmit UE CAPABILITY INFORMATION on SRB2.

At step 8, the UE shall transmit two CQI reports of type A.

At step 11, the UE should transmit UE CAPABILITY INFORMATION on SRB2.

8.2.2.75 Radio Bearer Reconfiguration for transition between CELL_FACH & CELL_DCH: Success Activation and Deactivation of Dual-Cell for different bands and 64QAM

8.2.2.75.1 Definition and applicability

All UE categories which support Dual Cell HSDPA. UE supports F-DPCH or Enhanced F-DPCH.

8.2.2.75.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RECONFIGURATION message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214 (for FDD only);

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

[…]

The variable SECONDARY_CELL_HS_DSCH_RECEPTION shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the IE "Downlink Secondary Cell Info FDD" is not empty;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> either of the following conditions are met:

2> the IE "Memory Partitioning" is set to 'Implicit' in the IE "HARQ Info"; or

2> the IE "Memory Partitioning" is set to 'Explicit' in the IE "HARQ Info" and MIMO is configured on both or neither of the serving HS-DSCH cell and the secondary serving HS-DSCH cell.

If any of the above conditions is not met and the variable SECONDARY_CELL_HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable SECONDARY_CELL_HS_DSCH_RECEPTION to FALSE;

1> clear the IE "Downlink Secondary Cell Info FDD";

1> flush the HARQ buffers of the HARQ entity associated to the secondary serving HS-DSCH cell;

1> release HARQ resources associated to the secondary serving HS-DSCH cell.

[…]

The UE shall initiate the UE capability update procedure in the following situations:

1> the UE receives a UE CAPABILITY ENQUIRY message from the UTRAN;

2> while in CELL_DCH or CELL_FACH state, the UE capabilities change compared to those stored in the variable UE_CAPABILITY_TRANSFERRED, and the variable RNC_CAPABILITY_CHANGE_SUPPORT is set to TRUE.

[…]

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.5.51, 8.1.6,

8.2.2.75.3 Test purpose

7. To confirm that the UE configures the physical channels, transits from CELL_DCH to CELL_FACH, and to stop simultaneous Dual-Band Dual-Cell and 64QAM reception according to the received RADIO BEARER RECONFIGURATION message.
8. To confirm that the UE reconfigures the radio bearer parameters, transits from CELL_FACH to CELL_DCH state, and starts simultaneous Dual-Band, Dual-Cell and 64QAM reception according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.75.4 Method of test

Initial Condition

System Simulator: 2 cells –Cell 1/2 DC HSDPA cell(s) with Cell 1 (Anchor Carrier) and Cell 2 (Secondary Carrier)

UE: CELL_DCH (state 6-18 PS-DCCH+DTCH E-DCH/HS-DSCH) under the condition A25 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports dual band operation
- UE category supports combined 64QAM and DC-HSDPA.
- UE supports F-DPCH or Enhanced F-DPCH

Test Procedure

The SS transmits a RADIO BEARER RECONFIGURATION message, using non-DB-DC configuration, to the UE to deactivate DB DC HSDPA feature. The UE shall respond with RADIO BEARER RECONFIGURATION COMPLETE. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

UE should not send any CQI report after this point. SS should verify this.

The UE is in CELL_FACH state. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE including RAB information to configure PS domain RB on EDCH/HSDPA (with DB DC HSDPA configured for L1). SRB is mapped to E-DCH/HSDPA. The UE reconfigures the radio bearers and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

To check that the UE has activated DB DC HSDPA, the SS sends UE CAPABILITY ENQUIRY on both Anchor Carrier Cell and Secondary Carrier Cell using SRB2 mapped onto HS-DSCH. The UE shall respond to each message in turn with UE CAPABILITY INFORMATION message sent to Anchor Carrier Cell 1. In that RRC message, it should include the IE "*HS-DSCH physical layer category extension 2*". The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message.

The UE sends two combined CQI reports at every 8 ms.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	Reconfigure PS RB + SRB to CELL_FACH which deactivate DB DC-HSDPA.
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3				SS checks during 100ms that UE not should transmit any CQI reports.
4	←		RADIO BEARER RECONFIGURATION	Reconfiguration of PS RB + SRB from CELL_FACH state to CELL_DCH on EDCH/HSDPA, using DC-HSDPA configuration
5	→		RADIO BEARER RECONFIGURATION COMPLETE	
6	←		UE CAPABILITY ENQUIRY	Use default message. SRB2 on HS-DSCH from Anchor Carrier Cell 1.
7	→		UE CAPABILITY INFORMATION	
8				SS should check that for a set of CQI reports (both carrier) at every 8 ms period.
9	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 1.
10	←		UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier Cell 2.
11	→		UE CAPABILITY INFORMATION	
12	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 2.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1) (FDD)

Use the same message as specified for condition A5 "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9 with exception as follow:

Information Element	Value/remark	Version
RB information to reconfigure list		
- RB information to reconfigure	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	600	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	250	
- Timer_poll	250	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not Present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	RACH	
- UL Transport channel identity	Not Present	
- Logical channel identity	7	
- CHOICE RLC size list	Explicit list	
- RLC size index	Reference to TS34.108 clause 6 Parameter Set	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	FACH	
- DL DCH Transport channel identity	Not Present	
- DL DSCH Transport channel identity	Not Present	
- Logical channel identity	7	
- RB stop/continue	Not Present	
Deleted DL TrCH information		
- Downlink transport channel type	HS-DSCH	
- DL HS-DSCH MAC-d flow identity	0	

RADIO BEARER RECONFIGURATION (Step 4)

Use the same message as specified for A4 "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with the exception as follow:

Information Element	Value/remark	Version
RAB information to reconfigure	(high-speed AM DTCH for PS domain)	
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.	

- CN domain identity	PS domain	
- NAS Synchronization Indicator	Not Present	
RB information to reconfigure list		
- RB information to reconfig	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- CHOICE RLC info type	RLC info	
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	2047	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	100	
- Timer_poll	100	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	50	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to clause 6 Parameter Set	
- Length indicator size	This IE is present and set to “7” if Downlink RLC PDU Size is set to “Flexible”	
- In-sequence delivery	TRUE	
- Receiving window size	2047	
- Downlink RLC status info		
- Timer_status_prohibit	80	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- Alternative E-bit interpretation	Not present	
- Use special value of HE field	TRUE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	E-DCH	
- Logical channel identity	7	
- E-DCH MAC-d flow identity	2	
- CHOICE RLC PDU size	Flexible size	
- Length indicator size	15 bit	
- Minimum UL RLC PDU size	See clause 6.10	
- Largest UL RLC PDU size	See clause 6.10	
- Include in scheduling info	TRUE	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	HS-DSCH	
- DL DCH Transport channel identity	Not present	
- DL DSCH Transport channel identity	Not present	
- CHOICE *DL MAC header type*	MAC-ehs	
- DL HS-DSCH MAC-ehs Queue Id	0	
- Logical channel identity	7	
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH MAC-d flow and one DTCH MAC-d flow	
- Uplink transport channel type	E-DCH	
- CHOICE UL parameters	E-DCH	

- UL MAC header type	Not present	
- UL MAC header type	MAC-i/is	
- E-DCH Transmission Time Interval	set to 2ms if supported by the UE E-DCH category, or 10ms if the UE E-DCH category does not support 2ms TTI	
- HARQ info for E-DCH		
- HARQ RV Configuration	rvtable	
- Added or reconfigured E-DCH MAC-d flow	(for DCCH)	
- E-DCH MAC-d flow identity	1	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Non-scheduled grant info	
- Max MAC-e PDU contents size	168 bits	
- Max MAC-e PDU contents size	162 bits	
- 2 ms non-scheduled transmission grant HARQ process allocation	Not Present	
- Added or reconfigured E-DCH MAC-d flow	(for DTCH)	
- E-DCH MAC-d flow identity	2	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Scheduled grant info	
Added or Reconfigured DL TrCH information list	2 TrCh (DCH for DCCH and HS-DSCH for DTCH)	
- Downlink transport channel type	DCH	
- DL Transport channel identity	10	
- CHOICE DL parameters	Same as UL	
- Uplink transport channel type	DCH	
- UL TrCH identity	5	
- DCH quality target		
- Downlink transport channel type	HS-DSCH	
- DL Transport channel identity	Not Present	
- CHOICE DL parameters	HS-DSCH	
- HARQ Info		
- Number of Processes	Reference to clause 6.10 Parameter Set	
- CHOICE *Memory Partitioning*	Implicit	
- CHOICE *DL MAC header type*	MAC-ehs	
- Added or reconfigured MAC-ehs reordering queue		
- MAC-ehs queue to add or reconfigure list	(one queue)	
- MAC-ehs queue Id	2 (for DTCH)	
- T1	50	
- MAC-ehs window size	32	
- DCH quality target	Not present	
Frequency info		
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [11]	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for DB DC HSDPA.	
MIMO parameters	Not present	
Maximum allowed UL TX power	Not Present	
Uplink DPCH info		
- Uplink DPCH power control info		
- DPCCH power offset	-40 (-80dB)	
- PC Preamble	1 frame	
- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- TPC step size	0 (1dB)	
- ΔACK	3	
- ΔNACK	3	
- Ack-Nack repetition factor	1	
- HARQ_preamble_mode	0	

- Scrambling code type	Short	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- spreading factor	Reference to clause 6.10 Parameter Set	
- TFCI existence	Reference to clause 6.10 Parameter Set	
- Number of FBI bit	Reference to clause 6.10 Parameter Set	
- Puncturing Limit	Reference to clause 6.10 Parameter Set	
E-DCH info		
- MAC-es/e reset indicator	TRUE	
- E-DPCCH info		
- E-DPCCH/DPCCH power offset	0	
- Happy bit delay condition	100 ms	
- E-TFC Boost Info	Not Present	
- E-DPDCH power interpolation	Not Present	
- E-DPDCH info		
- E-TFCI table index	0	
- E-DCH minimum set E-TFCI	9	
- Reference E-TFCIs	2 E-TFCIs	
- Reference E-TFCI	11	
- Reference E-TFCI PO	4	
- Reference E-TFCI	83	
- Reference E-TFCI PO	16	
- Maximum channelisation codes	2sf4	
- PLnon-max	0.84	
- Scheduling Information Configuration		
- Periodicity for Scheduling Info – no grant	Not present	
- Periodicity for Scheduling Info – grant	Not present	
- Power Offset for Scheduling Info	0	
- 3-Index-Step Threshold	Not present	
- 2-Index-Step Threshold	Not present	
- Scheduled Transmission configuration		
- 2ms scheduled transmission grant HARQ process allocation	Not present	
- Serving Grant	Not present	
-UL 16QAM settings	Not Present	
Uplink secondary cell info FDD	Not Present	Rel 9
Downlink HS-PDSCH Information		Rel 9
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not Present	
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	6	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	8 dB	
- CQI Feedback cycle, k	8 ms	
- CQI repetition factor	1	
- Δ_{CQI}	4 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD	
- Downlink 64QAM configured	Present	
- HS-DSCH TB size table	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	FALSE	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	Not Present	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	13	

- Scrambling code change	Not Present	
- TPC combination index	0	
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	
- CHOICE E-HICH Information	Not Present	
- CHOICE E-RGCH Information	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	TRUE	
- Downlink DPCH info for each RL	Not Present	
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Secondary scrambling code	Not Present	
- Code number	12	
- TPC combination index	0	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- CHOICE E-HICH Information		
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	Present	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 3	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for DB DC HSDPA	
Secondary cell MIMO parameters	Not present	Rel-9

8.2.2.75.5 Test requirements

At step 2, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

At step 3, the UE shall not transmit any CQI report.

At step 5, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

At step 7, the UE should transmit UE CAPABILITY INFORMATION on SRB2.

At step 8, the UE shall transmit two CQI reports of type A.

At step 11, the UE should transmit UE CAPABILITY INFORMATION on SRB2.

8.2.2.76 Radio Bearer Reconfiguration for transition between CELL_FACH and CELL_DCH: Success (start and stop Dual-Cell HSUPA (QPSK) and Dual-Cell HSDPA (16QAM) operation)

8.2.2.76.1 Definition and applicability

All UEs supporting Dual Cell HSUPA; and supporting F-DPCH or Enhanced F-DPCH.

8.2.2.76.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable SECONDARY_CELL_E_DCH_TRANSMISSION shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the UE has stored IE "Secondary serving E-DCH cell info" and IE "Secondary E-DCH info common";

1> either the Primary E-RNTI or the Secondary E-RNTI or both the Primary and the Secondary E-RNTI are included in the stored IE "Secondary serving E-DCH cell info";

1> the IE "Number of DPDCH" in the IE "Uplink DPCH info" is set to 0;

1> the variable E_DCH_TRANSMISSION is set to TRUE;

1> the variable SECONDARY_CELL_HS_DSCH_RECEPTION is set to TRUE;

If any of the above conditions are not met and the variable SECONDARY_CELL_E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> set the variable SECONDARY_CELL_E_DCH_TRANSMISSION to FALSE;

1> stop any F-DPCH, E-AGCH, E-HICH and E-RGCH reception procedures on the downlink frequency associated with the secondary uplink frequency;

1> stop any DPCCH, E-DPCCH and E-DPDCH transmission procedures on the secondary uplink frequency;

1> release all E-DCH HARQ resources for the secondary uplink frequency;

1> do not configure "TSN field extension" for the MAC-i/is entity;

1> reset the MAC-i/is entity [15];

1> clear any stored IE "Secondary serving E-DCH cell info" and IE "Secondary E-DCH info common";

1> remove all the radio links associated to the secondary E-DCH active set.

If all of the above conditions are met and the variable SECONDARY_CELL_E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> set the variable SECONDARY_CELL_E_DCH_TRANSMISSION to TRUE;

1> configure "TSN field extension" for the MAC-i/is entity;

1> reset the MAC-i/is entity [15].

Whenever the variable SECONDARY_CELL_E_DCH_TRANSMISSION is set to TRUE, and the secondary uplink frequency is an activated uplink frequency, the UE shall:

1> perform E_AGCH reception procedures on the secondary serving E-DCH cell according to the stored E_AGCH configuration as stated in:

2> subclause 8.6.3.14 for the IE "Primary E-RNTI" and the IE "Secondary E-RNTI" for secondary serving E-DCH cell.

1> perform E-HICH reception procedures for all radio links in the secondary E-DCH active set;

1> perform E-RGCH reception procedures for all radio links in the secondary E-DCH active set for which an E-RGCH configuration has been provided;

1> perform uplink DPCCH transmission on the secondary uplink frequency according to the stored uplink DPCH info configuration as stated in:

2> subclause 8.6.6.6 for the IE "Uplink DPCH info";

2> subclause 8.6.6.49 for the IE "Uplink Secondary Cell Info FDD".

1> perform E-DPCCH transmission procedures on the secondary uplink frequency according to the stored E-DPCCH configuration as stated in:

2> subclause 8.6.6.37 for the IE "E-DPCCH Info";

2> subclause 8.6.6.49 for the IE "Uplink Secondary Cell Info FDD".

1> perform E-DPDCH transmission procedures on the secondary uplink frequency according to the stored E-DPDCH configuration as stated in:

2> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

2> subclause 8.6.5.17 for the IE "HARQ info for E-DCH";

2> subclause 8.6.6.37 for the IE "E-DPDCH Info";

2> subclause 8.6.6.49 for the IE "Uplink Secondary Cell Info FDD".

1> inclusion of MAC-d PDU's in a MAC-i PDU for logical channels on the secondary uplink frequency shall:

2> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]) on the downlink frequency associated with the secondary uplink frequency; and

2> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

Whenever the variable SECONDARY_CELL_E_DCH_TRANSMISSION is set to FALSE, or the secondary uplink frequency is not an activated uplink frequency, the UE shall:

1> not perform F-DPCH, E-AGCH, E-HICH and E-RGCH reception procedures on the downlink frequency associated with the secondary uplink frequency;

1> not perform DPCCH, E-DPCCH and E-DPDCH transmission procedures on the secondary uplink frequency.

Reference

3GPP TS 25.331 clauses 8.2.2.4, 8.5.58

8.2.2.76.3 Test purpose

1. To verify that the UE, when UE is in CELL_DCH state with Dual-Cell E-DCH and Dual-Cell HSDPA configured enters CELL_FACH state and reconfigures the physical channels to stop Dual-Cell E-DCH and Dual-Cell HSDPA operation according to the received Radio Bearer Reconfiguration message.

2. To verify that the UE in CELL_FACH state enters CELL_DCH state and reconfigures the radio bearer parameters and starts simultaneous Dual-Cell on E-DCH and Dual-Cell HSDPA operation with QPSK in UL and 16QAM in DL according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.76.4 Method of test

Initial Condition

System Simulator: 2 cells

- Cell 1/2 DC-HSUPA and DC-HSDPA cell(s) with Cell 1 (Serving HS.DSCH cell/Primary uplink frequency) and Cell 2 (Secondary serving HS.DSCH cell /Secondary uplink frequency)

UE: PS_DCCH+DTCH E-DCH/HS-DSCH (state 6-18) under condition A25c, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE category supports combined 16QAM and DC-HSDPA and DC-HSUPA.
- UE supports F-DPCH or Enhanced F-DPCH

Test Procedure

The UE is in CELL_DCH state with DC-HSUPA and DC_HSDPA configured.

The SS transmits a RADIO BEARER RECONFIGURATION message for transition to CELL_FACH to stop DC-HSUPA and DC_HSDPA operation.The UE shall respond with RADIO BEARER RECONFIGURATION COMPLETE. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

The SS transmits a RADIO BEARER RECONFIGURATION message to the UE including RAB information to configure PS domain RB on EDCH/HSDPA (with DC-HSDPA and DC-HSUPA configured for L1). SRB is mapped to E-DCH/HSDPA. The UE reconfigures the radio bearers and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	Reconfigure PS RB + SRB to CELL_FACH which stops DC-HSUPA and DC-HSUPA operation.
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.
4	←		RADIO BEARER RECONFIGURATION	Reconfiguration of PS RB + SRB from CELL_FACH state to CELL_DCH on E-DCH/HS-DSCH, using DC-HSUPA, DC-HSDPA and 16 QAM configuration
5	→		RADIO BEARER RECONFIGURATION COMPLETE	
6	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1)

Use the same message as specified for condition A5 "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9 with exception as follow:

Information Element	Value/remark	Version
RB information to reconfigure list		
- RB information to reconfigure	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	600	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	250	
- Timer_poll	250	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not Present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	RACH	
- UL Transport channel identity	Not Present	
- Logical channel identity	7	
- CHOICE RLC size list	Explicit list	
- RLC size index	Reference to TS34.108 clause 6 Parameter Set	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	FACH	
- DL DCH Transport channel identity	Not Present	
- DL DSCH Transport channel identity	Not Present	
- Logical channel identity	7	
- RB stop/continue	Not Present	
Deleted DL TrCH information		
- Downlink transport channel type	HS-DSCH	
- DL HS-DSCH MAC-d flow identity	0	

RADIO BEARER RECONFIGURATION (Step 4)

Use the same message as specified for A4 "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with the exception as follow:

Information Element	Value/remark	Version
RAB information to reconfigure	(high-speed AM DTCH for PS domain)	
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.	
- CN domain identity	PS domain	
- NAS Synchronization Indicator	Not Present	
RB information to reconfigure list		
- RB information to reconfig	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- CHOICE RLC info type	RLC info	
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	2047	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	100	
- Timer_poll	100	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	50	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to clause 6 Parameter Set	
- Length indicator size	This IE is present and set to “7” if Downlink RLC PDU Size is set to “Flexible”	
- In-sequence delivery	TRUE	
- Receiving window size	2047	
- Downlink RLC status info		
- Timer_status_prohibit	80	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- Alternative E-bit interpretation	Not present	
- Use special value of HE field	TRUE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	E-DCH	
- Logical channel identity	7	
- E-DCH MAC-d flow identity	2	
- CHOICE RLC PDU size	Flexible size	
- Length indicator size	15 bit	
- Minimum UL RLC PDU size	See clause 6.10	
- Largest UL RLC PDU size	See clause 6.10	
- Include in scheduling info	TRUE	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	HS-DSCH	
- DL DCH Transport channel identity	Not present	
- DL DSCH Transport channel identity	Not present	
- CHOICE *DL MAC header type*	MAC-ehs	
- DL HS-DSCH MAC-ehs Queue Id	0	
- Logical channel identity	7	
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH MAC-d flow and one DTCH MAC-d flow	
- Uplink transport channel type	E-DCH	
- CHOICE UL parameters	E-DCH	

- UL MAC header type	Not present	
- UL MAC header type	MAC-i/is	
- E-DCH Transmission Time Interval	2ms	
- HARQ info for E-DCH		
- HARQ RV Configuration	rvtable	
- Added or reconfigured E-DCH MAC-d flow	(for DCCH)	
- E-DCH MAC-d flow identity	1	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Non-scheduled grant info	
- Max MAC-e PDU contents size	168 bits	
- Max MAC-e PDU contents size	162 bits	
- 2 ms non-scheduled transmission grant HARQ process allocation	Not Present	
- Added or reconfigured E-DCH MAC-d flow	(for DTCH)	
- E-DCH MAC-d flow identity	2	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Scheduled grant info	
Added or Reconfigured DL TrCH information list	2 TrCh (DCH for DCCH and HS-DSCH for DTCH)	
- Downlink transport channel type	DCH	
- DL Transport channel identity	10	
- CHOICE DL parameters	Same as UL	
- Uplink transport channel type	DCH	
- UL TrCH identity	5	
- DCH quality target		
- Downlink transport channel type	HS-DSCH	
- DL Transport channel identity	Not Present	
- CHOICE DL parameters	HS-DSCH	
- HARQ Info		
- Number of Processes	Reference to clause 6.10 Parameter Set	
- CHOICE *Memory Partitioning*	Implicit	
- CHOICE *DL MAC header type*	MAC-ehs	
- Added or reconfigured MAC-ehs reordering queue		
- MAC-ehs queue to add or reconfigure list	(one queue)	
- MAC-ehs queue Id	2 (for DTCH)	
- T1	50	
- MAC-ehs window size	64	
- DCH quality target	Not Present	
Frequency info	Not Present	
MIMO parameters	Not Present	
Maximum allowed UL TX power	Not Present	
Uplink DPCH info		
- Uplink DPCH power control info		
- DPCCH power offset	-40 (-80dB)	
- PC Preamble	1 frame	
- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- TPC step size	0 (1dB)	
- ΔACK	3	
- ΔNACK	3	
- Ack-Nack repetition factor	1	
- HARQ_preamble_mode	0	
- Scrambling code type	Short	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- spreading factor	Reference to clause 6.10 Parameter Set	
- TFCI existence	Reference to clause 6.10 Parameter Set	
- Number of FBI bit	Reference to clause 6.10 Parameter Set	
- Puncturing Limit	Reference to clause 6.10 Parameter Set	
E-DCH info		
- MAC-es/e reset indicator	TRUE	

- E-DPCCH info		
- E-DPCCH/DPCCH power offset	0	
- Happy bit delay condition	100 ms	
- E-TFC Boost Info	Not Present	
- E-DPDCH power interpolation	Not Present	
- E-DPDCH info		
- E-TFCI table index	0	
- E-DCH minimum set E-TFCI	9	
- Reference E-TFCIs	2 E-TFCIs	
- Reference E-TFCI	11	
- Reference E-TFCI PO	4	
- Reference E-TFCI	83	
- Reference E-TFCI PO	16	
- Minimum reduced E-DPDCH gain factor	30/15	
- Maximum channelisation codes	2sf4	
- PLnon-max	0.84	
- Scheduling Information Configuration		
- Periodicity for Scheduling Info – no grant	Not present	
- Periodicity for Scheduling Info – grant	Not present	
- Power Offset for Scheduling Info	0	
- 3-Index-Step Threshold	Not present	
- 2-Index-Step Threshold	Not present	
- Scheduled Transmission configuration		
- 2ms scheduled transmission grant HARQ process allocation	Not present	
- Serving Grant	Not present	
-UL 16QAM settings	Not Present	
Uplink secondary cell info FDD		Rel 9
- Continue	No data	
- New configuration		
- Secondary serving E-DCH cell info	Present	
- Primary E-RNTI	'0101 0101 0101 0101'	
- Secondary E-RNTI	Not Present	
- Secondary E-DCH info common		
- Frequency Info		
- CHOICE mode		
- FDD		
- UARFCN uplink (Nu)	Not present	
- UARFCN downlink (Nd)	Same value as in IE Downlink secondary cell info FDD	
- Scrambling code type	Long	
- Scrambling code number	1	
- 2ms scheduled transmission grant HARQ process allocation	Not Present	
- Serving Grant		
- Primary/Secondary Grant Selector	Primary	
- Minimum reduced E-DPDCH gain factor	30/15	
- E-DCH minimum set E-TFCI	1	
- DPCCH Power offset for secondary UL frequency	3	
- PC Preamble	0	
- Downlink information per radio link list on secondary UL frequency	Present	
- Downlink information for each radio link on secondary UL frequency	1	
- Primary CPICH info		
- Primary scrambling code	0	
- Cell ID	Not Present	
- Downlink F-DPCH info for each RL on secondary UL frequency		
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Secondary scrambling code	Not Present	

- Code number	9	
- TPC combination index	1	
- STTU	TRUE	
- E-AGCH info		
- CHOICE mode		
- FDD		
- E-AGCH Channelisation Code	8	
- TDD		
- E-HICH Information		
- Choice mode		
- FDD		
- Channelisation Code	5	
- Signature Sequence	0	
- TDD		
- CHOICE E-RGCH Information		
- E-RGCH Information		
- E-RGCH Info		
- Signature Sequence	1	
- RG combination index	0	
- E-RGCH release indicator	No data	
Downlink HS-PDSCH Information		Rel 9
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not Present	
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	6	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	8 dB	
- CQI Feedback cycle, k	8 ms	
- CQI repetition factor	1	
- Δ_{CQI}	4 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD	
- Downlink 64QAM configured	Not Present	
- HS-DSCH TB size table	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	FALSE	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	Not Present	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	13	
- Scrambling code change	Not Present	
- TPC combination index	0	
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	
- CHOICE E-HICH Information	Not Present	
- CHOICE E-RGCH Information	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	TRUE	
- Downlink DPCH info for each RL	Not Present	
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel	Primary CPICH may be used	

estimation		
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Secondary scrambling code	Not Present	
- Code number	12	
- TPC combination index	0	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- CHOICE E-HICH Information		
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Downlink secondary cell info FDD		
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	FALSE	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 3	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies	
Secondary cell MIMO parameters	Not Present	Rel 9

8.2.2.76.5 Test requirements

At step 2, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

At step 5, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

8.2.2.77 Radio Bearer Reconfiguration for transition between CELL_FACH and CELL_DCH: Success (Dual-Cell HSUPA (QPSK) and Dual-Cell HSDPA (64QAM))

8.2.2.77.1 Definition and applicability

All UEs supporting Dual Cell HSUPA; 64QAM and supporting F-DPCH or Enhanced F-DPCH.

8.2.2.77.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable SECONDARY_CELL_E_DCH_TRANSMISSION shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the UE has stored IE "Secondary serving E-DCH cell info" and IE "Secondary E-DCH info common";

1> either the Primary E-RNTI or the Secondary E-RNTI or both the Primary and the Secondary E-RNTI are included in the stored IE "Secondary serving E-DCH cell info";

1> the IE "Number of DPDCH" in the IE "Uplink DPCH info" is set to 0;

1> the variable E_DCH_TRANSMISSION is set to TRUE;

1> the variable SECONDARY_CELL_HS_DSCH_RECEPTION is set to TRUE;

If any of the above conditions are not met and the variable SECONDARY_CELL_E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> set the variable SECONDARY_CELL_E_DCH_TRANSMISSION to FALSE;

1> stop any F-DPCH, E-AGCH, E-HICH and E-RGCH reception procedures on the downlink frequency associated with the secondary uplink frequency;

1> stop any DPCCH, E-DPCCH and E-DPDCH transmission procedures on the secondary uplink frequency;

1> release all E-DCH HARQ resources for the secondary uplink frequency;

1> do not configure "TSN field extension" for the MAC-i/is entity;

1> reset the MAC-i/is entity [15];

1> clear any stored IE "Secondary serving E-DCH cell info" and IE "Secondary E-DCH info common";

1> remove all the radio links associated to the secondary E-DCH active set.

If all of the above conditions are met and the variable SECONDARY_CELL_E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> set the variable SECONDARY_CELL_E_DCH_TRANSMISSION to TRUE;

1> configure "TSN field extension" for the MAC-i/is entity;

1> reset the MAC-i/is entity [15].

Whenever the variable SECONDARY_CELL_E_DCH_TRANSMISSION is set to TRUE, and the secondary uplink frequency is an activated uplink frequency, the UE shall:

1> perform E_AGCH reception procedures on the secondary serving E-DCH cell according to the stored E_AGCH configuration as stated in:

2> subclause 8.6.3.14 for the IE "Primary E-RNTI" and the IE "Secondary E-RNTI" for secondary serving E-DCH cell.

1> perform E-HICH reception procedures for all radio links in the secondary E-DCH active set;

1> perform E-RGCH reception procedures for all radio links in the secondary E-DCH active set for which an E-RGCH configuration has been provided;

1> perform uplink DPCCH transmission on the secondary uplink frequency according to the stored uplink DPCH info configuration as stated in:

2> subclause 8.6.6.6 for the IE "Uplink DPCH info";

2> subclause 8.6.6.49 for the IE "Uplink Secondary Cell Info FDD".

1> perform E-DPCCH transmission procedures on the secondary uplink frequency according to the stored E-DPCCH configuration as stated in:

2> subclause 8.6.6.37 for the IE "E-DPCCH Info";

2> subclause 8.6.6.49 for the IE "Uplink Secondary Cell Info FDD".

1> perform E-DPDCH transmission procedures on the secondary uplink frequency according to the stored E-DPDCH configuration as stated in:

2> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

2> subclause 8.6.5.17 for the IE "HARQ info for E-DCH";

2> subclause 8.6.6.37 for the IE "E-DPDCH Info";

2> subclause 8.6.6.49 for the IE "Uplink Secondary Cell Info FDD".

1> inclusion of MAC-d PDU's in a MAC-i PDU for logical channels on the secondary uplink frequency shall:

2> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]) on the downlink frequency associated with the secondary uplink frequency; and

2> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

Whenever the variable SECONDARY_CELL_E_DCH_TRANSMISSION is set to FALSE, or the secondary uplink frequency is not an activated uplink frequency, the UE shall:

1> not perform F-DPCH, E-AGCH, E-HICH and E-RGCH reception procedures on the downlink frequency associated with the secondary uplink frequency;

1> not perform DPCCH, E-DPCCH and E-DPDCH transmission procedures on the secondary uplink frequency.

Reference

3GPP TS 25.331 clauses 8.2.2.4, 8.5.58

8.2.2.77.3 Test purpose

1. To verify that the UE, when UE is in CELL_DCH state with Dual-Cell E-DCH and Dual-Cell HSDPA configured with QPSK in UL and 64QAM in DL enters CELL_FACH state and reconfigures the physical channels to stop Dual-Cell E-DCH and Dual-Cell HSDPA operation according to the received Radio Bearer Reconfiguration message.

2. To verify that the UE in CELL_FACH state enters CELL_DCH state and reconfigures the radio bearer parameters and starts simultaneous Dual-Cell on E-DCH and Dual-Cell HSDPA operation with QPSK in UL and 64QAM in DL according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.77.4 Method of test

Initial Condition

System Simulator: 2 cells

- Cell 1/2 DC-HSUPA and DC-HSDPA cell(s) with Cell 1 (Serving HS.DSCH cell/Primary uplink frequency) and Cell 2 (Secondary serving HS.DSCH cell /Secondary uplink frequency)

UE: PS_DCCH+DTCH E-DCH/HS-DSCH (state 6-18) under condition A25c, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE category supports combined 64QAM and DC-HSDPA and DC-HSUPA.
- UE supports F-DPCH or Enhanced F-DPCH

Test Procedure

The UE is in CELL_DCH state with DC-HSUPA and DC_HSDPA configured.

The SS transmits a RADIO BEARER RECONFIGURATION message for transition to CELL_FACH to stop DC-HSUPA, DC-HSDPA and 64QAM operation.The UE shall respond with RADIO BEARER RECONFIGURATION COMPLETE. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

The SS transmits a RADIO BEARER RECONFIGURATION message to the UE including RAB information to configure PS domain RB on EDCH/HSDPA (with DC-HSDPA , DC-HSUPA and 64QAM configured for L1). SRB is mapped to E-DCH/HSDPA. The UE reconfigures the radio bearers and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	Reconfigure PS RB + SRB to CELL_FACH which stops DC-HSUPA, DC-HSUPA and 64QAM operation.
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.
4	←		RADIO BEARER RECONFIGURATION	Reconfiguration of PS RB + SRB from CELL_FACH state to CELL_DCH on E-DCH/HS-DSCH, using DC-HSUPA, DC-HSDPA and 64QAM configuration
5	→		RADIO BEARER RECONFIGURATION COMPLETE	
6	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1)

Use the same message as specified for condition A5 "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9 with exception as follow:

Information Element	Value/remark	Version
RB information to reconfigure list		
- RB information to reconfigure	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	600	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	250	
- Timer_poll	250	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not Present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	RACH	
- UL Transport channel identity	Not Present	
- Logical channel identity	7	
- CHOICE RLC size list	Explicit list	
- RLC size index	Reference to TS34.108 clause 6 Parameter Set	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	FACH	
- DL DCH Transport channel identity	Not Present	
- DL DSCH Transport channel identity	Not Present	
- Logical channel identity	7	
- RB stop/continue	Not Present	
Deleted DL TrCH information		
- Downlink transport channel type	HS-DSCH	
- DL HS-DSCH MAC-d flow identity	0	

RADIO BEARER RECONFIGURATION (Step 4)

Use the same message as specified for A4 "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with the exception as follow:

Information Element	Value/remark	Version
RAB information to reconfigure	(high-speed AM DTCH for PS domain)	
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.	
- CN domain identity	PS domain	
- NAS Synchronization Indicator	Not Present	
RB information to reconfigure list		
- RB information to reconfig	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- CHOICE RLC info type	RLC info	
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	2047	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	100	
- Timer_poll	100	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	50	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to clause 6 Parameter Set	
- Length indicator size	This IE is present and set to “7” if Downlink RLC PDU Size is set to “Flexible”	
- In-sequence delivery	TRUE	
- Receiving window size	2047	
- Downlink RLC status info		
- Timer_status_prohibit	80	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- Alternative E-bit interpretation	Not present	
- Use special value of HE field	TRUE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	E-DCH	
- Logical channel identity	7	
- E-DCH MAC-d flow identity	2	
- CHOICE RLC PDU size	Flexible size	
- Length indicator size	15 bit	
- Minimum UL RLC PDU size	See clause 6.10	
- Largest UL RLC PDU size	See clause 6.10	
- Include in scheduling info	TRUE	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	HS-DSCH	
- DL DCH Transport channel identity	Not present	
- DL DSCH Transport channel identity	Not present	
- CHOICE *DL MAC header type*	MAC-ehs	
- DL HS-DSCH MAC-ehs Queue Id	0	
- Logical channel identity	7	
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH MAC-d flow and one DTCH MAC-d flow	
- Uplink transport channel type	E-DCH	
- CHOICE UL parameters	E-DCH	

- UL MAC header type	Not present	
- UL MAC header type	MAC-i/is	
- E-DCH Transmission Time Interval	2ms	
- HARQ info for E-DCH		
- HARQ RV Configuration	rvtable	
- Added or reconfigured E-DCH MAC-d flow	(for DCCH)	
- E-DCH MAC-d flow identity	1	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Non-scheduled grant info	
- Max MAC-e PDU contents size	168 bits	
- Max MAC-e PDU contents size	162 bits	
- 2 ms non-scheduled transmission grant HARQ process allocation	Not Present	
- Added or reconfigured E-DCH MAC-d flow	(for DTCH)	
- E-DCH MAC-d flow identity	2	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Scheduled grant info	
Added or Reconfigured DL TrCH information list	2 TrCh (DCH for DCCH and HS-DSCH for DTCH)	
- Downlink transport channel type	DCH	
- DL Transport channel identity	10	
- CHOICE DL parameters	Same as UL	
- Uplink transport channel type	DCH	
- UL TrCH identity	5	
- DCH quality target		
- Downlink transport channel type	HS-DSCH	
- DL Transport channel identity	Not Present	
- CHOICE DL parameters	HS-DSCH	
- HARQ Info		
- Number of Processes	Reference to clause 6.10 Parameter Set	
- CHOICE *Memory Partitioning*	Implicit	
- CHOICE *DL MAC header type*	MAC-ehs	
- Added or reconfigured MAC-ehs reordering queue		
- MAC-ehs queue to add or reconfigure list	(one queue)	
- MAC-ehs queue Id	2 (for DTCH)	
- T1	50	
- MAC-ehs window size	64	
- DCH quality target	Not Present	
Frequency info	Not Present	
MIMO parameters	Not Present	
Maximum allowed UL TX power	Not Present	
Uplink DPCH info		
- Uplink DPCH power control info		
- DPCCH power offset	-40 (-80dB)	
- PC Preamble	1 frame	
- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- TPC step size	0 (1dB)	
- ΔACK	3	
- ΔNACK	3	
- Ack-Nack repetition factor	1	
- HARQ_preamble_mode	0	
- Scrambling code type	Short	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- spreading factor	Reference to clause 6.10 Parameter Set	
- TFCI existence	Reference to clause 6.10 Parameter Set	
- Number of FBI bit	Reference to clause 6.10 Parameter Set	
- Puncturing Limit	Reference to clause 6.10 Parameter Set	
E-DCH info		
- MAC-es/e reset indicator	TRUE	

- E-DPCCH info		
- E-DPCCH/DPCCH power offset	0	
- Happy bit delay condition	100 ms	
- E-TFC Boost Info	Not Present	
- E-DPDCH power interpolation	Not Present	
- E-DPDCH info		
- E-TFCI table index	0	
- E-DCH minimum set E-TFCI	9	
- Reference E-TFCIs	2 E-TFCIs	
- Reference E-TFCI	11	
- Reference E-TFCI PO	4	
- Reference E-TFCI	83	
- Reference E-TFCI PO	16	
- Minimum reduced E-DPDCH gain factor	30/15	
- Maximum channelisation codes	2sf4	
- PLnon-max	0.84	
- Scheduling Information Configuration		
- Periodicity for Scheduling Info – no grant	Not present	
- Periodicity for Scheduling Info – grant	Not present	
- Power Offset for Scheduling Info	0	
- 3-Index-Step Threshold	Not present	
- 2-Index-Step Threshold	Not present	
- Scheduled Transmission configuration		
- 2ms scheduled transmission grant HARQ process allocation	Not present	
- Serving Grant	Not present	
-UL 16QAM settings	Not Present	
Uplink secondary cell info FDD		Rel 9
- Continue	No data	
- New configuration		
- Secondary serving E-DCH cell info	Present	
- Primary E-RNTI	'0101 0101 0101 0101'	
- Secondary E-RNTI	Not Present	
- Secondary E-DCH info common		
- Frequency Info		
- CHOICE mode		
- FDD		
- UARFCN uplink (Nu)	Not present	
- UARFCN downlink (Nd)	Same value as in IE Downlink secondary cell info FDD	
- Scrambling code type	Long	
- Scrambling code number	1	
- 2ms scheduled transmission grant HARQ process allocation	Not Present	
- Serving Grant		
- Primary/Secondary Grant Selector	Primary	
- Minimum reduced E-DPDCH gain factor	30/15	
- E-DCH minimum set E-TFCI	1	
- DPCCH Power offset for secondary UL frequency	3	
- PC Preamble	0	
- Downlink information per radio link list on secondary UL frequency	Present	
- Downlink information for each radio link on secondary UL frequency	1	
- Primary CPICH info		
- Primary scrambling code	0	
- Cell ID	Not Present	
- Downlink F-DPCH info for each RL on secondary UL frequency		
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Secondary scrambling code	Not Present	

- Code number	9	
- TPC combination index	1	
- STTU	TRUE	
- E-AGCH info		
- CHOICE mode		
- FDD		
- E-AGCH Channelisation Code	8	
- TDD		
- E-HICH Information		
- Choice mode		
- FDD		
- Channelisation Code	5	
- Signature Sequence	0	
- TDD		
- CHOICE E-RGCH Information		
- E-RGCH Information		
- E-RGCH Info		
- Signature Sequence	1	
- RG combination index	0	
- E-RGCH release indicator	No data	
Downlink HS-PDSCH Information		Rel 9
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not Present	
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	6	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	8 dB	
- CQI Feedback cycle, k	8 ms	
- CQI repetition factor	1	
- Δ_{CQI}	4 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD	
- Downlink 64QAM configured	Present	
- HS-DSCH TB size table	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	FALSE	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	Not Present	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	13	
- Scrambling code change	Not Present	
- TPC combination index	0	
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	
- CHOICE E-HICH Information	Not Present	
- CHOICE E-RGCH Information	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	TRUE	
- Downlink DPCH info for each RL	Not Present	
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel	Primary CPICH may be used	

estimation		
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Secondary scrambling code	Not Present	
- Code number	12	
- TPC combination index	0	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- CHOICE E-HICH Information		
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Downlink secondary cell info FDD		
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 3	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies	
Secondary cell MIMO parameters	Not Present	Rel 9

8.2.2.77.5 Test requirements

At step 2, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

At step 5, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

8.2.2.78 Radio Bearer Reconfiguration for transition between CELL_FACH and CELL_DCH: Success (start and stop Dual-Cell HSUPA (16QAM) and Dual-Cell HSDPA (16QAM) operation)

8.2.2.78.1 Definition and applicability

All UEs supporting uplink 16QAM, Dual Cell HSUPA; and supporting F-DPCH or Enhanced F-DPCH.

8.2.2.78.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable SECONDARY_CELL_E_DCH_TRANSMISSION shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the UE has stored IE "Secondary serving E-DCH cell info" and IE "Secondary E-DCH info common";

1> either the Primary E-RNTI or the Secondary E-RNTI or both the Primary and the Secondary E-RNTI are included in the stored IE "Secondary serving E-DCH cell info";

1> the IE "Number of DPDCH" in the IE "Uplink DPCH info" is set to 0;

1> the variable E_DCH_TRANSMISSION is set to TRUE;

1> the variable SECONDARY_CELL_HS_DSCH_RECEPTION is set to TRUE;

If any of the above conditions are not met and the variable SECONDARY_CELL_E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> set the variable SECONDARY_CELL_E_DCH_TRANSMISSION to FALSE;

1> stop any F-DPCH, E-AGCH, E-HICH and E-RGCH reception procedures on the downlink frequency associated with the secondary uplink frequency;

1> stop any DPCCH, E-DPCCH and E-DPDCH transmission procedures on the secondary uplink frequency;

1> release all E-DCH HARQ resources for the secondary uplink frequency;

1> do not configure "TSN field extension" for the MAC-i/is entity;

1> reset the MAC-i/is entity [15];

1> clear any stored IE "Secondary serving E-DCH cell info" and IE "Secondary E-DCH info common";

1> remove all the radio links associated to the secondary E-DCH active set.

If all of the above conditions are met and the variable SECONDARY_CELL_E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> set the variable SECONDARY_CELL_E_DCH_TRANSMISSION to TRUE;

1> configure "TSN field extension" for the MAC-i/is entity;

1> reset the MAC-i/is entity [15].

Whenever the variable SECONDARY_CELL_E_DCH_TRANSMISSION is set to TRUE, and the secondary uplink frequency is an activated uplink frequency, the UE shall:

1> perform E_AGCH reception procedures on the secondary serving E-DCH cell according to the stored E_AGCH configuration as stated in:

2> subclause 8.6.3.14 for the IE "Primary E-RNTI" and the IE "Secondary E-RNTI" for secondary serving E-DCH cell.

1> perform E-HICH reception procedures for all radio links in the secondary E-DCH active set;

1> perform E-RGCH reception procedures for all radio links in the secondary E-DCH active set for which an E-RGCH configuration has been provided;

1> perform uplink DPCCH transmission on the secondary uplink frequency according to the stored uplink DPCH info configuration as stated in:

2> subclause 8.6.6.6 for the IE "Uplink DPCH info";

2> subclause 8.6.6.49 for the IE "Uplink Secondary Cell Info FDD".

1> perform E-DPCCH transmission procedures on the secondary uplink frequency according to the stored E-DPCCH configuration as stated in:

2> subclause 8.6.6.37 for the IE "E-DPCCH Info";

2> subclause 8.6.6.49 for the IE "Uplink Secondary Cell Info FDD".

1> perform E-DPDCH transmission procedures on the secondary uplink frequency according to the stored E-DPDCH configuration as stated in:

2> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

2> subclause 8.6.5.17 for the IE "HARQ info for E-DCH";

2> subclause 8.6.6.37 for the IE "E-DPDCH Info";

2> subclause 8.6.6.49 for the IE "Uplink Secondary Cell Info FDD".

1> inclusion of MAC-d PDU's in a MAC-i PDU for logical channels on the secondary uplink frequency shall:

2> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]) on the downlink frequency associated with the secondary uplink frequency; and

2> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

Whenever the variable SECONDARY_CELL_E_DCH_TRANSMISSION is set to FALSE, or the secondary uplink frequency is not an activated uplink frequency, the UE shall:

1> not perform F-DPCH, E-AGCH, E-HICH and E-RGCH reception procedures on the downlink frequency associated with the secondary uplink frequency;

1> not perform DPCCH, E-DPCCH and E-DPDCH transmission procedures on the secondary uplink frequency.

Reference

3GPP TS 25.331 clauses 8.2.2.4, 8.5.58

8.2.2.78.3 Test purpose

1. To verify that the UE, when UE is in CELL_DCH state with Dual-Cell E-DCH and Dual-Cell HSDPA configured enters CELL_FACH state and reconfigures the physical channels to stop Dual-Cell E-DCH and Dual-Cell HSDPA operation according to the received Radio Bearer Reconfiguration message.
2. To verify that the UE in CELL_FACH state enters CELL_DCH state and reconfigures the radio bearer parameters and starts simultaneous Dual-Cell on E-DCH and Dual-Cell HSDPA operation with 16QAM in UL and 16QAM in DL according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.78.4 Method of test

Initial Condition

System Simulator: 2 cells

- Cell 1/2 DC-HSUPA and DC-HSDPA cell(s) with Cell 1 (Serving HS.DSCH cell/Primary uplink frequency) and Cell 2 (Secondary serving HS.DSCH cell /Secondary uplink frequency)

UE: PS_DCCH+DTCH E-DCH/HS-DSCH (state 6-18) under condition A25c, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE category supports combined uplink and downlink 16QAM and DC-HSDPA and DC-HSUPA.
- UE supports F-DPCH or Enhanced F-DPCH

Test Procedure

The UE is in CELL_DCH state with DC-HSUPA and DC_HSDPA configured.

The SS transmits a RADIO BEARER RECONFIGURATION message for transition to CELL_FACH to stop DC-HSUPA and DC_HSDPA operation. The UE shall respond with RADIO BEARER RECONFIGURATION COMPLETE. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

The SS transmits a RADIO BEARER RECONFIGURATION message to the UE including RAB information to configure PS domain RB on EDCH/HSDPA (with DC-HSDPA and 16QAM configured for L1; and DC-HSUPA and 16QAM configured for L1). SRB is mapped to E-DCH/HSDPA. The UE reconfigures the radio bearers and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	Reconfigure PS RB + SRB to CELL_FACH which stops DC-HSUPA and DC-HSUPA operation.
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.
4	←		RADIO BEARER RECONFIGURATION	Reconfiguration of PS RB + SRB from CELL_FACH state to CELL_DCH on E-DCH/HS-DSCH, with 16QAM for both DC-HSUPA and DC-HSDPA.
5	→		RADIO BEARER RECONFIGURATION COMPLETE	
6	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1)

Use the same message as specified for condition A5 "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9 with exception as follow:

Information Element	Value/remark	Version
RB information to reconfigure list		
- RB information to reconfigure	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	600	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	250	
- Timer_poll	250	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not Present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	RACH	
- UL Transport channel identity	Not Present	
- Logical channel identity	7	
- CHOICE RLC size list	Explicit list	
- RLC size index	Reference to TS34.108 clause 6 Parameter Set	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	FACH	
- DL DCH Transport channel identity	Not Present	
- DL DSCH Transport channel identity	Not Present	
- Logical channel identity	7	
- RB stop/continue	Not Present	
Deleted DL TrCH information		
- Downlink transport channel type	HS-DSCH	
- DL HS-DSCH MAC-d flow identity	0	

RADIO BEARER RECONFIGURATION (Step 4)

Use the same message as specified for A4 "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with the exception as follow:

Information Element	Value/remark	Version
RAB information to reconfigure	(high-speed AM DTCH for PS domain)	
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.	
- CN domain identity	PS domain	
- NAS Synchronization Indicator	Not Present	
RB information to reconfigure list		
- RB information to reconfig	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- CHOICE RLC info type	RLC info	
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	2047	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	100	
- Timer_poll	100	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	50	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to clause 6 Parameter Set	
- Length indicator size	This IE is present and set to “7” if Downlink RLC PDU Size is set to “Flexible”	
- In-sequence delivery	TRUE	
- Receiving window size	2047	
- Downlink RLC status info		
- Timer_status_prohibit	80	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- Alternative E-bit interpretation	Not present	
- Use special value of HE field	TRUE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	E-DCH	
- Logical channel identity	7	
- E-DCH MAC-d flow identity	2	
- CHOICE RLC PDU size	Flexible size	
- Length indicator size	15 bit	
- Minimum UL RLC PDU size	See clause 6.10	
- Largest UL RLC PDU size	See clause 6.10	
- Include in scheduling info	TRUE	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	HS-DSCH	
- DL DCH Transport channel identity	Not present	
- DL DSCH Transport channel identity	Not present	
- CHOICE *DL MAC header type*	MAC-ehs	
- DL HS-DSCH MAC-ehs Queue Id	0	
- Logical channel identity	7	
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH MAC-d flow and one DTCH MAC-d flow	
- Uplink transport channel type	E-DCH	
- CHOICE UL parameters	E-DCH	

- UL MAC header type	Not present	
- UL MAC header type	MAC-i/is	
- E-DCH Transmission Time Interval	2ms	
- HARQ info for E-DCH		
- HARQ RV Configuration	Rvtable	
- Added or reconfigured E-DCH MAC-d flow	(for DCCH)	
- E-DCH MAC-d flow identity	1	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Non-scheduled grant info	
- Max MAC-e PDU contents size	168 bits	
- Max MAC-e PDU contents size	162 bits	
- 2 ms non-scheduled transmission grant HARQ process allocation	Not Present	
- Added or reconfigured E-DCH MAC-d flow	(for DTCH)	
- E-DCH MAC-d flow identity	2	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Scheduled grant info	
Added or Reconfigured DL TrCH information list	2 TrCh (DCH for DCCH and HS-DSCH for DTCH)	
- Downlink transport channel type	DCH	
- DL Transport channel identity	10	
- CHOICE DL parameters	Same as UL	
- Uplink transport channel type	DCH	
- UL TrCH identity	5	
- DCH quality target		
- Downlink transport channel type	HS-DSCH	
- DL Transport channel identity	Not Present	
- CHOICE DL parameters	HS-DSCH	
- HARQ Info		
- Number of Processes	Reference to clause 6.10 Parameter Set	
- CHOICE *Memory Partitioning*	Implicit	
- CHOICE *DL MAC header type*	MAC-ehs	
- Added or reconfigured MAC-ehs reordering queue		
- MAC-ehs queue to add or reconfigure list	(one queue)	
- MAC-ehs queue Id	2 (for DTCH)	
- T1	50	
- MAC-ehs window size	64	
- DCH quality target	Not Present	
Frequency info	Not Present	
MIMO parameters	Not Present	
Maximum allowed UL TX power	Not Present	
Uplink DPCH info		
- Uplink DPCH power control info		
- DPCCH power offset	-40 (-80dB)	
- PC Preamble	1 frame	
- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- TPC step size	0 (1dB)	
- ΔACK	3	
- ΔNACK	3	
- Ack-Nack repetition factor	1	
- HARQ_preamble_mode	0	
- Scrambling code type	Short	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- spreading factor	Reference to clause 6.10 Parameter Set	
- TFCI existence	Reference to clause 6.10 Parameter Set	
- Number of FBI bit	Reference to clause 6.10 Parameter Set	
- Puncturing Limit	Reference to clause 6.10 Parameter Set	
E-DCH info		
- MAC-es/e reset indicator	TRUE	

- E-DPCCH info		
- E-DPCCH/DPCCH power offset	0	
- Happy bit delay condition	100 ms	
- E-TFC Boost Info	Not Present	
- E-DPDCH power interpolation	Not Present	
- E-DPDCH info		
- E-TFCI table index	0	
- E-DCH minimum set E-TFCI	9	
- Reference E-TFCIs	2 E-TFCIs	
- Reference E-TFCI	11	
- Reference E-TFCI PO	4	
- Reference E-TFCI	83	
- Reference E-TFCI PO	16	
- Minimum reduced E-DPDCH gain factor	30/15	
- Maximum channelisation codes	2sf4	
- PLnon-max	0.84	
- Scheduling Information Configuration		
- Periodicity for Scheduling Info – no grant	Not present	
- Periodicity for Scheduling Info – grant	Not present	
- Power Offset for Scheduling Info	0	
- 3-Index-Step Threshold	Not present	
- 2-Index-Step Threshold	Not present	
- Scheduled Transmission configuration		
- 2ms scheduled transmission grant HARQ process allocation	Not present	
- Serving Grant	Not present	
-UL 16QAM settings	TRUE	
Uplink secondary cell info FDD		Rel-9
- Continue	No data	
- New configuration		
- Secondary serving E-DCH cell info	Present	
- Primary E-RNTI	'0101 0101 0101 0101'	
- Secondary E-RNTI	Not Present	
- Secondary E-DCH info common		
- Frequency Info		
- CHOICE mode		
- FDD		
- UARFCN uplink (Nu)	Not present	
- UARFCN downlink (Nd)	Same value as in IE Downlink secondary cell info FDD	
- Scrambling code type	Long	
- Scrambling code number	1	
- 2ms scheduled transmission grant HARQ process allocation	Not Present	
- Serving Grant		
- Primary/Secondary Grant Selector	Primary	
- Minimum reduced E-DPDCH gain factor	30/15	
- E-DCH minimum set E-TFCI	1	
- DPCCH Power offset for secondary UL frequency	3	
- PC Preamble	0	
- Downlink information per radio link list on secondary UL frequency	Present	
- Downlink information for each radio link on secondary UL frequency	1	
- Primary CPICH info		
- Primary scrambling code	0	
- Cell ID	Not Present	
- Downlink F-DPCH info for each RL on secondary UL frequency		
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Secondary scrambling code	Not Present	

- Code number	9	
- TPC combination index	1	
- STTU	TRUE	
- E-AGCH info		
- CHOICE mode		
- FDD		
- E-AGCH Channelisation Code	8	
- TDD		
- E-HICH Information		
- Choice mode		
- FDD		
- Channelisation Code	5	
- Signature Sequence	0	
- TDD		
- CHOICE E-RGCH Information		
- E-RGCH Information		
- E-RGCH Info		
- Signature Sequence	1	
- RG combination index	0	
- E-RGCH release indicator	No data	
Downlink HS-PDSCH Information		Rel-9
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not Present	
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	6	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	8 dB	
- CQI Feedback cycle, k	8 ms	
- CQI repetition factor	1	
- Δ_{CQI}	4 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD	
- Downlink 64QAM configured	Not Present	
- HS-DSCH TB size table	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	FALSE	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	Not Present	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	13	
- Scrambling code change	Not Present	
- TPC combination index	0	
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	
- CHOICE E-HICH Information	Not Present	
- CHOICE E-RGCH Information	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	TRUE	
- Downlink DPCH info for each RL	Not Present	
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel	Primary CPICH may be used	

estimation		
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Secondary scrambling code	Not Present	
- Code number	12	
- TPC combination index	0	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- CHOICE E-HICH Information		
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Downlink secondary cell info FDD		
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	FALSE	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 3	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies	
Secondary cell MIMO parameters	Not Present	Rel-9

8.2.2.78.5 Test requirements

At step 2, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

At step 5, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

8.2.2.79 Radio Bearer Reconfiguration for transition between CELL_FACH & CELL_DCH: Success (simultaneous activation and deactivation of 3C-HSDPA or 4C-HSDPA, MIMO and 64QAM)

8.2.2.79.1 Definition and applicability

All UE categories (Cat 30 and 32) which support combination of 3C-HSDPA or 4C-HSDPA, MIMO and 64 QAM.

UE supports FDD and F-DPCH or Enhanced F-DPCH.

8.2.2.79.2 Conformance requirement

….

If the UE receives:

....

- a RADIO BEARER RECONFIGURATION message; or

….

it shall:

….

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> if COMMON_E_DCH_TRANSMISSION is set to FALSE before entering CELL_DCH state or IE "E-DCH info" is not included in the reconfiguration message:

3> perform the physical layer synchronisation procedure A as specified in TS 25.214 (FDD only).

….

1> act upon all received information elements, or Target cell preconfiguration information in the case of received Target cell HS-SCCH order, as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

….

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

….

The UE shall transmit a response message as specified in subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

….

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

….

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> if the IE "MIMO parameters" is not included:

2> clear the MIMO_PARAMS variable;

2> trigger lower layers to stop operation in MIMO mode.

1> otherwise:

2> for FDD, if the IE "MIMO N_cqi_typeA/M_cqi ratio" is included:

3> store the value of the IE "MIMO N_cqi_typeA/M_cqi ratio" in the MIMO_PARAMS variable.

2> for FDD, if the IE "MIMO pilot configuration" is included:

3> store the value of the IE "MIMO pilot configuration" in the MIMO_PARAMS variable.

….

2> if the IE "MIMO operation" is set to "start":

3> for FDD, if the IE "Precoding weight set restriction" is included:

4> store the value of the IE "Precoding weight set restriction" in the MIMO_PARAMS variable. In addition, it shall be indicated to lower layers that precoding weight set restriction is configured.

3> else:

4> clear the value of the IE "Precoding weight set restriction" in the MIMO_PARAMS variable. In addition, it shall be indicated to lower layers that precoding weight set restriction is not configured.

2> else if the IE "MIMO operation" is set to "continue":

3> if the IE "Precoding weight set restriction" is included:

4> if the IE "Precoding weight set restriction" is already stored in the variable MIMO_PARAMS before receiving this message:

5> continue using "Precoding weight set restriction" for MIMO operation.

4> else:

5> UE behaviour is undefined.

3> else:

4> if the IE "Precoding weight set restriction" is already stored in the variable MIMO_PARAMS before receiving this message:

5> continue using "Precoding weight set restriction" for MIMO operation.

4> else:

5> continue MIMO operation without using "Precoding weight set restriction".

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message, the UE shall:

1> take actions related to the MIMO_PARAMS variable as specified in TS 25.331 subclause 8.5.32;

1> determine the value of the MIMO_STATUS variable.

The MIMO_STATUS variable shall be set to TRUE only when all the following conditions are met:

1> The UE is in CELL_DCH state;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> for FDD, if the UE does not support MIMO only with single stream restriction, or if UE that signalled an HS-DSCH physical layer category of 17 or 18 supports MIMO only with single stream restriction but 64QAM is not configured for downlink, the variable MIMO_PARAMS contains a value for the IE "MIMO N_cqi_typeA/M_cqi ratio"; and

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO pilot configuration".

….

If any of the above conditions is not met and the MIMO_STATUS variable is set to TRUE, the UE shall:

1> set the MIMO_STATUS variable to FALSE;

1> clear the MIMO_PARAMS variable;

1> trigger lower layers to stop operation in MIMO mode on the serving HS-DSCH cell.

[…]

An entry in the variable SECONDARY_CELL_HS_DSCH_RECEPTION shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the corresponding IE "Downlink Secondary Cell Info FDD" is included;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> either of the following conditions are met:

2> the IE "Memory Partitioning" is set to 'Implicit' in the IE "HARQ Info"; or

2> the IE "Memory Partitioning" is set to 'Explicit' in the IE "HARQ Info" and MIMO is configured on all or none of the serving HS-DSCH cell and the secondary serving HS-DSCH cells.

If any of the above conditions is not met for a secondary serving HS-DSCH cell, and the corresponding entry in the variable SECONDARY_CELL_HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the corresponding entry in the variable SECONDARY_CELL_HS_DSCH_RECEPTION to FALSE;

1> clear the corresponding entry in the variable DOWNLINK_SECONDARY_CELL_INFO;

1> flush the HARQ buffers of the HARQ entity associated to that secondary serving HS-DSCH cell;

1> release the HARQ resources associated to that secondary serving HS-DSCH cell.

1> determine the configuration of "TSN field extension" for MAC-ehs entity as specified in TS 25.331 subclause 8.5.60

….

If there is at least one entry in the variable SECONDARY_CELL_HS_DSCH_RECEPTION set to TRUE, the UE shall:

1> apply the i-th entry in the variables DOWNLINK_SECONDARY_CELL_INFO, SECONDARY_CELL_HS_DSCH_RECEPTION, and SECONDARY_CELL_MIMO_STATUS to the i-th secondary serving HS-DSCH cell.

1> After the new configuration is applied, the UE shall renumber the configured secondary serving HS-DSCH cells and the corresponding entries in the above variables, starting from 1, contiguously, by skipping empty entries in the above variables. The secondary serving HS-DSCH cells are numbered in the order their configuration IEs appears in the message. The RRC Layer shall pass the new numbering of the secondary serving HS-DSCH cells to the lower layers.

….

For each entry in the variable SECONDARY_CELL_HS_DSCH_RECEPTION which is set to TRUE, the UE shall:

1> receive the HS-SCCH(s) according to the corresponding IE "Downlink Secondary Cell Info FDD" on the serving HS-DSCH radio link applying the scrambling code as received in the corresponding IE "DL Scrambling code";

1> perform HS-DSCH reception procedures for the corresponding secondary serving HS-DSCH cell according to the stored HS-PDSCH configuration as stated in:

2> TS 25.331 subclause 8.6.3.1b for the IE "H-RNTI";

2> TS 25.331 subclause 8.6.5.6b for the IE "HARQ info";

2> TS 25.331 subclause 8.6.6.34 for the IE "Measurement Feedback Info";

2> TS 25.331 subclause 8.6.6.45 for the IE "Downlink Secondary Cell Info FDD";

1> use the relevant CQI reporting table as stated in TS 25.331 subclause 8.5.44.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message which includes the IE "Downlink secondary cell info FDD" for any of the secondary serving HS-DSCH cells, the UE shall:

1> if the IE "Secondary cell MIMO parameters" is not included in the IE "Downlink secondary cell info FDD":

2> clear the corresponding entry in the SECONDARY_CELL_MIMO_PARAMS variable;

1> if the CHOICE "Configuration Info" in the IE "Secondary cell MIMO parameters" has the value "Continue":

2> continue using the stored parameters in the corresponding entry in the SECONDARY_CELL_MIMO_PARAMS variable;

1> otherwise:

2> if the IE "MIMO N_cqi_typeA/M_cqi ratio" is included:

3> store the value of the IE "MIMO N_cqi_typeA/M_cqi ratio" in the corresponding entry in the SECONDARY_CELL_MIMO_PARAMS variable.

2> if the IE "MIMO pilot configuration" is included:

3> store the value of the IE "MIMO pilot configuration" in the corresponding entry in the SECONDARY_CELL_MIMO_PARAMS variable.

2> if the IE "Precoding weight set restriction" is included in the IE "Secondary cell MIMO parameters":

3> store the value of the IE "Precoding weight set restriction" in the corresponding entry in the SECONDARY_CELL_MIMO_PARAMS variable;

2> else if the IE "Precoding weight set restriction" is not included in the IE "Secondary cell MIMO parameters":

3> if the IE "MIMO operation" is included in the IE "MIMO parameters" and it is set to "start":

4> if the IE "Precoding weight set restriction" is included in the IE "MIMO parameters":

5> store the value of the IE "Precoding weight set restriction" in the corresponding entry in the SECONDARY_CELL_MIMO_PARAMS variable;

4> else if the IE "Precoding weight set restriction" is not included in the IE "MIMO parameters":

5> clear the value of the IE "Precoding weight set restriction" in the corresponding entry in the SECONDARY_CELL_MIMO_PARAMS variable;

3> else if the IE "MIMO operation" is included in the IE "MIMO parameters" and it is set to "continue" and if the IE "Precoding weight set restriction" is present in the variable MIMO_PARAMS:

4> copy the value of the IE "Precoding weight set restriction" in the variable MIMO_PARAMS and store it in the IE "Precoding weight set restriction" in the corresponding entry in the SECONDARY_CELL_MIMO_PARAMS variable;

3> else:

4> clear the value of the IE "Precoding weight set restriction" in the corresponding entry in the SECONDARY_CELL_MIMO_PARAMS variable.

2> RRC shall indicate to lower layers whether precoding weight set restriction is configured based on the value of the IE "Precoding weight set restriction" in the variable SECONDARY_CELL_MIMO_PARAMS.

1> determine the value of the SECONDARY_CELL_MIMO_STATUS variable for the corresponding secondary serving HS-DSCH cell.

The SECONDARY_CELL_MIMO_STATUS variable shall be set to TRUE for a secondary serving HS-DSCH cell only when all the following conditions are met:

1> The UE is in CELL_DCH state;

1> the variable SECONDARY_CELL_HS_DSCH_RECEPTION is set to TRUE for that secondary serving HS-DSCH cell;

1> if the UE does not support MIMO only with single stream restriction, the corresponding entry in the variable SECONDARY_CELL_MIMO_PARAMS contains a value for the IE "MIMO N_cqi_typeA/M_cqi ratio"; and

1> the corresponding entry in the variable SECONDARY_CELL_MIMO_PARAMS contains a value for the IE "MIMO pilot configuration".

If any of the above conditions is not met and the SECONDARY_CELL_MIMO_STATUS variable is set to TRUE for that secondary serving HS-DSCH cell, the UE shall:

1> set the entry in the SECONDARY_CELL_MIMO_STATUS variable corresponding to that secondary serving HS-DSCH cell to FALSE;

1> clear the entry in the SECONDARY_CELL_MIMO_PARAMS variable corresponding to that secondary serving HS-DSCH cell;

1> trigger lower layers to stop MIMO operation on that secondary serving HS-DSCH cell.

Whenever the entry in the variable SECONDARY_CELL_HS_DSCH_RECEPTION is set to TRUE for a secondary serving HS-DSCH cell, the UE shall:

1> if the UE supports MIMO only with single stream restriction (FDD only):

2> indicate to lower layers to start operation in MIMO mode restricted to single stream transmission on that secondary serving HS-DSCH cell, using the parameter values stored in the corresponding entry in the variable SECONDARY_CELL_MIMO_PARAMS.

1> else:

2> indicate to lower layers to start operation in MIMO mode on that secondary serving HS-DSCH cell, using the parameter values stored in the corresponding entry in the variable SECONDARY_CELL_MIMO_PARAMS.

[…]

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.5.32, 8.5.33, 8.5.51, 8.5.57

8.2.2.79.3 Test purpose

1. To confirm that the UE configures the physical channels, transits from CELL_DCH to CELL_FACH, and to stop simultaneous 64QAM and MIMO reception over multi Carriers according to the received RADIO BEARER RECONFIGURATION message.

2. To confirm that the UE reconfigures the radio bearer parameters, transits from CELL_FACH to CELL_DCH state, and starts simultaneous 64QAM and MIMO reception over multi Carriers according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.79.4 Method of test

Initial Condition

System Simulator:

There are four configurations that will be tested as follows:

1. 3 cells –Cell 1/2/3 3C HSDPA cell(s) with Cell 1(Anchor Carrier), Cell 2 and Cell 3 (Secondary Carriers) (SubTest 1) – Three Carriers (One Anchor Carrier and Two Secondary Carriers) on DL Band A and no Carriers on DL Band B (Single Band 3C HSDPA)

2. 3 cells –Cell 1/2/3 3C HSDPA cell(s) with Cell 1(Anchor Carrier), Cell 2 and Cell 3 (Secondary Carriers) (SubTest 2) – One Anchor Carrier on DL Band A and Two Secondary Carriers on DL Band B (Dual Band 3C HSDPA)

3. 4 cells –Cell 1/2/3/4 4C HSDPA cell(s) with Cell 1 (Anchor Carrier) and Cell 2, Cell 3 and Cell 4 (Secondary Carriers) (SubTest 3) – Three Carriers (One Anchor Carrier and Two Secondary Carriers) on DL Band A and One Secondary Carrier on DL Band B (Dual Band 4C HSDPA)

4. 4 cells –Cell 1/2/3/4 4C HSDPA cell(s) with Cell 1 (Anchor Carrier) and Cell 2, Cell 3 and Cell 4 (Secondary Carriers) (SubTest 4) – Two Carriers (One Anchor Carrier and One Secondary Carrier) on DL Band A and Two Secondary Carriers on DL Band B (Dual Band 4C HSDPA)

SS: Table 5.0aB and Table 5.0aC of TS 25.101

UE: CELL_DCH (state 6-18 PS-DCCH+DTCH E-DCH/HS-DSCH) under the condition A33 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE category supports combined 64QAM, Multi-Cell (3 Cells or 4 Cells) and MIMO (UE Category 30 or 32)
- UE supports F-DPCH or Enhanced F-DPCH

Test Procedure

The SS transmits a RADIO BEARER RECONFIGURATION message, using non-DC and non-MIMO configuration, to the UE to deactivate 3C-HSDPA or 4C-HSDPA and MIMO features. The UE shall respond with RADIO BEARER RECONFIGURATION COMPLETE. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

UE should not send any CQI report after this point. SS should verify this.

The UE is in CELL_FACH state. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE including RAB information to configure PS domain RB on E-DCH/HSDPA (with 3C-HSDPA or 4C-HSDPA, 64 QAM and MIMO simultaneously configured for L1). SRB is mapped to E-DCH/HSDPA. The UE reconfigures the radio bearers and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

To check that the UE has activated 3C HSDPA, the SS sends UE CAPABILITY ENQUIRY on both Anchor Carrier Cell and Secondary Carrier Cell using SRB2 mapped onto HS-DSCH. The UE shall respond to each message in turn with UE CAPABILITY INFORMATION message sent to Anchor Carrier Cell 1. In that RRC message, it should include the IE "*HS-DSCH physical layer category extension 4*". The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message.

To check that the UE has activated 4C HSDPA, the SS sends UE CAPABILITY ENQUIRY on both Anchor Carrier Cell and Secondary Carrier Cell using SRB2 mapped onto HS-DSCH. The UE shall respond to each message in turn with UE CAPABILITY INFORMATION message sent to Anchor Carrier Cell 1. In that RRC message, it should include the IE "*HS-DSCH physical layer category extension 5*". The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message.

Depending on the System Simulator configuration,

SS checks that UE sends composite CQI/PCI reports on each stream for Cell 1, Cell 2 and Cell 3 (SubTest 1 and SubTest 2).

Or

SS checks that UE sends composite CQI/PCI reports on each stream for Cell 1, Cell 2, Cell 3 and Cell 4 (SubTest 3 and SubTest 4).

Expected sequence

Step	Direction		Message	Comment
	UE	SS		

0			Depending upon the SS configuration (three cell (SubTest 1 and SubTest 2) or four cell (SubTest 3 and SubTest 4)) perform steps 1 through 15 (SubTest 1) OR steps 16 through 30 (SubTest 2) OR steps 32 through 49 (SubTest 3) OR steps 50 through 67 (SubTest 4) respectively.
1	←	RADIO BEARER RECONFIGURATION	SubTest 1- Reconfigure PS RB + SRB to CELL_FACH which deactivates 3C-HSDPA, 64 QAM and MIMO.
2	→	RADIO BEARER RECONFIGURATION COMPLETE	SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.
3			SS checks during 100ms that UE should not transmit any composite CQI/PCI reports.
4	←	RADIO BEARER RECONFIGURATION	Reconfiguration of PS RB + SRB from CELL_FACH state to CELL_DCH on E-DCH/HSDPA, using 3C-HSDPA, 64QAM and MIMO configuration
5	→	RADIO BEARER RECONFIGURATION COMPLETE	SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.
6	←	UE CAPABILITY ENQUIRY	Use default message. SRB2 on HS-DSCH from Anchor Cell 1.
7	→	UE CAPABILITY INFORMATION	
8			SS should check for composite CQI/PCI Type A reports (all three carriers) at every 4 ms period with composite CQI/PCI Type A Report for Anchor Carrier (Cell 1) and Secondary Carrier 2 (Cell 3) first followed by composite CQI/PCI Type A Report for Secondary Carrier 1 (Cell 2).
9	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 1.
10	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier 1- Cell 2.
11	→	UE CAPABILITY INFORMATION	
12	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 2.
13	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier 2- Cell 3.
14	→	UE CAPABILITY INFORMATION	
15	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 3. End of Sub Test 1.
16	←	RADIO BEARER RECONFIGURATION	SubTest 2 - Reconfigure PS RB + SRB to CELL_FACH which deactivates 3C-HSDPA, 64 QAM and MIMO.
17	→	RADIO BEARER RECONFIGURATION COMPLETE	SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.
18			SS checks during 100ms that UE should not transmit any composite CQI/PCI reports.

19	←	RADIO BEARER RECONFIGURATION	Reconfiguration of PS RB + SRB from CELL_FACH state to CELL_DCH on EDCH/HSDPA, using 3C-HSDPA, 64 QAM and MIMO configuration
20	→	RADIO BEARER RECONFIGURATION COMPLETE	SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.
21	←	UE CAPABILITY ENQUIRY	Use default message. SRB2 on HS-DSCH from Anchor Carrier Cell 1.
22	→	UE CAPABILITY INFORMATION	
23			SS should check for composite CQI/PCI Type A reports (all three carriers) at every 4 ms period with composite CQI/PCI Type A Report for Anchor Carrier (Cell 1).
24	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 1.
25	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier 1 on Cell 2.
26	→	UE CAPABILITY INFORMATION	
27	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 2.
28	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier 2 on Cell 3.
29	→	UE CAPABILITY INFORMATION	
30	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 3. End of Sub Test 2. If the UE does NOT support 4 Carrier Operation, then the Test is completed and Steps 31 onwards are NOT Applicable.
31			Following Steps are applicable to UEs that support 4 Carrier Operation.
32	←	RADIO BEARER RECONFIGURATION	SubTest 3 - Reconfigure PS RB + SRB to CELL_FACH which deactivates 4C-HSDPA, 64 QAM and MIMO.
33	→	RADIO BEARER RECONFIGURATION COMPLETE	SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.
34			SS checks during 100ms that UE should not transmit any composite CQI/PCI reports.
35	←	RADIO BEARER RECONFIGURATION	Reconfiguration of PS RB + SRB from CELL_FACH state to CELL_DCH on EDCH/HSDPA, using 4C-HSDPA, 64 QAM and MIMO configuration
36	→	RADIO BEARER RECONFIGURATION COMPLETE	SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.
37	←	UE CAPABILITY ENQUIRY	Use default message. SRB2 on HS-DSCH from Anchor Cell 1.
38	→	UE CAPABILITY INFORMATION	

39			SS should check for CQI reports (all four carriers) at every 4 ms period with composite CQI/PCI Type A Report for Anchor Carrier (Cell 1) and Secondary Carrier 2 (Cell 3) followed by composite CQI/PCI Type A Report for Secondary Carrier 1 (Cell 2) and Secondary Carrier 3 (Cell 4).
40	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 1.
41	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier 1 on Cell 2.
42	→	UE CAPABILITY INFORMATION	
43	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 2.
44	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier 2 on Cell 3.
45	→	UE CAPABILITY INFORMATION	
46	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 3.
47	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier 3 on Cell 4.
48	→	UE CAPABILITY INFORMATION	
49	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 4. End of Sub Test 3.
50	←	RADIO BEARER RECONFIGURATION	SubTest 4 - Reconfigure PS RB + SRB to CELL_FACH which deactivates 4C-HSDPA, 64 QAM and MIMO.
51	→	RADIO BEARER RECONFIGURATION COMPLETE	SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.
52			SS checks during 100ms that UE should not transmit any composite CQI/PCI reports.
53	←	RADIO BEARER RECONFIGURATION	Reconfiguration of PS RB + SRB from CELL_FACH state to CELL_DCH on EDCH/HSDPA, using 4C-HSDPA, 64 QAM and MIMO configuration
54	→	RADIO BEARER RECONFIGURATION COMPLETE	SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.
55	←	UE CAPABILITY ENQUIRY	Use default message. SRB2 on HS-DSCH from Anchor Cell 1.
56	→	UE CAPABILITY INFORMATION	
57			SS should check for composite CQI/PCI Type A reports (two carriers) at every 4 ms period with composite CQI/PCI Type A Report for Anchor Carrier (Cell 1) and Secondary Carrier 1 (Cell 2).
58	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 1.
59	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier 1 on Cell 2.
60	→	UE CAPABILITY INFORMATION	

61	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 2.
62	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier 2 on Cell 3.
63	→	UE CAPABILITY INFORMATION	
64	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 3.
65	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier 3 on Cell 4.
66	→	UE CAPABILITY INFORMATION	
67	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 4. End of Sub Test 4.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1, Step 16, Step 32, Step 50) (FDD)

Use the same message as specified for condition A5 "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9 with exception as follow:

Information Element	Value/remark	Version
RB information to reconfigure list		
- RB information to reconfigure	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	600	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	250	
- Timer_poll	250	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not Present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	RACH	
- UL Transport channel identity	Not Present	
- Logical channel identity	7	
- CHOICE RLC size list	Explicit list	
- RLC size index	Reference to TS34.108 clause 6 Parameter Set	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	FACH	
- DL DCH Transport channel identity	Not Present	
- DL DSCH Transport channel identity	Not Present	
- Logical channel identity	7	
- RB stop/continue	Not Present	
Deleted DL TrCH information		
- Downlink transport channel type	HS-DSCH	
- DL HS-DSCH MAC-d flow identity	0	

RADIO BEARER RECONFIGURATION (Step 4)

Use the same message as specified for A4 "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with the exception as follow:

Information Element	Value/remark	Version
RAB information to reconfigure	(high-speed AM DTCH for PS domain)	
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.	

- CN domain identity	PS domain	
- NAS Synchronization Indicator	Not Present	
RB information to reconfigure list		
- RB information to reconfig	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- CHOICE RLC info type	RLC info	
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	2047	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	100	
- Timer_poll	100	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	50	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to clause 6 Parameter Set	
- Length indicator size	This IE is present and set to “7” if Downlink RLC PDU Size is set to “Flexible”	
- In-sequence delivery	TRUE	
- Receiving window size	2047	
- Downlink RLC status info		
- Timer_status_prohibit	80	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- Alternative E-bit interpretation	Not present	
- Use special value of HE field	TRUE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	E-DCH	
- Logical channel identity	7	
- E-DCH MAC-d flow identity	2	
- CHOICE RLC PDU size	Flexible size	
- Length indicator size	15 bit	
- Minimum UL RLC PDU size	See clause 6.10	
- Largest UL RLC PDU size	See clause 6.10	
- Include in scheduling info	TRUE	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	HS-DSCH	
- DL DCH Transport channel identity	Not present	
- DL DSCH Transport channel identity	Not present	
- CHOICE *DL MAC header type*	MAC-ehs	
- DL HS-DSCH MAC-ehs Queue Id	0	
- Logical channel identity	7	
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH MAC-d flow and one DTCH MAC-d flow	
- Uplink transport channel type	E-DCH	
- CHOICE UL parameters	E-DCH	

- UL MAC header type	Not present	
- UL MAC header type	MAC-i/is	
- E-DCH Transmission Time Interval	set to 2ms if supported by the UE E-DCH category, or 10ms if the UE E-DCH category does not support 2ms TTI	
- HARQ info for E-DCH		
- HARQ RV Configuration	Rvtable	
- Added or reconfigured E-DCH MAC-d flow	(for DCCH)	
- E-DCH MAC-d flow identity	1	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Non-scheduled grant info	
- Max MAC-e PDU contents size	168 bits	
- Max MAC-e PDU contents size	162 bits	
- 2 ms non-scheduled transmission grant HARQ process allocation	Not Present	
- Added or reconfigured E-DCH MAC-d flow	(for DTCH)	
- E-DCH MAC-d flow identity	2	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Scheduled grant info	
Added or Reconfigured DL TrCH information list	2 TrCh (DCH for DCCH and HS-DSCH for DTCH)	
- Downlink transport channel type	DCH	
- DL Transport channel identity	10	
- CHOICE DL parameters	Same as UL	
- Uplink transport channel type	DCH	
- UL TrCH identity	5	
- DCH quality target		
- Downlink transport channel type	HS-DSCH	
- DL Transport channel identity	Not Present	
- CHOICE DL parameters	HS-DSCH	
- HARQ Info		
- Number of Processes	Reference to clause 6.10 Parameter Set	
- CHOICE *Memory Partitioning*	Implicit	
- CHOICE *DL MAC header type*	MAC-ehs	
- Added or reconfigured MAC-ehs reordering queue		
- MAC-ehs queue to add or reconfigure list	(one queue)	
- MAC-ehs queue Id	2 (for DTCH)	
- T1	50	
- MAC-ehs window size	32	
- DCH quality target	Not present	
Frequency info		
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [11]	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA.	
MIMO parameters		
CHOICE mode	FDD	
MIMO N_cqi_typeA/M_cqi ratio		
- MIMO pilot configuration		
--Precoding weight set restriction		
Maximum allowed UL TX power	Not Present	
Uplink DPCH info		
- Uplink DPCH power control info		
- DPCCH power offset	-40 (-80dB)	
- PC Preamble	1 frame	
- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- TPC step size	0 (1dB)	

- ΔACK	3	
- ΔNACK	3	
- Ack-Nack repetition factor	1	
- HARQ_preamble_mode	0	
- Scrambling code type	Short	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- spreading factor	Reference to clause 6.10 Parameter Set	
- TFCI existence	Reference to clause 6.10 Parameter Set	
- Number of FBI bit	Reference to clause 6.10 Parameter Set	
- Puncturing Limit	Reference to clause 6.10 Parameter Set	
E-DCH info		
- MAC-es/e reset indicator	TRUE	
- E-DPCCH info		
- E-DPCCH/DPCCH power offset	0	
- Happy bit delay condition	100 ms	
- E-TFC Boost Info	Not Present	
- E-DPDCH power interpolation	Not Present	
- E-DPDCH info		
- E-TFCI table index	0	
- E-DCH minimum set E-TFCI	9	
- Reference E-TFCIs	2 E-TFCIs	
- Reference E-TFCI	11	
- Reference E-TFCI PO	4	
- Reference E-TFCI	83	
- Reference E-TFCI PO	16	
- Maximum channelisation codes	2sf4	
- PLnon-max	0.84	
- Scheduling Information Configuration		
- Periodicity for Scheduling Info – no grant	Not present	
- Periodicity for Scheduling Info – grant	Not present	
- Power Offset for Scheduling Info	0	
- 3-Index-Step Threshold	Not present	
- 2-Index-Step Threshold	Not present	
- Scheduled Transmission configuration		
- 2ms scheduled transmission grant HARQ process allocation	Not present	
- Serving Grant	Not present	
-UL 16QAM settings	Not Present	
Uplink secondary cell info FDD	Not Present	Rel 9
Downlink HS-PDSCH Information		Rel 9
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not Present	
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	6	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	8 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	4 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD	
- Downlink 64QAM configured	Present	
- HS-DSCH TB size table	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	FALSE	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	

- DL channelisation code		
- Secondary scrambling code	Not Present	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	13	
- Scrambling code change	Not Present	
- TPC combination index	0	
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	
- CHOICE E-HICH Information	Not Present	
- CHOICE E-RGCH Information	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	TRUE	
- Downlink DPCH info for each RL	Not Present	
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Secondary scrambling code	Not Present	
- Code number	12	
- TPC combination index	0	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- CHOICE E-HICH Information		
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 2	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA	
Secondary cell MIMO parameters		Rel-9
- CHOICE Configuration info		
- Continue		
- New configuration		Rel-9
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
-CHOICE *Second CPICH pattern*		
-Antenna2 P-CPICH	No data	
-Antenna1 S-CPICH		
-Channelisation code	15	
-Power Offset for S-CPICH for MIMO	0	
- precodingWeightSetRestriction		
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	Present	

- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 3	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA	
Secondary cell MIMO parameters	Not Present	Rel. 9

RADIO BEARER RECONFIGURATION (Step 19)

Use the same message as specified for A4 "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with the exception as follow:

Information Element	Value/remark	Version
RAB information to reconfigure	(high-speed AM DTCH for PS domain)	
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.	
- CN domain identity	PS domain	
- NAS Synchronization Indicator	Not Present	
RB information to reconfigure list		
- RB information to reconfig	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- CHOICE RLC info type	RLC info	
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	2047	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	100	
- Timer_poll	100	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	50	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to clause 6 Parameter Set	
- Length indicator size	This IE is present and set to “7” if Downlink RLC PDU Size is set to “Flexible”	
- In-sequence delivery	TRUE	
- Receiving window size	2047	
- Downlink RLC status info		
- Timer_status_prohibit	80	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- Alternative E-bit interpretation	Not present	
- Use special value of HE field	TRUE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	E-DCH	
- Logical channel identity	7	
- E-DCH MAC-d flow identity	2	
- CHOICE RLC PDU size	Flexible size	

- Length indicator size	15 bit	
- Minimum UL RLC PDU size	See clause 6.10	
- Largest UL RLC PDU size	See clause 6.10	
- Include in scheduling info	TRUE	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	HS-DSCH	
- DL DCH Transport channel identity	Not present	
- DL DSCH Transport channel identity	Not present	
- CHOICE *DL MAC header type*	MAC-ehs	
- DL HS-DSCH MAC-ehs Queue Id	0	
- Logical channel identity	7	
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH MAC-d flow and one DTCH MAC-d flow	
- Uplink transport channel type	E-DCH	
- CHOICE UL parameters	E-DCH	
- UL MAC header type	Not present	
- UL MAC header type	MAC-i/is	
- E-DCH Transmission Time Interval	set to 2ms if supported by the UE E-DCH category, or 10ms if the UE E-DCH category does not support 2ms TTI	
- HARQ info for E-DCH		
- HARQ RV Configuration	Rvtable	
- Added or reconfigured E-DCH MAC-d flow	(for DCCH)	
- E-DCH MAC-d flow identity	1	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Non-scheduled grant info	
- Max MAC-e PDU contents size	168 bits	
- Max MAC-e PDU contents size	162 bits	
- 2 ms non-scheduled transmission grant HARQ process allocation	Not Present	
- Added or reconfigured E-DCH MAC-d flow	(for DTCH)	
- E-DCH MAC-d flow identity	2	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Scheduled grant info	
Added or Reconfigured DL TrCH information list	2 TrCh (DCH for DCCH and HS-DSCH for DTCH)	
- Downlink transport channel type	DCH	
- DL Transport channel identity	10	
- CHOICE DL parameters	Same as UL	
- Uplink transport channel type	DCH	
- UL TrCH identity	5	
- DCH quality target		
- Downlink transport channel type	HS-DSCH	
- DL Transport channel identity	Not Present	
- CHOICE DL parameters	HS-DSCH	
- HARQ Info		
- Number of Processes	Reference to clause 6.10 Parameter Set	
- CHOICE *Memory Partitioning*	Implicit	
- CHOICE *DL MAC header type*	MAC-ehs	
- Added or reconfigured MAC-ehs reordering queue		
- MAC-ehs queue to add or reconfigure list	(one queue)	
- MAC-ehs queue Id	2 (for DTCH)	
- T1	50	
- MAC-ehs window size	32	
- DCH quality target	Not present	
Frequency info		
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the	

	operating frequency according to 3GPP TS 25.101 [11]	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA.	
MIMO parameters		
CHOICE mode	FDD	
MIMO N_cqi_typeA/M_cqi ratio		
- MIMO pilot configuration		
--Precoding weight set restriction		
Maximum allowed UL TX power	Not Present	
Uplink DPCH info		
- Uplink DPCH power control info		
- DPCCH power offset	-40 (-80dB)	
- PC Preamble	1 frame	
- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- TPC step size	0 (1dB)	
- ΔACK	3	
- ΔNACK	3	
- Ack-Nack repetition factor	1	
- HARQ_preamble_mode	0	
- Scrambling code type	Short	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- spreading factor	Reference to clause 6.10 Parameter Set	
- TFCI existence	Reference to clause 6.10 Parameter Set	
- Number of FBI bit	Reference to clause 6.10 Parameter Set	
- Puncturing Limit	Reference to clause 6.10 Parameter Set	
E-DCH info		
- MAC-es/e reset indicator	TRUE	
- E-DPCCH info		
- E-DPCCH/DPCCH power offset	0	
- Happy bit delay condition	100 ms	
- E-TFC Boost Info	Not Present	
- E-DPDCH power interpolation	Not Present	
- E-DPDCH info		
- E-TFCI table index	0	
- E-DCH minimum set E-TFCI	9	
- Reference E-TFCIs	2 E-TFCIs	
- Reference E-TFCI	11	
- Reference E-TFCI PO	4	
- Reference E-TFCI	83	
- Reference E-TFCI PO	16	
- Maximum channelisation codes	2sf4	
- PLnon-max	0.84	
- Scheduling Information Configuration		
- Periodicity for Scheduling Info – no grant	Not present	
- Periodicity for Scheduling Info – grant	Not present	
- Power Offset for Scheduling Info	0	
- 3-Index-Step Threshold	Not present	
- 2-Index-Step Threshold	Not present	
- Scheduled Transmission configuration		
- 2ms scheduled transmission grant HARQ process allocation	Not present	
- Serving Grant	Not present	
-UL 16QAM settings	Not Present	
Uplink secondary cell info FDD	Not Present	Rel 9
Downlink HS-PDSCH Information		Rel 9
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not Present	
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	6	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	8 dB	
- CQI Feedback cycle, k	4 ms	

- CQI repetition factor	1	
- Δ_{CQI}	4 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD	
- Downlink 64QAM configured	Present	
- HS-DSCH TB size table	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	FALSE	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	Not Present	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	13	
- Scrambling code change	Not Present	
- TPC combination index	0	
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	
- CHOICE E-HICH Information	Not Present	
- CHOICE E-RGCH Information	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	TRUE	
- Downlink DPCH info for each RL	Not Present	
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Secondary scrambling code	Not Present	
- Code number	12	
- TPC combination index	0	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- CHOICE E-HICH Information		
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 2	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for	

	4C HSDPA	
Secondary cell MIMO parameters		Rel-9
- CHOICE Configuration info		
- Continue		
- New configuration		Rel-9
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
-CHOICE *Second CPICH pattern*		
-Antenna2 P-CPICH	No data	
-Antenna1 S-CPICH		
-Channelisation code	15	
-Power Offset for S-CPICH for MIMO	0	
- precodingWeightSetRestriction		
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	Present	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 3	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA	
Secondary cell MIMO parameters		Rel. 9
- CHOICE Configuration info		
- Continue		
- New configuration		Rel-9
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
-CHOICE *Second CPICH pattern*		
-Antenna2 P-CPICH	No data	
-Antenna1 S-CPICH		
-Channelisation code	15	
-Power Offset for S-CPICH for MIMO	0	
- precodingWeightSetRestriction		

RADIO BEARER RECONFIGURATION (Step 35)

Use the same message as specified for A4 "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with the exception as follow:

Information Element	Value/remark	Version
RAB information to reconfigure	(high-speed AM DTCH for PS domain)	
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.	
- CN domain identity	PS domain	
- NAS Synchronization Indicator	Not Present	
RB information to reconfigure list		
- RB information to reconfig	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- CHOICE RLC info type	RLC info	
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	2047	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	100	

- Timer_poll	100	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	50	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to clause 6 Parameter Set	
- Length indicator size	This IE is present and set to “7” if Downlink RLC PDU Size is set to “Flexible”	
- In-sequence delivery	TRUE	
- Receiving window size	2047	
- Downlink RLC status info		
- Timer_status_prohibit	80	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- Alternative E-bit interpretation	Not present	
- Use special value of HE field	TRUE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	E-DCH	
- Logical channel identity	7	
- E-DCH MAC-d flow identity	2	
- CHOICE RLC PDU size	Flexible size	
- Length indicator size	15 bit	
- Minimum UL RLC PDU size	See clause 6.10	
- Largest UL RLC PDU size	See clause 6.10	
- Include in scheduling info	TRUE	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	HS-DSCH	
- DL DCH Transport channel identity	Not present	
- DL DSCH Transport channel identity	Not present	
- CHOICE *DL MAC header type*	MAC-ehs	
- DL HS-DSCH MAC-ehs Queue Id	0	
- Logical channel identity	7	
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH MAC-d flow and one DTCH MAC-d flow	
- Uplink transport channel type	E-DCH	
- CHOICE UL parameters	E-DCH	
- UL MAC header type	Not present	
- UL MAC header type	MAC-i/is	
- E-DCH Transmission Time Interval	set to 2ms if supported by the UE E-DCH category, or 10ms if the UE E-DCH category does not support 2ms TTI	
- HARQ info for E-DCH		
- HARQ RV Configuration	Rvtable	
- Added or reconfigured E-DCH MAC-d flow	(for DCCH)	
- E-DCH MAC-d flow identity	1	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Non-scheduled grant info	
- Max MAC-e PDU contents size	168 bits	
- Max MAC-e PDU contents size	162 bits	
- 2 ms non-scheduled transmission grant HARQ process allocation	Not Present	
- Added or reconfigured E-DCH MAC-d flow	(for DTCH)	
- E-DCH MAC-d flow identity	2	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of	7	

retransmissions		
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Scheduled grant info	
Added or Reconfigured DL TrCH information list	2 TrCh (DCH for DCCH and HS-DSCH for DTCH)	
- Downlink transport channel type	DCH	
- DL Transport channel identity	10	
- CHOICE DL parameters	Same as UL	
- Uplink transport channel type	DCH	
- UL TrCH identity	5	
- DCH quality target		
- Downlink transport channel type	HS-DSCH	
- DL Transport channel identity	Not Present	
- CHOICE DL parameters	HS-DSCH	
- HARQ Info		
- Number of Processes	Reference to clause 6.10 Parameter Set	
- CHOICE *Memory Partitioning*	Implicit	
- CHOICE *DL MAC header type*	MAC-ehs	
- Added or reconfigured MAC-ehs reordering queue		
- MAC-ehs queue to add or reconfigure list	(one queue)	
- MAC-ehs queue Id	2 (for DTCH)	
- T1	50	
- MAC-ehs window size	32	
- DCH quality target	Not present	
Frequency info		
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [11]	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA.	
MIMO parameters		
CHOICE mode	FDD	
MIMO N_cqi_typeA/M_cqi ratio		
- MIMO pilot configuration		
--Precoding weight set restriction		
Maximum allowed UL TX power	Not Present	
Uplink DPCH info		
- Uplink DPCH power control info		
- DPCCH power offset	-40 (-80dB)	
- PC Preamble	1 frame	
- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- TPC step size	0 (1dB)	
- ΔACK	3	
- ΔNACK	3	
- Ack-Nack repetition factor	1	
- HARQ_preamble_mode	0	
- Scrambling code type	Short	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- spreading factor	Reference to clause 6.10 Parameter Set	
- TFCI existence	Reference to clause 6.10 Parameter Set	
- Number of FBI bit	Reference to clause 6.10 Parameter Set	
- Puncturing Limit	Reference to clause 6.10 Parameter Set	
E-DCH info		
- MAC-es/e reset indicator	TRUE	
- E-DPCCH info		
- E-DPCCH/DPCCH power offset	0	
- Happy bit delay condition	100 ms	
- E-TFC Boost Info	Not Present	
- E-DPDCH power interpolation	Not Present	
- E-DPDCH info		
- E-TFCI table index	0	
- E-DCH minimum set E-TFCI	9	
- Reference E-TFCIs	2 E-TFCIs	

- Reference E-TFCI	11	
- Reference E-TFCI PO	4	
- Reference E-TFCI	83	
- Reference E-TFCI PO	16	
- Maximum channelisation codes	2sf4	
- PLnon-max	0.84	
- Scheduling Information Configuration		
- Periodicity for Scheduling Info – no grant	Not present	
- Periodicity for Scheduling Info – grant	Not present	
- Power Offset for Scheduling Info	0	
- 3-Index-Step Threshold	Not present	
- 2-Index-Step Threshold	Not present	
- Scheduled Transmission configuration		
- 2ms scheduled transmission grant HARQ process allocation	Not present	
- Serving Grant	Not present	
-UL 16QAM settings	Not Present	
Uplink secondary cell info FDD	Not Present	Rel 9
Downlink HS-PDSCH Information		Rel 9
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not Present	
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	6	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	8 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	4 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD	
- Downlink 64QAM configured	Present	
- HS-DSCH TB size table	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	FALSE	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	Not Present	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	13	
- Scrambling code change	Not Present	
- TPC combination index	0	
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	
- CHOICE E-HICH Information	Not Present	
- CHOICE E-RGCH Information	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	TRUE	
- Downlink DPCH info for each RL	Not Present	
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as	

	currently stored in SS) mod 38 400	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Secondary scrambling code	Not Present	
- Code number	12	
- TPC combination index	0	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- CHOICE E-HICH Information		
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 2	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA	
Secondary cell MIMO parameters		Rel-9
- CHOICE Configuration info		
- Continue		
- New configuration		Rel-9
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
-CHOICE *Second CPICH pattern*		
-Antenna2 P-CPICH	No data	
-Antenna1 S-CPICH		
-Channelisation code	15	
-Power Offset for S-CPICH for MIMO	0	
- precodingWeightSetRestriction		
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	Present	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 3	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA	
Secondary cell MIMO parameters		Rel-9
- CHOICE Configuration info		
- Continue		
- New configuration		Rel-9
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
-CHOICE Second CPICH pattern		
-Antenna2 P-CPICH	No data	
-Antenna1 S-CPICH		
-Channelisation code	15	
-Power Offset for S-CPICH for MIMO	0	
- precodingWeightSetRestriction		
Downlink secondary cell info FDD		Rel-8

- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	Present	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 4	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA	
Secondary cell MIMO parameters		Rel-9
- CHOICE Configuration info		
- Continue		
- New configuration		Rel-9
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
-CHOICE Second CPICH pattern		
-Antenna2 P-CPICH	No data	
-Antenna1 S-CPICH		
-Channelisation code	15	
-Power Offset for S-CPICH for MIMO	0	
- precodingWeightSetRestriction		

RADIO BEARER RECONFIGURATION (Step 53)

Use the same message as specified for A4 "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with the exception as follow:

Information Element	Value/remark	Version
RAB information to reconfigure	(high-speed AM DTCH for PS domain)	
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.	
- CN domain identity	PS domain	
- NAS Synchronization Indicator	Not Present	
RB information to reconfigure list		
- RB information to reconfig	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- CHOICE RLC info type	RLC info	
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	2047	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	100	
- Timer_poll	100	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	50	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to clause 6 Parameter Set	
- Length indicator size	This IE is present and set to “7” if Downlink RLC PDU Size is set to “Flexible”	
- In-sequence delivery	TRUE	
- Receiving window size	2047	
- Downlink RLC status info		
- Timer_status_prohibit	80	

- Timer_EPC	Not Present		
- Missing PDU indicator	TRUE		
- Timer_STATUS_periodic	Not Present		
- One sided RLC re-establishment	FALSE		
- Alternative E-bit interpretation	Not present		
- Use special value of HE field	TRUE		
- RB mapping info			
- Information for each multiplexing option	1 RBMuxOption		
- RLC logical channel mapping indicator	Not present		
- Number of uplink RLC logical channels	1		
- Uplink transport channel type	E-DCH		
- Logical channel identity	7		
- E-DCH MAC-d flow identity	2		
- CHOICE RLC PDU size	Flexible size		
- Length indicator size	15 bit		
- Minimum UL RLC PDU size	See clause 6.10		
- Largest UL RLC PDU size	See clause 6.10		
- Include in scheduling info	TRUE		
- MAC logical channel priority	8		
- Downlink RLC logical channel info			
- Number of downlink RLC logical channels	1		
- Downlink transport channel type	HS-DSCH		
- DL DCH Transport channel identity	Not present		
- DL DSCH Transport channel identity	Not present		
- CHOICE *DL MAC header type*	MAC-ehs		
- DL HS-DSCH MAC-ehs Queue Id	0		
- Logical channel identity	7		
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH MAC-d flow and one DTCH MAC-d flow		
- Uplink transport channel type	E-DCH		
- CHOICE UL parameters	E-DCH		
- UL MAC header type	Not present		
- UL MAC header type	MAC-i/is		
- E-DCH Transmission Time Interval	set to 2ms if supported by the UE E-DCH category, or 10ms if the UE E-DCH category does not support 2ms TTI		
- HARQ info for E-DCH			
- HARQ RV Configuration	Rvtable		
- Added or reconfigured E-DCH MAC-d flow	(for DCCH)		
- E-DCH MAC-d flow identity	1		
- E-DCH MAC-d flow power offset	0		
- E-DCH MAC-d flow maximum number of retransmissions	7		
- E-DCH MAC-d flow multiplexing list	Not Present		
- CHOICE transmission grant type	Non-scheduled grant info		
- Max MAC-e PDU contents size	168 bits		
- Max MAC-e PDU contents size	162 bits		
- 2 ms non-scheduled transmission grant HARQ process allocation	Not Present		
- Added or reconfigured E-DCH MAC-d flow	(for DTCH)		
- E-DCH MAC-d flow identity	2		
- E-DCH MAC-d flow power offset	0		
- E-DCH MAC-d flow maximum number of retransmissions	7		
- E-DCH MAC-d flow multiplexing list	Not Present		
- CHOICE transmission grant type	Scheduled grant info		
Added or Reconfigured DL TrCH information list	2 TrCh (DCH for DCCH and HS-DSCH for DTCH)		
- Downlink transport channel type	DCH		
- DL Transport channel identity	10		
- CHOICE DL parameters	Same as UL		
- Uplink transport channel type	DCH		
- UL TrCH identity	5		
- DCH quality target			
- Downlink transport channel type	HS-DSCH		
- DL Transport channel identity	Not Present		
- CHOICE DL parameters	HS-DSCH		
- HARQ Info			

- Number of Processes	Reference to clause 6.10 Parameter Set	
- CHOICE *Memory Partitioning*	Implicit	
- CHOICE *DL MAC header type*	MAC-ehs	
- Added or reconfigured MAC-ehs reordering queue		
- MAC-ehs queue to add or reconfigure list	(one queue)	
- MAC-ehs queue Id	2 (for DTCH)	
- T1	50	
- MAC-ehs window size	32	
- DCH quality target	Not present	
Frequency info		
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [11]	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA.	
MIMO parameters		
CHOICE mode	FDD	
MIMO N_cqi_typeA/M_cqi ratio		
- MIMO pilot configuration		
--Precoding weight set restriction		
Maximum allowed UL TX power	Not Present	
Uplink DPCH info		
- Uplink DPCH power control info		
- DPCCH power offset	-40 (-80dB)	
- PC Preamble	1 frame	
- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- TPC step size	0 (1dB)	
- ∆ACK	3	
- ∆NACK	3	
- Ack-Nack repetition factor	1	
- HARQ_preamble_mode	0	
- Scrambling code type	Short	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- spreading factor	Reference to clause 6.10 Parameter Set	
- TFCI existence	Reference to clause 6.10 Parameter Set	
- Number of FBI bit	Reference to clause 6.10 Parameter Set	
- Puncturing Limit	Reference to clause 6.10 Parameter Set	
E-DCH info		
- MAC-es/e reset indicator	TRUE	
- E-DPCCH info		
- E-DPCCH/DPCCH power offset	0	
- Happy bit delay condition	100 ms	
- E-TFC Boost Info	Not Present	
- E-DPDCH power interpolation	Not Present	
- E-DPDCH info		
- E-TFCI table index	0	
- E-DCH minimum set E-TFCI	9	
- Reference E-TFCIs	2 E-TFCIs	
- Reference E-TFCI	11	
- Reference E-TFCI PO	4	
- Reference E-TFCI	83	
- Reference E-TFCI PO	16	
- Maximum channelisation codes	2sf4	
- PLnon-max	0.84	
- Scheduling Information Configuration		
- Periodicity for Scheduling Info – no grant	Not present	
- Periodicity for Scheduling Info – grant	Not present	
- Power Offset for Scheduling Info	0	
- 3-Index-Step Threshold	Not present	
- 2-Index-Step Threshold	Not present	
- Scheduled Transmission configuration		
- 2ms scheduled transmission grant HARQ process allocation	Not present	

- Serving Grant	Not present	
-UL 16QAM settings	Not Present	
Uplink secondary cell info FDD	Not Present	Rel 9
Downlink HS-PDSCH Information		Rel 9
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not Present	
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	6	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	8 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	4 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD	
- Downlink 64QAM configured	Present	
- HS-DSCH TB size table	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	FALSE	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	Not Present	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	13	
- Scrambling code change	Not Present	
- TPC combination index	0	
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	
- CHOICE E-HICH Information	Not Present	
- CHOICE E-RGCH Information	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	TRUE	
- Downlink DPCH info for each RL	Not Present	
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Secondary scrambling code	Not Present	
- Code number	12	
- TPC combination index	0	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- CHOICE E-HICH Information		
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		

- Signature Sequence	0	
- RG combination index	0	
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 2	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA	
Secondary cell MIMO parameters		Rel-9
- CHOICE Configuration info		
- Continue		
- New configuration		Rel-9
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
-CHOICE *Second CPICH pattern*		
-Antenna2 P-CPICH	No data	
-Antenna1 S-CPICH		
-Channelisation code	15	
-Power Offset for S-CPICH for MIMO	0	
- precodingWeightSetRestriction		
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	Present	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 3	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA	
Secondary cell MIMO parameters		Rel-9
- CHOICE Configuration info		
- Continue		
- New configuration		Rel-9
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
-CHOICE Second CPICH pattern		
-Antenna2 P-CPICH	No data	
-Antenna1 S-CPICH		
-Channelisation code	15	
-Power Offset for S-CPICH for MIMO	0	
- precodingWeightSetRestriction		
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	Present	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 4	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA	
Secondary cell MIMO parameters	Not Present	Rel-9

8.2.2.79.5 Test requirements

At step 2, 5, 17, 20, 33, 36, 51 and 54 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

At step 3, 18, 34 and 52 the UE shall not transmit any composite CQI/PCI report.

At step 8, 23, 39 and 57 the UE shall transmit two composite CQI/PCI reports of Type A.

At step 7, 11, 14, 22, 26, 29, 38, 42, 45, 48, 56, 60, 63, and 66 the UE should transmit UE CAPABILITY INFORMATION on SRB2.

8.2.2.80 Radio Bearer Reconfiguration for transition between CELL_FACH & CELL_DCH: Successful Activation and Deactivation of 3C-HSDPA and 4C-HSDPA for different bands and 64 QAM

8.2.2.80.1 Definition and applicability

All UE categories (Cat 29 and 31) which support combination of 3C-HSDPA or 4C-HSDPA, and 64 QAM.

UE supports FDD and F-DPCH or Enhanced F-DPCH.

8.2.2.80.2 Conformance requirement

….

If the UE receives:

....

- a RADIO BEARER RECONFIGURATION message; or

….

it shall:

….

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> if COMMON_E_DCH_TRANSMISSION is set to FALSE before entering CELL_DCH state or IE "E-DCH info" is not included in the reconfiguration message:

3> perform the physical layer synchronisation procedure A as specified in TS 25.214 (FDD only).

….

1> act upon all received information elements, or Target cell preconfiguration information in the case of received Target cell HS-SCCH order, as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

….

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

….

The UE shall transmit a response message as specified in subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

….

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

….

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> if the IE "MIMO parameters" is not included:

2> clear the MIMO_PARAMS variable;

2> trigger lower layers to stop operation in MIMO mode.

….

[…]

An entry in the variable SECONDARY_CELL_HS_DSCH_RECEPTION shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the corresponding IE "Downlink Secondary Cell Info FDD" is included;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> either of the following conditions are met:

2> the IE "Memory Partitioning" is set to 'Implicit' in the IE "HARQ Info"; or

2> the IE "Memory Partitioning" is set to 'Explicit' in the IE "HARQ Info" and MIMO is configured on all or none of the serving HS-DSCH cell and the secondary serving HS-DSCH cells.

If any of the above conditions is not met for a secondary serving HS-DSCH cell, and the corresponding entry in the variable SECONDARY_CELL_HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the corresponding entry in the variable SECONDARY_CELL_HS_DSCH_RECEPTION to FALSE;

1> clear the corresponding entry in the variable DOWNLINK_SECONDARY_CELL_INFO;

1> flush the HARQ buffers of the HARQ entity associated to that secondary serving HS-DSCH cell;

1> release the HARQ resources associated to that secondary serving HS-DSCH cell.

1> determine the configuration of "TSN field extension" for MAC-ehs entity as specified in TS 25.331 subclause 8.5.60

….

If there is at least one entry in the variable SECONDARY_CELL_HS_DSCH_RECEPTION set to TRUE, the UE shall:

1> apply the i-th entry in the variables DOWNLINK_SECONDARY_CELL_INFO, SECONDARY_CELL_HS_DSCH_RECEPTION, and SECONDARY_CELL_MIMO_STATUS to the i-th secondary serving HS-DSCH cell.

1> After the new configuration is applied, the UE shall renumber the configured secondary serving HS-DSCH cells and the corresponding entries in the above variables, starting from 1, contiguously, by skipping empty entries in the above variables. The secondary serving HS-DSCH cells are numbered in the order their configuration IEs appears in the message. The RRC Layer shall pass the new numbering of the secondary serving HS-DSCH cells to the lower layers.

….

For each entry in the the variable SECONDARY_CELL_HS_DSCH_RECEPTION which is set to TRUE, the UE shall:

1> receive the HS-SCCH(s) according to the corresponding IE "Downlink Secondary Cell Info FDD" on the serving HS-DSCH radio link applying the scrambling code as received in the corresponding IE "DL Scrambling code";

1> perform HS-DSCH reception procedures for the corresponding secondary serving HS-DSCH cell according to the stored HS-PDSCH configuration as stated in:

2> TS 25.331 subclause 8.6.3.1b for the IE "H-RNTI";

2> TS 25.331 subclause 8.6.5.6b for the IE "HARQ info";

2> TS 25.331 subclause 8.6.6.34 for the IE "Measurement Feedback Info";

2> TS 25.331 subclause 8.6.6.45 for the IE "Downlink Secondary Cell Info FDD";

1> use the relevant CQI reporting table as stated in TS 25.331 subclause 8.5.44.

[…]

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.5.32, 8.5.33

8.2.2.80.3 Test purpose

1. To confirm that the UE configures the physical channels, transits from CELL_DCH to CELL_FACH, and to stop simultaneous 64QAM reception over multi Carriers according to the received RADIO BEARER RECONFIGURATION message.

2. To confirm that the UE reconfigures the radio bearer parameters, transits from CELL_FACH to CELL_DCH state, and starts simultaneous 64QAM reception over multi Carriers according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.80.4 Method of test

Initial Condition

System Simulator:

There are four configurations that will be tested as follows:

1. 3 cells –Cell 1/2/3 3C HSDPA cell(s) with Cell 1(Anchor Carrier), Cell 2 and Cell 3 (Secondary Carriers) (SubTest 1) – Three Carriers (One Anchor Carrier and Two Secondary Carriers) on DL Band A and no Carriers on DL Band B (Single Band 3C HSDPA)

2. 3 cells –Cell 1/2/3 3C HSDPA cell(s) with Cell 1(Anchor Carrier), Cell 2 and Cell 3 (Secondary Carriers) (SubTest 2) – One Anchor Carrier on DL Band A and Two Secondary Carriers on DL Band B (Dual Band 3C HSDPA)

3. 4 cells –Cell 1/2/3/4 4C HSDPA cell(s) with Cell 1 (Anchor Carrier) and Cell 2, Cell 3 and Cell 4 (Secondary Carriers) (SubTest 3) – Three Carriers (One Anchor Carrier and Two Secondary Carriers) on DL Band A and One Secondary Carrier on DL Band B (Dual Band 4C HSDPA)

4. 4 cells –Cell 1/2/3/4 4C HSDPA cell(s) with Cell 1 (Anchor Carrier) and Cell 2, Cell 3 and Cell 4 (Secondary Carriers) (SubTest 4) – Two Carriers (One Anchor Carrier and One Secondary Carrier) on DL Band A and Two Secondary Carriers on DL Band B (Dual Band 4C HSDPA)

SS: Table 5.0aB and Table 5.0aC of TS 25.101

UE: CELL_DCH (state 6-18 PS-DCCH+DTCH E-DCH/HS-DSCH) under the condition A35 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE category supports combined 64QAM, Multi-Cell (3 Cells or 4 Cells) (UE Category 29 or 31)
- UE supports F-DPCH or Enhanced F-DPCH

Test Procedure

The SS transmits a RADIO BEARER RECONFIGURATION message, using non-DC and non-MIMO configuration, to the UE to deactivate 3C-HSDPA or 4C-HSDPA features. The UE shall respond with RADIO BEARER RECONFIGURATION COMPLETE. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

UE should not send any CQI report after this point. SS should verify this.

The UE is in CELL_FACH state. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE including RAB information to configure PS domain RB on E-DCH/HSDPA (with 3C-HSDPA or 4C-HSDPA, and 64 QAM simultaneously configured for L1). SRB is mapped to E-DCH/HSDPA. The UE reconfigures the radio bearers and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

To check that the UE has activated 3C HSDPA, the SS sends UE CAPABILITY ENQUIRY on both Anchor Carrier Cell and Secondary Carrier Cell using SRB2 mapped onto HS-DSCH. The UE shall respond to each message in turn with UE CAPABILITY INFORMATION message sent to Anchor Carrier Cell 1. In that RRC message, it should include the IE "*HS-DSCH physical layer category extension 4*". The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message.

To check that the UE has activated 4C HSDPA, the SS sends UE CAPABILITY ENQUIRY on both Anchor Carrier Cell and Secondary Carrier Cell using SRB2 mapped onto HS-DSCH. The UE shall respond to each message in turn with UE CAPABILITY INFORMATION message sent to Anchor Carrier Cell 1. In that RRC message, it should include the IE "*HS-DSCH physical layer category extension 5*". The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message.

Depending on the System Simulator configuration,

SS checks that UE sends composite CQI reports on each stream for Cell 1, Cell 2 and Cell 3 (SubTest 1 and SubTest 2).

Or

SS checks that UE sends composite CQI reports on each stream for Cell 1, Cell 2, Cell 3 and Cell 4 (SubTest 3 and SubTest 4).

Expected sequence

	Direction		Message	Comment

			Depending upon the SS configuration (three cell (SubTest 1 and SubTest 2) or four cell (SubTest 3 and SubTest 4)) perform steps 1 through 15 (SubTest 1) OR steps 16 through 30 (SubTest 2) OR steps 32 through 49 (SubTest 3) OR steps 50 through 67 (SubTest 4) respectively.
	←	RADIO BEARER RECONFIGURATION	SubTest 1- Reconfigure PS RB + SRB to CELL_FACH which deactivates 3C-HSDPA, and 64 QAM.
	→	RADIO BEARER RECONFIGURATION COMPLETE	SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.
			SS checks during 100ms that UE should not transmit any composite CQI reports.
	←	RADIO BEARER RECONFIGURATION	Reconfiguration of PS RB + SRB from CELL_FACH state to CELL_DCH on E-DCH/HSDPA, using 3C-HSDPA, and 64QAM configuration
	→	RADIO BEARER RECONFIGURATION COMPLETE	SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.
	←	UE CAPABILITY ENQUIRY	Use default message. SRB2 on HS-DSCH from Anchor Cell 1.
	→	UE CAPABILITY INFORMATION	
			SS should check for composite CQI Type A reports (all three carriers) at every 4 ms period with composite CQI Type A Report for Anchor Carrier (Cell 1) and Secondary Carrier 2 (Cell 3) first followed by composite CQI Type A Report for Secondary Carrier 1 (Cell 2).
	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 1.

	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier 1- Cell 2.
	→	UE CAPABILITY INFORMATION	
	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 2.
	←	UE CAPABILITY ENQUIRY	Use defailt message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier 2- Cell 3.
	→	UE CAPABILITY INFORMATION	
	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 3. End of Sub Test 1.
	←	RADIO BEARER RECONFIGURATION	SubTest 2 - Reconfigure PS RB + SRB to CELL_FACH which deactivates 3C-HSDPA, and 64 QAM.
	→	RADIO BEARER RECONFIGURATION COMPLETE	SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.
			SS checks during 100ms that UE should not transmit any composite CQI reports.
	←	RADIO BEARER RECONFIGURATION	Reconfiguration of PS RB + SRB from CELL_FACH state to CELL_DCH on EDCH/HSDPA, using 3C-HSDPA, and 64 QAM configuration
	→	RADIO BEARER RECONFIGURATION COMPLETE	SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.
	←	UE CAPABILITY ENQUIRY	Use default message. SRB2 on HS-DSCH from Anchor Carrier Cell 1.
	→	UE CAPABILITY INFORMATION	

			SS should check for composite CQI Type A reports (all three carriers) at every 4 ms period with composite CQI Type A Report for Anchor Carrier (Cell 1).
	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 1.
	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier 1 on Cell 2.
	→	UE CAPABILITY INFORMATION	
	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 2.
	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier 2 on Cell 3.
	→	UE CAPABILITY INFORMATION	
	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 3. End of Sub Test 2. If the UE does NOT support 4 Carrier Operation, then the Test is completed and Steps 31 onwards are NOT Applicable.
			Following Steps are applicable to UEs that support 4 Carrier Operation.
	←	RADIO BEARER RECONFIGURATION	SubTest 3 - Reconfigure PS RB + SRB to CELL_FACH which deactivates 4C-HSDPA, and 64 QAM.
	→	RADIO BEARER RECONFIGURATION COMPLETE	SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.
			SS checks during 100ms that UE should not transmit any composite CQI reports.

	←	RADIO BEARER RECONFIGURATION	Reconfiguration of PS RB + SRB from CELL_FACH state to CELL_DCH on EDCH/HSDPA, using 4C-HSDPA, and 64 QAM configuration
	→	RADIO BEARER RECONFIGURATION COMPLETE	SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.
	←	UE CAPABILITY ENQUIRY	Use default message. SRB2 on HS-DSCH from Anchor Cell 1.
	→	UE CAPABILITY INFORMATION	
			SS should check for CQI reports (all four carriers) at every 4 ms period with composite CQI Type A Report for Anchor Carrier (Cell 1) and Secondary Carrier 2 (Cell 3) followed by composite CQI Type A Report for Secondary Carrier 1 (Cell 2) and Secondary Carrier 3 (Cell 4).
	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 1.
	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier 1 on Cell 2.
	→	UE CAPABILITY INFORMATION	
	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 2.
	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier 2 on Cell 3.
	→	UE CAPABILITY INFORMATION	
	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 3.
	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier 3 on Cell 4.
	→	UE CAPABILITY INFORMATION	

	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 4. End of Sub Test 3.
	←	RADIO BEARER RECONFIGURATION	SubTest 4 - Reconfigure PS RB + SRB to CELL_FACH which deactivates 4C-HSDPA, and 64 QAM.
	→	RADIO BEARER RECONFIGURATION COMPLETE	SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.
			SS checks during 100ms that UE should not transmit any composite CQI reports.
	←	RADIO BEARER RECONFIGURATION	Reconfiguration of PS RB + SRB from CELL_FACH state to CELL_DCH on EDCH/HSDPA, using 4C-HSDPA, and 64 QAM configuration
	→	RADIO BEARER RECONFIGURATION COMPLETE	SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.
	←	UE CAPABILITY ENQUIRY	Use default message. SRB2 on HS-DSCH from Anchor Cell 1.
	→	UE CAPABILITY INFORMATION	
			SS should check for composite CQI Type A reports (two carriers) at every 4 ms period with composite CQI Type A Report for Anchor Carrier (Cell 1) and Secondary Carrier 1 (Cell 2).
	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 1.
	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier 1 on Cell 2.
	→	UE CAPABILITY INFORMATION	
	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 2.

	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier 2 on Cell 3.
	→	UE CAPABILITY INFORMATION	
	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 3.
	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier 3 on Cell 4.
	→	UE CAPABILITY INFORMATION	
	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 4. End of Sub Test 4.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1, Step 16, Step 32, Step 50) (FDD)

Use the same message as specified for condition A5 "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9 with exception as follow:

Information Element	Value/remark	Version
RB information to reconfigure list		
- RB information to reconfigure	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	600	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	250	
- Timer_poll	250	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not Present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	RACH	
- UL Transport channel identity	Not Present	
- Logical channel identity	7	
- CHOICE RLC size list	Explicit list	
- RLC size index	Reference to TS34.108 clause 6 Parameter Set	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	FACH	
- DL DCH Transport channel identity	Not Present	
- DL DSCH Transport channel identity	Not Present	
- Logical channel identity	7	
- RB stop/continue	Not Present	
Deleted DL TrCH information		
- Downlink transport channel type	HS-DSCH	
- DL HS-DSCH MAC-d flow identity	0	

RADIO BEARER RECONFIGURATION (Step 4)

Use the same message as specified for A4 "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with the exception as follow:

Information Element	Value/remark	Version
RAB information to reconfigure	(high-speed AM DTCH for PS domain)	
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.	

- CN domain identity	PS domain	
- NAS Synchronization Indicator	Not Present	
RB information to reconfigure list		
- RB information to reconfig	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- CHOICE RLC info type	RLC info	
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	2047	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	100	
- Timer_poll	100	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	50	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to clause 6 Parameter Set	
- Length indicator size	This IE is present and set to “7” if Downlink RLC PDU Size is set to “Flexible”	
- In-sequence delivery	TRUE	
- Receiving window size	2047	
- Downlink RLC status info		
- Timer_status_prohibit	80	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- Alternative E-bit interpretation	Not present	
- Use special value of HE field	TRUE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	E-DCH	
- Logical channel identity	7	
- E-DCH MAC-d flow identity	2	
- CHOICE RLC PDU size	Flexible size	
- Length indicator size	15 bit	
- Minimum UL RLC PDU size	See clause 6.10	
- Largest UL RLC PDU size	See clause 6.10	
- Include in scheduling info	TRUE	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	HS-DSCH	
- DL DCH Transport channel identity	Not present	
- DL DSCH Transport channel identity	Not present	
- CHOICE *DL MAC header type*	MAC-ehs	
- DL HS-DSCH MAC-ehs Queue Id	0	
- Logical channel identity	7	
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH MAC-d flow and one DTCH MAC-d flow	
- Uplink transport channel type	E-DCH	
- CHOICE UL parameters	E-DCH	

- UL MAC header type	Not present	
- UL MAC header type	MAC-i/is	
- E-DCH Transmission Time Interval	set to 2ms if supported by the UE E-DCH category, or 10ms if the UE E-DCH category does not support 2ms TTI	
- HARQ info for E-DCH		
- HARQ RV Configuration	Rvtable	
- Added or reconfigured E-DCH MAC-d flow	(for DCCH)	
- E-DCH MAC-d flow identity	1	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Non-scheduled grant info	
- Max MAC-e PDU contents size	168 bits	
- Max MAC-e PDU contents size	162 bits	
- 2 ms non-scheduled transmission grant HARQ process allocation	Not Present	
- Added or reconfigured E-DCH MAC-d flow	(for DTCH)	
- E-DCH MAC-d flow identity	2	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Scheduled grant info	
Added or Reconfigured DL TrCH information list	2 TrCh (DCH for DCCH and HS-DSCH for DTCH)	
- Downlink transport channel type	DCH	
- DL Transport channel identity	10	
- CHOICE DL parameters	Same as UL	
- Uplink transport channel type	DCH	
- UL TrCH identity	5	
- DCH quality target		
- Downlink transport channel type	HS-DSCH	
- DL Transport channel identity	Not Present	
- CHOICE DL parameters	HS-DSCH	
- HARQ Info		
- Number of Processes	Reference to clause 6.10 Parameter Set	
- CHOICE *Memory Partitioning*	Implicit	
- CHOICE *DL MAC header type*	MAC-ehs	
- Added or reconfigured MAC-ehs reordering queue		
- MAC-ehs queue to add or reconfigure list	(one queue)	
- MAC-ehs queue Id	2 (for DTCH)	
- T1	50	
- MAC-ehs window size	64	
- DCH quality target	Not present	
Frequency info		
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [11]	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA.	
MIMO parameters	Not Present	
Maximum allowed UL TX power	Not Present	
Uplink DPCH info		
- Uplink DPCH power control info		
- DPCCH power offset	-40 (-80dB)	
- PC Preamble	1 frame	
- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- TPC step size	0 (1dB)	
- ΔACK	3	
- ΔNACK	3	
- Ack-Nack repetition factor	1	
- HARQ_preamble_mode	0	

- Scrambling code type	Short	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- spreading factor	Reference to clause 6.10 Parameter Set	
- TFCI existence	Reference to clause 6.10 Parameter Set	
- Number of FBI bit	Reference to clause 6.10 Parameter Set	
- Puncturing Limit	Reference to clause 6.10 Parameter Set	
E-DCH info		
- MAC-es/e reset indicator	TRUE	
- E-DPCCH info		
- E-DPCCH/DPCCH power offset	0	
- Happy bit delay condition	100 ms	
- E-TFC Boost Info	Not Present	
- E-DPDCH power interpolation	Not Present	
- E-DPDCH info		
- E-TFCI table index	0	
- E-DCH minimum set E-TFCI	9	
- Reference E-TFCIs	2 E-TFCIs	
- Reference E-TFCI	11	
- Reference E-TFCI PO	4	
- Reference E-TFCI	83	
- Reference E-TFCI PO	16	
- Maximum channelisation codes	2sf4	
- PLnon-max	0.84	
- Scheduling Information Configuration		
- Periodicity for Scheduling Info – no grant	Not present	
- Periodicity for Scheduling Info – grant	Not present	
- Power Offset for Scheduling Info	0	
- 3-Index-Step Threshold	Not present	
- 2-Index-Step Threshold	Not present	
- Scheduled Transmission configuration		
- 2ms scheduled transmission grant HARQ process allocation	Not present	
- Serving Grant	Not present	
-UL 16QAM settings	Not Present	
Uplink secondary cell info FDD	Not Present	Rel 9
Downlink HS-PDSCH Information		Rel 9
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not Present	
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	6	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	8 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	4 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	FALSE	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	Not Present	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	13	

- Scrambling code change	Not Present	
- TPC combination index	0	
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	
- CHOICE E-HICH Information	Not Present	
- CHOICE E-RGCH Information	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	TRUE	
- Downlink DPCH info for each RL	Not Present	
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Secondary scrambling code	Not Present	
- Code number	12	
- TPC combination index	0	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- CHOICE E-HICH Information		
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 2	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA	
Secondary cell MIMO parameters	Not Present	Rel-9
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 3	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA	
Secondary cell MIMO parameters	Not Present	Rel. 9

RADIO BEARER RECONFIGURATION (Step 19)

Use the same message as specified for A4 "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with the exception as follow:

Information Element	Value/remark	Version
RAB information to reconfigure	(high-speed AM DTCH for PS domain)	
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.	
- CN domain identity	PS domain	
- NAS Synchronization Indicator	Not Present	
RB information to reconfigure list		
- RB information to reconfig	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- CHOICE RLC info type	RLC info	
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	2047	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	100	
- Timer_poll	100	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	50	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to clause 6 Parameter Set	
- Length indicator size	This IE is present and set to “7” if Downlink RLC PDU Size is set to “Flexible”	
- In-sequence delivery	TRUE	
- Receiving window size	2047	
- Downlink RLC status info		
- Timer_status_prohibit	80	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- Alternative E-bit interpretation	Not present	
- Use special value of HE field	TRUE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	E-DCH	
- Logical channel identity	7	
- E-DCH MAC-d flow identity	2	
- CHOICE RLC PDU size	Flexible size	
- Length indicator size	15 bit	
- Minimum UL RLC PDU size	See clause 6.10	
- Largest UL RLC PDU size	See clause 6.10	
- Include in scheduling info	TRUE	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	HS-DSCH	
- DL DCH Transport channel identity	Not present	
- DL DSCH Transport channel identity	Not present	

- CHOICE *DL MAC header type*	MAC-ehs	
- DL HS-DSCH MAC-ehs Queue Id	0	
- Logical channel identity	7	
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH MAC-d flow and one DTCH MAC-d flow	
- Uplink transport channel type	E-DCH	
- CHOICE UL parameters	E-DCH	
- UL MAC header type	Not present	
- UL MAC header type	MAC-i/is	
- E-DCH Transmission Time Interval	set to 2ms if supported by the UE E-DCH category, or 10ms if the UE E-DCH category does not support 2ms TTI	
- HARQ info for E-DCH		
- HARQ RV Configuration	Rvtable	
- Added or reconfigured E-DCH MAC-d flow	(for DCCH)	
- E-DCH MAC-d flow identity	1	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Non-scheduled grant info	
- Max MAC-e PDU contents size	168 bits	
- Max MAC-e PDU contents size	162 bits	
- 2 ms non-scheduled transmission grant HARQ process allocation	Not Present	
- Added or reconfigured E-DCH MAC-d flow	(for DTCH)	
- E-DCH MAC-d flow identity	2	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Scheduled grant info	
Added or Reconfigured DL TrCH information list	2 TrCh (DCH for DCCH and HS-DSCH for DTCH)	
- Downlink transport channel type	DCH	
- DL Transport channel identity	10	
- CHOICE DL parameters	Same as UL	
- Uplink transport channel type	DCH	
- UL TrCH identity	5	
- DCH quality target		
- Downlink transport channel type	HS-DSCH	
- DL Transport channel identity	Not Present	
- CHOICE DL parameters	HS-DSCH	
- HARQ Info		
- Number of Processes	Reference to clause 6.10 Parameter Set	
- CHOICE *Memory Partitioning*	Implicit	
- CHOICE *DL MAC header type*	MAC-ehs	
- Added or reconfigured MAC-ehs reordering queue		
- MAC-ehs queue to add or reconfigure list	(one queue)	
- MAC-ehs queue Id	2 (for DTCH)	
- T1	50	
- MAC-ehs window size	64	
- DCH quality target	Not present	
Frequency info		
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [11]	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA.	
MIMO parameters	Not Present	
Maximum allowed UL TX power	Not Present	
Uplink DPCH info		
- Uplink DPCH power control info		
- DPCCH power offset	-40 (-80dB)	
- PC Preamble	1 frame	

- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- TPC step size	0 (1dB)	
- ΔACK	3	
- ΔNACK	3	
- Ack-Nack repetition factor	1	
- HARQ_preamble_mode	0	
- Scrambling code type	Short	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- spreading factor	Reference to clause 6.10 Parameter Set	
- TFCI existence	Reference to clause 6.10 Parameter Set	
- Number of FBI bit	Reference to clause 6.10 Parameter Set	
- Puncturing Limit	Reference to clause 6.10 Parameter Set	
E-DCH info		
- MAC-es/e reset indicator	TRUE	
- E-DPCCH info		
- E-DPCCH/DPCCH power offset	0	
- Happy bit delay condition	100 ms	
- E-TFC Boost Info	Not Present	
- E-DPDCH power interpolation	Not Present	
- E-DPDCH info		
- E-TFCI table index	0	
- E-DCH minimum set E-TFCI	9	
- Reference E-TFCIs	2 E-TFCIs	
- Reference E-TFCI	11	
- Reference E-TFCI PO	4	
- Reference E-TFCI	83	
- Reference E-TFCI PO	16	
- Maximum channelisation codes	2sf4	
- PLnon-max	0.84	
- Scheduling Information Configuration		
- Periodicity for Scheduling Info – no grant	Not present	
- Periodicity for Scheduling Info – grant	Not present	
- Power Offset for Scheduling Info	0	
- 3-Index-Step Threshold	Not present	
- 2-Index-Step Threshold	Not present	
- Scheduled Transmission configuration		
- 2ms scheduled transmission grant HARQ process allocation	Not present	
- Serving Grant	Not present	
-UL 16QAM settings	Not Present	
Uplink secondary cell info FDD	Not Present	Rel 9
Downlink HS-PDSCH Information		Rel 9
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not Present	
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	6	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	8 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	4 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD	
- Downlink 64QAM configured	Present	
- HS-DSCH TB size table	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	FALSE	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	

- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	Not Present	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	13	
- Scrambling code change	Not Present	
- TPC combination index	0	
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	
- CHOICE E-HICH Information	Not Present	
- CHOICE E-RGCH Information	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	TRUE	
- Downlink DPCH info for each RL	Not Present	
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Secondary scrambling code	Not Present	
- Code number	12	
- TPC combination index	0	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- CHOICE E-HICH Information		
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 2	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA	
Secondary cell MIMO parameters	Not Present	Rel-9
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 3	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA	

Secondary cell MIMO parameters	Not Present	Rel. 9

RADIO BEARER RECONFIGURATION (Step 35)

Use the same message as specified for A4 "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with the exception as follow:

Information Element	Value/remark	Version
RAB information to reconfigure	(high-speed AM DTCH for PS domain)	
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.	
- CN domain identity	PS domain	
- NAS Synchronization Indicator	Not Present	
RB information to reconfigure list		
- RB information to reconfig	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- CHOICE RLC info type	RLC info	
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	2047	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	100	
- Timer_poll	100	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	50	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to clause 6 Parameter Set	
- Length indicator size	This IE is present and set to “7” if Downlink RLC PDU Size is set to “Flexible”	
- In-sequence delivery	TRUE	
- Receiving window size	2047	
- Downlink RLC status info		
- Timer_status_prohibit	80	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- Alternative E-bit interpretation	Not present	
- Use special value of HE field	TRUE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	E-DCH	
- Logical channel identity	7	
- E-DCH MAC-d flow identity	2	
- CHOICE RLC PDU size	Flexible size	
- Length indicator size	15 bit	
- Minimum UL RLC PDU size	See clause 6.10	
- Largest UL RLC PDU size	See clause 6.10	
- Include in scheduling info	TRUE	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	HS-DSCH	

- DL DCH Transport channel identity	Not present	
- DL DSCH Transport channel identity	Not present	
- CHOICE *DL MAC header type*	MAC-ehs	
- DL HS-DSCH MAC-ehs Queue Id	0	
- Logical channel identity	7	
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH MAC-d flow and one DTCH MAC-d flow	
- Uplink transport channel type	E-DCH	
- CHOICE UL parameters	E-DCH	
- UL MAC header type	Not present	
- UL MAC header type	MAC-i/is	
- E-DCH Transmission Time Interval	set to 2ms if supported by the UE E-DCH category, or 10ms if the UE E-DCH category does not support 2ms TTI	
- HARQ info for E-DCH		
- HARQ RV Configuration	Rvtable	
- Added or reconfigured E-DCH MAC-d flow	(for DCCH)	
- E-DCH MAC-d flow identity	1	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Non-scheduled grant info	
- Max MAC-e PDU contents size	168 bits	
- Max MAC-e PDU contents size	162 bits	
- 2 ms non-scheduled transmission grant HARQ process allocation	Not Present	
- Added or reconfigured E-DCH MAC-d flow	(for DTCH)	
- E-DCH MAC-d flow identity	2	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Scheduled grant info	
Added or Reconfigured DL TrCH information list	2 TrCh (DCH for DCCH and HS-DSCH for DTCH)	
- Downlink transport channel type	DCH	
- DL Transport channel identity	10	
- CHOICE DL parameters	Same as UL	
- Uplink transport channel type	DCH	
- UL TrCH identity	5	
- DCH quality target		
- Downlink transport channel type	HS-DSCH	
- DL Transport channel identity	Not Present	
- CHOICE DL parameters	HS-DSCH	
- HARQ Info		
- Number of Processes	Reference to clause 6.10 Parameter Set	
- CHOICE *Memory Partitioning*	Implicit	
- CHOICE *DL MAC header type*	MAC-ehs	
- Added or reconfigured MAC-ehs reordering queue		
- MAC-ehs queue to add or reconfigure list	(one queue)	
- MAC-ehs queue Id	2 (for DTCH)	
- T1	50	
- MAC-ehs window size	64	
- DCH quality target	Not present	
Frequency info		
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [11]	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA.	
MIMO parameters	Not Present	
Maximum allowed UL TX power	Not Present	
Uplink DPCH info		
- Uplink DPCH power control info		

- DPCCH power offset	-40 (-80dB)	
- PC Preamble	1 frame	
- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- TPC step size	0 (1dB)	
- ΔACK	3	
- ΔNACK	3	
- Ack-Nack repetition factor	1	
- HARQ_preamble_mode	0	
- Scrambling code type	Short	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- spreading factor	Reference to clause 6.10 Parameter Set	
- TFCI existence	Reference to clause 6.10 Parameter Set	
- Number of FBI bit	Reference to clause 6.10 Parameter Set	
- Puncturing Limit	Reference to clause 6.10 Parameter Set	
E-DCH info		
- MAC-es/e reset indicator	TRUE	
- E-DPCCH info		
- E-DPCCH/DPCCH power offset	0	
- Happy bit delay condition	100 ms	
- E-TFC Boost Info	Not Present	
- E-DPDCH power interpolation	Not Present	
- E-DPDCH info		
- E-TFCI table index	0	
- E-DCH minimum set E-TFCI	9	
- Reference E-TFCIs	2 E-TFCIs	
- Reference E-TFCI	11	
- Reference E-TFCI PO	4	
- Reference E-TFCI	83	
- Reference E-TFCI PO	16	
- Maximum channelisation codes	2sf4	
- PLnon-max	0.84	
- Scheduling Information Configuration		
- Periodicity for Scheduling Info – no grant	Not present	
- Periodicity for Scheduling Info – grant	Not present	
- Power Offset for Scheduling Info	0	
- 3-Index-Step Threshold	Not present	
- 2-Index-Step Threshold	Not present	
- Scheduled Transmission configuration		
- 2ms scheduled transmission grant HARQ process allocation	Not present	
- Serving Grant	Not present	
-UL 16QAM settings	Not Present	
Uplink secondary cell info FDD	Not Present	Rel 9
Downlink HS-PDSCH Information		Rel 9
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not Present	
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	6	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	8 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	4 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	FALSE	

- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	Not Present	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	13	
- Scrambling code change	Not Present	
- TPC combination index	0	
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	
- CHOICE E-HICH Information	Not Present	
- CHOICE E-RGCH Information	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	TRUE	
- Downlink DPCH info for each RL	Not Present	
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Secondary scrambling code	Not Present	
- Code number	12	
- TPC combination index	0	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- CHOICE E-HICH Information		
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 2	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA	
Secondary cell MIMO parameters	Not Present	Rel-9
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 3	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	

- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA	
Secondary cell MIMO parameters	Not Present	Rel-9
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 4	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA	
Secondary cell MIMO parameters	Not Present	Rel-9

RADIO BEARER RECONFIGURATION (Step 53)

Use the same message as specified for A4 "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with the exception as follow:

Information Element	Value/remark	Version
RAB information to reconfigure	(high-speed AM DTCH for PS domain)	
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.	
- CN domain identity	PS domain	
- NAS Synchronization Indicator	Not Present	
RB information to reconfigure list		
- RB information to reconfig	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- CHOICE RLC info type	RLC info	
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	2047	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	100	
- Timer_poll	100	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	50	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to clause 6 Parameter Set	
- Length indicator size	This IE is present and set to “7” if Downlink RLC PDU Size is set to “Flexible”	
- In-sequence delivery	TRUE	
- Receiving window size	2047	
- Downlink RLC status info		
- Timer_status_prohibit	80	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- Alternative E-bit interpretation	Not present	
- Use special value of HE field	TRUE	

- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	E-DCH	
- Logical channel identity	7	
- E-DCH MAC-d flow identity	2	
- CHOICE RLC PDU size	Flexible size	
- Length indicator size	15 bit	
- Minimum UL RLC PDU size	See clause 6.10	
- Largest UL RLC PDU size	See clause 6.10	
- Include in scheduling info	TRUE	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	HS-DSCH	
- DL DCH Transport channel identity	Not present	
- DL DSCH Transport channel identity	Not present	
- CHOICE *DL MAC header type*	MAC-ehs	
- DL HS-DSCH MAC-ehs Queue Id	0	
- Logical channel identity	7	
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH MAC-d flow and one DTCH MAC-d flow	
- Uplink transport channel type	E-DCH	
- CHOICE UL parameters	E-DCH	
- UL MAC header type	Not present	
- UL MAC header type	MAC-i/is	
- E-DCH Transmission Time Interval	set to 2ms if supported by the UE E-DCH category, or 10ms if the UE E-DCH category does not support 2ms TTI	
- HARQ info for E-DCH		
- HARQ RV Configuration	Rvtable	
- Added or reconfigured E-DCH MAC-d flow	(for DCCH)	
- E-DCH MAC-d flow identity	1	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Non-scheduled grant info	
- Max MAC-e PDU contents size	168 bits	
- Max MAC-e PDU contents size	162 bits	
- 2 ms non-scheduled transmission grant HARQ process allocation	Not Present	
- Added or reconfigured E-DCH MAC-d flow	(for DTCH)	
- E-DCH MAC-d flow identity	2	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Scheduled grant info	
Added or Reconfigured DL TrCH information list	2 TrCh (DCH for DCCH and HS-DSCH for DTCH)	
- Downlink transport channel type	DCH	
- DL Transport channel identity	10	
- CHOICE DL parameters	Same as UL	
- Uplink transport channel type	DCH	
- UL TrCH identity	5	
- DCH quality target		
- Downlink transport channel type	HS-DSCH	
- DL Transport channel identity	Not Present	
- CHOICE DL parameters	HS-DSCH	
- HARQ Info		
- Number of Processes	Reference to clause 6.10 Parameter Set	
- CHOICE *Memory Partitioning*	Implicit	
- CHOICE *DL MAC header type*	MAC-ehs	
- Added or reconfigured MAC-ehs reordering queue		
- MAC-ehs queue to add or reconfigure list	(one queue)	

- MAC-ehs queue Id	2 (for DTCH)	
- T1	50	
- MAC-ehs window size	64	
- DCH quality target	Not present	
Frequency info		
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [11]	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA.	
MIMO parameters	Not Present	
Maximum allowed UL TX power	Not Present	
Uplink DPCH info		
- Uplink DPCH power control info		
- DPCCH power offset	-40 (-80dB)	
- PC Preamble	1 frame	
- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- TPC step size	0 (1dB)	
- ΔACK	3	
- ΔNACK	3	
- Ack-Nack repetition factor	1	
- HARQ_preamble_mode	0	
- Scrambling code type	Short	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- spreading factor	Reference to clause 6.10 Parameter Set	
- TFCI existence	Reference to clause 6.10 Parameter Set	
- Number of FBI bit	Reference to clause 6.10 Parameter Set	
- Puncturing Limit	Reference to clause 6.10 Parameter Set	
E-DCH info		
- MAC-es/e reset indicator	TRUE	
- E-DPCCH info		
- E-DPCCH/DPCCH power offset	0	
- Happy bit delay condition	100 ms	
- E-TFC Boost Info	Not Present	
- E-DPDCH power interpolation	Not Present	
- E-DPDCH info		
- E-TFCI table index	0	
- E-DCH minimum set E-TFCI	9	
- Reference E-TFCIs	2 E-TFCIs	
- Reference E-TFCI	11	
- Reference E-TFCI PO	4	
- Reference E-TFCI	83	
- Reference E-TFCI PO	16	
- Maximum channelisation codes	2sf4	
- PLnon-max	0.84	
- Scheduling Information Configuration		
- Periodicity for Scheduling Info – no grant	Not present	
- Periodicity for Scheduling Info – grant	Not present	
- Power Offset for Scheduling Info	0	
- 3-Index-Step Threshold	Not present	
- 2-Index-Step Threshold	Not present	
- Scheduled Transmission configuration		
- 2ms scheduled transmission grant HARQ process allocation	Not present	
- Serving Grant	Not present	
-UL 16QAM settings	Not Present	
Uplink secondary cell info FDD	Not Present	Rel 9
Downlink HS-PDSCH Information		Rel 9
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not Present	
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	6	
- HS-SCCH Channelisation Code	7	

- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	8 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	4 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	FALSE	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	Not Present	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	13	
- Scrambling code change	Not Present	
- TPC combination index	0	
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	
- CHOICE E-HICH Information	Not Present	
- CHOICE E-RGCH Information	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	TRUE	
- Downlink DPCH info for each RL	Not Present	
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Secondary scrambling code	Not Present	
- Code number	12	
- TPC combination index	0	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- CHOICE E-HICH Information		
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 2	
- DL Scrambling Code	Not Present.	

- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA	
Secondary cell MIMO parameters	Not Present	Rel-9
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 3	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA	
Secondary cell MIMO parameters	Not Present	Rel-9
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 4	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA	
Secondary cell MIMO parameters	Not Present	Rel-9

8.2.2.80.5 Test requirements

At step 2, 5, 17, 20, 33, 36, 51 and 54 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

At step 3, 18, 34 and 52 the UE shall not transmit any composite CQI report.

At step 8, 23, 39 and 57 the UE shall transmit two composite CQI reports of Type A.

At step 7, 11, 14, 22, 26, 29, 38, 42, 45, 48, 56, 60, 63, and 66 the UE should transmit UE CAPABILITY INFORMATION on SRB2.

8.2.2.83 Radio Bearer Establishment/Reconfiguration for transition between CELL_DCH & CELL_DCH with SRB on HS & EUL: Successful Activation and Deactivation of 3C-HSDPA and 4C-HSDPA for different bands

8.2.2.83.1 Definition and applicability

All UE categories (Cat 29 and 31) which support combination of 3C-HSDPA or 4C-HSDPA, and 64 QAM.

UE supports FDD and F-DPCH or Enhanced F-DPCH.

8.2.2.83.2 Conformance requirement

To initiate any one of the reconfiguration procedures, UTRAN should:

1> configure new radio links in any new physical channel configuration;

1> start transmission and reception on the new radio links;

1> for a radio bearer establishment procedure:

2> transmit a RADIO BEARER SETUP message on the downlink DCCH using AM or UM RLC;

2> if signalling radio bearer RB4 is setup with this procedure and signalling radio bearers RB1-RB3 were already established prior to the procedure:

3> if the variable "LATEST_CONFIGURED_CN_DOMAIN" has been initialised:

4> connect any radio bearers setup by the same message as signalling radio bearer RB4 to the CN domain indicated in the variable "LATEST CONFIGURED CN DOMAIN".

1> for a radio bearer reconfiguration procedure:

2> transmit a RADIO BEARER RECONFIGURATION message on the downlink DCCH using AM or UM RLC.

1> for a radio bearer release procedure:

2> transmit a RADIO BEARER RELEASE message on the downlink DCCH using AM or UM RLC.

…..

In the Radio Bearer Reconfiguration procedure UTRAN may indicate that uplink transmission shall be stopped or continued on certain radio bearers. Uplink transmission on a signalling radio bearer used by the RRC signalling (signalling radio bearer RB1 or signalling radio bearer RB2) should not be stopped.

NOTE 1: The Release '99 RADIO BEARER RECONFIGURATION message always includes the IE "RB information to reconfigure", even if UTRAN does not require the reconfiguration of any RB. In these cases, UTRAN may include only the IE "RB identity" within the IE "RB information to reconfigure".

NOTE 2: The Release '99 RADIO BEARER RECONFIGURATION message always includes the IE "Downlink information per radio link list", even if UTRAN does not require the reconfiguration of any RL. In these cases, UTRAN may re-send the currently assigned values for the mandatory IEs included within the IE "Downlink information per radio link list ".

…..

The UE shall:

1> be able to receive any of the following messages:

2> RADIO BEARER SETUP message; or

2> RADIO BEARER RECONFIGURATION message; or

2> RADIO BEARER RELEASE message; or

…...

If the UE receives:

- a RADIO BEARER SETUP message; or
- a RADIO BEARER RECONFIGURATION message; or
- a RADIO BEARER RELEASE message; or

…..

it shall:

1> stop and reset timer T324 if running;

1> stop monitoring target cell HS-SCCH;

1> set the variable ORDERED_RECONFIGURATION to TRUE;

…..

The UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

The UE may first release the physical channel configuration used at reception of the reconfiguration message. The UE shall then:

1> enter a state according to subclause 8.6.3.3.

In case the UE receives a RADIO BEARER RECONFIGURATION message including the IE "RB information to reconfigure" that only includes the IE "RB identity", the UE shall:

1> handle the message as if IE "RB information to reconfigure" was absent.

NOTE: The ASN.1 "r3" version of the RADIO BEARER RECONFIGURATION message always includes the IE "RB information to reconfigure". UTRAN has to include it even if it does not require the reconfiguration of any RB.

…..

In case the UE receives a RADIO BEARER SETUP message with the IE "Specification mode" not set to "Complete Specification", the UE behaviour is unspecified.

The UE shall:

1> if IE "Default configuration for CELL_FACH" is set:

2> if the message is RADIO BEARER RECONFIGURATION:

3> if IE "new U-RNTI" is included:

4> act in accordance with the default parameters according to section 13.8.

3> else:

4> the UE behaviour is unspecified.

For FDD: in CELL_DCH state, in case the UE receives a Target cell HS-SCCH order the UE shall:

1> ignore RADIO BEARER SETUP, RADIO BEARER RECONFIGURATION, TRANSPORT CHANNEL RECONFIGURATION or PHYSICAL CHANNEL RECONFIGURATION messages as described in subclause 8.6.3.11.

If after state transition the UE enters CELL_DCH state, the UE shall, after the state transition:

1> in FDD; or

….

1> determine the value for the READY_FOR_COMMON_EDCH variable and take the corresponding actions as described in subclause 8.5.47;

1> determine the value for the COMMON_E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.46;

1> if the IE "E-DCH info" was not included in the message:

2> for FDD:

3> stop any E-AGCH, E-RGCH and E-HICH reception procedures;

3> stop any E-DPCCH and E-DPDCH transmission procedures;

3> act as if the IE "MAC-es/e reset indicator" was received and set to TRUE;

3> release all E-DCH HARQ resources;

3> no longer consider any radio link to be the serving E-DCH radio link.

…..

If after state transition the UE leaves CELL_DCH state, the UE shall, before state transition:

1> clear any stored IE "E-DCH info";

1> for FDD, clear any stored IE "Secondary serving E-DCH cell info" and IE "Secondary E-DCH info common";

….

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

….

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> for FDD:

2> determine the value for the SECONDARY_CELL_HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.51.

2> determine the value for the SECONDARY_CELL_E_DCH_TRANSMISSION and take the corresponding actions as described in subclause 8.5.58.

2> if the variable SECONDARY_CELL_E_DCH_TRANSMISSION is set to TRUE:

3> if the IE "Secondary E-DCH info common" is included and the IE "Frequency info" is different from the stored "Frequency info" in the IE "Secondary E-DCH info common"; or

3> if the IE "Frequency info" is included in an IE other than the IE "Uplink secondary cell info FDD" and the frequency is different from the currently used frequency:

4> consider the secondary uplink frequency as not activated and take the corresponding actions as described in subclause 8.5.58.

3> else:

4> keep the current activation status of the secondary uplink frequency and take the corresponding actions as described in subclause 8.5.58.

….

Reference

3GPP TS 25.331 clause 8.2.2.2, 8.2.2.3, 8.5.32, 8.5.33, 8.5.51, 8.5.57

8.2.2.83.3 Test purpose

1. To confirm that the UE configures the physical channels, transits from CELL_DCH to CELL_DCH, and to stop simultaneous 64QAM reception over multi Carriers according to the received RADIO BEARER RECONFIGURATION message.

2. To confirm that the UE reconfigures the radio bearer parameters, transits from CELL_DCH to CELL_DCH state, and starts simultaneous 64QAM reception over multi Carriers according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.83.4 Method of test

Initial Condition

System Simulator:

There are two configurations that will be tested as follows:

5. 3 cells –Cell 1/2/3 3C HSDPA cell(s) with Cell 1(Anchor Carrier), Cell 2 and Cell 3 (Secondary Carriers) (SubTest 1) – One Anchor Carrier on DL Band A and Two Secondary Carriers on DL Band B (Dual Band 3C HSDPA)

6. 4 cells –Cell 1/2/3/4 4C HSDPA cell(s) with Cell 1 (Anchor Carrier) and Cell 2, Cell 3 and Cell 4 (Secondary Carriers) (SubTest 2) – One Anchor Carrier on DL Band A and Three Secondary Carriers on DL Band B (Dual Band 4C HSDPA)

SS: Table 5.0aB and Table 5.0aC of TS 25.101

UE: CELL_DCH (state 6-18 PS-DCCH+DTCH E-DCH/HS-DSCH) under the condition A35 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE category supports combined 64QAM, Multi-Cell (3 Cells or 4 Cells) (UE Category 29 or 31)
- UE supports F-DPCH or Enhanced F-DPCH

Test Procedure

The SS transmits a RADIO BEARER RECONFIGURATION message, using non-DC and non-MIMO configuration, to the UE to deactivate 3C-HSDPA or 4C-HSDPA features. The UE shall respond with RADIO BEARER RECONFIGURATION COMPLETE. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

UE should not send any CQI report after this point. SS should verify this.

The UE is in CELL_DCH state. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE including RAB information to configure PS domain RB on E-DCH/HSDPA (with 3C-HSDPA or 4C-HSDPA, and 64 QAM simultaneously configured for L1). SRB is mapped to E-DCH/HSDPA. The UE reconfigures the radio bearers and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

To check that the UE has activated 3C HSDPA, the SS sends UE CAPABILITY ENQUIRY on both Anchor Carrier Cell and Secondary Carrier Cell using SRB2 mapped onto HS-DSCH. The UE shall respond to each message in turn with UE CAPABILITY INFORMATION message sent to Anchor Carrier Cell 1. In that RRC message, it should include the IE "*HS-DSCH physical layer category extension 4*". The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message.

To check that the UE has activated 4C HSDPA, the SS sends UE CAPABILITY ENQUIRY on both Anchor Carrier Cell and Secondary Carrier Cell using SRB2 mapped onto HS-DSCH. The UE shall respond to each message in turn with UE CAPABILITY INFORMATION message sent to Anchor Carrier Cell 1. In that RRC message, it should include the IE "*HS-DSCH physical layer category extension 5*". The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message.

Depending on the System Simulator configuration,

SS checks that UE sends composite CQI reports on each stream for Cell 1, Cell 2 and Cell 3 (SubTest 1).

Or

SS checks that UE sends composite CQI reports on each stream for Cell 1, Cell 2, Cell 3 and Cell 4 (SubTest 2).

Expected sequence

Step	Direction		Message	Comment
	UE	SS		

0			Depending upon the SS configuration (three cell (SubTest 1) or four cell (SubTest 2)) perform steps 1 through 15 (SubTest 1) OR steps 16 through 34 (SubTest 2) respectively.
1	←	RADIO BEARER RECONFIGURATION	SubTest 1- Reconfigure PS RB + SRB to CELL_DCH which deactivates 3C-HSDPA, and 64 QAM.
2	→	RADIO BEARER RECONFIGURATION COMPLETE	SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.
3			SS checks during 100ms that UE should not transmit any composite CQI reports.
4	←	RADIO BEARER RECONFIGURATION	Reconfiguration of PS RB + SRB from CELL_DCH state to CELL_DCH on E-DCH/HSDPA, using 3C-HSDPA, and 64QAM configuration
5	→	RADIO BEARER RECONFIGURATION COMPLETE	SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.
6	←	UE CAPABILITY ENQUIRY	Use default message. SRB2 on HS-DSCH from Anchor Cell 1.
7	→	UE CAPABILITY INFORMATION	
8			SS should check for composite CQI Type A reports (all three carriers) at every 4 ms period with composite CQI Type A Report for Anchor Carrier (Cell 1) first followed by composite CQI Type A Report for Secondary Carrier 1 (Cell 2) and Secondary Carrier 2 (Cell 3).
9	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 1.
10	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier 1 (Cell 2).
11	→	UE CAPABILITY INFORMATION	
12	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 2.
13	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier 2 (Cell 3).
14	→	UE CAPABILITY INFORMATION	

15	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 3. End of Sub Test 1.
16			Following Steps are applicable to UEs that support Four Carrier Operation.
17	←	RADIO BEARER RECONFIGURATION	SubTest 2 - Reconfigure PS RB + SRB to CELL_DCH which deactivates 4C-HSDPA, and 64 QAM.
18	→	RADIO BEARER RECONFIGURATION COMPLETE	SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.
19			SS checks during 100ms that UE should not transmit any composite CQI reports.
20	←	RADIO BEARER RECONFIGURATION	Reconfiguration of PS RB + SRB from CELL_DCH state to CELL_DCH on EDCH/HSDPA, using 4C-HSDPA, and 64 QAM configuration
21	→	RADIO BEARER RECONFIGURATION COMPLETE	SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.
22	←	UE CAPABILITY ENQUIRY	Use default message. SRB2 on HS-DSCH from Anchor Cell 1.
23	→	UE CAPABILITY INFORMATION	
24			SS should check for CQI reports (all four carriers) at every 4 ms period with composite CQI Type A Report for Anchor Carrier (Cell 1) and Secondary Carrier 2 (Cell 3) followed by composite CQI Type A Report for Secondary Carrier 1 (Cell 2) and Secondary Carrier 3 (Cell 4).
25	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 1.
26	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier 1 on Cell 2.
27	→	UE CAPABILITY INFORMATION	
28	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 2.
29	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier 2 on Cell 3.
30	→	UE CAPABILITY INFORMATION	

31	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 3.
32	←	UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier 3 on Cell 4.
33	→	UE CAPABILITY INFORMATION	
34	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 4. End of Sub Test 2.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1, Step 17) (FDD)

Use the same message as specified for condition A3 "Packet to CELL_DCH from CELL_DCH in PS" in [9] TS 34.108 clause 9 with exception as follow:

Information Element	Value/remark	Version
RB information to reconfigure list		
- RB information to reconfigure	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	600	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	250	
- Timer_poll	250	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not Present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	RACH	
- UL Transport channel identity	Not Present	
- Logical channel identity	7	
- CHOICE RLC size list	Explicit list	
- RLC size index	Reference to TS34.108 clause 6 Parameter Set	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	FACH	
- DL DCH Transport channel identity	Not Present	
- DL DSCH Transport channel identity	Not Present	
- Logical channel identity	7	
- RB stop/continue	Not Present	
Deleted DL TrCH information		
- Downlink transport channel type	HS-DSCH	
- DL HS-DSCH MAC-d flow identity	0	

RADIO BEARER RECONFIGURATION (Step 4)

Use the same message as specified for A3 "Packet to CELL_DCH from CELL_DCH in PS" in [9] TS 34.108 clause 9 with the exception as follow:

Information Element	Value/remark	Version
RAB information to reconfigure	(high-speed AM DTCH for PS domain)	
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.	
- CN domain identity	PS domain	

- NAS Synchronization Indicator	Not Present	
RB information to reconfigure list		
- RB information to reconfig	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- CHOICE RLC info type	RLC info	
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	2047	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	100	
- Timer_poll	100	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	50	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to clause 6 Parameter Set	
- Length indicator size	This IE is present and set to “7” if Downlink RLC PDU Size is set to “Flexible”	
- In-sequence delivery	TRUE	
- Receiving window size	2047	
- Downlink RLC status info		
- Timer_status_prohibit	80	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- Alternative E-bit interpretation	Not present	
- Use special value of HE field	TRUE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	E-DCH	
- Logical channel identity	7	
- E-DCH MAC-d flow identity	2	
- CHOICE RLC PDU size	Flexible size	
- Length indicator size	15 bit	
- Minimum UL RLC PDU size	See clause 6.10	
- Largest UL RLC PDU size	See clause 6.10	
- Include in scheduling info	TRUE	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	HS-DSCH	
- DL DCH Transport channel identity	Not present	
- DL DSCH Transport channel identity	Not present	
- CHOICE *DL MAC header type*	MAC-ehs	
- DL HS-DSCH MAC-ehs Queue Id	0	
- Logical channel identity	7	
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH MAC-d flow and one DTCH MAC-d flow	
- Uplink transport channel type	E-DCH	
- CHOICE UL parameters	E-DCH	
- UL MAC header type	Not present	
- UL MAC header type	MAC-i/is	
- E-DCH Transmission Time Interval	set to 2ms if supported by the UE E-DCH category, or 10ms if the UE E-DCH category does not support 2ms TTI	
- HARQ info for E-DCH		

- HARQ RV Configuration	Rvtable	
- Added or reconfigured E-DCH MAC-d flow	(for DCCH)	
- E-DCH MAC-d flow identity	1	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Non-scheduled grant info	
- Max MAC-e PDU contents size	168 bits	
- Max MAC-e PDU contents size	162 bits	
- 2 ms non-scheduled transmission grant HARQ process allocation	Not Present	
- Added or reconfigured E-DCH MAC-d flow	(for DTCH)	
- E-DCH MAC-d flow identity	2	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Scheduled grant info	
Added or Reconfigured DL TrCH information list	2 TrCh (DCH for DCCH and HS-DSCH for DTCH)	
- Downlink transport channel type	DCH	
- DL Transport channel identity	10	
- CHOICE DL parameters	Same as UL	
- Uplink transport channel type	DCH	
- UL TrCH identity	5	
- DCH quality target		
- Downlink transport channel type	HS-DSCH	
- DL Transport channel identity	Not Present	
- CHOICE DL parameters	HS-DSCH	
- HARQ Info		
- Number of Processes	Reference to clause 6.10 Parameter Set	
- CHOICE *Memory Partitioning*	Implicit	
- CHOICE *DL MAC header type*	MAC-ehs	
- Added or reconfigured MAC-ehs reordering queue		
- MAC-ehs queue to add or reconfigure list	(one queue)	
- MAC-ehs queue Id	2 (for DTCH)	
- T1	50	
- MAC-ehs window size	64	
- DCH quality target	Not present	
Frequency info		
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [11]	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA.	
MIMO parameters	Not Present	
Maximum allowed UL TX power	Not Present	
Uplink DPCH info		
- Uplink DPCH power control info		
- DPCCH power offset	-40 (-80dB)	
- PC Preamble	1 frame	
- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- TPC step size	0 (1dB)	
- ΔACK	3	
- ΔNACK	3	
- Ack-Nack repetition factor	1	
- HARQ_preamble_mode	0	
- Scrambling code type	Short	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- spreading factor	Reference to clause 6.10 Parameter Set	
- TFCI existence	Reference to clause 6.10 Parameter Set	
- Number of FBI bit	Reference to clause 6.10 Parameter Set	

- Puncturing Limit	Reference to clause 6.10 Parameter Set	
E-DCH info		
- MAC-es/e reset indicator	TRUE	
- E-DPCCH info		
- E-DPCCH/DPCCH power offset	0	
- Happy bit delay condition	100 ms	
- E-TFC Boost Info	Not Present	
- E-DPDCH power interpolation	Not Present	
- E-DPDCH info		
- E-TFCI table index	0	
- E-DCH minimum set E-TFCI	9	
- Reference E-TFCIs	2 E-TFCIs	
- Reference E-TFCI	11	
- Reference E-TFCI PO	4	
- Reference E-TFCI	83	
- Reference E-TFCI PO	16	
- Maximum channelisation codes	2sf4	
- PLnon-max	0.84	
- Scheduling Information Configuration		
- Periodicity for Scheduling Info – no grant	Not present	
- Periodicity for Scheduling Info – grant	Not present	
- Power Offset for Scheduling Info	0	
- 3-Index-Step Threshold	Not present	
- 2-Index-Step Threshold	Not present	
- Scheduled Transmission configuration		
- 2ms scheduled transmission grant HARQ process allocation	Not present	
- Serving Grant	Not present	
-UL 16QAM settings	Not Present	
Uplink secondary cell info FDD	Not Present	Rel 9
Downlink HS-PDSCH Information		Rel 9
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not Present	
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	6	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	8 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	4 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	FALSE	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	Not Present	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	13	
- Scrambling code change	Not Present	
- TPC combination index	0	
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	
- CHOICE E-HICH Information	Not Present	
- CHOICE E-RGCH Information	Not Present	

Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	TRUE	
- Downlink DPCH info for each RL	Not Present	
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Secondary scrambling code	Not Present	
- Code number	12	
- TPC combination index	0	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- CHOICE E-HICH Information		
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 2	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA	
Secondary cell MIMO parameters	Not Present	Rel-9
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 3	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA	
Secondary cell MIMO parameters	Not Present	Rel-9

RADIO BEARER RECONFIGURATION (Step 20)

Use the same message as specified for A3 "Packet to CELL_DCH from CELL_DCH in PS" in [9] TS 34.108 clause 9 with the exception as follow:

Information Element	Value/remark	Version
RAB information to reconfigure	(high-speed AM DTCH for PS domain)	
- RAB identity	0000 0101B	

	The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.	
- CN domain identity	PS domain	
- NAS Synchronization Indicator	Not Present	
RB information to reconfigure list		
- RB information to reconfig	(High-speed AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- CHOICE RLC info type	RLC info	
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- CHOICE SDU discard mode	No Discard	
- MAX_DAT	15	
- Transmission window size	2047	
- Timer_RST	500	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	100	
- Timer_poll	100	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Windows	50	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- CHOICE Downlink RLC PDU Size	Reference to clause 6 Parameter Set	
- Length indicator size	This IE is present and set to “7” if Downlink RLC PDU Size is set to “Flexible”	
- In-sequence delivery	TRUE	
- Receiving window size	2047	
- Downlink RLC status info		
- Timer_status_prohibit	80	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- One sided RLC re-establishment	FALSE	
- Alternative E-bit interpretation	Not present	
- Use special value of HE field	TRUE	
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOption	
- RLC logical channel mapping indicator	Not present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	E-DCH	
- Logical channel identity	7	
- E-DCH MAC-d flow identity	2	
- CHOICE RLC PDU size	Flexible size	
- Length indicator size	15 bit	
- Minimum UL RLC PDU size	See clause 6.10	
- Largest UL RLC PDU size	See clause 6.10	
- Include in scheduling info	TRUE	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	HS-DSCH	
- DL DCH Transport channel identity	Not present	
- DL DSCH Transport channel identity	Not present	
- CHOICE *DL MAC header type*	MAC-ehs	
- DL HS-DSCH MAC-ehs Queue Id	0	
- Logical channel identity	7	
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH MAC-d flow and one DTCH MAC-d flow	
- Uplink transport channel type	E-DCH	
- CHOICE UL parameters	E-DCH	

- UL MAC header type	Not present	
- UL MAC header type	MAC-i/is	
- E-DCH Transmission Time Interval	set to 2ms if supported by the UE E-DCH category, or 10ms if the UE E-DCH category does not support 2ms TTI	
- HARQ info for E-DCH		
- HARQ RV Configuration	Rvtable	
- Added or reconfigured E-DCH MAC-d flow	(for DCCH)	
- E-DCH MAC-d flow identity	1	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Non-scheduled grant info	
- Max MAC-e PDU contents size	168 bits	
- Max MAC-e PDU contents size	162 bits	
- 2 ms non-scheduled transmission grant HARQ process allocation	Not Present	
- Added or reconfigured E-DCH MAC-d flow	(for DTCH)	
- E-DCH MAC-d flow identity	2	
- E-DCH MAC-d flow power offset	0	
- E-DCH MAC-d flow maximum number of retransmissions	7	
- E-DCH MAC-d flow multiplexing list	Not Present	
- CHOICE transmission grant type	Scheduled grant info	
Added or Reconfigured DL TrCH information list	2 TrCh (DCH for DCCH and HS-DSCH for DTCH)	
- Downlink transport channel type	DCH	
- DL Transport channel identity	10	
- CHOICE DL parameters	Same as UL	
- Uplink transport channel type	DCH	
- UL TrCH identity	5	
- DCH quality target		
- Downlink transport channel type	HS-DSCH	
- DL Transport channel identity	Not Present	
- CHOICE DL parameters	HS-DSCH	
- HARQ Info		
- Number of Processes	Reference to clause 6.10 Parameter Set	
- CHOICE *Memory Partitioning*	Implicit	
- CHOICE *DL MAC header type*	MAC-ehs	
- Added or reconfigured MAC-ehs reordering queue		
- MAC-ehs queue to add or reconfigure list	(one queue)	
- MAC-ehs queue Id	2 (for DTCH)	
- T1	50	
- MAC-ehs window size	64	
- DCH quality target	Not present	
Frequency info		
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [11]	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA.	
MIMO parameters	Not Present	
Maximum allowed UL TX power	Not Present	
Uplink DPCH info		
- Uplink DPCH power control info		
- DPCCH power offset	-40 (-80dB)	
- PC Preamble	1 frame	
- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- TPC step size	0 (1dB)	
- ΔACK	3	
- ΔNACK	3	
- Ack-Nack repetition factor	1	
- HARQ_preamble_mode	0	

- Scrambling code type	Short	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- spreading factor	Reference to clause 6.10 Parameter Set	
- TFCI existence	Reference to clause 6.10 Parameter Set	
- Number of FBI bit	Reference to clause 6.10 Parameter Set	
- Puncturing Limit	Reference to clause 6.10 Parameter Set	
E-DCH info		
- MAC-es/e reset indicator	TRUE	
- E-DPCCH info		
- E-DPCCH/DPCCH power offset	0	
- Happy bit delay condition	100 ms	
- E-TFC Boost Info	Not Present	
- E-DPDCH power interpolation	Not Present	
- E-DPDCH info		
- E-TFCI table index	0	
- E-DCH minimum set E-TFCI	9	
- Reference E-TFCIs	2 E-TFCIs	
- Reference E-TFCI	11	
- Reference E-TFCI PO	4	
- Reference E-TFCI	83	
- Reference E-TFCI PO	16	
- Maximum channelisation codes	2sf4	
- PLnon-max	0.84	
- Scheduling Information Configuration		
- Periodicity for Scheduling Info – no grant	Not present	
- Periodicity for Scheduling Info – grant	Not present	
- Power Offset for Scheduling Info	0	
- 3-Index-Step Threshold	Not present	
- 2-Index-Step Threshold	Not present	
- Scheduled Transmission configuration		
- 2ms scheduled transmission grant HARQ process allocation	Not present	
- Serving Grant	Not present	
-UL 16QAM settings	Not Present	
Uplink secondary cell info FDD	Not Present	Rel 9
Downlink HS-PDSCH Information		Rel 9
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not Present	
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	6	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	8 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	4 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	FALSE	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	Not Present	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	13	

- Scrambling code change	Not Present	
- TPC combination index	0	
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	
- CHOICE E-HICH Information	Not Present	
- CHOICE E-RGCH Information	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	TRUE	
- Downlink DPCH info for each RL	Not Present	
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Secondary scrambling code	Not Present	
- Code number	12	
- TPC combination index	0	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- CHOICE E-HICH Information		
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 2	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA	
Secondary cell MIMO parameters	Not Present	Rel-9
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 3	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA	
Secondary cell MIMO parameters	Not Present	Rel-9
Downlink secondary cell info FDD		Rel-8
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
- Primary CPICH info		

- Primary scrambling code	Set to the primary scrambling code of cell 4	
- DL Scrambling Code	Not Present.	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies for 4C HSDPA	
Secondary cell MIMO parameters	Not Present	Rel-9

8.2.2.83.5 Test requirements

At step 2, 5, 18 and 21 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

At step 3 and 19 the UE shall not transmit any composite CQI report.

At step 8 and 24 the UE shall transmit two composite CQI reports of Type A.

At step 7, 11, 14, 23, 27, 30 and 33 the UE should transmit UE CAPABILITY INFORMATION on SRB2.

8.2.2.84 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH and from CELL_DCH to CELL_FACH: Success (Seamless SRNS relocation, without pending of ciphering, frequency modification, Default radio configuration for Cell_FACH)

8.2.2.84.1 Definition and applicability

Applicable to all Rel-9 and later UEs which support FDD

8.2.2.84.2 Conformance requirement

1> if the reconfiguration procedure is simultaneous with SRNS relocation procedure:

2> if the transmitted message is a RADIO BEARER RECONFIGURATION:

3> include the IE "New U-RNTI".

The UE shall:

1> if the received reconfiguration message is a RADIO BEARER RECONFIGURATION and the IE "New U-RNTI" is included:

2> re-establish the RLC entity for RB2;

2> set the new uplink and downlink HFN component of COUNT-C of RB2 to MAX(uplink HFN component of COUNT-C of RB2, downlink HFN component of COUNT-C of RB2);

2> increment by one the downlink and uplink values of the HFN component of COUNT-C for RB2;

2> calculate the START value according to subclause 8.5.9 in TS 25.331;

2> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info".

1> if the IE "Integrity protection mode info" was present in the received reconfiguration message:

2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted response message.

If the new state is CELL_DCH or CELL_FACH, the response message shall be transmitted using the new configuration after the state transition, and the UE shall:

1> if the received reconfiguration message is a RADIO BEARER RECONFIGURATION and the IE "New U-RNTI" is included:

2> when RLC has confirmed the successful transmission of the response message:

3> re-establish all AM and UM RLC entities with RB identities larger than 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the corresponding CN domain;

3> re-establish the RLC entities with RB identities 1, 3 and 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the CN domain stored in the variable LATEST_CONFIGURED_CN_DOMAIN;

3> set the remaining bits of the HFN component of COUNT-C values of all UM RLC entities to zero;

3> re-initialise the PDCP header compression entities of each radio bearer in the variable ESTABLISHED_RABS as specified in TS 25.323.

…

The UE shall:

1> if IE "Integrity protection mode command" has the value "start" and the IE "Status" in the variable INTEGRITY_PROTECTION_INFO has the value "Started" and this IE was not included SECURITY MODE COMMAND:

NOTE: This case is used in SRNS relocation and in handover from GERAN *Iu mode*.

2> perform integrity protection on the received message, applying the new integrity protection configuration, as described in subclause 8.5.10.1 in TS 25.331 by:

3> using the algorithm (UIA [TS 33.102]) indicated by the IE "Integrity protection algorithm" contained in the IE "Integrity protection mode info";

3> using the IE "Integrity protection initialisation number", contained in the IE "Integrity protection mode info" as the value of FRESH [TS 33.102].

2> let RBm be the signalling radio bearer where the reconfiguration message was received and let RBn be the signalling radio bearer where the response message is transmitted;

2> for the downlink, for each signalling radio bearer, if for the signalling radio bearer, a security configuration triggered by a previous SECURITY MODE COMMAND has not yet been applied, due to the activation time for the signalling radio bearer not having been reached:

3> set "Down link RRC Message sequence number" for this signalling radio bearer in the variable INTEGRITY_PROTECTION_INFO to (activation time -1), where the activation time is the corresponding activation time for this signalling radio bearer;

3> if the previous SECURITY MODE COMMAND was received due to new keys being received:

4> consider the new integrity protection configuration to include the received new keys.

3> else if the previous SECURITY MODE COMMAND caused a change in LATEST_CONFIGURED_CN_DOMAIN:

4> consider the new Integrity Protection configuration to include the keys associated with the LATEST_CONFIGURED_CN_DOMAIN associated with the previously received SECURITY MODE COMMAND.

2> start applying the new integrity protection configuration in the downlink for each signalling radio bearer in the IE "ESTABLISHED_RABS" except RBm at the next received RRC message for the corresponding signalling radio bearer;

2> start applying the new integrity protection configuration in the downlink for signalling radio bearer RBm from and including the received configuration message;

2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RBn from and including the transmitted response message;

2> start applying the new integrity protection configuration in the uplink for signalling radio bearers other than RBn from the first message onwards.

…

The UE shall:

1> if IE "Default configuration for CELL_FACH" is set:

2> if the message is RADIO BEARER RECONFIGURATION:

3> if IE "new U-RNTI" is included:

4> act in accordance with the default parameters according to section 13.8.

3> else:

4> the UE behaviour is unspecified.

…

The UE shall for each RB with radio bearer identity n listed in the default configuration with the Default configuration identity given in IE "Default configuration identity for CELL_FACH":

1> if a multiplexing option containing the combination "FACH" for the DL and "RACH" for the UL for a RB with radio bearer identity n is included in the default configuration:

2> if the radio bearer identity n is listed in explicit or another default configuration in the message received by the UE:

3> if there is no multiplexing option containing the combination "FACH" for the DL and "RACH" for the UL for this radio bearer identity n:

4> append the radio bearer mapping information in accordance with the default parameters for RB with radio bearer identity n to the radio bearer mapping information for RB with radio bearer identity n.

2> else

3> store the radio bearer mapping information in accordance with the default parameters for RB with radio bearer identity n and configure the transmitting and receiving RLC entities in the UE for that radio bearer according to Table 13.8.1

Reference

3GPP TS 25.331 clause 8.2.2., 8.6.3.5.2, 13.8

8.2.2.84.3 Test purpose

1. To confirm that the UE stores the Default Configuration for Cell_FACH provided in RADIO BEARER RECONFIGURATION message and performs a combined inter-frequency hard handover and SRNS relocation, and then transmits a RADIO BEARER RECONFIGURATION COMPLETE message in the new cell.
2. To confirm that UE configures with Default Configuration for Cell_FACH, and then transmits RADIO BEARER RECONFIGURATION COMPLETE message when reconfigured to Cell_FACH state.

8.2.2.84.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 and 6

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108

Note: RACH – FACH mapping configuration is not provided for SRBs in any configuration messages while bringing UE to Cell_DCH (state 6-10).

Test Procedure

Table 8.2.2.84

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-75	-75	-60

Table 8.2.2.84 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions.

The UE is in the CELL_DCH state, camping onto cell 1. SS configures its downlink transmission power settings according to columns "T1" in table 8.2.2.84. The SS sends a RADIO BEARER RECONFIGURATION message requesting the UE to do a timing re-initialised inter-frequency hard handover combined with SRNS relocation. This message includes the IE "RRC State Indicator" set to "CELL_DCH", IE “New U-RNTI”, and IE “DefaultConfigForCellFACH”. UE stores the Default configuration for Cell_FACH and shall reselect to cell 6. SS verifies that the UE sends RADIO BEARER RECONFIGURATION COMPLETE message.

SS then transmits RADIO BEARER RECONFIGURATION message with IE “RRC State Indicator” set to “CELL_FACH” without providing RB configuration for SRBs. UE shall move to Cell_FACH with default configurations (as sent in previous Radio Bearer Configuration message) and SS verifies that the UE sends RADIO BEARER RECONFIGURATION COMPLETE message on Cell 6. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	SS			SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.2.2.x.
2	←		RADIO BEARER RECONFIGURATION	The message includes IE ‘DefaultConfigForCellFACH’ and IE ‘New U-RNTI’. LAI and RAI of cell 6 are given to the UE, and are the same as cell 1.
3	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE shall transmit this message after it reselects to cell 6.
4	←		RADIO BEARER RECONFIGURATION	The IE ‘RRC State Indicator’ is set to ‘CELL_FACH’, and RB mapping info is not provided for SRBs.
5	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE shall move to Cell_FACH state with default configuration as indicated in step2 and transmit this message on cell 6.
6	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (Cell 1)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

RADIO BEARER RECONFIGURATION (Step 2)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled “Packet to CELL_DCH from CELL_DCH in PS”, with the following exception:

Information Element	Value/remark	Version
Integrity protection mode info		
- Integrity protection mode command	Start	
- Downlink integrity protection activation info	Not Present	
- Integrity protection algorithm	UIA1	
- Integrity protection initialisation number	SS selects an arbitrary 32 bit number for FRESH	
Activation time	Not present	
New U-RNTI		
- SRNC identity	0000 0000 0010B	
- S-RNTI	0000 0000 0000 0000 0001B	
CN Information info		
- PLMN identity	Not present	
- CN common GSM-MAP NAS system information		
- GSM-MAP NAS system information	00 01H	
- CN domain related information		
- CN domain identity	PS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	05 00H	
- CN domain identity	CS	
- CN domain specific NAS system information		
- GSM-MAP NAS system information	1E 01H	
Default configuration for CELL_FACH		
- Default configuration mode	FDD	
- Default configuration identity for CELL_FACH	0	
RB information to reconfigure list		
- RB identity	20	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Values as specified for the IE “RB information to setup” for the corresponding radio bearer for the case "Packet to CELL_DCH from CELL_DCH in PS" in the default RADIO BEARER SETUP message in TS 34.108.	
- RB mapping info		
- RB stop/continue	Not Present	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indicator	Initialise	
- MAC-d HFN initial value	Not present	
- CFN-targetSFN frame offset	Not Present	
- Downlink DPCH power control information		
- DPC mode	0 (single)	
- CHOICE mode	FDD	
- Power offset $P_{Pilot-DPDCH}$	0	
- DL rate matching restriction information	Not Present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Fixed or Flexible Position	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set	
- DPCH compressed mode info	Not Present	
- TX Diversity mode	None	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
Frequency info		
CHOICE mode	FDD	
- UARFCN uplink (Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]	
- UARFCN downlink (Nd)	Same downlink UARFCN as used for cell 6	
Downlink information per radio link list		
-Downlink information for each radio link		
- Choice mode	FDD	

Information Element	Value/remark	Version
- Primary CPICH info		
- Primary scrambling code	Set to same code as used for cell 6	
- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only
- PDSCH code mapping	Not Present	R99 and Rel-4 only
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	2	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	0	
- Scrambling code change	No change	
- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

RADIO BEARER RECONFIGURATION COMPLETE (Step 3)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
Uplink counter synchronisation info	
- RB with PDCP information list	Not present
- START list	Check that this IE is present.

RADIO BEARER RECONFIGURATION (Step 4)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in clause 9 of TS 34.108, with the following exception:

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B
RB information to reconfigure list	
- RB information to reconfigure	(AM DTCH)
- RB identity	20
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
Frequency info	Not Present
Maximum allowed UL TX power	Not Present
Downlink information per radio link list	
-Downlink information for each radio link	
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 6

8.2.2.84.5 Test requirement

At step 3, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on cell 6.

At step 5, the UE shall move to Cell_FACH with default configuration as indicated in step2 and transmit RADIO BEARER RECONFIGURATION COMPLETE message on cell 6.

8.2.3 Radio Bearer Release

8.2.3.1 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success

8.2.3.1.1 Definition

-

8.2.3.1.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RELEASE message; or

it shall:

1> perform the physical layer synchronisation procedure as specified in TS 25.214;

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if the IE "Downlink information for each radio link" is absent, not change its current DL Physical channel configuration.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message, the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.3.1.3 Test purpose

To confirm that the UE releases the existing radio bearer according to a RADIO BEARER RELEASE message.

8.2.3.1.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH state. The SS transmits a RADIO BEARER RELEASE message to the UE. The UE releases the radio access bearer and transmits a RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RELEASE	
2	→		RADIO BEARER RELEASE COMPLETE	Release the radio bearer.
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RELEASE

None.

8.2.3.1.5 Test requirement

After step 2 the UE shall transmit a RADIO BEARER RELEASE COMPLETE message.

8.2.3.1a Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (TDD Only)

8.2.3.1a.1 Definition

The features and operation of UpPCH shifting have been introduced to core specification (TS25.331 clause 8.6.6.26) for LCR TDD.

8.2.3.1a.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RELEASE message; or

it shall:

1> perform the physical layer synchronisation procedure as specified in TS 25.214;

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if the IE "Downlink information for each radio link" is absent, not change its current DL Physical channel configuration.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message, the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.3.1a.3 Test purpose

To confirm that the UE releases the existing radio bearer according to a RADIO BEARER RELEASE message.

8.2.3.1a.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH state. The SS transmits a RADIO BEARER RELEASE message to the UE. The UE releases the radio access bearer and transmits a RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RELEASE	
2	→		RADIO BEARER RELEASE COMPLETE	Release the radio bearer.
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 3 (TDD)

Information Element	Value/remark	Version
- SIB4 Indicator	TRUE	
- Cell identity	0000 0000 0000 0000 0000 0000 0100B	
- Cell selection and re-selection info		
- Mapping info	Not present	
- Cell selection and reselection quality measure	(no data)	
- CHOICE mode	TDD	
- Sintrasearch	10 dB	
- Sintersearch	10 dB	
- SsearchHCS	Not present	
- RAT List	Not present	
- Qrxlevmin	-103 dBm	
- Q_{hyst1_S}	0 dB	
- Treselections	0 seconds	
- HCS Serving cell information	Not present	
- Maximum allowed UL TX power	30dBm	
- Cell Access Restriction		
- Cell barred	Not barred	
- Intra-frequency cell re-selection indicator	Not present	
- T_{barred}	Not present	
- Cell Reserved for operator use	Not reserved	
- Cell Reservation Extension	Not reserved	

- Access Class Barred List		
- Access Class Barred0	Not barred	
- Access Class Barred1	Not barred	
- Access Class Barred2	Not barred	
- Access Class Barred3	Not barred	
- Access Class Barred4	Not barred	
- Access Class Barred5	Not barred	
- Access Class Barred6	Not barred	
- Access Class Barred7	Not barred	
- Access Class Barred8	Not barred	
- Access Class Barred9	Not barred	
- Access Class Barred10	Not barred	
- Access Class Barred11	Not barred	
- Access Class Barred12	Not barred	
- Access Class Barred13	Not barred	
- Access Class Barred14	Not barred	
- Access Class Barred15	Not barred	
- Domain Specific Access Restriction Parameters For PLMN Of MIB	Not present	REL-6
- Domain Specific Access Restriction For Shared Network	Not present	REL-6
-v4b0NonCriticalExtensions		
-sysInfoType3-v4b0ext		
- mapping-LCR	22	

RADIO BEARER RELEASE(Setp 1)

Use the same message sub-type titled in [9] TS 34.108 clause 9 with the following exception:

Information Element	Value/Remarks
Deleted TrCH information list	A1,A2, A3,A4, A5, A6,A7, A8
radioBearerSetup-r4-add-ext	
radioBearerSetup-r4-TDD128-add-ext	
UpPCHpositionInfo	22

8.2.3.1a.5 Test requirement

After step 2 the UE shall transmit a RADIO BEARER RELEASE COMPLETE message.

8.2.3.2 Void

8.2.3.3 Void

8.2.3.4 Void

8.2.3.5 Void

8.2.3.6 Void

8.2.3.7 Radio Bearer Release for transition from CELL_DCH to CELL_FACH: Success

8.2.3.7.1 Definition

8.2.3.7.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RELEASE message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214;

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS 25.304 on that frequency.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS 25.304.

1> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

2> initiate a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

2> when the cell update procedure completed successfully:

3> if the UE is in CELL_PCH or URA_PCH state:

4> initiate a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Uplink data transmission";

4> proceed as below.

1> select PRACH according to TS 25.331 subclause 8.5.17;

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> if the contents of the variable C_RNTI is empty:

2> perform a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

2> when the cell update procedure completed successfully:

3> if the UE is in CELL_PCH or URA_PCH state:

4> initiate a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Uplink data transmission";

4> proceed as below.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message, the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.3.7.3 Test purpose

To confirm that the UE release the existing the radio bearer according to a RADIO BEARER RELEASE message.

8.2.3.7.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DTCH+DCCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_DCH state. The SS transmits a RADIO BEARER RELEASE message to the UE. The UE releases the radio access bearer and transmits a RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RELEASE	SS releases the radio bearer in the fashion specified in the message and allocate common channel resources to carry the remaining radio bearers.
2				The UE selects PRACH and S-CCPCH indicated in SIB5/SIB5bis and SIB6 after entering CELL FACH state. The UE shall release dedicated channels, and reconfigure the remaining radio bearers using the common channel.
3	→		RADIO BEARER RELEASE COMPLETE	
4	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RELEASE (Step 1)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9 with the following exception:

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B

8.2.3.7.5 Test requirement

After step 2 the UE shall transmit a RADIO BEARER RELEASE COMPLETE message.

8.2.3.8 Radio Bearer Release for transition from CELL_DCH to CELL_FACH: Success (Cell re-selection)

8.2.3.8.1 Definition

8.2.3.8.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RELEASE message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214;

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS 25.304 on that frequency.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS 25.304

1> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

2> initiate a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

1> select PRACH according to TS 25.331 subclause 8.5.17;

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> if the contents of the variable C_RNTI is empty:

2> perform a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

2> when the cell update procedure completed successfully:

3> if the UE is in CELL_PCH or URA_PCH state:

4> initiate a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Uplink data transmission";

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or

- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message, the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4, 8.3.1.7.

8.2.3.8.3 Test purpose

To confirm that the UE transmits a RADIO BEARER RELEASE COMPLETE message after the UE completes a cell update procedure.

8.2.3.8.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

NOTE: The 'timer poll' value in the SS RLC transmit entity should be set to 800 ms.

Test Procedure

The UE is in CELL_DCH state. The SS transmits a RADIO BEARER RELEASE message to request the UE to transit from CELL_DCH to CELL_FACH. The UE initiates the cell update procedure because the UE cannot detect the specified cell in this message. The UE transmits a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". The SS shall transmit a CELL UPDATE CONFIRM message on downlink DCCH after receiving CELL UPDATE message. The UE then transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC. The UE transmits a RADIO BEARER RELEASE COMPLETE message on the DCCH using AM RLC. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2			Void	
3	←		RADIO BEARER RELEASE	Assigned the transition from CELL_DCH to CELL_FACH
4	→		CELL UPDATE	The value "cell reselection" shall be set in IE "cell update cause".
5	←		CELL UPDATE CONFIRM	See message content.
6	→		UTRAN MOBILITY INFORMATION CONFIRM	
7	→		RADIO BEARER RELEASE COMPLETE	
8	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RELEASE (Step 3) (FDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Downlink information for each radio links - Primary CPICH info - Primary scrambling code	 150

RADIO BEARER RELEASE (Step 3) (TDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Downlink information for each radio links - Primary CCPCH info - Cell parameters ID	 4

CELL UPDATE (Step 4)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Cell Update Cause	"cell reselection"

CELL UPDATE CONFIRM (Step 5)

Use the same message type found in clause [9] TS 34.108 clause 9, with the following exceptions.

Information Element	Value/Remarks
New C-RNTI	'1010 1010 1010 1010'

UTRAN MOBILITY INFORMATION CONFIRM (Step 6)

Only the message type is checked.

8.2.3.8.5 Test requirement

After step 3 the UE shall transmit a CELL UPDATE message on the CCCH with IE "Cell update cause" set to "cell reselection".

After step 5 UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC.

After step 6 UE shall transmit a RADIO BEARER RELEASE COMPLETE message on the DCCH using AM RLC.

8.2.3.9 Radio Bearer Release for transition from CELL_FACH to CELL_DCH: Success

8.2.3.9.1 Definition

8.2.3.9.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RELEASE message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214;

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If after state transition the UE enters CELL_DCH state, the UE shall, after the state transition:

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message, the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.3.9.3 Test purpose

To confirm that an UE, in state CELL_FACH, releases the radio access bearers using common physical channel. After the release, it shall access the affected radio bearers on the DPCH.

8.2.3.9.4 Method of test

Initial Condition

System Simulator: 1 cell.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. The SS transmits a RADIO BEARER RELEASE message to the UE. In this message, SS commands the UE to release radio access bearers on common physical channel. At the same time, SS allocates DPCH to support the affected radio bearers. The UE shall release the indicated radio access bearers and transmit a RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RELEASE	
2				UE shall release the radio access bearers carried by common physical channel.
3	→		RADIO BEARER RELEASE COMPLETE	
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

RADIO BEARER RELEASE (Step 1)

Use the same message sub-type titled "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9.

8.2.3.9.5 Test requirement

After step 2 the UE shall transmit a RADIO BEARER RELEASE COMPLETE message using the dedicated physical channel allocated.

8.2.3.10 Void

8.2.3.11 Radio Bearer Release for transition from CELL_FACH to CELL_DCH: Failure (Physical channel failure and successful reversion to old configuration)

8.2.3.11.1 Definition

8.2.3.11.2 Conformance requirement

When a physical dedicated channel establishment is initiated by the UE, the UE shall start a timer T312 and wait for layer 1 to indicate N312 "in sync" indications. On receiving N312 "in sync" indications, the physical channel is considered established and the timer T312 is stopped and reset.

If the timer T312 expires before the physical channel is established, the UE shall consider this as a "physical channel establishment failure".

…

If the received message caused the UE to be in CELL_DCH state and the UE failed to establish the dedicated physical channel(s) indicated in the received message the UE shall:

1> revert to the configuration prior to the reception of the message (old configuration);

1> if the old configuration does not include dedicated physical channels (CELL_FACH state):

2> select a suitable UTRA cell according to TS 25.304;

1> transmit a failure response message as specified in TS 25.331 subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "physical channel failure".

1> set the variable ORDERED_RECONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

…

The UE shall:

1> in case of reception of a RADIO BEARER RELEASE message:

…

2> transmit a RADIO BEARER RELEASE FAILURE as response message on the DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.7, 8.2.2.9, 8.5.4.

8.2.3.11.3 Test purpose

To confirm that the UE reverts to the old configuration and transmits a RADIO BEARER RELEASE FAILURE message on the DCCH using AM RLC if the UE fails to release the radio bearers in accordance with the specified settings in RADIO BEARER RELEASE message before T312 timer expires.

8.2.3.11.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. SS then send a MEASUREMENT CONTROL message to UE. The UE shall perform periodical traffic volume measurement according to this message and then transmit MEASUREMENT REPORT message back to SS. The SS transmits a RADIO BEARER RELEASE message and keeps its current physical channel configuration. The UE is expected to encounter a failure while releasing the radio bearer. After T312 timer expires, the UE shall revert to the old radio bearer configuration, so the UE transmits a RADIO BEARER RELEASE FAILURE message on the DCCH using AM RLC which is set to "physical channel failure" in IE "failure cause". UE shall continue its traffic volume measurement and send MEASUREMENT REPORT messages back to SS periodically.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0a	←		MEASUREMENT CONTROL	SS requests UE to perform periodical traffic volume measurement.
0b	→		MEASUREMENT REPORT	
1	←		RADIO BEARER RELEASE	
2				The SS does not configure the specified L1.
3	→		RADIO BEARER RELEASE FAILURE	After T312 expiry the UE fails to release a radio bearer and reverts to the old configuration.
4	→		MEASUREMENT REPORT	

Specific Message Contents

MEASUREMENT CONTROL (Step 0a)

Use the MEASUREMENT CONTROL message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/Remark	Version
Measurement Identity	1	
Measurement Command	Setup	
Measurement reporting mode		
- Measurement Report Transfer Mode	Acknowledged mode RLC	
- Periodical Reporting / Event Trigger Reporting Mode	Periodical Reporting	
Additional measurement list	Not Present	
CHOICE measurement type	Traffic Volume Measurement	
- Traffic volume measurement object list		
- Uplink transport channel type	RACHorCPCH	R99 and Rel-4
	RACH	Rel-5
- UL Target Transport Channel ID	Not Present	
- Traffic volume measurement quantity		
- Measurement quantity	RLC Buffer Payload	
- Traffic volume reporting quantity		
- RLC Buffer Payload for each RB	True	
- Average of RLC Buffer Payload for each RB	False	
- Variance of RLC Buffer Payload for each RB	False	
- Measurement validity		
- UE state	All states	
- CHOICE Reporting criteria	Periodical Reporting Criteria	
- Amount of reporting	Infinity	
- Reporting interval	8000	
DPCH compressed mode status	Not Present	

MEASUREMENT REPORT (Step 0b and 4)

Check to see if the same message type found in [9] TS 34.108 Clause 9 is received, with the following exceptions and the order in which the RBs are reported is not checked:

Information Element	Value/Remarks
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	20
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

RADIO BEARER RELEASE (Step 1)

Use the message sub-type titled "Packet to CELL_DCH from CELL_FACH in PS" in Clause 9 of TS 34.108.

RADIO BEARER RELEASE FAILURE (Step 2)

The contents of RADIO BEARER RELEASE FAILURE message in this test case is the same as the RADIO BEARER RELEASE FAILURE message as found in Clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Failure cause	Physical channel failure

8.2.3.11.5 Test requirement

After step 0a, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on RACH at every 8s interval.

After step 2 the UE shall transmit a RADIO BEARER RELEASE FAILURE message on the DCCH using AM RLC, setting the value "physical channel failure" in IE "failure cause".

After step 3, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on RACH at every 8s interval.

8.2.3.12 Void

8.2.3.13 Void

8.2.3.14 Void

8.2.3.15 Radio Bearer Release for transition from CELL_FACH to CELL_FACH: Success

8.2.3.15.1 Definition

8.2.3.15.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RELEASE message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214;

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If the UE was in CELL_FACH state upon reception of the reconfiguration message and remains in CELL_FACH state, the UE shall:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS 25.304 on that frequency;

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message, the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE as response message on the uplink DCCH using AM RLC.

If the IE "RAB information to reconfigure" is included then the UE shall:

1> if the entry for the radio access bearer identified by the IE "CN domain identity" together with the IE "RAB Identity" in the variable ESTABLISHED_RABS already exists:

…

1> else:

2> set the variable INVALID_CONFIGURATION to TRUE.

If the variable INVALID_CONFIGURATION is set to TRUE the UE shall:

1> keep the configuration existing before the reception of the message;

1> transmit a failure response message, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

3> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> clear that entry.

2> set the IE "failure cause" to "invalid configuration".

1> set the variable INVALID_CONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

The procedure ends.

…

1> in case of reception of a RADIO BEARER RECONFIGURATION message:

2> if the radio bearer reconfiguration procedure affects several radio bearers:

3> (may) include the identities of the radio bearers for which the procedure would have been successful into the RADIO BEARER RECONFIGURATION FAILURE message.

2> transmit a RADIO BEARER RECONFIGURATION FAILURE as response message on the DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4, 8.6.4.2a, 8.2.2.11, 8.2.2.9.

8.2.3.15.3 Test purpose

To confirm that the UE releases the existing the radio bearer(s) according to the RADIO BEARER RELEASE message.

8.2.3.15.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. The SS transmits a RADIO BEARER RELEASE message to the UE. The UE releases the radio access bearer and transmits a RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RELEASE	
2			Void	
3	→		RADIO BEARER RELEASE COMPLETE	
4	←		RADIO BEARER RECONFIGURATION	The IE "RAB information to reconfigure" is included with the same RAB identity as was released with the RADIO BEARER RELEASE message.
5	→		RADIO BEARER RECONFIGURATION FAILURE	The UE responds with failure, in case the RB is properly removed
6	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RELEASE

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in [9] TS 34.108 clause 9.

RADIO BEARER RECONFIGURATION (Step 4)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical to the message sub-type title "Packet to CELL_FACH from CELL_FACH in PS" as found in clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark	Version
Message Type		
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3	
Integrity check info		
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
- RRC message sequence number	SS provides the value of this IE, from its internal counter.	
Integrity protection mode info	Not Present	
Ciphering mode info	Not Present	
Activation time	Now	
New U-RNTI	Not Present	
New C-RNTI	Not Present	
RRC State indicator	CELL_FACH	
UTRAN DRX cycle length coefficient	Not Present	
CN information info	Not Present	
URA identity	Not Present	
RAB information to reconfigure list		
- RAB information to reconfigure	(AM DTCH for PS domain)	
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.	
- CN domain identity	PS domain	
- NAS Synchronization Indicator	0101B The first/ leftmost bit of the bit string contains the most significant bit of the NAS Synchronisation Indicator.	
RB information to reconfigure list	TS25.331 specifies that "Although this IE is not always required, need is MP to align with ASN.1".	
- RB information to reconfigure	(Dummy)	
- RB identity	1	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info	Not Present	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
RB information to be affected list	Not Present	
UL Transport channel information for all transport channels	Not Present	
Deleted TrCH information list	Not Present	
Added or Reconfigured TrCH information list	Not Present	
CHOICE mode	Not Present	
Deleted DL TrCH information list	Not Present	
Added or Reconfigured DL TrCH information list	Not Present	
Maximum allowed UL TX power	Not Present	
CHOICE channel requirement	Not Present	
CHOICE Mode	FDD	
- Downlink PDSCH information	Not Present	R99 and Rel-4 only
Downlink information common for all radio links	Not Present	

RADIO BEARER RECONFIGURATION FAILURE (step 5)

The contents of RADIO BEARER RECONFIGURATION FAILURE message in this test case is the same as the RADIO BEARER RECONFIGURATION FAILURE message as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Failure cause	Invalid configuration

8.2.3.15.5 Test requirement

After step 1 the UE shall transmit a RADIO BEARER RELEASE COMPLETE message using AM RLC on the common physical channel.

After step 4, UE shall transmit a RADIO BEARER RECONFIGURATION FAILURE message to verify that the RAB is properly removed.

8.2.3.16 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (Subsequently received)

8.2.3.16.1 Definition

8.2.3.16.2 Conformance requirement

If the IE "RRC transaction identifier" is included in a received message, the UE shall perform the actions below. The UE shall:

If the received message is any of the messages:

- RADIO BEARER RELEASE; or

  …

the UE shall:

2> if the variable ORDERED_RECONFIGURATION is set to TRUE; or

2> if the variable CELL_UPDATE_STARTED is set to TRUE; or

2> if the table "Accepted transactions" in the variable TRANSACTIONS contains an entry with an IE "Message Type" set to ACTIVE SET UPDATE; or

2> if the received message contains a protocol error according to TS 25.331 clause 9 causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE:

3> if the IE "RRC transaction identifier" of the received message is identical to the "RRC transaction identifier" stored for the same "Message Type" as the received message in the table "Accepted transactions" in the variable TRANSACTIONS:

4> ignore the transaction; and

4> continue with any ongoing processes and procedures as the message was not received;

4> and end the procedure.

3> else:

…

Reference

3GPP TS 25.331 clause 8.6.3.11.

8.2.3.16.3 Test purpose

To confirm that if the UE receives a new RADIO BEARER RELEASE message before the UE releases the radio bearer according to a previous RADIO BEARER RELEASE message it ignore the new RADIO BEARER RELEASE message and configures according to the previous RADIO BEARER RELEASE message received.

8.2.3.16.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH state. When the SS transmits a RADIO BEARER RELEASE message to the UE before the UE releases the radio access bearer, the UE ignores the second RADIO BEARER RELEASE message and releases the radio bearer according to the previous RADIO BEARER RELEASE message received. Finally, the UE shall transmit RADIO BEARER RELEASE COMPLETE message on the DCCH using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RELEASE	For FDD, the SS sets its UL scrambling code number to "1".
2	←		RADIO BEARER RELEASE	Message sent before the expiry of "activation time" specified in message in step 1. For FDD, the IE "Scrambling code number" is set to "2". For TDD the code combination assigned is different from that assigned in stage 1.
3	→		RADIO BEARER RELEASE COMPLETE	The UE ignores the RADIO BEARER RELEASE message in step 2 and release radio bearer according to the RADIO BEARER RELEASE message in step 1.
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RELEASE (Step 1) (FDD)

The contents of RADIO BEARER RELEASE message in this test case is identical to the message sub-type title "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time	[256+Current CFN-[current CFN mod 8 + 8]]MOD 256
- Uplink DPCH Info - Scrambling code number	 1

RADIO BEARER RELEASE (Step 1) (TDD)

The contents of RADIO BEARER RELEASE message in this test case is identical to the message sub-type title "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time	[256+Current CFN-[current CFN mod 8 + 8]]MOD 256
Uplink DPCH timeslots and codes - First timeslot code list	 Assigned by SS

RADIO BEARER RELEASE (Step 2) (FDD)

The contents of RADIO BEARER RELEASE message in this test case is identical to the message sub-type title "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time - Uplink DPCH Info - Scrambling code number	Not Present 2

RADIO BEARER RELEASE (Step 2) (TDD)

The contents of RADIO BEARER RELEASE message in this test case is identical to the message sub-type title "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time - Uplink DPCH timeslots and codes - First timeslot code list	Not Present A different code combination to that used in step 1.

8.2.3.16.5 Test requirement

After step 2 the UE shall transmit an RADIO BEARER RELEASE COMPLETE message on the DCCH using AM RLC.

8.2.3.17 Radio Bearer Release for transition from CELL_FACH to CELL_DCH: Success (Subsequently received)

8.2.3.17.1 Definition

8.2.3.17.2 Conformance requirement

If the IE "RRC transaction identifier" is included in a received message, the UE shall perform the actions below. The UE shall:

If the received message is any of the messages:

- RADIO BEARER RELEASE; or

  …

the UE shall:

2> if the variable ORDERED_RECONFIGURATION is set to TRUE; or

2> if the variable CELL_UPDATE_STARTED is set to TRUE; or

2> if the table "Accepted transactions" in the variable TRANSACTIONS contains an entry with an IE "Message Type" set to ACTIVE SET UPDATE; or

2> if the received message contains a protocol error according to TS 25.331 clause 9 causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE:

3> if the IE "RRC transaction identifier" of the received message is identical to the "RRC transaction identifier" stored for the same "Message Type" as the received message in the table "Accepted transactions" in the variable TRANSACTIONS:

4> ignore the transaction; and

4> continue with any ongoing processes and procedures as the message was not received;

4> and end the procedure.

3> else:

Reference

3GPP TS 25.331 clause 8.6.3.11.

8.2.3.17.3 Test purpose

To confirm that if the UE receives a new RADIO BEARER RELEASE message before the UE releases the radio bearer according to a previous RADIO BEARER RELEASE message, it ignores the new RADIO BEARER RELEASE message and configures according to the previous RADIO BEARER RELEASE message received.

8.2.3.17.4 Method of test

Initial Condition

System Simulator: 1 cell.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. When the SS transmits a RADIO BEARER RELEASE message to the UE before the UE releases the radio access bearer, the UE ignores the second RADIO BEARER RELEASE message and releases the radio bearers according to the previous RADIO BEARER RELEASE message received. Finally, the UE shall transmit a RADIO BEARER RELEASE COMPLETE message on the DCCH using AM RLC. SS calls for generic procedure C.3 2 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RELEASE	For FDD, the SS sets its UL scrambling code to "1".
2	←		RADIO BEARER RELEASE	For TDD the IE "Secondary scrambling code" is set to "2". For TDD, the code combination assigned is different from that assigned in stage 1.
3	→		RADIO BEARER RELEASE COMPLETE	The UE ignores the RADIO BEARER RELEASE message in step 2 and release radio bearers according to the RADIO BEARER RELEASE message in step 1.
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

RADIO BEARER RELEASE (Step 1) (FDD)

The contents of RADIO BEARER RELEASE message in this test case is identical to the message sub-type title "Packet to CELL_DCH from CELL_FACH in PS" found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time Info - Uplink DPCH Info - Scrambling code number	Not present 1

RADIO BEARER RELEASE (Step 1) (TDD)

The contents of RADIO BEARER RELEASE message in this test case is identical to the message sub-type title "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time Info Uplink DPCH timeslots and codes - First timeslot code list	[256+Current CFN-[current CFN mod 8 + 8]]MOD 256 Assigned by SS

RADIO BEARER RELEASE (Step 2) (FDD)

The contents of RADIO BEARER RELEASE message in this test case is identical to the message sub-type title "Packet to CELL_DCH from CELL_FACH in PS" found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time - Uplink DPCH Info - Scrambling code number	Not Present 2

RADIO BEARER RELEASE (Step 2) (TDD)

The contents of RADIO BEARER RELEASE message in this test case is identical to the message sub-type title "Packet to CELL_DCH from CELL_FACH in PS" found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time - Uplink DPCH timeslots and codes - First timeslot code list	Not Present A different code combination to that used in step 1.

8.2.3.17.5 Test requirement

After step 2 the UE shall transmit an RADIO BEARER RELEASE COMPLETE message on the DCCH using AM RLC.

8.2.3.18 Radio Bearer Release from CELL_DCH to CELL_PCH: Success

8.2.3.18.1 Definition

8.2.3.18.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RELEASE message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214;

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If after state transition the UE enters CELL_PCH or URA_PCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS 25.304 on that frequency.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS 25.304.

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is not included in the same message:

2> set the variable INVALID_CONFIGURATION to TRUE.

…

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message, the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE as response message on the uplink DCCH using AM RLC.

If the new state is CELL_PCH, the response message shall be transmitted using the old configuration before the state transition, but the new C-RNTI shall be used if the IE "New C-RNTI" was included in the received reconfiguration message, and the UE shall:

1> when RLC has confirmed the successful transmission of the response message:

…

2> enter the new state (CELL_PCH);

…

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.3.18.3 Test purpose

To confirm that the UE transmits a RADIO BEARER RELEASE COMPLETE before entering CELL_PCH state after it received a RADIO BEARER RELEASE message and released its radio access bearers.

8.2.3.18.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_DCH state. The SS transmits a RADIO BEARER RELEASE message. The UE transmits a RADIO BEARER RELEASE COMPLETE message using AM RLC and enters into CELL_PCH state. SS calls for generic procedure C.4 to check that UE is in CELL_PCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RELEASE	
2	→		RADIO BEARER RELEASE COMPLETE	The UE sends this message before it completes state transition.
2a			Void	SS sends the L2 ack on the RADIO BEARER RELEASE COMPLETE message and then waits 5 seconds to allow the UE to read system information before the next step. Note: The SS should continue to keep the dedicated channel configuration during the time when the L2 ack is sent to the UE.
3	←→		CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RELEASE (Step 1) (FDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
Downlink information for each radio link - Primary CPICH info - Primary scrambling code	 100

RADIO BEARER RELEASE (Step 1) (TDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
Downlink information for each radio links - Primary CCPCH info -Cell parameters ID	 4

8.2.3.18.5 Test requirement

After step 1 the UE transmits a RADIO BEARER RELEASE COMPLETE message on uplink DCCH using AM RLC.

8.2.3.19 Radio Bearer Release from CELL_DCH to URA_PCH: Success

8.2.3.19.1 Definition

8.2.3.19.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RELEASE message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214;

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If after state transition the UE enters CELL_PCH or URA_PCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS 25.304 on that frequency.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS 25.304.

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in TS 25.331 subclause 8.6.3.2.

1> if the IE "UTRAN DRX cycle length coefficient" is not included in the same message:

2> set the variable INVALID_CONFIGURATION to TRUE.

…

1> if the UE enters URA_PCH state, and after cell selection the criteria for URA update caused by "URA reselection" according to TS 25.331 subclause 8.3.1 is fulfilled:

2> initiate a URA update procedure according to TS 25.331 subclause 8.3.1 using the cause "URA reselection";

2> when the URA update procedure is successfully completed:

3> the procedure ends.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message, the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE as response message on the uplink DCCH using AM RLC.

If the new state is URA_PCH, the response message shall be transmitted using the old configuration before the state transition, but the new C-RNTI shall be used if the IE "New C-RNTI" was included in the received reconfiguration message, and the UE shall:

1> when RLC has confirmed the successful transmission of the response message:

…

2> enter the new state (URA_PCH);

…

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.3.19.3 Test purpose

To confirm that the UE transmits a RADIO BEARER RELEASE COMPLETE before entering URA_PCH state after it received a RADIO BEARER RELEASE message and released its radio bearers.

8.2.3.19.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_DCH state. The SS transmits a RADIO BEARER RELEASE message. The UE transmits a RADIO BEARER RELEASE COMPLETE message using AM RLC and enters into URA_PCH state. SS calls for generic procedure C.5 to check that UE is in URA_PCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RELEASE	
2	→		RADIO BEARER RELEASE COMPLETE	The UE sends this message before it completes state transition.
2a			Void	SS sends the L2 ack on the RADIO BEARER RELEASE COMPLETE message and then waits 5 seconds to allow the UE to read system information before the next step. Note: The SS should continue to keep the dedicated channel configuration during the time when the L2 ack is sent to the UE.
3	←→		CALL C.5	If the test result of C.5 indicates that UE is in URA_PCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RELEASE (Step 1) (FDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
RRC State Indicator	URA_PCH
UTRAN DRX cycle length coefficient	3
Downlink information for each radio link - Primary CPICH info - Primary scrambling code	 100

RADIO BEARER RELEASE (Step 1) (TDD)

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
Downlink information for each radio links - Primary CCPCH info -Cell parameters ID	 4

8.2.3.19.5 Test requirement

After step 1 the UE transmits a RADIO BEARER RELEASE COMPLETE message to the UE on uplink DCCH using AM RLC.

8.2.3.20 Radio Bearer Release for transition from CELL_DCH to CELL_FACH (Frequency modification): Success

8.2.3.20.1 Definition

8.2.3.20.2 Conformance requirement

If the UE receives:

-a RADIO BEARER RELEASE message;

it shall:

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

1> enter a state according to TS25.331 subclause 8.6.3.3.

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304 on that frequency.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS5.304.

1> if the received reconfiguration message included the IE "Primary CPICH info"), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" :

2> initiate a cell update procedure according to TS25.331 subclause 8.3.1 using the cause "Cell reselection";

2> when the cell update procedure completed successfully:

3> if the UE is in CELL_PCH or URA_PCH state:

4> initiate a cell update procedure according to TS25.331 subclause 8.3.1 using the cause "Uplink data transmission";

4> proceed as below.

1> select PRACH according to TS25.331 subclause 8.5.17;

1> select Secondary CCPCH according to TS25.331 subclause 8.5.19;

1> use the transport format set given in system information;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> ignore that IE and stop using DRX.

1> if the contents of the variable C_RNTI is empty:

2> perform a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

2> when the cell update procedure completed successfully:

3> if the UE is in CELL_PCH or URA_PCH state:

4> initiate a cell update procedure according to TS25.331 subclause 8.3.1 using the cause "Uplink data transmission";

4> proceed as below.

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message, the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC, using the new configuration after the state transition.

1> the procedure ends.

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.3.20.3 Test purpose

1. To confirm that the UE transits from CELL_DCH to CELL_FACH according to the RADIO BEARER RELEASE message.
2. To confirm that the UE transmits RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC on a common physical channel in a different frequency.

8.2.3.20.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 is active and cell 6 is inactive.

UE: Registered idle mode on CS" (state 2) or "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

Table 8.2.3.20

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-55	-85	Off	-55

Table 8.2.3.20 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 6.

The UE is in CELL_DCH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.3.20. The SS and UE execute procedure P3 or P5. Next The SS and the UE execute procedure P7 or P9 and then execute procedure P11 or P13. The SS switches its downlink transmission power settings to columns "T1" transmits a RADIO BEARER RELEASE message with no IE "Frequency info" to the UE. The UE releases the radio access bearer and moves into cell 6. The UE transmits CELL UPDATE message with IE "Cell update cause" set to "cell reselection". SS then transmit CELL UDPATE CONFIRM with IE "New C_RNTI". The UE shall respond with an UTRAN MOBILITY INFORMATION CONFIRM message, and then transmits a RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC. The SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1a	←→		SS executes procedure P3 (clause 7.4.2.1.2) or P5 (clause 7.4.2.2.2) specified in TS 34.108.	
1b	←→		SS executes procedure P7 (clause 7.4.2.3.2) or P9 (clause 7.4.2.4.2) specified in TS 34.108.	
1c	←→		SS executes procedure P11 (clause 7.4.2.5.2) or P13 (clause 7.4.2.6.2) specified in TS 34.108.	
2				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.3.20.
3			Void	
4	←		RADIO BEARER RELEASE	Not including frequency information.
5	→		CELL UPDATE	The IE "Cell update cause" is set to "cell reselection".
6	←		CELL UPDATE CONFIRM	Including the IE" New C-RNTI"
7	→		UTRAN MOBILITY INFORMATION CONFIRM	
8	→		RADIO BEARER RELEASE COMPLETE	
9	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RELEASE (Step 4)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" or "Non speech to CELL_FACH from CELL_DCH in CS" or "Speech to CELL_FACH from CELL_DCH in CS" in [9] TS 34.108 clause 9 with the following exception:

Information Element	Value/remark
Frequency info Downlink information for each radio link	Not present

CELL UPDATE (Step 5)

The contents of CELL UPDATE message are identical as "Contents of CELL UPDATE message" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Cell Update Cause	"cell reselection"

CELL UPDATE CONFIRM (Step 6)

The contents of CELL UPDATE CONFIRM message are identical as "CELL UPDATE CONFIRM message" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B

UTRAN MOBILITY UPDATE CONFIRM (Step 7)

The contents of UTRAN MOBILITY UPDATE CONFIRM message are identical as "UTRAN MOBILITY UPDATE CONFIRM message" as found in [9] TS 34.108 clause 9.

8.2.3.20.5 Test requirement

After step 4 the UE shall transmit a CELL UPDATE message on the CCCH in cell 6.

After step 6 the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC in cell 6.

After step 7 the UE shall transmit a RADIO BEARER RELEASE COMPLETE message on the DCCH using AM RLC in cell 6.

After step 8 the UE shall be in CELL_FACH state of cell 6.

8.2.3.21 Radio Bearer Release from CELL_DCH to CELL_PCH (Frequency modification): Success

8.2.3.21.1 Definition

8.2.3.21.2 Conformance requirement

If the UE receives:

-a RADIO BEARER RELEASE message;

it shall:

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

…

1> enter a state according to TS25.331 subclause 8.6.3.3.

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message, the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE on the uplink DCCH using AM RLC.

If after state transition the UE enters CELL_PCH state from CELL_DCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304 on that frequency.

2> if the UE finds a suitable UTRA cell on that frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> proceed as below.

2> else, if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> proceed as below.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304.

2> if the UE finds a suitable UTRA cell on the current frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> proceed as below.

2> else, if the UE can not find a suitable UTRA cell on the current frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> proceed as below.

1> prohibit periodical status transmission in RLC;

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI;

1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;

1> select Secondary CCPCH according to TS25.331 subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in TS25.331 subclause 8.6.3.2.

…

If the new state is CELL_PCH or URA_PCH, the response message shall be transmitted using the old configuration before the state transition, but the new C-RNTI shall be used if the IE "New C-RNTI" was included in the received reconfiguration message, and the UE shall:

1> when RLC has confirmed the successful transmission of the response message:

…

2> enter the new state (CELL_PCH or URA_PCH, respectively);

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.3.21.3 Test purpose

1. To confirm that the UE transmits RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC.
2. To confirm that the UE transits from CELL_DCH to CELL_PCH according to the RADIO BEARER RELEASE message.
3. To confirm that the UE releases the radio access bearer and selects a common physical channel in a different frequency indicated by SS.

8.2.3.21.4 Method of test

Initial Condition

System Simulator: 2 cells–Cells 1 is active and cell 6 is inactive.

UE: "Registered idle mode on CS" (state 2) or "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

Table 8.2.3.21

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-55	-85	Off	-55

Table 8.2.3.21 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 6.

The UE is in idle mode in cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.3.21. The SS and UE execute procedure P3 or P5. Next The SS and the UE execute procedure P7 or P9 and then execute procedure P11 or P13. The SS switches its downlink transmission power settings to columns "T1" and then transmits a RADIO BEARER RELEASE message with no IE "Frequency info". The UE transmits a RADIO BEARER RELEASE COMPLETE message using AM RLC and enters CELL_PCH state of cell 6, then the UE shall transmit CELL UPDATE procedure with IE "Cell update cause" set to "cell reselection", to complete the procedure. The SS calls for generic procedure C.4 to check that UE is in CELL_PCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1a	←→		SS executes procedure P3 (clause 7.4.2.1.2) or P5 (clause 7.4.2.2.2) specified in TS 34.108.	
1b	←→		SS executes procedure P7 (clause 7.4.2.3.2) or P9 (clause 7.4.2.4.2) specified in TS 34.108.	
1c	←→		SS executes procedure P11 (clause 7.4.2.5.2) or P13 (clause 7.4.2.6.2) specified in TS 34.108.	
2				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.3.21.
3	←		Void	
4	←		RADIO BEARER RELEASE	Not including new frequency information.
5	→		RADIO BEARER RELEASE COMPLETE	The UE sends this message before it completes state transition. UE sends this message in cell 1.
5a			Void	SS sends the L2 ack on the RADIO BEARER RELEASE COMPLETE message. Note: The SS should continue to keep the dedicated channel configuration during the time when the L2 ack is sent to the UE.
6	→		CELL UPDATE	The IE "Cell update cause" is set to "cell reselection".
7	←		CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_PCH".
8				The SS waits for 5 s.
9	←→		CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RELEASE (Step 4)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" or "Non speech to CELL_FACH from CELL_DCH in CS" or "Speech to CELL_FACH from CELL_DCH in CS" in [9] TS 34.108 clause 9, with following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
Frequency info	Not Present
Downlink information for each radio link	Not Present

CELL UPDATE (Step 6)

The contents of CELL UPDATE message are identical as "Contents of CELL UPDATE message" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Cell Update Cause	"cell reselection"

CELL UPDATE CONFIRM (Step 7)

The contents of CELL UPDATE CONFIRM message are identical as "CELL UPDATE CONFIRM message" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
RRC State indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3

8.2.3.21.5 Test requirement

After step 4 the UE shall transmit a RADIO BEARER RELEASE COMPLETE message on uplink DCCH using AM RLC in cell 1.

After step 5 the UE shall transmit a CELL UPDATE message on the CCCH with IE "Cell update cause" set to "cell reselection" in cell 6.

After step 8 the UE shall be in CELL_PCH state in cell 6.

8.2.3.22 Radio Bearer Release for transition from CELL_FACH to CELL_PCH: Success

8.2.3.22.1 Definition

8.2.3.22.2 Conformance requirement

If the UE receives:

-a RADIO BEARER RELEASE message;

it shall:

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

1> enter a state according to TS25.331 subclause 8.6.3.3.

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message, the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE on the uplink DCCH using AM RLC, using the old configuration before the state transition.

If after state transition the UE enters CELL_PCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304 on that frequency.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304.

1> prohibit periodical status transmission in RLC;

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI;

1> select Secondary CCPCH according to TS25.331 subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in TS25.331 subclause 8.6.3.2.

1> if the IE "UTRAN DRX cycle length coefficient" is not included in the same message:

2> keep the configuration existing before the reception of the message and transmit a failure response message as specified in TS25.331subclause 8.2.2.9

1> if the UE enters CELL_PCH state from CELL_FACH state, and the received reconfiguration message included the IE "Primary CPICH info", and the UE selected another cell than indicated by this IE:

2> initiate a cell update procedure according to TS25.331 subclause 8.3.1 using the cause "cell reselection";

2> when the cell update procedure is successfully completed:

3> the procedure ends.

Reference

3GPP TS 25.331 clause 8.2.2, 8.3, 8.5 and 8.6.

8.2.3.22.3 Test purpose

1. To confirm that the UE transmits RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC.
2. To confirm that the UE transits from CELL_FACH to CELL_PCH according to the RADIO BEARER RELEASE message.
3. To confirm that the UE releases the radio access bearer and selects a common physical channel.

8.2.3.22.4 Method of test

Initial Condition

System Simulator: 1 cell– Cell 1 is active.

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state of cell 1. The SS transmits a RADIO BEARER RELEASE message. The UE shall release all radio access bearer and enter CELL_PCH state after it transmits a RADIO BEARER RELEASE COMPLETE message using AM RLC. Upon completion of the procedure, the SS calls for generic procedure C.4 to check that UE is in CELL_PCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_FACH state of cell 1.
2	←		RADIO BEARER RELEASE	
3	→		RADIO BEARER RELEASE COMPLETE	The UE transmits this message on uplink DCCH using AM RLC.
4				The SS waits for 5 s.
5	←→		CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RELEASE (Step 2)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3

8.2.3.22.5 Test requirement

After step 2 the UE shall transmit a RADIO BEARER RELEASE COMPLETE message on uplink DCCH using AM RLC.

After step 4 the UE shall be in CELL_PCH state in cell 1.

8.2.3.23 Radio Bearer Release for transition from CELL_FACH to URA_PCH: Success

8.2.3.23.1 Definition

8.2.3.23.2 Conformance requirement

If the UE receives:

-a RADIO BEARER RELEASE message;

it shall:

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

1> enter a state according to TS25.331 subclause 8.6.3.3.

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message, the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE on the uplink DCCH using AM RLC, using the old configuration before the state transition.

If after state transition the UE enters URA_PCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304 on that frequency.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304.

1> prohibit periodical status transmission in RLC;

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI;

1> select Secondary CCPCH according to TS25.331 subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in TS5.331 subclause 8.6.3.2.

1> if the IE "UTRAN DRX cycle length coefficient" is not included in the same message:

2> keep the configuration existing before the reception of the message and transmit a failure response message as specified in TS25.331subclause 8.2.2.9

1> if the UE enters URA_PCH state, and after cell selection the criteria for URA update caused by "URA reselection" according to TS5.331 subclause 8.3.1 is fulfilled:

2> initiate a URA update procedure according to TS25.331 subclause 8.3.1 using the cause "URA reselection";

2> when the URA update procedure is successfully completed:

3> the procedure ends.

Reference

3GPP TS 25.331 clause 8.2.2, 8.3, 8.5 and 8.6.

8.2.3.23.3 Test purpose

1. To confirm that the UE transmits RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC.
2. To confirm that the UE transits from CELL_FACH to URA_PCH according to the RADIO BEARER RELEASE message.
3. To confirm that the UE releases the radio access bearer and selects a common physical channel.

8.2.3.23.4 Method of test

Initial Condition

System Simulator: 1 cell– Cell 1 is active.

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state of cell 1. The SS transmits a RADIO BEARER RELEASE message. The UE shall release all radio access bearers and enter URA_PCH state after it transmits a RADIO BEARER RELEASE COMPLETE message using AM RLC. Upon completion of the procedure, the SS calls for generic procedure C.5 to check that UE is in URA_PCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_FACH state of cell 1.
2	←		RADIO BEARER RELEASE	
3	→		RADIO BEARER RELEASE COMPLETE	The UE transmits this message on uplink DCCH using AM RLC.
4				The SS waits for 5 s.
5	←→		CALL C.5	If the test result of C.5 indicates that UE is in URA_PCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RELEASE (Step 2)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
RRC State Indicator	URA_PCH
UTRAN DRX cycle length coefficient	3

NOTE: It is to be noted that IE “URA identity” is not included in this message, for the purpose of wider test coverage. The scenario in which IE “URA identity” is included, is tested in other test cases.

8.2.2.23.5 Test requirement

After step 2 the UE shall transmit a RADIO BEARER RELEASE COMPLETE message on uplink DCCH using AM RLC.

After step 4 the UE shall be in URA_PCH state.

8.2.3.24 Radio Bearer Release for transition from CELL_DCH to CELL_DCH (Frequency modification): Success

8.2.3.24.1 Definition

8.2.3.24.2 Conformance requirement

If the UE receives:

-a RADIO BEARER RELEASE message;

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS25.214;

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS25.331 subclause 8.6.3.3.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if the IE "Downlink information for each radio link" is absent, not change its current DL Physical channel configuration.

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message, the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.3.24.3 Test purpose

1. To confirm that the UE transits from CELL_DCH to CELL_DCH according to the RADIO BEARER RELEASE message.
2. To confirm that the UE transmits RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC on a dedicated physical channel in a different frequency.

8.2.3.24.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 is active and cell 6 is inactive.

CS-DCCH_DTCH_DCH (state 6-9) or PS_DCCH_DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

Table 8.2.3.24

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-55	-72	Off	-72

Table 8.2.3.24 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings from columns "T0" to "T1", whenever the description in multi-cell condition specifies the transmission power settings for cell 1 and cell 6.

The UE is in CELL_DCH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.3.24. The SS switches its downlink transmission power settings to columns "T1" and transmits a RADIO BEARER RELEASE message including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CPICH info" set to Primary Scrambling Code which is assigned to P-CPICH of cell 6. The UE shall select cell 6 and release the radio access bearer after receiving this message, and then remain in CELL_DCH state. The UE transmits a RADIO BEARER RELEASE COMPLETE message using AM RLC after it completes reconfiguration according to received RADIO BEARER RELEASE message. Upon completion of the procedure, the SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The initial state of UE is in CELL_DCH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.3.24.
2				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.3.24.
3	←		RADIO BEARER RELEASE	Including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CPICH info" set to Primary Scrambling Code assigned to P-CPICH of cell 6.
4				The UE select cell 6.
5	→		RADIO BEARER RELEASE COMPLETE	The UE sends this message on a dedicated physical channel in cell 6.
6	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RELEASE (Step 3)

The contents RADIO BEARER RELEASE message in this test case is identical the message sub-type indicated by "Packet to CELL_DCH from CELL_DCH in PS" or "Speech in CS" or "Non speech in CS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
Frequency info	
- UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 6
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
Downlink information for each radio links	
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for cell 6

8.2.3.24.5 Test requirement

After step 4 the UE shall transmit a RADIO BEARER RELEASE COMPLETE message on the DCCH using AM RLC in cell 6.

After step 5 the UE shall be in CELL_DCH state in cell 6.

8.2.3.25 Radio Bearer Release for transition from CELL_DCH to URA_PCH (Frequency modification): Success

8.2.3.25.1 Definition

8.2.3.25.2 Conformance requirement

If the UE receives:

-a RADIO BEARER RELEASE message;

it shall:

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

1> enter a state according to TS25.331 subclause 8.6.3.3.

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message, the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE on the uplink DCCH using AM RLC, using the old configuration before the state transition.

If after state transition the UE enters URA_PCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304 on that frequency.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304.

1> prohibit periodical status transmission in RLC;

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI;

1> select Secondary CCPCH according to TS25.331 subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in TS25.331 subclause 8.6.3.2.

1> if the IE "UTRAN DRX cycle length coefficient" is not included in the same message:

2> keep the configuration existing before the reception of the message and transmit a failure response message as specified in TS25.331subclause 8.2.2.9

1> if the UE enters URA_PCH state, and after cell selection the criteria for URA update caused by "URA reselection" according to TS25.331 subclause 8.3.1 is fulfilled:

2> initiate a URA update procedure according to TS25.331 subclause 8.3.1 using the cause "URA reselection";

2> when the URA update procedure is successfully completed:

3> the procedure ends.

…

If the new state is URA_PCH, the response message shall be transmitted using the old configuration before the state transition, but the new C-RNTI shall be used if the IE "New C-RNTI" was included in the received reconfiguration message, and the UE shall:

1> when RLC has confirmed the successful transmission of the response message:

…

2> enter the new state (URA_PCH);

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.3.25.3 Test purpose

1. To confirm that the UE transmits a RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC.
2. To confirm that the UE transits from CELL_DCH to URA_PCH according to the RADIO BEARER RELEASE message.
3. To confirm that the UE releases radio access bearer, dedicated physical channel and selects a common physical channel in a different frequency.

8.2.3.25.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 is active and cell 6 is inactive

UE: "Registered idle mode on CS" (state 2) or "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

Table 8.2.3.25

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-55	-85	Off	-55

Table 8.2.3.25 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 6.

The UE is in idle mode of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.3.25. SS requests operator to make an outgoing call. The SS and UE execute procedure P3 or P5. Next The SS and the UE execute procedure P7 or P9 and then execute procedure P11 or P13. The SS switches its downlink transmission power settings to columns "T1" and transmits a RADIO BEARER RELEASE message including no IE "Frequency info". The UE shall transmit a RADIO BEARER RELEASE COMPLETE message using AM RLC and enter URA_PCH state of cell 6. Upon completion of the procedure, the SS calls for generic procedure C.5 to check that UE is in URA_PCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.3.25. SS requests operator to make an outgoing call.
2			SS executes procedure P3 (clause 7.4.2.1.2) or P5 (clause 7.4.2.2.2) specified in TS 34.108.	
3			SS executes procedure P7 (clause 7.4.2.3.2) or P9 (clause 7.4.2.4.2) specified in TS 34.108.	
4			SS executes procedure P11 (clause 7.4.2.5.2) or P13 (clause 7.4.2.6.2) specified in TS 34.108.	
5				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.3.25.
6	←		RADIO BEARER RELEASE	Not including IE "Frequency info" and IE "Primary CPICH info"
7	→		RADIO BEARER RELEASE COMPLETE	UE transmit this message on the dedicated physical channel in cell 1
8			Void	SS sends the L2 ack on the RADIO BEARER RELEASE COMPLETE message and then waits for 5 s to allow the UE to read system information before the next step. Note: The SS should continue to keep the dedicated channel configuration during the time when the L2 ack is sent to the UE.
9	←→		CALL C.5	If the test result of C.5 indicates that UE is in URA_PCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RELEASE (Step 6)

Use the same message sub-type titled "Speech to CELL_FACH from CELL_DCH in CS" or "Non speech to CELL_FACH from CELL_DCH in CS" or "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
RRC State Indicator	URA_PCH
UTRAN DRX cycle length coefficient	3
Frequency info	Not present
Downlink information for each radio link	Not present

8.2.3.25.5 Test requirement

After step 6 the UE shall transmits a RADIO BEARER RELEASE COMPLETE message on the DCCH using AM RLC in cell 1.

After step 8 the UE shall be in URA_PCH state in cell 6.

8.2.3.26 Radio Bearer Release for transition from CELL_FACH to CELL_PCH (Frequency modification): Success

8.2.3.26.1 Definition

8.2.3.26.2 Conformance requirement

If the UE receives:

-a RADIO BEARER RELEASE message;

it shall:

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

1> enter a state according to TS25.331 subclause 8.6.3.3.

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message, the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE on the uplink DCCH using AM RLC, using the old configuration before the state transition.

If after state transition the UE enters CELL_PCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304 on that frequency.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304.

1> prohibit periodical status transmission in RLC;

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI;

1> select Secondary CCPCH according to TS25.331 subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in TS25.331 subclause 8.6.3.2.

1> if the IE "UTRAN DRX cycle length coefficient" is not included in the same message:

2> keep the configuration existing before the reception of the message and transmit a failure response message as specified in TS25.331subclause 8.2.2.9

1> if the UE enters CELL_PCH state from CELL_FACH state, and the received reconfiguration message included the IE "Primary CPICH info" , and the UE selected another cell than indicated by this IE:

2> initiate a cell update procedure according to TS25.331 subclause 8.3.1 using the cause "cell reselection";

2> when the cell update procedure is successfully completed:

3> the procedure ends.

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.3.26.3 Test purpose

1. To confirm that the UE transmits a RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC.
2. To confirm that the UE transits from CELL_FACH to CELL_PCH according to the RADIO BEARER RELEASE message.
3. To confirm that the UE releases radio access bearer and selects a common physical channel in a different frequency.

8.2.3.26.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 is active and cell 6 is inactive

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.2.3.26

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-55	-72	Off	-55

Table 8.2.3.26 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 6.

The UE is in cell 1. The SS shall transmit a RADIO BEARER RELEASE message on downlink DCCH using UM RLC, . The UE shall transmit a RADIO BEARER RELEASE COMPLETE message using AM RLC. The SS shall acknowledge the RADIO BEARER RELEASE COMPLETE message and then switches its downlink transmission power settings to columns “T1”. . Upon completion of the procedure, the SS waits for 5 seconds and calls for generic procedure C.4 in cell 6 to check that UE is in CELL_PCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2			Void	
3			Void	
4			Void	
5			Void	
6	←		RADIO BEARER RELEASE	This message is sent on RB 1. IE "Frequency info" and IE "Primary CPICH info" set to that of cell 6.
7	→		RADIO BEARER RELEASE COMPLETE	After SS acknowledges this message, SS switches its downlink transmission power settings to columns "T1" in table 8.2.3.26.
8				The SS waits for 5 s.
9	←→		CALL C.4	(In cell 6) If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RELEASE (Step 6)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
Frequency info	
- CHOICE mode	FDD
- UARFCN uplink (Nu)	Not present
- UARFCN downlink (Nd)	Set to the frequency of cell 6
Downlink information for each radio link	
- Primary CPICH Info	
- Primary scrambling code	Set to same code as used for cell 6

8.2.3.26.5 Test requirement

After step 6 the UE shall transmits a RADIO BEARER RELEASE COMPLETE message on the DCCH using AM RLC in cell 1.

After step 8 the UE shall be in CELL_PCH state in cell 6.

8.2.3.27 Radio Bearer Release for transition from CELL_FACH to URA_PCH (Frequency modification): Success

8.2.3.27.1 Definition

8.2.3.27.2 Conformance requirement

If the UE receives:

-a RADIO BEARER RELEASE message;

it shall:

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

1> enter a state according to TS25.331 subclause 8.6.3.3.

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message, the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE on the uplink DCCH using AM RLC, using the old configuration before the state transition.

If after state transition the UE enters URA_PCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304 on that frequency.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304.

1> prohibit periodical status transmission in RLC;

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI;

1> select Secondary CCPCH according to TS25.331 subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in TS25.331 subclause 8.6.3.2.

1> if the IE "UTRAN DRX cycle length coefficient" is not included in the same message:

2> keep the configuration existing before the reception of the message and transmit a failure response message as specified in TS25.331subclause 8.2.2.9.

1> if the UE enters URA_PCH state, and after cell selection the criteria for URA update caused by "URA reselection" according to TS25.331 subclause 8.3.1 is fulfilled:

2> initiate a URA update procedure according to TS25.331 subclause 8.3.1 using the cause "URA reselection";

2> when the URA update procedure is successfully completed:

3> the procedure ends.

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.3.27.3 Test purpose

1. To confirm that the UE transmits a RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC.
2. To confirm that the UE transits from CELL_FACH to URA_PCH according to the RADIO BEARER RELEASE message.
3. To confirm that the UE releases radio access bearer and selects a common physical channel in a different frequency.

8.2.3.27.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 is active and cell 6 is inactive UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.2.3.27

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-55	-72	Off	-55

Table 8.2.3.27 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 6.

The UE is on cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.3.27. The SS transmits a RADIO BEARER RELEASE including IE "Frequency info" and not including IE "Primary CPICH info". The UE shall transmit a RADIO BEARER RELEASE COMPLETE message using AM RLC and the SS shall switch its downlink power settings to columns “T1”. The UE enters URA_PCH state of cell 6. Upon completion of the procedure, the SS calls for generic procedure C.5 to check that UE is in URA_PCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2			Void	
3			Void	
4			Void	
5			Void	
6	←		RADIO BEARER RELEASE	Including IE "Frequency info" and not including IE "Primary CPICH info"
7	→		RADIO BEARER RELEASE COMPLETE	UE transmit this message on the common physical channel in cell 1. The SS switches its downlink transmission power settings to columns "T1" in table 8.2.3.27.
8				The SS waits for 5 s.
9	←→		CALL C.5	If the test result of C. 5 indicates that UE is in URA_PCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RELEASE (Step 6)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
RRC State Indicator UTRAN DRX cycle length coefficient	URA_PCH 3
URA identity	URA-ID 1
Frequency info	
- UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 6
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6

8.2.3.27.5 Test requirement

After step 6 the UE shall transmits a RADIO BEARER RELEASE COMPLETE message on the DCCH using AM RLC in cell 1.

After step 7 the UE shall be in URA_PCH state in cell 6.

8.2.3.28 Radio Bearer Release for transition from CELL_FACH to CELL_FACH (Frequency modification): Success

8.2.3.28.1 Definition

8.2.3.28.2 Conformance requirement

If the UE receives:

-a RADIO BEARER RELEASE message;

it shall:

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

1> enter a state according to TS25.331 subclause 8.6.3.3.

If the UE was in CELL_FACH state upon reception of the reconfiguration message and remains in CELL_FACH state, the UE shall:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304 on that frequency;

2> if the received reconfiguration message included the IE "Primary CPICH info", and the UE selected another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info":

3> initiate a cell update procedure according to TS25.331 subclause 8.3.1 using the cause "cell reselection";

3> when the cell update procedure completed successfully:

4> proceed as below.

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message, the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.3.28.3 Test purpose

1. To confirm that the UE transits from CELL_FACH to CELL_FACH according to the RADIO BEARER RELEASE message.

2. To confirm that the UE transmits RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC on a common physical channel in a different frequency.

8.2.3.28.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 is active and cell 6 is inactive.

UE: "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE. If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS".

Test Procedure

Table 8.2.3.28

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-55	-72	Off	-55

Table 8.2.3.28 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 6.

The UE is in CELL_FACH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.3.28. SS requests operator to make an outgoing call. The SS and UE execute procedure P6. Next The SS and the UE execute procedure P10 and then execute procedure P14. The SS switches its downlink transmission power settings to columns "T1" and transmits a RADIO BEARER RELEASE message including IE "Frequency info" set to frequency information of cell 6 and no IE "Primary CPICH info". The UE shall select cell 6 and initiates CELL UPDATE procedure with IE "Cell update cause" set to "cell reselection" . The UE shall transmit a RADIO BEARER RELEASE COMPLETE message using AM RLC after it completes reconfiguration according to the received RADIO BEARER RELEASE message. Upon completion of the procedure, the SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.3.28. SS requests operator to make an outgoing call.
2	←→		SS executes procedure P6 (clause 7.4.2.2.2) specified in TS 34.108.	
3	←→		SS executes procedure P10 (clause 7.4.2.4.2) specified in TS 34.108.	
4	←→		SS executes procedure P14 (clause 7.4.2.6.2) specified in TS 34.108.	
5				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.3.28.
6	←		RADIO BEARER RELEASE	Including IE "Frequency info" set to frequency information of cell 6 and no IE "Primary CPICH info" set to Primary Scrambling Code
7	→		CELL UPDATE	The IE "Cell update cause" is set to "cell reselection".
8	←		CELL UPDATE CONFIRM	Including the IE" New C-RNTI"
9	→		UTRAN MOBILITY INFORMATION CONFIRM	
10	→		RADIO BEARER RELEASE COMPLETE	The UE sends this message on a common physical channel in cell 6.
11	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RELEASE (Step 6)

The contents of RADIO BEARER RELEASE message in this test case are identical the message sub-type indicated by "Packet to CELL_FACH from CELL_FACH in PS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
Frequency info - UARFCN uplink(Nu) - UARFCN downlink(Nd)	 Same uplink UARFCN as used for cell 6 Same downlink UARFCN as used for cell 6

CELL UPDATE (Step 7)

The contents of CELL UPDATE message are identical as "Contents of CELL UPDATE message" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Cell Update Cause	"cell reselection"

CELL UPDATE CONFIRM (Step 8)

The contents of CELL UPDATE CONFIRM message are identical as "CELL UPDATE CONFIRM message" as found in [9] TS 34.108 clause 9. with the following exceptions:

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B

UTRAN MOBILITY UPDATE CONFIRM (Step 9)

The contents of UTRAN MOBILITY UPDATE CONFIRM message is identical as "UTRAN MOBILITY UPDATE CONFIRM message" as found in [9] TS 34.108 clause 9.

8.2.3.28.5 Test requirement

After step 6 the UE shall transmit a CELL UPDATE message on the CCCH in cell 6.

After step 8 the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC in cell 6.

After step 9 the UE shall transmit a RADIO BEARER RELEASE COMPLETE message on the DCCH using AM RLC in cell 6.

After step 10 the UE shall be in CELL_FACH state in cell 6.

8.2.3.29 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Associated with signalling connection release during simultaneous PS and CS call

8.2.3.29.1 Definition

8.2.3.29.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RELEASE message:

it shall:

1> set the variable ORDERED_RECONFIGURATION to TRUE;

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214;

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE may first release the physical channel configuration used at reception of the reconfiguration message. The UE shall then:

…

1> enter a state according to TS25.331 subclause 8.6.3.3.

…

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent:

2> not change its current UL Physical channel configuration.1> in TDD:

2> if "Primary CCPCH Info" is included indicating a new target cell and "New C-RNTI" is not specified:

3> remove any C-RNTI from MAC;

3> clear the variable C_RNTI.

…

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message, the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE message as response message on the uplink DCCH using AM RLC.

….

If the IE "Signalling Connection release indication" is present in a message, the UE shall:

1> if all radio access bearers for the CN domain identified with the value of the IE "Signalling Connection release indication" would have been released in the variable ESTABLISHED_RABS after processing of the received message:

2> indicate release of the signalling connection identified with the value of the IE "Signalling Connection release indication" to the upper layers;

2> remove the signalling connection identified with the value of the IE "Signalling Connection release indication" from the variable ESTABLISHED_SIGNALLING_CONNECTIONS.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4, 8.6.1.3.

8.2.3.29.3 Test purpose

To confirm that the UE releases the existing radio access bearer and signalling connection according to a RADIO BEARER RELEASE message.

8.2.3.29.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH+DTCH_DCH (state 6-9) as specified in clause 7.4 of TS 34.108

Test Procedure

The UE is in CELL_DCH state of cell 1. The UE initiates a session setup to establish a PS signalling connection. Then UE and SS establish a PS session while the CS call is still active. The SS transmits a DISCONNECT message to release a CS domain signalling connection. After the CC procedure, SS transmit a RADIO BEARER RELEASE message which includes IE "Signalling Connection release indication" set to "CS domain" and new configuration for remained service to the UE. The UE shall configure the specified channel and transmit a RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The initial state of UE is in CELL_DCH state of cell 1.
2	→		INITIAL DIRECT TRANSFER (SERVICE REQUEST)	GMM (PS Session setup is initiated from the UE side.)
3	←		DOWNLINK DIRECT TRANSFER (AUTHENTICATION AND CIPHERING REQUEST)	GMM
4	→		UPLINK DIRECT TRANSFER (AUTHENTICATION AND CIPHERING RESPONSE)	GMM
5	←		SECURITY MODE COMMAND	
6	→		SECURITY MODE COMPLETE	
7	→		UPLINK DIRECT TRANSFER (ACTIVATE PDP CONTEXT REQUEST)	SM
8	←		RADIO BEARER SETUP	
9	→		RADIO BEARER SETUP COMPLETE	
10	←		DOWNLINK DIRECT TRANSFER (ACTIVATE PDP CONTEXT ACCEPT)	SM
11	←		DOWNLINK DIRECT TRANSFER (DISCONNECT)	CC
12	→		UPLINK DIRECT TRANSFER (RELEASE)	CC
13	←		DOWNLINK DIRECT TRANSFER (RELEASE COMPLETE)	CC
14	←		RADIO BEARER RELEASE	Including IE "signalling connection release indication" set to "CS domain"
15	→		RADIO BEARER RELEASE COMPLETE	
16	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RELEASE (STEP 14)

The contents of RADIO BEARER RELEASE message in this test case is identical to the message sub-type titled as "Non speech in CS" or "Speech in CS" as found in Clause 9 of TS 34.108, with the following exceptions

Information Element	Value/remark
Signalling Connection release indication - CN domain identity	CS domain

8.2.3.29.5 Test requirement

After step 14 the UE shall transmit a RADIO BEARER RELEASE COMPLETE message.

8.2.3.30 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (stop of HS-DSCH reception)

8.2.3.30.1 Definition and applicability

All UEs which support FDD or TDD and HS-PDSCH.

8.2.3.30.2 Conformance requirement

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for an HS-DSCH related reconfiguration in 3.84 Mcps TDD or 7.68 Mcps TDD caused by the received message:

3> start using, at activation time T, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: In FDD an "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> for 3.84 Mcps TDD or 7.68 Mcps TDD, the UE has stored the IE "HS-PDSCH Timeslot Configuration" and either of the following conditions are met:

2> a dedicated physical channel is allocated to the UE in the downlink;

2> the UE has stored $D_{hs\text{-}sync}$.

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link, for TDD add/remove H-RNTI upon hard handover.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

Reference

3GPP TS 25.331 clause8.5.25, 8.6.3.1

8.2.3.30.3 Test purpose

To confirm that the UE releases a radio bearer mapped to HS-DSCH according to the received RADIO BEARER RELEASE message.

8.2.3.30.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS_DCCH_DTCH_HS_DSCH (state 6-17) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_DCH state with a radio bearer mapped on HS-DSCH established. The SS transmits a RADIO BEARER RELEASE message to the UE . This message requests the release of the radio access bearer mapped to HS-DSCH. After the UE receives this message, it releases the radio access bearer. Finally the UE transmits a RADIO BEARER RELEASE COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RELEASE	
2	→		RADIO BEARER RELEASE COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RELEASE

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH / HS-DSCH in PS" in 34.108.

8.2.3.30.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER RELEASE COMPLETE message.

8.2.3.30a Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (stop of HS-DSCH reception) (In a different frequency band)

8.2.3.30a.1 Definition and applicability

Same conformance requirement as in clause 8.2.3.30 except that UE is support for different frequency band for TDD.

8.2.3.30a.2 Conformance requirement

Same conformance requirement as in clause 8.2.3.30.

8.2.3.30a.3 Test purpose

Same conformance requirement as in clause 8.2.3.30 except that UE can work in different frequency bands.

8.2.3.30a.4 Method of test

Same conformance requirement as in clause 8.2.3.30 except for Expected sequence

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RELEASE	
2	→		RADIO BEARER RELEASE COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

8.2.3.30a.5 Test requirements

Same conformance requirement as in clause 8.2.3.30.

8.2.3.31 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (With active HS-DSCH reception)

8.2.3.31.1 Definition and applicability

All UEs which support FDD or TDD and HS-PDSCH and simultaneous CS domain speech or transparent CS data services and PS services.

8.2.3.31.2 Conformance requirement

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if "DPCH frame offset" is included for one or more RLs in the active set:

2> use its value to determine the beginning of the DPCH frame in accordance with the following:

3> if the received IE "DPCH frame offset" is across the value range border compared to the DPCH frame offset currently used by the UE:

4> consider it to be a request to adjust the timing with 256 chips across the frame border (e.g. if the UE receives value 0 while the value currently used is 38144 consider this as a request to adjust the timing with +256 chips).

3> if after taking into account value range borders, the received IE "DPCH frame offset" corresponds to a request to adjust the timing with a step exceeding 256 chips:

4> set the variable INVALID_CONFIGURATION to TRUE.

3> and the procedure ends.

2> adjust the radio link timing accordingly.

…

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message, the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE as response message on the uplink DCCH using AM RLC.

…

If IE "Timing indication" has the value "initialise", UE shall:

1> execute the Timing Re-initialised hard handover procedure by following the procedure indicated in the subclause relevant to the procedure chosen by the UTRAN.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Reference

3GPP TS 25.331 clause 8.2.2, 8.3.5.1.2, 8.6.3.1

8.2.3.31.3 Test purpose

To confirm that the UE releases a radio bearer according to the received RADIO BEARER RELEASE message while keeping HS-DSCH reception active for a second radio bearer mapped to HS-DSCH.

8.2.3.31.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports CS domain speech or transparent CS data services and PS services.

Test Procedure

The UE is in cell 1 with only signalling radio bearers established. A PS radio bearer is established mapped to HS-DSCH with HS-DSCH reception activated. Then, a CS radio bearer is established.

The SS transmits a RADIO BEARER RELEASE message to the UE. This message requests the release of the radio bearer mapped to DCH. After the UE receives this message, it releases this radio bearer but keeps the radio bearer mapped to HS-DSCH and continues HS-DSCH reception. Finally the UE transmits a RADIO BEARER RELEASE COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←→			SS establishes a PS RAB mapped to HS-DSCH. See below for contents of the RADIO BEARER SETUP message.
2	←→			SS establishes a CS RAB.
3	←		RADIO BEARER RELEASE	
4	→		RADIO BEARER RELEASE COMPLETE	The UE releases the CS radio bearer mapped to DCH but keeps the PS radio bearer mapped to HS-DSCH and continues HS-DSCH reception
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10, except for the following
- Uplink transport channel type	DCH
- UL Transport channel identity	4
Added or Reconfigured UL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10, except for the following
- Uplink transport channel type	DCH
- UL Transport channel identity	4
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.

RADIO BEARER RELEASE (Step 3)(FDD)

Use the same message as specified for “Speech in CS” or "Non speech in CS" in 34.108 except for the following.

Information Element	Value/remark	Version
Added or Reconfigured UL TrCH information	Not Present	
Added or Reconfigured DL TrCH information	Not Present	
Frequency info	Not present	
Maximum allowed UL TX power	Not present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in TS34.108 clause 6.1 (FDD)	
- Cell ID	Not Present	
- Serving HS-DSCH radio link indicator	TRUE	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	3	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	0	
- Scrambling code change	No change	
- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH	Not present	R99 and Rel-4 only

RADIO BEARER RELEASE (Step 3) (1.28 Mcps TDD)

Use the same message as specified for “Speech in CS” or "Non speech in CS" in 34.108 except for the following.

Information Element	Value/remark	Version
Added or Reconfigured UL TrCH information	Not Present	
Added or Reconfigured DL TrCH information	Not Present	
Frequency info	Not present	
Maximum allowed UL TX power	Not present	

8.2.3.31.5 Test requirements

After step 3, the UE shall transmit a RADIO BEARER RELEASE COMPLETE message.

8.2.3.31a Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (With active HS-DSCH reception) (TDD only)

8.2.3.31a.1 Definition and applicability

All UEs which support TDD and HS-PDSCH and simultaneous CS domain speech or transparent CS data services and PS services.

8.2.3.31a.2 Conformance requirement

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if "DPCH frame offset" is included for one or more RLs in the active set:

2> use its value to determine the beginning of the DPCH frame in accordance with the following:

3> if the received IE "DPCH frame offset" is across the value range border compared to the DPCH frame offset currently used by the UE:

4> consider it to be a request to adjust the timing with 256 chips across the frame border (e.g. if the UE receives value 0 while the value currently used is 38144 consider this as a request to adjust the timing with +256 chips).

3> if after taking into account value range borders, the received IE "DPCH frame offset" corresponds to a request to adjust the timing with a step exceeding 256 chips:

4> set the variable INVALID_CONFIGURATION to TRUE.

3> and the procedure ends.

2> adjust the radio link timing accordingly.

…

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message, the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE as response message on the uplink DCCH using AM RLC.

…

If IE "Timing indication" has the value "initialise", UE shall:

1> execute the Timing Re-initialised hard handover procedure by following the procedure indicated in the subclause relevant to the procedure chosen by the UTRAN.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Reference

3GPP TS 25.331 clause 8.2.2, 8.3.5.1.2, 8.6.3.1

8.2.3.31a.3 Test purpose

To confirm that the UE releases a radio bearer according to the received RADIO BEARER RELEASE message while keeping HS-DSCH reception active for a second radio bearer mapped to HS-DSCH.

8.2.3.31a.4 Method of test

Initial Condition

System Simulator: 1 cell configures three carriers, one primary carrier with two secondary carriers.

UE: PS-DCCH DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports TDD
- UE supports HS-PDSCH
- UE supports CS domain speech or transparent CS data services and PS services.

Test Procedure

The UE is in cell 1 with only signalling radio bearers established. A PS radio bearer is established mapped to HS-DSCH with HS-DSCH reception activated. Then, a CS radio bearer is established.

The SS transmits a RADIO BEARER RELEASE message to the UE. This message requests the release of the radio bearer mapped to DCH. After the UE receives this message, it releases this radio bearer but keeps the radio bearer mapped to HS-DSCH and continues HS-DSCH reception. Finally the UE transmits a RADIO BEARER RELEASE COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←→			SS establishes a PS RAB mapped to HS-DSCH. See below for contents of the RADIO BEARER SETUP message.
2	←→			SS establishes a CS RAB.
3	←		RADIO BEARER RELEASE	
4	→		RADIO BEARER RELEASE COMPLETE	The UE releases the CS radio bearer mapped to DCH but keeps the PS radio bearer mapped to HS-DSCH and continues HS-DSCH reception
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10, except for the following
- Uplink transport channel type	DCH
- UL Transport channel identity	4
Added or Reconfigured UL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10, except for the following
- Uplink transport channel type	DCH
- UL Transport channel identity	4
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
RadioBearerSetup-r5-TDD128-add-ext-IEs	
- frequencyInfo	Secondary carrier frequency
- UpPCHpositionInfo	22

RADIO BEARER RELEASE (Step 3) (1.28 Mcps TDD)

Use the same message as specified for “Speech in CS” or "Non speech in CS" in 34.108 except for the following.

Information Element	Value/remark	Version
Added or Reconfigured UL TrCH information	Not Present	
Added or Reconfigured DL TrCH information	Not Present	
Frequency info	Not present	
Maximum allowed UL TX power	Not present	
RadioBearerRelease-r5-TDD128-add-ext-IEs		
- frequencyInfo	Secondary carrier frequency	
- UpPCHpositionInfo	22	

8.2.3.31a.5 Test requirements

After step 3, the UE shall transmit a RADIO BEARER RELEASE COMPLETE message.

8.2.3.32 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialised hard handover to another frequency, with active HS-DSCH reception)

8.2.3.32.1 Definition and applicability

All UEs which support FDD or TDD and HS-PDSCH and simultaneous CS domain speech or transparent CS data services and PS services.

8.2.3.32.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message, the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE as response message on the uplink DCCH using AM RLC.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Reference

3GPP TS 25.331 clause 8.2.2, 8.6.3.1

8.2.3.32.3 Test purpose

To confirm that the UE releases a radio bearer according to the received RADIO BEARER RELEASE message while keeping HS-DSCH reception active for a second radio bearer mapped to HS-DSCH.

8.2.3.32.4 Method of test

Initial Condition

System Simulator: 2 cells–Cells 1 and 6 are active.

UE: PS-DCCH DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports CS domain speech or transparent CS data services and PS services

Test Procedure

The UE is in cell 1 with only signalling radio bearers established. A PS radio bearer is established mapped to HS-DSCH with HS-DSCH reception activated. Then, a CS radio bearer is established.

The SS transmits a RADIO BEARER RELEASE message to the UE. This message requests the release of the CS radio bearer mapped to DCH as well as a timing re-initialised interfrequency hard handover to cell 6. After the UE receives this message, it releases this radio bearer but keeps the radio bearer mapped to HS-DSCH and continues HS-DSCH reception. Finally the UE transmits a RADIO BEARER RELEASE COMPLETE message using AM RLC in cell 6.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←→			SS establishes a PS RAB mapped to HS-DSCH. See below for contents of the RADIO BEARER SETUP message.
2	←→			SS establishes a CS RAB.
3	←		RADIO BEARER RELEASE	
4	→		RADIO BEARER RELEASE COMPLETE	The UE releases the CS radio bearer mapped to DCH but keeps the PS radio bearer mapped to HS-DSCH and continues HS-DSCH reception
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, except for the following
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	9
Added or Reconfigured UL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, except for the following
- Uplink transport channel type	DCH
- UL Transport channel identity	4
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, except for the following
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	9

RADIO BEARER RELEASE (Step 3) (FDD)

Use the same message as specified for “Speech in CS” or "Non speech in CS" in 34.108 except for the following.

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Added or Reconfigured UL TrCH information	Not Present	
Added or Reconfigured DL TrCH information	Not Present	
Frequency info		
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]	
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6	
Maximum allowed UL TX power	Not present	
CHOICE channel requirement	Uplink DPCH info	
- Uplink DPCH power control info		
- DPCCH power offset	-40 (-80 dB)	
- PC Preamble	1 frame	
- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- TPC step size	0 (1 dB)	
- Δ_{ACK}	6	
- Δ_{NACK}	6	
- Ack-Nack repetition factor	2	
- Scrambling code type	Long	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- Number of FBI bit	Reference to TS34.108 clause 6.10 Parameter Set	
- Puncturing Limit	Reference to TS34.108 clause 6.10 Parameter Set	
Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code		
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Measurement Power Offset	12 (6 dB)	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	0	
- Downlink DPCH power control information	Not Present	
- Downlink rate matching restriction information	Not Present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Fixed or flexible position	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set	
- DPCH compressed mode info	Not present	
- TX Diversity mode	Not Present	

Information Element	Value/remark	Version
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
- MAC-hs reset indicator	TRUE	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Set to the scrambling code for cell 6	
- Cell ID	Not Present	
- Serving HS-DSCH radio link indicator	TRUE	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	3	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	0	
- Scrambling code change	No change	
- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH	Not present	R99 and Rel-4 only

RADIO BEARER RELEASE (Step 3) (1.28Mcps TDD)

Use the same message as specified for “Speech in CS” or "Non speech in CS" in 34.108 except for the following.

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Added or Reconfigured UL TrCH information	Not Present	
Added or Reconfigured DL TrCH information	Not Present	
Frequency info		
- Choice mode	TDD	
- UARFCN (Nt)	Same UARFCN as used for cell 6	
Maximum allowed UL TX power	Not present	
CHOICE channel requirement	Uplink DPCH info	
- Uplink DPCH power control info		
- CHOICE mode	TDD	
- CHOICE TDD option	1.28 Mcps TDD	
- $PRX_{PDPCHdes}$	-80dB	
- CHOICE UL OL PC info	Individually Signalled	
- CHOICE TDD option	1.28 Mcps TDD	
- TPC step size	1dB	
- Primary CCPCH Tx Power	20	
Downlink HS-PDSCH Information		
- HS-SCCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9	
- Measurement Feedback Info		
- CHOICE mode	TDD (no data)	
- CHOICE mode	TDD	
- CHOICE TDD option	1.28 Mcps TDD	
- HS-PDSCH Midamble Configuration		
- Midamble Allocation Mode	Default midamble	
- Midamble Configuration	8	
- Midamble Shift	Not present	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	0	
- Downlink DPCH power control information	Not Present	
- Choice mode	TDD	
- Choice TDD Option	1.28 Mcps TDD	
- TSTD indicator	FALSE	R99 and Rel-4 only
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
- MAC-hs reset indicator	TRUE	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	1.28 Mcps TDD	
- TSTD indicator	FALSE	
- Cell parameters ID	Ref. to the Default setting for cell 6 in TS34.108 clause 6.1 (TDD)	
- SCTD indicator	FALSE	

8.2.3.32.5 Test requirements

After step 3, the UE shall transmit a RADIO BEARER RELEASE COMPLETE message using AM RLC in cell 6.

8.2.3.33 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (stop of HS-DSCH reception with frequency modification)

8.2.3.33.1 Definition and applicability

All UEs which support FDD or TDD and HS-PDSCH and simultaneous CS domain speech or transparent CS data services and PS services.

8.2.3.33.2 Conformance requirement

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> for 3.84 Mcps TDD or 7.68 Mcps TDD, the UE has stored the IE "HS-PDSCH Timeslot Configuration" and either of the following conditions are met:

2> a dedicated physical channel is allocated to the UE in the downlink;

2> the UE has stored $D_{hs\text{-}sync}$.

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

…

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

Reference

3GPP TS 25.331 clauses 8.5.25.

8.2.3.33.3 Test purpose

To confirm that the UE stops HS-DSCH reception when UE releases PS RAB according to the received RADIO BEARER RELEASE message.

8.2.3.33.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 is active and cell 6 is inactive

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports CS domain speech or transparent CS data services and PS service

Test Procedure

The UE is in CELL_DCH state and only signalling radio bearers have been established. SS initiates P25 to make the UE to move to state 6-17 as specified in TS 34.108 clause 7.4. The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established. The SS initiates P24 to set up CS RAB.
Then SS transmits a RADIO BEARER RELEASE message to the UE. The UE transmits a RADIO BEARER RELEASE COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message. (Step 0)
1	←→		P24	SS establishes CS RAB.
2	←		RADIO BEARER RELEASE	SS releases PS RAB.
3	→		RADIO BEARER RELEASE COMPLETE	
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 0)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	**Value/remark**
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, except for the following
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	9
Added or Reconfigured UL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, except for the following
- Uplink transport channel type	DCH
- UL Transport channel identity	4
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, except for the following
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	9

RADIO BEARER RELEASE (Step 2) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH / HS-DSCH in PS" in 34.108, except for the following:

Information Element	**Value/remark**
Deleted UL TrCH Information	
- Uplink transport channel type	DCH
- Transport channel identity	4
Added or Reconfigured UL TrCH information	Not Present
Deleted DL TrCH Information	
- Downlink transport channel type	DCH
- Transport channel identity	9
Added or Reconfigured DL TrCH information	Not Present
Frequency info - UARFCN uplink (Nu) - UARFCN downlink (Nd)	 Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21] Same downlink UARFCN as used for cell 6
Downlink information for each radio links - Primary CPICH info - Primary Scrambling Code - DPCH frame offset	 350 The Value is calculated based on internal SS timing difference

RADIO BEARER RELEASE (Step 2) (1.28Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH / HS-DSCH in PS" in 34.108, except for the following:

Information Element	Value/remark
Deleted UL TrCH Information	
- Uplink transport channel type	DCH
- Transport channel identity	4
Added or Reconfigured UL TrCH information	Not Present
Deleted DL TrCH Information	
- Downlink transport channel type	DCH
- Transport channel identity	9
Added or Reconfigured DL TrCH information	Not Present
Frequency info	
- Choice mode	TDD
- UARFCN (Nt)	Same UARFCN as used for cell 6
Downlink information for each radio link	
- Choice mode	TDD
- Primary CCPCH info	
- Choice mode	TDD
- Choice TDD Option	1.28 Mcps TDD
- TSTD indicator	FALSE
- Cell parameters ID	Same Cell parameters ID as used for cell 6
- SCTD indicator	FALSE

8.2.3.33.5 Test requirements

After step 2, the UE shall transmit a RADIO BEARER RELEASE COMPLETE message.

8.2.3.34 Radio Bearer Release for transition from CELL_DCH to CELL_FACH: Success (stop of HS-DSCH reception with frequency modification)

8.2.3.34.1 Definition and applicability

All UEs which support FDD or TDD and HS-PDSCH and simultaneous CS domain speech or transparent CS data services and PS services.

8.2.3.34.2 Conformance requirement

If after state transition the UE leaves CELL_DCH state, the UE shall, after the state transition:

1> stop any HS-DSCH reception procedures according to the stored HS-PDSCH configuration;

1> clear any stored HS-PDSCH configuration;

1> remove any H-RNTI stored;

1> clear the variable H_RNTI;

1> set the variable HS_DSCH_RECEPTION to FALSE.

Reference

3GPP TS 25.331 clauses 8.2.2.3.

8.2.3.34.3 Test purpose

To confirm that the UE stops HS-DSCH reception when UE releases CS RAB according to the received RADIO BEARER RELEASE message.

8.2.3.34.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 is active and cell 6 is inactive

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports CS domain speech or transparent CS data services and PS services

Test Procedure

Table 8.2.3.34

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency (f_1)		High Range Test Frequency (f_2)	
CPICH Ec(FDD)	dBm/3.84MHz	-60	-70	-70	-60
P-CCPCH RSCP (TDD)	dBm	-60	-70	-70	-60

Table 8.2.3.34 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The SS has configured its downlink transmission power settings according to columns "T0" in table 8.2.3.34. The UE is in CELL_DCH state and only signalling radio bearers have been established. SS initiates P25 to make the UE to move to state 6-17 as specified in TS 34.108 clause 7.4. The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established. The SS initiates P24 to set up CS RAB.

Then SS switches its downlink transmission power settings to columns "T1" and transmits a RADIO BEARER RELEASE message to the UE. The UE transmits a RADIO BEARER RELEASE COMPLETE message using AM RLC. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message (Step0).
1	←→		P24	SS establishes CS RAB
1a	SS			The SS switches its downlink transmission power settings to columns "T1" in table 8.2.3.34.
2	←		RADIO BEARER RELEASE	SS releases CS RAB.
3	→		RADIO BEARER RELEASE COMPLETE	
4	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 0)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108.Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, except for the following
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	9
Added or Reconfigured UL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, except for the following
- Uplink transport channel type	DCH
- UL Transport channel identity	4
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, except for the following
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	9

RADIO BEARER RELEASE (Step 2) (FDD)

Use the same message as specified for "Speech to CELL_FACH from CELL_DCH in CS" or "Non speech to CELL_FACH from CELL_DCH in CS" in 34.108, except for the following:

Information Element	Value/remark
Frequency info - UARFCN uplink (Nu) - UARFCN downlink (Nd)	 This IE should be present, if the default duplex distance defined for the operating frequency band is not used Same downlink UARFCN as used for cell 6

RADIO BEARER RELEASE (Step 2) (1.28 Mcps TDD)

Use the same message as specified for "Speech to CELL_FACH from CELL_DCH in CS" or "Non speech to CELL_FACH from CELL_DCH in CS" in 34.108, except for the following:

Information Element	Value/remark
Frequency info - Choice mode	 TDD
- UARFCN (Nt)	Same UARFCN as used for cell 6

8.2.3.34.5 Test requirements

After step 2, the UE shall transmit a RADIO BEARER RELEASE COMPLETE message.

8.2.3.35 Radio Bearer Release for transition from CELL_DCH to CELL_PCH: Success (stop of HS-DSCH reception)

8.2.3.35.1 Definition and applicability

All UEs which support FDD or TDD, HS-PDSCH and simultaneous CS domain speech or transparent CS data services and PS services.

8.2.3.35.2 Conformance requirement

If the new state is CELL_PCH, the response message shall be transmitted using the old configuration before the state transition, but the new C-RNTI shall be used if the IE "New C-RNTI" was included in the received reconfiguration message, and the UE shall:

1> when RLC has confirmed the successful transmission of the response message:

…

2> enter the new state (CELL_PCH);

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> the UE has a stored IE "HARQ info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";

- IE "Uplink DPCH Power Control Info" including stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor;

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

…

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Reference

3GPP TS 25.331 clauses 8.2.2.4, 8.6.3.1,8.5.25

8.2.3.35.3 Test purpose

To confirm that the UE releases CS bearer and stops receiving the HS-DSCH reception according to the received RADIO BEARER RELEASE message.

8.2.3.35.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports both CS domain speech or transparent CS data services and PS services

Test Procedure

The UE is in CELL_DCH state and only signalling radio bearers have been established. SS initiates P25 to make the UE to move to state 6-17 as specified in TS34.108 clause 7.4. The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established. The SS initiates P24 to set up CS RAB.

Then SS transmits a RADIO BEARER RELEASE message to the UE. This message requests to release CS bearer and CS Signalling Connection, stop receiving the HS-DSCH reception and move to CELL_PCH state. After the UE receives this message, it configures them. Finally the UE transmits a RADIO BEARER RELEASE COMPLETE message using AM RLC. SS calls for generic procedure C.4 to check that UE is in CELL_PCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1		←→	P25	See below for the specific message content used in RADIO BEARER SETUP message (Step 1)
2		←→	P24	SS establishes CS RAB.
3		←	RADIO BEARER RELEASE	SS releases CS RAB and CS Signalling Connection
4		→	RADIO BEARER RELEASE COMPLETE	
5		←→	CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for “Packet to CELL_DCH /HS-DSCH from CELL_DCH in PS ” in TS34.108, except for the followings;

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
- UL Transport channel identity	4(speech) or 2(other cs services)
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
- UL Transport channel identity	4(speech) or 2(other cs services)

RADIO BEARER RELEASE (Step 3)(FDD)

Use the same message as specified for “Speech to CELL_FACH from CELL_DCH in CS” or "Non Speech to CELL_FACH from CELL_DCH in CS" in TS34.108, except for the followings;

Information Element	Value/remark
Activation time	Not present
RRC state indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
Signalling Connection release indication	CS domain
Frequency info	Not present
Downlink information for each radio link list - Primary CPICH info - Primary scrambling code	 100

RADIO BEARER RELEASE (Step 3) (1.28 Mcps TDD)

Use the same message as specified for “Speech to CELL_FACH from CELL_DCH in CS” or "Non Speech to CELL_FACH from CELL_DCH in CS" in TS34.108, except for the followings;

Information Element	Value/remark
Activation time	Not present
RRC state indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
Signalling Connection release indication	CS domain
Frequency info	Not present
Downlink information for each radio link list - Downlink information for each radio link - CHOICE mode - Cell parameters ID	 TDD Set to the Cell parameters ID for cell 1

8.2.3.35.5 Test requirements

After step 3, the UE shall transmit a RADIO BEARER RELEASE COMPLETE message.

8.2.3.36 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (frequency modification, stop of E-DCH transmission)

8.2.3.36.1 Definition and applicability

All UEs which support FDD and speech and HS-PDSCH and E-DCH or all UEs which support TDD and HS-PDSCH and E-PUCH.

8.2.3.36.2 Conformance requirement

The variable E_DCH_TRANSMISSION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable E_RNTI includes either the Primary E-RNTI or the Secondary E-RNTI or both the Primary and the Secondary E-RNTI;

1> For FDD:

2> the UE has stored the following IEs:

- IE "E-DCH Transmission Time Interval";
- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-DPCCH info" and the IE "E-DPDCH info".
- one of the radio links in the active set is configured as the serving E-DCH radio link, and for this radio link the UTRAN has configured the IE "E-HICH configuration" and the IE "E-AGCH info".

1> For TDD:

2> for non-scheduled transmission, the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-PUCH info";
- IE "Non-scheduled transmission grant info";

2> for scheduled transmission, the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-RUCCH info" and the IE "E-PUCH info";
- IE "E-HICH info";
- IE "E-AGCH info".

1> there is at least one logical channel mapped to E-DCH for which:

2> the corresponding E-DCH MAC-d flow is configured, i.e. the IEs "E-DCH MAC-d flow power offset" and "E-DCH MAC-d flow maximum number of retransmissions", and the transmission grant type are configured.

If any of the above conditions is not met and the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> set the variable E_DCH_TRANSMISSION to FALSE;

1> stop any E-AGCH, E-HICH and E-RGCH reception procedures;

1> For FDD:

2> stop any E-RGCH reception procedures.

1> For FDD:

2> stop any E-DPCCH and E-DPDCH transmission procedures.

1> For TDD:

2> stop any E-RUCCH and E-PUCH transmission procedures.

1> clear the variable E_RNTI;

1> release all E-DCH HARQ resources;

1> no longer consider any radio link to be the serving E-DCH radio link.

Whenever the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1>For FDD:

2> perform E_AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI" and the IE "New Secondary E-RNTI".

2> perform E-HICH reception procedures for all radio links in the E-DCH active set;

2> perform E-RGCH reception procedures for all radio links in the active set for which an E-RGCH configuration has been provided;

2> perform E-DPCCH transmission procedures according to the stored E-DPCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-DPCCH Info".

2> perform E-DPDCH transmission procedures according to the stored E-DPDCH configuration as stated in:

3> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

3> subclause 8.6.5.17 for the IE "HARQ info for E-DCH";

3> subclause 8.6.6.37 for the IE "E-DPDCH Info".

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

1>For TDD:

2> if scheduled transmission is configured, perform E-AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI".

2> Perform E-HICH reception;

2> for 3.84/7.68 Mcps TDD, perform E-RUCCH transmission procedures according to the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

2> for 1.28 Mcps TDD, if scheduled transmission is configured, perform E-RUCCH transmission procedure according to the stored PRACH configuration (see [60]) and the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

NOTE 1: The PRACH configuration is signalled directly to the UE in "E-RUCCH Info" IE in case of E-DCH serving cell change.

2> Perform E-PUCH transmission procedures according to the stored E-PUCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-PUCH Info".

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

2> obtain and format the appropriate information on E-UCCH (see [15]). For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, the UE shall use the lowest E-DCH capability category, as specified in [35], to signal the UL control information on E-UCCH.

NOTE 2: For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, UTRAN should use the lowest E-DCH capability category when performing configuration, scheduling and reading the control information on E-UCCH, as it is not possible for Node B to be aware of the UE's E-DCH capability category during this period.

Whenever the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> not perform E-AICH, E-HICH and E-RGCH reception procedures;

1> not perform E-DPCCH and E-DPDCH transmission procedures.

Reference

3GPP TS 25.331 clause 8.5.28

8.2.3.36.3 Test purpose

To confirm that the UE releases a radio bearer mapped on E-DCH / HS-DSCH and stops E-DCH transmission / HS-DSCH reception according to the received RADIO BEARER RELEASE message with frequency modification.

8.2.3.36.4 Method of test

Initial Condition

System Simulator: 2 cells–Cells 1 and 6 are active.

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports CS speech
- UE supports HS-PDSCH
- UE supports E-DPDCH(FDD) or E-PUCH (1.28Mcps TDD)

Test Procedure

The UE is in CELL_DCH state and only signalling radio bearers have been established. SS initiates P26 to make the UE to move to state 6-18 as specified in TS 34.108 clause 7.4. The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH and E-DCH established. The SS initiates P24 to set up CS speech RAB.

Then SS transmits a RADIO BEARER RELEASE message to the UE. The UE transmits a RADIO BEARER RELEASE COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P26	See below for the specific message content used in RADIO BEARER SETUP message. (Step 0)
1	←→		P24	SS establishes CS speech RAB.
2	←		RADIO BEARER RELEASE	SS releases PS RAB.
3	→		RADIO BEARER RELEASE COMPLETE	
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 0) (FDD)

Use the same message as specified for "Packet to CELL_DCH / E-DCH / HS-DSCH using three multiplexing options (3/3) and SRBs mapped on DCH/DCH" in 34.108, except for the following.

Information Element	Value/remark
- RAB information for setup	
- RB mapping info	
- Information for each multiplexing option	3 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- Logical channel identity	Not Present
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	9
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	Not Present
- Logical channel identity	Not Present
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	10
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	0
- Logical channel identity	Not Present
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	10
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	10
Added or Reconfigured UL TrCH information	1 E-DCH added, 1 DCH added, 1 DCH reconfigured
- Uplink transport channel type	E-DCH
- CHOICE UL parameters	E-DCH
- E-DCH Transmission Time Interval	10 ms
- HARQ info for E-DCH	
- HARQ RV Configuration	rvtable
- Added or reconfigured E-DCH MAC-d flow	
- E-DCH MAC-d flow identity	2
- E-DCH MAC-d flow power offset	0
- E-DCH MAC-d flow maximum number of retransmissions	7
- E-DCH MAC-d flow multiplexing list	Not Present
- CHOICE transmission grant type	Scheduled grant info
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to clause 6.10 Parameter Set

- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.10 Parameter Set
- CHOICE Logical channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.10 Parameter Set
- Type of channel coding	Reference to clause 6.10 Parameter Set
- Coding Rate	Reference to clause 6.10 Parameter Set
- Rate matching attribute	Reference to clause 6.10 Parameter Set
- CRC size	Reference to clause 6.10 Parameter Set
- Uplink transport channel type	DCH
- UL Transport channel identity	5
- TFS	
- CHOICE Transport channel type	
- Dynamic Transport format information	
- RLC Size	Reference to clause 6.10 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.10 Parameter Set
- CHOICE Logical channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.10 Parameter Set
- Type of channel coding	Reference to clause 6.10 Parameter Set
- Coding Rate	Reference to clause 6.10 Parameter Set
- Rate matching attribute	Reference to clause 6.10 Parameter Set
- CRC size	Reference to clause 6.10 Parameter Set
Added or Reconfigured DL TrCH information	3 TrCHs (DCH for DCCH and DCH plus HS-DSCH for DTCH)
- Downlink transport channel type	DCH
- DL Transport channel identity	10
- CHOICE DL parameters	Same as UL
- Uplink transport channel type	DCH
- UL TrCH identity	5
- DCH quality target	
- BLER Quality value	-20 (-2.0)
- Downlink transport channel type	DCH
- DL Transport channel identity	9
- CHOICE DL parameters	Explicit
- TFS	
- CHOICE Transport channel type	Dedicated transport channel
- Dynamic transport format information	
- RLC Size	Reference to clause 6.10 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Dynamic transport format information	
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.10 Parameter Set
- CHOICE Logical channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.10 Parameter Set
- Type of channel coding	Reference to clause 6.10 Parameter Set
- Coding Rate	Reference to clause 6.10 Parameter Set
- Rate matching attribute	Reference to clause 6.10 Parameter Set
- CRC size	Reference to clause 6.10 Parameter Set
- DCH quality target	
- BLER Quality value	-20 (-2.0)
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	
- Number of Processes	Reference to clause 6.10.2.4.5 Parameter Set
- CHOICE Memory Partitioning	Implicit
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	(one queue)
- MAC-hs queue Id	0
- MAC-d Flow Identity	0
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	

- MAC-d PDU size	336
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not Present
- DCH quality target	Not Present

RADIO BEARER SETUP (Step 0)(1.28Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH / E-DCH / HS-DSCH using three multiplexing options (3/3) and SRBs mapped on DCH/DCH" in 34.108, except for the following.

Information Element	Value/remark
- RAB information for setup	
- RB mapping info	
- Information for each multiplexing option	3 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- Logical channel identity	Not Present
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	9
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	Not Present
- Logical channel identity	Not Present
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	10
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	0
- Logical channel identity	Not Present
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	10
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	10
Added or Reconfigured UL TrCH information	1 E-DCH added, 1 DCH added, 1 DCH reconfigured
- Uplink transport channel type	E-DCH
- CHOICE UL parameters	E-DCH
- E-DCH Transmission Time Interval	5 ms
- HARQ info for E-DCH	
- HARQ RV Configuration	rvtable
- Added or reconfigured E-DCH MAC-d flow	
- E-DCH MAC-d flow identity	2
- E-DCH MAC-d flow power offset	0
- E-DCH MAC-d flow maximum number of retransmissions	7
- E-DCH MAC-d flow multiplexing list	Not Present
- CHOICE transmission grant type	Scheduled grant info
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to clause 6.11 Parameter Set

- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.11 Parameter Set
- CHOICE Logical channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.11 Parameter Set
- Type of channel coding	Reference to clause 6.11 Parameter Set
- Coding Rate	Reference to clause 6.11 Parameter Set
- Rate matching attribute	Reference to clause 6.11 Parameter Set
- CRC size	Reference to clause 6.11 Parameter Set
- Uplink transport channel type	DCH
- UL Transport channel identity	5
- TFS	
- CHOICE Transport channel type	
- Dynamic Transport format information	
- RLC Size	Reference to clause 6.11 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.11 Parameter Set
- CHOICE Logical channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.11 Parameter Set
- Type of channel coding	Reference to clause 6.11 Parameter Set
- Coding Rate	Reference to clause 6.11 Parameter Set
- Rate matching attribute	Reference to clause 6.11 Parameter Set
- CRC size	Reference to clause 6.11 Parameter Set
Added or Reconfigured DL TrCH information	3 TrCHs (DCH for DCCH and DCH plus HS-DSCH for DTCH)
- Downlink transport channel type	DCH
- DL Transport channel identity	10
- CHOICE DL parameters	Same as UL
- Uplink transport channel type	DCH
- UL TrCH identity	5
- DCH quality target	
- BLER Quality value	-20 (-2.0)
- Downlink transport channel type	DCH
- DL Transport channel identity	9
- CHOICE DL parameters	Explicit
- TFS	
- CHOICE Transport channel type	Dedicated transport channel
- Dynamic transport format information	
- RLC Size	Reference to clause 6.11 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Dynamic transport format information	
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.11 Parameter Set
- CHOICE Logical channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.11 Parameter Set
- Type of channel coding	Reference to clause 6.11 Parameter Set
- Coding Rate	Reference to clause 6.11 Parameter Set
- Rate matching attribute	Reference to clause 6.11 Parameter Set
- CRC size	Reference to clause 6.11 Parameter Set
- DCH quality target	
- BLER Quality value	-20 (-2.0)
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	
- Number of Processes	Reference to clause 6.11.2.4.5 Parameter Set
- CHOICE Memory Partitioning	Implicit
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	(one queue)
- MAC-hs queue Id	0
- MAC-d Flow Identity	0
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	

- MAC-d PDU size	336
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not Present
- DCH quality target	Not Present

RADIO BEARER RELEASE (Step 2) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH / HS-DSCH in PS" in 34.108, except for the following:

Information Element	**Value/remark**
Deleted UL TrCH Information	
- Uplink transport channel type	DCH
- Transport channel identity	4
Added or Reconfigured UL TrCH information	Not Present
Deleted DL TrCH Information	
- Downlink transport channel type	DCH
- Transport channel identity	9
Added or Reconfigured DL TrCH information	Not Present
Frequency info	
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	Same downlink UARFCN as used for cell 6
- CHOICE channel requirement	Uplink DPCH info
- Scrambling code number	Set to the same code number as used for cell 6
Downlink information for each radio links	
- Primary CPICH info	
- Primary Scrambling Code	Set to the same code as used for cell 6

RADIO BEARER RELEASE (Step 2)(1.28Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH / HS-DSCH in PS" in 34.108, except for the following:

Information Element	**Value/remark**
Deleted UL TrCH Information	
- Uplink transport channel type	DCH
- Transport channel identity	4
Added or Reconfigured UL TrCH information	Not Present
Deleted DL TrCH Information	
- Downlink transport channel type	DCH
- Transport channel identity	9
Added or Reconfigured DL TrCH information	Not Present
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Same UARFCN as used for cell 6
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- Choice mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Set to the same as cell 6

8.2.3.36.5 Test requirements

After step 2, the UE shall transmit a RADIO BEARER RELEASE COMPLETE message.

8.2.3.36a Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (frequency modification, stop of E-DCH transmission, in the multi-frequency network environment, for 1.28Mcps TDD only)

8.2.3.36a.1 Definition and applicability

All UEs which support 1.28Mcps TDD and HS-PDSCH and E-PUCH.

8.2.3.36a.2 Conformance requirement

The variable E_DCH_TRANSMISSION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable E_RNTI includes either the Primary E-RNTI or the Secondary E-RNTI or both the Primary and the Secondary E-RNTI;

1> For FDD:

2> the UE has stored the following IEs:

- IE "E-DCH Transmission Time Interval";
- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-DPCCH info" and the IE "E-DPDCH info".
- one of the radio links in the active set is configured as the serving E-DCH radio link, and for this radio link the UTRAN has configured the IE "E-HICH configuration" and the IE "E-AGCH info".

1> For TDD:

2> for non-scheduled transmission, the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-PUCH info";
- IE "Non-scheduled transmission grant info";

2> for scheduled transmission, the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-RUCCH info" and the IE "E-PUCH info";
- IE "E-HICH info";
- IE "E-AGCH info".

1> there is at least one logical channel mapped to E-DCH for which:

2> the corresponding E-DCH MAC-d flow is configured, i.e. the IEs "E-DCH MAC-d flow power offset" and "E-DCH MAC-d flow maximum number of retransmissions", and the transmission grant type are configured.

If any of the above conditions is not met and the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> set the variable E_DCH_TRANSMISSION to FALSE;

1> stop any E-AGCH, E-HICH and E-RGCH reception procedures;

1> For FDD:

2> stop any E-RGCH reception procedures.

1> For FDD:

2> stop any E-DPCCH and E-DPDCH transmission procedures.

1> For TDD:

2> stop any E-RUCCH and E-PUCH transmission procedures.

1> clear the variable E_RNTI;

1> release all E-DCH HARQ resources;

1> no longer consider any radio link to be the serving E-DCH radio link.

Whenever the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1>For FDD:

2> perform E_AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI" and the IE "New Secondary E-RNTI".

2> perform E-HICH reception procedures for all radio links in the E-DCH active set;

2> perform E-RGCH reception procedures for all radio links in the active set for which an E-RGCH configuration has been provided;

2> perform E-DPCCH transmission procedures according to the stored E-DPCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-DPCCH Info".

2> perform E-DPDCH transmission procedures according to the stored E-DPDCH configuration as stated in:

3> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

3> subclause 8.6.5.17 for the IE "HARQ info for E-DCH";

3> subclause 8.6.6.37 for the IE "E-DPDCH Info".

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

1>For TDD:

2> if scheduled transmission is configured, perform E-AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI".

2> Perform E-HICH reception;

2> for 3.84/7.68 Mcps TDD, perform E-RUCCH transmission procedures according to the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

2> for 1.28 Mcps TDD, if scheduled transmission is configured, perform E-RUCCH transmission procedure according to the stored PRACH configuration (see [60]) and the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

NOTE 1: The PRACH configuration is signalled directly to the UE in "E-RUCCH Info" IE in case of E-DCH serving cell change.

2> Perform E-PUCH transmission procedures according to the stored E-PUCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-PUCH Info".

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e or MAC-i PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

2> obtain and format the appropriate information on E-UCCH (see [15]). For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, the UE shall use the lowest E-DCH capability category, as specified in [35], to signal the UL control information on E-UCCH.

NOTE 2: For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, UTRAN should use the lowest E-DCH capability category when performing configuration, scheduling and reading the control information on E-UCCH, as it is not possible for Node B to be aware of the UE's E-DCH capability category during this period.

Whenever the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> not perform E-AICH, E-HICH and E-RGCH reception procedures;

1> not perform E-DPCCH and E-DPDCH transmission procedures.

…

If, after completion of the procedure, the UE will be in CELL_DCH state, the UE shall:

1> for FDD, 3.84 Mcps TDD and 7.68 Mcps TDD, if the IE "Frequency info" is included; or

1> for 1.28 Mcps TDD, if the IE "Frequency info" is included and the "Second Frequency info" is not included:

2> if the frequency is different from the currently used frequency:

3> store and use the frequency indicated by the IE "Frequency Info";

3> if the received message is used to perform a Timing-maintained hard handover (see subclause 8.3.5.2),and IE "Timing maintained Synchronization indicator" is included:

4> not perform any physical layer synchronisation procedure (FDD only);

3> else:

4> perform the physical layer synchronisation procedure A as specified in [29] (FDD only).

2> if the frequency is the same as the currently used frequency:

3> continue to use the currently used frequency;

3> perform the physical layer synchronisation procedure A as specified in [29] (FDD only).

1> for 1.28 Mcps TDD, if both the IE "Frequency info" and the IE "Second Frequency info" are included:

2> the frequency in IE "Frequency info" is used as the primary frequency, and the frequency in IE "Second Frequency info" is used as the secondary frequency;

2> store the primary frequency;

2> if the secondary frequency is different with the currently used frequency:

3> store and use the secondary frequency.

2> if the secondary frequency is the same as the currently used frequency:

3> continue to use the currently used frequency.

1> if the IE "Frequency info" is not included and the UE has a currently used frequency:

2> continue to use the currently used frequency;

…

If the IE "Second Frequency info" is included, the UE shall:

1> act as specified in section 8.6.6.1.

If the IE "FPACH Frequency info" is included, the UE shall:

1> store the FPACH frequency indicated in the IE "FPACH Frequency info".

If the IE "UpPCH Position Info" is included:

1> store and use the UpPCH position indicated by the IE "UpPCH Position Info ". The calculation of the uplink access position is described in [33].

If the IE "UpPCH Position Info" is not included:

1> use the UpPTS as the default UpPCH position.

Reference

3GPP TS 25.331 clause 8.5.28, 8.6.6.1,8.6.6.43.

8.2.3.36a.3 Test purpose

To confirm that the UE releases a radio bearer mapped on E-DCH / HS-DSCH and stops E-DCH transmission / HS-DSCH reception according to the received RADIO BEARER RELEASE message with frequency modification in the multi-frequency network environment.

8.2.3.36a.4 Method of test

Initial Condition

System Simulator:

2 cells

- Cell 1 is active, 3 frequency (one is primary frequency, others are secondary frequency)
- Cell 6 is inactive, 1 frequency

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports TDD
- UE supports CS speech
- UE supports HS-PDSCH
- UE supports E-PUCH (1.28Mcps TDD)

Test Procedure

The UE is in CELL_DCH state and only signalling radio bearers have been established at the primary frequency of cell 1. SS initiates P26 to make the UE to move to state 6-18 as specified in TS 34.108 clause 7.4. The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH and E-DCH established at one secondary frequency of cell 1. The SS initiates P24 to set up CS speech RAB.

Then SS transmits a RADIO BEARER RELEASE message to the UE. The UE transmits a RADIO BEARER RELEASE COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P26	See below for the specific message content used in RADIO BEARER SETUP message. (Step 0)
1	←→		P24	SS establishes CS speech RAB.
2	←		RADIO BEARER RELEASE	SS releases PS RAB.
3	→		RADIO BEARER RELEASE COMPLETE	
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 0)

Use the same message as specified for "Packet to CELL_DCH / E-DCH / HS-DSCH using three multiplexing options (3/3) and SRBs mapped on DCH/DCH" in 34.108, except for the following.

Information Element	Value/remark
- RAB information for setup	
- RB mapping info	
- Information for each multiplexing option	3 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- Logical channel identity	Not Present
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	9
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	Not Present
- Logical channel identity	Not Present
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	10
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	0
- Logical channel identity	Not Present
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	10
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	10
Added or Reconfigured UL TrCH information	1 E-DCH added, 1 DCH added, 1 DCH reconfigured
- Uplink transport channel type	E-DCH
- CHOICE UL parameters	E-DCH
- E-DCH Transmission Time Interval	5 ms
- HARQ info for E-DCH	
- HARQ RV Configuration	rvtable
- Added or reconfigured E-DCH MAC-d flow	
- E-DCH MAC-d flow identity	2
- E-DCH MAC-d flow power offset	0
- E-DCH MAC-d flow maximum number of retransmissions	7
- E-DCH MAC-d flow multiplexing list	Not Present
- CHOICE transmission grant type	Scheduled grant info
- Uplink transport channel type	DCH
- UL Transport channel identity	4
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to clause 6.11 Parameter Set

- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.11 Parameter Set
- CHOICE Logical channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.11 Parameter Set
- Type of channel coding	Reference to clause 6.11 Parameter Set
- Coding Rate	Reference to clause 6.11 Parameter Set
- Rate matching attribute	Reference to clause 6.11 Parameter Set
- CRC size	Reference to clause 6.11 Parameter Set
- Uplink transport channel type	DCH
- UL Transport channel identity	5
- TFS	
- CHOICE Transport channel type	
- Dynamic Transport format information	
- RLC Size	Reference to clause 6.11 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.11 Parameter Set
- CHOICE Logical channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.11 Parameter Set
- Type of channel coding	Reference to clause 6.11 Parameter Set
- Coding Rate	Reference to clause 6.11 Parameter Set
- Rate matching attribute	Reference to clause 6.11 Parameter Set
- CRC size	Reference to clause 6.11 Parameter Set
Added or Reconfigured DL TrCH information	3 TrCHs (DCH for DCCH and DCH plus HS-DSCH for DTCH)
- Downlink transport channel type	DCH
- DL Transport channel identity	10
- CHOICE DL parameters	Same as UL
- Uplink transport channel type	DCH
- UL TrCH identity	5
- DCH quality target	
- BLER Quality value	-20 (-2.0)
- Downlink transport channel type	DCH
- DL Transport channel identity	9
- CHOICE DL parameters	Explicit
- TFS	
- CHOICE Transport channel type	Dedicated transport channel
- Dynamic transport format information	
- RLC Size	Reference to clause 6.11 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Dynamic transport format information	
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to clause 6.11 Parameter Set
- CHOICE Logical channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to clause 6.11 Parameter Set
- Type of channel coding	Reference to clause 6.11 Parameter Set
- Coding Rate	Reference to clause 6.11 Parameter Set
- Rate matching attribute	Reference to clause 6.11 Parameter Set
- CRC size	Reference to clause 6.11 Parameter Set
- DCH quality target	
- BLER Quality value	-20 (-2.0)
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	
- Number of Processes	Reference to clause 6.11.2.4.5 Parameter Set
- CHOICE Memory Partitioning	Implicit
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	(one queue)
- MAC-hs queue Id	0
- MAC-d Flow Identity	0
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	

- MAC-d PDU size	336
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not Present
- DCH quality target	Not Present
Frequency info	
- CHOICE mode	TDD
- UARFCN downlink (Nd)	Set to the primary frequency of cell 1
Multi-frequency Info	
- Second Frequency Info	Same as one secondary frequency of cell 1
- FPACH Frequency Info	Not present
- UpPCH Position Info	Not present

RADIO BEARER RELEASE (Step 2)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH / HS-DSCH in PS" in 34.108, except for the following:

Information Element	**Value/remark**
Deleted UL TrCH Information	
- Uplink transport channel type	DCH
- Transport channel identity	4
Added or Reconfigured UL TrCH information	Not Present
Deleted DL TrCH Information	
- Downlink transport channel type	DCH
- Transport channel identity	9
Added or Reconfigured DL TrCH information	Not Present
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Same UARFCN as used for cell 6
Multi-frequency Info	Not Present
Downlink information per radio link list Downlink information for each radio link	1 radio link
- Choice mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Set to the same as cell 6

8.2.3.36a.5 Test requirements

After step 2, the UE shall transmit a RADIO BEARER RELEASE COMPLETE message.

8.2.3.37 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (frequency modification, stop of discontinuous uplink transmission)

8.2.3.37.1 Definition

All UEs, which support FDD, UL DTX.

8.2.3.37.2 Conformance requirement

The variable DTX_DRX_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> both variables HS_DSCH RECEPTION and E_DCH_TRANSMISSION are set to TRUE;

1> no DCH transport channel is configured;

1> the variable DTX_DRX_PARAMS is set;

1> the UE has received the IE "DTX-DRX timing information".

If any of the above conditions is not met and the variable DTX_DRX_STATUS is set to TRUE, the UE shall:

1> set the variable DTX_DRX_STATUS to FALSE;

1> clear the variable DTX_DRX_PARAMS;

1> stop DTX-DRX mode related activities.

If variable DTX_DRX_STATUS is set to true and the serving HS-DSCH cell was changed as a result of the received message the UE shall instruct the physical layer to consider HS-SCCH orders were never received.

Whenever the variable DTX_DRX_STATUS is set to TRUE after receiving this message and the value of IE "DTX-DRX timing information" included in this message is not "Continue", the UE shall:

1> if the variable DTX_DRX_STATUS was set to TRUE before receiving this message:

2> re-configure the physical layer to perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration;

2> let the MAC layer continue with the current restriction on E-DCH transmission and monitoring of absolute and relative grant channels from the frame boundary where the uplink transmission starts with the new configuration and for the duration of the IE "Enabling Delay".

1> else:

2> perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations by configuring the physical layer according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration.

1> configure the MAC layer to start restricting E-DCH transmissions and monitor absolute and relative grant channels at the CFN corresponding to the frame boundary that is offset by the value of IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration taking into account the IEs "UE DTX DRX Offset", "MAC DTX Cycle", "MAC Inactivity Threshold" and "Inactivity Threshold for UE Grant Monitoring".

…

If the IE "DTX-DRX timing information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the CHOICE "timing" is set to "New timing":

2> store the contents of the IE in the variable DTX_DRX_PARAMS.

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

…

If the IE "DTX–DRX information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the contents of the IE in the variable DTX_DRX_PARAMS;

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34;

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple of the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple or a divisor of the value of the IE "CQI Feedback cycle, k"; or

1> if the value of the IE "UE DPCCH burst 1" is greater than the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DPCCH burst 2" is greater than the value of the IE "UE DTX cycle 2"; or

1> if the IE "UE DTX long preamble length" is set to 4 or 15 slots and the value of the IE "Inactivity Threshold for UE DTX cycle 2" is less than 4 TTIs (for 10ms E-DCH TTI) or 8 TTIs (for 2ms E-DCH TTI); or

1> if the IE "UE DRX cycle" is not an integer multiple or a divisor of the value of the IE "UE DTX cycle 1"; or

1> if the IE "DRX Information" is included in this message while the IE "DTX information" is not included in this message; or

1> if the value of the IE "UE DTX cycle 1" is not an integer multiple or a divisor of the value of the IE "MAC DTX cycle":

2> the UE behaviour is unspecified.

Reference

3GPP TS 25.331 clause 8.5.34, 8.6.6.38, 8.6.6.39

8.2.3.37.3 Test purpose

To confirm that the UE releases a radio bearer mapped on E-DCH / HS-DSCH and stops discontinuous uplink transmission according to the received RADIO BEARER RELEASE message with frequency modification.

8.2.3.37.4 Method of test

Initial Condition

System Simulator: 2 cells–Cells 1 and 6 are active.

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports discontinuous uplink transmission.

Test Procedure

The UE is in CELL_DCH state and only signalling radio bearers mapped on E-DCH/HS-DSCH have been established. SS initiates P26 and transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of a radio bearer with RB mapping to HS-DSCH and E-DCH, with UL DTX configured. After the UE receives this message, it establishes a radio bearer and maps it to the HS-DSCH and E-DCH. The UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH and E-DCH with DTX and, if supported, DRX active.

Then SS transmits a RADIO BEARER RELEASE message to the UE. The UE transmits a RADIO BEARER RELEASE COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P26	See below for the specific message content used in RADIO BEARER SETUP message. (Step 0)
0a	SS			The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used (i.e. duration of 10 consecutive DTX cycle 2).
1	←		RADIO BEARER RELEASE	SS releases PS RAB.
2	→		RADIO BEARER RELEASE COMPLETE	
			Void	
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 0)

The contents of RADIO BEARER SETUP message in this test case are identical to the message sub-type indicated by "Packet to CELL_DCH / E-DCH / HS-DSCH with DTX/DRX using one multiplexing option (1/1) and SRBs mapped on E-DCH/HS-DSCH".

RADIO BEARER RELEASE (Step 1)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH / HS-DSCH in PS" in 34.108, except for the following:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New Primary E-RNTI	'1010 1010 1010 1010'
Deleted UL TrCH Information - Uplink transport channel type - E-DCH MAC-d flow identity	 E-DCH 2
Added or Reconfigured UL TrCH information	Not Present
Deleted DL TrCH Information - Downlink transport channel type - DL HS-DSCH MAC-d flow identity	 HS-DSCH 0
Added or Reconfigured DL TrCH information	Not Present
Frequency info - UARFCN uplink (Nu) - UARFCN downlink (Nd)	 Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21] Same downlink UARFCN as used for cell 6
- CHOICE channel requirement - Scrambling code number	Uplink DPCH info Set to the same code number as used for cell 6
E-DCH info	Use the message as specified in A20 condition of RB setup message.
Downlink HS-PDSCH Information	Use the message as specified in A20 condition of RB setup message.
Downlink information common for all radio links	Use the message as specified in A20 condition of RB setup message expect the following
- MAC-hs reset indicator	TRUE
Downlink information for each radio links - Primary CPICH info - Primary Scrambling Code	Use the message as specified in A20 condition of RB setup message expect the following Set to the same code as used for cell 6

8.2.3.37.5 Test requirements

At step 2, the UE shall transmit a RADIO BEARER RELEASE COMPLETE message.

8.2.4 Transport channel reconfiguration

8.2.4.1 Transport channel reconfiguration (Timing re-initialised hard handover with transmission rate modification) from CELL_DCH to CELL_DCH: Success

8.2.4.1.1 Definition

8.2.4.1.2 Conformance requirement

If the UE receives:

- a TRANSPORT CHANNEL RECONFIGURATIONmessage; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214;

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if the IE "Downlink information for each radio link" is absent, not change its current DL Physical channel configuration.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a TRANSPORT CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.4.1.3 Test purpose

To confirm that the UE reconfigures the channel configuration according to a TRANSPORT CHANNEL RECONFIGURATION message, which is used to change the TFCS and the TFS while replacing the RL(s) in the active set with a set of RL(s) disjunct with the previous active set.

8.2.4.1.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and cell 2 are active

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE. Either a streaming CS domain RAB (state 6-9) or an interactive/ background PS domain RAB (state 6-10) has been established. UE connected to cell 1.

Test Procedure

The UE is in CELL_DCH state, connected to cell 1. The SS transmits a TRANSPORT CHANNEL RECONFIGURATION message to the UE, which includes new configuration parameters. The message is used to replace the RL(s) in the active set with a set of RL(s) disjunct with the previous active set In this case, the connection to cell 1 is discontinued while a new connection to cell 2 is established at the same time. The TRANSPORT CHANNEL RECONFIGURATION message is used to also change the TFCS and TFS e.g. because the currently used rate is not available on cell 2. The TFCS and TFS change from a value corresponding with one reference configuration in 34.108 (an interactive PS domain RAB from UL:64 DL:64 or a streaming CS RAB from UL:57.6 DL:57.6) to another reference configuration (interactive PS domain RAB from UL:32 DL:32 or a streaming CS RAB from UL:28.8 DL:28.8). The UE shall apply the new configuration and then transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2			Void	
3	←		TRANSPORT CHANNEL RECONFIGURATION	The TFCS and the TFS are changed while replacing the RL(s) in the active set with a set of RL(s) disjunct with the previous active set
4			Void	
5	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
6	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

TRANSPORT CHANNEL RECONFIGURATION (FDD)

The contents of TRANSPORT CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in Annex A, with the following exceptions.

For non-speech in CS:

Information Element	Value/remark
UL Transport channel information for all transport channels	Set to the same values as for " Non speech to CELL_DCH from CELL_DCH in CS " in radio bearer setup message.
Added or Reconfigured UL TrCH information	Set to the same values as for " Non speech to CELL_DCH from CELL_DCH in CS " in radio bearer setup message.
DL Transport channel information common for all transport channel	Set to the same values as for " Non speech to CELL_DCH from CELL_DCH in CS " in radio bearer setup message.
Added or Reconfigured DL TrCH information	Set to the same values as for " Non speech to CELL_DCH from CELL_DCH in CS " in radio bearer setup message.
Frequency info	Not Present
Maximum allowed UL TX power	Not Present
CHOICE channel requirement	Set to the same values as for " Non speech in CS " unless explicitly indicated otherwise in the following
-Uplink DPCH power control info	Not present
Downlink information common for all radio links	Set to the same values as for "Non speech in CS" unless explicitly indicated otherwise in the following
- Downlink DPCH info common for all RL	
- Timing indicator	Initialise
- Downlink DPCH power control information	Not present
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
Downlink information for each radio link list	Set to the same values as for "Non speech in CS" unless explicitly indicated otherwise in the following
- Downlink information for each radio links	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Ref. to the Default setting in TS34.108 clause 6.1 (FDD) for cell 2: 150
- Downlink DPCH info for each RL	
- DPCH frame offset	Set to value : Default DPCH Offset Value mod 38400
- DL channelisation code	
- Scrambling code change	Not present

For packet in PS:

Information Element	Value/remark
UL Transport channel information for all transport channels	Set to the same values as for "Packet to CELL_DCH from CELL_FACH in PS"
Added or Reconfigured UL TrCH information	Set to the same values as for "Packet to CELL_DCH from CELL_FACH in PS"
DL Transport channel information common for all transport channel	Set to the same values as for "Packet to CELL_DCH from CELL_FACH in PS"
Added or Reconfigured DL TrCH information	Set to the same values as for "Packet to CELL_DCH from CELL_FACH in PS"
Frequency info	Not Present
Maximum allowed UL TX power	Not Present
CHOICE channel requirement	Set to the same values as for "Packet to CELL_DCH from CELL_FACH in PS" unless explicitly indicated otherwise in the following
-Uplink DPCH power control info	Not present
Downlink information common for all radio links	Set to the same values as for "Packet to CELL_DCH from CELL_FACH in PS" unless explicitly indicated otherwise in the following
- Downlink DPCH info common for all RL	
- Timing indicator	Initialise
- Downlink DPCH power control information	Not present
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
Downlink information for each radio link list	Set to the same values as for "Packet to CELL_DCH from CELL_FACH in PS" unless explicitly indicated otherwise in the following
- Downlink information for each radio links	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Ref. to the Default setting in TS34.108 clause 6.1 (FDD) for cell 2: 150
- Downlink DPCH info for each RL	
- DPCH frame offset	Set to value : Default DPCH Offset Value mod 38400
- DL channelisation code	
- Scrambling code change	Not Present

TRANSPORT CHANNEL RECONFIGURATION (TDD)

The contents of TRANSPORT CHANNEL RECONFIGURATION message in this test case is identical to the message in Annex A, with the following exceptions:

Information Element	Value/remark
UL Transport channel information for all transport channels	Set to the same values as for "Packet to CELL_DCH from CELL_FACH in PS"
Added or Reconfigured UL TrCH information	Set to the same values as for "Packet to CELL_DCH from CELL_FACH in PS"
DL Transport channel information common for all transport channel	Set to the same values as for "Packet to CELL_DCH from CELL_FACH in PS"
Added or Reconfigured DL TrCH information	Set to the same values as for "Packet to CELL_DCH from CELL_FACH in PS"
Frequency info	Not Present
Maximum allowed UL TX power	Not Present
CHOICE channel requirement	Set to the same values as for "Packet to CELL_DCH from CELL_FACH in PS" unless explicitly indicated otherwise in the following
-Uplink DPCH power control info	Not present
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing Indicator	Initialise
- Downlink DPCH power control information	Not present
Downlink information for each radio link list	
- Downlink information for each radio links	
- CHOICE mode	TDD
- Primary CCPCH info	Ref. to the Default setting in TS34.108 clause 6.1 (TDD) for cell 2

8.2.4.1.5 Test requirement

After step 3 the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC on a dedicated physical channel using another radio link.

8.2.4.1a Transport channel reconfiguration (Transmission Rate Modification) from CELL_DCH to CELL_DCH of the same cell: Success

8.2.4.1a.1 Definition

8.2.4.1a.2 Conformance requirement

1. If the UE receives:

   - a TRANSPORT CHANNEL RECONFIGURATIONmessage; or

it shall:

   1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

      2> perform the physical layer synchronisation procedure A as specified in TS 25.214;

   1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

   1> enter a state according to TS 25.331 subclause 8.6.3.3.

…

2. If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

   1> if the IE "Uplink DPCH Info" is absent:

      2> not change its current UL Physical channel configuration.

…

3. The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

   1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

   1> clear that entry;

…

4. In case the procedure was triggered by reception of a TRANSPORT CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

5. If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

   1> in addition, if the message was received in CELL_DCH state and the UE remains in CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

      2> for each optional IE part of the IE "Downlink information for each radio link" that is not present:

3> do not change its current downlink physical channel configuration corresponding to the IE, which is absent, if not stated otherwise elsewhere.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4, 8.6.6.4.

8.2.4.1a.3 Test purpose

To confirm that the UE reconfigures the transport channel configuration according to a TRANSPORT CHANNEL RECONFIGURATION message, which specifies a reconfiguration by changing the TFCS.

To confirm that the UE receives the RLC SDU and sends it according to the new UL TFCS.

8.2.4.1a.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_DCH_TEST_LOOP (state 6-10a) as specified in clause 7.4 of TS 34.108. The UL RLC_SDU size for the loopback scheme is set to the size correspondent to the maximum uplink TFS as indicated in RADIO BEARER SETUP message during radio bearer establishment procedure. The Contents of the Radio Bearer Setup message is specified in specific message contents.

NOTE: Transmission rate shall be set to the maximum rate for the UE during the radio bearer establishment procedure.

Test Procedure

The UE is in CELL_DCH state.

The SS transmits a TRANSPORT CHANNEL RECONFIGURATION message to the UE to modify the UL transmission rate which includes information about uplink TFCS to restrict the use of the highest rate TFCIs.

The UE shall reconfigure the new configuration and then transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

UL MAC restriction is imposed on the SS so that SS can restrict the use of highest rate TFCI in the uplink

Then the SS transmits a RLC_SDU whose size is the same as the UL RLC_SDU size for the loopback scheme. The UE receives this RLC_SDU and decode it according to the new TFCS.

The RLC_SDU is then looped backed to the SS. The SS should receive the expected data as a RLC_SDU exactly as the one transmitted to the UE.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		TRANSPORT CHANNEL RECONFIGURATION	
2	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
2a	←		DOWNLINK RLC SDU	
2b	→		UPLINK RLC SDU	RLC SDU sent back shall be the same as the one sent from the SS.
3			Void	
4			Void	
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

TRANSPORT CHANNEL RECONFIGURATION (Step 1)(FDD)

The contents of TRANSPORT CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Packet to CELL_DCH from CELL_DCH in PS" as found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
UL Transport channel information for all transport channels	Not Present
- PRACH TFCS	Not Present
- CHOICE mode	FDD
- TFC subset	
- UL DCH TFCS	
- CHOICE TFCI signalling	Normal
- TFCI Field 1 information	
- CHOICE TFCS representation	Complete reconfiguration
- TFCS complete reconfigure information	
- CHOICE CTFC Size	Number of bits used must be enough to cover all combinations of CTFC from TS34.108 clause 6.10.2.4 Parameter Set.
- CTFC information	This IE is repeated for TFC numbers and reference to TS34.108 clause 6.10.2.4 Parameter Set
- CTFC	Reference to TS34.108 clause 6.10.2.4 Parameter Set as defined in the RADIO BEARER SETUP message with highest rate TF of RAB removed.
- Power offset information	
- CHOICE Gain Factors	Computed Gain Factors(The last TFC is set to Signalled Gain Factors)
- Gain factor βc	11 (below 64 kbps) 9 (higher than 64 kbps) (Not Present if the CHOICE Gain Factors is set to Computed Gain Factors)
- Gain factor βd	15 (Not Present if the CHOICE Gain Factors is set to Computed Gain Factors)
- Reference TFC ID	0
- CHOICE mode	FDD
- Power offset P p-m	Not Present
Added or Reconfigured UL TrCH information	Not Present
DL Transport channel information common for all transport channel	Not Present
Added or Reconfigured DL TrCH information	Not Present

TRANSPORT CHANNEL RECONFIGURATION (Step 1)(TDD)

The contents of TRANSPORT CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Packet to CELL_DCH from CELL_DCH in PS" as found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
UL Transport channel information for all transport channels	Not Present
- PRACH TFCS	Not Present
- CHOICE mode	TDD
- UL TFCS Identity	
- UL TFCS	
- CHOICE TFCI signalling	Normal
- TFCI Field 1 information	
- CHOICE TFCS representation	Complete reconfiguration
- TFCS complete reconfigure information	
- CHOICE CTFC Size	Number of bits used must be enough to cover all combinations of CTFC from TS34.108 clause 6.10.2.4 Parameter Set.
- CTFC information	This IE is repeated for TFC numbers and reference to TS34.108 clause 6.10.2.4 Parameter Set
- CTFC	Reference to TS34.108 clause 6.10.2.4 Parameter Set as defined in the RADIO BEARER SETUP message with highest rate TF of RAB removed.
- Power offset information	
- CHOICE Gain Factors	Computed Gain Factors(The last TFC is set to Signalled Gain Factors)
- Gain factor βd	15 (Not Present if the CHOICE Gain Factors is set to Computed Gain Factors)
- Reference TFC ID	0
- CHOICE mode	TDD
- TFC subset	
Added or Reconfigured UL TrCH information	Not Present
DL Transport channel information common for all transport channel	Not Present
Added or Reconfigured DL TrCH information	Not Present

RADIO BEARER SETUP

The contents of RADIO BEARER SETUP message in this test case is identical to the message sub-type titled as "Packet to CELL_DCH from CELL_DCH in PS" as found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
RAB information for setup	
- RB information to setup	
- PDCP info	OMIT

8.2.4.1a.5 Test requirement

After step 1 the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

After step 2a the UE shall transmit a RLC_SDU that is same as the transmitted data from SS in step 2a on the radio access bearer.

8.2.4.2 Void

8.2.4.3 Transport channel reconfiguration from CELL_DCH to CELL_DCH: Failure (Physical channel failure and reversion to old configuration)

8.2.4.3.1 Definition

8.2.4.3.2 Conformance requirement

When a physical dedicated channel establishment is initiated by the UE, the UE shall start a timer T312 and wait for layer 1 to indicate N312 "in sync" indications. On receiving N312 "in sync" indications, the physical channel is considered established and the timer T312 is stopped and reset.

If the timer T312 expires before the physical channel is established, the UE shall consider this as a "physical channel establishment failure".

If the received message caused the UE to be in CELL_DCH state and the UE failed to establish the dedicated physical channel(s) indicated in the received message the UE shall:

1> revert to the configuration prior to the reception of the message (old configuration);

…

1> transmit a failure response message as specified in TS 25.331 subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "physical channel failure".

1> set the variable ORDERED_RECONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

The UE shall:

1> in case of reception of a TRANSPORT CHANNEL RECONFIGURATION message:

…

2> transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE as response message on the DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.7, 8.2.2.9, 8.5.4.

8.2.4.3.3 Test purpose

To confirm that the UE reverts to the old configuration and transmits a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC, if the UE fails to reconfigure the new configuration according to a TRANSPORT CHANNEL RECONFIGURATION message.

8.2.4.3.4 Method of test

Initial Condition

System Simulator: 2 cells. – Cell 1 is active and cell 2 is inactive.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

Table 8.2.4.3

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-60	OFF	-75
P-CCPCH RSCP (TDD)	dBm	-60	-60	OFF	-75

Table 8.2.4.3 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 2.

The UE is in CELL_DCH state in cell 1. SS then send a MEASUREMENT CONTROL message to UE. The UE shall perform periodical traffic volume measurement according to this message and then transmit MEASUREMENT REPORT message back to SS. Then the SS configures its downlink transmission power settings according to column "T1" in table 8.2.4.3. The SS transmits a TRANSPORT CHANNEL RECONFIGURATION message to the UE to restrict transmission on the uplink DCH used by the signalling radio bearer RB2. The message specifies a new configuration in cell 2 but the SS does not configure the new physical channel in cell 2 specified in this message and keep its old configuration in cell 1. Therefore, the UE cannot synchronise with the SS on the new physical channel in cell 2 and shall revert to the old configuration in cell 1 after T312 expires. Then the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC, setting "physical channel failure" in IE "failure cause". UE shall continue its traffic volume measurement and send MEASUREMENT REPORT messages back to SS periodically.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0a	←		MEASUREMENT CONTROL	SS requests UE to perform periodical traffic volume measurement.
0b	→		MEASUREMENT REPORT	
1	←		TRANSPORT CHANNEL RECONFIGURATION	
2				The SS does not reconfigure the new configuration in cell 2.
3	→		TRANSPORT CHANNEL RECONFIGURATION FAILURE	The UE reverts to the old configuration and transmits this message.
4	→		MEASUREMENT REPORT	
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

MEASUREMENT CONTROL (Step 0a)

Use the MEASUREMENT CONTROL message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/Remark
Measurement Identity	1
Measurement Command	Setup
Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurement list	Not Present
CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	
- Uplink transport channel type	DCH
- UL Target Transport Channel ID	5
- Traffic volume measurement quantity	
- Measurement quantity	RLC Buffer Payload
- Time Interval to take an average or a variance	Not Present
- Traffic volume reporting quantity	
- RLC Buffer Payload for each RB	True
- Average of RLC Buffer Payload for each RB	False
- Variance of RLC Buffer Payload for each RB	False
- Measurement validity	
- UE state	All states
- CHOICE Reporting criteria	Periodical Reporting Criteria
- Amount of reporting	Infinity
- Reporting interval	8000
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 0b and 4)

Check to see if the same message type found in [9] TS 34.108 Clause 9 is received, with the following exceptions and the order in which the RBs are reported is not checked:

Information Element	Value/Remarks
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

TRANSPORT CHANNEL RECONFIGURATION (Step 1) (FDD)

The contents of TRANSPORT CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Non speech in CS", "Speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
UL Transport channel information for all transport channels - TFC subset - Restricted TrCH information - Uplink transport channel type - Restricted UL TrCh identity - Allowed TFIs - Allowed TFI	 DCH 5 <UL DCH for SRB 2> 0
Downlink information common for all radio links	Set to the same values as for "Packet to CELL_DCH from CELL_DCH in PS"
Downlink information for each radio link list	Set to the same values as for "Packet to CELL_DCH from CELL_DCH in PS" unless explicitly indicated otherwise in the following
- Downlink information for each radio links - CHOICE mode - Primary CPICH info - Primary CPICH scrambling code	 FDD Ref. to the Default setting for cell 2 in TS34.108 clause 6.1 (FDD)

TRANSPORT CHANNEL RECONFIGURATION (Step 1) (TDD)

The contents of TRANSPORT CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Non speech in CS", "Speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
UL Transport channel information for all transport channels - TFC subset - Restricted TrCH information - Uplink transport channel type - Restricted UL TrCh identity - Allowed TFIs - Allowed TFI	 DCH 5 <UL DCH for SRB 2> 0
Downlink information common for all radio links	Set to the same values as for "Packet to CELL_DCH from CELL_DCH in PS"
Downlink information for each radio link list	Set to the same values as for "Packet to CELL_DCH from CELL_DCH in PS" unless explicitly indicated otherwise in the following
- Downlink information for each radio links - CHOICE mode - Primary CCPCH info	 TDD Ref. to the Default setting in TS34.108 clause 6.1 (TDD) for cell 2

TRANSPORT CHANNEL RECONFIGURATION FAILURE (Step 2)

The contents of TRANSPORT CHANNEL RECONFIGURATION FAILURE message in this test case is the same as the TRANSPORT CHANNEL RECONFIGURATION FAILURE message as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Failure cause	Physical channel failure

8.2.4.3.5 Test requirement

After step 0a, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

After step 2 the UE shall revert to the old configuration in cell 1 and transmit a TRANPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC, and it shall set the value "physical channel failure" in IE "failure cause".

After step 3, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

8.2.4.4 Transport channel reconfiguration from CELL_DCH to CELL_DCH: Failure (Physical channel failure and cell reselection)

8.2.4.4.1 Definition

8.2.4.4.2 Conformance requirement

If the received message caused the UE to be in CELL_DCH state and the UE failed to establish the dedicated physical channel(s) indicated in the received message the UE shall:

1> revert to the configuration prior to the reception of the message (old configuration);

1> if the old configuration includes dedicated physical channels (CELL_DCH state) and the UE is unable to revert to the old configuration:

2> initiate a cell update procedure according to TS 25.331 subclause 8.3.1, using the cause "radio link failure";

2> after the cell update procedure has completed successfully:

3> proceed as below.

…

1> transmit a failure response message as specified in TS 25.331 subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "physical channel failure".

1> set the variable ORDERED_RECONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- includes "Physical channel information elements":

the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message using AM RLC.

The UE shall:

1> in case of reception of a TRANSPORT CHANNEL RECONFIGURATION message:

…

2> transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE as response message on the DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.7, 8.2.2.9, 8.3.1.7.

8.2.4.4.3 Test purpose

To confirm that the UE transmits a TRANSPORT CHANNEL RECONFIGURATION FAILURE message after it completes a cell update procedure when the UE cannot synchronise with the SS on the new channel before T312 expires and fails to revert to the old configuration.

8.2.4.4.4 Method of test

Initial Condition

System Simulator: 2 cells. – Cell 1 is active and cell 2 is inactive.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

Table 8.2.4.4

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-60	OFF	-75
P-CCPCH RSCP (TDD)	dBm	-60	-60	OFF	-75

Table 8.2.4.4 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 2.

The UE is in CELL_DCH state in cell 1. Then the SS configures its downlink transmission power settings according to columns "T1" in table 8.2.4.4. The SS transmits a TRANSPORT CHANNEL RECONFIGURATION message to the UE. The message specifies a new configuration in cell 2 but the SS does not reconfigure the new channel in cell 2 specified in this message and release the old configuration in cell 1. The UE cannot synchronise with SS before T312 expires and shall attempt to revert to the old configuration in cell 1. The UE cannot revert to the old configuration and then transmit a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "radio link failure" in cell 1. The SS shall transmit a CELL UPDATE CONFIRM message on downlink DCCH after receiving CELL UPDATE message. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC and subsequently transmits a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC, setting IE "failure cause" to "physical channel failure".

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		TRANSPORT CHANNEL RECONFIGURATION	
2				The SS does not reconfigure L1 in accordance with TRANSPORT CHANNEL RECONFIGURTION message and release the old configuration.
3	→		CELL UPDATE	This message includes the value "radio link failure" set in IE "Cell update cause".
4	←		CELL UPDATE CONFIRM	This message includes IE "Physical channel information elements".
5				The SS changes physical channel configuration according to the IE "Physical channel information elements" included in the CELL UPDATE CONFIRM message.
6	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
7	→		TRANSPORT CHANNEL RECONFIGURATION FAILURE	The IE "failure cause" shall be set to "physical channel failure"
8	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

TRANSPORT CHANNEL RECONFIGURATION (Step 1) (FDD)

Use the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
Downlink information common for all radio links	Set to the same values as for "Packet to CELL_DCH from CELL_DCH in PS"
Downlink information for each radio link list	Set to the same values as for "Packet to CELL_DCH from CELL_DCH in PS" unless explicitly indicated otherwise in the following
- Downlink information for each radio links	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary CPICH scrambling code	Ref. to the Default setting for cell 2 in TS34.108 clause 6.1 (FDD)

TRANSPORT CHANNEL RECONFIGURATION (Step 1) (TDD)

Use the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
Downlink information common for all radio links	Set to the same values as for "Packet to CELL_DCH from CELL_DCH in PS"
Downlink information for each radio link list	Set to the same values as for "Packet to CELL_DCH from CELL_DCH in PS" unless explicitly indicated otherwise in the following
- Downlink information for each radio links	
- CHOICE mode	TDD
- Primary CCPCH info	Ref. to the Default setting in TS34.108 clause 6.1 (TDD) for cell 2

CELL UPDATE (Step 3)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0000 0001'
Cell Update Cause	"radio link failure"

CELL UPDATE CONFIRM (Step 4) (FDD)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC State indicator	CELL_DCH
UplinkDPCH Info	Set to the same values as RADIO BEARER SETUP message for "Packet to CELL_DCH from CELL_FACH in PS" or "Non speech to CELL_DCH from CELL_FACH in CS" or "Speech to CELL_DCH from CELL_FACH in CS"
Downlink information common for all radio links	Set to the same values as RADIO BEARER SETUP message for "Packet to CELL_DCH from CELL_FACH in PS" or "Non speech to CELL_DCH from CELL_FACH in CS" or "Speech to CELL_DCH from CELL_FACH in CS"
Downlink information for each radio link list	Set to the same values as RADIO BEARER SETUP message for "Packet to CELL_DCH from CELL_FACH in PS" or "Non speech to CELL_DCH from CELL_FACH in CS" or "Speech to CELL_DCH from CELL_FACH in CS"

CELL UPDATE CONFIRM (Step 4) (TDD)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_DCH
Uplink DPCH timeslots and codes	Same as RADIO BEARER SETUP message used to move to initial condition
Downlink information common for all radio links	Same as RADIO BEARER SETUP message used to move to intial condition
Downlink information for each radio link list	Same as RADIO BEARER SETUP message used to move to initial condition

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Step 6)

Use the same message found in TS 34.108 clause 9, with the exceptions of the following IEs:

Information Element	Value/remark
Uplink counter synchronisation info	This IE is not checked.

TRANSPORT CHANNEL RECONGURATION FAILURE (Step 7)

The contents of TRANSPORT CHANNEL RECONFIGURATION FAILURE message in this test case is the same as the TRANSPORT CHANNEL RECONFIGURATION FAILURE message as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Failure cause	"physical channel failure"

8.2.4.4.5 Test requirement

After step 2 the UE shall transmit a CELL UPDATE message on the uplink CCCH with IE "Cell update cause" set to "radio link failure" in cell 1.

After step 5 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 6 the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC, setting the IE "failure cause" to "physical channel failure".

8.2.4.4a Transport channel reconfiguration from CELL_DCH to CELL_DCH: Failure (Physical channel failure and cell reselection) (1.28 Mcps TDD Only)

8.2.4.4a.1 Definition

8.2.4.4a.2 Conformance requirement

If the received message caused the UE to be in CELL_DCH state and the UE failed to establish the dedicated physical channel(s) indicated in the received message the UE shall:

1> revert to the configuration prior to the reception of the message (old configuration);

1> if the old configuration includes dedicated physical channels (CELL_DCH state) and the UE is unable to revert to the old configuration:

2> initiate a cell update procedure according to TS 25.331 subclause 8.3.1, using the cause "radio link failure";

2> after the cell update procedure has completed successfully:

3> proceed as below.

…

1> transmit a failure response message as specified in TS 25.331 subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "physical channel failure".

1> set the variable ORDERED_RECONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- includes "Physical channel information elements":

the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message using AM RLC.

The UE shall:

1> in case of reception of a TRANSPORT CHANNEL RECONFIGURATION message:

…

2> transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE as response message on the DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.7, 8.2.2.9, 8.3.1.7.

8.2.4.4a.3 Test purpose

1. To confirm that the UE transmits a TRANSPORT CHANNEL RECONFIGURATION FAILURE message after it completes a cell update procedure when the UE cannot synchronise with the SS on the new channel before T312 expires and fails to revert to the old configuration.

2. To confirm that the UE reconfigures the transport channel in secondary carrier.

8.2.4.4a.4 Method of test

Initial Condition

System Simulator: 2 cells. – Cell 1 is active and cell 2 is inactive. In each cell configure 3 carriers, one is the primary carrier, the other two aresecondary carriers.

Detail in the table as follows:

Parameter	Cell 1	Cell 2
UTRA RF Channel Number1	Ch.1	Ch. 1
UTRA RF Channel Number1	Ch. 2	Ch. 2
UTRA RF Channel Number1	Ch. 3	Ch. 3

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

Table 8.2.4.4a

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
P-CCPCH RSCP (TDD)	dBm	-60	-60	OFF	-75

Table 8.2.4.4a illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 2.

The UE is in CELL_DCH state in cell 1. Then the SS configures its downlink transmission power settings according to columns "T1" in table 8.2.4.4a. The SS transmits a TRANSPORT CHANNEL RECONFIGURATION message to the UE. The message specifies a new configuration in cell 2 but the SS does not reconfigure the new channel in cell 2 specified in this message and release the old configuration in cell 1. The UE cannot synchronise with SS before T312 expires and shall attempt to revert to the old configuration in cell 1. The UE cannot revert to the old configuration and then transmit a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "radio link failure" in cell 1. The SS shall transmit a CELL UPDATE CONFIRM message on downlink DCCH after receiving CELL UPDATE message. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC and subsequently transmits a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC, setting IE "failure cause" to "physical channel failure".

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence:

Step	Direction		Message	Comments
	UE	SS		
1	←		TRANSPORT CHANNEL RECONFIGURATION	
2				The SS does not reconfigure L1 in accordance with TRANSPORT CHANNEL RECONFIGURTION message and release the old configuration.
3	→		CELL UPDATE	This message includes the value "radio link failure" set in IE "Cell update cause".
4	←		CELL UPDATE CONFIRM	This message includes IE "Physical channel information elements".
5				The SS changes physical channel configuration according to the IE "Physical channel information elements" included in the CELL UPDATE CONFIRM message.
6	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
7	→		TRANSPORT CHANNEL RECONFIGURATION FAILURE	The IE "failure cause" shall be set to "physical channel failure"
8	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.
8	←		TRANSPORT CHANNEL RECONFIGURATION	Info UE go into CELL_DCH state of secondary carrier1
9	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	UE response the message on DCH ofsecondary carrier1
10	←		TRANSPORT CHANNEL RECONFIGURATION	Info UE go into CELL_DCH state of secondary carrier2
11	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	UE response the message on DCH of secondary carrier.2
12	←		TRANSPORT CHANNEL RECONFIGURATION	Info UE go into CELL_DCH state of primary carrier
13	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	UE response the message on DCH of primary carrier.
14	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state of primary carrier, the test passes, otherwise it fails.

Specific Message Contents

TRANSPORT CHANNEL RECONFIGURATION (Step 1) (TDD)

Use the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
Downlink information common for all radio links	Set to the same values as for "Packet to CELL_DCH from CELL_DCH in PS" unless explicitly indicated otherwise in the following
Downlink information for each radio link list	Set to the same values as for "Packet to CELL_DCH from CELL_DCH in PS" unless explicitly indicated otherwise in the following
- Downlink information for each radio links	
- CHOICE mode	TDD
- Primary CCPCH info	Ref. to the Default setting in TS34.108 clause 6.1 (TDD) for cell 2
Uplink DPCH info	
-Uplink Timing Advance Control	
- Frequency info	
-UpPCH position info	0

CELL UPDATE (Step 3)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0000 0001'
Cell Update Cause	"radio link failure"

CELL UPDATE CONFIRM (Step 4) (TDD)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_DCH
Uplink DPCH timeslots and codes	Same as RADIO BEARER SETUP message used to move to initial condition
Downlink information common for all radio links	Same as RADIO BEARER SETUP message used to move to intial condition
Downlink information for each radio link list	Same as RADIO BEARER SETUP message used to move to initial condition
Uplink DPCH info	
-Uplink Timing Advance Control	
- Frequency info	
-UpPCH position info	0

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Step 6)

Use the same message found in TS 34.108 clause 9, with the exceptions of the following IEs:

Information Element	Value/remark
Uplink counter synchronisation info	This IE is not checked.

TRANSPORT CHANNEL RECONGURATION FAILURE (Step 7)

The contents of TRANSPORT CHANNEL RECONFIGURATION FAILURE message in this test case is the same as the TRANSPORT CHANNEL RECONFIGURATION FAILURE message as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Failure cause	"physical channel failure"

TRANSPORT CHANNEL RECONFIGURATION (Step 8 - 10) (TDD)

Use the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
TransportChannelReconfiguration-r4-TDD128-add-ext-IEs	
frequencyInfo	secondary carrier 2 frequency (step 8) secondary carrier1frequency (step 10)
Uplink DPCH info	
-Uplink Timing Advance Control	
-UpPCH position info	0

TRANSPORT CHANNEL RECONFIGURATION (Step 12) (TDD)

Use the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
Frequency info - CHOICE mode - UARFCN (Nt) Uplink DPCH info -Uplink Timing Advance Control -UpPCH position info	 TDD primary carrier frequency 0

Contents of System Information Block type 3

Use the same message found in TS 34.108 , with the exceptions of the following IEs:

Information Element	Value/remark
Qrxlevmin	−81dBm
Sintrasearch	21db
Sintersearch	21db
-v4b0NonCriticalExtensions	
-sysInfoType3-v4b0ext	
- mapping-LCR	0

8.2.4.4a.5 Test requirement

After step 2 the UE shall transmit a CELL UPDATE message on the uplink CCCH with IE "Cell update cause" set to "radio link failure" in cell 1.

After step 5 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 6 the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC, setting the IE "failure cause" to "physical channel failure".

After step 8 , the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 10 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH of another secondary carrier using AM RLC.

8.2.4.5 Void

8.2.4.6 Void

8.2.4.7 Void

8.2.4.8 Void

8.2.4.9 Void

8.2.4.10 Transport channel reconfiguration from CELL_FACH to CELL_DCH: Success

8.2.4.10.1 Definition

8.2.4.10.2 Conformance requirement

If the UE receives:

- a TRANSPORT CHANNEL RECONFIGURATION message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214;

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a TRANSPORT CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.4.10.3 Test purpose

To confirm that the UE reconfigures a new channel using dedicated physical channel according to a TRANSPORT CHANNEL RECONFIGURATION message.

8.2.4.10.4 Method of test

Initial Condition

System Simulator: 1 cell.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. The UE has previously stored radio bearer and transport channel parameters for use in CELL_DCH. The SS transmits a TRANSPORT CHANNEL RECONFIGURATION message, which modifies the rate as compared to the stored configuration to the UE. The message also includes the physical layer parameters e.g. IE "Uplink DPCH info" and IE "Downlink DPCH info" leading to a state transition from CELL_FACH to CELL_DCH in the same cell, to the UE. The UE shall reconfigure the new channel according to this message. Finally, the UE transmits a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		TRANSPORT CHANNEL RECONFIGURATION	Includes both IE "Uplink DPCH Info" and IE "Downlink DPCH Info" in the message.
2				Reconfiguration of transport channel
3	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

TRANSPORT CHANNEL RECONFIGURATION (FDD)

Use the message sub-type titled "Packet to CELL_DCH from CELL_FACH in PS" in Annex A with the following exceptions:

Information Element	Value/remark
Added or Reconfigured UL TrCH information	Set to the same values as for "Packet to CELL_DCH from CELL_FACH in PS". Only the DCH for DTCH is included and the rate for this DCH should be different compared to the stored CELL_DCH configuration.
Added or Reconfigured DL TrCH information	Set to the same values as for "Packet to CELL_DCH from CELL_FACH in PS". Only the DCH for DTCH is included and the rate for this DCH should be different compared to the stored CELL_DCH configuration.
Frequency info	Not Present
Maximum allowed UL TX power	Not Present
Downlink information for each radio link list	
- Downlink information for each radio links	
- CHOICE mode	FDD
- Downlink DPCH info for each RL	
- DL channelisation code	
- Scrambling code change	Not Present

TRANSPORT CHANNEL RECONFIGURATION (TDD)

Use the message sub-type titled "Packet to CELL_DCH from CELL_FACH in PS" in Annex A with the following exceptions:

Information Element	Value/remark
Added or Reconfigured UL TrCH information	Set to the same values as for "Packet to CELL_DCH from CELL_FACH in PS". Only the DCH for DTCH is included and the rate for this DCH should be different compared to the stored CELL_DCH configuration.
Added or Reconfigured DL TrCH information	Set to the same values as for "Packet to CELL_DCH from CELL_FACH in PS". Only the DCH for DTCH is included and the rate for this DCH should be different compared to the stored CELL_DCH configuration.
Frequency info	Not Present
Maximum allowed UL TX power	Not Present

TRANSPORT CHANNEL RECONFIGURATION COMPLETE

Use the message with the same message type specified in Annex A.

8.2.4.10.5 Test requirement

After step 2 the UE shall transmit a TRANSPORT RECONFIGURATION COMPLETE message on the newly configured DPCH.

8.2.4.10a Transport channel reconfiguration from CELL_FACH to CELL_DCH: Success(1.28 Mcps TDD Only)

8.2.4.10a.1 Definition

8.2.4.10a.2 Conformance requirement

If the UE receives:

- a TRANSPORT CHANNEL RECONFIGURATION message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214;

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a TRANSPORT CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.4.10a.3 Test purpose

1.To confirm that the UE reconfigures a new channel using dedicated physical channel according to a TRANSPORT CHANNEL RECONFIGURATION message.

2. To confirm that the UE reconfigures the transport channel in secondary carrier.

3. To confirm that the UE can indicate the UpPCH shifting position according to a TRANSPORT CHANNEL RECONFIGURATION message received from the SS and complete the process.

8.2.4.10a.4 Method of test

Initial Condition

System Simulator: 1 cell. Congfigure 3 carriers,one is primary carrier, the others are secondary carriers. SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. The UE has previously stored radio bearer and transport channel parameters for use in CELL_DCH. The SS transmits a TRANSPORT CHANNEL RECONFIGURATION message, which modifies the rate as compared to the stored configuration to the UE. The message also includes the physical layer parameters e.g. IE "Uplink DPCH info" and IE "Downlink DPCH info" leading to a state transition from CELL_FACH to CELL_DCH in the same cell but in the secondary carrier, to the UE. The UE shall reconfigure the new channel according to this message. Finally, the UE transmits a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		TRANSPORT CHANNEL RECONFIGURATION	Includes both IE "Uplink DPCH Info" and IE "Downlink DPCH Info" in the message in secondary carrier,.
2				Reconfiguration of transport channel in secondary carrier,
3	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state in secondary carrier,, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 3 (TDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
-v4b0NonCriticalExtensions	
-sysInfoType3-v4b0ext	
- mapping-LCR	22

TRANSPORT CHANNEL RECONFIGURATION (TDD)

Use the message sub-type titled "Packet to CELL_DCH from CELL_FACH in PS" in Annex A with the following exceptions:

Information Element	Value/remark
Added or Reconfigured UL TrCH information	Set to the same values as for "Packet to CELL_DCH from CELL_FACH in PS". Only the DCH for DTCH is included and the rate for this DCH should be different compared to the stored CELL_DCH configuration.
Added or Reconfigured DL TrCH information	Set to the same values as for "Packet to CELL_DCH from CELL_FACH in PS". Only the DCH for DTCH is included and the rate for this DCH should be different compared to the stored CELL_DCH configuration.
Maximum allowed UL TX power	Not Present
TransportChannelReconfiguration-r4-TDD128-add-ext-IEs	
frequencyInfo	secondary carrier
TransportChannelReconfiguration-r4-TDD128-add-ext-IEs	
UpPCHpositionInfo	22

TRANSPORT CHANNEL RECONFIGURATION COMPLETE

Use the message with the same message type specified in Annex A.

8.2.4.10a.5 Test requirement

After step 2 the UE shall transmit a TRANSPORT RECONFIGURATION COMPLETE message on the newly configured DPCH in secondary carrier.

8.2.4.11 Void

8.2.4.12 Void

8.2.4.13 Void

8.2.4.14 Void

8.2.4.15 Void

8.2.4.16 Void

8.2.4.17 Void

8.2.4.18 Transport Channel Reconfiguration from CELL_DCH to CELL_DCH: Success (Subsequently received)

8.2.4.18.1 Definition

8.2.4.18.2 Conformance requirement

If the IE "RRC transaction identifier" is included in a received message, the UE shall perform the actions below. The UE shall:

If the received message is any of the messages:

- TRANSPORT CHANNEL RECONFIGURATION; or

  …

the UE shall:

2> if the variable ORDERED_RECONFIGURATION is set to TRUE; or

2> if the variable CELL_UPDATE_STARTED is set to TRUE; or

2> if the table "Accepted transactions" in the variable TRANSACTIONS contains an entry with an IE "Message Type" set to ACTIVE SET UPDATE; or

2> if the received message contains a protocol error according to TS 25.331 clause 9 causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE:

3> if the IE "RRC transaction identifier" of the received message is identical to the "RRC transaction identifier" stored for the same "Message Type" as the received message in the table "Accepted transactions" in the variable TRANSACTIONS:

4> ignore the transaction; and

4> continue with any ongoing processes and procedures as the message was not received;

4> and end the procedure.

3> else:

…

Reference

3GPP TS 25.331 clause 8.6.3.11.

8.2.4.18.3 Test purpose

To confirm that if the UE receives a TRANSPORT CHANNEL RECONFIGURATION message before the UE configures the radio bearer according to the previous TRANSPORT CHANNEL RECONFIGURATION message it ignores the second TRANSPORT CHANNEL RECONFIGURATION message and configures according to the previous TRANSPORT CHANNEL RECONFIGURATION message.

8.2.4.18.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH state. When the SS transmits a TRANSPORT CHANNEL RECONFIGURATION message to the UE before the activation time specified in the previous TRANSPORT CHANNEL RECONFIGURATION message elapses, the UE ignores the new TRANSPORT CHANNEL RECONFIGURATION message and configures according to the previous TRANSPORT CHANNEL RECONFIGURATION message. Finally, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		TRANSPORT CHANNEL RECONFIGURATION	For FDD, Scrambling code number is set to "1" and for TDD , the code combination is assigned by SS.
2	←		TRANSPORT CHANNEL RECONFIGURATION	SS send this message before the expiry of "activation time" specified in TRANSPORT CHANNEL SETUP message of step 1. For FDD the IE "Scrambling code number" is set to "2". For TDD the code combination assigned is different from that assigned in stage 1.
3	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	The UE ignores the TRANSPORT CHANNEL RECONFIGURATION message in step 2 and configures according to the TRANSPORT CHANNEL RECONFIGURATION message in step 1.
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

TRANSPORT CHANNEL RECONFIGURATION (Step 1) (FDD)

The contents of TRANSPORT CHANNEL RECONFIGURATION messages in this test case is identical to the message sub-type title as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time - Uplink DPCH Info - Scrambling code number	[256+Current CFN-[current CFN mod 8 + 8]]MOD 256 1

TRANSPORT CHANNEL RECONFIGURATION (Step 1) (TDD)

The contents of TRANSPORT CHANNEL RECONFIGURATION messages in this test case is identical to the message sub-type title as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time - Uplink DPCH timeslots and codes - First timeslot code list	[256+Current CFN-[current CFN mod 8 + 8]]MOD 256 Assigned in step 1

TRANSPORT CHANNEL RECONFIGURATION (Step 2)

The contents of TRANSPORT CHANNEL RECONFIGURATION messages in this test case is identical to the message sub-type title as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time - Uplink DPCH Info - Scrambling code number	Not Present 2

TRANSPORT CHANNEL RECONFIGURATION (Step 2) (TDD)

The contents of TRANSPORT CHANNEL RECONFIGURATION messages in this test case is identical to the message sub-type title as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time - Uplink DPCH timeslots and codes - First timeslot code list	Not Present A different code combination to that used in step 1.

8.2.4.18.5 Test requirement

After step 2 the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

8.2.4.19 Transport Channel Reconfiguration from CELL_FACH to CELL_DCH: Success (Subsequently received)

8.2.4.19.1 Definition

8.2.4.19.2 Conformance requirement

If the IE "RRC transaction identifier" is included in a received message, the UE shall perform the actions below. The UE shall:

If the received message is any of the messages:

- TRANSPORT CHANNEL RECONFIGURATION; or

  …

the UE shall:

2> if the variable ORDERED_RECONFIGURATION is set to TRUE; or

2> if the variable CELL_UPDATE_STARTED is set to TRUE; or

2> if the table "Accepted transactions" in the variable TRANSACTIONS contains an entry with an IE "Message Type" set to ACTIVE SET UPDATE; or

2> if the received message contains a protocol error according to TS 25.331 clause 9 causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE:

3> if the IE "RRC transaction identifier" of the received message is identical to the "RRC transaction identifier" stored for the same "Message Type" as the received message in the table "Accepted transactions" in the variable TRANSACTIONS:

4> ignore the transaction; and

4> continue with any ongoing processes and procedures as the message was not received;

4> and end the procedure.

3> else:

Reference

3GPP TS 25.331 clause 8.6.3.11.

8.2.4.19.3 Test purpose

To confirm that if the UE receives a TRANSPORT CHANNEL RECONFIGURATION message before the UE configures the radio bearer according to the previous TRANSPORT CHANNEL RECONFIGURATION message it ignores the second TRANSPORT CHANNEL RECONFIGURATION message and configures according to the previous TRANSPORT CHANNEL RECONFIGURATION message.

8.2.4.19.4 Method of test

Initial Condition

System Simulator: 1 cell.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. When the SS transmits a TRANSPORT CHANNEL RECONFIGURATION message to the UE before the activation time specified in the previous TRANSPORT CHANNEL RECONFIGURATION message elapses, the UE ignores the new TRANSPORT CHANNEL RECONFIGURATION message and configures according to the previous TRANSPORT CHANNEL RECONFIGURATION message. Finally, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		TRANSPORT CHANNEL RECONFIGURATION	For FDD, Scrambling code number is set to "1" and for TDD, the code combination is assigned by SS.
2	←		TRANSPORT CHANNEL RECONFIGURATION	For FDD the IE "Scrambling code number" is set to "2". For TDD the code combination assigned is different that assigned in stage 1.
3	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	The UE ignores the TRANSPORT CHANNEL RECONFIGURATION message in step 2 and configures according to the TRANSPORT CHANNEL RECONFIGURATION message in step 1.
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

TRANSPORT CHANNEL RECONFIGURATION (Step 1) (FDD)

The contents of TRANSPORT CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type title "Packet to CELL_DCH from CELL_FACH in PS" found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time Info - Uplink DPCH Info - Scrambling code number	Not present 1

TRANSPORT CHANNEL RECONFIGURATION (Step 1) (TDD)

The contents of TRANSPORT CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type title "Packet to CELL_DCH from CELL_FACH in PS" found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time - Uplink DPCH timeslots and codes - First timeslot code list	[256+Current CFN-[current CFN mod 8 + 8]]MOD 256 Assigned in step 1

TRANSPORT CHANNEL RECONFIGURATION (Step 2) (FDD)

The contents of TRANSPORT CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type title "Packet to CELL_DCH from CELL_FACH in PS" found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time - Uplink DPCH Info - Scrambling code number	Not Present 2

TRANSPORT CHANNEL RECONFIGURATION (Step 2) (TDD)

The contents of TRANSPORT CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type title "Packet to CELL_DCH from CELL_FACH in PS" found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time - Uplink DPCH timeslots and codes - First timeslot code list	Not Present A different code combination to that used in step 1.

8.2.4.19.5 Test requirement

After step 2 the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

8.2.4.20 Void

8.2.4.21 Void

8.2.4.22 Void

8.2.4.23 Void

8.2.4.24 Transport channel reconfiguration from CELL_DCH to CELL_DCH: Success with uplink transmission rate modification

8.2.4.24.1 Definition

8.2.4.24.2 Conformance requirement

If the UE receives:

- a TRANSPORT CHANNEL RECONFIGURATION message:

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS25.214;

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS25.331 subclause 8.6.3.3.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if the IE "Downlink information for each radio link" is absent, not change its current DL Physical channel configuration.

In case the procedure was triggered by reception of a TRANSPORT CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.4.24.3 Test purpose

To confirm that the UE transmits TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC after reconfigure its available uplink TFC according to a TRANSPORT CHANNEL RECONFIGURATION message.

8.2.4.24.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_DCH state of cell 1. The SS transmits a TRANSPORT CHANNEL RECONFIGURATION message to the UE to modify the transmission rate. This message includes a new uplink transport channel information in order to restricts available uplink TFC within assigned uplink TFCS. The UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC after reconfiguring its transport channel parameters. Next the SS transmits a TRANSPORT CHANNEL RECONFIGURATION message to the UE which includes a new uplink transport channel information in order to reconfigure uplink TFCS. The UE transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC after reconfiguring its transport channel parameters according to the TRANSPORT CHANNEL RECONFIGURATION message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the CELL_DCH state of cell 1.
2	←		TRANSPORT CHANNEL RECONFIGURATION	This message includes the IE"TFC subset" and don't include UL/DL physical channel information.
3	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
4	←		TRANSPORT CHANNEL RECONFIGURATION	
5	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	

Specific Message Contents

TRANSPORT CHANNEL RECONFIGURATION (Step 2)

The contents of TRANSPORT CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
UL Transport channel information for all transport channels	
- CHOICE mode	FDD
- TFC subset	
- CHOICE Subset representation	Allowed transport format combination list
- Allowed transport format combination	Indicate TFCs which are a part of the TFCS defined in this message to restrict uplink allowed TFC subset.
- UL DCH TFCS	Same contents as a RADIO BEARER SETUP message used in initial procedure.
CHOICE channel requirement	Not present
Downlink information per radio link list	Not present

TRANSPORT CHANNEL RECONFIGURATION (Step 4)

The contents of TRANSPORT CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
UL Transport channel information for all transport channels	
- CHOICE mode	FDD
- TFC subset	
- UL DCH TFCS	
- CHOICE TFCI signalling	Normal
- TFCI Field 1 information	
- CHOICE TFCS representation	Complete reconfiguration
- TFCS complete reconfiguration	
- CHOICE CTFC Size	Number of bits used must be enough to cover all combinations of CTFC from TS34.108 clause 6.10.2.4 Parameter Set.
- CTFC information	This IE is repeated for TFC numbers and reference to TS34.108 clause 6.10.2.4 Parameter Set
- CTFC	Reference to TS34.108 clause 6.10.2.4 Parameter Set as defined in the RADIO BEARER SETUP message with highest rate CTFC removed.
- Power offset information	
- CHOICE Gain Factors	Computed Gain Factors except for the TFC for 64 kbps and the last TFC which are set to Signalled Gain Factors
- Gain factor βc	11 (TFC for 64 kbps) 9 (last TFC, i.e. highest rate) (Not Present if the CHOICE Gain Factors is set to Computed Gain Factors)
- Gain factor βd	15 (Not Present if the CHOICE Gain Factors is set to Computed Gain Factors)
- Reference TFC ID	0 (64 kbps and below) 1 (higher than 64 kbps)
- CHOICE mode	FDD
- Power offset P_{p-m}	Not Present
Added or Reconfigured UL TrCH information	Not Present
DL Transport channel information common for all transport channel	Not Present
Added or Reconfigured DL TrCH information	Not Present
CHOICE channel requirement	Uplink DPCH info
- Uplink DPCH power control info	Same contents as a RADIO BEARER SETUP message used in initial procedure
- CHOICE mode	FDD
- Scrambling code type	Long
- Scrambling code number	0 (0 to 16777215)
- Number of DPDCH	Not Present
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set Set different parameter which is included in a RADIO BEARER SETUP message used in initial procedure.
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set Set different parameter which is included in a RADIO BEARER SETUP message used in initial procedure.
- Number of FBI bit	Not Present
- Puncturing Limit	Reference to TS34.108 clause 6.10 Parameter Set Set different parameter which is included in a RADIO BEARER SETUP message used in initial procedure.
Downlink information per radio link list	Not present

8.2.4.24.5 Test requirement

After step 2 the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

After step 4 the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

8.2.4.25 Transport channel reconfiguration from CELL_FACH to CELL_DCH (Frequency modification): Success

8.2.4.25.1 Definition

8.2.4.25.2 Conformance requirement

If the UE receives:

-a TRANSPORT CHANNEL RECONFIGURATION message;

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS25.214;

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS25.331 subclause 8.6.3.3.

If after state transition the UE enters CELL_DCH state, the UE shall, after the state transition:

1> remove any C-RNTI from MAC;

1> clear the C_RNTI.

In case the procedure was triggered by reception of a TRANSPORT CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC, using the new configuration after the state transition.

1> the procedure ends.

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.4.25.3 Test purpose

1. To confirm that the UE transits from CELL_FACH to CELL_DCH according to TRANSPORT CHANNEL RECONFIGURATION message.
2. To confirm that the UE transmits TRANSPORT CHANNEL RECONFIGURATION message on the uplink DCCH using AM RLC on dedicated physical channel in a different frequency.

8.2.4.25.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 is active and cell 6 is inactive.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.2.4.25

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-55	-55	Off	-55

Table 8.2.4.25 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings from columns "T0" to "T1", whenever the description in multi-cell condition specifies the transmission power settings for cell 1 and cell 6.

The UE is in CELL_FACH state of ce11 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.4.25. The SS switches its downlink transmission power settings to columns "T1" and transmits a TRANSPORT CHANNEL RECONFIGURATION message, which includes new frequency information leading to a state transition from CELL_FACH to CELL_DCH in cell 6. The UE shall reconfigure transport channel parameter and frequency band according to this message. Finally, the UE transmits a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message using AM RLC in cell 6. The SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The initial state of UE is in CELL_FACH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.4.25.
2				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.4.25.
3	←		TRANSPORT CHANNEL RECONFIGURATION	
4				Reconfiguration of transport channel.
5	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	The UE sends this message in cell 6.
6	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

TRANSPORT CHANNEL RECONFIGURATION (Step 3)

Use the message sub-type titled "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
Frequency info	
- UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 6
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
Downlink information for each radio links	
- Primary CPICH info	
- Primary Scrambling Code	350

8.2.4.25.5 Test requirement

After step 4 the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC in cell 6.

After step 5 the UE shall be in CELL_DCH state of cell 6.

8.2.4.26 Void

8.2.4.27 Void

8.2.4.28 Void

8.2.4.29 Transport Channel Reconfiguration for transition from CELL_DCH to CELL_DCH (Frequency modification): Success

8.2.4.29.1 Definition

8.2.4.29.2 Conformance requirement

If the UE receives:

-a TRANSPORT CHANNEL RECONFIGURATION message;

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS25.214;

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

1> enter a state according to TS25.331 subclause 8.6.3.3.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if the IE "Downlink information for each radio link" is absent, not change its current DL Physical channel configuration.

In case the procedure was triggered by reception of a TRANSPORT CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.4.29.3 Test purpose

1. To confirm that the UE transits from CELL_DCH to CELL_DCH according to the TRANSPORT CHANNEL RECONFIGURATION message.
2. To confirm that the UE transmits the TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC on a dedicated physical channel in a different frequency.

8.2.4.29.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 is active and cell 6 is inactive.

UE: CS-DCCH_DTCH_DCH (state 6-9) or PS_DCCH_DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

Table 8.2.4.29

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-55	-72	Off	-55
PCCPCH RSCP (TDD)	dBm	-55	-72	off	-55

Table 8.2.4.29 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings from columns "T0" to "T1", whenever the description in multi-cell condition specifies the transmission power settings for cell 1 and cell 6.

The UE is in CELL_DCH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.4.29. The SS switches its downlink transmission power settings to columns "T1" and transmits a TRANSPORT CHANNEL RECONFIGURATION message including IE "Frequency info" set to frequency information of cell 6 , and for FDD IE "Primary CPICH info" set to Primary Scrambling Code which is assigned to P-CPICH of cell 6, for TDD IE “Primary CCPCH info” set to cell parameter ID which is assigned to P-CCPCH of cell 6. The UE shall select cell 6 and reconfigure its transport channel parameters after receiving this message, and then remain in CELL_DCH state. The UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message using AM RLC after completes configuration according to receiving TRANSPORT CHANNEL RECONFIGURATION message. Upon completion of the procedure, the SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The initial state of UE is in CELL_DCH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.4.29.
2				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.4.29.
3	←		TRANSPORT CHANNEL RECONFIGURATION	Including IE "Frequency info" set to frequency information of cell 6 and for FDD IE "Primary CPICH info" set to Primary Scrambling Code assigned to P-CPICH of cell 6. For 1.28 Mcps TDD, IE "Primary CCPCH info" set to cell parameter ID which is assigned to P-CCPCH of cell 6
4				The UE select cell 6.
5	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	The UE sends this message on a dedicated physical channel in cell 6.
6	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

TRANSPORT CHANNEL RECONFIGURATION (Step 3) (FDD)

The contents TRANSPORT CHANNEL RECONFIGURATION message in this test case is identical the message sub-type indicated by "Packet to CELL_DCH from CELL_DCH in PS" or "Speech in CS" or "Non speech from in CS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
Frequency info	
- UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 6
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
Downlink information for each radio links	
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for cell 6

TRANSPORT CHANNEL RECONFIGURATION (Step 3) (1.28 Mcps TDD)

The contents TRANSPORT CHANNEL RECONFIGURATION message in this test case is identical the message sub-type indicated by "Packet to CELL_DCH from CELL_DCH in PS" or "Speech in CS" or "Non speech from in CS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
Frequency info - UARFCN (Nt) Downlink information for each radio links - Primary CCPCH info - Cell parameters ID	 Same UARFCN as used for cell 6 Same as cell 6

8.2.4.29.5 Test requirement

After step 4 the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC in cell 6.

After step 5 the UE shall be in CELL_DCH state in cell 6.

8.2.4.30 Void

8.2.4.31 Void

8.2.4.32 Void

8.2.4.33 Void

8.2.4.34 Void

8.2.4.35 Void

8.2.4.36 Transport Channel Reconfiguration from CELL_DCH to CELL_DCH: Success (with active HS-DSCH reception, not changing the value of TTI during UL rate modification)

8.2.4.36.1 Definition and applicability

All UEs which support FDD or TDD and HS-PDSCH.

8.2.4.36.2 Conformance requirement

In case the procedure was triggered by reception of a TRANSPORT CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> the UE has a stored IE "HARQ info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";

- IE "Uplink DPCH Power Control Info" including stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor;

1> for 3.84 Mcps TDD or 7.68 Mcps TDD, the UE has stored the IE "HS-PDSCH Timeslot Configuration" and either of the following conditions are met:

2> a dedicated physical channel is allocated to the UE in the downlink;

2> the UE has stored $D_{hs\text{-}sync}$.

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

…

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

…

Reference

3GPP TS 25.331 clauses 8.2.2, 8.6.3.1, 8.2.2.3, 8.5.25

8.2.4.36.3 Test purpose

To confirm that the UE reconfigures the transport and physical channel while being mapped to HS-DSCH according to the received TRANSPORT CHANNEL RECONFIGURATION message.

To confirm that the UE keeps the same value of TTI (transmission time interval) during the procedure.

8.2.4.36.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_DCH state and only signalling radio bearers have been established. SS initiates P25 to make the UE move to state 6-17 as specified in TS 34.108 clause 7.4. The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established using a 384 kbps (FDD, 3.84Mcps TDD and 7.68 Mcps TDD) or 64 kbps (1.28Mcps TDD) uplink DCH.

The SS transmits a TRANSPORT CHANNEL RECONFIGURATION message to the UE to limit the uplink transmission rate. This message includes a new UL DCH TFCS for uplink 64kbps (FDD, 3.84Mcps TDD and 7.68 Mcps) or 32 kbps (1.28Mcps TDD) transmission rate, but the TTI remains unchanged. After the UE receives this message, it reconfigures the transport and physical channel and transmits a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message using AM RLC. Upon successfully received the complete message from the UE, SS transmits another TRANSPORT CHANNEL RECONFIGURATION message to limit the uplink transmission rate to 32kbps (FDD, 3.84Mcps TDD and 7.68 Mcps TDD) or 16 kbps (1.28Mcps TDD). After the UE receives this message, it reconfigures the transport and physical channel and transmits a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message using AM RLC.

Next the SS transmits a new TRANSPORT CHANNEL RECONFIGURATION message to the UE which includes an old UL DCH TFCS for uplink 64kbps (FDD, 3.84Mcps TDD and 7.68 Mcps TDD) or 32 kbps (1.28Mcps TDD) transmission rate in order to remove the limitation for uplink 32kbps (FDD, 3.84Mcps TDD and 7.68 Mcps TDD) or 16 kbps (1.28Mcps TDD) transmission rate and keeps the transmission time interval. Upon received this message, the UE reconfigures the transport and physical channel and transmits a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message using AM RLC. The SS then transmits one more TRANSPORT CHANNEL RECONFIGURATION message to remove the limitation for uplink 64kbps (FDD, 3.84Mcps TDD and 7.68 Mcps TDD) or 32 kbps (1.28Mcps TDD) transmission rate and assign a new uplink 384kbps (FDD, 3.84Mcps TDD and 7.68 Mcps) or 64 kbps (1.28Mcps TDD) transmission rate. After the UE receives this message, it reconfigures the transport and physical channel and transmits a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message. (Step 0)
1	←		TRANSPORT CHANNEL RECONFIGURATION	Limit the uplink transmission rate to 64 kbps (FDD, 3.84Mcps TDD and 7.68 Mcps) or 32 kbps (1.28Mcps TDD)
2	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
3	←		TRANSPORT CHANNEL RECONFIGURATION	Limit the uplink transmission rate to 32 kbps (FDD, 3.84Mcps TDD and 7.68 Mcps) or 16 kbps (1.28Mcps TDD)
4	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
5	←		TRANSPORT CHANNEL RECONFIGURATION	Remove the limitation on the uplink rate and move to 64kbps (FDD, 3.84Mcps TDD and 7.68 Mcps) or 32 kbps (1.28Mcps TDD)
6	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
7	←		TRANSPORT CHANNEL RECONFIGURATION	Remove the limitation on the uplink rate and move to 384kbps (FDD, 3.84Mcps TDD and 7.68 Mcps) or 64 kbps (1.28Mcps TDD)
8	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
9	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 0) (FDD)

Use the same message as specified for "Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10, with the following exceptions;
- PDCP info	Not present
- Transmission RLC discard	
- MAX_DAT	10
- Transmission window size	256
- Timer_RST	1000
- Max_RST	12
- Timer_poll_prohibit	50
- Timer_poll	400
- Poll_Windows	80
- Receiving window size	2047
- Downlink RLC status info	
- Timer_status_prohibit	50
UL Transport channel Information for all transport channels	
- CHOICE Gain Factors	Computed Gain Factors (The last TFC is set to Signalled Gain Factors)
- Gain factorβc	10 (below 64 kbps) 8 (higher than 64 kbps)
- Gain factorβd	15 (Not Present if the CHOICE Gain Factors is set to Computed Gain Factors)
Added or Reconfigured UL TrCH information	
- Transmission Time Interval	10ms (for DCH 1)
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Maximum allowed UL TX power	24dBm
CHOICE channel requirement	
- Δ_{ACK}	6
- Δ_{NACK}	6
Downlink HS-PDSCH Information	
- Measurement Feedback Info	
- POhsdsch	9dB
- CQI Feedback cycle, k	10ms
- Δ_{CQI}	3

RADIO BEARER SETUP (Step 0) (1.28McpsTDD, 3.84Mcps TDD and 7.68 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108.

TRANSPORT CHANNEL RECONFIGURATION (Steps 1 and 5) (FDD)

Use the same message as specified for “Packet to CELL_DCH from CELL_DCH in PS” in 34.108, except for the following:

Information Element	Value/remark
UL Transport channel information for all transport channels - UL DCH TFCS	 Include only the CTFC’s defined in the RADIO BEARER SETUP message used in the initial procedure that restrict the uplink transmission rate to 64 kbps.
Added or Reconfigured UL TrCH information DL Transport channel information common for all transport channel Added or Reconfigured DL TrCH information	Not Present Not Present Not Present
CHOICE channel requirement - Uplink DPCH power control info - CHOICE mode - Scrambling code type - Scrambling code number - Number of DPDCH - Spreading factor - TFCI existence - Number of FBI bit - Puncturing Limit	Uplink DPCH info Same contents as a RADIO BEARER SETUP message used in the initial procedure FDD Long 1 Not Present Set according to the radio bearer configuration for “Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH” in 34.108 clause 6.10 Parameter Set. Set according to the radio bearer configuration for “Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH” in 34.108 clause 6.10 Parameter Set. Not Present Set according to the radio bearer configuration for “Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH” in 34.108 clause 6.10 Parameter Set.
Downlink information for each radio link list	Not present

TRANSPORT CHANNEL RECONFIGURATION (Steps 1 and 5) (1.28Mcps TDD)

Use the same message as specified for “Packet to CELL_DCH from CELL_DCH in PS” in 34.108, except for the following:

Information Element	Value/remark
UL Transport channel information for all transport channels - UL DCH TFCS	 Include only the CTFC’s defined in the RADIO BEARER SETUP message used in the initial procedure that restrict the uplink transmission rate to 32 kbps.
Added or Reconfigured UL TrCH information DL Transport channel information common for all transport channel Added or Reconfigured DL TrCH information	Not Present Not Present Not Present

TRANSPORT CHANNEL RECONFIGURATION (Steps 1 and 5) (3.84Mcps TDD and 7.68 Mcps TDD)

Use the same message as specified for “Packet to CELL_DCH from CELL_DCH in PS” in 34.108, except for the following:

Information Element	Value/remark
UL Transport channel information for all transport channels - UL DCH TFCS	 Include only the CTFC’s defined in the RADIO BEARER SETUP message used in the initial procedure that restrict the uplink transmission rate to 64 kbps.
Added or Reconfigured UL TrCH information DL Transport channel information common for all transport channel Added or Reconfigured DL TrCH information	Not Present Not Present Not Present

TRANSPORT CHANNEL RECONFIGURATION (Step 3) (FDD)

Use the same message as specified for “Packet to CELL_DCH from CELL_DCH in PS” in 34.108, except for the following:

Information Element	Value/remark
UL Transport channel information for all transport channels - UL DCH TFCS	 Set according to the radio bearer configuration for “Interactive or background / UL:32 DL: 8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH” in 34.108 clause 6.10 Parameter Set.
Added or Reconfigured UL TrCH information DL Transport channel information common for all transport channel Added or Reconfigured DL TrCH information	Not Present Not Present Not Present
CHOICE channel requirement - Uplink DPCH power control info - CHOICE mode - Scrambling code type - Scrambling code number - Number of DPDCH - Spreading factor - TFCI existence - Number of FBI bit - Puncturing Limit	Uplink DPCH info Same contents as a RADIO BEARER SETUP message used in the initial procedure FDD Long 1 Not Present Set according to the radio bearer configuration for “Interactive or background / UL:32 DL: 8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH” in 34.108 clause 6.10 Parameter Set. Set according to the radio bearer configuration for “Interactive or background / UL:32 DL: 8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH” in 34.108 clause 6.10 Parameter Set. Not Present Set according to the radio bearer configuration for “Interactive or background / UL:32 DL: 8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH” in 34.108 clause 6.10 Parameter Set.
Downlink information for each radio link list	Not present

TRANSPORT CHANNEL RECONFIGURATION (Step 3) (1.28Mcps TDD)

Use the same message as specified for “Packet to CELL_DCH from CELL_DCH in PS” in 34.108, except for the following:

Information Element	Value/remark
UL Transport channel information for all transport channels - UL DCH TFCS	 Set according to the radio bearer configuration for “Interactive or background / UL:16 DL: 8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH” in 34.108 clause 6.10 Parameter Set.
Added or Reconfigured UL TrCH information DL Transport channel information common for all transport channel Added or Reconfigured DL TrCH information	Not Present Not Present Not Present

TRANSPORT CHANNEL RECONFIGURATION (Step 3) (3.84Mcps TDD and 7.68 Mcps TDD)

Use the same message as specified for “Packet to CELL_DCH from CELL_DCH in PS” in 34.108, except for the following:

Information Element	Value/remark
UL Transport channel information for all transport channels - UL DCH TFCS	 “Interactive or background / UL:32 DL: 8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH” in 34.108 clause 6.10 Parameter Set.
Added or Reconfigured UL TrCH information DL Transport channel information common for all transport channel Added or Reconfigured DL TrCH information	Not Present Not Present Not Present

TRANSPORT CHANNEL RECONFIGURATION (Step 7) (FDD)

Use the same message as specified for “Packet to CELL_DCH from CELL_DCH in PS” in 34.108, except for the following:

Information Element	Value/remark
UL Transport channel information for all transport channels - UL DCH TFCS	 Same contents as the RADIO BEARER SETUP message used in the initial procedure.
Added or Reconfigured UL TrCH information DL Transport channel information common for all transport channel	Not Present Not Present
Added or Reconfigured DL TrCH information	Not Present
CHOICE channel requirement - Uplink DPCH power control info - CHOICE mode - Scrambling code type - Scrambling code number - Number of DPDCH - Spreading factor - TFCI existence - Number of FBI bit - Puncturing Limit	Uplink DPCH info Same contents as a RADIO BEARER SETUP message used in initial procedure FDD Long 1 Not Present Same contents as the RADIO BEARER SETUP message used in the initial procedure. Same contents as the RADIO BEARER SETUP message used in the initial procedure. Not Present Same contents as the RADIO BEARER SETUP message used in the initial procedure.
Downlink information for each radio link list	Not present

TRANSPORT CHANNEL RECONFIGURATION (Step 7) (1.28Mcps TDD, 3.84Mcps and 7.68Mcps TDD)

Use the same message as specified for “Packet to CELL_DCH from CELL_DCH in PS” in 34.108, except for the following:

Information Element	Value/remark
UL Transport channel information for all transport channels - UL DCH TFCS	Same contents as the RADIO BEARER SETUP message used in the initial procedure.
Added or Reconfigured UL TrCH information	Not Present
DL Transport channel information common for all transport channel	Not Present

8.2.4.36.5 Test requirements

After step 1, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

After step 3, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

After step 5, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

After step 7, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

8.2.4.36a Transport Channel Reconfiguration from CELL_DCH to CELL_DCH: Success (with active HS-DSCH reception, not changing the value of TTI during UL rate modification) (TDD)

8.2.4.36a.1 Definition and applicability

All UEs which support TDD and HS-PDSCH.

8.2.4.36a.2 Conformance requirement

In case the procedure was triggered by reception of a TRANSPORT CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> the UE has a stored IE "HARQ info";

1> for 3.84 Mcps TDD or 7.68 Mcps TDD, the UE has stored the IE "HS-PDSCH Timeslot Configuration" and either of the following conditions are met:

2> a dedicated physical channel is allocated to the UE in the downlink;

2> the UE has stored $D_{hs\text{-}sync}$.

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

…

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

…

Reference

3GPP TS 25.331 clauses 8.2.2, 8.6.3.1, 8.2.2.3, 8.5.25

8.2.4.36a.3 Test purpose

To confirm that the UE reconfigures the transport and physical channel while being mapped to HS-DSCH according to the received TRANSPORT CHANNEL RECONFIGURATION message.

To confirm that the UE keeps the same value of TTI (transmission time interval) during the procedure.

8.2.4.36a.4 Method of test

Initial Condition

System Simulator: 1 cell is active, the cell configure 3 carriers ，one is the primary carrier，the other two are secondary carrier.

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports TDD

- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_DCH state and only signalling radio bearers have been established. SS initiates P25 to make the UE move to state 6-17 as specified in TS 34.108 clause 7.4. The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established using a 384 kbps (3.84Mcps TDD and 7.68 Mcps TDD) or 64 kbps (1.28Mcps TDD) uplink DCH.

The SS transmits a TRANSPORT CHANNEL RECONFIGURATION message to the UE to limit the uplink transmission rate. This message includes a new UL DCH TFCS for uplink 64kbps (3.84Mcps TDD and 7.68 Mcps) or 32 kbps (1.28Mcps TDD) transmission rate, but the TTI remains unchanged. After the UE receives this message, it reconfigures the transport and physical channel and transmits a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message using AM RLC. Upon successfully received the complete message from the UE, SS transmits another TRANSPORT CHANNEL RECONFIGURATION message to limit the uplink transmission rate to 32kbps (3.84Mcps TDD and 7.68 Mcps TDD) or 16 kbps (1.28Mcps TDD). After the UE receives this message, it reconfigures the transport and physical channel and transmits a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message using AM RLC.

Next the SS transmits a new TRANSPORT CHANNEL RECONFIGURATION message to the UE which includes an old UL DCH TFCS for uplink 64kbps (3.84Mcps TDD and 7.68 Mcps TDD) or 32 kbps (1.28Mcps TDD) transmission rate in order to remove the limitation for uplink 32kbps (3.84Mcps TDD and 7.68 Mcps TDD) or 16 kbps (1.28Mcps TDD) transmission rate and keeps the transmission time interval. Upon received this message, the UE reconfigures the transport and physical channel and transmits a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message using AM RLC. The SS then transmits one more TRANSPORT CHANNEL RECONFIGURATION message to remove the limitation for uplink 64kbps (3.84Mcps TDD and 7.68 Mcps TDD) or 32 kbps (1.28Mcps TDD) transmission rate and assign a new uplink 384kbps (3.84Mcps TDD and 7.68 Mcps) or 64 kbps (1.28Mcps TDD) transmission rate. After the UE receives this message, it reconfigures the transport and physical channel and transmits a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message. (Step 0)
1	←		TRANSPORT CHANNEL RECONFIGURATION	Limit the uplink transmission rate to 64 kbps (3.84Mcps TDD and 7.68 Mcps) or 32 kbps (1.28Mcps TDD)
2	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
3	←		TRANSPORT CHANNEL RECONFIGURATION	Limit the uplink transmission rate to 32 kbps (3.84Mcps TDD and 7.68 Mcps) or 16 kbps (1.28Mcps TDD)
4	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
5	←		TRANSPORT CHANNEL RECONFIGURATION	Remove the limitation on the uplink rate and move to 64kbps (3.84Mcps TDD and 7.68 Mcps) or 32 kbps (1.28Mcps TDD)
6	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
7	←		TRANSPORT CHANNEL RECONFIGURATION	Remove the limitation on the uplink rate and move to 384kbps (3.84Mcps TDD and 7.68 Mcps) or 64 kbps (1.28Mcps TDD)
8	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
9	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 0) (1.28McpsTDD, 3.84Mcps TDD and 7.68 Mcps TDD)

Use the same message as specified for “Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS” in 34.108.

Information Element	Value/remark
RadioBearerSetup-r5-TDD128-add-ext-IEs	
-frequencyInfo	secondary carrier frequency
-UpPCHpositionInfo	22

TRANSPORT CHANNEL RECONFIGURATION (Steps 1 and 5) (1.28Mcps TDD)

Use the same message as specified for “Packet to CELL_DCH from CELL_DCH in PS” in 34.108, except for the following:

Information Element	Value/remark
UL Transport channel information for all transport channels - UL DCH TFCS	 Include only the CTFC’s defined in the RADIO BEARER SETUP message used in the initial procedure that restrict the uplink transmission rate to 32 kbps.
Added or Reconfigured UL TrCH information	Not Present
DL Transport channel information common for all transport channel	Not Present
Added or Reconfigured DL TrCH information	Not Present
TransportChannelReconfiguration -r5-TDD128-add-ext-IEs -frequencyInfo	 secondary carrier frequency

TRANSPORT CHANNEL RECONFIGURATION (Steps 1 and 5) (3.84Mcps TDD and 7.68 Mcps TDD)

Use the same message as specified for “Packet to CELL_DCH from CELL_DCH in PS” in 34.108, except for the following:

Information Element	Value/remark
UL Transport channel information for all transport channels - UL DCH TFCS	Include only the CTFC’s defined in the RADIO BEARER SETUP message used in the initial procedure that restrict the uplink transmission rate to 64 kbps.
Added or Reconfigured UL TrCH information DL Transport channel information common for all transport channel Added or Reconfigured DL TrCH information	Not Present Not Present Not Present

TRANSPORT CHANNEL RECONFIGURATION (Step 3) (1.28Mcps TDD)

Use the same message as specified for “Packet to CELL_DCH from CELL_DCH in PS” in 34.108, except for the following:

Information Element	Value/remark
UL Transport channel information for all transport channels - UL DCH TFCS	Set according to the radio bearer configuration for “Interactive or background / UL:16 DL: 8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH” in 34.108 clause 6.10 Parameter Set.
Added or Reconfigured UL TrCH information DL Transport channel information common for all transport channel Uplink DPCH info	Not Present Not Present
-Uplink Timing Advance Control	
- Frequency info	secondary carrier frequency
-UpPCH position info	22

TRANSPORT CHANNEL RECONFIGURATION (Step 3) (3.84Mcps TDD and 7.68 Mcps TDD)

Use the same message as specified for “Packet to CELL_DCH from CELL_DCH in PS” in 34.108, except for the following:

Information Element	Value/remark
UL Transport channel information for all transport channels - UL DCH TFCS	“Interactive or background / UL:32 DL: 8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH” in 34.108 clause 6.10 Parameter Set.
Added or Reconfigured UL TrCH information DL Transport channel information common for all transport channel Added or Reconfigured DL TrCH information	Not Present Not Present Not Present

TRANSPORT CHANNEL RECONFIGURATION (Step 7) (1.28Mcps TDD, 3.84Mcps and 7.68Mcps TDD)

Use the same message as specified for “Packet to CELL_DCH from CELL_DCH in PS” in 34.108, except for the following:

Information Element	Value/remark
UL Transport channel information for all transport channels - UL DCH TFCS	Same contents as the RADIO BEARER SETUP message used in the initial procedure.
Added or Reconfigured UL TrCH information Uplink DPCH info	Not Present
-Uplink Timing Advance Control	
- Frequency info	secondary carrier frequency
-UpPCH position info	22

8.2.4.36a.5 Test requirements

After step 1, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

After step 3, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

After step 5, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

After step 7, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

8.2.4.36b Transport Channel Reconfiguration from CELL_DCH to CELL_DCH: Success (with active HS-DSCH reception, not changing the value of TTI during UL rate modification) (In a different frequency band)

8.2.4.36b.1 Definition and applicability

Same conformance requirement as in clause 8.2.4.36a except that UE is support for different frequency band.

8.2.4.36b.2 Conformance requirement

Same conformance requirement as in clause 8.2.4.36a .

8.2.4.36b.3 Test purpose

Same conformance requirement as in clause 8.2.4.36a except that UE can work in different frequency bands.

8.2.4.36b.4 Method of test

Same conformance requirement as in clause 8.2.4.36a except for Expected sequence

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message. (Step 0)
1	←		TRANSPORT CHANNEL RECONFIGURATION	Limit the uplink transmission rate to 64 kbps (3.84Mcps TDD and 7.68 Mcps) or 32 kbps (1.28Mcps TDD)
2	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
3	←		TRANSPORT CHANNEL RECONFIGURATION	Limit the uplink transmission rate to 32 kbps (3.84Mcps TDD and 7.68 Mcps) or 16 kbps (1.28Mcps TDD)
4	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
5	←		TRANSPORT CHANNEL RECONFIGURATION	Remove the limitation on the uplink rate and move to 64kbps (3.84Mcps TDD and 7.68 Mcps) or 32 kbps (1.28Mcps TDD)
6	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
7	←		TRANSPORT CHANNEL RECONFIGURATION	Remove the limitation on the uplink rate and move to 384kbps (3.84Mcps TDD and 7.68 Mcps) or 64 kbps (1.28Mcps TDD)
8	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
9	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.
				UE will run test procedure for 2 kinds of condition. The first,. primary carrier and the secondary carriers of the UE work in same frequency band. Secondly,, primary carrier and the secondary carriers of the UE work in different frequency bands.

8.2.4.36b.5 Test requirements

Same conformance requirement as in clause 8.2.4.36a.

8.2.4.36c Transport Channel Reconfiguration from CELL_DCH to CELL_DCH: Success (inter-band frequency hard handover,,with active HS-DSCH reception, not changing the value of TTI during UL rate modification, LCR TDD band a-f)

8.2.4.36c.1 Definition and applicability

Same conformance requirement as in clause 8.2.4.36a except that UE supports different frequency bands.

8.2.4.36c.2 Conformance requirement

Same conformance requirement as in clause 8.2.4.36a.

8.2.4.36c.3 Test purpose

Same conformance requirement as in clause 8.2.4.36a except that UE can receive TRANSPORT CHANNEL RECONFIGURATION message on in a different frequency band cell.

8.2.4.36c.4 Method of test

Same conformance requirement as in clause 8.2.4.36 except for the following:

Initial Condition

System Simulator: 2 cells–Cell 1 is active and cell 6 is inactive. cell 1 and cell 6 belong to different frequency bands. Cell 1 is active and configure three carriers,one primary carrier with two secondary carriers.

Test Procedure

Table 8.2.4.36c.4

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
P-CCPCH RSCP (TDD)	dBm	-55	-72	Off	-55

Table 8.2.4.36c.4 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings from columns "T0" to "T1", whenever the description in multi-cell condition specifies the transmission power settings for cell 1 and cell 6.

SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.4.36c.4. The UE is in CELL_DCH state and only signalling radio bearers have been established. SS initiates P25 to make the UE move to state 6-17 as specified in TS 34.108 clause 7.4. The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established using a 64 kbps (1.28Mcps TDD) uplink DCH.

The SS transmits a TRANSPORT CHANNEL RECONFIGURATION message to the UE to limit the uplink transmission rate. This message includes a new UL DCH TFCS for uplink 32 kbps (1.28Mcps TDD) transmission rate, but the TTI remains unchanged. After the UE receives this message, it reconfigures the transport and physical channel and transmits a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message using AM RLC. Upon successfully received the complete message from the UE, SS transmits another TRANSPORT CHANNEL RECONFIGURATION message to limit the uplink transmission rate to 16 kbps (1.28Mcps TDD). After the UE receives this message, it reconfigures the transport and physical channel and transmits a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message using AM RLC.

Next the SS transmits a new TRANSPORT CHANNEL RECONFIGURATION message to the UE which includes an old UL DCH TFCS for uplink 32 kbps (1.28Mcps TDD) transmission rate in order to remove the limitation for uplink 16 kbps (1.28Mcps TDD) transmission rate and keeps the transmission time interval. Upon received this message, the UE reconfigures the transport and physical channel and transmits a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message using AM RLC. The SS then transmits one more TRANSPORT CHANNEL RECONFIGURATION message to remove the limitation for uplink 32 kbps (1.28Mcps TDD) transmission rate and assign a new uplink 64 kbps (1.28Mcps TDD) transmission rate. After the UE receives this message, it reconfigures the transport and physical channel and transmits a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message using AM RLC.

If UE support a+f frequency band, the The SS switches its downlink transmission power settings to columns "T1". The SS transmits a TRANSPORT CHANNEL RECONFIGURATION message ncluding IE "Frequency info" set to frequency information of cell 6 and IE "Primary CCPCH info" of cell 6 parameters to the UE to limit the uplink transmission rate. This message includes a new UL DCH TFCS for uplink 32 kbps (1.28Mcps TDD) transmission rate, but the TTI remains unchanged. After the UE receives this message, it reconfigures the transport and physical channel and transmits a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message using AM RLC on cell 6.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message. (Step 0)
1	←		TRANSPORT CHANNEL RECONFIGURATION	Limit the uplink transmission rate to 64 kbps (3.84Mcps TDD and 7.68 Mcps) or 32 kbps (1.28Mcps TDD)
2	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
3	←		TRANSPORT CHANNEL RECONFIGURATION	Limit the uplink transmission rate to 32 kbps (3.84Mcps TDD and 7.68 Mcps) or 16 kbps (1.28Mcps TDD)
4	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
5	←		TRANSPORT CHANNEL RECONFIGURATION	Remove the limitation on the uplink rate and move to 64kbps (3.84Mcps TDD and 7.68 Mcps) or 32 kbps (1.28Mcps TDD)
6	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
7	←		TRANSPORT CHANNEL RECONFIGURATION	Remove the limitation on the uplink rate and move to 384kbps (3.84Mcps TDD and 7.68 Mcps) or 64 kbps (1.28Mcps TDD)
8	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
9	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.
				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.4.36c.4.
10	←		TRANSPORT CHANNEL RECONFIGURATION	Limit the uplink transmission rate to 32 kbps (1.28Mcps TDD).It Include IE "Frequency info" set to frequency information of cell 6 and IE "Primary CCPCH info" set cell 6 parameters.
11	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
				The UE TRANSPORT CHANNEL RECONFIGURATION on cell 6.

8.2.4.36c.5 Test requirements

After step 11, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC on cell 6.

8.2.5 Transport format combination control

8.2.5.1 Void

NOTE: Test case “Transport format combination control in CELL_DCH: restriction” have been removed as being implicitely tested by radio bearer test cases in clause 14.

8.2.5.2 Void

NOTE Test case “Transport format combination control in CELL_DCH: release a restriction” have been removed as being implicitely tested by radio bearer test cases in clause 14.

8.2.5.3 Void

8.2.5.4 Transport format combination control in CELL_DCH: Failure (Invalid configuration)

8.2.5.4.1 Definition

8.2.5.4.2 Conformance requirement

If the variable INVALID_CONFIGURATION is set to TRUE due to the received TRANSPORT FORMAT COMBINATION CONTROL message the UE shall:

1> if the TRANSPORT FORMAT COMBINATION CONTROL message was received on AM RLC:

2> keep the TFC subset existing before the TRANSPORT FORMAT COMBINATION CONTROL message was received;

2> transmit a TRANSPORT FORMAT COMBINATION CONTROL FAILURE message on the DCCH using AM RLC;

2> set the IE "RRC transaction identifier" in the TRANSPORT FORMAT COMBINATION CONTROL FAILURE message to the value of "RRC transaction identifier" in the entry for the TRANSPORT FORMAT COMBINATION CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "invalid configuration";

2> when the TRANSPORT FORMAT COMBINATION CONTROL FAILURE message has been submitted to lower layers for transmission the procedure ends.

1> if the TRANSPORT FORMAT COMBINATION CONTROL message was received on UM RLC:

2> ignore the TRANSPORT FORMAT COMBINATION CONTROL message.

Reference

3GPP TS 25.331 clause 8.2.5.4, 8.2.5.5

8.2.5.4.3 Test purpose

To confirm that the UE transmits a TRANSPORT FORMAT COMBINATION CONTROL FAILURE message on the DCCH using AM RLC if it receives a TRANSPORT FORMAT COMBINATION CONTROL message including an invalid configuration.

8.2.5.4.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: DCCH+DTCH_DCH (state 6-9 or state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH state. SS then send a MEASUREMENT CONTROL message to UE. The UE shall perform periodical traffic volume measurement according to this message and then transmit MEASUREMENT REPORT message back to SS. SS transmits a TRANSPORT FORMAT COMBINATION CONTROL message including some IEs set to get an invalid configuration. The UE keeps its current configuration and transmits a TRANSPORT FORMAT COMBINATION CONTROL FAILURE message on the DCCH using AM RLC, setting the value "invalid configuration" to IE "failure cause". UE shall continue its traffic volume measurement and send MEASUREMENT REPORT messages back to SS periodically.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0a	←		MEASUREMENT CONTROL	SS requests UE to perform periodical traffic volume measurement.
0b	→		MEASUREMENT REPORT	
1				UE is in CELL_DCH state with a DCH for a signalling radio bearer and a DCH for a radio access bearer.
2			Void	
3			Void	
3a			Void	
4	←		TRANSPORT FORMAT COMBINATION CONTROL	This message includes an invalid configuration.
5	→		TRANSPORT FORMAT COMBINATION CONTROL FAILURE	The UE shall not change its configuration
6	→		MEASUREMENT REPORT	

Specific Message Contents

MEASUREMENT CONTROL (Step 0a)

Use the MEASUREMENT CONTROL message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/Remark
Measurement Identity	1
Measurement Command	Setup
Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurement list	Not Present
CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	
- Uplink transport channel type	DCH
- UL Target Transport Channel ID	5
- Traffic volume measurement quantity	
- Measurement quantity	RLC Buffer Payload
- Time Interval to take an average or a variance	Not Present
- Traffic volume reporting quantity	
- RLC Buffer Payload for each RB	True
- Average of RLC Buffer Payload for each RB	False
- Variance of RLC Buffer Payload for each RB	False
- Measurement validity	
- UE state	All states
- CHOICE Reporting criteria	Periodical Reporting Criteria
- Amount of reporting	Infinity
- Reporting interval	8000
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 0band 6)

Check to see if the same message type found in [9] TS 34.108 Clause 9 is received, with the following exceptions:

The order in which the RBs are reported is not checked.

Information Element	Value/Remarks
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

TRANSPORT FORMAT COMBINATION CONTROL (Step 4)

Use the same message sub-type titled "TRANSPORT FORMAT COMBINATION CONTROL" in [9] TS 34.108 clause 9, with following exceptions:

Information Element	Value/remark
TrCH information elements -DPCH/PUSCH TFCS uplink in uplink - Restricted TrCH information - Uplink transport channel type - Restricted UL TrCH identity - Allowed TFI	 DCH 15 (for RACH transport channel identity) 0

TRANSPORT FORMAT COMBINATION CONTROL FAILURE (Step 5)

Check to see if the same message type found in [9] TS 34.108 Clause 9 is received, with the following exceptions:

Information Element	Value/remark
Failure cause	Invalid configuration

8.2.5.4.5 Test requirement

After step 0a, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

After step 4 the UE shall transmit a TRANSPORT FORMAT COMBINATION CONTROL FAILURE message on the DCCH using AM RLC, setting IE "failure cause" to "invalid configuration".

After step 5, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

8.2.6 Physical channel reconfiguration

8.2.6.1 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (code modification): Success

8.2.6.1.1 Definition

8.2.6.1.2 Conformance requirement

If the UE receives:

- a PHYSICAL CHANNEL RECONFIGURATIONmessage; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214;

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if the IE "Downlink information for each radio link" is absent, not change its current DL Physical channel configuration.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.6.1.3 Test purpose

To confirm that the UE reconfigures the physical channel parameters according to a PHYSICAL CHANNEL RECONFIGURATION message received from the SS. After the reconfiguration, the UE shall be able to communicate with the SS on the new physical channel.

8.2.6.1.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending to the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH state. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE, which includes a new several physical layer parameters. The UE shall reconfigure the physical channel at the activation time specified in this message and transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH AM RLC after its transition. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	See message contents
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (FDD)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in Annex A, with the following exceptions:

Information Element	Value/remark
Maximum allowed UL Tx power	31dBm
Uplink DPCH info	
- Scrambling code number	1
Downlink information common for all radio links	
Downlink information for each radio link	
- Code number	1

PHYSICAL CHANNEL RECONFIGURATION (3.84 Mcps TDD)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in Annex A, with the following exceptions:

Information Element	Value/remark
- Uplink DPCH timeslots and codes	
- First timeslot code list	Assigned by SS
Downlink information common for all radio links	Absent

PHYSICAL CHANNEL RECONFIGURATION (1.28 Mcps TDD)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in Annex A, with the following exceptions:

Information Element	Value/remark
Physical Channel Reconfiguration r4	
- UL Channel Requirement	
- Uplink DPCH info	
- CHOICE mode	TDD
- Uplink DPCH timeslots and codes	
- First timeslot Code List	
- Channelisation Code	cc8_2
-DL InformationPerRL List	
- DL DPCH InfoPerRL	
- DL TS ChannelisationCodesShort	'0011000000000000'B

PHYSICAL CHANNEL RECONFIGURATION (7.68 Mcps TDD)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in Annex A, with the following exceptions:

Information Element	Value/remark
- Uplink DPCH timeslots and codes VHCR - First timeslot code list - Channelisation code Downlink information per radio link list - Downlink information for each radio link - Downlink DPCH info for each RL - Downlink DPCH timeslots and codes VHCR - First timeslot channelisation codes channelisation codes VHCR - First Channelisation code - Last Channelisation code	 (16/1) (32/1) (32/2)

8.2.6.1.5 Test requirement

After step 1 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

8.2.6.1a Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (code modification): Success (1.28 Mcps TDD Only)

8.2.6.1a.1 Definition

8.2.6.1a.2 Conformance requirement

If the UE receives:

- a PHYSICAL CHANNEL RECONFIGURATIONmessage; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214;

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if the IE "Downlink information for each radio link" is absent, not change its current DL Physical channel configuration.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.6.1a.3 Test purpose

1.To confirm that the UE reconfigures the physical channel parameters according to a PHYSICAL CHANNEL RECONFIGURATION message received from the SS. After the reconfiguration, the UE shall be able to communicate with the SS on the new physical channel.

2. To confirm that the UE can indicate the UpPCH shifting position according to a PHYSICAL CHANNEL RECONFIGURATION message received from the SS and complete the process.

8.2.6.1a.4 Method of test

Initial Condition

System Simulator: 2 cells. Cell 1at UARFCN 1 and Cell4 at UARFCN 4.

UpPCH shifting position is 22 at Cell4.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending to the CN domain(s) supported by the UE.

Test Procedure

Table 8.2.6.1a

Parameter	Unit	Cell 1		Cell4	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
P-CCPCH RSCP (TDD)	dBm	-55	-72	Off	-55

The UE is in CELL_DCH state. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE, which includes a new several physical layer parameters. The UE shall reconfigure the physical channel at the activation time specified in this message and transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH AM RLC after its transition. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

The UE is in CELL_DCH state. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE, which includes a new several physical layer parameters. The UE shall reconfigure the physical channel and transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH AM RLC.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	See message contents
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.
4	←		PHYSICAL CHANNEL RECONFIGURATION	The message indicate that UE is in CELL_DCH state at cell 4 and specify the carrier and UpPCH shifting position.
5	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
6	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 3(TDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark	Version
-v4b0NonCriticalExtensions		
-sysInfoType3-v4b0ext		
- mapping-LCR	22	

PHYSICAL CHANNEL RECONFIGURATION (1.28 Mcps TDD)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in Annex A, with the following exceptions:

Information Element	Value/remark
Physical Channel Reconfiguration r4	
- UL Channel Requirement	
- Uplink DPCH info	
- CHOICE mode	TDD
- Uplink DPCH timeslots and codes	
- First timeslot Code List	
- Channelisation Code	cc8_2
-DL InformationPerRL List	
- DL DPCH InfoPerRL	
- DL TS ChannelisationCodesShort	'0011000000000000'B
Uplink DPCH info	
-Uplink Timing Advance Control	
- Frequency info	Secondary carrier
-UpPCH position info	22

8.2.6.1a.5 Test requirement

After step 1 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 3 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and t UE is in CELL_DCH state.

8.2.6.2 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (code modification): Failure (Unsupported configuration)

8.2.6.2.1 Definition

8.2.6.2.2 Conformance requirement

If the UTRAN instructs the UE to use a configuration, which it does not support and/or if the received message causes the variable UNSUPPORTED_CONFIGURATION to be set to TRUE, the UE shall:

1> transmit a failure response as specified in TS 25.331 subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "configuration unsupported".

1> set the variable UNSUPPORTED_CONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

The UE shall:

1> in case of reception of a PHYSICAL CHANNEL RECONFIGURATION message:

…

2> transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE as response message on the DCCH using AM RLC.

…

The UE should set the variable UNSUPPORTED_CONFIGURATION to TRUE if the received message is not according to the UE capabilities.

Reference

3GPP TS 25.331 clause 8.2.2.6, 8.2.2.9, 8.5.20.

8.2.6.2.3 Test purpose

To confirm that the UE keeps its configuration and transmits a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC if the received PHYSICAL CHANNEL RECONFIGURATION message includes unsupported configuration parameters for the UE.

8.2.6.2.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH state. SS then send a MEASUREMENT CONTROL message to UE. The UE shall perform periodical traffic volume measurement according to this message and then transmit MEASUREMENT REPORT message back to SS.The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE which includes configuration parameters unsupported by the UE. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC . UE shall continue its traffic volume measurement and send MEASUREMENT REPORT messages back to SS periodically.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0a	←		MEASUREMENT CONTROL	SS requests UE to perform periodical traffic volume measurement.
0b	→		MEASUREMENT REPORT	
1	←		PHYSICAL CHANNEL RECONFIGURATION	Includes configuration unsupported by the UE
2	→		PHYISICAL CHANNEL RECONFIGURATION FAILURE	The UE shall not reconfigure and continue to communicate using the old configuration.
3	→		MEASUREMENT REPORT	
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

MEASUREMENT CONTROL (Step 0a)

Use the MEASUREMENT CONTROL message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/Remark
Measurement Identity	1
Measurement Command	Setup
Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurement list	Not Present
CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	
- Uplink transport channel type	DCH
- UL Target Transport Channel ID	5
- Traffic volume measurement quantity	
- Measurement quantity	RLC Buffer Payload
- Time Interval to take an average or a variance	Not Present
- Traffic volume reporting quantity	
- RLC Buffer Payload for each RB	True
- Average of RLC Buffer Payload for each RB	False
- Variance of RLC Buffer Payload for each RB	False
- Measurement validity	
- UE state	All states
- CHOICE Reporting criteria	Periodical Reporting Criteria
- Amount of reporting	Infinity
- Reporting interval	8000
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 0b and 3)

Check to see if the same message type found in [9] TS 34.108 Clause 9 is received, with the following exceptions and the order in which the RBs are reported is not checked:

Information Element	Value/Remarks
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

PHYSICAL CHANNEL RECONFIGURATION (FDD) (Step 1)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type title as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 Clause 9 with the following exceptions:

Information Element	Value/remark
Frequency info	
- UARFCN uplink (Nu)	0
- UARFCN downlink (Nd)	950

PHYSICAL CHANNEL RECONFIGURATION (TDD) (Step 1)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type title "Packet to CELL_DCH from CELL_DCH in PS" found in [9] TS 34.108 Clause 9 with the following exceptions:

Information Element	Value/remark
Frequency info	
- UARFCN (Nt)	0

PHYSICAL CHANNEL RECONFIGURATION FAILURE (Step 2)

The contents of PHYSICAL CHANNEL RECONFIGURATION FAILURE message in this test case is the same as the PHYSICAL CHANNEL RECONFIGURATION FAILURE message as found in [9] TS 34.108 Clause 9, with the following exceptions:

Information Element	Value/remark
Failure cause	Not checked

8.2.6.2.5 Test requirement

After step 0a, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

After step 1 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC .

After step 2, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

8.2.6.3 Void

8.2.6.4 Void

8.2.6.5 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (code modification): Failure (Incompatible simultaneous reconfiguration)

8.2.6.5.1 Definition

8.2.6.5.2 Conformance requirement

If the received message is any of the messages:

- PHYSICAL CHANNEL RECONFIGURATION; or

…

the UE shall:

2> if the variable ORDERED_RECONFIGURATION is set to TRUE; or

…

3> if the IE "RRC transaction identifier" of the received message is identical to the "RRC transaction identifier" stored for the same "Message Type" as the received message in the table "Accepted transactions" in the variable TRANSACTIONS:

…

3> else:

4> reject the transaction; and

4> if the IE "Message Type" of the received message is not present in the table "Rejected transactions" in the variable TRANSACTIONS:

5> store the IE "Message type" and the IE "RRC transaction identifier" of the received message in the table "Rejected transactions" in the variable TRANSACTIONS.

…

If the table "Rejected transactions" in the variable TRANSACTIONS is set due to the received message and the variable PROTOCOL_ERROR_REJECT is set to FALSE, the UE shall:

1> not apply the configuration contained in the received reconfiguration message;

1> transmit a failure response message as specified in subclause TS 25.331 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Rejected transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "incompatible simultaneous reconfiguration".

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

The UE shall:

1> in case of reception of a PHYSICAL CHANNEL RECONFIGURATION message:

…

2> transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE as response message on the DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.9, 8.2.2.12, clause 8.6.3.11.

8.2.6.5.3 Test purpose

To confirm that if the UE receives a PHYSICAL CHANNEL RECONFIGURATION message during a reconfiguring procedure due to a radio bearer message other than PHYSICAL CHANNEL RECONFIGURATION, it shall keep its configuration as if the PHYSICAL CHANNEL RECONFIGURATION message had not been received and complete the reconfiguration procedure according to the previously received message.

8.2.6.5.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH state. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message before the "activation time" indicated in the RADIO BEARER RECONFIGURATION message expires. When the UE receives the PHYSICAL CHANNEL RECONFIGURATION message, the UE shall keep the configuration as if it had not received the PHYSICAL CHANNEL RECONFIGURATION message and shall transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC with IE "failure cause" set to "incompatible simultaneous reconfiguration". After the SS acknowledges the PHYSICAL CHANNEL RECONFIGURATION FAILURE message, the UE reconfigures the new physical channel parameters upon the activation time and transmits a RADIO BEARER RECONFIGURATION COMPLETE message on DCCH using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	
2	←		PHYSICAL CHANNEL RECONFIGURATION	Sent before the "activation time" specified in the message in step 1 has elapsed.
3	→		PHYSICAL CHANNEL RECONFIGURATION FAILURE	The UE does not change the configuration due to the reception of a PHYSICAL CHANNEL RECONFIGURATION message.
4	→		RADIO BEARER RECONFIGURATION COMPLETE	This message is on DCCH using AM RLC.
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1) (FDD)

For RADIO BEARER RECONFIGURATION in step 1, use the message sub-type indicated as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in Annex A with the following exceptions:

Information Element	Value/remark
Activation Time Info	Current CFN-[current CFN mod 8 + 8]
Uplink DPCH info	
- Scrambling code number	1
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing Indicator	Maintain

RADIO BEARER RECONFIGURATION (Step 1) (TDD)

Information Element	Value/remark
Activation Time	Current CFN-[current CFN mod 8 + 8]
- Uplink DPCH timeslots and codes	
- First timeslot code list	Assigned by SS
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing Indicator	Maintain

PHYSICAL CHANNEL RECONFIGURATION (Step 2) (FDD)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in Annex A, with the following exceptions:

Information Element	Value/remark
Activation Time	Not Present
Uplink DPCH info	
- Scrambling code number	2
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing Indicator	Maintain

PHYSICAL CHANNEL RECONFIGURATION (Step 2) (TDD)

Information Element	Value/remark
Activation Time	Current CFN-[current CFN mod 8 + 8]
- Uplink DPCH timeslots and codes	
- First timeslot code list	Different as assigned in Step 1
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing Indicator	Maintain

PHYSICAL CHANNEL RECONFIGURATION FAILURE (step 3)

The contents of PHYSICAL CHANNEL RECONFIGURATION FAILURE message in this test case is the same as the PHYSICAL CHANNEL RECONFIGURATION FAILURE message as found in Annex A, with the following exceptions:

Information Element	Value/remark
Failure cause	Incompatible simultaneous reconfiguration

8.2.6.5.5 Test requirement

After step 2 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC with IE "failure cause" set to "Incompatible simultaneous reconfiguration".

After step 3 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC on the DCCH.

8.2.6.6 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (code modification): Failure (Invalid message reception and Invalid configuration)

8.2.6.6.1 Definition

8.2.6.6.2 Conformance requirement

If the received reconfiguration message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to TS 25.331 clause 9, the UE shall perform procedure specific error handling as follows. The UE shall:

1> transmit a failure response message as specified in TS 25.331 subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Rejected transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to the cause value "protocol error";

2> include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

If the variable INVALID_CONFIGURATION is set to TRUE the UE shall:

1> keep the configuration existing before the reception of the message;

1> transmit a failure response message as specified in TS 25.331 subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

3> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> clear that entry.

2> set the IE "failure cause" to "invalid configuration".

1> set the variable INVALID_CONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

The UE shall:

1> in case of reception of a PHYSICAL CHANNEL RECONFIGURATION message:

…

2> transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE as response message on the DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.13, 8.2.2.11, 8.2.2.9.

8.2.6.6.3 Test purpose

To confirm that the UE transmits a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC if it receives an invalid PHYSICAL CHANNEL RECONFIGURATION message which does not include any IEs except IE "Message Type".

To confirm that the UE transmits a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC if it receives a PHYSICAL CHANNEL RECONFIGURATION message including some IEs set to give an invalid configuration.

8.2.6.6.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH state. SS then send a MEASUREMENT CONTROL message to UE. The UE shall perform periodical traffic volume measurement according to this message and then transmit MEASUREMENT REPORT message back to SS. The SS transmits an invalid PHYSICAL CHANNEL RECONFIGURATION message to the UE, which contains an unexpected critical message extension. The UE keeps the old configuration and transmits a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC, with a value "protocol error" in IE "failure cause" and also a value "Message extension not comprehended" in IE "Protocol error cause". UE shall continue its traffic volume measurement and send MEASUREMENT REPORT messages back to SS periodically. SS transmits a PHYSICAL CHANNEL RECONFIGURATION message including some IEs which are set to give an invalid configuration. The UE keeps its initial configuration and transmits a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC, setting the value "invalid configuration" to IE "failure cause". UE shall continue its traffic volume measurement and send MEASUREMENT REPORT messages back to SS periodically.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0a	←		MEASUREMENT CONTROL	SS requests UE to perform periodical traffic volume measurement.
0b	→		MEASUREMENT REPORT	
1	←		PHYSICAL CHANNEL RECONFIGURATION	See specific message content.
2	→		PHYSICAL CHANNEL RECONFIGURATION FAILURE	The UE does not change its configuration.
2a	→		MEASUREMENT REPORT	
3	←		PHYSICAL CHANNEL RECONFIGURATION	This message includes IEs which is set to give an invalid configuration
4				The UE does not change its configuration
5	→		PHYSICAL CHANNEL RECONFIGURATION FAILURE	The IE "failure cause" shall be set to "invalid configuration
6	→		MEASUREMENT REPORT	

Specific Message Contents

MEASUREMENT CONTROL (Step 0a)

Use the MEASUREMENT CONTROL message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/Remark
Measurement Identity	1
Measurement Command	Setup
Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurement list	Not Present
CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	
- Uplink transport channel type	DCH
- UL Target Transport Channel ID	5
- Traffic volume measurement quantity	
- Measurement quantity	RLC Buffer Payload
- Time Interval to take an average or a variance	Not Present
- Traffic volume reporting quantity	
- RLC Buffer Payload for each RB	True
- Average of RLC Buffer Payload for each RB	False
- Variance of RLC Buffer Payload for each RB	False
- Measurement validity	
- UE state	All states
- CHOICE Reporting criteria	Periodical Reporting Criteria
- Amount of reporting	Infinity
- Reporting interval	8000
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 0b, 2a and 6)

Check to see if the same message type found in [9] TS 34.108 Clause 9 is received, with the following exceptions and the order in which the RBs are reported is not checked:

Information Element	Value/Remarks
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

PHYSICAL CHANNEL RECONFIGURATION (Step 1)

Use the PHYSICAL CHANNEL RECONFIGURATION message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Critical extensions	'FF'H

PHYSICAL CHANNEL RECONFIGURATION FAILURE (Step 2)

The contents of PHYSICAL CHANNEL RECONFIGURATION FAILURE message in this test case is the same as the PHYSICAL CHANNEL RECONFIGURATION FAILURE message as found in Annex A, with the following exceptions:

Information Element	Value/remark
Failure cause	
- Failure cause	Protocol error
- Protocol error information	
- Protocol error cause	Message extension not comprehended

PHYSICAL CHANNEL RECONFIGURATION (Step 3) (FDD)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type title as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in Annex A with the following exceptions:

Information Element	Value/remark
Downlink information common for all radio links - Downlink DPCH info common for all RL - Timing Indicator - Default DPCH Offset Value Downlink information for each radio links - DPCH frame offset	 Initialise 1 (512) 4 (1024)

PHYSICAL CHANNEL RECONFIGURATION (Step 3) (TDD)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type title as "Speech in CS" or "Non speech in CS" or "Packet to CELL_FACH from CELL_DCH in PS" as found in Annex A with the following exceptions:

Information Element	Value/remark
Downlink information common for all radio links - Downlink DPCH info common for all RL - Timing Indicator - Default DPCH Offset Value - CHOICE mode - Default DPCH Offset Value (DOFF)	 Initialise TDD Not Present

PHYSICAL CHANNEL RECONFIGURATION FAILURE (Step 5)

The contents of PHYSICAL CHANNEL RECONFIGURATION FAILURE message in this test case is the same as the PHYSICAL CHANNEL RECONFIGURATION FAILURE message as found in Annex A, with the following exceptions:

Information Element	Value/remark
Failure cause	Invalid configuration

8.2.6.6.5 Test requirement

After step 0a, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

After step 1 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC, setting value "protocol error" in IE "failure cause" and also setting value "Message extension not comprehended" in IE "Protocol error cause".

After step 2, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

After step 4 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC, setting IE "failure cause" to "invalid configuration".

After step 5, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

8.2.6.7 Physical channel reconfiguration for transition from CELL_DCH to CELL_FACH: Success

8.2.6.7.1 Definition

8.2.6.7.2 Conformance requirement

If the UE receives:

- a PHYSICAL CHANNEL RECONFIGURATION message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214;

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS 25.304 on that frequency.

1> select PRACH according to TS 25.331 subclause 8.5.17;

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> use the transport format set given in system information;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> ignore that IE and stop using DRX.

1> if the contents of the variable C_RNTI is empty:

2> perform a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

…

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.6.7.3 Test purpose

To confirm that the UE reconfigures a common physical channel according to the PHYSICAL CHANNEL RECONFIGURATION message, which invoke the UE to transit from CELL_DCH to CELL_FACH.

8.2.6.7.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108

Test Procedure

The UE is in CELL_DCH state. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE. The UE shall then reconfigure the specified common physical channel according to this message and the system information messages. Following this, it shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC on the DCCH. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1		←	PHYSICAL CHANNEL RECONFIGURATION	IE "Uplink DPCH Info" and IE "Downlink DPCH Info" are not specified.
2				UE shall perform the reconfiguration.
3		→	PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
4		←→	CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION

Use the message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Annex A with the following exception:

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B

8.2.6.7.5 Test requirement

After step 2 the UE shall transit from CELL_DCH to CELL_FACH and transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE messageon the common physical channel.

8.2.6.8 Physical channel reconfiguration for transition from CELL_DCH to CELL_FACH: Success (Cell re-selection)

8.2.6.8.1 Definition

8.2.6.8.2 Conformance requirement

If the UE receives:

- a PHYSICAL CHANNEL RECONFIGURATION message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214;

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS 25.304 on that frequency.

1> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

2> initiate a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

2> when the cell update procedure completed successfully:

1> select PRACH according to TS 25.331 subclause 8.5.17;

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> use the transport format set given in system information;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> ignore that IE and stop using DRX.

1> if the contents of the variable C_RNTI is empty:

2> perform a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4, 8.3.1.7.

8.2.6.8.3 Test purpose

To confirm that the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message after the UE completes a cell update procedure.

8.2.6.8.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108

Test Procedure

The UE is in CELL_DCH state. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, which includes IE "Primary CPICH info"" (for FDD) or "Primary CCPCH info" (for TDD) and no dedicated physical channel information to invoke the UE to transit from CELL_DCH to CELL_FACH. As the UE cannot detect the specified cell, the UE shall initiate the cell update procedure. The UE transmits a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". The SS shall transmit a CELL UPDATE CONFIRM message on downlink DCCH after receiving a CELL UPDATE message. The UE then transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2	←		PHYSICAL CHANNEL RECONFIGURATION	This message include IE "Primary CPICH info" for FDD and Primary CCPCH info for TDD.
3			Void	
4	→		CELL UPDATE	The value "cell reselection" shall be set in IE "Cell update cause".
5	←		CELL UPDATE CONFIRM	See message content.
6	→		UTRAN MOBILITY INFORMATION CONFIRM	
7	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
8	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 3) (FDD)

Use the message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Annex A with the following exceptions:

Information Element	Value/remark
Downlink information for each radio links - Primary CPICH info - Primary scrambling code	 150

PHYSICAL CHANNEL RECONFIGURATION (Step 3) (TDD)

Use the message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Annex A with the following exceptions:

Information Element	Value/remark
Downlink information for each radio links - Primary CCPCH info - Cell parameters ID	 4

CELL UPDATE (Step 4)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in Annex A for FDD and Annex A for TDD with the following exceptions:

Information Element	Value/remark
Cell Update Cause	"cell reselection"

CELL UPDATE CONFIRM (Step 5)

Use the same message type found in clause Annex A, with the following exceptions.

Information Element	Value/Remarks
New C-RNTI	'1010 1010 1010 1010'

UTRAN MOBILITY INFORMATION CONFIRM (Step 6)

Only the message type is checked.

8.2.6.8.5 Test requirement

After step 3 the UE shall transmit a CELL UPDATE message on the CCCH with IE "Cell update cause" set to "cell reselection".

After step 5 UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC.

After step 6 UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

8.2.6.9 Physical channel reconfiguration for transition from CELL_FACH to CELL_DCH: Success

8.2.6.9.1 Definition

8.2.6.9.2 Conformance requirement

If the UE receives:

- a PHYSICAL CHANNEL RECONFIGURATION message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214;

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.6.9.3 Test purpose

To confirm that the UE reconfigures a new physical channel according to a PHYSICAL CHANNEL RECONFIGURATION message, which invoke UE to transit from CELL_FACH to CELL_DCH.

8.2.6.9.4 Method of test

Initial Condition

System Simulator: 1 cell

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108

Test Procedure

The UE is in CELL_DCH state. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE to transit from CELL_DCH to CELL_FACH. The UE shall reconfigure the common physical channel correctly according to this message. To complete this procedure, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE to invoke the UE to transit from CELL_FACH to CELL_DCH. The UE shall reconfigure the new dedicated physical channel correctly according to this message. To complete this procedure, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	IE "Uplink DPCH Info" and IE "Downlink DPCH Info" are not specified.
2				UE shall perform the reconfiguration.
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
4	←		PHYSICAL CHANNEL RECONFIGURATION	
5				The UE shall configure the allocated dedicated physical channels.
6	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
7	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

PHYSICAL CHANNEL RECONFIGURATION (Step 1)

Use the message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Annex A for FDD and Annex A for TDD.

PHYSICAL CHANNEL RECONFIGURATION (Step 4)

Use the message sub-type titled "Packet to CELL_DCH from CELL_FACH in PS" in Annex A.

8.2.6.9.5 Test requirement

After step 2 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION message on the common physical channel.

After step 5 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION message on the new dedicated physical channel.

8.2.6.9a Physical channel reconfiguration for transition from CELL_FACH to CELL_DCH: Success(1.28 Mcps TDD Only)

8.2.6.9a.1 Definition

8.2.6.9a.2 Conformance requirement

If the UE receives:

- a PHYSICAL CHANNEL RECONFIGURATION message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214;

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.6.9a.3 Test purpose

1. To confirm that the UE reconfigures a new physical channel according to a PHYSICAL CHANNEL RECONFIGURATION message, which invoke UE to transit from CELL_FACH to CELL_DCH.

2. To confirm that the UE reconfigures the physical channel in secondary carrier.

8.2.6.9a.4 Method of test

Initial Condition

System Simulator: 1 cell, Configure 3 carriers □one is theprimary carrier□the other two are secondary carriers.

Detail in the table as follows:

Parameter	Cell 1	Cell 2	Cell 3
UTRA RF Channel Number1	Ch. 1	Ch. 1	Ch.2
UTRA RF Channel Number2	Ch. 2	Ch. 2	Ch. 1
UTRA RF Channel Number3	Ch.3	Ch.3	Ch.3

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108

Test Procedure

The UE is in CELL_DCH state. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE to transit from CELL_DCH to CELL_FACH. The UE shall reconfigure the common physical channel correctly according to this message. To complete this procedure, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE to invoke the UE to transit from CELL_FACH to CELL_DCH. The UE shall reconfigure the new dedicated physical channel correctly according to this message. To complete this procedure, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	IE "Uplink DPCH Info" and IE "Downlink DPCH Info" are not specified.
2				UE shall perform the reconfiguration.
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
4	←		PHYSICAL CHANNEL RECONFIGURATION	
5				The UE shall configure the allocated dedicated physical channels on the secondary carrier.
6	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
7	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state of the secondary carrier □, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 1)

Use the message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Annex A for TDD.

PHYSICAL CHANNEL RECONFIGURATION (Step 4)

Use the message sub-type titled "Packet to CELL_DCH from CELL_FACH in PS" in Annex A.

with the following exceptions:

Information Element	Value/remark
PhysicalChannelReconfiguration-r4-TDD128-add-ext-IEs	
frequencyInfo	secondary carrier frequency

8.2.6.9a.5 Test requirement

After step 2 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the common physical channel.

After step 5 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the new dedicated physical channel.

8.2.6.10 Void

8.2.6.11 Physical channel reconfiguration for transition from CELL_FACH to CELL_DCH: Failure (Physical channel failure and successful reversion to old configuration)

8.2.6.11.1 Definition

8.2.6.11.2 Conformance requirement

When a physical dedicated channel establishment is initiated by the UE, the UE shall start a timer T312 and wait for layer 1 to indicate N312 "in sync" indications. On receiving N312 "in sync" indications, the physical channel is considered established and the timer T312 is stopped and reset.

If the timer T312 expires before the physical channel is established, the UE shall consider this as a "physical channel establishment failure".

…

If the received message caused the UE to be in CELL_DCH state and the UE failed to establish the dedicated physical channel(s) indicated in the received message the UE shall:

1> revert to the configuration prior to the reception of the message (old configuration);

…

1> if the old configuration does not include dedicated physical channels (CELL_FACH state):

2> select a suitable UTRA cell according to TS 25.304;

1> transmit a failure response message as specified in TS 25.331 subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "physical channel failure".

1> set the variable ORDERED_RECONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

…

The UE shall:

1> in case of reception of a PHYSICAL CHANNEL RECONFIGURATION message:

…

2> transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE as response message on the DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.7, 8.2.2.9, 8.5.4.

8.2.6.11.3 Test purpose

To confirm that the UE reverts to the old configuration and transmits a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC if the UE fails to reconfigure the new physical channel according to a PHYSICAL CHANNEL RECONFIGURATION message before the T312 expiry.

8.2.6.11.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108

Test Procedure

The UE is in CELL_DCH state. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE to invoke the UE to transit from CELL_DCH to CELL_FACH. The UE shall reconfigure the common physical channel correctly according to this message. To complete this procedure, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC. SS then send a MEASUREMENT CONTROL message to UE. The UE shall perform periodical traffic volume measurement according to this message and then transmit MEASUREMENT REPORT message back to SS. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE to invoke the UE to transit from CELL_FACH to CELL_DCH. However, the SS keeps its current physical channel configuration and then the UE cannot synchronise with the SS. After T312 expires, the UE attempt to revert to the old configuration. Then the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC which is set "physical channel failure" in IE "failure cause". UE shall continue its traffic volume measurement and send MEASUREMENT REPORT messages back to SS periodically.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	IE "Uplink DPCH Info" and IE "Downlink DPCH Info" are not specified.
2				UE shall perform the reconfiguration
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
3a	←		MEASUREMENT CONTROL	SS requests UE to perform periodical traffic volume measurement.
3b	→		MEASUREMENT REPORT	
4	←		PHYSICAL CHANNEL RECONFIGURATION	
5				The SS does not reconfigure the physical channel, hence the UE shall detect a failure to reconfigure to the new physical channel.
6	→		PHYSICAL CHANNEL RECONFIGURATION FAILURE	After T312 expires the UE reverts to the old configuration and transmits this message.
7	→		MEASUREMENT REPORT	

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 1)

Use the message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in clause 9 of TS 34.108 for FDD or for TDD.

MEASUREMENT CONTROL (Step 3a)

Use the MEASUREMENT CONTROL message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/Remark	Version
Measurement Identity	1	
Measurement Command	Setup	
Measurement reporting mode		
- Measurement Report Transfer Mode	Acknowledged mode RLC	
- Periodical Reporting / Event Trigger Reporting Mode	Periodical Reporting	
Additional measurement list	Not Present	
CHOICE measurement type	Traffic Volume Measurement	
- Traffic volume measurement object list		
- Uplink transport channel type	RACHorCPCH	R99 and Rel-4 only
	RACH	Rel-5
- UL Target Transport Channel ID	Not Present	
- Traffic volume measurement quantity		
- Measurement quantity	RLC Buffer Payload	
- Time Interval to take an average or a variance	Not Present	
- Traffic volume reporting quantity		
- RLC Buffer Payload for each RB	True	
- Average of RLC Buffer Payload for each RB	False	
- Variance of RLC Buffer Payload for each RB	False	
- Measurement validity		
- UE state	All states except CELL_DCH	
- CHOICE Reporting criteria	Periodical Reporting Criteria	
- Amount of reporting	Infinity	
- Reporting interval	8000	
DPCH compressed mode status	Not Present	

MEASUREMENT REPORT (Step 3b and 7)

Check to see if the same message type found in [9] TS 34.108 Clause 9 is received, with the following exceptions and the order in which the RBs are reported is not checked:

Information Element	Value/Remarks
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	20
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

PHYSICAL CHANNEL RECONFIGURATION (Step 4)

Use the message sub-type titled "Packet to CELL_DCH from CELL_FACH in PS" in clause 9 of TS 34.108 for FDD or for TDD.

PHYSICAL CHANNEL RECONFIGURATION FAILURE (Step 6)

The contents of PHYSICAL CHANNEL RECONFIGURATION FAILURE message in this test case is the same as the PHYSICAL CHANNEL RECONFIGURATION FAILURE message as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Failure cause	Physical channel failure

8.2.6.11.5 Test requirement

After step 2 the UE shall transit from CELL_DCH to CELL_FACH and transmit a PHYSICAL CHANNEL RECONFIGURATION message on the common physical channel.

After step 3a, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on RACH at every 8s interval.

After step 5 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC, specifying "physical channel failure" in IE "failure cause".

After step 6, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on RACH at every 8s interval.

8.2.6.12 Physical channel reconfiguration for transition from CELL_FACH to CELL_DCH: Failure (Physical channel failure and cell update)

8.2.6.12.1 Definition

8.2.6.12.2 Conformance requirement

When a physical dedicated channel establishment is initiated by the UE, the UE shall start a timer T312 and wait for layer 1 to indicate N312 "in sync" indications. On receiving N312 "in sync" indications, the physical channel is considered established and the timer T312 is stopped and reset.

If the timer T312 expires before the physical channel is established, the UE shall consider this as a "physical channel establishment failure".

…

If the received message caused the UE to be in CELL_DCH state and the UE failed to establish the dedicated physical channel(s) indicated in the received message the UE shall:

1> revert to the configuration prior to the reception of the message (old configuration);

…

1> if the old configuration does not include dedicated physical channels (CELL_FACH state):

2> select a suitable UTRA cell according to TS 25.304;

2> if the UE selects another cell than the cell the UE camped on upon reception of the reconfiguration message:

3> initiate a cell update procedure according to TS 25.331 subclause 8.3.1, using the cause "Cell reselection";

3> after the cell update procedure has completed successfully:

4> proceed as below.

1> transmit a failure response message as specified in TS 25.304 subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "physical channel failure".

1> set the variable ORDERED_RECONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

…

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- does not include "CN information elements"; and
- does not include the IE "Ciphering mode info"; and

- does not include the IE "Integrity protection mode info"; and
- does not include the IE "New C-RNTI"; and
- does not include the IE "New U-RNTI":

the UE shall:

1> transmit no response message.

…

The UE shall:

1> in case of reception of a PHYSICAL CHANNEL RECONFIGURATION message:

…

2> transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE as response message on the DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.7, 8.2.2.9,8.3.1.7, 8.5.4

8.2.6.12.3 Test purpose

To confirm that the UE initiates a cell update procedure after it fails to reconfigure the new physical channel and selects another cell.

To confirm that UE transmits a PHYSICAL CHANNEL RECONFIGURATION FAILURE message after UE completes cell update procedure.

8.2.6.12.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and 2 are active.

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108 in cell 1

NOTE: The 'timer poll' value in the SS RLC transmit entity should be set to 800 ms.

Test Procedure

Table 8.2.6.12

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-75	-75	-60
P-CCPCH RSCP (TDD)	dBm	-60	-75	-75	-60

Table 8.2.6.12 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 2.

The UE is in CELL_DCH state in cell 1. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE to invoke the UE to transit from CELL_DCH to CELL_FACH. The UE shall reconfigure the common physical channel correctly according to this message. To complete this procedure, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC. Then SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE, but the SS does not reconfigure L1 accordingly. The SS

configures its downlink transmission power settings according to columns "T1"in table 8.2.6.12. As a result, the UE fails to synchronise on the new physical channel before timer T312 expires. UE may send a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC, setting IE "failure cause" to "physical channel failure" to cell 1. UE reselects to cell 2 and then the UE shall transmit a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "Cell reselection". The SS shall transmit a CELL UPDATE CONFIRM message on downlink DCCH after receiving a CELL UPDATE message. If not already done so, the UE may transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC, setting IE "failure cause" to "physical channel failure" in cell 2. UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC in cell 2 to acknowledge the reception of new C-RNTI value. If not already done so, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC, setting IE "failure cause" to "physical channel failure".

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	IE "Uplink DPCH Info" and IE "Downlink DPCH Info" are not specified.
2				UE shall perform the reconfiguration
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
4	←		PHYSICAL CHANNEL RECONFIGURATION	The SS does not configure the new dedicated physical channel in accordance with the settings in the message and applies the downlink transmission power settings, according to the values in columns "T1" of table 8.2.6.12.
5	→		PHYSICAL CHANNEL RECONGURATION FAILURE (option 1)	UE shall transmit this message in the cell 1.
6			Void	
7	→		CELL UPDATE	This message includes the value "cell reselection" set in IE "Cell update cause".
8	←		CELL UPDATE CONFIRM	
8a	→		PHYSICAL CHANNEL RECONGURATION FAILURE (option 2)	UE shall transmit this message in the cell 2.
9	→		UTRAN MOBILITY INFORMATION CONFIRM	
10	→		PHYSICAL CHANNEL RECONGURATION FAILURE (option 3)	UE shall transmit this message in the cell 2.
11	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

RRC CONNECTION SETUP (message used in the initial setup)

Use the same message type found in clause 9 of TS 34.108 with the following exception:

Signalling RB information to setup	(AM DCCH for RRC)
- RB identity	Not Present
- CHOICE RLC info type	
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	32
- Timer_RST	500
- Max_RST	1
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	800
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present

PHYSICAL CHANNEL RECONFIGURATION (Step 1)

Use the message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Clause 9 of TS 34.108 for FDD or for TDD.

PHYSICAL CHANNEL RECONFIGURATION (Step 4)

Use the message sub-type titled "Packet to CELL_DCH from CELL_FACH in PS" in Clause 9 of TS 34.108 for FDD or for TDD.

CELL UPDATE (Step 7)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in Clause 9 of TS 34.108 for FDD or for TDD with the following exceptions:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Assigned previously in cell 1
- S-RNTI	Assigned previously in cell 1
Cell Update Cause	"cell reselection"

CELL UPDATE CONFIRM (Step 8)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in Clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'

UTRAN MOBILITY INFORMATION CONFIRM (Step 9)

The contents of UTRAN MOBILITY INFORMATION CONFIRM message is identical as "Contents of UTRAN MOBILITY INFORMATION CONFIRM message" as found in Clause 9 of TS 34.108 for FDD or for TDD.

PHYSICAL CHANNEL RECONGURATION FAILURE (Steps 5, 8a and 10)

The contents of PHYSICAL CHANNEL RECONFIGURATION FAILURE message in this test case is the same as the PHYSICAL CHANNEL RECONFIGURATION FAILURE message as found in Clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Failure cause	"physical channel failure"

8.2.6.12.5 Test requirement

After step 2 the UE shall transit from CELL_DCH to CELL_FACH and transmit a PHYSICAL CHANNEL RECONFIGURATION message on the common physical channel.

After step 6 the UE shall transmit a CELL UPDATE message using RLC-TM mode on the uplink CCCH with IE "Cell update cause" set to "cell reselection" in cell 2.

After step 8, UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message.

The UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC, setting the IE "failure cause" to "physical channel failure" after step 4, 8 or 9.

8.2.6.13 Void

8.2.6.14 Physical channel reconfiguration for transition from CELL_FACH to CELL_DCH: Failure (Invalid message reception and Invalid configuration)

8.2.6.14.1 Definition

8.2.6.14.2 Conformance requirement

If the received reconfiguration message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to TS 25.331 clause 9, the UE shall perform procedure specific error handling as follows. The UE shall:

1> transmit a failure response message as specified in TS 25.331 subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Rejected transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to the cause value "protocol error";

2> include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION.

If the variable INVALID_CONFIGURATION is set to TRUE the UE shall:

1> keep the configuration existing before the reception of the message;

1> transmit a failure response message as specified in TS 25.331 subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

3> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> clear that entry.

2> set the IE "failure cause" to "invalid configuration".

1> set the variable INVALID_CONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

The UE shall:

1> in case of reception of a PHYSICAL CHANNEL RECONFIGURATION message:

…

2> transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE as response message on the DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.13, 8.2.2.11, 8.2.2.9

8.2.6.14.3 Test purpose

To confirm that the UE transmits a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC if the received message does not include any IEs except IE "Message Type".

To confirm that the UE transmits a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC if it receives a PHYSICAL CHANNEL RECONFIGURATION message including some IEs which are set to give an invalid configuration.

8.2.6.14.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108

Test Procedure

The UE is in CELL_DCH state. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE to invoke the UE to transit from CELL_DCH to CELL_FACH. The UE shall reconfigure the common physical channel correctly according to this message. To complete this procedure, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC. SS then send a MEASUREMENT CONTROL message to UE. The UE shall perform periodical traffic volume measurement according to this message and then transmit MEASUREMENT REPORT message back to SS. The SS transmits an invalid PHYSICAL CHANNEL RECONFIGURATION message to the UE which contains an unexpected critical message extension. The UE keeps the old configuration and transmits a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC, setting "protocol error" in IE "failure cause" and also setting "Message extension not comprehended" in IE "Protocol error cause". UE shall continue its traffic volume measurement and send MEASUREMENT REPORT messages back to SS periodically. SS transmits PHYSICAL CHANNEL RECONFIGURATION message including some IEs which are set to give an invalid configuration. The UE keeps current configuration and transmits a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC, setting IE "failure cause" to "invalid configuration". UE shall continue its traffic volume measurement and send MEASUREMENT REPORT messages back to SS periodically.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	IE "Uplink DPCH Info" and IE "Downlink DPCH Info" are not specified.
2				UE shall perform the reconfiguration
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE enters CELL_FACH state.
3a	←		MEASUREMENT CONTROL	SS requests UE to perform periodical traffic volume measurement.
3b	→		MEASUREMENT REPORT	
4	←		PHYSICAL CHANNEL RECONFIGURATION	See specific message content.
5	→		PHYSICAL CHANNEL RECONFIGURATION FAILURE	The UE does not change the configuration.
5a	→		MEASUREMENT REPORT	
6	←		PHYSICAL CHANNEL RECONFIGURATION	This message includes IEs which are set to give an invalid configuration.
7				The UE does not change the configuration
8	→		PHYSICAL CHANNEL RECONFIGURATION FAILURE	The IE "failure cause" shall be set to "invalid configuration
9	→		MEASUREMENT REPORT	

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 1)

Use the message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Annex A for FDD and Annex A for TDD.

MEASUREMENT CONTROL (Step 3a)

Use the MEASUREMENT CONTROL message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/Remark	Version
Measurement Identity	1	
Measurement Command	Setup	
Measurement reporting mode		
- Measurement Report Transfer Mode	Acknowledged mode RLC	
- Periodical Reporting / Event Trigger Reporting Mode	Periodical Reporting	
Additional measurement list	Not Present	
CHOICE measurement type	Traffic Volume Measurement	
- Traffic volume measurement object list		
- Uplink transport channel type	RACHorCPCH	R99 and Rel-4 only
	RACH	Rel-5
- UL Target Transport Channel ID	Not Present	
- Traffic volume measurement quantity		
- Measurement quantity	RLC Buffer Payload	
- Time Interval to take an average or a variance	Not Present	
- Traffic volume reporting quantity		
- RLC Buffer Payload for each RB	True	
- Average of RLC Buffer Payload for each RB	False	
- Variance of RLC Buffer Payload for each RB	False	
- Measurement validity		
- UE state	All states	
- CHOICE Reporting criteria	Periodical Reporting Criteria	
- Amount of reporting	Infinity	
- Reporting interval	8000	
DPCH compressed mode status	Not Present	

MEASUREMENT REPORT (Step 3b, 5a and 9)

Check to see if the same message type found in [9] TS 34.108 Clause 9 is received, with the following exceptions and the order in which the RBs are reported is not checked:

Information Element	Value/Remarks
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	20
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

PHYSICAL CHANNEL RECONFIGURATION (Step 4)

Use the PHYSICAL CHANNEL RECONFIGURATION message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Critical extensions	'FF'H

PHYSICAL CHANNEL RECONFIGURATION FAILURE (Step 5)

The contents of PHYSICAL CHANNEL RECONFIGURATION FAILURE message in this test case is the same as the PHYSICAL CHANNEL RECONFIGURATION FAILURE message as found in Annex A, with the following exceptions:

Information Element	Value/remark
Failure cause - Failure cause - Protocol error information - Protocol error cause	 Protocol error Message extension not comprehended

PHYSICAL CHANNEL RECONFIGURATION (Step 6) (FDD)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type title "Packet to CELL_DCH from CELL_FACH in PS" as found in Annex A with the following exceptions:

Information Element	Value/remark
- Default DPCH Offset Value	1 (512)
- DPCH frame offset	4 (1024)

PHYSICAL CHANNEL RECONFIGURATION (Step 6) (TDD)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type title "Packet to CELL_DCH from CELL_FACH in PS" as found in Annex A with the following exceptions:

Information Element	Value/remark
-PRACH TFCS	Present

PHYSICAL CHANNEL RECONFIGURATION FAILURE (Step 7)

The contents of PHYSICAL CHANNEL RECONFIGURATION FAILURE message in this test case is the same as the PHYSICAL CHANNEL RECONFIGURATION FAILURE message as found in Annex A, with the following exceptions:

Information Element	Value/remark
Failure cause	Invalid configuration

8.2.6.14.5 Test requirement

After step 2 the UE shall transit from CELL_DCH to CELL_FACH and transmit a PHYSICAL CHANNEL RECONFIGURATION message on the common physical channel.

After step 3a, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on RACH at every 8s interval.

After step 4 the UE shall keep its old configuration, transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC with "protocol error" in IE "failure cause" and also "Message extension not comprehended" in IE "Protocol error cause".

After step 5, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on RACH at every 8s interval.

After step 7 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC, setting IE "failure cause" to "invalid configuration".

After step 8, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on RACH at every 8s interval.

8.2.6.15 Void

8.2.6.16 Void

8.2.6.17 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (code modification): Success (Subsequently received)

8.2.6.17.1 Definition

8.2.6.17.2 Conformance requirement

If the IE "RRC transaction identifier" is included in a received message, the UE shall perform the actions below. The UE shall:

If the received message is any of the messages:

- PHYSICAL CHANNEL RECONFIGURATION; or

  …

the UE shall:

2> if the variable ORDERED_RECONFIGURATION is set to TRUE; or

2> if the variable CELL_UPDATE_STARTED is set to TRUE; or

2> if the table "Accepted transactions" in the variable TRANSACTIONS contains an entry with an IE "Message Type" set to ACTIVE SET UPDATE; or

2> if the received message contains a protocol error according to TS 25.331 clause 9 causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE:

3> if the IE "RRC transaction identifier" of the received message is identical to the "RRC transaction identifier" stored for the same "Message Type" as the received message in the table "Accepted transactions" in the variable TRANSACTIONS:

4> ignore the transaction; and

4> continue with any ongoing processes and procedures as the message was not received;

4> and end the procedure.

3> else:

…

Reference

3GPP TS 25.331 clause 8.6.3.11.

8.2.6.17.3 Test purpose

To confirm that if the UE receives a PHYSICAL CHANNEL RECONFIGURATION message before the UE reconfigures the radio bearer according to the previous PHYSICAL CHANNEL RECONFIGURATION message it

ignores the new PHYSICAL CHANNEL RECONFIGURATION message and reconfigures according to the previous PHYSICAL CHANNEL RECONFIGURATION message.

8.2.6.17.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in the CELL_DCH state. When the SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE before the activation time specified in the previous PHYSICAL CHANNEL RECONFIGURATION message elapses, the UE ignores the new PHYSICAL CHANNEL RECONFIGURATION message and reconfigures according to the previous PHYSICAL CHANNEL RECONFIGURATION message received. Finally, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1		←	PHYSICAL CHANNEL RECONFIGURATION	For FDD mode Scrambling code number is set to "1". For TDD mode a code combination is assigned by SS.
2		←	PHYSICAL CHANNEL RECONFIGURATION	SS send this message before the expiry of "activation time" specified in PHYSICAL CHANNEL RECONFIGURATION message of step 1. For FDD, the IE "Scrambling code number" is set to "2". For TDD, the code combination assigned is different to that assigned in stage 1.
3		→	PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE ignores the PHYSICAL CHANNEL RECONFIGURATION message in step 2 and confirms configuration according to the PHYSICAL CHANNEL RECONFIGURATION message in step 1.
4		←→	CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 1) (FDD)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type title as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time Info - Uplink DPCH info - Scrambling code number	[256+Current CFN-[current CFN mod 8 + 8]]MOD 256 1

PHYSICAL CHANNEL RECONFIGURATION (Step 1) (TDD)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type title as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time - Uplink DPCH timeslots and codes - First timeslot code list	[256+Current CFN-[current CFN mod 8 + 8]]MOD 256 Assigned in step 1

PHYSICAL CHANNEL RECONFIGURATION (Step 2) (FDD)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type title as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time - Uplink DPCH info - Scrambling code number	Not Present 2

PHYSICAL CHANNEL RECONFIGURATION (Step2) (TDD)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type title "Packet to CELL_DCH from CELL_DCH in PS" found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time - Uplink DPCH timeslots and codes - First timeslot code list	Not Present A different code combination to that used in step 1.

8.2.6.17.5 Test requirement

After step 2 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

8.2.6.18 Physical channel reconfiguration for transition from CELL_FACH to CELL_DCH: Success (Subsequently received)

8.2.6.18.1 Definition

8.2.6.18.2 Conformance requirement

If the IE "RRC transaction identifier" is included in a received message, the UE shall perform the actions below. The UE shall:

If the received message is any of the messages:

- PHYSICAL CHANNEL RECONFIGURATION; or

  …

the UE shall:

  2> if the variable ORDERED_RECONFIGURATION is set to TRUE; or

2> if the variable CELL_UPDATE_STARTED is set to TRUE; or

2> if the table "Accepted transactions" in the variable TRANSACTIONS contains an entry with an IE "Message Type" set to ACTIVE SET UPDATE; or

2> if the received message contains a protocol error according to TS 25.331 clause 9 causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE:

3> if the IE "RRC transaction identifier" of the received message is identical to the "RRC transaction identifier" stored for the same "Message Type" as the received message in the table "Accepted transactions" in the variable TRANSACTIONS:

4> ignore the transaction; and

4> continue with any ongoing processes and procedures as the message was not received;

4> and end the procedure.

3> else:

Reference

3GPP TS 25.331 clause 8.6.3.11.

8.2.6.18.3 Test purpose

To confirm that if the UE receives a PHYSICAL CHANNEL RECONFIGURATION message before the UE reconfigures the radio bearer according to the previous PHYSICAL CHANNEL RECONFIGURATION message it ignores the new PHYSICAL CHANNEL RECONFIGURATION message and reconfigures according to the previous PHYSICAL CHANNEL RECONFIGURATION message.

8.2.6.18.4 Method of test

Initial Condition

System Simulator: 1 cell

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108

Test Procedure

The UE is in CELL_DCH state. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE to invoke the UE to transit from CELL_DCH to CELL_FACH. The UE shall reconfigure the common physical channel correctly according to this message. To complete this procedure, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC. When the SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE before the activation time specified in the previous PHYSICAL CHANNEL RECONFIGURATION message, the UE ignores the new PHYSICAL CHANNEL RECONFIGURATION message and reconfigures according to the previous PHYSICAL CHANNEL RECONFIGURATION message received. Finally, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	IE "Uplink DPCH Info" and IE "Downlink DPCH Info" are not specified.
2				UE shall perform the reconfiguration
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE enters CELL_FACH state.
4	←		PHYSICAL CHANNEL RECONFIGURATION	Scrambling code number is set to "1" for FDD mode and A code combination is assigned by SS for TDD
5	←		PHYSICAL CHANNEL RECONFIGURATION	For FDD the IE "Scrambling code number" is set to "2". For TDD, the code combination assigned is different from that assigned in stage 4.
6	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE ignores the PHYSICAL CHANNEL RECONFIGURATION message in step 5 and confirms configuration according to the PHYSICAL CHANNEL RECONFIGURATION message in step 4.
7	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

PHYSICAL CHANNEL RECONFIGURATION (Step 1)

Use the message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9.

PHYSICAL CHANNEL RECONFIGURATION (Step 4) (FDD)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type title "Packet to CELL_DCH from CELL_FACH in PS" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time Info - Uplink DPCH info - Scrambling code number	Not present 1

PHYSICAL CHANNEL RECONFIGURATION (Step 4) (TDD)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type title "Packet to CELL_DCH from CELL_FACH in PS" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time - Uplink DPCH timeslots and codes - First timeslot code list	[256+Current CFN-[current CFN mod 8 + 8]]MOD 256 Assigned in step 1

PHYSICAL CHANNEL RECONFIGURATION (Step 5) (FDD)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type title "Packet to CELL_DCH from CELL_FACH in PS" found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time - Uplink DPCH info - Scrambling code number	Not Present 2

PHYSICAL CHANNEL RECONFIGURATION (Step 5) (TDD)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type title "Packet to CELL_DCH from CELL_FACH in PS" found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time - Uplink DPCH timeslots and codes - First timeslot code list	Not Present A different code combination to that used in step 1.

8.2.6.18.5 Test requirement

After step 2 the UE shall transit from CELL_DCH to CELL_FACH and transmit a PHYSICAL CHANNEL RECONFIGURATION message on the common physical channel.

After step 5 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

8.2.6.19 Physical Channel Reconfiguration from CELL_DCH to CELL_PCH: Success

8.2.6.19.1 Definition

8.2.6.19.2 Conformance requirement

If the UE receives:

- a PHYSICAL CHANNEL RECONFIGURATION message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214;

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If after state transition the UE enters CELL_PCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS 25.304 on that frequency.

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in TS 25.331 subclause 8.6.3.2.

1> if the IE "UTRAN DRX cycle length coefficient" is not included in the same message:

2> set the variable INVALID_CONFIGURATION to TRUE.

…

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

If the new state is CELL_PCH, the response message shall be transmitted using the old configuration before the state transition, but the new C-RNTI shall be used if the IE "New C-RNTI" was included in the received reconfiguration message, and the UE shall:

1> when RLC has confirmed the successful transmission of the response message:

…

2> enter the new state (CELL_PCH);

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.6.19.3 Test purpose

To confirm that the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and enter CELL_PCH state after it received a PHYSICAL CHANNEL RECONFIGURATION message, which invokes the UE to transit from CELL_DCH to CELL_PCH.

8.2.6.19.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108

Test Procedure

The UE is in CELL_DCH state. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, which invokes the UE to transit from CELL_DCH to CELL_PCH. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC and enters CELL_PCH state. SS calls for generic procedure C.4 to check that UE is in CELL_PCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE sends this message before it completes state transition.
3			Void	SS sends the L2 ack on the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and then waits 5 seconds to allow the UE to read system information before the next step. Note: The SS should continue to keep the dedicated channel configuration during the time when the L2 ack is sent to the UE.
4	←→		CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 1) (FDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Annex A with following exceptions:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
Downlink information for each radio link - Primary CPICH info - Primary scrambling code	 100

PHYSICAL CHANNEL RECONFIGURATION (Step 1) (TDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Annex A with following exceptions:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
Downlink information for each radio links	
- Primary CCPCH info	
-Cell parameters ID	0

8.2.6.19.5 Test requirement

After step 1 the UE shall transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

8.2.6.20 Physical Channel Reconfiguration from CELL_DCH to URA_PCH: Success

8.2.6.20.1 Definition

8.2.6.20.2 Conformance requirement

If the UE receives:

- a PHYSICAL CHANNEL RECONFIGURATION message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214;

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If after state transition the UE enters URA_PCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS 25.304 on that frequency.

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in TS 25.331 subclause 8.6.3.2.

1> if the IE "UTRAN DRX cycle length coefficient" is not included in the same message:

2> set the variable INVALID_CONFIGURATION to TRUE.

…

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

If the new state is URA_PCH, the response message shall be transmitted using the old configuration before the state transition, but the new C-RNTI shall be used if the IE "New C-RNTI" was included in the received reconfiguration message, and the UE shall:

1> when RLC has confirmed the successful transmission of the response message:

…

2> enter the new state (URA_PCH);

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.6.20.3 Test purpose

To confirm that the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and enter URA_PCH state after it received a PHYSICAL CHANNEL RECONFIGURATION message, which invokes the UE to transit from CELL_DCH to URA_PCH.

8.2.6.20.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108

Test Procedure

The UE is in the CELL_DCH state. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, which invoke the UE to transit from CELL_DCH to URA_PCH. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC and enters URA_PCH state. SS calls for generic procedure C.5 to check that UE is in URA_PCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE sends this message before it completes state transition.
3			Void	SS sends the L2 ack on the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and then waits 5 seconds to allow the UE to read system information before the next step. Note: The SS should continue to keep the dedicated channel configuration during the time when the L2 ack is sent to the UE.
4	←→		CALL C.5	If the test result of C.5 indicates that UE is in URA_PCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 1) (FDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Annex A with following exceptions:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	URA_PCH
UTRAN DRX cycle length coefficient	3
URA Identity	0000 0000 0000 0001B

PHYSICAL CHANNEL RECONFIGURATION (Step 1) (TDD)

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	URA_PCH
UTRAN DRX cycle length coefficient	3
URA Identity	0000 0000 0000 0001B

8.2.6.20.5 Test requirement

After step 1 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

8.2.6.21 Physical Channel Reconfiguration from CELL_FACH to URA_PCH: Success

8.2.6.21.1 Definition

8.2.6.21.2 Conformance requirement

1. In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:
   - transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC;
2. If the new state is CELL_PCH or URA_PCH, the response message shall be transmitted using the old configuration before the state transition, but the new C-RNTI shall be used if the IE "New C-RNTI" was included in the received reconfiguration message, and the UE shall:
   - when RLC has confirmed the successful transmission of the response message:
     - for each radio bearer in the variable PDCP_SN_INFO:
       - if the IE "RB started" in the variable ESTABLISHED_RABS is set to "started":
         - configure the RLC entity for that radio bearer to "continue";
     - enter the new state (CELL_PCH or URA_PCH, respectively);

Reference

3GPP TS 25.331 clause 8.2.2.4

8.2.6.21.3 Test purpose

1. To verify that the UE, when receiving a PHYSICAL CHANNEL RECONFIGURATION message, responds by transmitting a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.
2. To verify that the response message is transmitted using the old configuration before the state transition, and that the UE enters the URA_PCH state.

8.2.6.21.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in the CELL_FACH state. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message. The UE transmits PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS using AM RLC and enters into URA_PCH state. SS calls for generic procedure C.5 to check that UE is in URA_PCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE sends this message before start state transition.
3				Reconfiguration of Physical Channel after state transition.
4	←→		CALL C.5	If the test result of C.5 indicates that UE is in URA_PCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 1)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in Annex A with following exceptions:

Information Element	Value/remark
New C-RNTI RRC State Indicator UTRAN DRX cycle length coefficient	Not Present URA_PCH 3
URA identity	URA-ID 1

8.2.6.21.5 Test requirement

1. After step 1 the UE transmits PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the UE on uplink DCCH using AM RLC.

8.2.6.22 Physical Channel Reconfiguration from CELL_FACH to CELL_PCH: Success

8.2.6.22.1 Definition

8.2.6.22.2 Conformance requirement

1. In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

   - transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC;

2. If the new state is CELL_PCH or URA_PCH, the response message shall be transmitted using the old configuration before the state transition, but the new C-RNTI shall be used if the IE "New C-RNTI" was included in the received reconfiguration message, and the UE shall:

   - when RLC has confirmed the successful transmission of the response message:
     - for each radio bearer in the variable PDCP_SN_INFO:
       - if the IE "RB started" in the variable ESTABLISHED_RABS is set to "started":
         - configure the RLC entity for that radio bearer to "continue";
     - enter the new state (CELL_PCH or URA_PCH, respectively);

Reference

3GPP TS 25.331 clause 8.2.2.4

8.2.6.22.3 Test purpose

1. To verify that the UE, when receiving a PHYSICAL CHANNEL RECONFIGURATION message, responds by transmitting a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

2. To verify that the response message is transmitted using the old configuration before the state transition, and that the UE enters the CELL_PCH state.

8.2.6.22.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_FACH(state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in the CELL_FACH state. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message. The UE transmits PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS using AM RLC and enters into CELL_PCH state. SS calls for generic procedure C.4 to check that UE is in CELL_PCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE sends this message before start state transition.
3				Reconfiguration of Physical Channel after state transition.
4	←→		CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 1)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in Annex A with following exceptions:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3

8.2.6.22.5 Test requirement

1. After step 1 the UE transmits PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the UE on uplink DCCH using AM RLC.

8.2.6.23 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (Hard handover to another frequency with timing maintain): Success

8.2.6.23.1 Definition

8.2.6.23.2 Conformance requirement

If the UE receives:

- a PHYSICAL CHANNEL RECONFIGURATION message:

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS25.214;

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS25.331 subclause 8.6.3.3.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if the IE "Downlink information for each radio link" is absent, not change its current DL Physical channel configuration.

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

1> the procedure ends.

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.6.23.3 Test purpose

To confirm that the UE transmits PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC, on a dedicated physical channel in a different frequency band.

8.2.6.23.4 Method of test

Initial Condition

System Simulator: 2 cells–Cells 1 is active and cell 6 is inactive.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending to the CN domain(s) supported by the UE.

Test Procedure

Table 8.2.6.23

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-55	-55	Off	-55

Table 8.2.6.23 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings from columns "T0" to "T1", whenever the description in multi-cell condition specifies the transmission power settings for cell 1 and cell 6.

The UE is in CELL_DCH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.23. The SS switches its downlink transmission power settings to columns "T1" and transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE, which includes new frequency information and IE "Timing indicator" set to maintain. The UE shall reconfigure the physical channel parameters according to PHYSICAL CHANNEL RECONFIGURATION message and establish a radio link with the SS using a dedicated physical channel in cell 6. The UE then transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message in cell 6 on the uplink DCCH AM RLC after its transition. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The initial state of UE is in CELL_DCH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.23.
2				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.6.23.
3	←		PHYSICAL CHANNEL RECONFIGURATION	Including new frequency information. IE "Timing indicator" is set to maintain.
4				The UE remains in CELL_DCH state after connecting to the SS on a dedicated physical channel in cell 6.
5	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE transmits this message in cell 6.
6	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 3)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Activation Time	Current CFN-[current CFN mod 8 + 8]
Uplink DPCH info	
- Scrambling code number	1
Frequency info	
- UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 6
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing Indicator	Maintain
Downlink information for each radio links	
- Primary CPICH info	
- Primary Scrambling Code	350

8.2.6.23.5 Test requirement

After step 4 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC in cell 6.

8.2.6.24 Void

8.2.6.25 Physical channel reconfiguration for transition from CELL_DCH to CELL_FACH (Frequency modification): Success

8.2.6.25.1 Definition

8.2.6.25.2 Conformance requirement

If the UE receives:

-a PHYSICAL CHANNEL RECONFIGURATION message;

it shall:

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

1> enter a state according to TS25.331 subclause 8.6.3.3.

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304 on that frequency.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304.

1> if the received reconfiguration message included the IE "Primary CPICH info" (, and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info":

2> initiate a cell update procedure according to TS25.331 subclause 8.3.1 using the cause "Cell reselection";

2> when the cell update procedure completed successfully:

3> if the UE is in CELL_PCH or URA_PCH state:

4> initiate a cell update procedure according to TS25.331 subclause 8.3.1 using the cause "Uplink data transmission";

4> proceed as below.

1> select PRACH according to TS25.331 subclause 8.5.17;

1> select Secondary CCPCH according to TS25.331 subclause 8.5.19;

1> use the transport format set given in system information;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> ignore that IE and stop using DRX.

1> if the contents of the variable C_RNTI is empty:

2> perform a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

2> when the cell update procedure completed successfully:

3> if the UE is in CELL_PCH or URA_PCH state:

4> initiate a cell update procedure according to TS25.331 subclause 8.3.1 using the cause "Uplink data transmission";

4> proceed as below.

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC, using the new configuration after the state transition.

1> the procedure ends.

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.6.25.3 Test purpose

1. To confirm that the UE transits from CELL_DCH to CELL_FACH according to the PHYSICAL CHANNEL RECONFIGURATION message.

2. To confirm that the UE transmits PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC on a common physical channel in a different frequency..

8.2.6.25.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 is active and cell 6 is inactive.

UE: "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108. If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

Table 8.2.6.25

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-55	-85	Off	-55

Table 8.2.6.25 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 6.

The UE is in idle mode of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.25. The SS and UE execute procedure P5. Next The SS and the UE execute procedure P9 and then execute procedure P13.The SS switches its downlink transmission power settings to columns "T1" and transmits a PHYSICAL CHANNEL RECONFIGURATION message with no IE "Frequency info" and IE "Primary CPICH info". The UE selects cell 6 and and initiates CELL UPDATE procedure with IE "Cell update cause" set to "cell reselection". Upon completion of the cell update procedure, UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC on the DCCH in cell 6. The SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1a	←→		SS executes procedure P5 (clause 7.4.2.2.2) specified in TS 34.108.	
1b	←→		SS executes procedure) P9 (clause 7.4.2.4.2) specified in TS 34.108.	
1c	←→		SS executes procedure P13 (clause 7.4.2.6.2) specified in TS 34.108.	
2				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.6.25.
3	←		Void	
4	←		PHYSICAL CHANNEL RECONFIGURATION	No including IE "Frequency info" and IE "Primary CPICH info"
5	→		CELL UPDATE	The IE "Cell update cause" is set to "cell reselection".
6	←		CELL UPDATE CONFIRM	Including the IE" New C-RNTI"
7	→		UTRAN MOBILITY INFORMATION CONFIRM	
8	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE sends this message on a common physical channel in cell 6.
9	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 4)

Use the message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
Frequency info	Not Present
Downlink information for each radio link	Not Present

CELL UPDATE (Step 5)

The contents of CELL UPDATE message are identical as "Contents of CELL UPDATE message" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Cell Update Cause	"cell reselection"

CELL UPDATE CONFIRM (Step 6)

The contents of CELL UPDATE CONFIRM message are identical as "CELL UPDATE CONFIRM message" as found in [9] TS 34.108 clause 9. with the following exceptions:

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B

UTRAN MOBILITY UPDATE CONFIRM (Step 7)

The contents of UTRAN MOBILITY UPDATE CONFIRM message are identical as "UTRAN MOBILITY UPDATE CONFIRM message" as found in [9] TS 34.108 clause 9.

8.2.6.25.5 Test requirement

After step 4 the UE shall transmit a CELL UPDATE message on the CCCH in cell 6.

After step 6 the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC in cell 6.

After step 7 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC in cell 6.

After step 8 the UE shall be in CELL_FACH state of cell 6.

8.2.6.26 Physical Channel Reconfiguration from CELL_DCH to CELL_PCH (Frequency modification): Success

8.2.6.26.1 Definition

8.2.6.26.2 Conformance requirement

If the UE receives:

-a PHYSICAL CHANNEL RECONFIGURATION message;

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS25.214;

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

…

The UE shall then:

1> enter a state according to TS25.331 subclause 8.6.3.3.

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE on the uplink DCCH using AM RLC.

If after state transition the UE enters CELL_PCH state from CELL_DCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304 on that frequency.

2> if the UE finds a suitable UTRA cell on that frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> proceed as below.

2> else, if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> proceed as below.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS5.304.

2> if the UE finds a suitable UTRA cell on the current frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> proceed as below.

2> else, if the UE can not find a suitable UTRA cell on the current frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> proceed as below.

1> prohibit periodical status transmission in RLC;

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI;

1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;

1> select Secondary CCPCH according to TS25.331 subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in TS25.331 subclause 8.6.3.2.

…

If the new state is CELL_PCH or URA_PCH, the response message shall be transmitted using the old configuration before the state transition, but the new C-RNTI shall be used if the IE "New C-RNTI" was included in the received reconfiguration message, and the UE shall:

1> when RLC has confirmed the successful transmission of the response message:

…

2> enter the new state (CELL_PCH or URA_PCH, respectively);

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.6.26.3 Test purpose

1. To confirm that the UE transmits PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.
2. To confirm that the UE transits from CELL_DCH to CELL_PCH according to the PHYSICAL CHANNEL RECONFIGURATION message.
3. To confirm that the UE releases a dedicated physical channel and selects a common physical channel in a different frequency.

8.2.6.26.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 is active and cell 6 is inactive

UE: "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108. If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

Table 8.2.6.26

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-55	-72	Off	-55

Table 8.2.6.26 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 6.

The UE is in idle mode of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.26. The SS and UE execute procedure P5. Next The SS and the UE execute procedure P9 and then execute procedure P13. The SS switches its downlink transmission power settings to columns "T1" and transmits a PHYSICAL CHANNEL RECONFIGURATION message, which invokes the UE to transit from CELL_DCH to CELL_PCH. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC and enters CELL_PCH state. The UE selects cell 6 and initiates CELL UPDATE procedure with IE "Cell update cause" set to "cell reselection". Upon completion of the procedure, the SS calls for generic procedure C.4 to check that UE is in CELL_PCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1a	←→		SS executes procedure P5 (clause 7.4.2.2.2) specified in TS 34.108.	
1b	←→		SS executes procedure) P9 (clause 7.4.2.4.2) specified in TS 34.108..	
1c	←→		SS executes procedure P13 (clause 7.4.2.6.2) specified in TS 34.108.	
2				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.6.26.
3			Void	
4	←		PHYSICAL CHANNELRECONFIGURATION	Not including IE" frequency info " and IE "Primary CPICH info"
5	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE transmit this message in cell 1.
5a			Void	SS sends the L2 ack on the PHYSICAL CHANNEL RECONFIGURATION COMPLETE. Note: The SS should continue to keep the dedicated channel configuration during the time when the L2 ack is sent to the UE.
6	→		CELL UPDATE	The IE "Cell update cause" is set to "cell reselection".
7	←		CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_PCH".
8				The SS waits for 5 s.
9	←→		CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 4)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
Frequency info	
- UARFCN uplink (Nu)	Same uplink UARFCN as used for cell 6
- UARFCN downlink (Nd)	Same downlink UARFCN as used for cell 6

CELL UPDATE (Step 6)

The contents of CELL UPDATE message are identical as "Contents of CELL UPDATE message" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Cell Update Cause	"cell reselection"

CELL UPDATE CONFIRM (Step 7)

The contents of CELL UPDATE CONFIRM message are identical as "CELL UPDATE CONFIRM message" as found in [9] TS 34.108 clause 9. with the following exceptions:

Information Element	Value/remark
RRC State Indic	CELL_PCH
UTRAN DRX cycle length coefficient	3

8.2.6.26.5 Test requirement

After step 4 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC in cell 1.

After step 5 the UE shall transmit a CELL UPDATE message on the CCCH with IE "Cell update cause" set to "cell reselection" in cell 6.

After step 8 the UE shall be in CELL_PCH state in cell 6.

8.2.6.27 Physical channel reconfiguration from CELL_FACH to CELL_PCH: Success

8.2.6.27.1 Definition

8.2.6.27.2 Conformance requirement

If the UE receives:

-a PHYSICAL CHANNEL RECONFIGURATION message;

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS25.214;

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS25.331 subclause 8.6.3.3.

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE on the uplink DCCH using AM RLC, using the old configuration before the state transition.

If after state transition the UE enters CELL_PCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304 on that frequency.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304.

1> prohibit periodical status transmission in RLC;

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI;

1> select Secondary CCPCH according to TS25.331 subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in TS5.331 subclause 8.6.3.2.

1> if the UE enters CELL_PCH state from CELL_FACH state, and the received reconfiguration message included the IE "Primary CPICH info", and the UE selected another cell than indicated by this IE:

2> initiate a cell update procedure according to TS25.331 subclause 8.3.1 using the cause "cell reselection";

2> when the cell update procedure is successfully completed:

3> the procedure ends.

3GPP TS 25.331 clause 8.2.2,8.3, 8.5 and 8.6.

8.2.6.27.3 Test purpose

1. To confirm that the UE transmits PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.
2. To confirm that the UE transits from CELL_FACH to CELL_PCH according to the PHYSICAL CHANNEL RECONFIGURATION message.

8.2.6.27.4 Method of test

Initial Condition

System Simulator: 1 cell– Cell 1 is active.

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state of cell 1. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC and enters CELL_PCH state. The SS calls for generic procedure C.4 to check that UE is in CELL_PCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_FACH state of cell 1.
2	←		PHYSICAL CHANNEL RECONFIGURATION	
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
4				The SS waits for 5 s.
5	←→		CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 2)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3

8.2.6.27.5 Test requirement

After step 2 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on uplink DCCH using AM RLC.

After step 4 the UE shall be in CELL_PCH state in cell 6.

8.2.6.28 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (Downlink channelisation code modification): Success

8.2.6.28.1 Definition

8.2.6.28.2 Conformance requirement

If the UE receives:

-a PHYSICAL CHANNEL RECONFIGURATION message;

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS25.214;

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

1> enter a state according to TS25.331 subclause 8.6.3.3.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6..

8.2.6.28.3 Test purpose

1. To confirm that the UE change assigned downlink channelisation code by SS according to a PHYSICAL CHANNEL RECONFIGURATION message.

2. To confirm that the UE response PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC

8.2.6.28.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending to the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH state of cell 1. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE, which includes IE " DL channelisation code " set to New DL channelisation code. The UE shall change its downlink channelisation code for a dedicated physical channel, and then transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH AM RLC. The SS transmits UE CAPABILITY ENQUIRY message to confirm whether the UE correctly reconfigure the DL DPCH The UE shall respond with UE CAPABILITY INFORMATION message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The initial state of UE is in CELL_DCH state of cell 1. .
2	←		PHYSICAL CHANNEL RECONFIGURATION	Including IE " DL channelisation code " set to New DL channelisation code
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
4	←		UE CAPABILITY ENQUIRY	The SS transmits this message to confirm whether the UE can correctly reconfigure the DL DPCH.
5	→		UE CAPABILITY INFORMATION	
6	←		UE CAPABILITY INFORMATION CONFIRM	

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 2)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Downlink information for each radio link list - Downlink information for each radio link - Downlink DPCH info for each RL - DL channelisation code - Spreading factor	Same value as a RADIO BEARER SETUP message used in initial procedure.
- Code number	Different value as a RADIO BEARER SETUP message used in initial procedure

8.2.6.28.5 Test requirement

After step 2 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 4 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH using AM RLC.

8.2.6.29 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (Compressed mode initiation): Success

8.2.6.29.1 Definition

8.2.6.29.2 Conformance requirement

If the UE receives:

-a PHYSICAL CHANNEL RECONFIGURATION message;

it shall:

1> set the variable ORDERED_RECONFIGURATION to TRUE;

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS25.214;

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

…

1> enter a state according to TS25.331 subclause 8.6.3.3.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4.

8.2.6.29.3 Test purpose

1. To confirm that the UE activates compressed mode according to a PHYSICAL CHANNEL RECONFIGURATION message.
2. To confirm that the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.
3. To confirm that the UE deactivates compressed mode according to a PHYSICAL CHANNEL RECONFIGURATION message.
4. To confirm that the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

8.2.6.29.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 is active and cell 6 is inactive

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending to the CN domain(s) supported by the UE.

Test Procedure

Table 8.2.6.29

Parameter	Unit	Cell 1				Cell 6			
		T0	T1	T2	T3	T0	T1	T2	T3
UTRA RF Channel Number		Mid Range Test Frequency				High Range Test Frequency			
CPICH Ec	dBm/3.84MHz	-60	-60	-60	-60	Off	-60	-90	-60

Table 8.2.6.29 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings from columns "T0" to "T1"or "T1" to "T2" or "T2" to "T3", whenever the description in multi-cell condition specifies the transmission power settings for cell 1 and cell 6.

The UE is in CELL_DCH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.29. The SS transmits MEASUREMENT CONTROL message in order for the UE to perform Inter-frequency measurements and report event 2c. The SS switches its downlink transmission power setting according to columns "T1" in table 8.2.6.29, but the UE shall not transmit any MEASUREMENT REPORT messages. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, which includes IE "DPCH compressed mode info" with "TGPS Status Flag" set to "Activate". The UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC. The UE shall transmit MEASUREMENT REPORT message to report event 2c with the measured CPICH RSCP value for cell 6 to the SS. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, which includes IE"DPCH compressed mode info" with "TGPS Status Flag" set to "deactivate". The UE shall respond with the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC. After the SS switches its downlink transmission power settings to columns "T2" in table 8.2.6.29 and 10s is passed, the SS switches its downlink transmission power settings to columns "T3" in table 8.2.6.29. The UE shall not send any MEASUREMENT REPORT messages on the uplink DCCH because the UE cannot measure the CPICH RSCP on non used frequency as the compressed mode operation has been deactivated.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_DCH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.29.
2	←		MEASUREMENT CONTROL	SS commands the UE to perform Inter-frequency measurements and to report event 2c.
3				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.6.29.
4				The SS checks that no MEASUREMENT REPORT messages receives for 10 s.
5	←		PHYSICAL CHANNEL RECONFIGURATION	Including IE"DPCH compressed mode info", which include parameter "TGPS Status Flag" set to activate.
6	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
7	→		MEASUREMENT REPORT	The UE shall report event 2c with the measured CPICH RSCP value for cell 6.
8	←		PHYSICAL CHANNEL RECONFIGURATION	Including IE"DPCH compressed mode info", which include parameter "TGPS Status Flag" set to deactivate.
9	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
10				The SS switches its downlink transmission power settings to columns "T2" in table 8.2.6.29.
11				After 10 s is passed ,the SS switches its downlink transmission power settings to columns "T3" in table 8.2.6.29.
12				The SS checks that no MEASUREMENT REPORT messages receives for 10 s..

Specific Message Contents

MEASUREMENT CONTROL (Step 2)

Use the same message sub-type found in [9] TS 34.108 clause 9, with the following exceptions in the IE(s) concerned:

Information Element	Value/remark
Measurement Identity	15
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency measurement object list	
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency cells	
- Inter-frequency cell id	6
- Frequency info	
- UARFCN uplink (Nu)	UARFCN of the uplink frequency for cell 6
- UARFCN downlink (Nd)	UARFCN of the downlink frequency for cell 6
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	0 chips
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 6
- Primary CPICH TX power	Not Present
- Primary CPICH TX power	
- TX Diversity Indicator	Not Present
- Cell for measurement	Not Present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- CHOICE Mode	FDD
- Measurement quantity for frequency quality estimate	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	TRUE
- COICE Mode	FDD
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	Not present
- Measurement validity	
- UE state	CELL_DCH
- Inter-frequency set update	On with no reporting
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each event	
- Inter-frequency event identity	2c
- Threshold used frequency	Not present
- W used frequency	Not present
- Hysteresis	2 (1.0 dB)
- Time to trigger	10 [ms]
- Reporting cell status	
- CHOICH reported cell	Report cells within monitored and/or virtual active set on non-used frequency
- Maximum number of reported cells per reported non-used frequency	1
- Parameters required for each non-used frequency	
- Threshold non used frequency	-68dbm
- W non-used frequency	0
DPCH compressed mode status info	Not present

PHYSICAL CHANNEL RECONFIGURATION (Step 5)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark	Version
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing Indication	Maintain	
- CFN-target SFN frame offset	Not Present	
- Downlink DPCH power control information		
- CHOICE Mode	FDD	
-DPC Mode	0 (Single)	
- CHOICE Mode	FDD	
- Power offset Pilot-DPDCH	0	
- DL rate matching restriction information	Not Present	
- Spreading factor	Refer to the parameter set in TS 34.108	
- Fixed or flexible position	Flexible	
- TFCI existence	FALSE	
- Number of bits for Pilot bits (SF=128, 256)	Not Present	
- CHOICE mode	FDD	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	activate	
- TGCFN	(Current CFN+(256 – TTI/10msec)) mod256	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not Present	
- TGD	Undefined	
- TGPL1	3	
- TGPL2	Not Present	R99 and REL-4 only
- RPP	mode 0	
- ITP	mode 0	
- CHOICE UL/DL Mode	UL and DL, UL only, or DL only, depending on UE capability	
- Downlink compressed mode method	SF/2 or Not present depending on UE capability	
- Uplink compressed mode method	SF/2 or Not present depending on UE capability	
- Downlink frame type	B	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not Present	
- DeltaSIRAfter2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
- TX Diversity Mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Not Present	

MEASUREMENT REPORT (Step 7)

The contents of MEASUREMENT REPORT message is the same as them found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Measurement Identity	Check to see if set to 15
Measured Results	
- CHOICE Measurement	
- Inter frequency measured results list	Check to see if set to "Inter-frequency measured results list"
- Inter frequency measurement results	
- Frequency info	
- CHOICE	FDD
- UARFCN uplink (Nu)	Check to see if set to the UARFCN of the uplink frequency for cell 6
- UARFCN downlink (Nd)	Check to see if set to the UARFCN of the downlink frequency for cell 6
- UTRA carrier RSSI	Not checked
- Inter frequency cell measurement results	
- Cell measured results	
- Cell Identity	Not checked
- Cell synchronisation information	Not checked
- CHOICE Mode	FDD
- Primary CPICH Info	Not checked
- CPICH Ec/No	Not checked
- CPICH RSCP	Check to see if it is present
- Pathloss	Not checked
Measured Results on RACH	Not checked
Additional Measured results	Not checked
- Measured Result	
Event results	Not checked

PHYSICAL CHANNEL RECONFIGURATION (Step 8)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	Not present
- DPCH compressed mode info	
- TGPSI	1
- TGPS Status Flag	deactivate
- TGCFN	Not present
- Transmission gap pattern sequence configuration parameters	Not present

8.2.6.29.5 Test requirement

After step 3 the UE shall not send any MEASUREMENT REPORT messages on the uplink DCCH.

After step 5 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 6 the UE shall transmit a MEASUREMENT REPORT message containing the IE "measured results" reporting cell 6's CPICH RSCP value, also report the triggering of event '2c' included in IE "Event results".

After step 8 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After 11 the UE shall not transmit any MEASUREMENT REPORT messages on the uplink DCCH.

8.2.6.30 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (Modify active set cell): Success

8.2.6.30.1 Definition

8.2.6.30.2 Conformance requirement

If the UE receives:

- a PHYSICAL CHANNEL RECONFIGURATION message:

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure as specified in TS25.214;

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

1> enter a state according to TS25.331 subclause 8.6.3.3.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if the IE "Downlink information for each radio link" is absent, not change its current DL Physical channel configuration.

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

1> the procedure ends.

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.6.30.3 Test purpose

To confirm that the UE transmits PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC on a dedicated physical channel of same frequency in another cell.

8.2.6.30.4 Method of test

Initial Condition

System Simulator: 2 cells–Cells 1 is active and cell 6 is inactive.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending to the CN domain(s) supported by the UE.

Test Procedure

Table 8.2.6.30

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-60	-60	Off	-60

Table 8.2.6.30 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings from columns "T0" to "T1", whenever the description in multi-cell condition specifies the transmission power settings for cell 1 and cell 2.

The UE is in CELL_DCH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.30. The SS switches its downlink transmission power settings to columns "T1" and transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE, which includes IE "Primary CPICH info" set to Primary Scrambling Code assigned to P-CPICH of cell 2 and IE "Timing indicator" set to "initialise".. The UE shall reconfigure the physical channel parameters according to PHYSICAL CHANNEL RECONFIGURATION message and initiate to synchronise with new dedicated physical channel in cell 2. The UE shall then transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message in cell 2 on the uplink DCCH AM RLC after synchronization.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_DCH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.30.
2				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.6.30.
3	←		PHYSICAL CHANNEL RECONFIGURATION	Including IE "Primary CPICH info" set to Primary Scrambling Code assigned to P-CPICH of cell 2 and IE "Timing indicator" which is set to 'initialise'.
4				The UE remains in CELL_DCH state after connecting to the SS on a dedicated physical channel in cell 2.
5	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE transmits this message in cell 2.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 3)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Activation Time	Current CFN-[current CFN mod 8 + 8]
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing Indicator	initialise
- Default DPCH Offset Value	0 (0)
Downlink information for each radio links	
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for cell 2

8.2.6.30.5 Test requirement

After step 4 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC in cell 2.

8.2.6.31 Physical channel reconfiguration transition from CELL_FACH to URA_PCH: Success

8.2.6.31.1 Definition

8.2.6.31.2 Conformance requirement

If the UE receives:

-a PHYSICAL CHANNEL RECONFIGURATION message;

it shall:

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

1> enter a state according to TS25.331 subclause 8.6.3.3.

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE on the uplink DCCH using AM RLC, using the old configuration before the state transition.

If after state transition the UE enters URA_PCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304 on that frequency.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304.

1> prohibit periodical status transmission in RLC;

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI;

1> select Secondary CCPCH according to TS25.331 subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in TS5.331 subclause 8.6.3.2.

1> if the IE "UTRAN DRX cycle length coefficient" is not included in the same message:

2> keep the configuration existing before the reception of the message and transmit a failure response message as specified in TS25.331subclause 8.2.2.9

1> if the UE enters URA_PCH state, and after cell selection the criteria for URA update caused by "URA reselection" according to TS25.331 subclause 8.3.1 is fulfilled:

2> initiate a URA update procedure according to TS25.331 subclause 8.3.1 using the cause "URA reselection";

2> when the URA update procedure is successfully completed:

3> the procedure ends.

Reference

3GPP TS 25.331 clause 8.2.2, 8.3, 8.5 and 8.6.

8.2.6.31.3 Test purpose

1. To confirm that the UE transmits the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.
2. To confirm that the UE transits from CELL_FACH to URA_PCH according to the PHYSICAL CHANNEL RECONFIGURATION message.

8.2.6.31.4 Method of test

Initial Condition

System Simulator: 1 cell– Cell 1 is active.

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state of cell 1. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message. The UE shall enter URA_PCH state according to this message after it transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC. Upon completion of the procedure, the SS calls for generic procedure C.5 to check that UE is in URA_PCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_FACH state of cell 1.
2	←		PHYSICAL CHANNEL RECONFIGURATION	
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE transmits this message on uplink DCCH using AM RLC.
4				The SS waits for 5 s.
5				If the test result of C.5 indicates that UE is in URA_PCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 2)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
RRC State Indicator	URA_PCH
UTRAN DRX cycle length coefficient	3

NOTE: It is to be noted that IE "URA identity" is not included in this message, for the purpose of wider test coverage. The scenario in which IE "URA identity" is included, is tested in other test cases.

8.2.6.31.5 Test requirement

After step 2 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on uplink DCCH using AM RLC.

After step 4 the UE shall be in URA PCH state.

8.2.6.32 Physical channel reconfiguration for transition from CELL_DCH to URA_PCH (Frequency band modification): Success

8.2.6.32.1 Definition

8.2.6.32.2 Conformance requirement

If the UE receives:

-a PHYSICAL CHANNEL RECONFIGURATION message;

it shall:

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

…

1> enter a state according to TS25.331 subclause 8.6.3.3.

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE on the uplink DCCH using AM RLC.

If after state transition the UE enters URA_PCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304 on that frequency.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304.

1> prohibit periodical status transmission in RLC;

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI;

1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;

1> select Secondary CCPCH according to TS25.331 subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in TS25.331 subclause 8.6.3.2.

1> if the criteria for URA update caused by "URA reselection" according to subclause 8.3.1 is fulfilled after cell selection:

2> initiate a URA update procedure according to TS25.331 subclause 8.3.1 using the cause "URA reselection";

2> when the URA update procedure is successfully completed:

3> the procedure ends.

…

If the new state is is CELL_PCH or URA_PCH, the response message shall be transmitted using the old configuration before the state transition, but the new C-RNTI shall be used if the IE "New C-RNTI" was included in the received reconfiguration message, and the UE shall:

1> when RLC has confirmed the successful transmission of the response message:

…

2> enter the new state (CELL_PCH or URA_PCH, respectively);

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.6.32.3 Test purpose

1. To confirm that the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.
2. To confirm that the UE transits from CELL_DCH to URA_PCH according to the PHYSICAL CHANNEL RECONFIGURATION message.
3. To confirm that the UE releases the dedicated physical channel and selects a common physical channel in a different frequency.

8.2.6.32.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 is active and cell 6 is inactive

UE: "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

Table 8.2.6.32

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-55	-72	Off	-55

Table 8.2.6.32 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 6.

The UE is in idle mode of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.32. SS requests operator to make an outgoing call. The SS and UE execute procedure P5. Next The SS and the UE execute procedure P9 and then execute procedure P13. The SS switches its downlink transmission power settings to columns "T1" and transmits a PHYSICAL CHANNEL RECONFIGURATION message with IE "Frequency info" omitted. The UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC and enter URA_PCH state of cell 6. Upon completion of the procedure, the SS calls for generic procedure C.5 to check that UE is in URA_PCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.32. SS requests operator to make an outgoing call.
2	←→		SS executes procedure P5 (clause 7.4.2.2.2) specified in TS 34.108.	
3	←→		SS executes procedure) P9 (clause 7.4.2.4.2) specified in TS 34.108.	
4	←→		SS executes procedure P13 (clause 7.4.2.6.2) specified in TS 34.108.	
5				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.6.32.
6	←		PHYSICAL CHANNEL RECONFIGURATION	Not including IE "Frequency info"
7	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE transmit this message on the dedicated physical channel in cell 1
8			Void	SS sends the L2 ack on the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and then waits for 5 s to allow the UE to read system information before the next step. Note: The SS should continue to keep the dedicated channel configuration during the time when the L2 ack is sent to the UE.
9	←→		CALL C.5	If the test result of C.5 indicates that UE is in URA_PCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 6)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
RRC State Indicator	URA_PCH
UTRAN DRX cycle length coefficient	3
Frequency info	Not present

8.2.6.32.5 Test requirement

After step 3 the UE shall transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC in cell 1.

After step 8 the UE shall be in URA_PCH state in cell 6.

8.2.6.33 Physical channel reconfiguration for transition from CELL_FACH to CELL_DCH (Frequency band modification): Success

8.2.6.33.1 Definition

8.2.6.33.2 Conformance requirement

If the UE receives:

-a PHYSICAL CHANNEL RECONFIGURATION message;

it shall:

1> perform the physical layer synchronisation procedure as specified in TS25.214;

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS25.331 subclause 8.6.3.3.

If after state transition the UE enters CELL_DCH state, the UE shall, after the state transition:

1> remove any C-RNTI from MAC;

1> clear the C_RNTI.

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC, using the new configuration after the state transition.

1> the procedure ends.

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.6.33.3 Test purpose

1. To confirm that the UE transits from CELL_FACH to CELL_DCH according to the PHYSICAL CHANNEL RECONFIGURATION message.

2. To confirm that the UE transmits PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC on a dedicated physical channel in a different frequency.

8.2.6.33.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 is active and cell 6 is inactive.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS_DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.2.6.33

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-55	-72	Off	-55

Table 8.2.6.33 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings from columns "T0" to "T1", whenever the description in multi-cell condition specifies the transmission power settings for cell 1 and cell 6.

The UE is in CELL_FACH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.33. The SS switches its downlink transmission power settings to columns "T1" and transmits a PHYSICAL CHANNEL RECONFIGURATION message including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CPICH info" set to Primary Scrambling Code assigned to P-CPICH of cell 6. The UE shall select cell 6 and change its physical channel configuration after receiving this message and then enter CELL_DCH state. Finally the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC. Upon completion of the procedure, the SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_FACH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.33.
2				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.6.33.
3	←		PHYSICAL CHANNEL RECONFIGURATION	Including IE "Frequency info" set to frequency information of cell 6 and IE "Primary CPICH info" set to Primary Scrambling Code assigned to P-CPICH of cell 6
4	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE sends this message on a dedicated physical channel in cell 6.
5	←→			If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

PHYSICAL CHANNEL RECONFIGURATION (Step 3)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical the message sub-type indicated by "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
Frequency info	
- UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 6
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
Downlink information for each radio links	
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for cell 6

8.2.6.33.5 Test requirement

After step 3 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC in cell 6.

After step 4 the UE shall be in CELL_DCH state in cell 6.

8.2.6.34 Physical channel reconfiguration from CELL_FACH to CELL_PCH (Frequency band modification): Success

8.2.6.34.1 Definition

8.2.6.34.2 Conformance requirement

If the UE receives:

-a PHYSICAL CHANNEL RECONFIGURATION message;

it shall:

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

1> enter a state according to TS25.331 subclause 8.6.3.3.

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE on the uplink DCCH using AM RLC, using the old configuration before the state transition.

If after state transition the UE enters CELL_PCH state from CELL_FACH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to [4] on that frequency.

2> if the UE finds a suitable UTRA cell on that frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selected another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "cell reselection";

4> proceed as below.

2> else, if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> proceed as below.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> if the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD) is included the UE shall either:

3> ignore the content of the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD) and proceed as below;

2> or:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CPCH info" (for TDD), and it is different from the current cell:

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> proceed as below.

1> prohibit periodical status transmission in RLC;

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI;

1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;

1> select Secondary CCPCH according to subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in subclause 8.6.3.2.

1> the procedure ends.

If after state transition the UE enters CELL_PCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304 on that frequency.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304.

1> prohibit periodical status transmission in RLC;

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI;

1> select Secondary CCPCH according to TS25.331 subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in TS25.331 subclause 8.6.3.2.

1> if the IE "UTRAN DRX cycle length coefficient" is not included in the same message:

2> keep the configuration existing before the reception of the message and transmit a failure response message as specified in TS25.331subclause 8.2.2.9

1> if the UE enters CELL_PCH state from CELL_FACH state, and the received reconfiguration message included the IE "Primary CPICH info", and the UE selected another cell than indicated by this IE:

2> initiate a cell update procedure according to TS25.331 subclause 8.3.1 using the cause "cell reselection";

2> when the cell update procedure is successfully completed:

3> the procedure ends.

Reference

3GPP TS 25.331 clause 8.2.2.

8.2.6.34.3 Test purpose

1. To confirm that the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.
2. To confirm that the UE transits from CELL_FACH to CELL_PCH according to the PHYSICAL CHANNEL RECONFIGURATION message.
3. To confirm that the UE selects a common physical channel in a different frequency.

8.2.6.34.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 is active and cell 6 is inactive.

UE: "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE. If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS".

Test Procedure

Table 8.2.6.34

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-55	-72	Off	-55

Table 8.2.6.34 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 6.

The UE is idle mode of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.34. SS requests operator to make an outgoing call. The SS and UE execute procedure P6. Next The SS and the UE execute procedure P10 and then execute procedure P14. The SS switches its downlink transmission power settings to columns "T1" and. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message including IE "Frequency info" and IE "Primary CPICH info" of cell 6. The UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC and enter CELL_PCH state in cell 6. Upon completion of the procedure, the SS calls for generic procedure C.4 to check that UE is in CELL_PCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.34. SS requests operator to make an outgoing call.
2	←→		SS executes procedure P6 (clause 7.4.2.2.2) specified in TS 34.108.	
3	←→		SS executes procedure P10 (clause 7.4.2.4.2) specified in TS 34.108.	
4	←→		SS executes procedure P14 (clause 7.4.2.6.2) specified in TS 34.108.	
5				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.6.34.
6	←		PHYSICAL CHANNEL RECONFIGURATION	Including IE "Frequency info" and IE "Primary CPICH info" of Cell 6
7	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE transmit this message on the common physical channel in cell 1.
8				The SS waits for 5 s.
9	←→		CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 6)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
Frequency info	
- UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 6
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
Downlink information for each radio links	
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for cell 6

8.2.6.34.5 Test requirement

After step 6 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on uplink DCCH using AM RLC in cell 1.

After step 8 the UE shall be in CELL_PCH state in cell 6.

8.2.6.35 Physical channel reconfiguration for transition from CELL_FACH to URA_PCH (Frequency band modification): Success

8.2.6.35.1 Definition

8.2.6.35.2 Conformance requirement

If the UE receives:

-a PHYSICAL CHANNEL RECONFIGURATION message;

it shall:

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

1> enter a state according to TS25.331 subclause 8.6.3.3.

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE on the uplink DCCH using AM RLC, using the old configuration before the state transition.

If after state transition the UE enters URA_PCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304 on that frequency.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304.

1> prohibit periodical status transmission in RLC;

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI;

1> select Secondary CCPCH according to TS25.331 subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in TS25.331 subclause 8.6.3.2.

1> if the IE "UTRAN DRX cycle length coefficient" is not included in the same message:

2> keep the configuration existing before the reception of the message and transmit a failure response message as specified in TS25.331subclause 8.2.2.9

1> if the UE enters URA_PCH state, and after cell selection the criteria for URA update caused by "URA reselection" according to TS25.331 subclause 8.3.1 is fulfilled:

2> initiate a URA update procedure according to TS5.331 subclause 8.3.1 using the cause "URA reselection";

2> when the URA update procedure is successfully completed:

3> the procedure ends.

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.6.35.3 Test purpose

1. To confirm that the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.
2. To confirm that the UE transits from CELL_FACH to URA_PCH according to the PHYSICAL CHANNEL RECONFIGURATION message.
3. To confirm that the UE selects a common physical channel in a different frequency.

8.2.6.35.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 in active and cell 6 is inactive

UE: Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE. If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS".

Test Procedure

Table 8.2.6.35

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-55	-72	Off	-55

Table 8.2.6.35 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 6.

The UE is in idle mode of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.35. SS requests operator to make an outgoing call. The SS switches its downlink transmission power settings to columns "T1" and transmits a PHYSICAL CHANNEL RECONFIGURATION message not including IE "Frequency info" and IE "Primary CPICH info". The UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC and enter URA_PCH state of cell 6. Upon completion of the procedure, the SS calls for generic procedure C.5 to check that UE is in URA_PCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.35. SS requests operator to make an outgoing call.
2	←→		SS executes procedure P6 (clause 7.4.2.2.2) specified in TS 34.108.	
3	←→		SS executes procedure P10 (clause 7.4.2.4.2) specified in TS 34.108.	
4	←→		SS executes procedure P14 (clause 7.4.2.6.2) specified in TS 34.108.	
5				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.6.35.
6	←		PHYSICAL CHANNEL RECONFIGURATION	Not including IE "Frequency info" and IE "Primary CPICH info"
7	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE transmit this message on the common physical channel in cell 1.
8				The SS waits for 5 s.
9	←→		CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 3)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
RRC State Indicator	URA_PCH
UTRAN DRX cycle length coefficient	3
URA identity	URA-ID 1

8.2.6.35.5 Test requirement

After step 3 the UE shall transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC in cell 1.

After step 8 the UE shall be in URA_PCH state in cell 6.

8.2.6.36 Physical channel reconfiguration for transition from CELL_FACH to CELL_FACH (Frequency band modification): Success

8.2.6.36.1 Definition

8.2.6.36.2 Conformance requirement

If the UE receives:

-a PHYSICAL CHANNEL RECONFIGURATION message;

it shall:

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

1> enter a state according to TS25.331 subclause 8.6.3.3.

If the UE was in CELL_FACH state upon reception of the reconfiguration message and remains in CELL_FACH state, the UE shall:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304 on that frequency;

2> if the received reconfiguration message included the IE "Primary CPICH info", and the UE selected another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info":

3> initiate a cell update procedure according to TS25.331 subclause 8.3.1 using the cause "cell reselection";

3> when the cell update procedure completed successfully:

4> proceed as below.

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.6.36.3 Test purpose

1. To confirm that the UE transits from CELL_FACH to CELL_FACH according to the PHYSICAL CHANNEL RECONFIGURATION message.
2. To confirm that the UE transmits PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC on a common physical channel in a different frequency.

8.2.6.36.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 is active and cell 6 is inactive.

UE: "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE. If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS".

Test Procedure

Table 8.2.6.36

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-55	-72	Off	-55

Table 8.2.6.36 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 6.

The UE is in CELL_FACH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.36. The SS modifies the contents of System formation block 11 in cell 1, so that include IE "Inter frequency measurement system information" about cell 6. The SS and UE execute procedure P6. Next The SS and the UE execute procedure P10 and then execute procedure P14. The SS switches its downlink transmission power settings to columns "T1" and transmits a PHYSICAL CHANNEL RECONFIGURATION message including IE "Frequency info" set to frequency information of cell 6 and no IE "Primary CPICH info". The UE selects cell 6 and initiates CELL UPDATE procedure with IE "Cell update cause" set to "cell reselection". The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC after complete configuration according to receiving PHYSICAL CHANNEL RECONFIGURATION message. Upon completion of the procedure, the SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		System Information Block type 11	The UE is in idle mode and camped onto cell 1. The System Information Block type 11 messages to be transmitted are different from the default settings and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.36.
2	←→		SS executes procedure P6 (clause 7.4.2.2.2) specified in TS 34.108.	
3	←→		SS executes procedure P10 (clause 7.4.2.4.2) specified in TS 34.108.	
4	←→		SS executes procedure P14 (clause 7.4.2.6.2) specified in TS 34.108.	
5				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.6.36.
6	←		PHYSICAL CHANNEL RECONFIGURATION	Including IE "Frequency info" set to frequency information of cell 6 and no IE "Primary CPICH info" set to Primary Scrambling Code
7	→		CELL UPDATE	The IE "Cell update cause" is set to "cell reselection".
8	←		CELL UPDATE CONFIRM	Including the IE" New C-RNTI"
9	→		UTRAN MOBILITY INFORMATION CONFIRM	
10	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE sends this message on a common physical channel in cell 6.
11	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 6)

The contents PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical the message sub-type indicated by "Packet to CELL_FACH from CELL_FACH in PS" in Annex A, with the following exception:

Information Element	Value/remark
Frequency info - UARFCN uplink(Nu) - UARFCN downlink(Nd)	 Same uplink UARFCN as used for cell 6 Same downlink UARFCN as used for cell 6

CELL UPDATE (Step 7)

The contents of CELL UPDATE message are identical as "Contents of CELL UPDATE message" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Cell Update Cause	"cell reselection"

CELL UPDATE CONFIRM (Step 8)

The contents of CELL UPDATE CONFIRM message are identical as "CELL UPDATE CONFIRM message" as found in [9] TS 34.108 clause 9. with the following exceptions:

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B

UTRAN MOBILITY UPDATE CONFIRM (Step 9)

The contents of UTRAN MOBILITY UPDATE CONFIRM message is identical as "UTRAN MOBILITY UPDATE CONFIRM message" as found in [9] TS 34.108 clause 9.

8.2.6.36.5 Test requirement

After step 6 the UE shall transmit a CELL UPDATE message on the CCCH in cell 6.

After step 8 the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC in cell 6.

After step 9 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC in cell 6.

After step 10 the UE shall be in CELL_FACH state in cell 6.

8.2.6.37 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (Hard handover to another frequency with timing re-initialised)

8.2.6.37.1 Definition

8.2.6.37.2 Conformance requirement

The UE shall:

1> be able to receive any of the following messages:

…

2> PHYSICAL CHANNEL RECONFIGURATION message;

1> perform a hard handover and apply physical layer synchronisation procedure A as specified in [29], even if no prior UE measurements have been performed on the target cell and/or frequency.

…

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

When performing hard handover with change of frequency, the UE shall:

1> stop all intra-frequency and inter-frequency measurement reporting on the cells listed in the variable CELL_INFO_LIST. Each stopped measurement is restarted when a MEASUREMENT CONTROL message is received with the corresponding measurement identity.

…

When the UE is in CELL_DCH state and receives any of the messages causing the UE to perform a hard handover, the UE shall check the IE "Timing indication" in that message and:

1> if IE "Timing indication" has the value "initialise" (i.e. timing re-initialised hard handover):

2> read SFN on target cell identified by the first radio link listed in the IE "Downlink information per radio link list" included in that message;

2> set the CFN according to the following formula:

3> for FDD:

$$CFN = (SFN - (DOFF \text{ div } 38400)) \bmod 256$$

where the formula gives the CFN of the downlink DPCH frame which starts at the same time as or which starts during the PCCPCH frame with the given SFN.

…

If the IE "DPCH compressed mode info" is included, and if the IE group "transmission gap pattern sequence configuration parameters" is not included, the UE shall:

1> if pattern sequence corresponding to IE "TGPSI" is already active (according to "Current TGPS Status Flag" in the variable TGPS_IDENTITY):

2> if the "TGPS Status Flag" in this message is set to "deactivate" for the corresponding pattern sequence:

3> deactivate this pattern sequence at the beginning of the frame, indicated by IE "Activation time" (see subclause 8.6.3.1 in TS 25.331) received in this message, when the new configuration received in this message is taken into use;

…

If the IE "Downlink DPCH info common for all RL" is included in a message used to perform a Timing re-initialised hard handover or the IE "Downlink DPCH info common for all RL" is included in a message other than RB SETUP used to transfer the UE from a state different from Cell_DCH to Cell_DCH, and ciphering is active for any radio bearer using RLC-TM, the UE shall, after having activated the dedicated physical channels indicated by that IE:

1> if any ciphering configuration for a radio bearer using RLC-TM has not been applied, due to that the activation time from a previous procedure has not elapsed:

2> apply the ciphering configuration immediately and consider the activation time from the previous procedure to be elapsed.

1> if the IE "MAC-d HFN initial value" is included in the IE "Downlink DPCH info common for all RL":

…

1> else:

2> set the 20 MSB of the HFN component of COUNT-C for TM-RLC to the value of the latest transmitted IE "START" or "START List" for this CN domain, while not incrementing the value of the HFN component of COUNT-C at each CFN cycle; and

1> set the remaining LSBs of the HFN component of COUNT-C to zero;

1> start to perform ciphering on the radio bearer in lower layers while not incrementing the HFN;

1> include the IE "COUNT-C activation time" in the response message and specify a CFN value other than the default, "Now", that is a multiple of 8 frames (CFN mod 8 =0) and lies at least 200 frames ahead of the CFN in which the response message is first transmitted;

1> calculate the START value according to subclause 8.5.9 in TS 25.331;

1> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info" in the response message;

1> at the CFN value as indicated in the response message in the IE "COUNT-C activation time":

2> set the 20 MSB of the HFN component of the COUNT-C variable common for all transparent mode radio bearers of this CN domain to the START value as indicated in the IE "START list" of the response message for the relevant CN domain; and

2> set the remaining LSBs of the HFN component of COUNT-C to zero;

2> increment the HFN component of the COUNT-C variable by one even if the "COUNT-C activation time" is equal to zero;

2> set the CFN component of the COUNT-C to the value of the IE "COUNT-C activation time" of the response message. The HFN component and the CFN component completely initialise the COUNT-C variable;

2> step the COUNT-C variable, as normal, at each CFN value, i.e. the HFN component is no longer fixed in value but incremented at each CFN cycle.

Reference

3GPP TS 25.331 clauses 8.2.2.3, 8.2.2.4, 8.3.5, 8.5.15.2, 8.6.6.15, 8.6.6.28

8.2.6.37.3 Test Purpose

To confirm that the UE is able to perform a hard-handover with change of frequency, with and without prior measurements on the target frequency.

To confirm that the UE answers with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message when the procedure has been initiated with the PHYSICAL CHANNEL RECONFIGURATION message.

To confirm that the UE stops intra-frequency measurements after the inter-frequency handover has been performed, until a MEASUREMENT CONTROL message is received from the SS.

To confirm that the UE computes as it shall the CFN to be used after the handover.

To confirm that the UE deactivates compressed mode (if required) when it has been ordered to do so in the PHYSICAL CHANNEL RECONFIGURATION message.

To confirm that the UE includes the IE "COUNT-C activation time" and the IE "START list" (in the IE "Uplink counter synchronisation info") in the response message if ciphering is active for any radio bearer using RLC-TM.

8.2.6.37.4 Method of test

Initial Condition

System Simulator: 4 cells – Cell 1 and cell 2 on frequency f_1, cell 4 and cell 5 on frequency f_2. Cells 2 and 5 shall have the same primary scrambling code.

UE: "CS-DCCH+DTCH_DCH" (state 6-9) or "PS-DCCH+DTCH_DCH" (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE. If the UE supports both CS and PS domains, the test case shall be run twice, once starting from state 6-9, once starting from state 6-10. Ciphering shall be activated.

Related ICS/IXIT statements

- Compressed mode required yes/no

Test Procedure

Table 8.2.6.37-1 illustrates the downlink power to be applied for the 4 cells, as well as the frequency and scrambling code for each cell.

Table 8.2.6.37-1

Parameter	Unit	Cell 1				Cell 2				Cell 4				Cell 5			
Frequency		f_1				f_1				f_2				f_2			
Scrambling code		Scrambling code 1				Scrambling code 2				Scrambling code 3				Scrambling code 2			
		T0	T1	T2	T3	T0	T1	T2	T3	T0	T1	T2	T3	T0	T1	T2	T3
CPICH Ec	dBm/3.84 MHz	-60	-60	-75	-75	OFF	-60	-75	-50	-60	-60	-60	-60	-60	-60	-60	-70

The UE is initially in CELL_DCH, and has only cell 1 in its active set.

At instant T1, the downlink power is changed according to what is shown in table 8.2.6.37 -1. Cell 2 should then trigger event 1a as has been configured through the default System Information Block Type 11. The UE shall thus send a MEASUREMENT REPORT to the SS, triggered by cell 2.

The SS adds then cell 2 to the active set of the Ue, by sending an ACTIVE SET UPDATE message to the UE. The UE shall answer with an ACTIVE SET UPDATE COMPLETE message.

The SS configures then compressed mode (if required), to prepare the UE for inter-frequency measurements, by sending a PHYSICAL CHANNEL RECONFIGURATION message on DCCH using AM-RLC. The UE shall answer with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

The SS then sets up inter-frequency measurements (event 2b), by sending a MEASUREMENT CONTROL message to the UE. Compressed mode is started at the same time in that message (if required).

At instant T2, the downlink power is changed according to what is shown in table 8.2.6.37-1. Frequency f_2 shall then trigger event 2b, and the UE shall transmit a MEASUREMENT REPORT message to the SS.

SS then transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE on DCCH using AM-RLC, to order it to perform timing reinitialised inter-frequency handover to cell 4 on frequency f_2. The UE is also ordered to stop compressed mode (if required) after the handover.

The UE shall then transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS when the inter-frequency handover has succeeded. In case the initial condition was CS-DCCH+DTCH_DCH, that message shall contain the IEs "COUNT-C activation time" and the IE "START list" (in the IE "Uplink counter synchronisation info"), indicating to the SS when and from which value to start incrementing the HFN part of the COUNT-C variable used for ciphering. The SS shall restart incrementing the HFN part of the COUNT-C variable from the value specified in the IE START from the CFN indicated in the IE COUNT-C activation time.

The SS then waits for 20 seconds, and checks that no intra-frequency MEASUREMENT REPORT is received from the UE.

The SS sends then a MEASUREMENT CONTROL message to the UE, to modify the intra-frequency cell info list of the UE. About 640 ms after, a MEASUREMENT REPORT message shall be received from the UE, triggered by cell 5. Subsequent MEASUREMENT REPORT messages shall be received at 4 seconds interval.

Only if the UE requires compressed mode for performing interfrequency measurements, the SS sends a MEASUREMENT CONTROL message to the UE that sets up inter-frequency measurements, but does not activate compressed mode in that message.

At instant T3, the downlink power is changed according to what is shown in table 8.2.6.37-1 so as to trigger Event 2b for frequency f1. SS waits then for 20 seconds, and checks that no MEASUREMENT REPORT message triggered by cell 2 is received during this time.

Independent of the UE requiring compressed mode, the SS then continues by sending a PHYSICAL CHANNEL RECONFIGURATION message to the UE on DCCH using AM-RLC, to order it to perform timing reinitialised inter-frequency handover to cell 2 on frequency f_1.

The UE shall then transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS when the inter-frequency handover has succeeded. In case the initial condition was CS-DCCH+DTCH_DCH, that message shall contain the IEs "COUNT-C activation time" and the IE "START list" (in the IE "Uplink counter synchronisation info"), indicating to the SS when and from which value to start incrementing the HFN part of the COUNT-C variable used for ciphering.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1				The SS changes the power of the cells according to column T1 in table 8.2.6.37-1
2	→		MEASUREMENT REPORT	Event 1a is triggered by cell 2 in the UE, which sends a MEASUREMENT REPORT message to the SS
3	←		ACTIVE SET UPDATE	The SS adds cell 2 to the active set of the UE.
4	→		ACTIVE SET UPDATE COMPLETE	The UE answers with an ACTIVE SET UPDATE COMPLETE message to the SS
5	←		PHYSICAL CHANNEL RECONFIGURATION	The SS downloads the compressed mode parameters in the UE (if required).

Step	Direction		Message	Comment
	UE	SS		
6	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE acknowleges the downloading of the compressed mode parameters (only if compressed mode was configured).
7	←		MEASUREMENT CONTROL	The SS configures inter-frequency measurements in the UE, and activates compressed mode (if required).
8				The SS changes the power of the cells according to column T2 in table 8.2.6.37-1.
9	→		MEASUREMENT REPORT	Frequency f_2 triggers event 2b in the UE, which sends a MEASUREMENT REPORT message to the SS.
10	←		PHYSICAL CHANNEL RECONFIGURATION	The SS orders the UE to perform timing re-initialised inter-frequency handover to cell 4 on frequency f_2.
11	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	After the UE has succeeded in performing the inter-frequency handover, it shall send a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS using the new configuration.
12				The SS waits for 20 seconds and monitors that no intra-frequency MEASUREMENT REPORT message is received from the UE.
13	←		MEASUREMENT CONTROL	The SS updates the list of intra-frequency cells in the UE.
14	→		MEASUREMENT REPORT	Cell 5 triggers event 1a in the UE, which sends a MEASUREMENT REPORT message to the SS. Subsequent MEASUREMENT REPORT messages shall be received from the UE at 4 seconds interval.
15	←		MEASUREMENT CONTROL	The SS sets up an inter-frequency measurement in the UE (if compressed mode is required), but does not activate compressed mode.
16				The SS changes the power of the cells according to column T3 in table 8.2.6.37-1.
16a				The SS waits for 20 seconds and monitors that no inter-frequency MEASUREMENT REPORT message is received from the UE.
17	←		PHYSICAL CHANNEL RECONFIGURATION	The SS orders the UE to perform timing re-initialised inter-frequency handover to cell 2 on frequency f_1.
18	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	After the UE has succeeded in performing the inter-frequency handover, it shall send a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS using the new configuration.
19	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

All messages indicated below shall use the same content as described in default message content, with the following exceptions:

RRC CONNECTION SETUP

The message to be used in this test is defined in TS 34.108, clause 9, Condition A1 with the following exceptions:

- Signalling RB information to setup	(RB2 AM DCCH for RRC)
- RB identity	Not Present
- CHOICE RLC info type	
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	32
- Timer_RST	500
- Max_RST	1
- Polling info	
- Timer_poll_prohibit	40
- Timer_poll	40
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- DL RLC PDU size	According to clause 6.10.2.4.1.3 (standalone 13.6 kbps signalling radio bearer)
- In-sequence delivery	TRUE
- Receiving window size	32
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE

MEASUREMENT REPORT (Step 2)

Information Element	Value/Remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Scrambling code 1 (or scrambling code 2)
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is present and includes IE COUNT-C-SFN frame difference (This IE is related to scrambling code 2)
- Primary CPICH info	
- Primary scrambling code	Scrambling code 2 (or scrambling code 1 if the previous scrambling code included by the UE was scrambling code 2)
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Scrambling code 2

ACTIVE SET UPDATE (Step 3)

The message to be used in this test is defined in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/Remark	Version
Radio link addition information		
- Primary CPICH Info		
- Primary Scrambling Code	Scrambling code 2	
- Downlink DPCH info for each RL	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH can be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	1	
- Spreading factor	Refer to TS 34.108 clause 6.10.2.4 "Typical radio parameter sets"	
- Code Number	Any value between 0 and Spreading factor-1 (use different values for each DPCH in case several DPCHs are allocated to the UE).	
- Scrambling code change	Not Present	
- TPC Combination Index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Close loop timing adjustment mode	Not Present	
- TFCI Combining Indicator	FALSE	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

PHYSICAL CHANNEL RECONFIGURATION (Step 5 for the CS case)

Information Element	Value/Remark	Version
Activation time	Not Present	
New U-RNTI	Not Present	
New C-RNTI	Not Present	
New DSCH-RNTI	Not Present	
RRC State indicator	CELL_DCH	
UTRAN DRX cycle length coefficient	Not Present	
CN information info	Not Present	
URA identity	Not Present	
Downlink counter synchronisation info	Not Present	
Frequency info	Not Present	
Maximum allowed UL TX power	Not Present	
CHOICE channel requirement	Not Present	
CHOICE mode	FDD	
- Downlink PDSCH information	Not Present	R99 and Rel-4 only
Downlink information common for all radio links		
- Downlink DPCH info common for all RL	Not Present	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not Present	
- TGD	undefined	
- TGPL1	3	
- TGPL2	Not Present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
- CHOICE UL/DL Mode	UL and DL, UL only or DL only (depending on the UE capability)	
- Downlink compressed mode method	SF/2 (or not sent, depending on the UE capability)	
- Uplink compressed mode method	SF/2 (or not sent, depending on the UE capability)	
- Downlink frame type	B	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not Present	
- DeltaSIRAfter2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
- TX Diversity mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Not Present	
Downlink information per radio link list	2 radio links	
Downlink information for each radio link		
- CHOICE mode	FDD	
- Primary CPICH info	Scrambling code 1	
- Cell ID	Not present	
- PDSCH with SHO DCH info	Not present	R99 and Rel-4 only
- PDSCH code mapping	Not present	R99 and Rel-4 only
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value	

	(as currently stored in SS) modulo 38400	
- Secondary CPICH info	Not present	
- DL channelisation code		
- Secondary scrambling code	1	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	Same as the code currently allocated to the UE in cell 1	
- Scrambling code change	Code change	
- TPC combination index	0	
- SSDT cell identity	Not present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not present	
Downlink information for each radio link		
- CHOICE mode	FDD	
- Primary CPICH info	Scrambling code 2	
- Cell ID	Not present	
- PDSCH with SHO DCH info	Not present	R99 and Rel-4 only
- PDSCH code mapping	Not present	R99 and Rel-4 only
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to the same value as in step 3	
- Secondary CPICH info	Not present	
- DL channelisation code		
- Secondary scrambling code	1	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	Same as the code currently allocated to the UE in cell 2	
- Scrambling code change	No code change	
- TPC combination index	0	

PHYSICAL CHANNEL RECONFIGURATION MESSAGE (Step 5 for the PS case)

Information Element	Value/Remark	Version
Activation time	Not Present	
New U-RNTI	Not Present	
New C-RNTI	Not Present	
New DSCH-RNTI	Not Present	
RRC State indicator	CELL_DCH	
UTRAN DRX cycle length coefficient	Not Present	
CN information info	Not Present	
URA identity	Not Present	
Downlink counter synchronisation info	Not Present	
Frequency info	Not Present	
Maximum allowed UL TX power	Not Present	
CHOICE channel requirement	Not Present	
CHOICE *mode*	FDD	
- Downlink PDSCH information	Not Present	R99 and Rel-4 only
Downlink information common for all radio links		
- Downlink DPCH info common for all RL	Not Present	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not Present	
- TGD	undefined	
- TGPL1	3	
- TGPL2	Not Present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
- CHOICE UL/DL Mode	UL and DL, UL only or DL only (depending on the UE capability)	
- Downlink compressed mode method	HLS(or not sent, depending on the UE capability)	
- Uplink compressed mode method	HLS(or not sent, depending on the UE capability)	
- Downlink frame type	B	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not Present	
- DeltaSIRAfter2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
- TX Diversity mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Not Present	
Downlink information for each radio link	Not Present	

MEASUREMENT CONTROL (Step 7)

Information Element	Value/Remark
Measurement Identity	2
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency info list	2 inter-frequency cells
- Inter-frequency cell id	4
- Frequency info	
- UARFCN uplink (Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	UARFCN for the downlink corresponding to f_2
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Scrambling code 3
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Inter-frequency cell id	5
- Frequency info	
- UARFCN uplink (Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	UARFCN for the downlink corresponding to f_2
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Scrambling code 2
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cells for measurement	Not present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- Measurement quantity for frequency quality estimate	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- SFN-SFN observed time difference reporting indicator	No report
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	TRUE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	Not present
- Measurement validity	

Information Element	Value/Remark
- UE State	CELL_DCH
- Inter-frequency set update	
- UE autonomous update	On with no reporting
- Non autonomous update mode	Not present
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each event	
- Inter-frequency event identity	2b
- Threshold used frequency	-70 dBm
- W used frequency	0 (0.0)
- Hysteresis	2 (1.0 dB)
- Time to trigger	1280 ms
- Reporting cell status	Report cells within monitored and/or virtual active set on non-used frequency
- Maximum number of reported cells per reported non-used frequency	2
- Parameters required for each non-used frequency	
- Threshold non used frequency	-68 dBm
- W non-used frequency	0
DPCH compressed mode status info	
- TGPS reconfiguration CFN	(Current CFN + (256 – TTI/10msec))mod 256
- Transmission gap pattern sequence	
- TGPSI	1
- TGPS Status Flag	Activate
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256

MEASUREMENT REPORT (Step 9)

Note 1: UE may include either Cell Measurement Events for one of the cells or both of the Cells 4 and 5.

Information Element	Value/Remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	2
Measured Results	
- Inter-frequency measured results list	
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_2
- UTRA carrier RSSI	Check that this IE is absent
- Inter-frequency cell measurement results	Check that the value of this IE is set to 2 cells reported
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3 (or scrambling code 2)
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 2 (or scrambling code 3 if the previous scrambling code included by the UE was scrambling code 2)
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_2
- Non freq related measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 2
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3

PHYSICAL CHANNEL RECONFIGURATION (Step 10)

Information Element	Value/Remark	Version
Activation time	Not Present	
New U-RNTI	Not Present	
New C-RNTI	Not Present	
New DSCH-RNTI	Not Present	
RRC State indicator	CELL_DCH	
UTRAN DRX cycle length coefficient	Not Present	
CN information info	Not Present	
URA identity	Not Present	
Downlink counter synchronisation info	Not Present	
Frequency info		
- CHOICE mode	FDD	
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]	
- UARFCN downlink (Nd)	UARFCN for the downlink corresponding to f_2	
Maximum allowed UL TX power	Not Present	
CHOICE channel requirement	Not Present	
CHOICE *mode*	FDD	
- Downlink PDSCH information	Not Present	R99 and Rel-4 only
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	0	
- Downlink DPCH power control information	Not Present	
- Downlink rate matching restriction information	Not Present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Fixed or flexible position	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
- Transmission gap pattern sequence configuration parameters	Not present	
- TX Diversity mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Arbitrary value between 0..306688 by step of 512	
Downlink information per radio link list	1 radio link	
Downlink information for each radio link		
- CHOICE mode	FDD	
- Primary CPICH info	Scrambling code 3	
- Cell ID	Not present	
- PDSCH with SHO DCH info	Not present	R99 and Rel-4 only
- PDSCH code mapping	Not present	R99 and Rel-4 only
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value of Default DPCH Offset Value modulo 38400	
- Secondary CPICH info	Not present	
- DL channelisation code	Reference to TS34.108 clause 6.10 Parameter	

	Set	
- Secondary scrambling code	5	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	Any value between 0 and Spreading factor-1	
- Scrambling code change	If compressed mode required and CS call: No code change Otherwise: Not Present	
- TPC combination index	0	
- SSDT cell identity	Not present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not present	

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Steps 11 and 18 for the CS case)

Information Element	Value/Remark
Message Type	
RRC transaction identifier	Checked to see if it is set to identical value of the same IE in the downlink PHYSICAL CHANNEL RECONFIGURATION message
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Uplink integrity protection activation info	Check that not present
CHOICE mode	FDD
COUNT-C activation time	Check that this IE is present and that the CFN value is a multiple of 8 frames (CFN mod 8 =0) and lies at least 200 frames ahead of the CFN in which the response message is first transmitted.
Radio bearer uplink ciphering activation time info	Check that not present
Uplink counter synchronisation info	Check that present
>RB with PDCP information list	Check that absent
>START list	Check that this IE is present.

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Steps 11 and 18 for the PS case)

Information Element	Value/Remark
Message Type	
RRC transaction identifier	Checked to see if it is set to identical value of the same IE in the downlink PHYSICAL CHANNEL RECONFIGURATION message
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Uplink integrity protection activation info	Check that not present
CHOICE mode	FDD
COUNT-C activation time	Check that not present
Radio bearer uplink ciphering activation time info	Check that not present
Uplink counter synchronisation info	Check that not present

MEASUREMENT CONTROL (Step 13)

Information Element	Value/Remark
Measurement Identity	1
Measurement Command	Modify
Measurement Reporting Mode	Not present
Additional measurements list	Not present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove all intra-frequency cells
- New intra-frequency info list	2 new intra-frequency cells
- Intra-frequency cell id	4
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Scrambling code 3 (for cell 4)
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cells selection and Re-selection info	Not Present
- Intra-frequency cell id	5
- Cell info	
- Cell individual offset	20 (10 dB)
- Reference time difference to cell	Not present
- Read SFN Indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Scrambling code 2 (for cell 5)
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cells selection and Re-selection info	Not Present
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity	Not Present
- Reporting cell status	Not Present
- Measurement validity	Not Present
- CHOICE report criteria	Not Present

MEASUREMENT REPORT (Step 14)

Information Element	Value/Remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Check that this IE is set to Scrambling code 2 (or scrambling code 3)
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is present and includes IE COUNT-C-SFN frame difference (This IE is related to scrambling code 2)
- Primary CPICH info	
- Primary scrambling code	Check that this IE is set to Scrambling code 3 (or scrambling code 2 if scrambling code 3 was indicated first)
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check that this IE is set to Scrambling code 2

MEASUREMENT CONTROL (Step 15)

Information Element	Value/Remark
Measurement Identity	2
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency info list	2 inter-frequency cells
- Inter-frequency cell id	1
- Frequency info	
- UARFCN uplink (Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	UARFCN for the downlink corresponding to f_1
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Scrambling code 1
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Inter-frequency cell id	2
- Frequency info	
- UARFCN uplink (Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	UARFCN for the downlink corresponding to f_1
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	Not present
- Read SFN Indicator	TRUE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Scrambling code 2
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cells for measurement	Not present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- Measurement quantity for frequency quality estimate	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- SFN-SFN observed time difference reporting indicator	No report
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	TRUE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	Not present
- Measurement validity	

Information Element	Value/Remark
- UE State	CELL_DCH
- Inter-frequency set update	
- UE autonomous update	On with no reporting
- Non autonomous update mode	Not present
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each event	
- Inter-frequency event identity	2c
- Threshold used frequency	Not present
- W used frequency	Not present
- Hysteresis	2 (1.0 dB)
- Time to trigger	100 ms
- Reporting cell status	
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within virtual active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Parameters required for each non-used frequency	1 frequency
- Threshold non used frequency	-90 dBm
- W non-used frequency	0 (0.0)
DPCH compressed mode status info	Not present

PHYSICAL CHANNEL RECONFIGURATION (Step 17)

Information Element	Value/Remark	Version
Activation time	Not Present	
New U-RNTI	Not Present	
New C-RNTI	Not Present	
New DSCH-RNTI	Not Present	
RRC State indicator	CELL_DCH	
UTRAN DRX cycle length coefficient	Not Present	
CN information info	Not Present	
URA identity	Not Present	
Downlink counter synchronisation info	Not Present	
Frequency info		
- CHOICE mode	FDD	
- UARFCN uplink (Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]	
- UARFCN downlink (Nd)	UARFCN for the downlink corresponding tof1	
Maximum allowed UL TX power	Not Present	
CHOICE channel requirement	Not Present	
CHOICE *mode*	FDD	
- Downlink PDSCH information	Not Present	R99 and Rel-4 only
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	0	
- Downlink DPCH power control information	Not Present	
- Downlink rate matching restriction information	Not Present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Fixed or flexible position	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set	
- DPCH compressed mode info	Not present	
- TX Diversity mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
Downlink information per radio link list	1 radio link	
Downlink information for each radio link		
- CHOICE mode	FDD	
- Primary CPICH info	Scrambling code 2	
- Cell ID	Not present	
- PDSCH with SHO DCH info	Not present	R99 and Rel-4 only
- PDSCH code mapping	Not present	R99 and Rel-4 only
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value of Default DPCH Offset Value modulo 38400	
- Secondary CPICH info	Not present	
- DL channelisation code	Reference to TS34.108 clause 6.10 Parameter Set	
- Secondary scrambling code	5	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	Any value between 0 and Spreading factor-1	
- Scrambling code change	Not Present	

- TPC combination index - SSDT cell identity - Closed loop timing adjustment mode	0 Not present Not present	 R99 and Rel-4 only

8.2.6.37.5 Test Requirement

After step 1, the UE shall send a MEASUREMENT REPORT message triggered by event 1a for cell 2.

After step 3, the UE shall send an ACTIVE SET UPDATE COMPLETE message to acknowledge that it has added cell 2 to its active set.

After step 5, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS to acknowledge the downloading of the compressed mode parameters (only if compressed mode is required), that were sent in the PHYSICAL CHANNEL RECONFIGURATION message of step 4.

After step 8, the UE shall transmit a MEASUREMENT REPORT message triggered by frequency f_2. In that message, cell 4 or cell 5 shall be the only cell included in the IE event results.

After step 10, the UE shall send a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS in cell 4 to acknowledge the successful timing re-initialised inter-frequency handover, and in case the UE was in state 6-9 as defined in clause 7.4 of 34.108 as initial condition to the test, the IEs "COUNT-C activation time" and "START list" (in the IE "Uplink counter synchronisation info") shall be included in that message. The UE shall also start incrementing the HFN part of the COUNT-C variable from the value specified in the IE START from the CFN indicated in the IE COUNT-C activation time.

After step 11, the UE shall not send any intra-frequency MEASUREMENT REPORT message triggered by event 1a for cell 5.

After step 13, the UE sends periodic intra-frequency MEASUREMENT REPORT message triggered by event 1a for cell 5.

For UE's that require compressed mode for performing interfrequency measurements, after step 15 the UE shall not send any inter-frequency MEASUREMENT REPORT message triggered by event 2c for frequency 1.

After step 17, the UE shall send a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS in cell 2 to acknowledge the successful timing re-initialised inter-frequency handover, and in case the UE was in state 6-9 as defined in clause 7.4 of 34.108 as initial condition to the test, the IEs "COUNT-C activation time" and "START list" (in the IE "Uplink counter synchronisation info") shall be included in that message.

8.2.6.37a Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (Hard handover to another frequency with timing re-initialised) (1.28 Mcps TDD)

8.2.6.37a.1 Definition

8.2.6.37a.2 Conformance requirement

In case the reconfiguration procedure is used to remove all existing RL(s) in the active set while new RL(s) are established the UE shall:

1> perform the maintenance of uplink synchronisation procedure as specified in TS 25.224 [5.2.1.2] or the establishment of uplink synchronization procedure in TS 25.224 [5.2.1.3].

…

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

When performing hard handover with change of frequency, the UE shall:

1> stop all intra-frequency and inter-frequency measurements on the cells listed in the variable CELL_INFO_LIST. Each stopped measurement is restarted when a MEASUREMENT CONTROL message is received with the corresponding measurement identity.

…

When the UE is in CELL_DCH state and receives any of the messages causing the UE to perform a hard handover, the UE shall check the IE "Timing indication" in that message and:

1> if IE "Timing indication" has the value "initialise" (i.e. timing re-initialised hard handover):

2> read SFN on target cell identified by the first radio link listed in the IE "Downlink information per radio link list" included in that message;

2> set the CFN according to the following formula:

3> for TDD:

$$CFN = (SFN - DOFF) \bmod 256$$

where the formula gives the CFN of the downlink DPCH frame which starts at the same time as or which starts during the PCCPCH frame with the given SFN.

…

If the IE "Downlink DPCH info common for all RL" is included in a message used to perform a Timing re-initialised hard handover or the IE "Downlink DPCH info common for all RL" is included in a message other than RB SETUP used to transfer the UE from a state different from Cell_DCH to Cell_DCH, and ciphering is active for any radio bearer using RLC-TM, the UE shall, after having activated the dedicated physical channels indicated by that IE:

1> set the 20 MSB of the HFN component of COUNT-C for TM-RLC to the value of the latest transmitted IE "START" or "START List" for this CN domain, while not incrementing the value of the HFN component of COUNT-C at each CFN cycle; and

1> set the remaining LSBs of the HFN component of COUNT-C to zero;

1> start to perform ciphering on the radio bearer in lower layers while not incrementing the HFN;

1> include the IE "COUNT-C activation time" in the response message and specify a CFN value other than the default, "Now" for this IE;

1> calculate the START value according to subclause 8.5.9;

1> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info" in the response message;

1> at the CFN value as indicated in the response message in the IE "COUNT-C activation time":

2> set the 20 MSB of the HFN component of the COUNT-C variable to the START value as indicated in the IE "START list" of the response message for the relevant CN domain; and

2> set the remaining LSBs of the HFN component of COUNT-C to zero;

2> increment the HFN component of the COUNT-C variable by one;

2> set the CFN component of the COUNT-C to the value of the IE "COUNT-C activation time" of the response message. The HFN component and the CFN component completely initialise the COUNT-C variable;

2> step the COUNT-C variable, as normal, at each CFN value, i.e. the HFN component is no longer fixed in value but incremented at each CFN cycle.

Reference

3GPP TS 25.331 clauses 8.2.2.3, 8.2.2.4, 8.3.5, 8.5.15.2, 8.6.6.15, 8.6.6.28

8.2.6.37a.3 Test Purpose

To confirm that the UE is able to perform a hard-handover with change of frequency, with prior measurements on the target frequency.

To confirm that the UE answers with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message when the procedure has been initiated with the PHYSICAL CHANNEL RECONFIGURATION message. There are two kinds of PHYSICAL CHANNEL RECONFIGURATION messages, both of which will initiate the PHYSICAL CHANNEL RECONFIGURATION COMPLETE messages from UE but may lead to different UE behaviours. The first one (configuration 1) with IE "CHOICE *Timing Advance*" enabled and Uplink synchronization parameters will trigger UE to establish the uplink synchronization procedure with UpPCH during handover. The other one (configuration 2) with IE "CHOICE *Timing Advance*" disabled and without Uplink synchronization parameters information will perform uplink pre-synchronisation, which will not initiate UpPCH on the target cell during handover.

To confirm that the UE stops intra-frequency measurements after the inter-frequency handover has been performed, until a MEASUREMENT CONTROL message is received from the SS.

To confirm that the UE computes as it shall the CFN to be used after the handover.

To confirm that the UE includes the IE "COUNT-C activation time" and the IE "START list" (in the IE "Uplink counter synchronisation info") in the response message if ciphering is active for any radio bearer using RLC-TM.

8.2.6.37a.4 Method of test

Initial Condition

System Simulator: 4 cells – Cell 1 and cell 2 on frequency f_1, cell 4 and cell 5 on frequency f_2. Cells 2 and 5 shall have the same cell parameters id. Only cell 1 is activated.

UE: "CS-DCCH+DTCH_DCH" (state 6-9) or "PS-DCCH+DTCH_DCH" (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE. If the UE supports both CS and PS domains, the test case shall be run twice, once starting from state 6-9, once starting from state 6-10. Ciphering shall be activated.

Besides statement as above, the test case shall be run twice for each kind of PHYSICAL CHANNEL RECONFIGURATION messages: configuration 1 and configuration 2.

Test Procedure

Table 8.2.6.37a-1 illustrates the downlink power to be applied for the 4 cells, as well as the frequency and cell parameters id for each cell.

Table 8.2.6.37a-1

Parameter	Unit	Cell 1			Cell 2			Cell 4			Cell 5		
Frequency		f_1			f_1			f_2			f_2		
Cell parameters id		Cell parameters id 1			Cell parameters id 2			Cell parameters id 3			Cell parameters id 2		
		T0	T1	T2	T0	T1	T2	T0	T1	T2	T0	T1	T2
P-CCPCH RSCP (TDD)	dBm	-60	-60	-75	-95	-55	-75	-60	-60	-60	-60	-60	-70

The UE is initially in CELL_DCH in cell 1.

At instant T1, the downlink power is changed according to what is shown in table 8.2.6.37a -1. Cell 2 should then trigger event 1g as has been configured through the default System Information Block Type 11. The UE shall thus send a MEASUREMENT REPORT to the SS, triggered by cell 2.

The SS then sets up inter-frequency measurements (event 2b), by sending a MEASUREMENT CONTROL message to the UE.

At instant T2, the downlink power is changed according to what is shown in table 8.2.6.37a-1. Frequency f_2 shall then trigger event 2b, and the UE shall transmit a MEASUREMENT REPORT message to the SS.

SS then transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE on DCCH using AM-RLC, to order it to perform timing reinitialised inter-frequency handover to cell 4 on frequency f_2.

The UE shall then transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS when the inter-frequency handover has succeeded. In case the initial condition was CS-DCCH+DTCH_DCH, that message shall contain the IEs "COUNT-C activation time" and the IE "START list" (in the IE "Uplink counter synchronisation info"), indicating to the SS when and from which value to start incrementing the HFN part of the COUNT-C variable used for ciphering. The SS shall restart incrementing the HFN part of the COUNT-C variable from the value specified in the IE START from the CFN indicated in the IE COUNT-C activation time.

The SS then waits for 20 seconds, and checks that no MEASUREMENT REPORT is received from the UE.

The SS sends then a MEASUREMENT CONTROL message to the UE, to modify the intra-frequency cell info list of the UE. About 640 ms after, a MEASUREMENT REPORT message shall be received from the UE, triggered by cell 5. Subsequent MEASUREMENT REPORT messages shall be received at 4 seconds interval.

In case the initial condition was CS-DCCH+DTCH_DCH, that message shall contain the IEs "COUNT-C activation time" and the IE "START list" (in the IE "Uplink counter synchronisation info"), indicating to the SS when and from which value to start incrementing the HFN part of the COUNT-C variable used for ciphering.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1				The SS changes the power of the cells according to column T1 in table 8.2.6.37a-1
2	→		MEASUREMENT REPORT	Event 1g is triggered by cell 2 in the UE, which sends a MEASUREMENT REPORT message to the SS
3	←		MEASUREMENT CONTROL	The SS configures inter-frequency measurements in the UE.
4				The SS changes the power of the cells according to column T2 in table 8.2.6.37a-1.
5	→		MEASUREMENT REPORT	Frequency f_2 triggers event 2b in the UE, which sends a MEASUREMENT REPORT message to the SS.
6	←		PHYSICAL CHANNEL RECONFIGURATION	The SS orders the UE to perform timing re-initialised inter-frequency handover to cell 4 on frequency f_2.
7	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	After the UE has succeeded in performing the inter-frequency handover, it shall send a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS using the new configuration.
8				The SS waits for 20 seconds and monitors that no MEASUREMENT REPORT message is received from the UE.
9	←		MEASUREMENT CONTROL	The SS updates the list of intra-frequency cells in the UE.

10	→	MEASUREMENT REPORT	UE sends a MEASUREMENT REPORT message to the SS. Subsequent MEASUREMENT REPORT messages shall be received from the UE at 4 seconds interval.

Specific Message Content

All messages indicated below shall use the same content as described in default message content, with the following exceptions:

MEASUREMENT REPORT (Step 2)

Information Element	Value/Remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	
- Cell measured results	
- Cell Identity	Check that this IE is present
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CCPCH info	
- Cell parameters ID	cell parameters ID 2
- Timeslot ISCP	Check that this IE is absent
- P-CCPCH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
- Cell measured results	
- Cell Identity	Check that this IE is present
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CCPCH info	
- Cell parameters ID	Cell parameters ID 1
- Timeslot ISCP	Check that this IE is absent
- P-CCPCH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1g
- Cell measurement event results	
- Primary CCPCH info	
- Cell parameters ID	Cell parameters ID 2

MEASUREMENT CONTROL (Step 3)

Information Element	Value/Remark
Measurement Identity	2
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency info list	2 inter-frequency cells
- Inter-frequency cell id	4
- Frequency info	
- UARFCN (Nt)	UARFCN corresponding to f_2
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE Mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Cell parameters ID 3
- Inter-frequency cell id	5
- Frequency info	
- UARFCN (Nt)	UARFCN corresponding to f_2
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE Mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Cell parameters ID 2
- Cells for measurement	Not present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- Measurement quantity for frequency quality estimate	P-CCPCH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- SFN-SFN observed time difference reporting indicator	No report
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	TRUE
- Timeslot ISCP reporting indicator	FALSE
- P-CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	Not present
- Measurement validity	
- UE State	CELL_DCH
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each event	
- Inter-frequency event identity	2b
- Threshold used frequency	-70 dBm
- W used frequency	0 (0.0)
- Hysteresis	2 (1.0 dB)
- Time to trigger	100 ms
- Reporting cell status	Report cells within monitored and/or virtual active set on non-used frequency
- Maximum number of reported cells per reported non-used frequency	2
- Parameters required for each non-used frequency	

Information Element	Value/Remark
- Threshold non used frequency	-65 dBm
- W non-used frequency	0

MEASUREMENT REPORT (Step 5)

Information Element	Value/Remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	2
Measured Results	
- Inter-frequency measured results list	
- Frequency info	
-CHOICE mode	TDD
- UARFCN(Nt)	Check that the value of this IE is set to UARFCN corresponding to f_2
- UTRA carrier RSSI	Check that this IE is absent
- Inter-frequency cell measurement results	Check that the value of this IE is set to 2 cells reported
- Cell measured results	
- Cell Identity	Check that this IE is present
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CCPCH info	
- Cell parameters ID	Check that the value of this IE is set to Cell parameters ID 3 (or Cell parameters ID 2)
- Timeslot ISCP	Check that this IE is absent
- P-CCPCH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
- Cell measured results	
- Cell Identity	Check that this IE is present
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CCPCH info	
- Cell parameters ID	Check that the value of this IE is set to Cell parameters ID 2 (or Cell parameters ID 3 if the previous Cell parameters ID included by the UE was Cell parameters ID 2)
- Timeslot ISCP	Check that this IE is absent
- P-CCPCH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	
-CHOICE mode	TDD
- UARFCN(Nt)	Check that the value of this IE is set to UARFCN corresponding to f_2
- Non freq related measurement event results	
- Primary CCPCH info	
- Cell parameters ID	Check that the value of this IE is set to Cell parameters ID 3

PHYSICAL CHANNEL RECONFIGURATION (Configuration 1) (Step 6)

Information Element	Value/Remark
Activation time	Not Present
New U-RNTI	Not Present
New C-RNTI	Not Present
New DSCH-RNTI	Not Present
RRC State indicator	CELL_DCH
UTRAN DRX cycle length coefficient	Not Present
CN information info	Not Present
URA identity	Not Present
Downlink counter synchronisation info	Not Present
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	UARFCN corresponding to f_2
Maximum allowed UL TX power	Not Present
Uplink DPCH info	
- Uplink DPCH power control info	Not Present
- CHOICE *mode*	TDD
- Uplink Timing Advance Control	
- CHOICE *Timing Advance*	Enabled
- CHOICE TDD option	1.28 Mcps TDD
- Uplink synchronization parameters	
- Uplink synchronization step size	1
- Uplink synchronization frequency	1
- Synchronization parameters	
- SYNC_UL codes bitmap	01010101
- FPACH info	
- Timeslot number	0
- Channelisation code	16/15
- Midamble Shift and burst type	
- CHOICE TDD option	1.28 Mcps TDD
- Midamble Allocation Mode	Default midamble
- Midamble configuration	16
- WT	4
- PRXUpPCHdes	-80dBm
- SYNC_UL procedure	
- Max SYNC_UL Transmissions	2
- Power Ramp Step	2
- Frequency info	Not present
- UpPCH position info	0
E-DCH Info	Not Present
CHOICE channel requirement	Not Present
CHOICE *mode*	TDD
- Downlink HS-PDSCH Information	Not Present
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indication	Initialise
- CFN-targetSFN frame offset	0
- Downlink DPCH power control information	Not Present
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- CHOICE mode	TDD
- Primary CCPCH info	Cell parameters ID 3
- Downlink DPCH info for each RL	
- CHOICE mode	TDD
- TFCS ID	Reference to TS34.108 clause 6.11 Parameter Set
- Time info	Reference to TS34.108 clause 6.11 Parameter Set
- Common timeslot info	Reference to TS34.108 clause 6.11 Parameter Set
- Downlink DPCH timeslots and codes	as used for cell 4

PHYSICAL CHANNEL RECONFIGURATION (Configuration 2) (Step 6)

Information Element	Value/Remark
Activation time	Not Present
New U-RNTI	Not Present
New C-RNTI	Not Present
New DSCH-RNTI	Not Present
RRC State indicator	CELL_DCH
UTRAN DRX cycle length coefficient	Not Present
CN information info	Not Present
URA identity	Not Present
Downlink counter synchronisation info	Not Present
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	UARFCN corresponding to f_2
Maximum allowed UL TX power	Not Present
Uplink DPCH info	
- Uplink DPCH power control info	Not Present
- CHOICE *mode*	TDD
- Uplink Timing Advance Control	
- CHOICE *Timing Advance*	Disabled
E-DCH Info	Not Present
CHOICE channel requirement	Not Present
CHOICE *mode*	TDD
- Downlink HS-PDSCH Information	Not Present
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indication	Initialise
- CFN-targetSFN frame offset	0
- Downlink DPCH power control information	Not Present
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- CHOICE mode	TDD
- Primary CCPCH info	Cell parameters ID 3
- Downlink DPCH info for each RL	
- CHOICE mode	TDD
- TFCS ID	Reference to TS34.108 clause 6.11 Parameter Set
- Time info	Reference to TS34.108 clause 6.11 Parameter Set
- Common timeslot info	Reference to TS34.108 clause 6.11 Parameter Set
- Downlink DPCH timeslots and codes	as used for cell 4

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Steps 7 for the CS case)

Information Element	Value/Remark
Message Type	
RRC transaction identifier	Checked to see if it is set to identical value of the same IE in the downlink PHYSICAL CHANNEL RECONFIGURATION message
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Uplink integrity protection activation info	Check that not present
CHOICE mode	TDD
COUNT-C activation time	Check that this IE shall be present
Radio bearer uplink ciphering activation time info	Check that not present
Uplink counter synchronisation info	Check that present
>RB with PDCP information list	Check that absent
>START list	Check that this IE is set to 1
>>CN Domain identity	Check that this IE is set to CS Domain
>>START	Not checked

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Steps 7 for the PS case)

Information Element	Value/Remark
Message Type	
RRC transaction identifier	Checked to see if it is set to identical value of the same IE in the downlink PHYSICAL CHANNEL RECONFIGURATION message
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Uplink integrity protection activation info	Check that not present
CHOICE mode	TDD
COUNT-C activation time	Check that not present
Radio bearer uplink ciphering activation time info	Check that not present
Uplink counter synchronisation info	Check that not present

MEASUREMENT CONTROL (Step 9)

Information Element	Value/Remark
Measurement Identity	1
Measurement Command	Modify
Measurement Reporting Mode	Periodical reporting
Additional measurements list	Not present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove all intra-frequency cells
- New intra-frequency info list	2 new intra-frequency cells
- Intra-frequency cell id	4
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	
- Cell parameters ID	Cell parameters ID 3 (for cell 4)
- Primary CCPCH TX power	Not Present
- Cells selection and Re-selection info	Not Present
- Intra-frequency cell id	5
- Cell info	
- Cell individual offset	20 (10 dB)
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	
- Cell parameters ID	Cell parameters ID 2 (for cell 5)
- Primary CCPCH TX power	Not Present
- Cells selection and Re-selection info	Not Present
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity	Not Present
- Reporting cell status	Not Present
- Measurement validity	Not Present
- CHOICE report criteria	Periodical reporting criteria
- Amount of reporting	4
- Reporting interval	4000

MEASUREMENT REPORT (Step 10)

Information Element	Value/Remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CCPCH info	
- Cell parameters ID	Check that this IE is set to Cell parameters ID 2 (or Cell parameters ID 3)
- Timeslot ISCP	Check that this IE is absent
- P-CCPCH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CCPCH info	
- Cell parameters ID	Check that this IE is set to Cell parameters ID 3 (or Cell parameters ID 2 if Cell parameters ID 3 was indicated first)
- Timeslot ISCP	Checked that this IE is absent
- P-CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	Checked that this IE is absent

8.2.6.37a.5 Test Requirement

After step 2, the UE shall send a MEASUREMENT REPORT message triggered by event 1g for cell 2.

After step 4, the UE shall transmit a MEASUREMENT REPORT message triggered by frequency f_2. In that message, cell 4 shall be the only cell included in the IE event results.

After step 6, the UE shall send a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS in cell 4 to acknowledge the successful timing re-initialised inter-frequency handover, and in case the UE was in state 6-9 as defined in clause 7.4 of 34.108 as initial condition to the test, the IEs "COUNT-C activation time" and "START list" (in the IE "Uplink counter synchronisation info") shall be included in that message. The UE shall also start incrementing the HFN part of the COUNT-C variable from the value specified in the IE START from the CFN indicated in the IE COUNT-C activation time.

After step 8, the UE shall not send any MEASUREMENT REPORT message.

After step 9, the UE send a MEASUREMENT REPORT message.

8.2.6.37b Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (Hard handover to another frequency band cell with timing re-initialised)

8.2.6.37b.1 Definition

This test case is identical to test case 8.2.6.37 except that the cells belong to different frequency bands.

8.2.6.37b.2 Conformance requirement

Same conformance requirement as in clause 8.2.6.37.2.

8.2.6.37b.3 Test purpose

Same test purpose as described in clause 8.2.6.37.3 except that the target frequency is in a different frequency band.

8.2.6.37b.4 Method of test

Initial Condition

Same initial conditions as in clause 8.2.6.37.4 except that frequencies f_1 and f_2 are selected from different frequency bands.

Related ICS/IXIT statement(s)

- Compressed mode required yes/no
- UE supports multiple bands simultaneously yes/no

Test Procedure

Same test procedure as in clause 8.2.6.37.4.

Note: If the UE supports more than 2 frequency bands, the test may be executed for various band combinations.

Expected sequence

Same expected sequence as in clause 8.2.6.37.4.

Specific Message Contents

Same specific message contents as in clause 8.2.6.37.4.

8.2.6.37b.5 Test requirement

Same test requirements as in clause 8.2.6.37.5.

8.2.6.37c Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (Hard handover to another frequency with timing re-initialised) (1.28 Mcps TDD) (TDD a-f band)

8.2.6.37c.1 Definition

This test case is identical to test case 8.2.6.37a except that the cells belong to different frequency bands.

8.2.6.37c.2 Conformance requirement

Same conformance requirement as in clause 8.2.6.37a.2.

8.2.6.37c.3 Test purpose

Same test purpose as described in clause 8.2.6.37a.3 except that the target frequency is in a different frequency band.

8.2.6.37c.4 Method of test

Initial Condition

Same initial conditions as in clause 8.2.6.37a.4 except that frequencies f_1 and f_2 are selected from different frequency bands.

Related ICS/IXIT statement(s)

- Compressed mode required yes/no
- UE supports multiple bands simultaneously yes/no

Test Procedure

Same test procedure as in clause 8.2.6.37a.4.

Note: If the UE supports more than 2 frequency bands, the test may be executed for various band combinations.

Expected sequence

Same expected sequence as in clause 8.2.6.37a.4.

Specific Message Contents

Same specific message contents as in clause 8.2.6.37a.4.

8.2.6.37c.5 Test requirement

Same test requirements as in clause 8.2.6.37a.5.

8.2.6.38 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (Hard handover to another frequency with timing re-initialised): Failure (Physical channel failure and reversion to old channel)

8.2.6.38.1 Definition

8.2.6.38.2 Conformance requirement

When a physical dedicated channel establishment is initiated by the UE, the UE shall start a timer T312 and wait for layer 1 to indicate N312 "in sync" indications. On receiving N312 "in sync" indications, the physical channel is considered established and the timer T312 is stopped and reset.

If the timer T312 expires before the physical channel is established, the UE shall consider this as a "physical channel establishment failure".

…

If the received message caused the UE to be in CELL_DCH state and the UE failed to establish the dedicated physical channel(s) indicated in the received message the UE shall:

1> revert to the configuration prior to the reception of the message (old configuration);

…

1> transmit a failure response message as specified in TS 25.331 subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "physical channel failure".

1> set the variable ORDERED_RECONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

…

The UE shall:

1> in case of reception of a PHYSICAL CHANNEL RECONFIGURATION message:

…

2> transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE as response message on the DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.7, 8.2.2.9, 8.5.4.

8.2.6.38.3 Test purpose

To confirm that the UE reverts to the old configuration (including measurement configurations, ciphering procedures and compressed mode configurations if required) and transmits a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC if the UE fails to reconfigure the new physical channel according to the received PHYSICAL CHANNEL RECONFIGURATION message before timer T312 expiry.

8.2.6.38.4 Method of test

Initial Condition

System Simulator: 4 cells – Cell 1 and cell 2 on frequency f_1, cell 4 on frequency $f_2$and cell 5 on frequency f_3.

UE: "CS-DCCH+DTCH_DCH" (state 6-9) or "PS-DCCH+DTCH_DCH" (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE. If the UE supports both CS and PS domains, the test case shall be run twice, once starting from state 6-9, once starting from state 6-10. Ciphering shall be activated.

Related ICS/IXIT statements

- Compressed mode required yes/no

Test Procedure

Table 8.2.6.38-1 illustrates the downlink power to be applied for the 4 cells, as well as the frequency and scrambling code for each cell.

Table 8.2.6.38-1a

Parameter	Unit	Cell 1					Cell 2				
Frequency		f_1					f_1				
Scrambling code		Scrambling code 1					Scrambling code 2				
		T0	T1	T2	T3	T4	T0	T1	T2	T3	T4
CPICH Ec	dBm/3.84 MHz	-60	-60	-75	-60	-75	-95	-60	-75	-60	-75

Table 8.2.6.38-1b

Parameter	Unit	Cell 4					Cell 5				
Frequency		f_2					f_3				
Scrambling code		Scrambling code 3					Scrambling code 4				
		T0	T1	T2	T3	T4	T0	T1	T2	T3	T4
CPICH Ec	dBm/3.84 MHz	-60	-60	-60	OFF	-73	-60	-60	-73	OFF	-60

The UE is initially in CELL_DCH, and has only cell 1 in its active set.

At instant T1, the downlink power is changed according to what is shown in table 8.2.6.38 -1. Cell 2 should then trigger event 1a as has been configured through the default System Information Block Type 11. The UE shall thus send a MEASUREMENT REPORT to the SS, triggered by cell 2.

The SS adds then cell 2 to the active set of the UE, by sending an ACTIVE SET UPDATE message to the UE. The UE shall answer with an ACTIVE SET UPDATE COMPLETE message.

The SS then configures compressed mode, (if required by the UE) to prepare the UE for inter-frequency measurements, by sending a PHYSICAL CHANNEL RECONFIGURATION message on DCCH using AM-RLC. The UE shall answer with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

The SS then sets up inter-frequency measurements (event 2b), by sending a MEASUREMENT CONTROL message to the UE. Compressed mode is started at the same time in that message, (if required).

At instant T2, the downlink power is changed according to what is shown in table 8.2.6.38-1. Frequency f_2 shall then trigger event 2b, and the UE shall transmit a MEASUREMENT REPORT message to the SS.

At instance T3, the downlink power is changed according to what is shown in table 8.2.6.38-1.

SS then transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE on DCCH using AM-RLC, to order it to perform timing reinitialised inter-frequency handover to cell 4 on frequency f_2.

The UE shall revert to the old configuration and transmits a PHYSICAL CHANNEL RECONFIGURATION FAILURE message to the SS on the DCCH using AM RLC, with the value "physical channel failure" in the IE "failure cause".

At instant T4, the downlink power is changed according to what is shown in table 8.2.6.38-1. Frequency f_3 shall then trigger event 2b, and the UE shall transmit a MEASUREMENT REPORT message to the SS.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1				The SS changes the power of the cells according to column T1 in table 8.2.6.38-1.
2	→		MEASUREMENT REPORT	Event 1a is triggered by cell 2 in the UE, which sends a MEASUREMENT REPORT message to the SS.
3	←		ACTIVE SET UPDATE	The SS adds cell 2 to the active set of the UE.
4	→		ACTIVE SET UPDATE COMPLETE	The UE answers with an ACTIVE SET UPDATE COMPLETE message to the SS.
5	←		PHYSICAL CHANNEL RECONFIGURATION	The SS downloads the compressed mode parameters in the UE, (if required).

6	→	PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE acknowledges the downloading of the compressed mode parameters (only if compressed mode was configured).
7	←	MEASUREMENT CONTROL	The SS configures inter-frequency measurements in the UE, and activates compressed mode (if required).
8			The SS changes the power of the cells according to column T2 in table 8.2.6.38-1.
9	→	MEASUREMENT REPORT	Frequency f_2 triggers event 2b in the UE, which sends a MEASUREMENT REPORT message to the SS.
			The SS changes the power of the cells according to column T3 in table 8.2.6. 38-1.
10	←	PHYSICAL CHANNEL RECONFIGURATION	The SS orders the UE to perform timing re-initialised inter-frequency handover to cell 4 on frequency f_2.
11	→	PHYSICAL CHANNEL RECONFIGURATION FAILURE	After T312 expires, the UE shall revert to the old channel and transmits this message.
12			The SS changes the power of the cells according to column T4 in table 8.2.6.38-1.
13	→	MEASUREMENT REPORT	Frequency f_3 triggers event 2b in the UE, which sends a MEASUREMENT REPORT message to the SS.

Specific Message Content

All messages indicated below shall use the same content as described in default message content, with the following exceptions.

MEASUREMENT REPORT (Step 2)

Information Element	Value/Remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Scrambling code 1 (or scrambling code 2)
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Scrambling code 2 (or scrambling code 1 if the previous scrambling code included by the UE was scrambling code 2)
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Scrambling code 2

ACTIVE SET UPDATE (Step 3)

Information Element	Value/Remark	Version
Radio link addition information		
- Primary CPICH Info		
- Primary Scrambling Code	Scrambling code 2	
- Downlink DPCH info for each RL	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH can be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	1	
- Spreading factor	Refer to TS 34.108 clause 6.10.2.4 "Typical radio parameter sets"	
- Code Number	Any value between 0 and Spreading factor-1 (use different values for each DPCH in case several DPCHs are allocated to the UE).	
- Scrambling code change	Not Present	
- TPC Combination Index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Close loop timing adjustment mode	Not Present	
- TFCI Combining Indicator	FALSE	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

PHYSICAL CHANNEL RECONFIGURATION (Step 5 for the CS case)

Information Element	Value/Remark	Version
Activation time	Not Present	
New U-RNTI	Not Present	
New C-RNTI	Not Present	
New DSCH-RNTI	Not Present	
RRC State indicator	CELL_DCH	
UTRAN DRX cycle length coefficient	Not Present	
CN information info	Not Present	
URA identity	Not Present	
Downlink counter synchronisation info	Not Present	
Frequency info	Not Present	
Maximum allowed UL TX power	Not Present	
CHOICE channel requirement	Not Present	
CHOICE mode	FDD	
- Downlink PDSCH information	Not Present	R99 and Rel-4 only
Downlink information common for all radio links		
- Downlink DPCH info common for all RL	Not Present	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not Present	
- TGD	undefined	
- TGPL1	3	
- TGPL2	Not Present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
- CHOICE UL/DL Mode	UL and DL, UL only or DL only (depending on the UE capability)	
- Downlink compressed mode method	SF/2 (or not sent, depending on the UE capability)	
- Uplink compressed mode method	SF/2 (or not sent, depending on the UE capability)	
- Downlink frame type	B	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not Present	
- DeltaSIRAfter2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
- TX Diversity mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Not Present	
Downlink information per radio link list	2 radio links	
Downlink information for each radio link		
- CHOICE mode	FDD	
- Primary CPICH info	Scrambling code 1	
- Cell ID	Not present	
- PDSCH with SHO DCH info	Not present	R99 and Rel-4 only
- PDSCH code mapping	Not present	R99 and Rel-4 only
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value	

	(as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not present	
- DL channelisation code		
- Secondary scrambling code	1	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	Same as the code currently allocated to the UE in cell 1	
- Scrambling code change	Code change	
- TPC combination index	0	
- SSDT cell identity	Not present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not present	
Downlink information for each radio link		
- CHOICE mode	FDD	
- Primary CPICH info	Scrambling code 2	
- Cell ID	Not present	
- PDSCH with SHO DCH info	Not present	R99 and Rel-4 only
- PDSCH code mapping	Not present	R99 and Rel-4 only
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to the same value as in step 3	
- Secondary CPICH info	Not present	
- DL channelisation code		
- Secondary scrambling code	1	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	Same as the code currently allocated to the UE in cell 2	
- Scrambling code change	No code change	
- TPC combination index	0	

PHYSICAL CHANNEL RECONFIGURATION MESSAGE (Step 5 for the PS case)

Information Element	Value/Remark	Version
Activation time	Not Present	
New U-RNTI	Not Present	
New C-RNTI	Not Present	
New DSCH-RNTI	Not Present	
RRC State indicator	CELL_DCH	
UTRAN DRX cycle length coefficient	Not Present	
CN information info	Not Present	
URA identity	Not Present	
Downlink counter synchronisation info	Not Present	
Frequency info	Not Present	
Maximum allowed UL TX power	Not Present	
CHOICE channel requirement	Not Present	
CHOICE *mode*	FDD	
- Downlink PDSCH information	Not Present	R99 and Rel-4 only
Downlink information common for all radio links		
- Downlink DPCH info common for all RL	Not Present	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Deactivate	
- TGCFN	Not Present	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not Present	
- TGD	undefined	
- TGPL1	3	
- TGPL2	Not Present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
- CHOICE UL/DL Mode	UL and DL, UL only or DL only (depending on the UE capability)	
- Downlink compressed mode method	HLS(or not sent, depending on the UE capability)	
- Uplink compressed mode method	HLS(or not sent, depending on the UE capability)	
- Downlink frame type	B	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not Present	
- DeltaSIRAfter2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
- TX Diversity mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Not Present	
Downlink information for each radio link	Not Present	

MEASUREMENT CONTROL (Step 7)

Information Element	Value/Remark
Measurement Identity	2
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency info list	2 inter-frequency cells
- Inter-frequency cell id	4
- Frequency info	
- UARFCN uplink (Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	UARFCN for the downlink corresponding to f_2
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Scrambling code 3
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Inter-frequency cell id	5
- Frequency info	
- UARFCN uplink (Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	UARFCN for the downlink corresponding to f_3
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	Not present
- Primary Scrambling Code	Scrambling code 4
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cells for measurement	Not present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- Measurement quantity for frequency quality estimate	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- SFN-SFN observed time difference reporting indicator	No report
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	TRUE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	Not present
- Measurement validity	

Information Element	Value/Remark
- UE State	CELL_DCH
- Inter-frequency set update	
- UE autonomous update	On with no reporting
- Non autonomous update mode	Not present
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each event	
- Inter-frequency event identity	2b
- Threshold used frequency	-70 dBm
- W used frequency	0 (0.0)
- Hysteresis	2 (1.0 dB)
- Time to trigger	100 ms
- Reporting cell status	Report cells within monitored and/or virtual active set on non-used frequency
- Maximum number of reported cells per reported non-used frequency	2
- Parameters required for each non-used frequency	
- Threshold non used frequency	-68 dBm
- W non-used frequency	0
DPCH compressed mode status info	
- TGPS reconfiguration CFN	(Current CFN + (256 – TTI/10msec))mod 256
- Transmission gap pattern sequence	
- TGPSI	1
- TGPS Status Flag	Activate
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256

MEASUREMENT REPORT (Step 9)

Information Element	Value/Remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	2
Measured Results	
- Inter-frequency measured results list	
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_2
- UTRA carrier RSSI	Check that this IE is absent
- Inter-frequency cell measurement results	Check that the value of this IE is set to 1 cell reported
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_2
- Non freq related measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3

PHYSICAL CHANNEL RECONFIGURATION (Step 10)

Information Element	Value/Remark	Version
Activation time	Not Present	
New U-RNTI	Not Present	
New C-RNTI	Not Present	
New DSCH-RNTI	Not Present	
RRC State indicator	CELL_DCH	
UTRAN DRX cycle length coefficient	Not Present	
CN information info	Not Present	
URA identity	Not Present	
Downlink counter synchronisation info	Not Present	
Frequency info		
- CHOICE mode	FDD	
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]	
- UARFCN downlink (Nd)	UARFCN for the downlink corresponding to f_2	
Maximum allowed UL TX power	Not Present	
CHOICE channel requirement	Not Present	
CHOICE *mode*	FDD	
- Downlink PDSCH information	Not Present	R99 and Rel-4 only
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	0	
- Downlink DPCH power control information	Not Present	
- Downlink rate matching restriction information	Not Present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Fixed or flexible position	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
- Transmission gap pattern sequence configuration parameters	Not present	
- TX Diversity mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Arbitrary value between 0..306688 by step of 512	
Downlink information per radio link list	1 radio link	
Downlink information for each radio link		
- CHOICE mode	FDD	
- Primary CPICH info	Scrambling code 3	
- Cell ID	Not present	
- PDSCH with SHO DCH info	Not present	R99 and Rel-4 only
- PDSCH code mapping	Not present	R99 and Rel-4 only
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value of Default DPCH Offset Value modulo 38400	
- Secondary CPICH info	Not present	
- DL channelisation code	Reference to TS34.108 clause 6.10 Parameter	

	Set	
- Secondary scrambling code	5	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	Any value between 0 and Spreading factor-1	
- Scrambling code change	If compressed mode required and CS call: No code change Otherwise: Not Present	
- TPC combination index	0	
- SSDT cell identity	Not present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not present	

MEASUREMENT REPORT (Step 13)

Information Element	Value/Remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	2
Measured Results	
- Inter-frequency measured results list	
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_3
- UTRA carrier RSSI	Check that this IE is absent
- Inter-frequency cell measurement results	Check that the value of this IE is set to 1 cell reported
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 4
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_3
- Non freq related measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 4

8.2.6.38.5 Test Requirement

After step 1, the UE shall send a MEASUREMENT REPORT message triggered by event 1a for cell 2.

After step 3, the UE shall send an ACTIVE SET UPDATE COMPLETE message to acknowledge that it has added cell 2 to its active set.

After step 5, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS to acknowledge the downloading of the compressed mode parameters that were sent in the PHYSICAL CHANNEL RECONFIGURATION message of step 4 (only if compressed mode was required).

After step 8, the UE shall transmit a MEASUREMENT REPORT message triggered by frequency f_2. In that message, cell 4 shall be the only cell included in the IE event results.

After step 10, the UE shall revert to the old configuration and transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message.

After step 12, the UE shall transmit a MEASUREMENT REPORT message triggered by frequency f_3. In that message, cell 5 shall be the only cell included in the IE event results.

8.2.6.39 Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Seamless SRNS relocation) (without pending of ciphering)

8.2.6.39.1 Definition

8.2.6.39.2 Conformance requirement

1> if the reconfiguration procedure is simultaneous with SRNS relocation procedure:

2> if the transmitted message is a RADIO BEARER RECONFIGURATION:

3> include the IE "New U-RNTI".

2> else:

3> include the IE "Downlink counter synchronisation info".

The UE shall:

1> if the received reconfiguration message included the IE "Downlink counter synchronisation info"; or

2> re-establish RB2;

2> set the new uplink and downlink HFN component of COUNT-C of RB2 to MAX(uplink HFN component of COUNT-C of RB2, downlink HFN component of COUNT-C of RB2);

2> increment by one the downlink and uplink values of the HFN component of COUNT-C for RB2;

2> calculate the START value according to subclause 8.5.9;

2> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info".

1> if the IE "Integrity protection mode info" was present in the received reconfiguration message:

2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted response message.

If the new state is CELL_DCH or CELL_FACH, the response message shall be transmitted using the new configuration after the state transition, and the UE shall:

1> if the IE "Downlink counter synchronisation info" was included in the reconfiguration message; or

2> when RLC has confirmed the successful transmission of the response message:

3> re-establish all AM and UM RLC entities with RB identities larger than 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the corresponding CN domain;

3> re-establish the RLC entities with RB identities 1, 3 and 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the CN domain stored in the variable LATEST_CONFIGURED_CN_DOMAIN;

3> set the remaining bits of the HFN component of COUNT-C values of all UM RLC entities to zero;

3> re-initialise the PDCP header compression entities of each radio bearer in the variable ESTABLISHED_RABS as specified in [36].

Reference

3GPP TS 25.331 clause 8.2.2.

8.2.6.39.3 Test purpose

1. To confirm that the UE performs a combined hard handover and SRNS relocation and then transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message in the new cell.

2. In the case that ciphering is applied by the network, to confirm that the UE applies the new ciphering algorithm following a successful SRNS relocation.

8.2.6.39.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 and 2

UE: PS-DCCH+DTCH_DCH (state 6-10) or CS-DCCH+DTCH_DCH (state 6-9) or PS+CS-DCCH+DTCH_DCH (state 6-14) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) and services supported by the UE. If UE supports PS+CS but only supports streaming service in CS domain then state 6-9, 6-10 are applied.

Specific Message Contents:

System Information Block type 1 (Cell 1 and Cell 2)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

System Information Block type 11 (Cell 1)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/remark
- CHOICE report criteria	
- Intra-frequency measurement reporting criteria	
- Parameters required for each event	2 kinds
- Intra-frequency event identity	1b
- Triggering condition 1	Active set cells
- Triggering condition 2	Not Present
- Reporting Range Constant	10(5dB)
- Cells forbidden to affect Reporting range	Not Present
- W	1(1.0)
- Hysteresis	0(0.0)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	Not Present
- Time to trigger	640
- Amount of reporting	Not Present
- Reporting interval	Not Present
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
- Intra-frequency event identity	1c
- Triggering condition 1	Not Present
- Triggering condition 2	Not Present
- Reporting Range Constant	Not Present
- Cells forbidden to affect Reporting range	Not Present
- W	Not Present
- Hysteresis	0(0.0)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	3
- Time to trigger	640
- Amount of reporting	4
- Reporting interval	4 000
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3

Test Procedure

Table 8.2.6.39

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-66	OFF	-66

Table 8.2.6.39 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions.

The UE is in the CELL_DCH state, camping onto cell 1. SS configures its downlink transmission power settings according to columns "T1" in table 8.2.6.39. The SS sends a PHYSICAL CHANNEL RECONFIGURATION message requesting the UE to do a timing re-initialised hard handover combined with SRNS relocation. This message includes IE "RRC State Indicator" set to "CELL_DCH", IE “Downlink counter synchronisation info” and IE “Integrity protection mode info”. UE shall reselect to cell 2 and SS verifies that the UE sends PHYSICAL CHANNEL RECONFIGURATION COMPLETE message. This message also includes a calculated new START value according to the formula “$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the most recently configured CK_X and IK_X}) + 2”, calculated IE ”Integrity Check Info” using a new FRESH value as included in IE “Integrity protection initialisation number” in IE “Integrity protection mode info” in PHYSICAL CHANNEL RECONFIGURATION message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration.

SS transmits UE CAPABILITY ENQUIRY message on the downlink DCCH using RLC-AM. The UE shall respond to downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS responds with UE CAPABILITY INFORMATION CONFIRM message. SS then send IDENTITY REQUEST message on the DCCH using RLC-AM (SRB3) in order to confirm that the UE can communicate on SRB3 by using new integrity configuration. The UE shall respond IDENTITY RESPONSE message on the uplink DCCH using RLC-AM (SRB3).

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2			Void	SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.2.6.39.
3	←		PHYSICAL CHANNEL RECONFIGURATION	If IE “Ciphering mode info” is present in the SECURITY MODE COMMAND during initial condition set-up, this message is sent after last ciphering activation time has elapsed and there is no pending ciphering activation time. New integrity protection configuration is applied on DL SRB2. LAI and RAI of cell 2 are given to the UE, and are the same as cell 1.
4	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE shall transmit this message after it reselects to cell 2. New calculated START value is included. New integrity protection configuration is applied on UL SRB2. If IE “Ciphering mode info” is present in step 3, new ciphering configuration is applied on UL SRB2 with the downlink and uplink values of the HFN component of COUNT-C for SRB2 incremented by one.
5	←		UE CAPABILITY ENQUIRY	If IE “Ciphering mode info” is present in step 3, new ciphering configuration is applied on DL SRB2 with the same value as used in step 4.
6	→		UE CAPABILITY INFORMATION	
7	←		UE CAPABILITY INFORMATION CONFIRM	
8	←		DOWNLINK DIRECT TRANSFER	NAS message embedded in this is IDENTITY REQUEST. New integrity protection configuration is applied on DL SRB3. If IE “Ciphering mode info” is present in step 3, new ciphering configuration is applied on DL SRB3 using the re-initialised COUNT-C HFN by the start value as stored in step 4.
9	→		UPLINK DIRECT TRANSFER	NAS message embedded in this is IDENTITY RESPONSE. SS confirms that new integrity protection configuration is applied on UL SRB3 by UE. If IE “Ciphering mode info” is present in step 3, new ciphering configuration is applied on UL SRB3 using the re-initialised COUNT-C HFN by the start value as stored in step 4.
10	←→		Void	

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 3) – for PS domain testing only

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "Packet to CELL_DCH from CELL_DCH in PS", with the following exception.

Information Element	Value/remark
Ciphering mode info	If network does not apply ciphering, set this IE to "Not present". If network applies ciphering, this IE present with the values of the sub IEs as stated below.
- Ciphering mode command	Start/restart
- Ciphering algorithm	Set to another algorithm than the one indicated in the SECURITY MODE COMMAND during the initial condition set-up.
- Ciphering activation time for DPCH	Not Present
- Radio bearer downlink ciphering activation time info	Not Present
Integrity protection mode info - Integrity protection mode command - Downlink integrity protection activation info - Integrity protection algorithm - Integrity protection initialisation number	 Start Not Present UIA1 SS selects an arbitrary 32 bits number for FRESH
Activation Time	Not Present
New U-RNTI - SRNC identity - S-RNTI	 0000 0000 0010B 0000 0000 0000 0000 0001B
CN Information info - PLMN identity - CN common GSM-MAP NAS system information - GSM-MAP NAS system information - CN domain related information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information	 Not present 00 01H PS 05 00H CS 1E 01H
Downlink counter synchronisation info - RB with PDCP information list	 Not Present.
Downlink information common for all radio links - Downlink DPCH info common for all RL - Timing Indication - MAC-d HFN initial value - Default DPCH Offset Value	 Initialise Not present Arbitrary set to value 0..306688 by step of 512
Downlink information for each radio links - Primary CPICH info - Primary Scrambling Code	 Set to same code as used for cell 2

PHYSICAL CHANNEL RECONFIGURATION (Step 3) – for CS domain testing only

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "Non speech in CS" or "Speech in CS", with the following exception:

Information Element	Value/remark
Ciphering mode info	If network does not apply ciphering, set this IE to "Not present". If network applies ciphering, this IE present with the values of the sub IEs as stated below.
- Ciphering mode command	Start/restart
- Ciphering algorithm	Set to another algorithm than the one indicated in the SECURITY MODE COMMAND during the initial condition set-up
- Ciphering activation time for DPCH	Not Present
- Radio bearer downlink ciphering activation time info	Not Present
Integrity protection mode info - Integrity protection mode command - Downlink integrity protection activation info - Integrity protection algorithm - Integrity protection initialisation number	 Start Not Present UIA1 SS selects an arbitrary 32 bits number for FRESH
Activation Time	Not Present
New U-RNTI - SRNC identity - S-RNTI	 0000 0000 0010B 0000 0000 0000 0000 0001B
CN Information info - PLMN identity - CN common GSM-MAP NAS system information - GSM-MAP NAS system information - CN domain related information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information	 Not present 00 01H PS 05 00H CS 1E 01H
Downlink counter synchronisation info - RB with PDCP information list	 Not Present.
Downlink information common for all radio links - Downlink DPCH info common for all RL - Timing Indication - MAC-d HFN initial value - Default DPCH Offset Value	 Initialise Not present Arbitrary set to value 0..306688 by step of 512
Downlink information for each radio links - Primary CPICH info - Primary Scrambling Code	 Set to same code as used for cell 2

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Step 4) – for PS domain testing only

Check that the UE uses the same message sub-type found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
Uplink counter synchronisation info - RB with PDCP information list - START list	 Not present Check that this IE is present.

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Step 4) – for CS domain testing only

Check that the UE uses the same message sub-type found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
COUNT-C activation time	In case ciphering is applied by the network, check that this IE is present.
Uplink counter synchronisation info - RB with PDCP information list - START list	 Not present Check that this IE is present.

UE CAPABILITY ENQUIRY (Step 5)

Use the same message sub-type found in [9] TS 34.108 clause 9.

UE CAPABILITY INFORMATION (Step 6)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9.

UE CAPABILITY INFORMATION CONFIRM (Step 7)

Use the same message sub-type found in [9] TS 34.108 clause 9.

8.2.6.39.5 Test requirement

After step 3, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC which includes a calculated new START value according to the formula "$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the most recently configured CK_X and IK_X}) + 2", calculated IE "Integrity Check Info" using the new FRESH value as included in IE "Integrity protection initialisation number" in IE "Integrity protection mode info" in PHYSICAL CHANNEL RECONFIGURATION message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration. The UE, further more, shall apply the new integrity protection configuration for the first received/sent RRC message on SRB0, SRB3, and SRB4 after receiving the PHYSICAL CHANNEL RECONFIGURATION message (i.e. immediately). For SRB2 the new integrity protection configuration shall be applied from and including the received PHYSICAL CHANNEL RECONFIGURATION message (DL) and the sent PHYSICAL CHANNEL RECONFIGURATION COMPLETE message (UL).

After step 5, the UE shall respond with a UE CAPABILITY INFORMATION message to SS.

After step 8, the UE shall respond with an IDENTITY RESPONSE message to SS and apply new ciphering configuration on UL SRB3.

(In the case where ciphering is supported)After step 9, UE shall start new ciphering configuration on the RAB.

8.2.6.39a Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (serving HS-DSCH cell change without MAC-hs reset)

8.2.6.39a.1 Definition and applicability

All UEs which support FDD or TDD and HS-PDSCH.

8.2.6.39a.2 Conformance requirement

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> the UE has a stored IE "HARQ info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor;

1> for 3.84 Mcps TDD or 7.68 Mcps TDD, the UE has stored the IE "HS-PDSCH Timeslot Configuration" and either of the following conditions are met:

2> a dedicated physical channel is allocated to the UE in the downlink;

2> the UE has stored $D_{hs\text{-}sync}$.

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link, for TDD add/remove H-RNTI upon hard handover.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

…

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

2> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

3> consider this radio link as the serving HS-DSCH radio link;

Reference

3GPP TS 25.331 clause 8.2.2, 8.5.25, 8.6.3.1, 8.6.6.4

8.2.6.39a.3 Test purpose

To confirm that the UE changes the serving HS-DSCH cell according to the received PHYSICAL CHANNEL RECONFIGURATION message in case of no MAC-hs reset.

8.2.6.39a.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and 2 are active

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH

Test Procedure

Table 8.2.6.39a

Parameter	Unit	Cell 1				Cell 2			
		T0	T1	T2	T3	T0	T1	T2	T3
UTRA RF Channel Number		Mid Range Test Frequency				Mid Range Test Frequency			
CPICH Ec (FDD)	dBm/3.84MHz	-60	-60	-60	-70	-75	-60	-70	-60
P-CCPCH RSCP (TDD)	dBm	-60	–	–	-70	-70	–	–	-60

NOTE: For TDD, T1 and T2 are not used.

Table 8.2.6.39a illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

SS initiates P25 to make the UE move to state 6-17 as specified in TS34.108 clause7.4. The UE is in CELL_DCH state with the downlink transmission power settings according to values in column “T0” in table 8.2.6.39a and has a radio bearer mapped on HS-DSCH established in cell 1.

For FDD:

SS configures its downlink transmission power settings according to columns "T1" in table 8.2.6.39a. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2.

After the MEASUREMENT REPORT message is received, the SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC to add cell 2 to the active set. When the UE receives this message, the UE shall configure layer 1 to begin reception without affecting the current uplink and downlink activities of existing radio links and cell 1 shall be kept as the serving HS-DSCH cell. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

SS configures its downlink transmission power settings according to columns "T2" in table 8.2.6.39a. The SS sends a MEASUREMENT CONTROL message to the UE configuring event 1D “Change of best cell”, and the UE shall send an initial MEASUREMENT REPORT which includes the primary scrambling code of cell 1 according to IE "Intra-frequency event identity" set to 1d.

SS configures its downlink transmission power settings according to columns "T3" in table 8.2.6.39a. UE shall transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity" set to 1d.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE . At the activation time the UE changes the serving HS-DSCH radio link to cell 2. Finally the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

For TDD:

The SS sends a MEASUREMENT CONTROL message to the UE configuring event 1g “Change of best cell”, and the UE shall send an initial MEASUREMENT REPORT which includes Cell parameters Id of cell 1 according to IE "Intra-frequency event identity" set to 1g.

SS configures its downlink transmission power settings according to columns "T3" in table 8.2.6.39a. UE shall transmit a MEASUREMENT REPORT message which includes Cell parameters Id of cell 2 ccording to IE "Intra-frequency event identity" set to 1g.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE. SS sets up a Radio Link in Cell 2. At the activation time the UE changes the serving HS-DSCH radio link to cell 2. Finally the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC. Then the SS deletes the Radio Link in Cell 1.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message (Step 0)
0a	SS			SS configures its downlink transmission power settings according to columns "T1" in table 8.2.6.39a (FDD only).
0b	→		MEASUREMENT REPORT	See specific message contents for this message (FDD only).
1	←		ACTIVE SET UPDATE	The SS instructs the UE to add cell 2 in the active set (FDD only).
2	→		ACTIVE SET UPDATE COMPLETE	The UE adds the radio link in cell 2 (FDD only).
2a	SS			SS configures its downlink transmission power settings according to columns "T2" in table 8.2.6.39a (FDD only).
3	←		MEASUREMENT CONTROL	Configure event 1D (FDD) or 1g (TDD) “Change of best cell”
3a	→		MEASUREMENT REPORT	See specific message contents for this message
4	SS			SS configures its downlink transmission power settings according to columns "T3" in table 8.2.6.39a
5	→		MEASUREMENT REPORT	See specific message contents for this message
6	←		PHYSICAL CHANNEL RECONFIGURATION	
7	SS			SS sets up a Radio Link in Cell 2(TDD only). At the activation time, the SS changes the serving HS-DSCH radio link to cell 2.
8	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE changes the serving HS-DSCH radio link to cell 2
9	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 0)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.

MEASUREMENT REPORT (Step 0b) (FDD)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 1) (FDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark	Version
Radio link addition information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 2	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not present	
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	1	
- Spreading factor	Refer to the parameter set in TS 34.108	
- Code number	For each DPCH, assign the same code number in the current code given in cell 1.	
- Scrambling code change	Not present	
- TPC combination index	0	
- SSDT cell identity	Not present	R99 and Rel-4 only
- Close loop timing adjustment mode	Not present	
- TFCI combining indicator	FALSE	
- SCCPCH information for FACH	Not present	R99 and Rel-4 only

MEASUREMENT CONTROL (Step 3) (FDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measurement command	Setup
- CHOICE measurement type	Intra-frequency measurement
- Intra frequency cell info list	Not present
- Intra-frequency measurement quantity	
- Filter coefficient	3
- CHOICE mode	FDD
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/N0 reporting indicator	TRUE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not Present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1D
- Triggering condition 2	Active set cells
- Hysteresis	8 (4 dB)
- Time to trigger	20 mSec
- Reporting cell status	
- CHOICE reported cell	Report cells within active set
- Maximum number of reported cells	3
- Use CIO	FALSE
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
DPCH compressed mode status info	Not present

MEASUREMENT CONTROL (Step 3) (1.28 Mcps TDD, 3.84Mcps TDD and 7.68 Mcps TDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measurement command	Setup
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	Not present
- Intra-frequency measurement quantity	
- Filter coefficient	3
- CHOICE mode	TDD
- Measurement quantity	Primary CCPCH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not Present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1g
- Hysteresis	4dB (IE value = 8)
- Time to trigger	20 mSec
- Reporting cell status	Report cells within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
- Use CIO	FALSE
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 3a) (FDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- DeltaRSCP	Not checked
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- DeltaRSCP	Not checked
- Pathloss	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	Check to see if set to "Intra-frequency event results"
- Event ID	Check to see if set to "1D"
- Cell measurement event results	
- Primary scrambling code	Check to see if set to "Primary scrambling code of Cell 1"

MEASUREMENT REPORT (Step 3a) (1.28 Mcps TDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 1 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 2 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	
- CHOICE event result	Check to see if set to "Intra-frequency event results"
- Intra-frequency event identity	Check to see if set to "1g"
- Cell measurement event results	
- CHOICE mode	TDD
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- TSTD indicator	FALSE
- Cell parameters ID	Check to see if set to "Cell parameters ID of Cell 1(TDD)"
- SCTD indicator	FALSE

MEASUREMENT REPORT (Step 3a) (3.84 Mcps TDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 1 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 2 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	
- CHOICE event result	Check to see if set to "Intra-frequency event results"
- Intra-frequency event identity	Check to see if set to "1g"
- Cell measurement event results	
- CHOICE mode	TDD
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- CHOICE SyncCase	Sync Case 2
- Timeslot	0
- Cell parameters ID	Check to see if set to "Cell parameters ID of Cell 1(TDD)"
- SCTD indicator	FALSE

MEASUREMENT REPORT (Step 3a) (7.68 Mcps TDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 1 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 2 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	
- CHOICE event result	Check to see if set to "Intra-frequency event results"
- Intra-frequency event identity	Check to see if set to "1g"
- Cell measurement event results	
- CHOICE mode	TDD
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- CHOICE SyncCase	Sync Case 2
- Timeslot	0
- Cell parameters ID	Check to see if set to "Cell parameters ID of Cell 1(TDD)"
- SCTD indicator	FALSE

MEASUREMENT REPORT (Step 5) (FDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- DeltaRSCP	Not checked
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- DeltaRSCP	Not checked
- Pathloss	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	Check to see if set to "Intra-frequency event results"
- Event ID	Check to see if set to "1D"
- Cell measurement event results	
- Primary scrambling code	Check to see if set to "Primary scrambling code of Cell 2"

MEASUREMENT REPORT (Step 5) (1.28 Mcps TDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 1 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent

- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 2 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	
- CHOICE event result	Check to see if set to "Intra-frequency event results"
- Intra-frequency event identity	Check to see if set to "1g"
- Cell measurement event results	
- CHOICE mode	TDD
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- TSTD indicator	FALSE
- Cell parameters ID	Check to see if set to "Cell parameters ID of Cell 2(TDD)"
- SCTD indicator	FALSE

MEASUREMENT REPORT (Step 5) (3.84 Mcps TDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 2 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 1 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	
- CHOICE event result	Check to see if set to "Intra-frequency event results"
- Intra-frequency event identity	Check to see if set to "1g"
- Cell measurement event results	
- CHOICE mode	TDD
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- CHOICE SyncCase	Sync Case 2
- Timeslot	0
- Cell parameters ID	Check to see if set to "Cell parameters ID of Cell 2(TDD)"
- SCTD indicator	FALSE

MEASUREMENT REPORT (Step 5) (7.68 Mcps TDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 2 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 1 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	
- CHOICE event result	Check to see if set to "Intra-frequency event results"
- Intra-frequency event identity	Check to see if set to "1g"
- Cell measurement event results	
- CHOICE mode	TDD
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- CHOICE SyncCase	Sync Case 2
- Timeslot	0
- Cell parameters ID	Check to see if set to "Cell parameters ID of Cell 2(TDD)"
- SCTD indicator	FALSE

PHYSICAL CHANNEL RECONFIGURATION (Step 6) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info	Not present	
Maximum allowed UL TX power	Not present	
CHOICE channel requirement	Uplink DPCH info	
- Uplink DPCH power control info		
- DPCCH power offset	-40 (-80 dB)	
- PC Preamble	1 frame	
- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- TPC step size	0 (1 dB)	
- Δ_{ACK}	6	
- Δ_{NACK}	6	
- Ack-Nack repetition factor	2	
- Scrambling code type	Long	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- Number of FBI bit	Reference to TS34.108 clause 6.10 Parameter Set	
- Puncturing Limit	Reference to TS34.108 clause 6.10 Parameter Set	
Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not present	
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Measurement Power Offset	12 (6 dB)	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
Downlink information common for all radio links		
- MAC-hs reset indicator	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link	(for cell 1)	
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in TS34.108 clause 6.1 (FDD)	
- Cell ID	Not Present	
- Serving HS-DSCH radio link indicator	FALSE	
- Downlink DPCH info for each RL	Not present	
- SCCPCH information for FACH	Not present	R99 and Rel-4 only
- Downlink information for each radio link	(for cell 2)	
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in TS34.108 clause 6.1 (FDD)	
- Serving HS-DSCH radio link indicator	TRUE	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not Present	

Information Element	Value/remark	Version
- DL channelisation code		
- Secondary scrambling code	1	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	1	
- Scrambling code change	No change	
- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

PHYSICAL CHANNEL RECONFIGURATION (Step 6) (1.28 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info	Not present	
Maximum allowed UL TX power	Not present	
Downlink HS-PDSCH Information		
- HS-SCCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9	
- Measurement Feedback Info		
- CHOICE mode	TDD (no data)	
- CHOICE mode	TDD	
- CHOICE TDD option	1.28 Mcps TDD	
- HS-PDSCH Midamble Configuration		
- Midamble Allocation Mode	Default midamble	
- Midamble Configuration	8	
- Midamble Shift	Not present	
Downlink information common for all radio links		
- MAC-hs reset indicator	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	1.28 Mcps TDD	
- TSTD indicator	FALSE	
- Cell parameters ID	Ref. To the Default setting for cell 1 in TS34.108 clause 6.1 (TDD)	
- SCTD indicator	FALSE	

PHYSICAL CHANNEL RECONFIGURATION (Step 6) (3.84 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info	Not present	
Maximum allowed UL TX power	Not present	
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9	
Downlink information common for all radio links		
- MAC-hs reset indicator	Not Present	
Downlink information per radio link list		
- Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	3.84 Mcps TDD	
- CHOICE SyncCase	SyncCase 2	
- Timeslot	0	
- Cell parameters ID	Ref. To the Default setting for cell 1 in TS34.108 clause 6.1 (TDD)	
- SCTD indicator	FALSE	

PHYSICAL CHANNEL RECONFIGURATION (Step 6) (7.68 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info	Not present	
Maximum allowed UL TX power	Not present	
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9	
Downlink information common for all radio links		
- MAC-hs reset indicator	Not Present	
Downlink information per radio link list		
- Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	7.68 Mcps TDD	
- CHOICE SyncCase	SyncCase 2	
- Timeslot	0	
- Cell parameters ID	Ref. To the Default setting for cell 1 in TS34.108 clause 6.1 (TDD)	
- SCTD indicator	FALSE	

8.2.6.39a.5 Test requirements

After step 0a, the UE shall transmit a MEASUREMENT REPORT message (FDD only).

After step 4, the UE shall transmit a MEASUREMENT REPORT message.

After step 7, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

8.2.6.39b Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (serving HS-DSCH cell change with MAC-hs reset)

8.2.6.39b.1 Definition and applicability

All UEs which support FDD or TDD and HS-PDSCH.

8.2.6.39b.2 Conformance requirement

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> the UE has a stored IE "HARQ info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";

- IE "Uplink DPCH Power Control Info" including stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor;

1> for 3.84 Mcps TDD or 7.68 Mcps TDD, the UE has stored the IE "HS-PDSCH Timeslot Configuration" and either of the following conditions are met:

2> a dedicated physical channel is allocated to the UE in the downlink;

2> the UE has stored $D_{hs\text{-}sync}$.

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link, for TDD add/remove H-RNTI upon hard handover.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

…

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

2> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

3> consider this radio link as the serving HS-DSCH radio link;

…

If the IE "Downlink information common for all radio links " is included the UE shall:

1> if the IE "MAC-hs reset indicator" is included:

2> reset the MAC-hs entity [TS 25.321].

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.25, 8.6.3.1, 8.6.6.4, 8.6.6.27

8.2.6.39b.3 Test purpose

To confirm that the UE changes the serving HS-DSCH cell according to the received PHYSICAL CHANNEL RECONFIGURATION message, in case of MAC-hs reset.

8.2.6.39b.4 Method of test

Initial Condition

System Simulator:2 cells - Cell 1 and 2 are active

UE: PS_DCCH_DTCH_HS_DSCH (state 6-17) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH

Test Procedure

Table 8.2.6.39b

Parameter	Unit	Cell 1				Cell 2			
		T0	T1	T2	T3	T0	T1	T2	T3
UTRA RF Channel Number		Mid Range Test Frequency				Mid Range Test Frequency			
CPICH Ec (FDD)	dBm/3.84MHz	-60	-60	-60	-70	-75	-60	-70	-60
P-CCPCH RSCP (TDD)	dBm	-60	–	–	-70	-70	–	–	-60

NOTE: For TDD, T1 and T2 are not used.

Table 8.2.6.39b illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE is initially in CELL_DCH state with the downlink transmission power settings according to values in column “T0” in table 8.2.6.39b, and has a radio bearer mapped on HS-DSCH established in cell 1.

For FDD

SS configures its downlink transmission power settings according to columns "T1" in table 8.2.6.39b. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2.

After the MEASUREMENT REPORT message is received, the SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC to add cell 2 to the active set. When the UE receives this message, the UE shall configure layer 1 to begin reception without affecting the current uplink and downlink activities of existing radio links and cell 1 shall be kept as the serving HS-DSCH cell. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

SS configures its downlink transmission power settings according to columns "T2" in table 8.2.6.39b. The SS configures reporting of event 1d “change of best cell” by transmitting a MEASUREMENT CONTROL message to the UE, and the UE shall send an initial MEASUREMENT REPORT which includes the primary scrambling code of cell 1 according to IE "Intra-frequency event identity" set to 1d.

The SS configures its downlink transmission power settings according to columns "T3" in table 8.2.6.39b. The UE transmits a MEASUREMENT REPORT message, which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity" set to 1d.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE. At the activation time the UE changes the HS-PDSCH configuration. Finally the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

For TDD

The SS configures reporting of event 1g "change of best cell" by transmitting a MEASUREMENT CONTROL message to the UE, and the UE shall send an initial MEASUREMENT REPORT which includes the Cell parameters Id of cell 1 according to IE "Intra-frequency event identity" set to 1g.

The SS configures its downlink transmission power settings according to columns "T3" in table 8.2.6.39b. The UE transmits a MEASUREMENT REPORT message, which includes the Cell parameters Id of cell 2 according to IE "Intra-frequency event identity" set to 1g.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE. SS sets up a Radio Link in Cell 2 At the activation time the UE changes the HS-PDSCH configuration. Finally the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC. SS deletes the Radio Link in Cell 1

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2			Void	
2a		SS		SS configures its downlink transmission power settings according to columns "T1" in table 8.2.6.39b (FDD only).
2b	→		MEASUREMENT REPORT	See specific message contents for this message (FDD only)
3	←		ACTIVE SET UPDATE	The SS instructs the UE to add cell 2 in the active set (FDD only).
4	→		ACTIVE SET UPDATE COMPLETE	The UE adds the radio link in cell 2 (FDD only).
4a		SS		SS configures its downlink transmission power settings according to columns "T2" in table 8.2.6.39b (FDD only).
5	←		MEASUREMENT CONTROL	Configure event 1D (FDD) or 1g (TDD) "Change of best cell"
5a	→		MEASUREMENT REPORT	See specific message contents for this message
6		SS		SS configures its downlink transmission power settings according to columns "T3" in table 8.2.6.39b
7	→		MEASUREMENT REPORT	See specific message contents for this message
8	←		PHYSICAL CHANNEL RECONFIGURATION	
9		SS		SS sets up a Radio Link in Cell 2(TDD only). At the activation time, the SS changes the serving HS-DSCH radio link to cell 2 and performs a MAC-hs reset.
10	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
11	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

MEASUREMENT REPORT (Step 2b) (FDD)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 3) (FDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark	Revision
Radio link addition information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 2	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not present	
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	1	
- Spreading factor	Refer to the parameter set in TS 34.108	
- Code number	For each DPCH, assign the same code number in the current code given in cell 1.	
- Scrambling code change	Not present	
- TPC combination index	1	
- SSDT cell identity	Not present	R99 and Rel-4 only
- Close loop timing adjustment mode	Not present	
- TFCI combining indicator	FALSE	
- SCCPCH information for FACH	Not present	R99 and Rel-4 only

MEASUREMENT CONTROL (Step 5) (FDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measurement command	Setup
- CHOICE measurement type	Intra-frequency measurement
- Intra frequency cell info list	Not present
- Intra-frequency measurement quantity	
- Filter coefficient	3
- CHOICE mode	FDD
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/N0 reporting indicator	TRUE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not Present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1D
- Triggering condition 2	Active set cells
- Hysteresis	8 (4 dB)
- Time to trigger	20 mSec
- Reporting cell status	
- CHOICE reported cell	Report cells within active set
- Maximum number of reported cells	3
- Use CIO	FALSE
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
DPCH compressed mode status info	Not present

MEASUREMENT CONTROL (Step 5) (1.28 Mcps TDD, 3.84Mcps TDD and 7.68 Mcps TDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measurement command	Setup
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	Not present
- Intra-frequency measurement quantity	
- Filter coefficient	3
- CHOICE mode	TDD
- Measurement quantity	Primary CCPCH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not Present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1G
- Hysteresis	4dB (IE value = 8)
- Time to trigger	20 mSec
- Reporting cell status	Report cells within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
- Use CIO	FALSE
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 5a) (FDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- DeltaRSCP	Not checked
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- DeltaRSCP	Not checked
- Pathloss	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	Check to see if set to "Intra-frequency event results"
- Event ID	Check to see if set to "1D"
- Cell measurement event results	
- Primary scrambling code	Check to see if set to "Primary scrambling code of Cell 1"

MEASUREMENT REPORT (Step 5a) (1.28 Mcps TDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 1 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent

- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 2 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	
- CHOICE event result	Check to see if set to "Intra-frequency event results"
- Intra-frequency event identity	Check to see if set to "1G"
- Cell measurement event results	
- CHOICE mode	TDD
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- TSTD indicator	FALSE
- Cell parameters ID	Check to see if set to "Cell parameters ID of Cell 1(TDD)"
- SCTD indicator	FALSE

MEASUREMENT REPORT (Step 5a) (3.84 Mcps TDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 1 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 2 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	
- CHOICE event result	Check to see if set to "Intra-frequency event results"
- Intra-frequency event identity	Check to see if set to "1g"
- Cell measurement event results	
- CHOICE mode	TDD
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- CHOICE SyncCase	Sync Case 2
- Timeslot	0
- Cell parameters ID	Check to see if set to "Cell parameters ID of Cell 1(TDD)"
- SCTD indicator	FALSE

MEASUREMENT REPORT (Step 5a) (3.84 Mcps TDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 1 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 2 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	
- CHOICE event result	Check to see if set to "Intra-frequency event results"
- Intra-frequency event identity	Check to see if set to "1g"
- Cell measurement event results	
- CHOICE mode	TDD
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- CHOICE SyncCase	Sync Case 2
- Timeslot	0
- Cell parameters ID	Check to see if set to "Cell parameters ID of Cell 1(TDD)"
- SCTD indicator	FALSE

MEASUREMENT REPORT (Step 7) (FDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- DeltaRSCP	Not checked
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- DeltaRSCP	Not checked
- Pathloss	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	Check to see if set to "Intra-frequency event results"
- Event ID	Check to see if set to "1D"
- Cell measurement event results	
- Primary scrambling code	Check to see if set to "Primary scrambling code of Cell 2"

MEASUREMENT REPORT (Step 7) (1.28 Mcps TDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 1 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent

- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 2 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	
- CHOICE event result	Check to see if set to "Intra-frequency event results"
- Intra-frequency event identity	Check to see if set to "1G"
- Cell measurement event results	
- CHOICE mode	TDD
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- TSTD indicator	FALSE
- Cell parameters ID	Check to see if set to "Cell parameters ID of Cell 2(TDD)"
- SCTD indicator	FALSE

MEASUREMENT REPORT (Step 7) (3.84 Mcps TDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 2 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 1 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	
- CHOICE event result	Check to see if set to "Intra-frequency event results"
- Intra-frequency event identity	Check to see if set to "1g"
- Cell measurement event results	
- CHOICE mode	TDD
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- CHOICE SyncCase	Sync Case 2
- Timeslot	0
- Cell parameters ID	Check to see if set to "Cell parameters ID of Cell 2(TDD)"
- SCTD indicator	FALSE

MEASUREMENT REPORT (Step 7) (7.68 Mcps TDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 2 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 1 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	
- CHOICE event result	Check to see if set to "Intra-frequency event results"
- Intra-frequency event identity	Check to see if set to "1g"
- Cell measurement event results	
- CHOICE mode	TDD
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- CHOICE SyncCase	Sync Case 2
- Timeslot	0
- Cell parameters ID	Check to see if set to "Cell parameters ID of Cell 2(TDD)"
- SCTD indicator	FALSE

PHYSICAL CHANNEL RECONFIGURATION (Step 8) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Revision
New H-RNTI	'0101 0101 0101 0101'	
Frequency info	Not present	
Maximum allowed UL TX power	Not present	
CHOICE channel requirement	Uplink DPCH info	
- Uplink DPCH power control info		
- DPCCH power offset	-40 (-80 dB)	
- PC Preamble	1 frame	
- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- TPC step size	0 (1 dB)	
- Δ_{ACK}	6	
- Δ_{NACK}	6	
- Ack-Nack repetition factor	2	
- Scrambling code type	Long	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- Number of FBI bit	Reference to TS34.108 clause 6.10 Parameter Set	
- Puncturing Limit	Reference to TS34.108 clause 6.10 Parameter Set	
Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not present	
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Measurement Power Offset	12 (6 dB)	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
Downlink information common for all radio links		
- MAC-hs reset indicator	TRUE	
Downlink information for each radio link list		
- Downlink information for each radio link	(for cell 1)	
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in TS34.108 clause 6.1 (FDD)	
- Cell ID	Not Present	
- Serving HS-DSCH radio link indicator	FALSE	
- Downlink DPCH info for each RL	Not present	
- SCCPCH information for FACH	Not present	R99 and Rel-4 only
- Downlink information for each radio link	(for cell 2)	
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in TS34.108 clause 6.1 (FDD)	
- Cell ID	Not Present	
- Serving HS-DSCH radio link indicator	TRUE	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not Present	
- DL channelisation code		

- Secondary scrambling code	1	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	1	
- Scrambling code change	No change	
- TPC combination index	1	
- SSDT Cell Identity	Not Present	
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

PHYSICAL CHANNEL RECONFIGURATION (Step 8) (1.28 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info	Not present	
Maximum allowed UL TX power	Not present	
Downlink HS-PDSCH Information		
- HS-SCCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9	
- Measurement Feedback Info		
- CHOICE mode	TDD (no data)	
- CHOICE mode	TDD	
- CHOICE TDD option	1.28 Mcps TDD	
- HS-PDSCH Midamble Configuration		
- Midamble Allocation Mode	Default midamble	
- Midamble Configuration	8	
- Midamble Shift	Not present	
Downlink information common for all radio links		
- MAC-hs reset indicator	TRUE	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	1.28 Mcps TDD	
- TSTD indicator	FALSE	
- Cell parameters ID	Ref. to the Default setting for cell 2 in TS34.108 clause 6.1 (TDD)	
- SCTD indicator	FALSE	

PHYSICAL CHANNEL RECONFIGURATION (Step 6) (3.84 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info	Not present	
Maximum allowed UL TX power	Not present	
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9	
Downlink information common for all radio links		
- MAC-hs reset indicator	TRUE	
Downlink information per radio link list		
- Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	3.84 Mcps TDD	
- CHOICE SyncCase	SyncCase 2	
- Timeslot	0	
- Cell parameters ID	Ref. To the Default setting for cell 1 in TS34.108 clause 6.1 (TDD)	
- SCTD indicator	FALSE	

PHYSICAL CHANNEL RECONFIGURATION (Step 6) (7.68 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info	Not present	
Maximum allowed UL TX power	Not present	
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9	
Downlink information common for all radio links		
- MAC-hs reset indicator	TRUE	
Downlink information per radio link list		
- Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	7.68 Mcps TDD	
- CHOICE SyncCase	SyncCase 2	
- Timeslot	0	
- Cell parameters ID	Ref. To the Default setting for cell 1 in TS34.108 clause 6.1 (TDD)	
- SCTD indicator	FALSE	

8.2.6.39b.5 Test requirements

After step 2a, the UE shall transmit a MEASUREMENT REPORT message (FDD only).

After step 5, the UE shall transmit a MEASUREMENT REPORT message.

After step 6, the UE shall transmit a MEASUREMENT REPORT message.

After step 9, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

8.2.6.39c Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (serving HS-DSCH cell change without MAC-hs reset) (TDD)

8.2.6.39c.1 Definition and applicability

All UEs which support TDD and HS-PDSCH.

8.2.6.39c.2 Conformance requirement

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> the UE has a stored IE "HARQ info";

1> for 3.84 Mcps TDD or 7.68 Mcps TDD, the UE has stored the IE "HS-PDSCH Timeslot Configuration" and either of the following conditions are met:

2> a dedicated physical channel is allocated to the UE in the downlink;

2> the UE has stored $D_{hs\text{-}sync}$.

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for TDD add/remove H-RNTI upon hard handover.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

…

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

2> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

3> consider this radio link as the serving HS-DSCH radio link;

Reference

3GPP TS 25.331 clause 8.2.2, 8.5.25, 8.6.3.1, 8.6.6.4

8.2.6.39c.3 Test purpose

To confirm that the UE changes the serving HS-DSCH cell according to the received PHYSICAL CHANNEL RECONFIGURATION message in case of no MAC-hs reset.

8.2.6.39c.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and 2 are active . Each cell configure 3 carriers □one is the primary carrier□the other two are secondary carrier.

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports TDD
- UE supports HS-PDSCH

Test Procedure

Table 8.2.6.39c

Parameter	Unit	Cell 1				Cell 2			
		T0	T1	T2	T3	T0	T1	T2	T3
UTRA RF Channel Number		Mid Range Test Frequency				Mid Range Test Frequency			
P-CCPCH RSCP (TDD)	dBm	-60	–	–	-70	-70	–	–	-60

NOTE: For TDD, T1 and T2 are not used.

Table 8.2.6.39c illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

SS initiates P25 to make the UE move to state 6-17 as specified in TS34.108 clause7.4. The UE is in CELL_DCH state with the downlink transmission power settings according to values in column “T0” in table 8.2.6.39c and has a radio bearer mapped on HS-DSCH established in cell 1.

For TDD:

The SS sends a MEASUREMENT CONTROL message to the UE configuring event 1g “Change of best cell”, and the UE shall send an initial MEASUREMENT REPORT which includes Cell parameters Id of cell 1 according to IE "Intra-frequency event identity" set to 1g.

SS configures its downlink transmission power settings according to columns "T3" in table 8.2.6.39c. UE shall transmit a MEASUREMENT REPORT message which includes Cell parameters Id of cell 2 ccording to IE "Intra-frequency event identity" set to 1g.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE. SS sets up a Radio Link in Cell 2. At the activation time the UE changes the serving HS-DSCH radio link to cell 2. Finally the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC. Then the SS deletes the Radio Link in Cell 1.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message (Step 0)
0a	SS			
0b	→		MEASUREMENT REPORT	
1	←		ACTIVE SET UPDATE	
2	→		ACTIVE SET UPDATE COMPLETE	
2a	SS			
3	←		MEASUREMENT CONTROL	Configure event 1g (TDD) “Change of best cell”
3a	→		MEASUREMENT REPORT	See specific message contents for this message
4	SS			SS configures its downlink transmission power settings according to columns "T3" in table 8.2.6.39c
5	→		MEASUREMENT REPORT	See specific message contents for this message
6	←		PHYSICAL CHANNEL RECONFIGURATION	
7	SS			SS sets up a Radio Link in Cell 2(TDD only). At the activation time, the SS changes the serving HS-DSCH radio link to cell 2.
8	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE changes the serving HS-DSCH radio link to cell 2
9	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 0)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.

MEASUREMENT CONTROL (Step 3)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measurement command	Setup
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	Not present
- Intra-frequency measurement quantity	
- Filter coefficient	3
- CHOICE mode	TDD
- Measurement quantity	Primary CCPCH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not Present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1g
- Hysteresis	4dB (IE value = 8)
- Time to trigger	20 mSec
- Reporting cell status	Report cells within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
- Use CIO	FALSE
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 3a)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 1 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 2 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	
- CHOICE event result	Check to see if set to "Intra-frequency event results"
- Intra-frequency event identity	Check to see if set to "1g"
- Cell measurement event results	
- CHOICE mode	TDD
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- TSTD indicator	FALSE
- Cell parameters ID	Check to see if set to "Cell parameters ID of Cell 1(TDD)"
- SCTD indicator	FALSE

MEASUREMENT REPORT (Step 5)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 1 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent

- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 2 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	
- CHOICE event result	Check to see if set to "Intra-frequency event results"
- Intra-frequency event identity	Check to see if set to "1g"
- Cell measurement event results	
- CHOICE mode	TDD
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- TSTD indicator	FALSE
- Cell parameters ID	Check to see if set to "Cell parameters ID of Cell 2(TDD)"
- SCTD indicator	FALSE

PHYSICAL CHANNEL RECONFIGURATION (Step 6)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info	Not present	
Maximum allowed UL TX power	Not present	
Downlink HS-PDSCH Information		
- HS-SCCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9	
- Measurement Feedback Info		
- CHOICE mode	TDD (no data)	
- CHOICE mode	TDD	
- CHOICE TDD option	1.28 Mcps TDD	
- HS-PDSCH Midamble Configuration		
- Midamble Allocation Mode	Default midamble	
- Midamble Configuration	8	
- Midamble Shift	Not present	
Downlink information common for all radio links		
- MAC-hs reset indicator	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	1.28 Mcps TDD	
- TSTD indicator	FALSE	
- Cell parameters ID	Ref. To the Default setting for cell 1 in TS34.108 clause 6.1 (TDD)	
PhysicalChannelReconfiguration -r5-TDD128-add-ext-IEs		
□frequencyInfo	secondary carrier frequency	
□UpPCHpositionInfo	22	

8.2.6.39c.5 Test requirements

After step 4, the UE shall transmit a MEASUREMENT REPORT message.

After step 7, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

8.2.6.39d Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (serving HS-DSCH cell change with MAC-hs reset) (1.28 Mcps TDD)

8.2.6.39d.1 Definition and applicability

All UEs which support TDD and HS-PDSCH.

8.2.6.39d.2 Conformance requirement

In case the reconfiguration procedure is used to remove all existing RL(s) in the active set while new RL(s) are established the UE shall:

1> perform the maintenance of uplink synchronisation procedure as specified in TS 25.224 [5.2.1.2] or the establishment of uplink synchronization procedure in TS 25.224 [5.2.1.3].

1> apply the hard handover procedure as specified (below).

…

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> the UE has a stored IE "HARQ info";

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link, for TDD add/remove H-RNTI upon hard handover.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

…

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

2> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

3> consider this radio link as the serving HS-DSCH radio link;

…

If the IE "Downlink information common for all radio links " is included the UE shall:

1> if the IE "MAC-hs reset indicator" is included:

2> reset the MAC-hs entity [TS 25.321].

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.25, 8.6.3.1, 8.6.6.4, 8.6.6.27

8.2.6.39d.3 Test purpose

To confirm that the UE changes the serving HS-DSCH cell according to the received PHYSICAL CHANNEL RECONFIGURATION message, in case of MAC-hs reset.

To conforn that the UE will answer with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message for the kind of PHYSICAL CHANNEL RECONFIGURATION message which is lack of uplink Synchronisation Parameters.

8.2.6.39d.4 Method of test

Initial Condition

System Simulator:2 cells - Cell 1 and 2 are active

UE: PS_DCCH_DTCH_HS_DSCH (state 6-17) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports TDD
- UE supports HS-PDSCH

Test Procedure

Table 8.2.6.39d

Parameter	Unit	Cell 1				Cell 2			
		T0	T1	T2	T3	T0	T1	T2	T3
UTRA RF Channel Number		Mid Range Test Frequency				Mid Range Test Frequency			
P-CCPCH RSCP (TDD)	dBm	-60	–	–	-70	-70	–	–	-60

NOTE: For TDD, T1 and T2 are not used.

Table 8.2.6.39d illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE is initially in CELL_DCH state with the downlink transmission power settings according to values in column “T0” in table 8.2.6.39d, and has a radio bearer mapped on HS-DSCH established in cell 1.

The SS configures reporting of event 1g “change of best cell” by transmitting a MEASUREMENT CONTROL message to the UE, and the UE shall send an initial MEASUREMENT REPORT which includes the Cell parameters Id of cell 1 according to IE "Intra-frequency event identity" set to 1g.

The SS configures its downlink transmission power settings according to columns "T3" in table 8.2.6.39d. The UE transmits a MEASUREMENT REPORT message, which includes the Cell parameters Id of cell 2 according to IE "Intra-frequency event identity" set to 1g.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE. SS sets up a Radio Link in Cell 2 At the activation time the UE changes the HS-PDSCH configuration. Finally the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC. SS deletes the Radio Link in Cell 1

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2			Void	
3	←		MEASUREMENT CONTROL	Configure event 1g (TDD) “Change of best cell”
4	→		MEASUREMENT REPORT	See specific message contents for this message
5	SS			SS configures its downlink transmission power settings according to columns "T3" in table 8.2.6.39d
6	→		MEASUREMENT REPORT	See specific message contents for this message
7	←		PHYSICAL CHANNEL RECONFIGURATION	
8	SS			SS sets up a Radio Link in Cell 2(TDD only). At the activation time, the SS changes the serving HS-DSCH radio link to cell 2 and performs a MAC-hs reset.
9	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
10	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

MEASUREMENT CONTROL (Step 3) (1.28 Mcps TDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measurement command	Setup
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	Not present
- Intra-frequency measurement quantity	
- Filter coefficient	3
- CHOICE mode	TDD
- Measurement quantity	Primary CCPCH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE

- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not Present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1G
- Hysteresis	4dB (IE value = 8)
- Time to trigger	20 mSec
- Reporting cell status	Report cells within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
- Use CIO	FALSE
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 4) (1.28 Mcps TDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 1 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 2 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	
- CHOICE event result	Check to see if set to "Intra-frequency event results"
- Intra-frequency event identity	Check to see if set to "1G"
- Cell measurement event results	
- CHOICE mode	TDD
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- TSTD indicator	FALSE
- Cell parameters ID	Check to see if set to "Cell parameters ID of Cell 1(TDD)"
- SCTD indicator	FALSE

MEASUREMENT REPORT (Step 6) (1.28 Mcps TDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 1 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 2 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	
- CHOICE event result	Check to see if set to "Intra-frequency event results"
- Intra-frequency event identity	Check to see if set to "1G"
- Cell measurement event results	
- CHOICE mode	TDD
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- TSTD indicator	FALSE
- Cell parameters ID	Check to see if set to "Cell parameters ID of Cell 2(TDD)"
- SCTD indicator	FALSE

PHYSICAL CHANNEL RECONFIGURATION (Step 7) (1.28 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info	Not present	
Maximum allowed UL TX power	Not present	
Uplink Timing Advance Control		
-Synchronisation Parameters	Not present	
-SYNC_UL codes bitmap	Not present	
-FPACH info	Not present	
Downlink HS-PDSCH Information		
- HS-SCCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9	
- Measurement Feedback Info		
- CHOICE mode	TDD (no data)	
- CHOICE mode	TDD	
- CHOICE TDD option	1.28 Mcps TDD	
- HS-PDSCH Midamble Configuration		
- Midamble Allocation Mode	Default midamble	
- Midamble Configuration	8	
- Midamble Shift	Not present	
Downlink information common for all radio links		
- MAC-hs reset indicator	TRUE	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	1.28 Mcps TDD	
- TSTD indicator	FALSE	
- Cell parameters ID	Ref. to the Default setting for cell 2 in TS34.108 clause 6.1 (TDD)	
- SCTD indicator	FALSE	

8.2.6.39d.5 Test requirements

After step 4, the UE shall transmit a MEASUREMENT REPORT message.

After step 6, the UE shall transmit a MEASUREMENT REPORT message.

After step 9, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

8.2.6.40 Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Two radio links, change of HS-PDSCH configuration)

8.2.6.40.1 Definition and applicability

All UEs which support FDD and HS-PDSCH.

8.2.6.40.2 Conformance requirement

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.25, 8.6.3.1, 8.6.6.4, 8.6.6.27

8.2.6.40.3 Test purpose

To confirm that, when two radio links are used, the UE changes HS-DSCH specific uplink DPCH power control and measurement feedback configuration according to the received PHYSICAL CHANNEL RECONFIGURATION message.

8.2.6.40.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and 2 are active

UE: PS_DCCH_DTCH_HS_DSCH (state 6-17) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH

Test Procedure

Table 8.2.6.40

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-60	-60	-70	-60

Table 8.2.6.40 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established in cell 1.

SS configures its downlink transmission power settings according to columns "T1" in table 8.2.6.40. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11.The SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC to add cell 2 to the active set. When the UE receives this message, the UE shall configure layer 1 to begin reception without affecting the current uplink and downlink activities of existing radio links and cell 1 shall be kept as the serving HS-DSCH cell. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE. At the activation time the UE changes the HS-PDSCH configuration. Finally the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				SS configures its downlink transmission power settings according to columns "T1" in table 8.2.6.40.
2	→		MEASUREMENT REPORT	See specific message contents for this message
3	←		ACTIVE SET UPDATE	The SS instructs the UE to add cell 2 in the active set.
4	→		ACTIVE SET UPDATE COMPLETE	The UE adds the radio link in cell 2.
5	←		PHYSICAL CHANNEL RECONFIGURATION	
6	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
7	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

MEASUREMENT REPORT (Step 2)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 3)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark	Version
Radio link addition information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 2	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not present	
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	1	
- Spreading factor	Refer to the parameter set in TS 34.108	
- Code number	For each DPCH, assign the same code number in the current code given in cell 1.	
- Scrambling code change	Not present	
- TPC combination index	1	
- SSDT cell identity	Not present	R99 and Rel-4 only
- Close loop timing adjustment mode	Not present	
- TFCI combining indicator	FALSE	
- SCCPCH information for FACH	Not present	R99 and Rel-4 only

PHYSICAL CHANNEL RECONFIGURATION (Step 5)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
Frequency info	Not Present
Maximum allowed UL TX power	Not Present
CHOICE channel requirement	Uplink DPCH info
- Uplink DPCH power control info	
- DPCCH power offset	-40 (-80 dB)
- PC Preamble	1 frame
- SRB delay	7 frames
- Power Control Algorithm	Algorithm1
- TPC step size	0 (1 dB)
- Δ_{ACK}	6
- Δ_{NACK}	6
- Ack-Nack repetition factor	2
- Scrambling code type	Long
- Scrambling code number	0 (0 to 16777215)
- Number of DPDCH	Not Present(1)
- spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set
- Number of FBI bit	Reference to TS34.108 clause 6.10 Parameter Set
- Puncturing Limit	Reference to TS34.108 clause 6.10 Parameter Set
Downlink HS-PDSCH Information	
- HS-SCCH Info	Not present
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power offset	12 (6 dB)
- CQI Feedback cycle, k	8 ms
- CQI repetition factor	2
- Δ_{CQI}	4
- CHOICE mode	FDD (no data)
Downlink information common for all radio links	Not present
Downlink information for each radio link list	Not present

8.2.6.40.5 Test requirements

After step 1, the UE shall transmit a MEASUREMENT REPORT message.

After step 5, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

8.2.6.40a Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (change of HS-PDSCH configuration)

8.2.6.40a.1 Definition and applicability

All UEs which support TDD and HS-PDSCH.

8.2.6.40a.2 Conformance requirement

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link, for TDD add/remove H-RNTI upon hard handover..

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.25, 8.6.3.1, 8.6.6.4, 8.6.6.27

8.2.6.40a.3 Test purpose

To confirm that, the UE changes HS-DSCH specific HS-SCCH configuration according to the received PHYSICAL CHANNEL RECONFIGURATION message.

8.2.6.40a.4 Method of test

Initial Condition

System Simulator:1 cells - Cell 1

UE: PS_DCCH_DTCH_HS_DSCH (state 6-17) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports TDD
- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established in cell 1.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE. At the activation time the UE changes the HS-PDSCH configuration. Finally the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message (Step 0)
1	←		PHYSICAL CHANNEL RECONFIGURATION	
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 0)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	**Value/remark**

Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps
- HS-SCCH Set Configuration	
- Timeslot number	0
- First Channelisation code	(16/5)
- Second Channelisation code	(16/6)
- Midamble Allocation mode	Default midamble
- Midamble configuration	8
- BLER target	-20
- HS-SICH configuration	
- Timeslot number	1
- Channelisation code	(16/11)
- Midamble Allocation mode	Default midamble
- Midamble configuration	8
- Ack-Nack Power Offset	0
- PRXHS-SICH	
- TPC step size	1dB
- Timeslot number	0
- First Channelisation code	(16/7)
- Second Channelisation code	(16/8)
- Midamble Allocation mode	Default midamble
- Midamble configuration	8
- BLER target	-20
- HS-SICH configuration	
- Timeslot number	1
- Channelisation code	(16/12)
- Midamble Allocation mode	Default midamble
- Midamble configuration	8
- Ack-Nack Power Offset	0
- $PRX_{HS-SICH}$	
- TPC step size	1dB

PHYSICAL CHANNEL RECONFIGURATION (Step 1)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	**Value/remark**
Frequency info	Not Present
Maximum allowed UL TX power	Not Present

Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps
- HS-SCCH Set Configuration	
- Timeslot number	0
- First Channelisation code	(16/9)
- Second Channelisation code	(16/10)
- Midamble Allocation mode	Default midamble
- Midamble configuration	8
- BLER target	-20
- HS-SICH configuration	
- Timeslot number	1
- Channelisation code	(16/13)
- Midamble Allocation mode	Default midamble
- Midamble configuration	8
- Ack-Nack Power Offset	0
- PRXHS-SICH	
- TPC step size	1dB
- Timeslot number	0
- First Channelisation code	(16/11)
- Second Channelisation code	(16/12)
- Midamble Allocation mode	Default midamble
- Midamble configuration	8
- BLER target	-20
- HS-SICH configuration	
- Timeslot number	1
- Channelisation code	(16/14)
- Midamble Allocation mode	Default midamble
- Midamble configuration	8
- Ack-Nack Power Offset	0
- $PRX_{HS-SICH}$	
- TPC step size	1dB
Downlink information common for all radio links	Not present
Downlink information for each radio link list	Not present

8.2.6.40a.5 Test requirements

After step 1, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

8.2.6.41 Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialised hard handover to another frequency, signalling only)

8.2.6.41.1 Definition and applicability

8.2.6.41.2 Conformance requirement

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

1> the procedure ends.

…

If IE "Timing indication" has the value "initialise", UE shall:

1> execute the Timing Re-initialised hard handover procedure by following the procedure indicated in the subclause relevant to the procedure chosen by the UTRAN.

Reference

3GPP TS 25.331 clause 8.2.2, 8.3.5.1.2.

8.2.6.41.3 Test purpose

To confirm that the UE makes a timing re-initialised interfrequency hard handover on a signalling only configuration without prior measurement on the target frequency according to the received PHYSICAL CHANNEL RECONFIGURATION message.

8.2.6.41.4 Method of test

Initial Condition

System Simulator: 2 cells–Cells 1 and 6 are active.

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Test Procedure

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE, which includes new frequency information and IE "Timing indicator" set to initialise. The UE shall reconfigure the physical channel parameters according to PHYSICAL CHANNEL RECONFIGURATION message and establish a radio link with the SS using a dedicated physical channel in cell 6. The UE then transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message in cell 6 on the uplink DCCH AM RLC after its transition. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 1)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info		
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]	
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	0	
- Downlink DPCH power control information	Not Present	
- Downlink rate matching restriction information	Not Present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Fixed or flexible position	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set	
- DPCH compressed mode info	Not present	
- TX Diversity mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
- MAC-hs reset indicator	Not Present	
Downlink information per radio link list	1 radio link	
Downlink information for each radio link		
- CHOICE mode	FDD	
- Primary CPICH info	Set to the scrambling code for cell 6	
- Cell ID	Not present	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value of DPCH Frame Offset modulo 38400	
- Secondary CPICH info	Not present	
- DL channelisation code	Reference to TS34.108 clause 6.10 Parameter Set	
- Secondary scrambling code	5	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	Any value between 0 and Spreading factor-1	
- Scrambling code change	Not Present	
- TPC combination index	0	
- SSDT cell identity	Not present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not present	

8.2.6.41.5 Test requirements

After step 1, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC in cell 6.

8.2.6.42 Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialized hard handover to another frequency, Serving HS-DSCH cell change)

8.2.6.42.1 Definition and applicability

All UEs which support FDD or TDD and HS-PDSCH.

8.2.6.42.2 Conformance requirement

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

1> the procedure ends.

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> the UE has a stored IE "HARQ info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> for 3.84 Mcps TDD or 7.68 Mcps TDD, the UE has stored the IE "HS-PDSCH Timeslot Configuration" and either of the following conditions are met:

2> a dedicated physical channel is allocated to the UE in the downlink;

2> the UE has stored $D_{hs\text{-}sync}$.

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link, for TDD add/remove H-RNTI upon hard handover.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

…

If IE "Timing indication" has the value "initialise", UE shall:

1> execute the Timing Re-initialised hard handover procedure by following the procedure indicated in the subclause relevant to the procedure chosen by the UTRAN.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration in FDD or 1.28 Mcps TDD caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for an HS-DSCH related reconfiguration in 3.84 Mcps TDD or 7.68 Mcps TDD caused by the received message:

3> start using, at activation time T, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: In FDD an "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

…

If the IE "New H-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the value in the variable H_RNTI;

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.3.5.1.2, 8.5.25, 8.6.3.1, 8.6.3.1b, 8.6.6.4, 8.6.6.27

8.2.6.42.3 Test purpose

To confirm that the UE is able to perform a timing re-initialised hard handover to another frequency without prior measurement on the target frequency in conjunction with a serving HS-DSCH cell change according to the received PHYSICAL CHANNEL RECONFIGURATION message.

8.2.6.42.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 on frequency f_1, and cell2 on frequency f_2. Cells 1 and 2 have different primary scrambling codes (FDD only),

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established in cell 1.

SS initiates P25 to make the UE move to state 6-17 as specified in TS34.108 clause7.4. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE ordering the UE to change to Cell 2 on frequency f_2. At the activation time the UE changes to Cell 2 keeping the HS-PDSCH configuration. Finally the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message (Step 0)
1	←		PHYSICAL CHANNEL RECONFIGURATION	The SS instructs the UE to change to Cell 2.
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 0)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.

PHYSICAL CHANNEL RECONFIGURATION (Step 1) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info		
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]	
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 2	
CHOICE channel requirement	Uplink DPCH info	
- Uplink DPCH power control info		
- DPCCH power offset	-40 (-80 dB)	
- PC Preamble	1 frame	
- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- TPC step size	0 (1 dB)	
- Δ_{ACK}	6	
- Δ_{NACK}	6	
- Ack-Nack repetition factor	2	
- Scrambling code type	Long	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- Number of FBI bit	Reference to TS34.108 clause 6.10 Parameter Set	
- Puncturing Limit	Reference to TS34.108 clause 6.10 Parameter Set	
Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code		
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Measurement Power Offset	12 (6 dB)	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	0	
- Downlink DPCH power control information	Not Present	
- Downlink rate matching restriction information	Not Present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Fixed or flexible position	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set	
- DPCH compressed mode info	Not present	
- TX Diversity mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	

Information Element	Value/remark	Version
- MAC-hs reset indicator	TRUE	
Downlink information per radio link list	1 radio link	
Downlink information for each radio link		
- CHOICE mode	FDD	
- Primary CPICH info	Set to the scrambling code for cell 2	
- Cell ID	Not present	
- Serving HS-DSCH radio link indicator	TRUE	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value of DPCH Frame Offset modulo 38400	
- Secondary CPICH info	Not present	
- DL channelisation code	Reference to TS34.108 clause 6.10 Parameter Set	
- Secondary scrambling code	Not present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	Any value between 0 and Spreading factor-1	
- Scrambling code change	Not Present	
- TPC combination index	0	
- SSDT cell identity	Not present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not present	

PHYSICAL CHANNEL RECONFIGURATION (Step 1) (3.84 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info		
- Choice mode	TDD	
- UARFCN (Nt)	Same downlink UARFCN as used for cell 2	
CHOICE channel requirement	Uplink DPCH info	
- Uplink DPCH power control info		
- CHOICE mode	TDD	
- UL target SIR	6	
- CHOICE *UL OL PC info*	Individually Signalled	
- CHOICE TDD option	3.84 Mcps TDD	
- Individual timeslot interference info	Reference to TS34.108 clause 6.10.3 Parameter Set	
- Individual timeslot interference		
- CHOICE TDD option	3.84 Mcps TDD	
- Timeslot number	As required by, Reference to TS34.108 clause 6.10.3 Parameter Set	
- TDD UL interference	As required by, Reference to TS34.108 clause 6.10.3 Parameter Set (if not specified -60 dBm)	
- Primary CCPCH Tx Power	18 Integer(6..43) (-70 dBm Received if pathloss not specified)	
- CHOICE mode	TDD	
- Uplink Timing Advance Control		
- CHOICE Timing Advance	Enabled	
- CHOICE TDD option	3.84 Mcps TDD (Default)	
- UL CCTrCH List		
- TFCS ID	1	
- UL Target SIR	Real (-11 .. 20 by step of 0.5dB) Reference to TS34.108 Parameter set.	
- Time info		
- Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256	
- Duration	Infinite	
- Common timeslot info		
- 2nd interleaving mode	Default value is "Frame"	
- TFCI coding	Reference to TS34.108 clause 6 Parameter set	
- Puncturing limit	Reference to TS34.108 clause 6 Parameter set	
- Repetition period	1	
- Repetition length	Null	
- Uplink DPCH timeslots and code		
- Dynamic SF usage	FALSE	
- First individual timeslot info		
- Timeslot number		
- CHOICE TDD option	3.84 Mcps TDD	
- Timeslot number	1 OR 2 OR 3	
- TFCI existence	TRUE	
- Midamble shift and burst type		
- CHOICE TDD option	3.84 Mcps TDD	
- Midamble allocation mode	Default midamble	
- Midamble configuration	16	
- Midamble Shift	Not Present	
- CHOICE TDD option	3.84 Mcps TDD (No Data)	
- First timeslot Code List	Repeated (1,2) for each channelisation code assigned in the slot to meet the needs of TS34.108 clause 6 Parameter Set.	
- channelisation codes	(SF/ i) where i denotes an unassigned code matching the SF specified in TS34.108 clause 6 Parameter Set.	
- CHOICE more timeslots	No more timeslots (No Data)	
- UL CCTrCH List to Remove	Not present	
Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	TDD	
- CHOICE TDD option	3.84 Mcps	

Information Element	Value/remark	Version
- Ack-Nack Power Offset	0dB	
- HS-SICH Power Control Info		
- UL SIR target	0dB	
- HS-SICH Constant Value	-10dB	
- $D_{hs\text{-}sync}$	Not present	
- HS-SCCH Set Configuration	4	
- Timeslot number	The timeslot in which HS-SCCH is to be configured	
- Channelisation code	CC16/x where x is a previously unassigned channelisation code in this TS	
- Midamble Allocation mode	Default	
- Midamble configuration	8	
- BLER target	-2.4 (note that this equates to a BLER target of 0.4%, log10(0.004) = -2.4)	
- HS-SICH configuration		
- Timeslot number	The timeslot in which HS-SICH is to be configured	
- Channelisation code	CC16/x where x is a previously unassigned channelisation code in this TS	
- Midamble Allocation mode	Default	
- Midamble configuration	8	
- Measurement Feedback Info	Not Present	
- CHOICE mode	TDD	
- CHOICE TDD option	3.84 Mcps TDD	
- HS-PDSCH Timeslot Configuration		
- HS-PDSCH Timeslot Configuration List	Reference to clause 6.10 Parameter Set	
- Timeslot Number	The timeslot(s) in which HS-HS-DSCH is to be configured	
- CHOICE Burst Type	Reference to clause 6.10 Parameter Set	
- Midamble Allocation Mode	Default	
- Midamble configuration burst type 1 and 3	8	
Downlink information common for all radio links		
- CHOICE DPCH info	Downlink DPCH info common for all RL	
- Timing indication	Initialise	
- CFN-targetSFN frame offset	Not Present	
- Downlink DPCH power control information		
- CHOICE mode	TDD	
- TPC Step Size	1	
- MAC-d HFN initial value	Not Present	
- CHOICE mode	TDD	
- CHOICE mode	TDD	
- CHOICE TDD option	3.84 Mcps TDD	
- Default DPCH Offset Value	Not Present	
- Mac-hs reset indicator	TRUE	
Downlink information per radio link list	1 radio link	
- Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- CHOICE TDD option	3.84 Mcps TDD	
- CHOICE SyncCase	Sync Case 2	
- Timeslot	0	
- Cell parameters ID	Set to cell parameter ID of cell2	
- SCTD indicator	FALSE	
- CHOICE DPCH info	Downlink DPCH info for each RL	Rel-6
- CHOICE mode	TDD	
- DL CCTrCH List	1 CCTrCh	
- TFCS ID	1	
- Activation time	Not Present	
- Duration	Not Present	
- Common timeslot info		
- 2nd interleaving mode	Reference to clause 6.10 Parameter Set	
- TFCI coding	Reference to clause 6.10 Parameter Set	
- Puncturing Limit	Reference to clause 6.10 Parameter Set	
- Repetition Period	Reference to clause 6.10 Parameter Set	
- Repetition Length	Reference to clause 6.10 Parameter Set	
- Downlink DPCH timeslots and codes		

Information Element	Value/remark	Version
- Individual timeslot info		
- Timeslot number	The number of a downlink timeslot that has unassigned codes.	
- TFCI existence	TRUE	
- Midamble shift and burst type		
- CHOICE TDD option	3.84 Mcps	
- CHOICE Burst Type	Reference to clause 6.10 Parameter Set	
- Midamble Allocation Mode	Default	
- Midamble configuration	Set Kcell to lowest possible value given the number of codes defined in clause 6.10 Parameter Set	
- CHOICE TDD option	3.84 Mcps	
- First timeslot channelisation codes		
- CHOICE codes representation	Consecutive codes	
- First channelisation code	(i/SF) where i is the lowest numbered code that is being assigned and SF is specified in clause 6.10 Parameter Set.	
- Last channelisation code	(j/SF) where j is the highest numbered code that is being assigned in the slot as specified in clause 6.10 Parameter Set.	
- CHOICE more timeslots	The presence of this IE depends upon whether the requirements of clause 6.10 Parameter Set t could be met by the codes that have been assigned in the first timeslot.	
- UL CCTrCH TPC List	1	
- UL TPC TFCS Identity		
- TFCS ID	1	
- Shared channel indicator	False	
- DL CCTrCH List to Remove	Not Present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only
- E-AGCH Info	Not Present	Rel-6
- CHOICE E-HICH Information	Not Present	Rel-6
- CHOICE E-RGCH Information	Not Present	Rel-6

PHYSICAL CHANNEL RECONFIGURATION (Step 1) (1.28 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info		
- UARFCN (Nt)	Same UARFCN as used for cell 2	
Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	TDD	
- CHOICE TDD option	1.28 Mcps	
- HS-SCCH Set Configuration		
- Timeslot number	0	
- First Channelisation code	(16/15)	
- Second Channelisation code	(16/16)	
- Midamble Allocation mode	Default midamble	
- Midamble configuration	8	
- BLER target	-20	
- HS-SICH configuration		
- Timeslot number	1	
- Channelisation code	(16/7)	
- Midamble Allocation mode	Default midamble	
- Midamble configuration	8	
- Ack-Nack Power Offset	0	
- $PRX_{HS-SICH}$		
- TPC step size	1dB	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	0	

Information Element	Value/remark	Version
- Downlink DPCH power control information	Not Present	
- MAC-d HFN initial value	Not Present	
- CHOICE mode	TDD	
- CHOICE mode	TDD	
- CHOICE TDD option	1.28 Mcps TDD	
- TSTD indicator	FALSE	
- Default DPCH Offset Value	Not Present	
- MAC-hs reset indicator	TRUE	
Downlink information per radio link list		
Downlink information for each radio link		
- CHOICE mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Cell parameters ID	Set to the Cell parameters ID for cell 2	

PHYSICAL CHANNEL RECONFIGURATION (Step 1) (3.84 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info		
- Choice mode	TDD	
- UARFCN (Nt)	Same downlink UARFCN as used for cell 2	
CHOICE channel requirement	Uplink DPCH info	
- Uplink DPCH power control info		
- CHOICE mode	TDD	
- UL target SIR	6	
- CHOICE *UL OL PC info*	Individually Signalled	
- CHOICE TDD option	7.68 Mcps TDD	
- Individual timeslot interference info	Reference to TS34.108 clause 6.11.6 Parameter Set	
- Individual timeslot interference		
- CHOICE TDD option	7.68 Mcps TDD	
- Timeslot number	As required by, Reference to TS34.108 clause 6.11.6 Parameter Set	
- TDD UL interference	As required by, Reference to TS34.108 clause 6.11.6 Parameter Set (if not specified -60 dBm)	
- Primary CCPCH Tx Power	18 Integer(6..43) (-70 dBm Received if pathloss not specified)	
- CHOICE mode	TDD	
- Uplink Timing Advance Control		
- CHOICE Timing Advance	Enabled	
- CHOICE TDD option	7.68 Mcps TDD (Default)	Rel-7
- UL CCTrCH List		
- TFCS ID	1	
- UL Target SIR	Real (-11 .. 20 by step of 0.5dB) Reference to TS34.108 Parameter set.	
- Time info		
- Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256	
- Duration	Infinite	
- Common timeslot info		
- 2nd interleaving mode	Default value is "Frame"	
- TFCI coding	Reference to TS34.108 clause 6 Parameter set	
- Puncturing limit	Reference to TS34.108 clause 6 Parameter set	
- Repetition period	1	
- Repetition length	Null	
- Uplink DPCH timeslots and codes VHCR		Rel-7
- Dynamic SF usage	FALSE	
- First individual timeslot info		
- Timeslot number		
- CHOICE TDD option	7.68 Mcps TDD	Rel-7
- Timeslot number	1 OR 2 OR 3	
- TFCI existence	TRUE	
- Midamble shift and burst type		
- CHOICE TDD option	7.68 Mcps TDD	Rel-7
- Midamble allocation mode	Default midamble	
- Midamble configuration	8	
- Midamble Shift	Not Present	
- CHOICE TDD option	7.68 Mcps TDD (No Data)	Rel-7
- First timeslot Code List	Repeated (1,2) for each channelisation code assigned in the slot to meet the needs of TS34.108 clause 6 Parameter Set.	
- channelisation codes	(SF/ i) where i denotes an unassigned code matching the SF specified in TS34.108 clause 6 Parameter Set.	
- CHOICE more timeslots	No more timeslots (No Data)	
- UL CCTrCH List to Remove	Not present	
Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	TDD	
- CHOICE TDD option	7.68 Mcps	

Information Element	Value/remark	Version
- Ack-Nack Power Offset	0dB	
- HS-SICH Power Control Info		
- UL SIR target	0dB	
- HS-SICH Constant Value	-10dB	
- $D_{hs\text{-}sync}$	Not present	
- HS-SCCH Set Configuration	4	
- Timeslot number	The timeslot in which HS-SCCH is to be configured	
- Channelisation code	CC32/x where x is a previously unassigned channelisation code in this TS	
- Midamble Allocation mode	Default	
- Midamble configuration	8	
- BLER target	-2.4 (note that this equates to a BLER target of 0.4%, log10(0.004) = -2.4)	
- HS-SICH configuration		
- Timeslot number	The timeslot in which HS-SICH is to be configured	
- Channelisation code	CC32/x where x is a previously unassigned channelisation code in this TS	
- Midamble Allocation mode	Default	
- Midamble configuration	8	
- Measurement Feedback Info	Not Present	
- CHOICE mode	TDD	
- CHOICE TDD option	7.68 Mcps TDD	Rel-7
- HS-PDSCH Timeslot Configuration VHCR		Rel-7
- HS-PDSCH Timeslot Configuration List	Reference to clause 6.11.6 Parameter Set	
- Timeslot Number	The timeslot(s) in which HS-HS-DSCH is to be configured	
- CHOICE Burst Type	Reference to clause 6.10 Parameter Set	
- Midamble Allocation Mode	Default	
- Midamble configuration burst type 1 and 3	8	
Downlink information common for all radio links		
- CHOICE DPCH info	Downlink DPCH info common for all RL	
- Timing indication	Initialise	
- CFN-targetSFN frame offset	Not Present	
- Downlink DPCH power control information		
- CHOICE mode	TDD	
- TPC Step Size	1	
- MAC-d HFN initial value	Not Present	
- CHOICE mode	TDD	
- CHOICE mode	TDD	
- CHOICE TDD option	7.68 Mcps TDD	Rel-7
- Default DPCH Offset Value	Not Present	
- Mac-hs reset indicator	TRUE	
Downlink information per radio link list	1 radio link	
- Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- CHOICE TDD option	7.68 Mcps TDD	Rel-7
- CHOICE SyncCase	Sync Case 2	
- Timeslot	0	
- Cell parameters ID	Set to cell parameter ID of cell2	
- SCTD indicator	FALSE	
- CHOICE DPCH info	Downlink DPCH info for each RL	Rel-6
- CHOICE mode	TDD	
- DL CCTrCH List	1 CCTrCh	
- TFCS ID	1	
- Activation time	Not Present	
- Duration	Not Present	
- Common timeslot info		
- 2nd interleaving mode	Reference to clause 6.11.6 Parameter Set	
- TFCI coding	Reference to clause 6.11.6 Parameter Set	
- Puncturing Limit	Reference to clause 6.11.6 Parameter Set	
- Repetition Period	Reference to clause 6.11.6 Parameter Set	
- Repetition Length	Reference to clause 6.11.6 Parameter Set	
- Downlink DPCH timeslots and codes VHCR		Rel-7

Information Element	Value/remark	Version
- First Individual timeslot info		
- Timeslot number	The number of a downlink timeslot that has unassigned codes.	
- TFCI existence	TRUE	
- Midamble shift and burst type		
- CHOICE TDD option	7.68 Mcps	Rel-7
- CHOICE Burst Type	Reference to clause 6.11.6 Parameter Set	
- Midamble Allocation Mode	Default	
- Midamble configuration	Set Kcell to lowest possible value given the number of codes defined in clause 6.11.6 Parameter Set	
- CHOICE TDD option	7.68 Mcps	
- First timeslot channelisation codes VHCR		Rel-7
- CHOICE codes representation	Consecutive codes	
- First channelisation code	(i/SF) where i is the lowest numbered code that is being assigned and SF is specified in clause 6.11.6 Parameter Set.	
- Last channelisation code	(j/SF) where j is the highest numbered code that is being assigned in the slot as specified in clause 6.11.6 Parameter Set.	
- CHOICE more timeslots	The presence of this IE depends upon whether the requirements of clause 6.11.6 Parameter Set t could be met by the codes that have been assigned in the first timeslot.	
- UL CCTrCH TPC List	1	
- UL TPC TFCS Identity		
- TFCS ID	1	
- Shared channel indicator	False	
- DL CCTrCH List to Remove	Not Present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only
- E-AGCH Info	Not Present	Rel-6
- CHOICE E-HICH Information	Not Present	Rel-6
- CHOICE E-RGCH Information	Not Present	Rel-6

8.2.6.42.5 Test requirements

After step 1, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

8.2.6.42a Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialized hard handover to another frequency, Serving HS-DSCH cell change)
(Cells belong to different frequency bands for LCR TDD)

8.2.6.42a.1 Definition and applicability

Same definition and applicability as in clause 8.2.6.42.1 except that UE supports operating in different frequency band.

8.2.6.42a.2 Conformance requirement

Same conformance requirement as in clause8.2.6.42.2.

8.3.1.32a.3 Test purpose

Same test purpose as in clause 8.2.6.42.3 except that UE can work in different frequency bands.

8.3.1.32a.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 is configured within primary carrier in frequency f_3 and secondary carrier in frequency f_1, and cell2 works in frequency f_2, f1 an f2 belongs to different frequency bands.

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports TDD
- UE supports HS-PDSCH
- UE supports multiple frequency bands simultaneously

Test Procedure

The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established in cell 1 secondary carrier. The secondary carrier and Primary carrier may be in same frequency band or different frequency band.

SS initiates P25 to make the UE move to state 6-17 as specified in TS34.108 clause7.4. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE ordering the UE to change to Cell 2 on frequency f_2. At the activation time the UE changes to Cell 2 keeping the HS-PDSCH configuration. Finally the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Same Expected sequence and Specific Message Contents as in clause 8.2.6.42.4

8.2.6.42a.5 Test requirements

Same test requirements as in clause 8.2.6.42.

8.2.6.43 Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Seamless SRNS relocation with pending of ciphering)

8.2.6.43.1 Definition

8.2.6.43.2 Conformance requirement

<from sub-clause 8.2.2. 3>

If the UE receives:

- a PHYSICAL CHANNEL RECONFIGURATION message:

it shall:

…

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> if the received reconfiguration message included the IE "Downlink counter synchronisation info"; or

…

2> if the variable PDCP_SN_INFO is empty:

3> configure the corresponding RLC entity for all AM and UM radio bearers and AM and UM signalling radio bearers except RB2 to "stop".

2> else:

…

2> re-establish the RLC entity for RB2;

2> for the downlink and the uplink, apply the ciphering configuration as follows:

3> if the received re-configuation message included the IE "Ciphering Mode Info":

4> use the ciphering configuration in the received message when transmitting the response message.

3> if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because the activation times not having been reached:

4> if the previous SECURITY MODE COMMAND was received due to new keys being received:

5> consider the new ciphering configuration to include the received new keys;

5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 as indicated in TS 25.331 subclause 8.1.12.3.1.

4> if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because of the corresponding activation times not having been reached and the previous SECURITY MODE COMMAND caused a change in LATEST_CONFIGURED_CN_DOMAIN:

5> consider the new ciphering configuration to include the keys associated with the LATEST_CONFIGURED_CN_DOMAIN;

5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 to the most recently transmitted IE "START list" or IE "START" for the LATEST_CONFIGURED_CN_DOMAIN at the reception of the previous SECURITY MODE COMMAND.

4> apply the new ciphering configuration immediately following RLC re-establishment.

3> else:

4> continue using the current ciphering configuration.

2> set the new uplink and downlink HFN of RB2 to MAX(uplink HFN of RB2, downlink HFN of RB2);

2> increment by one the downlink and uplink HFN values for RB2;

2> calculate the START value according to TS 25.331 subclause 8.5.9;

2> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info".

<from sub-clause 8.6.3.4>

1> for the downlink and the uplink, apply the new ciphering configuration as follows:

2> if the ciphering configuration for a AM or UM radio bearer or signalling radio bearer from a previously received SECURITY MODE COMMAND has not yet been applied because of the corresponding activation times not having been reached and the current received message includes the IE "DL Counter Synch Info" or the current received message is a RADIO BEARER RECONFIGURATION message and includes the IE "New U-RNTI":

3> if the previous SECURITY MODE COMMAND was received due to new keys being received:

4> consider the new ciphering configuration to include the received new keys.

3> else if the previous SECURITY MODE COMMAND caused a change in LATEST_CONFIGURED_CN_DOMAIN:

4> consider the new ciphering configuration to include the keys associated with the LATEST_CONFIGURED_CN_DOMAIN.

2> apply the new ciphering configuration in uplink and downlink immediately following RLC re-establishment.

2> if the IE "Ciphering activation time for DPCH" is present in the IE "Ciphering mode info" and the UE was in CELL_DCH state prior to this procedure:

3> for radio bearers using RLC-TM:

4> apply the old ciphering configuration for CFN less than the number indicated in the IE "Ciphering activation time for DPCH";

…

2> if the IE "Radio bearer downlink ciphering activation time info" is present:

3> apply the following procedure for each radio bearer and signalling radio bearers using RLC-AM or RLC-UM indicated by the IE "RB identity":

4> suspend uplink transmission on the radio bearer or the signalling radio bearer (except for the SRB where the response message is transmitted) according to the following:

5> do not transmit RLC PDUs with sequence number greater than or equal to the uplink activation time, where the uplink activation time is selected according to the rules below.

4> select an "RLC sequence number" at which (activation) time the new ciphering configuration shall be applied in uplink for that radio bearer according to the following:

5> consider a ciphering activation time in uplink to be pending until the RLC sequence number of the next RLC PDU to be transmitted for the first time is equal to or larger than the selected activation time;

5> for each radio bearer and signalling radio bearer that has no pending ciphering activation time in uplink as set by a previous procedure changing the security configuration:

...

5> for each radio bearer and signalling radio bearer that has a pending ciphering activation time in uplink as set by a previous procedure changing the security configuration:

6> for radio bearers and signalling radio bearers except SRB2:

7> set the same value as the pending ciphering activation time.

6> for signalling radio bearer SRB2:

7> set a suitable value that would ensure a minimised delay in the change to the latest ciphering configuration.

4> store the selected "RLC sequence number" for that radio bearer in the entry for the radio bearer in the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;

4> switch to the new ciphering configuration according to the following:

5> use the old ciphering configuration for the transmitted and received RLC PDUs with RLC sequence numbers smaller than the corresponding RLC sequence numbers indicated in the IE "Radio bearer uplink ciphering activation time info" sent to UTRAN and in the received IE "Radio bearer downlink ciphering activation time info" received from UTRAN, respectively;

5> use the new ciphering configuration for the transmitted and received RLC PDUs with RLC sequence numbers greater than or equal to the corresponding RLC sequence numbers indicated in the IE "Radio bearer uplink ciphering activation time info" sent to UTRAN and in the received IE "Radio bearer downlink ciphering activation time info" received from UTRAN, respectively;

5> for a radio bearer using RLC-AM, when the RLC sequence number indicated in the IE "Radio bearer downlink ciphering activation time info" falls below the RLC receiving window and the

RLC sequence number indicated in the IE "Radio bearer uplink ciphering activation time info" falls below the RLC transmission window, the UE may release the old ciphering configuration for that radio bearer;

5> if an RLC reset or re-establishment occurs before the activation time for the new ciphering configuration has been reached, ignore the activation time and apply the new ciphering configuration both in uplink and downlink immediately after the RLC reset or RLC re-establishment.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.6.3.4.

8.2.6.43.3 Test purpose

To confirm that the UE includes the previously received new keys from the last SECURITY MODE COMMAND in the new ciphering configuration in the case the ciphering configuration for RB2 from the last received SECURITY MODE COMMAND has not yet been applied because the activation times not having been reached .

8.2.6.43.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 and 2

UE: PS-DCCH+DTCH_DCH (state 6-10) or CS-DCCH+DTCH_DCH (state 6-9) or PS+CS-DCCH+DTCH_DCH (state 6-14) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

Table 8.2.6.43

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-75	-75	-60

Table 8.2.6.43 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions.

The UE is in the CELL_DCH state, camping onto cell 1. SS sends a new ciphering key followed by a SECURITY MODE COMMAND message (step 1) to UE. The UE shall respond with a SECURITY MODE COMPLETE message. SS configures its downlink transmission power settings according to columns "T1" in table 8.2.6.43. The SS sends a PHYSICAL CHANNEL RECONFIGURATION message requesting the UE to do a handover combined with SRNS relocation, before the activation time indicated in step 1 lapsed. This message includes IE "RRC State Indicator" set to "CELL_DCH", IE “Downlink counter synchronisation info”, IE “Ciphering mode info”, the IE “Integrity protection mode info” and the IE “Timing Indication” set to “initialise”.

UE shall reselect to cell 2 and SS verifies that the UE sends PHYSICAL CHANNEL RECONFIGURATION COMPLETE message. This message also includes a calculated new START value according to the formula “$START_X'$ = MSB_{20} (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the neww CK_X and IK_X from step 1}) + 2”, calculated IE ”Integrity Check Info” using a new FRESH value as included in IE “Integrity protection initialisation number” in IE “Integrity protection mode info” in PHYSICAL CHANNEL RECONFIGURATION message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration.

SS transmits UE CAPABILITY ENQUIRY message on the downlink DCCH using RLC-AM. The UE shall respond to downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS responds with UE CAPABILITY INFORMATION CONFIRM message. SS then send IDENTITY REQUEST message on the DCCH using RLC-AM (SRB3) in order to confirm that the UE can communicate on SRB3 by using new integrity configuration and ciphering configuration. The UE shall respond with an IDENTITY RESPONSE message on the uplink DCCH using RLC-AM (SRB3).

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		SECURITY MODE COMMAND	
2	→		SECURITY MODE COMPLETE	
3			Void	SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.2.6.43.
4	←		PHYSICAL CHANNEL RECONFIGURATION	This message is sent before last ciphering activation time has elapsed and hence there is a pending ciphering activation time. New integrity protection configuration is applied on DL SRB2. LAI and RAI of cell 2 are given to the UE, and are the same as cell 1.
5	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE shall transmit this message after it reselects to cell 2. New calculated START value is included. New integrity protection configuration is applied on UL SRB2. New ciphering configuration is applied on UL SRB2 with the downlink and uplink values of the HFN component of COUNT-C for SRB2 is incremented by one.
6	←		UE CAPABILITY ENQUIRY	New ciphering configuration is applied on DL SRB2 with the same value as used in step 5.
7	→		UE CAPABILITY INFORMATION	
8	←		UE CAPABILITY INFORMATION CONFIRM	
9	←		DOWNLINK DIRECT TRANSFER	NAS message embedded in this is IDENTITY REQUEST. New integrity protection configuration is applied on DL SRB3. New ciphering configuration is applied on DL SRB3 using the re-initialised COUNT-C HFN by the start value as stored in step 5.
10	→		UPLINK DIRECT TRANSFER	NAS message embedded in this is IDENTITY RESPONSE. SS confirms that new integrity protection configuration is applied on UL SRB3 by UE. New ciphering configuration is applied on UL SRB3 using the re-initialised COUNT-C HFN by the start value as stored in step 5.

Specific Message Contents

SECURITY MODE COMMAND (Step 1) – for PS domain testing only

The contents of SECURITY MODE COMMAND message are identical to the same message sub-type found in [9] TS 34.108 clause 9, with the following exceptions.

Information Element	Value/remark
Ciphering mode info	
- Ciphering mode command	Start/restart
- Ciphering algorithm	UEA0 or UEA1
- Ciphering activation time for DPCH	Not Present
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN+50
- RB identity	2
- RLC sequence number	Current RLC SN+50
- RB identity	3
- RLC sequence number	Current RLC SN+50
- RB identity	4
- RLC sequence number	Current RLC SN+50
- RB identity	20
- RLC sequence number	Current RLC SN+50

SECURITY MODE COMMAND (Step 1) – for CS domain testing only

The contents of SECURITY MODE COMMAND message are identical to the same message sub-type found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Ciphering mode info	
- Ciphering mode command	Start/restart
- Ciphering algorithm	UEA0 or UEA1
- Ciphering activation time for DPCH	(256+CFN-(CFN MOD 8 + 8))MOD 256
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN+50
- RB identity	2
- RLC sequence number	Current RLC SN+50
- RB identity	3
- RLC sequence number	Current RLC SN+50
- RB identity	4
- RLC sequence number	Current RLC SN+50

PHYSICAL CHANNEL RECONFIGURATION (Step 4) – for PS domain testing only

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "Packet to CELL_DCH from CELL_DCH in PS", with the following exception:

Information Element	Value/remark
Ciphering mode info	This IE is present with the values of the sub IEs as stated below only if the ciphering algorithm is changed.
- Ciphering mode command	Start/restart
- Ciphering algorithm	This IE is present with the values of the sub IEs as stated below only if the ciphering algorithm is changed.
- Ciphering activation time for DPCH	Not Present
- Radio bearer downlink ciphering activation time info	Not present
Integrity protection mode info - Integrity protection mode command - Downlink integrity protection activation info - Integrity protection algorithm - Integrity protection initialisation number	 Start Not Present UIA1 SS selects an arbitrary 32 bits number for FRESH
Activation time	Not present
New U-RNTI - SRNC identity - S-RNTI	 0000 0000 0010B 0000 0000 0000 0000 0001B
CN Information info - PLMN identity - CN common GSM-MAP NAS system information - GSM-MAP NAS system information - CN domain related information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information	 Not present 00 01H PS 05 00H CS 1E 01H
Downlink counter synchronisation info - RB with PDCP information list	 Not Present.
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing Indication	Initialise
- MAC-d HFN initial value	Not present
- Default DPCH Offset Value	Present
Downlink information for each radio links - Primary CPICH info - Primary Scrambling Code	 Set to same code as used for cell 2

PHYSICAL CHANNEL RECONFIGURATION (Step 4) – for CS domain testing only

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled “Non speech in CS” or “Speech in CS”, with the following exception:

Information Element	Value/remark
Ciphering mode info	This IE is present with the values of the sub IEs as stated below only if the ciphering algorithm is changed.
- Ciphering mode command	Start/restart
- Ciphering algorithm	Set to another algorithm than the one indicated in the SECURITY MODE COMMAND during the initial condition set-up.
- Ciphering activation time for DPCH	Not present
- Radio bearer downlink ciphering activation time info	Not present
Integrity protection mode info - Integrity protection mode command - Downlink integrity protection activation info - Integrity protection algorithm - Integrity protection initialisation number	 Start Not Present UIA1 SS selects an arbitrary 32 bits number for FRESH
Activation time	Not present
New U-RNTI - SRNC identity - S-RNTI	 0000 0000 0010B 0000 0000 0000 0000 0001B
CN Information info - PLMN identity - CN common GSM-MAP NAS system information - GSM-MAP NAS system information - CN domain related information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information	 Not present 00 01H PS 05 00H CS 1E 01H
Downlink counter synchronisation info - RB with PDCP information list	 Not Present.
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing Indication	Initialise
- MAC-d HFN initial value	Not present
- Default DPCH Offset Value	Present
Downlink information for each radio links - Primary CPICH info - Primary Scrambling Code	 Set to same code as used for cell 2

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Step 5) – for PS domain testing only

Check that the UE uses the same message sub-type found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
Uplink counter synchronisation info - RB with PDCP information list - START list	 Not present Check that this IE is present.

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Step 5) – for CS domain testing only

Check that the UE uses the same message sub-type found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
COUNT-C activation time	Check that this IE is present.
Uplink counter synchronisation info - RB with PDCP information list - START list	 Not present Check that this IE is present.

UE CAPABILITY ENQUIRY (Step 6)

Use the same message sub-type found in [9] TS 34.108 clause 9.

UE CAPABILITY INFORMATION (Step 7)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9.

UE CAPABILITY INFORMATION CONFIRM (Step 8)

Use the same message sub-type found in [9] TS 34.108 clause 9.

8.2.6.43.5 Test requirement

After step 1, UE shall transmit a SECURITY MODE COMPLETE message on the uplink DCCH using AM RLC.

After step 4, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC which includes a calculated new START value according to the formula "$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the new CK_X and IK_X from step 1}) + 2", calculated IE "Integrity Check Info" using the new FRESH value as included in IE "Integrity protection initialisation number" in IE "Integrity protection mode info" in PHYSICAL CHANNEL RECONFIGURATION message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration. The UE, further more, shall apply the new integrity protection configuration for the first received/sent RRC message on SRB0, SRB3, and SRB4 after receiving the PHYSICAL CHANNEL RECONFIGURATION message (i.e. immediately). For SRB2 the new integrity protection configuration shall be applied from and including the received PHYSICAL CHANNEL RECONFIGURATION message (DL) and the sent PHYSICAL CHANNEL RECONFIGURATION COMPLETE message (UL).

After step 6, the UE shall respond with a UE CAPABILITY INFORMATION message to SS.

After step 9, the UE shall respond with an UPLINK DIRECT TRANSFER message to SS and apply new ciphering configuration on UL SRB3.

8.2.6.44 Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Failure (Radio link failure in new configuration)

8.2.6.44.1 Definition

8.2.6.44.2 Conformance requirement

<from sub-clause 8.2.2.14>

If the criteria for radio link failure is met in the new configuration during the reconfiguration procedure (i.e. while UE is waiting for RLC acknowledgement for a response message.) as specified in subclause 8.5.6, the UE shall:

1> if the received reconfiguration causes either:

- the IE "Reconfiguration" in the variable CIPHERING_STATUS to be set to TRUE; and/or
- the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to be set to TRUE:

2> perform the actions specified in subclause 8.2.2.12b.

<from sub-clause 8.2.2.12b>

If:

- a cell update procedure according to subclause 8.3.1 is initiated; and
- the received reconfiguration message causes either:
  - the IE "Reconfiguration" in the variable CIPHERING_STATUS to be set to TRUE; and/or
  - the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to be set to TRUE:

the UE shall:

1> release all radio resources;

1> indicate the release of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers; and

1> clear any entry for the RRC CONNECTION RELEASE message in the tables "Accepted transactions" and "Rejected transactions" in the variable TRANSACTIONS;

1> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

1> clear the variable ESTABLISHED_RABS;

1> if the received reconfiguration message contained the IE "Ciphering mode info":

2> set the IE "Reconfiguration" in the variable CIPHERING_STATUS to FALSE; and

2> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;

2> clear the variable SECURITY_MODIFICATION.

1> if the received reconfiguration message contained the IE "Integrity protection mode info":

2> set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to FALSE; and

2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO.

1> enter idle mode;

1> perform the actions specified in subclause 8.5.2 when entering idle mode;

1> and the procedure ends.

NOTE: UTRAN should use RB Control messages to perform an SRNS relocation only in case of state transitions from CELL_DCH to CELL_DCH.

Reference

3GPP TS 25.331 clause 8.2.2, 8.6.3.4.

8.2.6.44.3 Test purpose

To confirm that the UE enters idle mode state when UE detects radio link failure after UE started using the new configuration but before receiving the RLC acknowledgement of the reconfiguration complete message.

8.2.6.44.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 and 2

UE: PS-DCCH+DTCH_DCH (state 6-10) or CS-DCCH+DTCH_DCH (state 6-9) or PS+CS-DCCH+DTCH_DCH (state 6-14) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) and services supported by the UE. If UE supports PS+CS but only supports streaming service in CS domain then state 6-9, 6-10 are applied.

Specific Message Contents

System Information Block type 1 of Cell 2 to be transmitted before idle update preamble

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2
- T313	0
- N313	1

System Information Block type 1 (Cell 1)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2
- T313	0
- N313	1

System Information Block type 11 (Cell 1)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/remark
- CHOICE report criteria	

- Intra-frequency measurement reporting criteria	
- Parameters required for each event	2 kinds
- Intra-frequency event identity	1b
- Triggering condition 1	Active set cells
- Triggering condition 2	Not Present
- Reporting Range Constant	10(5dB)
- Cells forbidden to affect Reporting range	Not Present
- W	1(1.0)
- Hysteresis	0(0.0)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	Not Present
- Time to trigger	640
- Amount of reporting	Not Present
- Reporting interval	Not Present
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
- Intra-frequency event identity	1c
- Triggering condition 1	Not Present
- Triggering condition 2	Not Present
- Reporting Range Constant	Not Present
- Cells forbidden to affect Reporting range	Not Present
- W	Not Present
- Hysteresis	0(0.0)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	3
- Time to trigger	640
- Amount of reporting	4
- Reporting interval	4 000
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3

Test Procedure

Table 8.2.6.44

Parameter	Unit	Cell 1			Cell 2		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			Mid Range Test Frequency		
CPICH Ec (FDD)	dBm/3.84MHz	-60	-66	-60	OFF	-66	OFF

Table 8.2.6.44 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions.

The UE is in the CELL_DCH state, camping onto cell 1. SS configures its downlink transmission power settings according to columns "T1" in table 8.2.6.44. The SS sends a PHYSICAL CHANNEL RECONFIGURATION message requesting the UE to do a timing re-initialised hard handover combined with SRNS relocation. This message includes IE "RRC State Indicator" set to "CELL_DCH", IE “Downlink counter synchronisation info”, IE “Ciphering mode info” and IE “Integrity protection mode info”. UE shall reselect to cell 2 and SS verifies that the UE sends PHYSICAL CHANNEL RECONFIGURATION COMPLETE message. This message also includes a calculated new START value according to the formula “$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the new CK_X and IK_X from step 1}) + 2”, calculated IE ”Integrity Check Info” using a new FRESH value as included in IE “Integrity protection initialisation number” in IE “Integrity protection mode info” in PHYSICAL CHANNEL RECONFIGURATION message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration. On receiving PHYSICAL CHANNEL RECONFIGURATION COMPLETE message, SS shall not send RLC acknowledgement to UE and the SS shall configure its downlink transmission power settings according to columns "T2" in table 8.2.6.44.

UE shall detect a radio link failure in cell 2 and enters idle mode in cell 1. SS then call for procedure C.1 to verify that UE is in idle mode in cell 1.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.2.6.44.
2	←		PHYSICAL CHANNEL RECONFIGURATION	If IE “Ciphering mode info” is present in the SECURITY MODE COMMAND during initial condition set-up, this message is sent after last ciphering activation time has elapsed and there is no pending ciphering activation time. New integrity protection configuration is applied on DL SRB2. LAI and RAI of cell 2 are given to the UE, and are the same as cell 1.
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE shall transmit this message after it reselects to cell 2. New calculated START value is included. New integrity protection configuration is applied on UL SRB2. If IE “Ciphering mode info” is present in step 2, new ciphering configuration is applied on UL SRB2 with the downlink and uplink values of the HFN component of COUNT-C for SRB2 is incremented by one. Upon receiving this message, the SS shall not send RLC acknowledgement for this message and apply the downlink transmission power settings, according to the values in columns “T3” of table 8.2.6.44
4	←→		Call C.1.	C.1 is performed in cell 1. If the test result of C.1 indicates that UE is in idle mode state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 2) – for PS domain testing only

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "Packet to CELL_DCH from CELL_DCH in PS", with the following exception:

Information Element	Value/remark
Ciphering mode info	If network does not apply ciphering, set this IE to "Not present". If network applies ciphering, this IE shall be included with the values of the sub IEs as stated below.
- Ciphering mode command	Start/restart
- Ciphering algorithm	Set to another algorithm than the one indicated in the SECURITY MODE COMMAND during the initial condition set-up
- Ciphering activation time for DPCH	Not Present
- Radio bearer downlink ciphering activation time info	Not Present
Integrity protection mode info - Integrity protection mode command - Downlink integrity protection activation info - Integrity protection algorithm - Integrity protection initialisation number	 Start Not Present UIA1 SS selects an arbitrary 32 bits number for FRESH
Activation Time	Not Present
New U-RNTI - SRNC identity - S-RNTI	 0000 0000 0010B 0000 0000 0000 0000 0001B
CN Information info - PLMN identity - CN common GSM-MAP NAS system information - GSM-MAP NAS system information - CN domain related information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information	 Not present 00 01H PS 05 00H CS 1E 01H
Downlink counter synchronisation info - RB with PDCP information list	 Not Present.
Downlink information common for all radio links - Downlink DPCH info common for all RL - Timing Indication - MAC-d HFN initial value - Default DPCH Offset Value	 Initialise Not present Arbitrary set to value 0..306688 by step of 512
Downlink information for each radio links - Primary CPICH info - Primary Scrambling Code	 Set to same code as used for cell 2

PHYSICAL CHANNEL RECONFIGURATION (Step 2) – for CS domain testing only

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled “Non speech in CS” or “Speech in CS”, with the following exception:

Information Element	Value/remark
Ciphering mode info	If network does not apply ciphering, set this IE to “Not present”. If network applies ciphering, this IE shall be included with the values of the sub IEs as stated below.
- Ciphering mode command	Start/restart
- Ciphering algorithm	Set to another algorithm than the one indicated in the SECURITY MODE COMMAND during the initial condition set-up
- Ciphering activation time for DPCH	Not Present
- Radio bearer downlink ciphering activation time info	Not Present
Integrity protection mode info - Integrity protection mode command - Downlink integrity protection activation info - Integrity protection algorithm - Integrity protection initialisation number	 Start Not Present UIA1 SS selects an arbitrary 32 bits number for FRESH
Activation Time	Not Present
New U-RNTI - SRNC identity - S-RNTI	 0000 0000 0010B 0000 0000 0000 0000 0001B
CN Information info - PLMN identity - CN common GSM-MAP NAS system information - GSM-MAP NAS system information - CN domain related information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information	 Not present 00 01H PS 05 00H CS 1E 01H
Downlink counter synchronisation info - RB with PDCP information list	 Not Present.
Downlink information common for all radio links - Downlink DPCH info common for all RL - Timing Indication - MAC-d HFN initial value - Default DPCH Offset Value	 Initialise Not present Arbitrary set to value 0..306688 by step of 512
Downlink information for each radio links - Primary CPICH info - Primary Scrambling Code	 Set to same code as used for cell 2

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Step 3) – for PS domain testing only

Check that the UE uses the same message sub-type found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
Uplink counter synchronisation info - RB with PDCP information list - START list	 Not present Check that this IE is present.

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Step 4) – for CS domain testing only

Check that the UE uses the same message sub-type found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
Information Element	Value/remark
COUNT-C activation time	In case ciphering is applied by the network, check that this IE is present.
Uplink counter synchronisation info	
- RB with PDCP information list	Not present
- START list	Check that this IE is present.

8.2.6.44.5 Test requirement

After step 2, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC which includes which includes a calculated new START value according to the formula "$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the new CK_X and IK_X from step 1}) + 2", calculated IE "Integrity Check Info" using the new FRESH value as included in IE "Integrity protection initialisation number" in IE "Integrity protection mode info" in PHYSICAL CHANNEL RECONFIGURATION message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration.

After step 3, UE shall enter idle mode in cell 1.

8.2.6.45 Physical Channel Reconfiguration for transition from CELL_DCH to URA_PCH: Failure (Radio link failure in old configuration)

8.2.6.45.1 Definition

8.2.6.45.2 Conformance requirement

If the criteria for radio link failure are met in the old configuration during the reconfiguration procedure as specified in TS 25.331 subclause 8.5.6, the UE should:

1> if the UE would have entered CELL_PCH or URA_PCH as a result of this reconfiguration procedure and the UE has already submitted a response message to lower layers:

2> act as if the reconfiguration message was not received;

2> initiate a cell update procedure according to TS 25.331 subclause 8.3.1, using the cause "radio link failure"; and

2> the procedure ends.

NOTE: UTRAN should consider the reconfiguration procedure as unsuccessful in this case even if a response message had been received.

Reference

3GPP TS 25.331 clause 8.2.2.14.

8.2.6.45.3 Test purpose

To confirm that the UE aborts reconfiguration to URA_PCH and performs cell update when UE detects radio link failure before receiving the RLC acknowledgement of the reconfiguration complete message in the old configuration.

8.2.6.45.4 Method of test

Initial Condition

System Simulator: 1 cell – Cell 1

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

Specific Message Contents

System Information Block type 1 of Cell 1 to be transmitted before idle update preamble

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/remark
- UE Timers and constants in connected mode - T313 - N313	 0 1
- T315	30

Test Procedure

Table 8.2.6.45

Parameter	Unit	Cell 1	
		T0	T1
UTRA RF Channel Number		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF

Table 8.2.6.45 illustrates the downlink power to be applied at various time instants of the test execution. Columns marked "T0" denote the initial conditions.

The UE is in the CELL_DCH state, camping onto cell 1. The SS sends a PHYSICAL CHANNEL RECONFIGURATION message requesting the UE to transit to CELL_PCH. UE shall send PHYSICAL CHANNEL RECONFIGURATION COMPLETE message. On receiving PHYSICAL CHANNEL RECONFIGURATION COMPLETE message, SS shall not send RLC acknowledgement to UE and the SS shall configure its downlink transmission power settings according to column "T1" in table 8.2.6.45. Within 26.32s (Note 1) from the instant SS configures its downlink transmission power settings according to column “T1”, SS reconfigures it power setting according to column “T0”. UE shall send CELL UPDATE message, with the cell update cause set to “radio link failure”. SS sends CELL UPDATE CONFIRM message. UE shall response with PHYSICAL CHANNEL COMPLETE message.

NOTE 1: Considering the timer tolerance of the UE, T315 may expire between 30s±0.75s, therefore the SS must configure it downlink transmission power before 29.25s after it configures to “T1”. Since SS has a timer tolerance of 10% or 2*TTI+55ms (consider the greater value of the two), the test case shall set the SS to reconfigure the power level no later than 26.32s after the SS configures the power settings according to column ‘T1’ in table 8.2.6.45.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.2.6.45. SS shall not acknowledge this message.
3				Within 26.32s from step 2, SS applies the downlink transmission power settings, according to the values in columns "T0" of table 8.2.6.45.
4	→		CELL UPDATE	
5	←		CELL UPDATE CONFIRM	
6	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 1)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled “Packet to URA_PCH from CELL_DCH in PS”.

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Step 2 and 6)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9, with the following exception.

CELL UPDATE (Step 4)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
Cell update cause	Radio link failure

CELL UPDATE CONFIRM (Step 5)

Use the same message sub-type found in [9] TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
Downlink information common for all radio links	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A4.
Downlink information per radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A4.

8.2.6.45.5 Test requirement

After step 1, UE shall send PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to SS.

After step 3, UE shall send CELL UPDATE message to SS, with cell update cause set to “radio link failure”.

After step 5, UE shall send PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to SS.

8.2.6.46 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (Hard handover to another frequency with timing re-initialised. Serving HS-DSCH cell change): Failure (Physical channel failure and reversion to old channel)

8.2.6.46.1 Definition and applicability

All UEs which support FDD or TDD and HS-PDSCH.

8.2.6.46.2 Conformance requirement

If the received message caused the UE to be in CELL_DCH state and the UE according to subclause 8.5.4 failed to establish the dedicated physical channel(s) indicated in the received message the UE shall:

1> if the CM_PATTERN_ACTIVATION_ABORTED flag is not set to TRUE:

2> revert to the configuration prior to the reception of the message (old configuration); including any HS-DSCH configuration if existing;

2> if the UE was in Cell DCH state prior to the reconfiguration:

3> perform the physical layer synchronisation procedure A as specified in [29] (FDD only);

3> after the establishment of the uplink physical channel, send DPCCH and no DPDCH according to [26] during the number of frames indicated in the IE "PC preamble" in the variable LATEST_CONFIGURED_SRB_DELAY_AND_PC_PREAMBLE; and

3> then not send any data on signalling radio bearers RB0 to RB4 during the number of frames indicated in the IE "SRB delay" in the variable LATEST_CONFIGURED_SRB_DELAY_AND_PC_PREAMBLE.

1> if the CM_PATTERN_ACTIVATION_ABORTED flag is set to TRUE or if the old configuration includes dedicated physical channels (CELL_DCH state) and the UE is unable to revert to the old configuration:

2> initiate a cell update procedure according to subclause 8.3.1, using the cause "radio link failure";

2> after the cell update procedure has completed successfully:

3> proceed as below.

1> if the old configuration does not include dedicated physical channels (CELL_FACH state):

2> select a suitable UTRA cell according to [4];

2> if the UE selects another cell than the cell the UE camped on upon reception of the reconfiguration message:

3> initiate a cell update procedure according to subclause 8.3.1, using the cause "Cell reselection";

3> after the cell update procedure has completed successfully:

4> proceed as below.

1> transmit a failure response message as specified in subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "physical channel failure".

1> set the variable ORDERED_RECONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

The procedure ends.

Reference(s)

TS 25.331 clause 8.2.2.7

8.2.6.46.3 Test purpose

To confirm that the UE reverts to the old configuration (including measurement configurations, ciphering procedures and compressed mode configurations if required), and transmits a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC if the UE fails to reconfigure the new physical channel according to the received PHYSICAL CHANNEL RECONFIGURATION message before timer T312 expiry.

8.2.6.46.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 on frequency f_1, and cell2 on frequency f_2. Cells 1 and 2 have different primary scrambling codes.

UE: PS_DCCH_DTCH_HS_DSCH (state 6-17) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established in cell 1.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE ordering the UE to change to Cell 2 on frequency f_2 but SS does not configure the channels in cell 2. At the activation time the UE changes to Cell 2 keeping the HS-PDSCH configuration. The UE shall revert to the old configuration and transmits a PHYSICAL CHANNEL RECONFIGURATION FAILURE message to the SS on the DCCH using AM RLC, with the value "physical channel failure" in the IE "failure cause".

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	The SS instructs the UE to change to Cell 2. SS does not configure the channels in cell 2.
2	→		PHYSICAL CHANNEL RECONFIGURATION FAILURE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

PHYSICAL CHANNEL RECONFIGURATION (Step 1) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info		
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]	
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 2	
Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code		
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- POhsdsch	6 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	0	
- Downlink DPCH power control information	Not Present	
- Downlink rate matching restriction information	Not Present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Fixed or flexible position	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set	
- DPCH compressed mode info	Not present	
- TX Diversity mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
- MAC-hs reset indicator	TRUE	
Downlink information per radio link list	1 radio link	
Downlink information for each radio link		
- CHOICE mode	FDD	
- Primary CPICH info	Set to the scrambling code for cell 2	
- Cell ID	Not present	
- Serving HS-DSCH radio link indicator	TRUE	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value of DPCH Frame Offset modulo 38400	
- Secondary CPICH info	Not present	
- DL channelisation code	Reference to TS34.108 clause 6.10 Parameter Set	
- Secondary scrambling code	5	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	Any value between 0 and Spreading factor-1	

- Scrambling code change	Not Present	
- TPC combination index	0	
- SSDT cell identity	Not present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not present	

PHYSICAL CHANNEL RECONFIGURATION (Step 1) (1.28Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info		
- UARFCN downlink(Nt)	Same downlink UARFCN as used for cell 2	
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	0	
- Downlink DPCH power control information	Reference to TS34.108 clause 6.11 Parameter Set	
- MAC-hs reset indicator	TRUE	
Downlink information per radio link list		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	1.28 Mcps TDD	
- TSTD indicator	FALSE	
- Cell parameters ID	Same Cell parameters ID as used for cell 2	
- SCTD indicator	FALSE	
- Downlink DPCH info for each RL	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9	

PHYSICAL CHANNEL RECONFIGURATION (Step 1) (3.84 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info		
- Choice mode	TDD	
- UARFCN (Nt)	Same downlink UARFCN as used for cell 2	
Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	TDD	
- CHOICE TDD option	3.84 Mcps	
- Ack-Nack Power Offset	0dB	
- HS-SICH Power Control Info		
- UL SIR target	0dB	
- HS-SICH Constant Value	-10dB	
- $D_{hs\text{-}sync}$	Not present	
- HS-SCCH Set Configuration	4	
- Timeslot number	The timeslot in which HS-SCCH is to be configured	
- Channelisation code	CC16/x where x is a previously unassigned channelisation code in this TS	
- Midamble Allocation mode	Default	
- Midamble configuration	8	
- BLER target	-2.4 (note that this equates to a BLER target of 0.4%, log10(0.004) = -2.4)	
- HS-SICH configuration		
- Timeslot number	The timeslot in which HS-SICH is to be configured	
- Channelisation code	CC16/x where x is a previously unassigned channelisation code in this TS	
- Midamble Allocation mode	Default	
- Midamble configuration	8	
- Measurement Feedback Info	Not Present	
- CHOICE mode	TDD	
- CHOICE TDD option	3.84 Mcps TDD	
- HS-PDSCH Timeslot Configuration		
- HS-PDSCH Timeslot Configuration List	Reference to clause 6.10 Parameter Set	
- Timeslot Number	The timeslot(s) in which HS-HS-DSCH is to be configured	
- CHOICE Burst Type	Reference to clause 6.10 Parameter Set	
- Midamble Allocation Mode	Default	
- Midamble configuration burst type 1 and 3	8	
Downlink information common for all radio links		
- CHOICE DPCH info	Downlink DPCH info common for all RL	
- Timing indication	Initialise	
- CFN-targetSFN frame offset	Not Present	
- Downlink DPCH power control information		
- CHOICE mode	TDD	
- TPC Step Size	1	
- MAC-d HFN initial value	Not Present	
- CHOICE mode	TDD	
- CHOICE mode	TDD	
- CHOICE TDD option	3.84 Mcps TDD	
- Default DPCH Offset Value	Not Present	
- Mac-hs reset indicator	TRUE	
Downlink information per radio link list	1 radio link	
- Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- CHOICE TDD option	3.84 Mcps TDD	
- CHOICE SyncCase	Sync Case 2	
- Timeslot	0	
- Cell parameters ID	Set to cell parameter ID of cell 2	
- SCTD indicator	FALSE	

Information Element	Value/remark	Version
- CHOICE DPCH info	Downlink DPCH info for each RL	Rel-6
- CHOICE mode	TDD	
- DL CCTrCH List	1 CCTrCh	
- TFCS ID	1	
- Activation time	Not Present	
- Duration	Not Present	
- Common timeslot info		
- 2nd interleaving mode	Reference to clause 6.10 Parameter Set	
- TFCI coding	Reference to clause 6.10 Parameter Set	
- Puncturing Limit	Reference to clause 6.10 Parameter Set	
- Repetition Period	Reference to clause 6.10 Parameter Set	
- Repetition Length	Reference to clause 6.10 Parameter Set	
- Downlink DPCH timeslots and codes		
- Individual timeslot info		
- Timeslot number	The number of a downlink timeslot that has unassigned codes.	
- TFCI existence	TRUE	
- Midamble shift and burst type		
- CHOICE TDD option	3.84 Mcps	
- CHOICE Burst Type	Reference to clause 6.10 Parameter Set	
- Midamble Allocation Mode	Default	
- Midamble configuration	Set Kcell to lowest possible value given the number of codes defined in clause 6.10 Parameter Set	
- CHOICE TDD option	3.84 Mcps	
- First timeslot channelisation codes		
- CHOICE codes representation	Consecutive codes	
- First channelisation code	(i/SF) where i is the lowest numbered code that is being assigned and SF is specified in clause 6.10 Parameter Set.	
- Last channelisation code	(j/SF) where j is the highest numbered code that is being assigned in the slot as specified in clause 6.10 Parameter Set.	
- CHOICE more timeslots	The presence of this IE depends upon whether the requirements of clause 6.10 Parameter Set t could be met by the codes that have been assigned in the first timeslot.	
- UL CCTrCH TPC List	1	
- UL TPC TFCS Identity		
- TFCS ID	1	
- Shared channel indicator	False	
- DL CCTrCH List to Remove	Not Present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only
- E-AGCH Info	Not Present	Rel-6
- CHOICE E-HICH Information	Not Present	Rel-6
- CHOICE E-RGCH Information	Not Present	Rel-6

PHYSICAL CHANNEL RECONFIGURATION (Step 1) (7.68Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info		
- Choice mode	TDD	
- UARFCN (Nt)	Same downlink UARFCN as used for cell 2	
Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	TDD	
- CHOICE TDD option	7.68 Mcps	Rel-7
- Ack-Nack Power Offset	0dB	
- HS-SICH Power Control Info		
- UL SIR target	0dB	
- HS-SICH Constant Value	-10dB	
- $D_{hs-sync}$	Not present	
- HS-SCCH Set Configuration	4	
- Timeslot number	The timeslot in which HS-SCCH is to be configured	
- Channelisation code	CC32/x where x is a previously unassigned channelisation code in this TS	
- Midamble Allocation mode	Default	
- Midamble configuration	8	
- BLER target	-2.4 (note that this equates to a BLER target of 0.4%, log10(0.004) = -2.4)	
- HS-SICH configuration		
- Timeslot number	The timeslot in which HS-SICH is to be configured	
- Channelisation code	CC32/x where x is a previously unassigned channelisation code in this TS	
- Midamble Allocation mode	Default	
- Midamble configuration	8	
- Measurement Feedback Info	Not Present	
- CHOICE mode	TDD	
- CHOICE TDD option	7.68 Mcps TDD	Rel-7
- HS-PDSCH Timeslot Configuration VHCR		
- HS-PDSCH Timeslot Configuration List	Reference to clause 6.11.6 Parameter Set	
- Timeslot Number	The timeslot(s) in which HS-HS-DSCH is to be configured	
- CHOICE Burst Type	Reference to clause 6.11.6 Parameter Set	
- Midamble Allocation Mode	Default	
- Midamble configuration burst type 1 and 3	8	
Downlink information common for all radio links		
- CHOICE DPCH info	Downlink DPCH info common for all RL	
- Timing indication	Initialise	
- CFN-targetSFN frame offset	Not Present	
- Downlink DPCH power control information		
- CHOICE mode	TDD	
- TPC Step Size	1	
- MAC-d HFN initial value	Not Present	
- CHOICE mode	TDD	
- CHOICE mode	TDD	
- CHOICE TDD option	7.68 Mcps TDD	Rel-7
- Default DPCH Offset Value	Not Present	
- Mac-hs reset indicator	TRUE	
Downlink information per radio link list	1 radio link	
- Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- CHOICE TDD option	7.68 Mcps TDD	Rel-7
- CHOICE SyncCase	Sync Case 2	
- Timeslot	0	
- Cell parameters ID	Set to cell parameter ID of cell 2	
- SCTD indicator	FALSE	

Information Element	Value/remark	Version
- CHOICE DPCH info	Downlink DPCH info for each RL	Rel-6
- CHOICE mode	TDD	
- DL CCTrCH List	1 CCTrCh	
- TFCS ID	1	
- Activation time	Not Present	
- Duration	Not Present	
- Common timeslot info		
- 2nd interleaving mode	Reference to clause 6.11.6 Parameter Set	
- TFCI coding	Reference to clause 6.11.6 Parameter Set	
- Puncturing Limit	Reference to clause 6.11.6 Parameter Set	
- Repetition Period	Reference to clause 6.11.6 Parameter Set	
- Repetition Length	Reference to clause 6.11.6 Parameter Set	
- Downlink DPCH timeslots and codes VHCR		Rel-7
- Individual timeslot info		
- Timeslot number	The number of a downlink timeslot that has unassigned codes.	
- TFCI existence	TRUE	
- Midamble shift and burst type		
- CHOICE TDD option	7.68 Mcps	Rel-7
- CHOICE Burst Type	Reference to clause 6.11.6 Parameter Set	
- Midamble Allocation Mode	Default	
- Midamble configuration	Set Kcell to lowest possible value given the number of codes defined in clause 6.11.6 Parameter Set	
- CHOICE TDD option	7.68 Mcps	Rel-7
- First timeslot channelisation codes VHCR		Rel-7
- CHOICE codes representation	Consecutive codes	
- First channelisation code	(i/SF) where i is the lowest numbered code that is being assigned and SF is specified in clause 6.11.6 Parameter Set.	
- Last channelisation code	(j/SF) where j is the highest numbered code that is being assigned in the slot as specified in clause 6.11.6 Parameter Set.	
- CHOICE more timeslots	The presence of this IE depends upon whether the requirements of clause 6.11.6 Parameter Set t could be met by the codes that have been assigned in the first timeslot.	
- UL CCTrCH TPC List	1	
- UL TPC TFCS Identity		
- TFCS ID	1	
- Shared channel indicator	False	
- DL CCTrCH List to Remove	Not Present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only
- E-AGCH Info	Not Present	Rel-6
- CHOICE E-HICH Information	Not Present	Rel-6
- CHOICE E-RGCH Information	Not Present	Rel-6

8.2.6.46.5 Test requirements

After step 1, the UE shall revert to the old configuration and transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message.

8.2.6.47 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (Compressed mode initiation, with active HS-DSCH reception): Success

8.2.6.47.1 Definition

All UEs which support FDD, HS-PDSCH and compressed mode.

8.2.6.47.2 Conformance requirement

If the UE receives:

-a PHYSICAL CHANNEL RECONFIGURATION message;

it shall:

1> set the variable ORDERED_RECONFIGURATION to TRUE;

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS25.214;

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

…

1> enter a state according to TS25.331 subclause 8.6.3.3.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

If the IE "DPCH compressed mode info" is included, and if the IE group "transmission gap pattern sequence configuration parameters" is included, the UE shall:

2> at the time indicated by IE "TGCFN":

3> activate the stored pattern sequence corresponding to each IE "TGPSI" for which the "TGPS status flag" is set to "activate"; and

3> set the "Current TGPS Status Flag" for this pattern sequence in the variable TGPS_IDENTITY to "active".

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4, 8.6.6.15.

8.2.6.47.3 Test purpose

1. To confirm that the UE configures compressed mode according to a PHYSICAL CHANNEL RECONFIGURATION message during active HS-DSCH reception.
2. To confirm that the UE activates compressed mode according to the previously stored configuration when receiving a MEASUREMENT CONTROL message during active HS-DSCH reception.

8.2.6.47.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 is active and cell 6 is inactive

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH
- Compressed mode required yes/no

Test Procedure

Table 8.2.6.47

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-60	-70	-70	-60

Table 8.2.6.47 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

SS initiates P25 to make the UE move to state 6-17 as specified in TS34.108 clause7.4. The UE is in CELL_DCH state in cell 1 with active HS-DSCH reception and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.47. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, which includes the IE "DPCH compressed mode info" with the IE "TGPS Status Flag" set to "Deactivate". The UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

The SS switches its downlink transmission power setting according to columns "T1" in table 8.2.6.47, but the UE shall not transmit any MEASUREMENT REPORT messages.

The SS then sets up inter-frequency measurements (event 2b) and activates compressed mode, by sending a MEASUREMENT CONTROL message to the UE. The SS waits for 1s for the UE to activate compressed mode. The UE shall transmit MEASUREMENT REPORT message to report event 2b with the measured CPICH RSCP and Ec/No values for cell 6 to the SS.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message (Step 0)
1				The UE is in CELL_DCH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.47.
2	←		PHYSICAL CHANNEL RECONFIGURATION	The SS downloads compressed mode parameters without activating compressed mode.
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
4				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.6.47.
5	←		MEASUREMENT CONTROL	The SS configures inter-frequency measurements in the UE and activates compressed mode.
6	→		MEASUREMENT REPORT	The UE shall report event 2b with the measured CPICH RSCP and Ec/No values for cell 6.

Specific Message Contents

RADIO BEARER SETUP (Step 0)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.

PHYSICAL CHANNEL RECONFIGURATION (Step 2)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark	Version
Downlink HS-PDSCH Information		
- HS-SCCH Info	Not present	
- Measurement Feedback Info	Not present	
- CHOICE mode	FDD (no data)	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing Indication	Maintain	
- CFN-target SFN frame offset	Not Present	
- Downlink DPCH power control information		
- CHOICE Mode	FDD	
-DPC Mode	0 (Single)	
- CHOICE Mode	FDD	
- Power offset Pilot-DPDCH	0	
- DL rate matching restriction information	Not Present	
- Spreading factor	Refer to the parameter set in TS 34.108	
- Fixed or flexible position	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	FALSE	
- Number of bits for Pilot bits (SF=128, 256)	Not Present	
- CHOICE mode	FDD	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Deactivate	
- TGCFN	(Current CFN+(256 – TTI/10msec)) mod256	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not Present	
- TGD	Undefined	
- TGPL1	3	
- TGPL2	Not Present	R99 and REL-4 only
- RPP	mode 0	
- ITP	mode 0	
- CHOICE UL/DL Mode	UL and DL, UL only, or DL only, depending on UE capability	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	HLS	
- Downlink frame type	B	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not Present	
- DeltaSIRAfter2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
- TX Diversity Mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Not Present	
- MAC-hs reset indicator	Not Present	

MEASUREMENT CONTROL (Step 5)

Use the same message sub-type found in [9] TS 34.108 clause 9, with the following exceptions in the IE(s) concerned:

Information Element	Value/remark
Measurement Identity	15
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency measurement object list	
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	Remove all inter-frequency cells
- New inter-frequency cells	
- Inter-frequency cell id	6
- Frequency info	Set to the frequency of cell 6
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	0 chips
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 6
- Primary CPICH TX power	Not Present
- Primary CPICH TX power	
- TX Diversity Indicator	Not Present
- Cell for measurement	Not Present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- CHOICE Mode	FDD
- Measurement quantity for frequency quality estimate	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	TRUE
- COICE Mode	FDD
- CPICH Ec/No reporting indicator	TRUE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement validity	
- UE state	CELL_DCH
- Inter-frequency set update	On with no reporting
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each event	
- Inter-frequency event identity	2b
- Threshold used frequency	-65 dBm
- W used frequency	Not present
- Hysteresis	2 (1.0 dB)
- Time to trigger	100 ms
- Reporting cell status	
- CHOICH reported cell	Report cells within monitored and/or virtual active set on non-used frequency
- Maximum number of reported cells per reported non-used frequency	2
- Parameters required for each non-used frequency	
- Threshold non used frequency	-68 dBm
- W non-used frequency	0
DPCH compressed mode status info	
- TGPS reconfiguration CFN	(Current CFN + (100 – TTI/10msec))mod 256
- Transmission gap pattern sequence	
- TGPSI	1
- TGPS Status Flag	Activate

Information Element	Value/remark
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256

MEASUREMENT REPORT (Step 6)

The contents of MEASUREMENT REPORT message is the same as them found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Measurement Identity	Check to see if set to 15
Measured Results	
- CHOICE Measurement	
- Inter frequency measured results list	Check to see if set to "Inter-frequency measured results list"
- Inter frequency measurement results	
- Frequency info	Set to the frequency of cell 6
- UTRA carrier RSSI	Not checked
- Inter frequency cell measurement results	
- Cell measured results	
- Cell Identity	Not checked
- Cell synchronisation information	Not checked
- CHOICE Mode	FDD
- Primary CPICH Info	Not checked
- CPICH Ec/No	Check to see if it is present
- CPICH RSCP	Check to see if it is present
- Pathloss	Not checked
Measured Results on RACH	Not checked
Additional Measured results	Not checked
- Measured Result	
Event results	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	Check that the value of this IE is set to the frequency of cell 6
- Non freq related measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code of cell 6

8.2.6.47.5 Test requirement

After step 2 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 5 the UE shall transmit a MEASUREMENT REPORT message containing the IE "measured results" reporting cell 6's CPICH RSCP and Ec/No values, also report the triggering of event '2b' included in IE "Event results".

8.2.6.48 Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialized hard handover to another frequency, serving HS-DSCH cell change, compressed mode)

8.2.6.48.1 Definition and applicability

All UEs which support FDD, HS-PDSCH and compressed mode.

8.2.6.48.2 Conformance requirement

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

1> the procedure ends.

…

If IE "Timing indication" has the value "initialise", UE shall:

1> execute the Timing Re-initialised hard handover procedure by following the procedure indicated in the subclause relevant to the procedure chosen by the UTRAN.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

…

If the IE "New H-RNTI" is included, the UE shall:

1> if the IE "Downlink HS-PDSCH Information" is also included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> store the value in the variable H_RNTI.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

…

If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message, the UE shall:

1> if the IE "New H-RNTI" is included:

2> perform the actions as specified in subclause 8.6.3.1b of TS 25.331.

1> if the IE "HS-SCCH Info" is included:

2> act as specified in subclause 8.6.6.33 of TS 25.331

1> if the IE "Measurement Feedback Info" is included:

2> act as specified in subclause 8.6.6.34 of TS 25.331

1> For FDD, if, as a result of the received message, the variable H_RNTI is set and the UE has a stored IE "HS-SCCH Info" and a stored IE "Measurement Feedback Info"; and

1> For FDD, if the UE has received IE "Uplink DPCH Power Control Info" and stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor; and

1> For FDD, if the UE has stored IEs "MAC-hs queue to add or reconfigure list", "MAC-d PDU size Info" and "RB Mapping Info" corresponding to the HS-PDSCH configuration;

2> set the variable HS_DSCH_RECEPTION to TRUE;

2> start HS-DSCH reception procedures according to the stored HS-PDSCH configuration:

3> as stated in subclause 8.6.3.1b of TS 25.331 for the IE "H-RNTI";

3> in subclause 8.6.6.33 of TS 25.331 for the IE "HS-SCCH Info"; and

3> in subclause 8.6.6.34 of TS 25.331for the IE "Measurement Feedback Info".

…

If the IE "DPCH compressed mode info" is included, and if the IE group "transmission gap pattern sequence configuration parameters" is included, the UE shall:

2> at the time indicated by IE "TGCFN":

3> activate the stored pattern sequence corresponding to each IE "TGPSI" for which the "TGPS status flag" is set to "activate"; and

3> set the "Current TGPS Status Flag" for this pattern sequence in the variable TGPS_IDENTITY to "active".

Reference

3GPP TS 25.331 clauses 8.2.2, 8.3.5.1.2, 8.6.3.1, 8.6.3.1b, 8.6.6.4, 8.6.6.27, 8.6.6.32, 8.6.6.15

8.2.6.48.3 Test purpose

To confirm that the UE is able to perform a timing re-initialised hard handover to another frequency after compressed mode measurement on the target frequency in conjunction with a serving HS-DSCH cell change according to the received PHYSICAL CHANNEL RECONFIGURATION message.

8.2.6.48.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 on frequency f_1, and cell 6 on frequency f_2. Cells 1 and 6 have different primary scrambling codes.

UE: PS_DCCH_DTCH_HS_DSCH (state 6-17) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH
- Compressed mode required yes/no

Test Procedure

Table 8.2.6.48

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency (f_1)		High Range Test Frequency (f_2)	
CPICH Ec	dBm/3.84MHz	-60	-70	-70	-60

Table 8.2.6.48 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established in cell 1. The SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.48.

The SS configures then compressed mode (if required), to prepare the UE for inter-frequency measurements, by sending a PHYSICAL CHANNEL RECONFIGURATION message on DCCH using AM-RLC. The UE shall answer with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

The SS then sets up inter-frequency measurements (event 2b), by sending a MEASUREMENT CONTROL message to the UE. Compressed mode is started at the same time in that message (if required).

The SS then applies the power settings according to column “T1” in table 8.2.6.48. The UE transmits a MEASUREMENT REPORT message to the SS.

The SS then transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE ordering the UE to change to Cell 6 on frequency f_2. At the activation time the UE changes to Cell 6 keeping the HS-PDSCH configuration. Finally the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	The SS downloads the compressed mode parameters in the UE.
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE acknowledges the downloading of the compressed mode parameters.
3	←		MEASUREMENT CONTROL	The SS configures inter-frequency measurements in the UE, and activates compressed mode.
4				The SS changes the power of the cells according to column T1 in table 8.2.6.48.
5	→		MEASUREMENT REPORT	Frequency f_2 triggers event 2b in the UE, which sends a MEASUREMENT REPORT message to the SS.
6	←		PHYSICAL CHANNEL RECONFIGURATION	The SS instructs the UE to change to Cell 6.
7	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
8	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 1)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/Remark	Version
Downlink HS-PDSCH Information		
- HS-SCCH Info	Not present	
- Measurement Feedback Info	Not present	
- CHOICE mode	FDD (no data)	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL	Not Present	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not Present	
- TGD	undefined	
- TGPL1	3	
- TGPL2	Not Present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
- CHOICE UL/DL Mode	UL and DL, UL only or DL only (depending on the UE capability)	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	HLS	
- Downlink frame type	B	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not Present	
- DeltaSIRAfter2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
- TX Diversity mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Not Present	
Downlink information for each radio link	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.	

MEASUREMENT CONTROL (Step 3)

Information Element	Value/Remark
Measurement Identity	2
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency info list	1 inter-frequency cell
- Inter-frequency cell id	6
- Frequency info	Set to the frequency of cell 6
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Scrambling code of cell 6
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cells for measurement	Not present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- Measurement quantity for frequency quality estimate	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- SFN-SFN observed time difference reporting indicator	No report
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	TRUE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement validity	
- UE State	CELL_DCH
- Inter-frequency set update	
- UE autonomous update	On with no reporting
- Non autonomous update mode	Not present
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each event	
- Inter-frequency event identity	2b
- Threshold used frequency	-65 dBm
- W used frequency	0 (0.0)
- Hysteresis	2 (1.0 dB)
- Time to trigger	100 ms
- Reporting cell status	Report cells within monitored and/or virtual active set on non-used frequency
- Maximum number of reported cells per reported non-used frequency	2
- Parameters required for each non-used frequency	
- Threshold non used frequency	-68 dBm
- W non-used frequency	0
DPCH compressed mode status info	
- TGPS reconfiguration CFN	((Current CFN + (256 – TTI/10msec))mod 256
- Transmission gap pattern sequence	
- TGPSI	1

Information Element	Value/Remark
- TGPS Status Flag	Activate
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256

MEASUREMENT REPORT (Step 5)

Information Element	Value/Remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	2
Measured Results	
- Inter-frequency measured results list	
- Frequency info	Check that the value of this IE is set to the frequency of cell 6
- UTRA carrier RSSI	Check that this IE is absent
- Inter-frequency cell measurement results	Check that the value of this IE is set to 1 cell reported
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code of cell 6
- CPICH Ec/N0	Check that this IE is present
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	Check that the value of this IE is set to the frequency of cell 6
- Non freq related measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code of cell 6

PHYSICAL CHANNEL RECONFIGURATION (Step 6)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info	Set to the frequency of cell 6	
Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code		
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- POhsdsch	6 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	0	
- Downlink DPCH power control information	Not Present	
- Downlink rate matching restriction information	Not Present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Fixed or flexible position	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set	
- DPCH compressed mode info	Not present	
- TX Diversity mode	Not Present	
- SSDT information	Not Present	
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
- MAC-hs reset indicator	TRUE	
Downlink information per radio link list	1 radio link	
Downlink information for each radio link		
- CHOICE mode	FDD	
- Primary CPICH info	Set to the scrambling code for cell 6	
- Cell ID	Not present	
- Serving HS-DSCH radio link indicator	TRUE	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not present	
- DL channelisation code	Reference to TS34.108 clause 6.10 Parameter Set	
- Secondary scrambling code	5	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	Any value between 0 and Spreading factor-1	
- Scrambling code change	NoCodeChange	
- TPC combination index	0	
- SSDT cell identity	Not present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not present	

8.2.6.48.5 Test requirements

After step 1, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

After step 4, the UE shall transmit a MEASUREMENT REPORT message with cell 6 as the reported cell.

After step 6, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message in cell 6.

8.2.6.48a Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialized hard handover to another frequency, serving HS-DSCH cell change, with measurement report) for 3.84 Mcps TDD

8.2.6.48a.1 Definition and applicability

All UEs which support TDD and HS-PDSCH.

8.2.6.48a.2 Conformance requirement

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

If IE "Timing indication" has the value "initialise", UE shall:

1> execute the Timing Re-initialised hard handover procedure by following the procedure indicated in the subclause relevant to the procedure chosen by the UTRAN.

…

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration in 3.84 Mcps TDD caused by the received message:

3> start using, at activation time T, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

…

If the IE "New H-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the value in the variable H_RNTI;

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

…

Reference

3GPP TS 25.331 clauses 8.2.2, 8.3.5.1.2, 8.6.3.1, 8.6.3.1b, 8.6.6.4, 8.6.6.27.

8.2.6.48a.3 Test purpose

To confirm that the UE is able to perform a timing re-initialised hard handover to another frequency after measurement on the target frequency according to the received PHYSICAL CHANNEL RECONFIGURATION message.

8.2.6.48a.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 on frequency f_1, and cell 6 on frequency f_2. Cells 1 and 6 have different primary scrambling codes.

UE: PS_DCCH_DTCH_HS_DSCH (state 6-17) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports TDD
- UE supports HS-PDSCH

Test Procedure

Table 8.2.6.48a

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency (f_1)		High Range Test Frequency (f_2)	
PCCPCH RSCP	dBm/3.84MHz	-60	-70	-70	-60

Table 8.2.6.48a illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established in cell 1. The SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.48a.

The SS then sets up inter-frequency measurements (event 2b), by sending a MEASUREMENT CONTROL message to the UE.

The SS then applies the power settings according to column “T1” in table 8.2.6.48a. The UE transmits a MEASUREMENT REPORT message to the SS.

The SS then transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE ordering the UE to change to Cell 6 on frequency f_2. At the activation time the UE changes to Cell 6 keeping the HS-PDSCH configuration. Finally the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		MEASUREMENT CONTROL	The SS configures inter-frequency measurements in the UE, and activates compressed mode.
2				The SS changes the power of the cells according to column T1 in table 8.2.6.48a.
3	→		MEASUREMENT REPORT	Frequency f_2 triggers event 2b in the UE, which sends a MEASUREMENT REPORT message to the SS.
4	←		PHYSICAL CHANNEL RECONFIGURATION	The SS instructs the UE to change to Cell 6.
5	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
6	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

MEASUREMENT CONTROL (Step 1)

Information Element	Value/Remark
Measurement Identity	2
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency info list	1 inter-frequency cell
- Inter-frequency cell id	6
- Frequency info	Set to the frequency of cell 6
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- CHOICE SyncCase	Sync Case 2
- Timeslot	0
- Cell parameters ID	Cell parameter ID of cell 6.
- SCTD indicator	FALSE
- Primary CCPCH TX power	Not present
- Timeslot list	Not present
- Cells for measurement	Not present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- CHOICE mode	TDD
- Measurement quantity for frequency quality estimate	Primary CCPCH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- SFN-SFN observed time difference reporting indicator	No report
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CHOCE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- Primary CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement validity	
- UE State	CELL_DCH
- Inter-frequency set update	Not present
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each event	
- Inter-frequency event identity	2b
- Threshold used frequency	-65 dBm
- $Delta_{Threshold\ used\ frequency}$	Not Present
- W used frequency	0.0
- Hysteresis	1.0 dB
- Time to trigger	100 ms
- Reporting cell status	Report cells within monitored set on non-used frequency
- Maximum number of reported cells per reported non-used frequency	2

Information Element	Value/Remark
- Parameters required for each non-used frequency	
- Threshold non used frequency	-65 dBm
- $Delta_{Threshold\ non\ used\ frequency}$	Not Present
- W non-used frequency	0
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 3)

Information Element	Value/Remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	2
Measured Results	
- Inter-frequency measured results list	
- Frequency info	Check that the value of this IE is set to the frequency of cell 6
- UTRA carrier RSSI	Check that this IE is absent
- Inter-frequency cell measurement results	Check that the value of this IE is set to 1 cell reported
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Check that the value of this IE is set to cell parameter ID of cell 6
- Proposed TGSN	Check that this IE is absent
- Primary CCPCH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
- Timeslot list	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	Check that the value of this IE is set to the frequency of cell 6
- Non freq related measurement event results	
- CHOICE mode	TDD
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- SyncCase	Not Present
- Cell Parameter ID	Check that the value of this IE is set to cell parameter ID of cell 6
- SCTD indicator	FALSE

PHYSICAL CHANNEL RECONFIGURATION (Step 4)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info		
- Choice mode	TDD	
- UARFCN (Nt)	Same downlink UARFCN as used for cell 2	
Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	TDD	
- CHOICE TDD option	3.84 Mcps	
- Ack-Nack Power Offset	0dB	
- HS-SICH Power Control Info		
- UL SIR target	0dB	
- HS-SICH Constant Value	-10dB	
- $D_{hs-sync}$	Not present	
- HS-SCCH Set Configuration	4	
- Timeslot number	The timeslot in which HS-SCCH is to be configured	
- Channelisation code	CC16/x where x is a previously unassigned channelisation code in this TS	
- Midamble Allocation mode	Default	
- Midamble configuration	8	
- BLER target	-2.4 (note that this equates to a BLER target of 0.4%, log10(0.004) = -2.4)	
- HS-SICH configuration		
- Timeslot number	The timeslot in which HS-SICH is to be configured	
- Channelisation code	CC16/x where x is a previously unassigned channelisation code in this TS	
- Midamble Allocation mode	Default	
- Midamble configuration	8	
- Measurement Feedback Info	Not Present	
- CHOICE mode	TDD	
- CHOICE TDD option	3.84 Mcps TDD	
- HS-PDSCH Timeslot Configuration		
- HS-PDSCH Timeslot Configuration List	Reference to clause 6.10 Parameter Set	
- Timeslot Number	The timeslot(s) in which HS-HS-DSCH is to be configured	
- CHOICE Burst Type	Reference to clause 6.10 Parameter Set	
- Midamble Allocation Mode	Default	
- Midamble configuration burst type 1 and 3	8	
Downlink information common for all radio links		
- CHOICE DPCH info	Downlink DPCH info common for all RL	
- Timing indication	Initialise	
- CFN-targetSFN frame offset	Not Present	
- Downlink DPCH power control information		
- CHOICE mode	TDD	
- TPC Step Size	1	
- MAC-d HFN initial value	Not Present	
- CHOICE mode	TDD	
- CHOICE mode	TDD	
- CHOICE TDD option	3.84 Mcps TDD	
- Default DPCH Offset Value	Not Present	
- Mac-hs reset indicator	TRUE	
Downlink information per radio link list	1 radio link	
- Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- CHOICE TDD option	3.84 Mcps TDD	
- CHOICE SyncCase	Sync Case 2	
- Timeslot	0	
- Cell parameters ID	Set to cell parameter ID of cell2	
- SCTD indicator	FALSE	

Information Element	Value/remark	Version
- CHOICE DPCH info	Downlink DPCH info for each RL	Rel-6
- CHOICE mode	TDD	
- DL CCTrCH List	1 CCTrCh	
- TFCS ID	1	
- Activation time	Not Present	
- Duration	Not Present	
- Common timeslot info		
- 2nd interleaving mode	Reference to clause 6.10 Parameter Set	
- TFCI coding	Reference to clause 6.10 Parameter Set	
- Puncturing Limit	Reference to clause 6.10 Parameter Set	
- Repetition Period	Reference to clause 6.10 Parameter Set	
- Repetition Length	Reference to clause 6.10 Parameter Set	
- Downlink DPCH timeslots and codes		
- Individual timeslot info		
- Timeslot number	The number of a downlink timeslot that has unassigned codes.	
- TFCI existence	TRUE	
- Midamble shift and burst type		
- CHOICE TDD option	3.84 Mcps	
- CHOICE Burst Type	Reference to clause 6.10 Parameter Set	
- Midamble Allocation Mode	Default	
- Midamble configuration	Set Kcell to lowest possible value given the number of codes defined in clause 6.10 Parameter Set	
- CHOICE TDD option	3.84 Mcps	
- First timeslot channelisation codes		
- CHOICE codes representation	Consecutive codes	
- First channelisation code	(i/SF) where i is the lowest numbered code that is being assigned and SF is specified in clause 6.10 Parameter Set.	
- Last channelisation code	(j/SF) where j is the highest numbered code that is being assigned in the slot as specified in clause 6.10 Parameter Set.	
- CHOICE more timeslots	The presence of this IE depends upon whether the requirements of clause 6.10 Parameter Set t could be met by the codes that have been assigned in the first timeslot.	
- UL CCTrCH TPC List	1	
- UL TPC TFCS Identity		
- TFCS ID	1	
- Shared channel indicator	False	
- DL CCTrCH List to Remove	Not Present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only
- E-AGCH Info	Not Present	Rel-6
- CHOICE E-HICH Information	Not Present	Rel-6
- CHOICE E-RGCH Information	Not Present	Rel-6

8.2.6.48a.5 Test requirements

After step 2, the UE shall transmit a MEASUREMENT REPORT message with cell 6 as the reported cell.

After step 4, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message in cell 6.

8.2.6.49 Physical Channel Reconfiguration from CELL_DCH to URA_PCH: Success (stop of HS-DSCH reception)

8.2.6.49.1 Definition and applicability

All UEs which support FDD or TDD and HS-PDSCH.

8.2.6.49.2 Conformance requirement

If the UE receives:

- a PHYSICAL CHANNEL RECONFIGURATION message; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214;

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

If after state transition the UE enters URA_PCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS 25.304 on that frequency.

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in TS 25.331 subclause 8.6.3.2.

1> if the IE "UTRAN DRX cycle length coefficient" is not included in the same message:

2> set the variable INVALID_CONFIGURATION to TRUE.

…

The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

If the new state is URA_PCH, the response message shall be transmitted using the old configuration before the state transition, but the new C-RNTI shall be used if the IE "New C-RNTI" was included in the received reconfiguration message, and the UE shall:

1> when RLC has confirmed the successful transmission of the response message:

…

2> enter the new state (URA_PCH);

…

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RB's mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4, 8.2.5.25.

8.2.6.49.3 Test purpose

To confirm that the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and enter URA_PCH state after it received a PHYSICAL CHANNEL RECONFIGURATION message, which invokes the UE to transit from CELL_DCH with active HS-DSCH reception to URA_PCH.

8.2.6.49.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS_DCCH_DTCH_HS_DSCH (state 6-17) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH

Test Procedure

The UE is in the CELL_DCH state and has a radio bearer mapped on HS-DSCH established with active HS-DSCH reception. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, which invoke the UE to transit from CELL_DCH to URA_PCH. The UE stops HS-DSCH reception, transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC and enters URA_PCH state. SS calls for generic procedure C.5 to check that UE is in URA_PCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE sends this message before it completes state transition.
3				SS sends the L2 ack on the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and then waits 5 seconds to allow the UE to read system information before the next step. Note: The SS should continue to keep the dedicated channel configuration during the time when the L2 ack is sent to the UE.
4	←→		CALL C.5	If the test result of C.5 indicates that UE is in URA_PCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 1)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in TS 34.108 with following exceptions:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	URA_PCH
UTRAN DRX cycle length coefficient	3

8.2.6.49.5 Test requirement

After step 1 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

8.2.6.50 Physical Channel Reconfiguration for transition from CELL_DCH to URA_PCH: Success (frequency modification, stop of E-DCH transmission)

8.2.6.50.1 Definition

All UEs which support FDD or TDD, HS-PDSCH and E-DPDCH or E-PUCH.

8.2.6.50.2 Conformance requirement

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable E_DCH_TRANSMISSION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable E_RNTI includes the Primary E-RNTI or the Secondary E-RNTI or both the the Primary E-RNTI and the Secondary E-RNTI is set;

1> For FDD:

2> the UE has stored the following IEs:

- IE "E-DCH Transmission Time Interval";
- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-DPCCH info" and the IE "E-DPDCH info".
- one of the radio links in the active set is configured as the serving E-DCH radio link, and for this radio link the UTRAN has configured the IE "E-HICH configuration" and the IE "E-AGCH info".

1> For TDD:

2> for non-scheduled transmission, the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-PUCH info";
- IE "Non-scheduled transmission grant info".

2> for scheduled transmission, the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-RUCCH info" and the IE "E-PUCH info";
- IE "E-HICH info";
- IE "E-AGCH info".

1> there is at least one logical channel mapped to E-DCH for which:

2> the corresponding E-DCH MAC-d flow is configured, i.e. the IEs "E-DCH MAC-d flow power offset" and "E-DCH MAC-d flow maximum number of retransmissions", and the transmission grant type are configured.

If any of the above conditions is not met and the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> set the variable E_DCH_TRANSMISSION to FALSE;

1> For FDD:

2> stop any E-RGCH reception procedures;

1> For FDD

2> stop any E-DPCCH and E-DPDCH transmission procedures;

1> For TDD:

2> stop any E-RUCCH and E-PUCH transmission procedures.

1> clear the variable E_RNTI;

1> release all E-DCH HARQ resources;

1> no longer consider any radio link to be the serving E-DCH radio link.

Whenever the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> not perform E-AICH, E-HICH and E-RGCH reception procedures;

1> not perform E-DPCCH, E-DPDCH, E-RUCCH and/or E-PUCH transmission procedures.

…

If after state transition the UE leaves CELL_DCH state, the UE shall, after the state transition:

1> clear any stored IE "Downlink HS-PDSCH information";

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25;

1> clear any stored IE "E-DCH information";

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.5.28.

8.2.6.50.3 Test purpose

To confirm that the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC;

To confirm that the UE transits from CELL_DCH with active E-DCH transmission and HS-HSCH reception to URA_PCH state on a different frequency after it received a PHYSICAL CHANNEL RECONFIGURATION message;

To confirm that the UE releases the dedicated physical channel and select a common physical channel on a different frequency.

8.2.6.50.4 Method of test

Initial Condition

System Simulator: 2 cells– Cell 1 and cell 6 are active.

UE: PS-DCCH +DTCH_HS-DSCH +DTCH_E-DCH (state 6-18) under condition A12 in cell 1 as specified in clause 7.4 of TS 34.108

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports E-DPDCH(FDD only) or E-PUCH (TDD only)

Test Procedure

Table 8.2.6.50

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-60	-70	-70	-60
P-CCPCH RSCP (TDD)	dBm	-60	-70	-70	-60

Table 8.2.6.50 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

SS has configured its downlink transmission power setting according to columns “T0” in table 8.2.6.50. The UE is in state 6-18 under condition A12 as specified in TS34.108 clause 7.4 in cell 1 and has a radio bearer mapped on E-DCH and HS-DSCH established with active E-DCH transmission and HS-DSCH reception.

The SS switches its downlink transmission power settings to columns "T1" and transmits a PHYSICAL CHANNEL RECONFIGURATION message, which invokes the UE to transit from CELL_DCH to URA_PCH. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC and enters URA_PCH state, selects cell 6. Upon completion of the procedure, the SS calls for generic procedure C.5 to check that UE is in URA_PCH state.

NOTE: If the UE fails the test because of a failure to select to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_DCH state in cell 1 and the SS switches its downlink transmission power settings to columns "T1" in table 8.2.6.50
2	←		PHYSICAL CHANNEL RECONFIGURATION	
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE transmit this message in cell 1.
4				SS sends the L2 ack on the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and then waits 5 seconds to allow the UE to read system information before the next step. Note: The SS should continue to keep the dedicated channel configuration during the time when the L2 ack is sent to the UE.
5	←→		CALL C.5	If the test result of C.5 indicates that UE is in URA_PCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 2) (FDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in TS 34.108 with following exceptions:

Information Element	Value/remark
RRC State Indicator	URA_PCH
UTRAN DRX cycle length coefficient	3
Frequency info - CHOICE mode - UARFCN uplink (Nu) - UARFCN downlink (Nd)	 FDD Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [11] Set to the frequency of cell 6
Downlink information for each radio link - Primary CPICH Info - Primary scrambling code	 Set to same code as used for cell 6

PHYSICAL CHANNEL RECONFIGURATION (Step 2)(1.28Mcps TDD)

Information Element	Value/remark
RRC State Indicator	URA_PCH
UTRAN DRX cycle length coefficient	3
Frequency info - CHOICE mode - UARFCN (Nt)	 TDD Same UARFCN as used for cell 6
Downlink information for each radio link - Choice mode - Primary CCPCH info - Choice mode - Choice TDD Option - TSTD indicator - Cell parameters ID - SCTD indicator	 TDD TDD 1.28Mcps TDD FALSE Reference TS34.108 clause 6.1 for CELL 6 (TDD) FALSE

PHYSICAL CHANNEL RECONFIGURATION (Step 2) (3.84Mcps TDD and 7.68Mcps TDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in TS 34.108 with following exceptions:

Information Element	**Value/remark**
RRC State Indicator	URA_PCH
UTRAN DRX cycle length coefficient	3
Frequency info - CHOICE mode - UARFCN (Nt)	 TDD Set to the frequency of cell 6
Downlink information for each radio link - Choice Mode - Primary CCPCH info - Cell parameters ID	 TDD Set to the same as used for cell 6

8.2.6.50.5 Test requirement

After step 2 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC in cell 1.

After step 3 the UE shall be in URA_PCH state in cell 6.

8.2.6.51 Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (serving E-DCH cell change)

8.2.6.51.1 Definition and applicability

All UEs which support FDD or TDD and HS-PDSCH and E-DPDCH or E-PUCH.

8.2.6.51.2 Conformance requirement

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable E_DCH_TRANSMISSION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable E_RNTI includes either the Primary E-RNTI or the Secondary E-RNTI or both the Primary and the Secondary E-RNTI;

1> For FDD:

2> the UE has stored the following IEs:

- IE "E-DCH Transmission Time Interval";
- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-DPCCH info" and the IE "E-DPDCH info".
- one of the radio links in the active set is configured as the serving E-DCH radio link, and for this radio link the UTRAN has configured the IE "E-HICH configuration" and the IE "E-AGCH info".

1> For TDD:

2> for non-scheduled transmission, the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-PUCH info";
- IE "Non-scheduled transmission grant info".

2> for scheduled transmission, the UE has stored the following IEs:

- IE "HARQ info for E-DCH";
- IE "E-DCH information", including the IE "E-RUCCH info" and the IE "E-PUCH info";
- IE "E-HICH info";
- IE "E-AGCH info".

1> there is at least one logical channel mapped to E-DCH for which:

2> the corresponding E-DCH MAC-d flow is configured, i.e. the IEs "E-DCH MAC-d flow power offset" and "E-DCH MAC-d flow maximum number of retransmissions", and the transmission grant type are configured.

If any of the above conditions is not met and the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> set the variable E_DCH_TRANSMISSION to FALSE;

1> stop any E-AGCH and E-HICH reception procedures;

For FDD:

2> stop any E-RGCH reception procedures;

1> For FDD:

2> stop any E-DPCCH and E-DPDCH transmission procedures;

1> For TDD:

2> stop any E-RUCCH and E-PUCH transmission procedures.

1> clear the variable E_RNTI;

1> act as if the IE "MAC-es/e reset indicator" was received and set to TRUE;

1> release all E-DCH HARQ resources;

1> no longer consider any radio link to be the serving E-DCH radio link.

Whenever the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1>For FDD:

2> perform E_AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI" and the IE "New Secondary E-RNTI".

2> perform E-HICH reception procedures for all radio links in the E-DCH active set;

3> perform E-RGCH reception procedures for all radio links in the active set for which an E-RGCH configuration has been provided;

2> perform E-DPCCH transmission procedures according to the stored E-DPCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-DPCCH Info";

2> perform E-DPDCH transmission procedures according to the stored E-DPDCH configuration as stated in:

3> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

3> subclause 8.6.5.17 for the IE "HARQ info for E-DCH".

3> subclause 8.6.6.37 for the IE "E-DPDCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

1>For TDD:

2> if scheduled transmission is configured, perform E-AGCH reception procedures according to the stored E_AGCH configureation as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI".

2> Perform E-HICH reception;

2> for 3.84/7.68 Mcps TDD, perform E-RUCCH transmission procedures according to the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

2> for 1.28 Mcps TDD, if scheduled transmission is configured, perform E-RUCCH transmission procedure according to the stored PRACH configuration (see [60]) and the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

NOTE 1: The PRACH configuration is signalled directly to the UE in "E-RUCCH Info" IE in case of E-DCH serving cell change.

2> Perform E-PUCH transmission procedures according to the stored E-PUCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-PUCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

2> obtain and format the appropriate information on E-UCCH (see [15]). For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, the UE shall use the lowest E-DCH capability category, as specified in [35], to signal the UL control information on E-UCCH.

NOTE 2: For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, UTRAN should use the lowest E-DCH capability category when performing configuration, scheduling and reading the control information on E-UCCH, as it is not possible for Node B to be aware of the UE's E-DCH capability category during this period.

Whenever the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> not perform E-AGCH, E-HICH and E-RGCH reception procedures;

1> not perform E-DPCCH and E-DPDCH transmission procedures.

…

If the IE "New Primary E-RNTI" and/or the IE "New Secondary E-RNTI" are/is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the new value(s) in the variable E_RNTI;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

If, after the completion of this procedure, the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> clear the variable E-RNTI.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> use the value of the Primary E-RNTI and/or Secondary E-RNTI stored in the variable E_RNTI as UE identities in the E-AGCH reception procedure in the physical layer.

1> for TDD:

2> use the value of New Primary E-RNTI stored in the variable E_RNTI as the UE identity in the E-AGCH reception procedure and the E-RUCCH transmission procedure in the physical layer.

…

If the IE "Added or Reconfigured UL TrCH information" is included and E-DCH is included and there is more than one MAC-d flow carried on E-DCH then the UE shall:

1> if any occurrence of the IE E-DCH Transmission Time Interval and, if present, the field HARQ info for E-DCH (IE HARQ RV Configuration):

2> for FDD:

3> apply the values of any occurrence for IE E-DCH Transmission Time Interval and, if present, the field HARQ info to all E-DCH MAC-d flows.

2> for TDD:

3> apply the value of the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

NOTE: The IE "Added or Reconfigured DL TrCH information" is iterated for each added or reconfigured MAC-d flow carried on E-DCH.

1> if the choice "UL parameters" is set to 'E-DCH':

2> for FDD:

3> apply the values of the IE "E-DCH Transmission Time Interval" and the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

2> for TDD:

3> apply the value of the IE "HARQ info for E-DCH" to all E-DCH MAC-d flows.

2> for the IE "HARQ Info for E-DCH":

3> perform the actions specified in subclause 8.6.5.17.

2> if the IE "Added or Reconfigured E-DCH MAC-d Flow list " is included:

3> for each MAC-d flow identified by the IE "Mac-d flow identity":

4> perform the actions as specified in subclause 8.6.5.18.

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

NOTE: In case of multiple E-DCH MAC-d flows, IE "Added or Reconfigured UL TrCH information" is only included once. If the IE "Added or Reconfigured UL TrCH information" is included more than once with the IE "Uplink transport channel type" set to 'E-DCH', the UE behaviour is unspecified.

…

If the IE "E-DCH Transmission Time Interval" is included, the UE shall:

1> store the received TTI;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> apply the TTI as signalled in the IE "E-DCH Transmission Time Interval" on the E-DPDCH.

…

If the IE "HARQ Info for E-DCH" is included, the UE shall:

1> store the received configuration;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> use a redundancy version for each HARQ transmission as configured by the IE "HARQ RV Configuration".

…

If the IE "Added or reconfigured E-DCH MAC-d flow" is included, the UE shall:

1> if the IE "E-DCH MAC-d flow power offset" is included:

2> configure the power offset indicated in the IE "E-DCH MAC-d flow power offset" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow maximum number of retransmissions" is included:

2> configure the maximum number of retransmissions indicated in the IE "E-DCH MAC-d flow maximum number of retransmissions" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> for 1.28 Mcps TDD, if the IE "E-DCH MAC-d flow retransmission timer" is included:

2> configure the retransmission timer for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow multiplexing list" is included:

2> only multiplex MAC-d PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed in accordance to the IE "E-DCH MAC-d flow multiplexing list".

1> else:

2> if previously the IE "E-DCH MAC-d flow multiplexing list" was already received for this E-DCH MAC-d flow:

3> continue to only multiplex E-DCH PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed according to the previously received IE "E-DCH MAC-d flow multiplexing list".

2> else (never received the IE "E-DCH MAC-d flow multiplexing list" for this E-DCH MAC-d flow):

3> allow multiplexing of MAC-d PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from any other E-DCH MAC-d flow in the same MAC-e PDU.

1> for FDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> if the TTI configured on the E-DCH equals 2ms, and the IE "2ms non-scheduled grant HARQ process allocation" is configured for this MAC-d flow:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e or MAC-i PDU transmitted by HARQ processes allowed by the IE "2ms non-scheduled transmission grant HARQ process allocation", with a total contribution from this MAC-d flow (i.e. including MAC-e/es or MAC-i/is headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

3> else:

4> MAC-d PDU's for logical channels belonging to this MAC-d flow shall be included in a MAC-e or MAC-i PDU transmitted by any HARQ process, with a total contribution from this MAC-d flow (i.e. including MAC-e/es or MAC-i/is headers) not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDU's for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH/E-RGCH (see [15]).

1> for TDD:

2> if the IE "Non-scheduled transmission grant info" is included:

3> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e PDU transmitted by HARQ processes designated as non scheduled (Ids 4 – 7) in the TTIs indicated (for 3.84 Mcps TDD and 7.68 Mcps TDD, as determined from the IEs "Activation Time", "Resource Duration" and "Resource Periodicity"; for 1.28 Mcps TDD, as determined from the IEs "Activation Time", "Subframe number", "Resource Duration" and "Resource Periodicity", and the calculation of assigned non-scheduled transmission grant is specified in subclause 8.6.6.16a).

2> if the IE "Scheduled transmission grant info" is included:

3> transmission of MAC-d PDUs for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH (see [15]).

1> perform the actions as specified in subclause 8.5.21;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

1> if the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> if the UE is in TDD mode and shared transport channels are assigned to the UE:

3> start to receive the indicated Secondary CCPCH.

2> if the UE is in TDD mode and no shared transport channels are assigned to the UE:

3> set the variable UNSUPPORTED_CONFIGURATION to TRUE.

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link and no longer consider any other radio link as serving HS-DSCH radio link.

2> For FDD:

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link and no longer consider any other radio link as serving E-DCH radio link.

3> if the IE "E-AGCH Info" is included for the serving E-DCH radio link:

4> store the newly received E-AGCH configuration.

NOTE: The UTRAN should always include the IE "E-AGCH info" if the serving E-DCH radio link indicated in the message is another radio link than the serving E-DCH radio link prior to the procedure.

3> if the IE "E-HICH information" is included:

4> store this E-HICH configuration for the concerning radio link.

3> if the IE "E-RGCH information" is included:

4> store this E-RGCH configuration for the concerning radio link.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> for TDD:

3> if the IE "E-AGCH Info" is included:

4> store the newly received E-AGCH configuration.

3> if the IE "E-HICH information" is included:

4> store the E-HICH configuration.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> act on the other IEs contained in the IE "Downlink information for each radio link" as specified in subclause 8.6 applied on this radio link.

1> in addition, if the message was received in CELL_DCH state and the UE remains in CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> For FDD:

3> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving HS-DSCH radio link;

4> if the serving HS-DSCH radio link was another radio link than this radio link prior to reception of the message and the IE "H-RNTI" is not included:

5> clear the variable H_RNTI.

3> if the IE "Serving HS-DSCH radio link indicator" is set to ‘FALSE’ and this radio link was considered the serving HS-DSCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving HS-DSCH radio link.

3> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

3> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

4> consider this radio link as the serving E-DCH radio link;

4> if the serving E-DCH radio link was another radio link than this radio link prior to reception of the message:

5> if the IE "New Primary E-RNTI" is not included:

6> clear the Primary E-RNTI stored in the variable E_RNTI.

5> if the IE "New Secondary E-RNTI" is not included:

6> clear the Secondary E-RNTI stored in the variable E_RNTI.

3> if the IE "Serving E-DCH radio link indicator" is set to ‘FALSE’ and this radio link was considered the serving E-DCH radio link prior to reception of this message:

4> no longer consider this radio link as the serving E-DCH radio link.

3> if the IE "E-HICH release indicator" is present:

4> delete the stored E-HICH, E-AGCH and E-RGCH (if any) configurations.

3> if the IE "E-RGCH release indicator" is present:

4> delete the stored E-RGCH configuration for this RL.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28;

2> For TDD:

3> if the IE "H-RNTI" is not included and the primary CCPCH has changed:

4> clear the variable H_RNTI.

3> determine the value for the HS-DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

2> for TDD:

3> if the IE "New Primary E-RNTI" is not included:

4> clear the variable E_RNTI.

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> for each optional IE part of the IE "Downlink information for each radio link" that is not present:

3> do not change its current downlink physical channel configuration corresponding to the IE, which is absent, if not stated otherwise elsewhere.

…

If the IE "E-DCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> for FDD:

2> if the IE "E-DPCCH Info" is included:

3> store the newly received E-DPCCH configuration.

2> if the IE "E-DPDCH Info" is included:

3> store the newly received E-DPDCH configuration.

2> if the IE "UL 16QAM settings" is not included:

3> indicate to lower layers to stop any operation in 16QAM mode.

1> for 3.84/7.68 Mcps TDD:

2> if the IE "E-RUCCH Info" is included:

3> store the newly received E-RUCCH configuration.

2> if the IE "E-PUCH Info" is included:

NOTE 1: The UTRAN should ensure the ordering of the E-TFCI table in strictly increasing order of transmission power prior to quantization, by correct setting of the reference E-TFCI power offsets otherwise the UE behaviour is unspecified.

NOTE 2: If a reference E-TFCI signalled to the UE is outside the UE physical channel capability, the UE behaviour is unspecified.

NOTE 2a: If E-TFCI boost is signalled to the UE and a reference E-TFCI <= E-TFCI Boost is signalled to the UE with a Reference E-TFCI PO of value 30 or 31, the UE behaviour is unspecified.

1> if the IE "MAC-es/e reset indicator" is included:

2> reset the MAC-es/e or MAC-i/is entity [15].

NOTE 3: If the IE "MAC-es/e reset indicator" is not set to TRUE in case the IE "E-DCH Transmission Time Interval" is reconfigured, the UE behaviour is unspecified.

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> configure the UL E-DPCCH in accordance with the stored IE "E-DPCCH" configuration;

2> configure the MAC with the stored IE "E-DPDCH" configuration and/or the information contained in IE "Scheduled Transmission configuration".

1> for TDD:

2> configure the E-RUCCH with the stored E-RUCCH configuration;

2> configure the MAC with the stored E-PUCH configuration.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.28, 8.6.3.14, 8.6.5.5, 8.6.5.16, 8.6.5.17, 8.6.5.18, 8.6.6.4, 8.6.6.37

8.2.6.51.3 Test purpose

To confirm that the UE changes the serving E-DCH cell according to the received PHYSICAL CHANNEL RECONFIGURATION message.

8.2.6.51.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and 2 are active

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A13, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports E-DPDCH (FDD only) or E-PUCH (TDD only)

Test Procedure

Table 8.2.6.51

Parameter	Unit	Cell 1				Cell 2			
		T0	T1	T2	T3	T0	T1	T2	T3
UTRA RF Channel Number		Mid Range Test Frequency				Mid Range Test Frequency			
CPICH Ec	dBm/3.84MHz	-60	-60	-60	-70	-75	-60	-70	-60
P-CCPCH RSCP (TDD)	dBm	-60	-60	-60	-70	-75	-60	-70	-60

Table 8.2.6.51 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The downlink transmission power is set according to values in column “T0” in table 8.2.6.51. The UE has a radio bearer mapped to the E-DCH/HS-DSCH and the signalling radio bearers mapped on E-DCH/DCH in cell 1.

For FDD

SS configures its downlink transmission power settings according to columns "T1" in table 8.2.6.51. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2.

After the MEASUREMENT REPORT message is received, the SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC to add cell 2 to the active set. When the UE receives this message, the UE shall configure layer 1 to begin reception without affecting the current uplink and downlink activities of existing radio links and cell 1 shall be kept as the serving E-DCH and HS-DSCH cell. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

SS configures its downlink transmission power settings according to columns "T2" in table 8.2.6.51. The SS configures reporting of event 1d “change of best cell” by transmitting a MEASUREMENT CONTROL message to the UE, and the UE shall send an initial MEASUREMENT REPORT which includes the primary scrambling code of cell 1 according to IE "Intra-frequency event identity" set to 1d.

The SS configures its downlink transmission power settings according to columns "T3" in table 8.2.6.51. The UE transmits a MEASUREMENT REPORT message, which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity" set to 1d..

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE. At the activation time the UE and SS change the E-DCH and HS-DSCH serving cell to cell 2 and perform MAC-hs reset. Finally the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that the UE is in CELL_DCH state.

For TDD

The SS configures reporting of event 1g "change of best cell" by transmitting a MEASUREMENT CONTROL message to the UE.

The SS configures its downlink transmission power settings according to columns "T3" in table 8.2.6.51. The UE transmits a MEASUREMENT REPORT message, which includes the Cell parameters Id of cell 2 according to IE "Intra-frequency event identity" set to 1g.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE. SS sets up a Radio Link in Cell 2 At the activation time the UE changes the HS-PDSCH configuration. Finally the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC. SS deletes the Radio Link in Cell 1

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0a	SS			SS configures its downlink transmission power settings according to columns "T1" in table 8.2.6.51. (FDD only)
0b	→		MEASUREMENT REPORT	See specific message contents for this message (FDD only)
1	←		ACTIVE SET UPDATE	The SS instructs the UE to add cell 2 in the active set. (FDD only)
2	→		ACTIVE SET UPDATE COMPLETE	The UE adds the radio link in cell 2. (FDD only)
2a	SS			SS configures its downlink transmission power settings according to columns "T2" in table 8.2.6.51. (FDD only)
3	←		MEASUREMENT CONTROL	Configure event 1D "Change of best cell" (FDD only) or 1g (TDD)
4	→		MEASUREMENT REPORT	See specific message contents for this message. This step doesn't apply for 1.28 Mcps TDD.
5	SS			SS configures its downlink transmission power settings according to columns "T3" in table 8.2.6.51
6	→		MEASUREMENT REPORT	See specific message contents for this message
7	←		PHYSICAL CHANNEL RECONFIGURATION	Serving E-DCH and HS-DSCH cell change
8	SS			At the activation time, the SS changes the serving E-DCH and HS-DSCH radio link to cell 2 and performs MAC-hs reset. SS sets up a Radio Link in Cell 2(TDD only).
9	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
10	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

MEASUREMENT REPORT (Step 0b) (FDD)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 1) (FDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Radio link addition information	
- Primary CPICH Info	
- Primary scrambling code	Primary scrambling code of Cell 2
- Downlink DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	P-CPICH may be used.
- DPCH frame offset	Calculated value from Cell synchronisation information
- Secondary CPICH info	Not present
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE
- Secondary scrambling code	1
- Spreading factor	Refer to the parameter set in TS 34.108
- Code number	0
- Scrambling code change	Not present
- TPC combination index	1
- Close loop timing adjustment mode	Not present
- TFCI combining indicator	FALSE

MEASUREMENT CONTROL (Step 3) (FDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measurement command	Setup
- CHOICE measurement type	Intra-frequency measurement
- Intra frequency cell info list	Not present
- Intra-frequency measurement quantity	
- Filter coefficient	3
- CHOICE mode	FDD
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/N0 reporting indicator	TRUE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not Present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1D
- Triggering condition 2	Active set cells
- Hysteresis	8 (4 dB)
- Time to trigger	20 mSec
- Reporting cell status	
- CHOICE reported cell	Report cells within active set
- Maximum number of reported cells	3
- Use CIO	FALSE
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
DPCH compressed mode status info	Not present

MEASUREMENT CONTROL (Step 3) (1.28 Mcps TDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measurement command	Setup
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	Not present
- Intra-frequency measurement quantity	
- Filter coefficient	3
- CHOICE mode	TDD
- Measurement quantity	Primary CCPCH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not Present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1G
- Hysteresis	4dB (IE value = 8)
- Time to trigger	20 mSec
- Reporting cell status	Report cells within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
- Use CIO	FALSE
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 4) (FDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- DeltaRSCP	Not checked
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- DeltaRSCP	Not checked
- Pathloss	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	Check to see if set to "Intra-frequency event results"
- Event ID	Check to see if set to "1D"
- Cell measurement event results	
- Primary scrambling code	Check to see if set to "Primary scrambling code of Cell 1"

MEASUREMENT REPORT (Step 4) (3.84 Mcps TDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 1 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 2 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	
- CHOICE event result	Check to see if set to "Intra-frequency event results"
- Intra-frequency event identity	Check to see if set to "1G"
- Cell measurement event results	
- CHOICE mode	TDD
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- CHOICE SyncCase	Sync Case 2
- Timeslot	0
- Cell parameters ID	Check to see if set to "Cell parameters ID of Cell 1(TDD)"
- SCTD indicator	FALSE

MEASUREMENT REPORT (Step 4) (7.68 Mcps TDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 1 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent

- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 2 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	
- CHOICE event result	Check to see if set to "Intra-frequency event results"
- Intra-frequency event identity	Check to see if set to "1G"
- Cell measurement event results	
- CHOICE mode	TDD
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- CHOICE SyncCase	Sync Case 2
- Timeslot	0
- Cell parameters ID	Check to see if set to "Cell parameters ID of Cell 1(TDD)"
- SCTD indicator	FALSE

MEASUREMENT REPORT (Step 6) (FDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- DeltaRSCP	Not checked
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- DeltaRSCP	Not checked
- Pathloss	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	Check to see if set to "Intra-frequency event results"
- Event ID	Check to see if set to "1D"
- Cell measurement event results	
- Primary scrambling code	Check to see if set to "Primary scrambling code of Cell 2"

MEASUREMENT REPORT (Step 6) (1.28 Mcps TDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 1 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent

- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell 2 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Timeslot list	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	
- CHOICE event result	Check to see if set to "Intra-frequency event results"
- Intra-frequency event identity	Check to see if set to "1G"
- Cell measurement event results	
- CHOICE mode	TDD
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- TSTD indicator	FALSE
- Cell parameters ID	Check to see if set to "Cell parameters ID of Cell 2(TDD)"
- SCTD indicator	FALSE

MEASUREMENT REPORT (Step 6) (3.84Mcps TDD and 7.68Mcps TDD)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell Parameters ID	Refer to clause titled "Default settings for cell No.2 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is absent
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	TDD
- Cell Parameters ID	Refer to clause titled "Default settings for cell No.1 (TDD)" in clause 6.1 of TS 34.108
- Proposed TGSN	Checked that this IE is absent
- Primary CCPCH RSCP	Checked that this IE is absent
- Pathloss	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	Check to see if set to "Intra-frequency event results"
- Event ID	Check to see if set to "1G"
- Cell measurement event results	
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell Parameter ID	Refer to clause titled "Default settings for cell No.2 (TDD)" in clause 6.1 of TS 34.108

PHYSICAL CHANNEL RECONFIGURATION (Step 7) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
New Primary E-RNTI	'0101 0101 0101 0101'
Frequency info	Not present
Maximum allowed UL TX power	Not present
Uplink DPCH info	Not present
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	12 (6 dB)
- CQI Feedback cycle, k	4 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
Downlink information common for all radio links	
- MAC-hs reset indicator	TRUE
Downlink information for each radio link list	
- Downlink information for each radio link	(for cell 1)
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Ref. to the Default setting in TS34.108 clause 6.1 (FDD)
- Cell ID	Not Present
- Serving HS-DSCH radio link indicator	FALSE
- Serving E-DCH radio link indicator	FALSE
- Downlink DPCH info for each RL	Not present
- SCCPCH information for FACH	Not present
- Downlink information for each radio link	(for cell 2)
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Ref. to the Default setting in TS34.108 clause 6.1 (FDD)
- Cell ID	Not Present
- Serving HS-DSCH radio link indicator	TRUE
- Serving E-DCH radio link indicator	TRUE
- Downlink DPCH info for each RL	Not present
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Calculated value from Cell synchronisation information
- Secondary CPICH info	Not Present
- DL channelisation code	
- Secondary scrambling code	1
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Code number	0
- Scrambling code change	Not present
- TPC combination index	1
- Closed loop timing adjustment mode	Not Present
- E-AGCH Info	
- E-AGCH Channelisation Code	10
- CHOICE E-HICH Information	
- E-HICH Information	
- Channelisation code	4
- Signature sequence	1
- CHOICE E-RGCH Information	
- E-RGCH Information	
- Signature Sequence	0
- RG combination index	0

PHYSICAL CHANNEL RECONFIGURATION (Step 7) (1.28 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info	Not present	
Maximum allowed UL TX power	Not present	
Downlink HS-PDSCH Information		
- HS-SCCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9	
- Measurement Feedback Info		
- CHOICE mode	TDD (no data)	
- CHOICE mode	TDD	
- CHOICE TDD option	1.28 Mcps TDD	
- HS-PDSCH Midamble Configuration		
- Midamble Allocation Mode	Default midamble	
- Midamble Configuration	8	
- Midamble Shift	Not present	
Downlink information common for all radio links		
- MAC-hs reset indicator	TRUE	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	1.28 Mcps TDD	
- TSTD indicator	FALSE	
- Cell parameters ID	Ref. to the Default setting for cell 2 in TS34.108 clause 6.1 (TDD)	
- SCTD indicator	FALSE	

PHYSICAL CHANNEL RECONFIGURATION (Step 7) (3.84Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
New Primary E-RNTI	'0101 0101 0101 0101'
Frequency info	Not present
Maximum allowed UL TX power	Not present
Uplink DPCH info	Not present
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	TDD
- CHOICE TDD option	3.84Mcps
- Ack-Nack Power Offset	0dB
- HS-SICH Power Control Info	
- UL SIR target	0dB
- HS-SICH Constant Value	-10dB
- $D_{hs-sync}$	Not present
- HS-SCCH Set Configuration	4
- Timeslot number	The timeslot in which HS-SCCH is to be configured
- Channelisation code	CC16/x where x is a previously unassigned channelisation code in this TS
- Midamble Allocation mode	Default
- Midamble configuration	8
- BLER target	-2.4 (note that this equates to a BLER target of 0.4%, log10(0.004) = -2.4)
- HS-SICH configuration	
- Timeslot number	The timeslot in which HS-SICH is to be configured
- Channelisation code	CC16/x where x is a previously unassigned channelisation code in this TS
- Midamble Allocation mode	Default
- Midamble configuration	8
- Measurement Feedback Info	Not Present
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- HS-PDSCH Timeslot Configuration	
- HS-PDSCH Timeslot Configuration List	Reference to clause 6.10 Parameter Set
- Timeslot Number	The timeslot(s) in which HS-HS-DSCH is to be configured
- CHOICE Burst Type	Reference to clause 6.10 Parameter Set
- Midamble Allocation Mode	Default
- Midamble configuration burst type 1 and 3	8
Downlink information common for all radio links	
- MAC-hs reset indicator	TRUE
Downlink information for each radio link list	
- Downlink information for each radio link	
- Choice mode	TDD
- Primary CCPCH info	
- Choice mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- CHOICE SyncCase	Refer to clause titled "Default settings for cell No.2 (TDD)" in clause 6.1 of TS 34.108
- Timeslot	Refer to clause titled "Default settings for cell No.2 (TDD)" in clause 6.1 of TS 34.108
- Cell parameters ID	Refer to clause titled "Default settings for cell No.2 (TDD)" in clause 6.1 of TS 34.108
- SCTD indicator	FALSE
- CHOICE DPCH info	Not present
- E-AGCH Info	Present
- CHOICE mode	TDD
- CHOICE TDD option	3.84Mcps
- Long Term Grant Indicator	FALSE
- Length of TTRI field	Reference to clause 6.10 Parameter Set
- E-AGCH set configuration	Reference to clause 6.10 Parameter Set
- TS number	Reference to clause 6.10 Parameter Set
- Channelisation code	Reference to clause 6.10 Parameter Set
- CHOICE Burst Type	Reference to clause 6.10 Parameter Set

- Midamble allocation	Reference to clause 6.10 Parameter Set
- E-AGCH BLER Target	-2
- CHOICE mode	TDD
- E-HICH info	Present
- CHOICE mode	TDD
- CHOICE TDD option	3.84Mcps
- N_{E-HICH}	4
- TS Number	Reference to clause 6.10 Parameter Set
- Channelisation code	Reference to clause 6.10 Parameter Set
- Burst Type	Reference to clause 6.10 Parameter Set
- Midamble allocation mode	Reference to clause 6.10 Parameter Set

PHYSICAL CHANNEL RECONFIGURATION (Step 7) (7.68Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
New Primary E-RNTI	'0101 0101 0101 0101'
Frequency info	Not present
Maximum allowed UL TX power	Not present
Uplink DPCH info	Not present
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	TDD
- CHOICE TDD option	3.84Mcps
- Ack-Nack Power Offset	0dB
- HS-SICH Power Control Info	
- UL SIR target	0dB
- HS-SICH Constant Value	-10dB
- $D_{hs-sync}$	Not present
- HS-SCCH Set Configuration	4
- Timeslot number	The timeslot in which HS-SCCH is to be configured
- Channelisation code	CC16/x where x is a previously unassigned channelisation code in this TS
- Midamble Allocation mode	Default
- Midamble configuration	8
- BLER target	-2.4 (note that this equates to a BLER target of 0.4%, log10(0.004) = -2.4)
- HS-SICH configuration	
- Timeslot number	The timeslot in which HS-SICH is to be configured
- Channelisation code	CC16/x where x is a previously unassigned channelisation code in this TS
- Midamble Allocation mode	Default
- Midamble configuration	8
- Measurement Feedback Info	Not Present
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- HS-PDSCH Timeslot Configuration	
- HS-PDSCH Timeslot Configuration List	Reference to clause 6.11 Parameter Set
- Timeslot Number	The timeslot(s) in which HS-HS-DSCH is to be configured
- CHOICE Burst Type	Reference to clause 6.11 Parameter Set
- Midamble Allocation Mode	Default
- Midamble configuration burst type 1 and 3	8
Downlink information common for all radio links	
- MAC-hs reset indicator	TRUE
Downlink information for each radio link list	
- Downlink information for each radio link	
- Choice mode	TDD
- Primary CCPCH info	
- Choice mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- CHOICE SyncCase	Refer to clause titled "Default settings for cell No.2 (TDD)" in clause 6.1 of TS 34.108
- Timeslot	Refer to clause titled "Default settings for cell No.2 (TDD)" in

	clause 6.1 of TS 34.108
- Cell parameters ID	Refer to clause titled "Default settings for cell No.2 (TDD)" in clause 6.1 of TS 34.108
- SCTD indicator	FALSE
- CHOICE DPCH info	Not present
- E-AGCH Info	Present
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps
- Long Term Grant Indicator	FALSE
- Length of TTRI field	Reference to clause 6.11 Parameter Set
- E-AGCH set configuration	Reference to clause 6.11 Parameter Set
- TS number	Reference to clause 6.11 Parameter Set
- Channelisation code	Reference to clause 6.11 Parameter Set
- CHOICE Burst Type	Reference to clause 6.11 Parameter Set
- Midamble allocation	Reference to clause 6.11 Parameter Set
- E-AGCH BLER Target	-2
- CHOICE mode	TDD
- E-HICH info	Present
- CHOICE mode	TDD
- CHOICE TDD option	7.68Mcps
- N_{E-HICH}	4
- TS Number	Reference to clause 6.11 Parameter Set
- Channelisation code	Reference to clause 6.11 Parameter Set
- Burst Type	Reference to clause 6.11 Parameter Set
- Midamble allocation mode	Reference to clause 6.11 Parameter Set

8.2.6.51.5 Test requirements

After step 0a, the UE shall transmit a MEASUREMENT REPORT message (FDD only).

After step 3, the UE shall transmit a MEASUREMENT REPORT message. This step doesn't apply for 1.28 Mcps TDD.

After step 5, the UE shall transmit a MEASUREMENT REPORT message.

After step 8, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

8.2.6.52 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialized hard handover to another frequency, Serving E-DCH cell change, compressed mode)

8.2.6.52.1 Definition

All UEs which support FDD, HS-PDSCH, E-DPDCH and fully support F-DPCH and all UEs which support TDD and HS-PDSCH and E-PUCH.

8.2.6.52.2 Conformance requirement

If the UE receives:

- a PHYSICAL CHANNEL RECONFIGURATION message;

it shall:

1> set the variable ORDERED_RECONFIGURATION to TRUE;

…

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

…

1> enter a state according to TS25.331 subclause 8.6.3.3.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

If the IE "DPCH compressed mode info" is included, and if the IE group "transmission gap pattern sequence configuration parameters" is included, the UE shall:

2> at the time indicated by IE "TGCFN":

3> activate the stored pattern sequence corresponding to each IE "TGPSI" for which the "TGPS status flag" is set to "activate"; and

3> set the "Current TGPS Status Flag" for this pattern sequence in the variable TGPS_IDENTITY to "active".

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4, 8.6.6.15 (FDD only).

8.2.6.52.3 Test purpose

To confirm that the UE is able to perform a timing re-initialised hard handover to another frequency after compressed mode measurement on the target frequency in conjunction with a serving E-DCH cell change according to the received PHYSICAL CHANNEL RECONFIGURATION message.

8.2.6.52.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 and cell 6 are active

UE: PS-DCCH +DTCH_HS-DSCH +DTCH_E-DCH (state 6-18) under condition A14 in cell 1 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports E-DPDCH (FDD only)
- UE fully supports F-DPCH (FDD only)
- UE supports E-PUCH (TDD only)Test Procedure

Table 8.2.6.52

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-60	-70	-70	-60
PCCPCH RSCP	dBm	-60	-70	-70	-60

Table 8.2.6.52 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE is in state 6-18 under condition A14 as specified in TS34.108 clause 7.4 in cell 1 and has a radio bearer mapped on E-DCH and HS-DSCH established with active E-DCH transmission and HS-DSCH reception. The SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.52.

The SS configures compressed mode (if required) by sending a PHYSICAL CHANNEL RECONFIGURATION message, which includes the IE "DPCH compressed mode info" with the IE "TGPS Status Flag" set to "Deactivate" (FDD only). The UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC (FDD only).

The SS switches its downlink transmission power setting according to columns "T1" in table 8.2.6.52, but the UE shall not transmit any MEASUREMENT REPORT messages.

The SS then sets up inter-frequency measurements (event 2b) and activates compressed mode (if required), by sending a MEASUREMENT CONTROL message to the UE. The SS waits for 1s for the UE to activate compressed mode. The UE shall transmit MEASUREMENT REPORT message to report event 2b with the measured CPICH RSCP and Ec/No values for cell 6 to the SS.

The SS then transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE ordering the UE to change to Cell 6. At the activation time the UE changes to Cell 6 keeping the E-DCH configuration. Finally the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC.

The SS calls for the generic procedure C.3 to check that UE is in CELL_DCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_DCH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.52.
2	←		PHYSICAL CHANNEL RECONFIGURATION	The SS downloads compressed mode parameters without activating compressed mode (if required) (FDD only).
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE acknowleges the downloading of the compressed mode parameters (only if compressed mode was configured) (FDD only).
4				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.6.52.
5	←		MEASUREMENT CONTROL	The SS configures inter-frequency measurements in the UE and activates compressed mode (if required).
6	→		MEASUREMENT REPORT	The UE shall report event 2b with the measured CPICH RSCP and Ec/No values for cell 6 for FDD. The UE shall report event 2b with the measured PCCPCH RSCP for cell 6 for TDD.
7	←		PHYSICAL CHANNEL RECONFIGURATION	The SS instructs the UE to change to Cell 6.
8	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE sends this message in cell 6.
9	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 2)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Uplink DPCH info	
- Uplink DPCH power control info	
- DPCCH power offset	-40 (-80dB)
- PC Preamble	1 frame
- SRB delay	7 frames
- Power Control Algorithm	Algorithm1
- TPC step size	0 (1dB)
- Δ_{ACK}	3
- Δ_{NACK}	3
- Ack-Nack repetition factor	1
- HARQ_preamble_mode	0
- Scrambling code type	Long
- Scrambling code number	0 (0 to 16777215)
- Number of DPDCH	0
- spreading factor	Not Present
- TFCI existence	FALSE
- Number of FBI bit	Not Present
- Puncturing Limit	Not Present
E-DCH Info	Not present
Downlink HS-PDSCH Information	Not present
Downlink information common for all radio links	
- Downlink F-DPCH info common for all RL	
- Timing Indication	Maintain
- Timing maintained Synchronization indicator	FALSE
- Downlink DPCH power control information	
- CHOICE Mode	FDD
-DPC Mode	0 (Single)
- TPC command error rate target	0.04
- CHOICE mode	FDD
- DPCH compressed mode info	
- TGPSI	1
- TGPS Status Flag	Deactivate
- TGCFN	Not Present
- Transmission gap pattern sequence configuration parameters	
- TGMP	FDD Measurement
- TGPRC	Infinity
- TGSN	4
- TGL1	7
- TGL2	Not Present
- TGD	Undefined
- TGPL1	3
- RPP	mode 0
- ITP	mode 0
- CHOICE UL/DL Mode	UL and DL, UL only, or DL only, depending on UE capability
- Downlink compressed mode method	SF/2 (Comment: If F-DPCH is configured this IE shall not be used by the UE.)
- Uplink compressed mode method	SF/2
- Downlink frame type	B
- DeltaSIR1	20 (2.0)
- DeltaSIRAfter1	10 (1.0)
- DeltaSIR2	Not Present
- DeltaSIRAfter2	Not Present
- N identify abort	Not Present
- T Reconfirm abort	Not Present
- TX Diversity Mode	Not Present
- Default DPCH Offset Value	Not Present

Information Element	Value/remark
- MAC-hs reset indicator	Not Present
- Downlink information for each radio link list	OMIT

MEASUREMENT CONTROL (Step 5) (FDD)

Use the same message sub-type found in [9] TS 34.108 clause 9, with the following exceptions in the IE(s) concerned:

Information Element	Value/remark
Measurement Identity	15
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency measurement object list	
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	Remove all inter-frequency cells
- New inter-frequency cells	
- Inter-frequency cell id	6
- Frequency info	Set to the frequency of cell 6
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	OMIT
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 6
- Primary CPICH TX power	Not Present
- Primary CPICH TX power	
- TX Diversity Indicator	FALSE
- Cell for measurement	Not Present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- CHOICE Mode	FDD
- Measurement quantity for frequency quality estimate	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	TRUE
- COICE Mode	FDD
- CPICH Ec/No reporting indicator	TRUE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement validity	
- UE state	CELL_DCH
- Inter-frequency set update	On with no reporting
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each event	
- Inter-frequency event identity	2b
- Threshold used frequency	-65 dBm
- W used frequency	0
- Hysteresis	2 (1.0 dB)
- Time to trigger	100 ms
- Reporting cell status	
- CHOICH reported cell	Report cells within monitored and/or virtual active set on non-used frequency
- Maximum number of reported cells per reported non-used frequency	2
- Parameters required for each non-used frequency	
- Threshold non used frequency	-68 dBm
- W non-used frequency	0
DPCH compressed mode status info	
- TGPS reconfiguration CFN	(Current CFN + (100 – TTI/10msec))mod 256
- Transmission gap pattern sequence	
- TGPSI	1
- TGPS Status Flag	Activate

Information Element	Value/remark
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256

MEASUREMENT CONTROL (Step 5) (3.84Mcps TDD and 7.68Mcps TDD)

Use the same message sub-type found in [9] TS 34.108 clause 9, with the following exceptions in the IE(s) concerned:

Information Element	Value/remark
Measurement Identity	15
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency measurement object list	
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	Remove all inter-frequency cells
- New inter-frequency cells	
- Inter-frequency cell id	6
- Frequency info	Set to the frequency of cell 6
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	OMIT
- Read SFN Indicator	FALSE
- CHOICE Mode	TDD
- Primary CCPCH info	
- Choice mode	TDD
- CHOICE TDD option	3.84 Mcps TDD or 7.68Mcps
- CHOICE SyncCase	Sync Case 2
- Timeslot	0
- Cell parameters ID	Set to cell parameter ID of cell6
- SCTD indicator	FALSE
- Cell for measurement	Not Present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- CHOICE Mode	TDD
- Measurement quantity for frequency quality estimate	Primary CCPCH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	TRUE
- COICE Mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- Primary CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement validity	
- UE state	CELL_DCH
- Inter-frequency set update	On with no reporting
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each event	
- Inter-frequency event identity	2b
- Threshold used frequency	-65 dBm
- W used frequency	0
- Hysteresis	2 (1.0 dB)
- Time to trigger	100 ms
- Reporting cell status	
- CHOICH reported cell	Report cells within monitored and/or virtual active set on non-used frequency
- Maximum number of reported cells per reported non-used frequency	2
- Parameters required for each non-used frequency	
- Threshold non used frequency	-68 dBm
- W non-used frequency	0

MEASUREMENT REPORT (Step 6)

The contents of MEASUREMENT REPORT message is the same as them found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Measurement Identity	Check to see if set to 15
Measured Results	
- CHOICE Measurement	
- Inter frequency measured results list	Check to see if set to "Inter-frequency measured results list"
- Inter frequency measurement results	
- Frequency info	Set to the frequency of cell 6
- UTRA carrier RSSI	Check to see if absent
- Inter frequency cell measurement results	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if it is absent
- CHOICE Mode	FDD
- Primary CPICH Info	Check that the value of this IE is set to Scrambling code of cell 6
- CPICH Ec/No	Check to see if it is present
- CPICH RSCP	Check to see if it is present
- Pathloss	Check to see if it is absent
Measured Results on RACH	Check to see if it is absent
Additional Measured results	Check to see if it is absent
- Measured Result	
Event results	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	Check that the value of this IE is set to the frequency of cell 6
- Non freq related measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code of cell 6

MEASUREMENT REPORT (Step 6) (3.84Mcps TDD and 7.68Mcps TDD)

The contents of MEASUREMENT REPORT message is the same as them found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Measurement Identity	Check to see if set to 15
Measured Results	
- CHOICE Measurement	
- Inter frequency measured results list	Check to see if set to "Inter-frequency measured results list"
- Inter frequency measurement results	
- Frequency info	Set to the frequency of cell 6
- UTRA carrier RSSI	Check to see if absent
- Inter frequency cell measurement results	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if it is absent
- CHOICE Mode	TDD
- Cell Parameters ID	Check that the value of this IE is set to cell parameters ID cell 6
- Proposed TGSN	Check to see if it is absent
- Primary CCPCH RSCP	Check to see if it is present
- Pathloss	Check to see if it is absent
- Timeslot list	Check to see if it is absent
Measured Results on RACH	Check to see if it is absent
Additional Measured results	Check to see if it is absent
- Measured Result	
Event results	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	Check that the value of this IE is set to the frequency of cell 6
- Non freq related measurement event results	
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell Parameters ID	Check that the value of this IE is set to the cell parameters ID of cell 6

PHYSICAL CHANNEL RECONFIGURATION (Step 7)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
New Primary E-RNTI	'0101 0101 0101 0101'
New Secondary E-RNTI	Not Present
Frequency info	
- UARFCN uplink(Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
Uplink DPCH info	Not Present
E-DCH Info	
- MAC-es/e reset indicator	TRUE
- E-DPCCH info	Not Present
- E-DPDCH info	Not Present
- Scheduled Transmission configuration	Not Present
Downlink HS-PDSCH Information	Not Present
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- POhsdsch	12 (6 dB)
- CQI Feedback cycle, k	4 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
Downlink information common for all radio links	
- Downlink F-DPCH info common for all RL	
- Timing indication	Initialise
- Downlink F-DPCH power control information	Not Present
- TPC command error rate target	0.04
- DPCH compressed mode info	Not present
- TX Diversity mode	Not Present
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
- MAC-hs reset indicator	TRUE
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- CHOICE mode	FDD
- Primary CPICH info	Set to the scrambling code of cell 6
- Cell ID	Not present
- Serving HS-DSCH radio link indicator	TRUE
- Serving E-DCH radio link indicator	TRUE
- Downlink DPCH info for each RL	Not present
- Downlink F-DPCH info for each RL	
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
- Secondary CPICH info	Not present
- Secondary scrambling code	Not present
- Code number	12
- TPC combination index	0
- E-AGCH information	
- E-AGCH channelisation code	10
- CHOICE E-HICH information	E-HICH information
- Channelisation code	4
- Signature sequence	2
- CHOICE E-RGCH Information	Not present

PHYSICAL CHANNEL RECONFIGURATION (Step 7) (3.84Mcps)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
New Primary E-RNTI	'0101 0101 0101 0101'
New Secondary E-RNTI	Not Present
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Set to UARFCN as used for cell 6
Uplink DPCH info	Not Present
E-DCH Info	
- MAC-es/e reset indicator	TRUE
- CHOICE mode	TDD
- E-RUCCH info	Not Present
- E-PUCH info	Not Present
- Non-Scheduled Transmission configuration	Not Present
Downlink HS-PDSCH Information	Not Present
- HS-SCCH Info	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps
- Ack-Nack Power Offset	0dB
- HS-SICH Power Control Info	
- UL SIR target	0dB
- HS-SICH Constant Value	-10dB
- $D_{hs\text{-}sync}$	Not present
- HS-SCCH Set Configuration	4
- Timeslot number	The timeslot in which HS-SCCH is to be configured
- Channelisation code	CC16/x where x is a previously unassigned channelisation code in this TS (3.84Mcps).
- Midamble Allocation mode	Default
- Midamble configuration	8
- BLER target	-2.4 (note that this equates to a BLER target of 0.4%, log10(0.004) = -2.4)
- HS-SICH configuration	
- Timeslot number	The timeslot in which HS-SICH is to be configured
- Channelisation code	CC16/x where x is a previously unassigned channelisation code in this TS
- Midamble Allocation mode	Default
- Midamble configuration	8
- Measurement Feedback Info	Not Present
Downlink information common for all radio links	
- CHOICE DPCH info	Downlink DPCH info common for all RL
- Timing indication	Initialise
- CFN-targetSFN frame offset	Not Present
- Downlink DPCH power control information	
- CHOICE mode	TDD
- TPC Step Size	1
- MAC-d HFN initial value	Not Present
- CHOICE mode	TDD
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps
- Default DPCH Offset Value	Not Present
- Mac-hs reset indicator	TRUE
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- CHOICE mode	TDD
- Primary CCPCH info	
- Choice mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- CHOICE SyncCase	Sync Case 2
- Timeslot	0
- Cell parameters ID	Set to cell parameter ID of cell6

Information Element	Value/remark
- SCTD indicator	FALSE
- CHOICE DPCH info	Downlink DPCH info for each RL
- CHOICE mode	TDD
- DL CCTrCH List	1 CCTrCh
- TFCS ID	1
- Activation time	Not Present
- Duration	Not Present
- Common timeslot info	
- 2nd interleaving mode	Reference to clause 6.10 Parameter Set
- TFCI coding	Reference to clause 6.10 Parameter Set
- Puncturing Limit	Reference to clause 6.10 Parameter Set
- Repetition Period	Reference to clause 6.10 Parameter Set
- Repetition Length	Reference to clause 6.10 Parameter Set
- Downlink DPCH timeslots and codes	
- Individual timeslot info	
- Timeslot number	The number of a downlink timeslot that has unassigned codes.
- TFCI existence	TRUE
- Midamble shift and burst type	
- CHOICE TDD option	3.84 Mcps
- CHOICE Burst Type	Reference to clause 6.10 Parameter Set
- Midamble Allocation Mode	Default
- Midamble configuration	Set Kcell to lowest possible value given the number of codes defined in clause 6.10 Parameter Set
- CHOICE TDD option	3.84 Mcps
- First timeslot channelisation codes	
- CHOICE codes representation	Consecutive codes
- First channelisation code	(i/SF) where i is the lowest numbered code that is being assigned and SF is specified in clause 6.10 Parameter Set.
- Last channelisation code	(j/SF) where j is the highest numbered code that is being assigned in the slot as specified in clause 6.10 Parameter Set.
- CHOICE more timeslots	The presence of this IE depends upon whether the requirements of clause 6.10 Parameter Set could be met by the codes that have been assigned in the first timeslot.
- UL CCTrCH TPC List	1
- UL TPC TFCS Identity	
- TFCS ID	1
- Shared channel indicator	False
- DL CCTrCH List to Remove	Not Present
- SCCPCH information for FACH	Not Present
- E-AGCH Info	Not Present
- CHOICE E-HICH Information	Not Present
- CHOICE E-RGCH Information	Not Present

PHYSICAL CHANNEL RECONFIGURATION (Step 7) (7.68Mcps)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
New Primary E-RNTI	'0101 0101 0101 0101'
New Secondary E-RNTI	Not Present
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Set to UARFCN as used for cell 6
Uplink DPCH info	Not Present
E-DCH Info	
- MAC-es/e reset indicator	TRUE
- CHOICE mode	TDD
- E-RUCCH info	Not Present
- E-PUCH info	Not Present
- Non-Scheduled Transmission configuration	Not Present
Downlink HS-PDSCH Information	Not Present
- HS-SCCH Info	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps
- Ack-Nack Power Offset	0dB
- HS-SICH Power Control Info	
- UL SIR target	0dB
- HS-SICH Constant Value	-10dB
- $D_{hs\text{-}sync}$	Not present
- HS-SCCH Set Configuration	4
- Timeslot number	The timeslot in which HS-SCCH is to be configured
- Channelisation code	CC32/x where x is a previously unassigned channelisation code in this TS (7.68Mcps).
- Midamble Allocation mode	Default
- Midamble configuration	8
- BLER target	-2.4 (note that this equates to a BLER target of 0.4%, log10(0.004) = -2.4)
- HS-SICH configuration	
- Timeslot number	The timeslot in which HS-SICH is to be configured
- Channelisation code	CC32/x where x is a previously unassigned channelisation code in this TS
- Midamble Allocation mode	Default
- Midamble configuration	8
- Measurement Feedback Info	Not Present
Downlink information common for all radio links	
- CHOICE DPCH info	Downlink DPCH info common for all RL
- Timing indication	Initialise
- CFN-targetSFN frame offset	Not Present
- Downlink DPCH power control information	
- CHOICE mode	TDD
- TPC Step Size	1
- MAC-d HFN initial value	Not Present
- CHOICE mode	TDD
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps
- Default DPCH Offset Value	Not Present
- Mac-hs reset indicator	TRUE
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- CHOICE mode	TDD
- Primary CCPCH info	
- Choice mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- CHOICE SyncCase	Sync Case 2
- Timeslot	0
- Cell parameters ID	Set to cell parameter ID of cell6

Information Element	Value/remark
- SCTD indicator	FALSE
- CHOICE DPCH info	Downlink DPCH info for each RL
- CHOICE mode	TDD
- DL CCTrCH List	1 CCTrCh
- TFCS ID	1
- Activation time	Not Present
- Duration	Not Present
- Common timeslot info	
- 2nd interleaving mode	Reference to clause 6.11 Parameter Set
- TFCI coding	Reference to clause 6.11 Parameter Set
- Puncturing Limit	Reference to clause 6.11 Parameter Set
- Repetition Period	Reference to clause 6.11 Parameter Set
- Repetition Length	Reference to clause 6.11 Parameter Set
- Downlink DPCH timeslots and codes	
- Individual timeslot info	
- Timeslot number	The number of a downlink timeslot that has unassigned codes.
- TFCI existence	TRUE
- Midamble shift and burst type	
- CHOICE TDD option	7.68 Mcps
- CHOICE Burst Type	Reference to clause 6.11 Parameter Set
- Midamble Allocation Mode	Default
- Midamble configuration	Set Kcell to lowest possible value given the number of codes defined in clause 6.11 Parameter Set
- CHOICE TDD option	7.68 Mcps
- First timeslot channelisation codes	
- CHOICE codes representation	Consecutive codes
- First channelisation code	(i/SF) where i is the lowest numbered code that is being assigned and SF is specified in clause 6.10 Parameter Set.
- Last channelisation code	(j/SF) where j is the highest numbered code that is being assigned in the slot as specified in clause 6.10 Parameter Set.
- CHOICE more timeslots	The presence of this IE depends upon whether the requirements of clause 6.11 Parameter Set could be met by the codes that have been assigned in the first timeslot.
- UL CCTrCH TPC List	1
- UL TPC TFCS Identity	
- TFCS ID	1
- Shared channel indicator	False
- DL CCTrCH List to Remove	Not Present
- SCCPCH information for FACH	Not Present
- E-AGCH Info	Not Present
- CHOICE E-HICH Information	Not Present
- CHOICE E-RGCH Information	Not Present

8.2.6.52.5 Test requirement

After step 2 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC (FDD only).

After step 5 the UE shall transmit a MEASUREMENT REPORT message containing the IE "measured results" reporting cell 6's CPICH RSCP and Ec/No values, also report the triggering of event '2b' included in IE "Event results".

After step 7, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message in cell 6.

8.2.6.53 Void

8.2.6.54 Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Failure (Timing re-initialized hard handover, Serving E-DCH cell change, physical channel failure and reversion to old channel)

8.2.6.54.1 Definition and applicability

All UEs which support FDD or TDD and HS-PDSCH and E-DPDCH or E-PUCH.

8.2.6.54.2 Conformance requirement

If the received message caused the UE to be in CELL_DCH state and the UE according to subclause 8.5.4 failed to establish the dedicated physical channel(s) indicated in the received message or for 3.84 Mcps TDD and 7.68 Mcps TDD failed to establish the physical channel(s) indicated in the received message to which DCCH(s) are mapped the UE shall:

1> For TDD or For FDD if the CM_PATTERN_ACTIVATION_ABORTED flag is not set to TRUE:

2> revert to the configuration prior to the reception of the message (old configuration), including any HS-DSCH and E-DCH configuration if existing;

2> For FDD: if the UE was in Cell DCH state prior to the reconfiguration:

3> perform the physical layer synchronisation procedure A as specified in [29];

3> apply power control preamble according to [26] during the number of frames indicated in the IE "PC preamble" in the variable LATEST_CONFIGURED_SRB_DELAY_AND_PC_PREAMBLE; and

3> then not send any data on signalling radio bearers RB0 to RB4 during the number of frames indicated in the IE "SRB delay" in the variable LATEST_CONFIGURED_SRB_DELAY_AND_PC_PREAMBLE or while the physical channel is not considered established;.

1> if the old configuration includes dedicated physical channels (CELL_DCH state) and the UE is unable to revert to the old configuration or for FDD if the CM_PATTERN_ACTIVATION_ABORTED flag is set to TRUE:

2> initiate a cell update procedure according to subclause 8.3.1, using the cause "radio link failure";

2> after the cell update procedure has completed successfully:

3> proceed as below.

1> if the old configuration does not include dedicated physical channels (CELL_FACH state):

2> select a suitable UTRA cell according to [4];

2> if the UE selects another cell than the cell the UE camped on upon reception of the reconfiguration message:

3> initiate a cell update procedure according to subclause 8.3.1, using the cause "Cell reselection";

3> after the cell update procedure has completed successfully:

4> proceed as below.

1> transmit a failure response message as specified in subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "physical channel failure".

1> set the variable ORDERED_RECONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

The procedure ends.

Reference(s)

TS 25.331 clause 8.2.2.7

8.2.6.54.3 Test purpose

To confirm that the UE reverts to the old E-DCH / HS-DSCH configuration and transmits a PHYSICAL CHANNEL RECONFIGURATION FAILURE message if the UE fails to reconfigure the new physical channel according to the received PHYSICAL CHANNEL RECONFIGURATION message before the expiry of timer T312.

8.2.6.54.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 & Cell 6.

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A13, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports E-DPDCH (FDD only) or E-PUCH (TDD only)

Test Procedure

The UE is in the CELL_DCH state and has a radio bearer mapped on E-DCH and HS-DSCH established with active E-DCH transmission and HS-DSCH reception.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE ordering the UE to perform a timing re-initialized hard handover to Cell 6, but the SS does not configure the dedicated physical channels in Cell 6. At the activation time the UE attempts to establish dedicated physical channels on Cell 6, but fails to do so.
The UE shall then revert to the old E-DCH / HS-DSCH configuration on Cell 1 and transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message to the SS on the DCCH using AM RLC, with the value "physical channel failure" in the IE "failure cause".

The SS calls for generic procedure C.3 to check that the UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	The SS instructs the UE to perform a timing re-initialized hard handover to Cell 6. The SS does not configure the physical channels in Cell 6.
2				The UE attempts to establish dedicated physical channels on Cell 6, but fails to do so.
3	→		PHYSICAL CHANNEL RECONFIGURATION FAILURE	The UE sends this message on Cell 1. The IE “failure cause” is set to “physical channel failure”.
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

PHYSICAL CHANNEL RECONFIGURATION (Step 1) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 Clause 9, except for the following:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
New Primary E-RNTI	'0101 0101 0101 0101'
New Secondary E-RNTI	Not Present
Frequency info	
- UARFCN uplink(Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink(Nd)	Same downlink UARFCN as used for Cell 6
Uplink DPCH info	Not Present
E-DCH Info	Not Present
Downlink HS-PDSCH Information	Not Present
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indication	Initialise
- Downlink DPCH power control information	Not Present
- Downlink rate matching restriction information	Not Present
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Fixed or flexible position	Reference to TS34.108 clause 6.10 Parameter Set
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set
- DPCH compressed mode info	Not present
- TX Diversity mode	Not Present
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
- MAC-hs reset indicator	TRUE
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- CHOICE mode	FDD
- Primary CPICH info	Set to the scrambling code of Cell 6
- Cell ID	Not present
- Serving HS-DSCH radio link indicator	TRUE
- Serving E-DCH radio link indicator	TRUE
- Downlink DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Set to value of Default DPCH Offset Value modulo 38400
- Secondary CPICH info	Not present
- DL channelisation code	
- Secondary scrambling code	5
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Code number	Any value between 0 and Spreading factor-1
- Scrambling code change	Not Present
- TPC combination index	0
- Closed loop timing adjustment mode	Not present
- E-AGCH information	
- E-AGCH channelisation code	10
- CHOICE E-HICH information	E-HICH information
- Channelisation code	4
- Signature sequence	2
- CHOICE E-RGCH Information	E-RGCH information
- Signature sequence	3
- RG combination index	1

PHYSICAL CHANNEL RECONFIGURATION (Step 1) (1.28 Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 Clause 9, except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
New Primary E-RNTI	'0101 0101 0101 0101'	
New Secondary E-RNTI	Not Present	
Frequency info		
- UARFCN uplink(Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]	
- UARFCN downlink(Nd)	Same downlink UARFCN as used for Cell 6	
Uplink DPCH info	Not Present	
E-DCH Info	Not Present	
Downlink HS-PDSCH Information	Not Present	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- Downlink DPCH power control information	Not Present	
- MAC-d HFN initial value	Not Present	
- CHOICE mode	TDD	
- CHOICE mode	TDD	
- CHOICE TDD option	1.28 Mcps TDD	
- TSTD indicator	FALSE	
- Default DPCH Offset Value	Not Present	
- MAC-hs reset indicator	TRUE	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	1.28 Mcps TDD	
- TSTD indicator	FALSE	
- Cell parameters ID	Ref. To the Default setting for cell 1 in TS34.108 clause 6.1 (TDD)	
- SCTD indicator	FALSE	

PHYSICAL CHANNEL RECONFIGURATION (Step 1) (3.84Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 Clause 9, except for the following:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
New Primary E-RNTI	'0101 0101 0101 0101'
New Secondary E-RNTI	Not Present
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Set to the frequency of cell 6
Uplink DPCH info	Not Present
E-DCH Info	Not Present
Downlink HS-PDSCH Information	Not Present
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indication	Initialise
- Downlink DPCH power control information	Not Present
- CHOICE mode	TDD
- MAC-hs reset indicator	TRUE
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- CHOICE mode	TDD
- Primary CPICH info	Set to the scrambling code of Cell 6
- Primary CCPCH info	
- Choice mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- CHOICE SyncCase	2
- Timeslot	0
- Cell parameters ID	Set to the cell parameter ID of Cell 6
- SCTD indicator	FALSE
- CHOICE DPCH info	Not present
- E-AGCH Info	Present
- CHOICE mode	TDD
- CHOICE TDD option	3.84Mcps
- Long Term Grant Indicator	FALSE
- Length of TTRI field	Reference to clause 6.10 Parameter Set
- E-AGCH set configuration	Reference to clause 6.10 Parameter Set
- TS number	Reference to clause 6.10 Parameter Set
- Channelisation code	Reference to clause 6.10 Parameter Set
- CHOICE Burst Type	Reference to clause 6.10 Parameter Set
- Midamble allocation	Reference to clause 6.10 Parameter Set
- E-AGCH BLER Target	-2
- CHOICE mode	TDD
- E-HICH info	Present
- CHOICE mode	TDD
- CHOICE TDD option	3.84Mcps
- $N_{E\text{-}HICH}$	4
- TS Number	Reference to clause 6.10 Parameter Set
- Channelisation code	Reference to clause 6.10 Parameter Set
- Burst Type	Reference to clause 6.10 Parameter Set
- Midamble allocation mode	Reference to clause 6.10 Parameter Set

PHYSICAL CHANNEL RECONFIGURATION (Step 1) (7.68Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 Clause 9, except for the following:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
New Primary E-RNTI	'0101 0101 0101 0101'
New Secondary E-RNTI	Not Present
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Set to the frequency of cell 6
Uplink DPCH info	Not Present
E-DCH Info	Not Present
Downlink HS-PDSCH Information	Not Present
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indication	Initialise
- Downlink DPCH power control information	Not Present
- CHOICE mode	TDD
- MAC-hs reset indicator	TRUE
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- CHOICE mode	TDD
- Primary CPICH info	Set to the scrambling code of Cell 6
- Primary CCPCH info	
- Choice mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- CHOICE SyncCase	2
- Timeslot	0
- Cell parameters ID	Set to the cell parameter ID of Cell 6
- SCTD indicator	FALSE
- CHOICE DPCH info	Not present
- E-AGCH Info	Present
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps
- Long Term Grant Indicator	FALSE
- Length of TTRI field	Reference to clause 6.11 Parameter Set
- E-AGCH set configuration	Reference to clause 6.11 Parameter Set
- TS number	Reference to clause 6.11 Parameter Set
- Channelisation code	Reference to clause 6.11 Parameter Set
- CHOICE Burst Type	Reference to clause 6.11 Parameter Set
- Midamble allocation	Reference to clause 6.11 Parameter Set
- E-AGCH BLER Target	-2
- CHOICE mode	TDD
- E-HICH info	Present
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps
- $N_{E\text{-}HICH}$	4
- TS Number	Reference to clause 6.11 Parameter Set
- Channelisation code	Reference to clause 6.11 Parameter Set
- Burst Type	Reference to clause 6.11 Parameter Set
- Midamble allocation mode	Reference to clause 6.11 Parameter Set

PHYSICAL CHANNEL RECONFIGURATION FAILURE (Step 3)

Use the same message as specified in 34.108 Clause 9, except for the following:

Information Element	Value/remark
Failure cause	Physical channel failure

8.2.6.54.5 Test requirements

After step 2, the UE shall revert to the old E-DCH / HS-DSCH configuration on Cell 1 and transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message.

8.2.6.54a Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Failure (Timing re-initialized hard handover, Serving E-DCH and HS-DSCH cell change with MIMO activated, physical channel failure and reversion to old channel)

8.2.6.54a.1 Definition and applicability

All UEs which support FDD and MIMO.

8.2.6.54a.2 Conformance requirement

If the received message caused the UE to be in CELL_DCH state and the UE according to subclause 8.5.4 failed to establish the dedicated physical channel(s) indicated in the received message or for 3.84 Mcps TDD or 7.68 Mcps TDD failed to establish the physical channel(s) indicated in the received message to which DCCH(s) are mapped the UE shall:

1> For TDD or for FDD if the CM_PATTERN_ACTIVATION_ABORTED flag is not set to TRUE:

2> revert to the configuration prior to the reception of the message (old configuration), including any HS-DSCH and E-DCH configuration if existing;

2> For FDD: if the UE was in Cell DCH state prior to the reconfiguration:

3> perform the physical layer synchronisation procedure A as specified in [29];

3> apply power control preamble according to [26] during the number of frames indicated in the IE "PC preamble" in the variable LATEST_CONFIGURED_SRB_DELAY_AND_PC_PREAMBLE; and

3> then not send any data on signalling radio bearers RB0 to RB4 during the number of frames indicated in the IE "SRB delay" in the variable LATEST_CONFIGURED_SRB_DELAY_AND_PC_PREAMBLE or while the physical channel is not considered established;.

1> if the old configuration includes dedicated physical channels (CELL_DCH state) and the UE is unable to revert to the old configuration or for FDD if the CM_PATTERN_ACTIVATION_ABORTED flag is set to TRUE:

2> initiate a cell update procedure according to subclause 8.3.1, using the cause "radio link failure";

2> after the cell update procedure has completed successfully:

3> proceed as below.

1> if the old configuration does not include dedicated physical channels (CELL_FACH state):

2> select a suitable UTRA cell according to [4];

2> if the UE selects another cell than the cell the UE camped on upon reception of the reconfiguration message:

3> initiate a cell update procedure according to subclause 8.3.1, using the cause "Cell reselection";

3> after the cell update procedure has completed successfully:

4> proceed as below.

1> transmit a failure response message as specified in subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "physical channel failure".

1> set the variable ORDERED_RECONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

The procedure ends.

Reference(s)

TS 25.331 clause 8.2.2.7

8.2.6.54a.3 Test purpose

To confirm that the UE reverts to the original E-DCH / HS-DSCH with MIMO configuration and transmits a PHYSICAL CHANNEL RECONFIGURATION FAILURE message if the UE fails to reconfigure the new physical channel according to the received PHYSICAL CHANNEL RECONFIGURATION message before the expiry of timer T312.

8.2.6.54a.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 and Cell 6.

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports MIMO

Test Procedure

The UE is in CELL_DCH state.

The SS transmits a RADIO BEARER SETUP message including the RAB Information for setup IE to configure PS domain RAB and perform SRB mapping from DCH to EDCH/HSDPA (with MIMO configured for L1). The UE transmits a RADIO BEARER SETUP COMPLETE on DCCH.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE ordering the UE to perform a timing re-initialized hard handover to Cell 6 with MIMO active, but the SS does not configure the dedicated physical channels in Cell 6. At the activation time the UE attempts to establish dedicated physical channels on Cell 6, but fails to do so.

The UE shall then revert to the old E-DCH / HS-DSCH with MIMO configuration on Cell 1 and transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message to the SS on the DCCH using AM RLC, with the value "physical channel failure" in the IE "failure cause".

Then, SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 using the configured MIMO parameters. The UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE using the MIMO configuration.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEAER SETUP	Setup PS RAB on EDCH/HSDPA. Reconfiguration of SRB mapping from DCH to EDCH/HSDPA using the configured L1 MIMO configuration. i.e. single stream on antenna 1 and antenna 2 with separate modulation patterns on S-CPICH
2	→		RADIO BEARER SETUP COMPLETE	
3	←		PHYSICAL CHANNEL RECONFIGURATION	The SS instructs the UE to perform a timing re-initialized hard handover to Cell 6. The SS does not configure the physical channels in Cell 6.
4				The UE attempts to establish dedicated physical channels on Cell 6, but fails to do so.
5	→		PHYSICAL CHANNEL RECONFIGURATION FAILURE	The UE sends this message on Cell 1. The IE “failure cause” is set to “physical channel failure”.
6	←		UE CAPABILITY ENQUIRY	SRB2 on HS-DSCH using MIMO configuration on Cell 1
7	→		UE CAPABILITY INFORMATION	
8	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 on HS-DSCH using MIMO configuration on Cell 1

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH with enhanced data rate and RLC AM using one multiplexing option (1/1) and SRBs mapped on E-DCH/HS-DSCH (MAC-ehs)", condition A17b except for the following

Information Element	Value/remark
MIMO Parameters	
- MIMO Operation	Start
- MIMO N_cqi_typeA/M_cqi ratio	1/1
- MIMO pilot configuration	
- CHOICE Second CPICH pattern	Antenna1 S-CPICH
- Channelisation code	13
Downlink HS-PDSCH Information	
- CHOICE mode	FDD
- DL Scrambling Code	Not Present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	12 (6 dB)
- CQI Feedback cycle, k	2 ms
- CQI repetition factor	1
- Δ_{CQI}	5
- Downlink 64QAM configured	Not Present
- HS-DSCH TB size table	Octet Aligned

PHYSICAL CHANNEL RECONFIGURATION (Step 3) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 Clause 9, except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
New Primary E-RNTI	'0101 0101 0101 0101'	
Frequency info		
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]	
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6	
MIMO Parameters		
- MIMO Operation	Start	
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
- CHOICE Second CPICH pattern	Antenna1 S-CPICH	
- Channelisation code	13	

Information Element	Value/remark	Version
Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code		
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Measurement Power Offset	12 (6 dB)	
- CQI Feedback cycle, k	2 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
Downlink information common for all radio links		
- Downlink F-DPCH info common for all RL		
- Timing Indication	Initialise	
- Downlink F-DPCH power control information		
- DPC mode	0 (single)	
- TPC command error rate target	0.04	
- CHOICE mode	FDD	
- DPCH compressed mode info	Not Present	
- TX Diversity mode	Not Present	
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
- MAC-hs reset indicator	TRUE	
Downlink information per radio link list	1 radio link	
- CHOICE mode	FDD	
- Primary CPICH info	Set to the scrambling code for cell 6	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	TRUE	
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Secondary scrambling code	Not Present	
- Code number	12	
- TPC combination index	0	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- CHOICE E-HICH Information		
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information	Not Present	

PHYSICAL CHANNEL RECONFIGURATION FAILURE (Step 5)

Use the same message as specified in 34.108 Clause 9, except for the following:

Information Element	Value/remark
Failure cause	Physical channel failure

8.2.6.54a.5 Test requirements

At step 5, the UE shall revert to the old E-DCH / HS-DSCH configuration on Cell 1with MIMO active and transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message.

8.2.6.54b Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Failure (Timing re-initialized hard handover, Serving E-DCH and HS-DSCH cell change with MIMO and 64QAM activated, physical channel failure and reversion to old channel)

8.2.6.54b.1 Definition and applicability

UE category supports combined 64QAM and MIMO activation. UE support FDD and F-DPCH or Enhanced F-DPCH.

8.2.6.54b.2 Conformance requirement

If the received message caused the UE to be in CELL_DCH state and the UE according to subclause 8.5.4 failed to establish the dedicated physical channel(s) indicated in the received message or for 3.84 Mcps TDD or 7.68 Mcps TDD failed to establish the physical channel(s) indicated in the received message to which DCCH(s) are mapped the UE shall:

1> For TDD or for FDD if the CM_PATTERN_ACTIVATION_ABORTED flag is not set to TRUE:

2> revert to the configuration prior to the reception of the message (old configuration), including any HS-DSCH and E-DCH configuration if existing;

2> For FDD: if the UE was in Cell DCH state prior to the reconfiguration:

3> perform the physical layer synchronisation procedure A as specified in [29];

3> apply power control preamble according to [26] during the number of frames indicated in the IE "PC preamble" in the variable LATEST_CONFIGURED_SRB_DELAY_AND_PC_PREAMBLE; and

3> then not send any data on signalling radio bearers RB0 to RB4 during the number of frames indicated in the IE "SRB delay" in the variable LATEST_CONFIGURED_SRB_DELAY_AND_PC_PREAMBLE or while the physical channel is not considered established;.

1> if the old configuration includes dedicated physical channels (CELL_DCH state) and the UE is unable to revert to the old configuration or for FDD if the CM_PATTERN_ACTIVATION_ABORTED flag is set to TRUE:

2> initiate a cell update procedure according to subclause 8.3.1, using the cause "radio link failure";

2> after the cell update procedure has completed successfully:

3> proceed as below.

1> if the old configuration does not include dedicated physical channels (CELL_FACH state):

2> select a suitable UTRA cell according to [4];

2> if the UE selects another cell than the cell the UE camped on upon reception of the reconfiguration message:

3> initiate a cell update procedure according to subclause 8.3.1, using the cause "Cell reselection";

3> after the cell update procedure has completed successfully:

4> proceed as below.

1> transmit a failure response message as specified in subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "physical channel failure".

1> set the variable ORDERED_RECONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

The procedure ends.

Reference(s)

TS 25.331 clause 8.2.2.7

8.2.6.54b.3 Test purpose

To confirm that the UE reverts to the original E-DCH / HS-DSCH with 64QAM and MIMO configuration and transmits a PHYSICAL CHANNEL RECONFIGURATION FAILURE message if the UE fails to reconfigure the new physical channel according to the received PHYSICAL CHANNEL RECONFIGURATION message before the expiry of timer T312.

8.2.6.54b.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 and Cell 6.

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE category supports combined 64QAM and MIMO
- UE supports F-DPCH or Enhanced F-DPCH

Test Procedure

The UE is in CELL_DCH state.

The SS transmits a RADIO BEARER SETUP message including the RAB Information for setup IE to configure PS domain RAB and perform SRB mapping from DCH to EDCH/HSDPA (with 64QAM and MIMO configured for L1). The UE transmits a RADIO BEARER SETUP COMPLETE on DCCH.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE ordering the UE to perform a timing re-initialized hard handover to Cell 6 with 64QAM and MIMO active, but the SS does not configure the dedicated physical channels in Cell 6. At the activation time the UE attempts to establish dedicated physical channels on Cell 6, but fails to do so.

The UE shall then revert to the old E-DCH / HS-DSCH with 64QAM and MIMO configuration on Cell 1 and transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message to the SS on the DCCH using AM RLC, with the value "physical channel failure" in the IE "failure cause".

Then, SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 using the configured 64QAM and MIMO parameters. The UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE using the 64QAM and MIMO configuration.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEAER SETUP	Setup PS RAB on EDCH/HSDPA. Reconfiguration of SRB mapping from DCH to EDCH/HSDPA with 64QAM and MIMO configuration
2	→		RADIO BEARER SETUP COMPLETE	
3	←		PHYSICAL CHANNEL RECONFIGURATION	The SS instructs the UE to perform a timing re-initialized hard handover to Cell 6. The SS does not configure the physical channels in Cell 6.
4				The UE attempts to establish dedicated physical channels on Cell 6, but fails to do so.
5	→		PHYSICAL CHANNEL RECONFIGURATION FAILURE	The UE sends this message on Cell 1. The IE “failure cause” is set to “physical channel failure”.
6	←		UE CAPABILITY ENQUIRY	SRB2 on HS-DSCH using 64QAM and MIMO configuration on Cell 1
7	→		UE CAPABILITY INFORMATION	
8	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 on HS-DSCH using 64QAM and MIMO configuration on Cell 1

RADIO BEARER SETUP (Step 1)

Use the same message as specified for "Packet to CELL_DCH / HS-DSCH with enhanced data rate and RLC AM using one multiplexing option (1/1) and SRBs mapped on E-DCH/HS-DSCH (MAC-ehs)" except for the following

Information Element	Value/remark
Added or Reconfigured DL TrCH information	1 TrCH (HS-DSCH for DTCH and DCCH)
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	
- Number of Processes	12
- CHOICE *Memory Partitioning*	Implicit
- CHOICE *DL MAC header type*	
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	(two queues)
- MAC-ehs queue Id	0 (for DTCH)
- T1	50
- MAC-hs window size	16
- MAC-ehs queue Id	1 (for DCCH)
- MAC-d Flow Identity	1
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	148
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not present
- DCH quality target	Not present
MIMO Parameters	
- MIMO Operation	Start
- CHOICE mode	FDD
- MIMO N_cqi_typeA/M_cqi ratio	1/1
- MIMO pilot configuration	
- CHOICE Second CPICH pattern	Antenna1 S-CPICH
- Channelisation code	13
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not Present
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH

Information Element	Value/remark
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- POhsdsch	6 dB
- CQI Feedback cycle, k	2 ms
- CQI repetition factor	1
- Δ_{CQI}	5
- CHOICE mode	FDD
- Downlink 64QAM configured	TRUE
- HS-DSCH TB size table	Not Present
- Downlink information for each radio link	
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Ref. to the Default setting (Condition 17b Radio Bearer Setup)
- Serving HS-DSCH radio link indicator	TRUE
- Serving E-DCH radio link indicator	TRUE
- Downlink DPCH info for each RL	Not Present
- Downlink F-DPCH info for each RL	
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400
- F-DPCH slot format	Not Present
- Secondary CPICH info	Not Present
- Secondary scrambling code	Not Present
- Code number	11
- TPC combination index	0
- E-AGCH Info	
- E-AGCH Channelisation Code	10
- CHOICE E-HICH Information	
- E-HICH Information	
- Channelisation code	4
- Signature sequence	1
- CHOICE E-RGCH Information	Not Present

PHYSICAL CHANNEL RECONFIGURATION (Step 3) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 Clause 9, except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
New Primary E-RNTI	'0101 0101 0101 0101'	
HARQ info		
- Number of Processes	12	
- CHOICE *Memory Partitioning*	Implicit	
Frequency info		
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]	
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6	
MIMO Parameters		
- MIMO Operation	Start	
- CHOICE mode	FDD	
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
- CHOICE Second CPICH pattern	Antenna1 S-CPICH	
- Channelisation code	13	

Information Element	Value/remark	Version
Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code		
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Measurement Power Offset	12 (6 dB)	
- CQI Feedback cycle, k	2 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
Downlink information common for all radio links		
- Downlink F-DPCH info common for all RL		
- Timing Indication	Initialise	
- Timing maintained Synchronization indicator	FALSE	
- Downlink F-DPCH power control information		
- DPC mode	0 (single)	
- TPC command error rate target	0.04	
- CHOICE mode	FDD	
- DPCH compressed mode info	Not Present	
- TX Diversity mode	Not Present	
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
- MAC-hs reset indicator	TRUE	
Downlink information per radio link list	1 radio link	
- CHOICE mode	FDD	
- Primary CPICH info	Set to the scrambling code for cell 6	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	TRUE	
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Secondary scrambling code	Not Present	
- Code number	11	
- TPC combination index	0	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- CHOICE E-HICH Information		
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information	Not Present	

PHYSICAL CHANNEL RECONFIGURATION FAILURE (Step 5)

Use the same message as specified in 34.108 Clause 9, except for the following:

Information Element	Value/remark
Failure cause	Physical channel failure

8.2.6.54b.5 Test requirements

At step 5, the UE shall revert to the old E-DCH / HS-DSCH configuration on Cell 1with 64QAM and MIMO active and transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message.

8.2.6.54c Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Failure (Timing re-initialized hard handover, Serving E-DCH cell change, physical channel failure and reversion to old channel, in the multi-frequency network environment, for 1.28Mcps TDD only)

8.2.6.54c.1 Definition and applicability

All UEs which support 1.28Mcps TDD and HS-PDSCH and E-PUCH.

8.2.6.54c.2 Conformance requirement

If the received message caused the UE to be in CELL_DCH state and the UE according to subclause 8.5.4 failed to establish the dedicated physical channel(s) indicated in the received message or for 3.84 Mcps TDD and 7.68 Mcps TDD failed to establish the physical channel(s) indicated in the received message to which DCCH(s) are mapped the UE shall:

1> For TDD or For FDD if the CM_PATTERN_ACTIVATION_ABORTED flag is not set to TRUE:

2> revert to the configuration prior to the reception of the message (old configuration), including any HS-DSCH and E-DCH configuration if existing;

2> For FDD: if the UE was in Cell DCH state prior to the reconfiguration:

3> perform the physical layer synchronisation procedure A as specified in [29];

3> apply power control preamble according to [26] during the number of frames indicated in the IE "PC preamble" in the variable LATEST_CONFIGURED_SRB_DELAY_AND_PC_PREAMBLE; and

3> then not send any data on signalling radio bearers RB0 to RB4 during the number of frames indicated in the IE "SRB delay" in the variable LATEST_CONFIGURED_SRB_DELAY_AND_PC_PREAMBLE or while the physical channel is not considered established;.

1> if the old configuration includes dedicated physical channels (CELL_DCH state) and the UE is unable to revert to the old configuration or for FDD if the CM_PATTERN_ACTIVATION_ABORTED flag is set to TRUE:

2> initiate a cell update procedure according to subclause 8.3.1, using the cause "radio link failure";

2> after the cell update procedure has completed successfully:

3> proceed as below.

1> if the old configuration does not include dedicated physical channels (CELL_FACH state):

2> select a suitable UTRA cell according to [4];

2> if the UE selects another cell than the cell the UE camped on upon reception of the reconfiguration message:

3> initiate a cell update procedure according to subclause 8.3.1, using the cause "Cell reselection";

3> after the cell update procedure has completed successfully:

4> proceed as below.

1> transmit a failure response message as specified in subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "physical channel failure".

1> set the variable ORDERED_RECONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

The procedure ends.

…

If, after completion of the procedure, the UE will be in CELL_DCH state, the UE shall:

1> for FDD, 3.84 Mcps TDD and 7.68 Mcps TDD, if the IE "Frequency info" is included; or

1> for 1.28 Mcps TDD, if the IE "Frequency info" is included and the "Second Frequency info" is not included:

2> if the frequency is different from the currently used frequency:

3> store and use the frequency indicated by the IE "Frequency Info";

3> if the received message is used to perform a Timing-maintained hard handover (see subclause 8.3.5.2),and IE "Timing maintained Synchronization indicator" is included:

4> not perform any physical layer synchronisation procedure (FDD only);

3> else:

4> perform the physical layer synchronisation procedure A as specified in [29] (FDD only).

2> if the frequency is the same as the currently used frequency:

3> continue to use the currently used frequency;

3> perform the physical layer synchronisation procedure A as specified in [29] (FDD only).

1> for 1.28 Mcps TDD, if both the IE "Frequency info" and the IE "Second Frequency info" are included:

2> the frequency in IE "Frequency info" is used as the primary frequency, and the frequency in IE "Second Frequency info" is used as the secondary frequency;

2> store the primary frequency;

2> if the secondary frequency is different with the currently used frequency:

3> store and use the secondary frequency.

2> if the secondary frequency is the same as the currently used frequency:

3> continue to use the currently used frequency.

1> if the IE "Frequency info" is not included and the UE has a currently used frequency:

2> continue to use the currently used frequency;

…

If the IE "Second Frequency info" is included, the UE shall:

1> act as specified in section 8.6.6.1.

If the IE "FPACH Frequency info" is included, the UE shall:

1> store the FPACH frequency indicated in the IE "FPACH Frequency info".

If the IE "UpPCH Position Info" is included:

1> store and use the UpPCH position indicated by the IE "UpPCH Positon Info ". The calculation of the uplink access position is described in [33].

If the IE "UpPCH Position Info" is not included:

1> use the UpPTS as the default UpPCH position.

Reference(s)

TS 25.331 clause 8.2.2.7, 8.6.6.1,8.6.6.43.

8.2.6.54c.3 Test purpose

To confirm that the UE reverts to the old E-DCH / HS-DSCH configuration and transmits a PHYSICAL CHANNEL RECONFIGURATION FAILURE message if the UE fails to reconfigure the new physical channel according to the received PHYSICAL CHANNEL RECONFIGURATION message before the expiry of timer T312, in the multi-frequency network environment.

8.2.6.54c.4 Method of test

Initial conditions

System Simulator:

2 cells

– Cell 1,3 frequency (one is primary frequency, others are secondary frequency)

–Cell 6, 1 frequency

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A13, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports TDD
- UE supports HS-PDSCH
- UE supports E-PUCH

Test Procedure

The UE is in the CELL_DCH state and has a radio bearer mapped on E-DCH and HS-DSCH established with active E-DCH transmission and HS-DSCH reception at one secondary frequency of cell 1.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE ordering the UE to perform a timing re-initialized hard handover to Cell 6, but the SS does not configure the dedicated physical channels in Cell 6. At the activation time the UE attempts to establish dedicated physical channels on Cell 6, but fails to do so.
The UE shall then revert to the old E-DCH / HS-DSCH configuration on Cell 1 and transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message to the SS on the DCCH using AM RLC, with the value "physical channel failure" in the IE "failure cause".

The SS calls for generic procedure C.3 to check that the UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	The SS instructs the UE to perform a timing re-initialized hard handover to Cell 6. The SS does not configure the physical channels in Cell 6.
2				The UE attempts to establish dedicated physical channels on Cell 6, but fails to do so.
3	→		PHYSICAL CHANNEL RECONFIGURATION FAILURE	The UE sends this message on Cell 1. The IE “failure cause” is set to “physical channel failure”.
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 1)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 Clause 9, except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
New Primary E-RNTI	‘0101 0101 0101 0101’	
New Secondary E-RNTI	Not Present	
Frequency info		
- UARFCN downlink(Nt)	Same UARFCN as used for Cell 6	
Uplink DPCH info	Not Present	
E-DCH Info	Not Present	
Downlink HS-PDSCH Information	Not Present	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- Downlink DPCH power control information	Not Present	
- MAC-d HFN initial value	Not Present	
- CHOICE mode	TDD	
- CHOICE mode	TDD	
- CHOICE TDD option	1.28 Mcps TDD	
- TSTD indicator	FALSE	
- Default DPCH Offset Value	Not Present	
- MAC-hs reset indicator	TRUE	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	1.28 Mcps TDD	
- TSTD indicator	FALSE	
- Cell parameters ID	Ref. To the Default setting for cell 1 in TS34.108 clause 6.1 (TDD)	
- SCTD indicator	FALSE	

PHYSICAL CHANNEL RECONFIGURATION FAILURE (Step 3)

Use the same message as specified in 34.108 Clause 9, except for the following:

Information Element	Value/remark
Failure cause	Physical channel failure

8.2.6.54c.5 Test requirements

After step 2, the UE shall revert to the old E-DCH / HS-DSCH configuration on Cell 1 and transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message.

8.2.6.55 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Start of discontinuous uplink transmission and downlink reception)

8.2.6.55.1 Definition and applicability

All UEs which support FDD and UL DTX.

8.2.6.55.2 Conformance requirement

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

….

If the UE receives RRC CONNECTION SETUP, ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> the UE shall determine the value for the DTX_DRX_STATUS variable.

The variable DTX_DRX_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> both variables HS_DSCH RECEPTION and E_DCH_TRANSMISSION are set to TRUE;

1> no DCH transport channel is configured;

1> the variable DTX_DRX_PARAMS is set;

1> the UE has received the IE "DTX-DRX timing information".

If any of the above conditions is not met and the variable DTX_DRX_STATUS is set to TRUE, the UE shall:

1> set the variable DTX_DRX_STATUS to FALSE;

1> clear the variable DTX_DRX_PARAMS;

1> stop DTX-DRX mode related activities.

If variable DTX_DRX_STATUS is set to true and the serving HS-DSCH cell was changed as a result of the received message the UE shall instruct the physical layer to consider HS-SCCH orders were never received.

Whenever the variable DTX_DRX_STATUS is set to TRUE after receiving this message and the value of IE "DTX-DRX timing information" included in this message is not "Continue", the UE shall:

1> if the variable DTX_DRX_STATUS was set to TRUE before receiving this message:

2> re-configure the physical layer to perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration;

2> let the MAC layer continue with the current restriction on E-DCH transmission and monitoring of absolute and relative grant channels from the frame boundary where the uplink transmission starts with the new configuration and for the duration of the IE "Enabling Delay".

1> else:

2> perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations by configuring the physical layer according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration.

1> configure the MAC layer to start restricting E-DCH transmissions and monitor absolute and relative grant channels at the CFN corresponding to the frame boundary that is offset by the value of IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration taking into account the IEs "UE DTX DRX Offset", "MAC DTX Cycle", "MAC Inactivity Threshold" and "Inactivity Threshold for UE Grant Monitoring".

…

If the IE "DTX-DRX timing information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the CHOICE "timing" is set to "New timing":

2> store the contents of the IE in the variable DTX_DRX_PARAMS.

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

…

If the IE "DTX–DRX information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the contents of the IE in the variable DTX_DRX_PARAMS;

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34;

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple of the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple or a divisor of the value of the IE "CQI Feedback cycle, k"; or

1> if the value of the IE "UE DPCCH burst 1" is greater than the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DPCCH burst 2" is greater than the value of the IE "UE DTX cycle 2"; or

1> if the IE "UE DTX long preamble length" is set to 4 or 15 slots and the value of the IE "Inactivity Threshold for UE DTX cycle 2" is less than 4 TTIs (for 10ms E-DCH TTI) or 8 TTIs (for 2ms E-DCH TTI); or

1> if the IE "UE DRX cycle" is not an integer multiple or a divisor of the value of the IE "UE DTX cycle 1"; or

1> if the IE "DRX Information" is included in this message while the IE "DTX information" is not included in this message; or

1> if the value of the IE "UE DTX cycle 1" is not an integer multiple or a divisor of the value of the IE "MAC DTX cycle":

2> the UE behaviour is unspecified.

Reference

3GPP TS 25.331 clause 8.5.34, 8.6.6.38, 8.6.6.39

8.2.6.55.3 Test purpose

To confirm that the UE reconfigures the physical layer to perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations according to the IE DTX_DRX_Information received in PHYSICAL CHANNEL RECONFIGURATION message from the SS.

8.2.6.55.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH +DTCH_HS-DSCH +DTCH_E-DCH (state 6-18) under condition A14 in cell 1 as specified in clause 7.4 of TS 34.108

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports discontinuous uplink transmission

Test Procedure

The UE is in state 6-18 under condition A14 as specified in TS 34.108 clause 7.4 in cell 1 and has a radio bearer mapped on E-DCH and HS-DSCH established with active E-DCH transmission and HS-DSCH reception.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE. UE re-configures the physical layer to perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration. The UE then transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC. The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used.

SS calls for generic procedure C.3 to check that the UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		Physical Channel reconfiguration	
2	→		Physical Channel reconfiguration complete	
3	SS			The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used (i.e. duration of 10 consecutive DTX cycle 2).
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (FDD)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Packet to CELL_DCH from CELL_DCH in PS" as found in TS34.108, with the following exceptions:

For UE category supporting 2ms TTI:

Information Element	Value/remark
DTX-DRX timing information	
CHOICE *timing*	
- New timing	
- Enabling Delay	0
- UE DTX DRX Offset	1
DTX-DRX Information	
- CHOICE E-DCH TTI length	2ms
- UE DTX cycle 1	8
- UE DTX cycle 2	16
- MAC DTX cycle	8
- Inactivity Threshold for UE DTX cycle 2	32
- UE DTX long preamble length	4
- MAC Inactivity Threshold	1
- CQI DTX Timer	32
- UE DPCCH burst_1	1
- UE DPCCH burst_2	1
DRX Information	
- UE DRX cycle	8
- Inactivity Threshold for UE DRX cycle	32
- Inactivity Threshold for UE Grant Monitoring	32
- UE DRX Grant Monitoring	TRUE
Uplink DPCCH slot format information	1
Uplink DPCH info	OMIT
Downlink information common for all radio links	OMIT
Downlink information for each radio links	OMIT

For UE category not supporting 2ms TTI (use 10ms TTI):

Information Element	Value/remark
DTX-DRX timing information	
CHOICE *timing*	
- New timing	
- Enabling Delay	16
- UE DTX DRX Offset	0
DTX-DRX Information	
- CHOICE E-DCH TTI length	10ms
- UE DTX cycle 1	10
- UE DTX cycle 2	20
- MAC DTX cycle	10
- Inactivity Threshold for UE DTX cycle 2	8
- UE DTX long preamble length	4
- MAC Inactivity Threshold	8
- CQI DTX Timer	32
- UE DPCCH burst_1	1
- UE DPCCH burst_2	1
DRX Information	
- UE DRX cycle	10
- Inactivity Threshold for UE DRX cycle	32
- Inactivity Threshold for UE Grant Monitoring	8
- UE DRX Grant Monitoring	TRUE
Uplink DPCCH slot format information	1
Uplink DPCH info	OMIT
Downlink information common for all radio links	OMIT
Downlink information for each radio links	OMIT

8.2.6.55.5 Test requirements

After step 1, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

At step 3 the time between 11 consecutive CQI indications shall be 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used.

After step 3, the UE shall be in Cell_DCH state

8.2.6.56 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Start of HS-SCCH less operation)

8.2.6.56.1 Definition and applicability

All UEs, which support FDD and HS-SCCH less.

8.2.6.56.2 Conformance requirement

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

….

If the UE receives RRC CONNECTION SETUP, ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message;

1> the UE shall determine the value for the HS_SCCH_LESS_STATUS variable.

The variable HS_SCCH_LESS_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> no DCH transport channel is configured;

1> the UE is not configured in MIMO mode;

1> the variable HS_SCCH_LESS_PARAMS is set;

1> the UE has received IE "HS-SCCH less information".

If any of the above conditions is not met and the variable HS_SCCH_LESS_STATUS is set to TRUE and the value of IE "HS-SCCH less information" included in this message is not "Continue HS-SCCH less operation", the UE shall:

1> set the variable HS_SCCH_LESS_STATUS to FALSE;

1> clear the variable HS_SCCH_LESS_PARAMS;

1> stop all HS-SCCH less related activities.

Whenever the variable HS_SCCH_LESS_STATUS is set to TRUE, the UE shall:

1> configure the physical and MAC layers to operate according to the HS_SCCH_LESS_PARAMS;

1> configure the physical layer to use a virtual IR buffer size of at least 4536 bits for HS-SCCH less HS-DSCH transmissions.

Reference

3GPP TS 25.331 clause 8.2.2.4, 8.5.34, 8.6.6.40

8.2.6.56.3 Test purpose

To confirm that the UE reconfigures the physical layer to perform HS-SCCH less operation according to the IE HS-SCCH less information received in PHYSICAL CHANNEL RECONFIGURATION message from the SS.

8.2.6.56.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH +DTCH_HS-DSCH +DTCH_E-DCH (state 6-18) under condition A14 in cell 1 as specified in clause 7.4 of TS 34.108

Related ICS/IXIT statements

- UE supports FDD
- UE supports HS-SCCHless HS-DSCH

Test Procedure

The UE is in state 6-18 under condition A14 as specified in TS34.108 clause 7.4 in cell 1 and has a radio bearer mapped on E-DCH and HS-DSCH established with active E-DCH transmission and HS-DSCH reception.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE. UE re-configures the physical layer to perform HS-SCCH less operation according to the variable HS_SCCH_LESS_PARAMS. Finally the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that the UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	See message contents
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (FDD)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Packet to CELL_DCH from CELL_DCH in PS" as found in TS34.108, with the following exceptions:

Information Element	Value/remark
HS-SCCH less information CHOICE HS-SCCH less operation - New HS-SCCH less operation - HS-PDSCH Code Index - Transport Block Size List - Transport Block Size Index - HS-PDSCH Second Code Support - Transport Block Size Index - HS-PDSCH Second Code Support - Transport Block Size Index - HS-PDSCH Second Code Support - Transport Block Size Index - HS-PDSCH Second Code Support Uplink DPCH info	 14 4 elements 20 [365, sufficient for 1 MAC-d PDU of 336 + MAC-hs header of 21] FALSE 48 [699, sufficient for 2 MAC-d PDU of 336 + MAC-hs header of 21] FALSE 70[1036, sufficient for 3 MAC-d PDU of 336 + MAC-hs header of 21] TRUE 86 [1380, sufficient for 4 MAC-d PDU of 336 + MAC-hs header of 21] TRUE OMIT
Downlink information common for all radio links	OMIT
Downlink information for each radio links	OMIT

8.2.6.56.5 Test requirements

After step 1, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 2, the UE shall be in Cell_DCH state

8.2.6.57 Physical Channel Reconfiguration for transition from CELL_DCH to URA_PCH: Success (frequency modification, stop of discontinuous uplink transmission)

8.2.6.57.1 Definition

All UEs, which support FDD and UL DTX.

8.2.6.57.2 Conformance requirement

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable DTX_DRX_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> both variables HS_DSCH RECEPTION and E_DCH_TRANSMISSION are set to TRUE;

1> no DCH transport channel is configured;

1> the variable DTX_DRX_PARAMS is set;

1> the UE has received the IE "DTX-DRX timing information".

If any of the above conditions is not met and the variable DTX_DRX_STATUS is set to TRUE, the UE shall:

1> set the variable DTX_DRX_STATUS to FALSE;

1> clear the variable DTX_DRX_PARAMS;

1> stop DTX-DRX mode related activities.

If variable DTX_DRX_STATUS is set to true and the serving HS-DSCH cell was changed as a result of the received message the UE shall instruct the physical layer to consider HS-SCCH orders were never received.

Whenever the variable DTX_DRX_STATUS is set to TRUE after receiving this message and the value of IE "DTX-DRX timing information" included in this message is not "Continue", the UE shall:

1> if the variable DTX_DRX_STATUS was set to TRUE before receiving this message:

2> re-configure the physical layer to perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration;

2> let the MAC layer continue with the current restriction on E-DCH transmission and monitoring of absolute and relative grant channels from the frame boundary where the uplink transmission starts with the new configuration and for the duration of the IE "Enabling Delay".

1> else:

2> perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations by configuring the physical layer according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration.

2> configure the MAC layer to start restricting E-DCH transmissions and monitor absolute and relative grant channels at the CFN corresponding to the frame boundary that is offset by the value of IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration taking into account the IEs "UE DTX DRX Offset", "MAC DTX Cycle", "MAC Inactivity Threshold" and "Inactivity Threshold for UE Grant Monitoring".

…

If the IE "DTX-DRX timing information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the CHOICE "timing" is set to "New timing":

2> store the contents of the IE in the variable DTX_DRX_PARAMS.

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

…

If the IE "DTX–DRX information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the contents of the IE in the variable DTX_DRX_PARAMS;

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34;

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple of the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple or a divisor of the value of the IE "CQI Feedback cycle, k"; or

1> if the value of the IE "UE DPCCH burst 1" is greater than the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DPCCH burst 2" is greater than the value of the IE "UE DTX cycle 2"; or

1> if the IE "UE DTX long preamble length" is set to 4 or 15 slots and the value of the IE "Inactivity Threshold for UE DTX cycle 2" is less than 4 TTIs (for 10ms E-DCH TTI) or 8 TTIs (for 2ms E-DCH TTI); or

1> if the IE "UE DRX cycle" is not an integer multiple or a divisor of the value of the IE "UE DTX cycle 1"; or

1> if the IE "DRX Information" is included in this message while the IE "DTX information" is not included in this message; or

1> if the value of the IE "UE DTX cycle 1" is not an integer multiple or a divisor of the value of the IE "MAC DTX cycle":

2> the UE behaviour is unspecified.

…

If after state transition the UE leaves CELL_DCH state, the UE shall, after the state transition:

1> if any IEs related to HS-DSCH are stored in the UE:

2> clear any stored IE "Downlink HS-PDSCH information";

2> for 1.28Mcps TDD, clear the IE "HS-PDSCH Midamble Configuration" and the IE " HS-SCCH Set Configuration" in the IE "DL-MultiCarrier-Information";

2> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

1> if any IEs related to E-DCH are stored in the UE:

2> clear any stored IE "E-DCH info";

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

1> if any of the IEs "DTX-DRX timing information" or "DTX-DRX information" are stored in the UE:

2> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

1> if the IE "HS-SCCH less information" is stored in the UE:

2> determine the value for the HS_SCCH_LESS_STATUS variable and take the corresponding actions as described in subclause 8.5.35.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.5.34, 8.6.6.38, 8.6.6.39.

8.2.6.57.3 Test purpose

To confirm that the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC;

To confirm that the UE transits from CELL_DCH with UL DTX and DL DRX configured to URA_PCH state on a different frequency after it received a PHYSICAL CHANNEL RECONFIGURATION message;

To confirm that the UE releases the HS channels and selects a common physical channel on a different frequency.

8.2.6.57.4 Method of test

Initial Condition

System Simulator: 2 cells– Cell 1 and cell 6 are active.

UE: PS-DCCH +DTCH_HS-DSCH +DTCH_E-DCH (state 6-18) under condition A20 in cell 1 as specified in clause 7.4 of TS 34.108

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports discontinuous uplink transmission.

Test Procedure

Table 8.2.6.57

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-60	-70	-70	-60

Table 8.2.6.57 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

SS has configured its downlink transmission power setting according to columns “T0” in table 8.2.6.57. The UE is in state 6-18 under condition A20 as specified in TS34.108 clause 7.4 in cell 1. The SS switches its downlink transmission power settings to columns "T1" and transmits a PHYSICAL CHANNEL RECONFIGURATION message, which invokes the UE to transit from CELL_DCH to URA_PCH. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC and enters URA_PCH state, selects cell 6. Upon completion of the procedure, the SS calls for generic procedure C.5 to check that UE is in URA_PCH state.

NOTE: If the UE fails the test because of a failure to select to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_DCH state with UL DTX and DL DRX configured in cell 1 and the SS switches its downlink transmission power settings to columns "T1" in table 8.2.6.57
2	←		PHYSICAL CHANNEL RECONFIGURATION	
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE transmit this message in cell 1.
4				SS sends the L2 ack on the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and then waits 5 seconds to allow the UE to read system information before the next step. Note: The SS should continue to keep the dedicated channel configuration during the time when the L2 ack is sent to the UE.
5	←→		CALL C.5	If the test result of C.5 indicates that UE is in URA_PCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 2)

Use the same message sub-type titled "Packet to URA_PCH from CELL_DCH in PS" in TS 34.108 with following exceptions:

Information Element	Value/remark
Frequency info - CHOICE mode - UARFCN uplink (Nu) - UARFCN downlink (Nd)	 FDD Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [11] Set to the frequency of cell 6
Downlink information for each radio link - Primary CPICH Info - Primary scrambling code	 Set to same code as used for cell 6

8.2.6.57.5 Test requirement

At step 3 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC in cell 1.

At step 4 the UE shall be in URA_PCH state in cell 6.

8.2.6.58 Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (serving E-DCH cell change with discontinuous uplink transmission)

8.2.6.58.1 Definition and applicability

All UEs which support FDD and UL DTX.

8.2.6.58.2 Conformance requirement

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

The variable DTX_DRX_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> both variables HS_DSCH RECEPTION and E_DCH_TRANSMISSION are set to TRUE;

1> no DCH transport channel is configured;

1> the variable DTX_DRX_PARAMS is set;

1> the UE has received the IE "DTX-DRX timing information".

If any of the above conditions is not met and the variable DTX_DRX_STATUS is set to TRUE, the UE shall:

1> set the variable DTX_DRX_STATUS to FALSE;

1> clear the variable DTX_DRX_PARAMS;

1> stop DTX-DRX mode related activities.

If variable DTX_DRX_STATUS is set to true and the serving HS-DSCH cell was changed as a result of the received message the UE shall instruct the physical layer to consider HS-SCCH orders were never received.

Whenever the variable DTX_DRX_STATUS is set to TRUE after receiving this message and the value of IE "DTX-DRX timing information" included in this message is not "Continue", the UE shall:

1> if the variable DTX_DRX_STATUS was set to TRUE before receiving this message:

2> re-configure the physical layer to perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration;

2> let the MAC layer continue with the current restriction on E-DCH transmission and monitoring of absolute and relative grant channels from the frame boundary where the uplink transmission starts with the new configuration and for the duration of the IE "Enabling Delay".

1> else:

2> perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations by configuring the physical layer according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration.

3> configure the MAC layer to start restricting E-DCH transmissions and monitor absolute and relative grant channels at the CFN corresponding to the frame boundary that is offset by the value of IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration taking into account the IEs "UE DTX DRX Offset", "MAC DTX Cycle", "MAC Inactivity Threshold" and "Inactivity Threshold for UE Grant Monitoring".

…

If the IE "DTX-DRX timing information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the CHOICE "timing" is set to "New timing":

2> store the contents of the IE in the variable DTX_DRX_PARAMS.

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

…

If the IE "DTX–DRX information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the contents of the IE in the variable DTX_DRX_PARAMS;

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34;

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple of the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple or a divisor of the value of the IE "CQI Feedback cycle, k"; or

1> if the value of the IE "UE DPCCH burst 1" is greater than the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DPCCH burst 2" is greater than the value of the IE "UE DTX cycle 2"; or

1> if the IE "UE DTX long preamble length" is set to 4 or 15 slots and the value of the IE "Inactivity Threshold for UE DTX cycle 2" is less than 4 TTIs (for 10ms E-DCH TTI) or 8 TTIs (for 2ms E-DCH TTI); or

1> if the IE "UE DRX cycle" is not an integer multiple or a divisor of the value of the IE "UE DTX cycle 1"; or

1> if the IE "DRX Information" is included in this message while the IE "DTX information" is not included in this message; or

1> if the value of the IE "UE DTX cycle 1" is not an integer multiple or a divisor of the value of the IE "MAC DTX cycle":

2> the UE behaviour is unspecified.

…

If the IE "New Primary E-RNTI" and/or the IE "New Secondary E-RNTI" are/is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the new value(s) in the variable E_RNTI;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

If, after the completion of this procedure, the variable E_DCH_TRANSMISSION is set to FALSE, the UE shall:

1> clear the variable E-RNTI.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> use the value of the Primary E-RNTI and/or Secondary E-RNTI stored in the variable E_RNTI as UE identities in the E-AGCH reception procedure in the physical layer.

…

If the IE "Added or Reconfigured UL TrCH information" is included and E-DCH is included and there is more than one MAC-d flow carried on E-DCH then the UE shall:

1> if any occurrence of the IE E-DCH Transmission Time Interval and, if present, the field HARQ info for E-DCH (IE HARQ RV Configuration):

2> apply the values of any occurrence for IE E-DCH Transmission Time Interval and, if present, the field HARQ info to all E-DCH MAC-d flows.

NOTE: The IE "Added or Reconfigured DL TrCH information" is iterated for each added or reconfigured MAC-d flow carried on E-DCH.

1> if the choice "UL parameters" is set to 'EDCH':

2> if the IE "HARQ Info" is included:

3> perform the actions specified in subclause 8.6.5.17.

2> if the IE "Added or Reconfigured E-DCH MAC-d Flow" is included:

3> perform the actions as specified in subclause 8.6.5.18.

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "E-DCH Transmission Time Interval" is included, the UE shall:

1> store the received TTI;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> apply the TTI as signalled in the IE "E-DCH Transmission Time Interval" on the E-DPDCH.

…

If the IE "HARQ Info for E-DCH" is included, the UE shall:

1> store the received configuration;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> use a redundancy version for each HARQ transmission as configured by the IE "HARQ RV Configuration".

…

If the IE "Added or reconfigured E-DCH MAC-d flow" is included, the UE shall:

1> if the IE "E-DCH MAC-d flow power offset" is included:

2> configure the power offset indicated in the IE "E-DCH MAC-d flow power offset" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow maximum number of retransmissions" is included:

2> configure the maximum number of retransmissions indicated in the IE "E-DCH MAC-d flow maximum number of retransmissions" for the E-DCH MAC-d flow identified by the IE "E-DCH MAC-d flow identity".

1> if the IE "E-DCH MAC-d flow multiplexing list" is included:

2> only multiplex MAC-d PDU’s from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU’s from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed in accordance to the IE "E-DCH MAC-d flow multiplexing list".

1> else:

2> if previously the IE "E-DCH MAC-d flow multiplexing list" was already received for this E-DCH MAC-d flow:

3> continue to only multiplex E-DCH PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from E-DCH MAC-d flows with which multiplexing in the same MAC-e PDU is allowed according to the previously received IE "E-DCH MAC-d flow multiplexing list".

2> else (never received the IE "E-DCH MAC-d flow multiplexing list" for this E-DCH MAC-d flow):

3> allow multiplexing of MAC-d PDU's from the E-DCH MAC-d flow indicated in the IE "E-DCH MAC-d flow identity" with MAC-d PDU's from any other E-DCH MAC-d flow in the same MAC-e PDU.

1> if the IE "Non-scheduled transmission grant info" is included:

2> if the TTI configured on the E-DCH equals 2ms, and the IE "2ms non-scheduled grant HARQ process allocation" is configured for this MAC-d flow:

3> MAC-d PDU's for logical channels belonging to this MAC-d flow shall only be included in a MAC-e PDU transmitted by HARQ processes allowed by the IE "2ms HARQ process allocation", with a total size not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

2> else:

3> MAC-d PDU's for logical channels belonging to this MAC-d flow shall be included in a MAC-e PDU transmitted by any HARQ process, with a total size not exceeding the size as signalled by the IE "Max MAC-e PDU contents size".

1> if the IE "Scheduled transmission grant info" is included:

2> transmission of MAC-d PDU's for logical channels belonging to this MAC-d flow shall be in accordance with the received scheduled grant on E-AGCH/E-RGCH (see [15]).

1> perform the actions as specified in subclause 8.5.21;

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

1> if the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> if the UE is in TDD mode and shared transport channels are assigned to the UE:

3> start to receive the indicated Secondary CCPCH.

2> if the UE is in TDD mode and no shared transport channels are assigned to the UE:

3> set the variable UNSUPPORTED_CONFIGURATION to TRUE.

2> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

3> consider this radio link as the serving HS-DSCH radio link and no longer consider any other radio link as serving HS-DSCH radio link.

2> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

3> consider this radio link as the serving E-DCH radio link and no longer consider any other radio link as serving E-DCH radio link.

2> if the IE "E-AGCH Info" is included:

3> store the newly received E-AGCH configuration.

2> if the IE "E-HICH information" is included:

3> store this E-HICH configuration for the concerning radio link.

2> if the IE "E-RGCH information" is included:

3> store this E-RGCH configuration for the concerning radio link.

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> act on the other IEs contained in the IE "Downlink information for each radio link" as specified in subclause 8.6 applied on this radio link.

1> in addition, if the message was received in CELL_DCH state and the UE remains in CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

3> consider this radio link as the serving HS-DSCH radio link;

3> if the serving HS-DSCH radio link was another radio link than this radio link prior to reception of the message and the IE "H-RNTI" is not included:

4> clear the variable H_RNTI.

2> if the IE "Serving HS-DSCH radio link indicator" is set to ‘FALSE’ and this radio link was considered the serving HS-DSCH radio link prior to reception of this message:

3> no longer consider this radio link as the serving HS-DSCH radio link.

2> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

2> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

3> consider this radio link as the serving E-DCH radio link;

3> if the serving E-DCH radio link was another radio link than this radio link prior to reception of the message:

4> if the IE "New Primary E-RNTI" is not included:

5> clear the Primary E-RNTI stored in the variable E_RNTI.

4> if the IE "New Secondary E-RNTI" is not included:

5> clear the Secondary E-RNTI stored in the variable E_RNTI.

2> if the IE "Serving E-DCH radio link indicator" is set to ‘FALSE’ and this radio link was considered the serving E-DCH radio link prior to reception of this message:

3> no longer consider this radio link as the serving E-DCH radio link.

2> if the IE "E-HICH release indicator" is present:

3> delete the stored E-HICH, E-AGCH and E-RGCH (if any) configurations.

2> if the IE "E-RGCH release indicator" is present:

3> delete the stored E-RGCH configuration for this RL.

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28;

2> for each optional IE part of the IE "Downlink information for each radio link" that is not present:

3> do not change its current downlink physical channel configuration corresponding to the IE, which is absent, if not stated otherwise elsewhere.

…

If the IE "E-DCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the IE "E-DPCCH Info" is included:

2> store the newly received E-DPCCH configuration.

1> if the IE "E-DPDCH Info" is included:

2> store the newly received E-DPDCH configuration.

NOTE: The UTRAN should ensure the ordering of the E-TFCI table in increasing transmission power, by correct setting of the reference E-TFCI power offsets.

1> if the IE "MAC-es/e reset indicator" is included:

2> reset the MAC-es/e entity [15].

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> configure the UL E-DPCCH in accordance with the stored IE "E-DPCCH" configuration;

1> configure the MAC with the stored IE "E-DPDCH" configuration.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.28, 8.6.3.14, 8.6.5.5, 8.6.5.16, 8.6.5.17, 8.6.5.18, 8.6.6.4, 8.6.6.37, 8.6.6.38, 8.6.6.39.

8.2.6.58.3 Test purpose

To confirm that the UE changes the serving E-DCH cell with discontinuous uplink transmission according to the received PHYSICAL CHANNEL RECONFIGURATION message.

8.2.6.58.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and 2 are active

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A20, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports discontinuous uplink transmission.

Test Procedure

Table 8.2.6.58

Parameter	Unit	Cell 1				Cell 2			
		T0	T1	T2	T3	T0	T1	T2	T3
UTRA RF Channel Number		Mid Range Test Frequency				Mid Range Test Frequency			
CPICH Ec	dBm/3.84MHz	-60	-60	-60	-70	-75	-60	-70	-60

Table 8.2.6.58 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The downlink transmission power is set according to values in column “T0” in table 8.2.6.58. The UE has a radio bearer mapped to the E-DCH/HS-DSCH and the signalling radio bearers mapped on E-DCH/ HS-DCH in cell 1, E-DCH transmission Time Interval is set to 10ms, and UL DTX is active.

SS configures its downlink transmission power settings according to columns "T1" in table 8.2.6.58. UE shall be triggered to transmit a MEASUREMENT REPORT message, which includes the primary scrambling code for cell 2.

After the MEASUREMENT REPORT message is received, the SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC to add cell 2 to the active set. When the UE receives this message, the UE shall configure layer 1 to begin reception without affecting the current uplink and downlink activities of existing radio links and cell 1 shall be kept as the serving E-DCH and HS-DSCH cell. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

SS configures its downlink transmission power settings according to columns "T2" in table 8.2.6.58. The SS configures reporting of event 1d “change of best cell” by transmitting a MEASUREMENT CONTROL message to the UE, and the UE shall send an initial MEASUREMENT REPORT which includes the primary scrambling code of cell 1 according to IE "Intra-frequency event identity" set to 1d.

The SS configures its downlink transmission power settings according to columns "T3" in table 8.2.6.58. The UE transmits a MEASUREMENT REPORT message, which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity" set to 1d.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE. This message requests the change of serving E-DCH cell with UL DTX Configured. At the activation time the UE and SS change the E-DCH and HS-DSCH serving cell to cell 2 and perform MAC-hs reset. Finally the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC. The SS checks that the UE does not transmit on UL DPCCH during DTX

The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 400ms.

SS calls for generic procedure C.3 to check that the UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	SS			SS configures its downlink transmission power settings according to columns "T1" in table 8.2.6.58.
1	→		MEASUREMENT REPORT	See specific message contents for this message
2	←		ACTIVE SET UPDATE	The SS instructs the UE to add cell 2 in the active set.
3	→		ACTIVE SET UPDATE COMPLETE	The UE adds the radio link in cell 2.
4	SS			SS configures its downlink transmission power settings according to columns "T2" in table 8.2.6.58.
5	←		MEASUREMENT CONTROL	Configure event 1D “Change of best cell”
6	→		MEASUREMENT REPORT	See specific message contents for this message
7	SS			SS configures its downlink transmission power settings according to columns "T3" in table 8.2.6.58
8	→		MEASUREMENT REPORT	See specific message contents for this message
9	←		PHYSICAL CHANNEL RECONFIGURATION	Serving E-DCH and HS-DSCH cell change with UL DTX Configured
10	SS			At the activation time, the SS changes the serving E-DCH and HS-DSCH radio link to cell 2 and performs MAC-hs reset.
11	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
12	SS			The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 400ms (i.e. duration of 10 consecutive DTX cycle 2).
13	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

MEASUREMENT REPORT (Step 1)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 2)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
DTX-DRX timing information	
CHOICE *timing*	Continue
DTX-DRX Information	Not Present
DRX Information	
- UE DRX cycle	10
- Inactivity Threshold for UE DRX cycle	32
- Inactivity Threshold for UE Grant Monitoring	8
- UE DRX Grant Monitoring	TRUE
Uplink DPCCH slot format information	1
Radio link addition information	
- Primary CPICH Info	
- Primary scrambling code	Primary scrambling code of Cell 2
- Downlink F-DPCH info for each RL	
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present
- Secondary CPICH info	Not Present
- Secondary scrambling code	Not Present
- Code number	12
- TPC combination index	1
- CHOICE E-HICH Information	
- E-HICH Information	
- Channelisation code	4
- Signature sequence	2
- CHOICE E-RGCH Information	
- E-RGCH Information	
- Signature Sequence	3
- RG combination index	1
Serving HS-DSCH cell information	
Δ_{ACK}	OMIT
Δ_{NACK}	OMIT
HARQ_preamble_mode	0
Primary CPICH info	OMIT
Downlink HS-PDSCH Information	Same as radio bearer setup message.
HARQ Info	OMIT
MAC-hs reset indicator	OMIT

MEASUREMENT CONTROL (Step 5)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measurement command	Setup
- CHOICE measurement type	Intra-frequency measurement
- Intra frequency cell info list	Not present
- Intra-frequency measurement quantity	
- Filter coefficient	3
- CHOICE mode	FDD
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/N0 reporting indicator	TRUE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not Present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1D
- Triggering condition 2	Active set cells
- Hysteresis	8 (4 dB)
- Time to trigger	20 mSec
- Reporting cell status	
- CHOICE reported cell	Report cells within active set
- Maximum number of reported cells	3
- Use CIO	FALSE
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 6)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- DeltaRSCP	Not checked
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- DeltaRSCP	Not checked
- Pathloss	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	Check to see if set to "Intra-frequency event results"
- Event ID	Check to see if set to "1D"
- Cell measurement event results	
- Primary scrambling code	Check to see if set to "Primary scrambling code of Cell 1"

MEASUREMENT REPORT (Step 8)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- DeltaRSCP	Not checked
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- DeltaRSCP	Not checked
- Pathloss	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	Check to see if set to "Intra-frequency event results"
- Event ID	Check to see if set to "1D"
- Cell measurement event results	
- Primary scrambling code	Check to see if set to "Primary scrambling code of Cell 2"

PHYSICAL CHANNEL RECONFIGURATION (Step 9)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
New Primary E-RNTI	'0101 0101 0101 0101'
Frequency info	Not present
DTX-DRX timing information	
CHOICE timing	
- New timing	
- Enabling Delay	0
- UE DTX DRX Offset	0
DTX-DRX Information	
- CHOICE E-DCH TTI length	10ms
- UE DTX cycle 1	10
- UE DTX cycle 2	20
- MAC DTX cycle	10
- Inactivity Threshold for UE DTX cycle 2	8
- UE DTX long preamble length	4
- MAC Inactivity Threshold	8
- CQI DTX Timer	32
- UE DPCCH burst_1	1
- UE DPCCH burst_2	1
DRX Information	
- UE DRX cycle	10
- Inactivity Threshold for UE DRX cycle	32
- Inactivity Threshold for UE Grant Monitoring	8
- UE DRX Grant Monitoring	TRUE
Uplink DPCCH slot format information	1
Uplink DPCH info	OMIT
Downlink information common for all radio links	
- Downlink F-DPCH info common for all RL	
- Timing Indication	Maintain
- Timing maintained Synchronization indicator	FALSE
- Downlink F-DPCH power control information	
- DPC mode	0 (single)
- TPC command error rate target	0.04
- CHOICE mode	FDD
- DPCH compressed mode info	Not Present
- TX Diversity mode	None
- Default DPCH Offset Value	Not Present
- MAC-hs reset indicator	TRUE
- Downlink information for each radio link	(for cell 1)
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)
- Serving HS-DSCH radio link indicator	FALSE
- Serving E-DCH radio link indicator	FALSE
- Downlink DPCH info for each RL	Not Present
- E-AGCH Info	OMIT
- E-HICH Information	OMIT
- E-RGCH Information	OMIT
- Downlink information for each radio link	(for cell 2)
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)
- Serving HS-DSCH radio link indicator	TRUE
- Serving E-DCH radio link indicator	TRUE
- Downlink DPCH info for each RL	Not Present
- Downlink F-DPCH info for each RL	
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present
- Secondary CPICH info	Not Present
- Secondary scrambling code	Not Present
- Code number	12
- TPC combination index	0
- E-AGCH Info	
- E-AGCH Channelisation Code	10
- CHOICE E-HICH Information	

- E-HICH Information	
- Channelisation code	4
- Signature sequence	2
- CHOICE E-RGCH Information	
- E-RGCH Information	
- Signature Sequence	3
- RG combination index	1

8.2.6.58.5 Test requirements

At step 1, the UE shall transmit a MEASUREMENT REPORT message.

At step 6, the UE shall transmit a MEASUREMENT REPORT message.

At step 8, the UE shall transmit a MEASUREMENT REPORT message.

At step 11, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

At step 12 the time between 11 consecutive CQI indications shall be 400ms.

8.2.6.59 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialized hard handover to another frequency, Serving E-DCH cell change with discontinuous uplink transmission)

8.2.6.59.1 Definition

All UEs, which support FDD and UL DTX.

8.2.6.59.2 Conformance requirement

If the UE receives:

- a PHYSICAL CHANNEL RECONFIGURATION message;

it shall:

1> set the variable ORDERED_RECONFIGURATION to TRUE;

…

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

…

1> enter a state according to TS25.331 subclause 8.6.3.3.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

If the IE "DPCH compressed mode info" is included, and if the IE group "transmission gap pattern sequence configuration parameters" is included, the UE shall:

2> at the time indicated by IE "TGCFN":

3> activate the stored pattern sequence corresponding to each IE "TGPSI" for which the "TGPS status flag" is set to "activate"; and

3> set the "Current TGPS Status Flag" for this pattern sequence in the variable TGPS_IDENTITY to "active".

…

The variable DTX_DRX_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> both variables HS_DSCH RECEPTION and E_DCH_TRANSMISSION are set to TRUE;

1> no DCH transport channel is configured;

1> the variable DTX_DRX_PARAMS is set;

1> the UE has received the IE "DTX-DRX timing information".

If any of the above conditions is not met and the variable DTX_DRX_STATUS is set to TRUE, the UE shall:

1> set the variable DTX_DRX_STATUS to FALSE;

1> clear the variable DTX_DRX_PARAMS;

1> stop DTX-DRX mode related activities.

If variable DTX_DRX_STATUS is set to true and the serving HS-DSCH cell was changed as a result of the received message the UE shall instruct the physical layer to consider HS-SCCH orders were never received.

Whenever the variable DTX_DRX_STATUS is set to TRUE after receiving this message and the value of IE "DTX-DRX timing information" included in this message is not "Continue", the UE shall:

1> if the variable DTX_DRX_STATUS was set to TRUE before receiving this message:

2> re-configure the physical layer to perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration;

2> let the MAC layer continue with the current restriction on E-DCH transmission and monitoring of absolute and relative grant channels from the frame boundary where the uplink transmission starts with the new configuration and for the duration of the IE "Enabling Delay".

1> else:

2> perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations by configuring the physical layer according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration.

4> configure the MAC layer to start restricting E-DCH transmissions and monitor absolute and relative grant channels at the CFN corresponding to the frame boundary that is offset by the value of IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration taking into account the IEs "UE DTX DRX Offset", "MAC DTX Cycle", "MAC Inactivity Threshold" and "Inactivity Threshold for UE Grant Monitoring".

…

If the IE "DTX-DRX timing information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the CHOICE "timing" is set to "New timing":

2> store the contents of the IE in the variable DTX_DRX_PARAMS.

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

…

If the IE "DTX–DRX information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the contents of the IE in the variable DTX_DRX_PARAMS;

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34;

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple of the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple or a divisor of the value of the IE "CQI Feedback cycle, k"; or

1> if the value of the IE "UE DPCCH burst 1" is greater than the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DPCCH burst 2" is greater than the value of the IE "UE DTX cycle 2"; or

1> if the IE "UE DTX long preamble length" is set to 4 or 15 slots and the value of the IE "Inactivity Threshold for UE DTX cycle 2" is less than 4 TTIs (for 10ms E-DCH TTI) or 8 TTIs (for 2ms E-DCH TTI); or

1> if the IE "UE DRX cycle" is not an integer multiple or a divisor of the value of the IE "UE DTX cycle 1"; or

1> if the IE "DRX Information" is included in this message while the IE "DTX information" is not included in this message; or

1> if the value of the IE "UE DTX cycle 1" is not an integer multiple or a divisor of the value of the IE "MAC DTX cycle":

2> the UE behaviour is unspecified.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4, 8.6.6.15, 8.5.34, 8.6.6.38, 8.6.6.39.

8.2.6.59.3 Test purpose

To confirm that the UE is able to perform a timing re-initialized hard handover to another frequency after compressed mode measurement on the target frequency in conjunction with a serving E-DCH cell change and UL DTX configured according to the received PHYSICAL CHANNEL RECONFIGURATION message.

8.2.6.59.4 Method of test

Initial Condition

System Simulator: 2 cells–Cell 1 and cell 6 are active

UE: PS-DCCH +DTCH_HS-DSCH +DTCH_E-DCH (state 6-18) under condition A20 in cell 1 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports discontinuous uplink transmission

Test Procedure

Table 8.2.6.59

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-60	-70	-70	-60

Table 8.2.6.59 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE is in state 6-18 under condition A20 as specified in TS34.108 clause 7.4 in cell 1 and has a radio bearer mapped on E-DCH and HS-DSCH established with active E-DCH transmission and HS-DSCH reception. E-DCH transmission Time Interval is set to 10ms. The SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.59.

The SS configures compressed mode (if required) by sending a PHYSICAL CHANNEL RECONFIGURATION message, which includes the IE "DPCH compressed mode info" with the IE "TGPS Status Flag" set to "Deactivate". The UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

The SS switches its downlink transmission power setting according to columns "T1" in table 8.2.6.59, but the UE shall not transmit any MEASUREMENT REPORT messages.

The SS then sets up inter-frequency measurements (event 2b) and activates compressed mode (if required), by sending a MEASUREMENT CONTROL message to the UE. The SS waits for 1s for the UE to activate compressed mode. The UE shall transmit MEASUREMENT REPORT message to report event 2b with the measured CPICH RSCP and Ec/No values for cell 6 to the SS.

The SS then transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE ordering the UE to change to Cell 6 and configure UL DTX. At the activation time the UE changes to Cell 6 keeping the E-DCH configuration with UL DTX configured. Finally the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC. SS verifies that UE does not transmit on UL DPCCH during DTX .The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 400ms.

The SS calls for the generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_DCH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.59.
2	←		PHYSICAL CHANNEL RECONFIGURATION	The SS downloads compressed mode parameters without activating compressed mode (if required).
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE acknowledges the downloading of the compressed mode parameters (only if compressed mode was configured).
4				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.6.59.
5	←		MEASUREMENT CONTROL	The SS configures inter-frequency measurements in the UE and activates compressed mode (if required).
6	→		MEASUREMENT REPORT	The UE shall report event 2b with the measured CPICH RSCP and Ec/No values for cell 6.
7	←		PHYSICAL CHANNEL RECONFIGURATION	The SS instructs the UE to change to Cell 6 and configure UL DTX.
8	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE sends this message in cell 6.
9	SS			The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 400ms (i.e. duration of 10 consecutive DTX cycle 2).
10	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 2)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Uplink DPCH info	
- Uplink DPCH power control info	
- DPCCH power offset	-40 (-80dB)
- PC Preamble	1 frame
- SRB delay	7 frames
- Power Control Algorithm	Algorithm1
- TPC step size	0 (1dB)
- Δ_{ACK}	3
- Δ_{NACK}	3
- Ack-Nack repetition factor	1
- HARQ_preamble_mode	0
- Scrambling code type	Long
- Scrambling code number	0 (0 to 16777215)
- Number of DPDCH	0
- spreading factor	Not Present
- TFCI existence	FALSE
- Number of FBI bit	Not Present
- Puncturing Limit	Not Present
E-DCH Info	Not present
Downlink HS-PDSCH Information	Not present
Downlink information common for all radio links	
- Downlink F-DPCH info common for all RL	
- Timing Indication	Maintain
- Timing maintained Synchronization indicator	FALSE
- Downlink DPCH power control information	
- CHOICE Mode	FDD
-DPC Mode	0 (Single)
- TPC command error rate target	0.04
- CHOICE mode	FDD
- DPCH compressed mode info	
- TGPSI	1
- TGPS Status Flag	Deactivate
- TGCFN	Not Present
- Transmission gap pattern sequence configuration parameters	
- TGMP	FDD Measurement
- TGPRC	Infinity
- TGSN	4
- TGL1	7
- TGL2	Not Present
- TGD	Undefined
- TGPL1	3
- RPP	mode 0
- ITP	mode 0
- CHOICE UL/DL Mode	UL and DL, UL only, or DL only, depending on UE capability
- Downlink compressed mode method	SF/2 (Comment: If F-DPCH is configured this IE shall not be used by the UE.)
- Uplink compressed mode method	SF/2
- Downlink frame type	B
- DeltaSIR1	20 (2.0)
- DeltaSIRAfter1	10 (1.0)
- DeltaSIR2	Not Present
- DeltaSIRAfter2	Not Present
- N identify abort	Not Present
- T Reconfirm abort	Not Present
- TX Diversity Mode	Not Present
- Default DPCH Offset Value	Not Present

Information Element	Value/remark
- MAC-hs reset indicator	Not Present
- Downlink information for each radio link list	OMIT

MEASUREMENT CONTROL (Step 5)

Use the same message sub-type found in [9] TS 34.108 clause 9, with the following exceptions in the IE(s) concerned:

Information Element	Value/remark
Measurement Identity	15
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency measurement object list	
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	Remove all inter-frequency cells
- New inter-frequency cells	
- Inter-frequency cell id	6
- Frequency info	Set to the frequency of cell 6
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	OMIT
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 6
- Primary CPICH TX power	Not Present
- Primary CPICH TX power	
- TX Diversity Indicator	Not Present
- Cell for measurement	FALSE
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- CHOICE Mode	FDD
- Measurement quantity for frequency quality estimate	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	TRUE
- COICE Mode	FDD
- CPICH Ec/No reporting indicator	TRUE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement validity	
- UE state	CELL_DCH
- Inter-frequency set update	On with no reporting
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each event	
- Inter-frequency event identity	2b
- Threshold used frequency	-65 dBm
- W used frequency	0
- Hysteresis	2 (1.0 dB)
- Time to trigger	100 ms
- Reporting cell status	
- CHOICH reported cell	Report cells within monitored and/or virtual active set on non-used frequency
- Maximum number of reported cells per reported non-used frequency	2
- Parameters required for each non-used frequency	
- Threshold non used frequency	-68 dBm
- W non-used frequency	0
DPCH compressed mode status info	
- TGPS reconfiguration CFN	(Current CFN + (100 – TTI/10msec))mod 256
- Transmission gap pattern sequence	
- TGPSI	1
- TGPS Status Flag	Activate

Information Element	Value/remark
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256

MEASUREMENT REPORT (Step 6)

The contents of MEASUREMENT REPORT message is the same as them found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Measurement Identity	Check to see if set to 15
Measured Results	
- CHOICE Measurement	
- Inter frequency measured results list	Check to see if set to "Inter-frequency measured results list"
- Inter frequency measurement results	
- Frequency info	Set to the frequency of cell 6
- UTRA carrier RSSI	Check to see if absent
- Inter frequency cell measurement results	
- Cell measured results	
- Cell Identity	Check to see if it is present
- Cell synchronisation information	Check to see if it is absent
- CHOICE Mode	FDD
- Primary CPICH Info	Check that the value of this IE is set to Scrambling code of cell 6
- CPICH Ec/No	Check to see if it is present
- CPICH RSCP	Check to see if it is present
- Pathloss	Check to see if it is absent
Measured Results on RACH	Check to see if it is absent
Additional Measured results	Check to see if it is absent
- Measured Result	
Event results	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	Check that the value of this IE is set to the frequency of cell 6
- Non freq related measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code of cell 6

PHYSICAL CHANNEL RECONFIGURATION (Step 7)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
New Primary E-RNTI	'0101 0101 0101 0101'
New Secondary E-RNTI	Not Present
Frequency info	
- UARFCN uplink(Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
DTX-DRX timing information	
CHOICE timing	
- New timing	
- Enabling Delay	32
- UE DTX DRX Offset	0
DTX-DRX Information	
- CHOICE E-DCH TTI length	10ms
- UE DTX cycle 1	10
- UE DTX cycle 2	20
- MAC DTX cycle	10
- Inactivity Threshold for UE DTX cycle 2	8
- UE DTX long preamble length	4
- MAC Inactivity Threshold	8
- CQI DTX Timer	32
- UE DPCCH burst_1	1
- UE DPCCH burst_2	1
DRX Information	
- UE DRX cycle	10
- Inactivity Threshold for UE DRX cycle	32
- Inactivity Threshold for UE Grant Monitoring	8
- UE DRX Grant Monitoring	TRUE
Uplink DPCCH slot format information	1
Downlink information common for all radio links	
- Downlink F-DPCH info common for all RL	
- Timing indication	Initialise
- Downlink F-DPCH power control information	Not Present
- TPC command error rate target	0.04
- DPCH compressed mode info	Not present
- TX Diversity mode	Not Present
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
- MAC-hs reset indicator	TRUE
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- CHOICE mode	FDD
- Primary CPICH info	Set to the scrambling code of cell 6
- Cell ID	Not present
- Serving HS-DSCH radio link indicator	TRUE
- Serving E-DCH radio link indicator	TRUE
- Downlink DPCH info for each RL	Not present
- Downlink F-DPCH info for each RL	
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present
- Secondary CPICH info	Not present
- Secondary scrambling code	Not present
- Code number	12
- TPC combination index	0
- E-AGCH information	
- E-AGCH channelisation code	10
- CHOICE E-HICH information	E-HICH information

Information Element	Value/remark
- Channelisation code	4
- Signature sequence	2
- CHOICE E-RGCH Information	E-RGCH information
- Signature sequence	3
- RG combination index	1

8.2.6.60 Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Failure (Timing re-initialised hard handover, Serving E-DCH cell change with discontinuous uplink transmission, physical channel failure and reversion to old channel)

8.2.6.60.1 Definition

All UEs which support FDD and UL DTX.

8.2.6.60.2 Conformance requirement

If the received message caused the UE to be in CELL_DCH state and the UE according to subclause 8.5.4 failed to establish the dedicated physical channel(s) indicated in the received message or for 3.84 Mcps TDD and 7.68 Mcps TDD failed to establish the physical channel(s) indicated in the received message to which DCCH(s) are mapped the UE shall:

1> if the CM_PATTERN_ACTIVATION_ABORTED flag is not set to TRUE:

2> revert to the configuration prior to the reception of the message (old configuration), including any HS-DSCH and E-DCH configuration if existing;

2> if the UE was in Cell DCH state prior to the reconfiguration:

3> perform the physical layer synchronisation procedure A as specified in [29] (FDD only);

3> apply power control preamble according to [26] during the number of frames indicated in the IE "PC preamble" in the variable LATEST_CONFIGURED_SRB_DELAY_AND_PC_PREAMBLE; and

3> then not send any data on signalling radio bearers RB0 to RB4 during the number of frames indicated in the IE "SRB delay" in the variable LATEST_CONFIGURED_SRB_DELAY_AND_PC_PREAMBLE or while the physical channel is not considered established;.

1> if the CM_PATTERN_ACTIVATION_ABORTED flag is set to TRUE or if the old configuration includes dedicated physical channels (CELL_DCH state) and the UE is unable to revert to the old configuration:

2> initiate a cell update procedure according to subclause 8.3.1, using the cause "radio link failure";

2> after the cell update procedure has completed successfully:

3> proceed as below.

1> if the old configuration does not include dedicated physical channels (CELL_FACH state):

2> select a suitable UTRA cell according to [4];

2> if the UE selects another cell than the cell the UE camped on upon reception of the reconfiguration message:

3> initiate a cell update procedure according to subclause 8.3.1, using the cause "Cell reselection";

3> after the cell update procedure has completed successfully:

4> proceed as below.

1> transmit a failure response message as specified in subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "physical channel failure".

1> set the variable ORDERED_RECONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

The procedure ends.

Reference(s)

TS 25.331 clause 8.2.2.7

8.2.6.60.3 Test purpose

To confirm that the UE reverts to the old E-DCH / HS-DSCH configuration with UL DTX and transmits a PHYSICAL CHANNEL RECONFIGURATION FAILURE message if the UE fails to reconfigure the new physical channel according to the received PHYSICAL CHANNEL RECONFIGURATION message before the expiry of timer T312.

8.2.6.60.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 & Cell 6.

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A20, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports discontinuous uplink transmission.

Test Procedure

The UE is in the CELL_DCH state and has a radio bearer mapped on E-DCH and HS-DSCH established with active E-DCH transmission and HS-DSCH reception. E-DCH transmission Time Interval is set to 10ms.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE ordering the UE to perform a timing re-initialized hard handover to Cell 6 and UL DTX configured, but the SS does not configure the dedicated physical channels in Cell 6. At the activation time the UE attempts to establish dedicated physical channels on Cell 6, but fails to do so.
The UE shall then revert to the old E-DCH / HS-DSCH configuration on Cell 1 and transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message to the SS on the DCCH using AM RLC, with the value "physical channel failure" in the IE "failure cause".

The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 400ms.

The SS calls for generic procedure C.3 to check that the UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	The SS instructs the UE to perform a timing re-initialized hard handover to Cell 6. The SS does not configure the physical channels in Cell 6.
2				The UE attempts to establish dedicated physical channels on Cell 6, but fails to do so.
3	→		PHYSICAL CHANNEL RECONFIGURATION FAILURE	The UE sends this message on Cell 1. The IE “failure cause” is set to “physical channel failure”.
4	SS			The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 400ms (i.e. duration of 10 consecutive DTX cycle 2).
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

PHYSICAL CHANNEL RECONFIGURATION (Step 1)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 Clause 9, except for the following:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
New Primary E-RNTI	‘0101 0101 0101 0101’
New Secondary E-RNTI	Not Present
Frequency info	
- UARFCN uplink(Nu)	Not Present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink(Nd)	Same downlink UARFCN as used for Cell 6
DTX-DRX timing information	
CHOICE timing	
- New timing	
- Enabling Delay	32
- UE DTX DRX Offset	0
DTX-DRX Information	
- CHOICE E-DCH TTI length	10ms
- UE DTX cycle 1	10
- UE DTX cycle 2	20
- MAC DTX cycle	10
- Inactivity Threshold for UE DTX cycle 2	8
- UE DTX long preamble length	4
- MAC Inactivity Threshold	8
- CQI DTX Timer	32
- UE DPCCH burst_1	1
- UE DPCCH burst_2	1
DRX Information	
- UE DRX cycle	10
- Inactivity Threshold for UE DRX cycle	32
- Inactivity Threshold for UE Grant Monitoring	8
- UE DRX Grant Monitoring	TRUE

Information Element	Value/remark
Uplink DPCCH slot format information	1
Uplink DPCH info	Not Present
E-DCH Info	Not Present
Downlink HS-PDSCH Information	Not Present
Downlink information common for all radio links	
- CHOICE *DPCH info*	F-DPCH
- Downlink F-DPCH info for all RL	
- Timing Indication	Initialize
- Timing maintained Synchronization indicator	FALSE
- Downlink F-DPCH power control information	
- DPC mode	0 (single)
- TPC command error rate target	0.04
- CHOICE mode	FDD
- DPCH compressed mode info	Not Present
- TX Diversity mode	None
- Default DPCH Offset Value	Not Present
- MAC-hs reset indicator	Not Present
Downlink information for each radio link list	
- Downlink information for each radio link	
- Serving HS-DSCH radio link indicator	TRUE
- Serving E-DCH radio link indicator	TRUE
- TX Diversity mode	Not Present
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
- MAC-hs reset indicator	TRUE
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- CHOICE mode	FDD
- Primary CPICH info	Set to the scrambling code of Cell 6
- Cell ID	Not present
- Serving HS-DSCH radio link indicator	TRUE
- Serving E-DCH radio link indicator	TRUE
- Downlink DPCH info for each RL	Not present
- Downlink F-DPCH info for each RL	
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present
- Secondary CPICH info	Not present
- Secondary scrambling code	Not present
- Code number	12
- TPC combination index	0
- E-AGCH information	
- E-AGCH channelisation code	10
- CHOICE E-HICH information	E-HICH information
- Channelisation code	4
- Signature sequence	2
- CHOICE E-RGCH Information	E-RGCH information
- Signature sequence	3
- RG combination index	1

PHYSICAL CHANNEL RECONFIGURATION FAILURE (Step 3)

Use the same message as specified in 34.108 Clause 9, except for the following:

Information Element	Value/remark
Failure cause	Physical channel failure

8.2.6.60.5 Test requirements

At step 3, the UE shall revert to the old E-DCH / HS-DSCH configuration on Cell 1 and transmit a PHYSICAL CHANNEL RECONFIGURATION FAILURE message.

At step 4 the time between 11 consecutive CQI indications shall be 400ms.

8.2.6.61 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH: Success (CQI reporting reduction)

8.2.6.61.1 Definition and applicability

All UEs, which support FDD and UL DTX.

8.2.6.61.2 Conformance requirement

If the IE "Measurement Feedback Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the received configuration;

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link.

…

If the IE "DTX–DRX information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the contents of the IE in the variable DTX_DRX_PARAMS;

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34;

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple of the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple or a divisor of the value of the IE "CQI Feedback cycle, k"; or

1> if the value of the IE "UE DPCCH burst 1" is greater than the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DPCCH burst 2" is greater than the value of the IE "UE DTX cycle 2"; or

1> if the IE "UE DTX long preamble length" is set to 4 or 15 slots and the value of the IE "Inactivity Threshold for UE DTX cycle 2" is less than 4 TTIs (for 10ms E-DCH TTI) or 8 TTIs (for 2ms E-DCH TTI); or

1> if the IE "UE DRX cycle" is not an integer multiple or a divisor of the value of the IE "UE DTX cycle 1"; or

1> if the IE "DRX Information" is included in this message while the IE "DTX information" is not included in this message; or

1> if the value of the IE "UE DTX cycle 1" is not an integer multiple or a divisor of the value of the IE "MAC DTX cycle":

2> the UE behaviour is unspecified.

…

When UL_DTX_Active is FALSE (see section 6C), the UE shall always transmit the Channel-Quality Indication (CQI) in the CQI transmission pattern defined in 6A.1.2.

When UL_DTX_Active is TRUE (see section 6C), the UE shall perform the following procedures:

The UE shall set the initial value of the variable CQI_DTX_Priority to 1.

Afterwards the UE sets the CQI_DTX_Priority based on the status of a "CQI nominal reporting timer" which is counting down to zero in subframes from the value CQI_DTX_TIMER which is configured by higher layers.

The setting of CQI_DTX_Priority to 1 is described in subclause 6A.1.1.

Upon the expiration of the CQI nominal reporting timer, the UE shall set CQI_DTX_Priority to 0.

CQI_DTX_Priority=0 indicates that CQI reports have lower priority than the Uplink DPCCH burst pattern. If CQI_DTX_Priority is set to 0, the UE shall transmit the Channel-Quality Indication (CQI) only if the start of the CQI field in the CQI transmission pattern as defined in 6A.1.2 overlaps with a DPCCH transmission burst of the Uplink DPCCH burst pattern as indicated in 6C.2.1.

CQI_DTX_Priority=1 indicates that CQI reports have higher priority than the Uplink DPCCH burst pattern. If CQI_DTX_Priority is set to 1, the UE shall always transmit the Channel-Quality Indication (CQI) in the CQI transmission pattern defined in 6A.1.2.

Reference

3GPP TS 25.331 clause 8.6.6.34, 8.6.6.39,

3GPP TS 25.214 clause 6C.1

8.2.6.61.3 Test purposes

1. To confirm that the UE correctly performs the HS-DPCCH CQI reporting procedure using some of the extended values for the IE CQI feedback cycle, according to the received RADIO BEARER SETUP message.

2. To confirm that the UE correctly performs the CQI reporting reduction procedure according to the received PHYSICAL CHANNEL RECONFIGURATION message:
   a. When the CQI nominal reporting timer is running the CQI reporting is higher priority than the UL DTX.
   b. When the CQI nominal reporting timer is expired the CQI reporting is lower priority than the UL DTX.

8.2.6.61.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH (state 6-7) with SRBs mapped to E-DCH/HS-DSCH as specified in clause 7.4 of TS 34.108

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports discontinuous uplink transmission

Test Procedure

The UE is in CELL_DCH state. Only signalling radio bearers have been established.

The test operator is prompted to make an outgoing call. The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of a radio bearer with RB mapping to E-DCH/HS-DSCH with use of F-DPCH, and requests to use one (64ms) of the new CQI feedback values. The UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. The SS checks that the UE transmits CQI information according to the CQI feedback cycle of 64ms, by measuring the delay between 11 consecutive CQI reports (the first CQI report to be taken into account must be taken after the reception of the RADIO BEARER SETUP COMPLETE message).

The SS then transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE. This message requests activation of UL DTX in the UE and changes the CQI feedback cycle according to the values in the table below.

Parameter	Value
UE DTX Cycle 1	20 ms
UE DTX Cycle 2	320 ms
Inactivity Threshold for UE DTX Cycle 2	320 ms (10ms E-DCH TTI)
CQI DTX Timer	512 ms
CQI feedback cycle	32 ms

The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC. The SS checks that the UE transmits CQI information according to the CQI feedback cycle of 32ms regardless of the active UL DTX, by measuring the delay between 11 consecutive CQI reports (the first CQI report being taken into account must be taken after the reception of the PHYSICAL CHANNEL RECONFIGURATION message). Thereafter the SS waits for 1s and then checks that the UE transmits CQI information according to the UL DTX timing (i.e. only every 320 ms), measuring the delay between 11 consecutive CQI reports.

SS calls for generic procedure C.3 to check that the UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	CQI feedback cycle = 64 ms.
2	→		RADIO BEARER SETUP COMPLETE	
3	SS			The SS verifies that the delay between 11 consecutive CQI reports is 640 ms (i.e. duration of 10 consecutive CQI feedback cycles).
4	←		PHYSICAL CHANNEL RECONFIGURATION	UL DTX is activated, CQI feedback cycle = 32 ms.
5	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
6	SS			The SS verifies that the delay between 11 consecutive CQI reports is 320 ms (i.e. duration of 10 consecutive CQI feedback cycles).
7	SS			The SS waits for 1s.
8	SS			The SS verifies that the delay between 11 consecutive CQI reports is 3200 ms (i.e. duration of 10 consecutive DTX cycle 2).
9	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for "Packet to CELL_DCH / E-DCH / HS-DSCH using one multiplexing option (1/1) and SRBs mapped on E-DCH/HS-DSCH" (condition A14) in TS 34.108 clause 9, except for the following:

Information Element	Value/remark
Deleted UL TrCH information	Not Present
Added or Reconfigured UL TrCH information	
- Uplink transport channel type	E-DCH
- CHOICE UL parameters	E-DCH
- E-DCH Transmission Time Interval	10ms
- CQI Feedback cycle, k	64 ms
Deleted DL TrCH information	Not Present

PHYSICAL CHANNEL RECONFIGURATION (Step 4)

Use the same message as the message sub-type titled as "Packet to CELL_DCH from CELL_DCH in PS" in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
DTX-DRX timing information	
- CHOICE timing	New timing
- Enabling Delay	16
- UE DTX DRX Offset	0
DTX-DRX Information	
- CHOICE E-DCH TTI length	10 ms
- UE DTX cycle 1	10
- UE DTX cycle 2	160
- MAC DTX cycle	10
- Inactivity Threshold for UE DTX cycle 2	32
- Default SG in DTX Cycle 2	Not Present
- UE DTX long preamble length	4
- MAC Inactivity Threshold	8
- CQI DTX Timer	256
- UE DPCCH burst_1	5
- UE DPCCH burst_2	5
DRX Information	
- UE DRX cycle	10
- Inactivity Threshold for UE DRX cycle	32
- Inactivity Threshold for UE Grant Monitoring	8
- UE DRX Grant Monitoring	TRUE
Uplink DPCCH slot format information	1
Uplink DPCH info	
- Uplink DPCH power control info	
- DPCCH power offset	-40 (-80dB)
- PC Preamble	1 frame
- SRB delay	7 frames
- Power Control Algorithm	Algorithm1
- TPC step size	0 (1dB)
- Δ_{ACK}	3
- Δ_{NACK}	3
- Ack-Nack repetition factor	1
- HARQ_preamble_mode	0
- Scrambling code type	Long
- Scrambling code number	0 (0 to 16777215)
- Number of DPDCH	0
- spreading factor	Not Present
- TFCI existence	FALSE
- Number of FBI bit	Not Present
- Puncturing Limit	Not Present
- Number of TPC bits	Not Present
Downlink HS-PDSCH Information	
- HS-SCCH Info	Not Present
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	6 dB
- CQI Feedback cycle, k	32 ms
- CQI repetition factor	1
- Δ_{CQI}	5
- CHOICE mode	FDD (no data)

8.2.6.61.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE message on the uplink DCCH using AM RLC.

After step 2, the UE shall transmit CQI reports every 64 ms. The time between 11 consecutive CQI reports shall be 640 ms (verifies test purpose 1).

After step 4, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 5, the UE shall transmit CQI reports every 32 ms. The timebetween 11 consecutive CQI reports shall be 320 ms (verifies test purpose 2a).

After step 7, the UE shall transmit CQI reports every 320ms. The time between 11 consecutive CQI reports shall be 3200 ms (verifies test purpose 2b).

8.2.6.62 Physical Channel Reconfiguration from CELL_DCH to CELL_DCH: Success (activation and de-activation of 64QAM)

8.2.6.62.1 Definition and Applicability

All UEs which support FDD, mac-ehs and 64QAM

8.2.6.62.2 Conformance Requirement

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL COMPLETE as response message on the uplink DCCH using AM RLC.

Extract From 25.331 clause 8.6.6.36:

If the IE "Downlink HS-PDSCH Information" is included and the UE would be in CELL_DCH state after completion of this procedure, the UE shall:

1> for 1.28 Mcps TDD, if the HS-PDSCH has been configured by the IE "DL Multi-carrier information":

2> clear other stored carriers configuration in the IE "DL Multi-carrier information".

1> if the IE "HS-SCCH Info" is included:

2> act as specified in subclause 8.6.6.33.

1> if the IE "Measurement Feedback Info" is included:

2> act as specified in subclause 8.6.6.34.

1> if the IE "HS-DSCH Timeslot Configuration" or "HS-PDSCH Midamble Configuration" is included:

2> store the received configuration;

2> determine the value for the HS_DSCH_RECEPTION variable and take actions as described in subclause 8.5.25.

[…]

>FDD					
>>Downlink 64QAM configured	OP		Enumerated (TRUE)	Absence of this IE means that the HS-SCCH does not use the 64QAM format. The presence of this IE means the UE uses the octet aligned table [15].	REL-7
>>HS-DSCH TB size table	CV-*Not64QAM*		Enumerated (octet aligned)	If this IE is present, octet aligned table [15] is used, else bit aligned table [15] is used.	REL-7

Condition	Explanation
Not64QAM	This IE is optionally present if 64QAM is not configured and MAC-ehs is configured. Otherwise it is not needed.

Reference(s)

TS 25.331 clause 8.6.6.36, 10.3.6.23a

8.2.6.62.3 Test purpose

1. To confirm that the UE starts HS-DSCH transmission using DL 64QAM mode according to PHYSICAL CHANNEL RECONFIGURATION message on DCCH.

2. To confirm that the UE stops HS-DSCH transmission using DL 64QAM mode according to PHYSICAL CHANNEL RECONFIGURATION message on DCCH.

8.2.6.62.4 Method of test

Initial conditions

System Simulator:

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A17b, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports MAC-ehs and 64QAM
- UE fully supports F-DPCH

Test Procedure

The UE is initially in CELL_DCH state with the SRBs and a PS RAB mapped on E-DCH/HS-DSCH (MAC-ehs).

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE, to reconfigure for DL 64 QAM which includes IE " Downlink HS-PDSCH Information". After the UE receives this message, it reconfigures the radio bearer and transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC. The SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 using the configured 64QAM parameters. The UE shall respond with a UE CAPABILITY INFORMATION message. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE. The SS transmits PHYSICAL CHANNEL RECONFIGURATION

message which omits DL 64 QAM settings. The UE should deactivate DL 64 QAM and then transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH AM RLC. The SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 using HS-DSCH. The UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE using SRB2 on HS-DSCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	Activation of 64QAM on HS-DSCH Including IE " Downlink HS-PDSCH Information ".
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
3	←		UE CAPABILITY ENQUIRY	SRB2 on HS-DSCH using 64QAM
4	→		UE CAPABILITY INFORMATION	
5	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 on HS-DSCH using 64QAM
6	←		PHYSICAL CHANNEL RECONFIGURATION	Deactivation of 64QAM on HS-DSCH.
7	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
8	←		UE CAPABILITY ENQUIRY	SRB2 on HS-DSCH using QPSK
9	→		UE CAPABILITY INFORMATION	
10	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 on HS-DSCH using QPSK

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 1)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" under condition A3, as specified in clause 7.4 of TS 34.108, except for the following:

Information Element	Value/remark
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	Use 2 HS-SCCH
- HS-SCCH Channelisation Code	6
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Pohsdsch	6 dB
- CQI Feedback cycle, k	4 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
- Downlink 64QAM configured	TRUE
- HS-DSCH TB size table	Not present

PHYSICAL CHANNEL RECONFIGURATION (Step 6)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" under condition A3, as specified in clause 7.4 of TS 34.108, except for the following:

Information Element	Value/remark
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Pohsdsch	6 dB
- CQI Feedback cycle, k	4 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
- Downlink 64QAM configured	Not present
- HS-DSCH TB size table	Octet aligned

8.2.6.62.5 Test requirements

After step 1 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

At step 3 the UE should receive UE CAPABILITY ENQUIRY mapped on DL 64QAM HS-DSCH(mac-ehs)

At step 5 the UE should receive UE CAPABILITY INFORMATION CONFIRM mapped on DL 64QAM HS-DSCH(mac-ehs)

After step 6 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

At step 8 the UE should receive SRB UE CAPABILITY ENQUIRY mapped on DL QPSK HS-DSCH(mac-ehs).

At step 10 the UE should receive SRB UE CAPABILITY INFORMATION CONFIRM mapped on DL QPSK HS-DSCH(mac-ehs).

8.2.6.62a Physical Channel Reconfiguration from CELL_DCH to CELL_DCH: Success (activation and de-activation of 64QAM) with SRBs mapped in E-DCH/DCH

8.2.6.62a.1 Definition and Applicability

All UEs which support FDD, mac-ehs and 64QAM

8.2.6.62a.2 Conformance Requirement

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

2> transmit a PHYSICAL CHANNEL COMPLETE as response message on the uplink DCCH using AM RLC.

Extract From 25.331 clause 8.6.6.36:

If the IE "Downlink HS-PDSCH Information" is included and the UE would be in CELL_DCH state after completion of this procedure, the UE shall:

1> for 1.28 Mcps TDD, if the HS-PDSCH has been configured by the IE "DL Multi-carrier information":

2> clear other stored carriers configuration in the IE "DL Multi-carrier information".

1> if the IE "HS-SCCH Info" is included:

2> act as specified in subclause 8.6.6.33.

1> if the IE "Measurement Feedback Info" is included:

2> act as specified in subclause 8.6.6.34.

2> if the IE "HS-DSCH Timeslot Configuration" or "HS-PDSCH Midamble Configuration" is included:

2> store the received configuration;

2> determine the value for the HS_DSCH_RECEPTION variable and take actions as described in subclause 8.5.25.

[…]

>FDD					
>>Downlink 64QAM configured	OP		Enumerated (TRUE)	Absence of this IE means that the HS-SCCH does not use the 64QAM format. The presence of this IE means the UE uses the octet aligned table [15].	REL-7
>>HS-DSCH TB size table	CV-*Not64QAM*		Enumerated (octet aligned)	If this IE is present, octet aligned table [15] is used, else bit aligned table [15] is used.	REL-7

Condition	Explanation
Not64QAM	This IE is optionally present if 64QAM is not configured and MAC-ehs is configured. Otherwise it is not needed.

Reference(s)

TS 25.331 clause 8.6.6.36, 10.3.6.23a

8.2.6.62a.3 Test purpose

1. To confirm that the UE starts HS-DSCH transmission using DL 64QAM mode according to PHYSICAL CHANNEL RECONFIGURATION message on DCCH.

2. To confirm that the UE stops HS-DSCH transmission using DL 64QAM mode according to PHYSICAL CHANNEL RECONFIGURATION message on DCCH.

8.2.6.62a.4 Method of test

Initial conditions

System Simulator:

UE: PS_DCCH DCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition, A17e, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD

- UE supports MAC-ehs and 64QAM

Test Procedure

The UE is initially in CELL_DCH state with the SRBs and a PS RAB mapped on E-DCH/HS-DSCH (MAC-ehs).

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE, to reconfigure for DL 64 QAM which includes IE " Downlink HS-PDSCH Information". After the UE receives this message, it reconfigures the radio bearer and transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC.. The SS transmits PHYSICAL CHANNEL RECONFIGURATION message which omits DL 64 QAM settings. The UE should deactivate DL 64 QAM and then transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH AM RLC.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	Activation of 64QAM on HS-DSCH Including IE " Downlink HS-PDSCH Information".
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
3	←		PHYSICAL CHANNEL RECONFIGURATION	Deactivation of 64QAM on HS-DSCH.
4	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 1)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" under condition A3, as specified in clause 7.4 of TS 34.108, except for the following:

Information Element	Value/remark
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	Use 2 HS-SCCH
- HS-SCCH Channelisation Code	6
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Pohsdsch	6 dB
- CQI Feedback cycle, k	4 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
- Downlink 64QAM configured	TRUE
- HS-DSCH TB size table	Octet Aligned

PHYSICAL CHANNEL RECONFIGURATION (Step 3)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" under condition A3, as specified in clause 7.4 of TS 34.108, except for the following:

Information Element	Value/remark
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Pohsdsch	6 dB
- CQI Feedback cycle, k	4 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
- Downlink 64QAM configured	Not present
- HS-DSCH TB size table	Not present

8.2.6.62a.5 Test requirements

After step 1 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 3 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

8.2.6.63 Physical Channel Reconfiguration from CELL_DCH to CELL_DCH: Success (Timing re-initialised hard handover to another frequency, Serving HS-DSCH cell change with MIMO enabled)

8.2.6.63.1 Definition and applicability

All UEs which support FDD and MIMO.

8.2.6.63.2 Conformance requirement

Extract from 25.331

1> if any IEs related to MIMO are stored in the UE:

2> determine the value for the MIMO_STATUS variable and take the corresponding actions as described in subclause 8.5.33.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> if the IE "MIMO parameters" is not included:

- 2> clear the MIMO_PARAMS variable;
- 2> trigger lower layers to stop operation in MIMO mode.

1> otherwise:

- 2> for FDD, if the IE "MIMO N_cqi_typeA/M_cqi ratio" is included:

3> store the value of the IE "MIMO N_cqi_typeA/M_cqi ratio" in the MIMO_PARAMS variable.

2> for FDD, if the IE "MIMO pilot configuration" is included:

3> store the value of the IE "MIMO pilot configuration" in the MIMO_PARAMS variable.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message, the UE shall:

1> take actions related to the MIMO_PARAMS variable as specified in subclause 8.5.32;

1> determine the value of the MIMO_STATUS variable.

The MIMO_STATUS variable shall be set to TRUE only when all the following conditions are met:

1> The UE is in CELL_DCH state;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO N_cqi_typeA/M_cqi ratio"; and

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO pilot configuration".

1> for 1.28 Mcps TDD, the variable MIMO_PARAMS contains a value for the IE "MIMO SF Mode for HS-PDSCH dual stream".

If any of the above conditions is not met and the MIMO_STATUS variable is set to TRUE, the UE shall:

1> set the MIMO_STATUS variable to FALSE;

1> clear the MIMO_PARAMS variable;

1> trigger lower layers to stop operation in MIMO mode.

NOTE: This subclause applies to FDD and 1.28 Mcps TDD only.

[…]

If the IE "MIMO parameters" is included, the UE shall:

1> act as specified in clauses 8.5.32 and 8.5.33;

1> If the IE "MIMO operation" is set to "start":

2> If the MIMO_STATUS variable is set to FALSE:

3> the UE behaviour is undefined.

2> otherwise:

3> indicate to lower layers to start operation in MIMO mode, using the parameter values stored in the variable MIMO_PARAMS.

1> If the IE "MIMO operation" is set to "continue":

2> If the MIMO_STATUS variable is set to FALSE:

3> the UE behaviour is undefined.

1> for FDD, if the IE "Primary CPICH usage for Channel Estimation" is set to "FALSE":

2> the UE behavior is undefined.

1> for FDD, if the IE "S-CPICH Info" is included and if the IE "Channelisation code" in MIMO pilot configuration is different from the IE "Channelisation Code" in Secondary CPICH info:

2> the UE behavior is undefined.

NOTE: This subclause applies to FDD and 1.28 Mcps TDD only.

Reference

3GPP TS 25.331 clauses 8.2.2.3, 8.5.32, 8.5.33, 8.6.6.41

8.2.6.63.3 Test purpose

1. To confirm that the UE is able to perform a timing re-initialised hard handover to another frequency without prior measurement on the target frequency in conjunction with a serving HS-DSCH cell change and with MIMO enabled according to the received PHYSICAL CHANNEL RECONFIGURATION message.

8.2.6.63.4 Method of test

Initial Condition

System Simulator: 2 cells –2 cells - Cell 1 on frequency f_1, and cell2 on frequency f_2. Cells 1 and 2 have different primary scrambling codes (FDD only)

UE: PS-DCCH DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports MIMO

Test Procedure

The UE is initially in CELL_DCH state of Cell 1 and only signalling radio bearers have been established.

The SS transmits a RADIO BEARER SETUP message including the RAB Information for setup IE to configure PS domain RAB and perform SRB mapping from DCH to EDCH/HSDPA (with MIMO configured for L1). The UE transmits a RADIO BEARER SETUP COMPLETE on DCCH. UE sends combined CQI/PCI reports of type A/B continuosly every 2 ms.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE to request the UE to perform a timing re-initialized hard handover with serving HS-DSCH cell change to Cell 2 on frequency f_2. At the activation time, the UE changes to Cell 2, keeping the HS-PDSCH configuration, and transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on Cell 2.

Then, SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 using the configured MIMO parameters. The UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE using the MIMO configuration.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEAER SETUP	Setup PS RAB on EDCH/HSDPA. Reconfiguration of SRB mapping from DCH to EDCH/HSDPA using the configured L1 MIMO configuration. i.e. single stream on antenna 1 and antenna 2 with separate modulation patterns on S-CPICH
2	→		RADIO BEARER SETUP COMPLETE	After RRC message reception, UE should continuously transmit composite CQI/PCI reports of type A or type B.
3	←		PHYSICAL CHANNEL RECONFIGURATION	The SS instructs the UE to change to Cell 2
4	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	SRB2 on Cell 2
5	←		UE CAPABILITY ENQUIRY	SRB2 on HS-DSCH using MIMO configuration on Cell 2
6	→		UE CAPABILITY INFORMATION	
7	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 on HS-DSCH using MIMO configuration on Cell 2

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH with enhanced data rate and RLC AM using one multiplexing option (1/1) and SRBs mapped on E-DCH/HS-DSCH (MAC-ehs)", condition A17b except for the following:

Information Element	Value/remark
MIMO Parameters	
- MIMO Operation	Start
- MIMO N_cqi_typeA/M_cqi ratio	1/1
- MIMO pilot configuration	
- CHOICE Second CPICH pattern	Antenna1 S-CPICH
- Channelisation code	13
Downlink HS-PDSCH Information	
- CHOICE mode	FDD
- DL Scrambling Code	Not Present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	12 (6 dB)
- CQI Feedback cycle, k	2 ms
- CQI repetition factor	1
- Δ_{CQI}	5
- Downlink 64QAM configured	Not Present
- HS-DSCH TB size table	Octet Aligned

PHYSICAL CHANNEL RECONFIGURATION (Step 3) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
Frequency info		
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]	
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 2	
MIMO Parameters		
- MIMO Operation	Start	
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
- CHOICE Second CPICH pattern	Antenna1 S-CPICH	
- Channelisation code	13	
Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code		
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Measurement Power Offset	12 (6 dB)	
- CQI Feedback cycle, k	2 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
Downlink information common for all radio links		
- Downlink F-DPCH info common for all RL		
- Timing Indication	Initialise	
- Downlink F-DPCH power control information		
- DPC mode	0 (single)	
- TPC command error rate target	0.04	
- CHOICE mode	FDD	
- DPCH compressed mode info	Not Present	
- TX Diversity mode	Not Present	
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
- MAC-hs reset indicator	TRUE	
Downlink information per radio link list	1 radio link	
- CHOICE mode	FDD	
- Primary CPICH info	Set to the scrambling code for cell 2	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	TRUE	
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Secondary scrambling code	Not Present	
- Code number	12	
- TPC combination index	0	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- CHOICE E-HICH Information		
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information	Not Present	

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Step 4)

Use the same message sub-type found in TS 34.108 clause 9.1

UE CAPABILITY ENQUIRY (Step 5)

Use the same message sub-type found in TS 34.108 clause 9.1

UE CAPABILITY INFORMATION (Step 6)

Use the same message sub-type found in TS 34.108 clause 9.1

UE CAPABILITY INFORMATION CONFIRM (Step 7)

Use the same message sub-type found in TS 34.108 clause 9.1

8.2.6.63.5 Test requirements

At step 2, the UE shall transmit a RADIO SETUPCOMPLETE message on the uplink DCCH using AM RLC.

At step 4, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

At step 6, the UE shall transmit UE CAPABILITY INFORMATION on the uplink DCCH using AM RLC.

8.2.6.64 Physical channel reconfigurations for transition from CELL_DCH to CELL_DCH (activation and de-activation of UL 16QAM): Success

8.2.6.64.1 Definition and applicability

All UEs which support FDD and UL 16QAM

8.2.6.64.2 Conformance requirement

If the IE "E-DCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> for FDD:

2> if the IE "E-DPCCH Info" is included:

3> store the newly received E-DPCCH configuration.

2> if the IE "E-DPDCH Info" is included:

3> store the newly received E-DPDCH configuration.

2> if the IE "UL 16QAM settings" is not included:

3> indicate to lower layers to stop any operation in 16QAM mode.

…

If the IE "UL 16QAM settings" is included, the UE shall:

1> indicate to lower layers to operate in 16QAM mode, using the parameters contained in the IE

Reference

3GPP TS 25.331 clause 8.6.6.37, 8.6.6.42

8.2.6.64.3 Test purpose

1. To confirm that the UE starts E-DCH transmission using UL 16QAM mode according to PHYSICAL CHANNEL RECONFIGURATION message on DCCH.

2. To confirm that the UE stops E-DCH transmission using UL 16QAM mode according to PHYSICAL CHANNEL RECONFIGURATION message on DCCH

8.2.6.64.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (State 3 or State 7) as specified in clause 7.4 of TS 34.108.Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH
- UE supports UL 16QAM
- UE fully supports F-DPCH

Test Procedure

The UE is brought to the CELL_DCH state after a successful incoming call attempt. The SS follows the procedure in TS 34.108 clause 7.1.3 (Mobile Terminated), to set up a user RAB, but with the default RAB replaced by the one described in 34.108, clause 6.10.2.4.6.3: Interactive or background / PS RAB + SRBs mapped onto E-DCH and HS-DSCH.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE, which includes IE "UL 16QAM settings". The UE should be configured with UL 16QAM for E-DCH transmission and then transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH AM RLC. The UE should use UL 16QAM E-DCH transmission for the data loopback test. The SS transmits PHYSICAL CHANNEL RECONFIGURATION message which omits UL 16QAM settings. The UE should deactivate UL 16QAM and then transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH AM RLC. The UE should use conventional QPSK E-DCH transmission for the data loopback test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		Paging Type 1	The SS transmits the message, which includes a allocated identity (P-TMSI).
1a	→		RRC CONNECTION REQUEST	
1b	←		RRC CONNECTION SETUP	
1c	→		RRC CONNECTION SETUP COMPLETE	
1d	→		SERVICE REQUEST	
1e	←		AUTHENTICATION AND CIPHERING REQUEST	
1f	→		AUTHENTICATION AND CIPHERING RESPONSE	
1g	←		SECURITY MODE COMMAND	
1h	→		SECURITY MODE COMPLETE	
1i	←		ACTIVATE RB TEST MODE	
1j	→		ACTIVATE RB TEST MODE COMPLETE	
1k	←		RADIO BEARER SETUP	RRC RAB SETUP See specific message contents for this message
1l	→		RADIO BEARER SETUP COMPLETE	
2	←		PHYSICAL CHANNEL RECONFIGURATION	Including IE " UL 16QAM configuration" for activation of 16QAM on E-DCH
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
4	←→		Check for UL 16QAM	SS should verify that UL 16QAM is activated on E-DCH according to the sub test procedure below
5	←		PHYSICAL CHANNEL RECONFIGURATION	
6	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
7	←→		Check for UL QPSK	SS should verify that QPSK is activated on E-DCH according to the sub test procedure below
8	←		DEACTIVATE RB TEST MODE	
9	→		DEACTIVATE RB TEST MODE COMPLETE	

Test Procedure to Check for UL 16QAM and QPSK

Refer to section 14.7.1a.3 for the specific parameters related to the loopback test for this section.

Expected sub sequence

Step	Direction		Message	Comments
	UE	SS		
1			(Void)	
2			(Void)	
3	←		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is set to 7992 (Note 4)
4	→		CLOSE UE TEST LOOP COMPLETE (DCCH)	
5	SS			The SS sets the HS-DSCH TFRC test point (N_{PDUs} = 1, *M* = QPSK, *N*codes = 1 and TFRI = 19). and the number of HARQ processes is 6 as per section 14.7.1a.3
6	←		DOWNLINK MAC-hs PDU (HS-DSCH#1)	For each DTCH mapped on HS-DSCH the SS sends test data. MAC-d PDU size is configured for 336 bits in the test case, please refer to Note 3.
7	→		SI indicating data	
8	←		Absolute grant	Grant value 31 for maximum bit rate
9	→		UPLINK RLC PDUs	If UL 16QAM is active then UE will use 2ms TTI transport block size table 3 (Note 1, also ref 25.331, section 10.3.6.99) with E-TFCI 68 (Note 2, Note 4). SS shall check the E-FTCI to verify 16QAM modulation on UL If UL QSPK is active then UE will use 2ms TTI transport block size table 1 (Note 1) with E-TFCI 96. SS will check E-TFCI to verify QPSK as per “normal” E-DCH transmission
10	←		Absolute grant	Grant value 1, removal of SG
11	←		OPEN UE TEST LOOP (DCCH)	
12	→		OPEN UE TEST LOOP COMPLETE (DCCH)	
13			(Void)	
14			(Void)	

NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.
NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.
NOTE 4: The UL RLC SDU size is calculated as 25*320-8= 7992, such that TB size 8454 corresponding to E-TFCI 68 will be selected. With PLnon-max = 0.84, [((8454+24[CRC])/2[numblocks]) *3 [TC] +12[Trellis bits]*2[numblocks] = 25458 bits. 25458* PLnon-max = 21384.72, this guarantees as per algorithm in 25.212 clause 4.8.4.1,16QAM to be selected [$2\times M_2+2\times M_4$]

Specific Message Contents

RADIO BEARER SETUP (Step 1k)

The contents of the Radio Bearer Setup message is identical to the message sub-type titled as “This IE is needed for "Packet to CELL_DCH / E-DCH / HS-DSCH using one multiplexing option (1/1) and SRBs mapped on E-DCH/HS-DSCH"” as found in 34.108 clause 9 with the following exception

Information Element	Value/remark
- RAB information for setup	
- RAB info	
- PDCP info	Not Present
- E-DCH info	
- E-DPDCH info	
- Maximum channelisation codes	2sf2and2sf4

PHYSICAL CHANNEL RECONFIGURATION (Step 2)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Packet to CELL_DCH from CELL_DCH in PS" as found in TS 34.108 clause 9, with the following exception

Information Element	Value/remark
E-DCH info	
- MAC-es/e reset indicator	TRUE
- E-DPCCH info	
- Happy bit delay condition	100 ms
- E-TFC Boost Info	Not Present
- E-DPDCH power interpolation	Not Present
- E-DPDCH info	
- E-TFCI table index	1
- E-DCH minimum set E-TFCI	9
- Reference E-TFCIs	2 E-TFCIs
- Reference E-TFCI	11
- Reference E-TFCI PO	4
- Reference E-TFCI	83
- Reference E-TFCI PO	16
- Maximum channelisation codes	2sf2and2sf4
- PLnon-max	0.84
- Scheduling Information Configuration	
- Periodicity for Scheduling Info – no grant	Not Present
- Periodicity for Scheduling Info – grant	Not Present
- Power Offset for Scheduling Info	0
- 3-Index-Step Threshold	Not Present
- 2-Index-Step Threshold	Not Present
- Scheduled Transmission configuration	
- 2ms scheduled transmission grant HARQ process allocation	Not Present
- Serving Grant	Not Present
-UL 16QAM settings	
-BetaEd gain E-AGCH table selection	1

PHYSICAL CHANNEL RECONFIGURATION (Step 5)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Packet to CELL_DCH from CELL_DCH in PS" as found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
E-DCH info	
- MAC-es/e reset indicator	TRUE
- E-DPCCH info	
- Happy bit delay condition	100 ms
- E-TFC Boost Info	Not Present
- E-DPDCH power interpolation	Not Present
- E-DPDCH info	
- E-TFCI table index	1
- E-DCH minimum set E-TFCI	9
- Reference E-TFCIs	2 E-TFCIs
- Reference E-TFCI	11
- Reference E-TFCI PO	4
- Reference E-TFCI	83
- Reference E-TFCI PO	16
- Maximum channelisation codes	2sf2and2sf4
- PLnon-max	0.84
- Scheduling Information Configuration	
- Periodicity for Scheduling Info – no grant	Not Present
- Periodicity for Scheduling Info – grant	Not Present
- Power Offset for Scheduling Info	0
- 3-Index-Step Threshold	Not Present
- 2-Index-Step Threshold	Not Present
- Scheduled Transmission configuration	
- 2ms scheduled transmission grant HARQ process allocation	Not Present
- Serving Grant	Not Present
-UL 16QAM settings	Not Present

8.2.6.64.5 Test requirement

After step 2 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

At step 4 the UE should use UL 16QAM E-DCH transmission for the data loopback test.

After step 6 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

At step 7 the UE should use UL QPSK E-DCH transmission for the data loopback test.

8.2.6.65 Physical Channel Reconfiguration from CELL_DCH to CELL_DCH: Success (Timing re-initialised hard handover to another frequency, Serving HS-DSCH cell change with 64QAM and MIMO enabled)

8.2.6.65.1 Definition and applicability

UE category supports combined 64QAM and MIMO activation. UE support FDD and F-DPCH or Enhanced F-DPCH.

8.2.6.65.2 Conformance requiremen

Extract from 25.331

1> if any IEs related to MIMO are stored in the UE:

2> determine the value for the MIMO_STATUS variable and take the corresponding actions as described in subclause 8.5.33.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> if the IE "MIMO parameters" is not included:

2> clear the MIMO_PARAMS variable;

2> trigger lower layers to stop operation in MIMO mode.

1> otherwise:

2> for FDD, if the IE "MIMO N_cqi_typeA/M_cqi ratio" is included:

3> store the value of the IE "MIMO N_cqi_typeA/M_cqi ratio" in the MIMO_PARAMS variable.

2> for FDD, if the IE "MIMO pilot configuration" is included:

3> store the value of the IE "MIMO pilot configuration" in the MIMO_PARAMS variable.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message, the UE shall:

1> take actions related to the MIMO_PARAMS variable as specified in subclause 8.5.32;

1> determine the value of the MIMO_STATUS variable.

The MIMO_STATUS variable shall be set to TRUE only when all the following conditions are met:

1> The UE is in CELL_DCH state;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO N_cqi_typeA/M_cqi ratio"; and

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO pilot configuration".

1> for 1.28 Mcps TDD, the variable MIMO_PARAMS contains a value for the IE "MIMO SF Mode for HS-PDSCH dual stream".

If any of the above conditions is not met and the MIMO_STATUS variable is set to TRUE, the UE shall:

1> set the MIMO_STATUS variable to FALSE;

1> clear the MIMO_PARAMS variable;

1> trigger lower layers to stop operation in MIMO mode.

NOTE: This subclause applies to FDD and 1.28 Mcps TDD only.

[…]

If the IE "MIMO parameters" is included, the UE shall:

1> act as specified in clauses 8.5.32 and 8.5.33;

1> If the IE "MIMO operation" is set to "start":

2> If the MIMO_STATUS variable is set to FALSE:

3> the UE behaviour is undefined.

2> otherwise:

3> indicate to lower layers to start operation in MIMO mode, using the parameter values stored in the variable MIMO_PARAMS.

1> If the IE "MIMO operation" is set to "continue":

2> If the MIMO_STATUS variable is set to FALSE:

3> the UE behaviour is undefined.

1> for FDD, if the IE "Primary CPICH usage for Channel Estimation" is set to "FALSE":

2> the UE behavior is undefined.

1> for FDD, if the IE "S-CPICH Info" is included and if the IE "Channelisation code" in MIMO pilot configuration is different from the IE "Channelisation Code" in Secondary CPICH info:

2> the UE behavior is undefined.

NOTE: This subclause applies to FDD and 1.28 Mcps TDD only.

[…]

>FDD					
>>Downlink 64QAM configured	OP		Enumerated (TRUE)	Absence of this IE means that the HS-SCCH does not use the 64QAM format. The presence of this IE means the UE uses the octet aligned table [15].	REL-7
>>HS-DSCH TB size table	CV-*Not64QAM*		Enumerated (octet aligned)	If this IE is present, octet aligned table [15] is used, else bit aligned table [15] is used.	REL-7

Condition	Explanation
Not64QAM	This IE is optionally present if 64QAM is not configured and MAC-ehs is configured. Otherwise it is not needed.

Reference

3GPP TS 25.331 clauses 8.2.2.3, 8.5.32, 8.5.33, 8.6.6.41, 10.3.6.23a

8.2.6.65.3 Test purpose

2. To confirm that the UE is able to perform a timing re-initialised hard handover to another frequency without prior measurement on the target frequency in conjunction with a serving HS-DSCH cell change and with MIMO and 64QAM enabled according to the received PHYSICAL CHANNEL RECONFIGURATION message.

8.2.6.65.4 Method of test

Initial Condition

System Simulator: 2 cells –2 cells - Cell 1 on frequency f_1, and Cell 6 on frequency f_2. Cells 1 and 6 have different primary scrambling codes (FDD only)

UE: PS-DCCH DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD

- UE category supports combined 64QAM and MIMO
- UE supports F-DPCH or Enhanced F-DPCH

Test Procedure

The UE is initially in CELL_DCH state of Cell 1 and only signalling radio bearers have been established.

The SS transmits a RADIO BEARER SETUP message including the RAB Information for setup IE to configure PS domain RAB and perform SRB mapping from DCH to EDCH/HSDPA (with MIMO configured for L1). The UE transmits a RADIO BEARER SETUP COMPLETE on DCCH. UE sends combined CQI/PCI reports of type A/B continuosly every 2 ms.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE to request the UE to perform a timing re-initialized hard handover with serving HS-DSCH cell change to Cell 6 on frequency f_2. At the activation time, the UE changes to Cell , and transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on Cell 6.

Then, SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 using the configured 64QAM and MIMO parameters. The UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE using the 64QAM and MIMO configuration.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEAER SETUP	Setup PS RAB on EDCH/HSDPA. Reconfiguration of SRB mapping from DCH to EDCH/HSDPA with 64QAM and MIMO configuration
2	→		RADIO BEARER SETUP COMPLETE	After RRC message reception, UE should continuously transmit composite CQI/PCI reports of type A or type B.
3	←		PHYSICAL CHANNEL RECONFIGURATION	The SS instructs the UE to change to Cell 6. SRB2 on HS-DSCH using 64QAM and MIMO configuration
4	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	SRB2 on Cell 6
5	←		UE CAPABILITY ENQUIRY	SRB2 on HS-DSCH using 64QAM and MIMO configuration on Cell 6
6	→		UE CAPABILITY INFORMATION	
7	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 on HS-DSCH using MIMO configuration on Cell 6

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for "Packet to CELL_DCH / HS-DSCH with enhanced data rate and RLC AM using one multiplexing option (1/1) and SRBs mapped on E-DCH/HS-DSCH (MAC-ehs)" except for the following

Information Element	Value/remark
Added or Reconfigured DL TrCH information	1 TrCH (HS-DSCH for DTCH and DCCH)
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	
- Number of Processes	12
- CHOICE *Memory Partitioning*	Implicit
- CHOICE *DL MAC header type*	
- Added or reconfigured MAC-d flow	

Information Element	Value/remark
- MAC-hs queue to add or reconfigure list	(two queues)
- MAC-ehs queue Id	0 (for DTCH)
- T1	50
- MAC-hs window size	16
- MAC-ehs queue Id	1 (for DCCH)
- MAC-d Flow Identity	1
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	148
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not present
- DCH quality target	Not present
MIMO Parameters	
- MIMO Operation	Start
- CHOICE mode	FDD
- MIMO N_cqi_typeA/M_cqi ratio	1/1
- MIMO pilot configuration	
- CHOICE Second CPICH pattern	Antenna1 S-CPICH
- Channelisation code	13
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not Present
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- POhsdsch	6 dB
- CQI Feedback cycle, k	2 ms
- CQI repetition factor	1
- Δ_{CQI}	5
- CHOICE mode	FDD
- Downlink 64QAM configured	TRUE
- HS-DSCH TB size table	Not Present
- Downlink information for each radio link	
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Ref. to the Default setting (Condition 17b Radio Bearer Setup)
- Serving HS-DSCH radio link indicator	TRUE
- Serving E-DCH radio link indicator	TRUE
- Downlink DPCH info for each RL	Not Present
- Downlink F-DPCH info for each RL	
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400
- F-DPCH slot format	Not Present
- Secondary CPICH info	Not Present
- Secondary scrambling code	Not Present
- Code number	11
- TPC combination index	0
- E-AGCH Info	
- E-AGCH Channelisation Code	10
- CHOICE E-HICH Information	
- E-HICH Information	
- Channelisation code	4
- Signature sequence	1
- CHOICE E-RGCH Information	Not Present

PHYSICAL CHANNEL RECONFIGURATION (Step 3) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
New Primary E-RNTI	'0101 0101 0101 0101'	
HARQ info		
- Number of Processes	12	
- CHOICE *Memory Partitioning*	Implicit	
Frequency info		
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]	
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6	
MIMO Parameters		
- MIMO Operation	Start	
- CHOICE mode	FDD	
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
- CHOICE Second CPICH pattern	Antenna1 S-CPICH	
- Channelisation code	13	

Information Element	Value/remark	Version
Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code		
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Measurement Power Offset	12 (6 dB)	
- CQI Feedback cycle, k	2 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
Downlink information common for all radio links		
- Downlink F-DPCH info common for all RL		
- Timing Indication	Initialise	
- Timing maintained Synchronization indicator	FALSE	
- Downlink F-DPCH power control information		
- DPC mode	0 (single)	
- TPC command error rate target	0.04	
- CHOICE mode	FDD	
- DPCH compressed mode info	Not Present	
- TX Diversity mode	Not Present	
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
- MAC-hs reset indicator	TRUE	
Downlink information per radio link list	1 radio link	
- CHOICE mode	FDD	
- Primary CPICH info	Set to the scrambling code for cell 6	
- Serving HS-DSCH radio link indicator	TRUE	
- Serving E-DCH radio link indicator	TRUE	
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- F-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Secondary scrambling code	Not Present	
- Code number	11	
- TPC combination index	0	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- CHOICE E-HICH Information		
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information	Not Present	

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Step 4)

Use the same message sub-type found in TS 34.108 clause 9.1

UE CAPABILITY ENQUIRY (Step 5)

Use the same message sub-type found in TS 34.108 clause 9.1

UE CAPABILITY INFORMATION (Step 6)

Use the same message sub-type found in TS 34.108 clause 9.1

UE CAPABILITY INFORMATION CONFIRM (Step 7)

Use the same message sub-type found in TS 34.108 clause 9.1

8.2.6.65.5 Test requirements

At step 2, the UE shall transmit a RADIO BEARER SETUP COMPLETE message on the uplink DCCH using AM RLC.

At step 4, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

At step 7, the UE shall transmit UE CAPABILITY INFORMATION on the uplink DCCH using AM RLC.

8.2.6.66 Physical Channel Reconfiguration from CELL_PCH to CELL_FACH: Success (autonomous transitions without cell update procedure)

8.2.6.66.1 Definition and applicability

UE supports FDD and Enhanced Uplink in CELL_FACH state.

8.2.6.66.2 Conformance requirement

Extract from 25.331

This procedure is used to transmit paging information to selected UEs in idle mode, CELL_PCH or URA_PCH state using the paging control channel (PCCH). Upper layers in the network may request paging, to e.g. establish a signalling connection. UTRAN may initiate paging for UEs in CELL_PCH or URA_PCH state to trigger a cell update procedure and for UEs in CELL_PCH when the variable HSPA_RNTI_STORED_CELL_PCH is set to TRUE to trigger a measurement report procedure. In addition, UTRAN may initiate paging for UEs in idle mode, CELL_PCH and URA_PCH state to trigger reading of updated system information. UTRAN may also initiate paging for UEs in CELL_PCH and URA_PCH state to release the RRC connection.

[…]

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

If the UE is in connected mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a UTRAN single UE identity and if this U-RNTI is the same as the U-RNTI allocated to the UE stored in the UE variable U_RNTI:

2> if the optional IE "CN originated page to connected mode UE" is included:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "Paging cause" and the IE "Paging record type identifier" to the upper layers.

2> if the IE "Release indicator" in the IE "RRC connection release information" has the value "Release":

3> release all its radio resources;

3> indicate the release of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to the upper layers;

3> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

3> clear the variable ESTABLISHED_RABS;

3> pass the value of the IE "Release cause" received in the IE "Release information" to upper layers;

3> enter idle mode;

3> perform the actions specified in subclause 8.5.2 when entering idle mode;

3> and the procedure ends.

2> otherwise:

3> if variable HSPA_RNTI_STORED_CELL_PCH is set to TRUE:

4> move to CELL_FACH state as specified in subclause 8.5.56.

3> else:

[….]

If the UE after state transition remains in CELL_FACH state, it shall

1> start the timer T305 using its initial value if timer T305 is not running and periodical cell update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity";

1> if variable READY_FOR_COMMON_EDCH is set to TRUE:

2> configure the Enhanced Uplink in CELL_FACH state and Idle mode as specified in subclause 8.5.45 for FDD and 8.5.45a for 1.28 Mcps TDD.

1> else:

2> select PRACH according to subclause 8.5.17;

1> for 3.84 Mcps TDD and 7.68 Mcps TDD; or

1> for FDD and 1.28 Mcps TDD, if the UE does not support HS-DSCH reception in CELL_FACH state; or

1> if the IE "HS-DSCH common system information" is not included in System Information Block type 5 or System Information Block type 5bis; or

1> for 1.28 Mcps TDD, if the IE "Common E-DCH system info" is not included in System Information Block type 5:

2> select Secondary CCPCH according to subclause 8.5.19;

2> take the actions related to the HS_DSCH_RECEPTION_GENERAL variable as described in subclause 8.5.37a.

1> else:

2> For FDD, if the RBs have the multiplexing option with transport channel type "HS-DSCH" for the DL and transport channel type "RACH" in the UL; and

2> if the UE does not supports E-DCH transmission in CELL_FACH state and Idle mode or the IE "Common E-DCH system info" is not included system information block type 5 or 5bis; and

2> if variable H_RNTI and variable C_RNTI are set:

3> start to receive HS-DSCH according to the procedure in subclause 8.5.36.

2> else:

3> if the RBs have the multiplexing option with transport channel type "HS-DSCH" for the DL and transport channel type "E-DCH" in the UL; and

3> if variable READY_FOR_COMMON_EDCH is set to TRUE; and

3> if variable H_RNTI and variable C_RNTI and variable E-RNTI are set:

4> start to receive HS-DSCH according to the procedure in subclause 8.5.36.

3> else:

4> clear variable C_RNTI and delete any stored C-RNTI value;

4> clear variable H_RNTI and delete any stored H-RNTI value;

4> clear variable E_RNTI and delete any stored E-RNTI value;

4> clear any stored IEs "HARQ info";

4> set the variable INVALID_CONFIGURATION to TRUE.

The variable HSPA_RNTI_STORED_CELL_PCH shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_PCH state or the UE after state transition enters CELL_PCH state if the variable HSPA_RNTI_STORED_CELL_PCH is determined according to subclause 8.2.2.3 or 8.3.1.6; and

1> the UE supports E-DCH transmission in CELL_FACH state and Idle mode; and

1> the UE supports HS-DSCH reception in CELL_FACH state; and

1> the IE "HS-DSCH common system information" is included in system information block type 5 or 5bis; and

1> the IE "Common E-DCH system info" is included in system information block type 5 or 5bis; and

1> the IE "HS-DSCH paging system information" is not included in system information block type 5 or 5bis; and

1> the RBs have the multiplexing option with transport channel type "HS-DSCH" for the DL and transport channel type "E-DCH" in the UL; and

1> variable H-RNTI is set; and

1> variable E_RNTI is set; and

1> IE "New C-RNTI" is included in the received message if the variable HSPA_RNTI_STORED_CELL_PCH is determined according to subclause 8.2.2.3 or 8.3.1.6, or variable C_RNTI is set if the variable HSPA_RNTI_STORED_CELL_PCH is determined according to subclause 8.3.1.2.

If any of the above conditions is not met and the variable HSPA_RNTI_STORED_CELL_PCH is set to TRUE, the UE shall:

1> set the variable HSPA_RNTI_STORED_CELL_PCH to FALSE.

If the variable HSPA_RNTI_STORED_CELL_PCH is set to TRUE:

1> if the UE has uplink RLC data PDU or uplink RLC control PDU on RB1 or upwards to transmit: or

1> if the UE is requested to move into CELL_FACH state by paging type 1 as described in subclause 8.1.2.3, UE shall:

2> move the UE to CELL_FACH state;

2> set the variable HSPA_RNTI_STORED_CELL_PCH to FALSE;

2> stop timer T319 if it is running;

2> restart the timer T305 if it is set to any value other than "infinity";

2> determine the value for the READY_FOR_COMMON_EDCH variable and take the corresponding actions as described in subclause 8.5.47;

2> determine the value for the COMMON_E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.46;

2> for FDD, if the variable READY_FOR_COMMON_EDCH is set to TRUE:

3> initiate the measurement report procedure as specified in subclause 8.4.2;

3> not prohibit periodical status transmission in RLC;

3> configure the Enhanced Uplink in CELL_FACH state and Idle mode as specified in subclause 8.5.45;

3> start to receive HS-DSCH according to the procedure in subclause 8.5.36.

[…]

In CELL_PCH or URA_PCH state, the UE shall:

1> if the measurement reporting is not initiated according to subclause 8.5.40 or subclause 8.5.56:

2> if variable READY_FOR_COMMON_EDCH is set to TRUE:

3> move to CELL_FACH;

3> transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT_IDENTITY are fulfilled for any ongoing UE positioning measurement which is being performed in the UE.

2> else:

3> first perform the cell update procedure according to subclause 8.3.1, using the cause "uplink data transmission", in order to transit to CELL_FACH state; and then

3> transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT_IDENTITY are fulfilled for any ongoing UE positioning measurement which is being performed in the UE.

For FDD, the UE in CELL_PCH state shall:

1> if variable H_RNTI is set:

2> if the measurement reporting is initiated according to subclause 8.5.40 or subclause 8.5.56:

3> set the IE "measurement identity" to "16";

3> not set the IE "measured results" or "E-UTRA measured results";

3> include the IE "measured results on RACH";

3> if an event triggered traffic volume measurement has been configured:

4> if the TCTV is larger than the threshold in the IE "Reporting threshold" for a traffic volume measurement stored in the MEASUREMENT_IDENTITY variable and that traffic volume measurement has "measurement identity" equal to 4, "Traffic volume event identity" equal to "4a", "Measurement validity" equal to "all states" or "all states except CELL_DCH":

5> set the IE "Traffic volume event identity" to "4a".

3> and then transmit the MEASUREMENT REPORT message on the uplink DCCH using AM RLC; when the MEASUREMENT REPORT message has been submitted to lower layers for transmission the procedure ends.

[….]

Reference

3GPP TS 25.331 clauses 8.1.2.1, 8.1.2.3, 8.3.1.6, 8.5.56, 8.4.2.

8.2.6.66.3 Test purpose

1. To confirm that UE performs transition from CELL_PCH to CELL_FACH state without the cell update procedure

8.2.6.66.4 Method of test

Initial Condition

System Simulator: 1 cell.

For system information block 5 see specific message contents.

UE: UE: PS-DCCH Enhanced CELL_FACH (state 6-8) as specified in clause 7.4 of TS 34.108 with SRB mapping on common E-DCH /HS-DSCH

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports of common E-DCH

Test Procedure

The UE is in CELL_FACH state under default condition A6 (RRC CONNECTION SETUP). The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to move the UE to CELL_PCH state.The UE transmits PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS using AM RLC message and moves to CELL_PCH state. The SS transmits a PAGING TYPE 1 over SCCPCH which includes a matched identifier and the optional IE "CN originated page to connected mode UE" The UE then moves to CELL_FACH state and transmits a MEASUREMENT REPORT.The UE shall then transmit an INITIAL DIRECT TRANSFER message using AM RLC on DCCH using common E-DCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1		←	PHYSICAL CHANNEL RECONFIGURATION	SS moves UE to CELL_PCH state.UE stores H-RNTI, C-RNTI and E-RNTI variables in CELL_PCH state.
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE sends this message before start of state transition.
3				Reconfiguration of Physical Channel after state transition.
4		←	PAGING TYPE 1	Includes Matched identifier and optional IE “CN originated page to connected mode UE"
5	→		MEASUREMENT REPORT	The UE moves to CELL FACH. This message shall contain IE "Measurement identity" set to "16”
6	→		INITIAL DIRECT TRANSFER	Response to the paging message sent in step 4
7	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 5 (FDD)

Use the same message type found in clause 6.1 of TS 34.108 condition B3 “Only for cells which configure common E-DCH and HS-DSCH reception in CELL_FACH.

PHYSICAL CHANNEL RECONFIGURATION (Step 1)

Use the same message sub-type titled "Packet to CELL_PCH from CELL_FACH in PS" in 34.108 section 9.1.1. with the following exceptions:

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'

PAGING TYPE 1 (Step 4)

Use the same message sub-type titled "Contents of PAGING TYPE 1 message: TM (Packet in PS)" 34.108, section 9.1.1 with the following exceptions:

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to the same SRNC identity as previously assigned.
- S-RNTI	Set to the same S-RNTI as previously assigned.
- CN originated page to connected mode UE	
-Paging cause	Terminating Interactive Call
-CN domain identity	PS Domain
-Paging record type identifier	Set to "IMSI (GSM-MAP)" for UEs supporting GSM-MAP core network type or "IMSI (DS-41)" for UEs supporting ANSI-41 core network type.

MEASUREMENT REPORT (Step 7)

Use the same default message as specified in 34.108 section 9.1.1 with the following exceptions

Information Element	Value/remark
Message Type	
Measurement identity	16

INITIAL DIRECT TRANSFER (Step 8) – for UEs supporting GSM-MAP core networks)

Check to see if the same message type found in TS 34.108 clause 9 is received, with the following exceptions:

Information Element	Value/remark
CN domain identity	PS domain
Intra Domain NAS Node Selector	
- CHOICE version	R99
-- CHOICE CN type	GSM
--- CHOICE Routing basis	Local(P)TMSI
---- Routing parameter	This bit string is set to bits b14 through b23 of the TMSI. The TMSI consists of 4 octets (32bits). This can be represented by a string of bits numbered from b0 to b31, with bit b0 being the least significant The "Routing parameter" bit string consists of bits b14 through b23 of the TMSI. The first/ leftmost/ most significant bit of the bit string contains bit b23 of the TMSI
--- Entered parameter	Not checked
NAS message	Not checked

INITIAL DIRECT TRANSFER (Step 8) – for UEs supporting ANSI-41 core networks

Information Element	Value/remark
CN domain identity	PS Domain
Intra Domain NAS Node Selector	
- CHOICE version	ANSI-41 : Bitstring(14), all bits set to 0
NAS message	Not checked
START	Not checked
Measured results on RACH	Not checked

8.2.6.66.5 Test requirement

1. After paging type 1 reception the UE transits to CELL-FACH state without performing a cell update procedure.

8.2.6.67 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Start of SPS operation without initial SPS resource) (1.28 Mcps TDD)

8.2.6.67.1 Definition and applicability

All UEs which support TDD and SPS operation.

8.2.6.67.2 Conformance requirement

If the UE receives RRC CONNECTION SETUP, CELL UPDATE CONFIRM, or any reconfiguration message:

1> the UE shall determine the value for the HS_DSCH_SPS_STATUS variable.

The variable HS_DSCH_SPS_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> the IE "HS-DSCH SPS information" is included in the received message.

If any of the above conditions is not met and the variable HS_DSCH_SPS_STATUS is set to TRUE, the UE shall:

1> set the variable HS_DSCH_SPS_STATUS to FALSE;

1> clear the variable HS_DSCH_SPS_PARAMS;

1> stop all HS-DSCH SPS related activities.

Whenever the variable HS_DSCH_SPS_STATUS is set to TRUE, the UE shall:

1> configure the physical and MAC layers to operate according to the HS_DSCH_SPS_PARAMS.

If variable HS_DSCH_SPS_STATUS is set to TRUE and the serving HS-DSCH cell was changed as a result of the received message and the value of IE "HS-DSCH SPS information" included in this message is "Continue HS-DSCH SPS operation", then UE behaviour is unspecified.

The subframes, i.e. TTI in 5ms, of non-scheduled E-PUCH allocated can be determined from "Activation Time", "Subframe number", "Resource Duration" and "Resource Periodicity", or of initial SPS E-PUCH and HS-PDSCH allocated can be determined from "Activation time","Subframe number", " Repetition period " and " Repetition length" as below:

The parameter "$Offset_{sub}$" is defined to denote the offset of assigned E-PUCH or HS-PDSCH physical resource within each Repetition period and numerated in subframe number.

"$Offset_{sub}$" to be used is calculated by the following equation:

(Activation time* 2+ Subframe number) mod Repetition period = $Offset_{sub}$.

Here, a new term subCFN is defined to represent the Subframe within a specified CFN, and subCFN within a specified CFN is counted as below:

CFN* 2+ Subframe number = subCFN.

SubFrames from $subCFN_{off}$ to $subCFN_{off}$ + Repetition length - 1 belong to the allocation with $subCFN_{off}$ fulfilling the following equation:

$subCFN_{off}$ mod Repetition period = $Offset_{sub}$.

Example of usage:

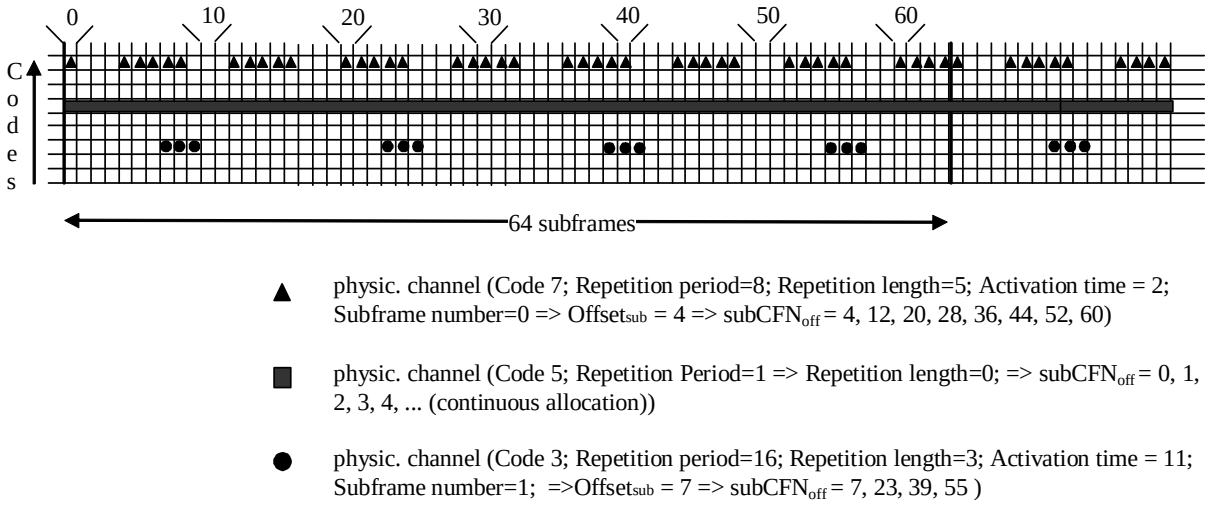


Figure 8.6.6.16a-1: Examples for subframe allocations in TDD

If the IE "SPS information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the IE "E-DCH SPS Information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

2> if the CHOICE "E-DCH SPS operation" is set to "New E-DCH SPS operation":

3> after the UE has received IE "E-HICH Information":

4> if the CHOICE "Configuration Mode" is set to "Implicit":

5> if the IE "EI" is included:

6> consider the E-HICH has the same configuration as that in the IE "E-HICH Info" for 1.28Mcps TDD which has the same value of EI indicated by the IE "EI" in this message.

5> else:

6> use the same configuration as the E-HICH for non-schedule transmission.

4> else:

5> store the E-HICH configuration according to the IEs "Timeslot Number", "Channelisation Code" and midamble configuration IEs.

4> store and use the Signature Sequence indicated by the IE "Signature Sequence Group Index".

3> if the IE "Transmission Pattern List" is included:

4> store the contents of the IE in the variable E_DCH_SPS_PARAMS.

3> if the IE "Initial SPS info for E-DCH" is included:

4> perform E-DCH SPS operation on the semi-persistent E-PUCH resource configured by the IE at the CFN determined by the IE "Activation Time" and the IE "Subframe number".

2> determine the value for the E_DCH_SPS_STATUS variable and take the corresponding actions as described in subclause 8.5.54.

2> if the IE "Initial SPS info for E-DCH" is included, the calculation of assigned initial E-DCH SPS transmission grant is specified in subclause 8.6.6.16a

1> else if the IE "E-DCH SPS Information" is not included, the UE shall:

2> set the variable E_DCH_SPS_STATUS to FALSE;

2> clear the variable E_DCH_SPS_PARAMS;

2> stop all E-DCH SPS related activities.

1> if the IE "HS-DSCH SPS Information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

2> if the CHOICE "HS-DSCH SPS operation" is set to "New HS-DSCH SPS operation":

3> if the IE "Transport Block Size List" or the IE "Reception Pattern List" is included:

4> store the contents of the IE in the variable HS_DSCH_SPS_PARAMS.

3> if the IE "HARQ Info for Semi-Persistent Scheduling" is included:

4> calculate the size of each virtual IR buffer according to following equation:

Size of virtual IR soft buffer = Total buffer for HS-SCCH SPS operation / N_{IR}

where

- Total buffer for HS-SCCH SPS operation is signalled in the IE "Process Memory size", and the IE is the total size of the virtual IR buffers which could be used in HS-SCCH SPS operation;

- N_{IR} is the value of the IE "Number of Processes", and the IE is the number of HARQ processes which could be used in HS-SCCH SPS operation.

3> after the UE has received IE "HS-SICH List":

4> if the CHOICE "Configuration Mode" is set to "Implicit":

5> transmit the HS-SICH according to the configuration in the IE "HS-SCCH Configuration" for 1.28Mcps TDD, of which the position listed in the IE "HS-SCCH Set Configurationin" in acsending order is indicated by the IE "HS-SCCH Index" in this message.

4> else:

5> transmit the HS-SICH according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

3> if the IE "Initial SPS info for HS-DSCH" is included:

4> perform HS-SCCH SPS operation on the semi-persistent HS-PDSCH resource configured by the IE at the CFN determined by the IE "Activation Time" and the IE "Subframe number".

2> determine the value for the HS_DSCH_SPS_STATUS variable and take the corresponding actions as described in subclause 8.5.55.

2> if the IE "Initial SPS info for HS-DSCH" is included, the calculation of assigned initial HS-DSCH SPS transmission grant is specified in subclause 8.6.6.16a

1> else if the IE "HS-DSCH SPS Information" is not included, the UE shall:

2> set the variable HS_DSCH_SPS_STATUS to FALSE;

2> clear the variable HS_DSCH_SPS_PARAMS;

2> stop all HS-DSCH SPS related activities.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.54, 8.5.55, 8.6.6.16a, 8.6.6.47

8.2.6.67.3 Test purpose

To confirm that the UE reconfigures the physical layer to perform SPS operation according to the IE E-DCH SPS Information and HS-DSCH SPS Information received in PHYSICAL CHANNEL RECONFIGURATION message from the SS.

8.2.6.67.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH +DTCH_HS-DSCH +DTCH_E-DCH (state 6-18) under condition A13 in cell 1 as specified in clause 7.4 of TS 34.108

Related ICS/IXIT statement(s)

- UE supports TDD
- UE supports SPS operation

Test Procedure

The UE is in state 6-18 under condition A13 as specified in TS 34.108 clause 7.4 in cell 1 and has a radio bearer mapped on E-DCH and HS-DSCH established with active E-DCH transmission and HS-DSCH reception.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE. UE re-configures the physical layer to perform SPS operation according to the IE E-DCH SPS Information and HS-DSCH SPS Information. SS calls for generic procedure C.3 to check that the UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	See message contents
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (TDD)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as " Packet to CELL_DCH from CELL_DCH in PS" as found in TS34.108, with the following exceptions:

Information Element	Value/remark

SPS Information	
- E-DCH SPS information	
- CHOICE *E-DCH SPS operation*	New E-DCH SPS operation
- E-HICH Information	
- CHOICE Configuration Mode	Implicit
- EI	0
- Signature Sequence Group Index	0
- Transmission Pattern List	2 Transmission Patterns
- Repetition period	4
- Repetition length	1
- Repetition period	8
- Repetition length	1
- Initial SPS info for E-DCH	Not present
- HS-DSCH SPS information	
- CHOICE *HS-DSCH SPS operation*	New HS-DSCH SPS operation
- Transport Block Size List	2
- Transport Block Size Index	5
- Transport Block Size Index	20
- Receive Pattern List	2 Receive Patterns
- Repetition period	4
- Repetition length	1
- Repetition period	8
- Repetition length	1
- HARQ Info for Semi-Persistent Scheduling	
- Number of Processes	4
- Process Memory size	16000
- HS-SICH List	1
- CHOICE Configuration Mode	Implicit
- HS-SCCH Index	0
- Initial SPS info for HS-DSCH	Not present

8.2.6.67.5 Test requirements

After step 1, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 2, the UE shall be in Cell_DCH state.

8.2.6.68 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Start of SPS operation with initial SPS resource) (1.28 Mcps TDD)

8.2.6.68.1 Definition and applicability

All UEs which support TDD and SPS operation.

8.2.6.68.2 Conformance requirement

If the UE receives RRC CONNECTION SETUP, CELL UPDATE CONFIRM, or any reconfiguration message:

1> the UE shall determine the value for the HS_DSCH_SPS_STATUS variable.

The variable HS_DSCH_SPS_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> the IE "HS-DSCH SPS information" is included in the received message.

If any of the above conditions is not met and the variable HS_DSCH_SPS_STATUS is set to TRUE, the UE shall:

1> set the variable HS_DSCH_SPS_STATUS to FALSE;

1> clear the variable HS_DSCH_SPS_PARAMS;

1> stop all HS-DSCH SPS related activities.

Whenever the variable HS_DSCH_SPS_STATUS is set to TRUE, the UE shall:

1> configure the physical and MAC layers to operate according to the HS_DSCH_SPS_PARAMS.

If variable HS_DSCH_SPS_STATUS is set to TRUE and the serving HS-DSCH cell was changed as a result of the received message and the value of IE "HS-DSCH SPS information" included in this message is "Continue HS-DSCH SPS operation", then UE behaviour is unspecified.

The subframes, i.e. TTI in 5ms, of non-scheduled E-PUCH allocated can be determined from "Activation Time", "Subframe number", "Resource Duration" and "Resource Periodicity", or of initial SPS E-PUCH and HS-PDSCH allocated can be determined from "Activation time","Subframe number", " Repetition period " and " Repetition length" as below:

The parameter "$Offset_{sub}$" is defined to denote the offset of assigned E-PUCH or HS-PDSCH physical resource within each Repetition period and numerated in subframe number.

"$Offset_{sub}$" to be used is calculated by the following equation:

(Activation time* 2+ Subframe number) mod Repetition period = $Offset_{sub}$.

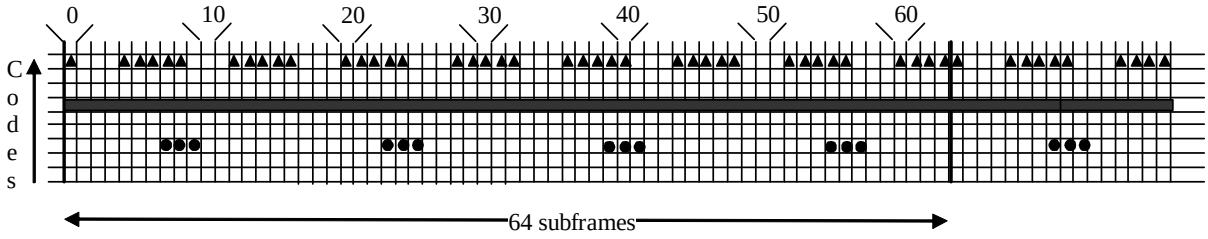
Here, a new term subCFN is defined to represent the Subframe within a specified CFN, and subCFN within a specified CFN is counted as below:

CFN* 2+ Subframe number = subCFN.

SubFrames from $subCFN_{off}$ to $subCFN_{off}$ + Repetition length - 1 belong to the allocation with $subCFN_{off}$ fulfilling the following equation:

$subCFN_{off}$ mod Repetition period = $Offset_{sub}$.

Example of usage:



▲ physic. channel (Code 7; Repetition period=8; Repetition length=5; Activation time = 2; Subframe number=0 => $Offset_{sub}$ = 4 => $subCFN_{off}$ = 4, 12, 20, 28, 36, 44, 52, 60)

■ physic. channel (Code 5; Repetition Period=1 => Repetition length=0; => $subCFN_{off}$ = 0, 1, 2, 3, 4, ... (continuous allocation))

● physic. channel (Code 3; Repetition period=16; Repetition length=3; Activation time = 11; Subframe number=1; =>$Offset_{sub}$ = 7 => $subCFN_{off}$ = 7, 23, 39, 55)

Figure 8.6.6.16a-1: Examples for subframe allocations in TDD

If the IE "SPS information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the IE "E-DCH SPS Information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

2> if the CHOICE "E-DCH SPS operation" is set to "New E-DCH SPS operation":

3> after the UE has received IE "E-HICH Information":

4> if the CHOICE "Configuration Mode" is set to "Implicit":

5> if the IE "EI" is included:

6> consider the E-HICH has the same configuration as that in the IE "E-HICH Info" for 1.28Mcps TDD which has the same value of EI indicated by the IE "EI" in this message.

5> else:

6> use the same configuration as the E-HICH for non-schedule transmission.

4> else:

5> store the E-HICH configuration according to the IEs "Timeslot Number", "Channelisation Code" and midamble configuration IEs.

4> store and use the Signature Sequence indicated by the IE "Signature Sequence Group Index".

3> if the IE "Transmission Pattern List" is included:

4> store the contents of the IE in the variable E_DCH_SPS_PARAMS.

3> if the IE "Initial SPS info for E-DCH" is included:

4> perform E-DCH SPS operation on the semi-persistent E-PUCH resource configured by the IE at the CFN determined by the IE "Activation Time" and the IE "Subframe number".

2> determine the value for the E_DCH_SPS_STATUS variable and take the corresponding actions as described in subclause 8.5.54.

2> if the IE "Initial SPS info for E-DCH" is included, the calculation of assigned initial E-DCH SPS transmission grant is specified in subclause 8.6.6.16a

1> else if the IE "E-DCH SPS Information" is not included, the UE shall:

2> set the variable E_DCH_SPS_STATUS to FALSE;

2> clear the variable E_DCH_SPS_PARAMS;

2> stop all E-DCH SPS related activities.

1> if the IE "HS-DSCH SPS Information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

2> if the CHOICE "HS-DSCH SPS operation" is set to "New HS-DSCH SPS operation":

3> if the IE "Transport Block Size List" or the IE "Reception Pattern List" is included:

4> store the contents of the IE in the variable HS_DSCH_SPS_PARAMS.

3> if the IE "HARQ Info for Semi-Persistent Scheduling" is included:

4> calculate the size of each virtual IR buffer according to following equation:

Size of virtual IR soft buffer = Total buffer for HS-SCCH SPS operation / N_{IR}

where

- Total buffer for HS-SCCH SPS operation is signalled in the IE "Process Memory size", and the IE is the total size of the virtual IR buffers which could be used in HS-SCCH SPS operation;

- N_{IR} is the value of the IE "Number of Processes", and the IE is the number of HARQ processes which could be used in HS-SCCH SPS operation.

3> after the UE has received IE "HS-SICH List":

4> if the CHOICE "Configuration Mode" is set to "Implicit":

5> transmit the HS-SICH according to the configuration in the IE "HS-SCCH Configuration" for 1.28Mcps TDD, of which the position listed in the IE "HS-SCCH Set Configurationin" in acsending order is indicated by the IE "HS-SCCH Index" in this message.

4> else:

5> transmit the HS-SICH according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

3> if the IE "Initial SPS info for HS-DSCH" is included:

4> perform HS-SCCH SPS operation on the semi-persistent HS-PDSCH resource configured by the IE at the CFN determined by the IE "Activation Time" and the IE "Subframe number".

2> determine the value for the HS_DSCH_SPS_STATUS variable and take the corresponding actions as described in subclause 8.5.55.

2> if the IE "Initial SPS info for HS-DSCH" is included, the calculation of assigned initial HS-DSCH SPS transmission grant is specified in subclause 8.6.6.16a

1> else if the IE "HS-DSCH SPS Information" is not included, the UE shall:

2> set the variable HS_DSCH_SPS_STATUS to FALSE;

2> clear the variable HS_DSCH_SPS_PARAMS;

2> stop all HS-DSCH SPS related activities.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.54, 8.5.55, 8.6.6.16a, 8.6.6.47

8.2.6.68.3 Test purpose

To confirm that the UE reconfigures the physical layer to perform SPS operation according to the IE E-DCH SPS Information and HS-DSCH SPS Information received in PHYSICAL CHANNEL RECONFIGURATION message from the SS.

8.2.6.68.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH +DTCH_HS-DSCH +DTCH_E-DCH (state 6-18) under condition A13 in cell 1 as specified in clause 7.4 of TS 34.108

Related ICS/IXIT statement(s)

- UE supports TDD
- UE supports SPS operation

Test Procedure

The UE is in state 6-18 under condition A13 as specified in TS 34.108 clause 7.4 in cell 1 and has a radio bearer mapped on E-DCH and HS-DSCH established with active E-DCH transmission and HS-DSCH reception.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE. UE re-configures the physical layer to perform SPS operation according to the IE E-DCH SPS Information and HS-DSCH SPS Information. SS calls for generic procedure C.3 to check that the UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	See message contents
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (TDD)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as " Packet to CELL_DCH from CELL_DCH in PS" as found in TS34.108, with the following exceptions:

Information Element	Value/remark
SPS Information	
- E-DCH SPS information	
- CHOICE *E-DCH SPS operation*	New E-DCH SPS operation
- E-HICH Information	
- CHOICE Configuration Mode	Implicit
- EI	0
- Signature Sequence Group Index	0
- Transmission Pattern List	2 Transmission Patterns
- Repetition period	4
- Repetition length	1
- Repetition period	8
- Repetition length	1
- Initial SPS info for E-DCH	
- $N_{E\text{-}UCCH}$	Not Present
- Code Resource Information	8/1
- Timeslot Resource Related InformationI	00100
- Power Resource Related Information	6
- Activation Time	0
- Subframe number	0
- Initial Tx pattern Index	0
- HS-DSCH SPS information	
- CHOICE *HS-DSCH SPS operation*	New HS-DSCH SPS operation
- Transport Block Size List	2
- Transport Block Size Index	5
- Transport Block Size Index	20
- Receive Pattern List	2 Receive Patterns
- Repetition period	4
- Repetition length	1
- Repetition period	8
- Repetition length	1
- HARQ Info for Semi-Persistent Scheduling	
- Number of Processes	4
- Process Memory size	16000
- HS-SICH List	1
- CHOICE Configuration Mode	Implicit
- HS-SCCH Index	0
- Initial SPS info for HS-DSCH	

- Timeslot Information	00010
- Code Resource Information	
-Start code	16/1
-Stop code	16/2
- Activation Time	0
- Subframe number	0
- Initial Transport Block Size Index	0
- Initial Rx pattern Index	0
- HS-SICH Index	0
- Modulation	QPSK

8.2.6.68.5 Test requirements

After step 1, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 2, the UE shall be in Cell_DCH state.

8.2.6.69 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Start of Control Channel DRX operation) (1.28 Mcps TDD)

8.2.6.69.1 Definition and applicability

All UEs which support TDD and Control Channel DRX..

8.2.6.69.2 Conformance requirement

If the UE receives:

- a RADIO BEARER SETUP message; or

…

it shall:

…

1> for 1.28 Mcps TDD, if the IEs "Control Channel DRX Information" is stored in the UE:

2> determine the value for the CONTROL_CHANNEL_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.53.

…

If the UE receives RRC CONNECTION SETUP, CELL UPDATE CONFIRM, or any reconfiguration message:

1> the UE shall determine the value for the CONTROL_CHANNEL_DRX_STATUS variable.

The variable CONTROL_CHANNEL_DRX_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable HS_DSCH RECEPTION is set to TRUE;

1> the IE "Control Channel DRX information" is included in the received message.

If any of the above conditions is not met and the variable CONTROL_CHANNEL_DRX_STATUS is set to TRUE, the UE shall:

1> set the variable CONTROL_CHANNEL_DRX_STATUS to FALSE;

1> clear the variable CONTROL_CHANNEL_DRX_PARAMS;

1> disable the Control Channel DRX related activities.

If variable CONTROL_CHANNEL_DRX_STATUS is set to TRUE and the serving HS-DSCH cell was changed as a result of the received message, the UE shall instruct the physical layer to consider HS-SCCH orders were never received.

Whenever the variable CONTROL_CHANNEL_DRX_STATUS is set to TRUE after receiving this message and the value of IE "Control Channel DRX information" included in this message is "Continue Control Channel DRX operation ", the UE shall:

1> continue the Control Channel DRX related activities with the IE in the variable CONTROL_CHANNEL_DRX_PARAMS.

Reference

3GPP TS 25.331 clauses 8.2.2.4, 8.5.53

8.2.6.69.3 Test purpose

To confirm that the UE reconfigures the physical layer to perform Control Channel DRX according to the IE Control Channel DRX information received in PHYSICAL CHANNEL RECONFIGURATION message from the SS.

8.2.6.69.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH +DTCH_HS-DSCH +DTCH_E-DCH (state 6-18) under condition A13 in cell 1 as specified in clause 7.4 of TS 34.108

Related ICS/IXIT statement(s)

- UE supports TDD
- UE supports Control Channel DRX

Test Procedure

The UE is in state 6-18 under condition A13 as specified in TS 34.108 clause 7.4 in cell 1 and has a radio bearer mapped on E-DCH and HS-DSCH established with active E-DCH transmission and HS-DSCH reception.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE. UE re-configures the physical layer to perform Control Channel DRX at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration. The UE then transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that the UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		Physical Channel reconfiguration	
2	→		Physical Channel reconfiguration complete	
3	SS			The SS waits to allow sufficient time for control channel DRX be active, and timer inactivity Threshold for HS-SCCH DRX cycle to expire, and then verifies that the DRX operation has been activated successfully.
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (TDD)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Packet to CELL_DCH from CELL_DCH in PS" as found in TS34.108, with the following exceptions:

Information Element	Value/remark
Control Channel DRX information	
- CHOICE *Control Channel DRX operation*	New Control Channel DRX operation
- HS-SCCH DRX information	
- HS-SCCH DRX cycle	8
- Inactivity Threshold for HS-SCCH DRX cycle	16
- HS-SCCH DRX Offset	0
- E-AGCH DRX Information	
- CHOICE *E-AGCH DRX information type*	Same as HS-SCCH
- Enabling Delay	32

8.2.6.69.5 Test requirements

After step 1, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

At step 3, the control channel DRX operation has been activated successfully.

After step 3, the UE shall be in Cell_DCH state

8.2.7 Physical Shared Channel Allocation [TDD only]

[Editor's note: This message is not included in Release99 so this is FFS.]

8.2.8 PUSCH capacity request [TDD only]

[Editor's note: This message is not included in Release99 so this is FFS.]

8.2.9 Void

8.3 RRC connection mobility procedure

8.3.1 Cell Update

8.3.1.1 Cell Update: cell reselection in CELL_FACH

8.3.1.1.1 Definition

-

8.3.1.1.2 Conformance requirement

A UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

…

1> Paging response:

…

1> Radio link failure:

…

1> Re-entering service area:

…

1> RLC unrecoverable error:

…

1> Cell reselection:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met:

3> if the UE is in CELL_FACH or CELL_PCH state and the UE performs cell re-selection; or

3> if the UE is in CELL_FACH state and the variable C_RNTI is empty:

4> perform cell update using the cause "cell reselection".

…

When initiating cell update procedure, the UE shall:

1> stop timer T305;

1> if the UE is in CELL_DCH state:

…

…

1> move to CELL_FACH state, if not already in that state;

1> if the UE performs cell re-selection:

2> clear the variable C_RNTI; and

2> stop using that C_RNTI just cleared from the variable C_RNTI in MAC.

1> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

1> in case of a cell update procedure:

2> set the contents of the CELL UPDATE message according to TS 25.331 subclause 8.3.1.3;

2> submit the CELL UPDATE message for transmission on the uplink CCCH.

…

1> set counter V302 to 1;

1> start timer T302 when the MAC layer indicates success or failure in transmitting the message.

…

In case of cell update procedure the UE shall transmit a CELL UPDATE message.

The UE shall set the IEs in the CELL UPDATE message as follows:

1> set the IE "Cell update cause" corresponding to the cause specified in TS 25.331 subclause 8.3.1.2 that is valid when the CELL UPDATE message is submitted to lower layers for transmission;

NOTE: During the time period starting from when a cell update procedure is initiated by the UE until when the procedure ends, additional CELL UPDATE messages may be transmitted by the UE with different causes.

1> set the IE "U-RNTI" to the value of the variable U_RNTI;

1> if the value of the variable PROTOCOL_ERROR_INDICATOR is TRUE:

…

1> if the value of the variable FAILURE_INDICATOR is TRUE:

…

…

When the UE receives a CELL UPDATE CONFIRM message; and

- if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or
- if the message is received on DCCH:

the UE shall:

1> stop timer T302;

1> in case of a cell update procedure and the CELL UPDATE CONFIRM message:

2> includes "RB information elements"; and/or

2> includes "Transport channel information elements"; and/or

2> includes "Physical channel information elements"; and

2> if the variable ORDERED_RECONFIGURATION is set to FALSE:

3> set the variable ORDERED_RECONFIGURATION to TRUE.

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified otherwise in the following:

…

…

1> enter a state according to subclause 8.6.3.3 applied on the CELL UPDATE CONFIRM / URA UPDATE CONFIRM message.

…

If the UE after state transition remains in CELL_FACH state, it shall

1> start the timer T305 using its initial value if timer T305 is not running and periodical cell update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity";

1> select PRACH according to TS 25.331 subclause 8.5.17;

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> not prohibit periodical status transmission in RLC;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> ignore that IE and stop using DRX.

If the UE after the state transition remains in CELL_FACH state; and

- a C-RNTI is stored in the variable C_RNTI;

…

the UE shall:

…

1> in case of a cell update procedure:

2> set the IE "RRC transaction identifier" in any response message transmitted below to the value of "RRC transaction identifier" in the entry for the CELL UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry.

…

1> transmit a response message as specified in TS 25.331 subclause 8.3.1.7;

…

If the CELL UPDATE CONFIRM message:

- includes the IE "RB information to release list":

the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE as response message using AM RLC.

If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list"; and

- includes the IE "RB information to reconfigure list"; or

- includes the IE "RB information to be affected list":

the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message using AM RLC.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and

- includes "Transport channel information elements":

the UE shall:

1> transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE as response message using AM RLC.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- includes "Physical channel information elements":

the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message using AM RLC.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- does not include "CN information elements"; and
- does not include the IE "Ciphering mode info"; and
- does not include the IE "Integrity protection mode info"; and
- does not include the IE "New C-RNTI"; and
- does not include the IE "New U-RNTI":

the UE shall:

1> transmit no response message.

If the new state is CELL_FACH, the response message shall be transmitted using the new configuration after the state transition., and the UE shall:

…

1> if the variable PDCP_SN_INFO is empty:

…

2> if the CELL UPDATE CONFIRM or URA UPDATE CONFIRM message did not contain the IE "Ciphering mode info":

3> when RLC has been requested to transmit the response message,

4> continue with the remainder of the procedure.

…

If any or several of the following conditions are true:

…;

- reselection to another UTRA cell (including the previously serving cell) before completion of the cell update or URA update procedure;

the UE shall:

1> stop T302 if it is running;

…

1> check whether it is still in "in service area";

…

1> in case of a cell update procedure:

2> clear any entry for the CELL UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS.

If the UE detects "in service area" if it has not entered idle mode, and:

1> if V302 is equal to or smaller than N302, the UE shall:

2> if the UE performed cell re-selection:

3> delete its C-RNTI.

2> in case of a cell update procedure:

3> set the contents of the CELL UPDATE message according to TS 25.331 subclause 8.3.1.3;

3> submit the CELL UPDATE message for transmission on the uplink CCCH.

2> increment counter V302;

2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.

1> if V302 is greater than N302, the UE shall:

…

Reference

3GPP TS 25.331 clause 8.3.1

8.3.1.1.3 Test purpose

1. To confirm that the UE executes a cell update procedure after the successful reselection of another UTRA cell.
2. To confirm that the UE sends the correct uplink response message when executing cell update procedure due to cell reselection.

8.3.1.1.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and 2 are active.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_FACH (state 6-11) in cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.3.1.1

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-69	-69	-60
P-CCPCH RSCP (TDD)	dBm	-60	-69	-69	-60

Table 8.3.1.1 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions. SS switches the power settings repeatedly between columns "T1" and "T0", whenever the description below specifies that the transmission power settings for cell 1 and cell 2 be reversed.

The UE is in the CELL_FACH state, camping onto cell 1. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.1. The UE shall find cell 2 to be more suitable for service and hence perform a cell reselection. After the completion of cell reselection, the UE shall transmits a CELL UPDATE message to the SS on the uplink CCCH of cell 2 and set IE "Cell update cause" to "Cell Reselection". After the SS receives this message, it transmits a CELL UPDATE CONFIRM message, which includes the IE "RRC State Indicator" set to "CELL_FACH", to the UE on the downlink DCCH. UE shall verify that IE "New C-RNTI" is not included in the downlink message and shall send a CELL UPDATE message to SS again. SS shall then send a CELL UPDATE CONFIRM message which includes a valid IE "New C-RNTI". SS verifies that the UE send UTRAN MOBILITY INFORMATION CONFIRM message.. UE shall stay in CELL_FACH state. SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.1. The UE shall send a CELL UPDATE message on the uplink CCCH of cell 1. SS replies with CELL UPDATE CONFIRM message and allocates new C-RNTI and U-RNTI identities to the UE. The IE "RRC State Indicator" is set to "CELL_FACH" in this message. The UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message. Following this, SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.1. The UE shall initiate a cell update procedure by transmitting a CELL UPDATE message and stating the cause as 'cell re-selection'. SS replies with a CELL UPDATE CONFIRM message which contains IE "Physical channel information elements" and IE "RRC State Indicator" is set to "CELL_DCH". The UE shall move to CELL_DCH state and send PHSICAL CHANNEL RECONFIGURATION COMPLETE message. The SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message, asking the UE to move to CELL_FACH state. The UE shall send a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message after transiting to CELL_FACH state. Then, SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.1. The UE shall send a CELL UPDATE message on the uplink CCCH of cell 1. SS replies with a CELL UPDATE CONFIRM message which contains IE "Transport channel information elements" and IE "RRC State Indicator" is set to "CELL_DCH". The UE shall move to CELL_DCH state and send TRANSPORT CHANNEL RECONFIGURATION COMPLETE message. The SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message, asking the UE to move to CELL_FACH state. The UE shall send a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message after transiting to CELL_FACH state. Following this, SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.1. The UE shall send a CELL UPDATE message on the uplink CCCH of cell 2. SS replies with a CELL UPDATE CONFIRM message which contains IE "RB information to be affected list". The UE shall send RADIO BEARER RECONFIGURATION COMPLETE message. Then, SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.1. The UE shall send a CELL UPDATE message on the uplink CCCH of cell 1. SS replies with a CELL UPDATE CONFIRM message which contains IE "RB information to release list". The UE shall send RADIO BEARER RELEASE COMPLETE message. Finally, SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.1. The UE shall send a CELL UPDATE message on the uplink CCCH of cell 2. SS shall not respond to this message but SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.1. UE shall send a CELL UPDATE message on the uplink CCCH of cell 1. SS shall then send CELL UPDATE CONFIRM message to UE. UE shall reply with UTRAN MOBILITY INFORMATION CONFIRM message. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the CELL_FACH state in cell 1
2			Void	SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.3.1.1. The UE shall find that the cell 2 is better for service and perform a reselection. SS waits for the maximum duration required for the UE to camp to cell 2.
3	→		CELL UPDATE	Value "cell reselection" shall be indicated in IE "Cell update cause"
4	←		CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_FACH".
4a	→		CELL UPDATE	Value "cell reselection" shall be indicated in IE "Cell update cause"
4b	←		CELL UPDATE CONFIRM	See message content.
5	→		UTRAN MOBILITY INFORMATION CONFIRM	
6				SS reverses the transmission power level of cell 1 and cell 2.
7	→		CELL UPDATE	
8	←		CELL UPDATE CONFIRM	New C-RNTI and U-RNTI identities are assigned to the UE. IE "RRC State Indicator" is set to "CELL_FACH".
9	→		UTRAN MOBILITY INFORMATION CONFIRM	
10				SS reverses the transmission power level of cell 1 and cell 2.
11	→		CELL UPDATE	
12	←		CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_DCH". IE "Physical channel information elements" is included in this message
12a	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
13	←		PHYSICAL CHANNEL RECONFIGURATION	The UE is in CELL_DCH now. The SS shall send PHYSICAL CHANNEL RECONFIGURATION message to the UE asking the UE to transit to CELL_FACH state.
14	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
15				The SS reverses the transmission power level of cell 1 and cell 2.
16	→		CELL UPDATE	

Step	Direction		Message	Comment
	UE	SS		
17	←		CELL UPDATE CONFIRM	IE "Physical channel information elements" is included in this message, and IE "RRC State Indicator" is set to "CELL_DCH". IE "Transport channel information elements" is included in this message
18	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
19	←		PHYSICAL CHANNEL RECONFIGURATION	The UE is in CELL_DCH now. The SS shall send PHYSICAL CHANNEL RECONFIGURATION message to the UE asking the UE to transit to CELL_FACH state.
20	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
21				The SS reverses the transmission power level of cell 1 and cell 2.
22	→		CELL UPDATE	
23	←		CELL UPDATE CONFIRM	New C-RNTI identity is assigned to the UE. IE "RRC State Indicator" is set to "CELL_FACH". IE "RB information to reconfigure list" and IE "RB information to be affected list" is included in this message.
24	→		RADIO BEARER RECONFIGURATION COMPLETE	
25				The SS reverses the transmission power level of cell 1 and cell 2.
26	→		CELL UPDATE	
27	←		CELL UPDATE CONFIRM	New C-RNTI identity is assigned to the UE. IE "RRC State Indicator" is set to "CELL_FACH". IE "RB information to release list" is included in this message
28	→		RADIO BEARER RELEASE COMPLETE	
29				SS reverses the transmission power level of cell 1 and cell 2.
30	→		CELL UPDATE	
31				SS reverses the transmission power level of cell 1 and cell 2.
32	→		CELL UPDATE	
33	←		CELL UPDATE CONFIRM	New C-RNTI identity is assigned to the UE.
34	→		UTRAN MOBILITY INFORMATION CONFIRM	
35	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

CELL UPDATE (Step 3, 4a, 7,, 11, 16, 22, 30 and 32)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	In step 3, 4a and 7 check to see if set to '0000 0000 0000 0000 0001'. In step 11, 16, 22, 26, 30 and 32, check to see if set to same string in IE "S-RNTI" in IE "New U-RNTI" of CELL UPDATE CONFIRM message in previous assignment
Cell Update Cause	Check to see if set to 'Cell Re-selection'

CELL UPDATE CONFIRM (Step 4)

Use the same message sub-type found in TS 34.108, clause 9.

CELL UPDATE CONFIRM (Step 4b)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'
RRC transaction identifier	Selects an arbitrary integer between 0 to 3, but is different from that used in step 4.

CELL UPDATE CONFIRM (Step 8)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New U-RNTI	
- SRNC Identity	'0000 0000 0001'
- S-RNTI	An arbitrary 20-bits string which is different from original S-RNTI
New C-RNTI	'0000 0000 0000 1111'

CELL UPDATE CONFIRM (Step 12)

Use the same message sub-type found in step 8 and k=0, with the following exceptions:

Information Element	Value/remark
RRC State indicator	CELL_DCH
CHOICE channel requirement Uplink DPCH info Downlink information common for all radio links Downlink information per radio link list	 Same as the IE in RADIO BEARER SETUP (Packet to CELL_DCH from CELL_FACH in PS) Same as the IE in RADIO BEARER SETUP (Packet to CELL_DCH from CELL_FACH in PS) Same as the IE in RADIO BEARER SETUP (Packet to CELL_DCH from CELL_FACH in PS)

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Step 12a)

Use the same message sub-type found in [9] TS 34.108 clause 9.

PHYSICAL CHANNEL RECONFIGURATION (Step 13)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "Packet to CELL_FACH from CELL_DCH in PS":

CELL UPDATE CONFIRM (Step 17)

Use the same message sub-type found in TS 34.108, clause 9 with the following exceptions:

Information Element	Value/remark
RRC State indicator	CELL_DCH
UL Transport channel information for all transport channels	Same as the IE in RADIO BEARER SETUP (Packet to CELL_DCH from CELL_FACH in PS)
Added or Reconfigured uplink TrCH information	Same as the IE in RADIO BEARER SETUP (Packet to CELL_DCH from CELL_FACH in PS)
DL Transport channel information for all transport channels	Same as the IE in RADIO BEARER SETUP (Packet to CELL_DCH from CELL_FACH in PS)
Added or Reconfigured downlink TrCH information	Same as RADIO BEARER SETUP (Packet to CELL_DCH from CELL_FACH in PS)
CHOICE channel requirement	
Uplink DPCH info	Same as the IE in RADIO BEARER SETUP (Packet to CELL_DCH from CELL_FACH in PS)
Downlink information common for all radio links	Same as the IE in RADIO BEARER SETUP (Packet to CELL_DCH from CELL_FACH in PS)
Downlink information per radio link list	Same as the IE in RADIO BEARER SETUP (Packet to CELL_DCH from CELL_FACH in PS)

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Step 14)

Use the same message sub-type found in [9] TS 34.108 clause 9.

PHYSICAL CHANNEL RECONFIGURATION (Step 19)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "Packet to CELL_FACH from CELL_DCH in PS", with following exception.

Information Element	Value/remark
New C-RNTI	'0000 0000 0000 1111'

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Step 20)

Use the same message sub-type found in [9] TS 34.108 clause 9.

CELL UPDATE CONFIRM (Step 23)

Use the same message sub-type found in TS 34.108, clause 9 with the following exceptions:

Information Element	Value/remark
RB information to be reconfigure	
New C-RNTI - RB identity - PDCP info - PDCP SN info - RLC info - RB Information Release List - RB Information Reconfiguration List	'1010 1010 1010 1010' 20 Not Present Not Present Not Present Not Present Present
- RB Information Affected List	Present

CELL UPDATE CONFIRM (Step 27)

Use the same message sub-type found in TS 34.108, clause 9 with the following exceptions:

Information Element	Value/remark
New C-RNTI	'0000 0000 0000 1111'
RB information to release -RB identity	 4

CELL UPDATE CONFIRM (Step 33)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'

8.3.1.1.5 Test requirement

At step 3 the UE shall reselect to cell 2 and then it shall transmit a CELL UPDATE message which, sets the value "cell reselection" in IE "Cell update cause".

At step 4a the UE shall transmit CELL UPDATE message which sets the value "cell reselection" in IE "Cell update cause".

At step 4b, the SS shall send a CELL UPDATE CONFIRM.

At step 5, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message.

At step 7 the UE shall sent a CELL UPDATE message to the cell with stronger transmitting power, in order to indicate that a cell reselection has taken place.

At step 9, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message.

At step 11 the UE shall sent a CELL UPDATE message to the cell with stronger transmitting power, in order to indicate that a cell reselection has taken place.

At step 12, the SS shall send a CELL UPDATE CONFIRM taking the UE into CELL_DCH state. In addition, it also specifies the IE “Physical Channel Information elements”.

At step 12a, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the new physical channel assigned.

At step 13 and 14, the SS uses PHYSICAL CHANNEL RECONFIGURATION to take the UE into CELL_FACH state.

At step 15, the SS reverses the transmission power level of cell 1 and 2 causing the UE to reselect to a different cell.

At step 16 the UE shall sent a CELL UPDATE message to the cell with stronger transmitting power, in order to indicate that a cell reselection has taken place.

At step 17, the SS shall send a CELL UPDATE CONFIRM and take the UE into CELL_DCH state. In addition, it also specifies the IE “Physical Channel Information elements” and “Transport Channel Information elements”.

At step 18, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE.

At step 19 and 20, the SS uses PHYSICAL CHANNEL RECONFIGURATION to take the UE into CELL_FACH state.

At step 21, the SS reverses the transmission power level of cell 1 and 2 causing the UE to reselect to a different cell.

At step 22, the UE shall send a CELL UPDATE message to the cell with stronger transmitting power, in order to indicate that a cell reselection has taken place.

At step 23, the SS shall send a CELL UPDATE CONFIRM taking the UE into CELL_FACH state. In addition, it also specifies “RB Information Reconfigure List and RB Information Affected List Information”.

At step 24, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE.

At step 25, the SS reverses the transmission power level of cell 1 and 2 causing the UE to reselect to a different cell.

At step 26, the UE shall send a CELL UPDATE message to the cell with stronger transmitting power, in order to indicate that a cell reselection has taken place.

At step 27, the SS shall send a CELL UPDATE CONFIRM taking the UE into CELL_FACH state. In addition, it also specifies the IE “RB Information to release list”.

At step 28, the UE shall transmit a RADIO BEARER RELEASE COMPLETE.

At step 29, the SS reverses the transmission power level of cell 1 and 2 causing the UE to reselect to a different cell.

At step 30, the UE shall send a CELL UPDATE message to the cell with stronger transmitting power, in order to indicate that a cell reselection has taken place.

At step 31, the SS reverses the transmission power level of cell 1 and 2 causing the UE to reselect to a different cell.

At step 32, the UE shall send a CELL UPDATE message to the cell with stronger transmitting power, in order to indicate that a cell reselection has taken place.

At step 33, the SS shall send a CELL UPDATE CONFIRM

At step 34, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message

8.3.1.1a Cell Update: cell reselection in CELL_FACH (Cells belong to different frequency bands)

8.3.1.1a.1 Definition

This test case is identical to test case 8.3.1.1 except that the cells belong to different frequency bands.

Note: The test case 8.3.1.1 is an intra frequency test.

8.3.1.1a.2 Conformance requirement

Same conformance requirement as clause 8.3.1.1.2

8.3.1.1a.3 Test purpose

1. To confirm that the UE executes a cell update procedure after the successful reselection of another UTRA cell in different frequency band.

2. To confirm that the UE sends the correct uplink response message when executing cell update procedure due to cell reselection

8.3.1.1a.4 Method of test

Initial Condition

Same initial conditions as clause 8.3.1.1.4 except,

Cell 2 is mapped to cell 4 (inter frequency) of 34.108 clause 6.1 and both cells belong to different frequency bands.

Following updated System information is transmitted in both cells after UE is brought to initial state of PS-DCCH+DTCH_FACH (state 6-11) in cell 1.

MASTER INFORMATION BLOCK

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
MIB Value Tag	Set to (Current MIB value tag + 1)
SIB 4 Cell Value tag	Set to (Current SIB4 value tag + 1)
SB 1 Cell Value tag	Set to (Current SIB4 value tag + 1)

SCHEDULING BLOCK 1

Information Element	Value/remark
SIB 11 Cell Value Tag	Set to (Current SIB 11 value tag + 1)

System Information Block type 4

Use the same message type found in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/Remarks
-Qualmin	-16dB

System Information Block type 11

Use the same message type found in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	3
- Inter-frequency FDD measurement indicator	TRUE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	Not Present

SYSTEM INFORMATION CHANGE INDICATION

Information Element	Value/remark
Message Type	
BCCH modification info	
MIB Value tag	Set equal to Value tag sent in modified MIB

Related ICS/IXIT statement(s)

- UE supports multiple bands simultaneously yes/no

Test Procedure

Same test procedure as clause 8.3.1.1.4 with the following exception

After step 30, SS shall send CELL UPDATE CONFIRM message to the UE. UE shall reply with UTRAN MOBILITY INFORMATION CONFIRM message.

Note: If the UE supports more than 2 frequency bands, the test may be executed for various band combinations.

Expected sequence

Same expected sequence as clause 8.3.1.1.4 with the following additional test steps:

Step	Direction		Message	Comment
	UE	SS		
30a	←		CELL UPDATE CONFIRM	New C-RNTI identity is assigned to the UE.
30b	→		UTRAN MOBILITY INFORMATION CONFIRM	

Specific Message Contents

Same specific message contents as clause 8.3.1.1.4. The message content for the additional test steps are given below.

CELL UPDATE CONFIRM (Step 30a)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New C-RNTI	'0000000000000001'

8.3.1.1a.5 Test requirement

Same test requirements as clause 8.3.1.1.5 with the following additional test requirements:

At step 30a, the SS shall send a CELL UPDATE CONFIRM

At step 30b, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message

8.3.1.1b Cell Update: cell reselection in CELL_FACH(TDD)

8.3.1.1b.1 Definition

All UEs which support TDD

8.3.1.1b.2 Conformance requirement

A UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

…

1> Paging response:

…

1> Radio link failure:

…

1> Re-entering service area:

…

1> RLC unrecoverable error:

…

1> Cell reselection:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met:

3> if the UE is in CELL_FACH or CELL_PCH state and the UE performs cell re-selection; or

3> if the UE is in CELL_FACH state and the variable C_RNTI is empty:

4> perform cell update using the cause "cell reselection".

…

When initiating cell update procedure, the UE shall:

1> stop timer T305;

1> if the UE is in CELL_DCH state:

…

…

1> move to CELL_FACH state, if not already in that state;

1> if the UE performs cell re-selection:

2> clear the variable C_RNTI; and

2> stop using that C_RNTI just cleared from the variable C_RNTI in MAC.

1> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

1> in case of a cell update procedure:

2> set the contents of the CELL UPDATE message according to TS 25.331 subclause 8.3.1.3;

2> submit the CELL UPDATE message for transmission on the uplink CCCH.

…

1> set counter V302 to 1;

1> start timer T302 when the MAC layer indicates success or failure in transmitting the message.

…

In case of cell update procedure the UE shall transmit a CELL UPDATE message.

The UE shall set the IEs in the CELL UPDATE message as follows:

1> set the IE "Cell update cause" corresponding to the cause specified in TS 25.331 subclause 8.3.1.2 that is valid when the CELL UPDATE message is submitted to lower layers for transmission;

NOTE: During the time period starting from when a cell update procedure is initiated by the UE until when the procedure ends, additional CELL UPDATE messages may be transmitted by the UE with different causes.

1> set the IE "U-RNTI" to the value of the variable U_RNTI;

1> if the value of the variable PROTOCOL_ERROR_INDICATOR is TRUE:

…

1> if the value of the variable FAILURE_INDICATOR is TRUE:

…

…

When the UE receives a CELL UPDATE CONFIRM message; and

- if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or
- if the message is received on DCCH:

the UE shall:

1> stop timer T302;

1> in case of a cell update procedure and the CELL UPDATE CONFIRM message:

2> includes "RB information elements"; and/or

2> includes "Transport channel information elements"; and/or

2> includes "Physical channel information elements"; and

2> if the variable ORDERED_RECONFIGURATION is set to FALSE:

3> set the variable ORDERED_RECONFIGURATION to TRUE.

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified otherwise in the following:

…

…

1> enter a state according to subclause 8.6.3.3 applied on the CELL UPDATE CONFIRM / URA UPDATE CONFIRM message.

…

If the UE after state transition remains in CELL_FACH state, it shall

1> start the timer T305 using its initial value if timer T305 is not running and periodical cell update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity";

1> select PRACH according to TS 25.331 subclause 8.5.17;

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> not prohibit periodical status transmission in RLC;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> ignore that IE and stop using DRX.

If the UE after the state transition remains in CELL_FACH state; and

- a C-RNTI is stored in the variable C_RNTI;

…

the UE shall:

…

1> in case of a cell update procedure:

2> set the IE "RRC transaction identifier" in any response message transmitted below to the value of "RRC transaction identifier" in the entry for the CELL UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry.

…

1> transmit a response message as specified in TS 25.331 subclause 8.3.1.7;

…

If the CELL UPDATE CONFIRM message:

- includes the IE "RB information to release list":

the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE as response message using AM RLC.

If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list"; and
- includes the IE "RB information to reconfigure list"; or
- includes the IE "RB information to be affected list":

the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message using AM RLC.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- includes "Transport channel information elements":

the UE shall:

1> transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE as response message using AM RLC.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- includes "Physical channel information elements":

the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message using AM RLC.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- does not include "CN information elements"; and
- does not include the IE "Ciphering mode info"; and
- does not include the IE "Integrity protection mode info"; and
- does not include the IE "New C-RNTI"; and
- does not include the IE "New U-RNTI":

the UE shall:

1> transmit no response message.

If the new state is CELL_FACH, the response message shall be transmitted using the new configuration after the state transition., and the UE shall:

…

1> if the variable PDCP_SN_INFO is empty:

…

2> if the CELL UPDATE CONFIRM or URA UPDATE CONFIRM message did not contain the IE "Ciphering mode info":

3> when RLC has been requested to transmit the response message,

4> continue with the remainder of the procedure.

…

If any or several of the following conditions are true:

…;

- reselection to another UTRA cell (including the previously serving cell) before completion of the cell update or URA update procedure;

the UE shall:

1> stop T302 if it is running;

…

1> check whether it is still in "in service area";

…

1> in case of a cell update procedure:

2> clear any entry for the CELL UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS.

If the UE detects "in service area" if it has not entered idle mode, and:

1> if V302 is equal to or smaller than N302, the UE shall:

2> if the UE performed cell re-selection:

3> delete its C-RNTI.

2> in case of a cell update procedure:

3> set the contents of the CELL UPDATE message according to TS 25.331 subclause 8.3.1.3;

3> submit the CELL UPDATE message for transmission on the uplink CCCH.

2> increment counter V302;

2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.

1> if V302 is greater than N302, the UE shall:

…

Reference

3GPP TS 25.331 clause 8.3.1

8.3.1.1b.3 Test purpose

1. To confirm that the UE executes a cell update procedure after the successful reselection of another UTRA cell.
2. To confirm that the UE sends the correct uplink response message when executing cell update procedure due to cell reselection.

8.3.1.1b.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and 2 are active. Each cell configure 3 carriers, one is the primary carrier, the other two are secondary carrier.

Detail in the table follows:

Parameter	Cell 1	Cell 2
UTRA RF Channel Number1	Ch. 1	Ch. 2
UTRA RF Channel Number1	Ch. 2	Ch.3
UTRA RF Channel Number1	Ch.3	Ch.1

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_FACH (state 6-11) in cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.3.1.1b

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 1	
P-CCPCH RSCP (TDD)	dBm	-60	-69	-69	-60

Table 8.3.1.1b illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions. SS switches the power settings repeatedly between columns "T1" and "T0", whenever the description below specifies that the transmission power settings for cell 1 and cell 2 be reversed.

The UE is in the CELL_FACH state, camping onto cell 1. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.1b. The UE shall find cell 2 to be more suitable for service and hence perform a cell reselection. After the completion of cell reselection, the UE shall transmits a CELL UPDATE message to the SS on the uplink CCCH of cell 2 and set IE "Cell update cause" to "Cell Reselection". After the SS receives this message, it transmits a CELL UPDATE CONFIRM message, which includes the IE "RRC State Indicator" set to "CELL_FACH", to the UE on the downlink DCCH. UE shall verify that IE "New C-RNTI" is not included in the downlink message and shall send a CELL UPDATE message to SS again. SS shall then send a CELL UPDATE CONFIRM message which includes a valid IE "New C-RNTI". SS verifies that the UE send UTRAN MOBILITY INFORMATION CONFIRM message.. UE shall stay in CELL_FACH state. SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.1b. The UE shall send a CELL UPDATE message on the uplink CCCH of cell 1. SS replies with CELL UPDATE CONFIRM message and allocates new C-RNTI and U-RNTI identities to the UE. The IE "RRC State Indicator" is set to "CELL_FACH" in this message. The UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message. Following this, SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.1b. The UE shall initiate a cell update procedure by transmitting a CELL UPDATE message and stating the cause as 'cell re-selection'. SS replies with a CELL UPDATE CONFIRM message which contains IE "Physical channel information elements" and IE "RRC State Indicator" is set to "CELL_DCH". The UE shall move to CELL_DCH state and send PHSICAL CHANNEL RECONFIGURATION COMPLETE message. The SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message, asking the UE to move to CELL_FACH state. The UE shall send a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message after transiting to CELL_FACH state. Then, SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.1b. The UE shall send a CELL UPDATE message on the uplink CCCH of cell 1. SS replies with a CELL UPDATE CONFIRM message which contains IE "Transport channel information elements" and IE "RRC State Indicator" is set to "CELL_DCH". The UE shall move to CELL_DCH state and send TRANSPORT CHANNEL RECONFIGURATION COMPLETE message. The SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message, asking the UE to move to CELL_FACH state. The UE shall send a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message after transiting to CELL_FACH state. Following this, SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.1b. The UE shall send a CELL UPDATE message on the uplink CCCH of cell 2. SS replies with a CELL UPDATE CONFIRM message which contains IE "RB information to be affected list". The UE shall send RADIO BEARER RECONFIGURATION COMPLETE message. Then, SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.1b. The UE shall send a CELL UPDATE message on the uplink CCCH of cell 1. SS replies with a CELL UPDATE CONFIRM message which contains IE "RB information to release list". The UE shall send RADIO BEARER RELEASE COMPLETE message. Finally, SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.1b. The UE shall send a CELL UPDATE message on the uplink CCCH of cell 2. SS shall not respond to this message but SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.1b. UE shall send a CELL UPDATE message on the uplink CCCH of cell 1. SS shall then send CELL UPDATE CONFIRM message to UE. UE shall reply with UTRAN MOBILITY INFORMATION CONFIRM message. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the CELL_FACH state in cell 1
2			Void	SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.3.1.1b. The UE shall find that the cell 2 is better for service and perform a reselection. SS waits for the maximum duration required for the UE to camp to cell 2.
3	→		CELL UPDATE	Value "cell reselection" shall be indicated in IE "Cell update cause"
4	←		CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_FACH".
4a	→		CELL UPDATE	Value "cell reselection" shall be indicated in IE "Cell update cause"
4b	←		CELL UPDATE CONFIRM	See message content.
5	→		UTRAN MOBILITY INFORMATION CONFIRM	
6				SS reverses the transmission power level of cell 1 and cell 2.
7	→		CELL UPDATE	
8	←		CELL UPDATE CONFIRM	New C-RNTI and U-RNTI identities are assigned to the UE. IE "RRC State Indicator" is set to "CELL_FACH".
9	→		UTRAN MOBILITY INFORMATION CONFIRM	
10				SS reverses the transmission power level of cell 1 and cell 2.
11	→		CELL UPDATE	
12	→		CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_DCH". IE "Physical channel information elements" is included in this message
12a	←		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
13	→		PHYSICAL CHANNEL RECONFIGURATION	The UE is in CELL_DCH now. The SS shall send PHYSICAL CHANNEL RECONFIGURATION message to the UE asking the UE to transit to CELL_FACH state.
14	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
15				The SS reverses the transmission power level of cell 1 and cell 2.
16	→		CELL UPDATE	

Step	Direction		Message	Comment
	UE	SS		
17	←		CELL UPDATE CONFIRM	IE "Physical channel information elements" is included in this message, and IE "RRC State Indicator" is set to "CELL_DCH". IE "Transport channel information elements" is included in this message
18	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
19	←		PHYSICAL CHANNEL RECONFIGURATION	The UE is in CELL_DCH now. The SS shall send PHYSICAL CHANNEL RECONFIGURATION message to the UE asking the UE to transit to CELL_FACH state.
20	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
21				The SS reverses the transmission power level of cell 1 and cell 2.
22	→		CELL UPDATE	
23	←		CELL UPDATE CONFIRM	New C-RNTI identity is assigned to the UE. IE "RRC State Indicator" is set to "CELL_FACH". IE "RB information to reconfigure list" and IE "RB information to be affected list" is included in this message.
24	→		RADIO BEARER RECONFIGURATION COMPLETE	
25				The SS reverses the transmission power level of cell 1 and cell 2.
26	→		CELL UPDATE	
27	←		CELL UPDATE CONFIRM	New C-RNTI identity is assigned to the UE. IE "RRC State Indicator" is set to "CELL_FACH". IE "RB information to release list" is included in this message
28	→		RADIO BEARER RELEASE COMPLETE	
29				SS reverses the transmission power level of cell 1 and cell 2.
30	→		CELL UPDATE	
31				SS reverses the transmission power level of cell 1 and cell 2.
32	→		CELL UPDATE	
33	←		CELL UPDATE CONFIRM	New C-RNTI identity is assigned to the UE.
34	→		UTRAN MOBILITY INFORMATION CONFIRM	
35				SS reverses the transmission power level of cell 1 and cell 2
36	→		CELL UPDATE	

Step	Direction		Message	Comment
	UE	SS		
37	←		CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_DCH". IE " Physical channel information elements" and "Freq Info" is included in this message and is indicated on the secondary carrier.
38	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE response the message on the DPCH of the secondary carrier.
39	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1

Use the same message found in TS 34.108 , with the exceptions of the following IEs :

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

CELL UPDATE (Step 3, 4a, 7, 11, 16, 22, 30 and 32)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	In step 3, 4a and 7 check to see if set to '0000 0000 0000 0000 0001'. In step 11, 16, 22, 26, 30 and 32, check to see if set to same string in IE "S-RNTI" in IE "New U-RNTI" of CELL UPDATE CONFIRM message in previous assignment
Cell Update Cause	Check to see if set to 'Cell Re-selection'

CELL UPDATE CONFIRM (Step 4)

Use the same message sub-type found in TS 34.108, clause 9.

CELL UPDATE CONFIRM (Step 4b)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'
RRC transaction identifie	Selects an arbitrary integer between 0 to 3, but is different from that used in step 4.

CELL UPDATE CONFIRM (Step 8)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New U-RNTI	
- SRNC Identity	'0000 0000 0001'
- S-RNTI	An arbitrary 20-bits string which is different from original S-RNTI
New C-RNTI	'0000 0000 0000 1111'

CELL UPDATE CONFIRM (Step 12)

Use the same message sub-type found in step 8 and k=0, with the following exceptions:

Information Element	Value/remark
RRC State indicator	CELL_DCH
CHOICE channel requirement	
Uplink DPCH info	Same as the IE in RADIO BEARER SETUP (Packet to CELL_DCH from CELL_FACH in PS)
Downlink information common for all radio links	Same as the IE in RADIO BEARER SETUP (Packet to CELL_DCH from CELL_FACH in PS)
Downlink information per radio link list	Same as the IE in RADIO BEARER SETUP (Packet to CELL_DCH from CELL_FACH in PS)

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Step 12a)

Use the same message sub-type found in [9] TS 34.108 clause 9.

PHYSICAL CHANNEL RECONFIGURATION (Step 13)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "Packet to CELL_FACH from CELL_DCH in PS":

CELL UPDATE CONFIRM (Step 17)

Use the same message sub-type found in TS 34.108, clause 9 with the following exceptions:

Information Element	Value/remark
RRC State indicator	CELL_DCH
UL Transport channel information for all transport channels	Same as the IE in RADIO BEARER SETUP (Packet to CELL_DCH from CELL_FACH in PS)
Added or Reconfigured uplink TrCH information	Same as the IE in RADIO BEARER SETUP (Packet to CELL_DCH from CELL_FACH in PS)
DL Transport channel information for all transport channels	Same as the IE in RADIO BEARER SETUP (Packet to CELL_DCH from CELL_FACH in PS)
Added or Reconfigured downlink TrCH information	Same as RADIO BEARER SETUP (Packet to CELL_DCH from CELL_FACH in PS)
CHOICE channel requirement	
Uplink DPCH info	Same as the IE in RADIO BEARER SETUP (Packet to CELL_DCH from CELL_FACH in PS)
Downlink information common for all radio links	Same as the IE in RADIO BEARER SETUP (Packet to CELL_DCH from CELL_FACH in PS)
Downlink information per radio link list	Same as the IE in RADIO BEARER SETUP (Packet to CELL_DCH from CELL_FACH in PS)

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Step 14)

Use the same message sub-type found in [9] TS 34.108 clause 9.

PHYSICAL CHANNEL RECONFIGURATION (Step 19)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "Packet to CELL_FACH from CELL_DCH in PS", with following exception.

Information Element	Value/remark
New C-RNTI	'0000 0000 0000 1111'

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Step 20)

Use the same message sub-type found in [9] TS 34.108 clause 9.

CELL UPDATE CONFIRM (Step 23)

Use the same message sub-type found in TS 34.108, clause 9 with the following exceptions:

Information Element	Value/remark
RB information to be reconfigure	
New C-RNTI - RB identity - PDCP info - PDCP SN info - RLC info - RB Information Release List - RB Information Reconfiguration List	'1010 1010 1010 1010' 20 Not Present Not Present Not Present Not Present Present
- RB Information Affected List	Present

CELL UPDATE CONFIRM (Step 27)

Use the same message sub-type found in TS 34.108, clause 9 with the following exceptions:

Information Element	Value/remark
New C-RNTI	'0000 0000 0000 1111'
RB information to release -RB identity	 4

CELL UPDATE CONFIRM (Step 33)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'

CELL UPDATE CONFIRM (Step 36)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions：

Information Element	Value/remark
CellUpdateConfirm-CCCH-r4-TDD128-add-ext-IEs	
frequencyInfo	The secondary carrier frequency of cell 2

Contents of System Information Block type 3

Use the same message found in TS 34.108, with the following exceptions，

Information Element	Value/remark
Qrxlevmin	- 81dBm
Sintrasearch	21db
Sintersearch	21db
-v4b0NonCriticalExtensions	
-sysInfoType3-v4b0ext	
- mapping-LCR	0

8.3.1.1b.5 Test requirement

At step 3 the UE shall reselect to cell 2 and then it shall transmit a CELL UPDATE message which, sets the value "cell reselection" in IE "Cell update cause".

At step 4a the UE shall transmit CELL UPDATE message which sets the value "cell reselection" in IE "Cell update cause".

At step 4b, the SS shall send a CELL UPDATE CONFIRM.

At step 5, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message.

At step 7 the UE shall sent a CELL UPDATE message to the cell with stronger transmitting power, in order to indicate that a cell reselection has taken place.

At step 9, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message.

At step 11 the UE shall sent a CELL UPDATE message to the cell with stronger transmitting power, in order to indicate that a cell reselection has taken place.

At step 12, the SS shall send a CELL UPDATE CONFIRM taking the UE into CELL_DCH state. In addition, it also specifies the IE “Physical Channel Information elements”.

At step 12a, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the new physical channel assigned.

At step 13 and 14, the SS uses PHYSICAL CHANNEL RECONFIGURATION to take the UE into CELL_FACH state.

At step 15, the SS reverses the transmission power level of cell 1 and 2 causing the UE to reselect to a different cell.

At step 16 the UE shall sent a CELL UPDATE message to the cell with stronger transmitting power, in order to indicate that a cell reselection has taken place.

At step 17, the SS shall send a CELL UPDATE CONFIRM and take the UE into CELL_DCH state. In addition, it also specifies the IE “Physical Channel Information elements” and “Transport Channel Information elements”.

At step 18, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE.

At step 19 and 20, the SS uses PHYSICAL CHANNEL RECONFIGURATION to take the UE into CELL_FACH state.

At step 21, the SS reverses the transmission power level of cell 1 and 2 causing the UE to reselect to a different cell.

At step 22, the UE shall send a CELL UPDATE message to the cell with stronger transmitting power, in order to indicate that a cell reselection has taken place.

At step 23, the SS shall send a CELL UPDATE CONFIRM taking the UE into CELL_FACH state. In addition, it also specifies “RB Information Reconfigure List and RB Information Affected List Information”.

At step 24, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE.

At step 25, the SS reverses the transmission power level of cell 1 and 2 causing the UE to reselect to a different cell.

At step 26, the UE shall send a CELL UPDATE message to the cell with stronger transmitting power, in order to indicate that a cell reselection has taken place.

At step 27, the SS shall send a CELL UPDATE CONFIRM taking the UE into CELL_FACH state. In addition, it also specifies the IE “RB Information to release list”.

At step 28, the UE shall transmit a RADIO BEARER RELEASE COMPLETE.

At step 29, the SS reverses the transmission power level of cell 1 and 2 causing the UE to reselect to a different cell.

At step 30, the UE shall send a CELL UPDATE message to the cell with stronger transmitting power, in order to indicate that a cell reselection has taken place.

At step 31, the SS reverses the transmission power level of cell 1 and 2 causing the UE to reselect to a different cell.

At step 32, the UE shall send a CELL UPDATE message to the cell with stronger transmitting power, in order to indicate that a cell reselection has taken place.

At step 33, the SS shall send a CELL UPDATE CONFIRM.

At step 34, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message.

At step 38, the UE shall transmit a "PHYSICAL CHANNEL RECONFIGURATION COMPLETE" on the secondary carrier.

8.3.1.1c Cell Update: cell reselection in CELL_FACH (Cells belong to different frequency bands for LCR TDD)

8.3.1.1c.1 Definition

This test case is identical to test case 8.3.1.1b except that the cells belong to different frequency bands.

NOTE: The test case 8.3.1.1b is an intra frequency test.

8.3.1.1c.2 Conformance requirement

Same conformance requirement as clause 8.3.1.1b.2

8.3.1.1c.3 Test purpose

1. To confirm that the UE executes a cell update procedure after the successful reselection of another UTRA cell in different frequency band.
2. To confirm that the UE sends the correct uplink response message when executing cell update procedure due to cell reselection

8.3.1.1c.4 Method of test

Initial Condition

Same initial conditions as clause 8.3.1.1b.4 except,

Cell 2 is mapped to cell 4 (inter frequency) of 34.108 clause 6.1 and both cells belong to different frequency bands.

Following updated System information is transmitted in both cells after UE is brought to initial state of PS-DCCH+DTCH_FACH (state 6-11) in cell 1.

MASTER INFORMATION BLOCK

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
MIB Value Tag	Set to (Current MIB value tag + 1)
SIB 4 Cell Value tag	Set to (Current SIB4 value tag + 1)
SB 1 Cell Value tag	Set to (Current SIB4 value tag + 1)

SCHEDULING BLOCK 1

Information Element	Value/remark
SIB 11 Cell Value Tag	Set to (Current SIB 11 value tag + 1)

System Information Block type 4

Use the same message type found in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/Remarks
-Qrxlevmin	-115dBm

System Information Block type 11

Use the same message type found in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
FACH measurement occasion info - FACH Measurement occasion cycle length coefficient - Inter-frequency FDD measurement indicator - Inter-frequency TDD 3.84Mcps measurement indicator - Inter-frequency TDD 1.28Mcps measurement indicator - Inter-RAT measurement indicators	 3 FALSE FALSE TRUE Not Present

SYSTEM INFORMATION CHANGE INDICATION

Information Element	Value/remark
Message Type BCCH modification info MIB Value tag	 Set equal to Value tag sent in modified MIB

Related ICS/IXIT statement(s)

- UE supports multiple bands simultaneously: yes/no

Test Procedure

Same test procedure as clause 8.3.1.1b.4 with the following exception

After step 30, SS shall send CELL UPDATE CONFIRM message to the UE. UE shall reply with UTRAN MOBILITY INFORMATION CONFIRM message.

NOTE: If the UE supports more than 2 frequency bands, the test may be executed for various band combinations.

Expected sequence

Same expected sequence as clause 8.3.1.1b.4 with the following additional test steps:

Step	Direction		Message	Comment
	UE	SS		
30a	←		CELL UPDATE CONFIRM	New C-RNTI identity is assigned to the UE.
30b	→		UTRAN MOBILITY INFORMATION CONFIRM	

Specific Message Contents

Same specific message contents as clause 8.3.1.1b.4. The message content for the additional test steps are given below.

CELL UPDATE CONFIRM (Step 30a)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New C-RNTI	'0000000000000001'

8.3.1.1c.5 Test requirement

Same test requirements as clause 8.3.1.1b.5 with the following additional test requirements:

At step 30a, the SS shall send a CELL UPDATE CONFIRM

At step 30b, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message

8.3.1.2 Cell Update: cell reselection in CELL_PCH

8.3.1.2.1 Definition

8.3.1.2.2 Conformance requirement

A UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

…

1> Paging response:

…

1> Radio link failure:

…

1> Re-entering service area:

…

1> RLC unrecoverable error:

…

1> Cell reselection:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met:

3> if the UE is in CELL_FACH or CELL_PCH state and the UE performs cell re-selection; or

3> if the UE is in CELL_FACH state and the variable C_RNTI is empty:

4> perform cell update using the cause "cell reselection".

When initiating cell update procedure, the UE shall:

1> stop timer T305;

1> if the UE is in CELL_DCH state:

…

…

1> move to CELL_FACH state, if not already in that state;

1> if the UE performs cell re-selection:

2> clear the variable C_RNTI; and

2> stop using that C_RNTI just cleared from the variable C_RNTI in MAC.

1> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

1> in case of a cell update procedure:

2> set the contents of the CELL UPDATE message according to TS 25.331 subclause 8.3.1.3;

2> submit the CELL UPDATE message for transmission on the uplink CCCH.

…

1> set counter V302 to 1;

1> start timer T302 when the MAC layer indicates success or failure in transmitting the message.

…

In case of cell update procedure the UE shall transmit a CELL UPDATE message.

The UE shall set the IEs in the CELL UPDATE message as follows:

1> set the IE "Cell update cause" corresponding to the cause specified in TS 25.331 subclause 8.3.1.2 that is valid when the CELL UPDATE message is submitted to lower layers for transmission;

NOTE: During the time period starting from when a cell update procedure is initiated by the UE until when the procedure ends, additional CELL UPDATE messages may be transmitted by the UE with different causes.

1> set the IE "U-RNTI" to the value of the variable U_RNTI;

1> if the value of the variable PROTOCOL_ERROR_INDICATOR is TRUE:

…

1> if the value of the variable FAILURE_INDICATOR is TRUE:

…

…

When the UE receives a CELL UPDATE CONFIRM message; and

- if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or
- if the message is received on DCCH:

the UE shall:

1> stop timer T302;

1> in case of a cell update procedure and the CELL UPDATE CONFIRM message:

…

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified otherwise in the following:

…

…

1> enter a state according to subclause 8.6.3.3 applied on the CELL UPDATE CONFIRM / URA UPDATE CONFIRM message.

…

If the UE after state transition enters CELL_PCH state, it shall:

…

1> start the timer T305 using its initial value if timer T305 is not running and periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity";

1> select Secondary CCPCH according to subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging Occasion and PICH Monitoring Occasion as specified in TS 25.331 subclause 8.6.3.2 in CELL_PCH state.

1> if the IE "UTRAN DRX cycle length coefficient" is not included in the same message:

2> set the variable INVALID_CONFIGURATION to TRUE.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- does not include "CN information elements"; and
- does not include the IE "Ciphering mode info"; and
- does not include the IE "Integrity protection mode info"; and
- does not include the IE "New C-RNTI"; and
- does not include the IE "New U-RNTI":

the UE shall:

1> transmit no response message.

Reference

3GPP TS 25.331 clause 8.3.1.

8.3.1.2.3 Test purpose

1. To confirm that the UE, in CELL_PCH state, executes a cell update procedure after the successful reselection of another UTRA cell.

8.3.1.2.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 and 2 are active.

UE: CELL_PCH (state 6-12) in cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is brought to CELL_PCH state and is camped onto cell 1. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.1. When the UE detects the presence of cell 2, it moves to CELL_FACH state and transmits a CELL UPDATE message on the uplink CCCH. The value "cell reselection" shall be set in IE "Cell update cause" in CELL UPDATE message. Upon reception of CELL_UPDATE message, SS replies with a CELL UPDATE CONFIRM message with the IE "RRC State Indicator" set to "CELL_PCH". After receiving this message, the UE returns to CELL_PCH state without transmitting any uplink message. SS calls for generic procedure C.4 to check that UE is in CELL_PCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_PCH state in cell 1
2				SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.3.1.1. The UE shall find that the cell 2 is better and attempt to perform a cell reselection.
3	→		CELL UPDATE	The UE moves to CELL_FACH state and transmits this message with the IE "Cell update cause" set to "cell reselection"
4	←		CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_PCH".
5				The UE is in CELL_PCH state.
6	←→		CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.

Specific Message Contents

CELL UPDATE (Steps 3)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'Cell Re-selection'

CELL UPDATE CONFIRM (Step 4)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3

8.3.1.2.5 Test requirement

After step 2 the UE shall reselect to cell 2 and transmit a CELL UPDATE message, containing the IE "Cell update cause" set to "cell reselection".

After step 4, the UE shall enter CELL_PCH state.

8.3.1.3 Cell Update: periodical cell update in CELL_FACH

8.3.1.3.1 Definition

8.3.1.3.2 Conformance requirement

UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

…

1> Paging response:

…

1> Radio link failure:

…

1> Re-entering service area:

…

1> RLC unrecoverable error:

…

1> Cell reselection:

…

1> Periodical cell update:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

2> if the UE is in CELL_FACH or CELL_PCH state; and

2> if the timer T305 expires; and

2> if the criteria for "in service area" as specified in TS 25.331 subclause 8.5.5.2 is fulfilled; and

2> if periodic updating has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity":

3> perform cell update using the cause "periodical cell update".

When initiating the cell update procedure, the UE shall:

1> stop timer T305;

…

1> move to CELL_FACH state, if not already in that state;

…

1> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

1> in case of a cell update procedure:

2> set the contents of the CELL UPDATE message according to TS 25.331 subclause 8.3.1.3;

2> submit the CELL UPDATE message for transmission on the uplink CCCH.

1> set counter V302 to 1;

1> start timer T302 when the MAC layer indicates success or failure in transmitting the message.

…

In case of cell update procedure the UE shall transmit a CELL UPDATE message.

The UE shall set the IEs in the CELL UPDATE message as follows:

1> set the IE "Cell update cause" corresponding to the cause specified in TS 25.331 subclause 8.3.1.2 that is valid when the CELL UPDATE message is submitted to lower layers for transmission;

NOTE: During the time period starting from when a cell update procedure is initiated by the UE until when the procedure ends, additional CELL UPDATE messages may be transmitted by the UE with different causes.

1> set the IE "U-RNTI" to the value of the variable U_RNTI;

…

When the UE receives a CELL UPDATE CONFIRM message; and

- if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or
- if the message is received on DCCH:

the UE shall:

1> stop timer T302;

…

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified otherwise in the following:

1> enter a state according to TS 25.331 subclause 8.6.3.3 applied on the CELL UPDATE CONFIRM / URA UPDATE CONFIRM message.

If the UE after state transition remains in CELL_FACH state, it shall

1> start the timer T305 using its initial value if timer T305 is not running and periodical cell update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity";

1> select PRACH according to TS 25.331 subclause 8.5.17;

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> not prohibit periodical status transmission in RLC;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> ignore that IE and stop using DRX.

If the UE after the state transition remains in CELL_FACH state; and

- a C-RNTI is stored in the variable C_RNTI;

or

- the UE after the state transition moves to another state than the CELL_FACH state:

the UE shall:

1> in case of a cell update procedure:

2> set the IE "RRC transaction identifier" in any response message transmitted below to the value of "RRC transaction identifier" in the entry for the CELL UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry.

1> transmit a response message as specified in TS 25.331 subclause 8.3.1.7;

1> in case of a cell update procedure:

2> clear the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS.

1> set the variable CELL_UPDATE_STARTED to FALSE;

1> clear the variable SECURITY_MODIFICATION.

…

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- does not include "CN information elements"; and
- does not include the IE "Ciphering mode info"; and
- does not include the IE "Integrity protection mode info"; and
- does not include the IE "New C-RNTI"; and
- does not include the IE "New U-RNTI":

the UE shall:

1> transmit no response message.

…

When the UE receives a UTRAN MOBILITY INFORMATION message, it shall:

1> act on received information elements as specified in TS 25.331 subclause 8.6;

1> if the IE "UE Timers and constants in connected mode" is present:

2> store the values of the IE "UE Timers and constants in connected mode" in the variable TIMERS_AND_CONSTANTS, replacing any previously stored value for each timer and constant; and

2> for each updated timer value:

3> start using the new value next time the timer is started;

2> for each updated constant value:

3> start using the new value directly;

1> set the IE "RRC transaction identifier" in the UTRAN MOBILITY INFORMATION CONFIRM message to the value of "RRC transaction identifier" in the entry for the UTRAN MOBILITY INFORMATION message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC;

…

Reference

3GPP TS 25.331 clause 8.3.1, 8.3.3.3.

8.3.1.3.3 Test purpose

1. To confirm that the UE executes a periodical cell update procedure following the expiry of timer T305.

8.3.1.3.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 and 2 are active.

UE: PS-DCCH+DTCH_FACH (state 6-11) in cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.3.1.3

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-69	-69	-60
P-CCPCH RSCP (TDD)	dBm	-60	-69	-69	-60

Table 8.3.1.3 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE is in CELL_FACH state. When the UE detects the expiry of timer T305 according to the settings in system information, the UE transmits a CELL UPDATE message to the SS on the uplink CCCH with a cause indicating periodical cell updating. SS replies with a CELL UPDATE CONFIRM message, and IE "RRC State Indicator" is set to "CELL_FACH". SS verifies that the UE does not transmit any uplink message. SS then waits for T305 to expire again. The UE shall send another CELL UPDATE message to report periodic cell updating. After the SS receives this message, it transmits a CELL UPDATE CONFIRM message which includes the IEs "new C-RNTI", "new U-RNTI" to the UE on the downlink DCCH. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities. Next, SS transmits UTRAN MOBILITY INFORMATION message, which includes IE "T305" set to "infinity", to UE. UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.3, causing the UE to enter CELL_FACH state in cell 2 and transmit a CELL UPDATE

message on uplink CCCH with IE "Cell update cause" set to "cell reselection". Then SS shall transmit CELL UPDATE CONFIRM. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities. SS then monitors the uplink CCCH for a period of 60 minutes (ideally the SS should monitor this up to the maximum possible value for timer T305 (720 minutes), but for practical reasons 60 minutes (twice default timer of 30 minutes) is regarded as being sufficient) and verifies that no CELL_UPDATE message is received. After this, the SS transmits UTRAN MOBILITY INFORMATION message, which includes IE "T305" set to '5', to UE. UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message. SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.3, causing the UE to enter CELL_FACH state in cell 1 and transmit a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". Then SS shall transmit CELL UPDATE CONFIRM. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities. UE shall resume periodic cell updating procedure and transmit CELL_UPDATE message after T305 (5 minutes) expires.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the CELL_FACH state. SS waits until T305 has expired.
2	→		CELL UPDATE	IE "Cell update cause" shall be set to "periodical cell updating"
3	←		CELL UPDATE CONFIRM	No RNTI identities are given. No information on PRACH and S-CCPCH are provided.
4				SS verifies that no uplink message is received from UE. SS waits for another period to allow T305 to expire.
5	→		CELL UPDATE	Set to "periodical cell update" in IE "Cell update cause" upon the expiry of timer T305.
6	←		CELL UPDATE CONFIRM	Including IEs "new C-RNTI", "new U-RNTI" and IE "RRC State Indicator" is set to "CELL_FACH"
7	→		UTRAN MOBILITY INFORMATION CONFIRM	

8	←	UTRAN MOBILITY INFORMATION	IE "T305" is set to Infinity.
9	→	UTRAN MOBILITY INFORMATION CONFIRM	
10			SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.3.1.3
11	→	CELL UPDATE	IE "Cell update cause" shall be set to "cell reselection".
12	←	CELL UPDATE CONFIRM	
12a	→	UTRAN MOBILITY INFORMATION CONFIRM	
13			SS waits for 60 minutes and checks that no CELL UPDATE message is transmitted on uplink PRACH channel.
14	←	UTRAN MOBILITY INFORMATION	IE "T305" is set to '5.
15	→	UTRAN MOBILITY INFORMATION CONFIRM	
16			SS applies the downlink transmission power settings, according to the values in columns "T0" of table 8.3.1.3
17	→	CELL UPDATE	IE "Cell update cause" shall be set to "cell reselection".
18	←	CELL UPDATE CONFIRM	
18a	→	UTRAN MOBILITY INFORMATION CONFIRM	
19	→	CELL UPDATE	UE shall transmit this message with "cell update cause" set to "periodical cell updating" after T305 expires.
20	←	CELL UPDATE CONFIRM	
21	←→	CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

CELL UPDATE (Step 2 and 5)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'periodical cell updating'

CELL UPDATE (Step 11 and 17)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to same bit string as in IE "S-RNTI" in IE "U-RNTI" of the CELL UPDATE CONFIRM message sent in step 6.
Cell Update Cause	Check to see if set to "cell reselection"

CELL UPDATE CONFIRM (Step 3 and 20)

Use the same message sub-type found in TS 34.108, clause 9.

CELL UPDATE CONFIRM (Step 6, 12 and 18)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New U-RNTI	
- SRNC Identity	Set to '0000 0000 0001'
- S-RNTI	Set to an arbitrary string different from '0000 0000 0000 0000 0001'
New C-RNTI	'1010 1010 1010 1010'

CELL UPDATE (Step 19)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to same bit string as in IE "S-RNTI" in IE "U-RNTI" of the CELL UPDATE CONFIRM message sent in step 6.
Cell Update Cause	Check to see if set to 'periodical cell updating'

UTRAN MOBILITY INFORMATION (Step 8)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New U-RNTI	Not Present
New C-RNTI	Not Present
UE Timers and constants in connected mode	
- T305	infinity

UTRAN MOBILITY INFORMATION (Step 14)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New U-RNTI	Not Present
New C-RNTI	Not Present
UE Timers and constants in connected mode	
- T305	5

8.3.1.3.5 Test requirement

After step 1 the UE shall detect the expiry of timer T305 and then transmits a CELL UPDATE message setting value "periodical cell update" into IE "Cell update cause".

After step 3 the UE shall not send any uplink message as a response to CELL UPDATE CONFIRM message sent in step 3.

After step 4 the UE shall send a CELL UPDATE message, specifying the cell updating cause to be "periodical cell update".

After step 6 the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH.

After step 8, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 10, the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "cell reselection" on the uplink CCCH.

After step 12, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

Between step 12a and 14, the UE shall not transmit any CELL UPDATE message.

After step 14, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 16, the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "cell reselection" on the uplink CCCH.

After step 18, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 18a, the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "periodical cell update" on the uplink CCCH.

8.3.1.3a Cell Update: periodical cell update in CELL_FACH (1.28 Mcps TDD Only)

8.3.1.3a.1 Definition

8.3.1.3a.2 Conformance requirement

UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

…

1> Paging response:

…

1> Radio link failure:

…

1> Re-entering service area:

…

1> RLC unrecoverable error:

…

1> Cell reselection:

…

1> Periodical cell update:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

2> if the UE is in CELL_FACH or CELL_PCH state; and

2> if the timer T305 expires; and

2> if the criteria for "in service area" as specified in TS 25.331 subclause 8.5.5.2 is fulfilled; and

2> if periodic updating has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity":

3> perform cell update using the cause "periodical cell update".

When initiating the cell update procedure, the UE shall:

1> stop timer T305;

…

1> move to CELL_FACH state, if not already in that state;

…

1> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

1> in case of a cell update procedure:

2> set the contents of the CELL UPDATE message according to TS 25.331 subclause 8.3.1.3a;

2> submit the CELL UPDATE message for transmission on the uplink CCCH.

1> set counter V302 to 1;

1> start timer T302 when the MAC layer indicates success or failure in transmitting the message.

…

In case of cell update procedure the UE shall transmit a CELL UPDATE message.

The UE shall set the IEs in the CELL UPDATE message as follows:

1> set the IE "Cell update cause" corresponding to the cause specified in TS 25.331 subclause 8.3.1.2 that is valid when the CELL UPDATE message is submitted to lower layers for transmission;

NOTE: During the time period starting from when a cell update procedure is initiated by the UE until when the procedure ends, additional CELL UPDATE messages may be transmitted by the UE with different causes.

1> set the IE "U-RNTI" to the value of the variable U_RNTI;

…

When the UE receives a CELL UPDATE CONFIRM message; and

- if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or

- if the message is received on DCCH:

the UE shall:

1> stop timer T302;

…

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified otherwise in the following:

1> enter a state according to TS 25.331 subclause 8.6.3.3 applied on the CELL UPDATE CONFIRM / URA UPDATE CONFIRM message.

If the UE after state transition remains in CELL_FACH state, it shall

1> start the timer T305 using its initial value if timer T305 is not running and periodical cell update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity";

1> select PRACH according to TS 25.331 subclause 8.5.17;

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> not prohibit periodical status transmission in RLC;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> ignore that IE and stop using DRX.

If the UE after the state transition remains in CELL_FACH state; and

- a C-RNTI is stored in the variable C_RNTI;

or

- the UE after the state transition moves to another state than the CELL_FACH state:

the UE shall:

1> in case of a cell update procedure:

2> set the IE "RRC transaction identifier" in any response message transmitted below to the value of "RRC transaction identifier" in the entry for the CELL UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry.

1> transmit a response message as specified in TS 25.331 subclause 8.3.1.7;

1> in case of a cell update procedure:

2> clear the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS.

1> set the variable CELL_UPDATE_STARTED to FALSE;

1> clear the variable SECURITY_MODIFICATION.

…

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or

- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- does not include "CN information elements"; and
- does not include the IE "Ciphering mode info"; and
- does not include the IE "Integrity protection mode info"; and
- does not include the IE "New C-RNTI"; and
- does not include the IE "New U-RNTI":

the UE shall:

1> transmit no response message.

…

When the UE receives a UTRAN MOBILITY INFORMATION message, it shall:

1> act on received information elements as specified in TS 25.331 subclause 8.6;

1> if the IE "UE Timers and constants in connected mode" is present:

2> store the values of the IE "UE Timers and constants in connected mode" in the variable TIMERS_AND_CONSTANTS, replacing any previously stored value for each timer and constant; and

2> for each updated timer value:

3> start using the new value next time the timer is started;

2> for each updated constant value:

3> start using the new value directly;

1> set the IE "RRC transaction identifier" in the UTRAN MOBILITY INFORMATION CONFIRM message to the value of "RRC transaction identifier" in the entry for the UTRAN MOBILITY INFORMATION message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC;

…

Reference

3GPP TS 25.331 clause 8.3.1, 8.3.3.3.

8.3.1.3a.3 Test purpose

1. To confirm that the UE executes a periodical cell update procedure following the expiry of timer T305.

2. To confirm that the UE can indicate the UpPCH shifting position according to a CELL UPDATE CONFIRM message received from the SS and complete the process.

8.3.1.3a.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 and 2 are active.

UE: PS-DCCH+DTCH_FACH (state 6-11) in cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.3.1.3a

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-69	-69	-60
P-CCPCH RSCP (TDD)	dBm	-60	-69	-69	-60

Table 8.3.1.3a illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE is in CELL_FACH state. When the UE detects the expiry of timer T305 according to the settings in system information, the UE transmits a CELL UPDATE message to the SS on the uplink CCCH with a cause indicating periodical cell updating. SS replies with a CELL UPDATE CONFIRM message, and IE "RRC State Indicator" is set to "CELL_FACH". SS verifies that the UE does not transmit any uplink message. SS then waits for T305 to expire again. The UE shall send another CELL UPDATE message to report periodic cell updating. After the SS receives this message, it transmits a CELL UPDATE CONFIRM message which includes the IEs "new C-RNTI", "new U-RNTI" to the UE on the downlink DCCH. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities. Next, SS transmits UTRAN MOBILITY INFORMATION message, which includes IE "T305" set to "infinity", to UE. UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.3a, causing the UE to enter CELL_FACH state in cell 2 and transmit a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". Then SS shall transmit CELL UPDATE CONFIRM. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities. SS then monitors the uplink CCCH for a period of 60 minutes (ideally the SS should monitor this up to the maximum possible value for timer T305 (720 minutes), but for practical reasons 60 minutes (twice default timer of 30 minutes) is regarded as being sufficient) and verifies that no CELL_UPDATE message is received. After this, the SS transmits UTRAN MOBILITY INFORMATION message, which includes IE "T305" set to '5', to UE. UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message. SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.3a, causing the UE to enter CELL_FACH state in cell 1 and transmit a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". Then SS shall transmit CELL UPDATE CONFIRM. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities. UE shall resume periodic cell updating procedure and transmit CELL_UPDATE message after T305 (5 minutes) expires. SS should transmit CELL UPDATE CONFIRM. If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails. After T305 (5 minutes) expires, UE transmits CELL UPDATE at CELL1. SS indicates that UE is in CELL_DCH state and changes the carrier and UpPCH shifting position. UE transmits PHYSICAL CHANNEL RECONFIGURATION COMPLETE.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the CELL_FACH state. SS waits until T305 has expired.
2	→		CELL UPDATE	IE "Cell update cause" shall be set to "periodical cell updating"
3	←		CELL UPDATE CONFIRM	No RNTI identities are given. No information on PRACH and S-CCPCH are provided.
4				SS verifies that no uplink message is received from UE. SS waits for another period to allow T305 to expire.
5	→		CELL UPDATE	Set to "periodical cell update" in IE "Cell update cause" upon the expiry of timer T305.
6	←		CELL UPDATE CONFIRM	Including IEs "new C-RNTI", "new U-RNTI" and IE "RRC State Indicator" is set to "CELL_FACH"
7	→		UTRAN MOBILITY INFORMATION CONFIRM	
8	←		UTRAN MOBILITY INFORMATION	IE "T305" is set to Infinity.
9	→		UTRAN MOBILITY INFORMATION CONFIRM	
10				SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.3.1.3a
11	→		CELL UPDATE	IE "Cell update cause" shall be set to "cell reselection".
12	←		CELL UPDATE CONFIRM	
12a	→		UTRAN MOBILITY INFORMATION CONFIRM	
13				SS waits for 60 minutes and checks that no CELL UPDATE message is transmitted on uplink PRACH channel.
14	←		UTRAN MOBILITY INFORMATION	IE "T305" is set to '5.
15	→		UTRAN MOBILITY INFORMATION CONFIRM	
16				SS applies the downlink transmission power settings, according to the values in columns "T0" of table 8.3.1.3a
17	→		CELL UPDATE	IE "Cell update cause" shall be set to "cell reselection".
18	←		CELL UPDATE CONFIRM	
18a	→		UTRAN MOBILITY INFORMATION CONFIRM	
19	→		CELL UPDATE	UE shall transmit this message with "cell update cause" set to "periodical cell updating" after T305 expires.
20	←		CELL UPDATE CONFIRM	
21			Void	
22	→		CELL UPDATE	IE "Cell update cause" shall be set to "periodical cell updating"
23	←		CELL UPDATE CONFIRM	UE is in CELL_DCCH state at cell1 and specify the frequency info and UpPCH shifting position.

24	→	PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE transmits the message on DPCH channel .
25	←→	CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 3(TDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Qrxlevmin	- 81dBm
Sintrasearch	21db
Sintersearch	21db
-v4b0NonCriticalExtensions	
-sysInfoType3-v4b0ext	
- mapping-LCR	
- MappingFunctionParameterList	
- MappingFunctionParameter	
- mapParameter1	22

CELL UPDATE (Step 2 and 5)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'periodical cell updating'

CELL UPDATE (Step 11 and 17)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to same bit string as in IE "S-RNTI" in IE "U-RNTI" of the CELL UPDATE CONFIRM message sent in step 6.
Cell Update Cause	Check to see if set to "cell reselection"

CELL UPDATE CONFIRM (Step 3 and 20)

Use the same message sub-type found in TS 34.108, clause 9.

CELL UPDATE CONFIRM (Step 6, 12 and 18)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New U-RNTI	
- SRNC Identity	Set to '0000 0000 0001'
- S-RNTI	Set to an arbitrary string different from '0000 0000 0000 0000 0001'
New C-RNTI	'1010 1010 1010 1010'

CELL UPDATE (Step 19)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to same bit string as in IE "S-RNTI" in IE "U-RNTI" of the CELL UPDATE CONFIRM message sent in step 6.
Cell Update Cause	Check to see if set to 'periodical cell updating'

UTRAN MOBILITY INFORMATION (Step 8)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New U-RNTI	Not Present
New C-RNTI	Not Present
UE Timers and constants in connected mode	
- T305	infinity

UTRAN MOBILITY INFORMATION (Step 14)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New U-RNTI	Not Present
New C-RNTI	Not Present
UE Timers and constants in connected mode	
- T305	5

CELL UPDATE CONFIRM (Step23)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
PhysicalChannelReconfigurationn-r4-TDD128-add-ext-IEs	
PhysicalChannelReconfiguration -r4-TDD128-add-ext	
UpPCHpositionInfo	22

8.3.1.3a.5 Test requirement

After step 1 the UE shall detect the expiry of timer T305 and then transmits a CELL UPDATE message setting value "periodical cell update" into IE "Cell update cause".

After step 3 the UE shall not send any uplink message as a response to CELL UPDATE CONFIRM message sent in step 3.

After step 4 the UE shall send a CELL UPDATE message, specifying the cell updating cause to be "periodical cell update".

After step 6 the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH.

After step 8, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 10, the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "cell reselection" on the uplink CCCH.

After step 12, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

Between step 12a and 14, the UE shall not transmit any CELL UPDATE message.

After step 14, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 16, the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "cell reselection" on the uplink CCCH.

After step 18, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 18a, the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "periodical cell update" on the uplink CCCH.

8.3.1.4 Cell Update: periodical cell update in CELL_PCH

8.3.1.4.1 Definition

8.3.1.4.2 Conformance requirement

UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

…

1> Paging response:

…

1> Radio link failure:

…

1> Re-entering service area:

…

1> RLC unrecoverable error:

…

1> Cell reselection:

…

1> Periodical cell update:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

2> if the UE is in CELL_FACH or CELL_PCH state; and

2> if the timer T305 expires; and

2> if the criteria for "in service area" as specified in TS 25.331 subclause 8.5.5.2 is fulfilled; and

2> if periodic updating has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity":

3> perform cell update using the cause "periodical cell update".

When the UE receives a UTRAN MOBILITY INFORMATION message, it shall:

1> act on received information elements as specified in TS 25.331 subclause 8.6;

1> if the IE "UE Timers and constants in connected mode" is present:

2> store the values of the IE "UE Timers and constants in connected mode" in the variable TIMERS_AND_CONSTANTS, replacing any previously stored value for each timer and constant; and

2> for each updated timer value:

3> start using the new value next time the timer is started;

2> for each updated constant value:

3> start using the new value directly;

1> set the IE "RRC transaction identifier" in the UTRAN MOBILITY INFORMATION CONFIRM message to the value of "RRC transaction identifier" in the entry for the UTRAN MOBILITY INFORMATION message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC;

…

Reference

3GPP TS 25.331 clause 8.3.1, 8.3.3.3.

8.3.1.4.3 Test purpose

1. To confirm that the UE, in CELL_PCH state, executes a cell update procedure after the expiry of timer T305.

8.3.1.4.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 and 2 are active.

UE: CELL_PCH (state 6-12) in cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.3.1.4

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-69	-69	-60
P-CCPCH RSCP (TDD)	dBm	-60	-69	-69	-60

Table 8.3.1.4 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE starts from CELL_PCH state. When the UE detects the expiry of periodic cell updating timer T305 according to the system information, the UE moves to CELL_FACH state. It shall transmit a CELL UPDATE message on the uplink CCCH and set the value "periodical cell update" into IE "Cell update cause". SS answers with a CELL UPDATE CONFIRM message on the downlink DCCH. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities. SS transmits UTRAN MOBILITY INFORMATION message, which includes IE "T305" set to "infinity", to UE. UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.4, causing the UE to enter CELL_FACH state in cell 2 and transmit a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". Then SS shall transmit CELL UPDATE CONFIRM with IE "RRC state indicator" set to "CELL_PCH" on the downlink CCCH. Then UE shall enter CELL_PCH state. SS then monitors the uplink CCCH for a period of 60 minutes (ideally the SS should monitor this up to the maximum possible value for timer T305 (720 minutes), but for practical reasons 60 minutes (twice default timer of 30 minutes) is regarded as being sufficient) and verifies that no CELL_UPDATE message is received. SS then configures its downlink transmission power settings according to columns "T0" in table 8.3.1.4, causing the UE to enter CELL_FACH state in cell 1 and transmit a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". Then SS shall transmit CELL UPDATE CONFIRM on the downlink DCCH. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities. Next, SS transmits UTRAN MOBILITY INFORMATION message, which includes IE "T305" set to "5", to UE. UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.4, causing the UE to enter CELL_FACH state in cell 2 and transmit a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". Then SS shall transmit CELL UPDATE CONFIRM with IE "RRC state indicator" set to "CELL_PCH" on the downlink CCCH. Then UE shall enter CELL_PCH state. After T305 expires, UE shall transmit CELL UPDATE message with IE "cell update cause" set to "periodical cell update". SS shall transmit CELL UPDATE CONFIRM message on the downlink CCCH to end the procedure.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the CELL_PCH state. SS waits until T305 has expired. Wait for CELL UPDATE message and then verify that the time of arrival of this message is in the range of T305 value +/- 10 % after it entered CELL_PCH state
2	→		CELL UPDATE	The UE shall move to CELL_FACH state and transmits this message with the IE "Cell update cause" set to "periodical cell update".
3	←		CELL UPDATE CONFIRM	
3a	→		UTRAN MOBILITY INFORMATION CONFIRM	
4	←		UTRAN MOBILITY INFORMATION	IE "T305" is set to 'infinity'.
5	→		UTRAN MOBILITY INFORMATION CONFIRM	
6				SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.3.1.4.
7	→		CELL UPDATE	The UE shall move to CELL_FACH state and transmits this message with the IE "Cell update cause" set to "cell reselection".
8	←		CELL UPDATE CONFIRM	UE enters CELL_PCH state after receiving this message.

Step	Direction		Message	Comment
	UE	SS		
9				SS waits for 60 minutes and checks that no CELL UPDATE message is transmitted on uplink PRACH channel.
10				SS applies the downlink transmission power settings, according to the values in columns "T0" of table 8.3.1.4.
11	→		CELL UPDATE	The UE shall move to CELL_FACH state and transmits this message with the IE "Cell update cause" set to "cell reselection".
12	←		CELL UPDATE CONFIRM	
12a	→		UTRAN MOBILITY INFORMATION CONFIRM	
13	←		UTRAN MOBILITY INFORMATION	IE "T305" is set to '5'.
14	→		UTRAN MOBILITY INFORMATION CONFIRM	
15				SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.3.1.4.
16	→		CELL UPDATE	The UE shall move to CELL_FACH state and transmits this message with the IE "Cell update cause" set to "cell reselection".
17	←		CELL UPDATE CONFIRM	UE enters CELL_PCH state after receiving this message.
18				SS wait for T305 timer to expire
19	→		CELL UPDATE	IE "Cell update cause" shall be set to "periodical cell update".
20	←		CELL UPDATE CONFIRM	
21	←→		CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.

Specific Message Contents

CELL UPDATE (Step 2 and 19)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'periodical cell update'

CELL UPDATE (Step 7, 11 and 16)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to "cell reselection"

CELL UPDATE CONFIRM (Step 3 and 12)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'

CELL UPDATE CONFIRM (Step 8, 17 and 20)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
RRC state indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3

UTRAN MOBILITY INFORMATION (Step 4 and 13)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New U-RNTI	Not Present
New C-RNTI	Not Present
UE Timers and constants in connected mode	
- T305	Set to 'infinity' in step 4 and '5' in step 13

8.3.1.4.5 Test requirement

After step 1 the UE shall detect the expiry of timer T305, it shall then move to CELL_FACH state and transmits a CELL UPDATE message with the IE "Cell update cause" set to "periodical cell update".

After step 3, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 4, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 6, the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "cell reselection" on the uplink CCCH.

After step 8 and before step 10, the UE shall not transmit any CELL UPDATE messages.

After step 10, the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "cell reselection" on the uplink CCCH.

After step 12, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 13, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 15, the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "cell reselection" on the uplink CCCH.

After step 18 the UE shall transmit a CELL UPDATE message stating the cell update cause to be periodic updating.

8.3.1.5 Cell Update: UL data transmission in URA_PCH

8.3.1.5.1 Definition

8.3.1.5.2 Conformance requirement

A UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

2> if the UE is in URA_PCH or CELL_PCH state; and

2> if the UE has uplink RLC data PDU or uplink RLC control PDU on RB1 or upwards to transmit:

3> perform cell update using the cause "uplink data transmission".

…

Reference

3GPP TS 25.331 clause 8.3.1 and 8.1.2

8.3.1.5.3 Test purpose

1. To confirm that the UE executes a cell update procedure when the UE transmits uplink data if the UE is in URA_PCH state.

8.3.1.5.4 Method of test

Initial Condition

System Simulator: 1cell

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

The UE has been registered in both CS and PS domains.

Test Procedure

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message with IE "RRC State Indicator" set to "URA_PCH". The UE shall reply with PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and move to URA_PCH state. The SS transmits a PAGING TYPE 1 message which includes a matched U-RNTI and the optional IE "CN originated page to connected mode UE". The UE then moves to CELL_FACH state and transmits a CELL UPDATE message to the SS on the uplink CCCH, with the IE "Cell update cause" set to value "uplink data transmission". After receiving such a message, SS transmits CELL UPDATE CONFIRM message on downlink DCCH. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities. The UE shall stay in CELL_FACH state and transmit an INITIAL DIRECT TRANSFER message using AM RLC on DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_FACH state.
2			Void	
3			Void	
4	←		PHYSICAL CHANNEL RECONFIGURATION	IE "RRC State Indicator" set to "URA_PCH"
5	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE moves to URA_PCH state.
5a	←		PAGING TYPE 1	Includes Matched identifier and optional IE “CN originated page to connected mode UE"
6	→		CELL UPDATE	The UE shall move to CELL FACH state with the message set to "uplink data transmission" in IE "Cell update cause".
7	←		CELL UPDATE CONFIRM	See message content.
7a	→		UTRAN MOBILITY INFORMATION CONFIRM	
8	→		INITIAL DIRECT TRANSFER	Response to the paging message sent in step 5a
9	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 4)

Use the same message sub-type found in TS 34.108 clause 9, which is entitled "Packet to CELL_FACH from CELL_FACH in PS", with the following exceptions:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator URA identity UTRAN DRX cycle length coefficient	URA_PCH 0000 0000 0000 0001B 3

PAGING TYPE 1 (Step 5a)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to the previously assigned SRNC identity
- S-RNTI	Set to previously assigned S-RNTI
- CN originated page to connected mode UE	
-Paging cause	Terminating Call supported by the UE in the CS domain
-CN domain identity	CS Domain
-Paging record type identifier	Set to "IMSI (GSM-MAP)" for UEs supporting GSM-MAP core network type or "IMSI (DS-41)" for UEs supporting ANSI-41 core network type.
BCCH modification info	Not Present

CELL UPDATE (Step 6)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'uplink data transmission'

CELL UPDATE CONFIRM (Step 7)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New C-RNTI	Set to an arbitrary string different from '1010 1010 1010 1010'

INITIAL DIRECT TRANSFER (Step 8) – for UEs supporting GSM-MAP core networks

Check to see if the same message type found in TS 34.108 clause 9 is received, with the following exceptions:

Information Element	Value/remark
CN domain identity	CS domain
Intra Domain NAS Node Selector	
- CHOICE version	R99
-- CHOICE CN type	GSM
--- CHOICE Routing basis	Local(P)TMSI
---- Routing parameter	This bit string is set to bits b14 through b23 of the TMSI. The TMSI consists of 4 octets (32bits). This can be represented by a string of bits numbered from b0 to b31, with bit b0 being the least significant The "Routing parameter" bit string consists of bits b14 through b23 of the TMSI. The first/ leftmost/ most significant bit of the bit string contains bit b23 of the TMSI
--- Entered parameter	Not checked
NAS message	Not checked

INITIAL DIRECT TRANSFER (Step 8) – for UEs supporting ANSI-41 core networks

Information Element	Value/remark
CN domain identity	CS Domain
Intra Domain NAS Node Selector	
- CHOICE version	ANSI-41 : Bitstring(14), all bits set to 0
NAS message	Not checked
START	Not checked
Measured results on RACH	Not checked

8.3.1.5.5 Test requirement

After step 4, UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and move to URA_PCH state.

After step 5a, the UE shall move to CELL_FACH state to initiate a cell update procedure and transmits a CELL UPDATE message which is set to "uplink data transmission" in IE "Cell update cause".

After step 7, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 7a, UE shall transmit INITIAL DIRECT TRANSFER message to SS using AM RLC on DCCH.

8.3.1.6 Cell Update: UL data transmission in CELL_PCH

8.3.1.6.1 Definition

8.3.1.6.2 Conformance requirement

A UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

2> if the UE is in URA_PCH or CELL_PCH state; and

2> if the UE has uplink RLC data PDU or uplink RLC control PDU on RB1 or upwards to transmit:

3> perform cell update using the cause "uplink data transmission".

…

Reference

3GPP TS 25.331 clause 8.3.1 and 8.1.2

8.3.1.6.3 Test purpose

1. To confirm that the UE executes a cell update procedure when the UE transmits uplink data if the UE is in CELL_PCH state.

8.3.1.6.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

The UE is registered in both CS and PS domains.

Test Procedure

The UE is in the CELL_FACH state. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message with IE "RRC State Indicator" set to "CELL_PCH". The UE shall reply with PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and move to CELL_PCH state. The SS transmits a PAGING TYPE 1 message which includes a matched U-RNTI and the optional IE "CN originated page to connected mode UE". The UE then moves to CELL_FACH state and transmits a CELL UPDATE message to the SS on the uplink CCCH, with the IE "Cell update cause" set to value "uplink data transmission". After receiving such a message, SS transmits a CELL UPDATE CONFIRM message on downlink DCCH. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities. The UE shall stay in CELL_FACH state and transmit an INITIAL DIRECT TRANSFER message using AM RLC on DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_FACH state.
2			Void	
3			Void	
4	←		PHYSICAL CHANNEL RECONFIGURATION	IE "RRC State Indicator" set to "CELL_PCH"
5	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE moves to CELL_PCH state.
5a	←		PAGING TYPE 1	Includes Matched identifier and optional IE “CN originated page to connected mode UE"
6	→		CELL UPDATE	The UE moves to CELL FACH state and transmit this message which is set to "uplink data transmission" in IE "Cell update cause".
7	←		CELL UPDATE CONFIRM	See message content .
7a	→		UTRAN MOBILITY INFORMATION CONFIRM	
8	→		INITIAL DIRECT TRANSFER	Response to the paging message sent in step 5a
9	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 4)

Use the same message sub-type found in TS 34.108 clause 9, which is entitled "Packet to CELL_FACH from CELL_FACH in PS", with the following exceptions:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator UTRAN DRX cycle length coefficient	CELL_PCH 3

PAGING TYPE 1 (Step 5a)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to the previously assigned SRNC identity
- S-RNTI	Set to previously assigned S-RNTI
- CN originated page to connected mode UE	
-Paging cause	Terminating Call supported by the UE in the CS domain
-CN domain identity	CS Domain
-Paging record type identifier	Set to "IMSI (GSM-MAP)" for UEs supporting GSM-MAP core network type or "IMSI (DS-41)" for UEs supporting ANSI-41 core network type.
BCCH modification info	Not Present

CELL UPDATE (Step 6)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'uplink data transmission'

CELL UPDATE CONFIRM (Step 7)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New C-RNTI	Set to an arbitrary string different from '1010 1010 1010 1010'

INITIAL DIRECT TRANSFER (Step 8) – for UEs supporting GSM-MAP core networks

Check to see if the same message type found in TS 34.108 clause 9 is received, with the following exceptions:

Information Element	Value/remark
CN domain identity	CS domain
Intra Domain NAS Node Selector	
- CHOICE version	R99
-- CHOICE CN type	GSM
--- CHOICE Routing basis	Local(P)TMSI
---- Routing parameter	This bit string is set to bits b14 through b23 of the TMSI. The TMSI consists of 4 octets (32bits). This can be represented by a string of bits numbered from b0 to b31, with bit b0 being the least significant The "Routing parameter" bit string consists of bits b14 through b23 of the TMSI. The first/ leftmost/ most significant bit of the bit string contains bit b23 of the TMSI
--- Entered parameter	Not checked
NAS message	Not checked

INITIAL DIRECT TRANSFER (Step 8) – for UEs supporting ANSI-41 core networks

Information Element	Value/remark
CN domain identity	CS Domain
Intra Domain NAS Node Selector	
- CHOICE version	ANSI-41 : Bitstring(14), all bits set to 0
NAS message	Not checked
START	Not checked
Measured results on RACH	Not checked

8.3.1.6.5 Test requirement

After step 4, UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and move to CELL_PCH state.

After step 5, the UE shall move to CELL_FACH state to initiate a cell update procedure and transmits a CELL UPDATE message which is set to "uplink data transmission" in IE "Cell update cause".

After step 7, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 7a, UE shall transmit a INITIAL DIRECT TRANSFER message to SS using AM RLC on DCCH.

8.3.1.7 Void

8.3.1.8 Void

8.3.1.9 Cell Update: re-entering of service area after T305 expiry and being out of service area

8.3.1.9.1 Definition

8.3.1.9.2 Conformance requirement

A UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

…

1> Paging response:

…

1> Radio link failure:

…

1> Re-entering service area:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

2> if the UE is in CELL_FACH or CELL_PCH state; and

2> if the UE has been out of service area and re-enters service area before T307 or T317 expires:

3> perform cell update using the cause "re-entering service area".

…

When the T305 expires and the UE detects that it is "out of service area" as specified in TS 25.331 subclause 8.5.5.1, the UE shall

1> start timer T307;

…

If the UE detects "in service area" according to TS 25.331 subclause 8.5.5.2 and timer T307 or T317 is running, the UE shall:

1> check the value of V302; and

1> if V302 is equal to or smaller than N302:

2> in case of a cell update procedure:

3> set the contents of the CELL UPDATE message according to TS 25.331 subclause 8.3.1.3;

3> submit the CELL UPDATE message for transmission on the uplink CCCH.

2> increment counter V302;

2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.

1> if V302 is greater than N302:

…

Reference

3GPP TS 25.331 clause 8.3.1

8.3.1.9.3 Test purpose

1. To confirm that the UE performs a cell search after experiencing an "out of service area" condition.
2. To confirm that the UE initiates cell updating procedure if it manages to re-enter the service area.

8.3.1.9.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108, using the specific message contents as specified below.

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 1

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
T305	5 minutes
T307	50 seconds
T317	600 seconds

Specific timer tolerances

Use the same timer tolerances found in subclause 4.2.3 of TS 34.108, with the following exceptions.

T305: +/- 10 s

T307: +/- 2 s

Test Procedure

Table 8.3.1.9

Parameter	Unit	Cell 1	
		T0	T1
UTRA RF Channel Number		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-80
P-CCPCH RSCP (TDD)	dBm	-60	-80

Table 8.3.1.9 illustrates the downlink power to be applied at various time instants of the test execution. Columns marked "T0" denote the initial conditions.

The UE is in the CELL_FACH state. The content of the SYSTEM INFORMATION BLOCK TYPE 3 and 4 is modified. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.9 so that S<0. The UE shall detect that it is out of service area. Following the expiry of periodic cell updating timer T305 according to the system information, and within the time interval equivalent to T307 timer value, SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.9 so that S>0. The UE shall find that it is back in service area, and transmit a CELL UPDATE message to the SS on the uplink CCCH. In this message, the IE "Cell update cause" shall be set to "re-entered service area". After the SS receives this message, it transmits a CELL UPDATE CONFIRM message with the IE "RRC State Indicator" set "CELL_PCH" on the downlink DCCH. The UE shall enter CELL_PCH state. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.9 so that S<0. Following the expiry of periodic cell updating timer T305 according to the system information, the UE shall detect that it is out of service area. Within the time interval equivalent to T307 timer value, SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.9 so that S>0. The UE shall find that it is back in service area, move to CELL_FACH and transmits a CELL UPDATE message to the SS on the uplink CCCH. In this message, the IE "Cell update cause" shall be set to "re-entered service area". After the SS receives this message, it transmits a CELL UPDATE CONFIRM message on the downlink DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the CELL_FACH state of cell 1.
1a	←		MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 3 and 4	SS changes the contents of MASTER INFORMATION BLOCK and SYSTEM INFORMATION BLOCK (see specific message contents).
1b	←		SYSTEM INFORMATION CHANGE INDICATION	
2				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.9 so that its S value falls below 0.
3				The UE shall detect an "out of service" condition and it shall search for other cells to camp on. Upon expiry of timer T305, UE starts T307 timer..
4				SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.9.
5	→		CELL UPDATE	The value "re-entered service area" shall be found in IE "Cell update cause" in this message
6	←		CELL UPDATE CONFIRM	"RRC State Indicator" is set to "CELL_PCH"
7				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.9 so that its S value falls below 0 and waits 5 minutes and 10 seconds until T305 has expired.
8				SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.9.
9	→		CELL UPDATE	UE shall move to CELL_FACH. It shall transmit this message with cell update cause set to "re-entered service area"
10	←		CELL UPDATE CONFIRM	

11	←→	CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.

Specific Message Contents

MASTER INFORMATION BLOCK (Step 1a)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
MIB Value Tag	A valid MIB value tag as defined in TS 25.331 that is different from the previous value.
SIB 3 Cell Value tag	Set to (Current SIB3 value tag + 1)
SIB 4 Cell Value tag	Set to (Current SIB4 value tag + 1)

SYSTEM INFORMATION BLOCK TYPE 3 and 4 (Step 1a)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
Qrxlevmin	-35 (-69 dBm)

SYSTEM INFORMATION CHANGE INDICATION (Step 1b)

Information Element	Value/remark
Message Type	
BCCH modification info	
MIB Value tag	Set equal to Value tag sent in modified MIB in step 1a.

CELL UPDATE (Step 5 and 9)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 're-entered service area'

CELL UPDATE CONFIRM (Step 6 and 10)

Use the same message sub-type found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3

8.3.1.9.5 Test requirement

After step 4 the UE shall transmit a CELL UPDATE message in which the IE "Cell update cause" is set to the value "re-entered service area".

After step 8 the UE shall move to CELL_FACH and then transmit a CELL UPDATE message, with the IE "Cell Update Cause" set to "re-entered service area".

8.3.1.10 Cell Update: expiry of T307 after T305 expiry and being out of service area

8.3.1.10.1 Definition

8.3.1.10.2 Conformance requirement

When the T307 expires, the UE shall:

1> move to idle mode;

1> release all dedicated resources;

1> perform other actions when entering idle mode from connected mode as specified in TS 25.331 subclause 8.5.2;

1> and the procedure ends.

Reference

3GPP TS 25.331 clause 8.3.1

8.3.1.10.3 Test purpose

1 To confirm that the UE moves to idle mode after the expiry of T307, indicating that it is out of service area when attempting to perform a periodic cell updating procedure.

8.3.1.10.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Timer T305 is set to 5min.

Test Procedure

Table 8.3.1.10

Parameter	Unit	Cell 1	
		T0	T1
UTRA RF Channel Number		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-80
P-CCPCH RSCP (TDD)	dBm	-60	-80

Table 8.3.1.10 illustrates the downlink power to be applied at various time instants of the test execution. Columns marked "T0" denote the initial conditions.

The UE is in CELL_FACH state at the start of the test. Before the expiry of periodic cell updating timer T305, the content of the SYSTEM INFORMATION BLOCK TYPE 3 and 4 is modified. After T305 expires, UE shall transmit CELL UPDATE message with IE "cell update cause" set to "periodical cell update". SS shall transmit CELL UPDATE CONFIRM message. Now the UE and SS are synchronized. Immediately after the cell update procedure is finalized, the SS starts a delay timer T_{delay} (see below for limits on the timer value). When T_{delay} expires the SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.10 so that S<0 and this results in a "out of service area" condition. The SS continues to listen to the uplink channel to detect possible attempts to perform a cell updating procedure. The UE shall not send any CELL UPDATE message on the uplink CCCH, instead it triggers timer T307 after expiry of T305. After the expiry of timer T305+T307+10% margin since completion of the cell update procedure, SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.10 so that S>0, the UE shall enter idle state. SS waits for 60s and then calls for generic procedure C.1 to check that UE is in idle mode state.

NOTE 1: The value chosen for Tdelay should be midway between the following logical minimum and maximum values:

Minimum > T305 + T307 – T317

Maximum < T305

NOTE 2: TS 25.331 (from June 2003) specifies that the UE should treat any value of T317 received from UTRAN as though it is equal to infinity. Nevertheless, the value of T317 used in Note 1 should be the value broadcast in SIB1 by the SS (or the implied default value if none is broadcast).

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_FACH state.
1a	←		MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 3 and 4	SS changes the contents of MASTER INFORMATION BLOCK and SYSTEM INFORMATION BLOCK (see specific message contents).
1b	←		SYSTEM INFORMATION CHANGE INDICATION	
1c	→		CELL UPDATE	IE "Cell update cause" shall be set to "periodical cell update".
1d	←		CELL UPDATE CONFIRM	
1e				SS waits T_{delay} (see above)
2a				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.10 so that the cell is no longer suitable for camping. The UE shall detect that it is out of service area and refrains from transmitting CELL UPDATE message due to periodic cell updating.
2b				SS waits a further (T305+T307- T_{delay}) +10% for UE to enter idle mode.
3				The UE detects the expiry of timer T305 and it searches for other cells to camp on. After the expiry of timer T307, the UE shall enter idle mode. SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.10 so that the cell is suitable for camping. SS waits for 60s.
4	←→		CALL C.1	If the test result of C.1 indicates that UE is in idle mode state, the test passes, otherwise it fails.

Specific Message Contents

MASTER INFORMATION BLOCK (Step 1a)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
MIB Value Tag	A valid MIB value tag as defined in TS 25.331 that is different from the previous value.
SIB 3 Cell Value tag	Set to (Current SIB3 value tag + 1)
SIB 4 Cell Value tag	Set to (Current SIB4 value tag + 1)

SYSTEM INFORMATION BLOCK TYPE 3 and 4 (Step 1a)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
Qrxlevmin	-35 (-69 dBm)

SYSTEM INFORMATION CHANGE INDICATION (Step 1b)

Information Element	Value/remark
Message Type	
BCCH modification info	
MIB Value tag	Set equal to Value tag sent in modified MIB in step 1a.

CELL UPDATE (Step 1c)

The same message found in Annex A shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'periodical cell updating'

8.3.1.10.5 Test requirement

After step 3 the UE shall move to idle mode.

8.3.1.11 Cell Update: Success after T302 time-out

8.3.1.11.1 Definition

8.3.1.11.2 Conformance requirement

If any or several of the following conditions are true:

- expiry of timer T302;

…

the UE shall:

1> check whether it is still in "in service area";

1> in case of a cell update procedure:

2> clear any entry for the CELL UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS.

If the UE detects "in service area" if it has not entered idle mode, and:

1> if V302 is equal to or smaller than N302, the UE shall:

2> in case of a cell update procedure:

3> set the contents of the CELL UPDATE message according to TS 25.331 subclause 8.3.1.3;

3> submit the CELL UPDATE message for transmission on the uplink CCCH.

2> increment counter V302;

2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.

1> if V302 is greater than N302, the UE shall:

…

Reference

3GPP TS 25.331 clause 8.3.1

8.3.1.11.3 Test purpose

1. To confirm that the UE repeats the transmission of CELL UPDATE message after failing to receive any response from the SS before T302 timer expires.

8.3.1.11.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

At the start of the test, the UE is brought to CELL_FACH state. When the UE detects the expiry of periodic cell updating timer T305 according to the system information, the UE transmits a CELL UPDATE message to the SS on the uplink CCCH. The IE "Cell update cause" in this message shall be set to "periodical cell update". SS ignores this message, and the UE shall then re-transmit a CELL UPDATE message after the expiry of timer T302. When the SS has received (N302+1) such messages, it transmits a CELL UPDATE CONFIRM message with new values for "C-RNTI" to the UE. Finally, the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE starts from CELL_FACH state. SS initializes its internal counter K to 0 and waits until the expiry of T305 timer.
2	→		CELL UPDATE	The value "periodical cell update" shall be set in IE "Cell update cause".
3				If K is equal to N302 then proceeds to step 5.
4				SS increments counter K, transmits no response to the UE and waits for an additional period equal to the value of timer T302. The next step is step 2.
5	←		CELL UPDATE CONFIRM	The message includes IEs "new C-RNTI". The IE "RRC State Indicator" is set to "CELL_FACH".
6	→		UTRAN MOBILITY INFORMATION CONFIRM	
7	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

CELL UPDATE (Step 2)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'Periodic cell updating'

CELL UPDATE CONFIRM (Step 5)

Use the same message sub-type found in TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
New C-RNTI	Set to an arbitrary string different from '1010 1010 1010 1010'

8.3.1.11.5 Test requirement

After step 1 the UE shall detect the expiry of timer T305 then transmit a CELL UPDATE message on the uplink CCCH, setting "periodical cell update" into IE "Cell update cause".

After step 2 the UE shall re-transmits a CELL UPDATE message after the expiry of timer T302. A total of (N302+1) transmissions of CELL UPDATE message shall be detected in SS.

After step 5 the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH and stay at CELL_FACH state.

8.3.1.12 Cell Update: Failure (After Maximum Re-transmissions)

8.3.1.12.1 Definition

8.3.1.12.2 Conformance requirement

A UE shall initiate the cell update procedure in the following cases:

…

1> Periodical cell update:

…

2> if the UE is in CELL_FACH or CELL_PCH state; and

2> if the timer T305 expires; and

2> if the criteria for "in service area" as specified in subclause 8.5.5.2 in TS 25.331 is fulfilled; and

2> if periodic updating has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity":

3> perform cell update using the cause "periodical cell update".

…

In case of cell update procedure the UE shall transmit a CELL UPDATE message.

…

The UE shall set the IEs in the CELL UPDATE message as follows:

1> set the IE "Cell update cause" corresponding to the cause specified in subclause 8.3.1.2 in TS 25.331 that is valid when the CELL UPDATE message is submitted to lower layers for transmission;

…

If any or several of the following conditions are true:

- expiry of timer T302;

…

the UE shall:

1> stop T302 if it is running;

…

1> check whether it is still in "in service area" (see subclause 8.5.5.2) in TS 25.331;

…

1> in case of a cell update procedure:

2> clear any entry for the CELL UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS.

…

If the UE detects "in service area" if it has not entered idle mode, and:

1> if V302 is equal to or smaller than N302, the UE shall:

…

1> if V302 is greater than N302, the UE shall:

…

2> in case of a cell update procedure:

3> clear the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS.

…

2> release all its radio resources;

2> enter idle mode;

2> other actions the UE shall perform when entering idle mode from connected mode are specified in TS 25.331subclause 8.5.2;

2> and the procedure ends.

Reference

3GPP TS 25.331 clause 8.3.1.2, 8.3.1.3, 8.3.1.1.2.

8.3.1.12.3 Test purpose

1. To confirm that the UE repeats the cell update procedure upon the expiry of timer T302 and moves to idle state when its internal counter V302 is greater than N302.

8.3.1.12.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_FACH (state 6-11)as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is initially in CELL_FACH state. When the UE detects the expiry of periodic cell updating timer T305, the UE transmits a CELL UPDATE message to the SS on the uplink CCCH to perform a periodic cell updating procedure. The SS ignores this message, and the UE shall attempt to re-transmit a CELL UPDATE message up to a maximum of (N302) times after the expiry of timer T302. After (N302) attempts of retransmission, the UE shall return to idle state. SS waits for 5s and then calls for generic procedure C.1 to check that UE is in idle mode state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the CELL_FACH state. SS sets its internal counter K=0 and waits for a period equals to timer value T305.
2	→		CELL UPDATE	The value "periodical cell update" shall be set in IE "Cell update cause".
3				SS transmits no response to the UE and increments counter K with 1.
4				SS waits for an additional period equal to T302 timer and if K is not greater than N302, then next step is step 2. Else the next step is step 5.
5				The UE shall enter idle mode state.
6	←→		CALL C.1	If the test result of C.1 indicates that UE is in idle mode state, the test passes, otherwise it fails.

Specific Message Contents

CELL UPDATE (Step 2)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'Periodical cell update'

8.3.1.12.5 Test requirement

After step 1 the UE shall transmit a CELL UPDATE message on the uplink CCCH and set value "periodical cell update" into IE "Cell update cause".

After step 3 and if K is not greater than N302, the UE shall retry to transmit a CELL UPDATE message.

After step 3 and if K is greater than N302, the UE shall stop transmitting CELL UPDATE message and then enters idle state.

8.3.1.13 Cell Update: Reception of Invalid CELL UPDATE CONFIRM Message

8.3.1.13.1 Definition

8.3.1.13.2 Conformance Requirement

If the UE receives an CELL UPDATE CONFIRM message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to TS 25.331 clause 9, the UE shall perform procedure specific error handling as follows:

1> If V302 is equal to or smaller than N302, the UE shall:

2> set the variable PROTOCOL_ERROR_INDICATOR to TRUE;

2> in case of a cell update procedure:

3> set the contents of the CELL UPDATE message according to TS 25.331 subclause 8.3.1.3;

3> submit the CELL UPDATE message for transmission on the uplink CCCH.

…

2> increment counter V302;

2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.

1> if V302 is greater than N302, the UE shall:

…

2> release all its radio resources;

2> enter idle mode;

2> Other actions the UE shall perform when entering idle mode from connected mode are specified in TS 25.331 subclause 8.5.2;

2> the procedure ends.

Reference

3GPP TS 25.331 clause 8.3.1.11.

8.3.1.13.3 Test Purpose

1. To confirm that the UE retransmits a CELL UPDATE message when it receives an invalid CELL UPDATE CONFIRM message, before the number of retransmissions has reached the maximum allowed value.

8.3.1.13.4 Method of Test

Initial Condition

System Simulator: 1 cell

UE: CELL_PCH (state 6-12) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is brought to CELL_PCH state at the beginning of the test. SS pages the UE by sending a PAGING TYPE 1 message using the U-RNTI identity assigned during RRC connection establishment procedure. The UE shall transmit a CELL UPDATE message on the uplink CCCH. Upon receiving such a message, the SS replies with an invalid CELL UPDATE CONFIRM message on downlink DCCH using UM RLC. The UE shall detect the protocol error and re-transmit a CELL UPDATE message up to a maximum of N302 times. SS then transmit a valid CELL UPDATE

CONFIRM message. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PAGING TYPE 1	The UE is in the CELL_PCH state. SS pages for the UE using the allocated connected mode identity (U-RNTI).
2	→		CELL UPDATE	Check that the value "paging response" is set in IE "Cell update cause".
3	←		CELL UPDATE CONFIRM	See specific message content.
4	→		CELL UPDATE	Check that the value "paging response" is set in IE "Cell update cause", the value "protocol error" is set in IE "failure cause" and the value "Message extension not comprehended" is set in IE "Protocol error information".
5	←		CELL UPDATE CONFIRM	See message content.
6	→		UTRAN MOBILITY INFORMATION CONFIRM	

Specific Message Content

CELL UPDATE (Step 2)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'Paging Response'

CELL UPDATE CONFIRM (Step 3)

Use the CELL UPDATE CONFIRM message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Critical extensions	'FF'H

CELL UPDATE (Step 4)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'Paging Response'
Failure cause	Check to see if it is set to 'protocol error'
-Protocol error information	Check to see if it is set to "Message extension not comprehended"

PAGING TYPE 1 (Step 1)

Use the same message sub-type titled "TM (Packet in PS)" in default message content of TS 34.108 with following exceptions:

Information Element	Value/remark
Page record list - Paging record - CHOICE Used paging identity - U-RNTI - SRNC Identity - S-RNTI	 UTRAN identity '0000 0000 0001' '0000 0000 0000 0000 0001'

CELL UPDATE CONFIRM (Step 5)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'

8.3.1.13.5 Test Requirement

After step 1 the UE shall transmit a CELL UPDATE message on the uplink CCCH, setting "paging response" into IE "Cell update cause".

After step 3 the UE shall transmit a CELL UPDATE message on the uplink CCCH, setting "paging response" into IE "Cell update cause", "protocol error" into IE "failure cause" and "Message extension not comprehended" into IE "Protocol error information".

After step 5, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

8.3.1.14 Cell Update: Incompatible simultaneous reconfiguration

8.3.1.14.1 Definition

8.3.1.14.2 Conformance Requirement

In case of a cell update procedure and if the received CELL UPDATE CONFIRM message

- includes "RB information elements"; and/or
- includes "Transport channel information elements"; and/or
- includes "Physical channel information elements"; and
- the variable ORDERED_RECONFIGURATION is set to TRUE because of an ongoing Reconfiguration procedure; and/or
- if the variable INCOMPATIBLE_SECURITY_RECONFIGURATION becomes set to TRUE of the received CELL UPDATE CONFIRM message:

the UE shall:

1> if V302 is equal to or smaller than N302:

2> if, caused by the received CELL UPDATE CONFIRM message

…

3> if the variable ORDERED_RECONFIGURATION is set to TRUE caused by the received CELL UPDATE CONFIRM message in case of a cell update procedure:

4> set the variable ORDERED_RECONFIGURATION to FALSE.

2> set the variable FAILURE_INDICATOR to TRUE;

2> set the variable FAILURE_CAUSE to "Incompatible simultaneous reconfiguration";

2> set the content of the CELL UPDATE message according to TS 25.331 subclause 8.3.1.3;

2> submit the CELL UPDATE message for transmission on the uplink CCCH;

2> increment counter V302;

2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.

1> if V302 is greater than N302:

…

Reference

3GPP TS 25.331 clause 8.3.1.9a

8.3.1.14.3 Test Purpose

1. To confirm that the UE retransmits a CELL UPDATE message when it receives a CELL UPDATE CONFIRM message that includes "Physical channel information elements" and UE's variable ORDERED_RECONFIGURATION is set to TRUE because of an ongoing Reconfiguration procedure, before the number of retransmissions has reached the maximum allowed value.

8.3.1.14.4 Method of Test

Initial Condition

System Simulator: 1 cell

UE: CELL_PCH (state 6-12) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is brought to CELL_PCH state at the beginning of the test. SS pages the UE by sending a PAGING TYPE 1 message using the U-RNTI identity assigned during RRC connection establishment procedure. The UE shall transmit a CELL UPDATE message on the uplink CCCH. Upon receiving such a message, the SS replies with a CELL UPDATE CONFIRM message contains IE "Physical channel information elements". Following that, SS immediately transmits another CELL UPDATE CONFIRM message contains IE "Physical channel information elements" before the "activation time" indicated in the previous CELL UPDATE CONFIRM message expires. The UE shall re-transmit a CELL UPDATE message with the same cause as the previous CELL UPDATE message and failure cause as "Incompatible simultaneous reconfiguration". SS then transmits a CELL UPDATE CONFIRM message to end the procedure.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PAGING TYPE 1	
2	→		CELL UPDATE	
3	←		CELL UPDATE CONFIRM	SS transmits this message including IE "Physical channel information elements".
4	←		CELL UPDATE CONFIRM	Sent before the activation time specified in the message in step 3 has elapsed.
5	→		CELL UPDATE	
6	←		CELL UPDATE CONFIRM	

Specific Message Content

CELL UPDATE (Step 2)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'Paging Response'

CELL UPDATE (Step 5)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'Paging Response'
Failure cause	Check to see if set to 'Incompatible simultaneous reconfiguration'

CELL UPDATE CONFIRM (Step 3)

Use the same message sub-type found in TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
Activation Time Info	Current CFN-[current CFN mod 8 + 8]
Maximum allowed UL TX power	30 dBm

CELL UPDATE CONFIRM (Step 4)

Use the same message sub-type found in TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
Activation Time Info	Current CFN-[current CFN mod 8 + 8]
Maximum allowed UL TX power	25 dBm

PAGING TYPE 1 (Step 1)

Use the same message sub-type titled "TM (Packet in PS)" in default message content of TS 34.108 with following exceptions:

Information Element	Value/remark
Page record list - Paging record - CHOICE Used paging identity - U-RNTI - SRNC Identity - S-RNTI	 UTRAN identity '0000 0000 0001' '0000 0000 0000 0000 0001'

8.3.1.14.5 Test Requirement

After step 1, UE shall transmit a CELL UPDATE message.

After step 4 the UE shall re-transmit a CELL UPDATE message with failure cause set to "Incompatible simultaneous reconfiguration".

8.3.1.15 Cell Update: Unrecoverable error in Acknowledged Mode RLC SRB

8.3.1.15.1 Definition

8.3.1.15.2 Conformance Requirement

A UE shall initiate the cell update procedure in the following cases:

…

1> RLC unrecoverable error:

…

2> if the UE detects RLC unrecoverable error in an AM RLC entity:

3> perform cell update using the cause "RLC unrecoverable error".

…

In case of cell update procedure the UE shall transmit a CELL UPDATE message.

…

The UE shall set the IEs in the CELL UPDATE message as follows:

…

1> if an unrecoverable error in any of the AM RLC entities for the signalling radio bearers RB2, RB3 or RB4 is detected:

2> set the IE "AM_RLC error indication (RB2, RB3 or RB4)" to TRUE.

1> otherwise:

2> set the IE "AM_RLC error indication (RB2, RB3 or RB4)" to FALSE.

…

When the UTRAN receives a CELL UPDATE/URA UPDATE message, the UTRAN should:

…

1> initiate an RRC connection release procedure (see subclause 8.1.4 in TS 25.331) by transmitting an RRC CONNECTION RELEASE message on the downlink CCCH. In particular UTRAN should:

2> if the CELL UPDATE message was sent because of an unrecoverable error in RB2, RB3 or RB4:

3> initiate an RRC connection release procedure by transmitting an RRC CONNECTION RELEASE message on the downlink CCCH.

Reference

3GPP TS 25.331 clause 8.3.1.2, 8.3.1.3, 8.3.1.5

8.3.1.15.3 Test Purpose

- To confirm that the UE reports the occurrence of an unrecoverable error in a C-plane AM RLC entity by initiating cell update procedure.
- To confirm that UE enters idle mode state after receiving RRC CONNECTION RELEASE message on the downlink CCCH.

8.3.1.15.4 Method of Test

Initial Condition

System Simulator: 1 cell

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE

The RRC CONNECTION SETUP message used in the initial setup should be as shown under Specific Message Contents below.

Test Procedure

The UE is initially in CELL_DCH state. SS sends a UE CAPABILITY ENQUIRY message on the DCCH using AM mode. The UE shall reply with a UE CAPABILITY INFORMATION message, sent using AM RLC on the DCCH.

SS does not acknowledge the AM PDUs carrying this message. The UE shall continue to re-transmit the AM PDU carrying UE CAPABILITY INFORMATION message until the maximum re-transmission count is reached.

Thereafter, the UE shall start sending RESET PDUs to request that the AM RLC entity for RRC signalling be re-initialized. SS ignores all RESET PDUs from the UE.

At this point, the UE shall initiate a cell update procedure by transmitting a CELL UPDATE message on the uplink CCCH. The CELL UPDATE message shall specify the value "TRUE" in IE "AM_RLC error indicator (RB2, RB3 or RB4)" and "RLC unrecoverable error" as the cell update cause.

SS sends RRC CONNECTION RELEASE message on the downlink CCCH to UE. SS waits for 5 s and then calls for generic procedure C.1 to check that UE is in idle mode state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is initially in CELL_DCH state.
2	←		UE CAPABILITY ENQUIRY	
3	→		UE CAPABILITY INFORMATION	SS does not acknowledge any of the AM PDUs carrying the UE CAPABILITY INFORMATION message. The UE shall re-transmit these AM PDUs until the maximum number has been reached.
4				UE shall start to transmit a RESET PDU. SS does not respond to any RESET PDU frames originated from the UE.
5	→		CELL UPDATE	IE "AM_RLC Error Indication (RB2, RB3 or RB4)" shall be set to 'TRUE'
6	←		RRC CONNECTION RELEASE	Sends this message on the downlink CCCH and includes UE's UTRAN identity. After SS sent this message, SS waits for 5s.
7	←→		CALL C.1	If the test result of C.1 indicates that UE is in idle mode state, the test passes, otherwise it fails.

Specific Message Contents

RRC CONNECTION SETUP (message used in the initial setup)

Use the same message type found in clause 9 of TS 34.108 with the following exception:

Information Element	Value/remark
Signalling RB information to setup	(UM DCCH for RRC)
- RB identity	Not Present
- CHOICE RLC info type	
- RLC info	
- CHOICE Uplink RLC mode	UM RLC
- Transmission RLC discard	Not Present
- CHOICE Downlink RLC mode	UM RLC
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	5
- Logical channel identity	1
- CHOICE RLC size list	Configured
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit List
- RLC size index	According to TS34.108 clause 6.10.2.4.1.3 (standalone 13.6 kbps signalling radio bearer)
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
Signalling RB information to setup	(AM DCCH for RRC)
- RB identity	Not Present
- CHOICE RLC info type	
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	4
- Transmission window size	32
- Timer_RST	500
- Max_RST	1
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	32
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions

Information Element	Value/remark
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	5
- Logical channel identity	2
- CHOICE RLC size list	Configure
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit List
- RLC size index	According to TS34.108 clause 6.10.2.4.1.3 (standalone 13.6 kbps signalling radio bearer)
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
Signalling RB information to setup	(AM DCCH for NAS_DT High priority)
- RB identity	Not Present
- CHOICE RLC info type	
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	4
- Transmission window size	32
- Timer_RST	500
- Max_RST	1
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	32
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	5
- Logical channel identity	3
- CHOICE RLC size list	Configured
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1

Information Element	Value/remark
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit List
- RLC size index	According to TS34.108 clause 6.10.2.4.1.3 (standalone 13.6 kbps signalling radio bearer)
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
Signalling RB information to setup	(AM DCCH for NAS_DT Low priority)
- RB identity	Not Present
- CHOICE RLC info type	
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	4
- Transmission window size	32
- Timer_RST	500
- Max_RST	1
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	32
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	5
- Logical channel identity	4
- CHOICE RLC size list	Configured
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4

Information Element	Value/remark
- CHOICE RLC size list	Explicit List
- RLC size index	According to TS34.108 clause 6.10.2.4.1.3 (standalone 13.6 kbps signalling radio bearer)
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4

UE CAPABILITY ENQUIRY (Step 2)

Use the same message found in TS 34.108 clause 9.

UE CAPABILITY INFORMATION (Step 3)

Only the message type IE is checked for this message.

CELL UPDATE (Step 5)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
AM_RLC error indicator (RB2, RB3 or RB4)	Check to see if set to 'TRUE'
Cell update cause	Check to see if set to 'RLC unrecoverable error'

RRC CONNECTION RELEASE (Step 6)

Use the same message found in TS 34.108 clause 9.

8.3.1.15.5 Test Requirement

After step 4 the UE shall transmit a CELL UPDATE message on the uplink CCCH to report the occurrence of an unrecoverable error in AM RLC entity for RB2, RB3 or RB4 data as well as cell update cause set to "RLC unrecoverable error".

8.3.1.16 Void

8.3.1.17 Cell Update: Failure (UTRAN initiate an RRC connection release procedure on CCCH)

8.3.1.17.1 Definition

8.3.1.17.2 Conformance requirement

When the UTRAN receives a CELL UPDATE/URA UPDATE message, the UTRAN should:

1> … or

1> initiate an RRC connection release procedure (see subclause 8.1.4 in TS 25.331) by transmitting an RRC CONNECTION RELEASE message on the downlink CCCH.

…

The UE shall receive and act on an RRC CONNECTION RELEASE message in states CELL_DCH and CELL_FACH. Furthermore this procedure can interrupt any ongoing procedures with the UE in the above listed states.

When the UE receives the first RRC CONNECTION RELEASE message; and

1> if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or

1> if the message is received on DCCH:

the UE shall:

…

1> in state CELL_FACH:

…

2> if the RRC CONNECTION RELEASE message was received on the CCCH:

3> …

3> enter idle mode;

Reference

3GPP TS 25.331 clause 8.3.1.5, 8.1.4.3

8.3.1.17.3 Test purpose

To confirm that the UE moves to idle state upon the reception of a RRC CONNECTION RELEASE message on CCCH.

8.3.1.17.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_FACH (state 6-11)

Test Procedure

The UE is initially in CELL_FACH state. When the UE detects the expiry of periodic cell updating timer T305, the UE transmits a CELL UPDATE message to the SS on the uplink CCCH to perform a periodical cell updating procedure. The SS transmits a RRC CONNECTION RELEASE message on downlink CCCH. The UE shall return to idle mode after release of all current signalling flows and radio access bearers. SS calls for generic procedure C.1 to check that UE is in Idle Mode state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		CELL UPDATE	The value "periodical cell update" shall be set in IE "Cell update cause" and this message shall be sent upon expiry of timer T305.
2	←		RRC CONNECTION RELEASE	SS transmits a RRC CONNECTION RELEASE message to the UE. After SS sent this message SS waits for 5 seconds.
3			Void	
4			Void	
5				The UE shall enter idle mode state.
6	←→		CALL C.1	If the test result of C.1 indicates that UE is in idle mode state, the test passes, otherwise it fails.

Specific Message Contents

CELL UPDATE (Step 1)

The same message found in Clause 9 of TS 34.108 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'Periodical cell update'

RRC CONNECTION RELEASE (Step 2)

Use the same message sub-type found in Clause 9 of TS 34.108.

8.3.1.17.5 Test requirement

In step 1 the UE shall transmit a CELL UPDATE message on the uplink CCCH and set value "periodical cell update" into IE "Cell update cause".

After step 4 the UE shall enter idle mode.

8.3.1.18 Cell Update: Radio Link Failure (T314>0, T315=0), CS RAB established

8.3.1.18.1 Definition

8.3.1.18.2 Conformance requirement

A UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

…

1> Paging response:

…

1> Radio link failure:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met:

2> if the UE is in CELL_DCH state and the criteria for radio link failure is met as specified in TS 25.331 subclause 8.5.6:

3> perform cell update using the cause "radio link failure".

…

When initiating the cell update procedure, the UE shall:

1> stop timer T305;

1> if the UE is in CELL_DCH state:

2> in the variable RB_TIMER_INDICATOR, set the IE "T314 expired" and the IE "T315 expired" to FALSE;

2> if the stored values of the timer T314 and timer T315 are both equal to zero; or

2> if the stored value of the timer T314 is equal to zero and there are no radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT315":

…

2> if the stored value of the timer T314 is equal to zero:

…

2> if the stored value of the timer T315 is equal to zero:

3> release all radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT315";

3> in the variable RB_TIMER_INDICATOR set the IE "T315 expired" to TRUE.

2> if the stored value of the timer T314 is greater than zero:

3> if there are radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314":

4> start timer T314.

3> if there are no radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314" or "useT315":

4> start timer T314.

2> if the stored value of the timer T315 is greater than zero:

…

2> for the released radio bearer(s):

3> delete the information about the radio bearer from the variable ESTABLISHED_RABS;

3> when all radio bearers belonging to the same radio access bearer have been released:

4> indicate local end release of the radio access bearer to upper layers using the CN domain identity together with the RAB identity stored in the variable ESTABLISHED_RABS;

4> delete all information about the radio access bearer from the variable ESTABLISHED_RABS.

2> select a suitable UTRA cell according to TS 25.304;

2> set the variable ORDERED_RECONFIGURATION to FALSE.

1> set the variables PROTOCOL_ERROR_INDICATOR, FAILURE_INDICATOR, UNSUPPORTED_CONFIGURATION and INVALID_CONFIGURATION to FALSE;

1> set the variable CELL_UPDATE_STARTED to TRUE;

1> if the UE is not already in CELL_FACH state:

2> move to CELL_FACH state;

2> select PRACH according to TS 25.331 subclause 8.5.17;

2> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

2> use the transport format set given in system information as specified in TS 25.331 subclause 8.6.5.1.

1> if the UE performs cell re-selection:

2> clear the variable C_RNTI; and

2> stop using that C_RNTI just cleared from the variable C_RNTI in MAC.

1> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

1> in case of a cell update procedure:

2> set the contents of the CELL UPDATE message according to TS 25.331 subclause 8.3.1.3;

2> submit the CELL UPDATE message for transmission on the uplink CCCH.

1> set counter V302 to 1;

1> start timer T302 when the MAC layer indicates success or failure in transmitting the message.

…

If the received CELL UPDATE CONFIRM message would cause the UE to transit to CELL_DCH state:

1> if the UE failed to establish the physical channel(s) indicated in the received CELL UPDATE CONFIRM message according to the criteria defined in subclause 8.5.4 in TS 25.331are not fulfilled; or

…

the UE shall:

…

1> if the variable ORDERED_RECONFIGURATION is set to TRUE caused by the received CELL UPDATE CONFIRM message in case of a cell update procedure:

2> set the variable ORDERED_RECONFIGURATION to FALSE.

1> if V302 is equal to or smaller than N302:

2> select a suitable UTRA cell according to TS 25.304;

2> set the contents of the CELL UPDATE message according to TS 25.331 subclause 8.3.1.3, except for the IE "Cell update cause" which shall be set to "Radio link failure";

2> submit the CELL UPDATE message for transmission on the uplink CCCH;

2> increment counter V302;

2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.

1> if V302 is greater than N302:

…

If the IE "Downlink DPCH info common for all RL" is included in a message used to perform a Timing re-initialised hard handover or the IE "Downlink DPCH info common for all RL" is included in a message other than RB SETUP used to transfer the UE from a state different from Cell_DCH to Cell_DCH, and ciphering is active for any radio bearer using RLC-TM, the UE shall, after having activated the dedicated physical channels indicated by that IE:

…

1> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info" in the response message;"

…

Reference

3GPP TS 25.331 clauses 8.3.1.2, 8.3.1.7a, 8.6.6.28.

8.3.1.18.3 Test purpose

1. To confirm that the UE shall try to find a new cell after detecting that a radio link failure has occurred.
2. To confirm that the UE performs a cell selection procedure when it fails to configure the physical channel(s) indicated in the CELL UPDATE CONFIRM message.

8.3.1.18.4 Method of test

Initial Condition

System Simulator: 2 cells (Cell 1 and cell 2 are active).

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: CS_DCCH+DTCH_DCH (state 6-9).

Test Procedure

Table 8.3.1.18

Parameter	Unit	Cell 1			Cell 2		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			Mid Range Test Frequency		
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF	-60	-75	-60	-85
P-CCPCH RSCP (TDD)	dBm	-60	OFF	-60	-75	-60	-85

Table 8.3.1.18 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Column marked "T0" denote the initial conditions.

The UE is brought to CELL_DCH state in a cell 1 after making a successful outgoing call attempt. After the call has been established, SS configures its downlink transmission power settings according to column "T1" in table 8.3.1.18. The UE shall detect a radio link failure in cell 1.

Then it shall attempt to re-select to cell 2. After that, it shall transmit CELL UPDATE on the uplink CCCH to SS. The SS transmits CELL UPDATE CONFIRM message which includes dedicated transport and physical channel parameters on downlink DCCH. SS shall not configure according to this message. Instead, SS configures its downlink transmission power settings according to column "T2" in table 8.3.1.18. UE shall fail to establish the dedicated channel in cell 2.

UE shall re-select to cell 1 and transmit a CELL UPDATE message with IE "Cell update cause" set to "Radio link failure". Then SS responds with a CELL UPDATE CONFIRM message on downlink DCCH. Then the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0			Void	
1			Void	
2			Void	
3			Void	
4				SS configures cell 1 and 2 according to column "T1" in table 8.3.1.18. SS starts to listen to the uplink CCCH of cell 2.
5			Void	
6				The UE detects the radio link failure.
7	→		CELL UPDATE	The UE shall find a new cell 2 and the value "radio link failure" shall be set in IE "Cell update cause".
8	←		CELL UPDATE CONFIRM	Including dedicated physical channel parameters.
9				SS does not configure according to the message in step 8. SS configures cell 1 and 2 according to column "T2" in table 8.3.1.18.
10	→		CELL UPDATE	UE shall select cell 1 and transmit this message
11	←		CELL UPDATE CONFIRM	See message content.
12	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108 titled "System Information Block type 1 (supported PLMN type is GSM-MAP)", with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2
- T313	2
- T315	0

CELL UPDATE (Step 7)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI -SRNC Identity - S-RNTI	 Check to see if set to value assigned in cell 1. Check to see if set to value assigned in cell 1.
AM_RLC error indication (RB2, RB3 or RB4)	Not checked
Cell Update Cause	Check to see if set to 'radio link failure'
RB timer indicator - T314 expired - T315 expired	 FALSE TRUE

CELL UPDATE CONFIRM (Step 8 and 11)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
RRC State indicator	CELL_DCH
RRC transaction identifier	Selects an arbitrary integer between 0 to 3, but different values should be used for step 8 and 11.
UL Transport channel information common for all transport channels	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A1, A2, A7 or A8.
Added or Reconfigured TrCH information list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A1, A2, A7 or A8.
DL Transport channel information common for all transport channels	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A1, A2, A7 or A8.
Added or Reconfigured TrCH information list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A1, A2, A7 or A8.
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A1, A2, A7 or A8.
Downlink information common for all radio links	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A1, A2, A7 or A8.
Downlink information per radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A1, A2, A7 or A8.

CELL UPDATE (Step 10)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
-SRNC Identity	Check to see if set to value assigned in cell 1.
- S-RNTI	Check to see if set to value assigned in cell 1.
Cell Update Cause	Check to see if set to 'radio link failure'
Failure cause	This IE is not Checked.
RB timer indicator	
- T314 expired	FALSE
- T315 expired	TRUE

TRANSPORT CHANNEL RECONFIGURATION COMPLETE (Step 12)

Use the same message found in TS 34.108 clause 9, with the exceptions of the following IEs:

Information Element	Value/remark
Uplink counter synchronisation info	This IE is checked to see if it is present in the case ciphering is activated.

8.3.1.18.5 Test requirement

After step 6, the UE shall detect the presence of cell 2, perform cell re-selection and transmit a CELL UPDATE message.

After step 9, the UE shall transmit a CELL UPDATE message with IE "Cell update cause" set to "Radio link failure".

After step 11, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC with IE “Uplink counter synchronisation info” as present in case ciphering is activated.

8.3.1.19 Void

8.3.1.20 Cell Update: Reception of CELL UPDATE CONFIRM Message that causes invalid configuration

8.3.1.20.1 Definition

8.3.1.20.2 Conformance Requirement

If the variable INVALID_CONFIGURATION is set to TRUE, the UE shall:

1> if V302 is equal to or smaller than N302:

2> if, caused by the received CELL UPDATE CONFIRM message

3> if the variable ORDERED_RECONFIGURATION is set to TRUE caused by the received CELL UPDATE CONFIRM message in case of a cell update procedure:

4> set the variable ORDERED_RECONFIGURATION to FALSE.

2> in case of a cell update procedure:

3> set the variable FAILURE_INDICATOR to TRUE;

3> set the variable FAILURE_CAUSE to "Invalid configuration";

3> set the contents of the CELL UPDATE message according to TS 25.331 subclause 8.3.1.3;

3> submit the CELL UPDATE message for transmission on the uplink CCCH.

2> increment counter V302;

2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.

1> if V302 is greater than N302:

…

Reference

3GPP TS 25.331 clause 8.3.1

8.3.1.20.3 Test Purpose

1. To confirm that the UE retransmits a CELL UPDATE message when it receives a CELL UPDATE CONFIRM message that will trigger an invalid configuration in the UE, if the number of retransmissions has not reached the maximum allowed value.

8.3.1.20.4 Method of Test

Initial Condition

System Simulator: 1 cell

UE: CELL_PCH (state 6-12) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is brought to CELL_PCH state at the beginning of the test. SS pages the UE by sending a PAGING TYPE 1 message using the U-RNTI identity assigned during RRC connection establishment procedure. The UE shall transmit a CELL UPDATE message on the uplink CCCH. Upon receiving such a message, the SS replies with a CELL UPDATE CONFIRM message which is set to give an invalid configuration. The UE shall re-transmit CELL UPDATE message. SS responds with a valid CELL UPDATE CONFIRM message to end the procedure. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PAGING TYPE 1	The UE is in the CELL_PCH state. SS pages for the UE using the allocated connected mode identity (U-RNTI).
2	→		CELL UPDATE	If CELL UPDATE message is received, check that the value "paging response" is set in IE "Cell update cause".
3	←		CELL UPDATE CONFIRM	SS transmits an invalid message.
4	→		CELL UPDATE	IE "failure cause" is set to "invalid configuration"
5	←		CELL UPDATE CONFIRM	
6	→		UTRAN MOBILITY INFORMATION CONFIRM	

Specific Message Content

CELL UPDATE (Step 2)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'Paging Response'

CELL UPDATE CONFIRM (Step 3)

Use the same message sub-type found in TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
RRC State Indicator	CELL_DCH
Uplink DPCH info	Not Present

CELL UPDATE (Step 4)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'Paging Response'
Failure cause	Check to see if it is set to 'invalid configuration'

PAGING TYPE 1 (Step 1)

Use the same message sub-type titled "TM (Packet in PS)" in default message content of TS 34.108 with following exceptions:

Information Element	Value/remark
Page record list	
- Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	'0000 0000 0001'
- S-RNTI	'0000 0000 0000 0000 0001'

CELL UPDATE CONFIRM (Step 5)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'

8.3.1.20.5 Test Requirement

After step 1 the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "paging response".

After step 3 the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "paging response" and IE "failure cause" set to "invalid configuration".

After step 5, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

8.3.1.21 Cell Update: Cell reselection to cell of another PLMN belonging to the equivalent PLMN list

8.3.1.21.1 Definition

8.3.1.21.2 Conformance requirement

A UE shall initiate the cell update procedure in the following cases:

1.- Cell reselection:

- if none of the criteria for performing cell update with the causes specified above in the current clause is met; and
- if the UE is in CELL_FACH or CELL_PCH state; and
- if the UE performs cell re-selection or the variable C_RNTI is empty:
  - perform cell update using the cause "cell reselection".

2. A "suitable cell" is a cell on which the UE may camp on to obtain normal service. Such a cell shall fulfil all the following requirements.

- The cell is part of the selected PLMN or, of a PLMN considered as equivalent by the UE according to the information provided by the NAS.
- The cell is not barred.
- The cell is not part of the list of "forbidden LAs for roaming"
- The cell selection criteria are fulfilled.

3. The Mobile Equipment shall store a list of "equivalent PLMNs". This list is replaced or deleted at the end of each location update procedure, routing area update procedure and GPRS attach procedure. The stored list consists of a list of equivalent PLMNs as downloaded by the network plus the PLMN code of the network that downloaded the list. The stored list shall not be deleted when the MS is switched off. The stored list shall be deleted if the SIM is removed. The maximum number of possible entries in the stored list is six.

Reference

3GPP TS 25.331 clause 8.3.1.2.

3GPP TS 25.304 clause 4.3.

3GPP TS 24.008 clause 4.4.1.

8.3.1.21.3 Test purpose

1. To confirm that the UE executes a cell update procedure after a successful reselection to another UTRA cell with a PLMN identity different from the original cell but with a PLMN identity that is part of the equivalent PLMN list in the UE.
2. To confirm that the UE sends the correct uplink response message when executing cell update procedure due to cell reselection.

NOTE: Verifies conformance requirement 1, 2 and 3.

3. To confirm that the UE refrains from executing a cell update procedure to a better UTRA cell with another PLMN identity when that PLMN identity is not part of the equivalent PLMN list in the UE.

NOTE: Verifies conformance requirement 1, 2 and 3.

NOTE: Test case in 8.3.1.1 is a test where the UE reselects to a cell with the same PLMN identity as the registered PLMN.

8.3.1.21.4 Method of test

Initial Condition

System Simulator: 3 cells - Cell 1 is active, with the downlink transmission power shown in column marked "T0" in table 8.3.1.21, while cell 4 and cell 7 is inactive.

UE: PS-DCCH+DTCH_FACH (state 6-11) in cell 1 as specified in clause 7.4 of TS 34.108.

UE: Shall have stored equivalent PLMN list containing PLMN-1 and PLMN-2. The equivalent PLMN list stored in the UE shall not contain PLMN-3.

Test Procedure

The SS activates Cell 1, 4 & 7 according table 8.3.1.21.

Table 8.3.1.21

Parameter	Unit	Cell 1			Cell 4			Cell 7		
		T0	T1	T2	T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			High Range Test Frequency			Low Range Test Frequency		
PLMN identity		PLMN-1			PLMN-2			PLMN-3		
CPICH Ec (FDD)	dBm	-60	-72	-72	OFF	-60	-66	OFF	OFF	-60
P-CCPCH RSCP (TDD)	dBm	-62	-74	-74	OFF	-62	-68	OFF	OFF	-62

Table 8.3.1.21-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while columns marked "T1" and "T2" are to be applied subsequently.

a) At T1, the SS activates Cell 4, and monitors Cell 4 for received messages from UE.

b) UE re-selects to Cell 4, and sends a CELL UPDATE. The SS shall reply with CELL UPDATE CONFIRM message on downlink DCCH.

c) At T2, the SS activates Cell 7, and monitors Cell 7 for received messages from UE.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				UE is camped on Cell 1 and registered to PLMN1
1a	←		MASTER INFORMATION BLOCK SCHEDULING BLOCK 1 SYSTEM INFORMATION BLOCK TYPE 4 SYSTEM INFORMATION BLOCK TYPE 11	SS transmits MIB and SB1 with a new value Tag. Simultaneously SS transmits modified SIB 4 and 11, with contents given in specific message contents
1b	←		SYSTEM INFORMATION CHANGE INDICATION	Including 'MIB Value TAG' set to the value currently being transmitted
1c				Wait 5 seconds to allow UE to read new system information
1d				SS shall activate Cell 4. The UE shall not re-select Cell 4 until Cell 1 power level is set according to T1.
2	→		CELL UPDATE	At T1: Sent in Cell 4 The value "cell reselection" set in IE "Cell update cause".
3	←		CELL UPDATE CONFIRM	
4	→		UTRAN MOBILITY INFORMATION CONFIRM	
4a				SS shall activate Cell 7 and set power level according to T2.
5				At T2: No message sent by UE

Specific Message Contents

MASTER INFORMATION BLOCK (Step 1a)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
MIB Value Tag	Set to (Current MIB value tag + 1)
SIB 4 Cell Value tag	Set to (Current SIB4 value tag + 1)
SB 1 Cell Value tag	Set to (Current SB 1 value tag + 1)

SCHEDULING BLOCK 1 (Step 1a)

Information Element	Value/remark
SIB 11 Cell Value tag	Set to (Current SIB 11 value tag + 1)

System Information Block type 4 (Step 1a)

Use the same message type found in clause 6.1.0b of TS 34.108, with the following exceptions:

- Qqualmin	-16

System Information Block type 11 (Step 1a)

Use the same message type found in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	3
- Inter-frequency FDD measurement indicator	TRUE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	Not Present

SYSTEM INFORMATION CHANGE INDICATION (Step 1b)

Information Element	Value/remark
Message Type	
BCCH modification info	
MIB Value tag	Set equal to Value tag sent in modified MIB in step 1a

CELL UPDATE CONFIRM (Step 4)

Use the same message sub-type titled "CELL UPDATE CONFIRM message" in TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
- New C-RNTI	'1010 1010 1010 1010'

8.3.1.21.5 Test requirement

After step 1c, the UE shall send a CELL UPDATE at T1.

After step 4, the UE shall refrain from sending a cell update (or any other message) after T2.

8.3.1.22 Cell update: Restricted cell reselection to a cell belonging to forbidden LA list (Cell_FACH)

8.3.1.22.1 Definition

8.3.1.22.2 Conformance requirement

1. -Cell reselection:
   - if none of the criteria for performing cell update with the causes specified above in the current clause is met; and
   - if the UE is in CELL_FACH or CELL_PCH state; and
   - if the UE performs cell re-selection or the variable C_RNTI is empty:
     - perform cell update using the cause "cell reselection".
2. A "suitable cell" is a cell on which the UE may camp on to obtain normal service. Such a cell shall fulfil all the following requirements.
   - The cell is part of the selected PLMN or, of a PLMN considered as equivalent by the UE according to the information provided by the NAS.
   - The cell is not barred.
   - The cell is not part of the list of "forbidden LAs for roaming"
   - The cell selection criteria are fulfilled.
3. The Mobile Equipment shall contain a list of "forbidden location areas for roaming", as well as a list of "forbidden location areas for regional provision of service". These lists shall be erased when the MS is switched off or when the SIM is removed, and periodically (with period in the range 12 to 24 hours). The location area identification received on the BCCH that triggered the location updating request shall be added to the suitable list whenever a location update reject message is received with the cause "Roaming not allowed in this location area" or with the cause "Location Area not allowed". The lists shall accommodate each 10 or more location area identifications. When the list is full and a new entry has to be inserted, the oldest entry shall be deleted.

Reference

3GPP TS 25.331 clause 8.3.1.2.

3GPP TS 25.304 clause 4.3.

3GPP TS 24.008 clause 4.4.1.

8.3.1.22.3 Test purpose

1. To confirm that the UE executes a cell update procedure after a successful reselection of another UTRA cell with a LA identity that is not part of the list of LAs stored in the UE as "forbidden location areas for roaming".
2. To confirm that if the UE get a release message and is moved to idle mode, performs a registration update where the LA list is updated and the UE again enters connected mode, that the UE refrains from selecting that same UTRA cell if that is part of the forbidden LA list.

NOTE: Test case in 8.3.1.1 is a test where the UE reselects to a cell with the same LA identity as the LA identity in the original cell.

NOTE: Test case in 8.1.3.2 is a test where normal RRC connection release on DCCH in CELL_FACH state is tested.

NOTE: Test case in 8.1.9 is a test where normal RRC connection request and location registration is tested.

8.3.1.22.4 Method of test

Initial Condition

System Simulator:

- 2 cells - Cell 1 is active, with the downlink transmission power shown in column marked "T0" in table 8.3.1.22, while cell 4 is inactive.

- Qqualmin value for Cell 1 and Cell 4 is set to -16 dB in SIB4 (FDD only) (see specific message contents).

UE: PS-DCCH+DTCH_FACH (state 6-11) in cell 1 as specified in clause 7.4 of TS 34.108.

UE: Shall have an empty list of LAs stored that are "forbidden location areas for roaming".

Related ICS/IXIT statements

Support of PS service Yes/No

Test Procedure

Table 8.3.1.22

Parameter	Unit	Cell 1		Cell 4	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
LA identity		LA-ID 1		LA-ID 2	
CPICH Ec (FDD)	dBm	-60	-66	Cell 4 is switched off	-60
P-CCPCH RSCP (TDD)	dBm	-62	-68	Cell 4 is switched off	-62

Table 8.3.1.22-1 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while columns marked "T1"is to be applied subsequently.

a) At T1, verify that the UE reselects to cell 4 and sends a cell update.

b) SS sends a RRC connection release message to the UE from cell 4 on CCCH.

c) The UE performs a routing area update to cell 4 (RRC Connection request, setup, initial direct transfer, DL direct transfer (with LA forbidden for roaming), RRC connection release.)

d) The UE reselects cell 1 again although this is not the best cell.

e) The UE performs a routing area update to cell 1 (RRC Connection request, setup, initial direct transfer, DL direct transfer (without LA forbidden for roaming)).

f) Keep the UE in RRC Connected mode in CELL_FACH state.

g) Make sure the UE refrains from reselecting cell 4 and does not send a cell update (or any other message) in cell 4.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		CELL UPDATE	At T1: Sent in Cell 4 The value "cell reselection" set in IE "Cell update cause".
2	←		RRC CONNECTION RELEASE	This message is sent on CCCH. The value "Normal event" is set in IE "Release cause"
3			Void	
4	→		RRC CONNECTION REQUEST	The value "Registration" is set in IE "Establishment cause"
5	←		RRC CONNECTION SETUP	Transits the UE to CELL_FACH state.
6	→		RRC CONNECTION SETUP COMPLETE	
7	→		INITIAL DIRECT TRANSFER	Includes GMM message ROUTING AREA UPDATE REQUEST.
8	←		DOWNLINK DIRECT TRANSFER	Includes GMM message ROUTING AREA UPDATE REJECT with reject cause “No Suitable Cells In Location Area”
9	←		RRC CONNECTION RELEASE	This message is sent on DCCH. The value "Normal event" is set in IE "Release cause"
10	→		RRC CONNECTION RELEASE COMPLETE	
11	→		RRC CONNECTION REQUEST	Sent in Cell 1. The value "Registration" is set in IE "Establishment cause"
12	←		RRC CONNECTION SETUP	Transits the UE to CELL_FACH state.
13	→		RRC CONNECTION SETUP COMPLETE	
14	→		INITIAL DIRECT TRANSFER	Includes GMM message ROUTING AREA UPDATE REQUEST.
14a	←		SECURITY MODE COMMAND	
14b	→		SECURITY MODE COMPLETE	
15	←		DOWNLINK DIRECT TRANSFER	Includes GMM message ROUTING AREA UPDATE ACCEPT.

Specific Message Contents

System Information Block type 4

Use the same message type found in clause 6.1.0b of TS 34.108, with the following exceptions:

- Qqualmin	-16

System Information Block type 11 (FDD)

Use the same message type found in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	3
- Inter-frequency FDD measurement indicator	TRUE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	Not Present

CELL UPDATE (Step 1)

The same message found in TS34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'cell reselection'

RRC CONNECTION RELEASE (Step 2, 9)

Use the same message sub-type found in TS34.108 clause 9.

RRC CONNECTION RELEASE COMPLETE (Step 10)

Use the same message sub-type found in TS34.108 clause 9. Only the message type IE in this message will be checked.

RRC CONNECTION REQUEST (Step 4, 11)

Use the same message sub-type found in TS34.108 clause 9.

RRC CONNECTION SETUP (Step 5, 12)

Use the same message sub-type found in TS34.108 clause 9.

RRC CONNECTION SETUP COMPLETE (Step 6, 13)

Use the same message sub-type found in TS34.108 clause 9.

INITIAL DIRECT TRANSFER (Step 7, 14)

Use the same message sub-type found in TS34.108 clause 9.

DOWNLINK DIRECT TRANSFER (Step 8, 15)

Use the same message sub-type found in TS34.108 clause 9.

8.3.1.22.5 Test requirement

In step 1, the UE shall send a CELL UPDATE in Cell 4 at T1 and attempt registration update in Cell 4.

After step 2, the UE shall transmit RRC CONNECTION REQUEST message.

After step 5, the UE shall transmit RRC CONNECTION SETUP COMPLETE message, followed by an INITIAL DIRECT TRANSFER message

Since the registration update is rejected in Cell 4, UE shall transmit RRC CONNECTION RELEASE COMPLETE message after receiving RRC CONNECTION RELEASE message from SS. UE shall not send any more messages in Cell 4.

After step 9, the UE shall transmit RRC CONNECTION REQUEST message in cell 1.

After step 12, the UE shall transmit RRC CONNECTION SETUP COMPLETE message followed by INITIAL DIRECT TRANSFER message.

8.3.1.23 Cell Update: HCS cell reselection in CELL_FACH

8.3.1.23.1 Definition

8.3.1.23.2 Conformance requirement

1. The quality level threshold criterion H for hierarchical cell structures is used to determine whether prioritised ranking according to hierarchical cell re-selection rules shall apply, and is defined by:

$$H_s = Q_{meas,s} - Qhcs_s$$

$$H_n = Q_{meas,n} - Qhcs_n - TO_n * L_n$$

…

2. The cell-ranking criterion R is defined by:

$$R_s = Q_{meas,s} + Qhyst_s$$

$$R_n = Q_{meas,n} - Qoffset_{s,n} - TO_n * (1 - L_n)$$

where:

$$TO_n = TEMP\_OFFSET_n * W(PENALTY\_TIME_n - T_n)$$

$L_n = 0$ if $HCS\_PRIO_n = HCS\_PRIO_s$
$L_n = 1$ if $HCS\_PRIO_n <> HCS\_PRIO_s$

$W(x) = 0$ for $x < 0$
$W(x) = 1$ for $x >= 0$

$TEMP\_OFFSET_n$ applies an offset to the H and R criteria for the duration of $PENALTY\_TIME_n$ after a timer T_n has started for that neighbouring cell.

The timer T_n is implemented for each neighbouring cell. T_n shall be started from zero when one of the following conditions becomes true:

- if $HCS\_PRIO_n <> HCS\_PRIO_s$ and

$$Q_{meas,n} > Qhcs_n$$

Or

- if $HCS\_PRIO_n = HCS\_PRIO_s$ and
  - for serving FDD and neighbour FDD cells if the quality measure for cell selection and reselection is set to CPICH RSCP in the serving cell, and:

$$Q_{meas,n} > Q_{meas,s} + Qoffset1_{s,n}$$

  - for serving FDD and neighbour FDD cells if the quality measure for cell selection and reselection is set to CPICH Ec/No in the serving cell, and:

$$Q_{meas,n} > Q_{meas,s} + Qoffset2_{s,n}$$

- for all other serving and neighbour cells:

$$Q_{meas,n} > Q_{meas,s} + Qoffset1_{s,n}$$

T_n for the associated neighbour cell shall be stopped as soon as any of the above conditions are no longer fulfilled. Any value calculated for TO_n is valid only if the associated timer T_n is still running else TO_n shall be set to zero.

At cell-reselection, a timer T_n is stopped only if the corresponding cell is not a neighbour cell of the new serving cell, or if the criteria given above for starting timer T_n for the corresponding cell is no longer fulfilled with the parameters of the new serving cell. On cell re-selection, timer T_n shall be continued to be run for the corresponding cells but the criteria given above shall be evaluated with parameters broadcast in the new serving cell if the corresponding cells are neighbours of the new serving cell.

…

3. The cell selection criterion S used for cell reselection is fulfilled when:

for FDD cells:	Srxlev > 0 AND Squal > 0
for TDD cells:	Srxlev > 0
for GSM cells:	Srxlev > 0

Where :

$$Squal = Q_{qualmeas} - Qqualmin$$

$$Srxlev = Q_{rxlevmeas} - Qrxlevmin - Pcompensation$$

…

4. The UE shall perform ranking of all cells that fulfil the S criterion among

- all cells that have the highest HCS_PRIO among those cells that fulfil the criterion H >= 0**.** Note that this rule is not valid when UE high-mobility is detected.
- all cells, not considering HCS priority levels, if no cell fulfil the criterion H >= 0. This case is also valid when it is indicated in system information that HCS is not used, that is when serving cell does not belong to a hierarchical cell structure.

The cells shall be ranked according to the R criteria.

The best ranked cell is the cell with the highest R value.

5. If an FDD cell is ranked as the best cell and the quality measure for cell selection and re-selection is set to CPICH RSCP, the UE shall perform cell re-selection to that FDD cell.

In all cases, the UE shall reselect the new cell, only if the following conditions are met:

- the new cell is better ranked than the serving cell during a time interval Treselection.
- more than 1 second has elapsed since the UE camped on the current serving cell.

…

6. The *cell reselection* process in Connected Mode is the same as *cell reselection evaluation process* used for idle mode, described in subclause 5.2.6 of 25.304.

7. A UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

…

1> Paging response:

…

1> Radio link failure:

…

1> Re-entering service area:

…

1> RLC unrecoverable error:

…

1> Cell reselection:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met:

3> if the UE is in CELL_FACH or CELL_PCH state and the UE performs cell re-selection; or

3> if the UE is in CELL_FACH state and the variable C_RNTI is empty:

4> perform cell update using the cause "cell reselection".

Reference

3GPP TS 25.304 clause 5.2.6.1.4

3GPP TS 25.304 clause 5.4.3

3GPP TS 25.331 clause 8.3.1

8.3.1.23.3 Test purpose

1. To confirm that the UE can read HCS related SIB information and act upon all HCS parameters in CELL_FACH state.

2. To confirm that the UE executes a cell update procedure after the successful reselection of another UTRA cell in CELL_FACH state.

3. To confirm that the UE sends the correct uplink response message when executing cell update procedure due to cell reselection.

8.3.1.23.4 Method of test

Initial Condition

System Simulator: 3 cells – Cell 1 is active with downlink transmission power shown in Column To in Table 8.3.1.23-1. Cell 2 and 3 are switched off.

UE: PS-DCCH+DTCH_FACH (state 6-11) in cell 1 as specified in clause 7.4 of TS 34.108.

Specific Message Content

For system information blocks 4 and 11 for Cell 1 (gives IE's which are different from defaults given in 34.108 sec 6.1) to be transmitted before idle update preamble.

Contents of System Information Block type 4 (FDD)

Information Element	Value/remark
- Cell selection and re-selection info	
- CHOICE mode	FDD
- Sintersearch	0 (0 dB)
- SsearchHCS	17 (35 dB)
- RAT List	This parameter is configurable
- $S_{limit,SearchRAT}$	0
- Qqualmin	-20 dB
- Qrxlevmin	-58 (-115 dBm)
- $Qhyst1_S$	5 (gives actual value of 10 dB)
- $Qhyst2_S$	Not Present
- HCS Serving cell information	
-HCS Priority	6
- Q HCS	40 (results in actual value of –75)
- TcrMax	Not Present

Contents of System Information Block type 4 (3.84 Mcps TDD, 1.28 Mcps TDD and 7.68 Mcps TDD)

Information Element	Value/remark
- Cell selection and re-selection info	
- CHOICE mode	TDD
- SsearchHCS	23 (47 dB)
- RAT List	This parameter is configurable
- Qrxlevmin	-52 (-103 dBm)
- $Qhyst1_S$	5 (gives actual value of 10 dB)
- HCS Serving cell information	
-HCS Priority	6
- Q HCS	40 (results in actual value of –75)
- TcrMax	Not Present

Contents of System Information Block type 11 (FDD) (Cell 1)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Intra-frequency measurement system information	
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Not Present
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	40 (results in actual value of –75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-58 (-115 dBm)
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	40 (results in actual value of –75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-58 (-115 dBm)

Contents of System Information Block type 11 (3.84 Mcps TDD, 1.28 Mcps TDD and 7.68 Mcps TDD) (Cell 1)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS34.108: Default settings for cell No.1 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	Not Present
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS34.108: Default settings for cell No.2 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- Maximum allowed UL TX power	30 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	40 (results in actual value of –75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	TDD
- Qrxlevmin	-52 (-103 dBm)
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS34.108: Default settings for cell No.3 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20dB
- Maximum allowed UL TX power	30 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	40 (results in actual value of –75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	TDD
- Qrxlevmin	-52 (-103 dBm)

Test Procedure

Table 8.3.1.23-1

Parameter	Unit	Cell 1			Cell 2			Cell 3		
		T0	T1	T2	T0	T1	T2	T0	T1	T2
Cell id in system information		1			2			3		
UTRA RF Channel Number		Mid Range Test Frequency			Mid Range Test Frequency			Mid Range Test Frequency		
HCS Priority		6			7			7		
CPICH Ec (FDD)	dBm/3.84 MHz	-60	-65	-65	-82	-82	-68	-82	-68	-68
P-CCPCH RSCP (TDD)	dBm	-60	-60	-60	-80	-80	-70	-80	-70	-70
H* (During penalty time)		15	10	-inf	-inf	-inf	7	-inf	-inf	7
H* (After PenaltyTime)		15	10	10	-7	-7	7	-7	7	7
R* (During PenaltyTime)		n.a.	n.a.	n.a.	n.a.	n.a.	-inf	n.a.	n.a.	-58
R* (After PenaltyTime)		n.a.	n.a.	n.a.	n.a.	n.a.	-48	n.a.	n.a.	-58

(*) NOTE: this parameter is calculated internally in the UE and is only shown for clarification of the test procedure.

The UE is in the CELL_FACH state, camping onto cell 1. SS configures Cell 2 and 3 with power levels given in column "TO" and starts to broadcast BCCH on the primary CCPCH in cell 2 & 3. UE shall remain camped on the Cell 1 even after expiry of penalty time i.e. 40 seconds. SS sets downlink transmission power settings according to columns "T1" in table 8.3.1.23-1. The UE shall find cell 3 to be more suitable for service and hence perform a cell reselection to cell 3 after at-least 40 Seconds (Penalty Time) after the power levels have been changed. After the completion of cell reselection, the UE shall transmit a CELL UPDATE message to the SS on the uplink CCCH of cell 3 and set IE "Cell update cause" to "Cell Reselection". After the SS receives this message, it transmits a CELL UPDATE CONFIRM message, which includes the IE "RRC State Indicator" set to "CELL_FACH", to the UE on the downlink DCCH. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities. UE shall stay in CELL_FACH state. SS then sets downlink transmission power settings according to columns "T2" in table 8.3.1.23-1. The UE shall find cell 2 to be more suitable for service after the expiry of the penalty time and hence perform a cell reselection to cell 2 after the power levels have been changed. After the completion of cell reselection, the UE shall transmit a CELL UPDATE message to the SS on the uplink CCCH of cell 2 and set IE "Cell update cause" to "Cell Reselection". After the SS receives this message, it transmits a CELL UPDATE CONFIRM message, which includes the IE "RRC State Indicator" set to "CELL_FACH", to the UE on the downlink DCCH. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities. UE shall stay in CELL_FACH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the CELL_FACH state in cell 1
2	←		BCCH	SS applies the downlink transmission power settings, according to the values in columns "T0" of table 8.3.1.23-1. The SS starts to broadcast BCCH on the primary CCPCH in cell 2 and Cell 3. The UE shall still find Cell 1 best for service even after penalty time of 40 seconds, and shall remain in Cell 1 in CELL_FACH State
3				SS changes the power levels as per column 'T1' in the table 8.3.1.23-1. For the time equal to Penalty time 40 Seconds, after the change in power levels, the UE shall still find Cell 1 as best for service and remain in cell 1. After Penalty time of 40 Seconds, UE shall find Cell 3 better for service and perform a reselection. SS waits for the maximum duration required for the UE to camp to cell 3.
4	→		CELL UPDATE	Value "cell reselection" shall be indicated in IE "Cell update cause" Received in Cell 3
5	←		CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_FACH".
6	→		UTRAN MOBILITY INFORMATION CONFIRM	
7				SS changes the power levels as per column 'T2' in the table 8.3.1.23-1. For the time equal to penalty time of 40 seconds, after the change in power levels, the UE shall still find cell 3 as best for service and remain in Cell 3. After penalty time of 40 seconds, UE shall find Cell 2 better for service and perform a reselection. SS waits for the maximum duration required for the UE to camp to cell 2.
8	→		CELL UPDATE	Received in Cell 2
9	←		CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_FACH".
10	→		UTRAN MOBILITY INFORMATION CONFIRM	

Specific Message Contents

The contents of system information block 4 and 11 messages are identical as system information block 4 and 11 messages as found in 34.108 clause 6.1 with the following exceptions:

Contents of System Information Block type 4 (FDD) (Cell 2 and 3)

Information Element	Value/remark
- Cell selection and re-selection info	
- CHOICE mode	FDD
- Sintersearch	0 dB
- SsearchHCS	17 (35 dB)
- RAT List	This parameter is configurable
- $S_{limit,SearchRAT}$	0
- Qqualmin	-20 dB
- Qrxlevmin	-58 (-115 dBm)
- $Qhyst1_S$	5 (gives actual value of 10 dB)
- $Qhyst2_S$	Not Present
- HCS Serving cell information	
-HCS Priority	7
- Q HCS	40 (results in actual value of –75)
- TcrMax	Not Present

Contents of System Information Block type 4 (3.84 Mcps TDD, 1.28 Mcps TDD and 7.68 Mcps TDD) (Cell 2 and 3)

Information Element	Value/remark
- Cell selection and re-selection info	
- CHOICE mode	TDD
- Sintersearch	0 dB
- SsearchHCS	23 (47 dB)
- RAT List	This parameter is configurable
- Qrxlevmin	-52 (-103 dBm)
- $Qhyst1_S$	5 (gives actual value of 10 dB)
- HCS Serving cell information	
-HCS Priority	7
- Q HCS	40 (results in actual value of –75)
- TcrMax	Not Present

Contents of System Information Block type 11 (FDD) (Cell 2)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Intra-frequency measurement system information	
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Not Present
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	6
-Q_HCS	40 (results in actual value of –75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-58 (-115 dBm)
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	40 (results in actual value of –75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-58 (-115 dBm)

Contents of System Information Block type 11 (3.84 Mcps TDD, 1.28 Mcps TDD and 7.68 Mcps TDD) (Cell 2)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS34.108: Default settings for cell No.2 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	Not Present
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS 34.108: Default settings for cell No.1 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- Maximum allowed UL TX power	30 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	6
-Q_HCS	39 (results in actual value of –75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	TDD
- Qrxlevmin	-52 (-103 dBm)
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS 34.108: Default settings for cell No.3 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20dB
- Maximum allowed UL TX power	30 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	40 (results in actual value of –75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	TDD
- Qrxlevmin	-52 (-103 dBm)

Contents of System Information Block type 11 (FDD) (Cell 3)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Intra-frequency measurement system information	
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Not Present
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	6
-Q_HCS	40 (results in actual value of –75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-58 (-115 dBm)
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	40 (results in actual value of –75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-58 (-115 dBm)

Contents of System Information Block type 11 (3.84 Mcps TDD, 1.28 Mcps TDD and 7.68 Mcps TDD) (Cell 3)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS34.108: Default settings for cell No.3 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	Not Present
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS 34.108: Default settings for cell No.1 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- Maximum allowed UL TX power	30 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	6
-Q_HCS	40 (results in actual value of –75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	TDD
- Qrxlevmin	-52 (-103 dBm)
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS 34.108: Default settings for cell No.2 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20dB
- Maximum allowed UL TX power	30 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	40 (results in actual value of –75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	TDD
- Qrxlevmin	-52 (-103 dBm)

CELL UPDATE

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
Cell Update Cause	Check to see if set to 'Cell Re-selection'

CELL UPDATE CONFIRM (Step 5 and 9)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'

8.3.1.23.5 Test requirement

After step 3 the UE shall reselect to cell 3 and then it shall transmit a CELL UPDATE message which, sets the value "cell reselection" in IE "Cell update cause".

After step 5 the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 7 the UE shall reselect to cell 2 and then it shall transmit a CELL UPDATE message which, sets the value "cell reselection" in IE "Cell update cause".

After step 9 the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

8.3.1.24 Cell Update: HCS cell reselection in CELL_PCH

8.3.1.24.1 Definition

8.3.1.24.2 Conformance requirement

1. The quality level threshold criterion H for hierarchical cell structures is used to determine whether prioritised ranking according to hierarchical cell re-selection rules shall apply, and is defined by:

$$H_s = Q_{meas,s} - Qhcs_s$$

$$H_n = Q_{meas,n} - Qhcs_n - TO_n * L_n$$

…

2. The cell-ranking criterion R is defined by:

$$R_s = Q_{meas,s} + Qhyst_s$$

$$R_n = Q_{meas,n} - Qoffset_{s,n} - TO_n * (1 - L_n)$$

where:

$TO_n = TEMP\_OFFSET_n * W(PENALTY\_TIME_n - T_n)$

$L_n = 0$ if $HCS\_PRIO_n = HCS\_PRIO_s$
$L_n = 1$ if $HCS\_PRIO_n <> HCS\_PRIO_s$

$W(x) = 0$ for $x < 0$
$W(x) = 1$ for $x >= 0$

$TEMP\_OFFSET_n$ applies an offset to the H and R criteria for the duration of $PENALTY\_TIME_n$ after a timer T_n has started for that neighbouring cell.

The timer T_n is implemented for each neighbouring cell. T_n shall be started from zero when one of the following conditions becomes true:

- if $HCS\_PRIO_n <> HCS\_PRIO_s$ and

$$Q_{meas,n} > Qhcs_n$$

Or

- if $HCS\_PRIO_n = HCS\_PRIO_s$ and
  - for serving FDD and neighbour FDD cells if the quality measure for cell selection and reselection is set to CPICH RSCP in the serving cell, and:

$$Q_{meas,n} > Q_{meas,s} + Qoffset1_{s,n}$$

  - for serving FDD and neighbour FDD cells if the quality measure for cell selection and reselection is set to CPICH Ec/No in the serving cell, and:

$$Q_{meas,n} > Q_{meas,s} + Qoffset2_{s,n}$$

  - for all other serving and neighbour cells:

$$Q_{meas,n} > Q_{meas,s} + Qoffset1_{s,n}$$

T_n for the associated neighbour cell shall be stopped as soon as any of the above conditions are no longer fulfilled. Any value calculated for TO_n is valid only if the associated timer T_n is still running else TO_n shall be set to zero.

At cell-reselection, a timer T_n is stopped only if the corresponding cell is not a neighbour cell of the new serving cell, or if the criteria given above for starting timer T_n for the corresponding cell is no longer fulfilled with the parameters of the new serving cell. On cell re-selection, timer T_n shall be continued to be run for the corresponding cells but the criteria given above shall be evaluated with parameters broadcast in the new serving cell if the corresponding cells are neighbours of the new serving cell.

…

3. The cell selection criterion S used for cell reselection is fulfilled when:

for FDD cells:	Srxlev > 0 AND Squal > 0
for TDD cells:	Srxlev > 0
for GSM cells:	Srxlev > 0

Where :

$Squal = Q_{qualmeas} - Qqualmin$

$Srxlev = Q_{rxlevmeas} - Qrxlevmin - Pcompensation$

…

4. The UE shall perform ranking of all cells that fulfil the S criterion among

- all cells that have the highest HCS_PRIO among those cells that fulfil the criterion H >= 0**.** Note that this rule is not valid when UE high-mobility is detected.
- all cells, not considering HCS priority levels, if no cell fulfil the criterion H >= 0. This case is also valid when it is indicated in system information that HCS is not used, that is when serving cell does not belong to a hierarchical cell structure.

The cells shall be ranked according to the R criteria.

The best ranked cell is the cell with the highest R value.

5. If an FDD cell is ranked as the best cell and the quality measure for cell selection and re-selection is set to CPICH RSCP, the UE shall perform cell re-selection to that FDD cell.

In all cases, the UE shall reselect the new cell, only if the following conditions are met:

- the new cell is better ranked than the serving cell during a time interval Treselection.
- more than 1 second has elapsed since the UE camped on the current serving cell.

…

6. The *cell reselection* process in Connected Mode is the same as *cell reselection evaluation process* used for idle mode, described in subclause 5.2.6 of 25.304.

7. A UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

…

1> Paging response:

…

1> Radio link failure:

…

1> Re-entering service area:

…

1> RLC unrecoverable error:

…

1> Cell reselection:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met:

3> if the UE is in CELL_FACH or CELL_PCH state and the UE performs cell re-selection; or

3> if the UE is in CELL_FACH state and the variable C_RNTI is empty:

4> perform cell update using the cause "cell reselection".

Reference

3GPP TS 25.304 clause 5.2.6.1.4

3GPP TS 25.304 clause 5.4.3

3GPP TS 25.331 clause 8.3.1

8.3.1.24.3 Test purpose

1. To confirm that the UE can read HCS related SIB information and act upon all HCS parameters in CELL_PCH state.
2. To confirm that the UE executes a cell update procedure after the successful reselection of another UTRA cell in CELL_PCH state.
3. To confirm that the UE sends the correct uplink response message when executing cell update procedure due to cell reselection.

8.3.1.24.4 Method of test

Initial Condition

System Simulator: 3 cells – Cell 1 is active with downlink transmission power shown in Column To in table 8.3.1.24-1. Cell 2 and 3 are switched off.

UE: CELL_PCH (state 6-12) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Specific Message Content

For system information blocks 4 and 11 for Cell 1 (gives IE's which are different from defaults given in 34.108 sec 6.1) to be transmitted before idle update preamble.

Contents of System Information Block type 4 (FDD)

Information Element	Value/remark
- Cell selection and re-selection info	
- CHOICE mode	FDD
- Sintersearch	0 dB
- SsearchHCS	17 (35 dB)
- RAT List	This parameter is configurable
- $S_{limit,SearchRAT}$	0
- Qqualmin	-20 dB
- Qrxlevmin	-58 (-115 dBm)
- $Qhyst1_S$	5 (gives actual value of 10 dB)
- $Qhyst2_S$	Not Present
- HCS Serving cell information	
-HCS Priority	6
- Q HCS	40 (results in actual value of –75)
- TcrMax	Not Present

Contents of System Information Block type 4 (3.84 Mcps TDD, 1.28 Mcps TDD and 7.68 Mcps TDD)

Information Element	Value/remark
- Cell selection and re-selection info	
- CHOICE mode	TDD
- SsearchHCS	23 (47 dB)
- RAT List	This parameter is configurable
- Qrxlevmin	-52 (-103 dBm)
- $Qhyst1_S$	5 (gives actual value of 1 dB)
- HCS Serving cell information	
-HCS Priority	6
- Q HCS	40 (results in actual value of –75)
- TcrMax	Not Present

Contents of System Information Block type 11 (FDD) (Cell 1)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Not Present
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	40 (results in actual value of –75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-58 (-115 dBm)
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	40 (results in actual value of –75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	FDD
- Qqualmin	-20 dB

Information Element	Value/remark
- Qrxlevmin	-58 (-115 dBm)

Contents of System Information Block type 11 (3.84 Mcps TDD, 1.28 Mcps TDD and 7.68 Mcps TDD) (Cell 1)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS34.108: Default settings for cell No.1 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	Not Present
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS 34.108: Default settings for cell No.2 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- Maximum allowed UL TX power	30 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	40 (results in actual value of –75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	TDD
- Qrxlevmin	-52 (-103 dBm)
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS 34.108: Default settings for cell No.3 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20dB
- Maximum allowed UL TX power	30 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	40 (results in actual value of –75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	TDD
- Qrxlevmin	-52 (-103 dBm)

Test Procedure

Table 8.3.1.24-1

Parameter	Unit	Cell 1			Cell 2			Cell 3		
		T0	T1	T2	T0	T1	T2	T0	T1	T2
Cell id in system information		1			2			3		
UTRA RF Channel Number		Mid Range Test Frequency			Mid Range Test Frequency			Mid Range Test Frequency		
HCS Priority		6			7			7		
CPICH Ec (FDD)	dBm/3.84 MHz	-60	-65	-65	-82	-82	-68	-82	-68	-68
P-CCPCH RSCP (TDD)	dBm	-61	-61	-61	-80	-80	-67	-80	-73	-73
H* (During penalty time)		15	10	-inf	-inf	-inf	7	-inf	-inf	7
H* (After PenaltyTime)		15	10	10	-7	-7	7	-7	7	7
R* (During PenaltyTime)		n.a.	n.a.	n.a.	n.a.	n.a.	-inf	n.a.	n.a.	-58
R* (After PenaltyTime)		n.a.	n.a.	n.a.	n.a.	n.a.	-48	n.a.	n.a.	-58

(*) Note: this parameter is calculated internally in the UE and is only shown for clarification of the test procedure.

The UE is in the CELL_PCH state, camping onto cell 1. SS configures Cell 2 and 3 with power levels given in column "TO" and starts to broadcast BCCH on the primary CCPCH in cell 2 & 3. UE shall remain camped on the Cell 1 even after expiry of penalty time i.e. 40 seconds. SS sets downlink transmission power settings according to columns "T1" in table 8.3.1.24-1. The UE shall find cell 3 to be more suitable for service and hence perform a cell reselection to cell 3 after at-least 40 Seconds (Penalty Time) after the power levels have been changed. After the completion of cell reselection, the UE shall move to CELL_FACH state and transmit a CELL UPDATE message to the SS on the uplink CCCH of cell 3 and set IE "Cell update cause" to "Cell Reselection". After SS receives this message, it transmits a CELL UPDATE CONFIRM message, which includes the IE "RRC State Indicator" set to "CELL_PCH", to the UE on the downlink CCCH. UE shall return to CELL_PCH state in Cell 3 and will not transmit anything on PRACH. SS then sets downlink transmission power settings according to columns "T2" in table 8.3.1.24-1. The UE shall find cell 2 to be more suitable for service after the expiry of penalty time and hence perform a cell reselection to cell 2 after the power levels have been changed. After the completion of cell reselection, the UE shall move to CELL_FACH state and transmit a CELL UPDATE message to the SS on the uplink CCCH of cell 2 and set IE "Cell update cause" to "Cell Reselection". After the SS receives this message, it transmits a CELL UPDATE CONFIRM message, which includes the IE "RRC State Indicator" set to "CELL_PCH", to the UE on the downlink DCCH. UE shall return to CELL_PCH state in Cell 2 and will not transmit anything on PRACH.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the CELL_PCH state in cell 1
2	←		BCCH	SS applies the downlink transmission power settings, according to the values in columns "T0" of table 8.3.1.24-1. The SS starts to broadcast BCCH on the primary CCPCH in cell 2 and Cell 3. The UE shall still find Cell 1 best for service even after penalty time of 40 seconds, and shall remain in Cell 1 in CELL_PCH State
3				SS changes the power levels as per column 'T1' in the table 8.3.1.24-1. For the time equal to Penalty time 40 Seconds, after the change in power levels, the UE shall still find Cell 1 as best for service and remain in cell 1. After Penalty time of 40 Seconds, UE shall find Cell 3 better for service and perform a reselection. SS waits for the maximum duration required for the UE to camp to cell 3.
4	→		CELL UPDATE	The UE moves to CELL_FACH state and transmits this message with the IE "Cell update cause" set to "cell reselection". Received in Cell 3
5	←		CELL UPDATE CONFIRM	Message sent on CCCH with IE "RRC State Indicator" is set to "CELL_PCH".
7				SS changes the power levels as per column 'T2' in the table 8.3.1.24-1. SS Checks that no cell update message is received during penalty time as the UE shall find Cell 2 better for service and perform a reselection after the expiry of penalty time. SS waits for the maximum duration required for the UE to camp to cell 2.
8	→		CELL UPDATE	The UE moves to CELL_FACH state and transmits this message with the IE "Cell update cause" set to "cell reselection". Received in Cell 2
9	←		CELL UPDATE CONFIRM	Message sent on DCCH with IE "RRC State Indicator" is set to "CELL_PCH".

Specific Message Contents

The contents of system information block 4 and 11 messages are identical as system information block 4 and 11 messages as found in 34.108 clause 6.1 with the following exceptions:

Contents of System Information Block type 4 (FDD) (Cell 2 and 3)

Information Element	Value/remark
- Cell selection and re-selection info	
- CHOICE mode	FDD
- Sintersearch	0 dB
- SsearchHCS	17 (35 dB)
- RAT List	This parameter is configurable
- $S_{limit,SearchRAT}$	0
- Qqualmin	-20 dB
- Qrxlevmin	-58 (-115 dBm)
- $Qhyst1_S$	5 (gives actual value of 10 dB)
- $Qhyst2_S$	Not Present
- HCS Serving cell information	
-HCS Priority	7
- Q HCS	40 (results in actual value of –75)
- TcrMax	Not Present

Contents of System Information Block type 4 (3.84 Mcps TDD, 1.28 Mcps TDD and 7.68 Mcps TDD) (Cell 2 and 3)

Information Element	Value/remark
- Cell selection and re-selection info	
- CHOICE mode	TDD
- Sintersearch	0 dB
- SsearchHCS	23 (47 dB)
- RAT List	This parameter is configurable
- Qrxlevmin	-52 (-103 dBm)
- $Qhyst1_S$	5 (gives actual value of 10 dB)
- HCS Serving cell information	
-HCS Priority	7
- Q HCS	40 (results in actual value of –75)
- TcrMax	Not Present

Contents of System Information Block type 11 (FDD) (Cell 2)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Not Present
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	6
-Q_HCS	40 (results in actual value of –75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-58 (-115 dBm)
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	40 (results in actual value of –75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	FDD
- Qqualmin	-20 dB

Information Element	Value/remark
- Qrxlevmin	-58 (-115 dBm)

Contents of System Information Block type 11 (3.84 Mcps TDD, 1.28 Mcps TDD 7.68 Mcps TDD) (Cell 2)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS34.108: Default settings for cell No.2 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	Not Present
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS 34.108: Default settings for cell No.1 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- Maximum allowed UL TX power	30 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	6
-Q_HCS	40 (results in actual value of –75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	TDD
- Qrxlevmin	-52 (-103 dBm)
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS 34.108: Default settings for cell No.3 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20dB
- Maximum allowed UL TX power	30 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	40 (results in actual value of –75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	TDD

Information Element	Value/remark
- Qrxlevmin	-52 (-103 dBm)

Contents of System Information Block type 11 (FDD) (Cell 3)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Not Present
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	6
-Q_HCS	40 (results in actual value of –75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-58 (-115 dBm)
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	40 (results in actual value of –75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	FDD
- Qqualmin	-20 dB

Information Element	Value/remark
- Qrxlevmin	-58 (-115 dBm)

Contents of System Information Block type 11 (3.84 Mcps TDD, 1.28 Mcps TDD and 7.68 Mcps TDD) (Cell 3)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS34.108: Default settings for cell No.3 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	Not Present
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS 34.108: Default settings for cell No.1 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- Maximum allowed UL TX power	30 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	40 (results in actual value of –75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	TDD
- Qrxlevmin	-52 (-103 dBm)
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS 34.108: Default settings for cell No.2 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20dB
- Maximum allowed UL TX power	30 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	6
-Q_HCS	40 (results in actual value of –75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	TDD
- Qrxlevmin	-52 (-103 dBm)

CELL UPDATE

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
Cell Update Cause	Check to see if set to 'Cell Re-selection'

CELL UPDATE CONFIRM (Step 5 and 8)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3

8.3.1.24.5 Test requirement

After step 3 the UE shall reselect to cell 3 and then it shall transmit a CELL UPDATE message which, sets the value "cell reselection" in IE "Cell update cause".

After step 6 the UE shall reselect to cell 2 and then it shall transmit a CELL UPDATE message which, sets the value "cell reselection" in IE "Cell update cause".

8.3.1.25 CELL UPDATE: Radio Link Failure (T314=0, T315=0)

8.3.1.25.1 Definition

8.3.1.25.2 Conformance requirement

A UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

…

1> Paging response:

…

1> Radio link failure:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met:

3> if the UE is in CELL_DCH state and the criteria for radio link failure is met as specified in TS 25.331 subclause 8.5.6; or

…

4> perform cell update using the cause "radio link failure".

When initiating cell update procedure, the UE shall:

…

1> if the UE is in CELL_DCH state:

…

2> if the stored values of the timer T314 and timer T315 are both equal to zero; or

…

3> release all its radio resources;

3> indicate release (abort) of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers;

3> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

3> clear the variable ESTABLISHED_RABS;

3> enter idle mode;

3> perform other actions when entering idle mode from connected mode as specified in TS 25.331 subclause 8.5.2;

3> and the procedure ends.

Reference

3GPP TS 25.331 clause 8.3.1.2

8.3.1.25.3 Test purpose

1. To confirm that the UE releases all resources and enters idle mode when there is a radio link failure.

8.3.1.25.4 Method of test

Initial Condition

System Simulator: 2 cells (Cell 1 and Cell 2 are active).

UE: PS-DCCH+DTCH_DCH (state 6-10) or CS-DCCH+DTCH_DCH (state 6-9) or PS+CS-DCCH+DTCH_DCH (state 6-14) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) and services supported by the UE. If UE supports PS+CS but only supports streaming service in CS domain then state 6-9, 6-10 are applied.

Specific Message Content

For SIB type 1 message to be transmitted throughout the test, use the message titled “System Information Block type 1 (supported PLMN type is GSM-MAP)” as found in TS 34.108 clause 6, with the following exception.

Information Element	Value/remark
- T314	0
- T315	0

Test Procedure

Table 8.3.1.25

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF	-75	-60
P-CCPCH RSCP (TDD)	dBm	-60	OFF	-75	-60

Table 8.3.1.25 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Column marked ‘T0’ denote the initial conditions.

The UE is brought to CELL_DCH state in a cell 1 after making a successful outgoing call attempt. After the call has been established, SS configures its downlink transmission power settings according to column 'T1' in table 8.3.1.25. The UE shall detect a radio link failure in cell 1 and indicate to the non-access stratum the release of all the radio bearers. Then it shall attempt to re-select to cell 2. After that, it shall then enter idle mode state. SS calls for generic procedure C.1 to check that UE is in Idle Mode state in cell 2.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				In the initial set up procedure, the SS shall request UE to set timer T314 and T315 to 0.
2				SS configures cell 1 and 2 according to column 'T1' in table 8.3.1.25.
3				SS waits for 5 seconds.
4	←→		CALL C.1	SS execute this procedure in cell 2. If the test result of C.1 indicates that UE is in Idle Mode state, the test passes, otherwise it fails.

Specific Message Contents

None.

8.3.1.25.5 Test requirement

After step 2, the UE shall release all its radio bearers.

After step 3, the UE shall be in idle mode state in cell 2.

8.3.1.26 Cell Update: Radio Link Failure (T314>0, T315=0), PS RAB established

8.3.1.26.1 Definition

8.3.1.26.2 Conformance requirement

A UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

…

1> Paging response:

…

1> Radio link failure:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

2> if the UE is in CELL_DCH state; and

2> if the criteria for radio link failure is met as specified in TS 25.331 subclause 8.5.6:

3> perform cell update using the cause "radio link failure".

…

When initiating the cell update procedure, the UE shall:

1> stop timer T305;

1> if the UE is in CELL_DCH state:

2> in the variable RB_TIMER_INDICATOR, set the IE "T314 expired" and the IE "T315 expired" to FALSE;

2> if the stored values of the timer T314 and timer T315 are both equal to zero; or

2> if the stored value of the timer T314 is equal to zero and there are no radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT315":

…

2> if the stored value of the timer T314 is equal to zero:

…

2> if the stored value of the timer T315 is equal to zero:

3> release all radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT315";

3> in the variable RB_TIMER_INDICATOR set the IE "T315 expired" to TRUE.

2> if the stored value of the timer T314 is greater than zero:

3> if there are radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314":

4> start timer T314.

3> if there are no radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314" or "useT315":

4> start timer T314.

2> if the stored value of the timer T315 is greater than zero:

…

2> for the released radio bearer(s):

3> delete the information about the radio bearer from the variable ESTABLISHED_RABS;

3> when all radio bearers belonging to the same radio access bearer have been released:

4> indicate local end release of the radio access bearer to upper layers using the CN domain identity together with the RAB identity stored in the variable ESTABLISHED_RABS;

4> delete all information about the radio access bearer from the variable ESTABLISHED_RABS.

2> select a suitable UTRA cell according to TS 25.304;

2> set the variable ORDERED_RECONFIGURATION to FALSE.

1> set the variables PROTOCOL_ERROR_INDICATOR, FAILURE_INDICATOR, UNSUPPORTED_CONFIGURATION and INVALID_CONFIGURATION to FALSE;

1> set the variable CELL_UPDATE_STARTED to TRUE;

1> if the UE is not already in CELL_FACH state:

2> move to CELL_FACH state;

2> select PRACH according to s TS 25.331 subclause 8.5.17;

2> select Secondary CCPCH according to s TS 25.331 subclause 8.5.19;

2> use the transport format set given in system information as specified in TS 25.331 subclause 8.6.5.1.

1> if the UE performs cell re-selection:

2> clear the variable C_RNTI; and

2> stop using that C_RNTI just cleared from the variable C_RNTI in MAC.

1> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

1> in case of a cell update procedure:

2> set the contents of the CELL UPDATE message according to TS 25.331 subclause 8.3.1.3;

2> submit the CELL UPDATE message for transmission on the uplink CCCH.

1> set counter V302 to 1;

1> start timer T302 when the MAC layer indicates success or failure in transmitting the message.

…

If the received CELL UPDATE CONFIRM message would cause the UE to transit to CELL_DCH state; and

1> in case of a received CELL UPDATE CONFIRM message:

2> if the UE failed to establish the physical channel(s) indicated in the received CELL UPDATE CONFIRM message

…

the UE shall:

1> if the variable ORDERED_RECONFIGURATION is set to TRUE caused by the received CELL UPDATE CONFIRM message in case of a cell update procedure:

2> set the variable ORDERED_RECONFIGURATION to FALSE.

1> if V302 is equal to or smaller than N302:

2> select a suitable UTRA cell according to TS 25.304;

2> set the contents of the CELL UPDATE message according to TS 25.331 subclause 8.3.1.3, except for the IE "Cell update cause" which shall be set to "Radio link failure";

2> submit the CELL UPDATE message for transmission on the uplink CCCH;

2> increment counter V302;

2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.

1> if V302 is greater than N302:

…

Reference

3GPP TS 25.331 clause 8.3.1

8.3.1.26.3 Test purpose

1. To confirm that the UE shall indicate to the non-access stratum the release of radio access bearer which is associated with T315 and try to find a new cell after detecting that a radio link failure has occurred.

8.3.1.26.4 Method of test

Initial Condition

System Simulator: 2 cells (Cell 1 and cell 2 are active).

UE: PS_DCCH+DTCH_DCH (state 6-10) in cell 1 or PS+CS-DCCH+DTCH_DCH (state 6-14) in cell 1, if UE supports both CS and PS domains.

Specific Message Content

For SIB type 1 message to be transmitted throughout the test, use the message titled “System Information Block type 1 (supported PLMN type is GSM-MAP)” as found in TS 34.108 clause 6, with the following exception.

Information Element	Value/remark
- T315	0

Test Procedure

Table 8.3.1.26

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF	-75	-60
P-CCPCH RSCP (TDD)	dBm	-60	OFF	-75	-60

Table 8.3.1.26 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Column marked "T0" denote the initial conditions.

The UE is brought to CELL_DCH state in a cell 1 after making a successful outgoing call attempt. After the call has been established, SS configures its downlink transmission power settings according to column "T1" in table 8.3.1.26. The UE shall detect a radio link failure in cell 1.

UE shall release of the radio bearer which is associated with T315, if the latter has been set up in the initial condition.

Then it shall attempt to re-select to cell 2. After that, it shall then enter CELL_FACH state and transmit CELL UPDATE on the uplink CCCH to SS. The SS transmits CELL UPDATE CONFIRM message which includes dedicated physical channel parameters on downlink DCCH. Then the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH.

SS transmits COUNTER CHECK message to UE. UE shall transmit a COUNTER CHECK RESPONSE message back to SS.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				SS configures cell 1 and 2 according to column "T1" in table 8.3.1.26. SS starts to listen to the uplink CCCH of cell 2.
2				The UE detects the radio link failure.
3	→		CELL UPDATE	The UE shall find a new cell 2 and the value "radio link failure" shall be set in IE "Cell update cause".
4	←		CELL UPDATE CONFIRM	Including dedicated physical channel parameters.
5	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
6	←		COUNTER CHECK	SS sent the COUNT-C info for the RBs that were established in the initial condition.
7	→		COUNTER CHECK RESPONSE	

Specific Message Contents

CELL UPDATE (Step 3)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
-SRNC Identity	Check to see if set to value assigned in cell 1.
- S-RNTI	Check to see if set to value assigned in cell 1.
Cell Update Cause	Check to see if set to 'radio link failure'
RB timer indicator	
- T314 expired	FALSE
- T315 expired	TRUE

CELL UPDATE CONFIRM (Step 4)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

If the initial condition of the UE is in state 6-10, then

Information Element	Value/remark
RRC State indicator	CELL_DCH
CHOICE channel requirement	Same as the set defined in RRC CONNECTION SETUP message: UM (Transition to CELL_DCH) found in TS 34.108 clause 9.
Downlink information common for all radio links	Same as the set defined in RRC CONNECTION SETUP message: UM (Transition to CELL_DCH) found in TS 34.108 clause 9.
Downlink information per radio link list	Same as the set defined in RRC CONNECTION SETUP message: UM (Transition to CELL_DCH) found in TS 34.108 clause 9.

If the initial condition of the UE is in state 6-14, then

Information Element	Value/remark
RRC State indicator	CELL_DCH
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A1, A2, A7 or A8.
Downlink information common for all radio links	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A1, A2, A7 or A8.
Downlink information per radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A1, A2, A7 or A8.

COUNTER CHECK (Step 6)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Calculated value
RB COUNT-C MSB information	
- RB identity	Set to the RB identity that was release by the UE upon radio link failure
- COUNT-C MSB uplink	Arbitrary COUNT-C MSB
- COUNT-C MSB downlink	Arbitrary COUNT-C MSB

COUNTER CHECK RESPONSE (Step 7)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	
- RB identity	Check to see if set to the RB identity that was release by the UE upon radio link failure
- COUNT-C uplink	Check to see if COUNT-C MSB is set to arbitrary value given in step 13 and LSB is fill with '0'
- COUNT-C downlink	Check to see if COUNT-C MSB is set to arbitrary value given in step 13 and LSB is fill with '0'

8.3.1.26.5 Test requirement

After step 2, the UE shall detect the presence of cell 2, perform cell re-selection and transmit a CELL UPDATE message.

After step 4, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 6, the UE shall transmit a COUNTER CHECK RESPONSE message with the MSB part of the COUNT-C values set identical to COUNT-C MSB values in the COUNTER CHECK message in step 6.

8.3.1.27 Cell Update: Radio Link Failure (T314=0, T315>0), CS RAB

8.3.1.27.1 Definition

8.3.1.27.2 Conformance requirement

A UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

…

1> Paging response:

…

1> Radio link failure:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

2> if the UE is in CELL_DCH state; and

2> if the criteria for radio link failure is met as specified in TS 25.331 subclause 8.5.6:

3> perform cell update using the cause "radio link failure".

…

When initiating the cell update procedure, the UE shall:

1> stop timer T305;

1> if the UE is in CELL_DCH state:

2> in the variable RB_TIMER_INDICATOR, set the IE "T314 expired" and the IE "T315 expired" to FALSE;

…

2> if the stored values of the timer T314 and timer T315 are both equal to zero; or

2> if the stored value of the timer T314 is equal to zero and there are no radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT315":

3> release all its radio resources;

3> indicate release (abort) of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers;

3> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

3> clear the variable ESTABLISHED_RABS;

3> enter idle mode;

3> perform other actions when entering idle mode from connected mode as specified in subclause 8.5.2;

3> and the procedure ends.

2> for the released radio bearer(s):

3> delete the information about the radio bearer from the variable ESTABLISHED_RABS;

3> when all radio bearers belonging to the same radio access bearer have been released:

4> indicate local end release of the radio access bearer to upper layers using the CN domain identity together with the RAB identity stored in the variable ESTABLISHED_RABS;

4> delete all information about the radio access bearer from the variable ESTABLISHED_RABS.

2> select a suitable UTRA cell according to TS 25.304;

2> set the variable ORDERED_RECONFIGURATION to FALSE.

…

Reference

3GPP TS 25.331 clause 8.3.1

8.3.1.27.3 Test purpose

1. To confirm that the UE release radio access bearer which is associated with T314 and try to find a new cell after detecting that a radio link failure has occurred.

8.3.1.27.4 Method of test

Initial Condition

System Simulator: 2 cells (Cell 1 and Cell 2 are active).

UE: CS_DCCH+DTCH_DCH (state 6-9).

Specific Message Content

For SIB type 1 message to be transmitted throughout the test, use the message titled “System Information Block type 1 (supported PLMN type is GSM-MAP)” as found in TS 34.108 clause 6, with the following exception.

Information Element	Value/remark
- T314	0

Test Procedure

Table 8.3.1.27

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF	-75	-60
P-CCPCH RSCP (TDD)	dBm	-60	OFF	-75	-60

Table 8.3.1.27 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Column marked ‘T0’ denote the initial conditions.

The UE is brought to CELL_DCH state in a cell 1 after making a successful outgoing call attempt. After the call has been established, SS configures its downlink transmission power settings according to column ‘T1’ in table 8.3.1.27. The UE shall detect a radio link failure in cell 1.

The UE shall release radio bearer associated with T314 and enter idle mode state. SS calls for generic procedure C.1 to check that UE is in Idle Mode state in cell 2.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				SS configures cell 1 and 2 according to column 'T1' in table 8.3.1.27. SS starts to listen to the uplink CCCH of cell 2.
2				The UE detects the radio link failure.
3	←→		CALL C.1	SS execute this procedure in cell 2. If the test result of C.1 indicates that UE is in Idle Mode state, the test passes. Otherwise it fails.

Specific Message Contents

None.

8.3.1.27.5 Test requirement

After step 2, the UE shall detect the presence of cell 2 and enter idle mode state in cell 2.

8.3.1.28 Cell Update: Radio Link Failure (T314=0, T315>0), PS RAB

8.3.1.28.1 Definition

8.3.1.28.2 Conformance requirement

A UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

…

1> Paging response:

…

1> Radio link failure:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

2> if the UE is in CELL_DCH state; and

2> if the criteria for radio link failure is met as specified in TS 25.331 subclause 8.5.6:

3> perform cell update using the cause "radio link failure".

…

When initiating the cell update procedure, the UE shall:

1> stop timer T305;

1> if the UE is in CELL_DCH state:

2> in the variable RB_TIMER_INDICATOR, set the IE "T314 expired" and the IE "T315 expired" to FALSE;

2> if the stored values of the timer T314 and timer T315 are both equal to zero; or

2> if the stored value of the timer T314 is equal to zero and there are no radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT315":

…

2> if the stored value of the timer T314 is equal to zero:

3> release all radio bearers, associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314";

3> in the variable RB_TIMER_INDICATOR set the IE "T314 expired" to TRUE.

…

2> if the stored value of the timer T315 is greater than zero:

3> if there are radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT315":

4> start timer T315.

2> for the released radio bearer(s):

3> delete the information about the radio bearer from the variable ESTABLISHED_RABS;

3> when all radio bearers belonging to the same radio access bearer have been released:

4> indicate local end release of the radio access bearer to upper layers using the CN domain identity together with the RAB identity stored in the variable ESTABLISHED_RABS;

4> delete all information about the radio access bearer from the variable ESTABLISHED_RABS.

2> select a suitable UTRA cell according to TS 25.304;

2> set the variable ORDERED_RECONFIGURATION to FALSE.

…

Reference

3GPP TS 25.331 clause 8.3.1

8.3.1.28.3 Test purpose

1. To confirm that the UE release radio access bearer which is associated with T314 and try to find a new cell after detecting that a radio link failure has occurred.

8.3.1.28.4 Method of test

Initial Condition

System Simulator: 2 cells (Cell 1 and Cell 2 are active).

UE: PS_DCCH+DTCH_DCH (state 6-10) in cell 1 or PS+CS-DCCH+DTCH_DCH (state 6-14) in cell 1, if UE supports both CS and PS domains.

Specific Message Content

For SIB type 1 message to be transmitted throughout the test, use the message titled “System Information Block type 1 (supported PLMN type is GSM-MAP)” as found in TS 34.108 clause 6, with the following exception.

Information Element	Value/remark
- T314	0

Test Procedure

Table 8.3.1.28

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF	-75	-60
P-CCPCH RSCP (TDD)	dBm	-60	OFF	-75	-60

Table 8.3.1.28 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Column marked 'T0' denote the initial conditions.

The UE is brought to CELL_DCH state in a cell 1 after making a successful outgoing call attempt. After the call has been established, SS configures its downlink transmission power settings according to column 'T1' in table 8.3.1.28. The UE shall detect a radio link failure in cell 1.

The UE shall attempt to re-select to cell 2. After that, it shall then enter CELL_FACH state and transmit CELL UPDATE on the uplink CCCH to SS. The SS transmits CELL UPDATE CONFIRM message which includes dedicated physical channel parameters on downlink DCCH. Then the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH. SS transmits COUNTER CHECK message to UE. UE shall transmit a COUNTER CHECK RESPONSE message back to SS.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				SS configures cell 1 and 2 according to column 'T1' in table 8.3.1.28. SS starts to listen to the uplink CCCH of cell 2.
2				The UE detects the radio link failure.
3	→		CELL UPDATE	The UE shall find a new cell 2 and the value "radio link failure" shall be set in IE "Cell update cause".
4	←		CELL UPDATE CONFIRM	See message content.
5	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
6	←		COUNTER CHECK	SS sent the COUNT-C info for the RBs that were established in the initial condition.
7	→		COUNTER CHECK RESPONSE	

Specific Message Contents

CELL UPDATE (Step 3)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- S-RNTI	Check to see if set to value assigned in cell 1.
- SRNC Identity	Check to see if set to value assigned in cell 1.
Cell Update Cause	Check to see if set to 'radio link failure'
RB timer indicator	
- T314 expired	TRUE
- T315 expired	FALSE

CELL UPDATE CONFIRM (Step 4)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
RRC State indicator	CELL_DCH
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A4, with the following exception: A non-zero value in the range of 0-16777216 used for cell 2.
Downlink information common for all radio links	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A4.
Downlink information per radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A4.

COUNTER CHECK (Step 6)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Calculated value
RB COUNT-C MSB information	
- RB identity	Set to the RB identity that was set up in the initial condition
- COUNT-C MSB uplink	Set to the value stored in the SS
- COUNT-C MSB downlink	Set to the value stored in the SS

COUNTER CHECK RESPONSE (Step 7)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	Not present

8.3.1.28.5 Test requirement

After step 2, the UE shall detect the presence of cell 2, perform cell re-selection and transmit a CELL UPDATE message.

At step 5, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

At step 7, the UE shall transmit a COUNTER CHECK RESPONSE message without including IE “RB COUNT-C information”.

8.3.1.29 Cell Update: Radio Link Failure (T314>0, T315>0), CS RAB

8.3.1.29.1 Definition

8.3.1.29.2 Conformance requirement

A UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

…

1> Paging response:

…

1> Radio link failure:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

2> if the UE is in CELL_DCH state; and

2> if the criteria for radio link failure is met as specified in TS 25.331 subclause 8.5.6:

3> perform cell update using the cause "radio link failure".

…

When initiating the cell update procedure, the UE shall:

…

1> if the UE is in CELL_DCH state:

2> in the variable RB_TIMER_INDICATOR, set the IE "T314 expired" and the IE "T315 expired" to FALSE;

…

2> if the stored value of the timer T314 is greater than zero:

3> if there are radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314":

4> start timer T314.

3> if there are no radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314" or "useT315":

4> start timer T314.

2> if the stored value of the timer T315 is greater than zero:

3> if there are radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT315":

4> start timer T315.

…

Upon expiry of timer T314 the UE shall:

1> if timer T302 is running:

…

1> if timer T302 is not running and timer T315 is running:

2> set IE "T314 expired" in variable RB_TIMER_INDICATOR to TRUE;

2> release locally all radio bearers which are associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314";

2> indicate release of those radio access bearers to upper layers;

2> delete all information about those radio access bearers from the variable ESTABLISHED_RABS.

1> if timers T302 and T315 are not running:

2> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;

2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;

2> clear the variable PDCP_SN_INFO;

2> clear the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS;

2> release all its radio resources;

2> indicate release (abort) of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers;

2> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

2> clear the variable ESTABLISHED_RABS;

2> set the variable CELL_UPDATE_STARTED to FALSE;

2> enter idle mode;

2> other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2;

2> and the procedure ends.

Upon expiry of timer T315 the UE shall:

1> if timer T302 is running:

…

1> if timer T302 is not running and timer T314 is running:

2> set IE "T315 expired" in variable RB_TIMER_INDICATOR to TRUE;

2> release locally all radio bearers which are associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "use T315";

2> indicate release of those radio access bearers to upper layers;

2> delete all information about those radio access bearers from the variable ESTABLISHED_RABS.

1> if timers T302 and T314 are not running:

2> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;

2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;

2> clear the variable PDCP_SN_INFO;

2> clear the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS;

2> release all its radio resources;

2> indicate release (abort) of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers;

2> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

2> clear the variable ESTABLISHED_RABS;

2> set the variable CELL_UPDATE_STARTED to FALSE;

2> enter idle mode;

2> other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2;

2> and the procedure ends.

Reference

3GPP TS 25.331 clause 8.3.1

8.3.1.29.3 Test purpose

1. To confirm that the UE shall indicate to the non-access stratum the release of radio access bearer which is associated with T314 and try to find a new cell after detecting that a radio link failure has occurred.
2. To confirm that the UE enters idle mode after T314 expires and T302 and T315 are not running.

8.3.1.29.4 Method of test

Initial Condition

System Simulator: 1 cell (Cell 1 is active).

UE: CS_DCCH+DTCH_DCH (state 6-9).

Specific Message Content

For SIB type 1 message to be transmitted throughout the test, use the message titled “System Information Block type 1 (supported PLMN type is GSM-MAP)” as found in TS 34.108 clause 6, with the following exception.

Information Element	Value/remark
- T314	12
- T315	30

Test Procedure

Table 8.3.1.29

Parameter	Unit	Cell 1	
		T0	T1
UTRA RF Channel Number		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF
P-CCPCH RSCP (TDD)	dBm	-60	OFF

The UE is brought to CELL_DCH state after making a successful outgoing call attempt. After the call has been established, SS configures its downlink transmission power settings according to column 'T1' in table 8.3.1.29. The UE shall detect a radio link failure in cell 1.

The SS shall wait for 12s (see Note 1) and then configure its downlink transmission power settings according to column 'T0' in table 8.3.1.29. The UE shall release radio bearer associated with T314 and enter idle mode state. SS calls for generic procedure C.1 to check that UE is in Idle Mode state in cell 1.

NOTE 1: Considering the timer tolerance of the UE, T314 may expire between 12s±0.3s, therefore the SS must wait for at least 12.3s before it reconfigures it downlink transmission power. Since SS has a timer tolerance of 10% or 2*TTI+55ms (consider the greater value of the two), the test case shall set the SS to reconfigure the power level 13.67s after the SS configures the power settings according to column 'T1' in table 8.3.1.29.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				SS configures cell 1 according to column 'T1' in table 8.3.1.29.
2				SS waits for 12s after the completion of step 1 and then configures cell 1 according to column 'T0' in table 8.3.1.29.
3	←→		CALL C.1	SS execute this procedure in cell 1. If the test result of C.1 indicates that UE is in Idle Mode state, the test passes. Otherwise it fails.

Specific Message Contents

None.

8.3.1.29.5 Test requirement

After step 2, the UE shall detect the presence of cell 1 and enter idle mode state in cell 1.

8.3.1.30 Cell Update: Radio Link Failure (T314>0, T315>0), PS RAB

8.3.1.30.1 Definition

8.3.1.30.2 Conformance requirement

A UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

…

1> Paging response:

…

1> Radio link failure:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

2> if the UE is in CELL_DCH state; and

2> if the criteria for radio link failure is met as specified in TS 25.331 subclause 8.5.6:

3> perform cell update using the cause "radio link failure".

…

When initiating the cell update procedure, the UE shall:

…

1> if the UE is in CELL_DCH state:

2> in the variable RB_TIMER_INDICATOR, set the IE "T314 expired" and the IE "T315 expired" to FALSE;

…

2> if the stored value of the timer T314 is greater than zero:

3> if there are radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314":

4> start timer T314.

3> if there are no radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314" or "useT315":

4> start timer T314.

2> if the stored value of the timer T315 is greater than zero:

3> if there are radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT315":

4> start timer T315.

…

Upon expiry of timer T314 the UE shall:

1> if timer T302 is running:

…

1> if timer T302 is not running and timer T315 is running:

2> set IE "T314 expired" in variable RB_TIMER_INDICATOR to TRUE;

2> release locally all radio bearers which are associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314";

2> indicate release of those radio access bearers to upper layers;

2> delete all information about those radio access bearers from the variable ESTABLISHED_RABS.

1> if timers T302 and T315 are not running:

2> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;

2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;

2> clear the variable PDCP_SN_INFO;

2> clear the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS;

2> release all its radio resources;

2> indicate release (abort) of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers;

2> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

2> clear the variable ESTABLISHED_RABS;

2> set the variable CELL_UPDATE_STARTED to FALSE;

2> enter idle mode;

2> other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2;

2> and the procedure ends.

Upon expiry of timer T315 the UE shall:

1> if timer T302 is running:

…

1> if timer T302 is not running and timer T314 is running:

2> set IE "T315 expired" in variable RB_TIMER_INDICATOR to TRUE;

2> release locally all radio bearers which are associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "use T315";

2> indicate release of those radio access bearers to upper layers;

2> delete all information about those radio access bearers from the variable ESTABLISHED_RABS.

1> if timers T302 and T314 are not running:

2> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;

2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;

2> clear the variable PDCP_SN_INFO;

2> clear the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS;

2> release all its radio resources;

2> indicate release (abort) of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers;

2> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

2> clear the variable ESTABLISHED_RABS;

2> set the variable CELL_UPDATE_STARTED to FALSE;

2> enter idle mode;

2> other actions the UE shall perform when entering idle mode from connected mode are specified in subclause 8.5.2;

2> and the procedure ends.

Reference

3GPP TS 25.331 clause 8.3.1

8.3.1.30.3 Test purpose

1. To confirm that the UE shall indicate to the non-access stratum the release of radio access bearer which is associated with T315 and try to find a new cell after detecting that a radio link failure has occurred.
2. To confirm that the UE shall indicate to the non-access stratum the release of radio access bearer which is associated with T314 and try to find a new cell after detecting that a radio link failure has occurred. (This test purpose is only applicable when CS RAB is set up in the initial condition.)
3. To confirm that the UE enters idle mode after T315 expires and T302 and T314 are not running.

8.3.1.30.4 Method of test

Initial Condition

System Simulator: 1 cell (Cell 1 is active).

UE: PS_DCCH+DTCH_DCH (state 6-10 or PS+CS-DCCH+DTCH_DCH (state 6-14), as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) and services supported by the UE. If UE supports PS+CS but only supports streaming service in CS domain then state 6-10 is applied.

Specific Message Content

For SIB type 1 message to be transmitted throughout the test, use the message titled “System Information Block type 1 (supported PLMN type is GSM-MAP)” as found in TS 34.108 clause 6, with the following exception.

Information Element	Value/remark
- T314	12
- T315	60
- UE Timers and constants in connected mode	
- T312	2

Test Procedure

Table 8.3.1.30

Parameter	Unit	Cell 1	
		T0	T1
UTRA RF Channel Number		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF
P-CCPCH RSCP (TDD)	dBm	-60	OFF

The UE is brought to CELL_DCH state after making a successful outgoing call attempt. After the call has been established, SS configures its downlink transmission power settings according to column ‘T1’ in table 8.3.1.30. The UE shall detect a radio link failure in cell 1.

Case A (the initial condition of the UE is in state 6-10):

The SS shall wait for 69.3s (see Note 2) and then configure its downlink transmission power settings according to column ‘T0’ in table 8.3.1.30. The UE shall release radio bearer associated with T315 and enter idle mode state. SS calls for generic procedure C.1 to check that UE is in Idle Mode state in cell 1.

Case B (the initial condition of the UE is in state 6-14):

The SS shall wait for 16.5s (see Note 1) and then configure its downlink transmission power settings according to column 'T0' in table 8.3.1.30. The UE shall release radio bearer associated with T314 and attempt to re-select to cell 1. After that, it shall then enter CELL_FACH state and transmit CELL UPDATE on the uplink CCCH to SS. The SS transmits CELL UPDATE CONFIRM message which includes dedicated physical channel and transport channel parameters on downlink DCCH. Then the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH. The UE may also optionally send "Signalling Connection Release Indicator for CS domain, which can occur before or after TRANSPORT CHANNEL RECONFIGURATION COMPLETE message. SS transmits COUNTER CHECK message to UE. UE shall transmit a COUNTER CHECK RESPONSE message back to SS. Then SS configures its downlink transmission power settings according to column 'T1' in table 8.3.1.30. The UE shall detect a radio link failure in cell 1. The SS shall wait for 69.3s (see Note 2) and then configure its downlink transmission power settings according to column 'T0' in table 8.3.1.30. The UE shall release radio bearer associated with T315 and enter idle mode state. SS calls for generic procedure C.1 to check that UE is in Idle Mode state in cell 1.

NOTE 1: Considering the timer tolerance of the UE, T314 may expire in 12s, therefore the SS must wait for at least 12.0s plus T313 (3.0s) for UE to detect Radio Link Failure before it reconfigures downlink transmission power. Since SS has a timer tolerance of 10% or 2*TTI+55ms (consider the greater value of the two), the test case shall set the SS to reconfigure the power level 16.5s after the SS configures the power settings according to column 'T1' in table 8.3.1.30.

NOTE 2: Considering the timer tolerance of the UE, T315 may expire in 60s, therefore the SS must wait for at least 60.0s plus T313 (3.0s) for UE to detect Radio Link Failure before it reconfigures it downlink transmission power. Since SS has a timer tolerance of 10% or 2*TTI+55ms (consider the greater value of the two), the test case shall set the SS to reconfigure the power level 69.3s after the SS configures the power settings according to column 'T1' in table 8.3.1.30.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				SS configures cell 1 according to column 'T1' in table 8.3.1.30.
2				For Case A, go to step 9. SS waits for 16.5s after the completion of step 1 (for Case B) and then configures cell 1 according to column 'T0' in table 8.3.1.30.
3	→		CELL UPDATE	UE shall select cell 1 and enter CELL_FACH state to transmit this message
4	←		CELL UPDATE CONFIRM	See message content.
4a	→		SIGNALLING CONNECTION RELEASE INDICATION	UE can optionally send this PDU. Steps 4a and 5 can occur in any order.
5	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
6	←		COUNTER CHECK	SS sent the COUNT-C info for the RBs that were established in the initial condition.
7	→		COUNTER CHECK RESPONSE	
8				SS configures cell 1 according to column 'T1' in table 8.3.1.30.
9				SS waits for 69.3s after the completion of step 1 (for Case A) or step 8 (for Case B) and then configures cell 1 according to column 'T0' in table 8.3.1.30.
10	←→		CALL C.1	SS execute this procedure in cell 1. If the test result of C.1 indicates that UE is in Idle Mode state, the test passes. Otherwise it fails.

Specific Message Contents

CELL UPDATE (Step 3)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- S-RNTI	Check to see if set to value assigned in cell 1.
- SRNC Identity	Check to see if set to value assigned in cell 1.
Cell Update Cause	Check to see if set to 'radio link failure'
RB timer indicator	
- T314 expired	TRUE
- T315 expired	FALSE

SIGNALLING CONNECTION RELEASE INDICATION (Step 4a)

Information Element	Value/remark
CN domain identity	CS domain

CELL UPDATE CONFIRM (Step 4) if CS service to be tested for RRC test cases is Speech

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
RRC State indicator	CELL_DCH
UL Transport channel information common for all transport channels	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A4.
Deleted UL TrCH Information	
- Uplink transport channel type	DCH
- Transport channel identity	1
Deleted UL TrCH Information	
- Uplink transport channel type	DCH
- Transport channel identity	2
Deleted UL TrCH Information	
- Uplink transport channel type	DCH
- Transport channel identity	3
DL Transport channel information common for all transport channel	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A4.
Deleted DL TrCH information	
- Downlink transport channel type	DCH
- Transport channel identity	6
Deleted DL TrCH Information	
- Downlink transport channel type	DCH
- Transport channel identity	7
Deleted DL TrCH Information	
- Downlink transport channel type	DCH
- Transport channel identity	8
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A4.
Downlink information common for all radio links	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A4.
Downlink information per radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A4.

CELL UPDATE CONFIRM (Step 4) , if CS service to be tested for RRC test cases is non-speech

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
RRC State indicator	CELL_DCH
UL Transport channel information common for all transport channels	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A4.
Deleted UL TrCH Information	
- Uplink transport channel type	DCH
- Transport channel identity	1
DL Transport channel information common for all transport channel	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A4.
Deleted DL TrCH information	
- Downlink transport channel type	DCH
- Transport channel identity	6
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A4.
Downlink information common for all radio links	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A4.
Downlink information per radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A4.

COUNTER CHECK (Step 6)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Calculated value
RB COUNT-C MSB information	
- RB identity	Set to the RB identity that was set up in the initial condition and support PS service.
- COUNT-C MSB uplink	Set to the value stored in the SS
- COUNT-C MSB downlink	Set to the value stored in the SS

COUNTER CHECK RESPONSE (Step 7)

Information Element	Value/remark
Message Type	
RRC transaction identifier	0
Integrity check info	Not checked
RB COUNT-C information	Not present

8.3.1.30.5 Test requirement

Case A:

After step 2, the UE shall detect the presence of cell 1 and enter idle mode state in cell 1.

Case B:

After step 2, the UE shall detect the presence of cell 1, perform cell re-selection and transmit a CELL UPDATE message.

After step 4, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 6, the UE shall transmit a COUNTER CHECK RESPONSE message without including IE “RB COUNT-C information”.

After step 9, the UE shall detect the presence of cell 1 and enter idle mode state in cell 1.

8.3.1.31 Cell Update: re-entering of service area from URA_PCH after T316 expiry but before T317 expiry

8.3.1.31.1 Definition

8.3.1.31.2 Conformance requirement

If the UE detects the "out of service area" and the UE is in URA_PCH or CELL_PCH state it shall perform the following actions:

1> start timer T316;

1> perform processes described in subclause 7.2.2.

….

In the URA_PCH or CELL_PCH state the UE shall perform the following actions:

NOTE: Neither DCCH nor DTCH are available in these states.

1> if the UE is "in service area":

….

1> if the UE is "out of service area":

2> perform cell selection process as specified in [4];

2> run timer T316;

2> run timer T305.

….

On T316 expiry the UE shall perform the following actions. The UE shall:

1> if "out of service area" is detected:

2> start timer T317;

2> move to CELL_FACH state;

2> perform processes described in subclause 7.2.2.

1> if "in service area" is detected:

….

If the UE detects "in service area" before T317 expiry the UE shall perform the following actions. If no cell update procedure or URA update procedure is ongoing, the UE shall:

1> stop T317;

1> if T307 is active:

2> stop T307.

1> initiate the cell update procedure using as cause "Re-entering service area" as specified in subclause 8.3.1;

1> perform processes described in subclause 7.2.2.

If a cell update procedure or URA update procedure is ongoing, the UE shall:

1> stop T317;

1> perform the actions as specified in 8.3.1.

Reference

3GPP TS 25.331 clause 8.3.1, 8.5.5.1.1, 8.5.5.2.2, 8.5.5.3, 7.2.2.1, and 7.2.2.2.

8.3.1.31.3 Test purpose

To confirm that the UE executes a cell update procedure when the UE re-enters the service area before the expiry of timer T317, after expiry of T316.

8.3.1.31.4 Method of test

Initial Condition

System Simulator: 1 cell with URA-ID 1 and the downlink transmission power shown in column marked "T0" in table 8.3.1.31.

UE: URA_PCH (state 6-13) as specified in clause 7.4 of TS 34.108, with URA-ID 1 in the list of URA-ID.

Test Procedure

Table 8.3.1.31

Parameter	Unit	Cell 1	
		T0	T1
UTRA RF Channel Number		Mid Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-60	-80
P-CCPCH RSCP (TDD)	dBm	-60	-80

Table 8.3.1.31 illustrates the downlink power to be applied at various time instants of the test execution. Columns marked "T0" denote the initial conditions.

The UE is initially in URA_PCH state. The content of the SYSTEM INFORMATION BLOCK TYPE 3 and 4 is modified. The SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.31 so that S<0. When the UE detects that it is out of service area, it will start T316 and search for a cell to camp. SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.31 within a time equivalent to T316+T317 but larger than T316, so that S>0. The UE shall detect that it returns back in service area before T317 expires. Since the UE has moved to CELL_FACH state on expiry of T316, it shall now transmit a CELL UPDATE message which contains the value "re-entering service area" in IE "Cell update cause" to the SS on the uplink CCCH. After the SS receives this message, it transmits a CELL UPDATE CONFIRM message which includes the IE "new C-RNTI", and "new U-RNTI" to the UE on the downlink DCCH. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE starts operating from URA_PCH state.
1a	←		MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 3 and 4	SS changes the contents of MASTER INFORMATION BLOCK and SYSTEM INFORMATION BLOCK (see specific message contents).
1b	←		PAGING TYPE 1	Include IE "BCCH modification info"

		void	
		void	
2			SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.31 such that the cell 1 is no longer suitable for camping i.e. S<0.
3			The UE shall detect a "out of service area" condition, start T316. The UE shall start T317 on expiry of T316)
4			60 seconds after step 2 (see note 1), the SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.31 before T317 expires.
5	→	CELL UPDATE	Value "re-entering service area" shall be set in IE "Cell update cause"
6	←	CELL UPDATE CONFIRM	
7	→	UTRAN MOBILITY INFORMATION CONFIRM	
8	←→	CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

NOTE: The 60 seconds in step 4 should be large enough for any UE to have detected the out of service area condition (Nserv consecutive DRX cycles + 12s) and have started T317 after T316 expiry (default=30s), but well before T317 expiry.

Specific Message Contents

MASTER INFORMATION BLOCK (Step 1a)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
MIB Value Tag	A valid MIB value tag as defined in TS 25.331 that is different from the previous value.
Scheduling information	Scheduling info for System Information Type 3
- Cell Value tag	A value that is different from the previous Cell value tag
Scheduling information	Scheduling info for System Information Type 4
- Cell Value tag	A value that is different from the previous Cell value tag

SYSTEM INFORMATION BLOCK TYPE 3 and 4 (Step 1a)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
Qrxlevmin	-70

PAGING TYPE 1 (Step 1b)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Paging record list	Not Present
BCCH modification info	
MIB Value tag	A valid MIB value tag as defined in TS 25.331 that is different from the previous value.
BCCH modification time	Not present

CELL UPDATE (Step 5)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 're-entering service area'

CELL UPDATE CONFIRM (Step 6)

Use the same message sub-type found in TS 34.108 clause 9, with the exception of the following IEs:

Information Element	Value/remark
New U-RNTI	
- SRNC Identity	'0000 0000 0001'
- S-RNTI	'0000 0000 0000 0101 0101'
New C-RNTI	'1010 1010 1010 1010'

UTRAN MOBILITY INFORMATION CONFIRM (Step 7)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE.

8.3.1.31.5 Test requirement

After step 2 the UE shall detect that it is out of service area and shall not send a URA UPDATE on the uplink CCCH channel.

After step 4 the UE shall transmit a CELL UPDATE message which sets value "re-entering service area" into IE "Cell update cause".

After step 6 the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message.

8.3.1.32 Cell Update: Transition from URA_PCH to CELL_DCH, start of HS-DSCH reception

8.3.1.32.1 Definition

All UEs which support FDD or TDD and HS-PDSCH.

8.3.1.32.2 Conformance requirement

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

If the UE is in connected mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a UTRAN identity and if this U-RNTI is the same as the U-RNTI allocated to the UE:

2> if the optional IE "CN originated page to connected mode UE" is included:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "Paging cause" and the IE "Paging record type identifier" to the upper layers.

2> otherwise:

3> perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.

2> ignore any other remaining IE "Paging record" that may be present in the message.

1> otherwise:

2> ignore that paging record.

…

A UE shall initiate the cell update procedure in the following cases:

1> Paging response:

…

…

If the IE "New H-RNTI" is included, the UE shall:

1> if the IE "Downlink HS-PDSCH Information" is also included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 of TS 25.331 applied on the received message:

2> store the value in the variable H_RNTI.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

…

If the IE "Added or Reconfigured DL TrCH information" is included then for the transport channel identified by the IE "DL Transport Channel Identity" the UE shall:

1> if the choice "DL parameters" is set to 'HSDSCH':

2> if the IE "HARQ Info" is included:

3> perform the actions specified in subclause 8.6.5.6b of TS 25.331.

…

If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message, the UE shall:

1> if the IE "New H-RNTI" is included:

2> perform the actions as specified in subclause 8.6.3.1b of TS 25.331.

1> if the IE "HS-SCCH Info" is included:

2> act as specified in subclause 8.6.6.33 of TS 25.331.

1> if the IE "Measurement Feedback Info" is included:

2> act as specified in subclause 8.6.6.34 of TS 25.331.

1> For FDD, if, as a result of the received message, the variable H_RNTI is set and the UE has a stored IE "HS-SCCH Info" and a stored IE "Measurement Feedback Info"; and

1> For FDD, if the UE has received IE "Uplink DPCH Power Control Info" and stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor; and

1> For FDD, if the UE has stored IEs "MAC-hs queue to add or reconfigure list", "MAC-d PDU size Info" and "RB Mapping Info" corresponding to the HS-PDSCH configuration;

2> set the variable HS_DSCH_RECEPTION to TRUE;

2> start HS-DSCH reception procedures according to the stored HS-PDSCH configuration:

3> as stated in subclause 8.6.3.1b of TS 25.331 for the IE "H-RNTI";

3> in subclause 8.6.6.33 of TS 25.331 for the IE "HS-SCCH Info"; and

3> in subclause 8.6.6.34 of TS 25.331 for the IE "Measurement Feedback Info".

…

If the IE "HS-SCCH Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> in the case of FDD:

2> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving HS-DSCH radio link applying the scrambling code as received in the IE "DL Scrambling code".

1> in the case of TDD:

2> receive the HS-SCCH(s) according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> transmit the HS-SICH according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> for HS-SCCH power control the UE shall use the "BLER target" signalled in the first occurrence of the "HS-SCCH Set Configuration".

2> in 3.84 Mcps TDD and 7.68 Mcps TDD:

3> use the parameters specified in the IE "HS-SICH power control info" for open loop power control as defined in subclause 8.5.7.

2> in 1.28 Mcps TDD:

3> use the IE " $PRX_{HS-SICH}$ " and "ACK-NAK power offset" to calculate and set an initial uplink transmission power;

3> use the IE " TPC step size" upon reception of TPC commands for closed loop power control.

…

If the IE "Measurement Feedback Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link.

Reference

3GPP TS 25.331 clauses 8.1.2, 8.3.1, 8,6,3,1, 8.6.3.1b, 8.6.5.6, 8.6.6.32, 8.6.6.33, 8.6.6.34

8.3.1.32.3 Test purpose

To confirm that the UE enters the CELL_DCH state after it receives a CELL UPDATE CONFIRM message with a physical channel configuration causing it to start HS-DSCH reception.

8.3.1.32.4 Method of test

Initial Condition

System Simulator: 1 cell.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS_DCCH_DTCH_HS_DSCH (state 6-17) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in the CELL_DCH state and has a radio bearer established that is mapped to HS-DSCH. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, which invoke the UE to transit from CELL_DCH to URA_PCH. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC and enters URA_PCH state.

The SS transmits a PAGING TYPE 1 message. The UE enters the CELL_FACH state to transmit a CELL UPDATE message using uplink CCCH in respond to the paging.

The SS transmits CELL UPDATE CONFIRM message which includes DPCH and HS-PDSCH physical channel parameters on the downlink DCCH. Then the UE resumes HS-DSCH reception and transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			PHYSICAL CHANNEL RECONFIGURATION	
2			PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE enters the URA_PCH state
2a	SS			SS sends the L2 ack on the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and then waits 5 seconds to allow the UE to read system information before the next step. Note: The SS should continue to keep the dedicated channel configuration during the time when the L2 ack is sent to the UE.
3	←		PAGING TYPE 1	
4	→		CELL UPDATE	The UE enters the CELL_FACH state.
5	←		CELL UPDATE CONFIRM	
6	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE enters the CELL_DCH state and starts HS-DSCH reception.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

PHYSICAL CHANNEL RECONFIGURATION (Step 1)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Annex A with following exceptions:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	URA_PCH
UTRAN DRX cycle length coefficient	3
URA Identity	0000 0000 0000 0001B

Paging Type 1 (Step 3)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE (Step 4)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- S-RNTI	Check to see if set to value assigned in cell 1.
- SRNC Identity	Check to see if set to value assigned in cell 1.
Cell Update Cause	Check to see if set to “Paging response”

CELL UPDATE CONFIRM (Step 5)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
RRC State indicator	CELL_DCH
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Downlink information common for all radio links	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Downlink information per radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.

8.3.1.32.5 Test requirement

After step 1, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 3, the UE shall transmit a CELL UPDATE message.

After step 5, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

8.3.1.32a Cell Update: Transition from URA_PCH to CELL_DCH, start of HS-DSCH reception (Carriers belong to different frequency band for LCR TDD)

8.3.1.32a.1 Definition and applicability

Same definition and applicability as in clause 8.3.1.32.1 except that UE supports the primary carrier and the secondary carriers which are configured into different frequency bands

8.3.1.32a.2 Conformance requirement

Same conformance requirement as in clause 8.3.1.32 2.

8.3.1.32a.3 Test purpose

Same test purpose as in clause8.3.1.32.3 except that UE can work in the primary carrier and the secondary carriers which are configured into different frequency bands.

8.3.1.32a.4 Method of test

Initial Condition

System Simulator: 1 cell, three carriers, each cell configure 3 carriers, one is the primary carrier, the other two are secondary carrier, primary carrier and secondary carrier which are configured into different frequency bands.

UE: PS_DCCH_DTCH_HS_DSCH (state 6-17) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports TDD
- UE supports HS-PDSCH
- UE supports multiple frequency bands simultaneously

Test Procedure:

The UE is in the CELL_DCH state and has a radio bearer established that is mapped to HS-DSCH. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, which invoke the UE to transit from CELL_DCH to URA_PCH. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC and enters URA_PCH state.

The SS transmits a PAGING TYPE 1 message. The UE enters the CELL_FACH state to transmit a CELL UPDATE message using uplink CCCH in respond to the paging.

The SS transmits CELL UPDATE CONFIRM message which includes DPCH and HS-PDSCH physical channel parameters on the downlink DCCH. Then the UE resumes HS-DSCH reception and transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH.

Expected sequence:

Step	Direction		Message	Comment
	UE	SS		
				Note: Cell is configured with primary carrier and the secondary carriers into different frequency bands.
1			PHYSICAL CHANNEL RECONFIGURATION	
2			PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE enters the URA_PCH state
2a	SS			SS sends the L2 ack on the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and then waits 5 seconds to allow the UE to read system information before the next step. Note: The SS should continue to keep the dedicated channel configuration during the time when the L2 ack is sent to the UE.
3	←		PAGING TYPE 1	
4	→		CELL UPDATE	The UE enters the CELL_FACH state.
5	←		CELL UPDATE CONFIRM	
6	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE enters the CELL_DCH state and starts HS-DSCH reception.

Same specific message contents as in clause8.3.1.32.4.

8.3.1.32a.5 Test requirements

Same test requirements as in clause8.3.1.32.5.

8.3.1.33 Cell Update: Transition from CELL_PCH to CELL_DCH, start of HS-DSCH reception, frequency modification

8.3.1.33.1 Definition

All UEs which support FDD or TDD and HS-PDSCH.

8.3.1.33.2 Conformance requirement

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

If the UE is in connected mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a UTRAN identity and if this U-RNTI is the same as the U-RNTI allocated to the UE:

2> if the optional IE "CN originated page to connected mode UE" is included:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "Paging cause" and the IE "Paging record type identifier" to the upper layers.

2> otherwise:

3> perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.

2> ignore any other remaining IE "Paging record" that may be present in the message.

1> otherwise:

2> ignore that paging record.

…

A UE shall initiate the cell update procedure in the following cases:

1> Paging response:

…

…

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

If the new state is CELL_PCH, the response message shall be transmitted using the old configuration before the state transition, but the new C-RNTI shall be used if the IE "New C-RNTI" was included in the received reconfiguration message, and the UE shall:

1> when RLC has confirmed the successful transmission of the response message:

…

2> enter the new state (CELL_PCH);

…

When the UE receives a CELL UPDATE CONFIRM/URA UPDATE CONFIRM message; and

- if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or
- if the message is received on DCCH:

2> if the IE "Frequency info" is included in the message:

3> if the IE "RRC State Indicator" is set to the value "CELL_DCH":

4> act on the IE "Frequency info" as specified in subclause 8.6.6.1 in TS 25.331.

…

If the IE "New H-RNTI" is included, the UE shall:

1> if the IE "Downlink HS-PDSCH Information" is also included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 of TS 25.331 applied on the received message:

2> store the value in the variable H_RNTI.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

…

If the IE "Added or Reconfigured DL TrCH information" is included then for the transport channel identified by the IE "DL Transport Channel Identity" the UE shall:

1> if the choice "DL parameters" is set to 'HSDSCH':

2> if the IE "HARQ Info" is included:

3> perform the actions specified in subclause 8.6.5.6b of TS 25.331.

…

If, after completion of the procedure, the UE will be in CELL_DCH state, the UE shall:

1> if the IE "Frequency info" is included:

2> if the frequency is different from the currently used frequency:

3> store and use the frequency indicated by the IE "Frequency Info"; and

3> perform the physical layer synchronisation procedure A as specified in TS 25.214 (FDD only) or TS 25.224 (TDD only).

…

If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message, the UE shall:

1> if the IE "New H-RNTI" is included:

2> perform the actions as specified in subclause 8.6.3.1b of TS 25.331.

1> if the IE "HS-SCCH Info" is included:

2> act as specified in subclause 8.6.6.33 of TS 25.331.

1> if the IE "Measurement Feedback Info" is included:

2> act as specified in subclause 8.6.6.34 of TS 25.331.

1> For FDD, if, as a result of the received message, the variable H_RNTI is set and the UE has a stored IE "HS-SCCH Info" and a stored IE "Measurement Feedback Info"; and

1> For FDD, if the UE has received IE "Uplink DPCH Power Control Info" and stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor; and

1> For FDD, if the UE has stored IEs "MAC-hs queue to add or reconfigure list", "MAC-d PDU size Info" and "RB Mapping Info" corresponding to the HS-PDSCH configuration;

2> set the variable HS_DSCH_RECEPTION to TRUE;

2> start HS-DSCH reception procedures according to the stored HS-PDSCH configuration:

3> as stated in subclause 8.6.3.1b of TS 25.331 for the IE "H-RNTI";

3> in subclause 8.6.6.33 of TS 25.331 for the IE "HS-SCCH Info"; and

3> in subclause 8.6.6.34 of TS 25.331 for the IE "Measurement Feedback Info".

…

If the IE "HS-SCCH Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> in the case of FDD:

2> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving HS-DSCH radio link applying the scrambling code as received in the IE "DL Scrambling code".

1> in the case of TDD:

2> receive the HS-SCCH(s) according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> transmit the HS-SICH according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> for HS-SCCH power control the UE shall use the "BLER target" signalled in the first occurrence of the "HS-SCCH Set Configuration".

2> in 3.84 Mcps TDD and 7.68 Mcps TDD:

3> use the parameters specified in the IE "HS-SICH power control info" for open loop power control as defined in subclause 8.5.7.

2> in 1.28 Mcps TDD:

3> use the IE " $PRX_{HS-SICH}$ " and "ACK-NAK power offset" to calculate and set an initial uplink transmission power;

3> use the IE " TPC step size" upon reception of TPC commands for closed loop power control.

…

If the IE "Measurement Feedback Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link.

Reference

3GPP TS 25.331 clauses 8.1.2, 8.2.2.3, 8.2.2.4, 8.3.1, 8,6,3,1, 8.6.3.1b, 8.6.5.6, 8.6.6.1, 8.6.6.32, 8.6.6.33, 8.6.6.34

8.3.1.33.3 Test purpose

To confirm that the UE enters the CELL_DCH state after it receives a CELL UPDATE CONFIRM message with a physical channel configuration causing it to start HS-DSCH reception on a different cell and frequency. To confirm that the UE enters CELL_PCH state on another frequency and stops HS-DSCH reception when it receives a PHYSICAL CHANNEL RECONFIGURATION message.

8.3.1.33.4 Method of test

Initial Condition

System Simulator: 2 cells - cell 1 is active and cell 6 is inactive.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH

Test Procedure

Table 8.3.1.33

Parameter	Unit	Cell 1			Cell 6		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Frequency (f_1)			High Range Frequency (f_2)		
CPICH Ec (FDD)	dBm/3.84MHz	-60	-72	-60	Off	-55	-72
P-CCPCH RSCP (TDD)	dBm	-60	-72	-60	Off	-55	-72

Table 8.3.1.33 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

SS initiates P25 to make the UE move to state 6-17 as specified in TS34.108 clause7.4. The UE is in the CELL_DCH state in cell 1 and has a radio bearer established that is mapped to HS-DSCH. The SS has configured its downlink transmission power setting according to columns "T0" in table 8.3.1.33.

The SS switches its downlink transmission power settings to columns "T1". The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, which invokes the UE to transit from CELL_DCH to CELL_PCH in cell 6. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC, selects cell 6 and enters CELL_PCH state.

The SS transmits a PAGING TYPE 1 message. The UE enters the CELL_FACH state to transmit a CELL UPDATE message using uplink CCCH in cell 6 in response to the paging.

The SS switches its downlink transmission power settings to columns "T2". The SS transmits CELL UPDATE CONFIRM message, which includes DPCH and HS-PDSCH physical channel parameters for cell 1 on the downlink DCCH. Then the UE establishes the DPCH and HS-PDSCH in cell 1 and resumes HS-DSCH reception and transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH in cell 1.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message (Step 0)
1				The UE is in CELL_DCH state in cell 1 and the SS configures its downlink transmission power setting according to columns "T1" in table 8.3.1.33.
2			PHYSICAL CHANNEL RECONFIGURATION	
3			PHYSICAL CHANNEL RECONFIGURATION COMPLETE	After transmitting this message, the UE enters the CELL_PCH state in cell 6
4	SS			SS sends the L2 ack on the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and then waits 5 seconds to allow the UE to read system information before the next step. Note: The SS should continue to keep the dedicated channel configuration during the time when the L2 ack is sent to the UE.
5	←		PAGING TYPE 1	
6	→		CELL UPDATE	The UE enters the CELL_FACH state.
7	SS			The SS switches its downlink transmission power settings to columns "T2" in table 8.3.1.33.
8	←		CELL UPDATE CONFIRM	
9	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE changes to cell 1, enters the CELL_DCH state and starts HS-DSCH reception.
10	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

RADIO BEARER SETUP (Step 0)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.

PHYSICAL CHANNEL RECONFIGURATION (Step 2) (FDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark	Version
New C-RNTI RRC State Indicator UTRAN DRX cycle length coefficient Frequency info - CHOICE mode	Not Present CELL_PCH 3 FDD	
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]	
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6	
Downlink information for each radio link list - Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Set to the Primary scrambling code used for cell6	
- Serving HS-DSCH radio link indicator	FALSE	
- Downlink DPCH info for each RL	Not present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

PHYSICAL CHANNEL RECONFIGURATION (Step 2) (1.28Mcps TDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark	Version
New C-RNTI RRC State Indicator UTRAN DRX cycle length coefficient Frequency info - CHOICE mode	Not Present CELL_PCH 3 TDD	
- UARFCN (Nt)	Same UARFCN as used for cell 6	
Downlink information for each radio link list - Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	1.28Mcps TDD	
- TSTD indicator	FALSE	
- Cell parameters ID	Reference clause 6.1.4 Default settings for cell 6	
- SCTD indicator	FALSE	
- Downlink DPCH info for each RL	Not present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

PHYSICAL CHANNEL RECONFIGURATION (Step 2) (3.84Mcps TDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark	Version
New C-RNTI RRC State Indicator UTRAN DRX cycle length coefficient Frequency info - CHOICE mode	Not Present CELL_PCH 3 TDD	
- UARFCN (Nt)	Same UARFCN as used for cell 6	
Downlink information for each radio link list - Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	3.84Mcps TDD	
- Choice SyncCase	Sync Case 2	
- Timeslot	0	
- Cell parameters ID	Reference clause 6.1.4 Default settings for cell 6	
- SCTD indicator	FALSE	
- Downlink DPCH info for each RL	Not present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

PHYSICAL CHANNEL RECONFIGURATION (Step 2) (3.84Mcps TDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark	Version
New C-RNTI RRC State Indicator UTRAN DRX cycle length coefficient Frequency info - CHOICE mode	Not Present CELL_PCH 3 TDD	
- UARFCN (Nt)	Same UARFCN as used for cell 6	
Downlink information for each radio link list - Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	7.68 Mcps TDD	
- Choice SyncCase	Sync Case 2	
- Timeslot	0	
- Cell parameters ID	Reference clause 6.1.4 Default settings for cell 6	
- SCTD indicator	FALSE	
- Downlink DPCH info for each RL	Not present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

Paging Type 1 (Step 5)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE (Step 6)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- S-RNTI	Check to see if set to value assigned in cell 1.
- SRNC Identity	Check to see if set to value assigned in cell 1.
Cell Update Cause	Check to see if set to “Paging response”

CELL UPDATE CONFIRM (Step 8) (FDD)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
RRC State indicator	CELL_DCH	
Frequency info	Set to the frequency of cell 1	
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.	
Downlink information common for all radio links	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.	
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 1	
- Serving HS-DSCH radio link indicator	TRUE	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	1	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set 1	
- Code number		
- Scrambling code change	No change	
- TPC combination index	0	
- Power offset $P_{TPC-DPDCH}$	Not Present	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH		R99 and Rel-4 only

CELL UPDATE CONFIRM (Step 8) (1.28Mcps TDD)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
RRC State indicator	CELL_DCH	
Frequency info	Set to the frequency of cell 1	
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.	
Downlink information common for all radio links	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.	
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	1.28Mcps TDD	
- TSTD indicator	FALSE	
- Cell parameters ID	Reference clause 6.1.4 Default settings for cell 1	
- SCTD indicator	FALSE	
- Downlink DPCH info for each RL	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.	

CELL UPDATE CONFIRM (Step 8) (3.84Mcps TDD)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
RRC State indicator	CELL_DCH	
Frequency info	Set to the frequency of cell 1	
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.	
Downlink information common for all radio links	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.	
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	3.84Mcps TDD	
- Choice SyncCase	Sync Case 2	
- Timeslot	0	
- Cell parameters ID	Reference clause 6.1.4 Default settings for cell 1	
- SCTD indicator	FALSE	
- Downlink DPCH info for each RL	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.	

CELL UPDATE CONFIRM (Step 8) (7.68 Mcps TDD)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
RRC State indicator	CELL_DCH	
Frequency info	Set to the frequency of cell 1	
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.	
Downlink information common for all radio links	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.	
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.	
Downlink information for each radio link list - Downlink information for each radio link - Choice mode	 TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	7.68 Mcps TDD	
- Choice SyncCase	Sync Case 2	
- Timeslot	0	
- Cell parameters ID	Reference clause 6.1.4 Default settings for cell 1	
- SCTD indicator	FALSE	
- Downlink DPCH info for each RL	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.	

8.3.1.33.5 Test requirement

After step 2, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 5, the UE shall transmit a CELL UPDATE message.

After step 8, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC in cell 1.

8.3.1.33a Cell Update: Transition from CELL_PCH to CELL_DCH, start of HS-DSCH reception, frequency modification(TDD)

8.3.1.33a.1 Definition

All UEs which support TDD and HS-PDSCH.

8.3.1.33a.2 Conformance requirement

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

If the UE is in connected mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a UTRAN identity and if this U-RNTI is the same as the U-RNTI allocated to the UE:

2> if the optional IE "CN originated page to connected mode UE" is included:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "Paging cause" and the IE "Paging record type identifier" to the upper layers.

2> otherwise:

3> perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.

2> ignore any other remaining IE "Paging record" that may be present in the message.

1> otherwise:

2> ignore that paging record.

…

A UE shall initiate the cell update procedure in the following cases:

1> Paging response:

…

…

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

If the new state is CELL_PCH, the response message shall be transmitted using the old configuration before the state transition, but the new C-RNTI shall be used if the IE "New C-RNTI" was included in the received reconfiguration message, and the UE shall:

1> when RLC has confirmed the successful transmission of the response message:

…

2> enter the new state (CELL_PCH);

…

When the UE receives a CELL UPDATE CONFIRM/URA UPDATE CONFIRM message; and

- if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or

- if the message is received on DCCH:

2> if the IE "Frequency info" is included in the message:

3> if the IE "RRC State Indicator" is set to the value "CELL_DCH":

4> act on the IE "Frequency info" as specified in subclause 8.6.6.1 in TS 25.331.

…

If the IE "New H-RNTI" is included, the UE shall:

1> if the IE "Downlink HS-PDSCH Information" is also included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 of TS 25.331 applied on the received message:

2> store the value in the variable H_RNTI.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

…

If the IE "Added or Reconfigured DL TrCH information" is included then for the transport channel identified by the IE "DL Transport Channel Identity" the UE shall:

1> if the choice "DL parameters" is set to 'HSDSCH':

2> if the IE "HARQ Info" is included:

3> perform the actions specified in subclause 8.6.5.6b of TS 25.331.

…

If, after completion of the procedure, the UE will be in CELL_DCH state, the UE shall:

1> if the IE "Frequency info" is included:

2> if the frequency is different from the currently used frequency:

3> store and use the frequency indicated by the IE "Frequency Info"; and

3> perform the physical layer synchronisation procedure A as specified in TS 25.224 (TDD only).

…

If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message, the UE shall:

1> if the IE "New H-RNTI" is included:

2> perform the actions as specified in subclause 8.6.3.1b of TS 25.331.

1> if the IE "HS-SCCH Info" is included:

2> act as specified in subclause 8.6.6.33 of TS 25.331.

1> if the IE "Measurement Feedback Info" is included:

2> act as specified in subclause 8.6.6.34 of TS 25.331.

2> set the variable HS_DSCH_RECEPTION to TRUE;

2> start HS-DSCH reception procedures according to the stored HS-PDSCH configuration:

3> as stated in subclause 8.6.3.1b of TS 25.331 for the IE "H-RNTI";

3> in subclause 8.6.6.33 of TS 25.331 for the IE "HS-SCCH Info"; and

3> in subclause 8.6.6.34 of TS 25.331 for the IE "Measurement Feedback Info".

…

If the IE "HS-SCCH Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> in the case of TDD:

2> receive the HS-SCCH(s) according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> transmit the HS-SICH according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> for HS-SCCH power control the UE shall use the "BLER target" signalled in the first occurrence of the "HS-SCCH Set Configuration".

2> in 3.84 Mcps TDD and 7.68 Mcps TDD:

3> use the parameters specified in the IE "HS-SICH power control info" for open loop power control as defined in subclause 8.5.7.

2> in 1.28 Mcps TDD:

3> use the IE " $PRX_{HS-SICH}$ " and "ACK-NAK power offset" to calculate and set an initial uplink transmission power;

3> use the IE " TPC step size" upon reception of TPC commands for closed loop power control.

…

If the IE "Measurement Feedback Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link.

Reference

3GPP TS 25.331 clauses 8.1.2, 8.2.2.3, 8.2.2.4, 8.3.1, 8,6,3,1, 8.6.3.1b, 8.6.5.6, 8.6.6.1, 8.6.6.32, 8.6.6.33, 8.6.6.34

8.3.1.33a.3 Test purpose

To confirm that the UE enters the CELL_DCH state after it receives a CELL UPDATE CONFIRM message with a physical channel configuration causing it to start HS-DSCH reception on a different cell and frequency. To confirm that the UE enters CELL_PCH state on another frequency and stops HS-DSCH reception when it receives a PHYSICAL CHANNEL RECONFIGURATION message.

8.3.1.33a.4 Method of test

Initial Condition

System Simulator: 2 cells - cell 1 is active and cell 6 is inactive. Each cell configure 3 carriers, one is the primary carrier, the other two are secondary carrier.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports TDD
- UE supports HS-PDSCH

Test Procedure

Table 8.3.1.33a

Parameter	Unit	Cell 1			Cell 6		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Frequency (f_1)			High Range Frequency (f_2)		
P-CCPCH RSCP (TDD)	dBm	-60	-72	-60	Off	-55	-72

Table 8.3.1.33 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

SS initiates P25 to make the UE move to state 6-17 as specified in TS34.108 clause7.4. The UE is in the CELL_DCH state in cell 1 and has a radio bearer established that is mapped to HS-DSCH. The SS has configured its downlink transmission power setting according to columns "T0" in table 8.3.1.33a.

The SS switches its downlink transmission power settings to columns "T1". The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, which invokes the UE to transit from CELL_DCH to CELL_PCH in cell 6. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC, selects cell 6 and enters CELL_PCH state.

The SS transmits a PAGING TYPE 1 message. The UE enters the CELL_FACH state to transmit a CELL UPDATE message using uplink CCCH in cell 6 in response to the paging.

The SS switches its downlink transmission power settings to columns "T2". The SS transmits CELL UPDATE CONFIRM message, which includes DPCH and HS-PDSCH physical channel parameters for cell 1 on the downlink DCCH. Then the UE establishes the DPCH and HS-PDSCH in cell 1 and resumes HS-DSCH reception and transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH in cell 1.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message (Step 0)
1				The UE is in CELL_DCH state in cell 1 and the SS configures its downlink transmission power setting according to columns "T1" in table 8.3.1.33a.
2			PHYSICAL CHANNEL RECONFIGURATION	
3			PHYSICAL CHANNEL RECONFIGURATION COMPLETE	After transmitting this message, the UE enters the CELL_PCH state in cell 6
4	SS			SS sends the L2 ack on the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and then waits 5 seconds to allow the UE to read system information before the next step. Note: The SS should continue to keep the dedicated channel configuration during the time when the L2 ack is sent to the UE.
5	←		PAGING TYPE 1	
6	→		CELL UPDATE	The UE enters the CELL_FACH state.
7	SS			The SS switches its downlink transmission power settings to columns "T2" in table 8.3.1.33a.
8	←		CELL UPDATE CONFIRM	
9	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE changes to cell 1, enters the CELL_DCH state and starts HS-DSCH reception.
10	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

RADIO BEARER SETUP (Step 0)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.

PHYSICAL CHANNEL RECONFIGURATION (Step 2)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark	Version
New C-RNTI RRC State Indicator UTRAN DRX cycle length coefficient Frequency info - CHOICE mode	Not Present CELL_PCH 3 TDD	
- UARFCN (Nt)	Same UARFCN as used for cell 6	
Downlink information for each radio link list - Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	1.28Mcps TDD	
- TSTD indicator	FALSE	
- Cell parameters ID	Reference clause 6.1.4 Default settings for cell 6	
- SCTD indicator	FALSE	
- Downlink DPCH info for each RL	Not present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

Paging Type 1 (Step 5)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE (Step 6)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- S-RNTI	Check to see if set to value assigned in cell 1.
- SRNC Identity	Check to see if set to value assigned in cell 1.
Cell Update Cause	Check to see if set to “Paging response”

CELL UPDATE CONFIRM (Step 8)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
RRC State indicator	CELL_DCH	
Frequency info	Set to the frequency of cell 1	
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.	
Downlink information common for all radio links	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.	
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	1.28Mcps TDD	
- TSTD indicator	FALSE	
- Cell parameters ID	Reference clause 6.1.4 Default settings for cell 1	
- SCTD indicator	FALSE	
CellUpdateConfirm-CCCH-r5-TDD128-add-ext-IEs		
frequencyInfo	secondary carrier frequency in cell 6	

8.3.1.33a.5 Test requirement

After step 2, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 5, the UE shall transmit a CELL UPDATE message.

After step 8, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC in cell 1.

8.3.1.34 Cell Update: Transition from CELL_DCH to CELL_FACH, stop of HS-DSCH reception

8.3.1.34.1 Definition

8.3.1.34.2 Conformance requirement

1> Radio link failure:

…

3> if the UE is in CELL_DCH state and the criteria for radio link failure are met as specified in subclause 8.5.6 of TS 25.331; or

…

4> perform cell update using the cause "radio link failure".

When initiating the URA update or cell update procedure, the UE shall:

…

1> if HS-DSCH is configured:

2> stop any HS-DSCH reception procedures;

2> clear any stored HS-PDSCH configuration;

2> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

2> release all HARQ resources;

2> remove any H-RNTI stored;

2> clear the variable H_RNTI;

2> set the variable HS_DSCH_RECEPTION to FALSE.

1> if the UE is not already in CELL_FACH state:

2> move to CELL_FACH state;

2> select PRACH according to subclause 8.5.17 of TS 25.331;

2> select Secondary CCPCH according to subclause 8.5.19 of TS 25.331;

2> use the transport format set given in system information as specified in subclause 8.6.5.1 of TS 25.331.

Reference

3GPP TS 25.331 clauses 8.3.1.2

8.3.1.34 .3 Test purpose

To confirm that the UE stops HS-DSCH reception after a radio link failure in CELL_DCH during HS-DSCH reception.

8.3.1.34 .4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 is active and cell 2 is inactive.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.3.1.34

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF	-75	-60
P-CCPCH RSCP (TDD)	dBm	-60	OFF	-75	-60

Table 8.3.1.34 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Column marked "T0" denote the initial conditions.

The UE is in CELL_DCH state and only signalling radio bearers have been established. SS initiates P25 to make the UE to move to state 6-17 as specified in TS 34.108 clause 7.4. The UE is in the CELL_DCH state and has a radio bearer established that is mapped to HS-DSCH. SS configures its downlink transmission power settings according to column "T1" in table 8.3.1.34. The UE shall detect a radio link failure in cell 1.

Then it shall attempt to re-select to cell 2. After that, it shall then enter CELL_FACH state and transmit a CELL UPDATE message on the uplink CCCH to SS.

The SS transmits a CELL UPDATE CONFIRM message which request the UE to transit to CELL_FACH state. The UE responds with a RADIO BEARER RECONFIGURATION COMPLETE message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message. (Step 0)
1				SS configures cell 1 and 2 according to column "T1" in table 8.3.1.34. SS starts to listen to the uplink CCCH of cell 2.
2				The UE detects the radio link failure and stops reception of HS-DSCH.
3	→		CELL UPDATE	The UE shall find a new cell 2 and the value "radio link failure" shall be set in IE "Cell update cause".
4	←		CELL UPDATE CONFIRM	
5	→		RADIO BEARER RECONFIGURATION COMPLETE	

Specific Message Contents

System Information Block type 1

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2
- T313	2

RADIO BEARER SETUP (Step 0) (FDD)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
Added or Reconfigured DL TrCH information - MAC-d PDU size	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, with the following exception; 656

RADIO BEARER SETUP (Step 0) (TDD)

Use the same message as specified for "Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108.

CELL UPDATE (Step 3)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI - S-RNTI - SRNC Identity Cell Update Cause	 Check to see if set to value assigned in cell 1. Check to see if set to value assigned in cell 1. Check to see if set to “Radio link failure”

CELL UPDATE CONFIRM (Step 4) (FDD)

Use the same message sub-type found in TS 34.108 clause 9 with the exception of the following IEs:

Information Element	Value/remark
New C-RNTI	'0101 0101 0101 0101'
RLC re-establish indicator (RB2, RB3 and RB4)	TRUE
RB information to reconfigure list	
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4

Information Element	Value/remark
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
Deleted DL TrCH Information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
Added or Reconfigured DL TrCH information	
- MAC-d PDU size	336

CELL UPDATE CONFIRM (Step 4) (1.28Mcps TDD)

Use the same message sub-type found in TS 34.108 clause 9 with the exception of the following IEs:

Information Element	Value/remark
New C-RNTI	'0101 0101 0101 0101'
RLC re-establish indicator (RB2, RB3 and RB4)	TRUE
RB information to reconfigure list	
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4

Information Element	Value/remark
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DTCH)
- RB identity	20
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
Deleted DL TrCH Information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0

8.3.1.34 .5 Test requirement

After step 2, the UE shall transmit a CELL UPDATE message and stop HS-DSCH reception.

8.3.1.35 Cell Update: Transition from CELL_DCH to CELL_DCH, with active HS-DSCH reception

8.3.1.35 .1 Definition

8.3.1.35 .2 Conformance requirement

1> Radio link failure:

…

3> if the UE is in CELL_DCH state and the criteria for radio link failure are met as specified in subclause 8.5.6 of TS 25.331; or

…

4> perform cell update using the cause "radio link failure".

When initiating the URA update or cell update procedure, the UE shall:

…

1> if HS-DSCH is configured:

2> stop any HS-DSCH reception procedures;

2> clear any stored HS-PDSCH configuration;

2> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

2> release all HARQ resources;

2> remove any H-RNTI stored;

2> clear the variable H_RNTI;

2> set the variable HS_DSCH_RECEPTION to FALSE.

Reference

3GPP TS 25.331 clauses 8.3.1.2

8.3.1.35 .3 Test purpose

To confirm that the UE keeps the RB mapping option for HS-DSCH reception after a radio link failure in CELL_DCH during HS-DSCH reception.

8.3.1.35.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 is active and cell 2 is inactive.

Specific Message Contents

System Information Block type 11

Use the default system information block with the same type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Intra-frequency measurement reporting criteria	
- Parameters required for each event	3 kinds
- Intra-frequency event identity	1a
- Time to trigger	5000

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents)

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.3.1.35

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF	-75	-60
P-CCPCH RSCP (TDD)	dBm	-60	OFF	-75	-60

Table 8.3.1.35 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Column marked "T0" denote the initial conditions.

The UE is in CELL_DCH state and only signalling radio bearers have been established. SS initiates P25 to make the UE to move to state 6-17 as specified in TS 34.108 clause 7.4. The UE is in the CELL_DCH state and has a radio bearer established that is mapped to HS-DSCH. SS configures its downlink transmission power settings according to column "T1" in table 8.3.1.35. The UE shall detect a radio link failure in cell 1.

Then it shall attempt to re-select to cell 2. After that, it shall then enter CELL_FACH state and transmit a CELL UPDATE message on the uplink CCCH to SS.

The SS transmits a CELL UPDATE CONFIRM message which request the UE to transit to CELL_DCH state and start reception of HS-DSCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message. (Step 0)
1				SS configures cell 1 and 2 according to column "T1" in table 8.3.1.35. SS starts to listen to the uplink CCCH of cell 2.
2				The UE detects the radio link failure and stops reception of HS-DSCH.
3	→		CELL UPDATE	The UE shall find a new cell 2 and the value "radio link failure" shall be set in IE "Cell update cause".
4	←		CELL UPDATE CONFIRM	
5	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2
- T313	2

RADIO BEARER SETUP (Step 0)

Use the same message as specified for “Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108.

CELL UPDATE (Step 3)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- S-RNTI	Check to see if set to value assigned in cell 1.
- SRNC Identity	Check to see if set to value assigned in cell 1.
Cell Update Cause	Check to see if set to “Radio link failure”

CELL UPDATE CONFIRM (Step 4)(FDD)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
RRC State indicator	CELL_DCH
UL Transport channel information common for all transport channels	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10
DL Transport channel information common for all transport channels	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Added or Reconfigured DL TrCH information list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
CHOICE channel requirement - Scrambling Code Number	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10,with the following exception A non-zero value in the range of 0-16777215 used for cell 2
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10
Downlink information common for all radio links	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10
Downlink information per radio link list - Primary CPICH info - Primary scrambling code	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10, with the following exception; 150

CELL UPDATE CONFIRM (Step 4)(1.28Mcps TDD)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
RRC State indicator	CELL_DCH
UL Transport channel information common for all transport channels	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10
DL Transport channel information common for all transport channels	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Added or Reconfigured DL TrCH information list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10
Downlink information common for all radio links	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10
Downlink information per radio link list - Primary CCPCH info - Cell parameters ID	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10, with the following exception; Set to the Cell parameters ID for cell 2

8.3.1.35 .5 Test requirement

After step 2, the UE shall transmit a CELL UPDATE message.

After step 4, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message and start reception of HS-DSCH.

8.3.1.36 Cell Update: Transition from CELL_DCH to CELL_FACH (stop of HS-DSCH reception with frequency modification)

8.3.1.36 .1 Definition

(All UEs which support FDD or TDD and HS-PDSCH.)

8.3.1.36 .2 Conformance requirement

1> Radio link failure:

…

3> if the UE is in CELL_DCH state and the criteria for radio link failure are met as specified in subclause 8.5.6; or

…

4> perform cell update using the cause "radio link failure".

When initiating the URA update or cell update procedure, the UE shall:

…

1> if HS-DSCH is configured:

2> stop any HS-DSCH reception procedures;

2> clear any stored HS-PDSCH configuration;

2> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

2> release all HARQ resources;

2> remove any H-RNTI stored;

2> clear the variable H_RNTI;

2> set the variable HS_DSCH_RECEPTION to FALSE.

1> if the UE is not already in CELL_FACH state:

2> move to CELL_FACH state;

2> select PRACH according to subclause 8.5.17;

2> select Secondary CCPCH according to subclause 8.5.19;

2> use the transport format set given in system information as specified in subclause 8.6.5.1.

Reference

3GPP TS 25.331 clauses 8.3.1.2

8.3.1.36 .3 Test purpose

To confirm that the UE stops HS-DSCH reception after a radio link failure in CELL_DCH during HS-DSCH reception.

8.3.1.36.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 is active and cell 6 is inactive.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.3.1.36

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF	-75	-60
P-CCPCH RSCP (TDD)	dBm	-60	OFF	-75	-60

Table 8.3.1.36 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Column marked "T0" denote the initial conditions.

The UE is in CELL_DCH state and only signalling radio bearers have been established. SS initiates P25 to make the UE to move to state 6-17 as specified in TS 34.108 clause 7.4. The UE is in the CELL_DCH state and has a radio bearer established that is mapped to HS-DSCH. SS configures its downlink transmission power settings according to column "T1" in table 8.3.1.36. The UE shall detect a radio link failure in cell 1.

Then it shall attempt to re-select to cell 6. After that, it shall then enter CELL_FACH state and transmit a CELL UPDATE message on the uplink CCCH to SS.

The SS transmits a CELL UPDATE CONFIRM message which requests the UE to transit to CELL_FACH state. The UE responds with a RADIO BEARER RECONFIGURATION COMPLETE message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message. (Step 0)
1				SS configures cell 1 and 6 according to column "T1" in table 8.3.1.36. SS starts to listen to the uplink CCCH of cell 6.
2				The UE detects the radio link failure and stops reception of HS-DSCH.
3	→		CELL UPDATE	The UE shall find a new cell 6 and the value "radio link failure" shall be set in IE "Cell update cause".
4	←		CELL UPDATE CONFIRM	
5	→		RADIO BEARER RECONFIGURATION COMPLETE	

Specific Message Contents

System Information Block type 1

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2
- T313	2

RADIO BEARER SETUP (Step 0)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108.

CELL UPDATE (Step 3)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- S-RNTI	Check to see if set to value assigned in cell 1.
- SRNC Identity	Check to see if set to value assigned in cell 1.
Cell Update Cause	Check to see if set to “Radio link failure”

CELL UPDATE CONFIRM (Step 4) (FDD)

Use the same message sub-type found in TS 34.108 clause 9 with the exception of the following IEs:

Information Element	Value/remark	Version
New C-RNTI	'0101 0101 0101 0101'	
RLC re-establish indicator (RB2, RB3 and RB4)	TRUE	
RB information to reconfigure list		
- RB information to reconfigure	(AM DCCH for RRC)	
- RB identity	2	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	600	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	250	
- Timer_poll	250	
- Poll_PDU	Not present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)	
- RB identity	3	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	600	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	250	
- Timer_poll	250	
- Poll_PDU	Not present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	

- RB mapping info	Not Present	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)	
- RB identity	4	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	600	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	250	
- Timer_poll	250	
- Poll_PDU	Not present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DTCH)	
- RB identity	25	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	600	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	250	
- Timer_poll	250	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
Deleted DL TrCH Information - Downlink information for each radio link	Same as the set defined in RADIO BEARER RELEASE message found in TS 34.108 clause 9 under condition A9.	

- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Set to the Primary scrambling code used for cell6	
- Serving HS-DSCH radio link indicator	FALSE	
- Downlink DPCH info for each RL	Not present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

CELL UPDATE CONFIRM (Step 4) (1.28Mcps TDD)

Use the same message sub-type found in TS 34.108 clause 9 with the exception of the following IEs:

Information Element	Value/remark	Version
New C-RNTI	'0101 0101 0101 0101'	
RLC re-establish indicator (RB2, RB3 and RB4)	TRUE	
RB information to reconfigure list		
- RB information to reconfigure	(AM DCCH for RRC)	
- RB identity	2	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	600	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	250	
- Timer_poll	250	
- Poll_PDU	Not present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)	
- RB identity	3	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	600	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	250	
- Timer_poll	250	
- Poll_PDU	Not present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	

- RB mapping info	Not Present	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)	
- RB identity	4	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	600	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	250	
- Timer_poll	250	
- Poll_PDU	Not present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
- RB information to reconfigure	(AM DTCH)	
- RB identity	20	
- PDCP info	Not Present	
- PDCP SN info	Not Present	
- RLC info		
- CHOICE Uplink RLC mode	AM RLC	
- Transmission RLC discard		
- SDU discard mode	No discard	
- MAX_DAT	15	
- Transmission window size	128	
- Timer_RST	600	
- Max_RST	4	
- Polling info		
- Timer_poll_prohibit	250	
- Timer_poll	250	
- Poll_PDU	Not Present	
- Poll_SDU	1	
- Last transmission PDU poll	TRUE	
- Last retransmission PDU poll	TRUE	
- Poll_Window	99	
- Timer_poll_periodic	Not Present	
- CHOICE Downlink RLC mode	AM RLC	
- In-sequence delivery	TRUE	
- Receiving window size	128	
- Downlink RLC status info		
- Timer_status_prohibit	200	
- Timer_EPC	Not Present	
- Missing PDU indicator	TRUE	
- Timer_STATUS_periodic	Not Present	
- RB mapping info	Not Present	
- RB stop/continue	Not Present	
Deleted DL TrCH Information	Same as the set defined in RADIO BEARER RELEASE message found in TS 34.108 clause 9 under condition A9.	
Frequency info		

- CHOICE mode	TDD	
- UARFCN (Nt)	Same UARFCN as used for cell 6	
- Downlink information for each radio link		
- Choice mode	TDD	
- Primary CCPCH info		
- Choice mode	TDD	
- Choice TDD Option	1.28Mcps TDD	
- TSTD indicator	FALSE	
- Cell parameters ID	Same Cell parameters ID as used for cell 6	
- SCTD indicator	FALSE	
- Downlink DPCH info for each RL	Not present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

8.3.1.36 .5 Test requirement

After step 2, the UE shall transmit a CELL UPDATE message and stop HS-DSCH reception.

8.3.1.37 Cell Update: Transition from CELL_DCH to CELL_DCH (with active HS-DSCH reception and frequency modification)

8.3.1.37 .1 Definition

(All UEs which support FDD or TDD and HS-PDSCH.)

8.3.1.37 .2 Conformance requirement

1> Radio link failure:

…

3> if the UE is in CELL_DCH state and the criteria for radio link failure are met as specified in subclause 8.5.6; or

…

4> perform cell update using the cause "radio link failure".

When initiating the URA update or cell update procedure, the UE shall:

…

1> if HS-DSCH is configured:

2> stop any HS-DSCH reception procedures;

2> clear any stored HS-PDSCH configuration;

2> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

2> release all HARQ resources;

2> remove any H-RNTI stored;

2> clear the variable H_RNTI;

2> set the variable HS_DSCH_RECEPTION to FALSE.

Reference

3GPP TS 25.331 clauses 8.3.1.2

8.3.1.37 .3 Test purpose

To confirm that the UE keeps the RB mapping option for HS-DSCH reception after a radio link failure in CELL_DCH during HS-DSCH reception.

8.3.1.37.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 is active and cell 6 is inactive.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.3.1.37

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF	-75	-60
P-CCPCH RSCP (TDD)	dBm	-60	OFF	-75	-60

Table 8.3.1.37 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Column marked "T0" denote the initial conditions.

The UE is in CELL_DCH state and only signalling radio bearers have been established. SS initiates P25 to make the UE to move to state 6-17 as specified in TS 34.108 clause 7.4. The UE is in the CELL_DCH state and has a radio bearer established that is mapped to HS-DSCH. SS configures its downlink transmission power settings according to column "T1" in table 8.3.1.37. The UE shall detect a radio link failure in cell 1.

Then it shall attempt to re-select to cell 6. After that, it shall then enter CELL_FACH state and transmit a CELL UPDATE message on the uplink CCCH to SS.

The SS transmits a CELL UPDATE CONFIRM message which requests the UE to transit to CELL_DCH state and start reception of HS-DSCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message. (Step 0)
1				SS configures cell 1 and 6 according to column "T1" in table 8.3.1.37. SS starts to listen to the uplink CCCH of cell 6.
2				The UE detects the radio link failure and stops reception of HS-DSCH.
3	→		CELL UPDATE	The UE shall find a new cell 6 and the value "radio link failure" shall be set in IE "Cell update cause".
4	←		CELL UPDATE CONFIRM	
5	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	

Specific Message Contents

System Information Block type 1

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2
- T313	2

RADIO BEARER SETUP (Step 0) (FDD)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10, with the following exceptions
- PDCP info	Not present
- Transmission RLC discard	
- MAX_DAT	10
- Transmission window size	256
- Timer_RST	1000
- Max_RST	12
- Timer_poll_prohibit	50
- Timer_poll	400
- Poll_Windows	80
- Receiving window size	2047
- Downlink RLC status info	
- Timer_status_prohibit	50
UL Transport channel Information for all transport channels	
- CHOICE Gain Factors	Computed Gain Factors (The last TFC is set to Signalled Gain Factors)
- Gain factorβc	9 (equal or higher than 64 kbps and below 384 kbps) 6 (equal or higher than 384 kbps)
- Gain factorβd	15 (Not Present if the CHOICE Gain Factors is set to Computed Gain Factors)
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10, with the following exception;
- MAC-d PDU size	656
Maximum allowed UL TX power	24dBm
CHOICE channel requirement	
- Δ_{ACK}	6
- Δ_{NACK}	6
Downlink HS-PDSCH Information	
- Measurement Feedback Info	
- POhsdsch	9dB
- CQI Feedback cycle, k	10ms
- Δ_{CQI}	3

RADIO BEARER SETUP (Step 0) (1.28Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
Maximum allowed UL TX power	24dBm

CELL UPDATE (Step 3)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- S-RNTI	Check to see if set to value assigned in cell 1.
- SRNC Identity	Check to see if set to value assigned in cell 1.
Cell Update Cause	Check to see if set to “Radio link failure”

CELL UPDATE CONFIRM (Step 4) (FDD)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
RRC State indicator	CELL_DCH
RLC re-establish indicator (RB2, RB3 and RB4)	TRUE
UL Transport channel information common for all transport channels - CHOICE Gain Factors - Gainfactorβc	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, with the following exceptions; Computed Gain Factors (The last TFC is set to Signalled Gain Factors) 9 (equal or higher than 64 kbps and below 384 kbps) 6 (equal or higher than 384 kbps)
- Gain factorβd	15 (Not Present if the CHOICE Gain Factors is set to Computed Gain Factors)
DL Transport channel information common for all transport channels	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
Added or Reconfigured DL TrCH information list - MAC-d PDU size	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10. 656
Frequency info - UARFCN uplink (Nu) - UARFCN downlink (Nd)	 This IE should be present, if the default duplex distance defined for the operating frequency band is not used. Same downlink UARFCN as used for cell 6
CHOICE channel requirement - Δ_{ACK} - Δ_{NACK} - Scrambling Code Number	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, with the following exceptions; 6 6 A non-zero value in the range of 0-16777215 used for cell 6
Downlink HS-PDSCH Information - Measurement Feedback Info - POhsdsch - CQI Feedback cycle, k - Δ_{CQI}	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, with the following exceptions; 9dB 10ms 3
Downlink information common for all radio links	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10;
Downlink information per radio link list - Primary CPICH info - Primary scrambling code	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, with the following exception; 350

CELL UPDATE CONFIRM (Step 4)（1.28Mcps TDD）

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
RRC State indicator	CELL_DCH
RLC re-establish indicator (RB2, RB3 and RB4)	TRUE
UL Transport channel information common for all transport channels	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
DL Transport channel information common for all transport channels	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
Added or Reconfigured DL TrCH information list - MAC-d PDU size	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10. 656
Frequency info - CHOICE mode - UARFCN (Nt)	 TDD Same UARFCN as used for cell 6
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
Downlink information common for all radio links - Timing indicator	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, with the following exception; Initialise
Downlink information per radio link list - Primary CCPCH info - Choice mode - Choice TDD Option - TSTD indicator - Cell parameters ID - SCTD indicator	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, with the following exception; TDD 1.28 Mcps TDD FALSE Ref. to the Default setting in TS34.108 clause 6.1 for CELL 6 (TDD) FALSE

8.3.1.37 .5 Test requirement

After step 2, the UE shall transmit a CELL UPDATE message.

After step 4, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message and start reception of HS-DSCH.

8.3.1.38 Cell Update: state specific handling of $T_{reselection}$ and Q_{hyst} for cell reselection in CELL_FACH

8.3.1.38.1 Conformance requirement

2. The cell-ranking criterion R is defined by:

$$R_s = Q_{meas,s} + Qhyst_s$$

$$R_n = Q_{meas,n} - Qoffset_{s,n} - TO_n * (1 - L_n)$$

The cells shall be ranked according to the R criteria specified above, deriving $Q_{meas,n}$ and $Q_{meas,s}$ and calculating the R values using CPICH RSCP, P-CCPCH RSCP and the averaged received signal level as specified in [10] and [11] for FDD, TDD and GSM cells, respectively.

The offset $Qoffset1_{s,n}$ is used for $Qoffset_{s,n}$ to calculate R_n, the hysteresis $Qhyst1_s$ is used for $Qhyst_s$ to calculate R_s. For UE in RRC connected mode states CELL_PCH or URA_PCH the hysteresis $Qhyst_s$ takes the value $Qhyst1_{s,PCH}$ to calculate R_s, if provided in SIB4 [see 4]. For UE in RRC connected mode state CELL_FACH the hysteresis $Qhyst_s$ takes the value $Qhyst1_{s,FACH}$ to calculate R_s, if provided in SIB4 [see 4].

If an FDD cell is ranked as the best cell and the quality measure for cell selection and re-selection is set to CPICH Ec/No, the UE shall perform a second ranking of the FDD cells according to the R criteria specified above, but using the measurement quantity CPICH Ec/No for deriving the $Q_{meas,n}$ and $Q_{meas,s}$ and calculating the R values of the FDD cells. The offset $Qoffset2_{s,n}$ is used for $Qoffset_{s,n}$ to calculate R_n, the hysteresis $Qhyst2_s$ is used for $Qhyst_s$ to calculate R_s. For UE in RRC connected mode states CELL_PCH or URA_PCH the hysteresis $Qhyst_s$ takes the value $Qhyst2_{s,PCH}$ to calculate R_s, if provided in SIB4 [see 4]. For UE in RRC connected mode state CELL_FACH the hysteresis $Qhyst_s$ takes the value $Qhyst2_{s,FACH}$ to calculate R_s, if provided in SIB4 [see 4]. If the usage of HCS is indicated in system information, $TEMP\_OFFSET2_n$ is used to calculate TO_n. If it is indicated in system information that HCS is not used, $TEMP\_OFFSET_n$ is not applied when calculating R_n. Following this second ranking, the UE shall perform cell re-selection to the best ranked FDD cell.

In all cases, the UE shall reselect the new cell, only if the following conditions are met:

- the new cell is better ranked than the serving cell during a time interval Treselection. For UE in RRC connected mode states CELL_PCH or URA_PCH the interval $Treselection_{s,PCH}$ applies, if provided in SIB4 [see 4], while for UE in RRC connected mode state CELL_FACH the interval $Treselection_{s,FACH}$ applies, if provided in SIB4 [see 4]. For hierarchical cell structures when high mobility state has not been detected, if according to the HCS rules the serving cell is not ranked then all the ranked cells are considered to be better ranked than the serving cell.

$Qhyst1_{s,FACH}$

This specifies the hysteresis value (Qhyst) to be used in RRC connected mode state CELL_FACH. It is used for TDD and GSM cells and for FDD cells in case the quality measure for cell selection and re-selection is set to CPICH RSCP. If this parameter is not provided in SIB4, $Qhyst1_s$ shall be used.

$Qhyst2_{s,FACH}$

This specifies the hysteresis value (Qhyst) to be used in RRC connected mode state CELL_FACH. It is used for FDD cells if the quality measure for cell selection and re-selection is set to CPICH Ec/No. If this parameter is not provided in SIB4, $Qhyst2_s$ shall be used.

$Treselection_{s,FACH}$

This specifies the cell reselection timer value the UE shall use in RRC connected mode state CELL_FACH if provided in SIB4, otherwise $Treselection_s$ shall be used.

A UE shall initiate the cell update procedure in the following cases:

…

1> Cell reselection:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met:

3> if the UE is in CELL_FACH or CELL_PCH state and the UE performs cell re-selection; or

3> if the UE is in CELL_FACH state and the variable C_RNTI is empty:

4> perform cell update using the cause "cell reselection".

the UE shall:

…

1> in case of a cell update procedure:

2> set the IE "RRC transaction identifier" in any response message transmitted below to the value of "RRC transaction identifier" in the entry for the CELL UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry.

…

1> transmit a response message as specified in TS 25.331 subclause 8.3.1.7;

…

Reference

3GPP TS 25.304 clause 5.2.6.1.4.

3GPP TS 25.304 clause 5.4.3.

3GPP TS 25.331 clause 8.3.1.

8.3.1.38.2 Test purpose

1. To confirm that the UE uses the correct SIB 4 IEs to perform cell reselection calculation in CELL_FACH.

8.3.1.38.3 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and 4 are active.

UE: PS-DCCH+DTCH_FACH (state 6-11) in cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.3.1.38

Parameter	Unit	Cell 1			Cell 4		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			High Range Test Frequency		
CPICH Ec (FDD)	dBm/3.84 MHz	-60	-67	-82	OFF	-60	-60

Table 8.3.1.38 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions. SS switches the power settings to columns "T1" and “T2”, when the description below specifies.

The UE is in the CELL_FACH state, camping onto cell 1. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.38. The UE shall remain on cell 1 even after expiry of Treselecion. SS configures its downlink transmission power settings according to columns "T2" in table 8.3.1.38. The UE shall find cell 4 to be more suitable for service after expiry of Treselection, and shall transmit a CELL UPDATE message to the SS on the uplink CCCH of cell 4 and set IE "Cell update cause" to "Cell Reselection". SS checks this is received after expiry of Treselection. After the SS receives this message, it transmits a CELL UPDATE CONFIRM message, which includes the IE "RRC State Indicator" set to "CELL_FACH", and a valid IE "New C-RNTI", to the UE on the downlink DCCH. UE responds with UTRAN MOBILITY INFORMATION CONFIRM message.. UE shall stay in CELL_FACH state. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the CELL_FACH state in cell 1
2				SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.3.1.38. SS checks that no message is received even after expiry of Treselection.
3				SS applies the downlink transmission power settings, according to the values in columns "T2" of table 8.3.1.38. The UE shall find that the cell 4 is better for service and perform a reselection. SS checks that no message is received until Treselection expires.
4	→		CELL UPDATE	Value "cell reselection" shall be indicated in IE "Cell update cause"
5	←		CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_FACH".
6	→		UTRAN MOBILITY INFORMATION CONFIRM	
7	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 4 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- Cell selection and re-selection info	
- CHOICE mode	FDD
- s-Intersearch	Not Present
- Qqualmin	-24 dB
- Qrxlevmin	-58 (-115 dBm)
- $Qhyst1_s$	0 (0 dB)
- $Qhyst1_{s,FACH}$	7 (14 dB)
- $Treselection_{s,FACH}$	6 seconds

System Information Block type 11 (FDD)

Use the same message type found in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	3
- Inter-frequency FDD measurement indicator	TRUE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	Not Present

CELL UPDATE (Step 4)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
Cell Update Cause	Check to see if set to 'Cell Re-selection'

CELL UPDATE CONFIRM (Step 5)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'

8.3.1.38.4 Test requirement

At step 2 no cell update is received, even after expiry of Treselelection

At step 3 no cell update is received until after Treselection has expired.

At step 4 the UE shall reselect to cell 4 and then it shall transmit a CELL UPDATE message which sets the value "cell reselection" in IE "Cell update cause".

8.3.1.39 Cell Update: state specific handling of $T_{reselection}$ and Q_{hyst} for cell reselection in CELL_PCH

8.3.1.39.1 Conformance requirement

2. The cell-ranking criterion R is defined by:

$$R_s = Q_{meas,s} + Qhyst_s$$

$$R_n = Q_{meas,n} - Qoffset_{s,n} - TO_n * (1 - L_n)$$

The cells shall be ranked according to the R criteria specified above, deriving $Q_{meas,n}$ and $Q_{meas,s}$ and calculating the R values using CPICH RSCP, P-CCPCH RSCP and the averaged received signal level as specified in [10] and [11] for FDD, TDD and GSM cells, respectively.

The offset $Qoffset1_{s,n}$ is used for $Qoffset_{s,n}$ to calculate R_n, the hysteresis $Qhyst1_s$ is used for $Qhyst_s$ to calculate R_s. For UE in RRC connected mode states CELL_PCH or URA_PCH the hysteresis $Qhyst_s$ takes the value $Qhyst1_{s,PCH}$ to calculate R_s, if provided in SIB4 [see 4]. For UE in RRC connected mode state CELL_FACH the hysteresis $Qhyst_s$ takes the value $Qhyst1_{s,FACH}$ to calculate R_s, if provided in SIB4 [see 4].

If an FDD cell is ranked as the best cell and the quality measure for cell selection and re-selection is set to CPICH Ec/No, the UE shall perform a second ranking of the FDD cells according to the R criteria specified above, but using the measurement quantity CPICH Ec/No for deriving the $Q_{meas,n}$ and $Q_{meas,s}$ and calculating the R values of the FDD cells. The offset $Qoffset2_{s,n}$ is used for $Qoffset_{s,n}$ to calculate R_n, the hysteresis $Qhyst2_s$ is used for $Qhyst_s$ to calculate R_s. For UE in RRC connected mode states CELL_PCH or URA_PCH the hysteresis $Qhyst_s$ takes the value $Qhyst2_{s,PCH}$ to calculate R_s, if provided in SIB4 [see 4]. For UE in RRC connected mode state CELL_FACH the hysteresis $Qhyst_s$ takes the value $Qhyst2_{s,FACH}$ to calculate R_s, if provided in SIB4 [see 4]. If the usage of HCS is indicated in system information, $TEMP\_OFFSET2_n$ is used to calculate TO_n. If it is indicated in system information that HCS is not used, $TEMP\_OFFSET_n$ is not applied when calculating R_n. Following this second ranking, the UE shall perform cell re-selection to the best ranked FDD cell.

In all cases, the UE shall reselect the new cell, only if the following conditions are met:

- the new cell is better ranked than the serving cell during a time interval Treselection. For UE in RRC connected mode states CELL_PCH or URA_PCH the interval $Treselection_{s,PCH}$ applies, if provided in SIB4 [see 4], while for UE in RRC connected mode state CELL_FACH the interval $Treselection_{s,FACH}$ applies, if provided in SIB4 [see 4]. For hierarchical cell structures when high mobility state has not been detected, if according to the HCS rules the serving cell is not ranked then all the ranked cells are considered to be better ranked than the serving cell.

$Qhyst1_{s,PCH}$

This specifies the hysteresis value (Qhyst) to be used in RRC connected mode states CELL_PCH and URA_PCH. It is used for TDD and GSM cells and for FDD cells in case the quality measure for cell selection and re-selection is set to CPICH RSCP. If this parameter is not provided in SIB4, $Qhyst1_s$ shall be used.

$Qhyst2_{s,PCH}$

This specifies the hysteresis value (Qhyst) to be used in RRC connected mode states CELL_PCH and URA_PCH. It is used for FDD cells if the quality measure for cell selection and re-selection is set to CPICH Ec/No. If this parameter is not provided in SIB4, $Qhyst2_s$ shall be used.

$Treselection_{s,PCH}$

This specifies the cell reselection timer value the UE shall use in RRC connected mode states CELL_PCH and URA_PCH if provided in SIB4, otherwise $Treselection_s$ shall be used.

A UE shall initiate the cell update procedure in the following cases:

…

1> Cell reselection:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met:

3> if the UE is in CELL_FACH or CELL_PCH state and the UE performs cell re-selection; or

3> if the UE is in CELL_FACH state and the variable C_RNTI is empty:

4> perform cell update using the cause "cell reselection".

the UE shall:

…

1> in case of a cell update procedure:

2> set the IE "RRC transaction identifier" in any response message transmitted below to the value of "RRC transaction identifier" in the entry for the CELL UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry.

…

1> transmit a response message as specified in TS 25.331 subclause 8.3.1.7;

…

Reference

3GPP TS 25.304 clause 5.2.6.1.4.

3GPP TS 25.304 clause 5.4.3.

3GPP TS 25.331 clause 8.3.1.

8.3.1.39.2 Test purpose

1. To confirm that the UE uses the correct SIB 4 IEs to perform cell reselection calculation in CELL_PCH.

8.3.1.39.3 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 and 4 are active.

UE: CELL_PCH (state 6-12) in cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.3.1.39

Parameter	Unit	Cell 1			Cell 4		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			High Range Test Frequency		
CPICH Ec (FDD)	dBm/3.84 MHz	-60	-67	-82	OFF	-60	-60

Table 8.3.1.39 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions. SS switches the power settings to columns "T1" and “T2”, when the description below specifies.

The UE is brought to CELL_PCH state and is camped onto cell 1. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.39. The UE shall remain on cell 1 even after expiry of Treselecion. SS configures its downlink transmission power settings according to columns "T2" in table 8.3.1.39. The UE shall find cell 4 to be more suitable for service after expiry of Treselection, and shall transmit a CELL UPDATE message to the SS on the uplink CCCH of cell 4 and set IE "Cell update cause" to "Cell Reselection". SS checks this is received after expiry of Treselection. Upon reception of CELL_UPDATE message, SS replies with a CELL UPDATE CONFIRM message with the IE "RRC State Indicator" set to "CELL_PCH". After receiving this message, the UE returns to CELL_PCH state without transmitting any uplink message. SS calls for generic procedure C.4 to check that UE is in CELL_PCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_PCH state in cell 1
2				SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.3.1.39. SS checks that no message is received even after expiry of Treselection.
3				SS applies the downlink transmission power settings, according to the values in columns "T2" of table 8.3.1.39. The UE shall find that the cell 4 is better for service and perform a reselection. SS checks that no message is received until Treselection expires.
4	→		CELL UPDATE	The UE moves to CELL_FACH state and transmits this message with the IE "Cell update cause" set to "cell reselection"
5	←		CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_PCH".
6	←→		CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 4 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- Cell selection and re-selection info	
- CHOICE mode	FDD
- s-Intersearch	Not Present
- Qqualmin	-24 dB
- Qrxlevmin	-58 (-115 dBm)
- $Qhyst1_S$	0 (0 dB)
- $Qhyst1_{S,PCH}$	7 (14 dB)
- $Treselection_{S,PCH}$	15 seconds

CELL UPDATE (Steps 4)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
Cell Update Cause	Check to see if set to 'Cell Re-selection'

CELL UPDATE CONFIRM (Step 5)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
RRC State Indicator UTRAN DRX cycle length coefficient	CELL_PCH 3

8.3.1.39.4 Test requirement

At step 2 no cell update is received, even after expiry of Treselelection

At step 3 no cell update is received until after Treselection has expired.

At step 4 the UE shall reselect to cell 4 and then it shall transmit a CELL UPDATE message which sets the value "cell reselection" in IE "Cell update cause".

8.3.1.40 Cell update: Transition from CELL_PCH to CELL_DCH, inclusion of establishment cause

8.3.1.40.1 Definition

8.3.1.40.2 Conformance requirement

Upon initiation of the initial direct transfer procedure when the UE is in CELL_PCH or URA_PCH state, the UE shall:

1> perform a cell update procedure, according to subclause 8.3.1, using the cause "uplink data transmission";

1> when the cell update procedure completed successfully:

2> continue with the initial direct transfer procedure as below.

……

The UE shall set the IEs in the CELL UPDATE message as follows:

…

1> if the variable ESTABLISHMENT_CAUSE is initialised:

2> include the IE "Establishment cause" and set it to the value of the variable ESTABLISHMENT_CAUSE.

……..

When the UE receives a CELL UPDATE CONFIRM/URA UPDATE CONFIRM message; and

- if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or
- if the message is received on DCCH:

the UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

the UE shall:

…

1> if the variable ESTABLISHMENT_CAUSE is set:

2> clear the variable ESTABLISHMENT_CAUSE.

Reference

3GPP TS 25.331 clause 8.1.8.2, 8.3.1.3, 8.3.1.6

8.3.1.40.3 Test purpose

1. To confirm that, in the case the Cell Update procedure is initiated by a UE in CELL_PCH state in order to transmit the Initial Direct Transfer message, the UE shall include the IE “Establishment cause” in the Cell Update message.

2. To confirm that the IE “Establishment Cause” is not included in the following Initial Direct Transfer message.

8.3.1.40.4 Method of test

Initial Condition

System Simulator: 1 cell

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: CELL_PCH (state 6-12) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports PS+CS

Test Procedure

The test operator is prompted to make an out-going CS call. The UE shall transmit a CELL UPDATE message to the SS on the uplink CCCH, with the IE "Cell update cause" set to value "uplink data transmission" and IE “Establishment cause” set to “Originating conversational call”. After receiving such a message, SS transmits a CELL UPDATE CONFIRM message on downlink DCCH to send the UE to CELL_DCH state. The UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC and subsequently transmits an INITIAL DIRECT TRANSFER message using AM RLC on DCCH with the IE “Establishment cause” set to “Not Present”. After reception of the CM Service Request message from the UE, the SS will send a CM Service Reject to complete the Service Request procedure.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				SS prompts the test operator to make an outgoing CS call.
2	→		CELL UPDATE	The UE sets "Cell update cause" IE as "uplink data transmission" and “Establishment cause” IE as “Originating Conversational Call “.
3	←		CELL UPDATE CONFIRM	See message content. UE moves to CELL_DCH state
3a	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
4	→		INITIAL DIRECT TRANSFER (CM SERVICE REQUEST)	The IE “Establishment cause” is not present.
5	←		DOWNLINK DIRECT TRANSFER (CM SERVICE REJECT)	
6	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

CELL UPDATE (Step 2)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
Cell Update Cause Establishment cause	uplink data transmission originating Conversational Call

CELL UPDATE CONFIRM (Step 3)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
RRC State indicator	CELL_DCH
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A4.
Downlink information common for all radio links	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A4.
Downlink information per radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A4.

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Step 3a)

Use the default message with the same message type specified in clause 9 of TS 34.108.

INITIAL DIRECT TRANSFER (Step 4)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
CN Domain Identity	CS domain
Establishment cause	Not Present

8.3.1.40.5 Test requirement

After step 1, the UE shall transmit a CELL UPDATE message where the IE "Cell update cause" is set to "uplink data transmission" and the IE “Establishment cause” is set to “Originating conversation call”.

After step 3 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 3a, the UE shall transmit an INITIAL DIRECT TRANSFER message to SS using AM RLC on DCCH in CELL_DCH state with no Establishment cause IE.

8.3.1.41 Cell Update: Transition from URA_PCH to CELL_DCH: Success (start of E-DCH transmission)

8.3.1.41.1 Definition

All UEs which support FDD and HS-PDSCH and E-DPDCH and all UEs which support TDD and HS-PDSCH and E-PUCH.

8.3.1.41.2 Conformance requirement

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

If the UE is in connected mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a UTRAN identity and if this U-RNTI is the same as the U-RNTI allocated to the UE:

2> if the optional IE "CN originated page to connected mode UE" is included:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "Paging cause" and the IE "Paging record type identifier" to the upper layers.

2> otherwise:

3> perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.

2> ignore any other remaining IE "Paging record" that may be present in the message.

1> otherwise:

2> ignore that paging record.

…

A UE shall initiate the cell update procedure in the following cases:

1> Paging response:

…

1> Uplink data transmission:

2> if the UE is in URA_PCH or CELL_PCH state; and

2> if the UE has uplink RLC data PDU or uplink RLC control PDU on RB1 or upwards to transmit:

3> perform cell update using the cause "uplink data transmission".

…

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

When the UE receives a CELL UPDATE CONFIRM/URA UPDATE CONFIRM message; and

- if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or
- if the message is received on DCCH:

the UE shall:

1>act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following:

2> if the IE "Frequency info" is included in the message:

3> if the IE "RRC State Indicator" is set to the value "CELL_DCH":

4> act on the IE "Frequency info" as specified in subclause 8.6.6.1 in TS 25.331.

…

If, after completion of the procedure, the UE will be in CELL_DCH state, the UE shall:

1> for FDD, 3.84 Mcps TDD and 7.68 Mcps TDD, if the IE "Frequency info" is included; or

1> for 1.28 Mcps TDD, if the IE "Frequency info" is included and the "Second Frequency info" is not included:

2> if the frequency is different from the currently used frequency:

3> store and use the frequency indicated by the IE "Frequency Info";

3> if the received message is used to perform a Timing-maintained hard handover (see subclause 8.3.5.2), and IE "Timing maintained Synchronization indicator" is included:

4> not perform any physical layer synchronisation procedure (FDD only);

3> else:

4> perform the physical layer synchronisation procedure A as specified in [29] (FDD only).

…

If the IE "New H-RNTI" is included, the UE shall:

1> store the value in the variable H_RNTI.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

…

1> for FDD:

2> if the IE "New Primary E-RNTI" and/or the IE "New Secondary E-RNTI" are/is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

3> store the new value(s) in the variable E_RNTI;

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

1> for TDD:

2> if the IE "New E-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

3> store the new value in the variable E_RNTI;

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> use the value of the Primary E-RNTI and/or Secondary E-RNTI stored in the variable E_RNTI as UE identities in the E-AGCH reception procedure in the physical layer.

1> for TDD:

2> use the value of New E-RNTI stored in the variable E_RNTI as the UE identity in the E-AGCH reception procedure and the E-RUCCH transmission procedure in the physical layer.

…

If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message, the UE shall:

1> if the IE "HS-SCCH Info" is included:

2> act as specified in subclause 8.6.6.33 of TS 25.331.

1> if the IE "Measurement Feedback Info" is included:

2> act as specified in subclause 8.6.6.34 of TS 25.331.

1> if the IE "HS-DSCH Timeslot Configuration" or "HS-PDSCH Midamble Configuration" is included:

2> store the received configuration;

2> determine the value for the HS_DSCH_RECEPTION variable and take actions as described in subclause 8.5.25.

If the IE "HS-SCCH Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> in the case of FDD:

2> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving HS-DSCH radio link applying the scrambling code as received in the IE "DL Scrambling code".

1> in the case of TDD:

2> receive the HS-SCCH(s) according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> transmit the HS-SICH according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> for HS-SCCH power control the UE shall use the "BLER target" signalled in the first occurrence of the "HS-SCCH Set Configuration", and the UE shall also use the IE "Power Control GAP" for 1.28 Mcps TDD.

2> in 3.84 Mcps TDD and 7.68 Mcps TDD:

3> use the parameters specified in the IE "HS-SICH power control info" for open loop power control as defined in subclause 8.5.7.

2> in 1.28 Mcps TDD:

3> use the IE " $PRX_{HS-SICH}$ " to calculate and set an initial uplink transmission power;

3> use the IE " TPC step size" upon reception of TPC commands for closed loop power control;

3> perform closed loop power control on HS-SICH within the interval indicated in the IE "Power Control GAP";

3> use the IE "Pathloss compensation switch" to determine if the pathloss compensation from the beacon channel estimation should be taken into account for closed loop power control on HS-SICH;

3> use default value of "Uplink synchronisation frequency" and same value of "Uplink synchronisation step size" in "Uplink DPCH info" for HS-SICH upon reception of SS commands for closed loop uplink synchronisation on HS-SICH.

If the IE "Measurement Feedback Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link.

…

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

1> if the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

3> consider this radio link as the serving HS-DSCH radio link.

2> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

3> consider this radio link as the serving E-DCH radio link.

2> if the IE "E-AGCH Info" is included:

3> store the newly received E-AGCH configuration.

2> if the IE "E-HICH information" is included:

3> store this E-HICH configuration for the concerning radio link.

2> if the IE "E-RGCH information" is included:

3> store this E-RGCH configuration for the concerning radio link.

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> act on the other IEs contained in the IE "Downlink information for each radio link" as specified in subclause 8.6 applied on this radio link.

…

If the IE "E-DCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> for FDD:

2> if the IE "E-DPCCH Info" is included:

3> store the newly received E-DPCCH configuration.

2> if the IE "E-DPDCH Info" is included:

3> store the newly received E-DPDCH configuration.

…

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1>For FDD:

2> perform E_AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI" and the IE "New Secondary E-RNTI".

2> perform E-HICH reception procedures for all radio links in the E-DCH active set;

2> perform E-RGCH reception procedures for all radio links in the active set for which an E-RGCH configuration has been provided;

2> perform E-DPCCH transmission procedures according to the stored E-DPCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-DPCCH Info".

2> perform E-DPDCH transmission procedures according to the stored E-DPDCH configuration as stated in:

3> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

3> subclause 8.6.5.17 for the IE "HARQ info for E-DCH";

3> subclause 8.6.6.37 for the IE "E-DPDCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

1>For TDD:

2>perform E-AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New E-RNTI".

2> Perform E-HICH reception;

2> for 3.84/7.68 Mcps TDD, perform E-RUCCH transmission procedures according to the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

2> for 1.28 Mcps TDD, perform E-RUCCH transmission procedure according to the stored PRACH configuration (see [60]) and the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

NOTE 1: The PRACH configuration is signalled directly to the UE in "E-RUCCH Info" IE in case of E-DCH serving cell change.

2> Perform E-PUCH transmission procedures according to the stored E-PUCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-PUCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

2> obtain and format the appropriate information on E-UCCH (see [15]). For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, the UE shall use the lowest E-DCH capability category, as specified in [35], to signal the UL control information on E-UCCH.

NOTE 2: For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, UTRAN should use the lowest E-DCH capability category when performing configuration, scheduling and reading the control information on E-UCCH, as it is not possible for Node B to be aware of the UE's E-DCH capability category during this period.

Reference

3GPP TS 25.331 clauses 8.2.2.3, 8.2.2.4, 8.3.1, 8.5.28, 8.6.3.14, 8.6.5.16, 8.6.5.17, 8.6.5.18, 8.6.6.37.

8.3.1.41.3 Test purpose

To confirm that the UE enters the CELL_DCH state after it receives a CELL UPDATE CONFIRM message with a physical channel configuration causing it to start E-DCH transmission and HS_DSCH reception.

To confirm that the UE executes a cell update procedure when the UE transmits uplink data if the UE is in CELL_PCH state.

8.3.1.41.4 Method of test

Initial Condition

System Simulator: 1 cell.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents)

UE: PS-DCCH +DTCH_HS-DSCH +DTCH_E-DCH (state 6-18) under condition A12 for FDD or A11 for 1.28 Mcps TDD as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports E-DPDCH for FDD or E-PUCH for TDD

Test Procedure

The UE is in the CELL_DCH state and has a radio bearer mapped on E-DCH and HS-DSCH established with active E-DCH transmission and HS-DSCH reception.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, which invokes the UE to transit from CELL_DCH to URA_PCH. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC and enters URA_PCH state.

The SS transmits a PAGING TYPE 1 message. The UE then enters the CELL_FACH state to transmit a CELL UPDATE message to the SS on the uplink CCCH with the IE “Cell update cause" set to value “Paging response” in response to the paging.

The SS transmits CELL UPDATE CONFIRM message which includes HS-PDSCH and E-DPDCH for FDD or E-PUCH for 1.28 Mcps TDD physical channel parameters on the downlink DCCH. Then the UE resumes E-DCH transmission and HS-DSCH reception, and transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE enters the URA_PCH state
3	←		PAGING TYPE 1	
4	→		CELL UPDATE	The UE enters the CELL_FACH state.
5	←		CELL UPDATE CONFIRM	
6	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE enters the CELL_DCH state and starts E-DCH transmission and HS-DSCH reception.

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 1

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
-UE Timers and constants in connected mode - T312	 2

PHYSICAL CHANNEL RECONFIGURATION (Step 1)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in TS 34.108 with following exceptions:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	URA_PCH
UTRAN DRX cycle length coefficient	3
URA Identity	0000 0000 0000 0001B

Paging Type 1 (Step 3)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE (Step 4)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- S-RNTI	Check to see if set to value assigned in cell 1.
- SRNC Identity	Check to see if set to value assigned in cell 1.
Cell Update Cause	Check to see if set to “Paging response”

CELL UPDATE CONFIRM (Step 5) (FDD)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New Primary E-RNTI	'1010 1010 1010 1010'
New Secondary E-RNTI	Not Present
RRC State indicator	CELL_DCH
Uplink DPCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
E-DCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
Downlink HS-PDSCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12 .
Downlink information common for all radio links - Timing indicator - Default DPCH Offset Value	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12 except for the following IEs. Initialize Arbitrary set to value 0..306688 by step of 512
Downlink information per radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.

CELL UPDATE CONFIRM (Step 5) (TDD)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New E-RNTI	'1010 1010 1010 1010'
RRC State indicator	CELL_DCH
Uplink DPCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A11.
E-DCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A11.
Downlink HS-PDSCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A11 .
Downlink information common for all radio links - Timing indicator - Default DPCH Offset Value	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A11 except for the following IEs. Initialize Arbitrary set to value 0..7
Downlink information per radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A11.

8.3.1.41.5 Test requirement

After step 1, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 3, the UE shall transmit a CELL UPDATE message on uplink CCCH.

After step 5, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

8.3.1.41a Cell Update: Transition from URA_PCH to CELL_DCH: Success (start of E-DCH transmission, in the multi-frequency network environment, for 1.28Mcps TDD only)

8.3.1.41a.1 Definition

All UEs which support 1.28Mcps TDD and HS-PDSCH and E-PUCH.

8.3.1.41a.2 Conformance requirement

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

If the UE is in connected mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a UTRAN identity and if this U-RNTI is the same as the U-RNTI allocated to the UE:

2> if the optional IE "CN originated page to connected mode UE" is included:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "Paging cause" and the IE "Paging record type identifier" to the upper layers.

2> otherwise:

3> perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.

2> ignore any other remaining IE "Paging record" that may be present in the message.

1> otherwise:

2> ignore that paging record.

…

A UE shall initiate the cell update procedure in the following cases:

1> Paging response:

…

1> Uplink data transmission:

2> if the UE is in URA_PCH or CELL_PCH state; and

2> if the UE has uplink RLC data PDU or uplink RLC control PDU on RB1 or upwards to transmit:

3> perform cell update using the cause "uplink data transmission".

…

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

When the UE receives a CELL UPDATE CONFIRM/URA UPDATE CONFIRM message; and

- if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or
- if the message is received on DCCH:

the UE shall:

1>act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following:

2> if the IE "Frequency info" is included in the message:

3> if the IE "RRC State Indicator" is set to the value "CELL_DCH":

4> act on the IE "Frequency info" as specified in subclause 8.6.6.1 in TS 25.331.

…

If the IE "New H-RNTI" is included, the UE shall:

2> store the value in the variable H_RNTI.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

…

1> for FDD:

2> if the IE "New Primary E-RNTI" and/or the IE "New Secondary E-RNTI" are/is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

3> store the new value(s) in the variable E_RNTI;

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

1> for TDD:

2> if the IE "New E-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

3> store the new value in the variable E_RNTI;

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> use the value of the Primary E-RNTI and/or Secondary E-RNTI stored in the variable E_RNTI as UE identities in the E-AGCH reception procedure in the physical layer.

1> for TDD:

2> use the value of New E-RNTI stored in the variable E_RNTI as the UE identity in the E-AGCH reception procedure and the E-RUCCH transmission procedure in the physical layer.

…

If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message, the UE shall:

1> if the IE "HS-SCCH Info" is included:

2> act as specified in subclause 8.6.6.33 of TS 25.331.

1> if the IE "Measurement Feedback Info" is included:

2> act as specified in subclause 8.6.6.34 of TS 25.331.

1> if the IE "HS-DSCH Timeslot Configuration" or "HS-PDSCH Midamble Configuration" is included:

2> store the received configuration;

2> determine the value for the HS_DSCH_RECEPTION variable and take actions as described in subclause 8.5.25.

If the IE "HS-SCCH Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> in the case of FDD:

2> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving HS-DSCH radio link applying the scrambling code as received in the IE "DL Scrambling code".

1> in the case of TDD:

2> receive the HS-SCCH(s) according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> transmit the HS-SICH according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> for HS-SCCH power control the UE shall use the "BLER target" signalled in the first occurrence of the "HS-SCCH Set Configuration", and the UE shall also use the IE "Power Control GAP" for 1.28 Mcps TDD.

2> in 3.84 Mcps TDD and 7.68 Mcps TDD:

3> use the parameters specified in the IE "HS-SICH power control info" for open loop power control as defined in subclause 8.5.7.

2> in 1.28 Mcps TDD:

3> use the IE " $PRX_{HS\text{-}SICH}$ " to calculate and set an initial uplink transmission power;

3> use the IE " TPC step size" upon reception of TPC commands for closed loop power control;

3> perform closed loop power control on HS-SICH within the interval indicated in the IE "Power Control GAP";

3> use the IE "Pathloss compensation switch" to determine if the pathloss compensation from the beacon channel estimation should be taken into account for closed loop power control on HS-SICH;

3> use default value of "Uplink synchronisation frequency" and same value of "Uplink synchronisation step size" in "Uplink DPCH info" for HS-SICH upon reception of SS commands for closed loop uplink synchronisation on HS-SICH.

If the IE "Measurement Feedback Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link.

…

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

1> if the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

3> consider this radio link as the serving HS-DSCH radio link.

2> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

3> consider this radio link as the serving E-DCH radio link.

2> if the IE "E-AGCH Info" is included:

3> store the newly received E-AGCH configuration.

2> if the IE "E-HICH information" is included:

3> store this E-HICH configuration for the concerning radio link.

2> if the IE "E-RGCH information" is included:

3> store this E-RGCH configuration for the concerning radio link.

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> act on the other IEs contained in the IE "Downlink information for each radio link" as specified in subclause 8.6 applied on this radio link.

…

If the IE "E-DCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> for FDD:

2> if the IE "E-DPCCH Info" is included:

3> store the newly received E-DPCCH configuration.

2> if the IE "E-DPDCH Info" is included:

3> store the newly received E-DPDCH configuration.

…

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1>For FDD:

2> perform E_AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI" and the IE "New Secondary E-RNTI".

2> perform E-HICH reception procedures for all radio links in the E-DCH active set;

2> perform E-RGCH reception procedures for all radio links in the active set for which an E-RGCH configuration has been provided;

2> perform E-DPCCH transmission procedures according to the stored E-DPCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-DPCCH Info".

2> perform E-DPDCH transmission procedures according to the stored E-DPDCH configuration as stated in:

3> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

3> subclause 8.6.5.17 for the IE "HARQ info for E-DCH";

3> subclause 8.6.6.37 for the IE "E-DPDCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

1>For TDD:

2>perform E-AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New E-RNTI".

2> Perform E-HICH reception;

2> for 3.84/7.68 Mcps TDD, perform E-RUCCH transmission procedures according to the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

2> for 1.28 Mcps TDD, perform E-RUCCH transmission procedure according to the stored PRACH configuration (see [60]) and the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

NOTE 1: The PRACH configuration is signalled directly to the UE in "E-RUCCH Info" IE in case of E-DCH serving cell change.

2> Perform E-PUCH transmission procedures according to the stored E-PUCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-PUCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

2> obtain and format the appropriate information on E-UCCH (see [15]). For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, the UE shall use the lowest E-DCH capability category, as specified in [35], to signal the UL control information on E-UCCH.

NOTE 2: For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, UTRAN should use the lowest E-DCH capability category when performing configuration, scheduling and reading the control information on E-UCCH, as it is not possible for Node B to be aware of the UE's E-DCH capability category during this period.

…

If, after completion of the procedure, the UE will be in CELL_DCH state, the UE shall:

1> for FDD, 3.84 Mcps TDD and 7.68 Mcps TDD, if the IE "Frequency info" is included; or

1> for 1.28 Mcps TDD, if the IE "Frequency info" is included and the "Second Frequency info" is not included:

2> if the frequency is different from the currently used frequency:

3> store and use the frequency indicated by the IE "Frequency Info";

3> if the received message is used to perform a Timing-maintained hard handover (see subclause 8.3.5.2),and IE "Timing maintained Synchronization indicator" is included:

4> not perform any physical layer synchronisation procedure (FDD only);

3> else:

4> perform the physical layer synchronisation procedure A as specified in [29] (FDD only).

2> if the frequency is the same as the currently used frequency:

3> continue to use the currently used frequency;

3> perform the physical layer synchronisation procedure A as specified in [29] (FDD only).

1> for 1.28 Mcps TDD, if both the IE "Frequency info" and the IE "Second Frequency info" are included:

2> the frequency in IE "Frequency info" is used as the primary frequency, and the frequency in IE "Second Frequency info" is used as the secondary frequency;

2> store the primary frequency;

2> if the secondary frequency is different with the currently used frequency:

3> store and use the secondary frequency.

2> if the secondary frequency is the same as the currently used frequency:

3> continue to use the currently used frequency.

1> if the IE "Frequency info" is not included and the UE has a currently used frequency:

2> continue to use the currently used frequency;

…

If the IE "Second Frequency info" is included, the UE shall:

1> act as specified in section 8.6.6.1.

If the IE "FPACH Frequency info" is included, the UE shall:

1> store the FPACH frequency indicated in the IE "FPACH Frequency info".

If the IE "UpPCH Position Info" is included:

1> store and use the UpPCH position indicated by the IE "UpPCH Position Info ". The calculation of the uplink access position is described in [33].

If the IE "UpPCH Position Info" is not included:

1> use the UpPTS as the default UpPCH position.

Reference

3GPP TS 25.331 clauses 8.2.2.3, 8.2.2.4, 8.3.1, 8.5.28, 8.6.3.14, 8.6.5.16, 8.6.5.17, 8.6.5.18, 8.6.6.1, 8.6.6.37, 8.6.6.43.

8.3.1.41a.3 Test purpose

To confirm that the UE enters the CELL_DCH state after it receives a CELL UPDATE CONFIRM message with a physical channel configuration causing it to start E-DCH transmission and HS_DSCH reception in the multi-frequency network environment.

To confirm that the UE executes a cell update procedure when the UE transmits uplink data if the UE is in CELL_PCH state, in the multi-frequency network environment.

8.3.1.41a.4 Method of test

Initial Condition

System Simulator: 1 cell, 3 frequency (one is primary frequency, others are secondary frequency)

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents)

UE: PS-DCCH +DTCH_HS-DSCH +DTCH_E-DCH (state 6-18) under condition A11 for 1.28 Mcps TDD as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports TDD
- UE supports HS-PDSCH
- UE supports E-PUCH

Test Procedure

The UE is in the CELL_DCH state and has a radio bearer mapped on E-DCH and HS-DSCH established with active E-DCH transmission and HS-DSCH reception at one secondary frequency of the cell.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, which invokes the UE to transit from CELL_DCH to URA_PCH. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC and enters URA_PCH state.

The SS transmits a PAGING TYPE 1 message. The UE then enters the CELL_FACH state to transmit a CELL UPDATE message to the SS on the uplink CCCH with the IE “Cell update cause" set to value “Paging response” in response to the paging.

The SS transmits CELL UPDATE CONFIRM message which includes HS-PDSCH and E-PUCH physical channel parameters on the downlink DCCH. Then the UE resumes E-DCH transmission and HS-DSCH reception, and transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE enters the URA_PCH state
3	←		PAGING TYPE 1	
4	→		CELL UPDATE	The UE enters the CELL_FACH state.
5	←		CELL UPDATE CONFIRM	
6	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE enters the CELL_DCH state and starts E-DCH transmission and HS-DSCH reception.

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 1

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
-UE Timers and constants in connected mode - T312	 2

PHYSICAL CHANNEL RECONFIGURATION (Step 1)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in TS 34.108 with following exceptions:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	URA_PCH
UTRAN DRX cycle length coefficient	3
URA Identity	0000 0000 0000 0001B

Paging Type 1 (Step 3)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE (Step 4)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI - S-RNTI - SRNC Identity Cell Update Cause	 Check to see if set to value assigned in cell 1. Check to see if set to value assigned in cell 1. Check to see if set to “Paging response”

CELL UPDATE CONFIRM (Step 5)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New E-RNTI	'1010 1010 1010 1010'
RRC State indicator	CELL_DCH
Frequency info	
- CHOICE mode	TDD
- UARFCN downlink (Nd)	Set to the primary frequency of the cell
Multi-frequency Info	
- Second Frequency Info	Same as one secondary frequency of the cell
- FPACH Frequency Info	Not present
- UpPCH Position Info	Not present
Uplink DPCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A11.
E-DCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A11.
Downlink HS-PDSCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A11 .
Downlink information common for all radio links - Timing indicator - Default DPCH Offset Value	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A11 except for the following IEs. Initialize Arbitrary set to value 0..7
Downlink information per radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A11.

8.3.1.41a.5 Test requirement

After step 1, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 3, the UE shall transmit a CELL UPDATE message on uplink CCCH.

After step 5, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

8.3.1.42 Cell Update: Transition from CELL_PCH to CELL_DCH: Success (frequency modification, start of E-DCH transmission)

8.3.1.42.1 Definition

All UEs which support FDD and HS-PDSCH and E-DPDCH and all UEs which support TDD and HS-PDSCH and E-PUCH..

8.3.1.42.2 Conformance requirement

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

If the UE is in connected mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a UTRAN identity and if this U-RNTI is the same as the U-RNTI allocated to the UE:

2> if the optional IE "CN originated page to connected mode UE" is included:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "Paging cause" and the IE "Paging record type identifier" to the upper layers.

2> otherwise:

3> perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.

2> ignore any other remaining IE "Paging record" that may be present in the message.

1> otherwise:

2> ignore that paging record.

…

A UE shall initiate the cell update procedure in the following cases:

1> Paging response:

…

1> Uplink data transmission:

2> if the UE is in URA_PCH or CELL_PCH state; and

2> if the UE has uplink RLC data PDU or uplink RLC control PDU on RB1 or upwards to transmit:

3> perform cell update using the cause "uplink data transmission".

…

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

When the UE receives a CELL UPDATE CONFIRM/URA UPDATE CONFIRM message; and

- if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or
- if the message is received on DCCH:

the UE shall:

1>act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following:

2> if the IE "Frequency info" is included in the message:

3> if the IE "RRC State Indicator" is set to the value "CELL_DCH":

4> act on the IE "Frequency info" as specified in subclause 8.6.6.1 in TS 25.331.

…

If the IE "New H-RNTI" is included, the UE shall:

1> if the IE "Downlink HS-PDSCH Information" is also included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 of TS 25.331 applied on the received message:

2> store the value in the variable H_RNTI.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

…

1> for FDD:

2> if the IE "New Primary E-RNTI" and/or the IE "New Secondary E-RNTI" are/is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

3> store the new value(s) in the variable E_RNTI;

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

1> for TDD:

2> if the IE "New E-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

3> store the new value in the variable E_RNTI;

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> use the value of the Primary E-RNTI and/or Secondary E-RNTI stored in the variable E_RNTI as UE identities in the E-AGCH reception procedure in the physical layer.

1> for TDD:

2> use the value of New E-RNTI stored in the variable E_RNTI as the UE identity in the E-AGCH reception procedure and the E-RUCCH transmission procedure in the physical layer.

…

If, after completion of the procedure, the UE will be in CELL_DCH state, the UE shall:

1> for FDD, 3.84 Mcps TDD and 7.68 Mcps TDD, if the IE "Frequency info" is included; or

1> for 1.28 Mcps TDD, if the IE "Frequency info" is included and the "Second Frequency info" is not included:

2> if the frequency is different from the currently used frequency:

3> store and use the frequency indicated by the IE "Frequency Info";

3> if the received message is used to perform a Timing-maintained hard handover (see subclause 8.3.5.2), and IE "Timing maintained Synchronization indicator" is included:

4> not perform any physical layer synchronisation procedure (FDD only);

3> else:

4> perform the physical layer synchronisation procedure A as specified in [29] (FDD only).

…

If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message, the UE shall:

1> if the IE "HS-SCCH Info" is included:

2> act as specified in subclause 8.6.6.33 of TS 25.331.

1> if the IE "Measurement Feedback Info" is included:

2> act as specified in subclause 8.6.6.34 of TS 25.331.

1> if the IE "HS-DSCH Timeslot Configuration" or "HS-PDSCH Midamble Configuration" is included:

2> store the received configuration;

2> determine the value for the HS_DSCH_RECEPTION variable and take actions as described in subclause 8.5.25.

If the IE "HS-SCCH Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> in the case of FDD:

2> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving HS-DSCH radio link applying the scrambling code as received in the IE "DL Scrambling code".

1> in the case of TDD:

2> receive the HS-SCCH(s) according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> transmit the HS-SICH according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> for HS-SCCH power control the UE shall use the "BLER target" signalled in the first occurrence of the "HS-SCCH Set Configuration", and the UE shall also use the IE "Power Control GAP" for 1.28 Mcps TDD.

2> in 3.84 Mcps TDD and 7.68 Mcps TDD:

3> use the parameters specified in the IE "HS-SICH power control info" for open loop power control as defined in subclause 8.5.7.

2> in 1.28 Mcps TDD:

3> use the IE " $PRX_{HS-SICH}$ " to calculate and set an initial uplink transmission power;

3> use the IE " TPC step size" upon reception of TPC commands for closed loop power control;

3> perform closed loop power control on HS-SICH within the interval indicated in the IE "Power Control GAP";

3> use the IE "Pathloss compensation switch" to determine if the pathloss compensation from the beacon channel estimation should be taken into account for closed loop power control on HS-SICH;

3> use default value of "Uplink synchronisation frequency" and same value of "Uplink synchronisation step size" in "Uplink DPCH info" for HS-SICH upon reception of SS commands for closed loop uplink synchronisation on HS-SICH.

If the IE "Measurement Feedback Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link.

…

If the IE "E-DCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> for FDD:

2> if the IE "E-DPCCH Info" is included:

3> store the newly received E-DPCCH configuration.

2> if the IE "E-DPDCH Info" is included:

3> store the newly received E-DPDCH configuration.

…

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1>For FDD:

2> perform E_AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI" and the IE "New Secondary E-RNTI".

2> perform E-HICH reception procedures for all radio links in the E-DCH active set;

2> perform E-RGCH reception procedures for all radio links in the active set for which an E-RGCH configuration has been provided;

2> perform E-DPCCH transmission procedures according to the stored E-DPCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-DPCCH Info".

2> perform E-DPDCH transmission procedures according to the stored E-DPDCH configuration as stated in:

3> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

3> subclause 8.6.5.17 for the IE "HARQ info for E-DCH";

3> subclause 8.6.6.37 for the IE "E-DPDCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

1>For TDD:

2>perform E-AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New E-RNTI".

2> Perform E-HICH reception;

2> for 3.84/7.68 Mcps TDD, perform E-RUCCH transmission procedures according to the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

2> for 1.28 Mcps TDD, perform E-RUCCH transmission procedure according to the stored PRACH configuration (see [60]) and the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

NOTE 1: The PRACH configuration is signalled directly to the UE in "E-RUCCH Info" IE in case of E-DCH serving cell change.

2> Perform E-PUCH transmission procedures according to the stored E-PUCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-PUCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

2> obtain and format the appropriate information on E-UCCH (see [15]). For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, the UE shall use the lowest E-DCH capability category, as specified in [35], to signal the UL control information on E-UCCH.

NOTE 2: For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, UTRAN should use the lowest E-DCH capability category when performing configuration, scheduling and reading the control information on E-UCCH, as it is not possible for Node B to be aware of the UE's E-DCH capability category during this period.

Reference

3GPP TS 25.331 clauses 8.2.2.3, 8.2.2.4, 8.3.1, 8.6.3.1,8.6.3.1b,8.6.3.14, 8.6.5.6,8.6.5.16, 8.6.5.17, 8.6.6.1, 8.6.6.32, 8.6.6.33, 8.6.6.34, 8.6.6.37.

8.3.1.42.3 Test purpose

To confirm that the UE enters the CELL_DCH state after it receives a CELL UPDATE CONFIRM message with a physical channel configuration causing it to start E-DCH transmission and HS-DSCH reception on a different cell and frequency.

To confirm that the UE enters CELL_PCH state on another frequency and stops E-DCH transmission and HS-DSCH reception when it receives a RADIO BEARER RECONFIGURATION message.

8.3.1.42.4 Method of test

Initial Condition

System Simulator: 2 cells - cell 1 is active and cell 6 is inactive.

UE: PS-DCCH +DTCH_HS-DSCH +DTCH_E-DCH (state 6-18) under condition A13 for FDD or A12 for 1.28 Mcps TDD as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports E-DPDCH for FDD or E-PUCH for TDD

Test Procedure

Table 8.3.1.42

Parameter	Unit	Cell 1			Cell 6		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Frequency (f1)			High Range Frequency (f2)		
CPICH Ec (FDD)	dBm/3.84MHz	-60	-72	-60	Off	-55	-72
P-CCPCH RSCP (1.28 Mcps TDD)	dBm	-60	-72	-60	Off	-55	-72

Table 8.3.1.42 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The SS has configured its downlink transmission power setting according to columns "T0" in table 8.3.1.42. UE is in state 6-18 as specified in TS34.108 clause 7.4 in cell 1and has a radio bearer established mapped on E-DCH and HS-DSCH established with active E-DCH transmission and HS-DSCH reception.

The SS switches its downlink transmission power settings to columns "T1". The SS transmits a RADIO BEARER RECONFIGURATION message, which invokes the UE to transit from CELL_DCH to CELL_PCH in cell 6. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC, selects cell 6 and enters CELL_PCH state.

The SS transmits a PAGING TYPE 1 message. The UE then enters the CELL_FACH state to transmit a CELL UPDATE message to the SS on the uplink CCCH with the IE “Cell update cause" set to value “Paging response” in response to the paging.

The SS switches its downlink transmission power settings to columns "T2". The SS transmits CELL UPDATE CONFIRM message, which invokes UE to re-map the SRB's & the PS RAB on E-DCH/HS-DSCH for cell 1. Then the UE establishes HS-DSCH and E-DCH in cell 1, and resumes E-DCH transmission and transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH in cell 1.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_DCH state in cell 1 and the SS configures its downlink transmission power setting according to columns "T1" in table 8.3.1.42.
2	←		RADIO BEARER RECONFIGURATION	
3	→		RADIO BEARER RECONFIGURATION COMPLETE	After transmitting this message, the UE enters the CELL_PCH state in cell 6
4	SS			SS sends the L2 ack on the RADIO BEARER RECONFIGURATION COMPLETE message and then waits 5 seconds to allow the UE to read system information before the next step. Note: The SS should continue to keep the dedicated channel configuration during the time when the L2 ack is sent to the UE.
5	←		PAGING TYPE 1	
6	→		CELL UPDATE	The UE enters the CELL_FACH state.
7	SS			The SS switches its downlink transmission power settings to columns "T2" in table 8.3.1.42.
8	←		CELL UPDATE CONFIRM	
9	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE changes to cell 1, enters the CELL_DCH state and starts E-DCH transmission and HS-DSCH reception.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 2) (FDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	2

Information Element	Value/remark
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4

Information Element	Value/remark
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE

Information Element	Value/remark
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB stop/continue	Not Present
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 6
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
Maximum allowed UL TX power	Not Present

RADIO BEARER RECONFIGURATION (Step 2) (1.28 Mcps TDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	2

Information Element	Value/remark
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4

Information Element	Value/remark
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE

Information Element	Value/remark
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB stop/continue	Not Present
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
Frequency info	
- CHOICE mode	TDD
- UARFCN(Nt)	Same UARFCN as used for cell 6
Maximum allowed UL TX power	Not Present

RADIO BEARER RECONFIGURATION (Step 2) (3.84 Mcps TDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.3.4.5.1
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6.10 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.3.4.5.1
- MAC logical channel priority	2

Information Element	Value/remark
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6.10 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.3.4.5.1
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4

Information Element	Value/remark
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6.10 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.3.4.5.1
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6.10 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE

Information Element	Value/remark
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6.10 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB stop/continue	Not Present
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
Frequency info	
- CHOICE mode	TDD
- UARFCN(Nt)	Same UARFCN as used for cell 6
Maximum allowed UL TX power	Not Present

RADIO BEARER RECONFIGURATION (Step 2) (7.68 Mcps TDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.11.6.4.5.1
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6.11 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.11.6.4.5.1
- MAC logical channel priority	2

Information Element	Value/remark
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6.11 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.11.6.4.5.1
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4

Information Element	Value/remark
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6.11 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.11.6.4.5.1
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6.11 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE

Information Element	Value/remark
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6.11 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB stop/continue	Not Present
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
Frequency info	
- CHOICE mode	TDD
- UARFCN(Nt)	Same UARFCN as used for cell 6
Maximum allowed UL TX power	Not Present

Paging Type 1 (Step 5)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE (Step 6)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- S-RNTI	Check to see if set to value assigned in cell 1.
- SRNC Identity	Check to see if set to value assigned in cell 1.
Cell Update Cause	Check to see if set to “Paging response”

CELL UPDATE CONFIRM (Step 8) (FDD)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
New Primary E-RNTI	'0101 0101 0101 0101'
New Secondary E-RNTI	Not Present
RRC State indicator	CELL_DCH
RB information to reconfigure list	
- RB RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1

- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present

- RB information to reconfigure	(AM DCCH for NAS DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100

- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	0
- Logical channel identity	7
- RB stop/continue	Not Present
Added or Reconfigured UL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13.
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13.
Frequency info	Set to the frequency of cell 1
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13.
E-DCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13.
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13.
Downlink information common for all radio links	
- Downlink information for all radio link	
- CHOICE *DPCH info*	
- Downlink DPCH info for all RL	
- Timing Indication	Initialize
- Downlink DPCH power control information	
- DPC mode	0 (Single)
- CHOICE mode	FDD
- Power offset PPilot-DPDCH	0
- DL rate matching restriction information	Not Present
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Fixed or Flexible Position	Reference to TS34.108 clause 6.10 Parameter Set
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set

- CHOICE mode	FDD
- DPCH compressed mode info	Not Present
- TX Diversity mode	None
- SSDT information	Not present
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
- MAC-hs reset indicator	Not Present
Downlink information for each radio link list	
- Downlink information for each radio link	
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to the primary scrambling code of cell 1
- PDSCH with SHO DCH info	Not Present
- PDSCH code mapping	Not Present
- Serving HS-DSCH radio link indicator	TRUE
- Serving E-DCH radio link indicator	TRUE
- CHOICE DPCH info	
- Downlink DPCH info for each RL	
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
- Secondary CPICH info	Not Present
- DL channelisation code	
- Secondary scrambling code	1
- Spreading factor	Reference to clause 6.10 Parameter Set
- Code number	0
- Scrambling code change	OMIT
- TPC combination index	0
- Closed loop timing adjustment mode	Not Present
- E-AGCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13.
- E-HICH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13.
- E-RGCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13.

CELL UPDATE CONFIRM (Step 8) (1.28 Mcps TDD)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
New E-RNTI	'0101 0101 0101 0101'
RRC State indicator	CELL_DCH
RB information to reconfigure list	
- RB_RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH

- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)

- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present

- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	0
- Logical channel identity	7
- RB stop/continue	Not Present
Added or Reconfigured UL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
Frequency info	Set to the frequency of cell 1
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
E-DCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
Downlink information common for all radio links	
- Downlink information for all radio link	
- CHOICE *DPCH info*	
- Downlink DPCH info for all RL	
- Timing Indication	Initialize
Downlink information for each radio link list	
- Downlink information for each radio link	
- Choice mode	TDD
- Primary CCPCH info	
- CHOICE *TDD option*	1.28 Mcps TDD
- TSTD indicator	FALSE
- Cell parameters ID	Set to Cell parameters ID of cell 1
- SCTD indicator	FALSE
- Downlink DPCH info for each RL	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition

	A12.
- E-AGCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
- E-HICH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
- E-RGCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.

CELL UPDATE CONFIRM (Step 8) (3.84 Mcps TDD and 7.68Mcps TDD)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
New E-RNTI	'0101 0101 0101 0101'
RRC State indicator	CELL_DCH
RB information to reconfigure list	
- RB_RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH

- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)

- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present

- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	0
- Logical channel identity	7
- RB stop/continue	Not Present
Added or Reconfigured UL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
Frequency info	Set to the frequency of cell 1
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
E-DCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
Downlink information common for all radio links	
- Downlink information for all radio link	
- CHOICE *DPCH info*	
- Downlink DPCH info for all RL	
- Timing Indication	Initialize
Downlink information for each radio link list	
- Downlink information for each radio link	
- Choice mode	TDD
- Primary CCPCH info	
- CHOICE *TDD option*	3.84 and 7.68 Mcps TDD
- CHOICE sync case	Sync Case 2
- Timeslot	0
- TSTD indicator	FALSE
- Cell parameters ID	Set to Cell parameters ID of cell 1
- SCTD indicator	FALSE

- Downlink DPCH info for each RL	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
- E-AGCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
- E-HICH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
- E-RGCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.

8.3.1.42.5 Test requirement

After step 2, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 5, the UE shall transmit a CELL UPDATE message on the uplink CCCH.

After step 8, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC in cell 1.

8.3.1.42a Cell Update: Transition from CELL_PCH to CELL_DCH: Success (frequency modification, start of E-DCH transmission, F-DPCH Configured)

8.3.1.42a.1 Definition

All UEs which support FDD, HS-PDSCH, E-DPDCH and fully support F-DPCH.

8.3.1.42a.2 Conformance requirement

same conformance requirement as in clause 8.3.1.42.2

8.3.1.42a.3 Test purpose

same test purpose as in clause 8.3.1.42.3

8.3.1.42a.4 Method of test

Initial Condition

System Simulator: 2 cells - cell 1 is active and cell 6 is inactive.

UE: PS-DCCH +DTCH_HS-DSCH +DTCH_E-DCH (state 6-18) under condition A14 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH
- UE supports E-DPDCH
- UE fully supports F-DPCH

Test Procedure

Same test procedure as in clause 8.3.1.42.4

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 2)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	2

Information Element	Value/remark
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4

Information Element	Value/remark
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE

Information Element	Value/remark
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB stop/continue	Not Present
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	1
Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 6
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
Maximum allowed UL TX power	Not Present

Paging Type 1 (Step 5)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE (Step 6)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- S-RNTI	Check to see if set to value assigned in cell 1.
- SRNC Identity	Check to see if set to value assigned in cell 1.
Cell Update Cause	Check to see if set to “Paging response”

CELL UPDATE CONFIRM (Step 8)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
New Primary E-RNTI	'0101 0101 0101 0101'
New Secondary E-RNTI	Not Present
RRC State indicator	CELL_DCH
RB information to reconfigure list	
- RB RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present

- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present

- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500

- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	0
- Logical channel identity	7
- RB stop/continue	Not Present
Added or Reconfigured UL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A14.
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A14.
Frequency info	Set to the frequency of cell 1
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A14.
E-DCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A14.
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A14.
Downlink information common for all radio links	
- Downlink information for all radio link	
- CHOICE *DPCH info*	F-DPCH
- Downlink F-DPCH info for all RL	
- Timing Indication	Initialize
- Downlink F-DPCH power control information	
- DPC mode	0 (single)
- TPC command error rate target	0.04
- CHOICE mode	FDD
- DPCH compressed mode info	Not Present

- TX Diversity mode	None
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
- MAC-hs reset indicator	Not Present
Downlink information for each radio link list	
- Downlink information for each radio link	
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to the primary scrambling code of cell 1
- PDSCH with SHO DCH info	Not Present
- PDSCH code mapping	Not Present
- Serving HS-DSCH radio link indicator	TRUE
- Serving E-DCH radio link indicator	TRUE
- CHOICE DPCH info	F-DPCH
- Downlink F-DPCH info for each RL	
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- F-DPCH frame offset	Set to value Default F-DPCH Offset Value (as currently stored in SS) mod 38400
- Secondary CPICH info	Not Present
- Secondary scrambling code	Not Present
- Code number	12
- TPC combination index	0
- Closed loop timing adjustment mode	Not Present
- E-AGCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A14.
- E-HICH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A14.
- E-RGCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A14.

8.3.1.42a.5 Test requirement

same test requirement as in clause 8.3.1.42.5

8.3.1.42b Cell Update: Transition from CELL_PCH to CELL_DCH: Success (frequency modification, start of E-DCH transmission in the multi-frequency network environment, for 1.28Mcps TDD only)

8.3.1.42b.1 Definition

All UEs which support 1.28Mcps TDD and HS-PDSCH and E-PUCH..

8.3.1.42b.2 Conformance requirement

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

If the UE is in connected mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a UTRAN identity and if this U-RNTI is the same as the U-RNTI allocated to the UE:

2> if the optional IE "CN originated page to connected mode UE" is included:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "Paging cause" and the IE "Paging record type identifier" to the upper layers.

2> otherwise:

3> perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.

2> ignore any other remaining IE "Paging record" that may be present in the message.

1> otherwise:

2> ignore that paging record.

…

A UE shall initiate the cell update procedure in the following cases:

1> Paging response:

…

1> Uplink data transmission:

2> if the UE is in URA_PCH or CELL_PCH state; and

2> if the UE has uplink RLC data PDU or uplink RLC control PDU on RB1 or upwards to transmit:

3> perform cell update using the cause "uplink data transmission".

…

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

When the UE receives a CELL UPDATE CONFIRM/URA UPDATE CONFIRM message; and

- if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or
- if the message is received on DCCH:

the UE shall:

1>act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following:

2> if the IE "Frequency info" is included in the message:

3> if the IE "RRC State Indicator" is set to the value "CELL_DCH":

4> act on the IE "Frequency info" as specified in subclause 8.6.6.1 in TS 25.331.

…

If the IE "New H-RNTI" is included, the UE shall:

1> if the IE "Downlink HS-PDSCH Information" is also included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 of TS 25.331 applied on the received message:

2> store the value in the variable H_RNTI.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

…

1> for FDD:

2> if the IE "New Primary E-RNTI" and/or the IE "New Secondary E-RNTI" are/is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

3> store the new value(s) in the variable E_RNTI;

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

1> for TDD:

2> if the IE "New E-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

3> store the new value in the variable E_RNTI;

3> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> for FDD:

2> use the value of the Primary E-RNTI and/or Secondary E-RNTI stored in the variable E_RNTI as UE identities in the E-AGCH reception procedure in the physical layer.

1> for TDD:

2> use the value of New E-RNTI stored in the variable E_RNTI as the UE identity in the E-AGCH reception procedure and the E-RUCCH transmission procedure in the physical layer.

…

If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message, the UE shall:

1> if the IE "HS-SCCH Info" is included:

2> act as specified in subclause 8.6.6.33 of TS 25.331.

1> if the IE "Measurement Feedback Info" is included:

2> act as specified in subclause 8.6.6.34 of TS 25.331.

1> if the IE "HS-DSCH Timeslot Configuration" or "HS-PDSCH Midamble Configuration" is included:

2> store the received configuration;

2> determine the value for the HS_DSCH_RECEPTION variable and take actions as described in subclause 8.5.25.

If the IE "HS-SCCH Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> in the case of FDD:

2> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving HS-DSCH radio link applying the scrambling code as received in the IE "DL Scrambling code".

1> in the case of TDD:

2> receive the HS-SCCH(s) according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> transmit the HS-SICH according to the IEs "Timeslot Number", "Channelisation Code" and Midamble configuration IEs.

2> for HS-SCCH power control the UE shall use the "BLER target" signalled in the first occurrence of the "HS-SCCH Set Configuration", and the UE shall also use the IE "Power Control GAP" for 1.28 Mcps TDD.

2> in 3.84 Mcps TDD and 7.68 Mcps TDD:

3> use the parameters specified in the IE "HS-SICH power control info" for open loop power control as defined in subclause 8.5.7.

2> in 1.28 Mcps TDD:

3> use the IE " $PRX_{HS-SICH}$ " to calculate and set an initial uplink transmission power;

3> use the IE " TPC step size" upon reception of TPC commands for closed loop power control;

3> perform closed loop power control on HS-SICH within the interval indicated in the IE "Power Control GAP";

3> use the IE "Pathloss compensation switch" to determine if the pathloss compensation from the beacon channel estimation should be taken into account for closed loop power control on HS-SICH;

3> use default value of "Uplink synchronisation frequency" and same value of "Uplink synchronisation step size" in "Uplink DPCH info" for HS-SICH upon reception of SS commands for closed loop uplink synchronisation on HS-SICH.

If the IE "Measurement Feedback Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link.

…

If the IE "E-DCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> for FDD:

2> if the IE "E-DPCCH Info" is included:

3> store the newly received E-DPCCH configuration.

2> if the IE "E-DPDCH Info" is included:

3> store the newly received E-DPDCH configuration.

…

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1>For FDD:

2> perform E_AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New Primary E-RNTI" and the IE "New Secondary E-RNTI".

2> perform E-HICH reception procedures for all radio links in the E-DCH active set;

2> perform E-RGCH reception procedures for all radio links in the active set for which an E-RGCH configuration has been provided;

2> perform E-DPCCH transmission procedures according to the stored E-DPCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-DPCCH Info".

2> perform E-DPDCH transmission procedures according to the stored E-DPDCH configuration as stated in:

3> subclause 8.6.5.16 for the IE "E-DCH Transmission Time Interval";

3> subclause 8.6.5.17 for the IE "HARQ info for E-DCH";

3> subclause 8.6.6.37 for the IE "E-DPDCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

1>For TDD:

2>perform E-AGCH reception procedures according to the stored E_AGCH configuration as stated in:

3> subclause 8.6.3.14 for the IE "New E-RNTI".

2> Perform E-HICH reception;

2> for 3.84/7.68 Mcps TDD, perform E-RUCCH transmission procedures according to the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

2> for 1.28 Mcps TDD, perform E-RUCCH transmission procedure according to the stored PRACH configuration (see [60]) and the stored E-RUCCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-RUCCH Info".

NOTE 1: The PRACH configuration is signalled directly to the UE in "E-RUCCH Info" IE in case of E-DCH serving cell change.

2> Perform E-PUCH transmission procedures according to the stored E-PUCH configuration as stated in:

3> subclause 8.6.6.37 for the IE "E-PUCH Info".

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

3> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18).

2> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

3> be performed in accordance with the received scheduling grant on E-AGCH (see [15]); and

3> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37).

2> obtain and format the appropriate information on E-UCCH (see [15]). For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, the UE shall use the lowest E-DCH capability category, as specified in [35], to signal the UL control information on E-UCCH.

NOTE 2: For 1.28 Mcps TDD, when performing transmission on signalling radio bearer before RAB has been established, UTRAN should use the lowest E-DCH capability category when performing configuration, scheduling and reading the control information on E-UCCH, as it is not possible for Node B to be aware of the UE's E-DCH capability category during this period.

…

If, after completion of the procedure, the UE will be in CELL_DCH state, the UE shall:

1> for FDD, 3.84 Mcps TDD and 7.68 Mcps TDD, if the IE "Frequency info" is included; or

1> for 1.28 Mcps TDD, if the IE "Frequency info" is included and the "Second Frequency info" is not included:

2> if the frequency is different from the currently used frequency:

3> store and use the frequency indicated by the IE "Frequency Info";

3> if the received message is used to perform a Timing-maintained hard handover (see subclause 8.3.5.2),and IE "Timing maintained Synchronization indicator" is included:

4> not perform any physical layer synchronization procedure (FDD only);

3> else:

4> perform the physical layer synchronisation procedure A as specified in [29] (FDD only).

2> if the frequency is the same as the currently used frequency:

3> continue to use the currently used frequency;

3> perform the physical layer synchronisation procedure A as specified in [29] (FDD only).

1> for 1.28 Mcps TDD, if both the IE "Frequency info" and the IE "Second Frequency info" are included:

2> the frequency in IE "Frequency info" is used as the primary frequency, and the frequency in IE "Second Frequency info" is used as the secondary frequency;

2> store the primary frequency;

2> if the secondary frequency is different with the currently used frequency:

3> store and use the secondary frequency.

2> if the secondary frequency is the same as the currently used frequency:

3> continue to use the currently used frequency.

1> if the IE "Frequency info" is not included and the UE has a currently used frequency:

2> continue to use the currently used frequency;

…

If the IE "Second Frequency info" is included, the UE shall:

1> act as specified in section 8.6.6.1.

If the IE "FPACH Frequency info" is included, the UE shall:

1> store the FPACH frequency indicated in the IE "FPACH Frequency info".

If the IE "UpPCH Position Info" is included:

1> store and use the UpPCH position indicated by the IE "UpPCH Position Info ". The calculation of the uplink access position is described in [33].

If the IE "UpPCH Position Info" is not included:

1> use the UpPTS as the default UpPCH position.

Reference

3GPP TS 25.331 clauses 8.2.2.3, 8.2.2.4, 8.3.1, 8.6.3.1, 8.6.3.1b, 8.6.3.14, 8.6.5.6, 8.6.5.16, 8.6.5.17, 8.6.6.1, 8.6.6.32, 8.6.6.33, 8.6.6.34, 8.6.6.37.

8.3.1.42b.3 Test purpose

To confirm that the UE enters the CELL_DCH state after it receives a CELL UPDATE CONFIRM message with a physical channel configuration causing it to start E-DCH transmission and HS-DSCH reception on a different cell and frequency in the multi-frequency network environment.

To confirm that the UE enters CELL_PCH state on another frequency and stops E-DCH transmission and HS-DSCH reception when it receives a RADIO BEARER RECONFIGURATION message in the multi-frequency network environment.

8.3.1.42b.4 Method of test

Initial Condition

System Simulator:

2 cells

-cell 1 is active, 3 frequency (one is primary frequency, others are secondary frequency)

- cell 6 is inactive, 1 frequency.

UE: PS-DCCH +DTCH_HS-DSCH +DTCH_E-DCH (state 6-18) under condition A12 for 1.28 Mcps TDD as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports TDD
- UE supports HS-PDSCH
- UE supports E-PUCH

Test Procedure

Table 8.3.1.42b

Parameter	Unit	Cell 1			Cell 6		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Frequency			High Range Frequency		
P-CCPCH RSCP (1.28 Mcps TDD)	dBm	-60	-72	-60	Off	-55	-72

Table 8.3.1.42b illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The SS has configured its downlink transmission power setting according to columns "T0" in table 8.3.1.42b. UE is in state 6-18 as specified in TS34.108 clause 7.4 in cell 1and has a radio bearer established mapped on E-DCH and HS-DSCH established with active E-DCH transmission and HS-DSCH reception at one secondary frequency.

The SS switches its downlink transmission power settings to columns "T1". The SS transmits a RADIO BEARER RECONFIGURATION message, which invokes the UE to transit from CELL_DCH to CELL_PCH in cell 6. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC, selects cell 6 and enters CELL_PCH state.

The SS transmits a PAGING TYPE 1 message. The UE then enters the CELL_FACH state to transmit a CELL UPDATE message to the SS on the uplink CCCH with the IE “Cell update cause" set to value “Paging response” in response to the paging.

The SS switches its downlink transmission power settings to columns "T2". The SS transmits CELL UPDATE CONFIRM message, which invokes UE to re-map the SRB's & the PS RAB on E-DCH/HS-DSCH for cell 1. Then the UE establishes HS-DSCH and E-DCH at one secondary frequency in cell 1, and resumes E-DCH transmission and transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH in cell 1.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_DCH state in cell 1 and the SS configures its downlink transmission power setting according to columns "T1" in table 8.3.1.42b.
2	←		RADIO BEARER RECONFIGURATION	
3	→		RADIO BEARER RECONFIGURATION COMPLETE	After transmitting this message, the UE enters the CELL_PCH state in cell 6
4	SS			SS sends the L2 ack on the RADIO BEARER RECONFIGURATION COMPLETE message and then waits 5 seconds to allow the UE to read system information before the next step. Note: The SS should continue to keep the dedicated channel configuration during the time when the L2 ack is sent to the UE.
5	←		PAGING TYPE 1	
6	→		CELL UPDATE	The UE enters the CELL_FACH state.
7	SS			The SS switches its downlink transmission power settings to columns "T2" in table 8.3.1.42b.
8	←		CELL UPDATE CONFIRM	
9	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE changes to cell 1, enters the CELL_DCH state and starts E-DCH transmission and HS-DSCH reception.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 2)

Use the same message sub-type titled "Packet to CELL_DCH from CELL_PCH in PS" in TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	2

Information Element	Value/remark
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4

Information Element	Value/remark
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE

Information Element	Value/remark
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB stop/continue	Not Present
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
Frequency info	
- CHOICE mode	TDD
- UARFCN(Nt)	Same UARFCN as used for cell 6
Maximum allowed UL TX power	Not Present

Paging Type 1 (Step 5)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier
- SRNC Identity	
- S-RNTI	
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE (Step 6)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- S-RNTI	Check to see if set to value assigned in cell 1
- SRNC Identity	Check to see if set to value assigned in cell 1
Cell Update Cause	Check to see if set to “Paging response”

CELL UPDATE CONFIRM (Step 8)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
New E-RNTI	'0101 0101 0101 0101'
RRC State indicator	CELL_DCH
RB information to reconfigure list	
- RB_RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH

- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)

- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	10
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present

- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	0
- Logical channel identity	7
- RB stop/continue	Not Present
Added or Reconfigured UL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
Frequency info	
- UARFCN (Nt)	Same as primary frequency of the cell 1
Multi-frequency Info	
- Second Frequency Info	Same as one secondary frequency of the cell 1
- FPACH Frequency Info	Not present
- UpPCH Position Info	Not present
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
E-DCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
Downlink information common for all radio links	
- Downlink information for all radio link	
- CHOICE *DPCH info*	
- Downlink DPCH info for all RL	
- Timing Indication	Initialize
Downlink information for each radio link list	
- Downlink information for each radio link	
- Choice mode	TDD
- Primary CCPCH info	
- CHOICE *TDD option*	1.28 Mcps TDD

- TSTD indicator	FALSE
- Cell parameters ID	Set to Cell parameters ID of cell 1
- SCTD indicator	FALSE
- Downlink DPCH info for each RL	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
- E-AGCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
- E-HICH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.
- E-RGCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A12.

8.3.1.42b.5 Test requirement

After step 2, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 5, the UE shall transmit a CELL UPDATE message on the uplink CCCH.

After step 8, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC in cell 1.

8.3.1.43 Cell Update: Radio Link Failure, with active E-DCH transmission

8.3.1.43.1 Definition

All UEs which support FDD or TDD and HS-PDSCH and E-DPDCH for FDD or E-PUCH for TDD, and fully support F-DPCH (FDD only).

8.3.1.43.2 Conformance requirement

1> Radio link failure:

…

3> if the UE is in CELL_DCH state and the criteria for radio link failure are met as specified in subclause 8.5.6 of TS 25.331; or

…

4> perform cell update using the cause "radio link failure".

When initiating the URA update or cell update procedure, the UE shall:

…

1> if any IEs related to HS-DSCH are stored in the UE:

2> clear any stored IE "Downlink HS-PDSCH information";

2> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

1> if any IEs related to E-DCH are stored in the UE:

2> clear any stored IE "E-DCH info";

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

In CELL_DCH State, after receiving N313 consecutive "out of sync" indications from layer 1 for the established DPCCH or F-DPCH physical channel in FDD, and the physical channels associated with mapped DCCHs in TDD, the UE shall:

1> start timer T313;

1> upon receiving N315 successive "in sync" indications from layer 1 and upon change of UE state:

2> stop and reset timer T313.

1> if T313 expires:

2> consider it as a "Radio link failure".

Periods in time where neither "in sync" nor "out of sync" is reported by layer 1 do not affect the evaluation of the number of consecutive (resp. successive) "in sync" or "out of sync" indications.

When a radio link failure occurs, the UE shall:

1> clear the dedicated physical channel configuration;

1> perform actions as specified for the ongoing procedure;

1> if no procedure is ongoing or no actions are specified for the ongoing procedure:

2> perform a cell update procedure according to subclause 8.3.1 using the cause "radio link failure".

Reference

3GPP TS 25.331 clauses 8.3.1.2, 8.5.6.

8.3.1.43.3 Test purpose

1. To confirm that the UE detects the radio link failure condition when the F-DPCH physical channel is established (FDD only).
2. To confirm that the UE stops the E-DCH transmission and performs a Cell Update procedure after radio link failure.
3. To confirm that the UE keeps the radio bearer mapping option and transport channel configuration for E-DCH after the radio link failure. To confirm that the UE resumes the E-DCH transmission after the Cell Update procedure.

8.3.1.43.4 Method of test

Initial Condition

System Simulator: 1 cell – Cell 1

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or 1.28 Mcps TDD
- UE supports HS-PDSCH
- UE supports E-DPDCH for FDD or E-PUCH for 1.28 Mcps TDD
- UE fully supports F-DPCH (FDD only)

Test Procedure

Table 8.3.1.43

Parameter	Unit	Cell 1	
		T0	T1
UTRA RF Channel Number		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF
P-CCPCH RSCP (TDD)	dBm	-60	OFF

Table 8.3.1.43 illustrates the downlink power to be applied to Cell 1 at various time instants of the test execution. Column marked "T0" denote the initial conditions.

The UE is in CELL_DCH state and only signalling radio bearers have been established. The SS initiates P26 to make the UE move to state 6-18 as specified in TS 34.108 clause 7.4. The UE is now in the CELL_DCH state and has radio bearers mapped on E-DCH and HS-DSCH established with active E-DCH transmission and HS-DSCH reception.
The SS configures its downlink transmission power settings according to column “T1” in table 8.3.1.43. After expiry of timer T313, the UE shall detect a radio link failure in Cell 1.

The SS waits for 10s (see Note 1) and then configures its downlink transmission power settings according to column “T0” in table 8.3.1.43. The UE shall then enter CELL_FACH state and transmit a CELL UPDATE message on the uplink CCCH in Cell 1.
The SS transmits a CELL UPDATE CONFIRM message, which requests the UE to transit to CELL_DCH state and provides the physical channel configuration to resume the interrupted radio bearer mapped on E-DCH / HS-DSCH.
The UE sets up the physical channels associated to E-DCH / HS-DSCH, enters CELL_DCH state and sends a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

The SS calls for generic procedure C.3 to check that the UE is in CELL_DCH state.

NOTE 1: The 10s delay guarantees the expiry of timer T313 (default value = 3s) and the non-expiry of timer T315 (default value = 180s).

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P26	See below for the specific message content used in RADIO BEARER SETUP message.
1				The SS configures Cell 1 according to the “T1" power settings in table 8.3.1.43. The SS starts to listen to the uplink CCCH of Cell 1.
2				The UE detects the radio link failure and stops transmission of E-DCH.
3	→		CELL UPDATE	10s after step 1, the SS configures Cell 1 according to the “T0” power settings in table 8.3.1.43. The UE shall camp on Cell 1 and transmit a Cell Update message with the IE "Cell update cause" set to "radio link failure".
4	←		CELL UPDATE CONFIRM	The SS orders the UE to re-establish the E-DCH / HS-DSCH configuration.
5	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
6	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 0) (FDD and 1.28Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH / E-DCH / HS-DSCH using one multiplexing option (1/1) and SRBs mapped on E-DCH/HS-DSCH" in 34.108, with the exception of the following IEs:

Information Element	Value/remark
RB information to be affected	
- RB identity	1 (UM DCCH for RRC)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	1
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB identity	2 (AM DCCH for RRC)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	2
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1

- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB identity	3 (AM DCCH for NAS High Priority)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	3
- Uplink transport channel type	RACH
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB identity	4 (AM DCCH for NAS Low Priority)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	4
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- MAC logical channel priority	4

- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4

RADIO BEARER SETUP (Step 0) (3.84Mcps TDD and 7.68Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH / E-DCH / HS-DSCH using one multiplexing option (1/1) and SRBs mapped on E-DCH/HS-DSCH" in 34.108, with the exception of the following IEs:

Information Element	Value/remark
RB information to be affected	
- RB identity	1 (UM DCCH for RRC)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	1
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.3.4.1.2 for 3.84Mcps and 6.11.6.4.1.2 and 7.68Mcps (standalone 3.4 kbps signalling radio bearer)
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB identity	2 (AM DCCH for RRC)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	2
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.3.4.1.2 for 3.84Mcps and 6.11.6.4.1.2 and 7.68Mcps (standalone 3.4 kbps signalling radio bearer)
- MAC logical channel priority	2

- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB identity	3 (AM DCCH for NAS High Priority)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	3
- Uplink transport channel type	RACH
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.3.4.1.2 for 3.84Mcps and 6.11.6.4.1.2 and 7.68Mcps (standalone 3.4 kbps signalling radio bearer)
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB identity	4 (AM DCCH for NAS Low Priority)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	4
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit List

- RLC size index	According to clause 6.10.3.4.1.2 for 3.84Mcps and 6.11.6.4.1.2 and 7.68Mcps (standalone 3.4 kbps signalling radio bearer)
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4

CELL UPDATE (Step 3)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- S-RNTI	Check to see if set to value assigned in Cell 1.
- SRNC Identity	Check to see if set to value assigned in Cell 1.
Cell Update Cause	Check to see if set to “Radio link failure”

CELL UPDATE CONFIRM (Step 4) (FDD)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New Primary E-RNTI	'1010 1010 1010 1010'
New Secondary E-RNTI	Not Present
RRC State indicator	CELL_DCH
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A14.
E-DCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A14.
Downlink HS-PDSCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A14 .
Downlink information common for all radio links	
- Downlink F-DPCH info common for all RL	
- Timing Indication	Initialise
- Downlink F-DPCH power control information	
- DPC mode	0 (single)
- TPC command error rate target	0.04
- CHOICE mode	FDD
- DPCH compressed mode info	Not Present
- TX Diversity mode	None
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
- MAC-hs reset indicator	TRUE
Downlink information per radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A14.

CELL UPDATE CONFIRM (Step 4) (1.28 Mcps TDD)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New E-RNTI	'1010 1010 1010 1010'
RRC State indicator	CELL_DCH
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13.
E-DCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13.
Downlink HS-PDSCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13 .
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indicator	Initialize
- CFN-targetSFN frame offset	Not Present
- Downlink DPCH power control information	
- CHOICE mode	TDD
- TPC Step Size	1
- MAC-d HFN initial value	Not Present
- CHOICE mode	TDD
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- TSTD indicator	FALSE
- Default DPCH Offset Value	Arbitrary set to value 0..7
- MAC-hs reset indicator	TRUE
Downlink information per radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13.

CELL UPDATE CONFIRM (Step 4) (3.84Mcps TDD and 7.68Mcps TDD)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New E-RNTI	'1010 1010 1010 1010'
RRC State indicator	CELL_DCH
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13.
E-DCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13.
Downlink HS-PDSCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13 .
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indicator	Initialize
- CFN-targetSFN frame offset	Not Present
- Downlink DPCH power control information	
- CHOICE mode	TDD
- TPC Step Size	1
- MAC-d HFN initial value	Not Present
- CHOICE mode	TDD
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps or 7.68Mcps TDD
- CHOICE sync case	Sync case 2
- Timeslot	0

Information Element	Value/remark
- Default DPCH Offset Value	Arbitrary set to value 0..7
- MAC-hs reset indicator	TRUE
Downlink information per radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A13.

8.3.1.43.5 Test requirement

After step 2, the UE shall transmit a CELL UPDATE message.

After step 4, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and start transmission on E-DCH.

8.3.1.44 Cell Update: Transition from CELL_PCH to CELL_DCH: Success (frequency modification, start of discontinuous uplink transmission)

8.3.1.44.1 Definition

All UEs which support FDD and UL DTX.

8.3.1.44.2 Conformance requirement

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

If the UE is in connected mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a UTRAN identity and if this U-RNTI is the same as the U-RNTI allocated to the UE:

2> if the optional IE "CN originated page to connected mode UE" is included:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "Paging cause" and the IE "Paging record type identifier" to the upper layers.

2> otherwise:

3> perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.

2> ignore any other remaining IE "Paging record" that may be present in the message.

1> otherwise:

2> ignore that paging record.

…

A UE shall initiate the cell update procedure in the following cases:

1> Paging response:

…

1> Uplink data transmission:

2> if the UE is in URA_PCH or CELL_PCH state; and

2> if the UE has uplink RLC data PDU or uplink RLC control PDU on RB1 or upwards to transmit:

3> perform cell update using the cause "uplink data transmission".

…

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

When the UE receives a CELL UPDATE CONFIRM/URA UPDATE CONFIRM message; and

- if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or
- if the message is received on DCCH:

the UE shall:

1>act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following:

2> if the IE "Frequency info" is included in the message:

3> if the IE "RRC State Indicator" is set to the value "CELL_DCH":

4> act on the IE "Frequency info" as specified in subclause 8.6.6.1 in TS 25.331.

…

If the IE "New H-RNTI" is included, the UE shall:

1> if the IE "Downlink HS-PDSCH Information" is also included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 of TS 25.331 applied on the received message:

2> store the value in the variable H_RNTI.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

…

If the IE "New Primary E-RNTI" and/or the IE “New Secondary E-RNTI” is included, the UE shall:

1> store the new value(s) in the variable E_RNTI;

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> use the value of the Primary E-RNTI and/or Secondary E-RNTI stored in the variable E_RNTI as identities in the E-AGCH reception procedure in the physical layer.

…

If, after completion of the procedure, the UE will be in CELL_DCH state, the UE shall:

1> if the IE "Frequency info" is included:

2> if the frequency is different from the currently used frequency:

3> store and use the frequency indicated by the IE "Frequency Info"; and

3> perform the physical layer synchronisation procedure A as specified in TS 25.214 (FDD only).

…

If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message, the UE shall:

1> if the IE "HS-SCCH Info" is included:

2> act as specified in subclause 8.6.6.33 of TS 25.331.

1> if the IE "Measurement Feedback Info" is included:

2> act as specified in subclause 8.6.6.34 of TS 25.331.

1> if the IE "HS-DSCH Timeslot Configuration" or "HS-PDSCH Midamble Configuration" is included:

2> store the received configuration;

2> determine the value for the HS_DSCH_RECEPTION variable and take actions as described in subclause 8.5.25.

If the IE "HS-SCCH Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> in the case of FDD:

2> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving HS-DSCH radio link applying the scrambling code as received in the IE "DL Scrambling code".

If the IE "Measurement Feedback Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link.

…

If the IE "E-DCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the IE "E-DPCCH Info" is included:

2> store the newly received E-DPCCH configuration.

1> if the IE "E-DPDCH Info" is included:

2> store the newly received E-DPDCH configuration.

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> perform E_AGCH reception procedures according to the stored E_AGCH configuration as stated in:

2> subclause 8.6.3.14 of TS 25.331 for the IE "New Primary E-RNTI" and the IE "New Secondary E-RNTI".

1> perform E-HICH reception procedures for all radio links in the active set for which an E-HICH configuration has been provided;

1> perform E-RGCH reception procedures for all radio links in the active set for which an E-RGCH configuration has been provided;

1> perform E-DPCCH transmission procedures according to the stored E-DPCCH configuration as stated in:

2> subclause 8.6.6.37 of TS 25.331 for the IE "E-DPCCH Info";

1> perform E-DPDCH transmission procedures according to the stored E-DPDCH configuration as stated in:

2> subclause 8.6.5.16 of TS 25.331 for the IE "E-DCH Transmission Time Interval";

2> subclause 8.6.5.17 of TS 25.331 for the IE "HARQ info for E-DCH";

2> subclause 8.6.6.37 of TS 25.331 for the IE “DPDCH Info”.

1> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

2> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18 of TS 25.331).

1> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

2> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]); and

2> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37 of TS 25.331).

…

…

If the IE "DTX-DRX timing information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the CHOICE "timing" is set to "New timing":

2> store the contents of the IE in the variable DTX_DRX_PARAMS.

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

…

If the IE "DTX–DRX information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the contents of the IE in the variable DTX_DRX_PARAMS;

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34;

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple of the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple or a divisor of the value of the IE "CQI Feedback cycle, k"; or

1> if the value of the IE "UE DPCCH burst 1" is greater than the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DPCCH burst 2" is greater than the value of the IE "UE DTX cycle 2"; or

1> if the IE "UE DTX long preamble length" is set to 4 or 15 slots and the value of the IE "Inactivity Threshold for UE DTX cycle 2" is less than 4 TTIs (for 10ms E-DCH TTI) or 8 TTIs (for 2ms E-DCH TTI); or

1> if the IE "UE DRX cycle" is not an integer multiple or a divisor of the value of the IE "UE DTX cycle 1"; or

1> if the IE "DRX Information" is included in this message while the IE "DTX information" is not included in this message; or

1> if the value of the IE "UE DTX cycle 1" is not an integer multiple or a divisor of the value of the IE "MAC DTX cycle":

2> the UE behaviour is unspecified.

Reference

3GPP TS 25.331 clauses 8.2.2.3, 8.2.2.4, 8.3.1, 8.6.3.1,8.6.3.1b,8.6.3.14, 8.6.5.6,8.6.5.16, 8.6.5.17, 8.6.6.1, 8.6.6.32, 8.6.6.33, 8.6.6.34, 8.6.6.37, 8.6.6.38, 8.6.6.39.

8.3.1.44.3 Test purpose

To confirm that the UE enters the CELL_DCH state after it receives a CELL UPDATE CONFIRM message with a physical channel configuration causing it to start E-DCH transmission, HS-DSCH reception and configure UL DTX on a different cell and frequency.

To confirm that the UE enters CELL_PCH state on another frequency and stops E-DCH transmission and HS-DSCH reception when it receives a RADIO BEARER RECONFIGURATION message.

8.3.1.44.4 Method of test

Initial Condition

System Simulator: 2 cells - cell 1 is active and cell 6 is inactive.

UE: PS-DCCH +DTCH_HS-DSCH +DTCH_E-DCH (state 6-18), with UL DTX configured, under condition A20 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports discontinuous uplink transmission.

Test Procedure

Table 8.3.1.44

Parameter	Unit	Cell 1			Cell 6		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Frequency (f1)			High Range Frequency (f2)		
CPICH Ec	dBm/3.84MHz	-60	-72	-60	Off	-55	-72

Table 8.3.1.44 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The SS has configured its downlink transmission power setting according to columns "T0" in table 8.3.1.44. UE is in state 6-18 under condition A20 as specified in TS34.108 clause 7.4 in cell 1and has a radio bearer established mapped on E-DCH and HS-DSCH established with active E-DCH (DTX) transmission and HS-DSCH reception.

The SS switches its downlink transmission power settings to columns "T1". The SS transmits a RADIO BEARER RECONFIGURATION message, which invokes the UE to transit from CELL_DCH to CELL_PCH in cell 6. The UE

transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC, selects cell 6 and enters CELL_PCH state.

The SS transmits a PAGING TYPE 1 message. The UE then enters the CELL_FACH state to transmit a CELL UPDATE message to the SS on the uplink CCCH with the IE “Cell update cause" set to value “Paging response” in response to the paging.

The SS switches its downlink transmission power settings to columns "T2". The SS transmits CELL UPDATE CONFIRM message, which invokes UE to re-map the SRB's and the PS RAB on E-DCH/HS-DSCH for cell 1. Then the UE establishes HS-DSCH and E-DCH and configures UL DTX in cell 1, and resumes E-DCH transmission and transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH in cell 1.

The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 320ms for 2ms TTI and 400ms for 10ms TTI.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_DCH state in cell 1, with UL DTX configured, and the SS changes its downlink transmission power setting according to columns “T1” in table 8.3.1.44.
2	←		RADIO BEARER RECONFIGURATION	
3	→		RADIO BEARER RECONFIGURATION COMPLETE	After transmitting this message, the UE enters the CELL_PCH state in cell 6
4	SS			SS sends the L2 ack on the RADIO BEARER RECONFIGURATION COMPLETE message and then waits 5 seconds to allow the UE to read system information before the next step. Note: The SS should continue to keep the dedicated channel configuration during the time when the L2 ack is sent to the UE.
5	→		PAGING TYPE 1	
6	→		CELL UPDATE	The UE enters the CELL_FACH state.
7	SS			The SS switches its downlink transmission power settings to columns “T2” in table 8.3.1.44.
8	←		CELL UPDATE CONFIRM	
9	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE changes to cell 1, enters the CELL_DCH state and starts E-DCH transmission, with UL DTX, and HS-DSCH reception.
10	SS			The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 320ms if 2ms TTI or 400ms if 10ms TTI is used (i.e. duration of 10 consecutive DTX cycle 2).

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 2)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
RB information to reconfigure list	
- RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1

Information Element	Value/remark
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15

Information Element	Value/remark
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200

Information Element	Value/remark
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB stop/continue	Not Present
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	1
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	2
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	1
Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 6
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
Maximum allowed UL TX power	Not Present

Paging Type 1 (Step 5)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE (Step 6)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- S-RNTI	Check to see if set to value assigned in cell 1.
- SRNC Identity	Check to see if set to value assigned in cell 1.
Cell Update Cause	Check to see if set to “Paging response”

CELL UPDATE CONFIRM (Step 8)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
New Primary E-RNTI	'0101 0101 0101 0101'
New Secondary E-RNTI	Not Present
RRC State indicator	CELL_DCH
RB information to reconfigure list	
- RB RB information to reconfigure	(UM DCCH for RRC)
- RB identity	1
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
- Logical channel identity	1
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2

- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
- Logical channel identity	2
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
- Logical channel identity	3
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128

- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
- Logical channel identity	4
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	25
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to TS34.108 clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present

- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	0
- Logical channel identity	7
- RB stop/continue	Not Present
Added or Reconfigured UL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.
Frequency info	Set to the frequency of cell 1
DTX-DRX timing information	
CHOICE *timing*	
- New timing	
- Enabling Delay	16 if 10ms TTI and 0 if 2ms TTI is used.
- UE DTX DRX Offset	0 if 10ms TTI and 1 if 2ms TTI is used.
DTX-DRX Information	
- CHOICE E-DCH TTI length	
- 10 ms if 10ms TTI and 2 ms for 2ms TTI is used.	
- UE DTX cycle 1	10 if 10ms TTI and 8 for 2ms TTI is used.
- UE DTX cycle 2	20 if 10ms TTI and 16 for 2ms TTI is used.
- MAC DTX cycle	10 if 10ms TTI and 8 for 2ms TTI is used.
- Inactivity Threshold for UE DTX cycle 2	8 if 10ms TTI and 32 for 2ms TTI is used.
- UE DTX long preamble length	4
- MAC Inactivity Threshold	8 if 10ms TTI and 1 for 2ms TTI is used.
- CQI DTX Timer	32
- UE DPCCH burst_1	1
- UE DPCCH burst_2	1
DRX Information	
- UE DRX cycle	10 if 10ms TTI and 32 for 2ms TTI is used.
- Inactivity Threshold for UE DRX cycle	32
- Inactivity Threshold for UE Grant Monitoring	8
- UE DRX Grant Monitoring	TRUE
Uplink DPCCH slot format information	1
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.
E-DCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.
Downlink information common for all radio links	
- Downlink information for all radio link	
- CHOICE *DPCH info*	F-DPCH
- Downlink F-DPCH info for all RL	
- Timing Indication	Initialize
Downlink information for each radio link list	
- Downlink information for each radio link	
- Choice mode	FDD
- Primary CPICH info	

- Primary scrambling code	Set to the primary scrambling code of cell 1
- PDSCH with SHO DCH info	Not Present
- PDSCH code mapping	Not Present
- Serving HS-DSCH radio link indicator	TRUE
- Serving E-DCH radio link indicator	TRUE
- CHOICE DPCH info	F-DPCH
- Downlink F-DPCH info for each RL	
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- F-DPCH frame offset	Set to value Default F-DPCH Offset Value (as currently stored in SS) mod 38400
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present
- Secondary CPICH info	Not Present
- Secondary scrambling code	Not Present
- Code number	12
- TPC combination index	0
- Closed loop timing adjustment mode	Not Present
- E-AGCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.
- E-HICH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.
- E-RGCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.

8.3.1.44.5 Test requirement

At step 3, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

At step 6, the UE shall transmit a CELL UPDATE message on the uplink CCCH.

At step 9, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC in cell 1.

At step 10 the time between 11 consecutive CQI indications shall be 320ms for 2ms TTI and 400ms for 10ms TTI.

8.3.1.45 Cell Update: Radio Link Failure, with active discontinuous uplink transmission

8.3.1.45.1 Definition

All UEs which support FDD and UL DTX.

8.3.1.45.2 Conformance requirement

1> Radio link failure:

…

3> if the UE is in CELL_DCH state and the criteria for radio link failure are met as specified in subclause 8.5.6 of TS 25.331; or

…

4> perform cell update using the cause "radio link failure".

When initiating the URA update or cell update procedure, the UE shall:

…

1> if any IEs related to HS-DSCH are stored in the UE:

2> clear any stored IE "Downlink HS-PDSCH information";

2> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

1> if any IEs related to E-DCH are stored in the UE:

2> clear any stored IE "E-DCH info";

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

1> if any of the IEs "DTX-DRX timing information" or "DTX-DRX information" are stored in the UE:

2> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

1> if the IE "HS-SCCH less information" is stored in the UE:

2> determine the value for the HS_SCCH_LESS_STATUS variable and take the corresponding actions as described in subclause 8.5.35.

…

In CELL_DCH State, after receiving N313 consecutive "out of sync" indications from layer 1 for the established DPCCH or F-DPCH physical channel in FDD, and the physical channels associated with mapped DCCHs in TDD, the UE shall:

1> start timer T313;

1> upon receiving N315 successive "in sync" indications from layer 1 and upon change of UE state:

2> stop and reset timer T313.

1> if T313 expires:

2> consider it as a "Radio link failure".

Periods in time where neither "in sync" nor "out of sync" is reported by layer 1 do not affect the evaluation of the number of consecutive (resp. successive) "in sync" or "out of sync" indications.

When a radio link failure occurs, the UE shall:

1> clear the dedicated physical channel configuration;

1> perform actions as specified for the ongoing procedure;

1> if no procedure is ongoing or no actions are specified for the ongoing procedure:

2> perform a cell update procedure according to subclause 8.3.1 using the cause "radio link failure".

Reference

3GPP TS 25.331 clauses 8.3.1.2, 8.5.6.

8.3.1.45.3 Test purpose

1. To confirm that the UE stops the E-DCH transmission with DTX and performs a Cell Update procedure after radio link failure.

2. To confirm that the UE keeps the radio bearer mapping option and transport channel configuration for E-DCH after the radio link failure. To confirm that the UE resumes the E-DCH transmission and configures UL DTX after the Cell Update procedure.

8.3.1.45.4 Method of test

Initial Condition

System Simulator: 1 cell – Cell 1

UE: PS-DCCH_DCH (state 6-7) with SRBs mapped to E-DCH/HS-DSCH as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports discontinuous uplink transmission.

Test Procedure

Table 8.3.1.45

Parameter	Unit	Cell 1	
		T0	T1
UTRA RF Channel Number		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF

Table 8.3.1.45 illustrates the downlink power to be applied to Cell 1 at various time instants of the test execution. Column marked "T0" denote the initial conditions.

The UE is in CELL_DCH state and only signalling radio bearers have been established. The SS initiates P26 to make the UE move to state 6-18 as specified in TS 34.108 clause 7.4. The UE is now in the CELL_DCH state and has radio bearers mapped on E-DCH and HS-DSCH established with active E-DCH (DTX) transmission and HS-DSCH reception.

The SS configures its downlink transmission power settings according to column “T1” in table 8.3.1.45. After expiry of timer T313, the UE shall detect a radio link failure in Cell 1.

The SS waits for 15s (see Note 1) and then configures its downlink transmission power settings according to column “T0” in table 8.3.1.45. The UE shall then enter CELL_FACH state and transmit a CELL UPDATE message on the uplink CCCH in Cell 1.

The SS transmits a CELL UPDATE CONFIRM message, which requests the UE to transit to CELL_DCH state and provides the physical channel configuration to resume the interrupted radio bearer mapped on E-DCH / HS-DSCH and configures UL DTX.

The UE sets up the physical channels associated to E-DCH / HS-DSCH, enters CELL_DCH state and sends a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 400ms.

The SS calls for generic procedure C.3 to check that the UE is in CELL_DCH state.

NOTE 1: The 15s delay guarantees the expiry of timer T313 (default value = 3s) and the non-expiry of timer T315 (default value = 180s).

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P26	See below for the specific message content used in RADIO BEARER SETUP message.
1				The SS configures Cell 1 according to the “T1" power settings in table 8.3.1.45. The SS starts to listen to the uplink CCCH of Cell 1.
2				The UE detects the radio link failure and stops transmission of E-DCH.
3	→		CELL UPDATE	15s after step 1, the SS configures Cell 1 according to the “T0” power settings in table 8.3.1.45. The UE shall camp on Cell 1 and transmit a Cell Update message with the IE "Cell update cause" set to "radio link failure".
4	←		CELL UPDATE CONFIRM	The SS orders the UE to re-establish the E-DCH / HS-DSCH configuration with DTX.
5	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
6	SS			The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 400ms (i.e. duration of 10 consecutive DTX cycle 2).
7	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 0)

Use the same message as specified for "Packet to CELL_DCH / E-DCH / HS-DSCH using one multiplexing option (1/1) and SRBs mapped on E-DCH/HS-DSCH" in 34.108, with the exception of the following IEs:

Information Element	Value/remark
RB information to be affected	
- RB identity	1 (UM DCCH for RRC)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	1
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB identity	2 (AM DCCH for RRC)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	2
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1

- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB identity	3 (AM DCCH for NAS High Priority)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	3
- Uplink transport channel type	RACH
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB identity	4 (AM DCCH for NAS Low Priority)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	4
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- MAC logical channel priority	4

- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
DTX-DRX timing information	
CHOICE *timing*	
- New timing	
- Enabling Delay	16
- UE DTX DRX Offset	0
DTX-DRX Information	
- CHOICE E-DCH TTI length	10 ms
- UE DTX cycle 1	10
- UE DTX cycle 2	20
- MAC DTX cycle	10
- Inactivity Threshold for UE DTX cycle 2	8
- UE DTX long preamble length	4
- MAC Inactivity Threshold	8
- CQI DTX Timer	32
- UE DPCCH burst_1	1
- UE DPCCH burst_2	1
DRX Information	
- UE DRX cycle	10
- Inactivity Threshold for UE DRX cycle	32
- Inactivity Threshold for UE Grant Monitoring	8
- UE DRX Grant Monitoring	TRUE
Uplink DPCCH slot format information	1
Added or Reconfigured UL TrCH information	
- Uplink transport channel type	E-DCH
- CHOICE UL parameters	E-DCH
- E-DCH Transmission Time Interval	10ms

CELL UPDATE (Step 3)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- S-RNTI	Check to see if set to value assigned in Cell 1.
- SRNC Identity	Check to see if set to value assigned in Cell 1.
Cell Update Cause	Check to see if set to “Radio link failure”

CELL UPDATE CONFIRM (Step 4)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New Primary E-RNTI	'1010 1010 1010 1010'
New Secondary E-RNTI	Not Present
RRC State indicator	CELL_DCH
DTX-DRX timing information	
CHOICE timing	
- New timing	
- Enabling Delay	16
- UE DTX DRX Offset	0
DTX-DRX Information	
- CHOICE E-DCH TTI length	
- 10 ms	
- UE DTX cycle 1	10
- UE DTX cycle 2	20
- MAC DTX cycle	10
- Inactivity Threshold for UE DTX cycle 2	8
- UE DTX long preamble length	4
- MAC Inactivity Threshold	8
- CQI DTX Timer	32
- UE DPCCH burst_1	1
- UE DPCCH burst_2	1
DRX Information	
- UE DRX cycle	10
- Inactivity Threshold for UE DRX cycle	32
- Inactivity Threshold for UE Grant Monitoring	8
- UE DRX Grant Monitoring	TRUE
Uplink DPCCH slot format information	1
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.
E-DCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.
Downlink HS-PDSCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.
Downlink information common for all radio links	
- Downlink F-DPCH info common for all RL	
- Timing Indication	Initialise
- Downlink F-DPCH power control information	
- DPC mode	0 (single)
- TPC command error rate target	0.04
- CHOICE mode	FDD
- DPCH compressed mode info	Not Present
- TX Diversity mode	None
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
- MAC-hs reset indicator	TRUE
Downlink information per radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.

8.3.1.45.5 Test requirement

At step 3, the UE shall transmit a CELL UPDATE message.

At step 5, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and start transmission on E-DCH. At step 6 the time between 11 consecutive CQI indications shall be 400ms.

8.3.1.46 Cell Update: Transition from URA_PCH to CELL_DCH: Success (start of discontinuous uplink transmission)

8.3.1.46.1 Definition

All UEs which support FDD and UL DTX.

8.3.1.46.2 Conformance requirement

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

If the UE is in connected mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a UTRAN identity and if this U-RNTI is the same as the U-RNTI allocated to the UE:

2> if the optional IE "CN originated page to connected mode UE" is included:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "Paging cause" and the IE "Paging record type identifier" to the upper layers.

2> otherwise:

3> perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.

2> ignore any other remaining IE "Paging record" that may be present in the message.

1> otherwise:

2> ignore that paging record.

…

A UE shall initiate the cell update procedure in the following cases:

1> Paging response:

…

1> Uplink data transmission:

2> if the UE is in URA_PCH or CELL_PCH state; and

2> if the UE has uplink RLC data PDU or uplink RLC control PDU on RB1 or upwards to transmit:

3> perform cell update using the cause "uplink data transmission".

…

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

…

When the UE receives a CELL UPDATE CONFIRM/URA UPDATE CONFIRM message; and

- if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or
- if the message is received on DCCH:

the UE shall:

1>act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following:

2> if the IE "Frequency info" is included in the message:

3> if the IE "RRC State Indicator" is set to the value "CELL_DCH":

4> act on the IE "Frequency info" as specified in subclause 8.6.6.1 in TS 25.331.

…

If, after completion of the procedure, the UE will be in CELL_DCH state, the UE shall:

1> if the IE "Frequency info" is included:

2> if the frequency is different from the currently used frequency:

3> store and use the frequency indicated by the IE "Frequency Info"; and

3> perform the physical layer synchronisation procedure A as specified in TS 25.214 (FDD only).

…

If the IE "New H-RNTI" is included, the UE shall:

3> store the value in the variable H_RNTI.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

…

If the IE "New Primary E-RNTI" and/or the IE “New Secondary E-RNTI” is included, the UE shall:

1> store the new value(s) in the variable E_RNTI;

When the variable E_DCH_TRANSMISSION is set to TRUE the UE shall:

1> use the value of the Primary E-RNTI and/or Secondary E-RNTI stored in the variable E_RNTI as identities in the E-AGCH reception procedure in the physical layer.

…

If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message, the UE shall:

1> if the IE "HS-SCCH Info" is included:

2> act as specified in subclause 8.6.6.33 of TS 25.331.

1> if the IE "Measurement Feedback Info" is included:

2> act as specified in subclause 8.6.6.34 of TS 25.331.

1> if the IE "HS-DSCH Timeslot Configuration" or "HS-PDSCH Midamble Configuration" is included:

2> store the received configuration;

2> determine the value for the HS_DSCH_RECEPTION variable and take actions as described in subclause 8.5.25.

If the IE "HS-SCCH Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> in the case of FDD:

2> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving HS-DSCH radio link applying the scrambling code as received in the IE "DL Scrambling code".

If the IE "Measurement Feedback Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link.

…

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

1> if the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

3> consider this radio link as the serving HS-DSCH radio link.

2> if the IE "Serving E-DCH radio link indicator" is set to 'TRUE':

3> consider this radio link as the serving E-DCH radio link.

2> if the IE "E-AGCH Info" is included:

3> store the newly received E-AGCH configuration.

2> if the IE "E-HICH information" is included:

3> store this E-HICH configuration for the concerning radio link.

2> if the IE "E-RGCH information" is included:

3> store this E-RGCH configuration for the concerning radio link.

2> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

2> act on the other IEs contained in the IE "Downlink information for each radio link" as specified in subclause 8.6 applied on this radio link.

…

If the IE "E-DCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the IE "E-DPCCH Info" is included:

2> store the newly received E-DPCCH configuration.

1> if the IE "E-DPDCH Info" is included:

2> store the newly received E-DPDCH configuration.

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

…

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable E_DCH_TRANSMISSION is set to TRUE, the UE shall:

1> perform E_AGCH reception procedures according to the stored E_AGCH configuration as stated in:

2> subclause 8.6.3.14 of TS 25.331 for the IE "New Primary E-RNTI" and the IE "New Secondary E-RNTI".

1> perform E-HICH reception procedures for all radio links in the active set for which an E-HICH configuration has been provided;

1> perform E-RGCH reception procedures for all radio links in the active set for which an E-RGCH configuration has been provided;

1> perform E-DPCCH transmission procedures according to the stored E-DPCCH configuration as stated in:

2> subclause 8.6.6.37 of TS 25.331 for the IE "E-DPCCH Info";

1> perform E-DPDCH transmission procedures according to the stored E-DPDCH configuration as stated in:

2> subclause 8.6.5.16 of TS 25.331 for the IE "E-DCH Transmission Time Interval";

2> subclause 8.6.5.17 of TS 25.331 for the IE "HARQ info for E-DCH";

2> subclause 8.6.6.37 of TS 25.331 for the IE “DPDCH Info”.

1> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Non-scheduled transmission grant info" is configured shall:

2> obey the scheduling and size restrictions as specified for that MAC-d flow (see subclause 8.6.5.18 of TS 25.331).

1> inclusion of MAC-d PDU's in a MAC-e PDU for logical channels belonging to a MAC-d flow for which the IE "Scheduled transmission grant info" is configured shall:

2> be performed in accordance with the received scheduling grant on E-AGCH/E-RGCH (see [15]); and

4> obey the scheduling restrictions as specified for scheduled transmissions (see subclause 8.6.6.37 of TS 25.331).

…

If the IE "DTX-DRX timing information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the CHOICE "timing" is set to "New timing":

2> store the contents of the IE in the variable DTX_DRX_PARAMS.

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

…

If the IE "DTX–DRX information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the contents of the IE in the variable DTX_DRX_PARAMS;

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34;

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple of the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple or a divisor of the value of the IE "CQI Feedback cycle, k"; or

1> if the value of the IE "UE DPCCH burst 1" is greater than the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DPCCH burst 2" is greater than the value of the IE "UE DTX cycle 2"; or

1> if the IE "UE DTX long preamble length" is set to 4 or 15 slots and the value of the IE "Inactivity Threshold for UE DTX cycle 2" is less than 4 TTIs (for 10ms E-DCH TTI) or 8 TTIs (for 2ms E-DCH TTI); or

1> if the IE "UE DRX cycle" is not an integer multiple or a divisor of the value of the IE "UE DTX cycle 1"; or

1> if the IE "DRX Information" is included in this message while the IE "DTX information" is not included in this message; or

1> if the value of the IE "UE DTX cycle 1" is not an integer multiple or a divisor of the value of the IE "MAC DTX cycle":

2> the UE behaviour is unspecified.

Reference

3GPP TS 25.331 clauses 8.2.2.3, 8.2.2.4, 8.3.1, 8.5.28, 8.6.3.14, 8.6.5.16, 8.6.5.17, 8.6.5.18, 8.6.6.37, 8.6.6.38, 8.6.6.39

8.3.1.46.3 Test purpose

To confirm that the UE enters the CELL_DCH state after it receives a CELL UPDATE CONFIRM message with a physical channel configuration causing it to start E-DCH transmission, HS_DSCH reception and configures UL DTX.

To confirm that the UE executes a cell update procedure when the UE transmits uplink data if the UE is in URA_PCH state.

8.3.1.46.4 Method of test

Initial Condition

System Simulator: 1 cell.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents)

UE: PS-DCCH +DTCH_HS-DSCH +DTCH_E-DCH (state 6-18) under condition A20 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports discontinuous uplink transmission.

Test Procedure

The UE is in the CELL_DCH state and has a radio bearer mapped on E-DCH and HS-DSCH established with active E-DCH transmission and HS-DSCH reception. E-DCH transmission Time Interval is set to 10ms.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, which invokes the UE to transit from CELL_DCH to URA_PCH. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC and enters URA_PCH state.

The SS transmits a PAGING TYPE 1 message. The UE then enters the CELL_FACH state to transmit a CELL UPDATE message to the SS on the uplink CCCH with the IE “Cell update cause” set to value “Paging response” in response to the paging.

The SS transmits CELL UPDATE CONFIRM message, which includes HS-PDSCH and E-DPDCH physical channel parameters on the downlink DCCH with UL DTX. Then the UE resumes E-DCH transmission and HS-DSCH reception, and transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH.

The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 400ms. Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P26	See below for the specific message content used in RADIO BEARER SETUP message.
1	←		PHYSICAL CHANNEL RECONFIGURATION	
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE enters the URA_PCH state
3	←		PAGING TYPE 1	
4	→		CELL UPDATE	The UE enters the CELL_FACH state.
5	←		CELL UPDATE CONFIRM	
6	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE enters the CELL_DCH state and starts E-DCH transmission with UL DTX and HS-DSCH reception.
7	SS			The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 400ms (i.e. duration of 10 consecutive DTX cycle 2).

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
-UE Timers and constants in connected mode - T312	 2

RADIO BEARER SETUP (Step 0) (FDD)

Use the same message as specified for "Packet to CELL_DCH / E-DCH / HS-DSCH with DTX/DRX using one multiplexing option (1/1) and SRBs mapped on E-DCH/HS-DSCH " in 34.108, with the exception of the following IEs:

Information Element	Value/remark
RB information to be affected - RB identity - RB mapping info	 1 (UM DCCH for RRC)

- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	1
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB identity	2 (AM DCCH for RRC)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	2
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2

- RB identity	3 (AM DCCH for NAS High Priority)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	3
- Uplink transport channel type	RACH
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB identity	4 (AM DCCH for NAS Low Priority)
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- DL HS-DSCH MAC-d flow identity	1
- Logical channel identity	4
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.1.2 (standalone 3.4 kbps signalling radio bearer)
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present

- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4

PHYSICAL CHANNEL RECONFIGURATION (Step 1)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in TS 34.108 with following exceptions:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	URA_PCH
UTRAN DRX cycle length coefficient	3
URA Identity	0000 0000 0000 0001B

Paging Type 1 (Step 3)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE (Step 4)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- S-RNTI	Check to see if set to value assigned in cell 1.
- SRNC Identity	Check to see if set to value assigned in cell 1.
Cell Update Cause	Check to see if set to “Paging response”

CELL UPDATE CONFIRM (Step 5)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New Primary E-RNTI	'1010 1010 1010 1010'
New Secondary E-RNTI	Not Present
RRC State indicator	CELL_DCH
DTX-DRX timing information	
CHOICE *timing*	
- New timing	
- Enabling Delay	16
- UE DTX DRX Offset	0
DTX-DRX Information	
- CHOICE E-DCH TTI length	10ms
- UE DTX cycle 1	10
- UE DTX cycle 2	20
- MAC DTX cycle	10
- Inactivity Threshold for UE DTX cycle 2	8
- UE DTX long preamble length	4
- MAC Inactivity Threshold	8
- CQI DTX Timer	32
- UE DPCCH burst_1	1
- UE DPCCH burst_2	1
DRX Information	
- UE DRX cycle	10
- Inactivity Threshold for UE DRX cycle	32
- Inactivity Threshold for UE Grant Monitoring	8
- UE DRX Grant Monitoring	TRUE
Uplink DPCCH slot format information	1
Uplink DPCH info	Not Present
E-DCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.
Downlink HS-PDSCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.
Downlink information common for all radio links	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20 except for the following IEs.
- Timing indicator	Initialize
- Default DPCH Offset Value	Not Present
Downlink information per radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A20.

8.3.1.46.5 Test requirement

At step 2, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

At step 4, the UE shall transmit a CELL UPDATE message on uplink CCCH.

At step 6, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

At step 7 the time between 11 consecutive CQI indications shall be 400ms.

8.3.1.47 Cell Update: cell reselection in CELL_FACH (Reselection between cell not supporting HS-PDSCH in CELL_FACH and cell supporting HS-PDSCH is CELL_FACH)

8.3.1.47.1 Definition and applicability

All UEs which support FDD and HS-PDSCH in CELL_FACH.

8.3.1.47.2 Conformance requirement

In the CELL_FACH state the UE shall perform the following actions:

1) NOTE: DCCH and, if configured, DTCH are available in this state.

1> if the UE is "in service area":

2> maintain up-to-date system information as broadcast by the serving cell as specified in subclause 8.1.1;

2> perform cell reselection process as specified in [4];

…

The UE shall set the IEs in the CELL UPDATE message as follows:

..

1> if the UE supports HS-DSCH reception in CELL_FACH state:

5> 2> include the IE "HS-PDSCH in CELL_FACH" and set it to TRUE.

…

When the UE receives a CELL UPDATE CONFIRM/URA UPDATE CONFIRM message; and

..

If the UE after state transition remains in CELL_FACH state, it shall

1> start the timer T305 using its initial value if timer T305 is not running and periodical cell update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity";

1> select PRACH according to subclause 8.5.17;

1> for TDD; or

1> for FDD, if the UE does not support HS-DSCH reception; or

1> if the IE "HS-DSCH common system information" is not included in System Information Block type 5 or System Information Block type 5bis:

2> select Secondary CCPCH according to subclause 8.5.19;

2> take the actions related to the HS_DSCH_RECEPTION_GENERAL variable as described in subclause 8.5.37a.

1> else:

2> if the RBs have the multiplexing option with transport channel type "HS-DSCH" for the DL and transport channel type "RACH" in the UL; and

2> if variable H_RNTI and variable C_RNTI are set:

3> start to receive HS-DSCH according to the procedure in subclause 8.5.36.

2> else:

3> clear variable C_RNTI and delete any stored C-RNTI value;

3> clear variable H_RNTI and delete any stored H-RNTI value;

3> clear any stored IEs "HARQ info";

3> set the variable INVALID_CONFIGURATION to TRUE.

…

The variable HS_DSCH_RECEPTION_CELL_FACH_STATE shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_FACH;

1> the variable H_RNTI is set;

1> the variable C_RNTI is set;

1> System Information Block type 5 or System Information Block type 5bis includes IE "HS-DSCH common system information".

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_CELL_FACH_STATE to FALSE;

1> if the UE is in CELL_FACH and variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to FALSE:

2> set the variable HS_DSCH_RECEPTION_GENERAL to FALSE;

2> stop any HS_SCCH reception procedures;

2> stop any HS-DSCH reception procedures;

2> clear the variable H_RNTI and remove any stored H-RNTI;

2> reset the MAC-ehs entity [15];

2> release all HARQ resources;

2> clear any stored IEs "HARQ info";

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

1> use the IE "HS-DSCH common system information" in System Information Block type 5 or System Information Block type 5bis;

1> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving cell applying the scrambling code as received in the IE "DL Scrambling code" as received in IE "HS-DSCH common system information";

1> perform HS-DSCH reception procedures:

2> if the UE has a stored IE "HARQ info":

3> act on subclause 8.6.5.6b for the stored IE "HARQ info".

2> else:

3> act on subclause 8.6.5.20 for the IE "HARQ System info" as received in IE "HS-DSCH common system information".

2> and use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

1> and for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH code listed in the IE "HS-SCCH channelisation code" with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to FALSE, the UE shall:

1> if the UE is in CELL_FACH and variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to FALSE:

2> not perform HS_SCCH reception procedures;

2> not perform HS-DSCH reception procedures.

…

When UE does not support HS-DSCH reception or when the IE "HS-DSCH common system information" is not included in System Information Block type 5 or System Information Block type 5bis, the UE shall:

1> set HS_DSCH_RECEPTION_OF_CCCH_ENABLED to FALSE;

1> set the variable HS_DSCH_RECEPTION_GENERAL to FALSE.

When HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

1> use the IE "HS-DSCH common system information" in System Information Block type 5 or System Information Block type 5bis;

1> configure the HARQ according to IE "HARQ System info" as defined in subclause 8.6.5.20;

1> configure the common MAC-ehs reordering queues according to IE "Common MAC-ehs reordering queues" as defined in subclauses 8.6.5.22; and then

1> receive the CCCH according to IE "CCCH mapping info" as defined in subclause 8.6.5.21;

1> if the UE is RRC Connected mode:

2> select a common H-RNTI as specified in 8.5.38;

2> receive the SRB1 according to IE "SRB1 mapping info" as defined in subclause 8.6.5.19.

1> else:

2> select a common H-RNTI as specified in [4].

1> and start to receive the HS-SCCH(s) with selected H-RNTI according to the IE "HS-SCCH channelisation code" on the selected cell applying the scrambling code as received in the IE "DL Scrambling code";

1> configure the MAC flow for BCCH reception as specified in [15];

1> and start to receive the first indexed HS-SCCH code listed in the IE "HS-SCCH channelisation code" with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

…

In FDD and 1.28 Mcps TDD, the MAC PDU header for DTCH and DCCH mapped on HS-DSCH CELL_FACH, CELL_PCH state is as shown in figure 9.2.1.1c-1.

- there is no MAC-d header included for DTCH and DCCH.
- there is no MAC-c header included for DTCH and DCCH when UE dedicated H-RNTI is used.
- the U-RNTI is only included as MAC-c header to MAC-d PDU for DCCH (SRB#1 only)when common H-RNTI is used

Reference

3GPP TS 25.331 clauses 7.2.2.2, 8.3.1.3 8.3.1.6, 8.5.36, 8.5.37

3GPP TS 25.321 clause 9.2.1.1c

8.3.1.47.3 Test purpose

1. To confirm that the UE starts reception of HS-PDSCH in CELL_FACH state, after reselecting to a cell supporting HS-PDSCH in CELL_FACH.

2. To confirm that the UE performs the cell reselection procedure while receiving HS-PDSCH in CELL_FACH state.

3. To confirm that the UE can receive data on DCCH (SRB#1) HS-DSCH using common H-RNTI in CELL_FACH state.

8.3.1.47.4 Method of test

Initial Condition

System Simulator: 2 cells: Cell 1 sends the default system information (HS-DSCH for CELL_FACH not configured), Cell 6 configures HS-DSCH for CELL_FACH in System Information Type 5.

UE: PS-DCCH+DTCH_FACH (state 6-11) in cell 1 as specified in clause 7.4 of TS 34.108.

For cell 2, the following parameters are specific for the system information

Parameter	Value
T302	8000 ms

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH in CELL_FACH

Test Procedure

Table 8.3.1.47

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-70	-70	-60

Table 8.3.1.47 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The SS has configured its downlink transmission power according to column “T0” in table 8.3.1.47. UE is in state 6-11 in cell 1 as specified in clause 7.4 of TS 34.108 and has a radio bearer established mapped on RACH and FACH.

The SS transmits updated SYSTEM INFORMATION TYPE5/5bis message which includes HS-DSCH reception in cell FACH state. The SS switches its downlink transmission power settings to column “T1”.

UE finds cell 6 as a better cell and reselects to Cell 6. The UE transmits CELL UPDATE message on uplink CCCH of cell 6 with the IE “Cell update cause” set to “cell reselection”. The SS then transmits a CELL UPDATE CONFIRM which includes the IE RRC State Indicator" set to "CELL_FACH", but with unmatched UE Id in MAC-c header, to the UE on the downlink DCCH. The UE does not respond to this. After expiry of T302 the UE shall transmit another CELL UPDATE. The SS then transmits a CELL UPDATE CONFIRM which includes the IE RRC State Indicator" set to "CELL_FACH", but this time with matched UE Id in MAC-c header, to the UE on the downlink DCCH. Then UE shall respond by transmitting a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH.

The SS switches its downlink transmission power settings to column “T0”. UE finds cell 1 as a better cell for service and reselects to Cell 1.

The UE transmits CELL UPDATE message on uplink CCCH of cell 1 with the IE “Cell update cause” set to “cell reselection”. The SS then transmits a CELL UPDATE CONFIRM which includes the IE RRC State Indicator" set to "CELL_FACH", to the UE on the downlink DCCH. Then UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH.

The SS checks that the UE is in Cell FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0				The UE is in CELL_FACH state in cell 1
0a	←		SYSTEM INFORMATION BLOCK TYPE 4 SYSTEM INFORMATION BLOCK TYPE 11	SS transmits modified SIB 4 and 11, with contents given in specific message contents. Transmitted on Cell1 and Cell6
1	←		SYSTEM INFORMATION TYPE 5/5bis	Transmitted on cell 6. Includes configuration for HS-DSCH reception in CELL_FACH state
2				SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.3.1.47. The UE shall find that the cell 6 is better for service and perform reselection. SS waits for the maximum duration required for the UE to camp to cell 6.
3	→		CELL UPDATE	Value "cell reselection" shall be indicated in IE "Cell update cause" and “HS-PDSCH in CELL_FACH” is set to TRUE.
4	←		CELL UPDATE CONFIRM	Transmitted by the SS on SRB1 using common H-RNTI but unmatched UE-ID in MAC-c header. IE "RRC State Indicator" is set to "CELL_FACH".
5	→		CELL UPDATE	After expiry of T302. Value "cell reselection" shall be indicated in IE "Cell update cause" and “HS-PDSCH in CELL_FACH” is set to TRUE
6	←		CELL UPDATE CONFIRM	Transmitted by the SS on SRB1 using common H-RNTI but with matched UE-ID in MAC-c header. IE "RRC State Indicator" is set to "CELL_FACH".
7	→		RADIO BEARER RECONFIGURATION COMPLETE	Transmitted by the UE on RACH.
8				SS applies the downlink transmission power settings, according to the values in columns "T0" of table 8.3.1.47. The UE shall find that the cell 1 is better for service and perform reselection. SS waits for the maximum duration required for the UE to camp to cell 1.
9	→		CELL UPDATE	Value "cell reselection" shall be indicated in IE "Cell update cause" and “HS-PDSCH in CELL_FACH” is set to TRUE.
10	←		CELL UPDATE CONFIRM	Transmitted by the SS on FACH / S-CCPCH. IE "RRC State Indicator" is set to "CELL_FACH".
11	→		UTRAN MOBILITY INFORMATION CONFIRM	Transmitted by the UE on RACH.
12	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

SYSTEM INFORMATION TYPE 5/ SYSTEM INFORMATION TYPE 5bis (Step 2)

Use the same message as specified for “Only for cells which configure HS-DSCH reception in CELL_FACH “ in 34.108, clause 6.1.0b

System Information Block type 4 (Step 0a)

Use the same message type found in clause 6.1.0b of TS 34.108, with the following exceptions:

- Qqualmin	-16

System Information Block type 11 (Step 0a)

Use the same message type found in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	3
- Inter-frequency FDD measurement indicator	TRUE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	Not Present

CELL UPDATE (Steps 3, 5 and 9)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
Cell Update Cause	Check to see if set to 'Cell Re-selection'
HS-PDSCH in CELL_FACH	Check to see if set to TRUE

CELL UPDATE CONFIRM (Step 4 and 6)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the DL CCCH, with the exception of the following IEs:

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'
New H-RNTI	'1110 1010 1010 1010'
RB information to be affected list	
- RB information to be affected	(UM DCCH for RRC)
- RB identity	1
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	According to clause 6.10.2.4.4.1 (combinations on PRACH in TS 34.108)
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1

- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	Explicit list
- RLC size index	According to clause 6.10.2.4.4.1
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	
- DL DSCH Transport channel identity	
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	1
- RB information to be affected	(AM DCCH for RRC)
- RB identity	2
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1 (combinations on PRACH in TS 34.108)
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present

- DL DSCH Transport channel identity	Not Present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	2
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1 (combinations on PRACH in TS 34.108)
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB information to be affected	(AM DCCH for NAS_DT High priority)
- RB identity	3
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1 (combinations on PRACH)
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	3
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1 (combinations on PRACH in TS 34.108)
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB information to be affected	(AM DCCH for NAS_DT High priority)
- RB identity	4
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1 (Combinations on PRACH)
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH

- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	4
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1 (Combinations on PRACH)
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4
- RB information to be affected	(AM DTCH)
- RB identity	25
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1 (Combinations on PRACH)
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	2
- Logical channel identity	7
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.4.1 (Combinations on PRACH)
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7

RADIO BEARER RECONFIGURATION COMPLETE (Step 7)

Use the same default message as specified in TS 34.108, clause 9.

CELL UPDATE CONFIRM (Step 10)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'

8.3.1.47.5 Test requirements

At step 3 the UE shall reselect to cell 6 and then it shall transmit a CELL UPDATE message which sets the value "cell reselection" in IE "Cell update cause" and “HS-PDSCH in CELL_FACH” set to TRUE.

At step 5 the UE shall not respond to the CELL UPDATE CONFIRM in step 4. The UE will instead transmit CELL UPDATE after expiry of T302.

At step 7 the UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM on UL using the PRACH physical resource.

At step 9 the UE shall reselect to cell 1 and then it shall transmit a CELL UPDATE message which sets the value "cell reselection" in IE "Cell update cause" and “HS-PDSCH in CELL_FACH” set to TRUE.

8.3.1.48 Cell Update: Radio Link Failure, UM RLC Re-establishment

8.3.1.48.1 Definition

All UEs which support CS over HSPA.

8.3.1.48.2 Conformance requirement

The cell update procedure may also include:

- a re-establish of AM RLC entities;
- a re-establish of UM RLC entities;
- a radio bearer release, radio bearer reconfiguration, transport channel reconfiguration or physical channel reconfiguration.

…

A UE shall initiate the cell update procedure in the following cases:

…

1> Radio link failure:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met:

3> if the UE is in CELL_DCH state and the criteria for radio link failure are met as specified in subclause 8.5.6; or

3> if the transmission of the UE CAPABILITY INFORMATION message fails as specified in subclause 8.1.6.6; or

3> if the UE detects PDCP Unrecoverable Error [36] in a PDCP entity::

4> perform cell update using the cause "radio link failure".

…

The UE RRC shall submit the UE CAPABILITY INFORMATION message to the lower layers for transmission on the uplink DCCH using AM RLC. When the message has been delivered to lower layers for transmission the UE RRC shall start timer T304 and set counter V304 to 1.

…

T304 timeout

Upon expiry of timer T304, the UE shall check the value of V304 and:

1> if V304 is smaller than or equal to N304:

2> prior to retransmitting the UE CAPABILITY INFORMATION message:

3> if the IE "Status" in the variable INTEGRITY_PROTECTION_INFO has the value "Started":

4> include the same IEs as in the last unsuccessful attempt of this message, except for the IE "Integrity check info", which is set as specified in subclause 8.5.10.

3> else:

4> include the same IEs as in the last unsuccessful attempt of this message.

2> send the UE CAPABILITY INFORMATION message on signalling radio bearer RB2;

2> restart timer T304;

2> increment counter V304.

1> if V304 is greater than N304:

2> initiate the Cell update procedure as specified in subclause 8.3.1, using the cause "Radio link failure".

…

When the UTRAN receives a CELL UPDATE/URA UPDATE message, the UTRAN should:

1> in case the procedure was triggered by reception of a CELL UPDATE:

…

1> if the radio bearer is connected to a CS domain radio access bearer and the radio bearer uses UM RLC:

2> the UM RLC entity should be re-established in UTRAN.

…

When the UE receives a CELL UPDATE CONFIRM/URA UPDATE CONFIRM message; and

- if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or
- if the message is received on DCCH:

the UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

the UE shall:

1> stop timer T302;

…

1> if the received CELL UPDATE CONFIRM or URA UPDATE CONFIRM message included the IE "Downlink counter synchronisation info":

2> if the variable PDCP_SN_INFO is empty:

3> configure the corresponding RLC entity for all AM and UM radio bearers and AM and UM signalling radio bearers except RB2 to "stop".

2> else:

3> configure the RLC entity for signalling radio bearers RB1, RB3 and RB4 to "stop";

3> configure the RLC entity for UM and AM radio bearers for which the IE "PDCP SN Info" is not included to "stop".

2> re-establish the RLC entity for RB2;

2> clear all entries in the table "Processed transactions" in the variable TRANSACTIONS;

2> for the downlink and the uplink, apply the ciphering configuration as follows:

3> if the received re-configuration message included the IE "Ciphering Mode Info":

4> use the ciphering configuration in the received message when transmitting the response message.

3> if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because the activation times not having been reached:

4> if the previous SECURITY MODE COMMAND was received due to new keys being received:

5> consider the new ciphering configuration to include the received new keys;

5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 as indicated in subclause 8.1.12.3.1.

4> else if the ciphering configuration for RB2 from a previously received SECURITY MODE COMMAND has not yet been applied because of the corresponding activation times not having been reached and the previous SECURITY MODE COMMAND caused a change in LATEST_CONFIGURED_CN_DOMAIN:

5> consider the new ciphering configuration to include the keys associated with the LATEST_CONFIGURED_CN_DOMAIN;

5> initialise the HFN component of the uplink COUNT-C and downlink COUNT-C of SRB2 to the most recently transmitted IE "START list" or IE "START" for the LATEST_CONFIGURED_CN_DOMAIN at the reception of the previous SECURITY MODE COMMAND.

4> apply the new ciphering configuration immediately following RLC re-establishment.

3> else:

4> continue using the current ciphering configuration.

2> set the new uplink and downlink HFN component of the COUNT-C of RB2 to MAX(uplink HFN component of the COUNT-C of RB2, downlink HFN component of the COUNT-C of RB2);

2> increment by one the downlink and uplink values of the HFN component of the COUNT-C for RB2;

2> calculate the START value according to subclause 8.5.9;

2> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info" in any response message transmitted below.

1> else if the radio bearer is connected to a CS domain radio access bearer and the radio bearer uses UM RLC:

2> re-establish the UM RLC entity;

2> if the value of the IE "Status" in the variable CIPHERING_STATUS of the CN domain as indicated in the IE "CN domain identity" in the IE "RAB info" in the variable ESTABLISHED_RABS is set to "Started":

3> set the HFN component of the respective COUNT-C values for the UM RLC entity equal to the START value included in this CELL UPDATE message for the CN domain as indicated in the IE "CN domain identity" in the IE "RAB info" in the variable ESTABLISHED_RABS;

3> set the remaining bits of the HFN component of the COUNT-C values of the UM RLC entity to zero.

…

For 1.28 Mcps TDD, when the variable E_DCH_TRANSMISSION is set to TRUE (see subclause 8.5.28) and the UE has stored the IE "E-RUCCH info", a "Radio link failure" shall be triggered as below:

1> if the E-RUCCH transmission counter is added greater than N_RUCCH, another hysteresis Timer with the value of N-RUCCH times of T-RUCCH period shall be started:

2> upon the hysteresis Timer expires and still no Grant has been received for the whole time duration since the last E-RUCCH transmission:

3> consider it as a "Radio link failure", refer to [59].

For FDD in CELL_DCH state and in TDD when a radio link failure occurs, the UE shall:

1> clear the dedicated physical channel configuration;

1> perform actions as specified for the ongoing procedure;

1> if no procedure is ongoing or no actions are specified for the ongoing procedure:

2> perform a cell update procedure according to subclause 8.3.1 using the cause "radio link failure".

For FDD, in CELL_FACH state and Idle mode, in conjunction with the Enhanced Uplink in CELL_FACH state, after receiving an indication from layer 1 that physical layer transmission stopped caused by an DL out-of-synchronisation, the UE shall:

1> consider it as a "Radio link failure".

Reference

3GPP TS 25.331 clauses 8.3.1.1, 8.3.1.2, 8.3.1.5, 8.3.1.6, 8.1.6.6.

8.3.1.48.3 Test purpose

1. To confirm that UE performs UM RLC re-establishment on CS over HSPA RAB following CELL UPDATE with cause "radio link failure".

8.3.1.48.4 Method of test

Initial Condition

System Simulator: 1 cell – Cell 1

UE is in Idle mode (state 2 or state 7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports CS over HSPA.

Test Procedure

The SS setups a circuit switched session including radio bearer and UE test loop mode 1 in RLC UM using Common test procedures for mobile terminated CS switched sessions. Usage of "PDCP AMR Data" PDU has been configured by higher layers.

The SS sends valid AMR data packets.

The received data shall be looped back by the UE via its PDCP configuration using PDCP AMR Data PDU.

The SS transmits UE CAPABILITY ENQUIRY and UE responds with UE CAPABILITY INFORMATION and starts timer T304 to wait for UE CAPABILITY INFORMATION CONFIRM from SS. SS does not transmit UE CAPABILITY INFORMATION CONFIRM message which cause UE to re-transmit UE CAPABILITY

INFORMATION message after T304 expiry. After N304 + 1 transmissions, the UE triggers CELL UPADTE message on the uplink CCCH.

The SS transmits a CELL UPDATE CONFIRM message, which requests the UE to transit to CELL_DCH state and provides the physical channel configuration to resume the interrupted CS radio bearer mapped on E-DCH / HS-DSCH.

The UE sets up the physical channels associated to E-DCH / HS-DSCH, enters CELL_DCH state and sends a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

The SS sends valid AMR data packet.

The received data shall be looped back by the UE via its PDCP configuration using PDCP AMR Data PDU. SS verifies the content of the AMR data is the same as originally transmitted.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
Setup a UE terminated CS session (using UE test loop mode 1). Refer to section 7.3.1 of TS 34.123-1 for common test procedure sequence. Refer to specific message contents below for SECURITY MODE COMMAND				
1	←		PDCP Data	The SS sends a PDCP AMR Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 010 (PDCP AMR Data PDU) CS counter = first to fifth LSBs of the CFN at which the packet has been received from higher layers
2	→		PDCP Data	The UE loops back PDCP AMR Data PDU with the following content back to the SS: PDU type = 010 (PDCP AMR Data PDU) CS counter = first to fifth LSBs of the CFN at which the packet has been received from higher layers data: previously received AMR frames
				Steps 2-3 are repeated 4 times, with 500 ms between the sending of each AMR data packet in the downlink
3	←		UE CAPABILITY ENQUIRY	
4	→		UE CAPABILITY INFORMATION	The UE transmits the message UE CAPABILITY INFORMATION and then UE RRC starts timer T304
4a				SS does not transmit UE CAPABILITY INFORMATION CONFIRM message , which causes timer T304 in UE to expire and trigger the re-transmission. After N304+1 transmissions, UE detects the radio link failure and stops transmission of E-DCH
5	→		CELL UPDATE	The UE shall transmit a Cell Update message with the IE "Cell update cause" set to "radio link failure".
6	←		CELL UPDATE CONFIRM	UM RLC associated with CS RAB should be re-established following CELL UPDATE CONFIRM
7	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
8	←		PDCP Data	The SS sends a PDCP AMR Data PDU using the RLC-UM-Data-Request Primitive with the following content to the UE: PDU type = 010 (PDCP AMR Data PDU) CS counter = first to fifth LSBs of the CFN at which the packet has been received from higher layers
9	→		PDCP Data	The UE loops back PDCP AMR Data PDU with the following content back to the SS: PDU type = 010 (PDCP AMR Data PDU) CS counter = first to fifth LSBs of the CFN at which the packet has been received from higher layers data: previously received AMR frames
				Steps 8-9 are repeated 4 times, with 500 ms between the sending of each AMR data packet in the downlink
Deactivate a UE terminated CS session (using UE test loop mode 1). Refer to section 7.3.1 of TS 34.123-1 for common test procedure.				

Specific Message Contents

SECURITY MODE COMMAND (Preamble Step for UE terminated CS session using UE test loop mode 1)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE with the exception of the following IEs:

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
- Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	Next RRC SN
Security Capability	
- Ciphering algorithm capability	
- UEA0	If the UE has indicated support for ciphering algorithm UEA0 in the IE "security capability" in the RRC CONNECTION SETUP COMPLETE message, this IE is set to TRUE.
- UEA1	If the UE has indicated support for ciphering algorithm UEA1 in the IE "security capability" in the RRC CONNECTION SETUP COMPLETE message, this IE is set to TRUE.
- UEA2	If the UE has indicated that "Security capability indication" of "UE radio access capability compressed" is set to TRUE in the RRC CONNECTION SETUP COMPLETE message, this IE is set to TRUE.
- Spare	Spare 3-15 = FALSE
- Integrity protection algorithm capability	
- UIA1	TRUE
- UIA2	If the UE has indicated that "Security capability indication" of "UE radio access capability compressed" is set to TRUE in the RRC CONNECTION SETUP COMPLETE message, this IE is set to TRUE.
Ciphering mode info	
- Ciphering mode command	Start
- Ciphering algorithm	UEA1 or UEA2. UEA2 is selected if "Security capability indication" is TRUE in the RRC CONNECTION SETUP COMPLETE message otherwise UEA1.
- Ciphering activation time for DPCH	Not Present
- Radio bearer downlink ciphering activation time info	
- RB Identity	1
- RLC sequence number	Current RLC SN
- RB Identity	2
- RLC sequence number	Current RLC SN + 2
- RB Identity	3
- RLC sequence number	Current RLC SN
- RB Identity	4
- RLC sequence number	Current RLC SN
Integrity protection mode info	
- Integrity protection mode command	Start
- Downlink integrity protection activation info	Not Present
- Integrity protection algorithm	UIA2 if indicated that "Security capability indication" of "UE radio access capability compressed" is set to TRUE in the RRC CONNECTION SETUP COMPLETE message, this IE is set to TRUE otherwise UIA1.
- Integrity protection initialisation number	SS selects an arbitrary 32 bits number for FRESH
CN domain identity	CS Domain
UE system specific security capability	Not Present in condition A1
UE system specific security capability	Present In condition A2
- Inter-RAT UE security capability	
- CHOICE *system*	GSM
- GSM security capability	The indicated algorithms must be the same as the algorithms supported by the UE as indicated in the IE " UE system specific capability " in the RRC CONNECTION SETUP COMPLETE message.

Condition	Explanation
A1	UE not supporting GSM
A2	UE supporting GSM

RADIO BEARER SETUP message

Speech to CELL_DCH / E-DCH / HS-DSCH CS RAB with DTX/DRX and enhanced data rate using one multiplexing option (1/1) and SRBs mapped on E-DCH/HS-DSCH (Condition A23), with the following exceptions

Information Element	Value/remark
- RAB information for setup	
- CS-HSPA information	
- UL AMR rate	Not Present
- Max CS delay	100
- RB information to be affected	
- RB identity	1 (UM DCCH for RRC)
- Information for each multiplexing option	2 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- CHOICE RLC PDU size	Fixed size
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	1
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present

- Logical channel identity	1
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.1.3 (standalone 13.6 kbps signalling radio bearer)
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RB identity	2 (AM DCCH for RRC)
- Information for each multiplexing option	2 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- CHOICE RLC PDU size	Fixed size
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	2
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.1.3 (standalone 13.6 kbps signalling radio bearer)
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB identity	3 (AM DCCH for RRC)
- Information for each multiplexing option	2 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- CHOICE RLC PDU size	Fixed size
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	3

- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.1.3 (standalone 13.6 kbps signalling radio bearer)
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB identity	4 (AM DCCH for RRC)
- Information for each multiplexing option	2 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- CHOICE RLC PDU size	Fixed size
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	4
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.10.2.4.1.3 (standalone 13.6 kbps signalling radio bearer)
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4

UE CAPABILITY ENQUIRY (Step 3)

Use the same message content found in TS 34.108 clause 9

UE CAPABILITYINFORMATION (Step 4)

Use the same message content found in TS 34.108 clause 9

CELL UPDATE (Step 5)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- S-RNTI	Check to see if set to value assigned in Cell 1.
- SRNC Identity	Check to see if set to value assigned in Cell 1.
Cell Update Cause	Check to see if set to “Radio link failure”

CELL UPDATE CONFIRM (Step 6)

Use the same message content found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
New Primary E-RNTI	'1010 1010 1010 1010'
RRC State indicator	CELL_DCH
DTX-DRX timing information	
CHOICE timing	
- New timing	
- Enabling Delay	16
- UE DTX DRX Offset	1 if 2ms TTI selected, otherwise 0
DTX-DRX Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A23.
DRX Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A23.
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A23.
Uplink DPCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A23.
E-DCH Info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A23.
Downlink HS-PDSCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A23.
Downlink information common for all radio links	
- Downlink F-DPCH info common for all RL	
- Timing Indication	Initialise
- Downlink F-DPCH power control information	
- DPC mode	0 (single)
- TPC command error rate target	0.04
- CHOICE mode	FDD
- DPCH compressed mode info	Not Present
- TX Diversity mode	None
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
- MAC-hs reset indicator	TRUE
Downlink information per radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A23.

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Step 7)

Use the same message content found in TS 34.108 clause 9

Content of PDCP Data PDU (Step 8)

Information Element	Value/remark
PDU type	010
CS counter	first to fifth LSBs of the CFN at which the packet has been received from higher layers
Data	244 bits of AMR data + 4 bits of padding

Content of PDCP Data PDU (Step 9)

Information Element	Value/remark
PDU type	010
CS counter	first to fifth LSBs of the CFN at which the packet has been received from higher layers
Data	Same content as Data from PDCP Data PDU at Step 8

8.3.1.48.5 Test requirement

At step 5, the UE shall transmit a CELL UPDATE message with cause radio link failure.

At steps 8 and 9 the UE shall successfully loop back all the data packets after UM RLC re-establishment.

8.3.1.49 Cell Update: Intra Frequency cell reselection in Enhanced CELL_FACH with DRX configured

8.3.1.49.1 Definition

8.3.1.49.2 Conformance requirement

The UE should store all relevant IEs included in this system information block. The UE shall

…

1> if the UE is in CELL_FACH state or Idle mode; and

1> if the UE does support E-DCH transmission in CELL_FACH state and Idle mode; and

1> if the IE "HS-DSCH common system information" is included in system information block type 5 or 5bis; and

1> if the IE "Common E-DCH system info" is included system information block type 5 or 5bis:

2> use the Enhanced Uplink in CELL_FACH state and Idle mode as specified in section 8.5.45 for FDD or 8.5.45a for 1.28 Mcps TDD and [15] for DTCH, DCCH and CCCH transmission.

[…]

The HS_DSCH_DRX_CELL_FACH_STATUS variable shall be set to TRUE only when the following conditions are met:

1> the UE supports HS-DSCH DRX operation in CELL_FACH state;

1> the UE is in CELL_FACH state;

1> the UE has a dedicated H-RNTI configured;

1> the IE "HS-DSCH DRX in CELL_FACH Information" for FDD or IE "HS-DSCH DRX in CELL_FACH Information 1.28 Mcps TDD" for 1.28 Mcps TDD has been received from System Information Block Type 5 or System Information Block Type 5bis;

1> for 1.28 Mcps TDD, UE with dedicated H-RNTI configured, after transiting from CELL_PCH to CELL_FACH state, has detected its dedicated H-RNTI on HS-SCCH indicating HS-DSCH reception;

1> for FDD, either of the following conditions is met:

2> the value of the IE "DRX Interruption by HS-DSCH data" received from System Information Block Type 5 or System Information Block Type 5bis has been set to TRUE; or

2> the UE supports common E-DCH transmission and the IE "Common E-DCH system info" is included in System Information Block type 5 or System Information Block Type 5bis.

If any of the above conditions is not met and the HS_DSCH_DRX_CELL_FACH_STATUS variable is set to TRUE, the UE shall:

1> stop any ongoing CELL_FACH HS-DSCH DRX operation;

1> set the HS_DSCH_DRX_CELL_FACH_STATUS to FALSE;

1> stop the timer T321, if it is ongoing.

[…]

The CELL_FACH HS-DSCH DRX operation determines the occasions in which the UE is allowed to discontinuously receive HS-DSCH in CELL_FACH state.

1> if E-DCH enhanced random access process termination information is received from lower layers:

2> if the variable HS_DSCH_RECEPTION_OF_ETWS_ENABLED is FALSE:

3> start the timer T321.

1> if the value of the IE "DRX Interruption by HS-DSCH data" received from System Information Block Type 5 or System Information Block Type 5bis is TRUE:

2> if the UE does not have an E-DCH resource assigned and data is received on HS-DSCH:

3> if the variable HS_DSCH_RECEPTION_OF_ETWS_ENABLED is FALSE:

4> start or, if the timer is running, restart the timer T321 at the end of the HS-SCCH subframe addressed to this UE.

3> continuously receive HS-DSCH.

Upon timer T321 expiry; or

Upon state transition to CELL_FACH if HS_DSCH_DRX_CELL_FACH_STATUS is set to TRUE and if the UE does not support E-DCH transmission in CELL_FACH state and Idle mode and if IE "DRX Interruption by HS-DSCH data" received from System Information Block Type 5 or System Information Block Type 5bis is set TRUE:

1> the UE shall receive HS-DSCH during the frame(s) with the SFN value fulfilling the following inequality:

$$(SFN - H\text{-}RNTI) \bmod DRX\_cycle < Rx\_burst$$

where:

- H-RNTI is the value stored in the variable H_RNTI;
- DRX_cycle is the length of the DRX cycle in radio frames, signalled by the IE "HS-DSCH DRX $cycle_{FACH}$";
- Rx burst is the period in frames within the DRX cycle, in which the UE receives HS-DSCH, signalled by the IE "HS-DSCH Rx $burst_{FACH}$".

For FDD when in CELL_FACH state, when the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE and the variable HS_DSCH_DRX_CELL_FACH_STATUS is set to TRUE,
then the UE in FDD mode shall perform measurements as specified in subclauses 8.4.1.6 and 8.4.1.9, according to the requirements in [19].

The UE may omit the inter-frequency and inter-RAT measurements specified according to the requirements in [19] in subclauses 8.4.1.6 and 8.4.1.9, when the variable HS_DSCH_RECEPTION_OF_ETWS_ENABLED is TRUE.

[…]

A UE shall initiate the cell update procedure in the following cases:

…

1> Cell reselection:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met:

3> if the UE is in CELL_FACH or CELL_PCH state and the UE performs cell re-selection; or

3> if the UE is in CELL_FACH state and the variable C_RNTI is empty:

4> perform cell update using the cause "cell reselection".

[…]

If the UE after state transition remains in CELL_FACH state, it shall

1> start the timer T305 using its initial value if timer T305 is not running and periodical cell update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity";

1> select PRACH according to TS 25.331 subclause 8.5.17;

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> not prohibit periodical status transmission in RLC;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> ignore that IE and stop using DRX.

[…]

If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list"; and
- includes the IE "RB information to reconfigure list"; or
- includes the IE "RB information to be affected list":

the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message using AM RLC.

Reference

3GPP TS 25.331 clause 8.1.1.6.5, 8.5.48, 8.5.49, 8.3.1

8.3.1.49.3 Test purpose

1. To confirm that the UE performs Intra Frequency cell reselection in Enhanced CELL_FACH state when Enhanced DRX is configured.

8.3.1.49.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 configures Common E-DCH / HS-DSCH for CELL_FACH in System Information Type 5 with Enhanced DRX and Cell 2 configures Common E-DCH / HS-DSCH for CELL_FACH in System Information Type 5

UE: PS-DCCH Enhanced CELL_FACH (state 6-11) as specified in clause 7.4 of TS 34.108 with SRB mapping on common E-DCH (DCCH)/HS-DSCH (DCCH). UE does not have common E-DCH resource.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

SYSTEM INFORMATION BLOCK TYPE 5 (see specific message contents).

SYSTEM INFORMATION BLOCK TYPE 11 (see specific message contents).

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-DSCH DRX operation

Test Procedure

Table 8.3.1.49

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-70	-70	-60

Table 8.3.1.49 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions.

The UE is in Enhanced CELL_FACH state (SRB mapping on common E-DCH/HS-DSCH) state with Enhanced DRX configured and camped onto cell 1. SS configures its downlink transmission power settings according to columns "T1" in Table 8.3.1.49. The UE shall find Cell 2 to be more suitable for service and perform a cell reselection. After the completion of cell reselection, the UE shall transmit a CELL UPDATE message to the SS on the uplink CCCH of cell 2 using common E-DCH and set IE "Cell update cause" to "Cell Reselection". After the SS receives this message, it transmits a CELL UPDATE CONFIRM message, which includes the IE "RRC State Indicator" set to "CELL_FACH" with valid "New C-RNTI", "New H-RNTI" and "New Primary E-RNTI" to the UE on the downlink DCCH. SS verifies that the UE sends UTRAN MOBILITY INFORMATION CONFIRM . Finally CALL C.2 procedure is executed to check that UE is in Enhanced CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in Enhanced CELL_FACH state (common E-DCH / HS-DSCH) in cell 1 with Enhanced DRX configured.
2				SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.3.1.49. The UE shall find that the cell 2 is better for service and perform a reselection. SS waits for the maximum duration required for the UE to camp to cell 2.
3	→		CELL UPDATE	Value "cell reselection" shall be indicated in IE "Cell update cause"
4	←		CELL UPDATE CONFIRM	Transmitted by the UE on the DL DCCH (SRB#1), New C-RNTI, New H-RNTI and New Primary E-RNTI identity is assigned to the UE. IE "RRC State Indicator" is set to "CELL_FACH".
5	→		UTRAN MOBILITY INFORMATION CONFIRM	
6	←→		CALL C.2	If the test result of C.2 indicates that UE is in Enhanced CELL_FACH state with common E-DCH in UL and HS_DSCH in DL, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

System Information Block type 5 (FDD)

Use the default parameter values for the system information block 5 with the same type specified in clause

6.1.1 of TS 34.108 for common E-DCH and HS-DSCH reception in CELL_FACH, with the following exceptions:

Information Element	Value/remark
HS-DSCH DRX in CELL_FACH Information	
-T321	200 ms
- HS-DSCH DRX $cycle_{FACH}$	4
- HS-DSCH Rx $burst_{FACH}$	1
- DRX Interruption by HS-DSCH data	FALSE

System Information Block type 11 (FDD)

Use the default parameter values for the system information block 11 with the same type specified in clause

6.1.1 of TS 34.108 with the following exception:

Information Element	Value/remark
FACH measurement occasion info	Not Present

CELL UPDATE (Step 3)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'.
Cell Update Cause	
HS-PDSCH in CELL_FACH	TRUE
Support of common E-DCH	TRUE
Support of HS-DSCH DRX operation	TRUE
Support of MAC-i/is	TRUE

CELL UPDATE CONFIRM (Step 4)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the DL DCCH (SRB#1), with the exception of the following IEs

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'
New H-RNTI	'1110 1010 1010 1010'
New Primary E-RNTI	'1110 1010 1010 1010'

8.3.1.49a Cell Update: Inter Frequency cell reselection in Enhanced CELL_FACH with DRX configured

8.3.1.49a.1 Definition

8.3.1.49a.2 Conformance requirement

The UE should store all relevant IEs included in this system information block. The UE shall

…

1> if the UE is in CELL_FACH state or Idle mode; and

1> if the UE does support E-DCH transmission in CELL_FACH state and Idle mode; and

1> if the IE "HS-DSCH common system information" is included in system information block type 5 or 5bis; and

1> if the IE "Common E-DCH system info" is included system information block type 5 or 5bis:

3> use the Enhanced Uplink in CELL_FACH state and Idle mode as specified in section 8.5.45 for FDD or 8.5.45a for 1.28 Mcps TDD and [15] for DTCH, DCCH and CCCH transmission.

[…]

The HS_DSCH_DRX_CELL_FACH_STATUS variable shall be set to TRUE only when the following conditions are met:

1> the UE supports HS-DSCH DRX operation in CELL_FACH state;

1> the UE is in CELL_FACH state;

1> the UE has a dedicated H-RNTI configured;

1> the IE "HS-DSCH DRX in CELL_FACH Information" for FDD or IE "HS-DSCH DRX in CELL_FACH Information 1.28 Mcps TDD" for 1.28 Mcps TDD has been received from System Information Block Type 5 or System Information Block Type 5bis;

1> for 1.28 Mcps TDD, UE with dedicated H-RNTI configured, after transiting from CELL_PCH to CELL_FACH state, has detected its dedicated H-RNTI on HS-SCCH indicating HS-DSCH reception;

1> for FDD, either of the following conditions is met:

2> the value of the IE "DRX Interruption by HS-DSCH data" received from System Information Block Type 5 or System Information Block Type 5bis has been set to TRUE; or

2> the UE supports common E-DCH transmission and the IE "Common E-DCH system info" is included in System Information Block type 5 or System Information Block Type 5bis.

If any of the above conditions is not met and the HS_DSCH_DRX_CELL_FACH_STATUS variable is set to TRUE, the UE shall:

1> stop any ongoing CELL_FACH HS-DSCH DRX operation;

1> set the HS_DSCH_DRX_CELL_FACH_STATUS to FALSE;

1> stop the timer T321, if it is ongoing.

[…]

The CELL_FACH HS-DSCH DRX operation determines the occasions in which the UE is allowed to discontinuously receive HS-DSCH in CELL_FACH state.

1> if E-DCH enhanced random access process termination information is received from lower layers:

2> if the variable HS_DSCH_RECEPTION_OF_ETWS_ENABLED is FALSE:

3> start the timer T321.

1> if the value of the IE "DRX Interruption by HS-DSCH data" received from System Information Block Type 5 or System Information Block Type 5bis is TRUE:

2> if the UE does not have an E-DCH resource assigned and data is received on HS-DSCH:

3> if the variable HS_DSCH_RECEPTION_OF_ETWS_ENABLED is FALSE:

4> start or, if the timer is running, restart the timer T321 at the end of the HS-SCCH subframe addressed to this UE.

3> continuously receive HS-DSCH.

Upon timer T321 expiry; or

Upon state transition to CELL_FACH if HS_DSCH_DRX_CELL_FACH_STATUS is set to TRUE and if the UE does not support E-DCH transmission in CELL_FACH state and Idle mode and if IE "DRX Interruption by HS-DSCH data" received from System Information Block Type 5 or System Information Block Type 5bis is set TRUE:

1> the UE shall receive HS-DSCH during the frame(s) with the SFN value fulfilling the following inequality:

$$(SFN - H\text{-}RNTI) \bmod DRX\_cycle < Rx\_burst$$

where:

- H-RNTI is the value stored in the variable H_RNTI;
- DRX_cycle is the length of the DRX cycle in radio frames, signalled by the IE "HS-DSCH DRX $cycle_{FACH}$";
- Rx burst is the period in frames within the DRX cycle, in which the UE receives HS-DSCH, signalled by the IE "HS-DSCH Rx $burst_{FACH}$".

For FDD when in CELL_FACH state, when the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE and the variable HS_DSCH_DRX_CELL_FACH_STATUS is set to TRUE,
then the UE in FDD mode shall perform measurements as specified in subclauses 8.4.1.6 and 8.4.1.9, according to the requirements in [19].

The UE may omit the inter-frequency and inter-RAT measurements specified according to the requirements in [19] in subclauses 8.4.1.6 and 8.4.1.9, when the variable HS_DSCH_RECEPTION_OF_ETWS_ENABLED is TRUE.

[…]

A UE shall initiate the cell update procedure in the following cases:

…

1> Cell reselection:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met:

3> if the UE is in CELL_FACH or CELL_PCH state and the UE performs cell re-selection; or

3> if the UE is in CELL_FACH state and the variable C_RNTI is empty:

4> perform cell update using the cause "cell reselection".

[…]

If the UE after state transition remains in CELL_FACH state, it shall

1> start the timer T305 using its initial value if timer T305 is not running and periodical cell update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity";

1> select PRACH according to TS 25.331 subclause 8.5.17;

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> not prohibit periodical status transmission in RLC;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

3> ignore that IE and stop using DRX.

[…]

If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list"; and
- includes the IE "RB information to reconfigure list"; or

- includes the IE "RB information to be affected list":

the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message using AM RLC.

Reference

3GPP TS 25.331 clause 8.1.1.6.5, 8.5.48, 8.5.49, 8.3.1

8.3.1.49a.3 Test purpose

1. To confirm that the UE performs Inter-frequency measurements when Enhanced DRX is configured in Enhanced Cell_FACH state.
2. To confirm that the UE performs Inter Frequency cell reselection in Enhanced CELL_FACH state.

8.3.1.49a.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 configures Common E-DCH / HS-DSCH for CELL_FACH in System Information Type 5 with Enhanced DRX and Cell 2 also configures Common E-DCH / HS-DSCH for CELL_FACH in System Information Type 5

UE: PS-DCCH Enhanced CELL_FACH (state 6-11) as specified in clause 7.4 of TS 34.108 with SRB mapping on common E-DCH (DCCH)/HS-DSCH (DCCH). UE does not have common E-DCH resource.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

SYSTEM INFORMATION BLOCK TYPE 5 (see specific message contents).

SYSTEM INFORMATION BLOCK TYPE 11 (see specific message contents).

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-DSCH DRX operation

Test Procedure

Table 8.3.1.49a

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-70	-70	-60

Table 8.3.1.49a illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions.

The UE is in Enhanced CELL_FACH state (SRB mapping on common E-DCH/HS-DSCH) state with Enhanced DRX configured and camped onto cell 1. SS configures its downlink transmission power settings according to columns "T1" in Table 8.3.1.49a. The UE shall find Cell 2 to be more suitable for service and perform a cell reselection. After the completion of cell reselection, the UE shall transmit a CELL UPDATE message to the SS on the uplink CCCH of cell 2 using common E-DCH and set IE "Cell update cause" to "Cell Reselection". After the SS receives this message, it transmits a CELL UPDATE CONFIRM message, which includes the IE "RRC State Indicator" set to "CELL_FACH" with valid "New C-RNTI", "New H-RNTI" and "New Primary E-RNTI" to the UE on the downlink DCCH. SS verifies that the UE sends UTRAN MOBILITY INFORMATION CONFIRM . Finally CALL C.2 procedure is executed to check that UE is in Enhanced CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in Enhanced CELL_FACH state (common E-DCH / HS-DSCH) in cell 1 with Enhanced DRX configured.
2				SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.3.1.49a. The UE shall find that the cell 2 is better for service and perform a reselection. SS waits for the maximum duration required for the UE to camp to cell 2.
3	→		CELL UPDATE	Value "cell reselection" shall be indicated in IE "Cell update cause"
4	←		CELL UPDATE CONFIRM	New C-RNTI, New H-RNTI and New Primary E-RNTI identity is assigned to the UE. IE "RRC State Indicator" is set to "CELL_FACH".
5	→		UTRAN MOBILITY INFORMATION CONFIRM	
6	←→		CALL C.2	If the test result of C.2 indicates that UE is in Enhanced CELL_FACH state with common E-DCH in UL and HS_DSCH in DL, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

System Information Block type 5 (FDD)

Use the default parameter values for the system information block 5 with the same type specified in clause

6.1.1 of TS 34.108 for common E-DCH and HS-DSCH reception in CELL_FACH, with the following exceptions:

Information Element	Value/remark
HS-DSCH DRX in CELL_FACH Information	
-T321	200 ms
- HS-DSCH DRX $cycle_{FACH}$	4
- HS-DSCH Rx $burst_{FACH}$	1
- DRX Interruption by HS-DSCH data	FALSE

System Information Block type 11 (FDD)

Use the default parameter values for the system information block 11 with the same type specified in clause

6.1.1 of TS 34.108 with the following exception

Information Element	Value/remark
FACH measurement occasion info	Not Present

CELL UPDATE (Step 3)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'.
Cell Update Cause	
HS-PDSCH in CELL_FACH	TRUE
Support of common E-DCH	TRUE
Support of HS-DSCH DRX operation	TRUE
Support of MAC-i/is	TRUE

CELL UPDATE CONFIRM (Step 4)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the DL DCCH (SRB#1), with the exception of the following IEs

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'
New H-RNTI	'1110 1010 1010 1010'
New Primary E-RNTI	'1110 1010 1010 1010'

8.3.1.50 Cell Update: Cell reselection in CELL_FACH when common E-DCH resource is released

8.3.1.50.1 Definition and applicability

UE supports FDD and Enhanced Uplink in CELL_FACH state.

8.3.1.50.2 Conformance requirement

In all cases, the UE shall reselect the new cell, only if the following conditions are met:

- the new cell is better ranked than the serving cell during the preceding time interval Treselection. For UE in RRC connected mode states CELL_PCH or URA_PCH the interval $Treselection_{s,PCH}$ applies, if provided in SIB4 [see 4], while for UE in RRC connected mode state CELL_FACH the interval $Treselection_{s,FACH}$ applies, if provided in SIB4 [see 4]. For hierarchical cell structures when high-mobility state has not been detected, if according to the HCS rules the serving cell is not ranked then all the ranked cells are considered to be better ranked than the serving cell. In case the UE reselects to a cell on an MBMS preferred frequency to receive an MBMS service not available on the current frequency the UE may reduce interval $Treselection_{S}$, $Treselection_{S,PCH}$ and $Treselection_{S,FACH}$.

Additionally the UE shall apply the following scaling rules to $Treselection_s$ or $Treselection_{s,PCH}$ or $Treselection_{s,FACH}$:

- For intra-frequency cells and high-mobility state not detected:
  - no scaling applied.
- For intra-frequency cells and high-mobility state is detected:
  - multiply $Treselection_s$ or $Treselection_{s,PCH}$ or $Treselection_{s,FACH}$ by the IE "Speed dependent ScalingFactor for_Treselection" if sent on system information.
- For inter-frequency cells and high-mobility state not detected:
  - multiply $Treselection_s$ or $Treselection_{s,PCH}$ or $Treselection_{s,FACH}$ by the IE "Inter-Frequency ScalingFactor for Treselection" if sent on system information.
- For inter-frequency cells and high-mobility state is detected:
  - multiply $Treselection_s$ or $Treselection_{s,PCH}$ or $Treselection_{s,FACH}$ by both the IEs "Speed dependent ScalingFactor for_Treselection" if sent on system information and "Inter-Frequency ScalingFactor for Treselection" if sent on system information.
- For inter-RAT cells and high-mobility state not detected:
  - multiply $Treselection_s$ or $Treselection_{s,PCH}$ or $Treselection_{s,FACH}$ by the IE "Inter-RAT ScalingFactor for Treselection" if sent on system information.
- For inter-RAT cells and high-mobility state is detected:
  - multiply $Treselection_s$ or $Treselection_{s,PCH}$ or $Treselection_{s,FACH}$ by both the IEs “Speed dependent ScalingFactor for_Treselection” if sent on system information and “Inter-RAT ScalingFactor for Treselection" if sent on system information.

In case scaling is applied to $Treselection_s$ or $Treselection_{s,PCH}$, the UE shall round up the result after all scalings to the nearest second. In case scaling is applied to $Treselection_{s,FACH}$, the UE shall round up the result after all scalings to the nearest 0.2 seconds.

- more than 1 second has elapsed since the UE camped on the current serving cell.
- For FDD the UE does not have an allocated common E-DCH resource.
- For 1.28 Mcps TDD, the UE does not have CELL Reselection Indication procedure ongoing.

For FDD the UE continues taking intra-frequency measurements and ranking cells while it has an allocated common E-DCH resource.

Reference

3GPP TS 25.304 clause 5.2.6.1.4

8.3.1.50.3 Test purpose

1. To confirm that the UE performs cell reselection in Enhanced CELL_FACH state when common E-DCH resource is released.

8.3.1.50.4 Method of test

Initial Condition

System Simulator: 2 cells – Both cells configure Common E-DCH for CELL_FACH in System Information Type 5.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

SYSTEM INFORMATION BLOCK TYPE 5 (see specific message contents).

SYSTEM INFORMATION BLOCK TYPE 3/4 (see specific message contents).

UE: PS-DCCH Enhanced CELL_FACH (state 6-11) as specified in clause 7.4 of TS 34.108 with SRB mapping on common E-DCH /HS-DSCH

$T_{reselect\_period}$ = 120 seconds (sufficient time interval for UE to detect a suitable cell and perform cell reselection)

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports common E-DCH

Test Procedure

Table 8.3.1.50: downlink power to be applied

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-70	-70	-60

Table 8.3.1.50 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denotes the initial condition.

The UE is in Enhanced CELL_FACH state camped onto cell 1 with common E-DCH resource (note that common E-DCH resource has not been implicitly released by UE or explicitly released by SS at this stage. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.50. The UE shall find Cell 2 to be more suitable for service but shall not send CELL UPDATE. The SS sends Explicit Release on E-AGCH with the UE's E-RNTI to release the common E-DCH resource. UE shall reselect to Cell 2 by sending CELL_UPDATE on the uplink CCCH of cell 2 and set IE "Cell update cause" to "Cell Reselection" within $T_{reselect\_period}$. After the SS receives this message, it transmits a CELL UPDATE CONFIRM message, which includes the IE "RRC State Indicator" set to "CELL_FACH" with valid "New C-RNTI", "New H-RNTI" and "New Primary E-RNTI" to the UE on the downlink DCCH. SS verifies that the UE sends UTRAN MOBILITY INFORMATION CONFIRM. Finally CALL C.2 procedure is executed to check that UE is in Enhanced CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in Enhanced CELL_FACH state camped on cell 1 with allocated common E-DCH resource and HS-DSCH configured.
2				SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.3.1.50.
3			Absolute grant	SS sends Explicit Release on E-AGCH to release the common E-DCH resource.
4	←		Wait for $T_{reselect\_period}$ seconds	UE shall not send CELL UPDATE even though Cell 2 is suitable according to normal cell reselection criteria.
5	→		CELL UPDATE	UE performs cell reselection to cell 2 within $T_{reselect\_period}$. Value "cell reselection" shall be indicated in IE "Cell update cause"
6	←		CELL UPDATE CONFIRM	Transmitted on DL CCH (SRB#1) .New C-RNTI, New H-RNTI and New Primary E-RNTI identity is assigned to the UE. IE "RRC State Indicator" is set to "CELL_FACH".
7	→		UTRAN MOBILITY INFORMATION CONFIRM	
8	←→		CALL C.2	If the test result of C.2 indicates that UE is in Enhanced CELL_FACH state with common E-DCH in UL and HS_DSCH in DL, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

System Information Block type 3/4 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- $Treselection_{s,FACH}$	120 seconds

System Information Block type 5 (FDD)

Use the default parameter values for the system information block 5 with the same type specified in clause

6.1.0b of TS 34.108 for common E-DCH and HS-DSCH reception in CELL_FACH, with the following exceptions:

Information Element	Value/Remark
- Common EDCH System Info - E-DCH transmission continuation back off	 Infinity

CELL UPDATE (Step 5)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI - SRNC Identity - S-RNTI Cell Update Cause HS-PDSCH in CELL_FACH Support of common E-DCH Support of MAC-i/is	 Check to see if set to '0000 0000 0001' Check to see if set to '0000 0000 0000 0000 0001'. Check to see if set to 'Cell Re-selection' TRUE TRUE TRUE

CELL UPDATE CONFIRM (Step 6)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the DL DCCH (SRB#1), with the exception of the following IEs

Information Element	Value/remark
New C-RNTI New H-RNTI New Primary E-RNTI	'1010 1010 1010 1010' '1110 1010 1010 1010' '1110 1010 1010 1010'

UTRAN MOBILITY INFORMATION CONFIRM (Step 7)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink DCCH,

8.3.1.50.5 Test Requirement

At step 3, UE should release the common E-DCH resource after reception of explicit release command on E-AGCH from SS.

At step 5, UE reselects the Cell 2 and sends Cell Update with cause “Cell reselection”

8.3.1.51 Cell Update: Cell reselection in CELL_FACH (Reselection between cell not supporting HS-PDSCH and E-DCH in CELL_FACH and cell supporting HS-PDSCH and E-DCH in CELL_FACH)

8.3.1.51.1 Definition and applicability

All UEs which support LCR TDD and HS-PDSCH and E-DCH in CELL_FACH.

8.3.1.51.2 Conformance requirement

In the CELL_FACH state the UE shall perform the following actions:

NOTE: DCCH and, if configured, DTCH are available in this state.

1> if the UE is "in service area":

2> maintain up-to-date system information as broadcast by the serving cell as specified in subclause 8.1.1;

2> perform cell reselection process as specified in [4];

2> perform measurements process according to measurement control information as specified in subclause 8.4 and in subclause 14.4;

2> run timer T305 (periodical cell update);

2> select and configure the RB multiplexing options applicable for the transport channels to be used in this RRC state;

2> for 3.84 Mcps and 7.68 Mcps TDD; or

2> for FDD and 1.28 Mcps TDD, if the UE does not support HS-DSCH reception in CELL_FACH state; or

2> if the IE "HS-DSCH common system information" is not included in System Information Block type 5 or System Information Block type 5bis; or

2> for 1.28 Mcps TDD, if the IE "common E-DCH system info" is not included in System Information Block type 5:

3> listen to all FACH transport channels mapped on the S-CCPCH selected by the UE according to the procedure in subclause 8.5.19.

2> else:

3> if variable H_RNTI is set:

4> receive physical channels HS-SCCH(s) using the value of the variable H_RNTI as UE identity and parameters given by the IE(s) "HS-DSCH common system information" according to the procedure in subclause 8.5.36.

3> else:

4> if the variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED or the variable HS_DSCH_RECEPTION_OF_ETWS_ENABLED is set to TRUE:

5> receive physical channel(s) of type HS-SCCH with selected common H-RNTI using parameters given by the IE(s) "HS-DSCH common system information" according to the procedure in subclause 8.5.37.

…

The UE shall set the IEs in the CELL UPDATE message as follows:

..

1> if the UE supports HS-DSCH reception in CELL_FACH state:

2> include the IE "HS-PDSCH in CELL_FACH" and set it to TRUE.

1> if the UE supports Enhanced Uplink in CELL_FACH state and Idle mode:

2> include the IE "Support of common E-DCH" and set it to TRUE.

…

When the UE receives a CELL UPDATE CONFIRM/URA UPDATE CONFIRM message; and

..

If the UE after state transition remains in CELL_FACH state, it shall

1> start the timer T305 using its initial value if timer T305 is not running and periodical cell update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity";

1> if variable READY_FOR_COMMON_EDCH is set to TRUE:

2> configure the Enhanced Uplink in CELL_FACH state and Idle mode as specified in subclause 8.5.45 for FDD and 8.5.45a for 1.28 Mcps TDD.

1> else:

2> select PRACH according to subclause 8.5.17;

1> for 3.84 Mcps TDD and 7.68 Mcps TDD; or

1> for FDD and 1.28 Mcps TDD, if the UE does not support HS-DSCH reception in CELL_FACH state; or

1> if the IE "HS-DSCH common system information" is not included in System Information Block type 5 or System Information Block type 5bis; or

1> for 1.28 Mcps TDD, if the IE "Common E-DCH system info" is not included in System Information Block type 5:

2> select Secondary CCPCH according to subclause 8.5.19;

2> take the actions related to the HS_DSCH_RECEPTION_GENERAL variable as described in subclause 8.5.37a.

1> else:

2> For FDD, if the RBs have the multiplexing option with transport channel type "HS-DSCH" for the DL and transport channel type "RACH" in the UL; and

2> if the UE does not supports E-DCH transmission in CELL_FACH state and Idle mode or the IE "Common E-DCH system info" is not included system information block type 5 or 5bis; and

2> if variable H_RNTI and variable C_RNTI are set:

3> start to receive HS-DSCH according to the procedure in subclause 8.5.36.

2> else:

3> if the RBs have the multiplexing option with transport channel type "HS-DSCH" for the DL and transport channel type "E-DCH" in the UL; and

3> if variable READY_FOR_COMMON_EDCH is set to TRUE; and

3> if variable H_RNTI and variable C_RNTI and variable E-RNTI are set:

4> start to receive HS-DSCH according to the procedure in subclause 8.5.36.

3> else:

4> clear variable C_RNTI and delete any stored C-RNTI value;

4> clear variable H_RNTI and delete any stored H-RNTI value;

4> clear variable E_RNTI and delete any stored E-RNTI value;

4> clear any stored IEs "HARQ info";

4> set the variable INVALID_CONFIGURATION to TRUE.

…

The variable HS_DSCH_RECEPTION_CELL_FACH_STATE shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_FACH;

1> the variable H_RNTI is set;

1> the variable C_RNTI is set;

1> System Information Block type 5 or System Information Block type 5bis includes IE "HS-DSCH common system information";

1> for 1.28 Mcps TDD, System Information Block type 5 includes IE "Common E-DCH system info".

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_CELL_FACH_STATE to FALSE;

1> if the UE is in CELL_FACH and variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to FALSE:

2> set the variable HS_DSCH_RECEPTION_OF_ETWS_ENABLED to FALSE;

2> set the variable HS_DSCH_RECEPTION_GENERAL to FALSE;

2> stop any HS-SCCH reception procedures;

2> stop any HS-DSCH reception procedures;

2> clear the variable H_RNTI and remove any stored H-RNTI;

2> reset the MAC-ehs entity [15];

2> release all HARQ resources;

2> clear any stored IEs "HARQ info";

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

1> use the IE "HS-DSCH common system information" in System Information Block type 5 or System Information Block type 5bis;

1> for FDD, receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving cell applying the scrambling code as received in the IE "DL Scrambling code" as received in IE "HS-DSCH common system information";

1> for 1.28 Mcps TDD, receive the HS-SCCH(s) according to the stored HS-SCCH configuration, applying the HS-PDSCH midamble code according to the stored HS-PDSCH midamble configuration;

1> perform HS-DSCH reception procedures:

2> if the UE has a stored IE "HARQ info":

3> act on subclause 8.6.5.6b for the stored IE "HARQ info".

2> else:

3> act on subclause 8.6.5.20 for the IE "HARQ System info" as received in IE "HS-DSCH common system information".

2> and use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

1> and for FDD, for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH code listed in the IE "HS-SCCH channelisation code" with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

1> and for 1.28 Mcps TDD, for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH according to the stored HS-SCCH configuration with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

NOTE: For 1.28 Mcps TDD, when performing HS-DSCH reception in CELL_FACH state, the UE shall use the table of transport block size for the HS-DSCH physical layer category 9 as specified in [15].

Whenever the variable HS_DSCH_RECEPTION_CELL_FACH_STATE is set to FALSE, the UE shall:

1> if the UE is in CELL_FACH and variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to FALSE:

2> not perform HS-SCCH reception procedures;

2> not perform HS-DSCH reception procedures.

…

When UE does not support HS-DSCH reception in CELL_FACH state or when the IE "HS-DSCH common system information" is not included in System Information Block type 5 or System Information Block type 5bis, the UE shall:

1> set the variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED to FALSE;

1> set the variable HS_DSCH_RECEPTION_OF_ETWS_ENABLED to FALSE;

1> set the variable HS_DSCH_RECEPTION_GENERAL to FALSE.

When the variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED or the variable HS_DSCH_RECEPTION_OF_ETWS_ENABLED is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

1> use the IE "HS-DSCH common system information" in System Information Block type 5 or System Information Block type 5bis;

1> configure the HARQ according to IE "HARQ System info" as defined in subclause 8.6.5.20;

1> configure the common MAC-ehs reordering queues according to IE "Common MAC-ehs reordering queues" as defined in subclauses 8.6.5.22; and then

1> receive the CCCH according to IE "CCCH mapping info" as defined in subclause 8.6.5.21;

1> if the UE is RRC Connected mode:

2> select a common H-RNTI as specified in 8.5.38;

2> if the variable HS_DSCH_RECEPTION_OF_CCCH_ENABLED is set to TRUE:

3> receive the SRB1 according to IE "SRB1 mapping info" as defined in subclause 8.6.5.19.

1> else:

2> select a common H-RNTI as specified in [4].

1> and for FDD, start to receive the HS-SCCH(s) with selected H-RNTI according to the IE "HS-SCCH channelisation code" on the selected cell applying the scrambling code as received in the IE "DL Scrambling code";

1> and for 1.28 Mcps TDD, start to receive the HS-SCCH(s) with selected H-RNTI according to the IE "HS-SCCH system info" on primary frequency in the selected cell applying the midamble code as received in the IE "HS-PDSCH Midamble Configuration";

1> configure the MAC flow for BCCH reception as specified in [15];

1> and for FDD, start to receive the first indexed HS-SCCH code listed in the IE "HS-SCCH channelisation code" with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

1> and for 1.28 Mcps TDD, for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH according to the IE "HS-SCCH system info" with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information".

NOTE: For 1.28 Mcps TDD, when performing HS-DSCH reception in CELL_FACH state, the UE shall use the table of transport block size for the HS-DSCH physical layer category 9 as specified in [15].

…

In FDD and 1.28 Mcps TDD, the MAC PDU header for DTCH and DCCH mapped on HS-DSCH CELL_FACH, CELL_PCH state is as shown in figure 9.2.1.1c-1.

- there is no MAC-d header included for DTCH and DCCH.
- there is no MAC-c header included for DTCH and DCCH when UE dedicated H-RNTI is used.
- the U-RNTI is only included as MAC-c header to MAC-d PDU for DCCH (SRB#1 only)when common H-RNTI is used

Reference

3GPP TS 25.331 clauses 7.2.2.2, 8.3.1.3 8.3.1.6, 8.5.36, 8.5.37

3GPP TS 25.321 clause 9.2.1.1c

8.3.1.51.3 Test purpose

1. To confirm that the UE starts reception of HS-PDSCH in CELL_FACH state, after reselecting to a cell supporting HS-PDSCH in CELL_FACH.
2. To confirm that the UE performs the cell reselection procedure while receiving HS-PDSCH in CELL_FACH state.
3. To confirm that the UE can receive data on DCCH (SRB#1) HS-DSCH using common H-RNTI in CELL_FACH state.

8.3.1.51.4 Method of test

Initial Condition

System Simulator: 2 cells: Cell 1 sends the default system information (HS-DSCH for CELL_FACH not configured), Cell 6 configures HS-DSCH for CELL_FACH in System Information Type 5.

UE: PS-DCCH+DTCH_FACH (state 6-11) in cell 1 as specified in clause 7.4 of TS 34.108.

For cell 2, the following parameters are specific for the system information

Parameter	Value
T302	8000 ms

Related ICS/IXIT statement(s)

- UE supports 1.28Mcps TDD
- UE supports HS-PDSCH in CELL_FACH
- UE supports E-DCH in CELL_FACH

Test Procedure

Table 8.3.1.51

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
P-CCPCH RSCP	dBm	-60	-70	-70	-60

Table 8.3.1.51 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The SS has configured its downlink transmission power according to column “T0” in table 8.3.1.51. UE is in state 6-11 in cell 1 as specified in clause 7.4 of TS 34.108 and has a radio bearer established mapped on RACH and FACH.

The SS switches its downlink transmission power settings to column “T1”. The SS transmits updated SYSTEM INFORMATION TYPE5/5bis message which includes HS-DSCH and common E-DCH reception in cell FACH state.

UE finds cell 6 as a better cell and reselects to Cell 6. The UE transmits CELL UPDATE message on uplink CCCH of cell 6 with the IE “Cell update cause” set to “cell reselection”. The SS then transmits a CELL UPDATE CONFIRM which includes the IE RRC State Indicator" set to "CELL_FACH", but with unmatched UE Id in MAC-c header, to the UE on the downlink DCCH. The UE does not respond to this. After expiry of T302 the UE shall transmit another CELL UPDATE. The SS then transmits a CELL UPDATE CONFIRM which includes the IE RRC State Indicator" set to "CELL_FACH", but this time with matched UE Id in MAC-c header, to the UE on the downlink DCCH. Then UE shall respond by transmitting a RADIO BEARER RECONFIGURATION COMPLETE message on the uplink DCCH.

The SS switches its downlink transmission power settings to column “T0”. UE finds cell 1 as a better cell for service and reselects to Cell 1.

The UE transmits CELL UPDATE message on uplink CCCH of cell 1 with the IE “Cell update cause” set to “cell reselection”. The SS then transmits a CELL UPDATE CONFIRM which includes the IE RRC State Indicator" set to "CELL_FACH", to the UE on the downlink DCCH. Then UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH.

The SS checks that the UE is in Cell FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0				The UE is in CELL_FACH state in cell 1
1				SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.3.1.51. The UE shall find that the cell 6 is better for service and perform reselection. SS waits for the maximum duration required for the UE to camp to cell 6.
2	←		SYSTEM INFORMATION TYPE 5/5bis	Transmitted on cell 6. Includes configuration for HS-DSCH reception in CELL_FACH state
3	→		CELL UPDATE	Transmitted by the UE on common E-DCH. Value "cell reselection" shall be indicated in IE "Cell update cause" and “HS-PDSCH in CELL_FACH” is set to TRUE, and “Support of common E-DCH” is set to TRUE.
4	←		CELL UPDATE CONFIRM	Transmitted by the SS on SRB1 using common H-RNTI but unmatched UE-ID in MAC-c header. IE "RRC State Indicator" is set to "CELL_FACH".
5	→		CELL UPDATE	After expiry of T302. Transmitted by the UE on common E-DCH. Value "cell reselection" shall be indicated in IE "Cell update cause" and “HS-PDSCH in CELL_FACH” is set to TRUE, and “Support of common E-DCH” is set to TRUE
6	←		CELL UPDATE CONFIRM	Transmitted by the SS on SRB1 using common H-RNTI but with matched UE-ID in MAC-c header. IE "RRC State Indicator" is set to "CELL_FACH".
7	→		RADIO BEARER RECONFIGURATION COMPLETE	Transmitted by the UE on dedicated E-DCH.
8				SS applies the downlink transmission power settings, according to the values in columns "T0" of table 8.3.1.51. The UE shall find that the cell 1 is better for service and perform reselection. SS waits for the maximum duration required for the UE to camp to cell 1.
9	→		CELL UPDATE	Value "cell reselection" shall be indicated in IE "Cell update cause" and “HS-PDSCH in CELL_FACH” is set to TRUE, and “Support of common E-DCH” is set to TRUE.
10	←		CELL UPDATE CONFIRM	Transmitted by the SS on FACH / S-CCPCH. IE "RRC State Indicator" is set to "CELL_FACH".
11	→		UTRAN MOBILITY INFORMATION CONFIRM	Transmitted by the UE on RACH.
12	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

SYSTEM INFORMATION TYPE 5/ SYSTEM INFORMATION TYPE 5bis (Step 2)

Use the same message as specified for “Only for cells which configure HS-DSCH reception in CELL_FACH “ in 34.108, clause 6.1.0b

CELL UPDATE (Steps 3, 5 and 9)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
Cell Update Cause	Check to see if set to 'Cell Re-selection'
HS-PDSCH in CELL_FACH	Check to see if set to TRUE
Support of common E-DCH	Check to see if set to TRUE

CELL UPDATE CONFIRM (Step 4 and 6)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the DL CCCH, with the exception of the following IEs:

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'
New H-RNTI	'1110 1010 1010 1010'
RB information to be affected list	
- RB information to be affected	(UM DCCH for RRC)
- RB identity	1
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	1
- CHOICE RLC size list	According to clause 6.11.5.4.5.2 (combinations on PRACH in TS 34.108)
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	1
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- CHOICE RLC size	Flexible size
- Length indicator size	According to clause 6.11.5.4.7 TS 34.108
- Minimum UL RLC PDU size	According to clause 6.11.5.4.7 TS 34.108
- Largest UL RLC PDU size	According to clause 6.11.5.4.7 TS 34.108
- Include in Scheduling Info	TRUE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	1
- RB information to be affected	(AM DCCH for RRC)
- RB identity	2
- RB mapping info	

- Information for each multiplexing option	2 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	2
- CHOICE RLC size	Flexible size
- Length indicator size	According to clause 6.11.5.4.7 TS 34.108
- Minimum UL RLC PDU size	According to clause 6.11.5.4.7 TS 34.108
- Largest UL RLC PDU size	According to clause 6.11.5.4.7 TS 34.108
- Include in Scheduling Info	TRUE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	2
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	2
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.11.5.4.5.2 (combinations on PRACH in TS 34.108)
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	2
- RB information to be affected	(AM DCCH for NAS_DT High priority)
- RB identity	3
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	3
- CHOICE RLC size	Flexible size
- Length indicator size	According to clause 6.11.5.4.7 TS 34.108
- Minimum UL RLC PDU size	According to clause 6.11.5.4.7 TS 34.108
- Largest UL RLC PDU size	According to clause 6.11.5.4.7 TS 34.108
- Include in Scheduling Info	TRUE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present

- DL DSCH Transport channel identity	Not Present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	3
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	3
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.11.5.4.5.2 (combinations on PRACH in TS 34.108)
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	3
- RB information to be affected	(AM DCCH for NAS_DT High priority)
- RB identity	4
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	4
- CHOICE RLC size	Flexible size
- Length indicator size	According to clause 6.11.5.4.7 TS 34.108
- Minimum UL RLC PDU size	According to clause 6.11.5.4.7 TS 34.108
- Largest UL RLC PDU size	According to clause 6.11.5.4.7 TS 34.108
- Include in Scheduling Info	TRUE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	4
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	4
- CHOICE RLC size list	Explicit List
- RLC size index	According to clause 6.11.5.4.5.2 (Combinations on PRACH)
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	4

RADIO BEARER RECONFIGURATION COMPLETE (Step 7)

Use the same default message as specified in TS 34.108, clause 9.

CELL UPDATE CONFIRM (Step 10)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'

8.3.1.51.5 Test requirements

At step 3 the UE shall reselect to cell 6 and then it shall transmit a CELL UPDATE message which sets the value "cell reselection" in IE "Cell update cause" and “HS-PDSCH in CELL_FACH” and “Support of common E-DCH” set to TRUE.

At step 5 the UE shall not respond to the CELL UPDATE CONFIRM in step 4. The UE will instead transmit CELL UPDATE after expiry of T302.

At step 7 the UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM on UL using the PRACH physical resource.

At step 9 the UE shall reselect to cell 1 and then it shall transmit a CELL UPDATE message which sets the value "cell reselection" in IE "Cell update cause" and “HS-PDSCH in CELL_FACH” and “Support of common E-DCH” set to TRUE.

8.3.1.52 Cell Update: Inter Frequency cell reselection in CELL_FACH based on absolute priority

8.3.1.52.1 Definition and applicability

All UEs which support FDD and Rel 8 RAT priority cell reselection.

8.3.1.52.2 Conformance requirement

5.2.6.1.2a Measurement rules for inter-frequency and inter-RAT cell reselection when absolute priorities are used

…

If the UE has received absolute priority information for inter-frequency layers, the UE shall follow these rules:

- The UE shall perform measurements of inter-frequency layers with a priority higher than the priority of the current serving layer.

NOTE: The rate of these measurements may vary depending on whether Srxlev and Squal of the serving cell are above or below $S_{prioritysearch1}$ and $S_{prioritysearch2}$. This is specified in [10].

…

- For inter-frequency layers with a priority equal or lower than the priority of the current serving layer:
  - If $Srxlev_{ServingCell} > S_{prioritysearch1}$ and $Squal_{ServingCell} > S_{prioritysearch2}$ the UE may choose not to perform measurements of inter-frequency layers of equal or lower priority.
  - If $Srxlev_{ServingCell} <= S_{prioritysearch1}$ or $Squal_{ServingCell} <= S_{prioritysearch2}$ the UE shall perform measurements of

inter-frequency layers of equal or lower priority.

- The UE shall not perform measurements of inter-frequency layers for which the UE has no absolute priority.

…

5.2.6.1.4a Absolute priority based criteria for inter-frequency and inter-RAT cell reselection

Absolute priorities of different absolute priority layers may be provided to the UE. The following cell reselection criteria are used for inter-frequency cells if absolute priority information for inter-frequency is available to the UE, and inter-RAT cells if absolute priority information for inter-RAT is available to the UE.

If System Information Block 18 with UTRAN information is provided then the UE shall apply the inter-frequency priority rules below only to UTRAN cells of the selected PLMN or equivalent PLMNs. If System Information Block 18 is not provided, or is provided but contains no information for UTRAN, then the rules below apply for the entire UTRAN RAT.

…

If priority information is provided for any inter-frequency layers, cells belonging to inter-frequency layers for which no priority or no threshold is assigned shall not be considered for reselection.

…

If none of the inter-frequency layers in UTRAN are provided with both priority and threshold parameters, the cell reselection criteria in subclause 5.2.6.1.4 shall apply for inter-frequency layers in UTRAN.

…

If both criteria in subclause 5.2.6.1.4 and criteria in subclause 5.2.6.1.4a are simultaneously fulfilled, the order in which the reselection criteria are evaluated is left to UE implementation.

...

The UE may apply either priorities broadcast in system information or priorities received through dedicated signalling.

The rules regarding which set of priorities shall apply are defined in [4]. UE specific priorities are only valid in the RPLMN, and shall be cleared when the validity time of the UE specific priorities expires, or when leaving the RPLMN.

UE specific priorities are not applied in camped on any cell state.

…

The following definitions apply for the layers for which $Thresh_{x,high2}$ or $Thresh_{x,low2}$ are not provided:

- Criterion 1: the $Srxlev_{nonServingCell,x}$ of a cell on an evaluated higher absolute priority layer is greater than $Thresh_{x,high}$ during a time interval Treselection;

- Criterion 2: $Srxlev_{ServingCell} < Thresh_{serving,low}$ or $Squal_{ServingCell} < 0$ and the $Srxlev_{nonServingCell,x}$ of a inter-frequency cell on an evaluated equal absolute priority layer is greater than $Thresh_{x,low}$ during a time interval Treselection;

- Criterion 3: $Srxlev_{ServingCell} < Thresh_{serving,low}$ or $Squal_{ServingCell} < 0$ and the $Srxlev_{nonServingCell,x}$ of a cell on an evaluated lower absolute priority layer is greater than $Thresh_{x,low}$ during a time interval Treselection;

The following definitions apply for the layers for which both $Thresh_{x,high2}$ and $Thresh_{x,low2}$ are provided:

- Criterion 4: the $Squal_{nonServingCell,x}$ of a cell on an evaluated higher absolute priority layer is greater than $Thresh_{x,high2}$ during a time interval Treselection;

- Criterion 5: $Squal_{ServingCell} < Thresh_{serving,low2}$ and the $Squal_{nonServingCell,x}$ of a cell on an evaluated lower absolute priority layer is greater than $Thresh_{x,low2}$ during a time interval Treselection;

Cell reselection to a cell on a higher absolute priority layer than the camped frequency shall be performed if criterion 1 or 4 is fulfilled.

Cell reselection to an inter-frequency cell on an equal absolute priority layer to the camped frequency shall be performed if criterion 2 is fulfilled.

Cell reselection to a cell on a lower absolute priority layer than the camped frequency shall be performed if criterion 3 or 5 is fulfilled.

If more than one cell meets the above criteria, the UE shall reselect the cell with the highest $Srxlev_{nonServingCell,x}$ among the cells meeting the criteria on the highest absolute priority layer.

The UE shall not perform cell reselection to cells for which the cell selection criterion S is not fulfilled.

The UE shall not perform cell reselection until more than 1 second has elapsed since the UE camped on the current serving cell.

The UE should not perform cell reselection while the UE has an allocated common E-DCH resource.

For UE in RRC connected mode states CELL_PCH or URA_PCH the interval $Treselection_{s,PCH}$ applies, if provided in SIB4 (see [4]), while for UE in RRC connected mode state CELL_FACH the interval $Treselection_{s,FACH}$ applies, if provided in SIB4 (see [4]).

In all the above criteria the values of $Treselection_s$, $Treselection_{s,PCH}$ or $Treselection_{s,FACH}$ apply for Treselection and are scaled according to the UE mobility state and target RAT, as specified in 5.2.6.1.1a.

8.6.7.3a UTRA priority info list

If the IE "UTRA priority info list" is received in System Information Block Type 19, the UE shall:

1> if the value of the IE "Priority status" in the variable PRIORITY_INFO_LIST equals "dedicated_priority":

2> store the value of the IEs "$S_{prioritysearch1}$", "$S_{prioritysearch2}$", "$Thresh_{serving,low}$" and "$Thresh_{serving,low2}$" in the IE "UTRA Serving Cell" in the variable PRIORITY_INFO_LIST;

2> if any of the values in any of the occurrences of the IE "Frequency List" in any occurrence of the IE "Priority Info List" within the variable PRIORITY_INFO_LIST is the frequency of the serving cell:

3> store the value of the IE "priority" in the IE "UTRA Serving Cell" in the variable PRIORITY_INFO_LIST.

2> otherwise:

3> clear the value of the IE "priority" in the IE "UTRA Serving Cell" in the variable PRIORITY_INFO_LIST.

2> for each occurrence of the IE "UTRAN FDD Frequencies":

3> if the value of the IE "UARFCN" exists in the list of UTRA FDD priorities in the PRIORITY_INFO_LIST then, in the occurrence of IE "Frequency List" within the variable PRIORITY_INFO_LIST with that value of the IE "UARFCN":

4> store the value of the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$", "QqualminFDD" and "QrxlevminFDD".

2> for each occurrence of the IE "UTRAN TDD Frequencies":

3> if the value of the IE "UARFCN" exists in the list of UTRA TDD priorities in the PRIORITY_INFO_LIST then, in the occurrence of IE "Frequency List" within the variable PRIORITY_INFO_LIST with that value of the IE "UARFCN":

4> store the value of the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$" and "QrxlevminTDD".

1> otherwise:

2> update the PRIORITY_INFO_LIST IE "Priority status" to cause "sys_info_priority".

2> store information in the IE "UTRA Serving Cell" in the IE "UTRA Serving Cell" within the variable PRIORITY_INFO_LIST;

2> for each occurrence of the IE "UTRAN FDD Frequencies":

3> if an entry already exists in the IE "Priority Info List" in the variable PRIORITY_INFO_LIST with the same priority value as indicated in the IE "priority" and has the CHOICE "Radio Access Technology" set to "UTRA FDD":

4> create a new entry in the IE "Frequency List" in that occurrence of IE "Priority Info List", and store the value of "UARFCN" in the IE "UARFCN" in this occurrence of the IE "Frequency List" within the variable PRIORITY_INFO_LIST, and in that new entry:

5> store the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$", "QqualminFDD" and "QrxlevminFDD".

3> otherwise:

4> create a new entry in the IE "Priority Info List" and store the value of "priority" in the IE "priority" in this occurrence of the IE "Priority Info List" within the variable PRIORITY_INFO_LIST, and in that new entry:

5> set the CHOICE "Radio Access Technology" to "UTRA FDD" and store the value of "UARFCN" in the IE "UARFCN" in the first occurrence of the IE "Frequency List";

5> store the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$", "QqualminFDD" and "QrxlevminFDD" in that occurrence of the IE "Frequency List".

2> for each occurrence of the IE "UTRAN TDD Frequencies":

3> if an entry already exists in the IE "Priority Info List" in the variable PRIORITY_INFO_LIST with the same priority value as indicated in the IE "priority" and has the CHOICE "Radio Access Technology" set to "UTRA TDD":

4> create a new entry in the IE "Frequency List" in that occurrence of IE "Priority Info List", and store the value of "UARFCN" in the IE "UARFCN" in this occurrence of the IE "Frequency List" within the variable PRIORITY_INFO_LIST, and in that new entry:

5> store the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$" and "QrxlevminTDD".

3> otherwise:

4> create a new entry in the IE "Priority Info List" and store the value of "priority" in the IE "priority" in this occurrence of the IE "Priority Info List" within the variable PRIORITY_INFO_LIST, and in that new entry:

5> set the CHOICE "Radio Access Technology" to "UTRA TDD" and store the value of "UARFCN" in the IE "UARFCN" in the first occurrence of the IE "Frequency List";

5> store the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$" and "QrxlevminTDD" in that occurrence of the IE "Frequency List".

References

1. TS 25.304, 5.2.6.1.2a
2. TS 25.304, 5.2.6.1.4a
3. TS 25.331, 8.6.7.3a

8.3.1.52.3 Test purpose

1. To confirm that UE does not perform higher priority cell reselection based on absolute priority in CELL_FACH state, when power levels do not meet cell reselection criteria.
2. To confirm that UE performs higher priority cell reselection based on absolute priority in CELL_FACH state, when power levels meet cell reselection criteria.

8.3.1.52.4 Method of test

Initial conditions

System Simulator:

- 2 cells Cell 1 and Cell 4
- Cell 2 is mapped to cell 4 (inter frequency) of 34.108 clause 6.1 and both cells belong to different frequency bands.
- Cell 1 as the active cell with SS downlink transmission power settings according to “T0” in table 8.3.1.x below.
- SIB19 to be transmitted by both cells.

MASTER INFORMATION BLOCK

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
MIB Value Tag	Set to (Current MIB value tag + 1)
SB 1 Cell Value tag	Set to (Current SIB4 value tag + 1)

SCHEDULING BLOCK 1

Information Element	Value/remark
SIB 11 Cell Value Tag	Set to (Current SIB 11 value tag + 1)

System Information Block type 11

Use the same message type found in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	3
- Inter-frequency FDD measurement indicator	TRUE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	Not Present

SYSTEM INFORMATION CHANGE INDICATION

Information Element	Value/remark
Message Type	
BCCH modification info	
MIB Value tag	Set equal to Value tag sent in modified MIB

User Equipment:

- UE is brought to CELL_FACH state on Cell 1 with "T0" in table 8.3.1.x below.
- UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD.

Test procedure

Table 8.3.1.52

Parameter	Unit	Cell 1			Cell 4		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			High Range Test Frequency		
CPICH Ec	dBm/3.84MHz	-60	-60	-60	-90	-77	-65
Srxlev*	dB	21	21	21	-9	4	16
qRxLevMinFDD	dB	-81			-81		
Note-Srxlev is calculated in UE. During T1, UE does not perform cell reselection to High priority cell 4. During T2, UE performs cell reselection to High priority cell 4.							

SS transmits MIB with the "MIB Value Tag" IE different from the original setting and the SIB TYPE 19 with cell 4 as the higher priority cell and cell 1 as the lower priority cell (See specific message contents). SS notifies the UE by

sending a SYSTEM INFORMATION CHANGE INDICATION with the BCCH modification. SS waits for 5s to ensure UE reads all the SIB information.

SS configures downlink transmission power settings according to columns "T1" in the table 8.3.1.x. UE does not reselect to higher priority cell 4 as power levels of cell 4 do not meet the absolute priority cell reselection criteria defined in SIB TYPE 19. UE should not be sending a CELL UPDATE in this case on cell 4.

SS configures the downlink transmission power settings according to columns “T2” from table 8.3.1.x. UE performs cell reselection to higher priority cell 4 as power levels of cell 4 now meet the absolute priority cell reselection criteria defined in SIB TYPE 19. UE sends a CELL UPDATE with cause: cell reselection. SS responds with CELL UPDATE CONFIRM. SS releases the RRC connection.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		SYSTEM INFORMATION BLOCK TYPE 19	SS transmits MIB with the "MIB Value Tag" IE different from the original setting and the SIB TYPE 19 with cell 4 as the higher priority cell and cell 1 as the lower priority cell (See specific message contents).
2	←		SYSTEM INFORMATION CHANGE INDICATION	SS notifies the UE by sending a SYSTEM INFORMATION CHANGE INDICATION with the BCCH modification (See specific message contents) and waits for 5s for UE to read all SIB information.
3	SS			SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.52.
4	UE			UE does not perform cell reselection to High Priority cell 4 as absolute priority cell reselection criterion is not satisfied.
5	SS			SS configures its downlink transmission power settings according to columns "T2" in table 8.3.1.52.
6	→		CELL UPDATE	UE performs cell reselection to Higher Priority cell 4 and sends CELL UPDATE on the new serving cell 4 and value "cell reselection" shall be indicated in IE "Cell update cause"
7	←		CELL UPDATE CONFIRM	
8	←		RRC CONNECTION RELEASE	SS releases the RRC connection.
9	→		RRC CONNECTION RELEASE COMPLETE	

Specific Message Contents

The contents of the SYSTEM INFORMATION BLOCK TYPE 19 message in this test case is identical to TS 34.108 clause 6.1.0b, with the following exceptions:

System Information Block type19 (step 1)

Information Element	Value/remark	Version
SysInfoType19		REL-8 or later
utra-PriorityInfoList		
utra-ServingCell		
Priority	[4]	
s-PrioritySearch1	[8 (16 dB)]	
s-PrioritySearch2	Not present	
threshServingLow	[10 (20 dB)]	
utran-FDD-FrequencyList		
uarfcn	Same downlink uarfcn as used for cell 4	
priority	[5]	
threshXhigh	[5 (10 dB)]	
threshXlow	[1 (2 dB)]	
qQualMinFDD	-24 dB	
qRxLevMinFDD	-81 dBm	
utran-TDD-FrequencyList	Not present	
gsm-PriorityInfoList	Not present	
eutra-FrequencyAndPriorityInfoList	Not present	

System Information Change Indication (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
MIB Value Tag	Set to (Current MIB value tag + 1)
BCCH Modification time	Not Present

8.3.1.52.5 Test requirements

1. At step 4, UE does not perform cell reselection to high priority cell 4, as cell reselection criterion is not satisfied.
2. At step 6, UE reselects to higher priority cell 4, as cell reselection criteria matches and sends a CELL UPDATE with cause: cell reselection.

8.3.1.53 Cell Update: Absolute priority based cell reselection failure to inter-frequency cell for which no priority or no threshold is assigned

8.3.1.53.1 Definition and applicability

All UEs which support FDD and Rel 8.

8.3.1.53.2 Conformance requirement

5.2.6.1.2a Measurement rules for inter-frequency and inter-RAT cell reselection when absolute priorities are used

…

If the UE has received absolute priority information for inter-frequency layers, the UE shall follow these rules:

- The UE shall perform measurements of inter-frequency layers with a priority higher than the priority of the current serving layer.

NOTE: The rate of these measurements may vary depending on whether Srxlev and Squal of the serving cell are above or below Sprioritysearch1 and Sprioritysearch2. This is specified in [10].

…

- For inter-frequency layers with a priority equal or lower than the priority of the current serving layer:

- If Srxlev**ServingCell** > Sprioritysearch1 and Squal**ServingCell** > Sprioritysearch2 the UE may choose not to perform measurements of inter-frequency layers of equal or lower priority.

- If Srxlev**ServingCell** <= Sprioritysearch1 or Squal**ServingCell** <= Sprioritysearch2 the UE shall perform measurements of

inter-frequency layers of equal or lower priority.

- The UE shall not perform measurements of inter-frequency layers for which the UE has no absolute priority.

…

5.2.6.1.4a Absolute priority based criteria for inter-frequency and inter-RAT cell reselection

Absolute priorities of different absolute priority layers may be provided to the UE. The following cell reselection criteria are used for inter-frequency cells if absolute priority information for inter-frequency is available to the UE, and inter-RAT cells if absolute priority information for inter-RAT is available to the UE.

If System Information Block 18 with UTRAN information is provided then the UE shall apply the inter-frequency priority rules below only to UTRAN cells of the selected PLMN or equivalent PLMNs. If System Information Block 18 is not provided, or is provided but contains no information for UTRAN, then the rules below apply for the entire UTRAN RAT.

…

If priority information is provided for any inter-frequency layers, cells belonging to inter-frequency layers for which no priority or no threshold is assigned shall not be considered for reselection.

…

If none of the inter-frequency layers in UTRAN are provided with both priority and threshold parameters, the cell reselection criteria in subclause 5.2.6.1.4 shall apply for inter-frequency layers in UTRAN.

…

If both criteria in subclause 5.2.6.1.4 and criteria in subclause 5.2.6.1.4a are simultaneously fulfilled, the order in which the reselection criteria are evaluated is left to UE implementation.

...

The UE may apply either priorities broadcast in system information or priorities received through dedicated signalling. The rules regarding which set of priorities shall apply are defined in [4]. UE specific priorities are only valid in the RPLMN, and shall be cleared when the validity time of the UE specific priorities expires, or when leaving the RPLMN. UE specific priorities are not applied in camped on any cell state.

…

The following definitions apply for the layers for which Threshx,high2 or Threshx,low2 are not provided:

- Criterion 1: the SrxlevnonServingCell,x of a cell on an evaluated higher absolute priority layer is greater than

Threshx,high during a time interval Treselection;

- Criterion 2: SrxlevServingCell < Threshserving,low or SqualServingCell < 0 and the SrxlevnonServingCell,x of a inter-frequency

cell on an evaluated equal absolute priority layer is greater than Threshx,low during a time interval Treselection;

- Criterion 3: SrxlevServingCell < Threshserving,low or SqualServingCell < 0 and the SrxlevnonServingCell,x of a cell on an

evaluated lower absolute priority layer is greater than Threshx,low during a time interval Treselection;

The following definitions apply for the layers for which both Threshx,high2 and Threshx,low2 are provided:

- Criterion 4: the SqualnonServingCell,x of a cell on an evaluated higher absolute priority layer is greater than

Threshx,high2 during a time interval Treselection;

- Criterion 5: SqualServingCell < Threshserving,low2 and the SqualnonServingCell,x of a cell on an evaluated lower absolute

priority layer is greater than Threshx,low2 during a time interval Treselection;

Cell reselection to a cell on a higher absolute priority layer than the camped frequency shall be performed if criterion 1

or 4 is fulfilled.

Cell reselection to an inter-frequency cell on an equal absolute priority layer to the camped frequency shall be

performed if criterion 2 is fulfilled.

Cell reselection to a cell on a lower absolute priority layer than the camped frequency shall be performed if criterion 3

or 5 is fulfilled.

If more than one cell meets the above criteria, the UE shall reselect the cell with the highest SrxlevnonServingCell,x among

the cells meeting the criteria on the highest absolute priority layer.

The UE shall not perform cell reselection to cells for which the cell selection criterion S is not fulfilled.

The UE shall not perform cell reselection until more than 1 second has elapsed since the UE camped on the current

serving cell.

The UE should not perform cell reselection while the UE has an allocated common E-DCH resource.

For UE in RRC connected mode states CELL_PCH or URA_PCH the interval Treselections,PCH applies, if provided in

SIB4 (see [4]), while for UE in RRC connected mode state CELL_FACH the interval Treselections,FACH applies, if

provided in SIB4 (see [4]).

In all the above criteria the values of Treselections, Treselections,PCH or Treselections,FACH apply for Treselection and are

scaled according to the UE mobility state and target RAT, as specified in 5.2.6.1.1a.

8.6.7.3a UTRA priority info list

If the IE "UTRA priority info list" is received in System Information Block Type 19, the UE shall:

1> if the value of the IE "Priority status" in the variable PRIORITY_INFO_LIST equals "dedicated_priority":

2> store the value of the IEs "$S_{prioritysearch1}$", "$S_{prioritysearch2}$", "$Thresh_{serving,low}$" and "$Thresh_{serving,low2}$" in the IE "UTRA Serving Cell" in the variable PRIORITY_INFO_LIST;

2> if any of the values in any of the occurrences of the IE "Frequency List" in any occurrence of the IE "Priority Info List" within the variable PRIORITY_INFO_LIST is the frequency of the serving cell:

3> store the value of the IE "priority" in the IE "UTRA Serving Cell" in the variable PRIORITY_INFO_LIST.

2> otherwise:

3> clear the value of the IE "priority" in the IE "UTRA Serving Cell" in the variable PRIORITY_INFO_LIST.

2> for each occurrence of the IE "UTRAN FDD Frequencies":

3> if the value of the IE "UARFCN" exists in the list of UTRA FDD priorities in the PRIORITY_INFO_LIST then, in the occurrence of IE "Frequency List" within the variable PRIORITY_INFO_LIST with that value of the IE "UARFCN":

4> store the value of the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$", "QqualminFDD" and "QrxlevminFDD".

2> for each occurrence of the IE "UTRAN TDD Frequencies":

3> if the value of the IE "UARFCN" exists in the list of UTRA TDD priorities in the PRIORITY_INFO_LIST then, in the occurrence of IE "Frequency List" within the variable PRIORITY_INFO_LIST with that value of the IE "UARFCN":

4> store the value of the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$" and "QrxlevminTDD".

1> otherwise:

2> update the PRIORITY_INFO_LIST IE "Priority status" to cause "sys_info_priority".

2> store information in the IE "UTRA Serving Cell" in the IE "UTRA Serving Cell" within the variable PRIORITY_INFO_LIST;

2> for each occurrence of the IE "UTRAN FDD Frequencies":

3> if an entry already exists in the IE "Priority Info List" in the variable PRIORITY_INFO_LIST with the same priority value as indicated in the IE "priority" and has the CHOICE "Radio Access Technology" set to "UTRA FDD":

4> create a new entry in the IE "Frequency List" in that occurrence of IE "Priority Info List", and store the value of "UARFCN" in the IE "UARFCN" in this occurrence of the IE "Frequency List" within the variable PRIORITY_INFO_LIST, and in that new entry:

5> store the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$", "QqualminFDD" and "QrxlevminFDD".

3> otherwise:

4> create a new entry in the IE "Priority Info List" and store the value of "priority" in the IE "priority" in this occurrence of the IE "Priority Info List" within the variable PRIORITY_INFO_LIST, and in that new entry:

5> set the CHOICE "Radio Access Technology" to "UTRA FDD" and store the value of "UARFCN" in the IE "UARFCN" in the first occurrence of the IE "Frequency List";

5> store the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$", "QqualminFDD" and "QrxlevminFDD" in that occurrence of the IE "Frequency List".

2> for each occurrence of the IE "UTRAN TDD Frequencies":

3> if an entry already exists in the IE "Priority Info List" in the variable PRIORITY_INFO_LIST with the same priority value as indicated in the IE "priority" and has the CHOICE "Radio Access Technology" set to "UTRA TDD":

4> create a new entry in the IE "Frequency List" in that occurrence of IE "Priority Info List", and store the value of "UARFCN" in the IE "UARFCN" in this occurrence of the IE "Frequency List" within the variable PRIORITY_INFO_LIST, and in that new entry:

5> store the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$" and "QrxlevminTDD".

3> otherwise:

4> create a new entry in the IE "Priority Info List" and store the value of "priority" in the IE "priority" in this occurrence of the IE "Priority Info List" within the variable PRIORITY_INFO_LIST, and in that new entry:

5> set the CHOICE "Radio Access Technology" to "UTRA TDD" and store the value of "UARFCN" in the IE "UARFCN" in the first occurrence of the IE "Frequency List";

5> store the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$" and "QrxlevminTDD" in that occurrence of the IE "Frequency List".

References

1. TS 25.304, 5.2.6.1.2a
2. TS 25.304, 5.2.6.1.4a
3. TS 25.331, 8.6.7.3a

8.3.1.53.3 Test purpose

1. To confirm that if priority information is provided for any inter-frequency layers, cells belonging to inter-frequency layers for which no priority or no threshold is assigned shall not be considered for reselection.

2. To confirm that UE performs higher priority cell reselection based on absolute priority in CELL_FACH state, when priority is assigned to the cell.

8.3.1.53.4 Method of test

Initial conditions

System Simulator:

2 cells Cell 1 and Cell 4

Cell5 is a dummy cell referenced in SIB-19

Cell 1 is the active cell with SS downlink transmission power settings according to “T0” in table 8.3.1.53 below.

System Information Block type 11

Use the same message type found in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	3
- Inter-frequency FDD measurement indicator	TRUE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	Not Present

User Equipment:

UE supports FDD and Rel-8 RAT priority cell reselection.

UE is brought to CELL_FACH state on Cell 1 with "T0" in table 8.3.1.53 below.

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD.

Test Procedure

Table 8.3.1.53

Parameter	Unit	Cell 1		Cell 4	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-60	-60	-90	-65
Srxlev*	dB	21	21	-9	16
qRxLevMinFDD	dB	-81		-81	
Note-Srxlev is calculated in UE. During T1, Cell 4 meets the criteria for higher priority cell reselection					

SS transmits MIB with the "MIB Value Tag" IE different from the original setting and the SIB TYPE 19 with cell 5(dummy cell which does not exist) as the higher priority cell and cell 1 as the lower priority cell (See specific message contents). SS notifies the UE by sending a SYSTEM INFORMATION CHANGE INDICATION with the BCCH modification. SS waits for 5s to ensure UE reads all the SIB information.

SS configures downlink transmission power settings according to columns "T1" in the table 8.3.1.53. UE does not reselect to cell 4 although it fulfils the cell reselection criteria, as no priority is assigned to this cell in SIB19. UE should not be sending a CELL UPDATE in this case on cell 4.

SS transmits MIB with the "MIB Value Tag" IE different from the original setting and the SIB TYPE 19 with cell 4 as the higher priority cell and cell 1 as the lower priority cell (See specific message contents). SS notifies the UE by sending a SYSTEM INFORMATION CHANGE INDICATION with the BCCH modification. SS waits for 5s to ensure UE reads all the SIB information.

UE performs cell reselection to higher priority cell 4 since priority is now assigned to this cell in SIB TYPE 19. UE sends a CELL UPDATE with cause: cell reselection. SS responds with CELL UPDATE CONFIRM. SS releases the RRC connection.

Expected sequence

Step	Direction	**Message**	**Comments**

	UE SS		
1	←	SYSTEM INFORMATION BLOCK TYPE 19	SS transmits MIB with the "MIB Value Tag" IE different from the original setting and the SIB TYPE 19 with cell 4 as the higher priority cell and cell 1 as the lower priority cell (See specific message contents).
2	←	SYSTEM INFORMATION CHANGE INDICATION	SS notifies the UE by sending a SYSTEM INFORMATION CHANGE INDICATION with the BCCH modification (See specific message contents) and waits for 5s for UE to read all SIB information.
3	SS		SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.53.
4	UE		UE does not perform cell reselection to cell 4 although it fulfils the higher priority cell reselection criteria, since no priority is assigned to this cell in SIB TYPE 19.
5	←	SYSTEM INFORMATION BLOCK TYPE 19	SS transmits MIB with the "MIB Value Tag" IE different from the original setting and the SIB TYPE 19 with cell 4 as the higher priority cell and cell 1 as the lower priority cell (See specific message contents).
6	←	SYSTEM INFORMATION CHANGE INDICATION	SS notifies the UE by sending a SYSTEM INFORMATION CHANGE INDICATION with the BCCH modification (See specific message contents) and waits for 5s for UE to read all SIB information.
7	→	CELL UPDATE	UE performs cell reselection to Higher Priority cell 4 and sends CELL UPDATE on the new serving cell 4 and value "cell reselection" shall be indicated in IE "Cell update cause"
8	←	CELL UPDATE CONFIRM	
9	←	RRC CONNECTION RELEASE	SS releases the RRC connection.
10	→	RRC CONNECTION RELEASE COMPLETE	

Specific Message Contents

The contents of the SYSTEM INFORMATION BLOCK TYPE 19 message in this test case is identical to

TS 34.108 clause 6.1.0b, with the following exceptions:

SYSTEM INFORMATION BLOCK TYPE 19 (Step 1)

Information Element	Value/remark	Version
SysInfoType19 ::= SEQUENCE {		REL-8 or later
utra-PriorityInfoList ::= SEQUENCE {		
utra-ServingCell ::= SEQUENCE {		
Priority	[4]	
s-PrioritySearch1	[8 (16 dB)]	
s-PrioritySearch2	Not present	
threshServingLow	[10 (20 dB)]	
}		
utran-FDD-FrequencyList		
uarfcn	Same downlink uarfcn as used for cell 5	
priority	[5]	
threshXhigh	[5 (10 dB)]	
threshXlow	[1 (2 dB)]	
qQualMinFDD	-24 dB	
qRxLevMinFDD	-81 dBm	
utran-TDD-FrequencyList	Not present	
}		
gsm-PriorityInfoList	Not present	
eutra-FrequencyAndPriorityInfoList ::= SEQUENCE (SIZE (1..maxNumEUTRAFreqs) OF SEQUENCE {	Not present	

SYSTEM INFORMATION BLOCK TYPE 19 (Step 5)

Information Element	Value/remark	Version
SysInfoType19 ::= SEQUENCE {		REL-8 or later
utra-PriorityInfoList ::= SEQUENCE {		
utra-ServingCell ::= SEQUENCE {		
Priority	[4]	
s-PrioritySearch1	[8 (16 dB)]	
s-PrioritySearch2	Not present	
threshServingLow	[10 (20 dB)]	
}		
utran-FDD-FrequencyList		
uarfcn	Same downlink uarfcn as used for cell 4	
priority	[5]	
threshXhigh	[5 (10 dB)]	
threshXlow	[1 (2 dB)]	
qQualMinFDD	-24 dB	
qRxLevMinFDD	-81 dBm	
utran-TDD-FrequencyList	Not present	
}		
gsm-PriorityInfoList	Not present	
eutra-FrequencyAndPriorityInfoList ::= SEQUENCE (SIZE (1..maxNumEUTRAFreqs) OF SEQUENCE {	Not present	

SYSTEM INFORMATION CHANGE INDICATION (Step 2, Step 6)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
MIB Value Tag	Set to (Current MIB value tag + 1)
BCCH Modification time	Not Present

8.3.1.53.5 Test requirements

1) At step 4, UE does not perform cell reselection to cell 4, as no priority is assigned to this cell in SIB TYPE 19 at step 1.

2) At step 7, UE reselects to higher priority cell 4, as priority is now assigned to this cell and sends a CELL UPDATE with cause: cell reselection.

8.3.1.54 Cell Update: Absolute priority based cell reselection when more than one cell meets the criterion.

8.3.1.54.1 Definition and applicability

All UEs which support FDD and Rel 8.

8.3.1.54.2 Conformance requirement

5.2.6.1.2a Measurement rules for inter-frequency and inter-RAT cell reselection when absolute priorities are used

…

If the UE has received absolute priority information for inter-frequency layers, the UE shall follow these rules:

- The UE shall perform measurements of inter-frequency layers with a priority higher than the priority of the current serving layer.

NOTE: The rate of these measurements may vary depending on whether Srxlev and Squal of the serving cell are above or below $S_{prioritysearch1}$ and $S_{prioritysearch2}$. This is specified in [10].

…

- For inter-frequency layers with a priority equal or lower than the priority of the current serving layer:

- If $Srxlev_{\mathbf{ServingCell}} > S_{prioritysearch1}$ and $Squal_{\mathbf{ServingCell}} > S_{prioritysearch2}$ the UE may choose not to perform measurements of inter-frequency layers of equal or lower priority.

- If $Srxlev_{\mathbf{ServingCell}} <= S_{prioritysearch1}$ or $Squal_{\mathbf{ServingCell}} <= S_{prioritysearch2}$ the UE shall perform measurements of inter-frequency layers of equal or lower priority.

- The UE shall not perform measurements of inter-frequency layers for which the UE has no absolute priority.

…

5.2.6.1.4a Absolute priority based criteria for inter-frequency and inter-RAT cell reselection

Absolute priorities of different absolute priority layers may be provided to the UE. The following cell reselection criteria are used for inter-frequency cells if absolute priority information for inter-frequency is available to the UE, and inter-RAT cells if absolute priority information for inter-RAT is available to the UE.
If System Information Block 18 with UTRAN information is provided then the UE shall apply the inter-frequency priority rules below only to UTRAN cells of the selected PLMN or equivalent PLMNs. If System Information Block 18 is not provided, or is provided but contains no information for UTRAN, then the rules below apply for the entire UTRAN RAT.
…
If priority information is provided for any inter-frequency layers, cells belonging to inter-frequency layers for which no priority or no threshold is assigned shall not be considered for reselection.
…

If none of the inter-frequency layers in UTRAN are provided with both priority and threshold parameters, the cell

reselection criteria in subclause 5.2.6.1.4 shall apply for inter-frequency layers in UTRAN.
…
If both criteria in subclause 5.2.6.1.4 and criteria in subclause 5.2.6.1.4a are simultaneously fulfilled, the order in which the reselection criteria are evaluated is left to UE implementation.
...

The UE may apply either priorities broadcast in system information or priorities received through dedicated signalling. The rules regarding which set of priorities shall apply are defined in [4]. UE specific priorities are only valid in the RPLMN, and shall be cleared when the validity time of the UE specific priorities expires, or when leaving the RPLMN. UE specific priorities are not applied in camped on any cell state.
…
The following definitions apply for the layers for which $Thresh_{x,high2}$ or $Thresh_{x,low2}$ are not provided:
- Criterion 1: the $Srxlev_{nonServingCell,x}$ of a cell on an evaluated higher absolute priority layer is greater than $Thresh_{x,high}$ during a time interval Treselection;
- Criterion 2: $Srxlev_{ServingCell} < Thresh_{serving,low}$ or $Squal_{ServingCell} < 0$ and the $Srxlev_{nonServingCell,x}$ of a inter-frequency cell on an evaluated equal absolute priority layer is greater than $Thresh_{x,low}$ during a time interval Treselection;
- Criterion 3: $Srxlev_{ServingCell} < Thresh_{serving,low}$ or $Squal_{ServingCell} < 0$ and the $Srxlev_{nonServingCell,x}$ of a cell on an evaluated lower absolute priority layer is greater than $Thresh_{x,low}$ during a time interval Treselection;
The following definitions apply for the layers for which both $Thresh_{x,high2}$ and $Thresh_{x,low2}$ are provided:
- Criterion 4: the $Squal_{nonServingCell,x}$ of a cell on an evaluated higher absolute priority layer is greater than $Thresh_{x,high2}$ during a time interval Treselection;
- Criterion 5: $Squal_{ServingCell} < Thresh_{serving,low2}$ and the $Squal_{nonServingCell,x}$ of a cell on an evaluated lower absolute priority layer is greater than $Thresh_{x,low2}$ during a time interval Treselection;

Cell reselection to a cell on a higher absolute priority layer than the camped frequency shall be performed if criterion 1 or 4 is fulfilled.
Cell reselection to an inter-frequency cell on an equal absolute priority layer to the camped frequency shall be performed if criterion 2 is fulfilled.
Cell reselection to a cell on a lower absolute priority layer than the camped frequency shall be performed if criterion 3 or 5 is fulfilled.

If more than one cell meets the above criteria, the UE shall reselect the cell with the highest $Srxlev_{nonServingCell,x}$ among the cells meeting the criteria on the highest absolute priority layer.
The UE shall not perform cell reselection to cells for which the cell selection criterion S is not fulfilled.
The UE shall not perform cell reselection until more than 1 second has elapsed since the UE camped on the current serving cell.
The UE should not perform cell reselection while the UE has an allocated common E-DCH resource.
For UE in RRC connected mode states CELL_PCH or URA_PCH the interval $Treselection_{s,PCH}$ applies, if provided in SIB4 (see [4]), while for UE in RRC connected mode state CELL_FACH the interval $Treselection_{s,FACH}$ applies, if provided in SIB4 (see [4]).
In all the above criteria the values of $Treselection_s$, $Treselection_{s,PCH}$ or $Treselection_{s,FACH}$ apply for Treselection and are scaled according to the UE mobility state and target RAT, as specified in 5.2.6.1.1a.

8.6.7.3a UTRA priority info list

If the IE "UTRA priority info list" is received in System Information Block Type 19, the UE shall:

1> if the value of the IE "Priority status" in the variable PRIORITY_INFO_LIST equals "dedicated_priority":

2> store the value of the IEs "$S_{prioritysearch1}$", "$S_{prioritysearch2}$", "$Thresh_{serving,low}$" and "$Thresh_{serving,low2}$" in the IE "UTRA Serving Cell" in the variable PRIORITY_INFO_LIST;

2> if any of the values in any of the occurrences of the IE "Frequency List" in any occurrence of the IE "Priority Info List" within the variable PRIORITY_INFO_LIST is the frequency of the serving cell:

3> store the value of the IE "priority" in the IE "UTRA Serving Cell" in the variable PRIORITY_INFO_LIST.

2> otherwise:

3> clear the value of the IE "priority" in the IE "UTRA Serving Cell" in the variable PRIORITY_INFO_LIST.

2> for each occurrence of the IE "UTRAN FDD Frequencies":

3> if the value of the IE "UARFCN" exists in the list of UTRA FDD priorities in the PRIORITY_INFO_LIST then, in the occurrence of IE "Frequency List" within the variable PRIORITY_INFO_LIST with that value of the IE "UARFCN":

4> store the value of the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$", "QqualminFDD" and "QrxlevminFDD".

2> for each occurrence of the IE "UTRAN TDD Frequencies":

3> if the value of the IE "UARFCN" exists in the list of UTRA TDD priorities in the PRIORITY_INFO_LIST then, in the occurrence of IE "Frequency List" within the variable PRIORITY_INFO_LIST with that value of the IE "UARFCN":

4> store the value of the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$" and "QrxlevminTDD".

1> otherwise:

2> update the PRIORITY_INFO_LIST IE "Priority status" to cause "sys_info_priority".

2> store information in the IE "UTRA Serving Cell" in the IE "UTRA Serving Cell" within the variable PRIORITY_INFO_LIST;

2> for each occurrence of the IE "UTRAN FDD Frequencies":

3> if an entry already exists in the IE "Priority Info List" in the variable PRIORITY_INFO_LIST with the same priority value as indicated in the IE "priority" and has the CHOICE "Radio Access Technology" set to "UTRA FDD":

4> create a new entry in the IE "Frequency List" in that occurrence of IE "Priority Info List", and store the value of "UARFCN" in the IE "UARFCN" in this occurrence of the IE "Frequency List" within the variable PRIORITY_INFO_LIST, and in that new entry:

5> store the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$", "QqualminFDD" and "QrxlevminFDD".

3> otherwise:

4> create a new entry in the IE "Priority Info List" and store the value of "priority" in the IE "priority" in this occurrence of the IE "Priority Info List" within the variable PRIORITY_INFO_LIST, and in that new entry:

5> set the CHOICE "Radio Access Technology" to "UTRA FDD" and store the value of "UARFCN" in the IE "UARFCN" in the first occurrence of the IE "Frequency List";

5> store the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$", "QqualminFDD" and "QrxlevminFDD" in that occurrence of the IE "Frequency List".

2> for each occurrence of the IE "UTRAN TDD Frequencies":

3> if an entry already exists in the IE "Priority Info List" in the variable PRIORITY_INFO_LIST with the same priority value as indicated in the IE "priority" and has the CHOICE "Radio Access Technology" set to "UTRA TDD":

4> create a new entry in the IE "Frequency List" in that occurrence of IE "Priority Info List", and store the value of "UARFCN" in the IE "UARFCN" in this occurrence of the IE "Frequency List" within the variable PRIORITY_INFO_LIST, and in that new entry:

5> store the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$" and "QrxlevminTDD".

3> otherwise:

4> create a new entry in the IE "Priority Info List" and store the value of "priority" in the IE "priority" in this occurrence of the IE "Priority Info List" within the variable PRIORITY_INFO_LIST, and in that new entry:

5> set the CHOICE "Radio Access Technology" to "UTRA TDD" and store the value of "UARFCN" in the IE "UARFCN" in the first occurrence of the IE "Frequency List";

5> store the IEs "$Thresh_{x, high}$", "$Thresh_{x, low}$" and "QrxlevminTDD" in that occurrence of the IE "Frequency List".

References

1. TS 25.304, 5.2.6.1.2a
2. TS 25.304, 5.2.6.1.4a
3. TS 25.331, 8.6.7.3a

8.3.1.54.3 Test purpose

To confirm that if more than one cell meets the absolute priority based cell reselection criteria, the UE shall reselect the cell with the highest $Srxlev_{nonServingCell,x}$ among the cells meeting the criteria on the highest absolute priority layer.

8.3.1.54.4 Method of test

Initial conditions

System Simulator:

- 3 cells Cell 1, Cell 4 and Cell 5
- Cell 1 is the active cell with SS downlink transmission power settings according to “T0” in table 8.3.1.54 below.
- All cells to be configured to transmit SIB 19 with default contents as in 34.108.

System Information Block type 11

Use the same message type found in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	3
- Inter-frequency FDD measurement indicator	TRUE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	Not Present

User Equipment:

- UE supports FDD and Rel-8 RAT priority cell reselection.
- UE is brought to CELL_FACH state on Cell 1 with "T0" in table 8.3.1.54 below.
- UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD.

Test Procedure

Table 8.3.1.54

Parameter	Unit	Cell 1		Cell 4		Cell 5	
		T0	T1	T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency		High Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-60	-60	-90	-65	-90	-70
Srxlev*	dB	21	21	-9	16	-9	11
qRxLevMinFDD	dB	-81		-81		-81	
Note-Srxlev is calculated in UE. During T1, cell 4 and cell 5 meet the higher priority cell reselection criterion.							

SS transmits MIB with the "MIB Value Tag" IE different from the original setting and the SIB TYPE 19 with cell 4 and cell 5 as the higher priority cells and cell 1 as the lower priority cell (See specific message contents). SS notifies the UE by sending a SYSTEM INFORMATION CHANGE INDICATION with the BCCH modification. SS waits for 5s to ensure UE reads all the SIB information.

SS configures the downlink transmission power settings according to columns “T1” from table 8.3.1.x. UE now performs cell reselection to cell 4 as Srxlev of cell 4 is higher than that of cell 5 even though both the cells fulfil the absolute priority cell reselection criteria defined in SIB TYPE 19. UE sends a CELL UPDATE with cause: cell reselection. SS responds with CELL UPDATE CONFIRM. SS releases the RRC connection.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		SYSTEM INFORMATION BLOCK TYPE 19	SS transmits MIB with the "MIB Value Tag" IE different from the original setting and the SIB TYPE 19 with cell 4 and cell 5 as the higher priority cells and cell 1 as the lower priority cell (See specific message contents).
2	←		SYSTEM INFORMATION CHANGE INDICATION	SS notifies the UE by sending a SYSTEM INFORMATION CHANGE INDICATION with the BCCH modification (See specific message contents) and waits for 5s for UE to read all SIB information.
3	SS			SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.54.
4	→		CELL UPDATE	UE performs cell reselection to Higher Priority cell 4 and sends CELL UPDATE on the new serving cell 4 and value "cell reselection" shall be indicated in IE "Cell updatecause"
5	←		CELL UPDATE CONFIRM	
6	←		RRC CONNECTION RELEASE	SS releases the RRC connection.
7	→		RRC CONNECTION RELEASE COMPLETE	

Specific Message Contents

The contents of the SYSTEM INFORMATION BLOCK TYPE 19 message in this test case is identical to TS 34.108 clause 6.1.0b, with the following exceptions:

SYSTEM INFORMATION BLOCK TYPE 19 (step 1)

Information Element	Value/remark	Version
SysInfoType19		REL-8 or later
utra-PriorityInfoList		
utra-ServingCell		
Priority	[4]	
s-PrioritySearch1	[8 (16 dB)]	
s-PrioritySearch2	Not present	
threshServingLow	[10 (20 dB)]	
utran-FDD-FrequencyList		
uarfcn	Same downlink uarfcn as used for cell 4	
priority	[5]	
threshXhigh	[5 (10 dB)]	
threshXlow	[1 (2 dB)]	
qQualMinFDD	-24 dB	
qRxLevMinFDD	-81 dBm	
uarfcn	Same downlink uarfcn as used for cell 5	
priority	[5]	
threshXhigh	[5 (10 dB)]	
threshXlow	[1 (2 dB)]	
qQualMinFDD	-24 dB	
qRxLevMinFDD	-81 dBm	
utran-TDD-FrequencyList	Not present	
gsm-PriorityInfoList	Not present	
eutra-FrequencyAndPriorityInfoList	Not present	

SYSTEM INFORMATION CHANGE INDICATION (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
MIB Value Tag	Set to (Current MIB value tag + 1)
BCCH Modification time	Not Present

8.3.1.54.5 Test requirements

1) At step 4, UE reselects to higher priority cell 4, and sends a CELL UPDATE with cause: cell reselection.

8.3.2 URA Update

8.3.2.1 URA Update: Change of URA

8.3.2.1.1 Definition

-

8.3.2.1.2 Conformance requirement

A UE in URA_PCH state shall initiate the URA update procedure in the following cases:

1> URA reselection:

2> if the UE detects that the current URA assigned to the UE, stored in the variable URA_IDENTITY, is not present in the list of URA identities in system information block type 2; or

2> if the list of URA identities in system information block type 2 is empty; or

2> if the system information block type 2 can not be found:

…

3> perform URA update using the cause "change of URA".

When initiating the URA update procedure, the UE shall:

1> stop timer T305;

1> set the variables PROTOCOL_ERROR_INDICATOR, FAILURE_INDICATOR, UNSUPPORTED_CONFIGURATION and INVALID_CONFIGURATION to FALSE;

1> move to CELL_FACH state, if not already in that state;

1> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

1> in case of a URA update procedure:

2> set the contents of the URA UPDATE message according to TS 25.331 subclause 8.3.1.3;

2> submit the URA UPDATE message for transmission on the uplink CCCH.

1> set counter V302 to 1;

1> start timer T302 when the MAC layer indicates success or failure in transmitting the message.

In case of URA update procedure the UE shall transmit a URA UPDATE message.

The UE shall set the IEs in the URA UPDATE message as follows:

1> set the IE "U-RNTI" to the value of the variable U_RNTI;

1> set the IE "URA update cause" corresponding to which cause as specified in TS 25.331 subclause 8.3.1.2 that is valid when the URA UPDATE message is submitted to lower layers for transmission;

2> if the value of the variable PROTOCOL_ERROR_INDICATOR is TRUE:

…

2> if the value of the variable PROTOCOL_ERROR_INDICATOR is FALSE:

3> if the value of the variable INVALID_CONFIGURATION is TRUE:

…

3> if the value of the variable INVALID_CONFIGURATION is FALSE:

4> set the IE "Protocol error indicator" to FALSE.

If the URA UPDATE CONFIRM message:

- does not include "CN information elements"; and
- does not include the IE "Ciphering mode info"; and
- does not include the IE "Integrity protection mode info"; and
- does not include the IE "New U-RNTI"; and
- does not include the IE "New C-RNTI":

the UE shall:

1> transmit no response message.

…

If any or several of the following conditions are true:

…

- reselection to another UTRA cell (including the previously serving cell) before completion of the cell update or URA update procedure;

the UE shall:

…

1> check whether it is still in "in service area" (see TS 25.331 subclause 8.5.5.2);

…

1> in case of a URA update procedure:

2> clear any entry for the URA UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS.

If the UE detects "in service area" if it has not entered idle mode, and:

1> if V302 is equal to or smaller than N302, the UE shall:

2> if the UE performed cell re-selection:

3> delete its C-RNTI.

…

2> in case of a URA update procedure:

3> set the contents of the URA UPDATE message according to TS 25.331 subclauses 8.3.1.3 and 8.5.10;

3> if a URA UPDATE CONFIRM message was received and caused the IE "Reconfiguration" in the variable CIPHERING_STATUS to be set to TRUE and/or the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO is set to TRUE:

…

3> submit the URA UPDATE message for transmission on the uplink CCCH.

…

The UE shall:

1> if the IE "URA identity" is included in a received message:

2> if the IE "RRC State Indicator" is included and set to "URA_PCH":

3> store this URA identity in the variable URA_IDENTITY;

3> after sending a possible message to UTRAN and entering URA_PCH state as specified elsewhere, read system information block type 2 in the selected cell;

3> if the stored URA identity in the variable URA_IDENTITY is not included in the list of URA identities in System Information Block type 2 in the selected cell, the list of URA identities in system information block type 2 is empty or if the system information block type 2 can not be found, a confirmation error of URA identity list has occurred:

4> if no URA update procedure is ongoing:

…

4> if a URA update procedure is ongoing:

5> take actions as specified in TS 25.331 subclause 8.3.1.10.

If the URA UPDATE CONFIRM message causes a confirmation error of URA identity list as specified in TS 25.331 subclause 8.6.2.1 the UE shall:

1> check the value of V302; and

1> if V302 is smaller or equal than N302:

…

2> set the IEs in the URA UPDATE message according to TS 25.331 subclause 8.3.1.3;

2> submit the URA UPDATE message for transmission on the uplink CCCH;

…

Reference

3GPP TS 25.331 clause 8.3.1.2, 8.3.1.12, 8.6.2.1

8.3.2.1.3 Test purpose

1. To confirm that the UE executes an URA update procedure after the successful change of URA.
2. To confirm that the UE performs an URA update procedure after it detects that SIB 2 is not broadcasted.
3. To confirm that the UE performs an URA update procedure after it detects a confirmation error of URA identity list.

8.3.2.1.4 Method of test

Initial Condition

System Simulator: 2 cells: The URA-ID and transmission power for each cell is shown in Table 8.3.2.1, where the initial condition is shown in column "T0".

UE: URA_PCH (state 6-13) as specified in clause 7.4 of TS 34.108, with URA-ID 1 from the list of URA-ID in cell 1.

Test Procedure

Parameter	Unit	Cell 1								Cell 2							
		T0	T1	T2	T3	T4	T5	T6	T7	T0	T1	T2	T3	T4	T5	T6	T7
UTRA RF Channel Number		Ch. 1								Ch. 1							
CPICH Ec	dBm/3.84MHz	-60	-69		-60	-69	-60		-69	-69	-60		-69	-60	-69		-60
P-CCPCH RSCP (TDD)	dBm	-60	-69		-60	-69	-60		-69	-69	-60		-69	-60	-69		-60
URA ID		URA-ID 1	URA-ID 2							URA-ID 1,3 and 4						no SIB2	

The test begins with the downlink power transmission of both cells set according to 'T0' column in table 8.3.2.1. The UE is in the URA_PCH state and assigned with only 1 URA identity in cell 1: URA-ID 1. The SS then adjusts the transmission power again according to the 'T1' column. This is expected to cause the UE to perform a cell reselection to cell 2. Since URA-ID 1 is also broadcasted in cell 2, the UE shall not perform any URA update procedure due to the change of URA. Starting from time 'T2', SS modifies the system information in cell 1, so that URA-ID 2 is the only URA identity in that cell. Next SS adjusts the transmission power according to 'T3' column. UE shall perform a cell reselection to cell 1 and when the UE finds that its current URA-ID 1 is not in the new broadcasted list of URA-IDs, it moves to CELL_FACH state and transmits a URA UPDATE message on the uplink CCCH. After the SS receives this message, it transmits a URA UPDATE CONFIRM message, which includes the IEs "RRC State Indicator" and IE "URA-ID" to the UE on the downlink CCCH. The IE "RRC State Indicator" is set to "URA_PCH". UE returns to URA_PCH state in cell 1 without sending any uplink response message. Next SS adjusts the transmission power according to 'T4' column. UE shall re-select to cell 2 and transmit a URA UPDATE message to SS. However, SS do not acknowledge but adjusts the transmission power according to 'T5' column. UE shall perform cell re-selection to cell 1 and then send a URA UPDATE message to SS. SS shall transmit URA UPDATE CONFIRM message to UE on the downlink CCCH. Starting from time 'T6', SS modifies the system information in cell 2, so that no SIB 2 is sent in that cell. Next the SS adjusts the transmission power according to the 'T7' column. The UE shall re-select to cell 2 and send a URA UPDATE message since no SIB2 is broadcasted in this cell. When the UE receives a URA UPDATE CONFIRM message including a URA identity, the UE will again send a URA UPDATE message. When receiving this last message, the SS shall transmit RRC Connection Release message on downlink CCCH to release the RRC connection.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is updated with only 1 URA identity carried currently by cell 1. The starting state of the UE is URA_PCH
2				SS set the power transmission and system information of all cells according to column 'T1' of table 8.3.2.1.
3				UE shall perform a cell reselection but shall not transmit URA UPDATE message with the update cause of "change of URA".
3a				Starting from time 'T2', SS modifies the system information in cell 1, so that URA-ID 2 is the only URA identity in that cell
4				SS set the power transmission and system information of all cells according to column 'T3' of table 8.3.2.1.
5	→		URA UPDATE	The UE shall perform a cell reselection first and when it finds that its current URA-ID 1 is not in the newly broadcasted list of URA-IDs, it shall then transmit this message and set value "change of URA" into IE "URA update cause".
6	←		URA UPDATE CONFIRM	Message comprises IE "RRC State Indicator" set to "URA_PCH", and also IE "URA Identity" equal to "URA-ID 2".
7				SS set the power transmission and system information of all cells according to column 'T4' of table 8.3.2.1.
8	→		URA UPDATE	
9				SS do not respond to the URA UPDATE message from UE and set the power transmission and system information of all cells according to column 'T5' of table 8.3.2.1.
10	→		URA UPDATE	
11	←		URA UPDATE CONFIRM	
11a				Starting from time 'T6', SS modifies the system information in cell 2, so that no SIB 2 is sent in that cell.
12				SS set the power transmission and system information of all cells according to column 'T7' of table 8.3.2.1.
13	→		URA UPDATE	The UE shall perform a cell reselection first and when it finds that no URA-ID is broadcasted in this cell, it shall then transmit this message and set value "change of URA" into IE "URA update cause".

Step	Direction		Message	Comment
	UE	SS		
14	←		URA UPDATE CONFIRM	Message comprises IE "RRC State Indicator" set to "URA_PCH", and also IE "URA Identity" equals to "URA-ID 2".
15	→		URA UPDATE	
16	←		RRC CONNECTION RELEASE	This message is sent on CCCH.
17	→		Void	
18				UE enters idle mode

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 2

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exceptions.

Cell 1, time T0-T1:

Information Element	Value/remark
- URA identity list - URA identity	 0000 0000 0000 0001B

Cell 2, time T0-T5:

Information Element	Value/remark
- URA identity list - URA identity - URA identity - URA identity	 0000 0000 0000 0011B 0000 0000 0000 0001B 0000 0000 0000 0100B

Cell 1, time T2-T7 (step 3a):

Information Element	Value/remark
- URA identity list - URA identity	 0000 0000 0000 0010B

Cell 2, time T6-T7 (step 11a):

No SYSTEM INFORMATION BLOCK TYPE 2 is broadcasted in cell 2 during this time period.

URA UPDATE (Step 5, 8, 10, 13, and 15)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI - SRNC Identity - S-RNTI URA Update Cause	 Check to see if set to '0000 0000 0001' Check to see if set to '0000 0000 0000 0000 0001' Check to see if set to 'change of URA'

URA UPDATE CONFIRM (Step 6, 11 and 14)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
URA identity	URA-ID 2

8.3.2.1.5 Test requirement

After step 2 the UE shall not transmit a URA UPDATE message with update cause "change of URA".

After step 4 the UE shall find that URA-ID 2 is not in its maintained list of URA-IDs. After cell reselection, the UE shall move to CELL_FACH state and transmit a URA UPDATE message setting value "change of URA" into IE "URA update cause".

After step 7 the UE shall find that URA-ID 1 is not in its maintained list of URA-IDs. After cell reselection, the UE shall move to CELL_FACH state and a transmit URA UPDATE message setting value "change of URA" into IE "URA update cause".

After step 9 the UE shall find the new cell and transmit a URA UPDATE message setting value "change of URA" into IE "URA update cause".

After step 12 the UE shall find that no URA-ID is broadcasted in the cell, move to CELL_FACH state and transmit a URA UPDATE message setting the update cause to "change of URA".

After step 14 the UE shall find that no URA-ID is broadcasted in the cell and transmit a URA UPDATE message setting the update cause to "change of URA".

8.3.2.1a URA Update: Change of URA (Cells belong to different frequency bands)

8.3.2.1a.1 Definition

This test case is identical to test case 8.3.2.1 except that the cells belong to different frequency bands.

NOTE: The test case 8.3.2.1 is an intra frequency test.

8.3.2.1a.2 Conformance requirement

Same conformance requirement as in clause 8.3.2.1.2

8.3.2.1a.3 Test purpose

Same test purpose as in clause 8.3.2.1.3 except that the cells belong to different frequency bands

8.3.2.1a.4 Method of test

Initial Condition

Same initial conditions as in clause 8.3.2.1.4 except, Cell 2 is mapped to cell 4 (inter frequency) of 34.108 clause 6.1 and both cells belong to different frequency bands.

System Information Block type 3

Use the same message type found in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/Remarks
-Qualmin	-16dB

Related ICS/IXIT statement(s)

- UE supports multiple bands simultaneously yes/no

Test Procedure

Same test procedure as in clause 8.3.2.1.4 with the following exception

After step 8, SS shall send URA UPDATE CONFIRM message to the UE.

NOTE: If the UE supports more than 2 frequency bands, the test may be executed for various band combinations.

Expected sequence

Same expected sequence as in clause 8.3.2.1.4 with the following additional / modified test steps

Step	Direction		Message	Comment
	UE	SS		
8a	←		URA UPDATE CONFIRM	
9				SS sets the power transmission and system information of all cells according to column 'T5' of table 8.3.2.1.

Specific Message Contents

Same specific message contents as in clause 8.3.2.1.4 with the following exceptions for the additional test steps:

URA UPDATE CONFIRM (Step 8a)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
URA identity	URA-ID 1

8.3.2.1a.5 Test requirement

Same test requirement as in clause 8.3.2.1.5.

8.3.2.1b URA Update: Change of URA (Cells belong to different frequency bands for LCR TDD)

8.3.2.1b.1 Definition

This test case is identical to test case 8.3.2.1 except that the cells belong to different frequency bands.

NOTE: The test case 8.3.2.1 is an intra frequency test.

8.3.2.1b.2 Conformance requirement

Same conformance requirement as in clause 8.3.2.1.2

8.3.2.1b.3 Test purpose

Same test purpose as in clause 8.3.2.1.3 except that the cells belong to different frequency bands

8.3.2.1b.4 Method of test

Initial Condition

Same initial conditions as in clause 8.3.2.1.4 except, Cell 2 is mapped to cell 4 (inter frequency) of 34.108 clause 6.1 and both cells belong to different frequency bands.

System Information Block type 3

Use the same message type found in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/Remarks
-Qrxlevmin	-115dBm

Related ICS/IXIT statement(s)

- UE supports multiple bands simultaneously yes/no

Test Procedure

Same test procedure as in clause 8.3.2.1.4 with the following exception

After step 8, SS shall send URA UPDATE CONFIRM message to the UE.

NOTE: If the UE supports more than 2 frequency bands, the test may be executed for various band combinations.

Expected sequence

Same expected sequence as in clause 8.3.2.1.4 with the following additional / modified test steps

Step	Direction		Message	Comment
	UE	SS		
8a	←		URA UPDATE CONFIRM	
9				SS sets the power transmission and system information of all cells according to column 'T5' of table 8.3.2.1.

Specific Message Contents

Same specific message contents as in clause 8.3.2.1.4

URA UPDATE CONFIRM (Step 8a)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
URA identity	URA-ID 1

8.3.2.1b.5 Test requirement

Same as in clause 8.3.2.1.5.

8.3.2.2 URA Update: Periodical URA update and Reception of Invalid message

8.3.2.2.1 Definition

8.3.2.2.2 Conformance requirement

A UE in URA_PCH state shall initiate the URA update procedure in the following cases:

1> URA reselection:

…

1> Periodic URA update:

2> if the criteria for performing URA update with the causes as specified above in the current subclause are not met; and

2> if the timer T305 expires while the UE is in the service area; and

2> if periodic updating has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity":

3> perform URA update using the cause "periodic URA update".

…

If the UE receives an URA UPDATE CONFIRM message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to TS 25.331 clause 9, the UE shall perform procedure specific error handling as follows:

1> If V302 is equal to or smaller than N302, the UE shall:

2> set the variable PROTOCOL_ERROR_INDICATOR to TRUE;

…

2> in case of a URA update procedure:

3> set the contents of the URA UPDATE message according to TS 25.331 subclause 8.3.1.3;

3> submit the URA UPDATE message for transmission on the uplink CCCH.

2> increment counter V302;

2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.

1> if V302 is greater than N302, the UE shall:

…

2> release all its radio resources;

2> enter idle mode;

2> Other actions the UE shall perform when entering idle mode from connected mode are specified in TS 25.331 subclause 8.5.2;

2> the procedure ends.

Reference

3GPP TS 25.331 clause 8.3.1.2, 8.3.1.7, 8.3.1.11

8.3.2.2.3 Test purpose

1. To confirm that the UE executes a URA update procedure after the expiry of timer T305.

2. To verify that the UE handles an invalid URA UPDATE CONFIRM message correctly when executing the URA update procedure.

8.3.2.2.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: URA_PCH (state 6-13) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in URA_PCH state. When the UE detects the expiry of timer T305, set according to the value specified in system information, the UE moves to CELL_FACH state and transmits a URA UPDATE message to the SS on the uplink CCCH. The message shall indicate the cause to be "periodic URA update" in IE "URA update cause". SS replies with an invalid URA UPDATE CONFIRM message sent on downlink DCCH, and check to see if the UE handles this event properly. The UE shall attempt to retransmit the identical URA UPDATE message. After the SS receives the second URA UPDATE message, it transmits a correct URA UPDATE CONFIRM message to the UE on the downlink CCCH. The UE then returns to URA_PCH state. SS calls for generic procedure C.5 to check that UE is in URA_PCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in URA_PCH state. SS wait until T305 timer has expired.
2	→		URA UPDATE	UE shall transmit this message and set value "periodic URA update" into IE "URA update cause".
3	←		URA UPDATE CONFIRM	See specific message content.
4	→		URA UPDATE	UE shall not return to idle mode immediately, but attempts to re-transmit this message.
5	←		URA UPDATE CONFIRM	
6			Void	
7	←→		CALL C.5	If the test result of C.5 indicates that UE is in URA_PCH state, the test passes, otherwise it fails.

Specific Message Contents

URA UPDATE (Step 2)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
URA Update Cause	Check to see if set to 'Periodic URA update'

URA UPDATE CONFIRM (Step 3)

Use the URA UPDATE CONFIRM message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Critical extensions	'FF'H

URA UPDATE (Step 4)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
RRC Transaction identifier	Check to see if set to the value given in URA UPDATE CONFIRM message in step 3.
URA Update Cause	Check to see if set to 'Periodic URA update'
Protocol error indicator	TRUE
Protocol error information	
- Protocol error cause	Message extension not comprehended

URA UPDATE CONFIRM (Step 5)

Use the URA UPDATE CONFIRM message as defined in [9] TS 34.108 clause 9.

8.3.2.2.5 Test requirement

After step 1 the UE shall detect the expiry of timer T305, move to CELL_FACH state, and transmit a URA UPDATE message which sets the value "periodical cell update" into IE "URA update cause".

After step 3 the UE shall re-transmit URA UPDATE message with IE "Protocol error indicator" set to 'TRUE' and IE "Protocol error information" set to "Message extension not comprehended".

After step 5 the UE shall return to the URA_PCH state.

8.3.2.3 Void

8.3.2.4 URA Update: loss of service after expiry of timers T307 and T305

8.3.2.4.1 Definition

8.3.2.4.2 Conformance requirement

When the T305 expires and the UE detects that it is "out of service area" as specified in TS 25.331 subclause 8.5.5.1, the UE shall

1> start timer T307;

…

When the T307 expires, the UE shall:

1> move to idle mode;

1> release all dedicated resources;

1> indicate release (abort) of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers;

1> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

1> clear the variable ESTABLISHED_RABS;

1> perform other actions when entering idle mode from connected mode as specified in TS 25.331 subclause 8.5.2;

1> and the procedure ends.

Reference

3GPP TS 25.331 clause 8.3.1.4.

8.3.2.4.3 Test purpose

1. To confirm that the UE moves to idle mode after the expiry of timer T307, following an expiry of timer T305 when it discovers that it is out of service area.

8.3.2.4.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.3.2.4

Parameter	Unit	Cell 1	
		T0	T1
UTRA RF Channel Number		Mid Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-60	-80
P-CCPCH RSCP (TDD)	dBm	-60	-80

Table 8.3.2.4 illustrates the downlink power to be applied at various time instants of the test execution. Columns marked "T0" denote the initial conditions.

The UE is in CELL_DCH state. The SS transmits UTRAN MOBILITY INFORMATION message to the UE to change the value of T305. The UE shall respond with UTRAN MOBILITY INFORMATION CONFIRM message. The UE transits to URA_PCH state using the generic procedure P18 in TS 34.108 clause 7.4. The content of the SYSTEM INFORMATION BLOCK TYPE 3 and 4 is modified. The SS waits for reception of a periodical URA update in order to know the timing of the T305 in the UE. The SS replies to the received URA UPDATE message with an URA UPDATE CONFIRM message on the downlink CCCH. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.2.4 so that S<0. When the UE detects the expiry of periodic URA updating timer T305 according to the system information, the UE detects that it is out of service area. After the expiry of timer T307, the UE moves to the idle state. SS configures its downlink transmission power settings according to columns "T0" in table 8.3.2.4 so that S>0. SS waits for 60s and then calls for generic procedure C.1 to check that UE is in idle mode state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0				Initially, the UE is in CELL_DCH state.
0a	←		UTRAN MOBILITY INFORMATION	Include new timers value (see specific message contents).
0b	→		UTRAN MOBILITY INFORMATION CONFIRM	
0c	←→		SS executes procedure P18 (clause 7.4.2.7.2) specified in TS 34.108.	Transit the UE to URA_PCH state. URA-ID 1 shall be in the list of URA-ID.
1			Void	
1a	←		MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 3 and 4	SS changes the contents of MASTER INFORMATION BLOCK and SYSTEM INFORMATION BLOCK (see specific message contents).
1b	←		PAGING TYPE 1	Include IE "BCCH modification info"
1c	→		URA UPDATE	IE "URA update cause" shall be set to "periodical URA update".
1d	←		URA UPDATE CONFIRM	
2a				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.2.4 so that the UE detects that it is out of service area.
2b				SS waits (T305+T307) +10% for UE to enter idle mode.
3				Upon the expiry of timer T305, the UE shall search for cell to camp and triggers T307 timer. SS listens to the uplink CCCH to verify that URA UPDATE message is not transmitted.
4				After the expiry of timer T307, the UE enters idle state. SS configures its downlink transmission power settings according to columns "T0" in table 8.3.2.4 so that the cell is suitable for camping. SS waits for 60s.
5	←→		CALL C.1	If the test result of C.1 indicates that UE is in idle mode state, the test passes, otherwise it fails.

Specific Message Contents

MASTER INFORMATION BLOCK (Step 1a)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
MIB Value Tag	A valid MIB value tag as defined in TS 25.331 that is different from the previous value.
Scheduling information	- Scheduling info for System Information Type 1
- PLMN Value tag	A valid PLMN value tag as defined in TS 25.331 that is different from the previous value.
Scheduling information	- Scheduling info for System Information Type 3
- Cell Value tag	A valid Cell value tag as defined in TS 25.331 that is different from the previous value.
Scheduling information	- Scheduling info for System Information Type 4
- Cell Value tag	A valid Cell value tag as defined in TS 25.331 that is different from the previous value.

SYSTEM INFORMATION BLOCK TYPE 3 and 4 (Step 1a)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
Qrxlevmin	-70

PAGING TYPE 1 (Step 1b)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Paging record list	Not Present
BCCH modification info	
MIB Value tag	A valid Cell value tag as defined in TS 25.331 that is different from the previous value.
BCCH modification time	Not present

UTRAN MOBILITY INFORMATION (Step 0a)

Use the same message sub-type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
- T305	5 minutes

UTRAN MOBILITY INFORMATION CONFIRM (Step 0b)

Use the same message sub-type found in clause 9 of TS 34.108.

URA UPDATE (Step 1c)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
URA Update Cause	Check to see if set to "periodical URA update"

8.3.2.4.5 Test requirement

After step 0a the UE shall respond with UTRAN MOBILITY INFORMATION CONFIRM message.

After step 2 the UE shall not transmit any URA UPDATE message on the uplink CCCH.

8.3.2.5 URA Update: Success after Confirmation error of URA-ID list

8.3.2.5.1 Definition

8.3.2.5.2 Conformance requirement

The UE shall:

1> if the IE "URA identity" is included in a received message:

2> if the IE "RRC State Indicator" is included and set to "URA_PCH":

3> store this URA identity in the variable URA_IDENTITY;

3> after sending a possible message to UTRAN and entering URA_PCH state as specified elsewhere, read system information block type 2 in the selected cell;

3> if the stored URA identity in the variable URA_IDENTITY is not included in the list of URA identities in System Information Block type 2 in the selected cell, the list of URA identities in system information block type 2 is empty or if the system information block type 2 can not be found, a confirmation error of URA identity list has occurred:

4> if no URA update procedure is ongoing:

…

4> if a URA update procedure is ongoing:

5> take actions as specified in TS 25.331 subclause 8.3.1.10.

If the URA UPDATE CONFIRM message causes a confirmation error of URA identity list as specified in TS 25.331 subclause 8.6.2.1 the UE shall:

1> check the value of V302; and

1> if V302 is smaller or equal than N302:

2> set the IEs in the URA UPDATE message according to TS 25.331 subclause 8.3.1.3;

2> submit the URA UPDATE message for transmission on the uplink CCCH;

2> increment counter V302;

2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.

1> if V302 is greater than N302:

…

Reference

3GPP TS 25.331 clause 8.3.1.10, 8.6.2.1.

8.3.2.5.3 Test purpose

1. To confirm that the UE retries to perform the URA update procedure following a confirmation error of URA-ID list.

8.3.2.5.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: URA_PCH (state 6-13) as specified in clause 7.4 of TS 34.108.

Test Procedure

At the start of this test, the UE is brought to URA_PCH state and assigned a URA with URA-ID 1. When the UE detects the expiry of timer T305 according to the system information, the UE moves to CELL_FACH state and transmits a URA UPDATE message to the SS on the uplink CCCH. The reason for performing URA updating shall be set to "periodic URA update" in IE "URA update cause". After the SS receives this message, it transmits a URA UPDATE CONFIRM message which includes the IE "RRC state indicator" set to "URA_PCH" and IE "URA identity" set to "URA-ID 2" to the UE on the downlink DCCH. The UE finds that the indicated URA-ID is not included in the list of URA-IDs broadcasted in system information block type 2, and then the UE shall retry to transmit a URA UPDATE message, with "change of URA" set in IE "URA update cause", for a confirmation error of URA-ID list. SS continue to send the same URA UPDATE CONFIRM message on the downlink DCCH until N302+1 URA UPDATE messages have been received. Then SS transmits a URA UPDATE CONFIRM message to the UE which includes IE "URA Identity" set to "URA-ID 1" and IE "new U-RNTI" on the downlink DCCH. The UE shall find this URA-ID in its URA-ID list and transmits an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is URA_PCH state. SS initializes counter K to 0
2	→		URA UPDATE	This message shall contain value "periodic URA update" set in IE "URA update cause" after expiry of timer T305.
3			Void	
4	←		URA UPDATE CONFIRM	SS transmits this message, setting the value "URA-ID 2" to IE "URA Identity", and including “New U_RNTI”.
4a	→		UTRAN MOBILITY INFORMATION CONFIRM	
5	→		URA UPDATE	This message shall contain value "change of URA" set in IE "URA update cause"
6				SS increments K by 1. If K is not greater than N302, proceed to step 7. If K is greater than N302, SS proceeds to step 8.
7	←		URA UPDATE CONFIRM	SS transmits this message, setting the value "URA-ID 2" to IE "URA Identity"", and including “New U_RNTI”.. And then returns to step 4a.
8	←		URA UPDATE CONFIRM	SS transmits this message, setting IE "URA Identity" to "URA-ID 1". This message also comprises IE "New U-RNTI".
9	→		UTRAN MOBILITY INFORMATION CONFIRM	

Specific Message Contents

URA UPDATE (Step 2)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
URA Update Cause	Check to see if set to 'Periodic URA update'

URA UPDATE CONFIRM (Step 4 &7)

Use the same message sub-type as specified in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New U-RNTI	
-SRNC Identity	'0000 0000 0001'
-S-RNTI	'0000 0000 0000 0000 0101'
New C-RNTI	‘1010 1010 1010 1010’ B
URA Identity	2

URA UPDATE (Step 5)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0101'
URA Update Cause	Check to see if set to 'URA update cause'

URA UPDATE CONFIRM (Step 8)

Use the same message sub-type as specified in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New U-RNTI	
-SRNC Identity	'0000 0000 0001'
-S-RNTI	'0000 0000 0000 0101 0101'
New C-RNTI	'1010 1010 1010 0000' B
URA Identity	1

UTRAN MOBILITY INFORMATION CONFIRM (Step 4a & 9)

Only the message type IE in this message is checked.

8.3.2.5.5 Test requirement

After step 1 the UE shall detect the expiry of timer T305, move to CELL_FACH state, transmit a URA UPDATE message on the uplink CCCH and set value "periodic URA update" into IE "URA update cause".

After step 4 the UE shall re-transmit a URA UPDATE message with IE "URA update cause" set to "change of URA" after it detects a confirmation error of URA-ID list for the URA-ID indicated in the URA UPDATE CONFIRM message. A total of (N302+1) URA UPDATE messages shall be received by the SS.

After step 8 the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH.

8.3.2.6 URA Update: Failure (V302 is greater than N302: Confirmation error of URA-ID list)

8.3.2.6.1 Definition

8.3.2.6.2 Conformance requirement

The UE shall:

1> if the IE "URA identity" is included in a received message:

2> if the IE "RRC State Indicator" is included and set to "URA_PCH":

3> store this URA identity in the variable URA_IDENTITY;

3> after sending a possible message to UTRAN and entering URA_PCH state as specified elsewhere, read system information block type 2 in the selected cell;

3> if the stored URA identity in the variable URA_IDENTITY is not included in the list of URA identities in System Information Block type 2 in the selected cell, the list of URA identities in system information block type 2 is empty or if the system information block type 2 can not be found, a confirmation error of URA identity list has occurred:

4> if no URA update procedure is ongoing:

…

4> if a URA update procedure is ongoing:

5> take actions as specified in TS 25.331 subclause 8.3.1.10.

If the URA UPDATE CONFIRM message causes a confirmation error of URA identity list as specified in TS 25.331 subclause 8.6.2.1 the UE shall:

1> check the value of V302; and

1> if V302 is smaller or equal than N302:

2> set the IEs in the URA UPDATE message according to TS 25.331 subclause 8.3.1.3;

2> submit the URA UPDATE message for transmission on the uplink CCCH;

2> increment counter V302;

2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.

1> if V302 is greater than N302:

2> release all its radio resources;

2> enter idle mode;

2> perform the actions specified in TS 25.331 subclause 8.5.2 when entering idle mode from connected mode;

2> the procedure ends.

Reference

3GPP TS 25.331 clause 8.3.1.10, 8.6.2.1

8.3.2.6.3 Test purpose

1. To confirm that the UE make repeated attempts to perform the URA update procedure following a detection of a confirmation error of URA-ID list. It then moves to idle state when internal counter V302 is greater than N302.

8.3.2.6.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: URA_PCH (state 6-13) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is originally in URA_PCH state updated with URA-ID 1. When the UE detects the expiry of timer T305 according to the system information, the UE shall move to CELL_FACH state and transmit a URA UPDATE message to the SS on the uplink CCCH. In this message, the value "periodic URA update" shall be set in IE "URA update cause". After the SS receives this message, it transmits a URA UPDATE CONFIRM message which includes the IE "RRC state indicator" set to "URA_PCH" and indicating the IE "URA Identity" to be "URA-ID 2" to the UE on the downlink CCCH. The UE finds that the indicated URA-ID is not included in the list of URA-IDs broadcasted. Then the UE shall retry to transmit a URA UPDATE message, with "change of URA" set in IE "URA update cause", for N302 times and each time the SS responds with the URA UPDATE CONFIRM message similar to the previous one on the downlink CCCH. After that, the UE shall enter idle state. SS waits for 5s and then calls for generic procedure C.1 to check that UE is in idle mode state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in URA_PCH state at the start of the test. SS sets internal counter K to 0.
2	→		URA UPDATE	The message shall indicate "periodic URA update" in IE "URA update cause". This message is sent following the expiry of timer T305. SS increments counter K by 1.
3				SS increments K by 1.
4	←		URA UPDATE CONFIRM	The SS transmits this message and set IE "URA Identity" to "URA-ID 2".
5	→		URA UPDATE	The message shall indicate "change of URA" in IE "URA update cause". This message is sent following the expiry of timer T305. SS increments counter K by 1.
6	←		URA UPDATE CONFIRM	The SS transmits this message and set IE "URA Identity" to "URA-ID 2". When K is greater than N302 proceeds to step 7, else executes step 5.
7			Void	The UE shall enter idle state. SS waits for 5s.
8			Void	
9			Void	
10	←→		CALL C.1	If the test result of C.1 indicates that UE is in idle mode state, the test passes, otherwise it fails.

Specific Message Contents

URA UPDATE CONFIRM (Step 3)

Use the same message sub-type defined in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
URA Identity	2

8.3.2.6.5 Test requirement

After step 1 the UE shall detect the expiry of timer T305, then it shall move to CELL_FACH state and transmit a URA UPDATE message on the uplink CCCH, setting value "periodic URA update" in IE "URA update cause".

After step 6 and if K is not greater than N302, the UE shall retry to transmit a URA UPDATE message, setting value "periodic URA update" in IE "URA update cause" after it detects the confirmation error of URA-ID list for the URA-ID included in the URA UPDATE CONFIRM message.

After step 6 and if K is greater than N302, the UE shall stop transmitting URA UPDATE message and then enters idle state.

8.3.2.7 URA Update: Success after T302 timeout

8.3.2.7.1 Definition

8.3.2.7.2 Conformance requirement

If any or several of the following conditions are true:

- expiry of timer T302;

…

the UE shall:

1> stop T302 if it is running;

1> check whether it is still in "in service area";

1> in case of a URA update procedure:

2> clear any entry for the URA UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS.

If the UE detects "in service area" if it has not entered idle mode, and:

1> if V302 is equal to or smaller than N302, the UE shall:

2> in case of a URA update procedure:

3> set the contents of the URA UPDATE message according to TS 25.331 subclause 8.3.1.3;

3> submit the URA UPDATE message for transmission on the uplink CCCH.

2> increment counter V302;

2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.

1> if V302 is greater than N302, the UE shall:

…

Reference

3GPP TS 25.331 clause 8.3.1.12.

8.3.2.7.3 Test purpose

1. To confirm that the UE attempts to repeat the URA update procedure upon the expiry of timer T302.

8.3.2.7.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: URA_PCH (state 6-13) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in URA_PCH. When the UE detects the expiry of timer T305 according to the system information, the UE moves to CELL_FACH state and transmits a URA UPDATE message to the SS on the uplink CCCH, setting value "periodic URA update" into IE "URA update cause". The SS ignores this message. The UE shall then retry to transmit a URA UPDATE message after the expiry of timer T302, until a total of N302+1 URA UPDATE messages have been received by the SS. SS transmits a URA UPDATE CONFIRM message to the UE on the downlink CCCH to end the procedure.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in URA_PCH state at the beginning of test. SS initializes counter K to 0 SS waits for T305 to expire.
2	→		URA UPDATE	This message shall contain value "periodic URA update" in IE "URA update cause" sent upon the expiry of timer T305.
3				SS shall not reply. Increment K by 1.
4	→		URA UPDATE	This message shall contain value "periodic URA update" in IE "URA update cause" sent upon the expiry of timer T302.
5				SS shall not reply. SS increments K by 1. If K is not greater than N302, proceed to step 4. If K is greater than N302, SS proceeds to step 6.
6	←		URA UPDATE CONFIRM	
7	→		UTRAN MOBILITY INFORMATION CONFIRM	
8	←→		CALL C.5	If the test result of C.5 indicates that UE is in URA_PCH state, the test passes, otherwise it fails.

Specific Message Contents

URA UPDATE CONFIRM (Step 6)

Use the same message sub-type as in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New U-RNTI	
SRNC identity	0000 0000 0001 B
S-RNTI	0000 0000 0000 1111 1111 B
New C-RNTI	'1010 1010 1010 1010' B

8.3.2.7.5 Test requirement

After step 1 the UE shall detect the expiry of timer T305, then it shall move to CELL_FACH state and transmit a URA UPDATE message on the uplink CCCH. The updating cause shall be set to "periodic URA update" in IE "URA update cause".

After step 3 the UE shall retry to transmit a URA UPDATE message at the expiry of timer T302, until a total of N302+1 URA UPDATE messages have been received by the SS.

After step 6, the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH.

8.3.2.8 Void

8.3.2.9 URA Update: Failure (UTRAN initiate an RRC connection release procedure on CCCH)

8.3.2.9.1 Definition

8.3.2.9.2 Conformance requirement

When the UTRAN receives a CELL UPDATE/URA UPDATE message, the UTRAN should:

1> … or

1> initiate an RRC connection release procedure (see subclause 8.1.4 in TS 25.331) by transmitting an RRC CONNECTION RELEASE message on the downlink CCCH.

…

The UE shall receive and act on an RRC CONNECTION RELEASE message in states CELL_DCH and CELL_FACH. Furthermore this procedure can interrupt any ongoing procedures with the UE in the above listed states.

When the UE receives the first RRC CONNECTION RELEASE message; and

1> if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or

1> if the message is received on DCCH:

the UE shall:

…

1> in state CELL_FACH:

2> if the RRC CONNECTION RELEASE message was received on the CCCH:

3> …

3> enter idle mode;

Reference

3GPP TS 25.331 clause 8.3.1.5, 8.1.4.3

8.3.2.9.3 Test purpose

To confirm that the UE moves to idle state upon the reception of RRC CONNECTION RELEASE message on downlink CCCH during a URA update procedure.

8.3.2.9.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: URA_PCH (state 6-13) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in URA_PCH state. When the UE detects the expiry of periodic URA updating timer T305, the UE moves to CELL_FACH state and transmits a URA UPDATE message to the SS on the uplink CCCH. The message shall indicate the cause to be "periodic URA update" in IE "URA update cause". The SS transmits RRC CONNECTION RELEASE message on downlink CCCH. The UE shall return to idle mode after release of all current signalling flows and radio access bearers. SS calls for generic procedure C.1 to check that UE is in Idle Mode state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the URA_PCH state. SS wait until T305 timer has expired.
2	→		URA UPDATE	UE shall transmit this message and set value "periodic URA update" into IE "URA update cause".
3	←		RRC CONNECTION RELEASE	SS transmits RRC CONNECTION RELEASE message to the UE on the downlink CCCH.
4				The UE releases L2 signalling radio bearer and radio resources then the UE goes to idle mode.
5	←→		CALL C.1	If the test result of C.1 indicates that UE is in Idle Mode state, the test passes, otherwise it fails.

Specific Message Contents

URA UPDATE (Step 2)

The same message found in Clause 9 of TS 34.108 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
URA Update Cause	Check to see if set to 'Periodic URA update'

RRC CONNECTION RELEASE (Step 3)

Use the same message sub-type found in Clause 9 of TS 34.108.

8.3.2.9.5 Test requirement

After step 1 the UE shall transmit a URA UPDATE message on the uplink CCCH and set value "periodic URA update" into IE "Cell update cause".

After step 3 the UE shall enter idle state.

8.3.2.10 URA Update: Reception of URA UPDATE CONFIRM message that causes invalid configuration

8.3.2.10.1 Definition

8.3.2.10.2 Conformance Requirement

If the variable INVALID_CONFIGURATION is set to TRUE, the UE shall:

1> if V302 is equal to or smaller than N302:

2> in case of a URA update procedure:

3> set the contents of the URA UPDATE message according to TS 25.331 subclause 8.3.1.3;

3> submit the URA UPDATE message for transmission on the uplink CCCH.

2> increment counter V302;

2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.

1> if V302 is greater than N302:

…

Reference

3GPP TS 25.331 clause 8.3.1.9

8.3.2.10.3 Test Purpose

1. To confirm that the UE retransmits a URA UPDATE message when it receives a URA UPDATE CONFIRM message that will trigger an invalid configuration in the UE, if the number of retransmissions has not reached the maximum allowed value.

8.3.2.10.4 Method of Test

Initial Condition

System Simulator: 1 cell

UE: URA_PCH (state 6-13) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in URA_PCH state. When the UE detects the expiry of timer T305 according to the system information, the UE moves to CELL_FACH state and transmits a URA UPDATE message to the SS on the uplink CCCH. This message shall contain value "periodical URA update" in IE "URA update cause". Upon receiving such a message, the SS replies with a URA UPDATE CONFIRM message with IE "RRC State Indicator" set to "CELL_DCH" on the downlink CCCH. The UE shall detect its variable "invalid configuration" is set and re-transmit URA UPDATE message. SS then transmit a valid URA UPDATE CONFIRM UPDATE message on the downlink CCCH to end the procedure.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the URA_PCH state. SS wait until T305 timer has expired.
2	→		URA UPDATE	UE shall transmit this message and set value "periodic URA update" into IE "URA update cause".
3	←		URA UPDATE CONFIRM	
4	→		URA UPDATE	IE "Protocol error indicator" is set to TRUE and IE "Protocol error information" is set to "Information element value not comprehended".
5			Void	
6			Void	
7	←		URA UPDATE CONFIRM	

URA UPDATE (Step 2)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
URA Update Cause	Check to see if set to 'Periodic URA update'

URA UPDATE (Step 4)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
URA Update Cause	Check to see if set to 'Periodic URA update'
Protocol error indicator	TRUE
Protocol error information	
- Protocol error cause	Information element value not comprehended

URA UPDATE CONFIRM (Step 3)

Use the same message sub-type found in TS 34.108 clause 9, with the following exception:

Information Element	Value/remark
RRC State Indicator	CELL_DCH

8.3.2.10.5 Test Requirement

After step 1 the UE shall detect the expiry of timer T305, then it shall move to CELL_FACH state and transmit a URA UPDATE message on the uplink CCCH, setting value "periodic URA update" into IE "URA update cause".

After step 3 the UE shall transmit a URA UPDATE message on the uplink CCCH, setting value 'TRUE" in IE "URA update cause" and value "Information element value not comprehended" in "Protocol error cause".

8.3.2.11 URA Update: Cell reselection to cell of another PLMN belonging to the equivalent PLMN list

8.3.2.11.1 Definition

8.3.2.11.2 Conformance requirement

1. A UE in URA_PCH state shall initiate the URA update procedure in the following cases:
   - URA reselection:
     - if the UE detects that the current URA assigned to the UE, stored in the variable URA_IDENTITY, is not present in the list of URA identities in system information block type 2; or
     - if the list of URA identities in system information block type 2 is empty; or
     - if the system information block type 2 can not be found:
       - perform URA update using the cause "change of URA".
2. A "suitable cell" is a cell on which the UE may camp on to obtain normal service. Such a cell shall fulfil all the following requirements.
   - The cell is part of the selected PLMN or, of a PLMN considered as equivalent by the UE according to the information provided by the NAS.
   - The cell is not barred, see clause 5.3.1.1 in TS 25.304.
   - The cell is not part of the list of "forbidden LAs for roaming" TS 22.011
   - The cell selection criteria are fulfilled, see clause 5.2.3.1.2 in TS 25.304.
3. The Mobile Equipment shall store a list of "equivalent PLMNs". This list is replaced or deleted at the end of each location update procedure, routing area update procedure and GPRS attach procedure. The stored list consists of a list of equivalent PLMNs as downloaded by the network plus the PLMN code of the network that downloaded the list. The stored list shall not be deleted when the MS is switched off. The stored list shall be deleted if the SIM is removed. The maximum number of possible entries in the stored list is six.

Reference

3GPP TS 25.331 clause 8.3.1.2.

3GPP TS 25.304 clause 4.3.

3GPP TS 24.008 clause 4.4.1.

8.3.2.11.3 Test purpose

1. To confirm that the UE executes a URA update procedure after a successful reselection of another UTRA cell with a URA identity that is not the URA of the UE and with a PLMN identity different from the original cell but with a PLMN that is part of the equivalent PLMN list in the UE.

NOTE: Verifies conformance requirements 1, 2 and 3.

2. To confirm that the UE refrains from executing a URA update procedure to a better UTRA cell with another PLMN identity when that PLMN identity is not part of the equivalent PLMN list in the UE.

NOTE: Test case in 8.3.2.1 is a test where the UE reselects to a cell with the same PLMN identity as the registered PLMN.

8.3.2.11.4 Method of test

Initial Condition

System Simulator: 3 cells - Cell 1 is active, with the downlink transmission power shown in column marked "T0" in table 8.3.2.1-1, while cell 4 and cell 7 is inactive.

UE: URA_PCH (state 6-13) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

UE: Shall have stored equivalent PLMN list containing PLMN-1 and PLMN-2. The equivalent PLMN list stored in the UE shall not contain PLMN-3. The UE shall also have stored the URA identity URA-ID 1 from the list of URA-IDs in cell 1.

Test Procedure

Table 8.3.2.11-1

Parameter	Unit	Cell 1			Cell 4			Cell 7		
		T0	T1	T2	T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			High Range Test Frequency			Low Range Test Frequency		
PLMN identity		PLMN-1			PLMN-2			PLMN-3		
URA identity		URA-ID 1			URA-ID 2			URA-ID 3		
CPICH Ec (FDD)	dBm/3.84MHz	-58	-69	-69	Cell 4 is switched off	-58	-58	Cell 7 is switched off	Cell 7 is switched off	-47
P-CCPCH RSCP (TDD)	dBm	-62	-68	-68	Cell 4 is switched off	-62	-68	Cell 7 is switched off	Cell 7 is switched off	-62

Table 8.3.2.11-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while columns marked "T1" and "T2" are to be applied subsequently.

a) At T0, the SS activates Cell 1.

b) At T1, the SS activates Cell 4, and monitors Cell 4 for received messages from UE.

c) UE re-selects to Cell 4, and sends a URA UPDATE message. The SS replies with an URA UPDATE CONFIRM message on the downlink CCCH.

d) At T2, the SS activates Cell 7, and monitors Cell 7 for received messages from UE.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				UE is in URA_PCH state, camped on Cell 1 and registered to PLMN1. SS applies downlink transmission power settings according to values in column "T0" of table 8.3.2.11-1.
1a		←	MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 3	Modified SIB 3 and MIB
1b	←		PAGING TYPE 1	Include IE "BCCH modification info"
1c				Wait 5 seconds to allow UE to read new system information
1d				SS applies downlink transmission power settings according to values in column "T1" of table 8.3.2.11-1.
2		→	URA UPDATE	The UE moves to CELL_FACH state and transmits this message in Cell 4. The value "change of URA" shall be set in IE "URA update cause".
3		←	URA UPDATE CONFIRM	The value "URA_PCH" set in IE "RRC State Indicator".
4				SS applies downlink transmission power settings according to values in column "T2" of table 8.3.2.11-1.
5				SS monitors that the UE does not send a URA UPDATE message or any other message.
6		←→	CALL C.5	If the test result of C.5 indicates that UE is in URA_PCH state, the test passes, otherwise it fails.

Specific Message Contents

MASTER INFORMATION BLOCK (Step 1a)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
MIB Value Tag	Set to (Current MIB value tag + 1)
SIB 3 Cell Value tag	Set to (Current SIB3 value tag + 1)

System Information Block type 3 (Step 1a)

Use the same message type found in clause 6.1.0b of TS 34.108, with the following exceptions:

- Qqualmin	-16

PAGING TYPE 1 (Step 1b)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Paging record list	Not Present
BCCH modification info	
MIB Value tag	Set to latest value transmitted in MIB
BCCH modification time	Not present

URA UPDATE (Step 2)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:.

Information Element	Value/remark
URA Update Cause	Check to see if set to 'change of URA'

URA UPDATE CONFIRM (Step 3)

Use the same message sub-type found in TS 34.108 clause 9.

8.3.2.11.5 Test requirement

After Step 1d the UE shall send a URA UPATE message.

After Step 4 the UE shall refrain from sending a URA update (or any other message).

8.3.2.12 Restricted cell reselection to a cell belonging to forbidden LA list (URA_PCH)

8.3.2.12.1 Definition

8.3.2.12.2 Conformance requirement

1. A UE in URA_PCH state shall initiate the URA update procedure in the following cases:
   - URA reselection:
     - if the UE detects that the current URA assigned to the UE, stored in the variable URA_IDENTITY, is not present in the list of URA identities in system information block type 2; or
     - if the list of URA identities in system information block type 2 is empty; or
     - if the system information block type 2 can not be found:
       - perform URA update using the cause "change of URA".
2. A "suitable cell" is a cell on which the UE may camp on to obtain normal service. Such a cell shall fulfil all the following requirements.
   - The cell is part of the selected PLMN or, of a PLMN considered as equivalent by the UE according to the information provided by the NAS.
   - The cell is not barred, see clause 5.3.1 in TS 25.304.
   - The cell is not part of the list of "forbidden LAs for roaming" in TS 22.011.
   - The cell selection criteria are fulfilled, see clause 5.2.3.1.2 in TS 25.304.
3. The Mobile Equipment shall contain a list of "forbidden location areas for roaming", as well as a list of "forbidden location areas for regional provision of service". These lists shall be erased when the MS is switched off or when the SIM is removed, and periodically (with period in the range 12 to 24 hours). The location area identification received on the BCCH that triggered the location updating request shall be added to the suitable list whenever a location update reject message is received with the cause "Roaming not allowed in this location area" or with the cause "Location Area not allowed". The lists shall accommodate each 10 or more location area identifications. When the list is full and a new entry has to be inserted, the oldest entry shall be deleted.

Reference

3GPP TS 25.331 clause 8.3.1.2.

3GPP TS 25.304 clause 4.3.

3GPP TS 24.008 clause 4.4.1.

8.3.2.12.3 Test purpose

1. To confirm that the UE refrains from selecting a UTRA cell and performing a URA update if that cell has a LA identity that is part of the list of LAs stored in the UE as "forbidden location areas for roaming".

NOTE: Test case in 8.3.2.1 is a test where the UE reselects to a cell with the same LA identity as the LA identity in the original cell.

8.3.2.12.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 is active, with the downlink transmission power shown in column marked "T0" in table 8.3.2.12-1, while cell 4 is inactive.

Qqualmin value for Cell 1 is set to -16 dB in SIB3 and SIB4 (FDD only) (see specific message contents).

UE: URA_PCH (state 6-13) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

UE: Shall have stored LA-ID 2 into the list of "forbidden location areas for roaming". The UE shall also have stored the URA identity URA-ID 1 from the list of URA-IDs in cell 1.

Test Procedure

Table 8.3.2.12-1

Parameter	Unit	Cell 1		Cell 4	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
URA identity		URA-ID 1		URA-ID 2	
LA identity		LA-ID 1		LA-ID 2	
CPICH Ec (FDD)	dBm/3.84MHz	-73	-73	Cell 4 is switched off	-67
P-CCPCH RSCP (TDD)	dBm	-62	-68	Cell 4 is switched off	-62

Table 8.3.2.12-1 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while column marked "T1" are to be applied subsequently.

a) At T1, verify that the UE does not reselect to cell 4 and not send a URA update in cell 4, although cell 4 is the best cell.

b) SS calls for generic procedure C.5 to check that UE is in URA_PCH state in cell 1.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				UE is in URA_PCH state, camped on Cell 1 and registered to PLMN1. SS applies downlink transmission power settings according to values in column "T0" of table 8.3.2.12-1.
2				SS applies downlink transmission power settings according to values in column "T1" of table 8.3.2.12-1.
3				SS monitors that the UE does not send a URA UPDATE message or any other message within 30 seconds of step 2.
4	←→		CALL C.5	If the test result of C.5 indicates that UE is in URA_PCH state in cell 1, the test passes, otherwise it fails.

Specific Message Contents

MASTER INFORMATION BLOCK

Use the same message sub-type found in clause 6.1.0a.3 of TS 34.108, with the following exception.

Information Element	Value/remark
MIB Value Tag	Set to (Current MIB value tag + 1)
SIB 3 Cell Value tag	Set to (Current SIB3 value tag + 1)
SIB 4 Cell Value tag	Set to (Current SIB4 value tag + 1)

System Information Block type 3

Use the same message type found in clause 6.1.0b of TS 34.108, with the following exceptions:

- Qqualmin	-16

System Information Block type 4

Use the same message type found in clause 6.1.0b of TS 34.108, with the following exceptions:

- Qqualmin	-16

8.3.2.12.5 Test requirement

After Step 2 the UE shall refrain from sending a URA UPDATE (or any other message).

8.3.2.13 URA Update: Change of URA due to HCS Cell Reselection

8.3.2.13.1 Definition

8.3.2.13.2 Conformance requirement

1. The quality level threshold criterion H for hierarchical cell structures is used to determine whether prioritised ranking according to hierarchical cell re-selection rules shall apply, and is defined by:

$$H_s = Q_{meas,s} - Qhcs_s$$

$$H_n = Q_{meas,n} - Qhcs_n - TO_n * L_n$$

…

2. The cell-ranking criterion R is defined by:

$$R_s = Q_{meas,s} + Qhyst_s$$

$$R_n = Q_{meas,n} - Qoffset_{s,n} - TO_n * (1 - L_n)$$

where:

$$TO_n = TEMP\_OFFSET_n * W(PENALTY\_TIME_n - T_n)$$

$L_n = 0$ if $HCS\_PRIO_n = HCS\_PRIO_s$
$L_n = 1$ if $HCS\_PRIO_n <> HCS\_PRIO_s$

$W(x) = 0$ for $x < 0$
$W(x) = 1$ for $x >= 0$

$TEMP\_OFFSET_n$ applies an offset to the H and R criteria for the duration of $PENALTY\_TIME_n$ after a timer T_n has started for that neighbouring cell.

The timer T_n is implemented for each neighbouring cell. T_n shall be started from zero when one of the following conditions becomes true:

- if $HCS\_PRIO_n <> HCS\_PRIO_s$ and

$$Q_{meas,n} > Qhcs_n$$

Or

- if $HCS\_PRIO_n = HCS\_PRIO_s$ and
  - for serving FDD and neighbour FDD cells if the quality measure for cell selection and reselection is set to CPICH RSCP in the serving cell, and:

$$Q_{meas,n} > Q_{meas,s} + Qoffset1_{s,n}$$

  - for serving FDD and neighbour FDD cells if the quality measure for cell selection and reselection is set to CPICH Ec/No in the serving cell, and:

$$Q_{meas,n} > Q_{meas,s} + Qoffset2_{s,n}$$

  - for all other serving and neighbour cells:

$$Q_{meas,n} > Q_{meas,s} + Qoffset1_{s,n}$$

T_n for the associated neighbour cell shall be stopped as soon as any of the above conditions are no longer fulfilled. Any value calculated for TO_n is valid only if the associated timer T_n is still running else TO_n shall be set to zero.

At cell-reselection, a timer T_n is stopped only if the corresponding cell is not a neighbour cell of the new serving cell, or if the criteria given above for starting timer T_n for the corresponding cell is no longer fulfilled with the parameters of

the new serving cell. On cell re-selection, timer T_n shall be continued to be run for the corresponding cells but the criteria given above shall be evaluated with parameters broadcast in the new serving cell if the corresponding cells are neighbours of the new serving cell.

…

3. The cell selection criterion S used for cell reselection is fulfilled when:

for FDD cells:	Srxlev > 0 AND Squal > 0
for TDD cells:	Srxlev > 0
for GSM cells:	Srxlev > 0

Where :

$Squal = Q_{qualmeas} – Qqualmin$

$Srxlev = Q_{rxlevmeas} - Qrxlevmin - Pcompensation$

…

4. The UE shall perform ranking of all cells that fulfil the S criterion among

- all cells that have the highest HCS_PRIO among those cells that fulfil the criterion H >= 0**.** Note that this rule is not valid when UE high-mobility is detected.
- all cells, not considering HCS priority levels, if no cell fulfil the criterion H >= 0. This case is also valid when it is indicated in system information that HCS is not used, that is when serving cell does not belong to a hierarchical cell structure.

The cells shall be ranked according to the R criteria.

The best ranked cell is the cell with the highest R value.

5. If an FDD cell is ranked as the best cell and the quality measure for cell selection and re-selection is set to CPICH RSCP, the UE shall perform cell re-selection to that FDD cell.

In all cases, the UE shall reselect the new cell, only if the following conditions are met:

- the new cell is better ranked than the serving cell during a time interval Treselection.
- more than 1 second has elapsed since the UE camped on the current serving cell.

…

6. The *cell reselection* process in Connected Mode is the same as *cell reselection evaluation process* used for idle mode, described in subclause 5.2.6 of 25.304.

7. A UE in URA_PCH state shall initiate the URA update procedure in the following cases:

1> URA reselection:

2> if the UE detects that the current URA assigned to the UE, stored in the variable URA_IDENTITY, is not present in the list of URA identities in system information block type 2; or

…

3> perform URA update using the cause "change of URA".

Reference

3GPP TS 25.304 clause 5.2.6.1.4

3GPP TS 25.304 clause 5.4.3

3GPP TS 25.331 clause 8.3.1

8.3.2.13.3 Test purpose

1. To confirm that the UE can read HCS related SIB information and act upon all HCS parameters in URA_PCH state.
2. To confirm that the UE executes an URA update procedure after the successful change of URA due to HCS Cell Reselection in URA_PCH state.
3. To confirm UE responds correctly when it re-selects to a new cell while waiting from URA UPDATE CONFIRM message from SS.

8.3.2.13.4 Method of test

Initial Condition

System Simulator: 3 cells - Cell 1 is active with URA-ID 1 and downlink transmission power shown in column marked "T0" in table 8.3.2.13-1. Cell2 with URA-ID 1 and Cell 3 with URA-ID 2 are switched off

UE: URA_PCH (state 6-13) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE, with URA-ID 1 from the list of URA-ID in cell 1

Specific Message Content

For system information blocks 4 and 11 for Cell 1 (gives IE's which are different from defaults given in 34.108 sec 6.1) to be transmitted before idle update preamble.

Contents of System Information Block type 4 (FDD)

Information Element	Value/remark
- Cell selection and re-selection info	
- CHOICE mode	FDD
- Sintersearch	0 dB
- SsearchHCS	17 (35 dB)
- RAT List	This parameter is configurable
- $S_{limit,SearchRAT}$	0
- Qqualmin	-20 dB
- Qrxlevmin	-58 (-115 dBm)
- $Qhyst1_S$	7 (gives actual value of 14 dB)
- $Qhyst2_S$	Not Present
- HCS Serving cell information	
-HCS Priority	6
- Q HCS	39 (results in actual value of –76)
- TcrMax	Not Present

Contents of System Information Block type 4 (3.84 Mcps TDD, 1.28 Mcps TDD and 7.68 Mcps TDD)

Information Element	Value/remark
- Cell selection and re-selection info	
- CHOICE mode	TDD
- SsearchHCS	23 (47 dB)
- Q_{hyst1_S}	10 (gives actual value of 20 dB)
- HCS Serving cell information	
-HCS Priority	6
- Q HCS	39 (results in actual value of –76)
- TcrMax	Not Present

Contents of System Information Block type 11 (FDD) (Cell 1)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- Cell Selection and Re-selection info	Not Present
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	39 (results in actual value of –76)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	12
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-58 (-115 dBm)
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	39 (results in actual value of –76)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	12
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-58 (-115 dBm)

Contents of System Information Block type 11 (3.84 Mcps TDD 1.28 Mcps TDD and 7.68 Mcps TDD) (Cell 1)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	Not Present
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1 Default settings for cell
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	39 (results in actual value of –76)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	12
- CHOICE mode	TDD
- Qrxlevmin	-52 (-103 dBm)
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	Not Present
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1 Default settings for cell
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20dB
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	39 (results in actual value of –76)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	12
- CHOICE mode	TDD
- Qrxlevmin	-52 (-103 dBm)

Test Procedure

Table 8.3.2.13-1

Parameter	Unit	Cell 1			Cell 2			Cell 3		
		T0	T1	T2	T0	T1	T2	T0	T1	T2
Cell id in system information		1			2			3		
UTRA RF Channel Number		Mid Range Test Frequency			Mid Range Test Frequency			Mid Range Test Frequency		
HCS Priority		6			7			7		
CPICH Ec (FDD)	dBm/3.84 MHz	-60	-65	-65	-83	-83	-69	-83	-69	-69
H* (During penalty time)		16	11	-1	-19	-19	7	-19	-5	7
H* (After PenaltyTime)		16	11	11	-7	-7	7	-7	7	7
P-CCPCH RSCP (TDD)	dBm	-61	-61	-61	-80	-80	-67	-80	-73	-73
H* (After PenaltyTime)		15	15	15	-4	-4	9	-4	3	3
R* (During PenaltyTime)		-46	-51	-45	-63	-63	-61	-63	-49	-55
R* (After PenaltyTime)		-46	-51	-45	-63	-63	-49	-63	-49	-55

(*) Note: this parameter is calculated internally in the UE and is only shown for clarification of the test procedure.

The UE is in the URA_PCH state and assigned with only 1 URA identity in cell 1: URA-ID 1. SS configures Cell 2 and 3 with power level given in column "T0", and URA-Id 1 and 2 respectively and starts broadcast of BCCH on the primary CCPCH in cells 2 and 3. UE shall remain camped on the Cell 1 even after expiry of penalty time i.e. 40 seconds. SS sets downlink transmission power settings according to columns "T1" in table 8.3.2.13-1. SS then adjusts the transmission power again according to 'T1' column. This is expected to cause the UE to perform a cell reselection to cell 3 after at-least 40 Seconds (Penalty Time) after the power levels have been changed. UE on performing cell reselection to cell 3 finds that its current URA-ID 1 is not in the new broadcasted list of URA-IDs, it moves to CELL_FACH state and transmits a URA UPDATE message on the uplink CCCH. After the SS receives this message, it transmits URA UPDATE CONFIRM message to the UE on the downlink CCCH. The "RRC State Indicator" is set to "URA_PCH". UE returns to URA_PCH state in cell 3 without sending a uplink response message. Next SS adjusts the transmission power according to 'T2' column. After the expiry of penalty time the UE shall re-select to cell 2, and transmit URA UPDATE message to SS. However, SS do not acknowledge but adjusts the transmission power according to 'T0' column. UE shall perform cell re-selection to cell 1 and then sent URA UPDATE message to SS. Finally SS shall transmit URA UPDATE CONFIRM message to UE on the downlink CCCH. UE shall return to URA_PCH state in Cell 1 and will not transmit anything on PRACH.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is updated with only 1 URA identity carried currently by cell 1. The starting state of the UE is URA_PCH
2	←		BCCH	SS configures cell 2 (with URA-ID 1) and Cell 3 (with URA-ID 2) and power levels as given in column T0 of table 8.3.2.13-1 and starts transmission of BCCH.
3				UE shall Remain camped on Cell 1 and in URA_PCH state even after expiry of Penalty time.
4				SS set the power transmission of all cells according to column 'T1' of table 8.3.2.13-1.
5	→		URA UPDATE	The UE shall perform a cell reselection first after the penalty time to cell 3 and when it finds that its current URA-ID 1 is not in the new broadcasted list of URA-IDs, it shall then transmit this message and set value "change of URA" into IE "URA update cause".
6	←		URA UPDATE CONFIRM	Message sent on CCCH.
7				SS set the power transmission of all cells according to column 'T2' of table 8.3.2.13-1. SS makes sure that the UE does not send an URA Update message during penalty time
8	→		URA UPDATE	In Cell 2
9				SS do not respond to the URA UPDATE message from UE and set the power transmission of all cells according to column 'T0' of table 8.3.2.13-1.
10	→		URA UPDATE	In Cell 1
11	←		URA UPDATE CONFIRM	Message sent on CCCH.

Specific Message Contents

The contents of system information block 4 and 11 messages are identical as system information block 4 and 11 messages as found in 34.108 clause 6.1 with the following exceptions:

Contents of System Information Block type 4 (FDD) (Cell 2 and 3)

Information Element	Value/remark
- Cell selection and re-selection info	
- CHOICE mode	FDD
- Sintersearch	0 dB
- SsearchHCS	17 (35 dB)
- RAT List	This parameter is configurable
- $S_{limit,SearchRAT}$	0
- Qqualmin	-20 dB
- Qrxlevmin	-115 dBm
- $Qhyst1_S$	7 (gives actual value of 14 dB)
- $Qhyst2_S$	Not Present
- HCS Serving cell information	
-HCS Priority	7
- Q HCS	39 (results in actual value of –76)
- TcrMax	Not Present

Contents of System Information Block type 4 (3.84 Mcps TDD, 1.28 Mcps TDD and 7.68 Mcps TDD) (Cell 2 and 3)

Information Element	Value/remark
- Cell selection and re-selection info	
- CHOICE mode	TDD
- SsearchHCS	23 (47 dB)
- $Qhyst1_S$	10 (gives actual value of 20 dB)
- HCS Serving cell information	
-HCS Priority	7
- Q HCS	39 (results in actual value of –76)
- TcrMax	Not Present

Contents of System Information Block type 11 (FDD) (Cell 2)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- Cell Selection and Re-selection info	NOT PRESENT
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	6
-Q_HCS	39 (results in actual value of –76)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	12
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-58 (-115 dBm)
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	39 (results in actual value of –76)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	12
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-58 (-115 dBm)

Contents of System Information Block type 11 (3.84 Mcps TDD, 1.28 Mcps TDD and 7.68 Mcps TDD) (Cell 2)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	Not Present
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1 Default settings for cell
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- HCS neighbouring cell information	Present
- HCS_Priority	6
-Q_HCS	39 (results in actual value of –76)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	12
- CHOICE mode	TDD
- Qrxlevmin	-52 (-103 dBm)
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	Not Present
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1 Default settings for cell
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20dB
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	39 (results in actual value of –76)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	12
- CHOICE mode	TDD
- Qrxlevmin	-52 (-103 dBm)

Contents of System Information Block type 11 (FDD) (Cell 3)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1.4
- Cell Selection and Re-selection info	NOT PRESENT
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	6
-Q_HCS	39 (results in actual value of –76)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	12
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-58 (-115 dBm)
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	39 (results in actual value of –76)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	12
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-58 (-115 dBm)

Contents of System Information Block type 11 (3.84 Mcps TDD, 1.28 Mcps TDD and 7.68 Mcps TDD) (Cell 3)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	Not Present
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1 Default settings for cell
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- HCS neighbouring cell information	Present
- HCS_Priority	6
-Q_HCS	39 (results in actual value of –76)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	12
- CHOICE mode	TDD
- Qrxlevmin	-52 (-103 dBm)
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	Not Present
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1 Default settings for cell
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20dB
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	39 (results in actual value of –76)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	12
- CHOICE mode	TDD
- Qrxlevmin	-52 (-103 dBm)

URA UPDATE (Step 5, 8 and 10)

Information Element	Value/remark
URA Update Cause	Check to see if set to 'change of URA'

URA UPDATE CONFIRM (Steps 6 and 11)

Use the same message sub-type found in TS 34.108 clause 9.

8.3.2.13.5 Test requirement

After step 4 the UE shall find that URA-ID 2 is not in its maintained list of URA-IDs. After cell reselection, the UE shall move to CELL_FACH state and transmit URA UPDATE message setting value "change of URA" into IE "URA update cause".

After step 7 the UE shall find that URA-ID 1 is not in its maintained list of URA-IDs. After cell reselection, the UE shall move to CELL_FACH state and transmit URA UPDATE message setting value "change of URA" into IE "URA update cause".

8.3.3 UTRAN Mobility Information

8.3.3.1 UTRAN Mobility Information: Success

8.3.3.1.1 Definition

8.3.3.1.2 Conformance requirement

When the UE receives a UTRAN MOBILITY INFORMATION message, it shall:

1> act on received information elements as specified in TS 25.331 subclause 8.6;

1> if the IE "UE Timers and constants in connected mode" is present:

2> store the values of the IE "UE Timers and constants in connected mode" in the variable TIMERS_AND_CONSTANTS, replacing any previously stored value for each timer and constant; and

2> for each updated timer value:

3> start using the new value next time the timer is started;

NOTE: If a new value of timer T305 is included in the IE "UE Timers and constants in connected mode", and the old value of timer T305 is "infinity", the UE will not use the new value of the timer T305 until the next cell reselection.

2> for each updated constant value:

3> start using the new value directly;

…

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC;

….

If the IE "New U-RNTI" is included in a received message, the UE shall:

1> store the value in the variable U_RNTI, replacing any old stored value.

…

If the IE "New C-RNTI" is included, the UE shall:

1> store the value in the variable C_RNTI, replacing any old stored value;

1> use that C-RNTI when using common transport channels of type RACH, and FACH in the current cell.

…

In case of cell update procedure the UE shall transmit a CELL UPDATE message.

The UE shall set the IEs in the CELL UPDATE message as follows:

…

1> set the IE "U-RNTI" to the value of the variable U_RNTI;

…

Reference

3GPP TS 25.331 clauses 8.3.3, 8.6.3.9, 8.6.3.10, 8.3.1.3.

8.3.3.1.3 Test purpose

1. To confirm that the UE starts to use the new identities after it receives a UTRAN MOBILITY INFORMATION message from the SS.

8.3.3.1.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Specific Message Contents

For system information block 1 of Cell 1 (gives IE's which are different from defaults given in 34.108 subclause 6.1) to be transmitted before idle update preamble.

System Information Block type 1

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/remark
-T305	10

Test Procedure

Initially, the UE is in CELL_FACH state and it has been assigned a C-RNTI and U-RNTI. SS waits for T305 to expire. The UE shall transmit a CELL UPDATE message. SS sends CELL UPDATE CONFIRM message to the UE on the downlink CCCH. Then SS transmits an UTRAN MOBILITY INFORMATION message which includes new C-RNTI and U-RNTI to the UE. Then the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message using the assigned new C-RNTI in MAC header as confirmation. SS waits for UE to perform periodic cell updating. When SS received a CELL UPDATE message, SS checks that UE uses the new U-RNTI in the CELL UPDATE message. Then SS sends CELL UPDATE CONFIRM on the downlink CCCH. SS waits for UE to perform periodic cell updating. When SS received a CELL UPDATE message, SS sends CELL UPDATE CONFIRM on the downlink CCCH to end the test procedure.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The initial state of the UE is CELL_FACH state. UE has been allocated both C-RNTI and U-RNTI during RRC connection establishment phase.
1a				SS waits for a period up to timer T305 to allow the UE to start performing a cell updating procedure.
1b	→		CELL UPDATE	
1c	←		CELL UPDATE CONFIRM	
2	←		UTRAN MOBILITY INFORMATION	Contains new C-RNTI and U-RNTI identities and a value for T305 that is different from the value defined in the system information.
3	→		UTRAN MOBILITY INFORMATION CONFIRM	The assigned new C-RNTI shall be included in MAC header.
4				SS wait for T305 (same as the value defined in system information) to expire.
5	→		CELL UPDATE	UE shall trigger cell updating. The message shall indicate the same U-RNTI assigned in the UTRAN MOBILITY INFORMATION message in step 2.
6	←		CELL UPDATE CONFIRM	
7				SS wait for T305 (the new value as specified in step 2) to expire.
8	→		CELL UPDATE	UE shall trigger cell updating. The message shall indicate the same U-RNTI assigned in the UTRAN MOBILITY INFORMATION message in step 2.
9	←		CELL UPDATE CONFIRM	
10	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Content

UTRAN MOBILITY INFORMATION (Step 2)

Use the same message sub-type as in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New U-RNTI	
- SRNC Identity	'0000 0000 0001'
- S-RNTI	'0101 0101 0101 0101 0101'
New C-RNTI	'0000 0000 0000 1111'
UE Timers and constants in connected mode	
- T305	5 minutes

UTRAN MOBILITY INFORMATION CONFIRM (Step 3)

Only the message type IE is checked in this message.

CELL UPDATE (Step 1b)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink CCCH.

CELL UPDATE (Step 5 and 8)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0101 0101 0101 0101 0101'
Cell Update Cause	Check to see if set to 'periodical cell updating'

CELL UPDATE CONFIRM (Step 1c)

Use the same message sub-type as in TS 34.108, clause 9.

CELL UPDATE CONFIRM (Step 6 and 9)

Use the same message sub-type as in TS 34.108, clause 9 on the downlink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0101 0101 0101 0101 0101'

8.3.3.1.5 Test requirement

After step 2 the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH that using the assigned new C-RNTI in MAC header.

After step 4 and 7 the UE shall transmit a CELL UPDATE message on the uplink CCCH with IE "Cell update cause" set to "periodical cell updating". The IE "U-RNTI" shall be identical to the IE "New RNTI" found in UTRAN MOBILITY INFORMATION message sent by the SS in step 2.

8.3.3.2 UTRAN Mobility Information: Failure (Invalid message reception)

8.3.3.2.1 Definition

8.3.3.2.2 Conformance Requirements

If the UTRAN MOBILITY INFORMATION message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to TS 25.331 clause 9, the UE shall perform procedure specific error handling as follows. The UE shall:

1> transmit a UTRAN MOBILITY INFORMATION FAILURE message on the uplink DCCH using AM RLC;

1> set the IE "RRC transaction identifier" in the UTRAN MOBILITY INFORMATION FAILURE message to the value of "RRC transaction identifier" in the entry for the UTRAN MOBILITY INFORMATION message in the table "Rejected transactions" in the variable TRANSACTIONS, and;

1> set the IE "failure cause" to the cause value "protocol error";

1> include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;

1> when the UTRAN MOBILITY INFORMATION FAILURE message has been submitted to lower layers for transmission:

2> continue with any ongoing processes and procedures as if the invalid UTRAN MOBILITY INFORMATION message has not been received;

2> and the procedure ends.

References

3GPP TS 25.331 clauses 8.3.3.6

8.3.3.2.3 Test Purpose

1. To confirm that the UE ignore the erroneous UTRAN MOBILITY INFORMATION message and report this event to the UTRAN by sending UTRAN MOBILITY INFORMATION FAILURE message, stating the appropriate failure cause and information.

8.3.3.2.4 Method of test

Initial Conditions

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Specific Message Contents

For system information block 1 (given IEs which are different from defaults given in TS34.108 clause 6.1) to be transmitted before idle update preamble.

System Information Block type 1

Information Element	Value/remark
T305	5 minutes

Test Procedure

The UE is brought to CELL_FACH state. SS waits for T305 to expire. The UE shall transmit a CELL UPDATE message. SS sends CELL UPDATE CONFIRM message to the UE on the downlink DCCH. Then SS transmits a UTRAN MOBILITY INFORMATION message, which contains an unexpected critical message extension, to the UE on the DCCH using AM-RLC mode. The UE shall respond by transmitting the UTRAN MOBILITY INFORMATION FAILURE message, indicating "protocol error" in IE "failure cause" and also "Message extension not comprehended " in IE "Protocol error information". After receiving the UTRAN MOBILITY INFORMATION FAILURE message, SS waits for T305 to expire. The UE shall transmit a CELL UPDATE message with the original U-RNTI identity assigned. SS sends CELL UPDATE CONFIRM message to the UE on the downlink DCCH.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1				The initial state of the UE is CELL_FACH state.
1a				SS waits for a period up to timer T305 to allow the UE to start performing a cell updating procedure.
1b	→		CELL UPDATE	
1c	←		CELL UPDATE CONFIRM	
2	←		UTRAN MOBILITY INFORMATION	See specific message content.
3	→		UTRAN MOBILITY INFORMATION FAILURE	UE shall transmit this message to report the error in UTRAN MOBILITY INFORMATION message. It shall include the appropriate cause in the message.
4				SS waits for a period up to timer T305 to allow the UE to start performing a cell updating procedure.
5	→		CELL UPDATE	
6	←		CELL UPDATE CONFIRM	

Specific Message Content

UTRAN MOBILITY INFORMATION (Step 2)

Use the UTRAN MOBILITY INFORMATION message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Critical extensions	'FF'H

UTRAN MOBILITY INFORMATION FAILURE (Step 3)

Check to see if the same message type found in [9] TS 34.108 Clause 9 is received, with the following exceptions:

Information Element	Value/remark
Failure Cause - Failure Cause - Protocol Error Information	 Check to see if set to 'Protocol error' Check to see if set to Message extension not comprehended

CELL UPDATE (Step 1b and 5)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'B
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'B
Cell update cause	Check to see if set to 'periodical cell updating'

CELL UPDATE CONFIRM (Step 1c and 6)

Use the same message sub-type as in TS 34.108 clause 9.

8.3.3.2.5 Test Requirement

After step 1a the UE shall initiate a periodic cell updating procedure by transmitting CELL UPDATE message on the CCCH. In this message, the U-RNTI identity shall be set to the same value as assigned during the RRC connection establishment procedure.

After step 2 the UE shall transmit UTRAN MOBILITY INFORMATION FAILURE message, indicating the value "protocol error" in IE "failure cause" and also "Message extension not comprehended" in IE "protocol error information".

After step 4 the UE shall initiate a periodic cell updating procedure by transmitting CELL UPDATE message on the CCCH. In this message, the U-RNTI identity shall be set to the same value as assigned during the RRC connection establishment procedure.

8.3.3.3 UTRAN MOBILITY INFORMATION: Seamless SRNS relocation in CELL_DCH (without pending of ciphering)

8.3.3.3.1 Definition

8.3.3.3.2 Conformance requirement

To initiate the procedure UTRAN transmits a UTRAN MOBILITY INFORMATION message to the UE on the downlink DCCH using AM or UM RLC. In case of SRNS relocation, the message is sent using UM RLC only.

When the UE receives a UTRAN MOBILITY INFORMATION message, it shall:

1> if the UTRAN MOBILITY INFORMATION message contained the IE "Ciphering mode info" or contained the IE "Integrity protection mode info":

2> set the IE "Status" in the variable SECURITY_MODIFICATION for all the CN domains in the variable SECURITY_MODIFICATION to "Affected";

1> if the UTRAN MOBILITY INFORMATION message contained the IE "Ciphering mode info":

2> include and set the IE "Radio bearer uplink ciphering activation time info" to the value of the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO.

1> if the received UTRAN MOBILITY INFORMATION message included the IE " Downlink counter synchronisation info ":

2> re-establish the RLC entity for RB2;

2> set the new uplink and downlink HFN component of COUNT-C of RB2 to MAX(uplink HFN component of COUNT-C of RB2, downlink HFN component of COUNT-C of RB2);

2> increment by one the downlink and uplink values of the HFN component of COUNT-C for RB2;

2> calculate the START value according to TS 25.331 subclause 8.5.9;

2> include the calculated START values for each CN domain in the IE "START list" in the IE "Uplink counter synchronisation info" in the UTRAN MOBILITY INFORMATION CONFIRM message.

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC;

1> if the IE "Integrity protection mode info" was present in the UTRAN MOBILITY INFORMATION message:

2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted UTRAN MOBILITY INFORMATION CONFIRM message.

1> if the IE "Downlink counter synchronisation info" was included in the received UTRAN MOBILITY INFORMATION message:

2> when RLC has confirmed the successful transmission of the response message:

3> re-establish all AM and UM RLC entities with RB identities larger than 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the corresponding CN domain;

3> re-establish the RLC entities with RB identities 1, 3 and 4 and set the first 20 bits of all the HFN component of the respective COUNT-C values to the START value included in the response message for the CN domain stored in the variable LATEST_CONFIGURED_CN_DOMAIN;

3> set the remaining bits of the HFN component of the COUNT-C values of all UM RLC entities to zero;

3> re-initialise the PDCP header compression entities of each radio bearer in the variable ESTABLISHED_RABS.

1> apply the new ciphering configuration as follows:

2> if the IE "Radio bearer downlink ciphering activation time info" is present:

3> apply the following procedure for each radio bearer and signalling radio bearers using RLC-AM or RLC-UM indicated by the IE "RB identity":

….

4> switch to the new ciphering configuration according to the following:

…

5> if an RLC reset or re-establishment occurs before the activation time for the new ciphering configuration has been reached, ignore the activation time and apply the new ciphering configuration immediately after the RLC reset or RLC re-establishment.

1> if IE "Integrity protection mode command" has the value "start" and the IE "Status" in the variable INTEGRITY_PROTECTION_INFO has the value "Started" and this IE was not included SECURITY MODE COMMAND:

NOTE: This case is used in SRNS relocation

2> perform integrity protection on the received message, applying the new integrity protection configuration, as described in subclause 8.5.10.1 of TS25.331 by:

3> using the algorithm (UIA defined in TS33.102) indicated by the IE "Integrity protection algorithm" contained in the IE "Integrity protection mode info";

3> using the IE "Integrity protection initialisation number", contained in the IE "Integrity protection mode info" as the value of FRESH defined in TS33.102.

2> let RBm be the signalling radio bearer where the reconfiguration message was received and let RBn be the signalling radio bearer where the response message is transmitted;

2> prohibit transmission of RRC messages on all signalling radio bearers in the IE "ESTABLISHED_RABS" except on RB0 and the radio bearer where the response message is transmitted;

2> if for a signalling radio bearer, a security configuration triggered by a previous SECURITY MODE COMMAND is pending, due to the activation time for the signalling radio bearer not having elapsed:

3> if the previous SECURITY MODE COMMAND was received due to new keys being received:

4> consider the new integrity protection configuration to include the received new keys; and

4> initialise the HFN of the COUNT-I values of the corresponding signalling radio bearers according to subclause 8.1.12.

3> else:

4> consider the new Integrity Protection configuration to include the keys associated with the LATEST_CONFIGURED_CN_DOMAIN associated with the previously received SECURITY MODE COMMAND; and

4> initialise the HFN of the COUNT-I values of the corresponding signalling radio bearers according to subclause 8.1.12 using the START value associated with the LATEST_CONFIGURED_CN_DOMAIN to be transmitted in the response to the current message.

2> start applying the new integrity protection configuration in the downlink for each signalling radio bearer in the IE "ESTABLISHED_RABS" except RBm at the next received RRC message disregarding any pending activation times for the corresponding signalling radio bearer;

2> start applying the new integrity protection configuration in the downlink for signalling radio bearer RBm from and including the received configuration message;

2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RBn from and including the transmitted response message;

2> start applying the new integrity protection configuration in the uplink for signalling radio bearers other than RBn from the first message onwards.

NOTE: The UTRAN should ignore the information included in the IE "Uplink integrity protection info".

Reference

3GPP TS 25.331 clause 8.3.3 , 8.6.3.4 and 8.6.3.5

8.3.3.3.3 Test purpose

1. To confirm that the UE sends calculated START values for each CN domain to SS after a successful SRNS relocation.

2. In the case that ciphering is applied by the network, to confirm that the UE restarts ciphering following a successful SRNS relocation.

3. To confirm that the UE correctly applies integrity protection after the SRNS relocation.

8.3.3.3.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_DCH (state 6-10) or CS-DCCH+DTCH_DCH (state 6-9) or PS+CS-DCCH+DTCH_DCH (state 6-14) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in the CELL_DCH state. SS then transmits a UTRAN MOBILITY INFORMATION message, which includes a valid "New U-RNTI", IE "Downlink counter synchronisation info" and IE "Integrity protection mode info", to the UE on the downlink DCCH using UM RLC. SS verifies that the UE sends UTRAN MOBILITY INFORMATION CONFIRM message. This message also includes a calculated new START value according to the formula "$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the most recently configured CK_X and IK_X}) + 2", calculated IE "Integrity Check Info" using a new FRESH value as included in IE "Integrity protection initialisation number" in IE "Integrity protection mode info" in UTRAN MOBILITY INFORMATION message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration.

SS transmits UE CAPABILITY ENQUIRY message on the downlink DCCH using RLC-AM. The UE shall respond to downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS responds with UE CAPABILITY INFORMATION CONFIRM message. SS then send IDENTITY REQUEST message on the DCCH using RLC-AM (SRB3) in order to confirm that the UE can communicate on SRB3 by using new integrity configuration. The UE shall respond IDENTITY RESPONSE message on the uplink DCCH using RLC-AM (SRB3).

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		UTRAN MOBILITY INFORMATION	If IE "Ciphering mode info" is present in the SECURITY MODE COMMAND during initial condition set-up, this message is sent after last ciphering activation time has elapsed and there is no pending ciphering activation time. New U-RNTI identities are assigned to the UE. IE "Downlink counter synchronisation info" is included. New integrity protection configuration is applied on DL SRB1.
2	→		UTRAN MOBILITY INFORMATION CONFIRM	New calculated START value is included. New integrity protection configuration is applied on UL SRB2. If IE "Ciphering mode info" is present in step 1, new ciphering configuration is applied on UL SRB2 with the downlink and uplink values of the HFN component of COUNT-C for SRB2 incremented by one.
3	←		UE CAPABILITY ENQUIRY	New integrity protection configuration is applied on DL SRB2. If IE "Ciphering mode info" is present in step 1, new ciphering configuration is applied on DL SRB2 with the same START value as used in step 2.
4	→		UE CAPABILITY INFORMATION	
5	←		UE CAPABILITY INFORMATION CONFIRM	
6	←		DOWNLINK DIRECT TRANSFER	NAS message embedded in this is IDENTITY REQUEST. New integrity protection configuration is applied on DL SRB3. If IE "Ciphering mode info" is present in step 1, new ciphering configuration is applied on DL SRB3 using the re-initialised COUNT-C HFN by the start value as stored in step 2.

Step	Direction		Message	Comment
	UE	SS		
7	→		UPLINK DIRECT TRANSFER	NAS message embedded in this is IDENTITY RESPONSE. SS confirms that new integrity protection configuration is applied on UL SRB3 by UE. If IE “Ciphering mode info” is present in step 1, new ciphering configuration is applied on UL SRB3 using the re-initialised COUNT-C HFN by the start value as stored in step 2.

Specific Message Contents

UTRAN MOBILITY INFORMATION (Step 1) – for PS domain testing only

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Ciphering mode info	If network does not apply ciphering, set this IE to "Not present". If network applies ciphering, this IE present with the values of the sub IEs as stated below.
- Ciphering mode command	Start/restart
- Ciphering algorithm	Set to an algorithm that is different from the one indicated in the SECURITY MODE COMMAND during the initial condition set-up.
- Ciphering activation time for DPCH	Not Present
- Radio bearer downlink ciphering activation time info	Not present
Integrity protection mode info - Integrity protection mode command - Downlink integrity protection activation info - Integrity protection algorithm - Integrity protection initialisation number	 Start Not Present UIA1 SS selects an arbitrary 32 bits number for FRESH
New U-RNTI - SRNC Identity - S-RNTI New C-RNTI CN Information info - PLMN identity - CN common GSM-MAP NAS system information - GSM-MAP NAS system information - CN domain related information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain specific DRX cycle length coefficient - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain specific DRX cycle length coefficient Downlink counter synchronisation info - RB with PDCP information list	 An arbitrary 12-bits string which is different from original SRNC An arbitrary 20-bits string which is different from original S-RNTI Not Present Not present 00 01H PS 05 00H 7 CS 1E 01H 7 Not Present

UTRAN MOBILITY INFORMATION (Step 1) – for CS domain testing only

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark

Ciphering mode info	If network does not apply ciphering, set this IE to “Not present”. If network applies ciphering, this IE present with the values of the sub IEs as stated below.
- Ciphering mode command	Start/restart
- Ciphering algorithm	Set to an algorithm that is different from the one indicated in the SECURITY MODE COMMAND during the initial condition set-up.
- Ciphering activation time for DPCH	(256+CFN-(CFN MOD 8 + 8))MOD 256
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN
- RB identity	2
- RLC sequence number	Current RLC SN+2
- RB identity	3
- RLC sequence number	Current RLC SN
- RB identity	4
- RLC sequence number	Current RLC SN
Integrity protection mode info - Integrity protection mode command - Downlink integrity protection activation info - Integrity protection algorithm - Integrity protection initialisation number	 Start Not Present UIA1 SS selects an arbitrary 32 bits number for FRESH
New U-RNTI - SRNC Identity - S-RNTI New C-RNTI CN Information info - PLMN identity - CN common GSM-MAP NAS system information - GSM-MAP NAS system information - CN domain related information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain specific DRX cycle length coefficient - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain specific DRX cycle length coefficient Downlink counter synchronisation info - RB with PDCP information list	 An arbitrary 12-bits string which is different from original SRNC An arbitrary 20-bits string which is different from original S-RNTI Not Present Not present 00 01H PS 05 00H 7 CS 1E 01H 7 Not Present

UTRAN MOBILITY INFORMATION CONFIRM (Step 2) – for PS domain testing only

The same message sub-type found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink DCCH with the following exceptions:

Information Element	Value/remark
Uplink counter synchronisation info - RB with PDCP information list - START list	 Check that this IE is not present. Check that this IE is correct value.

UTRAN MOBILITY INFORMATION CONFIRM (Step 2) – for CS domain testing only

Check that the UE uses the same message sub-type found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
COUNT-C activation time	Check that this IE is present.
Uplink counter synchronisation info - RB with PDCP information list - START list	 Not present Check that this IE has the correct value.

UE CAPABILITY ENQUIRY (Step 3)

Use the same message sub-type found in [9] TS 34.108 clause 9.

UE CAPABILITY INFORMATION (Step 4)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9.

UE CAPABILITY INFORMATION CONFIRM (Step 5)

Use the same message sub-type found in [9] TS 34.108 clause 9.

8.3.3.3.5 Test requirement

After step 1, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC which includes a calculated new START value according to the formula "$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the most recently configured CK_X and IK_X}) + 2", calculated IE "Integrity Check Info" using the new FRESH value as included in IE "Integrity protection initialisation number" in IE "Integrity protection mode info" in UTRAN MOBILITY INFORMATION message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration. The UE, further more, shall apply the new integrity protection configuration for the first received/sent RRC message on SRB0, SRB3, and SRB4 after receiving the UTRAN MOBILITY INFORMATION message (i.e. immediately). For SRB2 the new integrity protection configuration shall be applied from and including the received UTRAN MOBILITY INFORMATION message (DL) and the sent UTRAN MOBILITY INFORMATION CONFIRM message (UL).

After step 3, the UE shall respond with a UE CAPABILITY INFORMATION message to SS.

After step 6, the UE shall respond with an IDENTITY RESPONSE message to SS and apply new ciphering configuration on UL SRB3.

8.3.3.4 UTRAN Mobility Information: Shared Network

8.3.3.4.1 Definition

8.3.3.4.2 Conformance requirement

1. If the IE "CN information info" is present in a message, the UE shall:

   1> if the IE "Primary PLMN Identity" is present:

      2> forward the content of the IE "Primary PLMN identity" to upper layers.

   1> else:

      2> if the IE "PLMN Identity" is present:

         3> forward the content of the IE "PLMN identity" to upper layers.

2. The UE shall, in the INITIAL DIRECT TRANSFER message:

   1> set the IE "NAS message" as received from upper layers; and

1> set the IE "CN domain identity" as indicated by the upper layers; and

1> set the IE "Intra Domain NAS Node Selector" as follows:

2> derive the IE "Intra Domain NAS Node Selector" from TMSI/PMTSI, IMSI, or IMEI; and

2> provide the coding of the IE "Intra Domain NAS Node Selector" according to the following priorities:

1. derive the routing parameter for IDNNS from TMSI (CS domain) or PTMSI (PS domain) whenever a valid TMSI/PTMSI is available;

2. base the routing parameter for IDNNS on IMSI when no valid TMSI/PTMSI is available;

3. base the routing parameter for IDNNS on IMEI only if no (U)SIM is inserted in the UE.

1> if the UE, on the existing RRC connection, has received a dedicated RRC message containing the IE "Primary PLMN Identity" in the IE "CN Information Info":

2> set the IE "PLMN identity" in the INITIAL DIRECT TRANSFER message to the latest PLMN information received via dedicated RRC signalling. If NAS has indicated the PLMN towards which a signalling connection is requested, and this PLMN is not in agreement with the latest PLMN information received via dedicated RRC signalling, then the initial direct transfer procedure shall be aborted, and NAS shall be informed.

References

1. 3GPP TS 25.331 clause 8.6.1.2

2. 3GPP TS 25.331 clause 8.1.8.2

8.3.3.4.3 Test purpose

- To verify that the UE reacts on the IE “Primary PLMN identity” in message UTRAN MOBILITY INFORMATION, and forwards this IE to NAS.

- To verify that the UE sets the IE “PLMN Identity” in the INITIAL DIRECT TRANSFER message to the correct PLMN information received in UTRAN MOBILITY INFORMATION message.

8.3.3.4.4 Method of test

Initial condition

System Simulator:

- Cell 1 broadcasting PLMN1 on BCCH.

- For MASTER INFORMATION BLOCK see specific message content

User Equipment:

The UE is equipped with a USIM containing default values. The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN1.

The UE is registered in CS and PS domains on PLMN1 (MM Idle, SM Inactive, GMM Idle) and is in state CS-DCCH_DCH (state 6-5) as specified in clause 7.4 of TS 34.108.

Test procedure

The UE is registered in CS and PS domains in RRC state Cell_DCH. The SS transmits message UTRAN MOBILITY INFORMATION containing Rel-6 IE “Primary PLMN info”. The PLMN code is different from the RPLMN, which triggers LA/RA update. The UE responds with an INTIAL DIRECT TRANSFER message containing IE “PLMN Identity” with the same value as previously received in message UTRAN MOBILITY INFORMATION.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1				The initial state of the UE is CELL_DCH state.
2	←		UTRAN MOBILITY INFORMATION	Primary PLMN identity = PLMN2. LA/RA update is initiated by UE NAS.
3	→		UTRAN MOBILITY INFORMATION CONFIRM	
4	→		INITIAL DIRECT TRANSFER	PLMN identity = PLMN2

Specific message contents

MASTER INFORMATION BLOCK

Use the same message sub-type found in clause 6.1.0a.3 of TS 34.108, with the following exception.

- MIB value tag	Set to (Current MIB value tag + 1)
- Multiple PLMN List - MIB PLMN Identity - Multiple PLMNs (1) - MNC	 TRUE 11

UTRAN MOBILITY INFORMATION (Step 2)

Information Element	Value/remark
CN information info - PLMN identity - CN common GSM-MAP NAS system information - GSM-MAP NAS system information - CN domain related information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain specific DRX cycle length coefficient - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain specific DRX cycle length coefficient - Primary PLMN identity	 Not Present 00 01H PS 05 00H 7 CS 1E 01H 7 PLMN-2

INITIAL DIRECT TRANSFER (Step 3)

Information Element	Value/remark
PLMN identity	PLMN-2

8.3.3.4.5 Test requirements

In step 4, the UE shall respond with an INITIAL DIRECT TRANSFER message. The IE “PLMN identity” shall be set to PLMN2.

8.3.4 Active set update in soft handover (FDD)

8.3.4.1 Active set update in soft handover: Radio Link addition

8.3.4.1.1 Definition

8.3.4.1.2 Conformance requirement

Upon reception of an ACTIVE SET UPDATE message the UE shall act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified otherwise in the following. The UE shall:

1> first add the RLs indicated in the IE "Radio Link Addition Information";

1> perform the physical layer synchronisation procedure B as specified in TS 25.214;

1> set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE COMPLETE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC without waiting for the completion of the Physical Layer synchronization B, specified in TS 25.214;

…

Reference

3GPP TS 25.331 clause 8.3.4

8.3.4.1.3 Test purpose

1. To confirm that the UE continues to communicate with the SS on both the additional radio link and an already existing radio link after the radio link addition.

8.3.4.1.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and 2 are active

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Test Procedure

Table 8.3.4.1

Parameter	Unit	Cell 1				Cell 2			
		T0	T1	T2	T3	T0	T1	T2	T3
UTRA RF Channel Number		Mid Range Test Frequency				Mid Range Test Frequency			
CPICH Ec	dBm/3.84MHz	-60	-60	OFF	-60	-75	-60	-60	OFF

Table 8.3.4.1 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

Initially, the UE goes to connected mode and establishes a radio access bearer in CELL_DCH state in cell 1.

SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.1. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2

according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 2 and then the SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC which includes the IE "Radio Link Addition Information" (e.g. Downlink DPCH information and other optional parameters relevant for the additional radio links with Primary CPICH info used for the reference ID).

When the UE receives this message, the UE shall configure layer 1 to begin reception without affecting the current uplink and downlink activities of existing radio links. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC without waiting for the physical channel synchronisation B.

SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.1. UE shall not detect the DPCH from cell 1 but continue to communicate through the another DPCH from cell 2. The UE shall transmit a MEASUREMENT REPORT message which indicates the event '1b' for cell 1.

SS shall transmit a UE CAPABILITY ENQUIRY message to confirm that the UE can respond this message through the DPCH in cell 2. The UE shall transmit a UE CAPABILITY ENQUIRY INFORMATION message. Then SS transmits a UE CAPABILITY INFORMATION CONFIRM message.

The SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.1. UE shall detect DPCH from cell 1, but not detect the DPCH from cell 2, but continue to communicate through DPCH from cell 1. The UE shall transmit a MEASUREMENT REPORT message which indicates the event '1b' for cell 2.

SS shall transmit a UE CAPABILITY ENQUIRY message to confirm that the UE can respond this message through the DPCH in cell 1. The UE shall transmit a UE CAPABILITY INFORMATION message. Then SS transmits a UE CAPABILITY INFORMATION CONFIRM message. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.1.
2	→		MEASUREMENT REPORT	See specific message contents for this message
3	←		ACTIVE SET UPDATE	SS transmits this message in cell 1 on downlink DCCH using AM RLC. The message includes IE "Radio Link Addition Information". (e.g. Downlink DPCH information and other optional parameters relevant for the additional radio links with Primary CPICH info used for the reference ID in cell 2)
4	→		ACTIVE SET UPDATE COMPLETE	The UE shall configure a new radio link to cell 2, without interfering with existing connections on the radio link in cell 1.
5				SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.1
5a	→		MEASUREMENT REPORT	See specific message contents for this message
6	←		UE CAPABILITY ENQUIRY	Use default message.
7	→		UE CAPABILITY INFORMATION	Use default message.
8	←		UE CAPABILITY INFORMATION CONFIRM	Use default message.
9			Void	

9a		Void	
10			SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.1
10a	→	MEASUREMENT REPORT	See specific message contents for this message
11	←	UE CAPABILITY ENQUIRY	Use default message.
12	→	UE CAPABILITY INFORMATION	Use default message.
13	←	UE CAPABILITY INFORMATION CONFIRM	Use default message.
14	←→	CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

The contents of SIB11 broadcasted in cell 1 shall be in accordance with the default SIB11 as specified in section 6.1 of TS 34.108.

The contents of SIB12 in cell 1, and SIB11 and SIB12 in cell 2 shall be in accordance with the default SIBs as specified in TS 34.108.

MEASUREMENT REPORT (Step 2)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 3)

The message to be used in this test is defined in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark	Version
Radio link addition information		
- Primary CPICH Info		
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH can be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not Present	
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	1	
- Spreading factor	Refer to TS 34.108 clause 6.10.2.4 "Typical radio parameter sets"	
- Code Number	For each DPCH, assign the same code number in the current code given in cell 1.	
- Scrambling code change	Not Present	
- TPC Combination Index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Close loop timing adjustment mode	Not Present	
- TFCI Combining Indicator	FALSE	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

MEASUREMENT REPORT (Step 5a)

NOTE 1: UE may optionally include Cell measured results IE for Cell 1

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	UE may optionally include report for Cell 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1b
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108

MEASUREMENT REPORT (Step 10a)

NOTE 1: UE may optionally include Cell measured results IE for Cell 2

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	UE may optionally include report for Cell 2
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1b
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

8.3.4.1.5 Test requirement

After step 1 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 3 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC to acknowledge the completion of the active set additional procedure.

After step 5 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 6 the UE shall transmit a UE CAPABILITY INFORMATION message.

After step 10 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 11 the UE shall transmit a UE CAPABILITY INFORMATION message.

8.3.4.2 Active set update in soft handover: Radio Link removal

8.3.4.2.1 Definition

8.3.4.2.2 Conformance requirement

Upon reception of an ACTIVE SET UPDATE message the UE shall act upon all received information elements as specified in 8.6, unless specified otherwise in the following.

The UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

The UE shall:

1> first add the RLs indicated in the IE "Radio Link Addition Information";

1> remove the RLs indicated in the IE "Radio Link Removal Information". If the UE active set is full or becomes full, an RL, which is included in the IE "Radio Link Removal Information" for removal, shall be removed before adding RL, which is included in the IE "Radio Link Addition Information" for addition;

1> perform the physical layer synchronisation procedure B as specified in TS 25.214;

1> if the radio link currently considered to be the serving HS-DSCH radio link is indicated in the IE "Radio Link Removal Information":

2> no longer consider any radio link as the serving HS-DSCH radio link;

2> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

1> set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE COMPLETE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC without waiting for the completion of the Physical Layer synchronisation B, as specified in TS 25.214;

1> the procedure ends on the UE side.

…

Reference

3GPP TS 25.331 clause 8.3.4

8.3.4.2.3 Test purpose

1. To confirm that the UE continues to communicate with the SS on the remaining radio link after radio link removal on the active set.

2. To confirm that the UE is not using the removed radio link to communicate with the SS.

8.3.4.2.4 Method of test

Initial Condition

System Simulator: 2 cells - both Cell 1 and Cell 2 are active

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

System Information Block type 11

Use the default system information block with the same type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Intra-frequency measurement reporting criteria	
- Parameters required for each event	3 kinds
- Intra-frequency event identity	1a
- Time to trigger	5000

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Test Procedure

Table 8.3.4.2

Parameter	Unit	Cell 1				Cell 2			
		T0	T1	T2	T3	T0	T1	T2	T3
UTRA RF Channel Number		Mid Range Test Frequency				Mid Range Test Frequency			
CPICH Ec	dBm/3.84MHz	-60	-60	-75	-60	-75	-60	-60	OFF

Table 8.3.4.2 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

At the start of the test, the UE goes to connected mode and establishes a radio access bearer service in the CELL_DCH state in cell 1.

SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.2. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 2 and then the SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC which includes the IE "Radio Link Addition Information" (e.g. Downlink DPCH information and other optional parameters relevant for the additional radio links with Primary CPICH info used for the reference ID).

When the UE receives this message, the UE shall configure layer 1 to begin reception without affecting the current uplink and downlink activities of existing radio links. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.2. UE shall transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 1 according to IE "Intra-frequency event identity", which is set to '1b' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS remove the radio link from cell 1 and then SS transmits an ACTIVE SET UPDATE message, which includes IE "Radio Link Removal Information" and specifying the P-CPICH information of the cell to be removed.

When the UE receives this message, the UE RRC entity shall request UE L1 entity to terminate transmission and reception of the radio link from cell 1. Then the UE transmits an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

SS shall transmit a UE CAPABILITY ENQUIRY message to confirm that the UE can respond this message through the DPCH in cell 2. The UE shall transmit a UE CAPABILITY INFORMATION message. Then SS transmits a UE CAPABILITY INFORMATION CONFIRM message.

SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.2 so as to generate a radio link failure condition. The UE shall detect the radio link failure UE shall re-select to cell 1 and transmit a CELL UPDATE message. SS transmits a CELL UPDATE CONFIRM message after it receive CELL UPDATE message from UE. Then the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.2
2	→		MEASUREMENT REPORT	See specific message contents for this message
3	←		ACTIVE SET UPDATE	SS transmits this message in cell 1 on downlink DCCH using AM RLC. The message includes IE "Radio Link Addition Information". (e.g. Downlink DPCH information and other optional parameters relevant for the additional radio links with Primary CPICH info used for the reference ID in cell 2)
4	→		ACTIVE SET UPDATE COMPLETE	The UE shall configure a new radio link to cell 2, without interfering with existing connections on the radio link in cell 1.
5				SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.2
6	→		MEASUREMENT REPORT	See specific message contents for this message
7	←		ACTIVE SET UPDATE	The SS transmits this message on downlink DCCH using AM RLC which includes IE "Radio Link Removal Information".
8	→		ACTIVE SET UPDATE COMPLETE	The UE shall remove the radio link associated with cell 1.
9	←		UE CAPABILITY ENQUIRY	Use default message.

10	→	UE CAPABILITY INFORMATION	Use default message.
11	←	UE CAPABILITY INFORMATION CONFIRM	Use default message.
12			SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.2
13	→	CELL UPDATE	UE sends this message in cell 1.
14	←	CELL UPDATE CONFIRM	See message content.
15	→	PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
16	←→	CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

The contents of SIB11 broadcasted in cell 1 shall be in accordance with the default SIB11 as specified in section 6.1 of TS 34.108:

The contents of SIB12 in cell 1, and SIB11 and SIB12 in cell 2 shall be in accordance with the default SIBs as specified in TS 34.108.

MEASUREMENT REPORT (Step 2)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 3)

The message to be used in this test is defined in Annex A with the following exceptions:

Information Element	Value/remark	Version
Radio link addition information		
- Primary CPICH Info		
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH can be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not Present	
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	1	
- Spreading factor	Refer to TS 34.108 clause 6.10.2.4 "Typical radio parameter sets"	
- Code Number	For each DPCH, assign the same code number in the current code given in cell 1.	
- Scrambling code change	Not Present	
- TPC Combination Index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Close loop timing adjustment mode	Not Present	
- TFCI Combining Indicator	FALSE	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

MEASUREMENT REPORT (Step 6)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results list	
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- CHOICE event result	Intra-frequency measurement event results
- Intra-frequency event identity	1b
- Cell measurement event results	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 7)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Radio link removal information	1 radio link to be removed
- Primary CPICH info	
- Primary scrambling code	Set to the same P-CPICH scrambling code assigned for cell 1

CELL UPDATE (Step 13)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in TS 34.108, clause 9 with the following exceptions:

Information Element	Value/remark
AM_RLC error indication (RB2, RB3 or RB4)	Not checked
Cell Update Cause	"radio link failure"

CELL UPDATE CONFIRM (Step 14)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
RRC State indicator UplinkDPCH Info	CELL_DCH Set to the same values as RADIO BEARER SETUP message for "Packet to CELL_DCH from CELL_FACH in PS" or "Non speech to CELL_DCH from CELL_FACH in CS" or "Speech to CELL_DCH from CELL_FACH in CS"
Downlink information common for all radio links	Set to the same values as RADIO BEARER SETUP message for "Packet to CELL_DCH from CELL_FACH in PS" or "Non speech to CELL_DCH from CELL_FACH in CS" or "Speech to CELL_DCH from CELL_FACH in CS"
Downlink information for each radio link list	Set to the same values as RADIO BEARER SETUP message for "Packet to CELL_DCH from CELL_FACH in PS" or "Non speech to CELL_DCH from CELL_FACH in CS" or "Speech to CELL_DCH from CELL_FACH in CS"

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Step 15)

Use the same message found in TS 34.108 clause 9, with the exceptions of the following IEs:

Information Element	Value/remark
Uplink counter synchronisation info	This IE is not checked.

8.3.4.2.5 Test requirement

After step 1 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 3 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC to acknowledge the completion of the active set additional procedure.

After step 5 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 7 the UE shall remove the radio link from cell 1 and it shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC.

After step 10 the UE shall transmit a UE CAPABILITY INFORMATION message.

After step 12 the UE shall transmit a CELL UPDATE message on the CCCH with IE "Cell update cause" set to "radio link failure".

After step 14, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

8.3.4.3 Active set update in soft handover: Combined radio link addition and removal

8.3.4.3.1 Definition

8.3.4.3.2 Conformance requirement

Upon reception of an ACTIVE SET UPDATE message the UE shall act upon all received information elements as specified in 8.6, unless specified otherwise in the following. The UE shall:

1> first add the RLs indicated in the IE "Radio Link Addition Information";

1> remove the RLs indicated in the IE "Radio Link Removal Information". If the UE active set is full or becomes full, an RL, which is included in the IE "Radio Link Removal Information" for removal, shall be removed before adding RL, which is included in the IE "Radio Link Addition Information" for addition;

1> perform the physical layer synchronisation procedure B as specified in TS 25.214;

1> set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE COMPLETE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC without waiting for the completion of the Physical Layer synchronization B, specified in TS 25.214;

…

Reference

3GPP TS 25.331 clause 8.3.4

8.3.4.3.3 Test purpose

1. To confirm that the UE continues to communicate with the SS on the added radio link and removes radio link which exists prior to the execution of active set update procedure.

8.3.4.3.4 Method of test

Initial Condition

System Simulator: 3 cells- Cell 1, Cell 2 and Cell 3 are active, with downlink transmission power settings according to columns "T0" in table 8.3.4.3.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE [Active set is not full.]

Specific Message Content

For system information block 11 (gives IE's which are different from defaults given in 34.108 sec 6.1) to be transmitted before idle update preamble.

System Information Block type 11

Use same message sub-clause 6.1 of TS34.108, with following exception:

Information Element	Value/remark
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Intra-frequency measurement reporting criteria	
- Parameters required for each event	3 kinds
- Intra-frequency event identity	1a
- Time to trigger	5000

Test Procedure

Table 8.3.4.3

Parameter	Unit	Cell 1					Cell 2					Cell 3				
		T0	T1	T2	T3	T4	T0	T1	T2	T3	T4	T0	T1	T2	T3	T4
UTRA RF Channel Number		Mid Range Test Frequency					Mid Range Test Frequency					Mid Range Test Frequency				
CPICH Ec	dBm/ 3.84 MHz	-60	-60	-60	OFF	-60	-80	-60	-60	OFF	-70	-80	-80	-60	-60	OFF

Table 8.3.4.3 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution.

The UE goes to connected mode and establishes a radio access bearer in the CELL_DCH state in cell 1.

SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.3. UE transmits a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 2 and then the SS transmits to the UE in cell 1 an ACTIVE SET UPDATE message which includes IE "Radio Link Addition Information", indicating the addition of cell 2 into the active set, on DCCH using AM RLC.

When the UE receives this message, the UE shall configure layer 1 to begin reception without affecting the current uplink and downlink activities of existing radio links. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.3. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 3 according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 3 and then the SS transmits to the UE an ACTIVE SET UPDATE message which includes IE "Radio Link Addition Information" and IE "Radio Link Removal Information", indicating the removal of cell 2 and addition of cell 3 into the active set, on DCCH using AM RLC.

When the UE receives this message, the UE shall configure layer 1 to begin reception without affecting the current uplink and downlink activities of existing radio links and then the UE removes the radio link specified in an ACTIVE SET UPDATE message. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.3. The UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 1 according to IE “Intra-frequency event identity” which is set to ‘1b’ in the SYSTEM INFORMATION BLOCK TYPE 11.

After the MEASUREMENT REPORT message is received, the SS shall transmit a UE CAPABILITY ENQUIRY message to confirm that the UE can respond to this message through the DPCH in cell 3. The UE shall transmit a UE CAPABILITY INFORMATION message. Then SS transmits a UE CAPABILITY INFORMATION CONFIRM message.

SS configures its downlink transmission power settings according to columns "T4" in table 8.3.4.3. The UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 3 according to IE “Intra-frequency event identity” which is set to ‘1b’ in the SYSTEM INFORMATION BLOCK TYPE 11.

After the MEASUREMENT REPORT is received, the SS shall transmit a UE CAPABILITY ENQUIRY message to confirm that the UE can respond to this message through the DPCH in cell 1. The UE shall transmit a UE CAPABILITY INFORMATION message. Then SS transmits a UE CAPABILITY INFORMATION CONFIRM message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0a				SS configures the initial active set with only cell 1. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.3
0b	→		MEASUREMENT REPORT	See specific message contents for this message
0c	←		ACTIVE SET UPDATE	The SS transmits this message on downlink DCCH using AM RLC which includes IE "Radio Link Addition Information" for cell 2.
0d	→		ACTIVE SET UPDATE COMPLETE	The UE adds the radio link in cell 2.
1				SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.3
2	→		MEASUREMENT REPORT	See specific message contents for this message
3	←		ACTIVE SET UPDATE	The SS transmits this message on downlink DCCH using AM RLC which includes IE "Radio Link Addition Information" for cell 3 and IE "Radio Link Removal Information" for cell 2.
4	→		ACTIVE SET UPDATE COMPLETE	The UE shall configure a new radio link in cell 3 and removes the old radio link in cell 2.
4a				SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.3
4b	→		MEASUREMENT REPORT	See specific message contents for this message.
5	←		UE CAPABILITY ENQUIRY	Use default message.
6	→		UE CAPABILITY INFORMATION	Use default message.
7	←		UE CAPABILITY INFORMATION CONFIRM	Use default message.
8				SS configures its downlink transmission power settings according to columns "T4" in table 8.3.4.3
8a	→		MEASUREMENT REPORT	See specific message contents for this message.
9	←		UE CAPABILITY ENQUIRY	Use default message.
10	→		UE CAPABILITY INFORMATION	Use default message.
11	←		UE CAPABILITY INFORMATION CONFIRM	Use default message.

Specific Message Content

MEASUREMENT REPORT (Step 0b)

NOTE 1: Cell measured results for cells 1 and 2 may appear in either order (i.e. cell 1 then cell 2 or cell 2 then cell 1)

NOTE 2: Cell measured results for cell 3 may or may not be present (depends upon the capability of the UE and test uncertainties in power level)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	
- Cell measured results	See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	See Note 2
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	Checked that this IE is absent
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 0c)

The message to be used in this test is defined in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark	Version
Radio link addition information		
- Primary CPICH Info		
- Primary Scrambling Code	Set to same code as assigned for cell 2	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH can be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not Present	
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	1	
- Spreading factor	Refer to TS 34.108 clause 6.10.2.4 "Typical radio parameter sets"	
- Code Number	For each DPCH, assign the same code number in the current code given in cell 1.	
- Scrambling code change	No code change	
- TPC Combination Index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Close loop timing adjustment mode	Not Present	
- TFCI Combining Indicator	FALSE	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

MEASUREMENT REPORT (Step 2)

NOTE 1: Cell measured results for cells 1, 2 and 3 may appear in any order.

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	
- Cell measured results	See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	Checked that this IE is absent
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 3)

The message to be used in this test is defined in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark	Version
Radio link addition information		
- Primary CPICH Info		
- Primary Scrambling Code	Set to same code as assigned for cell 3	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH can be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not Present	
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	1	
- Spreading factor	Refer to TS 34.108 clause 6.10.2.4 "Typical radio parameter sets"	
- Code Number	For each DPCH, assign the same code number in the current code given in cell 1.	
- Scrambling code change	No code change	
- TPC Combination Index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Close loop timing adjustment mode	Not Present	
- TFCI Combining Indicator	FALSE	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only
Radio link removal information		
- Primary CPICH Info		
- Primary Scrambling Code	Set to same code as assigned for cell 2	

MEASUREMENT REPORT (Step 4b)

NOTE 1: UE may optionally include Cell measured results IE for Cell 1 and 2.

NOTE 2: Cell measured results for cells 1and 2 may appear in any order.

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	UE may optionally include report for Cell 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	UE may optionally include report for Cell 2
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	Checked that this IE is absent
- Intra-frequency measurement event results	
- Intra-frequency event identity	1b
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108

MEASUREMENT REPORT (Step 8a)

NOTE: UE may optionally include Cell measured results IE for Cell 3.

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	UE may optionally include report for Cell 3
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	Checked that this IE is absent
- Intra-frequency measurement event results	
- Intra-frequency event identity	1b
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108

8.3.4.3.5 Test requirement

At step 0a the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 0c the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH.

After step 1 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 3 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH.

After step 4a the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 5 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH in cell 3.

After step 8 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 9 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH in cell 1.

8.3.4.4 Active set update in soft handover: Invalid Configuration

8.3.4.4.1 Definition

8.3.4.4.2 Conformance requirement

If any of the following conditions are valid:

…

- a radio link in the IE "Radio link addition information" is also present in the IE "Radio Link Removal Information"; and/or

…

- the variable INVALID_CONFIGURATION is set to TRUE:

the UE shall:

1> keep the active set as it was before the ACTIVE SET UPDATE message was received;

1> transmit an ACTIVE SET UPDATE FAILURE message on the DCCH using AM RLC;

1> set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE FAILURE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> set the IE "failure cause" to "Invalid configuration";

1> When the ACTIVE SET UPDATE FAILURE message has been submitted to lower layers for transmission:

2> the procedure ends on the UE side.

Reference

3GPP TS 25.331 clause 8.3.4.5

8.3.4.4.3 Test purpose

1. To confirm that the UE transmits an ACTIVE SET UPDATE FAILURE message on the DCCH using AM RLC, if the received ACTIVE SET UPDATE message includes a radio link which is specified in both IE "Radio Link Addition Information" and IE "Radio Link Removal Information".

8.3.4.4.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and 2 are active.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Test Procedure

Table 8.3.4.4

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-60	-60	-75	-60

Table 8.3.4.4 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE establishes a radio access bearer in the CELL_DCH state in cell 1. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.4. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. SS then transmits an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC which includes the same primary scrambling code in IE "Primary CPICH Info" of both IE "Radio Link Addition Information" and IE "Radio Link Removal Information". When the UE receives this message, it transmits an ACTIVE SET UPDATE FAILURE message which is set to "Invalid configuration" in IE "failure cause" on the uplink DCCH using AM RLC to the SS. UE then send another MEASUREMENT REPORT to SS 4s after step 2. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.4
2	→		MEASUREMENT REPORT	
3	←		ACTIVE SET UPDATE	The SS transmits this message on downlink DCCH using AM RLC which includes the same primary scrambling code in IE "Primary CPICH Info" of both IE "Radio Link Addition Information" and IE "Radio Link Removal Information".
4	→		ACTIVE SET UPDATE FAILURE	The message shall state "Invalid configuration" in IE "failure cause".
5	→		MEASUREMENT REPORT	
6	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

ACTIVE SET UPDATE (Step 3)

The message to be used in this test is defined in the default message content clause, with the following exceptions:

Information Element	Value/remark	Version
Radio link addition information		
- Primary CPICH Info		
- Primary Scrambling Code	Set to same code as assigned for cell 2	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH can be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not Present	
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	1	
- Spreading factor	Reference TS 34.108 clause 6.10 Parameter set	
- Code Number	For each DPCH, assign the same code number in the current code given in cell 1.	
- Scrambling code change	Not Present	
- TPC Combination Index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Close loop timing adjustment mode	Not Present	
- TFCI Combining Indicator	FALSE	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only
Radio link removal information		
- Primary CPICH Info		
- Primary Scrambling Code	Set to same code as assigned for cell 2	

ACTIVE SET UPDATE FAILURE (Step 4)

Information Element	Value/remark
Integrity check info	Not Checked
Failure cause	Check to see if it's set to 'Invalid configuration'

8.3.4.4.5 Test requirement

After step 1 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 3 the UE shall transmit an ACTIVE SET UPDATE FAILURE message, setting "Invalid configuration" in IE "failure cause" and sent on the uplink DCCH using AM RLC.

After step 4 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC, 4s after step 2.

8.3.4.5 Active set update in soft handover: Reception of an ACTIVE SET UPDATE message in wrong state

8.3.4.5.1 Definition

8.3.4.5.2 Conformance requirement

If the UE is in another state than CELL_DCH state upon reception of the ACTIVE SET UPDATE message, the UE shall perform procedure specific error handling as follows. The UE shall:

1> transmit a ACTIVE SET UPDATE FAILURE message on the uplink DCCH using AM RLC;

1> set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE FAILURE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> set the IE "failure cause" to the cause value "protocol error";

1> include the IE "Protocol error information" with the IE "Protocol error cause" set to "Message not compatible with receiver state";

1> when the ACTIVE SET UPDATE FAILURE message has been delivered to lower layers for transmission:

2> continue with any ongoing processes and procedures as if the ACTIVE SET UPDATE message has not been received;

2> and the procedure ends.

Reference

3GPP TS 25.331 clause 8.3.4.0

8.3.4.5.3 Test purpose

1. To confirm that the UE transmits an ACTIVE SET UPDATE FAILURE message when it receives an ACTIVE SET UPDATE message in any state other then CELL_DCH.

8.3.4.5.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 and 2 are active.

UE: PS-DCCH+DTCH_FACH (state 6-11) in cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.3.4.5

Parameter	Unit	Cell 1	Cell 2
UTRA RF Channel Number		Mid Range Test Frequency	Mid Range Test Frequency
CPICH Ec	dBm/3.84MHz	-60	-70

Table 8.3.4.5 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

At the start of the test, the UE establishes a radio access bearer service in the CELL_FACH state in cell 1. SS then send a MEASUREMENT CONTROL message to UE. The UE shall perform periodical traffic volume measurement according to this message and then transmit MEASUREMENT REPORT message back to SS. The SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC which includes the IE "Radio Link Addition Information" indicating the addition of cell 2 into the active set. When the UE receives this message, UE shall transmit ACTIVE SET UPDATE FAILURE message, with the IE "failure cause" set to the cause value "protocol error" and includes the IE "Protocol error information" with the IE "Protocol error cause" set to "Message not compatible with receiver state", on the uplink DCCH using AM RLC. UE shall continue its traffic volume measurement and send MEASUREMENT REPORT messages back to SS periodically. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0a	←		MEASUREMENT CONTROL	SS requests UE to perform periodical traffic volume measurement.
0b	→		MEASUREMENT REPORT	
2			Void	
3	←		ACTIVE SET UPDATE	The SS transmits this message on downlink DCCH using AM RLC which includes IE "Radio Link Addition Information".
4	→		ACTIVE SET UPDATE FAILURE	IE "failure cause" set to the cause value "protocol error" and includes the IE "Protocol error information" with the IE "Protocol error cause" set to "Message not compatible with receiver state".
5	→		MEASUREMENT REPORT	
6	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Content

MEASUREMENT CONTROL (Step 0a)

Use the MEASUREMENT CONTROL message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/Remark	Version
Measurement Identity	1	
Measurement Command	Setup	
Measurement reporting mode		
- Measurement Report Transfer Mode	Acknowledged mode RLC	
- Periodical Reporting / Event Trigger Reporting Mode	Periodical Reporting	
Additional measurement list	Not Present	
CHOICE measurement type	Traffic Volume Measurement	
- Traffic volume measurement object list		
- Uplink transport channel type	RACHorCPCH	R99 and Rel-4 only
	RACH	Rel-5
- UL Target Transport Channel ID	Not Present	
- Traffic volume measurement quantity		
- Measurement quantity	RLC Buffer Payload	
- Time Interval to take an average or a variance	Not Present	
- Traffic volume reporting quantity		
- RLC Buffer Payload for each RB	True	
- Average of RLC Buffer Payload for each RB	False	
- Variance of RLC Buffer Payload for each RB	False	
- Measurement validity		
- UE state	All states	
- CHOICE Reporting criteria	Periodical Reporting Criteria	
- Amount of reporting	Infinity	
- Reporting interval	8000	
DPCH compressed mode status	Not Present	

MEASUREMENT REPORT (Step 0b and 5)

Check to see if the same message type found in [9] TS 34.108 Clause 9 is received, with the following exceptions and the order in which the RBs are reported is not checked:

Information Element	Value/Remarks
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	20
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

ACTIVE SET UPDATE (Step 3)

The message to be used in this test is defined in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark	Version
Radio link addition information		
- Primary CPICH Info		
- Primary Scrambling Code	Set to same code as assigned for cell 2	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH can be used.	
- DPCH frame offset	0	
- Secondary CPICH info	Not Present	
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	1	
- Spreading factor	Reference TS 34.108 clause 6.10 Parameter set	
- Code Number	For each DPCH, assign the same code number in the current code given in cell 1.	
- Scrambling code change	Not Present	
- TPC Combination Index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Close loop timing adjustment mode	Not Present	
- TFCI Combining Indicator	FALSE	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

8.3.4.5.5 Test requirement

After step 0a, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on RACH at every 8s interval.

After step 3 the UE shall transmit an ACTIVE SET UPDATE FAILURE message on the DCCH. In this message, the value "Message not compatible with receiver state" shall be set in IE "Protocol Error Information".

After step 4, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on RACH at every 8s interval.

8.3.4.6 Void

8.3.4.7 Active set update in soft handover: Invalid Message Reception

8.3.4.7.1 Definition

8.3.4.7.2 Conformance Requirement

If the ACTIVE SET UPDATE message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to TS 25.331 clause 9, the UE shall perform procedure specific error handling as follows. The UE shall:

1> transmit a ACTIVE SET UPDATE FAILURE message on the uplink DCCH using AM RLC;

1> set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE FAILURE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Rejected transactions" in the variable TRANSACTIONS; and

1> set the IE "failure cause" to the cause value "protocol error";

1> include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;

1> when the ACTIVE SET UPDATE FAILURE message has been delivered to lower layers for transmission:

2> continue with any ongoing processes and procedures as if the invalid ACTIVE SET UPDATE message has not been received;

2> and the procedure ends.

Reference

3GPP TS 25.331 clause 8.3.4

8.3.4.7.3 Test Purpose

1. To confirm that the UE retains its active set list and transmits an ACTIVE SET UPDATE FAILURE message when it receives an invalid ACTIVE SET UPDATE message.

8.3.4.7.4 Method of test

Initial Condition

System Simulator: 2 cells – both cell 1 and cell 2 are active.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE (Integrity protection algorithm is not applied at the start of test)

Test Procedure

Table 8.3.4.7

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-60	-60	-75	-60

Table 8.3.4.7 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE establishes a radio access bearer in CELL_DCH in cell 1. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.7. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. SS transmits an ACTIVE SET UPDATE message which contains an unexpected critical message extension. The UE shall transmit an ACTIVE SET UPDATE FAILURE message, stating the reason " Message extension not comprehended " in the IE "Protocol error information". UE then send another MEASUREMENT REPORT to SS 4s after step 2. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.7
2	→		MEASUREMENT REPORT	See specific Message contents
3	←		ACTIVE SET UPDATE	The SS transmits this message on downlink DCCH using AM RLC which does not include any IEs except IE "Message Type"
4	→		ACTIVE SET UPDATE FAILURE	The message shall state "Message extension not comprehended " in IE "protocol error information".
5	→		MEASUREMENT REPORT	See specific Message contents
6	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

MEASUREMENT REPORT (Step 2 &5)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 3)

Use the ACTIVE SET UPDATE message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Critical extensions	'FF'H

ACTIVE SET UPDATE FAILURE (Step 4)

Information Element	Value/remark
Protocol Error Information	
- Protocol Error Cause	Message extension not comprehended

8.3.4.7.5 Test Requirement

After step 1 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 3 the UE shall transmit an ACTIVE SET UPDATE FAILURE message on the DCCH. In this message, the value "Message extension not comprehended" shall be set in IE "Protocol Error Information".

After step 4 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC, 4s after step 2.

8.3.4.8 Active set update in soft handover: Radio Link addition in multiple radio link environment

8.3.4.8.1 Definition

8.3.4.8.2 Conformance requirement

Upon reception of an ACTIVE SET UPDATE message the UE shall act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified otherwise in the following. The UE shall:

1> first add the RLs indicated in the IE "Radio Link Addition Information";

1> perform the physical layer synchronisation procedure B as specified in TS 25.214;

1> set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE COMPLETE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC without waiting for the completion of the Physical Layer synchronization B, specified in TS 25.214;

…

Reference

3GPP TS 25.331 clause 8.3.4

8.3.4.8.3 Test purpose

To confirm that the UE communicates with the SS on all radio link in the active set and keeps the connection when some of the radio links are faded out.

8.3.4.8.4 Method of test

Initial Condition

System Simulator: 4 cells - Cell 1, 2, 3 and 7 are active. The chip-timing between the cells shall always be within ±148 chip.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Test Procedure

Table 8.3.4.8-1

Cell	UTRA RF Channel Number
Cell 1	Mid Range Test Frequency
Cell 2	Mid Range Test Frequency
Cell 3	Mid Range Test Frequency
Cell 7	Mid Range Test Frequency

Table 8.3.4.8-2

		Time							
Parameter	Unit	T0	T1	T2	T3	T4	T5	T6	T7
Cell 1 CPICH Ec	dBm/3.84MHz	-60	-60	-60	-60	-70	-70	-70	-60
Cell 2 CPICH Ec	dBm/3.84MHz	-70	-60	-60	-60	-60	-70	-70	-70
Cell 3 CPICH Ec	dBm/3.84MHz	-70	-70	-60	-60	-60	-60	-70	-70
Cell 7 CPICH Ec	dBm/3.84MHz	-70	-70	-70	-60	-60	-60	-60	-70

Table 8.3.4.8-1 defines the UTRA RF Channel Number for the different cells. Table 8.3.4.8-2 illustrates the downlink power to be applied for the 4 cells at various time instants of the test execution.

Initially, the UE goes to connected mode and establishes a radio access bearer in CELL_DCH state in cell 1.

SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.8-2. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2, according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 2 and then the SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC which includes the IE "Radio Link Addition Information" (e.g. Downlink DPCH information and other optional parameters relevant for the additional radio links with Primary CPICH info used for the reference ID).

When the UE receives this message, the UE shall configure layer 1 to begin reception without affecting the current uplink and downlink activities of existing radio links. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC without waiting for the physical channel synchronisation B.

SS shall transmit a UE CAPABILITY ENQUIRY message to confirm that the UE can respond this message through the DPCH in cell 1 and cell 2. The UE shall transmit a UE CAPABILITY ENQUIRY INFORMATION message. Then SS transmits a UE CAPABILITY INFORMATION CONFIRM message.

SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.8-2. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 3, according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 3 and then the SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 and cell 2 on DCCH using AM RLC which includes the IE "Radio Link Addition Information" (e.g. Downlink DPCH information and other optional parameters relevant for the additional radio links with Primary CPICH info used for the reference ID).

When the UE receives this message, the UE shall configure layer 1 to begin reception without affecting the current uplink and downlink activities of existing radio links. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC without waiting for the physical channel synchronisation B.

SS shall transmit a UE CAPABILITY ENQUIRY message to confirm that the UE can respond this message through the DPCH in cell 1, cell 2 and cell 3. The UE shall transmit a UE CAPABILITY ENQUIRY INFORMATION message. Then SS transmits a UE CAPABILITY INFORMATION CONFIRM message.

SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.8-2. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 7, according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 7 and then the SS transmits to the UE an ACTIVE SET UPDATE message in cell 1, cell 2 and cell 3 on DCCH using AM RLC which includes the IE "Radio Link Addition Information" (e.g. Downlink DPCH information and other optional parameters relevant for the additional radio links with Primary CPICH info used for the reference ID).

When the UE receives this message, the UE shall configure layer 1 to begin reception without affecting the current uplink and downlink activities of existing radio links. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC without waiting for the physical channel synchronisation B.

SS shall transmit a UE CAPABILITY ENQUIRY message to confirm that the UE can respond this message through the DPCH in cell 1, cell 2, cell 3 and cell 7. The UE shall transmit a UE CAPABILITY ENQUIRY INFORMATION message. Then SS transmits a UE CAPABILITY INFORMATION CONFIRM message.

SS configures its downlink transmission power settings according to columns "T4" in table 8.3.4.8-2. The UE shall continue to communicate through at least cell 2, cell 3 and cell 7. The UE shall transmit a MEASUREMENT REPORT message which indicates the event '1b' for cell 1.

SS shall transmit a UE CAPABILITY ENQUIRY message to confirm that the UE can respond this message through the DPCH in cell 2, cell 3 and cell 7. The UE shall transmit a UE CAPABILITY ENQUIRY INFORMATION message. Then SS transmits a UE CAPABILITY INFORMATION CONFIRM message.

SS configures its downlink transmission power settings according to columns "T5" in table 8.3.4.8-2. The UE shall continue to communicate through at least cell 3 and cell 7. The UE shall transmit a MEASUREMENT REPORT message which indicates the event '1b' for cell 2.

SS shall transmit a UE CAPABILITY ENQUIRY message to confirm that the UE can respond this message through the DPCH in cell 3 and cell 7. The UE shall transmit a UE CAPABILITY ENQUIRY INFORMATION message. Then SS transmits a UE CAPABILITY INFORMATION CONFIRM message.

SS configures its downlink transmission power settings according to columns "T6" in table 8.3.4.8-2. The UE shall continue to communicate through at least cell 7. The UE shall transmit a MEASUREMENT REPORT message which indicates the event '1b' for cell 3.

SS shall transmit a UE CAPABILITY ENQUIRY message to confirm that the UE can respond this message through the DPCH in cell 7. The UE shall transmit a UE CAPABILITY ENQUIRY INFORMATION message. Then SS transmits a UE CAPABILITY INFORMATION CONFIRM.

SS configures its downlink transmission power settings according to columns "T7" in table 8.3.4.8-2. The UE shall continue to communicate through at least cell 1. The UE shall transmit a MEASUREMENT REPORT message which indicates the event '1b' for cell 7.

SS shall transmit a UE CAPABILITY ENQUIRY message to confirm that the UE can respond this message through the DPCH in cell 1. The UE shall transmit a UE CAPABILITY ENQUIRY INFORMATION message. Then SS transmits a UE CAPABILITY INFORMATION CONFIRM message.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.8-2.
2	→		MEASUREMENT REPORT	See specific message contents for this message (event '1a' for cell 2)
3	←		ACTIVE SET UPDATE	SS transmits this message in cell 1 on downlink DCCH using AM RLC. The message includes IE "Radio Link Addition Information". (e.g. Downlink DPCH information and other optional parameters relevant for the additional radio link with Primary CPICH info used for the reference ID in cell 2)
4	→		ACTIVE SET UPDATE COMPLETE	The UE shall configure new radio link to cell 2 without interfering with existing connections on the radio link in cell 1.
5	←		UE CAPABILITY ENQUIRY	Use default message. Sent on cell 1 and cell 2.
6	→		UE CAPABILITY INFORMATION	Use default message.
7	←		UE CAPABILITY INFORMATION CONFIRM	Use default message.
8				SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.8-2.
9	→		MEASUREMENT REPORT	See specific message contents for this message (event '1a' for cell 3)
10	←		ACTIVE SET UPDATE	SS transmits this message in cell 1 and cell 2 on downlink DCCH using AM RLC. The message includes IE "Radio Link Addition Information". (e.g. Downlink DPCH information and other optional parameters relevant for the additional radio link with Primary CPICH info used for the reference ID in cell 3)
11	→		ACTIVE SET UPDATE COMPLETE	The UE shall configure new radio link to cell 3 without interfering with existing connections on the radio links in cell 1 and cell 2.
12	←		UE CAPABILITY ENQUIRY	Use default message. Sent on cell 1, cell 2 and cell 3.
13	→		UE CAPABILITY INFORMATION	Use default message.
14	←		UE CAPABILITY INFORMATION CONFIRM	Use default message.
15				SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.8-2.

Step	Direction		Message	Comment
	UE	SS		
16	→		MEASUREMENT REPORT	See specific message contents for this message (event '1a' for cell 7)
17	←		ACTIVE SET UPDATE	SS transmits this message in cell 1, cell 2 and cell 3 on downlink DCCH using AM RLC. The message includes IE "Radio Link Addition Information". (e.g. Downlink DPCH information and other optional parameters relevant for the additional radio link with Primary CPICH info used for the reference ID in cell 7)
18	→		ACTIVE SET UPDATE COMPLETE	The UE shall configure new radio link to cell 7 without interfering with existing connections on the radio links in cell 1, cell 2 and cell 3.
19	←		UE CAPABILITY ENQUIRY	Use default message. Sent on cell 1, cell 2, cell 3 and cell 7.
20	→		UE CAPABILITY INFORMATION	Use default message.
21	←		UE CAPABILITY INFORMATION CONFIRM	Use default message.
22				SS configures its downlink transmission power settings according to columns "T4" in table 8.3.4.8-2.
23	→		MEASUREMENT REPORT	See specific message contents for this message (event '1b' for Cell 1)
24	←		UE CAPABILITY ENQUIRY	Use default message. Sent on cell 2, cell 3 and cell 7.
25	→		UE CAPABILITY INFORMATION	Use default message.
26	←		UE CAPABILITY INFORMATION CONFIRM	Use default message.
27				SS configures its downlink transmission power settings according to columns "T5" in table 8.3.4.8-2.
28	→		MEASUREMENT REPORT	See specific message contents for this message (event '1b' for Cell 2)
29	←		UE CAPABILITY ENQUIRY	Use default message. Sent on cell 3 and cell 7.
30	→		UE CAPABILITY INFORMATION	Use default message.
31	←		UE CAPABILITY INFORMATION CONFIRM	Use default message.
32				SS configures its downlink transmission power settings according to columns "T6" in table 8.3.4.8-2.
33	→		MEASUREMENT REPORT	See specific message contents for this message (event '1b' for Cell 3)
34	←		UE CAPABILITY ENQUIRY	Use default message. Sent on cell 7.
35	→		UE CAPABILITY INFORMATION	Use default message.
36	←		UE CAPABILITY INFORMATION CONFIRM	Use default message.
37				SS configures its downlink transmission power settings according to columns "T7" in table 8.3.4.8-2.
38	→		MEASUREMENT REPORT	See specific message contents for this message (event '1b' for cell 7)
39	←		UE CAPABILITY ENQUIRY	Use default message. Sent on cell 1.
40	→		UE CAPABILITY INFORMATION	Use default message.
41	←		UE CAPABILITY INFORMATION CONFIRM	Use default message.
42	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

The contents of SIB11 broadcasted in cell 1 shall be in accordance with the default SIB11 as specified in section 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- Intra-frequency measurement reporting criteria	
- Parameters required for each event	3 kinds
- Intra-frequency event identity	1a
- Triggering condition 1	Not Present
- Triggering condition 2	Monitored set cells
- Reporting Range Constant	10 (5 dB)
- Cells forbidden to affect Reporting range	Not Present
- W	0 (0.0)
- Hysteresis	0 (0.0)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	4
- Replacement activation threshold	Not Present
- Time to trigger	640
- Amount of reporting	4
- Reporting interval	4000
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	4
- Intra-frequency event identity	1b
- Triggering condition 1	Active set cells
- Triggering condition 2	Not Present
- Reporting Range Constant	10 (5 dB)
- Cells forbidden to affect Reporting range	Not Present
- W	0 (0.0)
- Hysteresis	0 (0.0)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	Not Present
- Time to trigger	640
- Amount of reporting	Not Present
- Reporting interval	Not Present
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	4

The contents of SIB12 in cell 1, and SIB11 and SIB12 in cell 2, cell 3, and cell 7 shall be in accordance with the default SIBs as specified in TS 34.108.

MEASUREMENT REPORT (Step 2)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	
- Cell measured results	Cell 1. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 2. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 3. See Note 2
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 7. See Note 2
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.7 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	Cell 2.
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1 and 2 may appear in any order.

NOTE 2: Cell measured results for cells 3 and 7 may or may not be present (depends upon the capability of the UE and test uncertainties in power level). If present they may appear in any order.

ACTIVE SET UPDATE (Step 3)

The message to be used in this test is defined in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark	Version
Radio link addition information	Cell 2	
- Primary CPICH Info		
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH can be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not Present	
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	1	
- Spreading factor	Refer to TS 34.108 clause 6.10.2.4 "Typical radio parameter sets"	
- Code Number	For each DPCH, assign the same code number in the current code given in cell 1.	
- Scrambling code change	Not Present	
- TPC Combination Index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Close loop timing adjustment mode	Not Present	
- TFCI Combining Indicator	FALSE	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

MEASUREMENT REPORT (Step 9)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	
- Cell measured results	Cell 1. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 2. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 3. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 7. See Note 2
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.7 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	Cell 3.
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1, 2 and 3 may appear in any order.

NOTE 2: Cell measured results for cell 7 may or may not be present (depends upon the capability of the UE and test uncertainties in power level).

ACTIVE SET UPDATE (Step 10)

The message to be used in this test is defined in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark	Version
Radio link addition information	Cell 3	
- Primary CPICH Info		
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH can be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not Present	
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	1	
- Spreading factor	Refer to TS 34.108 clause 6.10.2.4 "Typical radio parameter sets"	
- Code Number	For each DPCH, assign the same code number in the current code given in cell 1.	
- Scrambling code change	Not Present	
- TPC Combination Index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Close loop timing adjustment mode	Not Present	
- TFCI Combining Indicator	FALSE	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

MEASUREMENT REPORT (Step 16)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	
- Cell measured results	Cell 1. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 2. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 3. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 7. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.7 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	Cell 7.
- Primary scrambling code	Refer to clause titled "Default settings for cell No.7 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1, 2, 3 and 7 may appear in any order.

ACTIVE SET UPDATE (Step 17)

The message to be used in this test is defined in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark	Version
Radio link addition information	Cell 7	
- Primary CPICH Info		
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.7 (FDD)" in clause 6.1 of TS 34.108	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH can be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not Present	
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	1	
- Spreading factor	Refer to TS 34.108 clause 6.10.2.4 "Typical radio parameter sets"	
- Code Number	For each DPCH, assign the same code number in the current code given in cell 1.	
- Scrambling code change	Not Present	
- TPC Combination Index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Close loop timing adjustment mode	Not Present	
- TFCI Combining Indicator	FALSE	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

MEASUREMENT REPORT (Step 23)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	
- Cell measured results	Cell 2. See Note 1.
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 3. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 7. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.7 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 1. See Note 2
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1b
- Cell measurement event results	
- Primary CPICH info	Cell 1.
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 2, 3 and 7 may appear in any order.

NOTE 2: Cell measured results for cell 1 may or may not be present (depends upon the capability of the UE and test uncertainties in power level).

MEASUREMENT REPORT (Step 28)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	
- Cell measured results	Cell 3. See Note 1.
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 7. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.7 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 1. See Note 2
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 2. See Note 2
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1b
- Cell measurement event results	
- Primary CPICH info	Cell 2.
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 3 and 7 may appear in any order.

NOTE 2: Cell measured results for cell 1 and cell 2 may or may not be present (depends upon the capability of the UE and test uncertainties in power level). If present they may appear in any order.

MEASUREMENT REPORT (Step 33)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	
- Cell measured results	Cell 7.
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.7 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 1. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 2. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 3. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1b
- Cell measurement event results	
- Primary CPICH info	Cell 3.
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1. 2 and 3 may or may not be present (depends upon the capability of the UE and test uncertainties in power level). If present they may appear in any order.

MEASUREMENT REPORT (Step 38)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	
- Cell measured results	Cell 1.
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 2. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 3. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 7. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.7 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1b
- Cell measurement event results	
- Primary CPICH info	Cell 7.
- Primary scrambling code	Refer to clause titled "Default settings for cell No.7 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 2, 3 and 7 may or may not be present (depends upon the capability of the UE and test uncertainties in power level). If present they may appear in any order.

8.3.4.8.5 Test requirement

After step 1 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 3 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC to acknowledge the completion of the active set additional procedure.

After step 5 the UE shall transmit a UE CAPABILITY INFORMATION message.

After step 8 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 10 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC to acknowledge the completion of the active set additional procedure.

After step 12 the UE shall transmit a UE CAPABILITY INFORMATION message.

After step 15 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 17 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC to acknowledge the completion of the active set additional procedure.

After step 19 the UE shall transmit a UE CAPABILITY INFORMATION message.

After step 22 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 24 the UE shall transmit a UE CAPABILITY INFORMATION message.

After step 27 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 29 the UE shall transmit a UE CAPABILITY INFORMATION message.

After step 32 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 34 the UE shall transmit a UE CAPABILITY INFORMATION message.

After step 37 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 39 the UE shall transmit a UE CAPABILITY INFORMATION message.

8.3.4.9 Active set update in soft handover: Radio Link removal (stop of HS-PDSCH reception)

8.3.4.9.1 Definition and applicability

All UEs which support FDD and HS-PDSCH.

8.3.4.9.2 Conformance requirement

Upon reception of an ACTIVE SET UPDATE message the UE shall act upon all received information elements as specified in 8.6, unless specified otherwise in the following. The UE shall:

1> first add the RLs indicated in the IE "Radio Link Addition Information";

1> remove the RLs indicated in the IE "Radio Link Removal Information". If the UE active set is full or becomes full, an RL, which is included in the IE "Radio Link Removal Information" for removal, shall be removed before adding RL, which is included in the IE "Radio Link Addition Information" for addition;

1> perform the physical layer synchronisation procedure B as specified in TS 25.214;

1> set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE COMPLETE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC without waiting for the completion of the Physical Layer synchronization B, specified in TS 25.214;

…

Reference

3GPP TS 25.331 clause 8.3.4

8.3.4.9.3 Test purpose

1. To confirm that the UE continues to communicate with the SS on the remaining radio link after radio link removal on the active set.
2. To confirm that UE removes the HS-PDSCH configuration when the serving HS-DSCH radio link is removed.
3. To confirm that the UE is not using the removed radio link to communicate with the SS.

8.3.4.9.4 Method of test

Initial Condition

System Simulator: 2 cells - both Cell 1 and Cell 2 are active

Specific Message Contents

System Information Block type 11

Use the default system information block with the same type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Intra-frequency measurement reporting criteria	
- Parameters required for each event	3 kinds
- Intra-frequency event identity	1a
- Time to trigger	5000

UE: PS-DCCH+DTCH_DCH_HSDSCH (state 6-17) in cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.3.4.9

Parameter	Unit	Cell 1				Cell 2			
		T0	T1	T2	T3	T0	T1	T2	T3
UTRA RF Channel Number		Mid Range Test Frequency				Mid Range Test Frequency			
CPICH Ec	dBm/3.84MHz	-60	-60	-75	-60	-75	-60	-60	OFF

Table 8.3.4.9 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

At the start of the test, the UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established in cell 1.

SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.9. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 2 and then the SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC which includes the IE "Radio Link Addition Information" (e.g. Downlink DPCH information and other optional parameters relevant for the additional radio links with Primary CPICH info used for the reference ID).

When the UE receives this message, the UE shall configure layer 1 to begin reception without affecting the current uplink and downlink activities of existing radio links. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.9. UE shall transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 1 according to IE "Intra-frequency event identity", which is set to '1b' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS remove the radio link from cell 1 and then SS transmits an ACTIVE SET UPDATE message, which includes IE "Radio Link Removal Information" and specifying the P-CPICH information of the cell to be removed.

When the UE receives this message, the UE RRC entity shall request UE L1 entity to terminate transmission and reception of the radio link from cell 1. Then the UE transmits an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

SS shall transmit a UE CAPABILITY ENQUIRY message to confirm that the UE can respond this message through the DPCH in cell 2. The UE shall transmit a UE CAPABILITY INFORMATION message. Then SS transmits a UE CAPABILITY INFORMATION CONFIRM message.

SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.9 so as to generate a radio link failure condition. The UE shall detect the radio link failure UE shall re-select to cell 1 and transmit a CELL UPDATE message. SS transmits a CELL UPDATE CONFIRM message after it receive CELL UPDATE message from UE. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities..

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.9
2	→		MEASUREMENT REPORT	See specific message contents for this message
3	←		ACTIVE SET UPDATE	SS transmits this message in cell 1 on downlink DCCH using AM RLC. The message includes IE "Radio Link Addition Information". (e.g. Downlink DPCH information and other optional parameters relevant for the additional radio links with Primary CPICH info used for the reference ID in cell 2)
4	→		ACTIVE SET UPDATE COMPLETE	The UE shall configure a new radio link to cell 2, without interfering with existing connections on the radio link in cell 1.
5				SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.9
6	→		MEASUREMENT REPORT	See specific message contents for this message
7	←		ACTIVE SET UPDATE	The SS transmits this message on downlink DCCH using AM RLC which includes IE "Radio Link Removal Information".
8	→		ACTIVE SET UPDATE COMPLETE	The UE shall remove the radio link associated with cell 1 and stop HS-PDSCH reception.
9	←		UE CAPABILITY ENQUIRY	Use default message.

10	→	UE CAPABILITY INFORMATION	Use default message.
11	←	UE CAPABILITY INFORMATION CONFIRM	Use default message.
12			SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.9
13	→	CELL UPDATE	UE sends this message in cell 1.
14	←	CELL UPDATE CONFIRM	See message content.
15	→	UTRAN MOBILITY INFORMATION CONFIRM	

Specific Message Contents

MEASUREMENT REPORT (Step 2)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 3)

Information Element	Value/remark	Version
Radio link addition information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 2	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not present	
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	1	
- Spreading factor	Refer to the parameter set in TS 34.108	
- Code number	For each DPCH, assign the same code number in the current code given in cell 1.	
- Scrambling code change	Not present	
- TPC combination index	0	
- SSDT cell identity	Not present	R99 and Rel-4 only
- Close loop timing adjustment mode	Not present	
- TFCI combining indicator	FALSE	
- SCCPCH information for FACH	Not present	R99 and Rel-4 only

MEASUREMENT REPORT (Step 6)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results list	
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- CHOICE event result	Intra-frequency measurement event results
- Intra-frequency event identity	1b
- Cell measurement event results	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 7)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Radio link removal information	1 radio link to be removed
- Primary CPICH info	
- Primary scrambling code	Set to the same P-CPICH scrambling code assigned for cell 1

CELL UPDATE (Step 13)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in TS 34.108, clause 9 with the following exceptions:

Information Element	Value/remark
Cell Update Cause	"radio link failure"

CELL UPDATE CONFIRM (Step 14)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'

8.3.4.9.5 Test requirement

After step 1 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 3 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC to acknowledge the completion of the active set additional procedure.

After step 5 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 7 the UE shall remove the radio link from cell 1 and it shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC. UE shall stop HS-DSCH reception.

After step 10 the UE shall transmit a UE CAPABILITY INFORMATION message.

After step 12 the UE shall transmit a CELL UPDATE message on the CCCH with IE "Cell update cause" set to "radio link failure".

After step 14, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

8.3.4.10 Active set update in soft handover: Radio Link addition and serving HS-DSCH / E-DCH cell change

8.3.4.10.1 Definition and applicability

All UEs which support FDD and HS-PDSCH and E-DPDCH.

8.3.4.10.2 Conformance requirement

Upon reception of an ACTIVE SET UPDATE message the UE shall act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified otherwise in the following. The UE shall:

1> first add the RLs indicated in the IE "Radio Link Addition Information";

1> perform the physical layer synchronisation procedure B as specified in TS 25.214;

…

1> if the IE "E-HICH information" is included:

2> store this E-HICH configuration for the concerning radio link.

1> if the IE "E-HICH information" is included:

2> store this E-RGCH configuration for the concerning radio link, if included.

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28 in TS 25.331;

1> if the radio link currently considered to be the serving HS-DSCH radio link is indicated in the IE "Radio Link Removal Information":

2> no longer consider any radio link as the serving HS-DSCH radio link;

2> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25 in TS 25.331.

1> if "Serving HS-DSCH cell information" IE is present, act on received information elements as specified in subclause 8.6 in TS 25.331:

2> if the IEs "Δ_{ACK}", "Δ_{NACK}", and "HARQ_preamble_mode" are present, act on the received information elements;

2> if the new H-RNTI and "Primary CPICH info" are included:

3> consider the cell indicated in Primary CPICH as serving HS-DSCH cell and no longer consider any other radio link as serving HS-DSCH cell.

2> if the IE "MAC-hs reset indicator" is included:

3> reset the MAC-hs entity.

2> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25 in TS 25.331.

1> if the IE "E-DCH reconfiguration information" is included:

2> if the IE "E-DCH RL Info other cells" is present:

3> if the IE "E-HICH Information" is present:

4> store the E-HICH and E-RGCH information (if present), contained therein, for the indicated radio link.

3> if the IE "E-HICH release indicator" is present:

4> delete the stored E-HICH, E-AGCH and E-RGCH (if any) configurations.

3> if the IE "E-RGCH release indicator" is set present:

4> delete the stored E-RGCH configuration for this RL.

2> if the IE "E-DCH RL Info new serving cell" is present:

3> consider the cell indicated in "Primary CPICH info" as serving E-DCH radio link and no longer consider any other radio link as serving E-DCH radio link;

3> store the E-HICH and E-RGCH information (if present), contained therein, for the new serving E-DCH radio link;

3> if the IE "E-RGCH release indicator" is present:

4> delete the stored E-RGCH configuration for this RL.

3> store the newly received E-AGCH configuration.

2> if the IEs "E-DPCCH/DPCCH power offset" and/or "Reference E-TFCI PO" and/or "Power offset for scheduling info" are present, act on the received information elements.

2> if the serving E-DCH radio link was another radio link than this radio link prior to reception of the message:

3> if the IE "New Primary E-RNTI" is not included:

4> clear the Primary E-RNTI stored in the variable E_RNTI.

3> if the IE "New Secondary E-RNTI" is not included:

4> clear the Secondary E-RNTI stored in the variable E_RNTI.

1> if the radio link currently considered to be the serving E-DCH radio link is indicated in the IE "Radio Link Removal Information":

2> no longer consider any radio link as the serving E-DCH radio link.

…

1> set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE COMPLETE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC without waiting for the completion of the Physical Layer synchronization B, specified in TS 25.214;

Reference

3GPP TS 25.331 clause 8.3.4

8.3.4.10.3 Test purpose

To confirm that the UE performs a radio link addition with serving HS-DSCH / E-DCH serving cell change according to the received ACTIVE SET UPDATE message.

8.3.4.10.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and 2 are active

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A13, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH
- UE supports E-DPDCH

Test Procedure

Table 8.3.4.10

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-60	-70	-70	-60

Table 8.3.4.10 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The downlink transmission power is set according to values in column “T0” in table 8.3.4.10. The UE has a radio bearer mapped to the E-DCH/HS-DSCH and the signalling radio bearers mapped on E-DCH/DCH in cell 1.

The SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.10. The UE transmits a MEASUREMENT REPORT message, which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity" set to 1a.

The SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC which adds a second radio link in cell 2 and also changes the E-DCH and HS-DSCH serving cell to cell 2. When the UE receives this message, the UE shall configure layer 1 to begin reception on DPCH as well as E-DCH transmission and HS-DSCH reception using the new radio link in cell 2. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

To check that the UE is sending to both cells of the active set, the SS triggers the UE to send a UE CAPABILITY INFORMATION which it receives from the other cells than it has received the ACTIVE SET UPDATE COMPLETE.

SS calls for generic procedure C.3 to check that the UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2			Void	
3	SS			SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.10
4	→		MEASUREMENT REPORT	See specific message contents for this message
5	←		ACTIVE SET UPDATE	The SS instructs the UE to add cell 2 in the active set and perform a serving E-DCH and HS-DSCH cell change to cell 2
6	SS			At the activation time, the SS changes the serving E-DCH and HS-DSCH radio link to cell 2 and performs MAC-hs reset.
7	→		ACTIVE SET UPDATE COMPLETE	The UE adds the radio link in cell 2 and performs a serving E-DCH and HS-DSCH cell change to cell 2. SS receives this message from cell 2.
7a				SS is reconfigured to listen on cell 1
7b	←		UE CAPABILITY ENQUIRY	
7c	→		UE CAPABILITY INFORMATION	SS receives this message from cell 1
7d	←		UE CAPABILITY INFORMATION CONFIRM	
8	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

MEASUREMENT REPORT (Step 4)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 5)

The message to be used in this test is defined in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark	Version
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256	
New H-RNTI	'0101 0101 0101 0101'	
New Primary E-RNTI	'0101 0101 0101 0101'	
Radio link addition information		
- Primary CPICH Info		
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH can be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not Present	

- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	1	
- Spreading factor	Refer to TS 34.108 clause 6.10.2.4 "Typical radio parameter sets"	
- Code Number	For each DPCH, assign the same code number in the current code given in cell 1.	
- Scrambling code change	Not Present	
- TPC Combination Index	1	
- Close loop timing adjustment mode	Not Present	
- TFCI Combining Indicator	FALSE	
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Serving HS-DSCH cell information		
- Δ_{ACK}	Not Present	
- Δ_{NACK}	Not Present	
- HARQ_preamble_mode	0	
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not Present	
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Measurement Power Offset	6 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
- HARQ Info	Not Present	
- MAC-hs reset indicator	TRUE	
E-DCH reconfiguration information		
- E-DCH RL Info new serving cell		
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- Serving Grant	Not Present	
- E-DPCCH/DPCCH power offset	Not Present	
- Reference E-TFCIs	Not present	
- Power Offset for Scheduling Info	Not Present	
- 3-Index-Step Threshold	Not Present	
- 2-Index-Step Threshold	Not Present	
- E-HICH Information	Not Present	
- CHOICE E-RGCH Information	Not Present	
- E-DCH RL Info other cells	Not Present	

8.3.4.10.5 Test requirement

After step 3 the UE shall transmit a MEASUREMENT REPORT message.

After step 6 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message.

8.3.4.11 Active set update in soft handover: Radio Link addition/removal and serving HS-DSCH / E-DCH cell change, with discontinuous uplink transmission

8.3.4.11.1 Definition and applicability

All UEs which support FDD and UL DTX

8.3.4.11.2 Conformance requirement

Upon reception of an ACTIVE SET UPDATE message the UE shall act upon all received information elements as specified in 8.6, unless specified otherwise in the following.

The UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

The UE shall:

1> first add the RLs indicated in the IE "Radio Link Addition Information";

…

1> transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC without waiting for the completion of the Physical Layer synchronisation B, as specified in TS 25.214;

1> the procedure ends on the UE side.

…

1> if any of the IEs "DTX-DRX timing information" or "DTX-DRX information" are stored in the UE:

2> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

…

If the UE receives RRC CONNECTION SETUP, ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> the UE shall determine the value for the DTX_DRX_STATUS variable.

The variable DTX_DRX_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> both variables HS_DSCH RECEPTION and E_DCH_TRANSMISSION are set to TRUE;

1> no DCH transport channel is configured;

1> the variable DTX_DRX_PARAMS is set;

1> the UE has received the IE "DTX-DRX timing information".

If any of the above conditions is not met and the variable DTX_DRX_STATUS is set to TRUE, the UE shall:

1> set the variable DTX_DRX_STATUS to FALSE;

1> clear the variable DTX_DRX_PARAMS;

1> stop DTX-DRX mode related activities.

If variable DTX_DRX_STATUS is set to true and the serving HS-DSCH cell was changed as a result of the received message the UE shall instruct the physical layer to consider HS-SCCH orders were never received.

Whenever the variable DTX_DRX_STATUS is set to TRUE after receiving this message and the value of IE "DTX-DRX timing information" included in this message is not "Continue", the UE shall:

1> if the variable DTX_DRX_STATUS was set to TRUE before receiving this message:

2> re-configure the physical layer to perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration;

2> let the MAC layer continue with the current restriction on E-DCH transmission and monitoring of absolute and relative grant channels from the frame boundary where the uplink transmission starts with the new configuration and for the duration of the IE "Enabling Delay".

1> else:

2> perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations by configuring the physical layer according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration.

1> configure the MAC layer to start restricting E-DCH transmissions and monitor absolute and relative grant channels at the CFN corresponding to the frame boundary that is offset by the value of IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration taking into account the IEs "UE DTX DRX Offset", "MAC DTX Cycle", "MAC Inactivity Threshold" and "Inactivity Threshold for UE Grant Monitoring".

…

If the IE "DTX-DRX timing information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the CHOICE "timing" is set to "New timing":

2> use the newly received DTX-DRX timing configuration.

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

…

If the IE "DTX–DRX information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the contents of the IE in the variable DTX_DRX_PARAMS;

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34;

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple of the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple or a divisor of the value of the IE "CQI Feedback cycle, k"; or

1> if the value of the IE "UE DPCCH burst 1" is greater than the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DPCCH burst 2" is greater than the value of the IE "UE DTX cycle 2"; or

1> if the IE "UE DTX long preamble length" is set to 4 or 15 slots and the value of the IE "Inactivity Threshold for UE DTX cycle 2" is less than 4 TTIs (for 10ms E-DCH TTI) or 8 TTIs (for 2ms E-DCH TTI); or

1> if the IE "UE DRX cycle" is not an integer multiple or a divisor of the value of the IE "UE DTX cycle 1"; or

1> if the IE "DRX Information" is included in this message while the IE "DTX information" is not included in this message; or

1> if the value of the IE "UE DTX cycle 1" is not an integer multiple or a divisor of the value of the IE "MAC DTX cycle":

2> the UE behaviour is unspecified.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.3.4, 8.5.34, 8.6.6.38, 8.6.6.39

8.3.4.11.3 Test purpose

1. To confirm that the UE performs a radio link addition involving a HS-DSCH / E-DCH serving cell change, with discontinuous transmissions according to the received ACTIVE SET UPDATE message.
2. To confirm that the UE performs a further radio link addition in the absence of discontinuous transmission according to the received ACTIVE SET UPDATE message.
3. To confirm that UE performs further radio link removal of a non DTX-DRX cell, with discontinuous transmissions according to the received ACTIVE SET UPDATE message.

8.3.4.11.4 Method of test

Initial Condition

System Simulator: 3 cells - Cell 1, 2 are active and cell 3 is switched off

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A20, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports DPCCH Discontinuous Transmission

Test Procedure

Table 8.3.4.11

Parameter	Unit	Cell 1				Cell 2				Cell 3			
		T0	T1	T2	T3	T0	T1	T2	T3	T0	T1	T2	T3
UTRA RF Channel Number		Mid Range Test Frequency				Mid Range Test Frequency				Mid Range Test Frequency			
CPICH Ec	dBm/3.84MHz	-60	-70	-70	-70	-70	-60	-60	-60	OFF	OFF	-60	OFF

Table 8.3.4.11 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution.

The downlink transmission power is set according to values in column “T0” in table 8.3.4.11. The UE has a radio bearer mapped to the E-DCH/HS-DSCH with UL DTX configured and the signalling radio bearers mapped on E-DCH/DCH in cell 1.

The SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.11. The UE transmits a MEASUREMENT REPORT message, which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity" set to 1a.

The SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC which adds a second radio link in cell 2 and also changes the E-DCH and HS-DSCH serving cell to cell 2. When the UE receives this message, the UE shall configure layer 1 to begin E-DCH transmission and HS-DSCH reception, with UL DPCCH discontinuous transmission, using the new radio link in cell 2. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used.

The SS shall transmit a UE CAPABILITY ENQUIRY message to confirm that the UE can respond this message through the E-DCH in cell 1 and cell 2. The UE shall transmit a UE CAPABILITY ENQUIRY INFORMATION message. Then SS transmits a UE CAPABILITY INFORMATION CONFIRM message.

The SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.11. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 3. After the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added for non CPC cell 3 and then the SS transmits to the UE an ACTIVE SET UPDATE message on DCCH using AM RLC which includes the IE "Radio Link Addition Information" (e.g. Downlink F-DPCH information and other optional parameters relevant for the additional radio links with Primary CPICH info used for the reference ID). As discontinuous transmission is not configured by ACTIVE SET UPDATE, the UE sets up continuous transmission on all cells.

To check that the UE is sending to all cells of the active set, the SS triggers the UE to send a UE CAPABILITY INFORMATION which it receives from the cells which received the ACTIVE SET UPDATE COMPLETE.

The SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.11. The UE shall transmit a MEASUREMENT REPORT message which indicates the event '1b' for cell 3.

The SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 and 2 on DCCH using AM RLC which removes a radio link in cell 3. When the UE receives this message, the UE shall set up UL DPCCH discontinuous transmission on all cells. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used.

The SS shall transmit a UE CAPABILITY ENQUIRY message to confirm that the UE can respond this message through the E-DCH in cell 1 and cell 2. The UE shall transmit a UE CAPABILITY ENQUIRY INFORMATION message. Then SS transmits a UE CAPABILITY INFORMATION CONFIRM message.

SS calls for generic procedure C.3 to check that the UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	SS			SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.10
2	→		MEASUREMENT REPORT	See specific message contents for this message (event ‘1a’ for cell 2)
3	←		ACTIVE SET UPDATE	The SS instructs the UE to add cell 2, with CPC enabled, in the active set, and perform a serving E-DCH and HS-DSCH cell change to cell 2
4	→		ACTIVE SET UPDATE COMPLETE	The UE adds the radio link in cell 2. SS receives this message on cell 1. UE performs a serving E-DCH and HS-DSCH cell change to cell 2 with discontinuous transmission activated at the activation time.
5	SS			At the activation time, the SS changes the serving E-DCH and HS-DSCH radio link to cell 2 and performs MAC-hs reset.
6	SS			The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used (i.e. duration of 10 consecutive DTX cycle 2).
7				SS is reconfigured to listen on cell 2
8	←		UE CAPABILITY ENQUIRY	
9	→		UE CAPABILITY INFORMATION	SS receives this message on cell
10	←		UE CAPABILITY INFORMATION CONFIRM	
11	SS			SS configures its downlink transmission power settings according to columns “T2” in table 8.3.4.11
12	→		MEASUREMENT REPORT	See specific message contents for this message (event ‘1a’ for cell 3
13	←		ACTIVE SET UPDATE	SS transmits this message on downlink DCCH using AM RLC. The message includes IE "Radio Link Addition Information". (e.g. Downlink F-DPCH information and other optional parameters relevant for the additional radio link with Primary CPICH info used for the reference ID in cell 3). Note that discontinuous transmission is not configured for this cell and subsequently all cells in the active set
14	→		ACTIVE SET UPDATE COMPLETE	The UE shall add new radio link to cell 3 without interfering with existing connections on the radio links in cell 1 and cell 2. CPC should be deactivated

14a	SS		The SS waits to allow sufficient time for Activation time in Step no: 13 to expire, and then verifies that the time between 11 consecutive CQI indications is 40ms. (i.e. duration of 10 consecutive CQI feedback cycles).
15			SS is reconfigured to listen on cell 2
16	←	UE CAPABILITY ENQUIRY	Use default message sent on cell 2.
17	→	UE CAPABILITY INFORMATION	SS receives this message on cell 2
18	←	UE CAPABILITY INFORMATION CONFIRM	Use default message
19		VOID	
19a	SS		SS configures its downlink transmission power settings according to columns “T3” in table 8.3.4.11
19	SS		SS configures its downlink transmission power settings according to columns “T3” in table 8.3.4.11
20	→	MEASUREMENT REPORT	See specific message contents for this message (event ‘1b’ for cell 3)
21	←	ACTIVE SET UPDATE	The SS transmits this message on downlink DCCH using AM RLC which includes IE "Radio Link Removal Information" with CPC enabled, in the active set.
22	→	ACTIVE SET UPDATE COMPLETE	The UE shall remove the radio link associated with cell 3.
23	SS		The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used (i.e. duration of 10 consecutive DTX cycle 2).
24	←	UE CAPABILITY ENQUIRY	Use default message sent on cell 1 and cell 2.
25	→	UE CAPABILITY INFORMATION	SS receives this message on cell 2
26	←	UE CAPABILITY INFORMATION CONFIRM	Use default message
27	←→	CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

The contents of SIB11 broadcasted in cell 1 shall be in accordance with the default SIB11 as specified in section 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- Intra-frequency measurement reporting criteria - Reporting deactivation threshold	3

MEASUREMENT REPORT (Step 2)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	Cell 1. See Note 1
- Intra-frequency measured results	
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 2. See Note 1
- Cell Identity	Checked that this IE is present
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	Cell 2
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1, 2 may appear in any order.

ACTIVE SET UPDATE (Step 3)

The message to be used in this test is defined in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark	Version
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256	
New H-RNTI	'0101 0101 0101 0101'	
DTX-DRX timing information		
CHOICE *timing*	Continue	
DTX-DRX Information	Not Present	
Radio link addition information		
- Primary CPICH Info		
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108	
- Downlink F-DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH can be used.	
- F-DPCH frame offset	Calculated value from Cell synchronisation information	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Code number	12	
- TPC Combination Index	1	
- TFCI Combining Indicator	FALSE	
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Serving HS-DSCH cell information		
- Δ_{ACK}	Not Present	
- Δ_{NACK}	Not Present	
- HARQ_preamble_mode	0	
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not Present	
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Measurement Power Offset	6 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
- HARQ Info	Not Present	
- MAC-hs reset indicator	TRUE	
E-DCH reconfiguration information		
- E-DCH RL Info new serving cell		
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- Serving Grant	Not Present	
- E-DPCCH/DPCCH power offset	Not Present	
- Reference E-TFCIs	Not present	
- Power Offset for Scheduling Info	Not Present	
- 3-Index-Step Threshold	Not Present	

- 2-Index-Step Threshold	Not Present	
- E-HICH Information	Not Present	
- CHOICE E-RGCH Information	Not Present	
- E-DCH RL Info other cells	Not Present	

MEASUREMENT REPORT (Step 12)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	Cell 1. See Note 1
- Intra-frequency measured results	
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 2. See Note 1
- Cell Identity	Checked that this IE is present
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 3. See Note 1
- Cell Identity	Checked that this IE is present
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	Cell 3
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1, 2, 3 may appear in any order.

ACTIVE SET UPDATE (Step 13)

The message to be used in this test is defined in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark	Version
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256	
New H-RNTI	'0101 0101 0101 0101'	
New Primary E-RNTI	'0101 0101 0101 0101'	
DTX-DRX timing information	Not Present	
DTX-DRX Information	Not Present	
DRX Information	Not Present	
HS-SCCH less information	Not Present	
Radio link addition information	Cell 3	
- Primary CPICH Info		
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108	
- Downlink F-DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH can be used.	
- F-DPCH frame offset	Calculated value from Cell synchronisation information	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not Present	
- Code number	12	
- TPC Combination Index	2	
- TFCI Combining Indicator	FALSE	
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	

MEASUREMENT REPORT (Step 20)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	UE may optionally include report for Cell 3
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1b
- Cell measurement event results	
- Primary CPICH info	Cell 3
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: UE may optionally include Cell measured results IE for Cell 3

ACTIVE SET UPDATE (Step 21)

The message to be used in this test is defined in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Radio link removal information	1 radio link to be removed
- Primary CPICH info	
- Primary scrambling code	Set to the same P-CPICH scrambling code assigned for cell 3
DTX-DRX timing information	
CHOICE *timing*	
- New timing	
- Enabling Delay	0
- UE DTX DRX Offset	1 if 2ms TTI selected, otherwise 0
DTX-DRX Information	
- CHOICE *E-DCH TTI length*	Unless stated otherwise, this should be set to 2ms if the UE supports 2ms TTI, or 10ms if the UE does not support 2ms TTI.
- UE DTX cycle 1	8 if 2ms TTI selected, otherwise 10
- UE DTX cycle 2	16 if 2ms TTI selected, otherwise 20
- MAC DTX cycle	8 if 2ms TTI selected, otherwise 10
- Inactivity Threshold for UE DTX cycle 2	
- UE DTX long preamble length	4
- MAC Inactivity Threshold	1 if 2ms TTI selected, otherwise 8
- CQI DTX Timer	32
- UE DPCCH burst_1	1
- UE DPCCH burst_2	1
DRX Information	
- UE DRX cycle	8 if 2ms TTI selected, otherwise 10
- Inactivity Threshold for UE DRX cycle	32
- Inactivity Threshold for UE Grant Monitoring	32 if 2ms TTI selected, otherwise 8
- UE DRX Grant Monitoring	TRUE
Uplink DPCCH slot format information	1

8.3.4.11.5 Test requirement

After step 1 the UE shall transmit a MEASUREMENT REPORT message.

At step 6 the time between 11 consecutive CQI indications shall be 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used.

After step 13 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message.

After step 19 the UE shall transmit a MEASUREMENT REPORT message with event 1B.

After step 21 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message

At step 23 the time between 11 consecutive CQI indications shall be 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used.

8.3.4.12 Active set update in soft handover: Radio Link addition/removal (stop and start of UL 16QAM)

8.3.4.12.1 Definition and applicability

All UEs which support FDD, E-DCH and UL 16 QAM.

8.3.4.12.2 Conformance requirement

Upon reception of an ACTIVE SET UPDATE message the UE shall act upon all received information elements as specified in 8.6, unless specified otherwise in the following.

The UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

The UE shall:

1> first add the RLs indicated in the IE "Radio Link Addition Information";

1> remove the RLs indicated in the IE "Radio Link Removal Information". If the UE active set is full or becomes full, an RL, which is included in the IE "Radio Link Removal Information" for removal, shall be removed before adding RL, which is included in the IE "Radio Link Addition Information" for addition;

1> perform the physical layer synchronisation procedure B as specified in [29];

1> if the IE "E-HICH information" is included:

2> store this E-HICH configuration for the concerning radio link.

1> if the IE "E-HICH information" is included:

2> store this E-RGCH configuration for the concerning radio link, if included.

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28;

1> if the IE "MAC-es/e reset indicator" is included in the IE "UL 16QAM configuration":

2> reset the MAC-es/e / MAC-is/i entity [15].

NOTE 1: If the IE "MAC-es/e reset indicator" is not included in the IE "UL 16QAM configuration" and 16QAM operations starts or stops, the UE behaviour is unspecified.

1> if the IE "UL 16QAM settings" is not included in the IE "16QAM configuration":

2> indicate to lower layers to stop any operation in 16QAM mode.

NOTE 2: If the IE "UL 16QAM configuration" is not included and 16QAM mode operation is currently ongoing, the UE behaviour is unspecified.

…

If the IE "E-DCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> for FDD:

2> if the IE "E-DPCCH Info" is included:

3> store the newly received E-DPCCH configuration.

2> if the IE "E-DPDCH Info" is included:

3> store the newly received E-DPDCH configuration.

2> if the IE "UL 16QAM settings" is not included:

3> indicate to lower layers to stop any operation in 16QAM mode.

…

If the IE "UL 16QAM settings" is included, the UE shall:

1> indicate to lower layers to operate in 16QAM mode, using the parameters contained in the IE.

…

Reference

3GPP TS 25.331 clause 8.3.4.3, 8.6.6.37, 8.6.6.42

8.3.4.12.3 Test purpose

1. To confirm that the UE starts E-DCH transmission using 16AM modulation according to the ACTIVE SET UPDATE message.
2. To confirm that the UE stops E-DCH transmission using 16AM modulation according to the ACTIVE SET UPDATE message.

8.3.4.12.4 Method of test

Initial Condition

System Simulator: 2 cells - both Cell 1 and Cell 2 are active

UE: Idle state (State 3 or State 7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH
- UE supports UL 16QAM
- UE fully supports F-DPCH

Specific Message Contents

System Information Block type 11

Use the default system information block with the same type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Intra-frequency measurement reporting criteria	
- Parameters required for each event	3 kinds
- Intra-frequency event identity	1a
- Time to trigger	1000

Test Procedure

Table 8.3.4.12

Parameter	Unit	Cell 1					Cell 2				
		T0	T1	T2	T3	T4	T0	T1	T2	T3	T4
UTRA RF Channel Number		Mid Range Test Frequency					Mid Range Test Frequency				
CPICH Ec	dBm/3.84MHz	-60	-60	-60	-60	-75	-75	-60	-75	-60	-60

Table 8.3.4.12 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE is brought to the CELL_DCH state after a successful incoming call attempt. The SS follows the procedure in TS 34.108 clause 7.1.3 (Mobile Terminated), to set up a user RAB, but with the default RAB replaced by the one described in 34.108, clause 6.10.2.4.6.3: Interactive or background / PS RAB + SRBs mapped onto E-DCH and HS-DSCH.

SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.12. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 2 and then the SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC which includes the IE "Radio Link Addition Information" and UL 16QAM parameters.

When the UE receives this message, the UE shall configure layer 1 to begin reception without affecting the current downlink activities of existing radio links. Uplink should be configured for 16QAM transmission. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC. UL 16QAM transmission should be checked by SS

SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.12. UE shall transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity", which is set to '1b' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS remove the radio link from cell 2 and then SS transmits an ACTIVE SET UPDATE message, which includes IE "Radio Link Removal Information" and specifying the P-CPICH information of the cell to be removed.

When the UE receives this message, the UE RRC entity shall request UE L1 entity to terminate transmission and reception of the radio link from cell 2. Then the UE transmits an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC. UL 16 QAM is still active on cell 1.

SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.12. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 2 and then the SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC which includes the IE "Radio Link Addition Information", excludes UL 16QAM settings and also changes the E-DCH and HS-DSCH serving cell to cell 2. When the UE receives this message, the UE RRC entity shall request UE L1 entity to terminate transmission and reception of the radio link from cell 1

The UE shall then transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC UE should revert to normal E-DCH transmission and this should be checked by SS on cell 2.

Expected main sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		Paging Type 1	
1a	→		RRC CONNECTION REQUEST	
1b	←		RRC CONNECTION SETUP	
1c	→		RRC CONNECTION SETUP COMPLETE	
1d	→		SERVICE REQUEST	
1e	←		AUTHENTICATION AND CIPHERING REQUEST	
1f	→		AUTHENTICATION AND CIPHERING RESPONSE	
1g	←		SECURITY MODE COMMAND	
1h	→		SECURITY MODE COMPLETE	
1i	←		ACTIVATE RB TEST MODE	
1j	→		ACTIVATE RB TEST MODE COMPLETE	
1k	←		RADIO BEARER SETUP	RRC RAB SETUP See specific message contents for this message
1l	→		RADIO BEARER SETUP COMPLETE	
2				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.12
3	→		MEASUREMENT REPORT	See specific message contents for this message (event ‘1a’ for cell 2)
4	←		ACTIVE SET UPDATE	SS transmits this message in cell 1 on downlink DCCH using AM RLC. The message includes IE "Radio Link Addition Information" for cell 2 and “16QAM configuration” and “UL 16QAM settings”
5	→		ACTIVE SET UPDATE COMPLETE	The UE shall configure a new radio link to cell 2, with UL 16QAM active
6	←→		Check for UL 16QAM	SS should verify that UL 16QAM is activated on E-DCH according to the sub test procedure below
7				SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.12
8	→		MEASUREMENT REPORT	See specific message contents for this message (event ‘1b’ for cell 2)
9	←		ACTIVE SET UPDATE	The SS transmits this message on downlink DCCH using AM RLC which includes IE "Radio Link Removal Information".
10	→		ACTIVE SET UPDATE COMPLETE	The UE shall remove the radio link associated with cell 2.
11	←→		Check for UL 16QAM on cell 1	SS should verify that UL 16QAM is activated on E-DCH according to the sub test procedure below
12				SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.12
13	→		MEASUREMENT REPORT	See specific message contents for this message (event ‘1a’ for cell 2)

14	←	ACTIVE SET UPDATE	SS transmits this message in cell 1 on downlink DCCH using AM RLC. The message includes IE "Radio Link Addition Information" for cell 2 and specifically excludes “16QAM configuration” and “UL 16QAM settings”
15	→	ACTIVE SET UPDATE COMPLETE	The UE shall configure a new radio link to cell 2 but with UL 16 QAM inactive
16	←→	Check for UL QPSK	SS should verify that “normal” E-DCH transmission (QPSK) is activated on E-DCH according to the sub test procedure below
17			SS configures its downlink transmission power settings according to columns "T4" in table 8.3.4.12
18	→	MEASUREMENT REPORT	See specific message contents for this message (event ‘1b’ for cell 1)
19	←	ACTIVE SET UPDATE	The SS transmits this message on downlink DCCH using AM RLC which includes IE "Radio Link Removal Information" for cell 1.
20	→	ACTIVE SET UPDATE COMPLETE	The UE shall remove the radio link associated with cell 1.
21	←→	Check for UL QPSK	SS should verify that “normal” E-DCH transmission (QPSK) is activated on E-DCH according to the sub test procedure below
22	←	DEACTIVATE RB TEST MODE	
23	→	DEACTIVATE RB TEST MODE COMPLETE	

Test Procedure to Check for UL 16QAM and QPSK

Refer to section 14.7.1a.3 for the specific parameters related to the loopback test for this section.

Expected sub sequence

Step	Direction		Message	Comments
	UE	SS		
1			(Void)	
2			(Void)	
3	←		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is set to 7992 (Note 4)
4	→		CLOSE UE TEST LOOP COMPLETE (DCCH)	
5	SS			The SS sets the HS-DSCH TFRC test point (N_{PDUs} = 1, *M* = QPSK, *N*codes = 1 and TFRI = 19). and the number of HARQ processes is 6 as per section 14.7.1a.3
6	←		DOWNLINK MAC-hs PDU (HS-DSCH#1)	For each DTCH mapped on HS-DSCH the SS sends test data. MAC-d PDU size is configured for 336 bits in the test case, please refer to Note 3.
7	→		SI indicating data	
8	←		Absolute grant	Grant value 31 for maximum bit rate
9	→		UPLINK RLC PDUs	If UL 16QAM is active then UE will use 2ms TTI transport block size table 2 (Note 1, also ref 25.331, section 10.3.6.99) with E-TFCI 103 (Note 2, Note 4). SS shall check the E-FTCI to verify 16QAM modulation on UL If UL QSPK is active then UE will use 2ms TTI transport block size table 0 (Note 1) with E-TFCI 119. SS will check E-TFCI to verify QPSK as per “normal” E-DCH transmission
10	←		Absolute grant	Grant value 1, removal of SG
11	←		OPEN UE TEST LOOP (DCCH)	
12	→		OPEN UE TEST LOOP COMPLETE (DCCH)	
13			(Void)	
14			(Void)	

NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.
NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.
NOTE 4: The UL RLC SDU size is calculated as 25*320-8= 7992, such that TB size 8450 corresponding to E-TFCI 103 will be selected. With PLnon-max = 0.84, [((8450+24[CRC])/2[numblocks]) *3 [TC] +12[Trellis bits]*2[numblocks] = 25446 bits. 25446 * PLnon-max = 21374.64, this guarantees as per algorithm in 25.212 clause 4.8.4.1,16QAM to be selected $[2\times M_2+2\times M_4]$

Specific Message Contents

RADIO BEARER SETUP (Step 1k)

The contents of the Radio Bearer Setup message is identical to the message sub-type titled as “This IE is needed for "Packet to CELL_DCH / E-DCH / HS-DSCH using one multiplexing option (1/1) and SRBs mapped on E-DCH/HS-DSCH"” as found in 34.108 clause 9 with the following exception

Information Element	Value/remark
- RAB information for setup	
- RAB info	
- PDCP info	Not Present
E-DCH info	
- MAC-es/e reset indicator	TRUE
- E-DPCCH info	
- E-DPCCH/DPCCH power offset	1
- Happy bit delay condition	100 ms
- E-TFC Boost Info	Not Present
- E-DPDPCH power interpolation	Not Present
- E-DPDCH info	
- E-TFCI table index	1
- E-DCH minimum set E-TFCI	9
- Reference E-TFCIs	5 E-TFCIs
- Reference E-TFCI	11
- Reference E-TFCI PO	4
- Reference E-TFCI	67
- Reference E-TFCI PO	18
- Reference E-TFCI	71
- Reference E-TFCI PO	23
- Reference E-TFCI	75
- Reference E-TFCI PO	26
- Reference E-TFCI	81
- Reference E-TFCI PO	27
- Maximum channelisation codes	2sf2and2sf4
- PLnon-max	0.84
- Scheduling Information Configuration	
- Periodicity for Scheduling Info – no grant	Not Present
- Periodicity for Scheduling Info – grant	Not Present
- Power Offset for Scheduling Info	0
- 3-Index-Step Threshold	Not Present
- 2-Index-Step Threshold	Not Present
- Scheduled Transmission configuration	
- 2ms scheduled transmission grant HARQ process allocation	Not Present
- Serving Grant	Not Present

MEASUREMENT REPORT (Step 3, 13)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 4)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
Radio link addition information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 2	
- Downlink F-DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- F-DPCH frame offset	Calculated value from Cell synchronisation information	
- F-DPCH slot format	Not present	
- Secondary CPICH info	Not present	
- Secondary scrambling code	Not present	
- Code number	F-DPCH code number as used in Cell1	
- TPC Combination Index	0	
- TFCI combining indicator	FALSE	
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
UL 16QAM configuration		
- BetaEd gain E-AGCH table selection	1	
- MAC-es/e reset indicator	TRUE	
- E-TFCI table index	Not Present	
E-DCH reconfiguration information same serving cell		
- E-DPCCH/DPCCH power offset	0	
- Reference E-TFCIs	2 E-TFCIs	
- Reference E-TFCI	11	
- Reference E-TFCI PO	4	
- Reference E-TFCI	83	
- Reference E-TFCI PO	16	

MEASUREMENT REPORT (Step 8)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results list	
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- CHOICE event result	Intra-frequency measurement event results
- Intra-frequency event identity	1b
- Cell measurement event results	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 9)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Radio link removal information	1 radio link to be removed
- Primary CPICH info	
- Primary scrambling code	Set to the same P-CPICH scrambling code assigned for cell 2
UL 16QAM configuration	
- BetaEd gain E-AGCH table selection	1
- MAC-es/e reset indicator	TRUE
- E-TFCI table index	Not Present

ACTIVE SET UPDATE (Step 14)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
New H-RNTI	'0101 0101 0101 0101'	
New Primary E-RNTI	'0101 0101 0101 0101'	
Radio link addition information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 2	
- Downlink F-DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- F-DPCH frame offset	Calculated value from Cell synchronisation information	
- F-DPCH slot format	Not present	
- Secondary CPICH info	Not present	
- Secondary scrambling code	Not present	
- Code number	F-DPCH code number as used in Cell1	
- TPC Combination Index	0	
- TFCI combining indicator	FALSE	
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Serving HS-DSCH cell information		
- Δ_{ACK}	Not Present	
- Δ_{NACK}	Not Present	
- HARQ_preamble_mode	0	
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not Present	
- HS-SCCH Channelisation Code Information		
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Measurement Power Offset	6 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
- HARQ Info	Not Present	
- MAC-hs reset indicator	TRUE	
E-DCH reconfiguration information		
- E-DCH RL Info new serving cell		
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- Serving Grant	Not Present	
- E-DPCCH/DPCCH power offset	Not Present	
- Reference E-TFCIs	Not Present	
- Power Offset for Scheduling Info	Not Present	
- 3-Index-Step Threshold	Not Present	
- 2-Index-Step Threshold	Not Present	
- E-HICH Information	Not Present	
- CHOICE E-RGCH Information		
- E-DCH RL Info other cells	Not Present	
UL 16QAM configuration	Not Present	
- MAC-es/e reset indicator	TRUE	
- E-TFCI table index	Not Present	

MEASUREMENT REPORT (Step 18)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results list	
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- CHOICE event result	Intra-frequency measurement event results
- Intra-frequency event identity	1b
- Cell measurement event results	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 19)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Radio link removal information	1 radio link to be removed
- Primary CPICH info	
- Primary scrambling code	Set to the same P-CPICH scrambling code assigned for cell 1

8.3.4.12.5 Test requirement

At step 3 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

At step 5 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC to acknowledge the completion of the active set addition procedure and active UL 16QAM.

At step 6 the UE shall transmit loop back data on E-DCH using 16QAM.

At step 8 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

At step 10 the UE shall remove the radio link from cell 2 and it shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC.

At step 11 the UE shall transmit loop back data on E-DCH using 16QAM.

At step 13 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

At step 15 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC to acknowledge the completion of the active set addition procedure and deactivate UL 16QAM.

At step 16 the UE shall transmit loop back data on E-DCH using QPSK.

At step 18 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

At step 20 the UE shall remove the radio link from cell 1 and it shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC.

At step 21 the UE shall transmit loop back data on E-DCH using QPSK.

8.3.4.13 Active set update in soft handover: Radio Link addition/removal and serving HS-DSCH / E-DCH cell change, with activation/deactivation of 64QAM

8.3.4.13.1 Definition and Applicability

All UEs which support FDD ,mac-ehs and 64QAM

8.3.4.13.2 Conformance Requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Extract From 25.331 clause 8.6.6.36:

If the IE "Downlink HS-PDSCH Information" is included and the UE would be in CELL_DCH state after completion of this procedure, the UE shall:

1> for 1.28 Mcps TDD, if the HS-PDSCH has been configured by the IE "DL Multi-carrier information":

2> clear other stored carriers configuration in the IE "DL Multi-carrier information".

1> if the IE "HS-SCCH Info" is included:

2> act as specified in subclause 8.6.6.33.

1> if the IE "Measurement Feedback Info" is included:

2> act as specified in subclause 8.6.6.34.

1> if the IE "HS-DSCH Timeslot Configuration" or "HS-PDSCH Midamble Configuration" is included:

2> store the received configuration;

2> determine the value for the HS_DSCH_RECEPTION variable and take actions as described in subclause 8.5.25.

Extract From 25.331 clause 8.3.4.3:

1> if "Serving HS-DSCH cell information" IE is present, act on received information elements as specified in subclause 8.6:

2> if the IEs "Δ_{ACK}", "Δ_{NACK}", and "HARQ_preamble_mode" are present, act on the received information elements;

2> if the new H-RNTI and "Primary CPICH info" are included:

3> consider the cell indicated in Primary CPICH as serving HS-DSCH cell and no longer consider any other radio link as serving HS-DSCH cell. If the IE "Downlink Secondary Cell Info FDD" is included for a cell associated with the serving HS-DSCH cell, consider that cell a secondary serving HS-DSCH cell.

2> if the IE "MAC-hs reset indicator" is included:

3> reset the MAC-hs/ehs entity [15].

2> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

[…]

>FDD					
>>Downlink 64QAM configured	OP		Enumerated (TRUE)	Absence of this IE means that the HS-SCCH does not use the 64QAM format. The presence of this IE means the UE uses the octet aligned table [15].	REL-7
>>HS-DSCH TB size table	CV-*Not64QAM*		Enumerated (octet aligned)	If this IE is present, octet aligned table [15] is used, else bit aligned table [15] is used.	REL-7

Condition	Explanation
Not64QAM	This IE is optionally present if 64QAM is not configured and MAC-ehs is configured. Otherwise it is not needed.

Reference(s)

TS 25.331 clause 8.6.6.36 and 8.3.4.3, 10.3.6.23a

8.3.4.13.3 Test purpose

3. To confirm that the UE starts HS-DSCH transmission using DL 64AM modulation according to the ACTIVE SET UPDATE message.

4. To confirm that the UE stops HS-DSCH transmission using DL 64AM modulation according to the ACTIVE SET UPDATE message.

8.3.4.13.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 and 2 are active

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A17b, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD

- UE supports mac-ehs and 64QAM
- UE fully supports F-DPCH

Test Procedure

Table 8.3.4.13

Parameter	Unit	Cell 1			Cell 2		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			Mid Range Test Frequency		
CPICH Ec	dBm/3.84MHz	-60	-60	-75	-75	-60	-60

Table 8.3.4.13 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.13. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 2 and then the SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC which includes the IE "Radio Link Addition Information" and DL 64QAM parameters. When the UE receives this message, the UE shall configure layer 1 to begin E-DCH transmission and HS-DSCH reception, with DL 64QAM, using the new radio link and making cell 2 the serving cell. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC. The SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 using the configured 64QAM parameters and the UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message, using 64QAM, to the UE.

SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.13. UE shall transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 1 according to IE "Intra-frequency event identity", which is set to '1b' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS will remove the radio link from cell 1 and then SS transmits an ACTIVE SET UPDATE message, which includes IE "Radio Link Removal Information" and specifying the P-CPICH information of the cell to be removed. This also stops HS-DSCH transmission using DL 64AM modulation. When the UE receives this message, the UE RRC entity shall request UE L1 entity to terminate transmission and reception of the radio link from cell 1. Then the UE transmits an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC. The SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 and the UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE.

Expected main sequence

Step	Direction		Message	Comment
	UE	SS		
1				UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) according to clause 7.4.
2				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.12
3	→		MEASUREMENT REPORT	See specific message contents for this message (event '1a' for cell 2)
4	←		ACTIVE SET UPDATE	SS transmits this message in cell 1 on downlink DCCH using AM RLC. The message includes IE "Radio Link Addition Information" for cell 2. 64QAM is configured and Cell 2 becomes the serving Cell.
5	→		ACTIVE SET UPDATE COMPLETE	The UE shall configure a new radio link to cell 2, with DL 64QAM active
6	←		UE CAPABILITY ENQUIRY	SRBs mapped on HS channels hence 64QAM used for signalling
7	→		UE CAPABILITY INFORMATION	
8	←		UE CAPABILITY INFORMATION CONFIRM	
				SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.x
9	→		MEASUREMENT REPORT	See specific message contents for this message (event '1b' for cell 1)
10	←		ACTIVE SET UPDATE	The SS transmits this message on downlink DCCH using AM RLC which includes IE "Radio Link Removal Information". 64QAM is switched off and Cell 2 remains the serving Cell.
11	→		ACTIVE SET UPDATE COMPLETE	The UE shall remove the radio link associated with cell 1.
12	←		UE CAPABILITY ENQUIRY	SRBs mapped conventionally on HS channels
13	→		UE CAPABILITY INFORMATION	
14	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 on HS-DSCH

Specific Message Contents

MEASUREMENT REPORT (Step 3)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 4)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256	
New H-RNTI	'0101 0101 0101 0101'	
New Primary E-RNTI	'0101 0101 0101 0101'	
Radio link addition information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 2	
- Downlink F-DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- F-DPCH frame offset	Calculated value from Cell synchronisation information	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not present	
- Secondary scrambling code	Not present	
- Code number	F-DPCH code number as used in Cell1	
- TPC Combination Index	1	
- TFCI combining indicator	FALSE	
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Serving HS-DSCH cell information		
- Δ_{ACK}	Not Present	
- Δ_{NACK}	Not Present	
- HARQ_preamble_mode	1	
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not present	
- HS-SCCH Channelisation Code Information	Use 2 HS-SCCH	
- HS-SCCH Channelisation Code	6	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	6 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
E-DCH reconfiguration information		
- E-DCH RL Info new serving cell		
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- Serving Grant	Not Present	
- E-DPCCH/DPCCH power offset	Not Present	
- Reference E-TFCIs	Not Present	
- Power Offset for Scheduling Info	Not Present	
- 3-Index-Step Threshold	Not Present	
- 2-Index-Step Threshold	Not Present	
- E-HICH Information	Not Present	
- CHOICE E-RGCH Information		
- E-DCH RL Info other cells	Not Present	

MEASUREMENT REPORT (Step 9)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results list	
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- CHOICE event result	Intra-frequency measurement event results
- Intra-frequency event identity	1b
- Cell measurement event results	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 10)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256
Radio link removal information	1 radio link to be removed
- Primary CPICH info	
- Primary scrambling code	Set to the same P-CPICH scrambling code assigned for cell 1
Serving Cell Change Parameters	
- HARQ_preamble_mode	1
- Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Pohsdsch	6 dB
- CQI Feedback cycle, k	4 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
- Downlink 64QAM configured	Not Present
- HS-DSCH TB size table	Octet aligned

8.3.4.13.5 Test requirement

At step 3 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

At step 5 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC to acknowledge the completion of the active set addition procedure and DL 64QAM.

At step 6 the UE should receive UE CAPABILITY ENQUIRY mapped on DL 64QAM HS-DSCH

At step 9 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

At step 11 the UE shall remove the radio link from cell 1 and it shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC.

At step 12 the UE should receive UE CAPABILITY ENQUIRY mapped on DL QPSK HS-DSCH(mac-ehs).

At step 14 the UE should receive UE CAPABILITY INFORMATION CONFIRM.

8.3.4.13a Active set update in soft handover: Radio Link addition/removal and serving HS-DSCH/E-DCH cell change, with activation/deactivation of 64QAM with SRBs mapped to E-DCH/DCH

8.3.4.13a.1 Definition and Applicability

All UEs which support FDD ,mac-ehs and 64QAM

8.3.4.13a.2 Conformance Requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

2> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

[...]

If the IE "Downlink HS-PDSCH Information" is included and the UE would be in CELL_DCH state after completion of this procedure, the UE shall:

1> for 1.28 Mcps TDD, if the HS-PDSCH has been configured by the IE "DL Multi-carrier information":

2> clear other stored carriers configuration in the IE "DL Multi-carrier information".

1> if the IE "HS-SCCH Info" is included:

2> act as specified in subclause 8.6.6.33.

1> if the IE "Measurement Feedback Info" is included:

2> act as specified in subclause 8.6.6.34.

2> if the IE "HS-DSCH Timeslot Configuration" or "HS-PDSCH Midamble Configuration" is included:

2> store the received configuration;

2> determine the value for the HS_DSCH_RECEPTION variable and take actions as described in subclause 8.5.25.

[...]

1> if "Serving HS-DSCH cell information" IE is present, act on received information elements as specified in subclause 8.6:

2> if the IEs "Δ_{ACK}", "Δ_{NACK}", and "HARQ_preamble_mode" are present, act on the received information elements;

2> if the new H-RNTI and "Primary CPICH info" are included:

3> consider the cell indicated in Primary CPICH as serving HS-DSCH cell and no longer consider any other radio link as serving HS-DSCH cell. If the IE "Downlink Secondary Cell Info FDD" is included for a cell associated with the serving HS-DSCH cell, consider that cell a secondary serving HS-DSCH cell.

2> if the IE "MAC-hs reset indicator" is included:

3> reset the MAC-hs/ehs entity [15].

2> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

[…]

>FDD					
>>Downlink 64QAM configured	OP		Enumerated (TRUE)	Absence of this IE means that the HS-SCCH does not use the 64QAM format. The presence of this IE means the UE uses the octet aligned table [15].	REL-7
>>HS-DSCH TB size table	CV-*Not64QAM*		Enumerated (octet aligned)	If this IE is present, octet aligned table [15] is used, else bit aligned table [15] is used.	REL-7

Condition	**Explanation**
Not64QAM	This IE is optionally present if 64QAM is not configured and MAC-ehs is configured. Otherwise it is not needed.

Reference(s)

TS 25.331 clause 8.6.6.36 and 8.3.4.3, 10.3.6.23a

8.3.4.13a.3 Test purpose

1. To confirm that the UE starts HS-DSCH transmission using DL 64AM modulation according to the ACTIVE SET UPDATE message.
2. To confirm that the UE stops HS-DSCH transmission using DL 64AM modulation according to the ACTIVE SET UPDATE message.

8.3.4.13a.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 and 2 are active

UE: PS_DCCH DCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition, A17e, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports mac-ehs and 64QAM

Test Procedure

Table 8.3.4.13a

Parameter	Unit	Cell 1			Cell 2		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number	-	Mid Range Test Frequency			Mid Range Test Frequency		
CPICH Ec	dBm/3.84MHz	-60	-60	-75	-75	-60	-60

Table 8.3.4.13a illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.13a. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 2 and then the SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC which includes the IE "Radio Link Addition Information" and DL 64QAM parameters. When the UE receives this message, the UE shall configure layer 1 to begin E-DCH transmission and HS-DSCH reception, with DL 64QAM, using the new radio link and making cell 2 the serving cell. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.13a. UE shall transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 1 according to IE "Intra-frequency event identity", which is set to '1b' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS will remove the radio link from cell 1 and then SS transmits an ACTIVE SET UPDATE message, which includes IE "Radio Link Removal Information" and specifying the P-CPICH information of the cell to be removed. This also stops HS-DSCH transmission using DL 64AM modulation. When the UE receives this message, the UE RRC entity shall request UE L1 entity to terminate transmission and reception of the radio link from cell 1. Then the UE transmits an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

Expected main sequence

Step	Direction		Message	Comment
	UE	SS		
1				UE: PS_DCCH DCH+DTCH E_DCH/HS_DSCH (state 6-18) according to clause 7.4.
2				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.13a
3	→		MEASUREMENT REPORT	See specific message contents for this message (event '1a' for cell 2)
4	←		ACTIVE SET UPDATE	SS transmits this message in cell 1 on downlink DCCH using AM RLC. The message includes IE "Radio Link Addition Information" for cell 2. 64QAM is configured and Cell 2 becomes the serving Cell.
5	→		ACTIVE SET UPDATE COMPLETE	The UE shall configure a new radio link to cell 2, with DL 64QAM active
				SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.13a
6	→		MEASUREMENT REPORT	See specific message contents for this message (event '1b' for cell 1)
7	←		ACTIVE SET UPDATE	The SS transmits this message on downlink DCCH using AM RLC which includes IE "Radio Link Removal Information". 64QAM is switched off and Cell 2 remains the serving Cell.
8	→		ACTIVE SET UPDATE COMPLETE	The UE shall remove the radio link associated with cell 1.

Specific Message Contents

MEASUREMENT REPORT (Step 3)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 4)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256	
New H-RNTI	'0101 0101 0101 0101'	
New Primary E-RNTI	'0101 0101 0101 0101'	
Radio link addition information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 2	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not present	
-DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	Not present	
-Spreading factor	Refer to TS 34.108 clause 6.10.2.4 “Typical radio parameter sets”	
-Code Number	For each DPCH, assign the same code number in the current code given in cell 1.	
-Scrambling code change	Not Present	
- TPC Combination Index	1	
- TFCI combining indicator	FALSE	
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Serving HS-DSCH cell information		
- Δ_{ACK}	Not Present	
- Δ_{NACK}	Not Present	
- HARQ_preamble_mode	1	
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not present	
- HS-SCCH Channelisation Code Information	Use 2 HS-SCCH	
- HS-SCCH Channelisation Code	6	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	6 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Octet Aligned	
E-DCH reconfiguration information		
- E-DCH RL Info new serving cell		
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- Serving Grant	Not Present	
- E-DPCCH/DPCCH power offset	Not Present	
- Reference E-TFCIs	Not Present	
- Power Offset for Scheduling Info	Not Present	
- 3-Index-Step Threshold	Not Present	
- 2-Index-Step Threshold	Not Present	
- E-HICH Information	Not Present	
- CHOICE E-RGCH Information		
- E-DCH RL Info other cells	Not Present	

MEASUREMENT REPORT (Step 6)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results list	
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- CHOICE event result	Intra-frequency measurement event results
- Intra-frequency event identity	1b
- Cell measurement event results	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 7)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256
Radio link removal information	1 radio link to be removed
- Primary CPICH info	
- Primary scrambling code	Set to the same P-CPICH scrambling code assigned for cell 1
Serving Cell Change Parameters	
- HARQ_preamble_mode	1
- Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Pohsdsch	6 dB
- CQI Feedback cycle, k	4 ms
- CQI repetition factor	1
- CQI	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
- Downlink 64QAM configured	Not Present
- HS-DSCH TB size table	Not Present

8.3.4.13a.5 Test requirement

At step 3 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

At step 5 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC to acknowledge the completion of the active set addition procedure and DL 64QAM.

At step 6 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

At step 8 the UE shall remove the radio link from cell 1 and it shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC.

8.3.4.14 Active Set Update in Soft Handover: Radio Link addition/removal and serving HS-DSCH / E-DCH cell change with activation/deactivation of MIMO

8.3.4.14.1 Definition and applicability

All UE categories which support MIMO and F-DPCH or Enhanced F-DPCH.

8.3.4.14.2 Conformance requirement

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> if the IE "MIMO parameters" is not included:

2> clear the MIMO_PARAMS variable;

2> trigger lower layers to stop operation in MIMO mode.

1> otherwise:

2> for FDD, if the IE "MIMO N_cqi_typeA/M_cqi ratio" is included:

3> store the value of the IE "MIMO N_cqi_typeA/M_cqi ratio" in the MIMO_PARAMS variable.

2> for FDD, if the IE "MIMO pilot configuration" is included:

3> store the value of the IE "MIMO pilot configuration" in the MIMO_PARAMS variable.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message, the UE shall:

1> take actions related to the MIMO_PARAMS variable as specified in subclause 8.5.32;

1> determine the value of the MIMO_STATUS variable.

The MIMO_STATUS variable shall be set to TRUE only when all the following conditions are met:

1> The UE is in CELL_DCH state;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO N_cqi_typeA/M_cqi ratio"; and

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO pilot configuration".

1> for 1.28 Mcps TDD, the variable MIMO_PARAMS contains a value for the IE "MIMO SF Mode for HS-PDSCH dual stream".

If any of the above conditions is not met and the MIMO_STATUS variable is set to TRUE, the UE shall:

1> set the MIMO_STATUS variable to FALSE;

1> clear the MIMO_PARAMS variable;

1> trigger lower layers to stop operation in MIMO mode.

[…]

With the exception of the provisions of subclause 6A.3, the following shall apply when the UE is configured in MIMO mode:

1) The UE derives the PCI value as defined in subclause 6A.4 and either a type A or a type B CQI value as defined in subclause 6A.2.2 depending on which type of CQI shall be reported as defined below.

Reference

3GPP TS 25.331 clause 8.5.32, 8.5.33

3GPP TS 25.214 clause 6A.1.2.2

8.3.4.14.3 Test purpose

1. To confirm that the UE starts MIMO reception according to the received ACTIVE SET UPDATE message.
2. To confirm that the UE maintains MIMO reception according to the received ACTIVE SET UPDATE message
3. To confirm that the UE stops MIMO reception according to the received ACTIVE SET UPDATE message.

8.3.4.14.4 Method of test

Initial Condition

System Simulator: 3 cells – Cell 1 non MIMO cell, Cell 2 MIMO configured, Cell 3 MIMO configured

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-17) under condition A17b, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE category supports MIMO

- UE fully supports F-DPCH or Enhanced F-DPCH

Test Procedure

Table 8.3.4.14-1

Cell	UTRA RF Channel Number
Cell 1	Mid Range Test Frequency
Cell 2	Mid Range Test Frequency
Cell 3	Mid Range Test Frequency

Table 8.3.4.14-2

		Time					
Parameter	Unit	T0	T1	T2	T3	T4	T5
Cell 1 CPICH Ec	dBm/3.84MHz	-60	-60	-75	-75	-75	-60
Cell 2 CPICH Ec	dBm/3.84MHz	-75	-60	-60	-60	-75	-75
Cell 3 CPICH Ec	dBm/3.84MHz	-75	-75	-75	-60	-60	-60

Table 8.3.4.14 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution.

SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.14-2. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 2 and then the SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC which includes the IE "Radio Link Addition Information" and MIMO configuration. When the UE receives this message, the UE shall activate MIMO reception and configure SRB and user plane bearers for HS-DSCH reception (L1 configured for MIMO on separate antennae) using the new radio link with cell 2 as the serving cell. The UE shall respond with ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC. The SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 using MIMO configuration. The UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes this part of the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE with SRB using MIMO configuration.

SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.14-2. UE shall transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 1 according to IE "Intra-frequency event identity", which is set to '1b' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS will remove the radio link from cell 1 and then SS transmits an ACTIVE SET UPDATE message using MIMO, which includes IE "Radio Link Removal Information" and specifying the S-CPICH information of the cell to be removed. When the UE receives this message, the UE RRC entity shall request UE L1 entity to terminate transmission and reception of the radio link from cell 1. Then the UE transmits an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC on SRB2. The SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 from Cell 2 using MIMO configuration and the UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes this part of the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE with SRB configured for MIMO.

The SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.14-2. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 3 according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 3 and then the SS transmits to the UE an ACTIVE SET UPDATE message in cell 2 on DCCH using AM RLC and MIMO configuration which includes the IE "Radio Link Addition Information" and MIMO parameters. When the UE receives this message, the UE shall maintain MIMO reception but with Cell 3 as the serving cell. The UE shall respond with ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC. The SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 using MIMO configuration. The UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes this part of the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE with SRB configured for MIMO.

SS configures its downlink transmission power settings according to columns "T4" in table 8.3.4.14-2. UE shall transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity", which is set to '1b' in the SYSTEM INFORMATION BLOCK TYPE 11. After the

MEASUREMENT REPORT message is received, the SS will remove the radio link from cell 1 and then SS transmits an ACTIVE SET UPDATE message, which includes IE "Radio Link Removal Information" and specifying the S-CPICH information of the cell to be removed.

SS configures its downlink transmission power settings according to columns "T5" in table 8.3.4.14-2. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 1 according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 3 and then the SS transmits to the UE an ACTIVE SET UPDATE message from cell 1 on DCCH using MIMO configuration which includes the IE "Radio Link Addition Information" but no MIMO parameters in RRC message. When the UE receives this message, the UE shall deactivate MIMO reception and use cell 1 as the serving cell. The UE shall respond with ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC. The SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 on HS-DSCH. The UE shall respond with a UE CAPABILITY INFORMATION message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←			UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) according to clause 7.4.
2				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.14-2.
3	→		MEASUREMENT REPORT	See specific message contents for this message (event '1a' for cell 2).
4	←		ACTIVE SET UPDATE	SS transmits this message in cell 1 on downlink DCCH using AM RLC. The message includes IE "Radio Link Addition Information" for cell 2. Valid MIMO parameters are specified and Cell 2 becomes the serving Cell.
5	→		ACTIVE SET UPDATE COMPLETE	
6				At the activation time the SS changes the serving E-DCH and HS-DSCH link to Cell 2 and applies the new configuration.
7	←		UE CAPABILITY ENQUIRY	Use default message. SRB2 is sent using the configured L1 MIMO configuration. i.e. single data stream on antenna 1 and antenna 2 with separate modulation patterns on S-CPICH.
8	→		UE CAPABILITY INFORMATION	
9	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH using configured L1 MIMO from Cell 2.
10				SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.14-2.
11	→		MEASUREMENT REPORT	See specific message contents for this message (event '1b' for cell 1).
12	←		ACTIVE SET UPDATE	The SS transmits this message on SRB2 using MIMO configuration which includes IE "Radio Link Removal Information". Valid MIMO configuration parameters are specified.
13	→		ACTIVE SET UPDATE COMPLETE	
14		SS		At the activation time the SS removes the radio link associated with Cell 1
15				SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.14-2.
16	→		MEASUREMENT REPORT	See specific message contents for this message (event '1a' for cell 3).
17	←		ACTIVE SET UPDATE	SS transmits this message (SRB2 using MIMO configuration) from cell 2. The message includes IE "Radio Link Addition Information" for cell 3. Cell 3 to become the serving Cell.
18	→		ACTIVE SET UPDATE COMPLETE	
19		SS		At the activation time the SS changes the serving E-DCH and HS-DSCH link to Cell 3 and applies the new configuration.

20	←	UE CAPABILITY ENQUIRY	Use default message. SRB2 is sent using the configured L1 MIMO configuration from Cell3
21	→	UE CAPABILITY INFORMATION	
22	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH using configured L1 MIMO
23			SS configures its downlink transmission power settings according to columns "T4" in table 8.3.4.14-2
24	→	MEASUREMENT REPORT	See specific message contents for this message (event '1b' for cell 2)
25	←	ACTIVE SET UPDATE	The SS transmits this message on SRB2 using MIMO configuration. The RRC message includes IE "Radio Link Removal Information" for Cell 2
26	→	ACTIVE SET UPDATE COMPLETE	
27	SS		At the activation time the SS removes the radio link associated with Cell 2
28			SS configures its downlink transmission power settings according to columns "T5" in table 8.3.4.14-2
29	→	MEASUREMENT REPORT	See specific message contents for this message (event '1a' for cell 1)
30	←	ACTIVE SET UPDATE	The SS transmits this message on SRB2 using MIMO configuration. The RRC message includes IE "Radio Link Addition Information" for Cell 1 with MIMO configuration absent. Cell 1 to become the active Cell
31	→	ACTIVE SET UPDATE COMPLETE	
32	SS		At the activation time the SS changes the serving E-DCH and HS-DSCH link to Cell 1 and applies the new configuration.
33	←	UE CAPABILITY ENQUIRY	Use default message. SRB2 sent on HS-DSCH from Cell 1
34	→	UE CAPABILITY INFORMATION	
35	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 on HS-DSCH from Cell 1

Specific Message Contents

Specific Message Content

The contents of SIB11 broadcasted in cell 1 shall be in accordance with the default SIB11 as specified in section 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- Intra-frequency measurement reporting criteria	
- Parameters required for each event	2 kinds
- Intra-frequency event identity	1a
- Triggering condition 1	Not Present
- Triggering condition 2	Monitored set cells
- Reporting Range Constant	10 (5 dB)
- Cells forbidden to affect Reporting range	Not Present
- W	0 (0.0)
- Hysteresis	0 (0.0)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	3
- Replacement activation threshold	Not Present
- Time to trigger	640
- Amount of reporting	4
- Reporting interval	4000
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
- Intra-frequency event identity	1b
- Triggering condition 1	Active set cells
- Triggering condition 2	Not Present
- Reporting Range Constant	10 (5 dB)
- Cells forbidden to affect Reporting range	Not Present
- W	0 (0.0)
- Hysteresis	0 (0.0)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	Not Present
- Time to trigger	640
- Amount of reporting	Not Present
- Reporting interval	Not Present
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3

The contents of SIB12 in cell 1, and SIB11 and SIB12 in cell 2, cell 3 shall be in accordance with the default SIBs as specified in TS 34.108.

MEASUREMENT REPORT (Step 3)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 3 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	Cell 1. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 2. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 3. See Note 2
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1 and 2 may appear in any order.

NOTE 2: Cell measured results for cells 3 may or may not be present (depends upon the capability of the UE and test uncertainties in power level). If present it can appear in any order.

ACTIVE SET UPDATE (Step 4)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256	
New H-RNTI	'0101 0101 0101 0101'	
New Primary E-RNTI	'0101 0101 0101 0101'	
MIMO Parameters		
- MIMO Operation	Start	
-		
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
- CHOICE Second CPICH pattern	Antenna1 S-CPICH	
- Channelisation code	13	
Radio link addition information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 2	
- Downlink F-DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- F-DPCH frame offset	Calculated value from Cell synchronisation information	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not present	
- Secondary scrambling code	Not present	
- Code number	F-DPCH code number as used in Cell1	
- TPC Combination Index	1	
- TFCI combining indicator	FALSE	
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Serving HS-DSCH cell information		
- Δ_{ACK}	Not Present	
- Δ_{NACK}	Not Present	
- HARQ_preamble_mode	0	
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not present	
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Measurement Power Offset	12 (6 dB)	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
- Downlink 64QAM configured	Not Present	
- HS-DSCH TB size table	Octet Aligned	
- HARQ Info		
- Number of Processes	12	
- CHOICE *Memory Partitioning*	Implicit	
- MAC-hs reset indicator	TRUE	
E-DCH reconfiguration information		
- E-DCH RL Info new serving cell		
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- Serving Grant	Not Present	
- E-DPCCH/DPCCH power offset	Not Present	
- Reference E-TFCIs	Not Present	
- Power Offset for Scheduling Info	Not Present	

- 3-Index-Step Threshold	Not Present	
- 2-Index-Step Threshold	Not Present	
- E-HICH Information	Not Present	
- CHOICE E-RGCH Information		
- E-DCH RL Info other cells	Not Present	

UE CAPABILITY ENQUIRY (Steps 7, 20, 33)

Use the same message sub-type found in TS 34.108 clause 9.1

UE CAPABILITY INFORMATION (Steps 8, 21, 34)

Use the same message sub-type found in TS 34.108 clause 9.

UE CAPABILITY INFORMATION CONFIRM (Steps 9, 22, 35)

Use the same message sub-type found in TS 34.108 clause 9.1

MEASUREMENT REPORT (Step 11)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results list	
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	Cell 2. See Note 1
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	Cell 1. see Note 1
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	Cell 3. see Note 1
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- CHOICE event result	Intra-frequency measurement event results
- Intra-frequency event identity	1b
- Cell measurement event results	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1, 2 and 3 may appear in any order. Cell measured results for cells 1 and 3 may or may not be present (depends upon the capability of the UE and test uncertainties in power level)

ACTIVE SET UPDATE (Step 12)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
MIMO Parameters		
- MIMO Operation	Continue	
-		
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
- CHOICE Second CPICH pattern	Antenna1 S-CPICH	
- Channelisation code	13	
Radio link removal information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 1	

MEASUREMENT REPORT (Step 16)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 3 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	Cell 2. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 3. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 1. See Note 2
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1, 2 and 3 may appear in any order. Cell measured result for cell 1 may or may not be present (depends upon the capability of the UE and test uncertainties in power level).

ACTIVE SET UPDATE (Step 17)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256	
New H-RNTI	'0101 0101 0101 0111'	
New Primary E-RNTI	'0101 0101 0101 0111'	
MIMO Parameters		
- MIMO Operation	Start	
-		
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
- CHOICE Second CPICH pattern	Antenna1 S-CPICH	
- Channelisation code	13	
Radio link addition information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 3	
- Downlink F-DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- F-DPCH frame offset	Calculated value from Cell synchronisation information	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not present	
- Secondary scrambling code	Not present	
- Code Number	F-DPCH code number as used in Cell1	
- TPC Combination Index	0	
- TFCI combining indicator	FALSE	
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Serving HS-DSCH cell information		
- Δ_{ACK}	Not Present	
- Δ_{NACK}	Not Present	
- HARQ_preamble_mode	0	
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 3	
- Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not present	
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Measurement Power Offset	12 (6 dB)	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
- Downlink 64QAM configured	Not Present	
- HS-DSCH TB size table	Octet Aligned	
- HARQ Info		
- Number of Processes	12	
- CHOICE *Memory Partitioning*	Implicit	
- MAC-hs reset indicator	TRUE	
E-DCH reconfiguration information		
- E-DCH RL Info new serving cell		
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 3	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- Serving Grant	Not Present	
- E-DPCCH/DPCCH power offset	Not Present	
- Reference E-TFCIs	Not Present	
- Power Offset for Scheduling Info	Not Present	

- 3-Index-Step Threshold	Not Present	
- 2-Index-Step Threshold	Not Present	
- E-HICH Information	Not Present	
- CHOICE E-RGCH Information		
- E-DCH RL Info other cells	Not Present	

MEASUREMENT REPORT (Step 24)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results list	
- Cell measured results	Cell 3. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3(FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 1. see Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 2. see Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- CHOICE event result	Intra-frequency measurement event results
- Intra-frequency event identity	1b
- Cell measurement event results	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1, 2 and 3 may appear in any order. Cell measured results for cells 1 and 2 may or may not be present (depends upon the capability of the UE and test uncertainties in power level)

ACTIVE SET UPDATE (Step 25)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
MIMO Parameters		
- MIMO Operation	Continue	
-		
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
- CHOICE Second CPICH pattern	Antenna1 S-CPICH	
- Channelisation code	13	
Radio link removal information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 2	

MEASUREMENT REPORT (Step 29)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 3 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	Cell 3. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 1. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 2. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1, 2 and 3 may appear in any order. Cell measured result for cell 2 may or may not be present (depends upon the capability of the UE and test uncertainties in power level).

ACTIVE SET UPDATE (Step 30)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256	
New H-RNTI	'0101 0101 0101 1101'	
New Primary E-RNTI	'0101 0101 0101 1101'	
Radio link addition information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 1	
- Downlink F-DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- F-DPCH frame offset	Calculated value from Cell synchronisation information	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not present	
- Secondary scrambling code	Not present	
- Code Number	F-DPCH code number as used in Cell1	
- TPC Combination Index	1	
- TFCI combining indicator	FALSE	
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Serving HS-DSCH cell information		
- Δ_{ACK}	Not Present	
- Δ_{NACK}	Not Present	
- HARQ_preamble_mode	0	
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 1	
- Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not present	
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Measurement Power Offset	12 (6 dB)	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
- Downlink 64QAM configured	Not Present	
- HS-DSCH TB size table	Octet Aligned	
- HARQ Info		
- Number of Processes	6	
- CHOICE *Memory Partitioning*	Implicit	
- MAC-hs reset indicator	TRUE	
E-DCH reconfiguration information		
- E-DCH RL Info new serving cell		
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 1	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- Serving Grant	Not Present	
- E-DPCCH/DPCCH power offset	Not Present	
- Reference E-TFCIs	Not Present	
- Power Offset for Scheduling Info	Not Present	
- 3-Index-Step Threshold	Not Present	
- 2-Index-Step Threshold	Not Present	
- E-HICH Information	Not Present	
- CHOICE E-RGCH Information		
- E-DCH RL Info other cells	Not Present	

8.3.4.14.5 Test requirements

At steps 3, 11, 16, 24, 29 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

At steps 5, 13, 18 and 26, 31 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC to acknowledge the previous ACTIVE SET UPDATE and indicate readiness to accept the new configuration at activation time.

At step 8, 21, 34, the UE should transmit UE CAPABILITY INFORMATION on SRB2.

8.3.4.14a Active Set Update in Soft Handover: Radio Link addition/removal and serving HS-DSCH / E-DCH cell change with activation/deactivation of MIMO with SRBs mapped on E-DCH/DCH

8.3.4.14a.1 Definition and applicability

All UE categories which support MIMO.

8.3.4.14a.2 Conformance requirement

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> if the IE "MIMO parameters" is not included:

2> clear the MIMO_PARAMS variable;

2> trigger lower layers to stop operation in MIMO mode.

1> otherwise:

2> for FDD, if the IE "MIMO N_cqi_typeA/M_cqi ratio" is included:

3> store the value of the IE "MIMO N_cqi_typeA/M_cqi ratio" in the MIMO_PARAMS variable.

2> for FDD, if the IE "MIMO pilot configuration" is included:

4> store the value of the IE "MIMO pilot configuration" in the MIMO_PARAMS variable.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message, the UE shall:

1> take actions related to the MIMO_PARAMS variable as specified in subclause 8.5.32;

1> determine the value of the MIMO_STATUS variable.

The MIMO_STATUS variable shall be set to TRUE only when all the following conditions are met:

1> The UE is in CELL_DCH state;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO N_cqi_typeA/M_cqi ratio"; and

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO pilot configuration".

1> for 1.28 Mcps TDD, the variable MIMO_PARAMS contains a value for the IE "MIMO SF Mode for HS-PDSCH dual stream".

If any of the above conditions is not met and the MIMO_STATUS variable is set to TRUE, the UE shall:

1> set the MIMO_STATUS variable to FALSE;

1> clear the MIMO_PARAMS variable;

2> trigger lower layers to stop operation in MIMO mode.

[…]

With the exception of the provisions of subclause 6A.3, the following shall apply when the UE is configured in MIMO mode:

1) The UE derives the PCI value as defined in subclause 6A.4 and either a type A or a type B CQI value as defined in subclause 6A.2.2 depending on which type of CQI shall be reported as defined below.

Reference

3GPP TS 25.331 clause 8.5.32, 8.5.33

3GPP TS 25.214 clause 6A.1.2.2

8.3.4.14a.3 Test purpose

1. To confirm that the UE starts MIMO reception according to the received ACTIVE SET UPDATE message.
2. To confirm that the UE maintains MIMO reception according to the received ACTIVE SET UPDATE message
3. To confirm that the UE stops MIMO reception according to the received ACTIVE SET UPDATE message.

8.3.4.14a.4 Method of test

Initial Condition

System Simulator: 3 cells – Cell 1 non MIMO cell, Cell 2 MIMO configured, Cell 3 MIMO configured

UE: PS_DCCH_DCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A17d, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE category supports MIMO

Test Procedure

Table 8.3.4.14a-1

Cell	UTRA RF Channel Number
Cell 1	Mid Range Test Frequency
Cell 2	Mid Range Test Frequency
Cell 3	Mid Range Test Frequency

Table 8.3.4.14a-2

		Time					
Parameter	Unit	T0	T1	T2	T3	T4	T5
Cell 1 CPICH Ec	dBm/3.84MHz	-60	-60	-75	-75	-75	-60
Cell 2 CPICH Ec	dBm/3.84MHz	-75	-60	-60	-60	-75	-75
Cell 3 CPICH Ec	dBm/3.84MHz	-75	-75	-75	-60	-60	-60

Table 8.3.4.14a illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution.

SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.14a-2. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2

according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 2 and then the SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC which includes the IE "Radio Link Addition Information" and MIMO configuration. When the UE receives this message, the UE shall activate MIMO reception (L1 configured for MIMO on separate antennae) using the new radio link with cell 2 as the serving cell. The UE shall respond with ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC. SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.14a-2. UE shall transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 1 according to IE "Intra-frequency event identity", which is set to '1b' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS will remove the radio link from cell 1 and then SS transmits an ACTIVE SET UPDATE message using MIMO, which includes IE "Radio Link Removal Information" and specifying the S-CPICH information of the cell to be removed. When the UE receives this message, the UE RRC entity shall request UE L1 entity to terminate transmission and reception of the radio link from cell 1. Then the UE transmits an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC on SRB2.

The SS will transmit a RLC PDU on DTCH on the MIMO configuration (L1 configured for MIMO on separate antennae). The SS waits for the RLC PDU to be sent back in the UPLINK and verifies the PDU content.

The SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.14a-2. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 3 according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 3 and then the SS transmits to the UE an ACTIVE SET UPDATE message in cell 2 on DCCH using AM RLC which includes the IE "Radio Link Addition Information" and MIMO parameters. When the UE receives this message, the UE shall maintain MIMO reception but with Cell 3 as the serving cell. The UE shall respond with ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC. SS configures its downlink transmission power settings according to columns "T4" in table 8.3.4.14a-2. UE shall transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity", which is set to '1b' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS will remove the radio link from cell 1 and then SS transmits an ACTIVE SET UPDATE message, which includes IE "Radio Link Removal Information" and specifying the S-CPICH information of the cell to be removed.

SS configures its downlink transmission power settings according to columns "T5" in table 8.3.4.14a-2. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 1 according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 3 and then the SS transmits to the UE an ACTIVE SET UPDATE message from cell 1 on DCCH which includes the IE "Radio Link Addition Information" but no MIMO parameters in RRC message. When the UE receives this message, the UE shall deactivate MIMO reception and use cell 1 as the serving cell. The UE shall respond with ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←			UE: PS_DCCH_DCH+DTCH E_DCH/HS_DSCH (state 6-18) according to clause 7.4.
2				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.14a-2.
3	→		MEASUREMENT REPORT	See specific message contents for this message (event '1a' for cell 2).
4	←		ACTIVE SET UPDATE	SS transmits this message in cell 1 on downlink DCCH using AM RLC. The message includes IE "Radio Link Addition Information" for cell 2. Valid MIMO parameters are specified and Cell 2 becomes the serving Cell.
5	→		ACTIVE SET UPDATE COMPLETE	
6				At the activation time the SS changes the serving E-DCH and HS-DSCH link to Cell 2 and applies the new configuration.
7				SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.14a-2.
8	→		MEASUREMENT REPORT	See specific message contents for this message (event '1b' for cell 1).
9	←		ACTIVE SET UPDATE	The SS transmits this message including IE "Radio Link Removal Information". Valid MIMO configuration parameters are specified.
10	→		ACTIVE SET UPDATE COMPLETE	
11	SS			At the activation time the SS removes the radio link associated with Cell 1
12				SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.14a-2.
13	→		MEASUREMENT REPORT	See specific message contents for this message (event '1a' for cell 3).
14	←		ACTIVE SET UPDATE	SS transmits this message from cell 2. The message includes IE "Radio Link Addition Information" for cell 3. Cell 3 to become the serving Cell.
15	→		ACTIVE SET UPDATE COMPLETE	
16	SS			At the activation time the SS changes the serving E-DCH and HS-DSCH link to Cell 3 and applies the new configuration.
17				SS configures its downlink transmission power settings according to columns "T4" in table 8.3.4.14a-2
18	→		MEASUREMENT REPORT	See specific message contents for this message (event '1b' for cell 2)
19	←		ACTIVE SET UPDATE	The SS transmits this message including the IE "Radio Link Removal Information" for Cell 2
20	→		ACTIVE SET UPDATE COMPLETE	

21	SS		At the activation time the SS removes the radio link associated with Cell 2
22			SS configures its downlink transmission power settings according to columns "T5" in table 8.3.4.14a-2
23	→	MEASUREMENT REPORT	See specific message contents for this message (event '1a' for cell 1)
24	←	ACTIVE SET UPDATE	The SS transmits this message including the IE "Radio Link Addition Information" for Cell 1 with MIMO configuration absent. Cell 1 to become the active Cell
25	→	ACTIVE SET UPDATE COMPLETE	
26	SS		At the activation time the SS changes the serving E-DCH and HS-DSCH link to Cell 1 and applies the new configuration.

Specific Message Contents

The contents of SIB11 broadcasted in cell 1 shall be in accordance with the default SIB11 as specified in section 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- Intra-frequency measurement reporting criteria	
- Parameters required for each event	2 kinds
- Intra-frequency event identity	1a
- Triggering condition 1	Not Present
- Triggering condition 2	Monitored set cells
- Reporting Range Constant	10 (5 dB)
- Cells forbidden to affect Reporting range	Not Present
- W	0 (0.0)
- Hysteresis	0 (0.0)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	3
- Replacement activation threshold	Not Present
- Time to trigger	640
- Amount of reporting	4
- Reporting interval	4000
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
- Intra-frequency event identity	1b
- Triggering condition 1	Active set cells
- Triggering condition 2	Not Present
- Reporting Range Constant	10 (5 dB)
- Cells forbidden to affect Reporting range	Not Present
- W	0 (0.0)
- Hysteresis	0 (0.0)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	Not Present
- Time to trigger	640
- Amount of reporting	Not Present
- Reporting interval	Not Present
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3

The contents of SIB12 in cell 1, and SIB11 and SIB12 in cell 2, cell 3 shall be in accordance with the default SIBs as specified in TS 34.108.

MEASUREMENT REPORT (Step 3)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 3 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	Cell 1. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 2. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 3. See Note 2
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1 and 2 may appear in any order.

NOTE 2: Cell measured results for cells 3 may or may not be present (depends upon the capability of the UE and test uncertainties in power level). If present it can appear in any order.

ACTIVE SET UPDATE (Step 4)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256	
New H-RNTI	'0101 0101 0101 0101'	
New Primary E-RNTI	'0101 0101 0101 0101'	
MIMO Parameters		
- MIMO Operation	Start	
- CHOICE mode	FDD	
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
- CHOICE Second CPICH pattern	Antenna1 S-CPICH	
Radio link addition information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 2	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not present	
-DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	Not present	
-Spreading factor	Refer to TS 34.108 clause 6.10.2.4 “Typical radio parameter sets”	
-Code Number	For each DPCH, assign the same code number in the current code given in cell 1.	
-Scrambling code change	Not Present	
- TPC Combination Index	1	
- TFCI combining indicator	FALSE	
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Serving HS-DSCH cell information		
- Δ_{ACK}	Not Present	
- Δ_{NACK}	Not Present	
- HARQ_preamble_mode	0	
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not present	
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	6 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
- Downlink 64QAM configured	Not Present	
- HS-DSCH TB size table	Octet Aligned	
- HARQ Info		
- Number of Processes	12	
- CHOICE *Memory Partitioning*	Implicit	
- MAC-hs reset indicator	TRUE	
E-DCH reconfiguration information		
- E-DCH RL Info new serving cell		
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- Serving Grant	Not Present	

- E-DPCCH/DPCCH power offset	Not Present	
- Reference E-TFCIs	Not Present	
- Power Offset for Scheduling Info	Not Present	
- 3-Index-Step Threshold	Not Present	
- 2-Index-Step Threshold	Not Present	
- E-HICH Information	Not Present	
- CHOICE E-RGCH Information		
- E-DCH RL Info other cells	Not Present	

MEASUREMENT REPORT (Step 8)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results list	
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	Cell 2. See Note 1
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	Cell 1. see Note 1
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	Cell 3. see Note 1
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- CHOICE event result	Intra-frequency measurement event results
- Intra-frequency event identity	1b
- Cell measurement event results	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1, 2 and 3 may appear in any order. Cell measured results for cells 1 and 3 may or may not be present (depends upon the capability of the UE and test uncertainties in power level).

ACTIVE SET UPDATE (Step 9)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
MIMO Parameters		
- MIMO Operation	Continue	
- CHOICE mode	FDD	
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
- CHOICE Second CPICH pattern	Antenna1 S-CPICH	
Radio link removal information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 1	

MEASUREMENT REPORT (Step 13)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 3 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	Cell 2. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 3. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 1. See Note 2
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1, 2 and 3 may appear in any order. Cell measured result for cell 1 may or may not be present (depends upon the capability of the UE and test uncertainties in power level).

ACTIVE SET UPDATE (Step 14)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256	
New H-RNTI	'0101 0101 0101 0111'	
New Primary E-RNTI	'0101 0101 0101 0111'	
MIMO Parameters		
- MIMO Operation	Start	
- CHOICE mode	FDD	
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
- CHOICE Second CPICH pattern	Antenna1 S-CPICH	
Radio link addition information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 3	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not present	
-DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	Not present	
-Spreading factor	Refer to TS 34.108 clause 6.10.2.4 “Typical radio parameter sets”	
-Code Number	For each DPCH, assign the same code number in the current code given in cell 1.	
-Scrambling code change	Not Present	
- TPC Combination Index	0	
- TFCI combining indicator	FALSE	
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Serving HS-DSCH cell information		
- Δ_{ACK}	Not Present	
- Δ_{NACK}	Not Present	
- HARQ_preamble_mode	0	
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 3	
- Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not present	
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	6 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
- Downlink 64QAM configured	Not Present	
- HS-DSCH TB size table	Octet Aligned	
- HARQ Info		
- Number of Processes	12	
- CHOICE *Memory Partitioning*	Implicit	
- MAC-hs reset indicator	TRUE	
E-DCH reconfiguration information		
- E-DCH RL Info new serving cell		
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 3	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- Serving Grant	Not Present	

- E-DPCCH/DPCCH power offset	Not Present	
- Reference E-TFCIs	Not Present	
- Power Offset for Scheduling Info	Not Present	
- 3-Index-Step Threshold	Not Present	
- 2-Index-Step Threshold	Not Present	
- E-HICH Information	Not Present	
- CHOICE E-RGCH Information		
- E-DCH RL Info other cells	Not Present	

MEASUREMENT REPORT (Step 18)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results list	
- Cell measured results	Cell 3. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3(FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 1. see Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 2. see Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- CHOICE event result	Intra-frequency measurement event results
- Intra-frequency event identity	1b
- Cell measurement event results	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1, 2 and 3 may appear in any order. Cell measured results for cells 1 and 2 may or may not be present (depends upon the capability of the UE and test uncertainties in power level)

ACTIVE SET UPDATE (Step 19)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
MIMO Parameters		
- MIMO Operation	Continue	
- CHOICE mode	FDD	
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
- CHOICE Second CPICH pattern	Antenna1 S-CPICH	
Radio link removal information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 2	

MEASUREMENT REPORT (Step 23)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 3 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	Cell 3. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 1. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 2. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1, 2 and 3 may appear in any order. Cell measured result for cell 2 may or may not be present (depends upon the capability of the UE and test uncertainties in power level).

ACTIVE SET UPDATE (Step 24)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256	
New H-RNTI	'0101 0101 0101 1101'	
New Primary E-RNTI	'0101 0101 0101 1101'	
Radio link addition information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 1	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not present	
-DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	Not present	
-Spreading factor	Refer to TS 34.108 clause 6.10.2.4 “Typical radio parameter sets”	
-Code Number	For each DPCH, assign the same code number in the current code given in cell 1.	
-Scrambling code change	Not Present	
- TPC Combination Index	1	
- TFCI combining indicator	FALSE	
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Serving HS-DSCH cell information		
- Δ_{ACK}	Not Present	
- Δ_{NACK}	Not Present	
- HARQ_preamble_mode	0	
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 1	
- Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not present	
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	6 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
- Downlink 64QAM configured	Not Present	
- HS-DSCH TB size table	Octet Aligned	
- HARQ Info		
- Number of Processes	6	
- CHOICE *Memory Partitioning*	Implicit	
- MAC-hs reset indicator	TRUE	
E-DCH reconfiguration information		
- E-DCH RL Info new serving cell		
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 1	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- Serving Grant	Not Present	
- E-DPCCH/DPCCH power offset	Not Present	
- Reference E-TFCIs	Not Present	
- Power Offset for Scheduling Info	Not Present	
- 3-Index-Step Threshold	Not Present	
- 2-Index-Step Threshold	Not Present	
- E-HICH Information	Not Present	

- CHOICE E-RGCH Information - E-DCH RL Info other cells	Not Present	

8.3.4.14a.5 Test requirements

At steps 3, 8, 13, 18, 23 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

At steps 5, 10, 15, 20, and 25 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC to acknowledge the previous ACTIVE SET UPDATE and indicate readiness to accept the new configuration at activation time.

8.3.4.15 Active set update: Dual Cell (DC) Activation by Serving Cell Change from non DC-HSDPA capable cell to DC-HSDPA capable cell

8.3.4.15.1 Definition and applicability

All UE categories which support Dual Cell HSDPA. UE supports F-DPCH or Enhanced F-DPCH.

8.3.4.15.2 Conformance requirement

The purpose of the active set update procedure is to update the active set of the connection between the UE and UTRAN. This procedure shall be used in CELL_DCH state. The UE should keep on using the old RLs while configuring the new RLs. Also the UE should keep the transmitter turned on during the procedure. This procedure is only used in FDD mode.

…

The procedure is initiated when UTRAN orders a UE in CELL_DCH state, to make the following modifications of the active set of the connection:

a) Radio link addition;

b) Radio link removal;

c) Combined radio link addition and removal;

d) Addition of a radio link to the E-DCH active set;

e) Removal of a radio link from the E-DCH active set.

The procedure also allows the addition or removal of a radio link on a secondary serving HS-DSCH cell. Radio links on the secondary serving HS-DSCH cell are not part of the active set.

In case a) and c), UTRAN should:

1> prepare new additional radio link(s) in the UTRAN prior to the command to the UE.

In all cases, UTRAN should:

1> send an ACTIVE SET UPDATE message on downlink DCCH using AM or UM RLC;

1> create active sets that contain at least one common radio link across a DPCH or F-DPCH frame boundary as the result of one or multiple (parallel) active set update procedures.

UTRAN should include the following information:

1> IE "Radio Link Addition Information": Downlink DPCH information and other optional parameters relevant for the radio links to be added along with the IE "Primary CPICH info" used for the reference ID to indicate which radio link to add. This IE is needed in cases a) and c) listed above;

1> IE "Downlink Secondary Cell Info FDD": Downlink optional parameters relevant to reception of secondary serving HS-DSCH cell;

1> IE "Radio Link Removal Information": IE "Primary CPICH info" used for the reference ID to indicate which radio link to remove. This IE is needed in cases b) and c) listed above;

1> IE "E-DCH reconfiguration information": IE "Primary CPICH info" used for the reference ID along with the IE "E-HICH information" to indicate which radio link to add to the E-DCH active set. This IE is needed in case d) above, when the RL added to the E-DCH active set is already in the DCH active set;

1> IE "E-DCH reconfiguration information": IE "Primary CPICH info" used for the reference ID along with the IE "E-HICH release indicator" to indicate which radio link to remove from the E-DCH active set. This IE is needed in case e) above, when the RL removed from the E-DCH active set remains in the DCH active set.

…

Upon reception of an ACTIVE SET UPDATE message the UE shall act upon all received information elements as specified in 8.6, unless specified otherwise in the following.

The UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

The UE shall:

1> first add the RLs indicated in the IE "Radio Link Addition Information";

1> remove the RLs indicated in the IE "Radio Link Removal Information". If the UE active set is full or becomes full, an RL, which is included in the IE "Radio Link Removal Information" for removal, shall be removed before adding RL, which is included in the IE "Radio Link Addition Information" for addition;

…

1> if "Serving HS-DSCH cell information" IE is present, act on received information elements as specified in subclause 8.6:

2> if the IEs "Δ_{ACK}", "Δ_{NACK}", and "HARQ_preamble_mode" are present, act on the received information elements;

2> if the new H-RNTI and "Primary CPICH info" are included:

3> consider the cell indicated in Primary CPICH as serving HS-DSCH cell and no longer consider any other radio link as serving HS-DSCH cell. If the IE "Downlink Secondary Cell Info FDD" is included for a cell associated with the serving HS-DSCH cell, consider that cell a secondary serving HS-DSCH cell.

2> if the IE "MAC-hs reset indicator" is included:

3> reset the MAC-hs/ehs entity [15].

2> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

Reference

3GPP TS 25.331 clause 8.3.4, 8.3.4.2, 8.3.4.3

8.3.4.15.3 Test purpose

To confirm that the UE performs HS-DSCH serving cell change from non DC-HSDPA capable cell to DC –HSDPA capable cell

8.3.4.15.4 Method of test

Initial Condition

System Simulator: 3 cells – Cell 1 non DC-HSDPA cell, Cell 2/3 DC HSDPA cell(s) with cell 2 (Anchor Carrier) and Cell 3 (Secondary Carrier)

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-17) under condition A17b, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE category supports DC HSDPA
- UE supports F-DPCH or Enhanced F-DPCH

Test Procedure

Table 8.3.4.15

Parameter	Unit	Cell 1		Dual Cell (2 and 3)	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency (see Note 1)	
CPICH Ec	dBm/3.84MHz	-60	-70	-70	-60
Note 1: DC HSDPA Cell test frequencies are specified in [9] cl 5.1.1 for the operating band under test. For the secondary Cell 3 no other common physical channel other than CPICH shall be configured [5] cl. 4.2.4. The SFN and Tcell of the secondary cell are the same as the serving cell [29] cl. 7.1.					

Table 8.3.4.15 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Note that Cell 2 and cell 3 are configured as DC HSDPA Cells with Cell 2 as the Anchor Carrier and Cell 3 as the Secondary Carrier cell (definitions according to TS 25.825 section 4.2.1).

The downlink transmission power is set according to values in column “T0” in table 8.3.4.15. The UE has user plane and signalling radio bearers mapped on E-DCH/HS-DSCH in cell 1.

The SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.15. The UE transmits a MEASUREMENT REPORT message, which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity" set to 1a.

The SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC which adds a second radio link in cell 2, changes the E-DCH and HS-DSCH serving cell to cell 2 and includes Downlink Secondary Cell 3 parameters. When the UE receives this message, the UE shall configure layer 1 to begin E-DCH transmission and HS-DSCH reception using the new radio links on Anchor Carrier Cell 2 and Secondary Carrier Cell 3. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC. SS checks that this RRC message is received on Anchor Carrier Cell 2.

To check that the UE has performed serving cell change to DC HSDPA Cell , the SS sends UE CAPABILITY ENQUIRY on both Anchor Carrier Cell 2 and Secondary Carrier Cell 3 using SRB2 mapped onto HS-DSCH. The UE shall respond to each message in turn with UE CAPABILITY INFORMATION message sent to Anchor Carrier Cell 2. The SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←			UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) according to clause 7.4.
2				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.15.
3	→		MEASUREMENT REPORT	See specific message contents for this message (event '1a' for cell 2).
4	←		ACTIVE SET UPDATE	SS transmits this message in cell 1 on downlink DCCH using AM RLC. The RRC message instructs the UE to add dual cell HSDPA Cell 2 and 3 to the active set and perform a serving E-DCH and HS-DSCH Cell change to the DC-HSDPA.
5	SS			At the activation time DC-HSDPA is configured, Cell 2 becomes the serving E-DCH /HS-DSCH Cell and Cell 3 the secondary cell.
6	→		ACTIVE SET UPDATE COMPLETE	The UE shall configure a new radio link for DC HSDPA cell and active HS-DSCH reception from Cells 2 and 3.
7	←		UE CAPABILITY ENQUIRY	Use default message. SRB2 on HS-DSCH from Anchor Carrier Cell 2.
8	→		UE CAPABILITY INFORMATION	
9	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 2.
10	←		UE CAPABILITY ENQUIRY	Use default message. SS configures and transmits SRB2 on HS-DSCH from Secondary Carrier Cell 3.
11	→		UE CAPABILITY INFORMATION	
12	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 3.

MEASUREMENT REPORT (Step 3)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	Cell 1. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 2. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1 and 2 may appear in any order.

ACTIVE SET UPDATE (Step 4)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256	
New H-RNTI	'0101 0101 0101 0101'	
New Primary E-RNTI	'0101 0101 0101 0101'	
Radio link addition information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 2	
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- F-DPCH frame offset	Calculated value from Cell synchronisation information	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not present	
- Secondary scrambling code	Not present	
- Code Number	F-DPCH code number as used in Cell1	
- TPC Combination Index	1	
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Serving HS-DSCH cell information		
- Δ_{ACK}	Not Present	
- Δ_{NACK}	Not Present	
- HARQ_preamble_mode	0	
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not present	
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	6 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
- Downlink 64QAM configured	Not Present	
- HS-DSCH TB size table	Octet Aligned	
- HARQ Info		
- Number of Processes	Reference to TS 34.108 clause 6.10.2.4.5 Parameter Set	
- CHOICE *Memory Partitioning*	Implicit	
- MAC-hs reset indicator	TRUE	
E-DCH reconfiguration information		
- E-DCH RL Info new serving cell		
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- Serving Grant	Not Present	
- E-DPCCH/DPCCH power offset	Not Present	
- Reference E-TFCIs	2 E-TFCIs	
- Reference E-TFCI	11	
- Reference E-TFCI PO	4	
- Reference E-TFCI	83	
- Reference E-TFCI PO	16	
- Power Offset for Scheduling Info	Not Present	
- 3-Index-Step Threshold	Not Present	
- 2-Index-Step Threshold	Not Present	
- E-HICH Information		
- Channelisation Code	4	

- Signature Sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
- E-DCH RL Info other cells	Not Present	
Downlink secondary cell info FDD		
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	Not Present	
- HS-DSCH TB size table	Octet aligned	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 3	
- DL Scrambling Code	Not Present. Mandatory default implies same scrambling code as for the primary CPICH	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies. Note that for the secondary cell the UARFCN is a positive offset of 25 from the UARFCN of the test frequency of the primary cell which equates to 5MHz channel spacing	

UE CAPABILITY ENQUIRY (Steps 7, 10)

Use the same message sub-type found in TS 34.108 clause 9.1.

UE CAPABILITY INFORMATION (Steps 8, 11)

Use the same message sub-type found in TS 34.108 clause 9.

UE CAPABILITY INFORMATION CONFIRM (Steps 9, 12)

Use the same message sub-type found in TS 34.108 clause 9.1.

8.3.4.15.5 Test requirements

At step 3 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

At step 6 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC to acknowledge the completion of the active set addition procedure, the change of serving cell to DC HSDPA.

At step 8 and step 11 the UE should transmit UE CAPABILITY INFORMATION on SRB2.

8.3.4.15a Active set update: Dual Cell (DC) Activation by Serving Cell Change from non DC-HSDPA capable cell to DC-HSDPA capable cell with SRB mapped on E-DCH/DCH

8.3.4.15a.1 Definition and applicability

All UE categories which support Dual Cell HSDPA.

8.3.4.15a.2 Conformance requirement

The purpose of the active set update procedure is to update the active set of the connection between the UE and UTRAN. This procedure shall be used in CELL_DCH state. The UE should keep on using the old RLs while configuring the new RLs. Also the UE should keep the transmitter turned on during the procedure. This procedure is only used in FDD mode.

…

The procedure is initiated when UTRAN orders a UE in CELL_DCH state, to make the following modifications of the active set of the connection:

a) Radio link addition;

b) Radio link removal;

c) Combined radio link addition and removal;

d) Addition of a radio link to the E-DCH active set;

e) Removal of a radio link from the E-DCH active set.

The procedure also allows the addition or removal of a radio link on a secondary serving HS-DSCH cell. Radio links on the secondary serving HS-DSCH cell are not part of the active set.

In case a) and c), UTRAN should:

1> prepare new additional radio link(s) in the UTRAN prior to the command to the UE.

In all cases, UTRAN should:

1> send an ACTIVE SET UPDATE message on downlink DCCH using AM or UM RLC;

1> create active sets that contain at least one common radio link across a DPCH or F-DPCH frame boundary as the result of one or multiple (parallel) active set update procedures.

UTRAN should include the following information:

1> IE "Radio Link Addition Information": Downlink DPCH information and other optional parameters relevant for the radio links to be added along with the IE "Primary CPICH info" used for the reference ID to indicate which radio link to add. This IE is needed in cases a) and c) listed above;

1> IE "Downlink Secondary Cell Info FDD": Downlink optional parameters relevant to reception of secondary serving HS-DSCH cell;

1> IE "Radio Link Removal Information": IE "Primary CPICH info" used for the reference ID to indicate which radio link to remove. This IE is needed in cases b) and c) listed above;

1> IE "E-DCH reconfiguration information": IE "Primary CPICH info" used for the reference ID along with the IE "E-HICH information" to indicate which radio link to add to the E-DCH active set. This IE is needed in case d) above, when the RL added to the E-DCH active set is already in the DCH active set;

1> IE "E-DCH reconfiguration information": IE "Primary CPICH info" used for the reference ID along with the IE "E-HICH release indicator" to indicate which radio link to remove from the E-DCH active set. This IE is needed in case e) above, when the RL removed from the E-DCH active set remains in the DCH active set.

…

Upon reception of an ACTIVE SET UPDATE message the UE shall act upon all received information elements as specified in 8.6, unless specified otherwise in the following.

The UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

The UE shall:

1> first add the RLs indicated in the IE "Radio Link Addition Information";

1> remove the RLs indicated in the IE "Radio Link Removal Information". If the UE active set is full or becomes full, an RL, which is included in the IE "Radio Link Removal Information" for removal, shall be removed before adding RL, which is included in the IE "Radio Link Addition Information" for addition;

…

1> if "Serving HS-DSCH cell information" IE is present, act on received information elements as specified in subclause 8.6:

2> if the IEs "Δ_{ACK}", "Δ_{NACK}", and "HARQ_preamble_mode" are present, act on the received information elements;

2> if the new H-RNTI and "Primary CPICH info" are included:

3> consider the cell indicated in Primary CPICH as serving HS-DSCH cell and no longer consider any other radio link as serving HS-DSCH cell. If the IE "Downlink Secondary Cell Info FDD" is included for a cell associated with the serving HS-DSCH cell, consider that cell a secondary serving HS-DSCH cell.

2> if the IE "MAC-hs reset indicator" is included:

3> reset the MAC-hs/ehs entity [15].

2> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

…..

If the IE "RB mapping info" is included, the UE shall:

...

For FDD the list of multiplexing options configured in the UE for each RB and SRB should comply with the following rules otherwise the UE behaviour is not specified:

- ...
- at most one multiplexing option can contain the combination "DCH" or "DCH + HS-DSCH" for the DL together with "DCH" for the UL;
- at most one multiplexing option can contain the combination "HS-DSCH" or "DCH + HS-DSCH" for the DL together with "DCH" for the UL;
- ...

Reference

3GPP TS 25.331 clause 8.3.4, 8.3.4.2, 8.3.4.3, 8.6.4.8

8.3.4.15a.3 Test purpose

To confirm that the UE performs HS-DSCH serving cell change from non DC-HSDPA capable cell to DC –HSDPA capable cell (SRB on DCH).

8.3.4.15a.4 Method of test

Initial Condition

System Simulator: 3 cells – Cell 1 non DC-HSDPA cell, Cell 2/3 DC HSDPA cell(s) with cell 2 (Anchor Carrier) and Cell 3 (Secondary Carrier)

UE: PS_DCCH+DTCH E-DCH/HS_DSCH (state 6-18) as specified in clause 7.4 of TS 34.108. See specific message contents for Radio Bearer Setup message.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE category supports DC HSDPA

Test Procedure

Table 8.3.4.15a

Parameter	Unit	Cell 1		Dual Cell (2 and 3)	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency (see Note 1)	
CPICH Ec	dBm/3.84MHz	-60	-70	-70	-60
Note 1: For Secondary Carrier Cell 3 the UARFCN is a positive offset of 25 from the UARFCN of the test frequency of the Anchor Carrier Cell 2 which translates to 5MHz channel frequency spacing					

Table 8.3.4.15a illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Note that Cell 2 and cell 3 are configured as DC HSDPA Cells with Cell 2 as the Anchor Carrier and Cell 3 as the Secondary Carrier cell.

The downlink transmission power is set according to values in column “T0” in table 8.3.4.15a. The UE has user plane mapped on E-DCH/HS-DSCH and signalling radio bearers mapped on E-DCH/DCH in cell 1.

The SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.15a. The UE transmits a MEASUREMENT REPORT message, which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity" set to 1a.

The SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC which adds a second radio link in cell 2, changes the E-DCH and HS-DSCH serving cell to cell 2 and includes Downlink Secondary Cell 3 parameters. When the UE receives this message, the UE shall configure layer 1 to begin E-DCH transmission and HS-DSCH reception using the new radio links on Anchor Carrier Cell 2 and Secondary Carrier Cell 3. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC. SS checks that this RRC message is received on Anchor Carrier Cell 2.

To check that the UE has performed serving cell change to DC HSDPA Cell , SS monitors CQI reports on HS-DPCCH received from the UE on Cell 2.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←			UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) according to clause 7.4.
2				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.15a.
3	→		MEASUREMENT REPORT	See specific message contents for this message (event '1a' for cell 2).
4	←		ACTIVE SET UPDATE	SS transmits this message in cell 1 on downlink DCCH using AM RLC. The RRC message instructs the UE to add primary HSDPA Cell 2 to the active set and HSDPA cell 3 as the secondary cell And also perform a serving E-DCH and HS-DSCH Cell change to the DC-HSDPA.
5	SS			At the activation time DC-HSDPA is configured, Cell 2 becomes the serving E-DCH /HS-DSCH Cell and Cell 3 the secondary cell.
6	→		ACTIVE SET UPDATE COMPLETE	The UE shall configure a new radio link for DC HSDPA cell and active HS-DSCH reception from Cells 2 and 3.
7				SS starts monitoring CQI reports on HS-DPCCH received from the UE on Primary Cell 2 and Secondary Cell 3.SS waits for 10 CQI reports.

Specific Mesaage Contents.

RADIO BEARER SETUP

The message to be used in this test is same as condition A25b, as specified in clause 7.4 of TS 34.108 except the following:

Information Element	Value/remark
Downlink secondary cell info FDD	NOT PRESENT

MEASUREMENT REPORT (Step 3)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	Cell 1. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 2. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1 and 2 may appear in any order.

ACTIVE SET UPDATE (Step 4)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256	
New H-RNTI	'0101 0101 0101 0101'	
New Primary E-RNTI	'0101 0101 0101 0101'	
Radio link addition information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 2	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not present	
-DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	Not present	
-Spreading factor	Refer to TS 34.108 clause 6.10.2.4 "Typical radio parameter sets"	
-Code Number	For each DPCH, assign the same code number in the current code given in cell 1.	
- Scrambling code change	Not Present	
- TPC Combination Index	1	
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	1	
Serving HS-DSCH cell information		
- Δ_{ACK}	Not Present	
- Δ_{NACK}	Not Present	
- HARQ_preamble_mode	0	
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not present	
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	6 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
- Downlink 64QAM configured	Not Present	
- HS-DSCH TB size table	Octet Aligned	
- HARQ Info		
- Number of Processes	Reference to TS 34.108 clause 6.10.2.4.5 Parameter Set	
- CHOICE *Memory Partitioning*	Implicit	
- MAC-hs reset indicator	TRUE	
E-DCH reconfiguration information		
- E-DCH RL Info new serving cell		
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- Serving Grant	Not Present	
- E-DPCCH/DPCCH power offset	Not Present	
- Reference E-TFCIs	2 E-TFCIs	
- Reference E-TFCI	11	
- Reference E-TFCI PO	4	
- Reference E-TFCI	83	
- Reference E-TFCI PO	16	
- Power Offset for Scheduling Info	Not Present	

- 3-Index-Step Threshold	Not Present	
- 2-Index-Step Threshold	Not Present	
- E-HICH Information		
- Channelisation Code	4	
- Signature Sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
- E-DCH RL Info other cells	Not Present	
Downlink secondary cell info FDD		
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	Not Present	
- HS-DSCH TB size table	Octet aligned	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 3	
- DL Scrambling Code	Not Present. Mandatory default implies same scrambling code as for the primary CPICH	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies. Note that for the secondary cell the UARFCN is a positive offset of 25 from the UARFCN of the test frequency of the primary cell which equates to 5MHz channel spacing	

8.3.4.15a.5 Test requirements

At step 3 SS shall receive a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

At step 6 SS shall receive an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC to acknowledge the completion of the active set addition procedure, the change of serving cell to DC HSDPA.

At step 7 SS should start receiving CQI report for Cell 2 and Cell 3 on HS-DPCCH from the UE.

8.3.4.16 Active set update: Dual Cell (DC) Activation by Serving Cell Change from DC-HSDPA capable cell to non DC-HSDPA capable cell

8.3.4.16.1 Definition and applicability

All UE categories which support Dual Cell HSDPA. UE supports F-DPCH or Enhanced F-DPCH.

8.3.4.16.2 Conformance requirement

The purpose of the active set update procedure is to update the active set of the connection between the UE and UTRAN. This procedure shall be used in CELL_DCH state. The UE should keep on using the old RLs while configuring the new RLs. Also the UE should keep the transmitter turned on during the procedure. This procedure is only used in FDD mode.

…

The procedure is initiated when UTRAN orders a UE in CELL_DCH state, to make the following modifications of the active set of the connection:

a) Radio link addition;

b) Radio link removal;

c) Combined radio link addition and removal;

d) Addition of a radio link to the E-DCH active set;

e) Removal of a radio link from the E-DCH active set.

The procedure also allows the addition or removal of a radio link on a secondary serving HS-DSCH cell. Radio links on the secondary serving HS-DSCH cell are not part of the active set.

In case a) and c), UTRAN should:

1> prepare new additional radio link(s) in the UTRAN prior to the command to the UE.

In all cases, UTRAN should:

1> send an ACTIVE SET UPDATE message on downlink DCCH using AM or UM RLC;

1> create active sets that contain at least one common radio link across a DPCH or F-DPCH frame boundary as the result of one or multiple (parallel) active set update procedures.

UTRAN should include the following information:

1> IE "Radio Link Addition Information": Downlink DPCH information and other optional parameters relevant for the radio links to be added along with the IE "Primary CPICH info" used for the reference ID to indicate which radio link to add. This IE is needed in cases a) and c) listed above;

1> IE "Downlink Secondary Cell Info FDD": Downlink optional parameters relevant to reception of secondary serving HS-DSCH cell;

1> IE "Radio Link Removal Information": IE "Primary CPICH info" used for the reference ID to indicate which radio link to remove. This IE is needed in cases b) and c) listed above;

1> IE "E-DCH reconfiguration information": IE "Primary CPICH info" used for the reference ID along with the IE "E-HICH information" to indicate which radio link to add to the E-DCH active set. This IE is needed in case d) above, when the RL added to the E-DCH active set is already in the DCH active set;

1> IE "E-DCH reconfiguration information": IE "Primary CPICH info" used for the reference ID along with the IE "E-HICH release indicator" to indicate which radio link to remove from the E-DCH active set. This IE is needed in case e) above, when the RL removed from the E-DCH active set remains in the DCH active set.

…

Upon reception of an ACTIVE SET UPDATE message the UE shall act upon all received information elements as specified in 8.6, unless specified otherwise in the following.

The UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

The UE shall:

1> first add the RLs indicated in the IE "Radio Link Addition Information";

1> remove the RLs indicated in the IE "Radio Link Removal Information". If the UE active set is full or becomes full, an RL, which is included in the IE "Radio Link Removal Information" for removal, shall be removed before adding RL, which is included in the IE "Radio Link Addition Information" for addition;

…

1> if "Serving HS-DSCH cell information" IE is present, act on received information elements as specified in subclause 8.6:

2> if the IEs "Δ_{ACK}", "Δ_{NACK}", and "HARQ_preamble_mode" are present, act on the received information elements;

2> if the new H-RNTI and "Primary CPICH info" are included:

3> consider the cell indicated in Primary CPICH as serving HS-DSCH cell and no longer consider any other radio link as serving HS-DSCH cell. If the IE "Downlink Secondary Cell Info FDD" is included for a cell associated with the serving HS-DSCH cell, consider that cell a secondary serving HS-DSCH cell.

2> if the IE "MAC-hs reset indicator" is included:

3> reset the MAC-hs/ehs entity [15].

2> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

Reference

3GPP TS 25.331 clause 8.3.4, 8.3.4.2, 8.3.4.3

8.3.4.16.3 Test purpose

To confirm that the UE performs HS-DSCH serving cell change from DC-HSDPA capable cell to non DC –HSDPA capable cell

8.3.4.16.4 Method of test

Initial Condition

System Simulator: 3 cells – Cell 1 non DC-HSDPA cell, Cell 2/3 DC HSDPA cell(s) with cell 2 (Primary Carrier) and Cell 3 (Secondary Carrier)

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-17) under condition A25, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE category supports DC HSDPA
- UE supports F-DPCH or Enhanced F-DPCH

Test Procedure

Table 8.3.4.16

Parameter	Unit	DC HSDPA Cell (2, 3)		Cell 1	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency (see Note 1)		Mid Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-60	-60	-75	-60
Note 1: DC HSDPA Cell test frequencies are specified in [9] section 5.1.1 for the operating band under test. For the secondary Cell 3 no other common physical channel other than CPICH shall be configured [5] cl. 4.2.4. The SFN and Tcell of the secondary cell are the same as the serving cell [29] cl. 7.1					

Table 8.3.4.16 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Note that Cell 2 and Cell 3 are DC HSDPA Cells with Cell 2 configured as the primary carrier and Cell 3 configured as the secondary cell (definition according to TS 25.825 section 4.2.1).

The downlink transmission power is set according to values in column “T0” in table 8.3.4.16. The UE has user plane bearers and signalling bearers mapped to the E-DCH/HS-DSCH of the DC HSDPA Cell configuration according to Radio Bearer Setup condition A25. As part of the initial condition, a check is made to verify that DC-HSDPA is configured by sending UE CAPABILITY ENQUIRY RRC message from both primary and secondary cell. The UE shall respond with UE CAPABILITY INFORMATION. SS shall then send UE CAPABILITY INFORMATION CONFIRM to complete this part of the procedure.

The SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.16. The UE transmits a MEASUREMENT REPORT message, which includes the primary scrambling code for Cell 1 according to IE "Intra-frequency event identity" set to 1a.

The SS transmits to the UE an ACTIVE SET UPDATE message in cell 2 on DCCH using AM RLC which adds a second radio link in cell 1and changes the E-DCH and HS-DSCH serving cell from DC-HSDPA Cell (2,3) to cell 1. When the UE receives this message, at the activation time, the UE shall configure layer 1 to begin E-DCH transmission and HS-DSCH reception using the new radio link on primary cell 1. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC. SS checks that this RRC messages is received on Cell 1.

The SS transmits UE CAPABILITY ENQUIRY from Cell 1. The UE shall respond with UE CAPABILITY INFORMATION. SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←			UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) according to clause 7.4.
2				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.16.
3	→		MEASUREMENT REPORT	See specific message contents for this message (event '1a' for cell 1).
4	←		ACTIVE SET UPDATE	SS transmits this message in primary carrier Cell 2 on downlink DCCH using AM RLC. The RRC message instructs the UE to add Cell 1 to the active set and perform a serving E-DCH and HS-DSCH Cell change to Cell 1.
5	SS			At the activation time Cell 1 becomes the serving E-DCH /HS-DSCH Cell.
6	→		ACTIVE SET UPDATE COMPLETE	
			Void	
			Void	
			Void	
			Void	
11	←		UE CAPABILITY ENQUIRY	Use default message. SRB2 on HS-DSCH from Cell 1.
12	→		UE CAPABILITY INFORMATION	
13	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH from Cell 1.

MEASUREMENT REPORT (Step 3)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	Cell 1. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C SFN Frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 2. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
Note 1: Cell measured results for cells 1 and 2 may appear in any order.	

ACTIVE SET UPDATE (Step 4)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256	
New H-RNTI	'0101 0101 0101 0101'	
New Primary E-RNTI	'0101 0101 0101 0101'	
Radio link addition information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 1	
- Downlink F-DPCH info for each RL		
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- F-DPCH frame offset	Calculated value from Cell synchronisation information	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not present	
- Secondary scrambling code	Not present	
- Code number	F-DPCH code number as used in Cell1	
- TPC Combination Index	1	
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Serving HS-DSCH cell information		
- Δ_{ACK}	Not Present	
- Δ_{NACK}	Not Present	
- HARQ_preamble_mode	0	
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 1	
- Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not present	
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	6 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
- Downlink 64QAM configured	Not Present	
- HS-DSCH TB size table	Octet Aligned	
- HARQ Info		
- Number of Processes	Reference to TS 34.108 clause 6.10.2.4.5 Parameter Set	
- CHOICE *Memory Partitioning*	Implicit	
- MAC-hs reset indicator	TRUE	
E-DCH reconfiguration information		
- E-DCH RL Info new serving cell		
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 1	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- Serving Grant	Not Present	
- E-DPCCH/DPCCH power offset	Not Present	
- Reference E-TFCIs	2 E-TFCIs	
- Reference E-TFCI	11	
- Reference E-TFCI PO	4	
- Reference E-TFCI	83	
- Reference E-TFCI PO	16	
- Power Offset for Scheduling Info	Not Present	
- 3-Index-Step Threshold	Not Present	
- 2-Index-Step Threshold	Not Present	
- E-HICH Information		
- Channelisation Code	4	

- Signature Sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
- E-DCH RL Info other cells	Not Present	

UE CAPABILITY ENQUIRY (Steps 7, 9, 11)

Use the same message sub-type found in TS 34.108 clause 9.1.

UE CAPABILITY INFORMATION (Step 12)

Use the same message sub-type found in TS 34.108 clause 9.

UE CAPABILITY INFORMATION CONFIRM (Step 13)

Use the same message sub-type found in TS 34.108 clause 9.1.

8.3.4.16.5 Test requirements

At step 3 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

At step 6 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC to acknowledge the completion of the active set addition procedure and the change of serving cell.

At step 12 the UE should transmit UE CAPABILITY INFORMATION on SRB2.

8.3.4.16a Active set update: Dual Cell (DC) Activation by Serving Cell Change from DC-HSDPA capable cell to non DC-HSDPA capable cell with SRB mapped on E-DCH/DCH

8.3.4.16a.1 Definition and applicability

All UE categories which support Dual Cell HSDPA.

8.3.4.16a.2 Conformance requirement

The purpose of the active set update procedure is to update the active set of the connection between the UE and UTRAN. This procedure shall be used in CELL_DCH state. The UE should keep on using the old RLs while configuring the new RLs. Also the UE should keep the transmitter turned on during the procedure. This procedure is only used in FDD mode.

…

The procedure is initiated when UTRAN orders a UE in CELL_DCH state, to make the following modifications of the active set of the connection:

a) Radio link addition;

b) Radio link removal;

c) Combined radio link addition and removal;

d) Addition of a radio link to the E-DCH active set;

e) Removal of a radio link from the E-DCH active set.

The procedure also allows the addition or removal of a radio link on a secondary serving HS-DSCH cell. Radio links on the secondary serving HS-DSCH cell are not part of the active set.

In case a) and c), UTRAN should:

1> prepare new additional radio link(s) in the UTRAN prior to the command to the UE.

In all cases, UTRAN should:

1> send an ACTIVE SET UPDATE message on downlink DCCH using AM or UM RLC;

1> create active sets that contain at least one common radio link across a DPCH or F-DPCH frame boundary as the result of one or multiple (parallel) active set update procedures.

UTRAN should include the following information:

1> IE "Radio Link Addition Information": Downlink DPCH information and other optional parameters relevant for the radio links to be added along with the IE "Primary CPICH info" used for the reference ID to indicate which radio link to add. This IE is needed in cases a) and c) listed above;

1> IE "Downlink Secondary Cell Info FDD": Downlink optional parameters relevant to reception of secondary serving HS-DSCH cell;

1> IE "Radio Link Removal Information": IE "Primary CPICH info" used for the reference ID to indicate which radio link to remove. This IE is needed in cases b) and c) listed above;

1> IE "E-DCH reconfiguration information": IE "Primary CPICH info" used for the reference ID along with the IE "E-HICH information" to indicate which radio link to add to the E-DCH active set. This IE is needed in case d) above, when the RL added to the E-DCH active set is already in the DCH active set;

1> IE "E-DCH reconfiguration information": IE "Primary CPICH info" used for the reference ID along with the IE "E-HICH release indicator" to indicate which radio link to remove from the E-DCH active set. This IE is needed in case e) above, when the RL removed from the E-DCH active set remains in the DCH active set.

…

Upon reception of an ACTIVE SET UPDATE message the UE shall act upon all received information elements as specified in 8.6, unless specified otherwise in the following.

The UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

The UE shall:

1> first add the RLs indicated in the IE "Radio Link Addition Information";

1> remove the RLs indicated in the IE "Radio Link Removal Information". If the UE active set is full or becomes full, an RL, which is included in the IE "Radio Link Removal Information" for removal, shall be removed before adding RL, which is included in the IE "Radio Link Addition Information" for addition;

…

1> if "Serving HS-DSCH cell information" IE is present, act on received information elements as specified in subclause 8.6:

2> if the IEs "Δ_{ACK}", "Δ_{NACK}", and "HARQ_preamble_mode" are present, act on the received information elements;

2> if the new H-RNTI and "Primary CPICH info" are included:

3> consider the cell indicated in Primary CPICH as serving HS-DSCH cell and no longer consider any other radio link as serving HS-DSCH cell. If the IE "Downlink Secondary Cell Info FDD" is included for a cell associated with the serving HS-DSCH cell, consider that cell a secondary serving HS-DSCH cell.

2> if the IE "MAC-hs reset indicator" is included:

3> reset the MAC-hs/ehs entity [15].

2> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

...

If the IE "RB mapping info" is included, the UE shall:

...

For FDD the list of multiplexing options configured in the UE for each RB and SRB should comply with the following rules otherwise the UE behaviour is not specified:

- ...
- at most one multiplexing option can contain the combination "DCH" or "DCH + HS-DSCH" for the DL together with "DCH" for the UL;
- at most one multiplexing option can contain the combination "HS-DSCH" or "DCH + HS-DSCH" for the DL together with "DCH" for the UL;
- ...

Reference

3GPP TS 25.331 clause 8.3.4, 8.3.4.2, 8.3.4.3, 8.6.4.8

8.3.4.16a.3 Test purpose

To confirm that the UE performs HS-DSCH serving cell change from DC-HSDPA capable cell to non DC –HSDPA capable cell with SRB on DCH

8.3.4.16a.4 Method of test

Initial Condition

System Simulator: 3 cells – Cell 1 non DC-HSDPA cell, Cell 2/3 DC HSDPA cell(s) with cell 2 (Primary Carrier) and Cell 3 (Secondary Carrier)

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A25b, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE category supports DC HSDPA

Test Procedure

Table 8.3.4.16a

Parameter	Unit	DC HSDPA Cell (2, 3)		Cell 1	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency (see Note 1)		Mid Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-60	-70	-70	-60
Note 1: For secondary carrier cell 3 the UARFCN is a positive offset of 25 from the UARFCN of the primary carrier frequency cell 2 which translates to 5MHz channel frequency spacing					

Table 8.3.4.16a illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Note that Cell 2 and Cell 3 are DC HSDPA Cells with Cell 2 configured as the primary carrier and Cell 3 configured as the secondary cell.

The downlink transmission power is set according to values in column “T0” in table 8.3.4.16a. The UE has user plane bearers mapped to the E-DCH/HS-DSCH of the DC HSDPA Cell and signalling bearers mapped to DCH on cell 2.

The SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.16a. The UE transmits a MEASUREMENT REPORT message, which includes the primary scrambling code for Cell 1 according to IE "Intra-frequency event identity" set to 1a.

The SS transmits to the UE an ACTIVE SET UPDATE message in cell 2 on DCCH using AM RLC which adds a second radio link in cell 1and changes the E-DCH and HS-DSCH serving cell from DC-HSDPA Cell (2,3) to cell 1. When the UE receives this message, at the activation time, the UE shall configure layer 1 to begin E-DCH transmission and HS-DSCH reception using the new radio link on primary cell 1. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC. SS checks that this RRC messages is received on Cell 1.

To check that the UE has performed serving HS-DSCH cell change to Cell 1, SS monitors CQI reports on HS-DPCCH received from the UE on Cell 1.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←			UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) according to clause 7.4.
2				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.16a.
3	→		MEASUREMENT REPORT	See specific message contents for this message (event '1a' for cell 1).
4	←		ACTIVE SET UPDATE	SS transmits this message in primary carrier Cell 2 on downlink DCCH using AM RLC. The RRC message instructs the UE to add Cell 1 to the active set and perform a serving E-DCH and HS-DSCH Cell change to Cell 1.
5	SS			At the activation time Cell 1 becomes the serving E-DCH /HS-DSCH Cell.
6	→		ACTIVE SET UPDATE COMPLETE	
7				SS starts monitoring CQI reports on HS-DPCCH received from the UE on Cell 1. SS waits for 10 CQI reports.

MEASUREMENT REPORT (Step 3)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	Cell 1. See Note 1
- Cell Identity	Checked that this IE is present and includes IE COUNT-C SFN frame difference
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 2. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1 and 2 may appear in any order.

ACTIVE SET UPDATE (Step 4)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256	
New H-RNTI	'0101 0101 0101 0101'	
New Primary E-RNTI	'0101 0101 0101 0101'	
Radio link addition information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 1	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not present	
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	Not present	
-Spreading factor	Refer to TS 34.108 clause 6.10.2.4 "Typical radio parameter sets"	
-Code Number	For each DPCH, assign the same code number in the current code given in cell 1.	
- Scrambling code change	Not Present	
- TPC Combination Index	1	
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	1	
Serving HS-DSCH cell information		
- Δ_{ACK}	Not Present	
- Δ_{NACK}	Not Present	
- HARQ_preamble_mode	0	
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 1	
- Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not present	
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	6 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
- Downlink 64QAM configured	Not Present	
- HS-DSCH TB size table	Octet Aligned	
- HARQ Info		
- Number of Processes	Reference to TS 34.108 clause 6.10.2.4.5 Parameter Set	
- CHOICE *Memory Partitioning*	Implicit	
- MAC-hs reset indicator	TRUE	
E-DCH reconfiguration information		
- E-DCH RL Info new serving cell		
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 1	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- Serving Grant	Not Present	
- E-DPCCH/DPCCH power offset	Not Present	
- Reference E-TFCIs	2 E-TFCIs	
- Reference E-TFCI	11	
- Reference E-TFCI PO	4	
- Reference E-TFCI	83	

- Reference E-TFCI PO	16	
- Power Offset for Scheduling Info	Not Present	
- 3-Index-Step Threshold	Not Present	
- 2-Index-Step Threshold	Not Present	
- E-HICH Information		
- Channelisation Code	4	
- Signature Sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
- E-DCH RL Info other cells	Not Present	

8.3.4.16a.5 Test requirements

At step 3 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

At step 6 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC to acknowledge the completion of the active set addition procedure and the change of serving cell.

At step 7 the UE shall start transmitting CQI report on HS-DPCCH to Cell 1.

8.3.4.17 Active Set Update in Soft Handover: Radio Link addition/removal and serving HS-DSCH / E-DCH cell change with simultaneous activation/deactivation of 64QAM and MIMO

8.3.4.17.1 Definition and applicability

UE category supports combined 64QAM and MIMO activation. UE support FDD and F-DPCH or Enhanced F-DPCH.

8.3.4.17.2 Conformance requirement

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> if the IE "MIMO parameters" is not included:

2> clear the MIMO_PARAMS variable;

2> trigger lower layers to stop operation in MIMO mode.

1> otherwise:

2> for FDD, if the IE "MIMO N_cqi_typeA/M_cqi ratio" is included:

3> store the value of the IE "MIMO N_cqi_typeA/M_cqi ratio" in the MIMO_PARAMS variable.

2> for FDD, if the IE "MIMO pilot configuration" is included:

5> store the value of the IE "MIMO pilot configuration" in the MIMO_PARAMS variable.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message, the UE shall:

1> take actions related to the MIMO_PARAMS variable as specified in subclause 8.5.32;

1> determine the value of the MIMO_STATUS variable.

The MIMO_STATUS variable shall be set to TRUE only when all the following conditions are met:

1> The UE is in CELL_DCH state;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO N_cqi_typeA/M_cqi ratio"; and

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO pilot configuration".

1> for 1.28 Mcps TDD, the variable MIMO_PARAMS contains a value for the IE "MIMO SF Mode for HS-PDSCH dual stream".

If any of the above conditions is not met and the MIMO_STATUS variable is set to TRUE, the UE shall:

1> set the MIMO_STATUS variable to FALSE;

1> clear the MIMO_PARAMS variable;

3> trigger lower layers to stop operation in MIMO mode.

[…]

With the exception of the provisions of subclause 6A.3, the following shall apply when the UE is configured in MIMO mode:

1) The UE derives the PCI value as defined in subclause 6A.4 and either a type A or a type B CQI value as defined in subclause 6A.2.2 depending on which type of CQI shall be reported as defined below.

[…]

>FDD					
>>Downlink 64QAM configured	OP		Enumerated (TRUE)	Absence of this IE means that the HS-SCCH does not use the 64QAM format. The presence of this IE means the UE uses the octet aligned table [15].	REL-7
>>HS-DSCH TB size table	CV-*Not64QAM*		Enumerated (octet aligned)	If this IE is present, octet aligned table [15] is used, else bit aligned table [15] is used.	REL-7

Condition	**Explanation**
Not64QAM	This IE is optionally present if 64QAM is not configured and MAC-ehs is configured. Otherwise it is not needed.

Reference

3GPP TS 25.331 clause 8.5.32, 8.5.33, 10.3.6.23a

3GPP TS 25.214 clause 6A.1.2.2

8.3.4.17.3 Test purpose

1. To confirm that the UE starts 64QAM and MIMO reception according to the received ACTIVE SET UPDATE message.

2. To confirm that the UE maintains 64QAM and MIMO reception according to the received ACTIVE SET UPDATE message

3. To confirm that the UE stops 64QAM and MIMO reception according to the received ACTIVE SET UPDATE message.

8.3.4.17.4 Method of test

Initial Condition

System Simulator: 3 cells – Cell 1: non 64QAM and MIMO cell, Cell 2: 64QAM and MIMO configured, Cell 3: 64QAM and MIMO configured

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-17) under condition A17b, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE category supports combined 64QAM and MIMO
- UE supports F-DPCH or Enhanced-F-DPCH

Test Procedure

Table 8.3.4.17-1

Cell	UTRA RF Channel Number
Cell 1	Mid Range Test Frequency
Cell 2	Mid Range Test Frequency
Cell 3	Mid Range Test Frequency

Table 8.3.4.17-2

		Time					
Parameter	Unit	T0	T1	T2	T3	T4	T5
Cell 1 CPICH Ec	dBm/3.84MHz	-60	-60	-75	-75	-75	-60
Cell 2 CPICH Ec	dBm/3.84MHz	-75	-60	-60	-60	-75	-75
Cell 3 CPICH Ec	dBm/3.84MHz	-75	-75	-75	-60	-60	-60

Table 8.3.4.17 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution.

SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.17-2. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 2 and then the SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC which includes the IE "Radio Link Addition Information" and 64QAM and MIMO configuration. At the activation time, the UE shall activate 64QAM and MIMO reception and configure SRB and user plane bearers for HS-DSCH reception (L1 configured for 64QAM and MIMO on separate antennae) using the new radio link with cell 2 as the serving cell. The UE shall respond with ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC. The SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 using 64QAM and MIMO configuration. The UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes this part of the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE with SRB configured for 64QAM and MIMO.

SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.17-2. UE shall transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 1 according to IE "Intra-frequency event identity", which is set to '1b' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS will remove the radio link from cell 1 and then SS transmits an ACTIVE SET UPDATE message using 64QAM and MIMO configuration, which includes IE "Radio Link Removal Information" and specifying the P-CPICH information of the cell to be removed. When the UE receives this message, the UE RRC entity shall request UE L1 entity to terminate transmission and reception of the radio link from cell 1. Then the UE transmits an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC on SRB2. The SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 from Cell 2 using 64QAM and MIMO configuration and the UE shall respond with a UE CAPABILITY INFORMATION message. The SS

completes this part of the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE with SRB configured for 64QAM and MIMO.

The SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.17-2. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 3 according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 3 and then the SS transmits to the UE an ACTIVE SET UPDATE message in cell 2 on DCCH using AM RLC and 64QAM and MIMO configuration which includes the IE "Radio Link Addition Information". At the activation time, the UE shall maintain 64QAM and MIMO reception but with Cell 3 as the serving cell. The UE shall respond with ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC. The SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 using 64QAM and MIMO configuration. The UE shall respond with a UE CAPABILITY INFORMATION message. The SS completes this part of the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message to the UE with SRB configured for 64QAM and MIMO.

SS configures its downlink transmission power settings according to columns "T4" in table 8.3.4.17-2. UE shall transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity", which is set to '1b' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS will remove the radio link from cell 2 and then SS transmits an ACTIVE SET UPDATE message, which includes IE "Radio Link Removal Information" and specifying the P-CPICH information of the cell to be removed.

SS configures its downlink transmission power settings according to columns "T5" in table 8.3.4.17-2. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 1 according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 1 and then the SS transmits to the UE an ACTIVE SET UPDATE message from cell 3 on DCCH using MIMO configuration which includes the IE "Radio Link Addition Information" but with no MIMO or 64QAM parameters in RRC message. When the UE receives this message, the UE shall deactivate 64QAM and MIMO reception and use cell 1 as the serving cell. The UE shall respond with ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC. The SS transmits a UE CAPABILITY ENQUIRY message on DL SRB2 on HS-DSCH using QPSK. The UE shall respond with a UE CAPABILITY INFORMATION message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←			UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) according to clause 7.4.
2				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.17-2.
3	→		MEASUREMENT REPORT	See specific message contents for this message (event '1a' for cell 2).
4	←		ACTIVE SET UPDATE	SS transmits this message in cell 1 on downlink DCCH using AM RLC. The message includes IE "Radio Link Addition Information" for cell 2. Valid MIMO parameters and 64QAM parameters are specified and Cell 2 becomes the serving Cell.
5	→		ACTIVE SET UPDATE COMPLETE	
6	SS			At the activation time the SS changes the serving E-DCH and HS-DSCH link to Cell 2 and applies the new configuration.
7	←		UE CAPABILITY ENQUIRY	Use default message. SRB2 is sent using the configured L1 64QAM and MIMO configuration. i.e. parallel data stream on antenna 1 and antenna 2 with separate modulation patterns on P-CPICH.
8	→		UE CAPABILITY INFORMATION	
9	←		UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH using configured L1 64QAM and MIMO from Cell 2.
10				SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.17-2.
11	→		MEASUREMENT REPORT	See specific message contents for this message (event '1b' for cell 1).
12	←		ACTIVE SET UPDATE	The SS transmits this message on SRB2 using 64QAM and MIMO configuration which includes IE "Radio Link Removal Information". Valid MIMO configuration parameters are specified.
13	→		ACTIVE SET UPDATE COMPLETE	
14	SS			At the activation time the SS removes the radio link associated with Cell 1
15				SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.17-2.
16	→		MEASUREMENT REPORT	See specific message contents for this message (event '1a' for cell 3).
17	←		ACTIVE SET UPDATE	SS transmits this message (SRB2 using 64QAM and MIMO configuration) from cell 2. The message includes IE "Radio Link Addition Information" for cell 3. Cell 3 to become the serving Cell.
18	→		ACTIVE SET UPDATE COMPLETE	

19	SS		At the activation time the SS changes the serving E-DCH and HS-DSCH link to Cell 3 and applies the new configuration.
20	←	UE CAPABILITY ENQUIRY	Use default message. SRB2 is sent using the configured L1 64QAM and MIMO configuration from Cell3.
21	→	UE CAPABILITY INFORMATION	
22	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 is sent on HS-DSCH using configured L1 64QAM and MIMO.
23			SS configures its downlink transmission power settings according to columns "T4" in table 8.3.4.17-2.
24	→	MEASUREMENT REPORT	See specific message contents for this message (event '1b' for cell 2).
25	←	ACTIVE SET UPDATE	The SS transmits this message on SRB2 using 64QAM and MIMO configuration. The RRC message includes IE "Radio Link Removal Information" for Cell 2.
26	→	ACTIVE SET UPDATE COMPLETE	
27	SS		At the activation time the SS removes the radio link associated with Cell 2
28			SS configures its downlink transmission power settings according to columns "T5" in table 8.3.4.17-2.
29	→	MEASUREMENT REPORT	See specific message contents for this message (event '1a' for cell 1).
30	←	ACTIVE SET UPDATE	The SS transmits this message on SRB2 using 64QAM and MIMO configuration. The RRC message includes IE "Radio Link Addition Information" for Cell 1 with 64QAM and MIMO configuration absent. Cell 1 to become the active Cell.
31	→	ACTIVE SET UPDATE COMPLETE	
32	SS		At the activation time the SS changes the serving E-DCH and HS-DSCH link to Cell 1 and applies the new configuration.
33		UE CAPABILITY ENQUIRY	Use default message. SRB2 sent on HS-DSCH from Cell 1 using QPSK.
34	→	UE CAPABILITY INFORMATION	
35	←	UE CAPABILITY INFORMATION CONFIRM	SRB2 on HS-DSCH from Cell 1 using QPSK.

Specific Message Content

The contents of SIB11 broadcasted in cell 1 shall be in accordance with the default SIB11 as specified in section 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- Intra-frequency measurement reporting criteria	
- Parameters required for each event	2 kinds
- Intra-frequency event identity	1a
- Triggering condition 1	Not Present
- Triggering condition 2	Monitored set cells
- Reporting Range Constant	10 (5 dB)
- Cells forbidden to affect Reporting range	Not Present
- W	0 (0.0)
- Hysteresis	0 (0.0)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	3
- Replacement activation threshold	Not Present
- Time to trigger	640
- Amount of reporting	4
- Reporting interval	4000
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
- Intra-frequency event identity	1b
- Triggering condition 1	Active set cells
- Triggering condition 2	Not Present
- Reporting Range Constant	10 (5 dB)
- Cells forbidden to affect Reporting range	Not Present
- W	0 (0.0)
- Hysteresis	0 (0.0)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	Not Present
- Time to trigger	640
- Amount of reporting	Not Present
- Reporting interval	Not Present
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3

The contents of SIB12 in cell 1, and SIB11 and SIB12 in cell 2, cell 3 shall be in accordance with the default SIBs as specified in TS 34.108.

MEASUREMENT REPORT (Step 3)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 3 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	Cell 1. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 2. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 3. See Note 2
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1 and 2 may appear in any order.

NOTE 2: Cell measured results for cells 3 may or may not be present (depends upon the capability of the UE and test uncertainties in power level). If present it can appear in any order.

ACTIVE SET UPDATE (Step 4)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256	
New H-RNTI	'0101 0101 0101 0101'	
New Primary E-RNTI	'0101 0101 0101 0101'	
MIMO Parameters		
- MIMO Operation	Start	
- CHOICE mode	FDD	
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
- CHOICE Second CPICH pattern	Antenna1 S-CPICH	
- Channelisation code	13	
Radio link addition information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 2	
- Downlink F-DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- F-DPCH frame offset	Calculated value from Cell synchronisation information	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not present	
- Secondary scrambling code	Not present	
- Code number	F-DPCH code number as used in Cell1	
- TPC Combination Index	1	
- TFCI combining indicator	FALSE	
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Serving HS-DSCH cell information		
- Δ_{ACK}	Not Present	
- Δ_{NACK}	Not Present	
- HARQ_preamble_mode	0	
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not present	
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	6 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Octet Aligned	
- HARQ Info		
- Number of Processes	12	
- CHOICE *Memory Partitioning*	Implicit	
- MAC-hs reset indicator	TRUE	
E-DCH reconfiguration information		
- E-DCH RL Info new serving cell		
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- Serving Grant	Not Present	
- E-DPCCH/DPCCH power offset	Not Present	
- Reference E-TFCIs	Not Present	
- Power Offset for Scheduling Info	Not Present	

- 3-Index-Step Threshold	Not Present	
- 2-Index-Step Threshold	Not Present	
- E-HICH Information	Not Present	
- CHOICE E-RGCH Information		
- E-DCH RL Info other cells	Not Present	

UE CAPABILITY ENQUIRY (Steps 7, 20, 33)

Use the same message sub-type found in TS 34.108 clause 9.1

UE CAPABILITY INFORMATION (Steps 8, 21, 34)

Use the same message sub-type found in TS 34.108 clause 9.

UE CAPABILITY INFORMATION CONFIRM (Steps 9, 22, 35)

Use the same message sub-type found in TS 34.108 clause 9.1

MEASUREMENT REPORT (Step 11)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results list	
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	Cell 2. See Note 1
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	Cell 1. see Note 1
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	Cell 3. see Note 1
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- CHOICE event result	Intra-frequency measurement event results
- Intra-frequency event identity	1b
- Cell measurement event results	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1, 2 and 3 may appear in any order. Cell measured results for cells 1 and 3 may or may not be present (depends upon the capability of the UE and test uncertainties in power level)

ACTIVE SET UPDATE (Step 12)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
MIMO Parameters		
- MIMO Operation	Continue	
- CHOICE mode	FDD	
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
- CHOICE Second CPICH pattern	Antenna1 S-CPICH	
- Channelisation code	13	
Radio link removal information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 1	

MEASUREMENT REPORT (Step 16)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 3 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	Cell 2. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 3. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 1. See Note 2
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1, 2 and 3 may appear in any order. Cell measured result for cell 1 may or may not be present (depends upon the capability of the UE and test uncertainties in power level).

ACTIVE SET UPDATE (Step 17)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256	
New H-RNTI	'0101 0101 0101 0111'	
New Primary E-RNTI	'0101 0101 0101 0111'	
MIMO Parameters		
- MIMO Operation	Start	
- CHOICE mode	FDD	
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
- CHOICE Second CPICH pattern	Antenna1 S-CPICH	
- Channelisation code	13	
Radio link addition information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 3	
- Downlink F-DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- F-DPCH frame offset	Calculated value from Cell synchronisation information	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not present	
- Secondary scrambling code	Not present	
- Code number	F-DPCH code number as used in Cell1	
- TPC Combination Index	0	
- TFCI combining indicator	FALSE	
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Serving HS-DSCH cell information		
- Δ_{ACK}	Not Present	
- Δ_{NACK}	Not Present	
- HARQ_preamble_mode	0	
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 3	
- Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not present	
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	6 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
- Downlink 64QAM configured	TRUE	
- HS-DSCH TB size table	Not Present	
- HARQ Info		
- Number of Processes	12	
- CHOICE *Memory Partitioning*	Implicit	
- MAC-hs reset indicator	TRUE	
E-DCH reconfiguration information		
- E-DCH RL Info new serving cell		
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 3	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- Serving Grant	Not Present	
- E-DPCCH/DPCCH power offset	Not Present	
- Reference E-TFCIs	Not Present	
- Power Offset for Scheduling Info	Not Present	

- 3-Index-Step Threshold	Not Present	
- 2-Index-Step Threshold	Not Present	
- E-HICH Information	Not Present	
- CHOICE E-RGCH Information		
- E-DCH RL Info other cells	Not Present	

MEASUREMENT REPORT (Step 24)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results list	
- Cell measured results	Cell 3. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3(FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 1. see Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 2. see Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- CHOICE event result	Intra-frequency measurement event results
- Intra-frequency event identity	1b
- Cell measurement event results	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1, 2 and 3 may appear in any order. Cell measured results for cells 1 and 2 may or may not be present (depends upon the capability of the UE and test uncertainties in power level)

ACTIVE SET UPDATE (Step 25)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
MIMO Parameters		
- MIMO Operation	Continue	
- CHOICE mode	FDD	
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
- CHOICE Second CPICH pattern	Antenna1 S-CPICH	
- Channelisation code	13	
Radio link removal information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 2	

MEASUREMENT REPORT (Step 29)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 3 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	Cell 3. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 1. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 2. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1, 2 and 3 may appear in any order. Cell measured result for cell 2 may or may not be present (depends upon the capability of the UE and test uncertainties in power level).

ACTIVE SET UPDATE (Step 30)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256	
New H-RNTI	'0101 0101 0101 1101'	
New Primary E-RNTI	'0101 0101 0101 1101'	
Radio link addition information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 1	
- Downlink F-DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- F-DPCH frame offset	Calculated value from Cell synchronisation information	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not present	
- Secondary scrambling code	Not present	
- Code number	F-DPCH code number as used in Cell1	
- TPC Combination Index	1	
- TFCI combining indicator	FALSE	
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Serving HS-DSCH cell information		
- Δ_{ACK}	Not Present	
- Δ_{NACK}	Not Present	
- HARQ_preamble_mode	0	
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 1	
- Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not present	
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	6 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
- Downlink 64QAM configured	Not Present	
- HS-DSCH TB size table	Octet Aligned	
- HARQ Info		
- Number of Processes	6	
- CHOICE *Memory Partitioning*	Implicit	
- MAC-hs reset indicator	TRUE	
E-DCH reconfiguration information		
- E-DCH RL Info new serving cell		
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 1	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- Serving Grant	Not Present	
- E-DPCCH/DPCCH power offset	Not Present	
- Reference E-TFCIs	Not Present	
- Power Offset for Scheduling Info	Not Present	
- 3-Index-Step Threshold	Not Present	
- 2-Index-Step Threshold	Not Present	
- E-HICH Information	Not Present	
- CHOICE E-RGCH Information		
- E-DCH RL Info other cells	Not Present	

8.3.4.17.5 Test requirements

At steps 3, 11, 16, 24, 29 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

At steps 5, 13, 18 and 26, 31 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC to acknowledge the previous ACTIVE SET UPDATE and indicate readiness to accept the new configuration at activation time.

At step 8, 21, 34, the UE should transmit UE CAPABILITY INFORMATION on SRB2.

8.3.4.18 Test procedure for enhanced serving HS-DSCH cell change: serving HS-DSCH / E-DCH cell change, with discontinuous uplink transmission and downlink reception

8.3.4.18.1 Definition and applicability

All UEs which support FDD,UL DTX,DPCCH Discontinuous Transmission and Target Cell Pre-Configuration.

8.3.4.18.2 Conformance requirement

For the measurement, which triggered the MEASUREMENT REPORT message, the UE shall:

1> if the measurement report is triggered by intra frequency event 1d and the table "Target cell preconfigurations" in the variable TARGET_CELL_PRECONFIGURATION includes the Radio link that triggered the event:

2> if an "Activation time offset" different from 0 is configured for the target cell, include the IE "Activation time" in MEASUREMENT REPORT message. The Activation time shall be calculated by adding the Activation time offset to the current CFN:

3> start continuous monitoring of target cell HS-SCCH indexed as number 1 in IE "Serving HS-DSCH cell information" in the stored configuration;

3> stop monitoring target cell HS-SCCH at Activation time.

2> else:

3> start if not running, or restart if running, timer T324;

3> start continuous monitoring of target cell HS-SCCH indexed as number 1 in IE "Serving HS-DSCH cell information" in the stored configuration until the expiry of timer T324.

Upon reception of an ACTIVE SET UPDATE message the UE shall act upon all received information elements as specified in 8.6, unless specified otherwise in the following.

The UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

The UE shall:

1> first add the RLs indicated in the IE "Radio Link Addition Information";

…

1> transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC without waiting for the completion of the Physical Layer synchronisation B, as specified in TS 25.214;

1> the procedure ends on the UE side.

…

1> if any of the IEs "DTX-DRX timing information" or "DTX-DRX information" are stored in the UE:

2> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

…

If the UE receives RRC CONNECTION SETUP, ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> the UE shall determine the value for the DTX_DRX_STATUS variable.

The variable DTX_DRX_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> both variables HS_DSCH RECEPTION and E_DCH_TRANSMISSION are set to TRUE;

1> no DCH transport channel is configured;

1> the variable DTX_DRX_PARAMS is set;

1> the UE has received the IE "DTX-DRX timing information".

If any of the above conditions is not met and the variable DTX_DRX_STATUS is set to TRUE, the UE shall:

1> set the variable DTX_DRX_STATUS to FALSE;

1> clear the variable DTX_DRX_PARAMS;

1> stop DTX-DRX mode related activities.

If variable DTX_DRX_STATUS is set to true and the serving HS-DSCH cell was changed as a result of the received message the UE shall instruct the physical layer to consider HS-SCCH orders were never received.

Whenever the variable DTX_DRX_STATUS is set to TRUE after receiving this message and the value of IE "DTX-DRX timing information" included in this message is not "Continue", the UE shall:

1> if the variable DTX_DRX_STATUS was set to TRUE before receiving this message:

2> re-configure the physical layer to perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration;

2> let the MAC layer continue with the current restriction on E-DCH transmission and monitoring of absolute and relative grant channels from the frame boundary where the uplink transmission starts with the new configuration and for the duration of the IE "Enabling Delay".

1> else:

2> perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations by configuring the physical layer according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration.

1> configure the MAC layer to start restricting E-DCH transmissions and monitor absolute and relative grant channels at the CFN corresponding to the frame boundary that is offset by the value of IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration taking into account the IEs "UE DTX DRX Offset", "MAC DTX Cycle", "MAC Inactivity Threshold" and "Inactivity Threshold for UE Grant Monitoring".

…

If the IE "DTX-DRX timing information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the CHOICE "timing" is set to "New timing":

2> use the newly received DTX-DRX timing configuration.

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

…

If the IE "DTX–DRX information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the contents of the IE in the variable DTX_DRX_PARAMS;

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34;

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple of the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple or a divisor of the value of the IE "CQI Feedback cycle, k"; or

1> if the value of the IE "UE DPCCH burst 1" is greater than the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DPCCH burst 2" is greater than the value of the IE "UE DTX cycle 2"; or

1> if the IE "UE DTX long preamble length" is set to 4 or 15 slots and the value of the IE "Inactivity Threshold for UE DTX cycle 2" is less than 4 TTIs (for 10ms E-DCH TTI) or 8 TTIs (for 2ms E-DCH TTI); or

1> if the IE "UE DRX cycle" is not an integer multiple or a divisor of the value of the IE "UE DTX cycle 1"; or

1> if the IE "DRX Information" is included in this message while the IE "DTX information" is not included in this message; or

1> if the value of the IE "UE DTX cycle 1" is not an integer multiple or a divisor of the value of the IE "MAC DTX cycle":

2> the UE behaviour is unspecified.

Reference

3GPP TS 25.331 clause 8.4.22

3GPP TS 25.331 clause 8.2.2.3, 8.3.4, 8.5.34, 8.6.6.38, 8.6.6.39

8.3.4.18.3 Test purpose

1. To confirm that the UE performs continuously monitoring on HS-SCCH when performing serving HS-DSCH cell change with target cell pre-configuration, with discontinuous uplink transmission and downlink reception according to the received ACTIVE SET UPDATE message.

2. To confirm that the UE performs discontinuous uplink DPCCH transmission and downlink reception according to the IE “Target cell preconfiguration information” within new cell after enhanced serving HS-DSCH cell change.

8.3.4.18.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and cell 2 are active

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A20, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD

- UE supports DPCCH Discontinuous Transmission
- UE supports target cell preconfiguration

Test Procedure

Table 8.3.4.18

Parameter	Unit	Cell 1			Cell 2		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			Mid Range Test Frequency		
CPICH Ec	dBm/3.84MHz	-60	-60	-70	-70	-60	-60

Table 8.3.4.18 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The downlink transmission power is set according to values in column “T0” in table 8.3.4.18. The UE has a radio bearer mapped to the E-DCH/HS-DSCH and the signalling radio bearers mapped on E-DCH/HS-DSCH in cell 1.

The SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.18. The UE transmits a MEASUREMENT REPORT message, which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity" set to 1a.

The SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC which adds a second radio link in cell 2 with preconfiguration and DTX-DRX information for cell 1. The SS sets the IE “Activation Time offset” to 4, which indicates to UE the enhanced serving HS-DSCH cell change is a synchronized handover procedure. When the UE receives this message, the UE shall configure layer 1 to begin E-DCH transmission, with UL DPCCH discontinuous transmission. Cell 1 shall be kept as the serving HS-DSCH cell. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

The SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.18. The SS sends a MEASUREMENT CONTROL message to the UE configuring event 1D “Change of best cell”, and the UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 according to IE “Intra-frequency event identity” set to 1d. UE shall calculate “Activation Time” according to “Activation Time offset” in ACTIVE SET UPDATE message, and include the “Activation Time” in MEASUREMNT REPORT message.

The SS shall not send any HSDPA data on cell 1 after the start of T2. During time period T2 UTRAN shall send an HS-SCCH order on HS-SCCH-1 from cell 2 implying enhanced serving HS-DSCH from cell 1 to cell 2.

UE shall exit discontinuous uplink transmission and downlink reception state in cell 1, and start continuous monitoring of HS-SCCH order on HS-SCCH-1 from cell 2 until the expiry of Activation Time.

When UE has received the HS-SCCH order successfully from cell 2, the UE shall configure layer 1 to begin E-DCH transmission, with UL DPCCH discontinuous transmission, using the new radio link in cell 2. The UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used.

The SS shall transmit a UE CAPABILITY ENQUIRY message to confirm that the UE can respond this message through the E-DCH in cell 1 and cell 2. The UE shall transmit a UE CAPABILITY ENQUIRY INFORMATION message. Then SS transmits a UE CAPABILITY INFORMATION CONFIRM message.

SS calls for generic procedure C.3 to check that the UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	SS			SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.18
2	→		MEASUREMENT REPORT	See specific message contents for this message (event '1a' for cell 2)
3	←		ACTIVE SET UPDATE	The SS instructs the UE to start discontinuous uplink transmission with DTX-DRX information in cell 1. The SS instructs the UE to add cell 2 in the active set, and perform a preconfiguration to cell 2
4	→		ACTIVE SET UPDATE COMPLETE	The UE adds the radio link cell 2 and performs a preconfiguration to cell 2. The UE performs discontinuous uplink transmission in cell 1. SS receives this message from cell 2.
5	SS			SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.18
6	←		MEASUREMENT CONTROL	Configure event 1D "Change of best cell"
7	→		MEASUREMENT REPORT	See specific message contents for this message (event '1d' for cell 2)
8	←		HS-SCCH order	SS shall send an HS-SCCH order from cell 2 implying enhanced serving HS-DSCH from cell 1 to cell 2.
9	SS			At the activation time, the SS changes the serving E-DCH and HS-DSCH radio link to cell 2.
10	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	At the activation time, the UE performs a serving E-DCH and HS-DSCH cell change to cell 2 with discontinuous transmission. SS receives this message from cell 2.
11	SS			The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used (i.e. duration of 10 consecutive DTX cycle 2).
12				SS is reconfigured to listen on cell 2
13	←		UE CAPABILITY ENQUIRY	
14	→		UE CAPABILITY INFORMATION	SS receives this message from cell 2
15	←		UE CAPABILITY INFORMATION CONFIRM	
16	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

MEASUREMENT REPORT (Step 2)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE message (Step 3)

The message to be used in this test is defined in TS 34.108, clause 9, with the following exceptions:

Information Element/Group name	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
-Integrity protection mode info	Not Present
-Ciphering mode info	Not Present
-Activation time	"now".
-New U-RNTI	Not Present
CN information elements	
-CN Information info	Not Present
Phy CH information elements	
-DTX-DRX timing information	
-CHOICE *timing*	
- New timing	
- Enabling Delay	0 if 2ms TTI selected, otherwise 16
- UE DTX DRX Offset	1 if 2ms TTI selected, otherwise 0
-DTX-DRX Information	
-DTX information	
- CHOICE *E-DCH TTI length*	Unless stated otherwise, this should be set to 2ms if the UE supports 2ms TTI, or 10ms if the UE does not support 2ms TTI.
- UE DTX cycle 1	8 if 2ms TTI selected, otherwise 10
- UE DTX cycle 2	16 if 2ms TTI selected, otherwise 20
- MAC DTX cycle	8 if 2ms TTI selected, otherwise 10
- Inactivity Threshold for UE DTX cycle 2	32 if 2ms TTI selected, otherwise 8
- UE DTX long preamble length	4
- MAC Inactivity Threshold	1 if 2ms TTI selected, otherwise 8
- CQI DTX Timer	32
- UE DPCCH burst_1	1
- UE DPCCH burst_2	1
-DRX Information	
- UE DRX cycle	8 if 2ms TTI selected, otherwise 10
- Inactivity Threshold for UE DRX cycle	32
- Inactivity Threshold for UE Grant	32 if 2ms TTI selected, otherwise 8
Monitoring	
Uplink radio resources	
-Maximum allowed UL TX power	33 dBm
Downlink radio resources	
-Radio link addition information	Radio link addition information required for each RL to add
-Primary CPICH info	Same as defined in cell2
-Downlink DPCH info for each RL	
-CHOICE *mode*	
-FDD	
-Primary CPICH usage for channel estimation	Primary CPICH may be used
-DPCH frame offset	This should be reflected by the IE" Cell synchronisation information" in received MEASUREMENT REPORT message
-Secondary CPICH info	Not Present
-DL channelisation code	
-Secondary scrambling code	Not Present
-Spreading factor	128
-Code number	96
-Scrambling code change	No code change
-TPC combination index	0
-Closed loop timing adjustment mode	Not Present
-TFCI combining indicator	FALSE
-SCCPCH Information for FACH	Not Present
-Target cell preconfiguration information	Target cell preconfiguration information required
-Activation Time offset	4
-New H-RNTI	'0101 0101 0101 0101'

Information Element/Group name	Value/Remark
-New Primary E-RNTI	'0101 0101 0101 0111'
-New Secondary E-RNTI	Not Present
Serving Cell Change Parameters	
- Serving Cell Change MAC reset	TRUE
- Serving Cell Change Message Type	PHYSICAL CHANNEL RECONFIGURATION
- Serving Cell Change Transaction Id	0
-Serving HS-DSCH cell information	
-Δ_{ACK}	3
-Δ_{NACK}	3
-HARQ_preamble_mode	0
-Primary CPICH info	0
-Downlink HS-PDSCH Information	
- HS-SCCH Info	
- Measurement Feedback Info	
- CHOICE mode	
FDD	
- Downlink 64QAM configured	FALSE
- HS-DSCH TB size table	FALSE
- HARQ Info	
- Number of Processes	6
- CHOICE *Memory Partitioning*	Implicit
- MAC-hs reset indicator	FALSE
-E-DCH reconfiguration information	
- E-DCH RL Info new serving cell	
- Primary CPICH info	
- Primary Scrambling Code	Set to the primary scrambling code of cell 2
- E-AGCH Info	
- E-AGCH Channelisation Code	10
- Serving Grant	Not Present
- E-DPCCH/DPCCH power offset	Not Present
- Reference E-TFCIs	Not present
- Power Offset for Scheduling Info	Not Present
- 3-Index-Step Threshold	Not Present
- 2-Index-Step Threshold	Not Present
- E-HICH Information	Not Present
- CHOICE E-RGCH Information	Not Present
- E-DCH RL Info other cells	Not Present
-DTX-DRX timing information	
-CHOICE *timing*	
- New timing	
- Enabling Delay	0 if 2ms TTI selected, otherwise 16
- UE DTX DRX Offset	1 if 2ms TTI selected, otherwise 0
-DTX-DRX Information	
-DTX information	
- CHOICE *E-DCH TTI length*	Unless stated otherwise, this should be set to 2ms if the UE supports 2ms TTI, or 10ms if the UE does not support 2ms TTI.
- UE DTX cycle 1	8 if 2ms TTI selected, otherwise 10
- UE DTX cycle 2	16 if 2ms TTI selected, otherwise 20
- MAC DTX cycle	8 if 2ms TTI selected, otherwise 10
- Inactivity Threshold for UE DTX cycle 2	32 if 2ms TTI selected, otherwise 8
- UE DTX long preamble length	4
- MAC Inactivity Threshold	1 if 2ms TTI selected, otherwise 8
- CQI DTX Timer	32
- UE DPCCH burst_1	1
- UE DPCCH burst_2	1
-DRX Information	
- UE DRX cycle	8 if 2ms TTI selected, otherwise 10
- Inactivity Threshold for UE DRX cycle	32
- Inactivity Threshold for UE Grant Monitoring	32 if 2ms TTI selected, otherwise 8
-HS-SCCH less Information	Not Present
-MIMO parameters	Not Present
- Downlink secondary cell info FDD	Not Present
Radio link removal information	Radio link removal information required for each RL to remove
-Radio link removal information	Not Present
-TX Diversity Mode	None

MEASUREMENT CONTROL (Step 6)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	2
Measurement command	Setup
- CHOICE measurement type	Intra-frequency measurement
- Intra frequency cell info list	Not present
- Intra-frequency measurement quantity	
- Filter coefficient	3
- CHOICE mode	FDD
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/N0 reporting indicator	TRUE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not Present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1D
- Triggering condition 2	Active set cells
- Hysteresis	8 (4 dB)
- Time to trigger	20 mSec
- Reporting cell status	
- CHOICE reported cell	Report cells within active set
- Maximum number of reported cells	3
- Use CIO	FALSE
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 7)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Activation time	Checked that this IE is present
Measurement identity	2
Measured results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- DeltaRSCP	Not checked
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- DeltaRSCP	Not checked
- Pathloss	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	Check to see if set to "Intra-frequency event results"
- Event ID	Check to see if set to "1D"
- Cell measurement event results	
- Primary scrambling code	Check to see if set to "Primary scrambling code of Cell 2"

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Step 10)

Use the same message sub-type found in TS 34.108 clause 9.1

UE CAPABILITY ENQUIRY (Step 13)

Use the same message sub-type found in TS 34.108 clause 9.1

UE CAPABILITY INFORMATION (Step 14)

Use the same message sub-type found in TS 34.108 clause 9.1

UE CAPABILITY INFORMATION CONFIRM (Step 15)

Use the same message sub-type found in TS 34.108 clause 9.1

8.3.4.18.5 Test requirement

After step 2 the UE shall transmit a MEASUREMENT REPORT message with event 1A.

After step 4 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message.

After step 7 the UE shall transmit a MEASUREMENT REPORT message with event 1D.

After step 10 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

At step 11 the time between 11 consecutive CQI indications shall be 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used.

8.3.4.19 Active set update: Dual Cell (DC) and MIMO Activation by Serving Cell Change from non-DC-HSDPA capable cell to DC-HSDPA capable cell

8.3.4.19.1 Definition and applicability

All UE categories which support Dual Cell HSDPA and MIMO. UE supports F-DPCH or Enhanced F-DPCH.

8.3.4.19.2 Conformance requirement

The purpose of the active set update procedure is to update the active set of the connection between the UE and UTRAN. This procedure shall be used in CELL_DCH state. The UE should keep on using the old RLs while configuring the new RLs. Also the UE should keep the transmitter turned on during the procedure. This procedure is only used in FDD mode.

[…]

The procedure is initiated when UTRAN orders a UE in CELL_DCH state, to make the following modifications of the active set of the connection:

a) Radio link addition;

b) Radio link removal;

c) Combined radio link addition and removal;

d) Addition of a radio link to the E-DCH active set;

e) Removal of a radio link from the E-DCH active set.

The procedure also allows the addition or removal of a radio link on a secondary serving HS-DSCH cell. Radio links on the secondary serving HS-DSCH cell are not part of the active set.

In case a) and c), UTRAN should:

1> prepare new additional radio link(s) in the UTRAN prior to the command to the UE.

In all cases, UTRAN should:

1> send an ACTIVE SET UPDATE message on downlink DCCH using AM or UM RLC;

1> create active sets that contain at least one common radio link across a DPCH or F-DPCH frame boundary as the result of one or multiple (parallel) active set update procedures.

UTRAN should include the following information:

1> IE "Radio Link Addition Information": Downlink DPCH information and other optional parameters relevant for the radio links to be added along with the IE "Primary CPICH info" used for the reference ID to indicate which radio link to add. This IE is needed in cases a) and c) listed above;

1> IE "Downlink Secondary Cell Info FDD": Downlink optional parameters relevant to reception of secondary serving HS-DSCH cell;

1> IE "Radio Link Removal Information": IE "Primary CPICH info" used for the reference ID to indicate which radio link to remove. This IE is needed in cases b) and c) listed above;

1> IE "E-DCH reconfiguration information": IE "Primary CPICH info" used for the reference ID along with the IE "E-HICH information" to indicate which radio link to add to the E-DCH active set. This IE is needed in case d) above, when the RL added to the E-DCH active set is already in the DCH active set;

1> IE "E-DCH reconfiguration information": IE "Primary CPICH info" used for the reference ID along with the IE "E-HICH release indicator" to indicate which radio link to remove from the E-DCH active set. This IE is needed in case e) above, when the RL removed from the E-DCH active set remains in the DCH active set.

[…]

Upon reception of an ACTIVE SET UPDATE message the UE shall act upon all received information elements as specified in 8.6, unless specified otherwise in the following.

The UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

The UE shall:

1> first add the RLs indicated in the IE "Radio Link Addition Information";

1> remove the RLs indicated in the IE "Radio Link Removal Information". If the UE active set is full or becomes full, an RL, which is included in the IE "Radio Link Removal Information" for removal, shall be removed before adding RL, which is included in the IE "Radio Link Addition Information" for addition;

[…]

1> if "Serving HS-DSCH cell information" IE is present, act on received information elements as specified in subclause 8.6:

2> if the IEs "Δ_{ACK}", "Δ_{NACK}", and "HARQ_preamble_mode" are present, act on the received information elements;

2> if the new H-RNTI and "Primary CPICH info" are included:

3> consider the cell indicated in Primary CPICH as serving HS-DSCH cell and no longer consider any other radio link as serving HS-DSCH cell. If the IE "Downlink Secondary Cell Info FDD" is included for a cell associated with the serving HS-DSCH cell, consider that cell a secondary serving HS-DSCH cell.

2> if the IE "MAC-hs reset indicator" is included:

3> reset the MAC-hs/ehs entity [15].

2> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> if the IE "MIMO parameters" is not included:

2> clear the MIMO_PARAMS variable;

2> trigger lower layers to stop operation in MIMO mode.

1> otherwise:

2> for FDD, if the IE "MIMO N_cqi_typeA/M_cqi ratio" is included:

3> store the value of the IE "MIMO N_cqi_typeA/M_cqi ratio" in the MIMO_PARAMS variable.

2> for FDD, if the IE "MIMO pilot configuration" is included:

3> store the value of the IE "MIMO pilot configuration" in the MIMO_PARAMS variable.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message, the UE shall:

1> take actions related to the MIMO_PARAMS variable as specified in subclause 8.5.32;

1> determine the value of the MIMO_STATUS variable.

The MIMO_STATUS variable shall be set to TRUE only when all the following conditions are met:

1> The UE is in CELL_DCH state;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO N_cqi_typeA/M_cqi ratio"; and

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO pilot configuration".

1> for 1.28 Mcps TDD, the variable MIMO_PARAMS contains a value for the IE "MIMO SF Mode for HS-PDSCH dual stream".

If any of the above conditions is not met and the MIMO_STATUS variable is set to TRUE, the UE shall:

1> set the MIMO_STATUS variable to FALSE;

1> clear the MIMO_PARAMS variable;

1> trigger lower layers to stop operation in MIMO mode.

[…]

With the exception of the provisions of subclause 6A.3, the following shall apply when the UE is configured in MIMO mode:

1) The UE derives the PCI value as defined in subclause 6A.4 and either a type A or a type B CQI value as defined in subclause 6A.2.2 depending on which type of CQI shall be reported as defined below.

[…]

An entry in the variable SECONDARY_CELL_HS_DSCH_RECEPTION shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the corresponding IE "Downlink Secondary Cell Info FDD" is included;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

[…]

If any of the above conditions is not met for a secondary serving HS-DSCH cell, and the corresponding entry in the variable SECONDARY_CELL_HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the corresponding entry in the variable SECONDARY_CELL_HS_DSCH_RECEPTION to FALSE;

1> clear the corresponding entry in the variable DOWNLINK_SECONDARY_CELL_INFO;

1> flush the HARQ buffers of the HARQ entity associated to that secondary serving HS-DSCH cell;

1> release the HARQ resources associated to that secondary serving HS-DSCH cell.

If there is at least one entry in the variable SECONDARY_CELL_HS_DSCH_RECEPTION set to TRUE, the UE shall:

1> apply the i-th entry in the variables DOWNLINK_SECONDARY_CELL_INFO, SECONDARY_CELL_HS_DSCH_RECEPTION, and SECONDARY_CELL_MIMO_STATUS to the i-th secondary serving HS-DSCH cell.

[…]

For each entry in the variable SECONDARY_CELL_HS_DSCH_RECEPTION which is set to TRUE, the UE shall:

1> receive the HS-SCCH(s) according to the corresponding IE "Downlink Secondary Cell Info FDD" on the serving HS-DSCH radio link applying the scrambling code as received in the corresponding IE "DL Scrambling code";

1> perform HS-DSCH reception procedures for the corresponding secondary serving HS-DSCH cell according to the stored HS-PDSCH configuration as stated in:

[…]

Whenever any entry in the variable SECONDARY_CELL_HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS-SCCH reception procedures on the corresponding secondary serving HS-DSCH cell;

1> determine the value for the SECONDARY_CELL_E_DCH_TRANSMISSION and take the corresponding actions as described in subclause 8.5.58.

If any entry in the variable SECONDARY_CELL_HS_DSCH_RECEPTION is set to TRUE and the serving HS-DSCH cell was changed as a result of the received message or HS-SCCH order from the target cell, the UE shall instruct the physical layer to consider that the HS-SCCH orders from the serving cell were never received.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message which includes the IE "Downlink secondary cell info FDD" for any of the secondary serving HS-DSCH cells, the UE shall:

1> if the IE "Secondary cell MIMO parameters" is not included in the IE "Downlink secondary cell info FDD":

2> clear the corresponding entry in the SECONDARY_CELL_MIMO_PARAMS variable;

1> if the CHOICE "Configuration Info" in the IE "Secondary cell MIMO parameters" has the value "Continue":

2> continue using the stored parameters in the corresponding entry in the SECONDARY_CELL_MIMO_PARAMS variable;

1> otherwise:

2> if the IE "MIMO N_cqi_typeA/M_cqi ratio" is included:

3> store the value of the IE "MIMO N_cqi_typeA/M_cqi ratio" in the corresponding entry in the SECONDARY_CELL_MIMO_PARAMS variable.

2> if the IE "MIMO pilot configuration" is included:

3> store the value of the IE "MIMO pilot configuration" in the corresponding entry in the SECONDARY_CELL_MIMO_PARAMS variable.

1> determine the value of the SECONDARY_CELL_MIMO_STATUS variable for the corresponding HS-DSCH serving cell.

The SECONDARY_CELL_MIMO_STATUS variable shall be set to TRUE for a secondary HS-DSCH serving cell only when all the following conditions are met:

1> The UE is in CELL_DCH state;

1> the variable SECONDARY_CELL_HS_DSCH_RECEPTION is set to TRUE for that secondary HS-DSCH serving cell;

1> if the UE does not support MIMO only with single stream restriction, the corresponding entry in the variable SECONDARY_CELL_MIMO_PARAMS contains a value for the IE "MIMO N_cqi_typeA/M_cqi ratio"; and

1> the corresponding entry in the variable SECONDARY_CELL_MIMO_PARAMS contains a value for the IE "MIMO pilot configuration".

If any of the above conditions is not met and the SECONDARY_CELL_MIMO_STATUS variable is set to TRUE for that secondary HS-DSCH serving cell, the UE shall:

1> set the entry in the SECONDARY_CELL_MIMO_STATUS variable corresponding to that secondary HS-DSCH serving cell to FALSE;

1> clear the entry in the SECONDARY_CELL_MIMO_PARAMS variable corresponding to that secondary HS-DSCH serving cell;

1> trigger lower layers to stop MIMO operation on that secondary serving HS-DSCH cell.

Whenever the entry in the variable SECONDARY_CELL_HS_DSCH_RECEPTION is set to TRUE for a secondary HS-DSCH serving cell, the UE shall:

1> if the UE supports MIMO only with single stream restriction (FDD only):

2> indicate to lower layers to start operation in MIMO mode restricted to single stream transmission on that secondary serving HS-DSCH cell, using the parameter values stored in the corresponding entry in the variable SECONDARY_CELL_MIMO_PARAMS.

1> else:

2> indicate to lower layers to start operation in MIMO mode on that secondary serving HS-DSCH cell, using the parameter values stored in the corresponding entry in the variable SECONDARY_CELL_MIMO_PARAMS.

1> for FDD, when MIMO only with single stream restriction is configured:

2> if MAC-ehs is not configured:

2> the UE behaviour is undefined.

Reference

3GPP TS 25.331 clause 8.3.4.2, 8.3.4.3, 8.5.32, 8.5.33, 8.5.51, 8.5.57

8.3.4.19.3 Test purpose

To confirm that the UE performs HS-DSCH serving cell change and start MIMO reception from non DC-HSDPA and non MIMO capable cell to DC-HSDPA and MIMO capable cell.

8.3.4.19.4 Method of test

Initial Condition

System Simulator: 3 cells – Cell 1: non DC-HSDPA and non MIMO cell, Cell 2/3: DC-HSDPA and MIMO configured cell(s) with cell 2 (Primary Carrier) and Cell 3 (Secondary Carrier).

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-17) under condition A17b, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE category supports combined DC HSDPA and MIMO
- UE supports F-DPCH or Enhanced F-DPCH

Test Procedure

Table 8.3.4.19-1

Cell	UTRA RF Channel Number
Cell 1	Mid Range Test Frequency
Cell (2,3)	Mid Range Test Frequency(see Note1)
Note 1: DC HSDPA Cell test frequencies are specified in [9] cl 5.1.1 for the operating band under test. For the secondary Cell 3 no other common physical channel other than CPICH shall be configured [5] cl. 4.2.4. The SFN and Tcell of the secondary cell are the same as the serving cell [29] cl. 7.1.	

Table 8.3.4.19-2

		Time	
Parameter	Unit	T0	T1
Cell 1 CPICH Ec	dBm/3.84MHz	-60	-70
Cell (2,3) CPICH Ec	dBm/3.84MHz	-70	-60

Table 8.3.4.17 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution.

Note that Cell 2 and Cell 3 are combined DC HSDPA and MIMO Cells with Cell 2 configured as the primary carrier and Cell 3 configured as the secondary cell (definition according to TS 25.825 section 4.2.1).

The downlink transmission power is set according to values in column “T0” in table 8.3.4.19-2. The UE has user plane bearers and signalling bearers mapped on E-DCH/HS-DSCH in cell 1.

The SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.19-2. The UE transmits a MEASUREMENT REPORT message, which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity" set to ‘1a’ in SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC which adds a second radio link in cell 2, changes the E-DCH and HS-DSCH serving cell to cell 2 and includes Downlink Secondary Cell 3 parameters and MIMO configuration. When UE receive this message, the UE shall configure layer 1 to begin reception E-DCH transmission, HS-DSCH reception and MIMO reception using the new radio links on Anchor Carrier Cell 2 and Secondary Carrier Cell 3. The UE shall respond with ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC. SS checks that this RRC messages is received on Anchor Carrier Cell 2.

To check that the UE has performed serving cell change to DC HSDPA Cell, SS monitors for CQI reports on HS-DPCCH received from UE on Cell 2 and Cell 3.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←			UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) according to clause 7.4.
2				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.19-2.
3	→		MEASUREMENT REPORT	See specific message contents for this message (event '1a' for cell 2).
4	←		ACTIVE SET UPDATE	SS transmits this message in cell 1 on downlink DCCH using AM RLC. The RRC message instructs the UE to add dual HSDPA Cell 2 and 3 to the active set and perform a serving E-DCH and HS-DSCH Cell change to the DC-HSDPA. Valid MIMO parameters are specified.
5	→		ACTIVE SET UPDATE COMPLETE	The UE shall configure a new radio link for DC HSDPA cell and active HS-DSCH and MIMO reception from Cells 2 and 3.
6	SS			At the activation time DC-HSDPA and MIMO are configured, Cell 2 becomes the serving E-DCH /HS-DSCH Cell and Cell 3 the secondary cell.
7	SS			SS starts monitoring CQI reports on HS-DPCCH received from the UE on Primary Cell 2 and Secondary Cell 3. SS waits for 10 CQI reports.

Specific Message Content

MEASUREMENT REPORT (Step 3)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	Cell 1. See Note 2
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 2. See Note 2
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

NOTE 2: Cell measured results for cells 1 and 2 may appear in any order.

ACTIVE SET UPDATE (Step 4)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256	
New H-RNTI	'0101 0101 0101 0101'	
New Primary E-RNTI	'0101 0101 0101 0101'	
MIMO Parameters		
- MIMO Operation	Start	
- CHOICE mode	FDD	
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
- CHOICE Second CPICH pattern	Antenna1 S-CPICH	
- Channelisation code	13	

Radio link addition information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 2	
- Downlink F-DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- F-DPCH frame offset	Calculated value from Cell synchronisation information	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not present	
- Secondary scrambling code	Not present1	
- Code number	F-DPCH code number as used in Cell1	
- TPC Combination Index	1	
- TFCI combining indicator	FALSE	
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Serving HS-DSCH cell information		
- Δ_{ACK}	Not Present	
- Δ_{NACK}	Not Present	
- HARQ_preamble_mode	0	
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not present	
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Pohsdsch	6 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
- Downlink 64QAM configured	Not Present	
- HS-DSCH TB size table	Octet Aligned	
- HARQ Info		
- Number of Processes	Reference to TS 34.108 clause 6.10.2.4.5 Parameter Set	
- CHOICE *Memory Partitioning*	Implicit	
- MAC-hs reset indicator	TRUE	
E-DCH reconfiguration information		
- E-DCH RL Info new serving cell		
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- Serving Grant	Not Present	
- E-DPCCH/DPCCH power offset	Not Present	
- Reference E-TFCIs	2 E-TFCIs	
- Reference E-TFCI	11	
- Reference E-TFCI PO	4	
- Reference E-TFCI	83	
- Reference E-TFCI PO	16	
- Power Offset for Scheduling Info	Not Present	
- 3-Index-Step Threshold	Not Present	
- 2-Index-Step Threshold	Not Present	
- E-HICH Information		
- CHOICE mode	FDD	
- Channelisation Code	4	
- Signature Sequence	1	

- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
- E-DCH RL Info other cells	Not Present	
Downlink secondary cell info FDD		
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	Not Present	
- HS-DSCH TB size table	Octet aligned	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 3	
- DL Scrambling Code	Not Present. Mandatory default implies same scrambling code as for the primary CPICH	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies. Note that for the secondary cell the UARFCN is a positive offset of 25 from the UARFCN of the test frequency of the primary cell which equates to 5MHz channel spacing	
-Secondary cell MIMO parameters		
- CHOICE Configuration info	New configuration	
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
- CHOICE Second CPICH pattern	Antenna1 S-CPICH	
- Channelisation code	13	

8.3.4.19.5 Test requirements

At step 3 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

At step 5 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC to acknowledge the completion of the active set addition procedure, the change of serving cell to combined DC HSDPA and MIMO.

At step 7 the UE shall on each stream on both Cell 2 and Cell 3 transmit CQI reports.

8.3.4.19a Void

8.3.4.20 Active set update in soft handover: Radio Link addition/removal on the secondary E-DCH active set

8.3.4.20.1 Definition and applicability

All UE categories which support Dual Cell HSUPA operation. UE supports F-DPCH or Enhanced F-DPCH. UE supports FDD E-DCH category 8 or 9.

8.3.4.20.2 Conformance requirement

The purpose of the active set update procedure is to update the active set of the connection between the UE and UTRAN. This procedure shall be used in CELL_DCH state. The UE should keep on using the old RLs while configuring the new RLs. Also the UE should keep the transmitter turned on during the procedure. This procedure is only used in FDD mode.

…

The procedure is initiated when UTRAN orders a UE in CELL_DCH state, to make the following modifications of the active set of the connection:

a) Radio link addition to the active set;

b) Radio link removal from the active set;

c) Combined radio link addition and removal on the active set;

d) Addition of a radio link to the E-DCH active set;

e) Removal of a radio link from the E-DCH active set.

f) Radio link addition to the secondary E-DCH active set;

g) Radio link removal from the secondary E-DCH active set;

h) Combined radio link addition and removal on the secondary E-DCH active set;

The procedure also allows the addition or removal of a radio link on the downlink frequencies associated with the secondary serving HS-DSCH cells. If the UE is not operating in Dual Cell E-DCH operation, radio links on the downlink frequencies associated with the secondary serving HS-DSCH cells are not part of the active set. Otherwise, radio links on the frequency associated with the first secondary serving HS-DSCH cell, are part of the secondary E-DCH active set.

Additionally, the procedure also allows the update of Target cell preconfiguration information for existing radio link(s).

In case a), c), f) and h), UTRAN should:

1> prepare new additional radio link(s) in the UTRAN prior to the command to the UE.

In case a), b), c), d) and e), UTRAN should:

1> send an ACTIVE SET UPDATE message on downlink DCCH using AM or UM RLC;

1> create active sets that contain at least one common radio link across a DPCH or F-DPCH frame boundary as the result of one or multiple (parallel) active set update procedures.

In case f), g) and h), UTRAN should:

1> send an ACTIVE SET UPDATE message on downlink DCCH using AM or UM RLC;

1> create secondary E-DCH active sets that contain at least one common radio link across a F-DPCH frame boundary as the result of one or multiple (parallel) active set update procedures.

UTRAN should include the following information:

1> IE "Radio Link Addition Information": Downlink DPCH information and other optional parameters relevant for the radio links to be added along with the IE "Primary CPICH info" used for the reference ID to indicate which radio link to add. This IE is needed in cases a) and c) listed above;

1> IEs "Downlink Secondary Cell Info FDD": Downlink optional parameters relevant to the reception of secondary serving HS-DSCH cells;

1> IE "Uplink Secondary Cell Info FDD": Uplink optional parameters relevant to transmission on secondary uplink frequency;

1> IE "Radio Link Removal Information": IE "Primary CPICH info" used for the reference ID to indicate which radio link to remove. This IE is needed in cases b) and c) listed above;

1> IE "Radio link addition information on secondary UL frequency": Downlink F-DPCH information and other optional parameters relevant for the radio links to be added along with the IE "Primary CPICH info" used for the reference ID to indicate which radio link to add on the secondary uplink frequency. This IE is needed in cases f) and h) listed above;

1> IE "Radio link removal information on secondary UL frequency": IE "Primary CPICH info" used for the reference ID to indicate which radio link to remove on the secondary uplink frequency. This IE is needed in cases g) and h) listed above;

1> IE "E-DCH reconfiguration information": IE "Primary CPICH info" used for the reference ID along with the IE "E-HICH information" to indicate which radio link to add to the E-DCH active set. This IE is needed in case d) above, when the RL added to the E-DCH active set is already in the DCH active set;

1> IE "E-DCH reconfiguration information": IE "Primary CPICH info" used for the reference ID along with the IE "E-HICH release indicator" to indicate which radio link to remove from the E-DCH active set. This IE is needed in case e) above, when the RL removed from the E-DCH active set remains in the DCH active set.

…

Upon reception of an ACTIVE SET UPDATE message the UE shall act upon all received information elements as specified in 8.6, unless specified otherwise in the following.

The UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

The UE shall:

1> first add the RLs indicated in the IE "Radio Link Addition Information" which are not yet contained in the UEs active set;

1> remove the RLs indicated in the IE "Radio Link Removal Information". If the UE active set is full or becomes full, an RL, which is included in the IE "Radio Link Removal Information" for removal, shall be removed before adding RL, which is included in the IE "Radio Link Addition Information" for addition;

1> perform the physical layer synchronisation procedure B as specified in [29] for the radio links which are not yet contained in the UEs active set;

1> if the IE "E-HICH information" is included:

2> store this E-HICH configuration for the concerning radio link.

1> if the IE "E-HICH information" is included:

2> store this E-RGCH configuration for the concerning radio link, if included.

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28;

1> stop and reset timer T324 if running;

1> stop monitoring target cell HS-SCCH;

1> if the IE "MAC-es/e reset indicator" is included in the IE "UL 16QAM configuration":

2> reset the MAC-es/e / MAC-is/i entity [15].

NOTE 1: If the IE "MAC-es/e reset indicator" is not included in the IE "UL 16QAM configuration" and 16QAM operations starts or stops, the UE behaviour is unspecified.

1> if the IE "UL 16QAM settings" is not included in the IE "16QAM configuration":

2> indicate to lower layers to stop any operation in 16QAM mode.

NOTE 2: If the IE "UL 16QAM configuration" is not included and 16QAM mode operation is currently ongoing, the UE behaviour is unspecified.

1> if the IEs "E-TFCI Boost Info" and/or "E-DPDCH power interpolation" are present, act on the received information elements;

1> if the IEs "E-DPCCH/DPCCH power offset" and/or "Reference E-TFCI PO" are included in the IE "E-DCH reconfiguration information same serving cell", act on the received information elements;

NOTE 3: If E-TFCI boost is signalled to the UE and a reference E-TFCI <= E-TFCI Boost is signalled to the UE with a Reference E-TFCI PO of value 30 or 31, the UE behaviour is unspecified.

1> if the radio link currently considered to be the serving HS-DSCH radio link is indicated in the IE "Radio Link Removal Information":

2> no longer consider any radio link as the serving HS-DSCH radio link;

2> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

1> for each radio link in the IE "Radio Link Addition Information":

2> take the actions related to TARGET_CELL_PRECONFIGURATION variable as described in subclause 8.5.52.

1> if the radio link in the IE "Radio Link Addition Information" is already contained in the UE active set and the IE "Radio Link Addition Information" attempts to reconfigure parameters other than "Target cell preconfiguration information" IE for the radio link:

2> the UE behaviour is unspecified.

NOTE 4: To configure or reconfigure the "Target cell preconfiguration information" IE for the radio link already contained in the UE active set, UTRAN should provide the same value of the mandatory IEs in the IE "Radio Link Addition Information" as the one previously configured. Otherwise the UE behaviour is unspecified.

1> if the table "Target cell preconfigurations" in the variable TARGET_CELL_PRECONFIGURATION included the RL indicated in IE "Radio Link Removal Information":

2> clear the entry from the variable TARGET_CELL_PRECONFIGURATION.

1> if the "E-DCH RL Info other cells" in the table "Target cell preconfiguration information" in the variable TARGET_CELL_PRECONFIGURATION included the RL indicated in the IE "Radio Link Removal Information":

2> clear all "E-DCH RL Info other cells" entries in the variable TARGET_CELL_PRECONFIGURATION for the removed RL(s).

1> if the radio link currently considered to be the serving E-DCH radio link is indicated in the IE "Radio Link Removal Information":

2> no longer consider any radio link as the serving E-DCH radio link.

1> if the IE "Uplink Secondary Cell Info FDD" is included; or

1> if the IE "E-DCH reconfiguration information on secondary uplink frequency" is included; or

1> if the IE "Radio link addition information on secondary UL frequency" is included; or

1> if the IE "Radio link removal information on secondary UL frequency" is included:

2> act as specified in 8.3.4.3a.

1> determine the value for the E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.28.

1> set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE COMPLETE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC without waiting for the completion of the Physical Layer synchronisation B, as specified in [29];

1> the procedure ends on the UE side.

…

The UE shall:

1> if the IE "Uplink Secondary Cell Info FDD" is included:

2> act as specified in subclause 8.6.6.49.

2> determine the value for the SECONDARY_CELL_E_DCH_TRANSMISSION variable and take the corresponding actions as described in subclause 8.5.58.

1> if the IE "Radio link addition information on secondary UL frequency" or the IE "Radio link removal information on secondary UL frequency" is included:

2> first add the RLs indicated in the IE "Radio link addition information on secondary UL frequency";

2> remove the RLs indicated in the IE "Radio link removal information on secondary UL frequency". If the UE secondary E-DCH active set is full or becomes full, an RL, which is included in the IE "Radio link removal information on secondary UL frequency" for removal, shall be removed before adding RL, which is included in the IE "Radio link addition information on secondary UL frequency" for addition;

2> store this E-HICH configuration for the concerning radio link to be added, if included;

2> store this E-RGCH configuration for the concerning radio link to be added, if included;

2> if the secondary uplink frequency is an activated uplink frequency after the active set update procedure:

3> perform the physical layer synchronisation procedure B as specified in [29] for the concerning radio link to be added if included.

1> if the IE "E-DCH reconfiguration information on secondary UL frequency" is included:

2> if the IE "E-DCH RL Info for other cells" is present:

3> if the IE "E-HICH Information" is present:

4> store the E-HICH and E-RGCH information (if present), contained therein, for the indicated radio link.

3> if the IE "E-RGCH release indicator" is present:

4> delete the stored E-RGCH configuration for the indicated radio link.

2> if the IE "E-DCH RL Info for new secondary serving E-DCH cell" is present:

3> consider the radio link identified by the IE "Primary CPICH info" in the first IE "Downlink secondary cell info FDD" as the secondary serving E-DCH radio link, and no longer consider any other radio link as secondary serving E-DCH radio link.

3> store the E-HICH and E-RGCH information (if present), contained therein, for the new secondary serving E-DCH radio link;

3> if the IE "E-RGCH release indicator" is present:

4> delete the stored E-RGCH configuration for the new secondary serving E-DCH radio link.

3> store the newly received E-AGCH configuration for the new secondary serving E-DCH radio link;

3> if the old secondary serving E-DCH cell remains in the secondary E-DCH active set after the active set update, or if the new secondary serving E-DCH cell was already in the secondary E-DCH active set prior to the active set update:

4> keep the current activation status of the secondary uplink frequency and take the corresponding actions as described in subclause 8.5.58.

3> otherwise:

4> consider the secondary uplink frequency as not activated and take the corresponding actions as described in subclause 8.5.58.

Reference

3GPP TS 25.331 clause 8.3.4, 8.3.4.2, 8.3.4.3, 8.3.4.3a

8.3.4.20.3 Test purpose

1. To confirm that the UE adds radio link to the secondary E-DCH set after receiving ACTIVE SET UPDATE message, which includes IE "Radio link addition information on secondary UL frequency " and specifying the P-CPICH information of the cell to be added.

2. To confirm that the UE removes radio link from the secondary E-DCH set after receiving ACTIVE SET UPDATE message, which includes IE "Radio link removal information on secondary UL frequency" and specifying the P-CPICH information of the cell to be removed.

8.3.4.20.4 Method of test

Initial Condition

System Simulator: 3 cells – Cell 1, Cell 2/3 DC HSUPA cell(s) with Cell 2 (Serving HS.DSCH cell/Primary uplink frequency) and Cell 3 (Secondary serving HS.DSCH cell /Secondary uplink frequency)

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A25c, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE category supports DC HSUPA
- UE supports F-DPCH or Enhanced F-DPCH
- UE category supports FDD E-DCH category 8 or 9

Test Procedure

Table 8.3.4.20-1

Cell	UTRA RF Channel Number
Cell 1	Mid Range Test Frequency
Cell (2,3)	Mid Range Test Frequency(see Note1)
Note 1: DC HSUPA Cell test frequencies are specified in [9] cl. [FFS] for the operating band under test. The SFN and Tcell of the secondary cell are the same as the serving cell [29] cl. 7.1.	

Table 8.3.4.20-2

		Time			
Parameter	Unit	T0	T1	T2	T3
Cell 1 CPICH Ec	dBm/3.84MHz	-75	-60	OFF	-60
Cell (2,3) CPICH Ec	dBm/3.84MHz	-60	-60	-60	-60

Table 8.3.4.20-1and 8.3.4.20-2 illustrate the downlink power to be applied for the 3 cells at various time instants of the test execution. Note that Cell 2 and Cell 3 are DC HSUPA Cells with Cell 2 configured as the primary uplink cell and Cell 3 configured as the secondary uplink cell.

The downlink transmission power is set according to values in column “T0” in table 8.3.4.20-2. The UE has user plane bearers and signalling bearers mapped to the E-DCH/HS-DSCH of the DC HSUPA Cell configuration according to Radio Bearer Setup condition [FFS]. The SS transmits to the UE an MEASUREMENT CONTROL message in cell 2 on DCCH using AM RLC, which configures event ‘1a’ and event ‘1b’ for the secondary frequency measurement.

The SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.20-2. The UE transmits a MEASUREMENT REPORT message, which includes the primary scrambling code for Cell 1 according to IE "Intra-frequency event identity", which is set to 1a in IE "Intra-frequency measurement reporting criteria on secondary UL frequency" in MEASUREMENT CONTROL message.

The SS transmits to the UE an ACTIVE SET UPDATE message in cell 2 on DCCH using AM RLC, which includes IE "Radio link addition information on secondary UL frequency " and specifying the P-CPICH information of the cell to be added. When the UE receives this message, at the activation time, the UE shall configure layer 1 to begin E-DCH transmission using the new radio link on cell 1. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

The SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.20-2. The UE shall transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 1 according to IE "Intra-frequency event identity", which is set to 1b in IE "Intra-frequency measurement reporting criteria on secondary UL frequency" in MEASUREMENT CONTROL message. The SS receives this message to confirm that the UE has added the radio link on cell 1 to the secondary E-DCH set.

After the MEASUREMENT REPORT message is received, the SS removes the radio link on cell 1 from the secondary E-DCH active set and then SS transmits an ACTIVE SET UPDATE message, which includes IE "Radio link removal information on secondary UL frequency" and specifying the P-CPICH information of the cell to be removed.

When the UE receives this message, the UE RRC entity shall request UE L1 entity to terminate transmission and reception of the radio link on cell 1. Then the UE transmits an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

The SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.20-2. The UE shall transmit a MEASUREMENT REPORT message, which includes the primary scrambling code for Cell 1 according to IE "Intra-frequency event identity", which is set to 1a in IE "Intra-frequency measurement reporting criteria on secondary UL frequency" in MEASUREMENT CONTROL message. The SS receives this message to confirm that the UE has deleted the radio link on cell 1 from the secondary E-DCH set.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←			UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) according to clause 7.4.
2	←		MEASUREMENT CONTROL	See specific message contents for this message (event '1a' and event '1b' configured).
3				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.20-2.
4	→		MEASUREMENT REPORT	See specific message contents for this message (event '1a' for cell 1).
5	←		ACTIVE SET UPDATE	SS transmits this message in primary carrier Cell 2 on downlink DCCH using AM RLC. The RRC message instructs the UE to add Cell 1 to the secondary E-DCH active set.
6	SS			At the activation time, Cell 1is in the secondary E-DCH active set.
7	→		ACTIVE SET UPDATE COMPLETE	
8				SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.20-2.
9	→		MEASUREMENT REPORT	See specific message contents for this message (event '1b' for cell 1). The SS receives this message to confirm that the UE has added the radio link on cell 1 to the secondary E-DCH set.
10	←		ACTIVE SET UPDATE	SS transmits this message in primary carrier Cell 2 on downlink DCCH using AM RLC. The RRC message instructs the UE to delete Cell 1 from the secondary E-DCH active set.
11	SS			At the activation time, Cell 1 is not in the secondary E-DCH active set.
12	→		ACTIVE SET UPDATE COMPLETE	
13				SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.20-2.
14	→		MEASUREMENT REPORT	See specific message contents for this message (event '1a' for cell 1). The SS receives this message to confirm that the UE has deleted the radio link on cell 1 from the secondary E-DCH set.

MEASUREMENT CONTROL (Step 2)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an unused integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string

Information Element	Value/remark
	contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Measurement Identity	1
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting/Event Trigger Reporting Mode	Event Trigger Reporting
Additional measurement list	Not Present
CHOICE Measurement type	Intra-frequency measurement
- Intra-frequency measurement	
- Intra-frequency cell info list	Not present
- Intra-frequency cell info list on secondary UL frequency	
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to apply the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [11]
- UARFCN downlink(Nd)	Reference to table 6.1.2 for Cell 3
- CHOICE intra-frequency cell removal	Not present
- New intra-frequency cells	
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0 dB
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Not Present
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0dB
- Reference time difference to cell	Not present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Not present
- Cells for measurement	Not Present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Intra-frequency measurement reporting criteria	
- Parameters required for each event	Not present
- Intra-frequency measurement reporting criteria on secondary UL frequency	
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to apply the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [11]
- UARFCN downlink(Nd)	Reference to table 6.1.2 for Cell 3
- Parameters required for each event	
- Intra-frequency event identity	1a
- Triggering condition 1	Not Present
- Triggering condition 2	Monitored set cells
- Reporting Range Constant	10 (5dB)

Information Element	Value/remark
- Cells forbidden to affect Reporting range on secondary UL frequency	Not Present
- W	10(1.0): 34.121 test cases
- Hysteresis	0 (0.0)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	2
- Replacement activation threshold	Not Present
- Time to trigger	640
- Amount of reporting	4
- Reporting interval	4 000
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on secondary UL frequency
- Maximum number of reported cells	3
- Intra-frequency event identity	1b
- Triggering condition 1	Active set cells
- Triggering condition 2	Not Present
- Reporting Range Constant	10 (5dB)
- Cells forbidden to affect Reporting range on secondary UL frequency	Not Present
- W	10(1.0): 34.121 test cases
- Hysteresis	0 (0.0)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	Not Present
- Time to trigger	640
- Amount of reporting	Not Present
- Reporting interval	Not Present
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on secondary UL frequency
- Maximum number of reported cells	3

MEASUREMENT REPORT (Step 4)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	Checked that this IE is absent
Measured Results on secondary UL frequency	
- Cell measured results	Cell 1. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 3. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
Note 1: Cell measured results for cells 1 and 3 may appear in any order.	

ACTIVE SET UPDATE (Step 5)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256
Radio link addition information on secondary UL frequency	
- Primary CPICH Info	
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- Downlink F-DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	P-CPICH can be used.
- F-DPCH frame offset	Calculated value from Cell synchronisation information
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present
- Secondary CPICH info	Not Present
- Secondary scrambling code	Not Present
- Code number	12
- TPC Combination Index	1
- E-HICH Information	
- Channelisation code	4
- Signature sequence	1
- CHOICE E-RGCH Information	
- E-RGCH Information	
- Signature Sequence	0
- STTD indication	FALSE

MEASUREMENT REPORT (Step 9)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	Checked that this IE is absent
Measured Results on secondary UL frequency	
- Cell measured results	Cell 1. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 3. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1b
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 10)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Radio link removal information on secondary UL frequency	1 radio link to be removed
- Primary CPICH info	
- Primary scrambling code	Set to the same P-CPICH scrambling code assigned for cell 1.

MEASUREMENT REPORT (Step 14)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	Checked that this IE is absent
Measured Results on secondary UL frequency	
- Cell measured results	Cell 1. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 3. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
Note 1: Cell measured results for cells 1 and 3 may appear in any order.	

8.3.4.20.5 Test requirements

At step 4, 9, 14 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC to request adding/deleting radio link on the secondary E-DCH set.

At step 7, 12 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC to acknowledge the completion of the active set addition/deletion procedure.

8.3.4.21 Active Set Update: MIMO Activation by Serving cell changes with and without PCI Restrictions and S-CPICH Power Offsets (16QAM + MIMO)

8.3.4.21.1 Definition and applicability

All UE categories which support MIMO and F-DPCH or Enhanced F-DPCH.

8.3.4.21.2 Conformance requirement

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> if the IE "MIMO parameters" is not included:

2> clear the MIMO_PARAMS variable;

2> trigger lower layers to stop operation in MIMO mode.

1> otherwise:

2> for FDD, if the IE "MIMO N_cqi_typeA/M_cqi ratio" is included:

3> store the value of the IE "MIMO N_cqi_typeA/M_cqi ratio" in the MIMO_PARAMS variable.

2> for FDD, if the IE "MIMO pilot configuration" is included:

4> store the value of the IE "MIMO pilot configuration" in the MIMO_PARAMS variable.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message, the UE shall:

1> take actions related to the MIMO_PARAMS variable as specified in subclause 8.5.32;

1> determine the value of the MIMO_STATUS variable.

The MIMO_STATUS variable shall be set to TRUE only when all the following conditions are met:

1> The UE is in CELL_DCH state;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO N_cqi_typeA/M_cqi ratio"; and

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO pilot configuration".

1> for 1.28 Mcps TDD, the variable MIMO_PARAMS contains a value for the IE "MIMO SF Mode for HS-PDSCH dual stream".

If any of the above conditions is not met and the MIMO_STATUS variable is set to TRUE, the UE shall:

1> set the MIMO_STATUS variable to FALSE;

1> clear the MIMO_PARAMS variable;

2> trigger lower layers to stop operation in MIMO mode.

[…]

With the exception of the provisions of subclause 6A.3, the following shall apply when the UE is configured in MIMO mode:

1) The UE derives the PCI value as defined in subclause 6A.4 and either a type A or a type B CQI value as defined in subclause 6A.2.2 depending on which type of CQI shall be reported as defined below.

[…]

If the UE is not configured with precoding weight set restriction by the higher layers, the optimum precoding weight w_2^{pref} for antenna 2 is taken from the set:

$$w_2^{\text{pref}} \in \left\{ \frac{1+j}{2} \quad \frac{1-j}{2} \quad \frac{-1+j}{2} \quad \frac{-1-j}{2} \right\}$$

If the UE is configured with precoding weight set restriction by the higher layers, the optimum precoding vector weight w_2^{pref} for antenna 2 is taken from the set as defined in table 7J0.

Table 7J0: Selection of the precoding weight set when the precoding weight set restriction is configured by higher layers

Number of Transport Blocks preferred in the composite PCI/CQI report	Precoding weight set from which the optimum precoding weight w_2^{pref} for antenna 2 is taken.
1 (always the case when single-stream restriction is configured to the UE)	$w_2^{\text{pref}} \in \left\{ \frac{1+j}{2} \quad \frac{-1-j}{2} \right\}$
2	$w_2^{\text{pref}} \in \left\{ \frac{1+j}{2} \quad \frac{1-j}{2} \quad \frac{-1+j}{2} \quad \frac{-1-j}{2} \right\}$

The precoding weight w_2^{pref} is mapped to PCI values as defined in table 7J.

Table 7J: Mapping of preferred precoding weight w_2^{pref} to PCI values

w_2^{pref}	PCI value
$\frac{1+j}{2}$	0
$\frac{1-j}{2}$	1
$\frac{-1+j}{2}$	2
$\frac{-1-j}{2}$	3

Reference

3GPP TS 25.331 clause 8.5.32, 8.5.33

3GPP TS 25.214 clause 6A.1.2.2, 6A.4

8.3.4.21.3 Test purpose

To confirm that the UE performs serving cell change and start MIMO reception from non MIMO capable cell to MIMO capable cell with and without PCI restriction and S-CPICH power offset.

8.3.4.21.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 non MIMO cell, Cell 2 MIMO configured

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-17) under condition A17b, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE category supports MIMO
- UE fully supports F-DPCH or Enhanced F-DPCH

Test Procedure

Table 8.3.4.21-1

Cell	UTRA RF Channel Number
Cell 1	Mid Range Test Frequency
Cell 2	Mid Range Test Frequency

Table 8.3.4.21-2

Parameter	Unit	T0	T1
Cell 1 CPICH Ec	dBm/3.84MHz	-60	-60
Cell 2 CPICH Ec	dBm/3.84MHz	-75	-60

Table 8.3.4.21-2 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.X-2. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 2 and then the SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC which includes the IE "Radio Link Addition Information" and MIMO configuration. When the UE receives this message, the UE shall activate MIMO reception and configure SRB and user plane bearers for HS-DSCH reception (L1 configured for MIMO on separate antennae with PCI restriction and S-CPICH Power Offset) using the new radio link with cell 2 as the serving cell. The UE shall respond with ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC. UE sends combined CQI/PCI reports of type A/B continuously every 2 ms. The PCI values reported shall be restricted to 0 or 3 for type A CQIs where one transport block is preferred. For type A CQIs where two transport blocks are preferred, restriction shall not apply.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, using MIMO configuration, to the UE to reconfigure MIMO parameters (without PCI restriction and S-CPICH offset). When the UE receives this message, the UE shall reconfigure L1(without PCI restriction and S-CPICH offset) and respond with PHYSICAL CHANNEL RECONFIGURATION COMPLETE.UE sends combined CQI/PCI reports of type A/B continuously every 2 ms.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		

1	←		UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) according to clause 7.4.
2			SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.x-2.
3	→	MEASUREMENT REPORT	See specific message contents for this message (event '1a' for cell 2).
4	←	ACTIVE SET UPDATE	SS transmits this message in cell 1 on downlink DCCH using AM RLC. The message includes IE "Radio Link Addition Information" for cell 2. Valid MIMO parameters (with PCI restriction and S-CPICH Power Offset) are specified and Cell 2 becomes the serving Cell.
5	→	ACTIVE SET UPDATE COMPLETE	
6			At the activation time the SS changes the serving E-DCH and HS-DSCH link to Cell 2 and applies the new configuration.
7			UE shall transmit composite CQI/PCI reports of type A or type B. The SS shall check that for 500 consecutive CQI reports, 250 are type A and 250 of type B. PCI values of 0 or 3 shall be used by the UE for type A CQIs where one transport block is preferred. For type A CQIs where two transport blocks are preferred, the restriction does not apply. The UE shall configure the lower layers with signalled S-CPICH Power offset.
8	←	PHYSICAL CHANNEL RECONFIGURATION	SS transmits this message in cell 2 on downlink DCCH using AM RLC. MIMO parameter reconfigured.
9	→	PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall reconfigure L1 without PCI restriction and S-CPICH offset
10			UE sends combined CQI/PCI reports of type A/B continuously every 2 ms.

Specific Message Contents

The contents of SIB11 broadcasted in cell 1 shall be in accordance with the default SIB11 as specified in section 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- Intra-frequency measurement reporting criteria	
- Parameters required for each event	2 kinds
- Intra-frequency event identity	1a
- Triggering condition 1	Not Present
- Triggering condition 2	Monitored set cells
- Reporting Range Constant	10 (5 dB)
- Cells forbidden to affect Reporting range	Not Present
- W	0 (0.0)
- Hysteresis	0 (0.0)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	3
- Replacement activation threshold	Not Present
- Time to trigger	640
- Amount of reporting	4
- Reporting interval	4000
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	2
- Intra-frequency event identity	1b
- Triggering condition 1	Active set cells
- Triggering condition 2	Not Present
- Reporting Range Constant	10 (5 dB)
- Cells forbidden to affect Reporting range	Not Present
- W	0 (0.0)
- Hysteresis	0 (0.0)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	Not Present
- Time to trigger	640
- Amount of reporting	Not Present
- Reporting interval	Not Present
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	2

The contents of SIB12 in cell 1, and SIB11 and SIB12 in cell 2 shall be in accordance with the default SIBs as specified in TS 34.108.

MEASUREMENT REPORT (Step 3)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	Cell 1. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 2. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1 and 2 may appear in any order.

ACTIVE SET UPDATE (Step 4)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256	
New H-RNTI	'0101 0101 0101 0101'	
New Primary E-RNTI	'0101 0101 0101 0101'	
MIMO Parameters		
- MIMO Operation	Start	
-		
- MIMO N_cqi_typeA/M_cqi ratio	1/1	
- MIMO pilot configuration		
- CHOICE Second CPICH pattern	Antenna1 S-CPICH	
- Channelisation code	13	
Radio link addition information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 2	
- Downlink F-DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- F-DPCH frame offset	Calculated value from Cell synchronisation information	
- F-DPCH slot format	3 if UE supports enhanced F-DPCH, otherwise Not Present	
- Secondary CPICH info	Not present	
- Secondary scrambling code	Not present	
- Code number	F-DPCH code number as used in Cell1	
- TPC Combination Index	1	
- TFCI combining indicator	FALSE	
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
Serving HS-DSCH cell information		
- Δ_{ACK}	Not Present	
- Δ_{NACK}	Not Present	
- HARQ_preamble_mode	0	
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not present	
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	
- Measurement Power Offset	12 (6 dB)	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
- Downlink 64QAM configured	Not Present	
- HS-DSCH TB size table	Octet Aligned	
- HARQ Info		
- Number of Processes	12	
- CHOICE *Memory Partitioning*	Implicit	
- MAC-hs reset indicator	TRUE	
MIMO-PilotConfiguration-v7f0ext		
- s-cpich-PowerOffset-Mimo	-3	
MIMO-Parameters-v7g0ext		
-precodingWeightSetRestriction	TRUE	
E-DCH reconfiguration information		
- E-DCH RL Info new serving cell		
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	

- Serving Grant	Not Present	
- E-DPCCH/DPCCH power offset	Not Present	
- Reference E-TFCIs	Not Present	
- Power Offset for Scheduling Info	Not Present	
- 3-Index-Step Threshold	Not Present	
- 2-Index-Step Threshold	Not Present	
- E-HICH Information	Not Present	
- CHOICE E-RGCH Information		
- E-DCH RL Info other cells	Not Present	

PHYSICAL CHANNEL RECONFIGURATION (Step 8)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
HARQ Info	
- Number of processes	6
- CHOICE *Memory Partitioning*	
- Implicit	
Frequency info	Not present
MIMO Parameters	
- MIMO Operation	Start
-	
- MIMO N_cqi_typeA/M_cqi ratio	1/1
- MIMO pilot configuration	
- CHOICE Second CPICH pattern	Antenna1 S-CPICH
- Channelisation code	13
Maximum allowed UL TX power	Not present
Uplink DPCH info	Not present
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	12 (6 dB)
- CQI Feedback cycle, k	8 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
- Downlink 64QAM configured	Not Present
- HS-DSCH TB size table	Octet Aligned
MIMO-PilotConfiguration-v7f0ext	
- s-cpich-PowerOffset-Mimo	0
MIMO-Parameters-v7g0ext	
-precodingWeightSetRestriction	FALSE
Downlink information common for all radio links	Not Present
Downlink information for each radio link list	Not Present
- Primary CPICH info	
- Primary scrambling code	150

8.3.4.21.5 Test requirements

At steps 3, UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

At steps 5 UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC to acknowledge the previous ACTIVE SET UPDATE and indicate readiness to accept the new configuration at activation time.

At step 7, UE shall transmit composite CQI/PCI reports of type A or type B. The SS shall check that for 500 consecutive CQI reports, 250 are type A and 250 of type B. PCI values of 0 or 3 shall be used by the UE for type A

CQIs where one transport block is preferred. For type A CQIs where two transport blocks are preferred, the restriction does not apply.

At step 9, UE shall transmit an PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC to acknowledge the previous PHYSICAL CHANNEL RECONFIGURATION and indicate readiness to accept the new configuration.

At step 10, UE shall transmit combined CQI/PCI reports of type A/B continuously every 2 ms.

8.3.4.22 Active set update: Dual Cell (DC) Activation by Serving Cell Change from non DC-HSDPA capable cell to DC-HSDPA capable cell with discontinuous uplink transmission and downlink reception

8.3.4.22.1 Definition and applicability

All UEs which support FDD, UL DTX, DL DRX and Dual Cell HSDPA.

8.3.4.22.2 Conformance requirement

The purpose of the active set update procedure is to update the active set of the connection between the UE and UTRAN. This procedure shall be used in CELL_DCH state. The UE should keep on using the old RLs while configuring the new RLs. Also the UE should keep the transmitter turned on during the procedure. This procedure is only used in FDD mode.

…

The procedure is initiated when UTRAN orders a UE in CELL_DCH state, to make the following modifications of the active set of the connection:

a) Radio link addition;

b) Radio link removal;

c) Combined radio link addition and removal;

d) Addition of a radio link to the E-DCH active set;

e) Removal of a radio link from the E-DCH active set.

The procedure also allows the addition or removal of a radio link on a secondary serving HS-DSCH cell. Radio links on the secondary serving HS-DSCH cell are not part of the active set.

In case a) and c), UTRAN should:

1> prepare new additional radio link(s) in the UTRAN prior to the command to the UE.

In all cases, UTRAN should:

1> send an ACTIVE SET UPDATE message on downlink DCCH using AM or UM RLC;

1> create active sets that contain at least one common radio link across a DPCH or F-DPCH frame boundary as the result of one or multiple (parallel) active set update procedures.

UTRAN should include the following information:

1> IE "Radio Link Addition Information": Downlink DPCH information and other optional parameters relevant for the radio links to be added along with the IE "Primary CPICH info" used for the reference ID to indicate which radio link to add. This IE is needed in cases a) and c) listed above;

1> IE "Downlink Secondary Cell Info FDD": Downlink optional parameters relevant to reception of secondary serving HS-DSCH cell;

1> IE "Radio Link Removal Information": IE "Primary CPICH info" used for the reference ID to indicate which radio link to remove. This IE is needed in cases b) and c) listed above;

1> IE "E-DCH reconfiguration information": IE "Primary CPICH info" used for the reference ID along with the IE "E-HICH information" to indicate which radio link to add to the E-DCH active set. This IE is needed in case d) above, when the RL added to the E-DCH active set is already in the DCH active set;

1> IE "E-DCH reconfiguration information": IE "Primary CPICH info" used for the reference ID along with the IE "E-HICH release indicator" to indicate which radio link to remove from the E-DCH active set. This IE is needed in case e) above, when the RL removed from the E-DCH active set remains in the DCH active set.

…

Upon reception of an ACTIVE SET UPDATE message the UE shall act upon all received information elements as specified in 8.6, unless specified otherwise in the following.

The UE may:

1> maintain a list of the set of cells to which the UE has Radio Links if the IE "Cell ID" is present.

The UE shall:

1> first add the RLs indicated in the IE "Radio Link Addition Information";

1> remove the RLs indicated in the IE "Radio Link Removal Information". If the UE active set is full or becomes full, an RL, which is included in the IE "Radio Link Removal Information" for removal, shall be removed before adding RL, which is included in the IE "Radio Link Addition Information" for addition;

…

1> if "Serving HS-DSCH cell information" IE is present, act on received information elements as specified in subclause 8.6:

2> if the IEs "Δ_{ACK}", "Δ_{NACK}", and "HARQ_preamble_mode" are present, act on the received information elements;

2> if the new H-RNTI and "Primary CPICH info" are included:

3> consider the cell indicated in Primary CPICH as serving HS-DSCH cell and no longer consider any other radio link as serving HS-DSCH cell. If the IE "Downlink Secondary Cell Info FDD" is included for a cell associated with the serving HS-DSCH cell, consider that cell a secondary serving HS-DSCH cell.

2> if the IE "MAC-hs reset indicator" is included:

3> reset the MAC-hs/ehs entity [15].

2> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

…..

If the IE "RB mapping info" is included, the UE shall:

...

For FDD the list of multiplexing options configured in the UE for each RB and SRB should comply with the following rules otherwise the UE behaviour is not specified:

- ...
- at most one multiplexing option can contain the combination "DCH" or "DCH + HS-DSCH" for the DL together with "DCH" for the UL;
- at most one multiplexing option can contain the combination "HS-DSCH" or "DCH + HS-DSCH" for the DL together with "DCH" for the UL;
- ...

…

1> if any of the IEs "DTX-DRX timing information" or "DTX-DRX information" are stored in the UE:

2> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

…

If the UE receives RRC CONNECTION SETUP, ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> the UE shall determine the value for the DTX_DRX_STATUS variable.

The variable DTX_DRX_STATUS shall be set to TRUE only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> both variables HS_DSCH RECEPTION and E_DCH_TRANSMISSION are set to TRUE;

1> no DCH transport channel is configured;

1> the variable DTX_DRX_PARAMS is set;

1> the UE has received the IE "DTX-DRX timing information".

If any of the above conditions is not met and the variable DTX_DRX_STATUS is set to TRUE, the UE shall:

1> set the variable DTX_DRX_STATUS to FALSE;

1> clear the variable DTX_DRX_PARAMS;

1> stop DTX-DRX mode related activities.

If variable DTX_DRX_STATUS is set to true and the serving HS-DSCH cell was changed as a result of the received message the UE shall instruct the physical layer to consider HS-SCCH orders were never received.

Whenever the variable DTX_DRX_STATUS is set to TRUE after receiving this message and the value of IE "DTX-DRX timing information" included in this message is not "Continue", the UE shall:

1> if the variable DTX_DRX_STATUS was set to TRUE before receiving this message:

2> re-configure the physical layer to perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration;

2> let the MAC layer continue with the current restriction on E-DCH transmission and monitoring of absolute and relative grant channels from the frame boundary where the uplink transmission starts with the new configuration and for the duration of the IE "Enabling Delay".

1> else:

2> perform discontinuous uplink DPCCH transmission and enable discontinuous downlink reception operations by configuring the physical layer according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the value of the IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration.

1> configure the MAC layer to start restricting E-DCH transmissions and monitor absolute and relative grant channels at the CFN corresponding to the frame boundary that is offset by the value of IE "Enabling Delay" from the frame boundary where uplink transmission starts with new configuration taking into account the IEs "UE DTX DRX Offset", "MAC DTX Cycle", "MAC Inactivity Threshold" and "Inactivity Threshold for UE Grant Monitoring".

…

If the IE "DTX-DRX timing information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> if the CHOICE "timing" is set to "New timing":

2> use the newly received DTX-DRX timing configuration.

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34.

…

If the IE "DTX–DRX information" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the contents of the IE in the variable DTX_DRX_PARAMS;

1> determine the value for the DTX_DRX_STATUS variable and take the corresponding actions as described in subclause 8.5.34;

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple of the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DTX cycle 2" is not an integer multiple or a divisor of the value of the IE "CQI Feedback cycle, k"; or

1> if the value of the IE "UE DPCCH burst 1" is greater than the value of the IE "UE DTX cycle 1"; or

1> if the value of the IE "UE DPCCH burst 2" is greater than the value of the IE "UE DTX cycle 2"; or

1> if the IE "UE DTX long preamble length" is set to 4 or 15 slots and the value of the IE "Inactivity Threshold for UE DTX cycle 2" is less than 4 TTIs (for 10ms E-DCH TTI) or 8 TTIs (for 2ms E-DCH TTI); or

1> if the IE "UE DRX cycle" is not an integer multiple or a divisor of the value of the IE "UE DTX cycle 1"; or

1> if the IE "DRX Information" is included in this message while the IE "DTX information" is not included in this message; or

1> if the value of the IE "UE DTX cycle 1" is not an integer multiple or a divisor of the value of the IE "MAC DTX cycle":

2> the UE behaviour is unspecified.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.3.4, 8.3.4.2, 8.3.4.3, 8.5.34, 8.6.4.8, 8.6.6.38, 8.6.6.39

8.3.4.22.3 Test purpose

To confirm that the UE performs HS-DSCH serving cell change from non DC-HSDPA capable cell to DC–HSDPA capable cell with discontinuous downlink reception and uplink transmission.

8.3.4.22.4 Method of test

Initial Condition

System Simulator: 3 cells – Cell 1 non DC-HSDPA cell, Cell 2/3 DC HSDPA cell(s) with cell 2 (Anchor Carrier) and cell 3 (Secondary Carrier)

UE: PS_DCCH+DTCH E-DCH/HS_DSCH (state 6-18) under the condition A25 as specified in clause 7.4 of TS 34.108. See specific message contents for Radio Bearer Setup message.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE category supports DC HSDPA
- UE supports DPCCH Discontinuous Transmission

- UE supports HS-DSCH DRX operation

Test Procedure

Table 8.3.4.22

Parameter	Unit	Cell 1		Dual Cell (2 and 3)	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency (see Note 1)	
CPICH Ec	dBm/3.84MHz	-60	-70	-70	-60
Note 1: For Secondary Carrier Cell 3 the UARFCN is a positive offset of 25 from the UARFCN of the test frequency of the Anchor Carrier Cell 2 which translates to 5MHz channel frequency spacing					

Table 8.3.4.22 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Note that cell 2 and cell 3 are configured as DC HSDPA Cells with cell 2 as the Anchor Carrier and cell 3 as the Secondary Carrier cell.

The downlink transmission power is set according to values in column “T0” in table 8.3.4.22. The UE has user plane mapped on E-DCH/HS-DSCH and signalling radio bearers mapped on E-DCH/HS-DSCH in cell 1.

The SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.22. The UE transmits a MEASUREMENT REPORT message, which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity" set to 1a.

The SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC which adds a second radio link in cell 2, changes the E-DCH and HS-DSCH serving cell to cell 2, and includes Downlink Secondary Cell 3 parameters, discontinuous E-DCH transmission and discontinuous HS-DSCH reception parameters. When the UE receives this message, the UE shall configure layer 1 to begin E-DCH transmission, discontinuous HS-DSCH reception, with UL DPCCH discontinuous transmission, using the new radio link on Anchor Carrier Cell 2 and Secondary Carrier Cell 3. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC. SS checks that this RRC message is received on Anchor Carrier cell 2.

The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications (received from the UE on cell 2 and cell 3) is 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←			UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) according to clause 7.4.
2				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.22.
3	→		MEASUREMENT REPORT	See specific message contents for this message (event '1a' for cell 2).
4	←		ACTIVE SET UPDATE	SS transmits this message in cell 1 on downlink DCCH using AM RLC. The RRC message instructs the UE to add primary HSDPA Cell 2 to the active set and HSDPA cell 3 as the secondary cell And also perform a serving E-DCH and HS-DSCH Cell change to the DC-HSDPA and start discontinuous EDCH transmission and discontinuous HSDSCH reception.
5	SS			At the activation time DC-HSDPA is configured, Cell 2 becomes the serving E-DCH /HS-DSCH Cell and Cell 3 the secondary cell.
6	→		ACTIVE SET UPDATE COMPLETE	The UE shall configure a new radio link for DC HSDPA cell and active HS-DSCH reception from Cells 2 and 3.
7				The SS waits to allow sufficient time for DTX cycle 2 to be active, and CQI DTX Timer to expire, and then verifies that the time between 11 consecutive CQI indications is 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used (i.e. duration of 10 consecutive DTX cycle 2).

Specific Mesaage Contents

RADIO BEARER SETUP (Initial Condition)

The message to be used in this test is same as condition A25, as specified in clause 7.4 of TS 34.108 except the following:

Information Element	Value/remark
Downlink secondary cell info FDD	NOT PRESENT

MEASUREMENT REPORT (Step 3)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	Cell 1. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	Cell 2. See Note 1
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

NOTE 1: Cell measured results for cells 1and 2 may appear in any order.

ACTIVE SET UPDATE (Step 4)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9.1, with the following exceptions:

Information Element	Value/remark	Version
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256	
New H-RNTI	'0101 0101 0101 0101'	
New Primary E-RNTI	'0101 0101 0101 0101'	
CN information elements		
-CN Information info	Not Present	
Phy CH information elements		
-DTX-DRX timing information		
-CHOICE *timing*		
- New timing		
- Enabling Delay	0 if 2ms TTI selected, otherwise 16	
- UE DTX DRX Offset	1 if 2ms TTI selected, otherwise 0	
-DTX-DRX Information		
-DTX information		
- CHOICE *E-DCH TTI length*	Unless stated otherwise, this should be set to 2ms if the UE supports 2ms TTI, or 10ms if the UE does not support 2ms TTI.	
- UE DTX cycle 1	8 if 2ms TTI selected, otherwise 10	
- UE DTX cycle 2	16 if 2ms TTI selected, otherwise 20	
- MAC DTX cycle	8 if 2ms TTI selected, otherwise 10	
- Inactivity Threshold for UE DTX cycle 2	32 if 2ms TTI selected, otherwise 8	
- UE DTX long preamble length	4	
- MAC Inactivity Threshold	1 if 2ms TTI selected, otherwise 8	
- CQI DTX Timer	32	
- UE DPCCH burst_1	1	
- UE DPCCH burst_2	1	
-DRX Information		
- UE DRX cycle	8 if 2ms TTI selected, otherwise 10	
- Inactivity Threshold for UE DRX cycle	32	
- Inactivity Threshold for UE Grant Monitoring	32 if 2ms TTI selected, otherwise 8	
Radio link addition information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 2	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not present	
-DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	Not present	
-Spreading factor	Refer to TS 34.108 clause 6.10.2.4 "Typical radio parameter sets"	
-Code Number	For each DPCH, assign the same code number in the current code given in cell 1.	
- Scrambling code change	Not Present	
- TPC Combination Index	1	
- E-HICH Information		
- Channelisation code	4	
- Signature sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	1	
Serving HS-DSCH cell information		
- Δ_{ACK}	Not Present	
- Δ_{NACK}	Not Present	
- HARQ_preamble_mode	0	
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- Downlink HS-PDSCH Information		
- HS-SCCH Info		
- CHOICE mode	FDD	
- DL Scrambling Code	Not present	
- HS-SCCH Channelisation Code Information	Use 1 HS-SCCH	
- HS-SCCH Channelisation Code	7	
- Measurement Feedback Info		
- CHOICE mode	FDD	

- Pohsdsch	6 dB	
- CQI Feedback cycle, k	4 ms	
- CQI repetition factor	1	
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)	
- CHOICE mode	FDD (no data)	
- Downlink 64QAM configured	Not Present	
- HS-DSCH TB size table	Octet Aligned	
- HARQ Info		
- Number of Processes	Reference to TS 34.108 clause 6.10.2.4.5 Parameter Set	
- CHOICE *Memory Partitioning*	Implicit	
- MAC-hs reset indicator	TRUE	
E-DCH reconfiguration information		
- E-DCH RL Info new serving cell		
- Primary CPICH info		
- Primary Scrambling Code	Set to the primary scrambling code of cell 2	
- E-AGCH Info		
- E-AGCH Channelisation Code	10	
- Serving Grant	Not Present	
- E-DPCCH/DPCCH power offset	Not Present	
- Reference E-TFCIs	2 E-TFCIs	
- Reference E-TFCI	11	
- Reference E-TFCI PO	4	
- Reference E-TFCI	83	
- Reference E-TFCI PO	16	
- Power Offset for Scheduling Info	Not Present	
- 3-Index-Step Threshold	Not Present	
- 2-Index-Step Threshold	Not Present	
- E-HICH Information		
- Channelisation Code	4	
- Signature Sequence	1	
- CHOICE E-RGCH Information		
- E-RGCH Information		
- Signature Sequence	0	
- RG combination index	0	
- E-DCH RL Info other cells	Not Present	
Downlink secondary cell info FDD		
- CHOICE Configuration info	New configuration	
- New HRNTI	'1010 1010 1010 1010'	
- Downlink 64QAM configured	Not Present	
- HS-DSCH TB size table	Octet aligned	
- Primary CPICH info		
- Primary scrambling code	Set to the primary scrambling code of cell 3	
- DL Scrambling Code	Not Present. Mandatory default implies same scrambling code as for the primary CPICH	
- HS-SCCH Channelisation Code Information	1 HS-SCCH code	
- HS-SCCH Channelisation Code	7	
- Measurement Power Offset	6 dB	
- UARFCN downlink (Nd)	Reference to clause 5.1 Test frequencies. Note that for the secondary cell the UARFCN is a positive offset of 25 from the UARFCN of the test frequency of the primary cell which equates to 5MHz channel spacing	

8.3.4.22.5 Test requirements

At step 3 SS shall receive a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

At step 6 SS shall receive an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC to acknowledge the completion of the active set addition procedure, the change of serving cell to DC HSDPA.

At step 7 SS should start receiving CQI report for Cell 2 and Cell 3 on HS-DPCCH from the UE and the time between 11 consecutive CQI indications (received from the UE on Cell 2 and Cell3) is 320ms if 2ms TTI is used, or 400ms if 10ms TTI is used.

8.3.5 Hard Handover

[Editor's note: This test is included in the "Physical channel reconfiguration", "Radio bearer establishment", "Radio bearer reconfiguration", "Radio bearer release" and "Transport channel reconfiguration".]

8.3.6 Inter-system hard handover from GSM to UTRAN

The content of this clause has been moved to 3GPP TS 51.010-1, clause 60.

8.3.7 Inter-system hard handover from UTRAN to GSM

Clauses 8.3.7 contains test procedures to be used for executing Inter-system Handover from UTRAN to GSM tests. Table 8.3.7-1 contains a summary of the different combinations of parameters being tested, together with a reference to the appropriate generic test procedure. If a test uses a parameter which the UE under test does not support, the test shall be skipped. Test cases in this clause are applicable only to the UE supporting both UTRAN and GSM. The test TEST USIM shall support service 27 to carry out these test cases.

Table 8.3.7-1

From	To	State of call	Ref. clause	Exec counter	Remark
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM AMR	U10	8.3.7.1	1	call active state
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM EFR	U10	8.3.7.1	2	call active state
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U10	8.3.7.1	3	call active state
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM HR	U10	8.3.7.1	4	call active state
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM AMR	U10	8.3.7.1a	1	call active state; A5/3 applied in GSM
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM EFR	U10	8.3.7.1a	2	call active state; A5/3 applied in GSM
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U10	8.3.7.1a	3	call active state; A5/3 applied in GSM
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM HR	U10	8.3.7.1a	4	call active state; A5/3 applied in GSM
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM AMR	U10	8.3.7.1b	1	call active state; UEA2/UIA2 applied in UTRAN, A5/3 in GSM
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM EFR	U10	8.3.7.1b	2	call active state; UEA2/UIA2 applied in UTRAN, A5/3 in GSM
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U10	8.3.7.1b	3	call active state; UEA2/UIA2 applied in UTRAN, A5/3 in GSM
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM HR	U10	8.3.7.1b	4	call active state; UEA2/UIA2 applied in UTRAN, A5/3 in GSM

From	To	State of call	Ref. clause	Exec counter	Remark
UTRAN (Streaming/unknown/ uplink:14.4 DL:14.4 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBS)	GSM 14.4 kbps CS data	U10	8.3.7.2	1	Same data rate
UTRAN (Streaming/unknown/ uplink:14.4 DL:14.4 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBS)	GSM 14.4 kbps HSCSD	U10	8.3.7.2a	1	Same data rate
UTRAN (Streaming/unknown/ uplink:28.8 DL:28.8 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBS)	GSM 28.8 kbps CS data	U10	8.3.7.2a	2	Same data rate
UTRAN (Streaming/unknown/ uplink:57.6 DL:57.6 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBS)	GSM 57.6 kbps CS data	U10	8.3.7.2a	3	Same data rate
UTRAN (Streaming/unknown/ uplink:28.8 DL:28.8 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBS)	GSM 14.4 kbps CS data	U10	8.3.7.3	1	Data rate down grading
UTRAN (Streaming/unknown/ uplink:57.6 DL:57.6 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBS)	GSM 14.4 kbps CS data	U10	8.3.7.3	2	Data rate down grading
UTRAN (Streaming/unknown/ uplink:28.8 DL:28.8 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBS)	GSM 14.4 kbps HSCSD	U10	8.3.7.3a	1	Data rate down grading
UTRAN (Streaming/unknown/ uplink:57.6 DL:57.6 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBS)	GSM 14.4 kbps HSCSD	U10	8.3.7.3a	2	Data rate down grading
UTRAN (Streaming/unknown/ uplink:57.6 DL:57.6 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBS)	GSM 28.8 kbps HSCSD or E-TCH/F28.8	U10	8.3.7.3a	3	Data rate down grading
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U1	8.3.7.4	1	During call establishment
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U10	8.3.7.5	1	failure case
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U10	8.3.7.6	1	failure case
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U10	8.3.7.7	1	failure case

From	To	State of call	Ref. clause	Exec counter	Remark
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U10	8.3.7.8	1	failure case
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U10	8.3.7.9	1	failure case
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U10	8.3.7.10	1	failure case
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U10	8.3.7.11	1	failure case
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U10	8.3.7.12	1	failure case
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U1	8.3.7.13	1	call under establishment
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + interactive/ background UL: 32kbps, DL :(max bit rate depending on UE category) PS RAB + uplink:3.4 DL3.4 kbps SRBs)	GSM AMR	U10	8.3.7.14	1	Call active state
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + interactive/ background UL: 32kbps, DL :(max bit rate depending on UE category) PS RAB + uplink:3.4 DL3.4 kbps SRBs)	GSM AMR	U10	8.3.7.15	1	Failure case
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + interactive/ background UL: 64kbps, DL :64kbps PS RAB + uplink:3.4 DL3.4 kbps SRBs)	GSM FR	U10	8.3.7.16	1	Call active state
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + interactive/ background UL: 64kbps, DL :64kbps PS RAB + uplink:3.4 DL3.4 kbps SRBs)	DTM	U10	8.3.7.17	1	Call active state

8.3.7.1 Inter system handover from UTRAN/To GSM/Speech/Success

8.3.7.1.1 Definition

8.3.7.1.2 Conformance requirement

The UE shall be able to receive a HANDOVER FROM UTRAN COMMAND message and perform an inter-RAT handover, even if no prior UE measurements have been performed on the target cell.

The UE shall:

1> establish the connection to the target radio access technology, by using the contents of the IE "Inter-RAT message". This IE contains a message specified in another standard, as indicated by the IE "System type", and carries information about the candidate/ target cell identifier(s) and radio parameters relevant for the target radio access technology. The correspondence between the value of the IE "System type", the standard to apply and the message contained within IE "Inter RAT message" is shown in the following:

Value of the IE "System type"	Standard to apply	Inter RAT Message
GSM	GSM TS 04.18, version 8.5.0 or later	HANDOVER COMMAND
cdma2000	TIA/EIA/IS-2000 or later, TIA/EIA/IS-833 or later, TIA/EIQ/IS-834 or later	

1> if the IE "System type" has the value "GSM":

2> if the IE "Frequency band" has the value "GSM /DCS 1800 band used":

3> set the BAND_INDICATOR [45] to "ARFCN indicates 1800 band".

2> if the IE "Frequency band" has the value " GSM /PCS 1900 band used":

3> set the BAND_INDICATOR [45] to "ARFCN indicates 1900 band".

1> apply the "Inter RAT Message" according to the "standard to apply" in the table above.

1> if the IE "RAB information List" is included in the HANDOVER FROM UTRAN COMMAND message:

2> if the IE "RAB information List" includes one IE "RAB Info" with the IE "CN domain Identity" set to "CS domain":

3> connect upper layer entities corresponding to the indicated CS domain RAB to the radio resources indicated in the inter-RAT message.

NOTE: In this version of the specification the maximum number of CS domain RABs which may be included in the IE "RAB information List" is limited to 1.

NOTE: Requirements concerning the establishment of the radio connection towards the other radio access technology and the signalling procedure are outside the scope of this specification.

Upon successfully completing the handover, the UE shall:

1> if there are any NAS messages with the IE "CN domain identity" set to "CS domain" for which the successful delivery of the INITIAL DIRECT TRANSFER message or UPLINK DIRECT TRANSFER message on signalling radio bearer RB3 or signalling radio bearer RB4 that have not yet been confirmed by RLC:

2> retransmit those NAS messages to the network on the newly established radio connection to the target radio access technology.

1> clear or set variables upon leaving UTRA RRC connected mode as specified in subclause 13.4.

NOTE: The release of the UMTS radio resources is initiated from the target RAT.

Reference(s)

TS 25.331 clause 8.3.7.3, 8.3.7.4.

8.3.7.1.3 Test purpose

To test that the UE supporting both GSM and UTRAN hands over from a UTRAN serving cell to the indicated channel of GSM target cell when the UE is in the speech call active state and receives an HANDOVER FROM UTRAN COMMAND.

8.3.7.1.4 Method of test

Initial conditions

System Simulator : 2 cells - Cell 1 is UTRAN, Cell 9 is GSM. GSM 51.010 clause 40 shall be referenced for the default parameters, and clause 26.6.5.1 shall be referenced for cell allocation of cell 9.

Parameter	Unit	Cell 9 (GSM)
Qsearch_I (TDD)	dBm	15 (never)

UE: Idle state (state 2 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports both GSM and UTRAN Radio Access Technologies,
- UE supports GSM AMR,
- UE supports GSM EFR,
- UE supports GSM FR,
- UE supports GSM HR,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-PCS, GSM-850, GSM-710, GSM 750, T_GSM-810.

Foreseen final state of the UE

The UE is in CC state U10 on cell 9.

Test Procedure

The SS brings the UE into call active state (CC state U10) with AMR. The SS configures the appropriate traffic channel on the GSM cell, then sends HANDOVER FROM UTRAN COMMAND indicating the traffic channel of the target GSM cell to the UE through DCCH of the serving UTRAN cell. After the UE receives the command it shall configure itself accordingly and switch to the new channel on the target GSM cell. The SS checks whether the handover is performed by checking that the UE transmits the HANDOVER COMPLETE message to the SS through GSM cell.

Depending on the PIXIT parameters the above procedure is executed maximum four times, each time with a different target channel in the GSM cell.

For UEs where the PIXIT indicates support for the GSM/ DCS 1800 and/ or GSM/ PCS 1900 band, the whole test should be repeated to cover these frequencies in order to verify the correct handling of the IE "Frequency band".

Inter RAT handover is normally preceded by the configuration and activation of compressed mode (depending on UE capabilities/ PIXIT) and the configuration of inter- RAT measurements. The inter RAT handover is normally initiated by the SS upon receiving an event triggered measurement report. The verification of this functionality is covered by other subclauses.

Expected sequence

This sequence is performed for a maximum execution counter M = 1, 2, 3, 4, depending on the PIXIT parameters.

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS bring the UE into UTRAN U10 state in cell 1
2	SS			The SS configures a traffic channel on cell 9 (GSM cell): for GSM AMR (M = 1); or for GSM EFR (M = 2); or for GSM FR (M = 3); or for GSM HR (M = 4).
3	←		HANDOVER FROM UTRAN COMMAND-GSM	Send on cell 1 (UTRAN cell) and the message indicates: the target channel for GSM AMR (M = 1); or the target channel for GSM EFR (M = 2); or the target channel for GSM FR (M = 3); or the target channel for GSM HR (M = 4).
4	UE			The UE accepts the handover command and switches to the GSM traffic channel specified in the HANDOVER FROM UTRAN COMMAND-GSM
5	→		HANDOVER ACCESS	The SS receives this burst on the traffic channel of cell 9 (GSM cell) It implies that the UE has switched to GSM cell.
6	→		HANDOVER ACCESS	
7	→		HANDOVER ACCESS	
8	→		HANDOVER ACCESS	
9	←		PHYSICAL INFORMATION	
10	→		SABM	
11	←		UA	
12	→		HANDOVER COMPLETE	The SS receives the message on the traffic channel of GSM cell.
				The SS performs a ‘postamble’ and restores both UE and SS to their initial state so that the test can be repeated from step 1 for executions 2,3 and 4 (if required).

Specific message contents

HANDOVER FROM UTRAN COMMAND-GSM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	now
RAB Info	
- RAB identity	0000 0001B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	CS domain
- NAS Synchronization Indicator	Not present
- Re-establishment timer	Use T314
Inter-system message	
- CHOICE System type	GSM
- Frequency Band	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- CHOICE GSM message	Single GSM message
- Message	GSM HANDOVER COMMAND formatted and coded according to GSM specifications as Variable Length BIT STRING without Length Indicator. The first/ l*eftmost/ most significant* bit of the bit string contains bit 8 of the first octet of the GSM message. The contents of the HANDOVER COMMAND see next table.

For execution 1:

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 2 in clause 26.6.5.1 of GSM 51.010, except that the CHANNEL MODE IE is included with value = speech full rate or half rate version 3

For execution 2:

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 2 in clause 26.6.5.1 of GSM 51.010, except that the CHANNEL MODE IE is included with value = speech full rate or half rate version 2

For execution 3:

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 2 in clause 26.6.5.1 of GSM 51.010, except that the CHANNEL MODE IE is included with value = speech full rate or half rate version 1

For execution 4:

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 4 in clause 26.6.5.1 of GSM 51.010, except that the CHANNEL MODE IE is included with value = speech full rate or half rate version 1

8.3.7.1.5 Test requirement

At step 5 the SS receives a handover access burst on the traffic channel of the GSM cell indicating that the UE has switched to the GSM cell.

At step 12 the SS receives a HANDOVER COMPLETE message indicating a successful handover to the GSM cell.

8.3.7.1a Inter system handover from UTRAN/To GSM/Speech/Success with A5/3 ciphering

8.3.7.1a.1 Definition

This test case is specified for the UE in the interRAT speech handover from UTRAN to GERAN. The A5/3 ciphering algorithm is applied in the GERAN cell. UIA1/UEA1 are applied in the UTRAN cell.

Note: The support of A5/3 is mandatory for the UE in Rel-6 or later, and is optional for the UE in earlier Releases.

8.3.7.1a.2 Conformance requirement

Identical to 8.3.7.1.2

8.3.7.1a.3 Test purpose

Identical to 8.3.7.1.3 but in GSM cell A5/3 is applied

8.3.7.1a.4 Method of test

Identical to 8.3.7.1.4 with exception of:

Related ICS/IXIT statement(s)

- UE supports A5/3,

Specific message contents

Similar to the specific message contents in 8.3.7.1.4 and the UE capability to support A5/3 is checked additionally.

The HANDOVER FROM UTRAN COMMAND indicates in the Cipher Mode Setting information element that A5/3 ciphering algorithm is applied in the GSM cell.

8.3.7.1b Inter system handover from UTRAN/To GSM/Speech/Success with UEA2/UIA2 and A5/3 ciphering

8.3.7.1b.1 Definition

This test case is specified for the Rel-7 (or later) UE in the interRAT speech handover from UTRAN to GERAN. UIA2/UEA2 are applied in the UTRAN cell. The A5/3 ciphering algorithm is applied in the GERAN cell.

8.3.7.1b.2 Conformance requirement

Identical to 8.3.7.1.2

8.3.7.1b.3 Test purpose

Identical to 8.3.7.1.3 but in UTRAN cell UIA2/UEA2 are applied and in GSM cell A5/3 is applied

8.3.7.1b.4 Method of test

Identical to 8.3.7.1.4

Specific message contents

Similar to the specific message contents in 8.3.7.1.4 but instead, the Rel-7 IEs are used, also the UE capability to support UEA2/UIA2 and A5/3 is checked.

The HANDOVER FROM UTRAN COMMAND indicates in the Cipher Mode Setting information element that A5/3 ciphering algorithm is applied in the GSM cell.

8.3.7.2 Inter system handover from UTRAN/To GSM/Data/Same data rate/Success

8.3.7.2.1 Definition

8.3.7.2.2 Conformance requirement

The UE shall be able to receive a HANDOVER FROM UTRAN COMMAND message and perform an inter-RAT handover, even if no prior UE measurements have been performed on the target cell.

The UE shall:

1> establish the connection to the target radio access technology, by using the contents of the IE "Inter-RAT message". This IE contains a message specified in another standard, as indicated by the IE "System type", and carries information about the candidate/ target cell identifier(s) and radio parameters relevant for the target radio access technology. The correspondence between the value of the IE "System type", the standard to apply and the message contained within IE "Inter RAT message" is shown in the following:

Value of the IE "System type"	Standard to apply	Inter RAT Message
GSM	GSM TS 04.18, version 8.5.0 or later	HANDOVER COMMAND
cdma2000	TIA/EIA/IS-2000 or later, TIA/EIA/IS-833 or later, TIA/EIQ/IS-834 or later	

1> if the IE "System type" has the value "GSM":

2> if the IE "Frequency band" has the value "GSM /DCS 1800 band used":

3> set the BAND_INDICATOR [45] to "ARFCN indicates 1800 band".

2> if the IE "Frequency band" has the value " GSM /PCS 1900 band used":

3> set the BAND_INDICATOR [45] to "ARFCN indicates 1900 band".

1> apply the "Inter RAT Message" according to the "standard to apply" in the table above.

1> if the IE "RAB information List" is included in the HANDOVER FROM UTRAN COMMAND message:

2> if the IE "RAB information List" includes one IE "RAB Info" with the IE "CN domain Identity" set to "CS domain":

3> connect upper layer entities corresponding to the indicated CS domain RAB to the radio resources indicated in the inter-RAT message.

NOTE: In this version of the specification the maximum number of CS domain RABs which may be included in the IE "RAB information List" is limited to 1.

NOTE: Requirements concerning the establishment of the radio connection towards the other radio access technology and the signalling procedure are outside the scope of this specification.

Upon successfully completing the handover, the UE shall:

1> if there are any NAS messages with the IE "CN domain identity" set to "CS domain" for which the successful delivery of the INITIAL DIRECT TRANSFER message or UPLINK DIRECT TRANSFER message on signalling radio bearer RB3 or signalling radio bearer RB4 that have not yet been confirmed by RLC:

2> retransmit those NAS messages to the network on the newly established radio connection to the target radio access technology.

1> clear or set variables upon leaving UTRA RRC connected mode as specified in subclause 13.4.

NOTE: The release of the UMTS radio resources is initiated from the target RAT.

Reference(s)

TS 25.331 Clause 8.3.7.3, 8.3.7.4.

8.3.7.2.3 Test purpose

To test that the UE hands over to the indicated channel of same data rate in the GSM target cell when it is in the data call active state in the UTRAN serving cell and receives an HANDOVER FROM UTRAN COMMAND.

8.3.7.2.4 Method of test

Initial conditions

System Simulator : 2 cells - Cell 1 is UTRAN, Cell 9 is GSM. GSM 51.010 clause 40 shall be referenced for the default parameters, and clause 26.6.5.1 shall be referenced for cell allocation of cell 9.

UE: Idle state (state 2 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE. Related ICS/IXIT statement(s)

- UE supports both GSM and UTRAN Radio Access Technologies,
- UE supports UTRAN Streaming/unknown/uplink:14.4 DL:14.4 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs,
- UE supports GSM 14.4 kbps data (full rate traffic channel for 14.4 kbit/s user data (TCH/F14.4)),
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-PCS, GSM-850, GSM-710, GSM 750, T_GSM-810.

Foreseen final state of the UE

The UE is in CC state U10 on cell 9.

Test Procedure

The SS brings the UE into data call active state (CC state U10) with Streaming/unknown/uplink:14.4 DL:14.4 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs . The SS configures a 14.4 kbps data channel on the GSM cell, then sends a HANDOVER FROM UTRAN COMMAND indicating the traffic channel of the target GSM cell to the UE through DCCH of the serving UTRAN cell. After the UE receives the command it shall configure itself accordingly and switch to the new channel of the GSM cell. The SS checks whether the handover is performed by checking that the UE transmits the HANDOVER COMPLETE message to the SS in GSM cell.

UEs for which the PIXIT indicates support for the GSM/ DCS 1800 and/ or GSM/ PCS 1900 band, the test should cover these frequencies in order to verify the correct handling of the IE "Frequency band".

Inter RAT handover is normally preceded by the configuration and activation of compressed mode (depending on UE capabilities/ PIXIT) and the configuration of inter- RAT measurements. The inter RAT handover is normally initiated by the SS upon receiving an event triggered measurement report. The verification of this functionality is covered by other subclauses.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS bring the UE into UTRAN U10 state in cell 1, the configuration is: Streaming/unknown/uplink:14.4 DL:14.4 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs ;
2	SS			The SS configures a traffic channel on cell 9 (GSM cell): for GSM 14.4 kbps data .
3	←		HANDOVER FROM UTRAN COMMAND GSM	Send on cell 1 (UTRAN cell) and the message indicates: the target channel for GSM 14.4 kbps data
4	UE			The UE accepts the handover command and switches to the GSM traffic channel specified in the HANDOVER FROM UTRAN COMMAND-GSM
5	→		HANDOVER ACCESS	The SS receives this burst on the traffic channel of cell 9 (GSM cell) It implies that the UE has switched to GSM cell.
6	→		HANDOVER ACCESS	
7	→		HANDOVER ACCESS	
8	→		HANDOVER ACCESS	
9	←		PHYSICAL INFORMATION	
10	→		SABM	
11	←		UA	
12	→		HANDOVER COMPLETE	The SS receives the message on the traffic channel of GSM cell.

Specific message contents

HANDOVER FROM UTRAN COMMAND-GSM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	now
RAB Info	
- RAB identity	0000 0001B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	CS domain
- NAS Synchronization Indicator	Not present
- Re-establishment timer	Use T314
Inter-system message	
- CHOICE System type	GSM
- Frequency Band	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- CHOICE GSM message	GSM message List
- Message	GSM HANDOVER COMMAND formatted and coded according to GSM specifications as BIT STRING(1..512). The first/ l*eftmost/ most significant* bit of the bit string contains bit 8 of the first octet of the GSM message. The contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 2 in clause 26.6.5.1 of GSM 51.010, except that the CHANNEL MODE IE is included with value = data, 14.5 kbit/s radio interface rate (14.4 kbit/s user data (TCH/F14.4))

NOTE: This test case requires that the size of the HANDOVER COMMAND does not exceed 64 octets. Whenever the contents for the 04.18 HANDOVER COMMAND is changed, a check is needed to verify that size constraint is still met.

8.3.7.2.5 Test requirements

At step 5 the SS receives a handover access burst on the traffic channel of the GSM cell indicating that the UE has switched to the GSM cell.

At step 12 the SS receives a HANDOVER COMPLETE message indicating a successful handover to the GSM cell.

8.3.7.2a Inter system handover from UTRAN/To GSM/Data/Same data rate/Extended Rates/Success

8.3.7.2a.1 Definition

8.3.7.2a.2 Conformance requirement

The UE shall be able to receive a HANDOVER FROM UTRAN COMMAND message and perform an inter-RAT handover, even if no prior UE measurements have been performed on the target cell.

The UE shall:

1> establish the connection to the target radio access technology, by using the contents of the IE "Inter-RAT message". This IE contains a message specified in another standard, as indicated by the IE "System type", and carries information about the candidate/ target cell identifier(s) and radio parameters relevant for the target radio access technology. The correspondence between the value of the IE "System type", the standard to apply and the message contained within IE "Inter RAT message" is shown in the following:

Value of the IE "System type"	Standard to apply	Inter RAT Message
GSM	GSM TS 04.18, version 8.5.0 or later	HANDOVER COMMAND
cdma2000	TIA/EIA/IS-2000 or later, TIA/EIA/IS-833 or later, TIA/EIQ/IS-834 or later	

1> if the IE "System type" has the value "GSM":

2> if the IE "Frequency band" has the value "GSM /DCS 1800 band used":

3> set the BAND_INDICATOR [45] to "ARFCN indicates 1800 band".

2> if the IE "Frequency band" has the value " GSM /PCS 1900 band used":

3> set the BAND_INDICATOR [45] to "ARFCN indicates 1900 band".

1> apply the "Inter RAT Message" according to the "standard to apply" in the table above.

1> if the IE "RAB information List" is included in the HANDOVER FROM UTRAN COMMAND message:

2> if the IE "RAB information List" includes one IE "RAB Info" with the IE "CN domain Identity" set to "CS domain":

3> connect upper layer entities corresponding to the indicated CS domain RAB to the radio resources indicated in the inter-RAT message.

NOTE: In this version of the specification the maximum number of CS domain RABs which may be included in the IE "RAB information List" is limited to 1.

NOTE: Requirements concerning the establishment of the radio connection towards the other radio access technology and the signalling procedure are outside the scope of this specification.

Upon successfully completing the handover, the UE shall:

1> if there are any NAS messages with the IE "CN domain identity" set to "CS domain" for which the successful delivery of the INITIAL DIRECT TRANSFER message or UPLINK DIRECT TRANSFER message on signalling radio bearer RB3 or signalling radio bearer RB4 that have not yet been confirmed by RLC:

2> retransmit those NAS messages to the network on the newly established radio connection to the target radio access technology.

1> clear or set variables upon leaving UTRA RRC connected mode as specified in subclause 13.4.

NOTE: The release of the UMTS radio resources is initiated from the target RAT.

Reference(s)

TS 25.331 Clause 8.3.7.3, 8.3.7.4.

8.3.7.2a.3 Test purpose

To test that the UE hands over to the indicated channel of same data rate in the GSM target cell when it is in the data call active state in the UTRAN serving cell and receives an HANDOVER FROM UTRAN COMMAND.

8.3.7.2a.4 Method of test

Initial conditions

System Simulator : 2 cells - Cell 1 is UTRAN, Cell 9 is GSM. GSM 51.010 clause 26.6.5.1 or clause 26.13.1.3 (for HSCSD) shall be referenced for the default parameters of cell 9.

UE: Idle state (state 2 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE. Related ICS/IXIT statement(s)

- UE supports both GSM and UTRAN Radio Access Technologies,
- UE supports UTRAN Streaming/unknown/uplink:14.4 DL:14.4 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs,
- UE supports UTRAN Streaming/unknown/uplink:28.8 DL:28.8 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs,
- UE supports UTRAN Streaming/unknown/uplink:57.6 DL:57.6 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs,
- UE supports GSM 14.4 kbps data (HSCSD),
- UE supports GSM 28.8 kbps data (HSCSD or enhanced circuit switched full rate traffic channel for 28.8 kbit/s user date (E-TCH/F28.8)),
- UE supports GSM 57.6 kbps data,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-PCS.

Foreseen final state of the UE

The UE is in CC state U10 on cell 9.

Test Procedure

The SS brings the UE into data call active state (CC state U10) with a suitable configuration (e.g. Streaming/unknown/uplink:14.4 DL:14.4 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs for M = 1). The SS configures an appropriate traffic channel (e.g. 14.4 kbps HSCSD data channel for M = 1)on the GSM cell, then sends a HANDOVER FROM UTRAN COMMAND indicating the traffic channel of the target GSM cell to the UE through DCCH of the serving UTRAN cell. After the UE receives the command it shall configure itself accordingly and switch to the new channel of the GSM cell. The SS checks whether the handover is performed by checking that the UE transmits the HANDOVER COMPLETE message to the SS in GSM cell.

Depending on the PIXIT parameters the above procedure is executed maximum three times, each time with a different target channel in the GSM cell.

UEs for which the PIXIT indicates support for the GSM/ DCS 1800 and/ or GSM/ PCS 1900 band, the test should cover these frequencies in order to verify the correct handling of the IE "Frequency band".

Inter RAT handover is normally preceded by the configuration and activation of compressed mode (depending on UE capabilities/ PIXIT) and the configuration of inter- RAT measurements. The inter RAT handover is normally initiated by the SS upon receiving an event triggered measurement report. The verification of this functionality is covered by other subclauses.

Expected sequence

This sequence is performed for a maximum execution counter M = 1, 2, 3, depending on the PIXIT parameters.

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS bring the UE into UTRAN U10 state in cell 1, the configuration is: Streaming/unknown/uplink:14.4 DL:14.4 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs (for M = 1); Streaming/unknown/uplink:28.8 DL:28.8 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs (for M = 2); Streaming/unknown/uplink:57.6 DL:57.6 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs (for M = 3).
2	SS			The SS configures a traffic channel on cell 9 (GSM cell): for GSM HSCSD 14.4 kbps data (M = 1); or for GSM 28.8 kbps data (M = 2); or for GSM 57.6 kbps data (M = 3).
3	←		HANDOVER FROM UTRAN COMMAND GSM	Send on cell 1 (UTRAN cell) and the message indicates: the target channel for GSM HSCSD 14.4 kbps data (M = 1); or for GSM 28.8 kbps data (M = 2); or for GSM 57.6 kbps data (M = 3).
4	UE			The UE accepts the handover command and switches to the GSM traffic channel specified in the HANDOVER FROM UTRAN COMMAND-GSM
5	→		HANDOVER ACCESS	The SS receives this burst on the traffic channel of cell 9 (GSM cell) It implies that the UE has switched to GSM cell.
6	→		HANDOVER ACCESS	
7	→		HANDOVER ACCESS	
8	→		HANDOVER ACCESS	
9	←		PHYSICAL INFORMATION	
10	→		SABM	
11	←		UA	
12	→		HANDOVER COMPLETE	The SS receives the message on the traffic channel of GSM cell.
				The SS performs a ‘postamble’ and restores both UE and SS to their initial state so that the test can be repeated from step 1 for executions 2 and 3 (if required).

Specific message contents

HANDOVER FROM UTRAN COMMAND-GSM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	now
RAB Info	
- RAB identity	0000 0001B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	CS domain
- NAS Synchronization Indicator	Not present
- Re-establishment timer	Use T314
Inter-system message	
- CHOICE System type	GSM
- Frequency Band	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- CHOICE GSM message	GSM message List
- Message	GSM HANDOVER COMMAND formatted and coded according to GSM specifications as BIT STRING(1..512). The first/ l*eftmost/ most significant* bit of the bit string contains bit 8 of the first octet of the GSM message. The contents of the HANDOVER COMMAND see next table.

For execution 1:

HANDOVER COMMAND

Same as the HANDOVER COMMAND in clause 26.13.1.3 of GSM 51.010, except that the Description of a multi-slot configuration supporting 14.4 kbps user data.

NOTE: This test case requires that the size of the HANDOVER COMMAND does not exceed 64 octets. Whenever the contents for the 04.18 HANDOVER COMMAND is changed, a check is needed to verify that size constraint is still met.

For execution 2:

If the UE supports enhanced circuit switched full rate traffic channel for 28.8 kbps user data:

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 2 in clause 26.6.5.1 of GSM 51.010, except that the CHANNEL MODE IE is included with value = data, 29.0 kbit/s radio interface rate (28.8 kbit/s user data (E-TCH/F28.8))

NOTE: This test case requires that the size of the HANDOVER COMMAND does not exceed 64 octets. Whenever the contents for the 04.18 HANDOVER COMMAND is changed, a check is needed to verify that size constraint is still met.

If the UE supports HSCSD:

HANDOVER COMMAND

Same as the HANDOVER COMMAND in clause 26.13.1.3 of GSM 51.010, except that the Description of a multi-slot configuration supporting 28.8 kbps user data.

NOTE: This test case requires that the size of the HANDOVER COMMAND does not exceed 64 octets. Whenever the contents for the 04.18 HANDOVER COMMAND is changed, a check is needed to verify that size constraint is still met.

For execution 3:

HANDOVER COMMAND

Same as the HANDOVER COMMAND in clause 26.13.1.3 of GSM 51.010, except that the Description of a multi-slot configuration supporting 57.6 kbps user data.

NOTE: This test case requires that the size of the HANDOVER COMMAND does not exceed 64 octets. Whenever the contents for the 04.18 HANDOVER COMMAND is changed, a check is needed to verify that size constraint is still met.

8.3.7.2a.5 Test requirements

At step 5 the SS receives a handover access burst on the traffic channel of the GSM cell indicating that the UE has switched to the GSM cell.

At step 12 the SS receives a HANDOVER COMPLETE message indicating a successful handover to the GSM cell.

8.3.7.3 Inter system handover from UTRAN/To GSM/Data/Data rate down grading/Success

8.3.7.3.1 Definition

8.3.7.3.2 Conformance requirement

The UE shall be able to receive a HANDOVER FROM UTRAN COMMAND message and perform an inter-RAT handover, even if no prior UE measurements have been performed on the target cell.

The UE shall:

1> establish the connection to the target radio access technology, by using the contents of the IE "Inter-RAT message". This IE contains a message specified in another standard, as indicated by the IE "System type", and carries information about the candidate/ target cell identifier(s) and radio parameters relevant for the target radio access technology. The correspondence between the value of the IE "System type", the standard to apply and the message contained within IE "Inter RAT message" is shown in the following:

Value of the IE "System type"	Standard to apply	Inter RAT Message
GSM	GSM TS 04.18, version 8.5.0 or later	HANDOVER COMMAND
cdma2000	TIA/EIA/IS-2000 or later, TIA/EIA/IS-833 or later, TIA/EIQ/IS-834 or later	

1> if the IE "System type" has the value "GSM":

2> if the IE "Frequency band" has the value "GSM /DCS 1800 band used":

3> set the BAND_INDICATOR [45] to "ARFCN indicates 1800 band".

2> if the IE "Frequency band" has the value " GSM /PCS 1900 band used":

3> set the BAND_INDICATOR [45] to "ARFCN indicates 1900 band".

1> apply the "Inter RAT Message" according to the "standard to apply" in the table above.

1> if the IE "RAB information List" is included in the HANDOVER FROM UTRAN COMMAND message:

2> if the IE "RAB information List" includes one IE "RAB Info" with the IE "CN domain Identity" set to "CS domain":

3> connect upper layer entities corresponding to the indicated CS domain RAB to the radio resources indicated in the inter-RAT message.

NOTE: In this version of the specification the maximum number of CS domain RABs which may be included in the IE "RAB information List" is limited to 1.

NOTE: Requirements concerning the establishment of the radio connection towards the other radio access technology and the signalling procedure are outside the scope of this specification.

Upon successfully completing the handover, the UE shall:

1> if there are any NAS messages with the IE "CN domain identity" set to "CS domain" for which the successful delivery of the INITIAL DIRECT TRANSFER message or UPLINK DIRECT TRANSFER message on signalling radio bearer RB3 or signalling radio bearer RB4 that have not yet been confirmed by RLC:

2> retransmit those NAS messages to the network on the newly established radio connection to the target radio access technology.

1> clear or set variables upon leaving UTRA RRC connected mode as specified in subclause 13.4.

NOTE: The release of the UMTS radio resources is initiated from the target RAT.

Reference(s)

TS 25.331 Clause 8.3.7.3, 8.3.7.4.

8.3.7.3.3 Test purpose

To test that the UE hands over to the indicated channel of lower data rate in the GSM target cell when it is in the data call active state in the UTRAN serving cell and receives an HANDOVER FROM UTRAN COMMAND.

8.3.7.3.4 Method of test

Initial conditions

System Simulator : 2 cells - Cell 1 is UTRAN, Cell 9 is GSM. GSM 51.010 clause 40 shall be referenced for the default parameters, and clause 26.6.5.1 shall be referenced for cell allocation of cell 9.

UE: Idle state (state 2 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE. Related ICS/IXIT statement(s)

- UE supports both GSM and UTRAN Radio Access Technologies,
- UE supports UTRAN Streaming/unknown/uplink:28.8 DL:28.8 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs,
- UE supports UTRAN Streaming/unknown/uplink:57.6 DL:57.6 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs,
- UE supports GSM 14.4 kbps data (full rate traffic channel for 14.4 kbit/s user data (TCH/F14.4)),
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-PCS, GSM-850, GSM-710, GSM 750, T_GSM-810.
- UE support CS and PS service.

Foreseen final state of the UE

The UE is in CC state U10 on cell 9.

Test Procedure

The SS brings the UE into data call active state (CC state U10) with a suitable configuration (e.g. Streaming/unknown/uplink:28.8 DL:28.8 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs for M = 1). The SS configures a 14.4 kbps data channel on the GSM cell, then sends a HANDOVER FROM UTRAN COMMAND indicating the traffic channel of the target GSM cell to the UE through DCCH of the serving UTRAN cell. After the UE receives the command it shall configure itself accordingly and switch to the new channel of the GSM cell. The SS checks whether the handover is performed by checking that the UE transmits the HANDOVER COMPLETE message to the SS in GSM cell.

Upon completion of the handover, depending on UE capabilities, the UE performs routing area update and (re-) establishes the connection towards the PS domain.

Depending on the PIXIT parameters the above procedure is executed maximum two times, each time with different target channel in the GSM cell.

Expected sequence

This sequence is performed for a maximum execution counter M = 1, 2 depending on the PIXIT parameters.

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS bring the UE into UTRAN U10 state in cell 1, the configuration is: Streaming/unknown/uplink:28.8 DL:28.8 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs (for M = 1); Streaming/unknown/uplink:57.6 DL:57.6 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs (for M = 2).
2	SS			The SS configures a traffic channel on cell 9 (GSM cell): for GSM 14.4 kbps data (M = 1 and 2).
3	←		HANDOVER FROM UTRAN COMMAND-GSM	Send on cell 1 (UTRAN cell) and the message indicates: the target channel for GSM 14.4 kbps data (M = 1 and 2).
4	UE			The UE accepts the handover command and switches to the GSM traffic channel specified in the HANDOVER FROM UTRAN COMMAND-GSM
5	→		HANDOVER ACCESS	The SS receives this burst on the traffic channel of cell 9 (GSM cell) It implies that the UE has switched to GSM cell.
6	→		HANDOVER ACCESS	
7	→		HANDOVER ACCESS	
8	→		HANDOVER ACCESS	
9	←		PHYSICAL INFORMATION	
10	→		SABM	
11	←		UA	
12	→		HANDOVER COMPLETE	The SS receives the message on the traffic channel of GSM cell.
13	→		ROUTING AREA UPDATE	Conditional on Class A UE.
				The SS performs a ‘postamble’ and restores both UE and SS to their initial state so that the test can be repeated from step 1 for execution 2 (if required).

Specific message contents

For execution 1:

Same as the message contents of clause 8.3.7.2 Procedure 1 for M = 1.

For execution 2:

Same as the message contents of clause 8.3.7.2 Procedure 1 for M = 1.

8.3.7.3.5 Test requirement

At step 5 the SS receives a handover access burst on the traffic channel of the GSM cell indicating that the UE has switched to the GSM cell.

At step 12 the SS receives a HANDOVER COMPLETE message indicating a successful handover to the GSM cell.

8.3.7.3a Inter system handover from UTRAN/To GSM/Data/Data rate down grading/Extended Rates/Success

8.3.7.3a.1 Definition

8.3.7.3a.2 Conformance requirement

The UE shall be able to receive a HANDOVER FROM UTRAN COMMAND message and perform an inter-RAT handover, even if no prior UE measurements have been performed on the target cell.

The UE shall:

1> establish the connection to the target radio access technology, by using the contents of the IE "Inter-RAT message". This IE contains a message specified in another standard, as indicated by the IE "System type", and carries information about the candidate/ target cell identifier(s) and radio parameters relevant for the target radio access technology. The correspondence between the value of the IE "System type", the standard to apply and the message contained within IE "Inter RAT message" is shown in the following:

Value of the IE "System type"	Standard to apply	Inter RAT Message
GSM	GSM TS 04.18, version 8.5.0 or later	HANDOVER COMMAND
cdma2000	TIA/EIA/IS-2000 or later, TIA/EIA/IS-833 or later, TIA/EIQ/IS-834 or later	

1> if the IE "System type" has the value "GSM":

2> if the IE "Frequency band" has the value "GSM /DCS 1800 band used":

3> set the BAND_INDICATOR [45] to "ARFCN indicates 1800 band".

2> if the IE "Frequency band" has the value " GSM /PCS 1900 band used":

3> set the BAND_INDICATOR [45] to "ARFCN indicates 1900 band".

1> apply the "Inter RAT Message" according to the "standard to apply" in the table above.

1> if the IE "RAB information List" is included in the HANDOVER FROM UTRAN COMMAND message:

2> if the IE "RAB information List" includes one IE "RAB Info" with the IE "CN domain Identity" set to "CS domain":

3> connect upper layer entities corresponding to the indicated CS domain RAB to the radio resources indicated in the inter-RAT message.

NOTE: In this version of the specification the maximum number of CS domain RABs which may be included in the IE "RAB information List" is limited to 1.

NOTE: Requirements concerning the establishment of the radio connection towards the other radio access technology and the signalling procedure are outside the scope of this specification.

Upon successfully completing the handover, the UE shall:

1> if there are any NAS messages with the IE "CN domain identity" set to "CS domain" for which the successful delivery of the INITIAL DIRECT TRANSFER message or UPLINK DIRECT TRANSFER message on signalling radio bearer RB3 or signalling radio bearer RB4 that have not yet been confirmed by RLC:

2> retransmit those NAS messages to the network on the newly established radio connection to the target radio access technology.

1> clear or set variables upon leaving UTRA RRC connected mode as specified in subclause 13.4.

NOTE: The release of the UMTS radio resources is initiated from the target RAT.

Reference(s)

TS 25.331 Clause 8.3.7.3, 8.3.7.4.

8.3.7.3a.3 Test purpose

To test that the UE hands over to the indicated channel of lower data rate in the GSM target cell when it is in the data call active state in the UTRAN serving cell and receives an HANDOVER FROM UTRAN COMMAND.

8.3.7.3a.4 Method of test

Initial conditions

System Simulator : 2 cells - Cell 1 is UTRAN, Cell 9 is GSM. GSM 51.010 clause 26.6.5.1 or clause 26.13.1.3 (for HSCSD) shall be referenced for the default parameters of cell 9.

UE: Idle state (state 2 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE. Related ICS/IXIT statement(s)

- UE supports both GSM and UTRAN Radio Access Technologies,
- UE supports UTRAN Streaming/unknown/uplink:28.8 DL:28.8 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs,
- UE supports UTRAN Streaming/unknown/uplink:57.6 DL:57.6 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs,
- UE supports GSM 14.4 kbps data (HSCSD),
- UE supports GSM 28.8 kbps data (HSCSD or enhanced circuit switched full rate traffic channel for 28.8 kbit/s user date (E-TCH/F28.8)),
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480 GSM-PCS.
- UE support CS and PS service.

Foreseen final state of the UE

The UE is in CC state U10 on cell 9.

Test Procedure

The SS brings the UE into data call active state (CC state U10) with a suitable configuration (e.g. Streaming/unknown/uplink:28.8 DL:28.8 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs for M = 1). The SS configures a traffic channel (e.g. 14.4 kbps HSCSD data channel for M = 1)on the GSM cell, then sends a HANDOVER FROM UTRAN COMMAND indicating the traffic channel of the target GSM cell to the UE through DCCH of the serving UTRAN cell. After the UE receives the command it shall configure itself accordingly and switch to the new channel of the GSM cell. The SS checks whether the handover is performed by checking that the UE transmits the HANDOVER COMPLETE message to the SS in GSM cell.

Upon completion of the handover, depending on UE capabilities, the UE performs routing area update and (re-) establishes the connection towards the PS domain.

Depending on the PIXIT parameters the above procedure is executed maximum three times, each time with different target channel in the GSM cell.

Expected sequence

This sequence is performed for a maximum execution counter M = 1, 2, 3, depending on the PIXIT parameters.

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS bring the UE into UTRAN U10 state in cell 1, the configuration is: Streaming/unknown/uplink:28.8 DL:28.8 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs (for M = 1); Streaming/unknown/uplink:57.6 DL:57.6 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs (for M = 2 and 3).
2	SS			The SS configures a traffic channel on cell 9 (GSM cell): for GSM 14.4 kbps HSCSD data (M = 1 and 2); or for GSM 28.8 kbps data (M = 3).
3	←		HANDOVER FROM UTRAN COMMAND-GSM	Send on cell 1 (UTRAN cell) and the message indicates: the target channel for GSM HSCSD 14.4 kbps data (M = 1 and 2); or for GSM 28.8 kbps data (M = 3).
4	UE			The UE accepts the handover command and switches to the GSM traffic channel specified in the HANDOVER FROM UTRAN COMMAND-GSM
5	→		HANDOVER ACCESS	The SS receives this burst on the traffic channel of cell 9 (GSM cell) It implies that the UE has switched to GSM cell.
6	→		HANDOVER ACCESS	
7	→		HANDOVER ACCESS	
8	→		HANDOVER ACCESS	
9	←		PHYSICAL INFORMATION	
10	→		SABM	
11	←		UA	
12	→		HANDOVER COMPLETE	The SS receives the message on the traffic channel of GSM cell.
13	→		ROUTING AREA UPDATE	Conditional on Class A UE.
				The SS performs a 'postamble' and restores both UE and SS to their initial state so that the test can be repeated from step 1 for executions 2 and 3 (if required).

Specific message contents

For execution 1:

Same as the message contents of clause 8.3.7.2.2 Procedure 2 for M = 1.

For execution 2:

Same as the message contents of clause 8.3.7.2.2 Procedure 2 for M = 1.

For execution 3:

Same as the message contents of clause 8.3.7.2.2 Procedure 2 for M = 2.

8.3.7.3a.5 Test requirement

At step 5 the SS receives a handover access burst on the traffic channel of the GSM cell indicating that the UE has switched to the GSM cell.

At step 12 the SS receives a HANDOVER COMPLETE message indicating a successful handover to the GSM cell.

8.3.7.4 Inter system handover from UTRAN/To GSM/Speech/Establishment/Success

8.3.7.4.1 Definition

8.3.7.4.2 Conformance requirement

The UE shall be able to receive a HANDOVER FROM UTRAN COMMAND message and perform an inter-RAT handover, even if no prior UE measurements have been performed on the target cell.

The UE shall:

1> establish the connection to the target radio access technology, by using the contents of the IE "Inter-RAT message". This IE contains a message specified in another standard, as indicated by the IE "System type", and carries information about the candidate/ target cell identifier(s) and radio parameters relevant for the target radio access technology. The correspondence between the value of the IE "System type", the standard to apply and the message contained within IE "Inter RAT message" is shown in the following:

Value of the IE "System type"	Standard to apply	Inter RAT Message
GSM	GSM TS 04.18, version 8.5.0 or later	HANDOVER COMMAND
cdma2000	TIA/EIA/IS-2000 or later, TIA/EIA/IS-833 or later, TIA/EIQ/IS-834 or later	

1> if the IE "System type" has the value "GSM":

2> if the IE "Frequency band" has the value "GSM /DCS 1800 band used":

3> set the BAND_INDICATOR [45] to "ARFCN indicates 1800 band".

2> if the IE "Frequency band" has the value " GSM /PCS 1900 band used":

3> set the BAND_INDICATOR [45] to "ARFCN indicates 1900 band".

1> apply the "Inter RAT Message" according to the "standard to apply" in the table above.

1> if the IE "RAB information List" is included in the HANDOVER FROM UTRAN COMMAND message:

2> if the IE "RAB information List" includes one IE "RAB Info" with the IE "CN domain Identity" set to "CS domain":

3> connect upper layer entities corresponding to the indicated CS domain RAB to the radio resources indicated in the inter-RAT message.

NOTE: In this version of the specification the maximum number of CS domain RABs which may be included in the IE "RAB information List" is limited to 1.

NOTE: Requirements concerning the establishment of the radio connection towards the other radio access technology and the signalling procedure are outside the scope of this specification.

Upon successfully completing the handover, the UE shall:

1> if there are any NAS messages with the IE "CN domain identity" set to "CS domain" for which the successful delivery of the INITIAL DIRECT TRANSFER message or UPLINK DIRECT TRANSFER message on signalling radio bearer RB3 or signalling radio bearer RB4 that have not yet been confirmed by RLC:

2> retransmit those NAS messages to the network on the newly established radio connection to the target radio access technology.

1> clear or set variables upon leaving UTRA RRC connected mode as specified in subclause 13.4.

NOTE: The release of the UMTS radio resources is initiated from the target RAT.

Reference(s)

TS 25.331 Clause 8.3.7.3, 8.3.7.4.

8.3.7.4.3 Test purpose

To test that the UE hands over to the indicated channel in the GSM target cell when it is in the call establishment phase in the UTRAN serving cell and receives an HANDOVER FROM UTRAN COMMAND.

8.3.7.4.4 Method of test

Initial conditions

System Simulator : 2 cells - Cell 1 is UTRAN, Cell 9 is GSM. GSM 51.010 clause 40 shall be referenced for the default parameters, and clause 26.6.5.1 shall be referenced for cell allocation of cell 9 except the BCCH ARFCN for GSM 900 should be 18 and for GSM 1900 should be 646.

UE: Idle state (state 2 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE. Related ICS/IXIT statement(s)

- UE supports both GSM and UTRAN Radio Access Technologies,
- UE supports UTRAN AMR,
- UE supports GSM FR,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-PCS, GSM-850, GSM-710, GSM 750, T_GSM-810.

Foreseen final state of the UE

The UE is in CC state U1 on cell 9.

Test Procedure

The UE is triggered to initialise an MO speech call. During the call establishment phase, after the SS receives SETUP message the SS configures a dedicated channel on the GSM cell, then sends the UE an HANDOVER FROM UTRAN COMMAND indicating the dedicated channel in the target GSM cell. After the UE receives the command it shall configure itself accordingly and switch to the new channel of the GSM cell. The SS checks whether the handover is performed by checking that the UE transmits the HANDOVER COMPLETE message to the SS in GSM cell.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			To trigger the UE to initialise an MO call
2	→		SETUP	U1
3	SS			The SS configures a dedicated channel SDCCH on the GSM cell.
4	←		HANDOVER FROM UTRAN COMMAND-GSM	Send on cell 1 (UTRAN cell) and the message indicates: the dedicated channel SDCCH.
5	UE			The UE accepts the handover command and switches to the GSM dedicated channel specified in the HANDOVER FROM UTRAN COMMAND-GSM
6	→		HANDOVER ACCESS	The SS receives this burst on the dedicated channel of cell 9 (GSM cell) It implies that the UE has switched to GSM cell.
7	→		HANDOVER ACCESS	
8	→		HANDOVER ACCESS	
9	→		HANDOVER ACCESS	
10	←		PHYSICAL INFORMATION	
11	→		SABM	
12	←		UA	
13	→		HANDOVER COMPLETE	The SS receives the message on the dedicated channel of GSM cell.

Specific message contents

HANDOVER FROM UTRAN COMMAND-GSM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	now
RAB Info	Not present
Inter-system message	
- CHOICE System type	GSM
- Frequency Band	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- CHOICE GSM message	Single GSM message
- Message	GSM HANDOVER COMMAND formatted and coded according to GSM specifications as Variable Length BIT STRING without Length Indicator. The first/ l*eftmost/ most significant* bit of the bit string contains bit 8 of the first octet of the GSM message. The contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 4 in clause 26.6.5.2 of GSM 51.010 except that 'Mode of first channel' IE should be set to 'signalling only' and the BCCH ARFCN for GSM 900 should be 18 and for GSM 1900 should be 646

8.3.7.4.5 Test requirement

At step 13 the SS shall receive HANDOVER COMPLETE message on the dedicated channel of the GSM cell.

8.3.7.5 Inter system handover from UTRAN/To GSM/Speech/Failure

8.3.7.5.1 Definition

8.3.7.5.2 Conformance requirement

If the UE does not succeed in establishing the connection to the other target radio access technology, it shall

1> revert back to the UTRA configuration;

1> establish the UTRA physical channel(s) used at the time for reception of HANDOVER FROM UTRAN COMMAND;

…

transmit the HANDOVER FROM UTRAN FAILURE message setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the HANDOVER FROM UTRAN COMMAND message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "Inter-RAT handover failure" to "physical channel failure".

1> When the HANDOVER FROM UTRAN FAILURE message has been submitted to lower layer for transmission:

2> the procedure ends.

Reference(s)

TS 25.331 Clause 8.3.7.5.

8.3.7.5.3 Test purpose

To test that the UE reactivates the old configuration and uses this to transmit a HANDOVER FROM UTRAN FAILURE message to the network including IE "Inter-RAT Handover failure cause" which is set to "physical channel failure", when it receives an HANDOVER FROM UTRAN COMMAND and the connection to GSM for handover can not be established.

To verify that after the handover failure the UE resumes previously configured compressed mode patterns and measurements.

8.3.7.5.4 Method of test

Initial conditions

System Simulator : 2 cells - Cell 1 is UTRAN, Cell 9 is GSM. GSM 51.010 clause 40 shall be referenced for the default parameters, and clause 26.6.5.1 shall be referenced for cell allocation of cell 9.

UE: Idle state (state 2 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports both GSM and UTRAN Radio Access Technologies,
- UE supports GSM FR,
- UE supports UTRAN AMR,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-PCS, GSM-850, GSM-710, GSM 750, T_GSM-810

- UE supports compressed mode (FDD only).

Foreseen final state of the UE

The UE is in CC state U10 on cell 1.

Test Procedure

The SS brings the UE into call active state (CC state U10) with AMR. If the UE requires compressed mode (refer ICS/IXIT), the SS sends a PHYSICAL CHANNEL RECONFIGURATION message to the UE to configure the compressed mode pattern sequence parameters. When the PHYSICAL CHANNEL RECONFIGURATION COMPLETE is received from the UE, the SS sends a MEASUREMENT CONTROL message indicating two GSM cells of which only one is actually configured. This message is used to provide measurement control parameters (GSM RSSI) to the UE and to start compressed mode for the measurement if required according to the UE capabilities. The UE replies according to request by sending RRC: MEASUREMENT REPORT messages periodically to SS (reporting period is 4000 ms).

The SS sends a HANDOVER FROM UTRAN COMMAND indicating a dedicated channel (not configured) of the target GSM cell to the UE through DCCH of the serving UTRAN cell. The UE receives the command and configures itself accordingly but can not complete the handover. The SS checks that the handover is failed by checking that the UE transmits the HANDOVER FROM UTRAN FAILURE message to the SS using the old UTRAN configuration.

After the handover failure, the UE re-activates compressed mode (if configured) and resumes periodic measurement reporting including sending MEASUREMENT REPORT messages periodically to SS.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS bring the UE into U10 state in UTRAN cell 1. If the UE does not require compressed mode (refer ICS/IXIT), then goto step 1c.
1a	←		PHYSICAL CHANNEL RECONFIGURATION	Compressed mode pattern sequence parameters are loaded to UE.
1b	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
1c	←		MEASUREMENT CONTROL	SS provides GSM RSSI measurement control parameters to UE. Compressed mode for GSM RSSI measurement is started if required as per UE capabilities.
1d	→		MEASUREMENT REPORT	UE reports measurement results of GSM RSSI measurement to SS.
3	←		HANDOVER FROM UTRAN COMMAND-GSM	Send on cell 1 (UTRAN cell) and the message indicates: the target channel for GSM FR which does not exist in the GSM cell.
4	UE			The UE accepts the handover command and switches to the GSM traffic channel specified in the HANDOVER FROM UTRAN COMMAND-GSM
5	→		HANDOVER FROM UTRAN FAILURE	The SS receives the message via the old UTRAN configuration.
5a	→		MEASUREMENT REPORT	The SS shall verify that the UE resumes periodic measurement reporting for GSM RSSI measurements

Specific message contents

PHYSICAL CHANNEL RECONFIGURATION (Step 1a)

Use the same message sub-type as in TS 34.108 titled "Speech in CS", with the following exceptions:

Information Element	Value/remark	Version
Downlink information common for all radio links		
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
- Transmission gap pattern sequence configuration parameters		
- TGMP	GSM Carrier RSSI Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not present	
- TGD	Undefined	
- TGPL1	12	
- TGPL2	Not present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2	
- Downlink frame type	A	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not Present	
- DeltaSIR2After2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
- TGPSI	2	
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
- Transmission gap pattern sequence configuration parameters		
- TGMP	GSM Initial BSIC identification	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not present	
- TGD	undefined	
- TGPL1	8	
- TGPL2	Not present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2	
- Downlink frame type	A	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not Present	
- DeltaSIR2After2	Not Present	
- N identify abort	128	
- T Reconfirm abort	Not Present	

MEASUREMENT CONTROL (Step 1c)

Information Element	Value/remark
Measurement Identity	15
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Periodical reporting
Additional measurements list	Not Present
CHOICE measurement type	
- inter-RAT measurement	
- inter-RAT measurement object list	
CHOICE Inter-RAT Cell Removal	Remove all inter-RAT cells
- New inter-RAT cells	
- inter-RAT cell id	0
CHOICE Radio Access Technology	GSM
- Cell individual offset	0 (0 dB)
- Cell selection and re-selection info	Not present
- BSIC	Value set to correspond with HANDOVER COMMAND IEs seen in TS 51.010 clause 26.6.5.1 M=2
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value the same as HANDOVER COMMAND in TS 51.010 clause 26.6.5.1 M=2 (dependant on band used)
- inter-RAT cell id	1
CHOICE Radio Access Technology	GSM
- Cell individual offset	0 (0 dB)
- Cell selection and re-selection info	Not present
- BSIC	BSIC2
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- Cell for measurement	Not present
- inter-RAT measurement quantity	
- Measurement quantity for UTRAN quality estimate	Not present
CHOICE system	GSM
- Measurement quantity	GSM carrier RSSI
- Filter coefficient	0
- BSIC verification required	not required
- inter-RAT reporting quantity	
UTRAN estimated quality	FALSE
CHOICE system	GSM
- Observed time difference to GSM cell reporting indicator	FALSE
- GSM carrier RSSI reporting indicator	TRUE
- Reporting cell status	
CHOICE reported cell	
- Reported cells within active set or within virtual active set or of the other RAT	
- Maximum number of reported cells	6
CHOICE report criteria	
- Periodical reporting criteria	
- Amount of reporting	infinity
- Reporting interval	4000
Physical channel information elements	
- DPCH compressed mode status info	If the UE requires compressed mode (refer ICS/IXIT), this IE is present and contains the IEs as follows. If the UE does not require compressed mode (refer ICS/IXIT), this IE is not present.
- TGPS reconfiguration CFN	(Current CFN + (256 – TTI/10msec))mod 256
- Transmission gap pattern sequence	
- TGPSI	1
- TGPS status flag	Activate
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256
- TGPSI	2
- TGPS status flag	Deactivate

Information Element	Value/remark
- TGCFN	Not present

MEASUREMENT REPORT, if the UE requires compressed mode (refer ICS/IXIT) (Step 1d and step 5a)

Information Element	Value/remark
Measurement identity	Check to see if set to 15
Measured Results	
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"
- Inter-RAT measured result list	
- CHOICE system	GSM
- Measured GSM cells	
- GSM carrier RSSI	Check to see if present
CHOICE BSIC	Check to see if present
- Observed time difference to GSM cell	Check that not present
- GSM carrier RSSI	Check to see if present
CHOICE BSIC	Non verified BSIC
- BCCH ARFCN	Check that is set to the correct value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- Observed time difference to GSM cell	Check that not present
Measured results on RACH	Check that not present
Additional Measured results	Check that not present
Event results	Check that not present

MEASUREMENT REPORT, if the UE doesn't requires compressed mode (refer ICS/IXIT) (Step 1d and step 5a)

Information Element	Value/remark
Measurement identity	Check to see if set to 15
Measured Results	
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"
- Inter-RAT measured result list	
- CHOICE system	GSM
- Measured GSM cells	
- GSM carrier RSSI	Check to see if present
CHOICE BSIC	verified BSIC
- Inter-RAT cell id	Check that is set to 0
- Observed time difference to GSM cell	Check that not present
- GSM carrier RSSI	Check to see if present
CHOICE BSIC	Non verified BSIC
- BCCH ARFCN	Check that is set to the correct value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- Observed time difference to GSM cell	Check that not present
Measured results on RACH	Check that not present
Additional Measured results	Check that not present
Event results	Check that not present

MEASUREMENT REPORT, if the UE doesn't require compressed mode (refer ICS/IXIT) (Step 1d and step 5a) (1.28Mcps TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 15
Measured Results	
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"
- Inter-RAT measured result list	
- CHOICE system	GSM
- Measured GSM cells	
- GSM carrier RSSI	Check to see if present
CHOICE BSIC	Check to see if present
- Observed time difference to GSM cell	Check that not present
- GSM carrier RSSI	Check to see if present
CHOICE BSIC	Non verified BSIC
- BCCH ARFCN	Check that is set to the correct value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- Observed time difference to GSM cell	Check that not present
Measured results on RACH	Check that not present
Additional Measured results	Check that not present
Event results	Check that not present

HANDOVER FROM UTRAN COMMAND-GSM

The contents of this message is identical to the HANDOVER FROM UTRAN COMMAND-GSM message specified in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Inter-system message	
- System type	GSM
- Frequency Band	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- CHOICE GSM message	Single GSM message
- Message	GSM HANDOVER COMMAND formatted as BIT STRING (1..512). The contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 2 in clause 26.6.5.1 of GSM 51.010, except that the CHANNEL MODE IE is included with value = speech full rate or half rate version 1 and that the indicated target channel for GSM FR does not exist in the GSM cell

HANDOVER FROM UTRAN FAILURE

The contents of this message is identical to the HANDOVER FROM UTRAN FAILURE message specified in [9] TS 34.108 clause 9.

8.3.7.5.5 Test requirement

After step 4 the SS shall receive HANDOVER FROM UTRAN FAILURE message using the old UTRA configuration.

After step 5 the UE shall correctly report the GSM RSSI value.

8.3.7.6 Inter system handover from UTRAN/To GSM/Speech/Failure (L2 Establishment)

8.3.7.6.1 Definition

8.3.7.6.2 Conformance requirement

If the UE does not succeed to establish the connection to the other radio access technology , as is unable to obtain L2 establishment it shall

- resume the connection to UTRAN using the resources used before receiving the HANDOVER FROM UTRAN COMMAND message; and
- transmit the HANDOVER FROM UTRAN FAILURE message on uplink DCCH using AM RLC.

Reference(s)

3GPP TS 25.331 clause 8.3.7

TS 04.06 Clause 5.4.1.3

TS 04.08 Clause 3.1.5

8.3.7.6.3 Test purpose

To Test that the UE shall keep its old configuration and transmit a HANDOVER FROM UTRAN FAILURE message, which is set to "physical channel failure" in IE "Inter_RAT HO failure cause", when it receives a HANDOVER FROM UTRAN COMMAND and the connection to GSM for handover cannot be established due to failure in L2 establishment.

8.3.7.6.4 Method of test

Initial conditions

System Simulator : 2 cells - Cell 1 is UTRAN, Cell 9 is GSM. GSM 51010-1 section 26.6.5.1 shall be referenced for the default parameters of cell 9.

UE: CC State U10 in cell 1

Related ICS/IXIT statement(s)

UE supports both GSM and UTRAN Radio Access Technologies,

UE supports GSM FR,

UE supports UTRAN AMR,

UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480.

Foreseen final state of the UE

The UE is in CC state U10 on cell 1.

Test Procedure

The SS starts the UTRAN cell and brings the UE into call active state (CC state U10) with AMR. SS activates a dedicated GSM traffic channel then sends HANDOVER FROM UTRAN COMMAND indicating a dedicated channel of the target GSM cell to the UE through DCCH of the serving UTRAN cell. When the UE does not succeed in establishing the connection to the target radio access technology it shall revert back to UTRA configuration establish the UTRA physical channel(s) used at the time for reception of HANDOVER FROM UTRAN COMMAND transmit the HANDOVER FROM UTRAN FAILURE.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS brings the UE into UTRAN U10 state in cell 1
2	SS			The SS configures cell 9 as a GSM cell with traffic channel.
3	←		HANDOVER FROM UTRAN COMMAND-GSM	Send on cell 1 (UTRAN cell) and the message indicates: The target channel.
4	UE			The UE accepts the handover command and switches to the GSM traffic channel specified in the HANDOVER FROM UTRAN COMMAND-GSM
5	→		HANDOVER ACCESS	The SS receives this burst on the traffic channel of cell 9 (GSM cell) It implies that the UE has switched to GSM cell.
6	→		HANDOVER ACCESS	
7	→		HANDOVER ACCESS	
8	→		HANDOVER ACCESS	
9	←		PHYSICAL INFORMATION	Allows a proper transmission by the MS. Sent in unacknowledged mode as soon as the SS has detected a HANDOVER ACCESS. As soon as MS detects it then it stops T3124. On SS side T3105 could be started N times at the maximum as long as the step 8 is not performed
10	→		SABM	To establish L2 connection
11	SS			SS does not sent UA frame
12	UE			On T200 expiration, SS sends N200 times the SABM frame (steps 10) Then MS deactivates new channels and reactivates old UTRA resources it had before receiving the handover command
13	→		HANDOVER FROM UTRAN FAILURE	The SS receives the message on the old channel of UTRAN cell. Sent in acknowledge mode The cause in the IE "inter-RAT change failure" is set to "physical channel failure"

Specific message contents

Same as the message contents of clause 8.3.7.1 for M = 3.

HANDOVER FROM UTRAN FAILURE

Information Element	Value/remark
Message Type	
RRC transaction identifier	Checked to see if it matches the same value used in the corresponding downlink HANDOVER FROM UTRAN COMMAND –GSM message
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Inter-RAT handover failure	
-Inter-RAT handover failure cause	physical channel failure
Inter-system message	Not Checked

8.3.7.6.5 Test requirement

The SS shall receive HANDOVER FROM UTRAN FAILURE message on the old channel of the UTRAN cell.

8.3.7.7 Inter system handover from UTRAN/To GSM/Speech/Failure (L1 Synchronization)

8.3.7.7.1 Definition

8.3.7.7.2 Conformance requirement

If the UE does not succeed in establishing the connection to the target radio access technology, it shall:

1> revert back to the UTRA configuration;

1> establish the UTRA physical channel(s) used at the time for reception of HANDOVER FROM UTRAN COMMAND;

…

1> transmit the HANDOVER FROM UTRAN FAILURE message setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the HANDOVER FROM UTRAN COMMAND message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "Inter-RAT handover failure" to "physical channel failure".

1> When the HANDOVER FROM UTRAN FAILURE message has been submitted to lower layer for transmission:

2> the procedure ends.

Reference(s)

TS 25.331 Clause 8.3.7.5

8.3.7.7.3 Test purpose

To test that the UE reactivates its old configuration and transmit a HANDOVER FROM UTRAN FAILURE message, which is set to "physical channel failure" in IE "Inter-RAT Handover failure cause", when it receives a HANDOVER FROM UTRAN COMMAND and the connection to GSM for handover cannot be established due to failure in L1 Synchronization.

8.3.7.7.4 Method of test

Initial conditions

System Simulator : 2 cells - Cell 1 is UTRAN, Cell 9 is GSM. GSM 51.010 section 40 shall be referenced for the default parameters, and clause 26.6.5.1 shall be referenced for cell allocation of cell 9.

UE: Idle state (state 2 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports both GSM and UTRAN Radio Access Technologies,
- UE supports GSM FR,
- UE supports UTRAN AMR,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-PCS, GSM-850, GSM-710, GSM 750, T_GSM-810.

Foreseen final state of the UE

The UE is in CC state U10 on cell 1.

Test Procedure

The SS brings the UE into call active state (CC state U10). The SS activates a dedicated channel in the GSM cell, then sends HANDOVER FROM UTRAN COMMAND indicating a dedicated channel of the target GSM cell to the UE through DCCH using the UTRAN configuration. The UE receives the command, configures itself accordingly and sends the HANDOVER ACCESS burst. Upon receiving this burst, the SS turns off the dedicated channel indicated to the UE, so the UE cannot complete the handover. The SS checks that the UE reverts to the old UTRA configuration by checking that the UE transmits the HANDOVER FROM UTRAN FAILURE message to the SS via the old UTRAN configuration.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS brings the UE into UTRAN U10 state in cell 1.
2	SS			The SS configures a traffic channel on cell 9 (GSM cell).
3	←		HANDOVER FROM UTRAN COMMAND-GSM	Send on cell 1 (UTRAN cell) and the message indicates: The target channel for GSM FR in GSM Cell.
4	UE			The UE accepts the handover command and switches to the GSM traffic channel specified in the HANDOVER FROM UTRAN COMMAND-GSM
5	→		HANDOVER ACCESS	The SS receives this burst on the traffic channel of cell 9 (GSM cell) It implies that the UE has switched to GSM cell.
6	→		HANDOVER ACCESS	
7	SS			The target GSM Traffic Channel is Switched off
8	→		HANDOVER FROM UTRAN FAILURE	The SS receives the message via the old UTRAN configuration. The cause in the IE "inter-RAT change failure" is set to "physical channel failure"

Specific message contents

HANDOVER FROM UTRAN COMMAND-GSM

The contents of this message is identical to the HANDOVER FROM UTRAN COMMAND-GSM message specified in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Inter-system message	
- System type	GSM
- Frequency Band	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- CHOICE GSM message	Single GSM message
- Message	GSM HANDOVER COMMAND formatted as BIT STRING (1..512). The contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 2 in clause 26.6.5.1 of GSM 51.010, except that the CHANNEL MODE IE is included with value = speech full rate or half rate version 1

HANDOVER FROM UTRAN FAILURE

The contents of this message is identical to the HANDOVER FROM UTRAN FAILURE message specified in [9] TS 34.108 clause 9.

8.3.7.7.5 Test requirement

After step 7 the SS shall receive HANDOVER FROM UTRAN FAILURE message via the old UTRA configuration.

8.3.7.8 Inter system handover from UTRAN/To GSM/Speech/Failure (Invalid Inter-RAT message)

8.3.7.8.1 Definition

8.3.7.8.2 Conformance requirement

If the IE "Inter-RAT message" received within the HANDOVER FROM UTRAN COMMAND message does not include a valid inter RAT handover message in accordance with the protocol specifications for the target RAT, the UE shall perform procedure specific error handling as follows. The UE shall:

1> set the IE "failure cause" to the cause value "Inter-RAT protocol error";

1> include the IE "Inter-RAT message" in accordance with the specifications applicable to the other RAT;

1> transmit a HANDOVER FROM UTRAN FAILURE message on the uplink DCCH using AM RLC;

1> when the transmission of the HANDOVER FROM UTRAN FAILURE message has been confirmed by RLC:

2> continue with any ongoing processes and procedures as if the invalid HANDOVER FROM UTRAN COMMAND message has not been received;

2> and the procedure ends.

Reference

3GPP TS 25.331 clause 8.3.7.6

8.3.7.8.3 Test purpose

To Test that the UE shall keep its old configuration and transmit a HANDOVER FROM UTRAN FAILURE message, which is set to "Inter-RAT protocol error" in IE "Inter_RAT HO failure cause", when it receives a Handover From UTRAN message, with the IE "Inter-RAT message" received within the HANDOVER FROM UTRAN COMMAND message not including a valid inter RAT handover message in accordance with the protocol specifications for the target RAT.

8.3.7.8.4 Method of test

Initial conditions

System Simulator : 1 UTRAN cell.

UE : CC State U10 in cell 1

Related ICS/IXIT statement(s)

UE supports both GSM and UTRAN Radio Access Technologies,

UE supports GSM FR,

UE supports UTRAN AMR,

UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480.

Foreseen final state of the UE

The UE is in CC state U10 on cell 1.

Test Procedure

The SS starts the UTRAN cell and brings the UE into call active state (CC state U10) with AMR. The SS then sends an HANDOVER FROM UTRAN COMMAND message not including a valid inter RAT handover message in accordance with the protocol specifications for the target RAT, to the UE through DCCH of the serving UTRAN cell. The UE receives the command and finds that the Inter Rat message is Invalid. The SS checks that the handover is failed by checking that the UE transmits the HANDOVER FROM UTRAN FAILURE message to the SS in UTRAN cell.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS brings the UE into UTRAN U10 state in cell 1
2	←		HandoverFromUTRAN Command-GSM	Send on cell 1 (UTRAN cell) and the message carries an Invalid HANDOVER FROM UTRAN COMMAND -GSM
3	→		HANDOVER FROM UTRAN FAILURE	The SS receives the message on the old channel of UTRAN cell.

Specific message contents

HANDOVER FROM UTRAN COMMAND-GSM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	Now
RAB Info	Not present
Inter-system message	
- CHOICE System type	GSM
- Frequency Band	GSM/DCS 1800 Band
- CHOICE GSM message	Single GSM message
- Message	GSM HANDOVER COMMAND formatted and coded according to GSM specifications as Variable Length BIT STRING without Length Indicator. The first/ l*eftmost/ most significant* bit of the bit string contains bit 8 of the first octet of the GSM message. The contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Contains an Invalid Handover Command.

HANDOVER FROM UTRAN FAILURE

Information Element	Value/remark
Message Type	
RRC transaction identifier	Checked to see if it matches the same value used in the corresponding downlink HANDOVER FROM UTRAN COMMAND –GSM message
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Inter-RAT handover failure	
-Inter-RAT handover failure cause	Inter-RAT protocol error
Inter-system message	Not checked

8.3.7.8.5 Test requirement

In step 3 the SS shall receive HANDOVER FROM UTRAN FAILURE message on the old channel of the UTRAN cell.

8.3.7.9 Inter system handover from UTRAN/To GSM/Speech/Failure (Unsupported configuration)

8.3.7.9.1 Definition

8.3.7.9.2 Conformance requirement:

If:

…

- the UTRAN instructs the UE to use a non-supported configuration; or

…

the UE shall:

1> transmit a HANDOVER FROM UTRAN FAILURE message, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the HANDOVER FROM UTRAN COMMAND message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "Inter-RAT handover failure" to "configuration unacceptable";

2> when the HANDOVER FROM UTRAN FAILURE message has been submitted to lower layers for transmission:

3> resume normal operation as if the invalid HANDOVER FROM UTRAN COMMAND message has not been received;

3> and the procedure ends.

Reference

3GPP TS 25.331 clause 8.3.7.8

8.3.7.9.3 Test purpose

To test that the UE shall keep its old configuration and transmit a HANDOVER FROM UTRAN FAILURE message, which is set to "configuration unacceptable" in IE "Inter-RAT Handover failure cause", when it receives a HANDOVER FROM UTRAN COMMAND message, with the IE "GSM message" containing a HANDOVER COMMAND message including a configuration not supported by the UE.

8.3.7.9.4 Method of test

Initial conditions

System Simulator: 1 UTRAN cell.

UE: Idle state (state 2 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE. Related

ICS/IXIT statement(s)

UE supports both GSM and UTRAN Radio Access Technologies,

UE supports GSM FR,

UE supports UTRAN AMR,

UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-PCS, GSM-850, GSM-710, GSM 750, T_GSM-810.

Foreseen final state of the UE

The UE is in CC state U10 on cell 1.

Test Procedure

The SS brings the UE into call active state (CC state U10) with AMR on the UTRAN cell. The SS then sends an HANDOVER FROM UTRAN COMMAND message including a configuration not supported by the UE in the HANDOVER COMMAND that is contained in the IE "GSM message", to the UE through DCCH using the UTRAN configuration. The UE receives the command and finds that the configuration given in Inter Rat message is not supported. The SS checks that the UE reverts to the old UTRA configuration by checking that the UE transmits the HANDOVER FROM UTRAN FAILURE message to the SS using the old UTRA configuration.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS brings the UE into UTRAN U10 state in cell 1
2	←		HANDOVER FROM UTRAN COMMAND -GSM	Send using the UTRAN configuration and the message carries an unsupported configuration.
3	→		HANDOVER FROM UTRAN FAILURE	The SS receives the message via the old UTRAN configuration.

Specific message contents

HANDOVER FROM UTRAN COMMAND-GSM

The contents of this message is identical to the HANDOVER FROM UTRAN COMMAND-GSM message specified in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RAB_Info	Not present
Inter-system message	
- System type	GSM
- Frequency Band	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- CHOICE GSM message	Single GSM message
- Message	GSM HANDOVER COMMAND formatted as Variable Length BIT STRING without Length Indicator. The contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 2 in clause 26.6.5.1 of GSM 51.010, except that the frequency band is set to a value not supported by the UE.

HANDOVER FROM UTRAN FAILURE

The contents of this message is identical to the HANDOVER FROM UTRAN FAILURE message specified in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Inter-RAT handover failure	
-Inter-RAT handover failure cause	configuration unacceptable

8.3.7.9.5 Test requirement

After step 2 the SS shall receive a HANDOVER FROM UTRAN FAILURE message via the old UTRA configuration.

8.3.7.10 Inter system handover from UTRAN/To GSM/Speech/Failure (Reception by UE in CELL_FACH)

8.3.7.10.1 Definition

8.3.7.10.2 Conformance requirement

If the UE receives HANDOVER FROM UTRAN COMMAND while in CELL_FACH, the UE shall:

1> transmit a HANDOVER FROM UTRAN FAILURE message, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the HANDOVER FROM UTRAN COMMAND message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "Inter-RAT handover failure" to "protocol error", include IE "Protocol error information"; and

2> set the value of IE "Protocol error cause" to "Message not compatible with receiver state";

2> when the HANDOVER FROM UTRAN FAILURE message has been submitted to lower layers for transmission:

3> resume normal operation as if the invalid HANDOVER FROM UTRAN COMMAND message has not been received;

3> and the procedure ends.

Reference

3GPP TS 25.331 clause 8.3.7.8a

8.3.7.10.3 Test purpose

The UE shall keep its old configuration when the UE receives a HANDOVER FROM UTRAN COMMAND message when in CELL_FACH state and then transmit a HANDOVER FROM UTRAN FAILURE message on the DCCH using AM RLC, which sets value "protocol error" in IE "Inter_RAT HO failure cause" and is set to "Message not compatible with receiver state" in IE "Protocol error cause".

8.3.7.10.4 Method of test

Initial conditions

System Simulator : 1 UTRAN Cell

UE : RRC State CS-DCCH_FACH (state 6-6) as specified in clause 7.4 of TS 34.108, on Cell 1

Related ICS/IXIT statement(s)

UE supports both GSM and UTRAN Radio Access Technologies,

UE supports GSM FR,

UE supports UTRAN AMR,

UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480.

Foreseen final state of the UE

The UE is in RRC is in State CS-DCCH_FACH (state 6-6) as specified in clause 7.4 of TS 34.108, on cell 1.

Test Procedure

The SS starts GSM cell without activating any dedicated channel in the cell, then sends HANDOVER FROM UTRAN COMMAND indicating a dedicated channel of the target GSM cell to the UE through DCCH of the serving UTRAN cell. The UE receives the command and configures itself accordingly but cannot complete the handover. The SS checks that the handover is failed by checking that the UE transmits the HANDOVER FROM UTRAN FAILURE message to the SS in UTRAN cell.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS brings the UE into CS-DCCH_FACH (state 6-6) _FACH state in cell 1
2	←		HANDOVER FROM UTRAN COMMAND	Send on cell 1 (UTRAN cell) and the message indicates: The target channel for GSM
3	→		HANDOVER FROM UTRAN FAILURE	The SS receives the message on the old channel of UTRAN cell.

Specific message contents

Same as the message contents of clause 8.3.7.1 for M = 3.

HANDOVER FROM UTRAN FAILURE

Information Element	Value/remark
Message Type	
RRC transaction identifier	Checked to see if it matches the same value used in the corresponding downlink HANDOVER FROM UTRAN COMMAND –GSM message
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Inter-RAT handover failure	
-Inter-RAT handover failure cause	Protocol Error
-Diagnostics Type	Type1
-Protocol Error Cause	Message Not Compatible With Receiver State
Inter-system message	Not Checked

8.3.7.10.5 Test requirement

After step 2 the SS shall receive HANDOVER FROM UTRAN FAILURE message on the old channel of the UTRAN cell.

8.3.7.11 Inter system handover from UTRAN/To GSM/Speech/Failure (Invalid message reception)

8.3.7.11.1 Definition

8.3.7.11.2 Conformance requirement:

If the HANDOVER FROM UTRAN COMMAND message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 9, the UE shall perform procedure specific error handling as follows. The UE shall:

1> set the IE "RRC transaction identifier" in the HANDOVER FROM UTRAN FAILURE message to the value of "RRC transaction identifier" in the entry for the HANDOVER FROM UTRAN COMMAND message in the table "Rejected transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> set the IE "failure cause" to the cause value "protocol error";

1> include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;

1> transmit a HANDOVER FROM UTRAN FAILURE message on the uplink DCCH using AM RLC;

1> when the HANDOVER FROM UTRAN FAILURE message has been submitted to lower layers for transmission:

2> continue with any ongoing processes and procedures as if the invalid HANDOVER FROM UTRAN COMMAND message has not been received;

2> and the procedure ends.

Reference

3GPP TS 25.331 clause 8.3.7.6

8.3.7.11.3 Test purpose

The UE shall keep its old configuration when the UE receives a Handover From UTRAN message, that cause the variable PROTOCOL_ERROR_REJECT to be set to TRUE. It shall then transmit a HANDOVER FROM UTRAN FAILURE message on the uplink DCCH. The IE "Protocol error information" shall contain an IE "Protocol error cause" set to " Message extension not comprehended ".

8.3.7.11.4 Method of test

Initial conditions

System Simulator : 1 UTRAN cell.

UE : CC State U10 in cell 1

Related ICS/IXIT statement(s)

UE supports both GSM and UTRAN Radio Access Technologies,

UE supports GSM FR,

UE supports UTRAN AMR,

UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480.

Foreseen final state of the UE

The UE is in CC state U10 on cell 1.

Test Procedure

The SS starts the UTRAN cell and brings the UE into call active state (CC state U10) with AMR. The SS then sends an HANDOVER FROM UTRAN COMMAND message, which contains an unexpected critical message extension, to the UE through DCCH of the serving UTRAN cell. The SS checks that the handover is failed by checking that the UE transmits a HANDOVER FROM UTRAN FAILURE message on the uplink DCCH. The IE "Protocol error information" shall contain an IE "Protocol error cause" set to " Message extension not comprehended ".

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS brings the UE into UTRAN U10 state in cell 1
2	←		Handover From UTRAN Command	Send on cell 1 (UTRAN cell) and the message is short in length to be decoded into a valid Handover From UTRAN command
3	→		HANDOVER FROM UTRAN FAILURE	The SS receives the message on the old channel of UTRAN cell.

Specific message contents

HANDOVER FROM UTRAN COMMAND

Use the HANDOVER FROM UTRAN COMMAND message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Critical extensions	'FF'H

HANDOVER FROM UTRAN FAILURE (Step 3)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Checked to see if it matches the same value used in the corresponding downlink HANDOVER FROM UTRAN COMMAND message
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Inter-RAT handover failure	
-Inter-RAT handover failure cause	Protocol Error
-Diagnostics Type	Type1
-Protocol Error Cause	Message extension not comprehended
Inter-system message	Not Checked

8.3.7.11.5 Test requirement

In step 3 the SS shall receive HANDOVER FROM UTRAN FAILURE message in the UTRAN cell.

8.3.7.12 Inter system handover from UTRAN/To GSM/Speech/Failure (Physical channel Failure and Reversion Failure)

8.3.7.12.1 Definition

8.3.7.12.2 Conformance requirement

1. This section applies to R99 & Rel-4 releases:

If the UE does not succeed in establishing the connection to the target radio access technology, it shall:

1> revert back to the UTRA configuration;

1> establish the UTRA physical channel(s) used at the time for reception of HANDOVER FROM UTRAN COMMAND;

1> if the UE does not succeed to establish the UTRA physical channel(s):

2> perform a cell update procedure according to subclause 8.3.1 in TS 25.331with cause "Radio link failure";

2> when the cell update procedure has completed successfully:

3> proceed as below.

1> transmit the HANDOVER FROM UTRAN FAILURE message setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the HANDOVER FROM UTRAN COMMAND message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "Inter-RAT handover failure" to "physical channel failure".

1> When the HANDOVER FROM UTRAN FAILURE message has been submitted to lower layer for transmission:

2> the procedure ends.

2. This section applies from Rel-5 releases onwards:

If the UE does not succeed in establishing the connection to the target radio access technology, it shall:

1> revert back to the UTRA configuration;

1> if the CM_PATTERN_ACTIVATION_ABORTED flag is not set to TRUE:

2> establish the UTRA physical channel(s) (including HS-DSCH related channels) used at the time for reception of HANDOVER FROM UTRAN COMMAND;

2> perform the physical layer synchronisation procedure A as specified in [29] (FDD only);

2> after the establishment of the uplink physical channel, send DPCCH and no DPDCH according to [26] during the number of frames indicated in the IE "PC preamble" in the variable LATEST_CONFIGURED_SRB_DELAY_AND_PC_PREAMBLE; and

2> then not send any data on signalling radio bearers RB0 to RB4 during the number of frames indicated in the IE "SRB delay" in the variable LATEST_CONFIGURED_SRB_DELAY_AND_PC_PREAMBLE.

Reference

3GPP TS 25.331 clause 8.3.7.5

8.3.7.12.3 Test purpose

The UE shall perform a cell update when the UE fails to revert to the old configuration after the detection of physical channel failure in the target RAT cell as given in the HANDOVER FROM UTRAN COMMAND message. After the UE completes the cell update procedure, the UE shall transmit a HANDOVER FROM UTRAN FAILURE message on the DCCH using AM RLC, including IE "failure cause" set to "physical channel failure".

8.3.7.12.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 9 is GSM. GSM 51.010 section 40 shall be referenced for the default parameters, and clause 26.6.5.1 shall be referenced for cell allocation of cell 9.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: Idle state (state 2 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

The 'timer poll' value in the SS RLC transmit entity should be set to 800 ms.

Related ICS/IXIT statement(s)

UE supports both GSM and UTRAN Radio Access Technologies,

UE supports GSM FR,

UE supports UTRAN AMR,

UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-PCS, GSM-850, GSM-710, GSM 750, T_GSM-810.

Foreseen final state of the UE

The UE is in CC state U10 on cell 1.

Test Procedure

The SS and brings the UE into call active state (CC state U10) with AMR on the UTRAN cell. The SS configures a target dedicated channel on the GSM cell. The SS sends a HANDOVER FROM UTRAN COMMAND indicating a

dedicated channel of the target GSM cell to the UE through DCCH using the UTRAN configuration. The UE receives the command and configures itself accordingly but cannot complete the handover and wants to revert to the old configuration, but the UE cannot revert to the old configuration because the SS released the old configuration. The UE transmits a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "radio link failure". The SS shall transmit CELL UPDATE CONFIRM message on downlink DCCH after receiving CELL UPDATE message. The UE transmits PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC and subsequently transmits the HANDOVER FROM UTRAN FAILURE message to the SS using the new UTRA configuration, on the DCCH using AM RLC, setting the value of IE "failure cause" to " physical channel failure". In case of R99 or Rel-4, UE may transmit HANDOVER FROM UTRAN FAILURE message using uplink AM RLC and subsequently PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS brings the UE into UTRAN U10 state in cell 1
2	SS			The SS configures a dedicated GSM FR channel on the GSM cell.
3	←		HANDOVER FROM UTRAN COMMAND-GSM	Send using the UTRA configuration and the message indicates: the target channel for GSM FR.
4	UE			The UE accepts the handover command and switches to the GSM traffic channel specified in the HANDOVER COMMAND message that is contained within the HANDOVER FROM UTRAN COMMAND -GSM message
4a	SS			SS removes the UTRAN physical channel (DPCH) allocated to the mobile to ensure UE will not be able to revert back to the old UTRAN configuration when handover failed
5	→		HANDOVER ACCESS	The SS receives this burst on the traffic channel of cell 9 (GSM cell) It implies that the UE has switched to GSM cell. Upon receiving this burst, SS removes the target GSM Traffic Channel. As a result not only the handover will fail, but also the reversion to the old UTRA configuration.
6	→		CELL UPDATE	The value "radio link failure" shall be set in IE "Cell update cause".
7	←		CELL UPDATE CONFIRM	This message include IE "Physical channel information elements".
8				The SS configures the dedicated physical channel according to the IE "Physical channel information elements" included in the CELL UPDATE CONFIRM message.
9	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
10	→		HANDOVER FROM UTRAN FAILURE	The IE "failure cause" shall be set to "physical channel failure"
				Note: For R99 and Rel-4 UEs the messages in Steps 9 and 10 may be received in either order.

Specific message contents

Same as the message contents of clause 8.3.7.1 for Execution 3.

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode - T312	 2

CELL UPDATE (Step 6)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in TS 34.108, clause 9,with the following exceptions:

Information Element	Value/remark
U-RNTI - SRNC Identity - S-RNTI Cell Update Cause	 Check to see if set to '0000 0000 0001' Check to see if set to '0000 0000 0000 0000 0001' "radio link failure"

CELL UPDATE CONFIRM (Step 7) (FDD)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in TS 34.108, clause 9,with the following exceptions:

Information Element	Value/remark	Version
U-RNTI	Same as CELL UPDATE message in step 3	
RRC State indicator	CELL_DCH	
CHOICE channel requirement	Uplink DPCH info	
-UplinkDPCH Info	Same as specified in “Contents of RADIO BEARER SETUP message: AM or UM” for condition A2 (Speech CS) in TS 34.108 clause 9.1	
- DPCCH power offset	-40 (-80 dB)	
- PC Preamble	1 frame	
- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- TPC step size	0 (1 dB)	
- Scrambling code type	Long	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- Number of FBI bit	Reference to TS34.108 clause 6.10 Parameter Set	
- Puncturing Limit	Reference to TS34.108 clause 6.10 Parameter Set	
Downlink information common for all radio links	Same as specified in “Contents of RADIO BEARER SETUP message: AM or UM” for condition A2 (Speech CS) in TS 34.108 clause 9.1	
CHOICE Mode	FDD	
- Downlink DPCH info common for all RL		
- Timing indicator	Initialise	
- CFN-targetSFN frame offset	Not Present	
- Downlink DPCH power control information		
- DPC mode	0 (single)	
- CHOICE mode	FDD	
- Power offset PPilot-DPDCH	0	
- DL rate matching restriction information	Not Present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Fixed or Flexible Position	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set	
- DPCH compressed mode info	Not Present	
- TX Diversity mode	None	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512	
Downlink information for each radio links		
- Primary CPICH info		
- Primary scrambling code	100	
- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only
- PDSCH code mapping	Not Present	R99 and Rel-4 only
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value: Default DPCH Offset value (as currently stored in SS) mod 38400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	2	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	SF-1(SF is reference to TS34.108 clause 6.10 Parameter Set)	
- Scrambling code change	No change	
- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	

- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

CELL UPDATE CONFIRM (Step 7) (3.84 Mcps TDD)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in TS34.108, clause 9, with the following exceptions:

Information Element	Value/remark
U-RNTI	Same as CELL UPDATE message in step 3
RRC State indicator	CELL_DCH
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Reference to TS34.108 clause 5.1 Test frequencies
Maximum allowed UL TX power	30dBm
CHOICE Mode	TDD
Downlink information for each radio links	
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- CHOICE SyncCase	Not Present
- Cell Parameters ID	Not Present
- Block STTD indicator	FALSE
- Downlink DPCH info for each RL	
- CHOICE mode	TDD
- DL CCTrCh List	
- TFCS ID	1
- Time info	
- Activation time	Not Present (default)
- Duration	Not Present (default)
- Common timeslot info	Not Present (default)
- Downlink DPCH timeslots and codes	Not Present (default)
- UL CCTrCH TPC List	Not Present (default)

CELL UPDATE CONFIRM (Step 7) (1.28 Mcps TDD)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in TS34.108, clause 9, with the following exceptions:

Information Element	Value/remark
U-RNTI	Same as CELL UPDATE message in step 3
RRC State indicator	CELL_DCH
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Reference to TS34.108 clause 5.1 Test frequencies
Maximum allowed UL TX power	30dBm
CHOICE Mode	TDD
Downlink information for each radio links	
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- TSTD indicator	FALSE
- Cell Parameters ID	Not Present
- Block STTD indicator	FALSE
- Downlink DPCH info for each RL	
- CHOICE mode	TDD
- DL CCTrCh List	
- TFCS ID	1
- Time info	
- Activation time	Not Present (default)
- Duration	Not Present (default)
- Common timeslot info	Not Present (default)
- Downlink DPCH timeslots and codes	Not Present (default)
- UL CCTrCH TPC List	Not Present (default)

CELL UPDATE CONFIRM (Step 7) (3.84 Mcps TDD)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in TS34.108, clause 9, with the following exceptions:

Information Element	Value/remark
U-RNTI	Same as CELL UPDATE message in step 3
RRC State indicator	CELL_DCH
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Reference to TS34.108 clause 5.1 Test frequencies
Maximum allowed UL TX power	30dBm
CHOICE Mode	TDD
Downlink information for each radio links	
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- CHOICE SyncCase	Not Present
- Cell Parameters ID	Not Present
- Block STTD indicator	FALSE
- Downlink DPCH info for each RL	
- CHOICE mode	TDD
- DL CCTrCh List	
- TFCS ID	1
- Time info	
- Activation time	Not Present (default)
- Duration	Not Present (default)
- Common timeslot info	Not Present (default)
- Downlink DPCH timeslots and codes	Not Present (default)
- UL CCTrCH TPC List	Not Present (default)

HANDOVER FROM UTRAN COMMAND

The contents of this message is identical to the HANDOVER FROM UTRAN COMMAND-GSM message specified in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Inter-system message	
- System type	GSM
- Frequency Band	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- CHOICE GSM message	Single GSM message
- Message	GSM HANDOVER COMMAND formatted as BIT STRING (1..512). The contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 2 in clause 26.6.5.1 of GSM 51.010, except that the CHANNEL MODE IE is included with value = speech full rate or half rate version 1

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Step 9)

Use the same message found in TS 34.108 clause 9, with the exceptions of the following IEs:

Information Element	Value/remark
Uplink counter synchronisation info	Not Checked

HANDOVER FROM UTRAN FAILURE (Step 10)

The contents of this message are identical to the HANDOVER FROM UTRAN FAILURE message specified in [9] TS 34.108 clause 9.

8.3.7.12.5 Test requirement

After step 5 the SS shall receive a CELL UPDATE message.

At step 9 the SS shall receive a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

At step 10 the SS shall receive a HANDOVER FROM UTRAN FAILURE message via the new UTRA configuration.

Note: For R99 and Rel-4 UEs the messages in Steps 9 and 10 may be received in either order.

8.3.7.13 Inter system handover from UTRAN/To GSM/ success / call under establishment

8.3.7.13.1 Definition

8.3.7.13.2 Conformance requirement

The UE shall be able to receive a HANDOVER FROM UTRAN COMMAND message and perform an inter-RAT handover, even if no prior UE measurements have been performed on the target cell.

The UE shall:

1> establish the connection to the target radio access technology, by using the contents of the IE "Inter-RAT message". This IE contains a message specified in another standard, as indicated by the IE "System type", and carries information about the candidate/ target cell identifier(s) and radio parameters relevant for the target radio access technology. The correspondence between the value of the IE "System type", the standard to apply and the message contained within IE "Inter RAT message" is shown in the following:

Value of the IE "System type"	Standard to apply	Inter RAT Message
GSM	GSM TS 04.18, version 8.5.0 or later	HANDOVER COMMAND
cdma2000	TIA/EIA/IS-2000 or later, TIA/EIA/IS-833 or later, TIA/EIQ/IS-834 or later	

1> if the IE "System type" has the value "GSM":

2> if the IE "Frequency band" has the value "GSM /DCS 1800 band used":

3> set the BAND_INDICATOR [45] to "ARFCN indicates 1800 band".

2> if the IE "Frequency band" has the value " GSM /PCS 1900 band used":

3> set the BAND_INDICATOR [45] to "ARFCN indicates 1900 band".

1> apply the "Inter RAT Message" according to the "standard to apply" in the table above.

1> if the IE "RAB information List" is included in the HANDOVER FROM UTRAN COMMAND message:

2> if the IE "RAB information List" includes one IE "RAB Info" with the IE "CN domain Identity" set to "CS domain":

3> connect upper layer entities corresponding to the indicated CS domain RAB to the radio resources indicated in the inter-RAT message.

NOTE: In this version of the specification the maximum number of CS domain RABs which may be included in the IE "RAB information List" is limited to 1.

NOTE: Requirements concerning the establishment of the radio connection towards the other radio access technology and the signalling procedure are outside the scope of this specification.

….

Upon successfully completing the handover, UTRAN should:

1> release the radio connection; and

1> remove all context information for the concerned UE.

Upon successfully completing the handover, the UE shall:

1> if the USIM is present:

2> store the current START value for every CN domain in the USIM [50];

2> if the "START" stored in the USIM [50] for a CN domain is greater than or equal to the value "THRESHOLD" of the variable START_THRESHOLD:

3> delete the ciphering and integrity keys that are stored in the USIM for that CN domain;

3> inform the deletion of these keys to upper layers.

1> if the SIM is present:

2> store the current START value for every CN domain in the UE;

2> if the "START" stored in the UE for a CN domain is greater than or equal to the value "THRESHOLD" of the variable START_THRESHOLD:

3> delete the ciphering and integrity keys that are stored in the SIM for that CN domain;

3> inform the deletion of these keys to upper layers.

1> if there are any NAS messages with the IE "CN domain identity" set to "CS domain" for which the successful delivery of the INITIAL DIRECT TRANSFER message or UPLINK DIRECT TRANSFER message on signalling radio bearer RB3 or signalling radio bearer RB4 that have not yet been confirmed by RLC:

2> retransmit those NAS messages to the network on the newly established radio connection to the target radio access technology.

1> clear or set variables upon leaving UTRA RRC connected mode as specified in subclause 13.4.

NOTE: The release of the UMTS radio resources is initiated from the target RAT.

Reference

3GPP TS 25.331 clause 8.3.7.3, 8.3.7.4

8.3.7.13.3 Test purpose

To test that the UE supporting both GSM and UTRAN performs handover from UTRAN to the indicated channel of GSM target cell when the UE receives a HANDOVER FROM UTRAN COMMAND in call establishment phase.

To test that the UE continues the call in the GSM cell, after successful completion of the Handover.

8.3.7.13.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 9 is GSM. GSM 51.010-1 26.6.5.1 section 40 shall be referenced for the default parameters, and clause 26.6.5.1 shall be referenced for cell allocation of cell 9 except the BCCH ARFCN for GSM 900 should be 18 and for GSM 1900 should be 646.

UE: CC State U0 (NULL state) in cell 1.

Related ICS/IXIT statement(s)

UE supports both GSM and UTRAN Radio Access Technologies,

UE supports GSM FR,

UE supports UTRAN AMR,

UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-850, GSM-PCS, GSM-710, GSM 750, T_GSM-810.

Foreseen final state of the UE

The UE is in CC state U0 (NULL) on cell 1.

Test Procedure

The SS activates the UTRAN cell and GSM Cell. The UE is triggered to initialise an MO speech call. During the call establishment phase, the SS is configured to not transmit the RLC Acknowledgment for SETUP message. SS configures a dedicated channel in GSM Cell, then sends the UE an HANDOVER FROM UTRAN COMMAND indicating the dedicated channel in the target GSM cell. After the UE receives the command it shall configure itself accordingly and switch to the new channel of the GSM cell. The SS checks whether the handover is performed by checking that the UE transmits the HANDOVER COMPLETE message to the SS in GSM cell. The SS checks MS correctly retransmits CC SETUP message, that was not acknowledged by UTRAN RLC Layer before the Handover, following completion of the handover to GSM cell.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			To trigger the UE to initialise an MO call
2	→		SETUP	SS does not Acknowledge it
3	SS			The SS starts the GSM cell and configure a dedicated channel SDCCH.
4	←		HANDOVER FROM UTRAN COMMANDGSM	Send via the UTRA configuration and the message indicates: the dedicated channel SDCCH.
5	UE			The UE accepts the handover command and switches to the GSM dedicated channel specified in the HANDOVER FROM UTRAN COMMAND-GSM
6	→		HANDOVER ACCESS	The SS receives this burst on the dedicated channel of cell 9 (GSM cell) It implies that the UE has switched to GSM cell.
7	→		HANDOVER ACCESS	
8	→		HANDOVER ACCESS	
9	→		HANDOVER ACCESS	
10	←		PHYSICAL INFORMATION	
11			Void	
12			Void	
13	→		HANDOVER COMPLETE	The SS receives the message on the dedicated channel of GSM cell.
14	->		SETUP	The SS receives the message on the dedicated channel of GSM cell.
15	<-		CHANNEL RELEASE	

Specific message contents

HANDOVER FROM UTRAN COMMAND-GSM

The contents of this message is identical to the HANDOVER FROM UTRAN COMMAND-GSM message specified in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RAB_info	Not present
Inter-system message	
- System type	GSM
- Frequency Band	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- CHOICE GSM message	Single GSM message
- Message	GSM HANDOVER COMMAND formatted as Variable Length BIT STRING without Length Indicator. The contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 4 in clause 26.6.5.2 of GSM 51.010, except that the CHANNEL MODE IE is included with value = signalling only and the BCCH ARFCN for GSM 900 should be 18 and for GSM 1900 should be 646

8.3.7.13.5 Test requirement

At step 14 the SS shall receive SETUP message on the dedicated channel of the GSM cell.

8.3.7.14 Inter system handover from UTRAN/To GSM/Speech/Success (stop of HS-DSCH reception)

8.3.7.14.1 Definition and applicability

All UEs which support FDD or TDD, HS-PDSCH and GSM.

8.3.7.14.2 Conformance requirement

The UE shall be able to receive a HANDOVER FROM UTRAN COMMAND message and perform an inter-RAT handover, even if no prior UE measurements have been performed on the target cell.

The UE shall:

1> if HS-DSCH is configured for UTRA:

2> stop any HS-DSCH reception procedures;

2> clear any stored HS-PDSCH configuration;

2> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

2> release all HARQ resources;

2> remove any H-RNTI stored;

2> clear the variable H_RNTI;

2> set the variable HS_DSCH_RECEPTION to FALSE.

1> establish the connection to the target radio access technology, by using the contents of the IE "Inter-RAT message". This IE contains a message specified in another standard, as indicated by the IE "System type", and carries information about the candidate/ target cell identifier(s) and radio parameters relevant for the target radio access technology. The correspondence between the value of the IE "System type", the standard to apply and the message contained within IE "Inter RAT message" is shown in the following:

Value of the IE "System type"	Standard to apply	Inter RAT Message
GSM	GSM TS 04.18, version 8.5.0 or later, or 3GPP TS 44.018	HANDOVER COMMAND
GERAN Iu	3GPP TS 44.118	RADIO BEARER RECONFIGURATION
cdma2000	TIA/EIA/IS-2000 or later, TIA/EIA/IS-833 or later, TIA/EIQ/IS-834 or later	

1> if the IE "System type" has the value "GSM" or "GERAN Iu":

2> if the IE "Frequency band" has the value "GSM /DCS 1800 band used":

3> set the BAND_INDICATOR [45] to "ARFCN indicates 1800 band".

2> if the IE "Frequency band" has the value " GSM /PCS 1900 band used":

3> set the BAND_INDICATOR [45] to "ARFCN indicates 1900 band".

1> apply the "Inter RAT Message" according to the "standard to apply" in the table above.

1> if the IE "RAB information List" is included in the HANDOVER FROM UTRAN COMMAND message:

2> if the IE "RAB information List" includes one IE "RAB Info" with the IE "CN domain Identity" set to "CS domain":

3> connect upper layer entities corresponding to the indicated CS domain RAB to the radio resources indicated in the inter-RAT message.

NOTE1: In this version of the specification the maximum number of CS domain RABs which may be included in the IE "RAB information List" is limited to 1.

NOTE2: In handover to GERAN *Iu mode*, the RAB information is included in the RADIO BEARER RECONFIGURATION message specified in [53].

NOTE3: Requirements concerning the establishment of the radio connection towards the other radio access technology and the signalling procedure are outside the scope of this specification.

NOTE4: The UE may ignore the IE "NAS synchronisation indicator" if included in the HANDOVER FROM UTRAN COMMAND message;

NOTE5: The UE behaviour is undefined if the IE "Re-establishment timer" in the IE "RAB info" indicates a timer different from the timer currently configured for this RAB.

During compressed mode on the associated DPCH or F-DPCH, the following applies for the UE for transmission of HS-DPCCH and reception of HS-SCCH and HS-PDSCH:

- The UE shall neglect a HS-SCCH or HS-PDSCH transmission, if a part of the HS-SCCH or a part of the corresponding HS-PDSCH overlaps with a downlink transmission gap on the associated DPCH or F-DPCH. In this case, neither ACK, nor NACK shall be transmitted by the UE to respond to the corresponding downlink transmission.

- If a part of a HS-DPCCH slot allocated to HARQ-ACK overlaps with an uplink transmission gap on the associated DPCH, the UE shall use DTX on the HS-DPCCH in that HS-DPCCH slot.

- If in a HS-DPCCH sub-frame a part of the slots allocated for CQI information overlaps with an uplink transmission gap on the associated DPCH, the UE shall not transmit CQI information in that sub-frame.

- If a CQI report is scheduled in the current CQI field according to subclause 6A.1.2 paragraph (2), and the corresponding 3-slot reference period (as defined in subclause 6A.2) wholly or partly overlaps a downlink

transmission gap, then the UE shall use DTX in the current CQI field and in the CQI fields in the next (*N_cqi_transmit*–1) subframes.

Reference(s)

TS 25.331 Clause 8.3.7.5.

TS 25.214 Clause 6A.3.

8.3.7.14.3 Test purpose

1. To test that the UE supporting both GSM and UTRAN hands over from a UTRAN serving cell to the indicated channel of GSM target cell when the UE is in the speech call active state, active PS RAB with HS-DSCH reception and receives an HANDOVER FROM UTRAN COMMAND.2. To verify that UE stops HS-DSCH reception after receiving the HANDOVER FROM UTRAN COMMAND.

3. For the UEs supporting compressed mode, to verify that the HS-DSCH reception has no impact on the GSM cells measurement when GSM compressed mode is activated.

8.3.7.14.4 Method of test

System Simulator : 2 cells - Cell 1 is UTRAN, Cell 9 is GSM. GSM 51.010 clause 26.6.5.1 shall be referenced for the default parameters of cell 9.

UE: Idle state (state 2 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports both GSM and UTRAN Radio Access Technologies,
- UE supports PS+CS
- UE supports GSM AMR
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-PCS, GSM-850, GSM-710, GSM 750, T_GSM-810
- UE supports compressed mode (FDD only).

Foreseen final state of the UE

The UE is in CC state U10 on cell 9.

Test Procedure

The SS brings the UE into call active state (CC state U10) with AMR with configuration (conversational/speech/uplink: 12.2 DL: 12.2 kbps/CS RAB + interactive/ background UL: 384kbps, DL: (max bit rate depending on UE category) PS RAB + uplink:3.4 DL3.4 kbps SRBs). In case UE does not support data rate of 384kbps in UL, then 64kbps should be used in UL for the PS RAB. PS RAB is configured with HS-DSCH.
The SS sends a PHYSICAL CHANNEL RECONFIGURATION message to the UE to configure the compressed mode pattern sequence parameters. When the PHYSICAL CHANNEL RECONFIGURATION COMPLETE is received from the UE, the SS sends a MEASUREMENT CONTROL message indicating two GSM cells of which only one is actually configured. This message is used to provide measurement control parameters (GSM RSSI) to the UE and to start compressed mode for the measurement if required according to the UE capabilities. The UE replies according to request by sending MEASUREMENT REPORT messages periodically to SS (reporting period is 4000 ms).

The SS configures the appropriate traffic channel on the GSM cell, then sends HANDOVER FROM UTRAN COMMAND indicating the traffic channel of the target GSM cell to the UE through DCCH of the serving UTRAN cell. After the UE receives the command it shall configure itself accordingly and switch to the new channel on the target GSM cell. The SS checks whether the handover is performed by checking that the UE transmits the HANDOVER COMPLETE message to the SS through GSM cell. SS receives GPRS SUSPENSION REQUEST from the UE.

SS disconnects the CS call and releases the RR connection.

Once RR connection is released, an RAU procedure is performed. To check that PDP context is active, SS sends MODIFY PDP CONTEXT REQUEST and assigns new QoS in GPRS cell. The UE may or may not accept the new QoS and replies to the SS accordingly.

For UEs where the PIXIT indicates support for the GSM/ DCS 1800 and/ or GSM/ PCS 1900 band, the whole test should be repeated to cover these frequencies in order to verify the correct handling of the IE "Frequency band".

Inter RAT handover is normally preceded by the configuration and activation of compressed mode (depending on UE capabilities/ PIXIT) and the configuration of inter- RAT measurements. The inter RAT handover is normally initiated by the SS upon receiving an event triggered measurement report. The verification of this functionality is covered by other subclauses.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS bring the UE into UTRAN U10 state and PS RAB with HS-DSCH active in cell 1. If the UE does not require compressed mode (refer ICS/IXIT), then go to step 1c.
1a	←		PHYSICAL CHANNEL RECONFIGURATION	Compressed mode pattern sequence parameters are loaded to UE.
1b	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
1c	←		MEASUREMENT CONTROL	SS provides GSM RSSI measurement control parameters to UE. Compressed mode for GSM RSSI measurement is started if required as per UE capabilities.
1d	→		MEASUREMENT REPORT	UE reports measurement results of GSM RSSI measurement to SS.
2	SS			The SS configures a traffic channel on cell 9 (GSM cell): for GSM AMR (M = 1); or
3	←		HANDOVER FROM UTRAN COMMAND-GSM	Send on cell 1 (UTRAN cell) and the message indicates:
4	UE			The UE accepts the handover command and switches to the GSM traffic channel specified in the HANDOVER FROM UTRAN COMMAND-GSM
5	→		HANDOVER ACCESS	The SS receives this burst on the traffic channel of cell 9 (GSM cell) It implies that the UE has switched to GSM cell.
6	→		HANDOVER ACCESS	
7	→		HANDOVER ACCESS	
8	→		HANDOVER ACCESS	
9	←		PHYSICAL INFORMATION	
10	→		SABM	
11	←		UA	
12	→		HANDOVER COMPLETE	The SS receives the message on the traffic channel of GSM cell.
13	→		GPRS SUSPENSION REQUEST	UE sends GPRS SUSPENSION REQUEST on FACCH. Suspension cause value is not checked
14	←		CHANNEL RELEASE	SS disconnects the CS call and releases the RR connection. The GPRS Resumption IE is included and is set to “resumption of GPRS services successfully acknowledged.”
14a	→		CHANNEL REQUEST	The SS receives this burst on the RACH of cell 9(GSM cell).
14b	←		IMMEDIATE ASSIGNMENT	Sent on AGCH.
15	→		ROUTING AREA UPDATE REQUEST	GMM “update type” = ‘combined RA/LA updating’
16	←		ROUTING AREA UPDATE ACCEPT	GMM. P-TMSI is included
17	→		ROUTING AREA UPDATE COMPLETE	
18	←		MODIFY PDP CONTEXT REQUEST	SS requests the modification of a PDP context, with a new QoS (peak throughput is changed to ‘0011’)
A19	→		MODIFY PDP CONTEXT ACCEPT	UE behaviour type A: Accept the PDP context modification
B19	→		DEACTIVATE PDP CONTEXT REQUEST	UE behaviour type B: Initiate the PDP context deactivation. Cause set to 'QoS not accepted'
B19a	←		DEACTIVATE PDP CONTEXT ACCEPT	UE behaviour type B: Accept the PDP context deactivation.
B19b	→		DETACH REQUEST	UE behaviour type B: A non-auto attach UE may (optionally) send a Detach Request. The SS shall wait up to 'T3390' seconds for the Detach Request.
B19c	←		DETACH ACCEPT	If the UE transmitted a Detach Request message in step B20b then the SS responds with a Detach Accept message.

Specific message contents

PHYSICAL CHANNEL RECONFIGURATION (Step 1a)

Use the same message sub-type as in TS 34.108 titled "Speech in CS", with the following exceptions:

Information Element	Value/remark
Downlink information common for all radio links	
- DPCH compressed mode info	
- TGPSI	1
- TGPS Status Flag	Deactivate
- TGCFN	Not present
- Transmission gap pattern sequence configuration parameters	
- TGMP	GSM Carrier RSSI Measurement
- TGPRC	Infinity
- TGSN	4
- TGL1	7
- TGL2	Not present
- TGD	Undefined
- TGPL1	12
- RPP	Mode 0
- ITP	Mode 0
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)
- Downlink compressed mode method	SF/2
- Uplink compressed mode method	HLS
- Downlink frame type	A
- DeltaSIR1	20 (2.0)
- DeltaSIRAfter1	10 (1.0)
- DeltaSIR2	Not Present
- DeltaSIR2After2	Not Present
- N identify abort	Not Present
- T Reconfirm abort	Not Present
- TGPSI	2
- TGPS Status Flag	Deactivate
- TGCFN	Not present
- Transmission gap pattern sequence configuration parameters	
- TGMP	GSM Initial BSIC identification
- TGPRC	Infinity
- TGSN	4
- TGL1	7
- TGL2	Not present
- TGD	Undefined
- TGPL1	8
- RPP	Mode 0
- ITP	Mode 0
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)
- Downlink compressed mode method	SF/2
- Uplink compressed mode method	HLS
- Downlink frame type	A
- DeltaSIR1	20 (2.0)
- DeltaSIRAfter1	10 (1.0)
- DeltaSIR2	Not Present
- DeltaSIR2After2	Not Present
- N identify abort	128
- T Reconfirm abort	Not Present

MEASUREMENT CONTROL (Step 1c)

Information Element	Value/remark
Measurement Identity	15
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Periodical reporting
Additional measurements list	Not Present
CHOICE measurement type	
- inter-RAT measurement	
- inter-RAT measurement object list	
CHOICE Inter-RAT Cell Removal	Remove all inter-RAT cells
- New inter-RAT cells	
- inter-RAT cell id	0
CHOICE Radio Access Technology	GSM
- Cell individual offset	0 (0 dB)
- Cell selection and re-selection info	Not present
- BSIC	Value set to correspond with HANDOVER COMMAND IEs seen in TS 51.010 clause 26.6.5.1 M=2
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value the same as HANDOVER COMMAND in TS 51.010 clause 26.6.5.1 M=2 (dependant on band used)
- inter-RAT cell id	1
CHOICE Radio Access Technology	GSM
- Cell individual offset	0 (0 dB)
- Cell selection and re-selection info	Not present
- BSIC	BSIC2
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- Cell for measurement	Not present
- inter-RAT measurement quantity	
- Measurement quantity for UTRAN quality estimate	Not present
CHOICE system	GSM
- Measurement quantity	GSM carrier RSSI
- Filter coefficient	0
- BSIC verification required	not required
- inter-RAT reporting quantity	
UTRAN estimated quality	FALSE
CHOICE system	GSM
- Observed time difference to GSM cell reporting indicator	FALSE
- GSM carrier RSSI reporting indicator	TRUE
- Reporting cell status	
CHOICE reported cell	
- Reported cells within active set or within virtual active set or of the other RAT	
- Maximum number of reported cells	6
CHOICE report criteria	
- Periodical reporting criteria	
- Amount of reporting	Infinity
- Reporting interval	4000
Physical channel information elements	
- DPCH compressed mode status info	If the UE requires compressed mode (refer ICS/IXIT), this IE is present and contains the IEs as follows. If the UE does not require compressed mode (refer ICS/IXIT), this IE is not present.
- TGPS reconfiguration CFN	(Current CFN + (256 – TTI/10msec))mod 256
- Transmission gap pattern sequence	
- TGPSI	1
- TGPS status flag	Activate
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256
- TGPSI	2
- TGPS status flag	Deactivate

Information Element	Value/remark
- TGCFN	Not present

MEASUREMENT REPORT, if the UE requires compressed mode (refer ICS/IXIT) (Step 1d)

Information Element	Value/remark
Measurement identity	Check to see if set to 15
Measured Results	
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"
- Inter-RAT measured result list	
- CHOICE system	GSM
- Measured GSM cells	
- GSM carrier RSSI	Check to see if present
CHOICE BSIC	Check to see if present
- Observed time difference to GSM cell	Check that not present
- GSM carrier RSSI	Check to see if present
CHOICE BSIC	Non verified BSIC
- BCCH ARFCN	Check that is set to the correct value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- Observed time difference to GSM cell	Check that not present
Measured results on RACH	Check that not present
Additional Measured results	Check that not present
Event results	Check that not present

MEASUREMENT REPORT, if the UE doesn't requires compressed mode (refer ICS/IXIT) (Step 1d)

Information Element	Value/remark
Measurement identity	Check to see if set to 15
Measured Results	
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"
- Inter-RAT measured result list	
- CHOICE system	GSM
- Measured GSM cells	
- GSM carrier RSSI	Check to see if present
CHOICE BSIC	verified BSIC
- Inter-RAT cell id	Check that is set to 0
- Observed time difference to GSM cell	Check that not present
- GSM carrier RSSI	Check to see if present
CHOICE BSIC	Non verified BSIC
- BCCH ARFCN	Check that is set to the correct value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- Observed time difference to GSM cell	Check that not present
Measured results on RACH	Check that not present
Additional Measured results	Check that not present
Event results	Check that not present

MEASUREMENT REPORT (1.28Mcps TDD) (Step 1d)

Information Element	Value/remark
Measurement identity	Check to see if set to 15
Measured Results	
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"
- Inter-RAT measured result list	
- CHOICE system	GSM
- Measured GSM cells	
- GSM carrier RSSI	Check to see if present
CHOICE BSIC	Check to see if present
- Observed time difference to GSM cell	Check that not present
- GSM carrier RSSI	Check to see if present
CHOICE BSIC	Non verified BSIC
- BCCH ARFCN	Check that is set to the correct value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- Observed time difference to GSM cell	Check that not present
Measured results on RACH	Check that not present
Additional Measured results	Check that not present
Event results	Check that not present

HANDOVER FROM UTRAN COMMAND-GSM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	now
RAB Info	
- RAB identity	0000 0001B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	CS domain
- NAS Synchronization Indicator	Not present
- Re-establishment timer	Use T314
Inter-system message	
- CHOICE System type	GSM
- Frequency Band	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- CHOICE GSM message	Single GSM message
- Message	GSM HANDOVER COMMAND formatted and coded according to GSM specifications as Variable Length BIT STRING without Length Indicator. The first/ l*eftmost/ most significant* bit of the bit string contains bit 8 of the first octet of the GSM message. The contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 2 in clause 26.6.5.1 of GSM 51.010, except that the CHANNEL MODE IE is included with value = speech full rate or half rate version 3

8.3.7.14.5 Test requirement

At step 1b the SS receives a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message indicating the successful download of the compressed mode parameters.

At step 1d the SS receives a MEASUREMENT REPORT message containing the measured results of the GSM cell.

At step 5 the SS receives a handover access burst on the traffic channel of the GSM cell indicating that the UE has switched to the GSM cell.

At step 12 the SS receives a HANDOVER COMPLETE message indicating a successful handover to the GSM cell.

At step 15 SS receives ROUTING AREA UPDATE REQUEST message.

After step 18, SS should either receive DEACTIVATE PDP CONTEXT REQUEST message with cause as “QoS not accepted” or receive a MODIFY PDP CONTEXT ACCEPT message from UE.

8.3.7.15 Inter system handover from UTRAN/To GSM/Speech/Failure(stop of HS-DSCH reception)

8.3.7.15.1 Definition

8.3.7.15.2 Conformance requirement

If the UE does not succeed in establishing the connection to the target radio access technology, it shall:

1> revert back to the UTRA configuration;

NOTE: If configured for HS-DSCH while in UTRA, the UE will have still stored the IEs "Added or Reconfigured MAC-d flow" and "RB mapping Info".

…

1> transmit the HANDOVER FROM UTRAN FAILURE message setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the HANDOVER FROM UTRAN COMMAND message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "Inter-RAT handover failure" to "physical channel failure".

1> When the HANDOVER FROM UTRAN FAILURE message has been submitted to lower layer for transmission:

2> the procedure ends.

Reference(s)

TS 25.331 Clause 8.3.7.5.

8.3.7.15.3 Test purpose

To test that the UE reactivates the old configuration and uses this to transmit a HANDOVER FROM UTRAN FAILURE message to the network including IE "Inter-RAT Handover failure cause" which is set to "physical channel failure", when it receives an HANDOVER FROM UTRAN COMMAND and the connection to GSM for handover can not be established.

To verify that UE stops using the HS-PDSCH configuration after receiving the HANDOVER FROM UTRAN COMMAND.

8.3.7.15.4 Method of test

Initial conditions

System Simulator : 2 cells - Cell 1 is UTRAN, Cell 9 is GSM. GSM 51.010 clause 26.6.5.1 shall be referenced for the default parameters of cell 9.

UE: Idle state (state 2 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports both GSM and UTRAN Radio Access Technologies,
- UE supports both CS and PS

Foreseen final state of the UE

The UE is in CC state U10 on cell 1.

Test Procedure

The SS starts the UTRAN cell and brings the UE into call active state (CC state U10) with AMR with configuration [conversational/speech/uplink:12.2 DL:12.2 kbps/CS RAB + interactive/ background UL: 32kbps, DL :(max bit rate depending on UE category) PS RAB + uplink:3.4 DL3.4 kbps SRBs]. PS RAB is configured with HS-DSCH. SS activates a dedicated GSM traffic channel then sends HANDOVER FROM UTRAN COMMAND indicating a dedicated channel of the target GSM cell to the UE through DCCH of the serving UTRAN cell. When the UE does not succeed in establishing the connection to the target radio access technology it shall revert back to UTRA configuration establish the UTRA physical channel(s) used at the time for reception of HANDOVER FROM UTRAN COMMAND transmit the HANDOVER FROM UTRAN FAILURE.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS brings the UE into UTRAN U10 state and PS RAB with HS-DSCH active in cell 1.
2	SS			The SS configures a traffic channel on cell 9 (GSM cell).
3	←		HANDOVER FROM UTRAN COMMAND-GSM	Send on cell 1 (UTRAN cell) and the message indicates: The target channel for GSM FR in GSM Cell.
4	UE			The UE accepts the handover command and switches to the GSM traffic channel specified in the HANDOVER FROM UTRAN COMMAND-GSM
5	→		HANDOVER ACCESS	The SS receives this burst on the traffic channel of cell 9 (GSM cell) It implies that the UE has switched to GSM cell.
6	→		HANDOVER ACCESS	
7	SS			The target GSM Traffic Channel is Switched off
8	→		HANDOVER FROM UTRAN FAILURE	The SS receives the message via the old UTRAN configuration. The cause in the IE "inter-RAT change failure" is set to "physical channel failure"

Specific message contents

HANDOVER FROM UTRAN COMMAND-GSM

The contents of this message is identical to the HANDOVER FROM UTRAN COMMAND-GSM message specified in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Inter-system message	
- System type	GSM
- Frequency Band	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- CHOICE GSM message	Single GSM message
- Message	GSM HANDOVER COMMAND formatted as BIT STRING (1..512). The contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 2 in clause 26.6.5.1 of GSM 51.010, except that the CHANNEL MODE IE is included with value = speech full rate or half rate version 1

HANDOVER FROM UTRAN FAILURE

The contents of this message is identical to the HANDOVER FROM UTRAN FAILURE message specified in [9] TS 34.108 clause 9.

8.3.7.15.5 Test requirement

After step 4 the SS shall receive HANDOVER FROM UTRAN FAILURE message using the old UTRA configuration. UE shall not resume HS-DSCH reception

8.3.7.16 Inter system handover from UTRAN/To GSM/Simultaneous CS and PS domain services/Success/TBF Establishment Success

8.3.7.16.1 Definition

8.3.7.16.2 Conformance requirement

The purpose of the inter-RAT handover procedure is to, under the control of the network, transfer a connection between the UE and UTRAN to another radio access technology (e.g. GSM). This procedure may be used in CELL_DCH state. This procedure may be used when no RABs are established or when the established RABs are only in the CS domain or when the established RABs are in both CS and PS domains

The UE shall be able to receive a HANDOVER FROM UTRAN COMMAND message and perform an inter-RAT handover, even if no prior UE measurements have been performed on the target cell.

…

For a UE in CELL_DCH state using both CS and PS Domain services the Inter-RAT handover procedure is based on measurement reports from the UE but initiated from UTRAN.

The UE performs the Inter-RAT handover from UTRA RRC Connected Mode to GSM Connected Mode first. When the UE has sent handover complete message to GSM / BSS the UE initiates a temporary block flow towards GPRS and sends a RA update request.

If the Inter-RAT handover from UTRA RRC Connected Mode to GSM Connected Mode was successful the handover is considered as successful regardless if the UE was able to establish a temporary block flow or not towards GPRS.

In case of Inter-RAT handover failure the UE has the possibility to go back to UTRA RRC Connected Mode and re-establish the connection in the state it originated from

Reference(s)

TS 25.331 Clause 8.3.7, B.6.1

8.3.7.16.3 Test purpose

To test that in UTRAN cell when UE is in speech call active state and PS data call is established, UE performs handover to GSM RAT(cell not supporting DTM) after receiving HANDOVER FROM UTRAN COMMAND.

8.3.7.16.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 9 is GPRS with BCCH. 51.010 clause 40.1.1 shall be referenced for the default parameters, and clause 26.6.5.1 shall be referenced for cell allocation of cell 9

Parameter	Unit	Cell 9 (GSM)
Qsearch_I (TDD)	dBm	15 (never)

UE: Registered Idle Mode on CS/PS (state 7) as specified in clause 7.4 of TS 34.108

Related ICS/IXIT statements

- UE supports both GSM and UTRAN Radio Access Technologies,
- UE supports UTRAN Conversational /Speech UL: 12.2kbps DL: 12.2 kbps /CS RAB+ Interactive or Background UL: 64kbps DL: 64kbps /PS RAB + uplink: 3.4 DL: 3.4 kbps SRBs
- UE supports UE operation mode A: PS and CS simultaneously
- UE supports GPRS operation mode class B
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-PCS, GSM-850, GSM-710, GSM 750, T_GSM-810

Foreseen final state of the UE

UE is in packet Idle mode on cell 9

Test Procedure

The SS brings the UE into call active state (CC state U10) with conversational/speech /uplink: 12.2 DL: 12.2 kbps/CS RAB + UL: 3.4 DL: 3.4 kbps SRBs. During call active state, SS configures PS RAB with Interactive or Background/UL: 64 kbps DL: 64 kbps configuration. The SS configures an appropriate traffic channel on the GSM cell. SS sends a HANDOVER FROM UTRAN COMMAND indicating the traffic channel of the target GSM cell to the UE through DCCH of the serving UTRAN cell. After the UE receives the command it shall configure itself accordingly and switch to the new channel of the GSM cell. The SS checks whether the handover is performed by checking that the UE transmits the HANDOVER COMPLETE message to the SS in GSM cell. SS receives GPRS SUSPENSION REQUEST from the UE.

SS disconnects the CS call and releases the RR connection.

Once RR connection is released, an RAU procedure is performed. To check that PDP context is active, SS sends MODIFY PDP CONTEXT REQUEST and assigns new QoS in GPRS cell. The UE may or may not accept the new QoS and replies to the SS accordingly.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	↔			The SS brings the UE into UTRAN U10 state in cell 1 with configuration: Conversational/Speech/uplink: 12.2 DL: 12.2 kbps/CS RAB + uplink: 3.4 DL: 3.4 kbps SRBs
2	↔		SS executes Procedure P19 (clause 7.4.2.8.1.2) specified in TS 34.108	Session Setup is initiated from UE side. PS RAB configuration is Interactive/Background UL: 64 kbps DL: 64 kbps/PS RAB + UL: 3.4kbps DL: 3.4kbps SRBs
3			SS	The SS configures a traffic channel on cell 9 for GSM FR
4	←		HANDOVER FROM UTRAN COMMAND	Send on cell 1 (UTRAN cell) and the message indicates: the target channel for GSM
5	UE			The UE accepts the handover command and switches to the GSM traffic channel specified in the HANDOVER FROM UTRAN COMMAND-GSM
6	→		HANDOVER ACCESS	The SS receives this burst on the traffic channel of cell 9 (GSM cell) It implies that the UE has switched to GSM cell.
7	→		HANDOVER ACCESS	
8	→		HANDOVER ACCESS	
9	→		HANDOVER ACCESS	
10	←		PHYSICAL INFORMATION	
11	→		SABM	
12	←		UA	
13	→		HANDOVER COMPLETE	The SS receives the message on the traffic channel of GSM cell.
14	→		GPRS SUSPENSION REQUEST	UE sends GPRS SUSPENSION REQUEST on FACCH. Suspension cause value is not checked
15	←		CHANNEL RELEASE	SS disconnects the CS call and releases the RR connection. The GPRS Resumption IE is included and is set to “resumption of GPRS services successfully acknowledged.”
15a	→		CHANNEL REQUEST	The SS receives this burst on the RACH of cell 9(GSM cell).
15b	←		IMMEDIATE ASSIGNMENT	Sent on AGCH.
16	→		ROUTING AREA UPDATE REQUEST	GMM “update type” = ‘combined RA/LA updating’
17	←		ROUTING AREA UPDATE ACCEPT	GMM. P-TMSI is included
18	→		ROUTING AREA UPDATE COMPLETE	
19	←		MODIFY PDP CONTEXT REQUEST	SS requests the modification of a PDP context, with a new QoS (peak throughput is changed to ‘0011’)
A20	→		MODIFY PDP CONTEXT ACCEPT	UE behaviour type A: Accept the PDP context modification
B20	→		DEACTIVATE PDP CONTEXT REQUEST	UE behaviour type B: Initiate the PDP context deactivation. Cause set to 'QoS not accepted'
B20a	←		DEACTIVATE PDP CONTEXT ACCEPT	UE behaviour type B: Accept the PDP context deactivation.
B20b	→		DETACH REQUEST	UE behaviour type B: A non-auto attach UE may (optionally) send a Detach Request. The SS shall wait up to 'T3390' seconds for the Detach Request.
B20c	←		DETACH ACCEPT	If the UE transmitted a Detach Request message in step B20b then the SS responds with a Detach Accept message.

Specific message contents

HANDOVER FROM UTRAN COMMAND (step 4)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	Now
RAB Info	
- RAB identity	0000 0001B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	CS domain
- NAS Synchronization Indicator	Not present
- Re-establishment timer	Use T314
Inter-system message	
- CHOICE System type	GSM
- Frequency Band	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- CHOICE GSM message	GSM message List
- Message	GSM HANDOVER COMMAND formatted and coded according to GSM specifications as BIT STRING (1..512). The first/ l*eftmost/ most significant* bit of the bit string contains bit 8 of the first octet of the GSM message. The contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 2 in clause 26.6.5.1 of GSM 51.010, except that the CHANNEL MODE IE is included with value = speech full rate

8.3.7.16.5 Test requirements

At step 6 the SS receives a handover access burst on the traffic channel of the GSM cell indicating that the UE has switched to the GSM cell.

At step 13 the SS receives a HANDOVER COMPLETE message indicating a successful handover to the GSM cell.

At step 16 SS receives ROUTING AREA UPDATE REQUEST message.

After step 19, SS should either receive DEACTIVATE PDP CONTEXT REQUEST message with cause as “QoS not accepted” or receive a MODIFY PDP CONTEXT ACCEPT message from UE.

8.3.7.17 Inter system handover from UTRAN/To GSM/DTM Support/Simultaneous CS and PS domain services/Success

8.3.7.17.1 Definition

8.3.7.17.2 Conformance requirement

The purpose of the inter-RAT handover procedure is to, under the control of the network, transfer a connection between the UE and UTRAN to another radio access technology (e.g. GSM). This procedure may be used in CELL_DCH state. This procedure may be used when no RABs are established or when the established RABs are only in the CS domain or when the established RABs are in both CS and PS domains

The UE shall be able to receive a HANDOVER FROM UTRAN COMMAND message and perform an inter-RAT handover, even if no prior UE measurements have been performed on the target cell.

…

For a UE in CELL_DCH state using both CS and PS Domain services the Inter-RAT handover procedure is based on measurement reports from the UE but initiated from UTRAN.

The UE performs the Inter-RAT handover from UTRA RRC Connected Mode to GSM Connected Mode first. When the UE has sent handover complete message to GSM / BSS the UE initiates a temporary block flow towards GPRS and sends a RA update request.

If the Inter-RAT handover from UTRA RRC Connected Mode to GSM Connected Mode was successful the handover is considered as successful regardless if the UE was able to establish a temporary block flow or not towards GPRS.

In case of Inter-RAT handover failure the UE has the possibility to go back to UTRA RRC Connected Mode and re-establish the connection in the state it originated from

…

The establishment of a packet resource is supported by procedures on the main DCCH when the mobile station is in dedicated mode. The procedures are only applicable to a mobile station supporting DTM with GPRS or EGPRS. The procedures are optional for the network.

These procedures constitute a complement to the corresponding procedures for temporary block flow establishment using CCCH or PCCCH while in idle mode defined in 3GPP TS 04.18 and 3GPP TS 04.60, respectively

…

While in dedicated mode, upper layers in the mobile station or in the network may request the transport of GPRS information transparently over the radio interface. This procedure is only applicable when:

- the information from upper layers is signalling information; and
- the GTTP length of the message is below the maximum indicated by the network.

In any other case, the RR procedures related to packet resource establishment while in dedicated mode apply.

The information from upper layers shall be carried inside the GTTP Information message. The GTTP Information message contains:

- the TLLI of the MS; and
- the LLC PDU.

The GTTP messages are sent using "normal" priority at the data link layer. Reference(s)

TS 25.331 Clause 8.3.7, B.6.1, TS 04.18 Clause 3.4.26

8.3.7.17.3 Test purpose

To verify that in UTRAN cell when UE (supporting DTM) is in speech call active state and PS data call is established, UE performs handover to GSM RAT after receiving HANDOVER FROM UTRAN COMMAND.

8.3.7.17.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 9 is GPRS with BCCH. 51.010 clause 40.1.1 shall be referenced for the default parameters, and clause 26.6.5.1 shall be referenced for cell allocation of cell 9

DTM support is indicated in SI6 for cell 9. MAX_LAPDm is set to 111.

UE: Registered Idle Mode on CS/PS (state 7) as specified in clause 7.4 of TS 34.108

Related ICS/IXIT statements

- UE supports both GSM and UTRAN Radio Access Technologies,
- UE supports UTRAN Conversational /Speech UL: 12.2kbps DL: 12.2 kbps /CS RAB+ Interactive or Background UL: 64kbps DL: 64kbps /PS RAB + uplink: 3.4 DL: 3.4 kbps SRBs
- UE supports UE operation mode A: PS and CS simultaneously
- UE supports DTM
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-PCS, GSM-850, GSM-710, GSM 750, T_GSM-810

Foreseen final state of the UE

UE is in CC state U10 and packet Idle mode on cell 9

Test Procedure

The SS brings the UE into call active state (CC state U10) with conversational/speech /uplink: 12.2 DL: 12.2 kbps/CS RAB + UL: 3.4 DL: 3.4 kbps SRBs. During call active state, SS configures PS RAB with Interactive or Background/UL: 64 kbps DL: 64 kbps configuration. The SS configures an appropriate traffic channel on the GSM cell. SS sends a HANDOVER FROM UTRAN COMMAND indicating the traffic channel of the target GSM cell to the UE through DCCH of the serving UTRAN cell. After the UE receives the command it shall configure itself accordingly and switch to the new channel of the GSM cell. The SS checks whether the handover is performed by checking that the UE transmits the HANDOVER COMPLETE message to the SS in GSM cell. The RAU procedure is performed.

To check that PDP context is active, SS sends MODIFY PDP CONTEXT REQUEST and assigns new QoS in GPRS cell. The UE may or may not accept the new QoS and replies to the SS accordingly.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	↔			The SS brings the UE into UTRAN U10 state in cell 1 with configuration: Conversational/Speech/uplink: 12.2 DL: 12.2 kbps/CS RAB + uplink: 3.4 DL: 3.4 kbps SRBs
2	↔		SS executes Procedure P19 (clause 7.4.2.8.1.2) specified in TS 34.108	Session Setup is initiated from UE side. PS RAB configuration is Interactive/Background UL: 64 kbps DL: 64 kbps/PS RAB + UL: 3.4kbps DL: 3.4kbps SRBs
3	↔		SS	The SS configures a traffic channel on cell 9 for GSM FR
4	←		HANDOVER FROM UTRAN COMMAND	Send on cell 1 (UTRAN cell) and the message indicates: the target channel for GSM
5	UE			The UE accepts the handover command and switches to the GSM traffic channel specified in the HANDOVER FROM UTRAN COMMAND-GSM
6	→		HANDOVER ACCESS	The SS receives this burst on the traffic channel of cell 9 (GSM cell) It implies that the UE has switched to GSM cell.
7	→		HANDOVER ACCESS	
8	→		HANDOVER ACCESS	
9	→		HANDOVER ACCESS	
10	←		PHYSICAL INFORMATION	
11	→		SABM	
12	←		UA	
13	→		HANDOVER COMPLETE	The SS receives the message on the traffic channel of GSM cell.
14	←		DTM INFORMATION	MAX_LAPDm set to 111.
15	→		GPRS INFORMATION	Contains the ROUTING AREA UPDATE REQUEST message.
16	←		GPRS INFORMATION	Contains the ROUTING AREA UPDATE ACCEPT message, reallocating the UEs P-TMSI to C2345678Hex.
17	→		GPRS INFORMATION	Contains the ROUTING AREA UPDATE COMPLETE message.
18	←		GPRS INFORMATION	Contains the MODIFY PDP CONTEXT REQUEST to request the modification of a PDP context, with a new QoS (peak throughput is changed to '0011')
A19	→		GPRS INFORMATION	Contains the MODIFY PDP CONTEXT ACCEPT to accept the PDP Context modification.
B19	→		GPRS INFORMATION	Contains the DEACTIVATE PDP CONTEXT REQUEST. Cause set to 'QoS not accepted'
B20	←		GPRS INFORMATION	Contains the DEACTIVATE PDP CONTEXT ACCEPT to accept the PDP context deactivation.
				Steps B21-B22 are optional
B21 (Optional)	→		GPRS INFORMATION	Contains the DETACH REQUEST. This is sent optionally by a non-auto attach UE. behaviour type B: The SS shall wait up to 'T3390' seconds for the DETACH REQUEST.
B22 (Optional)	←		GPRS INFORMATION	Contains the DETACH ACCEPT.

NOTE: The UE follows either branch A or B after step 18

Specific message contents

HANDOVER FROM UTRAN COMMAND (step 4)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	Now
RAB Info	
- RAB identity	0000 0001B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	CS domain
- NAS Synchronization Indicator	Not present
- Re-establishment timer	Use T314
Inter-system message	
- CHOICE System type	GSM
- Frequency Band	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- CHOICE GSM message	GSM message List
- Message	GSM HANDOVER COMMAND formatted and coded according to GSM specifications as BIT STRING (1..512). The first/ l*eftmost/ most significant* bit of the bit string contains bit 8 of the first octet of the GSM message. The contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Same as the HANDOVER COMMAND in clause 26.6.5.1 of TS 3GPP 51.010-1.

8.3.7.17.5 Test requirements

At step 6 the SS receives a handover access burst on the traffic channel of the GSM cell indicating that the UE has switched to the GSM cell.

At step 13 the SS receives a HANDOVER COMPLETE message indicating a successful handover to the GSM cell.

At step 15 SS receives ROUTING AREA UPDATE REQUEST message.

After step 18, SS should either receive DEACTIVATE PDP CONTEXT REQUEST message with cause as “QoS not accepted” or receive a MODIFY PDP CONTEXT ACCEPT message from UE

8.3.8 Inter system cell reselection to UTRAN

[Editor's note: This test is FFS until R2000 core specification will be defined.]

8.3.9 Inter system cell reselection from UTRAN

If not specified differently in the individual tests of this group, the Contents of System Information Block type 12 (FDD) shall be as specified in the following table:

- FACH measurement occasion info	Not Present
- Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not Present Absence of this IE is equivalent to default value 1
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal removeNoIntraFreqCells:	NULL
- New intra-frequency cells	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0dB
- Reference time difference to cell	Not present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4 of 3GPP TS 34.108.
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Not present For neighbouring cell, if HCS is not used and all the parameters in cell selection and re-selection info are Default value, this IE is absent.
- Intra-frequency cell id	3
- Cell info	Same content as specified for Intra-frequency cell id=2 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1.4 of 3GPP TS 34.108.
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter coefficient	Not present Absence of this IE is equivalent to the default value 0
- CHOICE mode	FDD
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity for RACH Reporting	Not Present
- Maximum number of reported cells on RACH	Not Present
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronization information reporting indicator	FALSE
- Cell identity reporting indicator	TRUE
- CHOICE mode	FDD
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronization information reporting indicator	TRUE
- Cell identity reporting indicator	TRUE
- CHOICE mode	FDD
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE

- Reporting quantities for detected set cells	Not Present
- Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Intra-frequency measurement reporting criteria	
- Parameters required for each event	3 kinds
- Intra-frequency event identity	1a
- Triggering condition 1	Not Present
- Triggering condition 2	Monitored set cells
- Reporting Range Constant	10 (5 dB)
- Cells forbidden to affect Reporting range	Not Present
- W	10 (1.0)
- Hysteresis	0 (0.0)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	2
- Replacement activation threshold	Not Present
- Time to trigger	640
- Amount of reporting	4
- Reporting interval	4 000
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
- Intra-frequency event identity	1b
- Triggering condition 1	Active set cells
- Triggering condition 2	Not Present
- Reporting Range Constant	10 (5 dB)
- Cells forbidden to affect Reporting range	Not Present
- W	10 (1.0)
- Hysteresis	0 (0.0)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	Not Present
- Time to trigger	640
- Amount of reporting	Not Present
- Reporting interval	Not Present
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
- Intra-frequency event identity	1c
- Triggering condition 1	Not Present
- Triggering condition 2	Not Present
- Reporting Range Constant	Not Present
- Cells forbidden to affect Reporting range	Not Present
- W	Not Present
- Hysteresis	0 (0.0)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	3
- Time to trigger	640
- Amount of reporting	4
- Reporting interval	4 000
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
- Inter-frequency measurement system information	
- Inter-frequency cell info list	
- CHOICE Inter-frequency cell removal	Not present (This IE shall be ignored by the UE for SIB11)
- New inter-frequency cells	
- Inter frequency cell id	4
- Frequency info	
- CHOICE mode	FDD

- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to apply the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [11]
- UARFCN downlink(Nd)	Reference to table 6.1.2 of 3GPP TS 34.108 for Cell 4
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0 dB
- Reference time difference to cell	Not present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.4 (FDD)" in clause 6.1.4 of 3GPP TS 34.108.
- Primary CPICH Tx power	Not present
- TX Diversity Indicator	FALSE
- Cell Selection and Re-selection Info	Not present (same values as for serving cell applies)
- Inter frequency cell id	5
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not present. Absence of this IE is equivalent to apply the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [11]
- UARFCN downlink(Nd)	Reference to table 6.1.2 of 3GPP TS 34.108 for Cell 5
- Cell info	Same content as specified for Inter-frequency cell id=4 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.5 (FDD)" in clause 6.1.4 of 3GPP TS 34.108.
- Inter frequency cell id	6
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to apply the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [11]
- UARFCN downlink(Nd)	Reference to table 6.1.2 of 3GPP TS 34.108 for Cell 6
- Cell info	Same content as specified for Inter-frequency cell id=4 with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.6 (FDD)" in clause 6.1.4
- Cell for measurement	Not present
- Inter-RAT measurement system information	Not Present
- Inter-RAT measurement system information	
- Inter-RAT cell info list	
- CHOICE Inter-RAT cell removal	Not Present (This IE shall be ignored by the UE for SIB11)
- New inter-RAT cells	
- Inter-RAT cell id	9
- CHOICE Radio Access Technology	GSM
- GSM	
- Cell individual offset	0 (0 dB)
- Cell selection and re-selection info	Not Present
- BSIC	
- Base transceiver Station Identity Code (BSIC)	Reference to table 6.1.10 of 3GPP TS 34.108. for Cell 9
- Band indicator	According to PICS/PIXIT
- BCCH ARFCN	Reference to table 6.1.10 of 3GPP TS 34.108. for Cell 9
- Inter-RAT cell id	10
- CHOICE Radio Access Technology	GSM
- GSM	
- Cell individual offset	0 (0 dB)
- Cell selection and re-selection info	Not Present

- BSIC - Base transceiver Station Identity Code (BSIC)	Reference to table 6.1.10 for Cell 10
- Band indicator	According to PICS/PIXITs
- BCCH ARFCN	Reference to table 6.1.10 of 3GPP TS 34.108. for Cell 10
- Cell for measurement	Not present

If not specified differently in the individual tests of this group, the Contents of System Information Block type 12 (1.28Mcps TDD) shall be as specified in the following table:

- FACH measurement occasion info	Not Present
- Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measureCell	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not Present Absence of this IE is equivalent to default value 1
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present (This IE shall be ignored by the UE for SIB11)
- New intra-frequency cells	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 of 3GPP TS 34.108 Default settings for cell
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- CHOICE TDD option	
- 1.28 Mcps TDD	
- Timeslot number	Not Present
- Cell Selection and Re-selection info	Not Present (The IE shall be absent as this is the serving cell)
- Intra-frequency cell id	3
- Cell info	Same content as specified for intra-frequency cell id=2 with the exception that value for Cell Parameters ID shall be according to clause titled “Default settings for cell No.3(TDD)” in clause 6.1.4 of 3GPP TS 34.108
- Cell for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter coefficient	Not present Absence of this IE is equivalent to the default value 0
- CHOICE mode	TDD
- Measurement quantity list	
- Measurement quantity	P-CCPCH RSCP
- Intra-frequency reporting quantity for RACH Reporting	Not Present
- Maximum number of reported cells on RACH	Not Present
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronization information reporting indicator	TRUE
- Cell identity reporting indicator	TRUE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TSGN reporting required	FALSE
- P-CCPCH RSCP reporting indicator	TRUE

- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronization information reporting indicator	FALSE
- Cell identity reporting indicator	TRUE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TSGN reporting required	FALSE
- P-CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not Present
- Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Event trigger
-CHOICE report criteria	
- Intra-frequency measurement reporting criteria	
- Parameters required for each event	
- Intra-frequency event identity	1g
- Triggering condition1	Not Present
- Triggering condition2	Not Present
- Reporting Range Constant	Not Present
- cells forbidden to affect reporting range	Not Present
- W(optional in case of 1a,1b)	Not Present
- Hysteresis	0.0
- Threshold used frequency	Not Present
- Reporting deactivation threshold	3
- Replacement activation threshold	Not Present
- Time to trigger	640
- Amount of reporting	4
- Reporting interval	4000
- Reporting cell status	
- CHOICE reported cells	Report cell within active set and/or monitored cells on used frequency
- Maximum number of reported cells	3
- Inter-frequency measurement system information	
- Inter-frequency cell info list	
- CHOICE Inter-frequency cell removal	Not present (This IE shall be ignored by the UE for SIB11)
- New inter-frequency cells	
- Inter frequency cell id	4
- Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Reference to table 6.1.7 of 3GPP TS 34.108 for Cell 4
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0dB
- Reference time difference to cell	Not present
- Read SFN indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH info	Refer to clause titled "Default settings for cell No.4 (TDD)" in clause 6.1.4 of 3GPP TS 34.108
- Primary CCPCH Tx power	Not present
- TX Diversity Indicator	FALSE
- Cell Selection and Re-selection Info	Not present (same values as for serving cell applies)
- Inter frequency cell id	5
- Frequency info	Not Present Absence of this IE is equivalent to value of the previous "frequency info" in the list.
- Cell info	Same content as specified for Inter-frequency cell id=4 with the exception that value for Cell parameters ID shall be according to clause titled "Default settings for cell No.5 (TDD)" in clause 6.1.4 of 3GPP TS 34.108
- Inter frequency cell id	6

- Frequency info	Not Present Absence of this IE is equivalent to value of the previous "frequency info" in the list.
- Cell info	Same content as specified for Inter-frequency cell id=4 with the exception that value for Cell parameters ID shall be according to clause titled "Default settings for cell No.6 (TDD)" in clause 6.1.4 of 3GPP TS 34.108
- Cell for measurement	Not present
- Inter-RAT measurement system information	
- Inter-RAT cell info list	
- CHOICE *Inter-RAT cell removal*	Not Present (This IE shall be ignored by the UE for SIB11)
- New inter-RAT cells	
- Inter-RAT cell id	9
- CHOICE *Radio Access Technology*	GSM
- GSM	
- Cell individual offset	0
- Cell selection and re-selection info	Not Present
- BSIC	
- Base transceiver Station Identity Code (BSIC)	Reference to table 6.1.10 of 3GPP TS 34.108 for Cell 9
- Band indicator	According to PICS/PIXIT
- BCCH ARFCN	Reference to table 6.1.10 of 3GPP TS 34.108 for Cell 9
- Inter-RAT cell id	10
- CHOICE *Radio Access Technology*	GSM
- GSM	
- Cell individual offset	0
- Cell selection and re-selection info	Not Present
- BSIC	
- Base transceiver Station Identity Code (BSIC)	Reference to table 6.1.10 of 3GPP TS 34.108 for Cell 10
- Band indicator	According to PICS/PIXITs
- BCCH ARFCN	Reference to table 6.1.10 of 3GPP TS 34.108 for Cell 10
- Cell for measurement	Not present
- Traffic volume measurement system information	Not Present

8.3.9.1 Cell reselection if cell becomes barred or S<0; UTRAN to GPRS (CELL_FACH)

8.3.9.1.1 Definition

Test to verify that if both a GSM/GPRS and UTRAN network is available, the UE performs cell reselection from UTRAN to GSM/GPRS if the UTRAN cell becomes barred or S falls below zero.

8.3.9.1.2 Conformance requirement

1. The purpose of the inter-RAT cell reselection procedure from UTRAN is to transfer, under the control of the UE and to some extent the UTRAN, a connection between the UE and UTRAN to another radio access technology (e.g. GSM/GPRS).

2. This procedure is applicable in states CELL_FACH, CELL_PCH or URA_PCH. When the UE based on received system information makes a cell reselection to a radio access technology other than UTRAN, e.g. GSM/GPRS, according to the criteria specified in [4], the UE shall:

1> If the NAS procedures associated with inter-system change specified in [5] require the establishment of a connection:

2> initiate the establishment of a connection to the target radio access technology according to its specifications.

3. When the UE has succeeded in reselecting a cell in the target radio access technology, the UE shall:

   1> release all UTRAN specific resources.

References

TS 25.331, clause 8.3.9

8.3.9.1.3 Test purpose

1. To verify that the UE performs reselection from UTRAN to GPRS in the state CELL_FACH on the following occasions:

   - Serving cell becomes barred.

   - S<0 for serving cell.

2. To verify when the UE has succeeded in reselecting a cell in the target radio access technology and has initiated the establishment of a connection, it shall release all UTRAN specific resources.

8.3.9.1.4 Method of test

Initial conditions

System Simulator: 3 cells – Cell 1 is UTRAN FDD, Cell 2 is GPRS and Cell 3 is GSM. 51.010 clauses 20.22 and 40.1.1 shall be referenced for the default parameters of cell 2. 51.010 clause 26.6.5.1 shall be referenced for the default parameters of cell 3. When executing the test in FDD band II or FDD band VIII cell 1 shall use the low range UARFCN, defined in TS 34.108 clause 5.1.1. This is to avoid the FDD band overlapping with the GSM band under test.

All cells belong to the same PLMN . UTRAN and GPRS cells belong to different location area.

The Inter-RAT Cell Info List of Cell 1 (UTRAN) refers to Cell 2 (GPRS) and Cell 3 (GSM).

The 3G Neighbour Cell Description of Cell 2 (GPRS) and Cell 3 (GSM) refers to Cell 1 (UTRAN).

UE: Power-Off (State 1) as specified in clause 7.4 of TS 34.108.

In SIB3 and SIB4 the IE "$S_{searchRAT}$", is set to value "20dB" in Cell 1 (UTRAN).

Related ICS/IXIT statement

- UE supports both GSM/GPRS and UTRAN Radio Access Technologies,

- UE supports Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH,

- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-850, GSM-PCS, GSM-710, GSM 750, T_GSM-810

Step a-c:

Parameter	Unit	Cell 1 (UTRAN)
Test Channel		1
CPICH Ec (FDD)	dBm / 3.84 MHz	-60
P-CCPCH RSCP (TDD)	dBm	-60
Srxlev*	dB	19
CellBarred		Not barred

Parameter	Unit	Cell 2 (GPRS)
Test Channel		1
RF Signal Level	dBm	-75
RXLEV_ACCESS_MIN	dBm	-100
C1*	dBm	25
FDD_Qmin	dB	-20
FDD_Qoffset	dBm	0

Parameter	Unit	Cell 3 (GSM)
Test Channel		2
RF Signal Level	dBm	-85
RXLEV_ACCESS_MIN	dBm	-100
C1*	dBm	15
FDD_Qmin	dB	-20
FDD_Qoffset	dBm	0

Step d-f:

Parameter	Unit	Cell 1 (UTRAN)
CellBarred		Not barred -> Barred
Tbarred	S	80

Step i:

Parameter	Unit	Cell 1 (UTRAN)
CPICH Ec (FDD)	**dBm / 3.84 MHz**	**-60 -> -90**
P-CCPCH RSCP (TDD)	dBm	-60 -> -90
Srxlev*	dB	19 -> -11

Test procedure

a) The SS activates cells 1, 2, and 3. The SS monitors cells 1, 2 and 3 for random access requests from the UE.

b) The UE is switched on.

c) The SS brings the UE to PS-DCCH+DTCH_FACH (State 6-11). SS then sends SystemInformation Type 11 and 12 with FACH Measurement Occasions.

d) The SS sets Cell 1 to be barred.

e) The SS sends SYSTEM INFORMATION CHANGE INDICATION message to UE to inform UE of the modification in the system information.

f) The SS waits for channel request from the UE SS sends an IMMEDIATE ASSIGNMENT REJECT to bring the UE to idle mode..

g) The SS pages the UE with PAGING TYPE 2 in Cell 1 (UTRAN), if UE does not respond by transmitting an upper layer message to answer this page, it means UE has released the UTRAN resources.

h) The UE is switched off.

i) Step a-h) is repeated with the same initial conditions except that in step d) and e), the signal level is reduced, so S will become negative instead of being barred.

Specific Message Contents

RADIO BEARER SETUP (Step c)

Use the same message as specified for PS-DCCH+DTCH_FACH (state 6-11) in clause 7.4 of TS 34.108, except for the following:

Information Element	Value/remark
New C-RNTI	'0000 0000 0000 0001'

System Information Block type 11 (Step c)

Use the message type reference found in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/remark
FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	3
- Inter-frequency FDD measurement indicator	FALSE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	GSM

System Information Block type 12 (Step c)

Use the message type reference found in clause 8.3.9 of TS 34.123-1, with the following exceptions:

Information Element	Value/remark
FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	3
- Inter-frequency FDD measurement indicator	FALSE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	GSM

8.3.9.1.5 Test Requirements

In step f), the UE shall respond on Cell 2

In step g), the UE shall not respond in UTRAN cell.

In step i), the UE shall respond on Cell 2 after the signal level is reduced.

8.3.9.1a Cell reselection if cell becomes barred or S<0; UTRAN to GPRS (CELL_FACH), 1.28Mcps TDD

8.3.9.1a.1 Definition

Test to verify that if both a GSM/GPRS and UTRAN network is available, the UE performs cell reselection from UTRAN to GSM/GPRS if the UTRAN cell becomes barred or S falls below zero.

8.3.9.1a.2 Conformance requirement

1. The purpose of the inter-RAT cell reselection procedure from UTRAN is to transfer, under the control of the UE and to some extent the UTRAN, a connection between the UE and UTRAN to another radio access technology (e.g. GSM/GPRS).

2. This procedure is applicable in states CELL_FACH, CELL_PCH or URA_PCH. When the UE based on received system information makes a cell reselection to a radio access technology other than UTRAN, e.g. GSM/GPRS, according to the criteria specified in [4], the UE shall:

1> If the NAS procedures associated with inter-system change specified in [5] require the establishment of a connection:

2> initiate the establishment of a connection to the target radio access technology according to its specifications.

3. When the UE has succeeded in reselecting a cell in the target radio access technology, the UE shall:

   1> release all UTRAN specific resources.

References

TS 25.331, clause 8.3.9

8.3.9.1a.3 Test purpose

1. To verify that the UE performs reselection from UTRAN to GPRS in the state CELL_FACH on the following occasions:

   - Serving cell becomes barred.

   - S<0 for serving cell.

2. To verify when the UE has succeeded in reselecting a cell in the target radio access technology and has initiated the establishment of a connection, it shall release all UTRAN specific resources.

8.3.9.1a.4 Method of test

Initial conditions

System Simulator: 3 cells – Cell 1 is UTRAN 1.28Mcps TDD, Cell 2 is GPRS and Cell 3 is GSM. 51.010 clauses 20.22 and 40.1.1 shall be referenced for the default parameters of cell 2. 51.010 clause 26.6.5.1 shall be referenced for the default parameters of cell 3.

All cells belong to the same PLMN. UTRAN and GPRS cells belong to different location area.

The Inter-RAT Cell Info List of Cell 1 (UTRAN) refers to Cell 2 (GPRS) and Cell 3 (GSM).

The 3G Neighbour Cell Description of Cell 2 (GPRS) and Cell 3 (GSM) refers to Cell 1 (UTRAN).

UE: Power-Off (State 1) as specified in clause 7.4 of TS 34.108.

In SIB3 and SIB4 the IE "$S_{searchRAT}$", is set to value "20dB" in Cell 1 (UTRAN).

Related ICS/IXIT statement

- UE supports both GSM/GPRS and UTRAN Radio Access Technologies,

- UE supports Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH,

- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-850, GSM-PCS, GSM-710, GSM 750, T_GSM-810

Step a-c:

Parameter	Unit	Cell 1 (UTRAN)
Test Channel		1
P-CCPCH RSCP (TDD)	dBm	-65
Srxlev*	dB	19
CellBarred		Not barred

Parameter	Unit	Cell 2 (GPRS)
Test Channel		1
RF Signal Level	dBm	-75
RXLEV_ACCESS_MIN	dBm	-100
C1*	dBm	25
TDD_Qoffset	dBm	-60

Parameter	Unit	Cell 3 (GSM)
Test Channel		2
RF Signal Level	dBm	-85
RXLEV_ACCESS_MIN	dBm	-100
C1*	dBm	15
TDD_Qoffset	dBm	-60

Step d-f:

Parameter	Unit	Cell 1 (UTRAN)
CellBarred		Not barred -> Barred
Tbarred	S	80

Step i:

Parameter	Unit	Cell 1 (UTRAN)
P-CCPCH RSCP (TDD)	dBm	-65 -> -95
Srxlev*	dB	19 -> -11

Test procedure

a) The SS activates cells 1, 2, and 3. The SS monitors cells 1, 2 and 3 for random access requests from the UE.

b) The UE is switched on.

c) The SS brings the UE to PS-DCCH+DTCH_FACH (State 6-11). SS then sends SystemInformation Type 11 and 12 with FACH Measurement Occasions.

d) The SS sets Cell 1 to be barred.

e) The SS sends SYSTEM INFORMATION CHANGE INDICATION message to UE to inform UE of the modification in the system information.

f) The SS waits for channel request from the UE SS sends an IMMEDIATE ASSIGNMENT REJECT to bring the UE to idle mode.

g) The SS pages the UE with PAGING TYPE 2 in Cell 1 (UTRAN), if UE does not respond by transmitting an upper layer message to answer this page, it means UE has released the UTRAN resources.

h) The UE is switched off.

i) Step a-h) is repeated with the same initial conditions except that in step d) and e), the signal level is reduced, so S will become negative instead of being barred.

Specific Message Contents

RADIO BEARER SETUP (Step c)

Use the same message as specified for PS-DCCH+DTCH_FACH (state 6-11) in clause 7.4 of TS 34.108, except for the following:

Information Element	Value/remark
New C-RNTI	'0000 0000 0000 0001'

System Information Block type 11 (Step c)

Use the message type reference found in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/remark
FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	3
- Inter-frequency FDD measurement indicator	FALSE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	GSM

System Information Block type 12 (Step c)

Use the message type reference found in clause 8.3.9 of TS 34.123-1, with the following exceptions:

Information Element	Value/remark
FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	3
- Inter-frequency FDD measurement indicator	FALSE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	GSM

8.3.9.1a.5 Test Requirements

In step f), the UE shall respond on Cell 2

In step g), the UE shall not respond in UTRAN cell.

In step i), the UE shall respond on Cell 2 after the signal level is reduced.

8.3.9.2 Cell reselection if cell becomes barred or S<0; UTRAN to GPRS (URA_PCH)

8.3.9.2.1 Definition

Test to verify that if both a GSM/GPRS and UTRAN network is available, the UE performs cell reselection from UTRAN to GSM/GPRS if the UTRAN cell becomes barred or S falls below zero.

8.3.9.2.2 Conformance requirement

1. The purpose of the inter-RAT cell reselection procedure from UTRAN is to transfer, under the control of the UE and to some extent the UTRAN, a connection between the UE and UTRAN to another radio access technology (e.g. GSM/GPRS).

2. This procedure is applicable in states CELL_FACH, CELL_PCH or URA_PCH.

   When the UE based on received system information makes a cell reselection to a radio access technology other than UTRAN, e.g. GSM/GPRS, according to the criteria specified in [4], the UE shall.

1> If the NAS procedures associated with inter-system change specified in [5] require the establishment of a connection:

   2> initiate the establishment of a connection to the target radio access technology according to its specifications.

3. When the UE has succeeded in reselecting a cell in the target radio access technology, the UE shall:

   1> release all UTRAN specific resources.

References

TS 25.331, clause 8.3.9

8.3.9.2.3 Test purpose

To verify that the UE performs reselection from UTRAN to GPRS in the state URA_PCH on the following occasions:

- Serving cell becomes barred.
- S<0 for serving cell.

8.3.9.2.4 Method of test

Initial conditions

System Simulator: 2 cells – Cell 1 is UTRAN FDD, Cell 9 is GPRS. 51.010 clauses 20.22 and 40.1.1 shall be referenced for the default parameters of cell 9.

All cells belong to the same PLMN . UTRAN and GPRS cells belong to different location area.

The Inter-RAT Cell Info List of Cell 1 (UTRAN) refers to Cell 9 (GPRS).

The 3G Neighbour Cell Description of Cell 9 (GPRS) refers to Cell 1 (UTRAN)

UE: Power-Off (State 1) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement

- UE supports both GSM/GPRS and UTRAN Radio Access Technologies,
- Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH,

Step a-c:

Parameter	Unit	Cell 1 (UTRAN)
Test Channel		1
CPICH Ec (FDD)	dBm	-60
P-CCPCH RSCP (TDD)	dBm	-60
Qrxlevmin	dBm	-101
Srxlev*	dBm	41
CellBarred		Not barred

Parameter	Unit	Cell 9 (GPRS)
Test Channel		1
RF Signal Level	dBm	-80
RXLEV_ACCESS_MIN	dBm	-100
C1*	dBm	20
FDD_Qmin	dB	-20
FDD_Qoffset	dBm	0

Step d-f:

Parameter	Unit	Cell 1 (UTRAN)
CellBarred		Not barred -> Barred
Tbarred	s	80

Step i:

Parameter	Unit	Cell 1 (UTRAN)
Qrxlevmin	dB	-101 -> -41
Srxlev*	dB	41 -> -19

Test procedure

a) The SS activates cells 1 and 9. The SS monitors cells 1 and 9 for random access requests from the UE.

b) The UE is switched on.

c) The SS brings the UE to URA_PCH (State 6-13).

d) The SS sets Cell 1 to be barred.

e) The SS sends Paging Type1 message to UE to inform UE of the modification in the system information.

f) The SS waits for channel request from the UE to establish Temporary Block flow.

g) The SS pages the UE with PAGING TYPE 1 in cell 1 (UTRAN), if UE does not respond with Cell Update with cause 'Paging Response', it means UE has released the UTRAN resources.

h) The UE is switched off.

i) Step a-e) is repeated with the same initial conditions except that in step d), Qrxlevmin is increased, so S will become negative instead of being barred.

8.3.9.2.5 Test Requirements

In step f), the UE shall respond on Cell 9.

In step g), the UE shall not respond in UTRAN cell.

In step i), the UE shall respond on Cell 9 after Qrxlevmin is increased.

8.3.9.2a Cell reselection if cell becomes barred or S<0; UTRAN to GPRS (URA_PCH), 1.28Mcps TDD

8.3.9.2a.1 Definition

Test to verify that if both a GSM/GPRS and UTRAN network is available, the UE performs cell reselection from UTRAN to GSM/GPRS if the UTRAN cell becomes barred or S falls below zero.

8.3.9.2a.2 Conformance requirement

1. The purpose of the inter-RAT cell reselection procedure from UTRAN is to transfer, under the control of the UE and to some extent the UTRAN, a connection between the UE and UTRAN to another radio access technology (e.g. GSM/GPRS).

2. This procedure is applicable in states CELL_FACH, CELL_PCH or URA_PCH.

   When the UE based on received system information makes a cell reselection to a radio access technology other than UTRAN, e.g. GSM/GPRS, according to the criteria specified in [4], the UE shall.

1> If the NAS procedures associated with inter-system change specified in [5] require the establishment of a connection:

   2> initiate the establishment of a connection to the target radio access technology according to its specifications.

3. When the UE has succeeded in reselecting a cell in the target radio access technology, the UE shall:

   1> release all UTRAN specific resources.

References

TS 25.331, clause 8.3.9

8.3.9.2a.3 Test purpose

To verify that the UE performs reselection from UTRAN to GPRS in the state URA_PCH on the following occasions:

- Serving cell becomes barred.
- S<0 for serving cell.

8.3.9.2a.4 Method of test

Initial conditions

System Simulator: 2 cells – Cell 1 is UTRAN 1.28Mcps TDD, Cell 9 is GPRS. 51.010 clauses 20.22 and 40.1.1 shall be referenced for the default parameters of cell 9.

All cells belong to the same PLMN . UTRAN and GPRS cells belong to different location area.

The Inter-RAT Cell Info List of Cell 1 (UTRAN) refers to Cell 9 (GPRS).

The 3G Neighbour Cell Description of Cell 9 (GPRS) refers to Cell 1 (UTRAN)

UE: Power-Off (State 1) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement

- UE supports both GSM/GPRS and UTRAN Radio Access Technologies,
- Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH,

Step a-c:

Parameter	Unit	Cell 1 (UTRAN)
Test Channel		1
P-CCPCH RSCP (TDD)	dBm	-65
Qrxlevmin	dBm	-106
Srxlev*	dBm	41
CellBarred		Not barred

Parameter	Unit	Cell 9 (GPRS)
Test Channel		1
RF Signal Level	dBm	-80
RXLEV_ACCESS_MIN	dBm	-100
C1*	dBm	20
TDD_Qoffset	dBm	-60

Step d-f:

Parameter	Unit	Cell 1 (UTRAN)
CellBarred		Not barred -> Barred
Tbarred	s	80

Step i:

Parameter	Unit	Cell 1 (UTRAN)
Qrxlevmin	dB	-106 -> -46
Srxlev*	dB	41 -> -19

Test procedure

a) The SS activates cells 1 and 9. The SS monitors cells 1 and 9 for random access requests from the UE.

b) The UE is switched on.

c) The SS brings the UE to URA_PCH (State 6-13).

d) The SS sets Cell 1 to be barred.

e) The SS sends Paging Type1 message to UE to inform UE of the modification in the system information.

f) The SS waits for channel request from the UE to establish Temporary Block flow.

g) The SS pages the UE with PAGING TYPE 1 in cell 1 (UTRAN), if UE does not respond with Cell Update with cause 'Paging Response', it means UE has released the UTRAN resources.

h) The UE is switched off.

i) Step a-e) is repeated with the same initial conditions except that in step d), Qrxlevmin is increased, so S will become negative instead of being barred.

8.3.9.2a.5 Test Requirements

In step f), the UE shall respond on Cell 9.

In step g), the UE shall not respond in UTRAN cell.

In step i), the UE shall respond on Cell 9 after Qrxlevmin is increased.

8.3.9.3 Cell reselection if cell rank changes; UTRAN to GPRS (UE in CELL_FACH fails to complete an inter-RAT cell reselection)

8.3.9.3.1 Definition

8.3.9.3.2 Conformance requirement

If the inter-RAT cell reselection fails, the UE shall:

1> resume the connection to UTRAN using the resources used before initiating the inter-RAT cell reselection procedure.

References

TS 25.331, clause 8.3.9.4

8.3.9.3.3 Test purpose

To verify if the inter-RAT cell reselection fails before the UE in CELL_FACH succeeds in initiating the establishment of a connection to the GPRS cell, the UE shall:

- resume the connection to UTRAN using the resources used before initiating the inter-RAT cell reselection procedure.

8.3.9.3.4 Method of test

Initial conditions

System Simulator: 2 cells – Cell 1 is UTRAN, Cell 9 is GPRS. 51.010 clauses 20.22 and 40.1.1 shall be referenced for the default parameters of cell 9.

All cells belong to the same PLMN.

The Inter-RAT Cell Info List of Cell 1 (UTRAN) refers to Cell 9 (GPRS).

The 3G Neighbour Cell Description of Cell 9 (GPRS) refers to Cell 1 (UTRAN)

UE: Power-Off (State 1) (UTRAN) as specified in clause 7.4 of TS 34.108.

[FDD] In SIB3 and SIB4 the IE "$S_{searchRAT}$", is set to value "20dB" in Cell 1 (UTRAN).

[TDD] In SIB3 and SIB4 the IE "$S_{searchRAT}$", is set to value "21dB" in Cell 1 (UTRAN).

Related ICS/IXIT statement

- UE supports both GSM/GPRS and UTRAN Radio Access Technologies,
- UE supports Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-850, GSM-PCS, GSM-710, GSM 750, T_GSM-810.

Step a-c:

Parameter	Unit	Cell 1 (UTRAN)
Test Channel		1
CPICH Ec (FDD)	dBm/3.84MHz	-60
P-CCPCH RSCP (TDD)	dBm	-63
$Treselection_s$	s	5
R*	dB	-58
CellBarred		Not barred

Parameter	Unit	Cell 9 (GPRS)
Test Channel		1
RF Signal Level	dBm	-80
R*	dB	-80
CellBarred		barred

Step d:

Parameter	Unit	Cell 1 (UTRAN)
CPICH Ec (FDD)	dBm/3.84MHz	-60 -> -70
P-CCPCH RSCP (TDD)	dBm	-63 -> -70
R*	dB	-58 -> -68

Parameter	Unit	Cell 9 (GPRS)
RF Signal Level	dBm	-80 -> -50
C1*	dBm	20 -> 50
C32*	dB	20 -> 50
R*	dB	-80 -> -50
CellBarred		barred

Test procedure

a) The SS activates cells 1 and 9. The SS monitors cells 1and 9 for random access requests from the UE.

b) The UE is switched on.

c) The SS brings the UE to PS-DCCH+DTCH_FACH (State 6-11). SS then sends SystemInformation Type 11 and 12 with FACH Measurement Occasions.

d) The SS increases RF Signal Level of the GPRS Cell to -50 dBm and decreases the CPICH (FDD)/ P-CCPCH(TDD) of the UMTS cell to -70 dBm so that the ranking of the UMTS cell goes lower than the GPRS cell.

e) After the expiry of the timer Treselection, SS waits for 5 seconds to allow UE to read the system information for a GPRS cell and finds that the cell is barred. SS then sends SystemInformation Type 11 and 12 without FACH

Measurement Occasions. Later SS calls for generic procedure C.2 in cell 1 (UTRAN) to check that UE is in CELL_FACH state. The UE resumes the connection to UTRAN using the resources used before initiating the inter-RAT cell reselection procedure.

f) The UE is switched off.

Specific Message Contents

RADIO BEARER SETUP (Step c)

Use the same message as specified for PS-DCCH+DTCH_FACH (state 6-11) in clause 7.4 of TS 34.108, except for the following:

Information Element	Value/remark
New C-RNTI	'0000 0000 0000 0001'

Contents of System Information Block type 11 (Step c)

Use the same message type found in clause 6.1.0b of TS 34.108, with the following exceptions:

- FACH measurement occasion info		
- FACH Measurement occasion cycle length coefficient		3
- Inter-frequency FDD measurement indicator		FALSE
- Inter-frequency TDD measurement indicator		FALSE
- Inter-RAT measurement indicators		
- RAT-Type		GSM

Contents of System Information Block type 12 (Step c)

Use the message type reference found in clause 8.3.9 of TS 34.123-1, with the following exceptions:

FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	3
- Inter-frequency FDD measurement indicator	FALSE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	
- **RAT-Type**	GSM

Contents of System Information Block type 11 (Step e, 1.28Mcps TDD)

Use the same message type found in clause 6.1.0b of TS 34.108, with the following exceptions:

- Inter-RAT measurement system information		Not Present

Contents of System Information Block type 12 (Step e, 1.28Mcps TDD)

Use the message type reference found in clause 8.3.9 of TS 34.123-1, with the following exceptions:

- Inter-RAT measurement system information	Not Present

8.3.9.3.5 Test Requirements

After step e, the UE remains in CELL_FACH in cell 1.

8.3.9.4 Cell reselection if S<0; UTRAN to GPRS (UE in CELL_PCH fails to complete an inter-RAT cell reselection)

8.3.9.4.1 Definition

8.3.9.4.2 Conformance requirement

If the inter-RAT cell reselection fails, the UE shall:

1> resume the connection to UTRAN using the resources used before initiating the inter-RAT cell reselection procedure.

References

TS 25.331, clause 8.3.9.4

8.3.9.4.3 Test purpose

To verify if the inter-RAT cell reselection fails before the UE in CELL_PCH succeeds in initiating the establishment of a connection to the GPRS cell, the UE shall:

- resume the connection to UTRAN using the resources used before initiating the inter-RAT cell reselection procedure.

8.3.9.4.4 Method of test

Initial conditions

System Simulator: 2 cells – Cell 1 is UTRAN FDD, Cell 9 is GPRS. 51.010 clauses 20.22 and 40.1.1 shall be referenced for the default parameters of cell 9.

All cells belong to the same PLMN.

The Inter-RAT Cell Info List of Cell 1 (UTRAN) refers to Cell 9 (GPRS).

The 3G Neighbour Cell Description of Cell 9 (GPRS) refers to Cell 1 (UTRAN).

UE: Power-Off (State 1) (UTRAN) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement

- UE supports both GSM/GPRS and UTRAN Radio Access Technologies,
- UE supports Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480,

Step a-c:

Parameter	Unit	Cell 1 (UTRAN)
Test Channel		1
CPICH Ec (FDD)	dBm	-60
P-CCPCH RSCP (TDD)	dBm	-60
Qrxlevmin	dBm	-101
$Treselection_s$	s	5
Srxlev*	dBm	41
CellBarred		Not barred

Parameter	Unit	Cell 9 (GPRS)
Test Channel		1
RF Signal Level	dBm	-80
RXLEV_ACCESS_MIN	dBm	-100
C1*	dBm	20
FDD_Qmin	dB	-20
FDD_Qoffset	dBm	0
CellBarred		barred

Step d:

Parameter	Unit	Cell 1 (UTRAN)
Qrxlevmin	dB	-101 -> -41
Srxlev*	dB	41 -> -19

Step f:

Parameter	Unit	Cell 1 (UTRAN)
Qrxlevmin	dB	-41 -> -101
Srxlev*	dB	-19-> 41

Test procedure

a) The SS activates cells 1 and 9. The SS monitors cells 1and 9 for random access requests from the UE.

b) The UE is switched on.

c) The SS brings the UE to CELL_PCH (State 6-12).

d) The SS increases Qrxlevmin, so S will become negative.

e) The SS sends Paging Type 1 message to UE to inform UE of the modification in the system information.

f) The SS decreases Qrxlevmin, so S will become positive (After the expiry of the timer Treselection)

g) SS calls for generic procedure C.4 in cell 1 (UTRAN) to check that UE is in CELL_PCH state. The UE resumes the connection to UTRAN using the resources used before initiating the inter-RAT cell reselection procedure

8.3.9.4.5 Test Requirements

In step f, the UE remains in CELL_PCH in cell 1.

8.3.9.4a Cell reselection if S<0; UTRAN to GPRS (UE in CELL_PCH fails to complete an inter-RAT cell reselection), 1.28Mcps TDD

8.3.9.4a.1 Definition

8.3.9.4a.2 Conformance requirement

If the inter-RAT cell reselection fails, the UE shall:

1> resume the connection to UTRAN using the resources used before initiating the inter-RAT cell reselection procedure.

References

TS 25.331, clause 8.3.9.4

8.3.9.4a.3 Test purpose

To verify if the inter-RAT cell reselection fails before the UE in CELL_PCH succeeds in initiating the establishment of a connection to the GPRS cell, the UE shall:

- resume the connection to UTRAN using the resources used before initiating the inter-RAT cell reselection procedure.

8.3.9.4a.4 Method of test

Initial conditions

System Simulator: 2 cells – Cell 1 is UTRAN 1.28Mcps TDD, Cell 9 is GPRS. 51.010 clauses 20.22 and 40.1.1 shall be referenced for the default parameters of cell 9.

All cells belong to the same PLMN.

The Inter-RAT Cell Info List of Cell 1 (UTRAN) refers to Cell 9 (GPRS).

The 3G Neighbour Cell Description of Cell 9 (GPRS) refers to Cell 1 (UTRAN).

UE: Power-Off (State 1) (UTRAN) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement

- UE supports both GSM/GPRS and UTRAN Radio Access Technologies,
- UE supports Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480,

Step a-c:

Parameter	Unit	Cell 1 (UTRAN)
Test Channel		1
P-CCPCH RSCP (TDD)	dBm	-65
Qrxlevmin	dBm	-106
$Treselection_s$	s	5
Srxlev*	dBm	41
CellBarred		Not barred

Parameter	Unit	Cell 9 (GPRS)
Test Channel		1
RF Signal Level	dBm	-80
RXLEV_ACCESS_MIN	dBm	-100
C1*	dBm	20
TDD_Qoffset	dBm	-60
CellBarred		barred

Step d:

Parameter	Unit	Cell 1 (UTRAN)
Qrxlevmin	dB	-106 -> -46
Srxlev*	dB	41 -> -19

Step f:

Parameter	Unit	Cell 1 (UTRAN)
Qrxlevmin	dB	-46 -> -106
Srxlev*	dB	-19-> 41

Test procedure

a) The SS activates cells 1 and 9. The SS monitors cells 1and 9 for random access requests from the UE.

b) The UE is switched on.

c) The SS brings the UE to CELL_PCH (State 6-12).

d) The SS increases Qrxlevmin, so S will become negative.

e) The SS sends Paging Type 1 message to UE to inform UE of the modification in the system information.

f) The SS decreases Qrxlevmin, so S will become positive (After the expiry of the timer Treselection)

g) SS calls for generic procedure C.4 in cell 1 (UTRAN) to check that UE is in CELL_PCH state. The UE resumes the connection to UTRAN using the resources used before initiating the inter-RAT cell reselection procedure

8.3.9.4a.5 Test Requirements

In step f, the UE remains in CELL_PCH in cell 1.

8.3.9.5 Successful Cell Reselection with RAU – Q_{offset} value modification; UTRAN to GPRS (CELL_FACH)

8.3.9.5.1 Definition

8.3.9.5.2 Conformance requirement

1. The purpose of the inter-RAT cell reselection procedure from UTRAN is to transfer, under the control of the UE and to some extent the UTRAN, a connection between the UE and UTRAN to another radio access technology (e.g. GSM/GPRS).

2. This procedure is applicable in states CELL_FACH, CELL_PCH or URA_PCH.

   When the UE based on received system information makes a cell reselection to a radio access technology other than UTRAN, e.g. GSM/GPRS, according to the criteria specified in [4], the UE shall.

   1> If the NAS procedures associated with inter-system change specified in [5] require the establishment of a connection:

      2> initiate the establishment of a connection to the target radio access technology according to its specifications.

3. When the UE has succeeded in reselecting a cell in the target radio access technology, the UE shall:

   1> release all UTRAN specific resources.

References

TS 25.331, clause 8.3.9

8.3.9.5.3 Test purpose

To verify that the UE performs reselection correctly considering the Q_{offset} value broadcast in SIB 11.

8.3.9.5.4 Method of test

Initial conditions

System Simulator: 2 cells – Cell 1 is UTRAN FDD, Cell 2 is GPRS. 51.010 clauses 20.22 and 40.1.1 shall be referenced for the default parameters of cell 2.

All cells belong to the same PLMN . UTRAN and GPRS cells belong to different location area.

The Inter-RAT Cell Info List of Cell 1 (UTRAN) refers to Cell 2 (GPRS).

The 3G Neighbour Cell Description of Cell 2 (GPRS) refers to Cell 1 (UTRAN).

UE: Power-Off (State 1) as specified in clause 7.4 of TS 34.108.

In SIB3 and SIB4 the IE "$S_{searchRAT}$", is set to value "20dB" in Cell 1 (UTRAN).

Related ICS/IXIT statement

- UE supports both GSM/GPRS and UTRAN Radio Access Technologies,
- UE supports Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-850, GSM-PCS, GSM-710, GSM 750, T_GSM-810

Step a-c:

Parameter	Unit	Cell 1 (UTRAN)
Test Channel		1
CPICH Ec (FDD)	dBm	-60
P-CCPCH RSCP (TDD)	dBm	-60
Qrxlevmin	dBm	-101
Srxlev*	dB	41
CellBarred		Not barred

Parameter	Unit	Cell 2 (GPRS)
Test Channel		1
RF Signal Level	dBm	-70
RXLEV_ACCESS_MIN	dBm	-100
C1*	dBm	30
FDD_Qmin	dB	-20
FDD_Qoffset	dBm	16

Step d:

Parameter	Unit	Cell 1 (UTRAN)
$Qoffset1_{s,n}$	dBm	-25

Test procedure

a) The SS activates cells 1 and 2. The SS monitors cells 1and 2 for random access requests from the UE.

b) The UE is switched on.

c) The SS brings the UE to PS-DCCH+DTCH_FACH (State 6-11). SS then sends SystemInformation Type 11 and 12 with FACH Measurement Occasions.

d) Q_{offset} value is modified at UTRAN such that it makes the GSM cell look the best.

e) The SS sends SYSTEM INFORMATION CHANGE INDICATION message to UE to inform UE of the modification in the system information.

f) Void.

g) The SS monitors for random access requests from the UE.

h) The SS pages the UE with PAGING TYPE 2 and PAGING TYPE 1 messages in Cell 1 (UTRAN), if UE does not respond by transmitting an upper layer message to answer this page, it means UE has released the UTRAN resources.

Specific Message Contents

RADIO BEARER SETUP (Step c)

Use the same message as specified for PS-DCCH+DTCH_FACH (state 6-11) in clause 7.4 of TS 34.108, except for the following:

Information Element	Value/remark
New C-RNTI	'0000 0000 0000 0001'

System Information Block type 11 (Step c)

Use the message type reference found in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/remark
FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	3
- Inter-frequency FDD measurement indicator	FALSE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	GSM

System Information Block type 12 (Step c)

Use the message type reference found in clause 8.3.9 of TS 34.123-1, with the following exceptions:

Information Element	Value/remark
FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	3
- Inter-frequency FDD measurement indicator	FALSE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	GSM

8.3.9.5.5 Test Requirements

In step g), the UE shall respond on Cell 2 and enter PACKET TRANSFER mode after performing the routing area update procedure.

In step h), the UE shall not respond in UTRAN cell.

8.3.9.5a Successful Cell Reselection with RAU – Q_{offset} value modification; UTRAN to GPRS (CELL_FACH), 1.28Mcps TDD

8.3.9.5a.1 Definition

8.3.9.5a.2 Conformance requirement

1. The purpose of the inter-RAT cell reselection procedure from UTRAN is to transfer, under the control of the UE and to some extent the UTRAN, a connection between the UE and UTRAN to another radio access technology (e.g. GSM/GPRS).

2. This procedure is applicable in states CELL_FACH, CELL_PCH or URA_PCH.

   When the UE based on received system information makes a cell reselection to a radio access technology other than UTRAN, e.g. GSM/GPRS, according to the criteria specified in [4], the UE shall.

   1> If the NAS procedures associated with inter-system change specified in [5] require the establishment of a connection:

      2> initiate the establishment of a connection to the target radio access technology according to its specifications.

3. When the UE has succeeded in reselecting a cell in the target radio access technology, the UE shall:

   1> release all UTRAN specific resources.

References

TS 25.331, clause 8.3.9

8.3.9.5a.3 Test purpose

To verify that the UE performs reselection correctly considering the Q_{offset} value broadcast in SIB 11.

8.3.9.5a.4 Method of test

Initial conditions

System Simulator: 2 cells – Cell 1 is UTRAN 1.28Mcps TDD, Cell 2 is GPRS. 51.010 clauses 20.22 and 40.1.1 shall be referenced for the default parameters of cell 2.

All cells belong to the same PLMN . UTRAN and GPRS cells belong to different location area.

The Inter-RAT Cell Info List of Cell 1 (UTRAN) refers to Cell 2 (GPRS).

The 3G Neighbour Cell Description of Cell 2 (GPRS) refers to Cell 1 (UTRAN).

UE: Power-Off (State 1) as specified in clause 7.4 of TS 34.108.

In SIB3 and SIB4 the IE "$S_{searchRAT}$", is set to value "20dB" in Cell 1 (UTRAN).

Related ICS/IXIT statement

- UE supports both GSM/GPRS and UTRAN Radio Access Technologies,
- UE supports Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-850, GSM-PCS, GSM-710, GSM 750, T_GSM-810

Step a-c:

Parameter	Unit	Cell 1 (UTRAN)
Test Channel		1
P-CCPCH RSCP (TDD)	dBm	-65
Qrxlevmin	dBm	-106
Srxlev*	dB	41
CellBarred		Not barred

Parameter	Unit	Cell 2 (GPRS)
Test Channel		1
RF Signal Level	dBm	-70
RXLEV_ACCESS_MIN	dBm	-100
C1*	dBm	30
TDD_Qoffset	dBm	-60

Step d:

Parameter	Unit	Cell 1 (UTRAN)
$Qoffset1_{s,n}$	dBm	-25

Test procedure

a) The SS activates cells 1 and 2. The SS monitors cells 1and 2 for random access requests from the UE.

b) The UE is switched on.

c) The SS brings the UE to PS-DCCH+DTCH_FACH (State 6-11). SS then sends SystemInformation Type 11 and 12 with FACH Measurement Occasions.

d) Q_{offset} value is modified at UTRAN such that it makes the GSM cell look the best.

e) The SS sends SYSTEM INFORMATION CHANGE INDICATION message to UE to inform UE of the modification in the system information.

f) Void.

g) The SS monitors for random access requests from the UE.

h) The SS pages the UE with PAGING TYPE 2 and PAGING TYPE 1 messages in Cell 1 (UTRAN), if UE does not respond by transmitting an upper layer message to answer this page, it means UE has released the UTRAN resources.

Specific Message Contents

RADIO BEARER SETUP (Step c)

Use the same message as specified for PS-DCCH+DTCH_FACH (state 6-11) in clause 7.4 of TS 34.108, except for the following:

Information Element	Value/remark
New C-RNTI	'0000 0000 0000 0001'

System Information Block type 11 (Step c)

Use the message type reference found in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/remark
FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	3
- Inter-frequency FDD measurement indicator	FALSE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	GSM

System Information Block type 12 (Step c)

Use the message type reference found in clause 8.3.9 of TS 34.123-1, with the following exceptions:

Information Element	Value/remark
FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	3
- Inter-frequency FDD measurement indicator	FALSE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	GSM

8.3.9.5a.5 Test Requirements

In step g), the UE shall respond on Cell 2 and enter PACKET TRANSFER mode after performing the routing area update procedure.

In step h), the UE shall not respond in UTRAN cell.

8.3.10 Void

8.3.11 Inter-RAT cell change order from UTRAN

8.3.11.1 Inter-RAT cell change order from UTRAN/To GPRS/CELL_DCH/Success

8.3.11.1.1 Definition

8.3.11.1.2 Conformance requirement

The purpose of the inter-RAT cell change order procedure is to transfer, under the control of the network, a connection between the UE and UTRAN to another radio access technology (e.g. GSM). This procedure may be used in CELL_DCH and CELL_FACH state. This procedure may be used when no RABs are established or when the established RABs are only from PS domain. This procedure may not be used when there is no PS signalling connection.

The procedure is initiated when UTRAN orders a UE in CELL_DCH or CELL_FACH state, to make a cell change to a radio access technology other than UTRAN, e.g. GSM.

To initiate the procedure, UTRAN sends a CELL CHANGE ORDER FROM UTRAN message.

The UE shall be able to receive a CELL CHANGE ORDER FROM UTRAN message and perform a cell change order to another RAT, even if no prior UE measurements have been performed on the target cell.

If the variable ESTABLISHED_SIGNALLING_CONNECTIONS does not include the CN domain identity "PS domain", or if the variable ESTABLISHED_SIGNALLING_CONNECTIONS includes the CN domain identity "CS domain":

1> the UE behaviour is not specified.

The UE shall:

1> start timer T309; and

1> establish the connection to the other radio access technology, as specified within IE "Target cell description". This IE specifies the target cell identity, in accordance with the specifications for that other RAT. In case the target cell is a GSM/ GPRS cell, IE "Target cell description" may also include IE "NC mode", which specifies the cell selection mode to be applied in the target cell; and

1> if IE "NC mode" is not included in the CELL CHANGE ORDER FROM UTRAN:

2> retrieve it from the target cell as specified in [43];

2> act upon IE "NC mode" as specified in [43].

1> if the IE "RAB Information List" is included in the CELL CHANGE ORDER FROM UTRAN message:

2> ignore the contents of the IE "RAB Information List".

NOTE: Requirements concerning the establishment of the radio connection towards the other radio access technology and the signalling procedure are outside the scope of this specification. In case of GSM/GPRS proceed according to the procedure Network control cell reselection procedure as specified in [44].

The UE regards the procedure as completed when it has received a successful response from the target RAT, e.g. in case of GSM when it received the response to a (PACKET) CHANNEL REQUEST in the new cell.

Upon successful completion of the cell change order, the UE shall:

1> stop timer T309;

1> clear or set variables upon leaving UTRA RRC connected mode as specified in subclause 13.4.

Upon indication of the UE having successfully completed the cell change order, UTRAN should:

1> release the radio connection; and

1> remove all context information for the concerned UE.

NOTE: The release of the UMTS radio resources is initiated from another RAT.

Reference(s)

TS 25.331 clause 8.3.11, B.6

8.3.11.1.3 Test purpose

To test that the UE shall be able to receive a CELL CHANGE ORDER FROM UTRAN message in CELL_DCH state and perform a cell change to another RAT, even if no prior UE measurements have been performed on the target cell. The UE regards the procedure as completed when it has received a successful response from the target RAT, e.g. in case of GSM when it received the response to a (PACKET) CHANNEL REQUEST in the new cell.

8.3.11.1.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 2 is GPRS. 51.010 clauses 20.22 and 40.1.1 shall be referenced for the default parameters of cell 2.

All cells belong to the same PLMN . UTRAN and GPRS cells belong to different location area.

Cell 1- SIB 1 T309 set to 8 seconds (see specific message contents)

UE: PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, one PS domain RAB is established.

Related ICS/IXIT statement

- UE supports both GSM/GPRS and UTRAN Radio Access Technologies,

- UE supports UTRAN interactive/ background UL: 64kbps, DL: 64 kbps/PS RAB + uplink:3.4 DL:3.4 kbps SRBs,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-850, GSM-PCS, GSM-710, GSM 750, T_GSM-810

Test Procedure

The SS starts the UTRAN cell and brings the UE into PS-DCCH+DTCH_DCH (State 6-10). The SS starts GPRS cell, then sends CELL CHANGE ORDER FROM UTRAN indicating the target cell description, GPRS cell, to the UE through DCCH of the serving UTRAN cell. After the UE receives the command it shall configure itself accordingly and switch to the new channel on the target GPRS cell. The SS checks whether the cell change is performed by checking that the UE receives a successful response to the CHANNEL REQUEST message from the SS through GPRS cell. The UE sends a RA UPDATE REQUEST message to indicate that the UTRAN UE context needs to be transferred to GPRS.

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS brings the UE into PS-DCCH+DTCH_DCH (State 6-10) in cell 1
2	SS			The SS configures cell 2 as a GSM cell with GPRS enabled
3	←		CELL CHANGE ORDER FROM UTRAN	Send on cell 1 (UTRAN cell) and the message indicates: the target cell description for GPRS.
4	UE			The UE accepts the cell change command and switches to the GPRS cell specified in the CELL CHANGE ORDER FROM UTRAN
5	→		CHANNEL REQUEST	The SS receives this burst on the RACH of cell 2 to establish temporary block flow (GPRS cell). It implies that the UE has switched to GPRS cell.
6	←		IMMEDIATE ASSIGNMENT	Uplink dynamic allocation. Sent on AGCH.
7	→		ROUTING AREA UPDATE REQUEST	

Specific message contents

SYSTEM INFORMATION BLOCK TYPE 1

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
T309	8 Sec

CELL CHANGE ORDER FROM UTRAN

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	Now
Target cell description	
- CHOICE Radio Access Technology	
- GSM	
- BSIC	BSIC of Cell 2
- Band Indicator	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- BCCH ARFCN	Allocated BCCH ARFCN of Cell 2
- NC mode	NOT PRESENT

8.3.11.1.5 Test requirement

After step 3 the UE shall transmit a CHANNEL REQUEST message on RACH.

8.3.11.1a Inter-RAT cell change order from UTRAN/To GPRS/CELL_DCH/Success with UEA2/UIA2, GEA2 ciphering

8.3.11.1a.1 Definition

This test case is specified for the Rel-7 (or later) UE in the interRAT cell change order from UTRAN to GERAN. UIA2/UEA2 are applied in the UTRAN cell and GEA2 is applied in the GERAN cell.

8.3.11.1a.2 Conformance requirement

Identical to 8.3.11.1.2

8.3.11.1a.3 Test purpose

Identical to 8.3.11.1.3 but in the UTRAN cell UIA2/UEA2 are applied, and in the GERAN cell GEA2 is applied

8.3.11.1a.4 Method of test

Identical to 8.3.11.1.4.

Specific message contents

Similar to the specific message contents in 8.3.11.1.4 but instead, the Rel-7 IEs are used, also the UE capability to support UEA2/UIA2 and GEA2 are checked.

8.3.11.1a.5 Test requirement

Identical to 8.3.11.1.5

8.3.11.1b Inter-RAT cell change order from UTRAN/To GPRS/CELL_DCH/Success with UEA2/UIA2 and GEA3 ciphering

8.3.11.1b.1 Definition

This test case is specified for the Rel-7 (or later) UE in the interRAT cell change order from UTRAN to GERAN. UIA2/UEA2 are applied in the UTRAN cell and GEA3 is applied in the GERAN cell.

8.3.11.1b.2 Conformance requirement

Identical to 8.3.11.1.2

8.3.11.1b.3 Test purpose

Identical to 8.3.11.1.3 but in the UTRAN cell UIA2/UEA2 are applied, and in the GERAN cell GEA3 is applied.

8.3.11.1b.4 Method of test

Identical to 8.3.11.1.4,.

Specific message contents

Similar to the specific message contents in 8.3.11.1.4 but instead, the Rel-7 IEs are used, also the UE capability to support UEA2/UIA2 and GEA3 are checked.

8.3.11.1b.5 Test requirement

Identical to 8.3.11.1.5

8.3.11.2 Inter-RAT cell change order from UTRAN/To GPRS/CELL_FACH/Success

8.3.11.2.1 Definition

8.3.11.2.2 Conformance requirement

The purpose of the inter-RAT cell change order procedure is to transfer, under the control of the network, a connection between the UE and UTRAN to another radio access technology (e.g. GSM). This procedure may be used in CELL_DCH and CELL_FACH state. This procedure may be used when no RABs are established or when the established RABs are only from PS domain. This procedure may not be used when there is no PS signalling connection.

The procedure is initiated when UTRAN orders a UE in CELL_DCH or CELL_FACH state, to make a cell change to a radio access technology other than UTRAN, e.g. GSM.

To initiate the procedure, UTRAN sends a CELL CHANGE ORDER FROM UTRAN message.

The UE shall be able to receive a CELL CHANGE ORDER FROM UTRAN message and perform a cell change order to another RAT, even if no prior UE measurements have been performed on the target cell.

If the variable ESTABLISHED_SIGNALLING_CONNECTIONS does not include the CN domain identity "PS domain", or if the variable ESTABLISHED_SIGNALLING_CONNECTIONS includes the CN domain identity "CS domain":

1> the UE behaviour is not specified.

The UE shall:

1> start timer T309; and

1> establish the connection to the other radio access technology, as specified within IE "Target cell description". This IE specifies the target cell identity, in accordance with the specifications for that other RAT. In case the target cell is a GSM/ GPRS cell, IE "Target cell description" may also include IE "NC mode", which specifies the cell selection mode to be applied in the target cell; and

1> if IE "NC mode" is not included in the CELL CHANGE ORDER FROM UTRAN:

2> retrieve it from the target cell as specified in [43];

2> act upon IE "NC mode" as specified in [43].

1> if the IE "RAB Information List" is included in the CELL CHANGE ORDER FROM UTRAN message:

2> ignore the contents of the IE "RAB Information List".

NOTE: Requirements concerning the establishment of the radio connection towards the other radio access technology and the signalling procedure are outside the scope of this specification. In case of GSM/GPRS proceed according to the procedure Network control cell reselection procedure as specified in [44].

The UE regards the procedure as completed when it has received a successful response from the target RAT, e.g. in case of GSM when it received the response to a (PACKET) CHANNEL REQUEST in the new cell.

Upon successful completion of the cell change order, the UE shall:

1> stop timer T309;

1> clear or set variables upon leaving UTRA RRC connected mode as specified in subclause 13.4.

Upon indication of the UE having successfully completed the cell change order, UTRAN should:

1> release the radio connection; and

1> remove all context information for the concerned UE.

NOTE: The release of the UMTS radio resources is initiated from another RAT.

Reference(s)

TS 25.331 clause 8.3.11, B.6

8.3.11.2.3 Test purpose

To test that the UE shall be able to receive a CELL CHANGE ORDER FROM UTRAN message in CELL_FACH state and perform a cell change to another RAT, even if no prior UE measurements have been performed on the target cell. The UE regards the procedure as completed when it has received a successful response from the target RAT, e.g. in case of GSM when it received the response to a CHANNEL REQUEST in the new cell.

8.3.11.2.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 2 is GPRS. 51.010 clauses 20.22 and 40.1.1 shall be referenced for the default parameters of cell 2.

All cells belong to the same PLMN . UTRAN and GPRS cells belong to different location area.

UE: PS-DCCH+DTCH_FACH (state 6-11) in cell 1 as specified in clause 7.4 of TS 34.108, one PS domain RAB is established.

Related ICS/IXIT statement

- UE supports both GSM/GPRS and UTRAN Radio Access Technologies,
- UE supports UTRAN interactive/ background UL: 64kbps, DL: 64 kbps/PS RAB + uplink:3.4 DL:3.4 kbps SRBs,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480.

Test Procedure

The SS starts the UTRAN cell and brings the UE into PS-DCCH+DTCH_FACH (state 6-11). The SS starts GPRS cell, then sends CELL CHANGE ORDER FROM UTRAN indicating the target cell description, GPRS cell, to the UE through DCCH of the serving UTRAN cell. After the UE receives the command it shall configure itself accordingly and switch to the new channel on the target GPRS cell. The SS checks whether the cell change is performed by checking that the UE receives a successful response to the CHANNEL REQUEST message from the SS through GPRS cell. The UE sends a RA UPDATE REQUEST message to indicate that the UTRAN UE context needs to be transferred to GPRS.

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS brings the UE into PS-DCCH_DTCH_FACH (State 6-11) in cell 1
2	SS			The SS configures cell 2 as a GSM cell with GPRS enabled
3	←		CELL CHANGE ORDER FROM UTRAN	Send on cell 1 (UTRAN cell) and the message indicates: the target cell description for GPRS.
4	UE			The UE accepts the cell change command and switches to the GPRS specified in the CELL CHANGE ORDER FROM UTRAN
5	→		PACKET CHANNEL REQUEST	The SS receives this burst on PRACH of cell 2 (GPRS cell) to establish temporary block flow. It implies that the UE has switched to GPRS cell.
6	←		PACKET UPLINK ASSIGNMENT	Uplink dynamic allocation Sent on PAGCH.
7	→		ROUTING AREA UPDATE REQUEST	

Specific message contents

CELL CHANGE ORDER FROM UTRAN

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	Now
Target cell description	
- CHOICE Radio Access Technology	
- GSM	
- BSIC	BSIC of Cell 2
- Band Indicator	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- BCCH ARFCN	Allocated BCCH ARFCN of Cell 2
- NC mode	NOT PRESENT

8.3.11.2.5 Test requirement

After step 3 the UE shall transmit a CHANNEL REQUEST message on RACH.

8.3.11.3 Inter-RAT cell change order from UTRAN/To GPRS/CELL_DCH/Failure (T309 expiry)

8.3.11.3.1 Definition

8.3.11.3.2 Conformance requirement

If:

- timer T309 expires prior to the successful establishment of a connection to the target RAT; or
- if the establishment of the connection to the other RAT failed due to other reasons e.g. (random) access failure, rejection due to lack of resources:

the UE shall:

1> if it received the CELL CHANGE ORDER FROM UTRAN message in state CELL_DCH:

2> revert back to the UTRA configuration;

2> establish the UTRA physical channel(s) used at the time for reception of CELL CHANGE ORDER FROM UTRAN;

2> if the UE does not succeed in establishing the UTRA physical channel(s):

3> perform a cell update procedure according to subclause 8.3.1 with cause "Radio link failure";

3> when the cell update procedure has completed successfully:

4> proceed as below.

2> transmit the CELL CHANGE ORDER FROM UTRAN FAILURE message setting the information elements as specified below:

3> include the IE "RRC transaction identifier"; and

3> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> clear that entry;

3> set the IE "Inter-RAT change failure" to "physical channel failure".

2> When the CELL CHANGE ORDER FROM UTRAN FAILURE message has been submitted to lower layer for transmission, the procedure ends.

Reference(s)

TS 25.331 clause 8.3.11

8.3.11.3.3 Test purpose

To verify that when UE received CELL CHANGE ORDER FROM UTRAN message in CELL_DCH state and if the establishment of the connection to the other RAT failed due to expiry of timer T309 prior to the successful establishment of a connection to the target RAT:

a. revert back to the UTRA configuration;

b. establish the UTRA physical channel(s) used at the time for reception of CELL CHANGE ORDER FROM UTRAN;

c. transmit the CELL CHANGE ORDER FROM UTRAN FAILURE message and set the IE "Inter-RAT change failure" to "physical channel failure".

8.3.11.3.4 Method of test

Initial conditions

System Simulator: 3 cells - Cells 1 and 3 are UTRAN, Cell 2 is GPRS. 51.010 clauses 20.22 and 40.1.1 shall be referenced for the default parameters of cell 2.

All cells belong to the same PLMN . UTRAN and GPRS cells belong to different location area.

UE: PS-DCCH_DCH (State 6-7) in cell 1 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement

- UE supports both GSM/GPRS and UTRAN Radio Access Technologies,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480,

Test Procedure

The SS starts the UTRAN cell and brings the UE into state PS-DCCH_DCH (State 6-7). The SS starts GPRS cell, then sends CELL CHANGE ORDER FROM UTRAN indicating the target cell description, GPRS cell, to the UE through DCCH of the serving UTRAN cell. The UE starts the timer T309. After the UE receives the command it shall configure itself accordingly but cannot complete the cell change, as SS does not respond to the CHANNEL REQUEST message transmitted by UE till the expiry of T309 timer. The SS checks that the cell change has failed by checking that the UE transmits the CELL CHANGE ORDER FROM UTRAN FAILURE message to the SS in UTRAN cell.

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS bring the UE into PS-DCCH _DCH (State 6-7) in cell 1
2	SS			The SS configures cell 2 as a GSM cell with GPRS enabled
3	←		CELL CHANGE ORDER FROM UTRAN	Send on cell 1 (UTRAN cell) and the message indicates: the target cell description for GSM/GPRS.
4	UE			UE starts the timer T309. The UE accepts the cell change command and switches to the GPRS specified in the CELL CHANGE ORDER FROM UTRAN
5	→		CHANNEL REQUEST	The SS receives this burst on RACH of cell 2 (GPRS cell) to establish temporary block flow
6	→			SS does not respond to the channel request. UE sends M + 1 CHANNEL REQUEST messages
				The SS does not transmit a response and wait for T309 timer to expire. Upon expiry of T309 the UE shall start timer T3311 and shall perform ROUTING AREA UPDATE. The UE shall perform ROUTING AREA UPDATE also when a new cell 3 is entered.
7	→		CELL CHANGE ORDER FROM UTRAN FAILURE	The SS receives the message on the old channel of UTRAN cell 1.

Specific message contents

CELL CHANGE ORDER FROM UTRAN

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	Now
Target cell description	
- CHOICE Radio Access Technology	
- GSM	
- BSIC	BSIC of Cell 2
- Band Indicator	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- BCCH ARFCN	Allocated BCCH ARFCN of Cell 2
- NC mode	Not present

CELL CHANGE ORDER FROM UTRAN FAILURE

Information Element	Value/remark
Message Type	
RRC transaction identifier	Checked to see if it matches the same value used in the corresponding downlink CELL CHANGE ORDER FROM UTRAN message
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Inter-RAT change failure	
-Inter-RAT change failure cause	physical channel failure

8.3.11.3.5 Test requirement

In step 5 the UE shall transmit a CHANNEL REQUEST message on RACH.

In step 7 the SS shall receive CELL CHANGE ORDER FROM UTRAN FAILURE message on the old channel of the UTRAN cell.

8.3.11.4 Inter-RAT cell change order from UTRAN/To GPRS/CELL_DCH/Failure (Physical channel Failure and Reversion Failure)

8.3.11.4.1 Definition

8.3.11.4.2 Conformance requirement

If:

- timer T309 expires prior to the successful establishment of a connection to the target RAT; or
- if the establishment of the connection to the other RAT failed due to other reasons e.g. (random) access failure, rejection due to lack of resources:

the UE shall:

1> if it received the CELL CHANGE ORDER FROM UTRAN message in state CELL_DCH:

2> revert back to the UTRA configuration;

2> establish the UTRA physical channel(s) used at the time for reception of CELL CHANGE ORDER FROM UTRAN;

2> if the UE does not succeed in establishing the UTRA physical channel(s):

3> perform a cell update procedure according to subclause 8.3.1 with cause "Radio link failure";

3> when the cell update procedure has completed successfully:

4> proceed as below.

2> transmit the CELL CHANGE ORDER FROM UTRAN FAILURE message setting the information elements as specified below:

3> include the IE "RRC transaction identifier"; and

3> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> clear that entry;

3> set the IE "Inter-RAT change failure" to "physical channel failure".

2> When the CELL CHANGE ORDER FROM UTRAN FAILURE message has been submitted to lower layer for transmission, the procedure ends.

Reference(s)

TS 25.331 clause 8.3.11

8.3.11.4.3 Test purpose

To verify that when UE received CELL CHANGE ORDER FROM UTRAN message in CELL_DCH state and if the establishment of the connection to the other RAT failed due to other reasons e.g. (random) access failure, rejection due to lack of resources:

a. revert back to the UTRA configuration;

b. if the UE does not succeed in establishing the UTRA physical channel(s):

- perform a cell update procedure with cause "Radio link failure";

c. when the cell update procedure is completed successfully, it transmits the CELL CHANGE ORDER FROM UTRAN FAILURE message and set the IE "Inter-RAT change failure" to "physical channel failure".

8.3.11.4.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 2 is GPRS. 51.010 clauses 20.22 and 40.1.1 shall be referenced for the default parameters of cell 2.

All cells belong to the same PLMN. UTRAN and GPRS cells belong to different location area.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, one PS domain RAB is established.

NOTE: The 'timer poll' value in the SS RLC transmit entity should be set to 800 ms.

Related ICS/IXIT statement

- UE supports both GSM/GPRS and UTRAN Radio Access Technologies,
- UE supports UTRAN interactive/ background UL: 64kbps, DL: 64 kbps/PS RAB + uplink:3.4 DL:3.4 kbps SRBs,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-850, GSM-PCS, GSM-710, GSM 750, T_GSM-810

Test Procedure

The SS starts the UTRAN cell and brings the UE into PS-DCCH+DTCH_DCH (state 6-10). The SS starts GPRS cell, then sends CELL CHANGE ORDER FROM UTRAN indicating the target cell description, GPRS cell, to the UE through DCCH of the serving UTRAN cell. The UE receives the command and configures itself accordingly but cannot complete the cell change and wants to revert to the old configuration, but the UE cannot revert to the old configuration because the SS shall not use the old configuration. The UE transmits CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "radio link failure". The SS shall transmit CELL UPDATE CONFIRM message on downlink CCCH after receiving CELL UPDATE message. The UE transmits PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC and subsequently transmits the CELL CHANGE ORDER FAILURE message to the SS in UTRAN cell, on the DCCH using AM RLC, setting the value of IE " Inter-RAT change failure " to " physical channel failure".

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS brings the UE into PS-DCCH+DTCH_DCH (State 6-10) in cell 1
2	SS			The SS configures cell 2 as a GSM cell with GPRS enabled
3	←		CELL CHANGE ORDER FROM UTRAN	Send on cell 1 (UTRAN cell) and the message indicates: the target cell description for GSM/GPRS.
3a	SS			SS removes the physical channel (DPCH), which was allocated to the mobile before Cell Change Order From UTRAN transmission
4	UE			The UE accepts the cell change command and switches to the GSM/GPRS specified in the CELL CHANGE ORDER FROM UTRAN
5	→		CHANNEL REQUEST	The SS receives this burst on RACH of cell 2 (GPRS cell) to establish temporary block flow. It implies that the UE has switched to GPRS cell.
6	←		IMMEDIATE ASSIGNMENT REJECT	SS rejects the channel request
7			VOID	
8	→		CELL UPDATE	The value "radio link failure" shall be set in IE "Cell update cause".
9	←		CELL UPDATE CONFIRM	This message include IE "Physical channel information elements".
10				The SS configure the dedicated physical channel according to the IE "Physical channel information elements" included in the CELL UPDATE CONFIRM message.
11	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
12	→		CELL CHANGE ORDER FROM UTRAN FAILURE	The IE "Inter-RAT failure cause" shall be set to "physical channel failure"
13				Note: The UE may send a ROUTING AREA UPDATE REQUEST to complete the RA Update procedure initiated at step 5.

Specific message contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

CELL CHANGE ORDER FROM UTRAN

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	Now
Target cell description	
- CHOICE Radio Access Technology	
- GSM	
- BSIC	BSIC of Cell 2
- Band Indicator	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- BCCH ARFCN	Allocated BCCH ARFCN of Cell 2
- NC mode	Not present

CELL UPDATE (Step 8)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in TS 34.108, clause 9,with the following exceptions:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	"radio link failure"

CELL UPDATE CONFIRM (Step 9) (FDD)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in TS 34.108, clause 9,with the following exceptions:

Information Element	Value/remark	Version
U-RNTI	Same as CELL UPDATE message in step 3	
RRC State indicator	CELL_DCH	
Frequency info		
- UARFCN uplink (Nu)	Reference to TS34.108 clause 5.1 Test frequencies	
- UARFCN downlink (Nd)	Reference to TS34.108 clause 5.1 Test frequencies	
Maximum allowed UL TX power	33dBm	
CHOICE channel requirement	Uplink DPCH info	
- Uplink DPCH power control info		
- DPCCH power offset	-40 (-80 dB)	
- PC Preamble	1 frame	
- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- TPC step size	0 (1 dB)	
- Scrambling code type	Long	
- Scrambling code number	0	
- Number of DPDCH	Not Present	
- spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	TRUE	
- Number of FBI bit	Not present	
- Puncturing Limit	pl0-96	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indicator	Initialise	
- CFN-targetSFN frame offset	Not Present	
- Downlink DPCH power control information		
- DPC mode	0 (single)	
- CHOICE mode	FDD	
- Power offset $P_{Pilot-DPDCH}$	0	
- DL rate matching restriction information	Not Present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Fixed or Flexible Position	flexible	
- TFCI existence	TRUE	
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set	
- DPCH compressed mode info	Not Present	
- TX Diversity mode	None	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512.	
Downlink information for each radio links		
CHOICE Mode	FDD	
- Primary CPICH info		
- Primary scrambling code	100	
- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only
- PDSCH code mapping	Not Present	R99 and Rel-4 only
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value : Default DPCH Offset Value (as set above) mod 38400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	2	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	SF-1 (SF is reference to TS34.108 clause 6.10 Parameter Set)	

- Scrambling code change	No change	
- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

CELL UPDATE CONFIRM (Step 9) (3.84 Mcps TDD)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in TS 34.108, clause 9,with the following exceptions:

Information Element	Value/remark	Version
U-RNTI	Same as CELL UPDATE message in step 3	
RRC State indicator	CELL_DCH	
Frequency info		
- UARFCN (Nt)	Reference to TS34.108 clause 5.1 Test frequencies	
Maximum allowed UL TX power	33dBm	
CHOICE channel requirement	Uplink DPCH info	
- Uplink DPCH power control info		
- CHOICE *mode*	TDD	
- UL target SIR	12 (6 dB)	
- CHOICE *UL OL PC info*	Broadcast UL OL PC info	
- CHOICE *mode*	TDD	
- UL CCTrCH List	1	
- UL target SIR	12 (6 dB)	
- Time info		
- Activation time	Now	
- Duration	Infinite	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	Not Present	
- Downlink DPCH power control information		
- CHOICE mode	TDD (No Data)	
- CHOICE mode	TDD (No Data)	
- CHOICE *mode*	TDD	
- CHOICE *TDD option*	3.84 Mcps TDD (No Data)	
- Default DPCH Offset Value	Set to value: Default DPCH Offset Value (as currently stored in SS) mod 38400	
Downlink information for each radio links		
- CHOICE Mode	TDD	
- Primary CCPCH info		
- CHOICE Mode	TDD	
- CHOICE *TDD option*	3.84 Mcps TDD	
- CHOICE *SyncCase*	Sync Case 1	
- Timeslot	0	
- SCTD indicator	FALSE	
- Downlink DPCH info for each RL		
- CHOICE *mode*	TDD	
- DL CCTrCh List		
- TFCS ID	1	
- Time info		
- Activation time	Now	
- Duration	Infinite	
- Common timeslot info	Default	
- Downlink DPCH timeslots and codes	Default	
- UL CCTrCH TPC List	Default	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

CELL UPDATE CONFIRM (Step 9) (1.28 Mcps TDD)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in TS 34.108, clause 9,with the following exceptions:

Information Element	Value/remark	Version
U-RNTI	Same as CELL UPDATE message in step 3	
RRC State indicator	CELL_DCH	
Frequency info		
- UARFCN uplink (Nu)	Reference to TS34.108 clause 5.1 Test frequencies	
- UARFCN downlink (Nd)	Reference to TS34.108 clause 5.1 Test frequencies	
Maximum allowed UL TX power	33dBm	
CHOICE channel requirement	Uplink DPCH info	
- Uplink DPCH power control info		
- CHOICE *mode*	TDD	
- UL target SIR	12 (6 dB)	
- CHOICE *UL OL PC info*	Individually Signalled	
- CHOICE *TDD option*	1.28 Mcps TDD	
- TPC step size	0 (1 dB)	
- UL CCTrCH List	1	
- UL target SIR	12 (6 dB)	
- Time info		
- Activation time	Now	
- Duration	Infinite	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indicator	Initialise	
- CFN-targetSFN frame offset	Not Present	
- Downlink DPCH power control information		
- CHOICE mode	TDD (NoData)	
- CHOICE mode	TDD (NoData)	
- CHOICE *mode*	TDD	
- CHOICE *TDD option*	1.28 Mcps TDD	
- TSTD indicator	FALSE	
- Default DPCH Offset Value	Set to value: Default DPCH Offset Value (as currently stored in SS) mod 38400	
Downlink information for each radio links		
- CHOICE Mode	TDD	
- Primary CCPCH info		
- CHOICE Mode	TDD	
- CHOICE *TDD option*	1.28 Mcps TDD	
- TSTD indicator	FALSE	
- SCTD indicator	FALSE	
- Downlink DPCH info for each RL		
- CHOICE *mode*	TDD	
- DL CCTrCh List		
- TFCS ID	1	
- Time info		
- Activation time	Now	
- Duration	Infinite	
- Common timeslot info	Default	
- Downlink DPCH timeslots and codes	Default	
- UL CCTrCH TPC List	Default	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

CELL UPDATE CONFIRM (Step 9) (3.84 Mcps TDD)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in TS 34.108, clause 9,with the following exceptions:

Information Element	Value/remark	Version
U-RNTI	Same as CELL UPDATE message in step 3	
RRC State indicator	CELL_DCH	
Frequency info		
- UARFCN (Nt)	Reference to TS34.108 clause 5.1 Test frequencies	
Maximum allowed UL TX power	33dBm	
CHOICE channel requirement	Uplink DPCH info	
- Uplink DPCH power control info		
- CHOICE *mode*	TDD	
- UL target SIR	12 (6 dB)	
- CHOICE *UL OL PC info*	Broadcast UL OL PC info	
- CHOICE *mode*	TDD	
- UL CCTrCH List	1	
- UL target SIR	12 (6 dB)	
- Time info		
- Activation time	Now	
- Duration	Infinite	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indication	Initialise	
- CFN-targetSFN frame offset	Not Present	
- Downlink DPCH power control information		
- CHOICE mode	TDD (No Data)	
- CHOICE mode	TDD (No Data)	
- CHOICE *mode*	TDD	
- CHOICE *TDD option*	7.68 Mcps TDD (No Data)	
- Default DPCH Offset Value	Not Present	
Downlink information for each radio links		
- CHOICE Mode	TDD	
- Primary CCPCH info		
- CHOICE Mode	TDD	
- CHOICE *TDD option*	7.68 Mcps TDD	
- CHOICE *SyncCase*	Sync Case 1	
- Timeslot	0	
- SCTD indicator	FALSE	
- Downlink DPCH info for each RL		
- CHOICE *mode*	TDD	
- DL CCTrCh List		
- TFCS ID	1	
- Time info		
- Activation time	Now	
- Duration	Infinite	
- Common timeslot info	Default	
- Downlink DPCH timeslots and codes VHCR	Default	
- UL CCTrCH TPC List	Default	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

CELL CHANGE ORDER FROM UTRAN FAILURE

Information Element	Value/remark
Message Type	
RRC transaction identifier	Checked to see if it matches the same value used in the corresponding downlink CELL CHANGE ORDER FROM UTRAN message
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Inter-RAT change failure	
-Inter-RAT change failure cause	physical channel failure

8.3.11.4.5 Test requirement

In step 5 the UE shall transmit a CHANNEL REQUEST message on RACH.

In step 8 the SS shall receive CELL UPDATE message on the old channel of the UTRAN cell with the IE “Cell update cause” set to cause “ radio link failure “.

In step 11 the SS shall receive PHYSICAL CHANNEL COMPLETE message.

In step 12 the SS shall receive CELL CHANGE ORDER FROM UTRAN FAILURE message with the IE “ Inter-RAT change failure cause” set to “physical channel failure”.

8.3.11.5 Inter-RAT cell change order from UTRAN/To GPRS/CELL_FACH/Failure (T309 expiry)

8.3.11.5.1 Definition

8.3.11.5.2 Conformance requirement

If:

- timer T309 expires prior to the successful establishment of a connection to the target RAT; or
- if the establishment of the connection to the other RAT failed due to other reasons e.g. (random) access failure, rejection due to lack of resources:

the UE shall:

1> if the UE receives the CELL CHANGE ORDER FROM UTRAN message in CELL_FACH state:

2> revert to the cell it was camped on at the reception of the CELL CHANGE ORDER FROM UTRAN message;

2> if the UE is unable to return to this cell:

3> select a suitable UTRA cell according to [4];

3> initiate the cell update procedure according to subclause 8.3.1 using the cause "cell re-selection";

3> when the cell update procedure completed successfully:

4> proceed as below.

2> transmit the CELL CHANGE ORDER FROM UTRAN FAILURE message setting the information elements as specified below:

3> include the IE "RRC transaction identifier"; and

3> set it to the value of "RRC transaction identifier" in the entry for the CELL CHANGE ORDER FROM UTRAN message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> clear that entry;

3> set the IE "Inter-RAT change failure" to "physical channel failure".

2> When the CELL CHANGE ORDER FROM UTRAN FAILURE message has been submitted to lower layer for transmission:

3> the procedure ends.

Reference(s)

TS 25.331 clause 8.3.11

8.3.11.5.3 Test purpose

To verify that when UE received CELL CHANGE ORDER FROM UTRAN message in CELL_FACH state and if the establishment of the connection to the other RAT failed due to expiry of timer T309 prior to the successful establishment of a connection to the target RAT:

a. revert to the cell it was camped on at the reception of the CELL CHANGE ORDER FROM UTRAN message;

b. transmit the CELL CHANGE ORDER FROM UTRAN FAILURE message and set the IE "Inter-RAT change failure" to "physical channel failure".

8.3.11.5.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 2 is GPRS. 51.010 clauses 20.22 and 40.1.1 shall be referenced for the default parameters of cell 2.

All cells belong to the same PLMN . UTRAN and GPRS cells belong to different location area.

UE: PS-DCCH+DTCH_FACH (State 6-11) in cell 1 as specified in clause 7.4 of TS 34.108, one PS domain RAB is established.

Related ICS/IXIT statement

- UE supports both GSM/GPRS and UTRAN Radio Access Technologies,
- UE supports UTRAN interactive/ background UL: 64kbps, DL: 64 kbps/PS RAB + uplink:3.4 DL:3.4 kbps SRBs,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480,

Test Procedure

The SS starts the UTRAN cell and brings the UE into PS_DCCH+DTCH_FACH (state 6-11). The SS starts GPRS cell, then sends CELL CHANGE ORDER FROM UTRAN indicating the target cell description, GPRS cell, to the UE through DCCH of the serving UTRAN cell. The UE starts the timer T309. After the UE receives the command it shall configure itself accordingly but cannot complete the cell change, as SS does not respond to the Channel Request message transmitted by UE till the timer T309 expires. The SS checks that the cell change has failed by checking that the UE transmits the CELL CHANGE ORDER FROM UTRAN FAILURE message to the SS in UTRAN cell.

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS bring the UE into PS-DCCH+DTCH_FACH (State 6-11) in cell 1
2	SS			The SS configures cell 2 as a GSM cell with GPRS enabled
3	←		CELL CHANGE ORDER FROM UTRAN	Send on cell 1 (UTRAN cell) and the message indicates: the target cell description for GSM/GPRS.
4	UE			The UE accepts the cell change command and switches to the GSM/GPRS specified in the CELL CHANGE ORDER FROM UTRAN
5	→		CHANNEL REQUEST	The SS receives this burst on RACH of cell 2 (GPRS cell) to establish temporary block flow
6	→			SS does not respond to the channel request. UE transmits CHANNEL REQUEST message M+1 times.
				The SS does not transmit a response and wait for T309 timer to expire.
7	→		CELL CHANGE ORDER FROM UTRAN FAILURE	The SS receives the message on the old channel of UTRAN cell.

Specific message contents

CELL CHANGE ORDER FROM UTRAN

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	Now
Target cell description	
- CHOICE Radio Access Technology	
- GSM	
- BSIC	BSIC of Cell 2 BSIC of Cell 3
- Band Indicator	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band" Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- BCCH ARFCN	Allocated BCCH ARFCN of Cell 2 Allocated BCCH ARFCN of Cell 3
- NC mode	Not present

CELL CHANGE ORDER FROM UTRAN FAILURE

Information Element	Value/remark
Message Type	
RRC transaction identifier	Checked to see if it matches the same value used in the corresponding downlink CELL CHANGE ORDER FROM UTRAN message
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Inter-RAT change failure	
-Inter-RAT change failure cause	physical channel failure

8.3.11.5.5 Test requirement

In step 5 the UE shall transmit a CHANNEL REQUEST message on RACH.

In step 7 the SS shall receive CELL CHANGE ORDER FROM UTRAN FAILURE message on the old channel of the UTRAN cell.

8.3.11.6 Inter-RAT cell change order from UTRAN/To GPRS/CELL_FACH/Failure (Physical channel Failure and Reversion Failure)

8.3.11.6.1 Definition

8.3.11.6.2 Conformance requirement

If:

- timer T309 expires prior to the successful establishment of a connection to the target RAT; or
- if the establishment of the connection to the other RAT failed due to other reasons e.g. (random) access failure, rejection due to lack of resources:

the UE shall:

1> if the UE receives the CELL CHANGE ORDER FROM UTRAN message in CELL_FACH state:

2> revert to the cell it was camped on at the reception of the CELL CHANGE ORDER FROM UTRAN message;

2> if the UE is unable to return to this cell:

3> select a suitable UTRA cell according to [4];

3> initiate the cell update procedure according to subclause 8.3.1 using the cause "cell re-selection";

3> when the cell update procedure completed successfully:

4> proceed as below.

2> transmit the CELL CHANGE ORDER FROM UTRAN FAILURE message setting the information elements as specified below:

3> include the IE "RRC transaction identifier"; and

3> set it to the value of "RRC transaction identifier" in the entry for the CELL CHANGE ORDER FROM UTRAN message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> clear that entry;

3> set the IE "Inter-RAT change failure" to "physical channel failure".

2> When the CELL CHANGE ORDER FROM UTRAN FAILURE message has been submitted to lower layer for transmission:

3> the procedure ends.

Reference(s)

TS 25.331 clause 8.3.11

8.3.11.6.3 Test purpose

To verify that when UE received CELL CHANGE ORDER FROM UTRAN message in CELL_FACH state and if the establishment of the connection to the other RAT failed due to other reasons e.g. (random) access failure, rejection due to lack of resources:

a. revert to the cell it was camped on at the reception of the CELL CHANGE ORDER FROM UTRAN message;

b. if the UE is unable to return to this cell:

- select a suitable UTRA cell;

c. initiate the cell update procedure using the cause "cell re-selection";

d. when the cell update procedure is completed successfully, it transmits the CELL CHANGE ORDER FROM UTRAN FAILURE message and set the IE "Inter-RAT change failure" to "physical channel failure".

8.3.11.6.4 Method of test

Initial conditions

System Simulator: 3 cells - Cell 1, Cell 2 are UTRAN, Cell 3 is GPRS. 51.010 clauses 20.22 and 40.1.1 shall be referenced for the default parameters of cell 3.

All cells belong to the same PLMN . UTRAN and GPRS cells belong to different location area.

UE: PS-DCCH+DTCH_FACH (State 6-11) in cell 1 as specified in clause 7.4 of TS 34.108, one PS domain RAB is established.

Related ICS/IXIT statement

- UE supports both GSM/GPRS and UTRAN Radio Access Technologies,
- UE supports UTRAN interactive/ background UL: 64kbps, DL: 64 kbps/PS RAB + uplink:3.4 DL:3.4 kbps SRBs,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480,

Test Procedure

Table 8.3.11.6

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	Off	-75	-60
P-CCPCH RSCP (TDD)	dBm	-60	Off	-75	-60

Table 8.3.11.6 illustrates the downlink power to be applied for the 2 UTRAN cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 2.

The SS starts the UTRAN cell and brings the UE into PS-DCCH+DTCH_FACH (state 6-11). The SS starts GPRS cell, then sends CELL CHANGE ORDER FROM UTRAN indicating the target cell description, GPRS cell, to the UE through DCCH of the serving UTRAN cell. The UE receives the command and configures itself accordingly but cannot complete the cell change and wants to revert to the old configuration, but the UE cannot revert to the old configuration because the SS shall not use the old configuration. The SS configures its downlink transmission power settings according to columns "T1" in table 8.3.11.6. The UE transmits CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". The SS shall transmit CELL UPDATE CONFIRM message on downlink CCCH after receiving CELL UPDATE message. The UE transmits the CELL CHANGE ORDER FAILURE message to the SS in UTRAN cell, on the DCCH using AM RLC, setting the value of IE " Inter-RAT change failure " to " physical channel failure".

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS bring the UE into PS-DCCH+DTCH_FACH (State 6-11) in cell 1
2	SS			The SS configures cell 3 as a GSM cell with GPRS enabled
3	←		CELL CHANGE ORDER FROM UTRAN	Send on cell 1 (UTRAN cell) and the message indicates: The target cell description for GSM/GPRS.
3a	SS			The SS applies the downlink transmission power settings, the values in columns "T1" of table 8.3.11.6.
4	UE			The UE accepts the cell change command and switches to the GSM/GPRS specified in the CELL CHANGE ORDER FROM UTRAN
5	→		CHANNEL REQUEST	The SS receives this burst on the traffic channel of cell 2 (GPRS cell) to establish temporary block flow It implies that the UE has switched to GPRS cell.
6	←		IMMEDIATE ASSIGNMENT REJECT	SS rejects the channel request
7			VOID	
8			VOID	
9	→		CELL UPDATE	The value "cell reselection" shall be set in IE "Cell update cause".
10	←		CELL UPDATE CONFIRM	See message content.
11	→		CELL CHANGE ORDER FROM UTRAN FAILURE	The IE "Inter-RAT failure cause" shall be set to "physical channel failure"

Specific message contents

CELL CHANGE ORDER FROM UTRAN

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	Now
Target cell description	
- CHOICE Radio Access Technology	
- GSM	
- BSIC	BSIC1
- Band Indicator	DCS 1800 band used
- BCCH ARFCN	1
- NC mode	Not present

CELL UPDATE (Step 8)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in TS 34.108, clause 9,with the following exceptions:

Information Element	Value/remark
Cell Update Cause	"cell reselection"

CELL UPDATE CONFIRM (Step 9)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in TS 34.108, clause 9

CELL CHANGE ORDER FROM UTRAN FAILURE

Information Element	Value/remark
Message Type	
RRC transaction identifier	Checked to see if it matches the same value used in the corresponding downlink CELL CHANGE ORDER FROM UTRAN message
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Inter-RAT change failure	
-Inter-RAT change failure cause	physical channel failure

8.3.11.6.5 Test requirement

In step 5 the UE shall transmit a CHANNEL REQUEST message on RACH.

In step 9 the SS shall receive CELL UPDATE message on the old channel of the UTRAN cell with the IE “Cell update cause” set to cause “ cell reselection “.

In step 11 the SS shall receive CELL CHANGE ORDER FROM UTRAN FAILURE message with the IE “ Inter-RAT change failure cause” set to “physical channel failure”.

8.3.11.7 Inter-RAT cell change order from UTRAN/To GPRS/ Failure (Unsupported configuration)

8.3.11.7.1 Definition

8.3.11.7.2 Conformance requirement

If the UTRAN instructs the UE to perform a non-supported cell change order scenario or to use a non-supported configuration, the UE shall:

1> transmit a CELL CHANGE ORDER FROM UTRAN FAILURE message, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "Inter-RAT change failure" to "configuration unacceptable";

2> when the CELL CHANGE ORDER FROM UTRAN FAILURE message has been submitted to lower layers for transmission:

3> resume normal operation as if the CELL CHANGE ORDER FROM UTRAN message has not been received;

3> and the procedure ends.

Reference(s)

TS 25.331 clause 8.3.11

8.3.11.7.3 Test purpose

To verify if the UTRAN instructs the UE to perform a non-supported cell change order or to use a non-supported configuration, the UE shall:

a. Transmit a CELL CHANGE ORDER FROM UTRAN FAILURE message, setting the IE "Inter-RAT change failure" to "configuration unacceptable";

b. Resume normal operation

8.3.11.7.4 Method of test

Initial conditions

System Simulator : 1 UTRAN cell

UE : PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, one PS domain RAB is established.

Related ICS/IXIT statement

- UE supports both GSM/GPRS and UTRAN Radio Access Technologies,
- UE supports UTRAN interactive/ background UL: 64kbps, DL: 64 kbps/PS RAB + uplink:3.4 DL:3.4 kbps SRBs,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480,

Test Procedure

The SS starts the UTRAN cell and brings the UE into PS-DCCH+DTCH_DCH (state 6-10). The SS then sends a CELL CHANGE ORDER FROM UTRAN message including a Configuration not Supported by the UE, to the UE through DCCH of the serving UTRAN cell. The UE receives the command and finds that the configuration given in cell change message is not supported. The SS checks that the cell change is failed by checking that the UE transmits the CELL CHANGE ORDER FROM UTRAN FAILURE message to the SS in UTRAN cell with the IE "Inter-RAT change failure" set to "configuration unsupported".

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS brings the UE into PS-DCCH+DTCH_DCH (State 6-10) in cell 1
2	←		CELL CHANGE ORDER FROM UTRAN	Send on cell 1 (UTRAN cell) and the message carries an unsupported configuration. Cell change order to a Band not supported by the UE
3	→		CELL CHANGE ORDER FROM UTRAN FAILURE	The SS receives the message on the old channel of UTRAN cell.

Specific message contents

CELL CHANGE ORDER FROM UTRAN

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	Now
Target cell description	Contains a Configuration not supported By the UE (Cell change order to a Band not supported by the UE)

CELL CHANGE ORDER FROM UTRAN FAILURE

Information Element	Value/remark
Message Type	
RRC transaction identifier	Checked to see if it matches the same value used in the corresponding downlink CELL CHANGE ORDER FROM UTRAN message
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Inter-RAT change failure	
-Inter-RAT change failure cause	configuration unsupported

8.3.11.7.5 Test requirement

In step 3 the SS shall receive CELL CHANGE ORDER FROM UTRAN FAILURE message on the old channel of the UTRAN cell.

8.3.11.8 Inter-RAT cell change order from UTRAN/To GPRS/ Failure (Invalid Inter-RAT message)

8.3.11.8.1 Definition

8.3.11.8.2 Conformance requirement

If the CELL CHANGE ORDER FROM UTRAN message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to clause 9, the UE shall perform procedure specific error handling as follows. The UE shall:

1> set the IE "RRC transaction identifier" in the CELL CHANGE ORDER FROM UTRAN FAILURE message to the value of "RRC transaction identifier" in the entry for the CELL CHANGE ORDER FROM UTRAN message in the table "Rejected transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> set the IE "Inter-RAT change failure" to the cause value "protocol error";

1> include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;

1> transmit a CELL CHANGE ORDER FROM UTRAN FAILURE message on the uplink DCCH using AM RLC;

1> when the CELL CHANGE ORDER FROM UTRAN FAILURE message has been submitted to lower layers for transmission:

2> resume normal operation as if the invalid CELL CHANGE ORDER FROM UTRAN message has not been received;

2> and the procedure ends.

Reference(s)

TS 25.331 clause 8.3.11

8.3.11.8.3 Test purpose

To verify that the UE shall keep its old configuration and transmit a CELL CHANGE ORDER FROM UTRAN FAILURE message, with the "Inter-RAT change failure" set to "protocol error", when it receives a CELL CHANGE ORDER FROM UTRAN message, not including a valid message in accordance with the protocol specifications for the target RAT.

8.3.11.8.4 Method of test

Initial conditions

System Simulator: 1 UTRAN cell

UE: PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, one PS domain RAB is established.

Related ICS/IXIT statement

- UE supports both GSM/GPRS and UTRAN Radio Access Technologies,
- UE supports UTRAN interactive/ background UL: 64kbps, DL: 64 kbps/PS RAB + uplink:3.4 DL:3.4 kbps SRBs,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480,

Test Procedure

The SS starts the UTRAN cell and brings the UE into PS-DCCH+DTCH_DCH (state 6-10). The SS then sends a CELL CHANGE ORDER FROM UTRAN message not including a valid cell change order from UTRAN message in accordance with the protocol specifications for the target RAT, to the UE through DCCH of the serving UTRAN cell. The UE receives the command and finds that the cell change order message is Invalid. The SS checks that the cell change is failed by checking that the UE transmits the CELL CHANGE ORDER FROM UTRAN FAILURE message to the SS in UTRAN cell with the IE "Inter-RAT change failure cause" set to "protocol error".

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS bring the UE into PS-DCCH+DTCH_DCH (State 6-10) in cell 1
2	←		CELL CHANGE ORDER FROM UTRAN	Send on cell 1 (UTRAN cell) and the message carries an invalid CELL CHANGE ORDER FROM UTRAN.
3	→		CELL CHANGE ORDER FROM UTRAN FAILURE	The SS receives the message on the old channel of UTRAN cell

Specific message contents

CELL CHANGE ORDER FROM UTRAN

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	Now
Target cell description	
- CHOICE Radio Access Technology	Spare2

CELL CHANGE ORDER FROM UTRAN FAILURE

Information Element	Value/remark
Message Type	
RRC transaction identifier	Checked to see if it matches the same value used in the corresponding downlink CELL CHANGE ORDER FROM UTRAN message
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Inter-RAT change failure	
-Inter-RAT change failure cause	protocol error

8.3.11.8.5 Test requirement

In step 3 the SS shall receive CELL CHANGE ORDER FROM UTRAN FAILURE message on the old channel of the UTRAN cell.

8.3.11.9 Inter-RAT Cell Change Order from UTRAN to GPRS/CELL_DCH/Success (stop of HS-DSCH reception)

8.3.11.9.1 Definition and applicability

All UEs which support FDD or TDD, HS-PDSCH and GSM.

8.3.11.9.2 Conformance requirement

The purpose of the inter-RAT cell change order procedure is to transfer, under the control of the network, a connection between the UE and UTRAN to another radio access technology (e.g. GSM). This procedure may be used in CELL_DCH and CELL_FACH state. This procedure may be used when no RABs are established or when the established RABs are only from PS domain. This procedure may not be used when there is no PS signalling connection.

The procedure is initiated when UTRAN orders a UE in CELL_DCH or CELL_FACH state, to make a cell change to a radio access technology other than UTRAN, e.g. GSM.

To initiate the procedure, UTRAN sends a CELL CHANGE ORDER FROM UTRAN message.

The UE shall be able to receive a CELL CHANGE ORDER FROM UTRAN message and perform a cell change order to another RAT, even if no prior UE measurements have been performed on the target cell.

If the variable ESTABLISHED_SIGNALLING_CONNECTIONS does not include the CN domain identity "PS domain", or if the variable ESTABLISHED_SIGNALLING_CONNECTIONS includes the CN domain identity "CS domain":

1> the UE shall act as if the message was never received.

The UE shall:

1> if HS-DSCH is configured for UTRA:

2> stop any HS-DSCH reception procedures;

2> clear any stored HS-PDSCH configuration;

2> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

2> release all HARQ resources;

2> remove any H-RNTI stored;

2> clear the variable H_RNTI;

2> set the variable HS_DSCH_RECEPTION to FALSE.

1> start timer T309; and

1> establish the connection to the other radio access technology, as specified within IE "Target cell description". This IE specifies the target cell identity, in accordance with the specifications for that other RAT. In case the target cell is a GSM/ GPRS cell, IE "Target cell description" may also include IE "NC mode", which specifies the cell selection mode to be applied in the target cell; and

1> if IE "NC mode" is not included in the CELL CHANGE ORDER FROM UTRAN:

2> retrieve it from the target cell as specified in [43];

2> act upon IE "NC mode" as specified in [43].

1> if the IE "RAB Information List" is included in the CELL CHANGE ORDER FROM UTRAN message:

2> ignore the contents of the IE "RAB Information List".

NOTE: Requirements concerning the establishment of the radio connection towards the other radio access technology and the signalling procedure are outside the scope of this specification. In case of GSM/GPRS proceed according to the procedure Network control cell reselection procedure as specified in [44].

1> if the UE supports UTRAN to GERAN Network Assisted Cell Change, the IE "Geran-System Information" is present and the UE is in CELL_DCH state:

2> if according to [44] the IE "GERAN System Information" includes a correct and consistent set of SI or PSI messages:

3> use this information as the system information to begin access on the target GERAN cell.

2> otherwise:

3> ignore the IE "GERAN System Information" and continue the Cell Change Order procedure.

The UE regards the procedure as completed when it has received a successful response from the target RAT, e.g. in case of GSM when it received the response to a (PACKET) CHANNEL REQUEST in the new cell.

Upon successful completion of the cell change order, the UE shall:

1> stop timer T309;

1> clear or set variables upon leaving UTRA RRC connected mode as specified in subclause 13.4.

Upon indication of the UE having successfully completed the cell change order, UTRAN should:

1> release the radio connection; and

1> remove all context information for the concerned UE.

NOTE: The release of the UMTS radio resources is initiated from another RAT.

Reference(s)

TS 25.331 clause 8.3.11, B.6.

8.3.11.9.3 Test purpose

To test that the UE shall be able to receive a CELL CHANGE ORDER FROM UTRAN message in CELL_DCH state when Radio bearers are mapped to HSDSCH channels and perform a cell change to another RAT, even if no prior UE measurements have been performed on the target cell and HS-PDSCH channels are active. The UE regards the procedure as completed when it has received a successful response from the target RAT, e.g. in case of GSM when it received the response to a (PACKET) CHANNEL REQUEST in the new cell.

8.3.11.9.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 2 is GPRS. 51.010 clauses 20.22 and 40.1.1 shall be referenced for the default parameters of cell 2.

Parameter	Unit	Cell 2 (GSM)
Qsearch_I (TDD)	dBm	15 (never)

All cells belong to the same PLMN. UTRAN and GPRS cells belong to different location area.

Cell 1- SIB 1 T309 set to 8 seconds (see specific message contents)

UE: PS-DCCH+DTCH_DCH_HSDCH (State 6-17) in cell 1 as specified in clause 7.4 of TS 34.108, one PS domain RAB is established.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports GSM/GPRS
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-PCS, GSM-850, GSM-710, GSM 750, T_GSM-810

Test Procedure

The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established. The SS starts GPRS cell, then sends CELL CHANGE ORDER FROM UTRAN indicating the target cell description, GPRS cell, to the UE through DCCH of the serving UTRAN cell. After the UE receives the command it shall configure itself accordingly and switch to the new channel on the target GPRS cell. The SS checks whether the cell change is performed by checking that the UE receives a successful response to the CHANNEL REQUEST message from the SS through GPRS cell. The UE sends a RA UPDATE REQUEST message to indicate that the UTRAN UE context needs to be transferred to GPRS.

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS brings the UE into PS-DCCH+DTCH_DCH_HSDSCH in cell 1
2	SS			The SS configures cell 2 as a GSM cell with GPRS enabled
3	←		CELL CHANGE ORDER FROM UTRAN	Send on cell 1 (UTRAN cell) and the message indicates: the target cell description for GPRS.
4	UE			The UE accepts the cell change command and switches to the GPRS cell specified in the CELL CHANGE ORDER FROM UTRAN
5	→		CHANNEL REQUEST	The SS receives this burst on the RACH of cell 2 to establish temporary block flow (GPRS cell). It implies that the UE has switched to GPRS cell.
6	←		IMMEDIATE ASSIGNMENT	Uplink dynamic allocation. Sent on AGCH.
7	→		ROUTING AREA UPDATE REQUEST	

Specific message contents

SYSTEM INFORMATION BLOCK TYPE 1

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
T309	8 Sec

CELL CHANGE ORDER FROM UTRAN

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	Now
Target cell description	
- CHOICE Radio Access Technology	
- GSM	
- BSIC	BSIC of Cell2
- Band Indicator	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- BCCH ARFCN	Allocated BCCH ARFCN of Cell 2
- NC mode	NOT PRESENT

8.3.11.9.5 Test requirements

After step 3 the UE shall transmit a CHANNEL REQUEST message on RACH.

8.3.11.10 Inter-RAT Cell Change Order from UTRAN to GPRS/CELL_DCH/Failure (Physical channel Failure)

8.3.11.10.1 Definition and applicability

All UEs which support FDD or TDD, HS-PDSCH and GSM.

8.3.11.10.2 Conformance requirement

If:

- timer T309 expires prior to the successful establishment of a connection to the target RAT; or
- if the establishment of the connection to the other RAT failed due to other reasons e.g. (random) access failure, rejection due to lack of resources:

the UE shall:

1> if it received the CELL CHANGE ORDER FROM UTRAN message in state CELL_DCH:

2> if the CM_PATTERN_ACTIVATION_ABORTED flag is not set to TRUE:

3> revert back to the UTRA configuration;

3> establish the UTRA physical channel(s) (including HS-DSCH related channels) used at the time for reception of CELL CHANGE ORDER FROM UTRAN.

2> perform the physical layer synchronisation procedure A as specified in [29] (FDD only);

2> after the establishment of the uplink physical channel, send DPCCH and no DPDCH according to [26] during the number of frames indicated in the IE "PC preamble" in the variable LATEST_CONFIGURED_SRB_DELAY_AND_PC_PREAMBLE; and

2> then not send any data on signalling radio bearers RB0 to RB4 during the number of frames indicated in the IE "SRB delay" in the variable LATEST_CONFIGURED_SRB_DELAY_AND_PC_PREAMBLE;

2> if the CM_PATTERN_ACTIVATION_ABORTED flag is set to TRUE or if the UE does not succeed in establishing the UTRA physical channel(s):

3> perform a cell update procedure according to subclause 8.3.1 with cause "Radio link failure";

3> when the cell update procedure has completed successfully:

4> proceed as below.

2> transmit the CELL CHANGE ORDER FROM UTRAN FAILURE message setting the information elements as specified below:

3> include the IE "RRC transaction identifier"; and

3> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> clear that entry;

3> set the IE "Inter-RAT change failure" to "physical channel failure".

2> When the CELL CHANGE ORDER FROM UTRAN FAILURE message has been submitted to lower layer for transmission, the procedure ends.

1> if the UE receives the CELL CHANGE ORDER FROM UTRAN message in CELL_FACH state:

2> revert to the cell it was camped on at the reception of the CELL CHANGE ORDER FROM UTRAN message;

2> if the UE is unable to return to this cell:

3> select a suitable UTRA cell according to [4];

3> initiate the cell update procedure according to subclause 8.3.1 using the cause "cell re-selection";

3> when the cell update procedure completed successfully:

4> proceed as below.

2> transmit the CELL CHANGE ORDER FROM UTRAN FAILURE message setting the information elements as specified below:

3> include the IE "RRC transaction identifier"; and

3> set it to the value of "RRC transaction identifier" in the entry for the CELL CHANGE ORDER FROM UTRAN message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> clear that entry;

3> set the IE "Inter-RAT change failure" to "physical channel failure".

2> When the CELL CHANGE ORDER FROM UTRAN FAILURE message has been submitted to lower layer for transmission:

3> the procedure ends.

Reference(s)

TS 25.331 clause 8.3.11

8.3.11.10.3 Test purpose

To verify that when UE received CELL CHANGE ORDER FROM UTRAN message in CELL_DCH state and if the establishment of the connection to the other RAT failed due to expiry of timer T309 prior to the successful establishment of a connection to the target RAT:

a. revert back to the UTRA configuration

b. establish the UTRA physical channel(s) used at the time for reception of CELL CHANGE ORDER FROM UTRAN;

c. transmit the CELL CHANGE ORDER FROM UTRAN FAILURE message and set the IE "Inter-RAT change failure" to "physical channel failure".

8.3.11.10.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 2 is GPRS. 51.010 clauses 20.22 and 40.1.1 shall be referenced for the default parameters of cell 2.

All cells belong to the same PLMN. UTRAN and GPRS cells belong to different location area.

UE: PS-DCCH+DTCH_DCH_HSDSCH (State 6-17) in cell 1 as specified in clause 7.4 of TS 34.108, one PS domain RAB is established.

NOTE: The 'timer poll' value in the SS RLC transmit entity should be set to 800 ms.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports GSM/GPRS

- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-PCS, GSM-850, GSM-710, GSM 750, T_GSM-810

Test Procedure

The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established. The SS starts GPRS cell, then sends CELL CHANGE ORDER FROM UTRAN indicating the target cell description, GPRS cell, to the UE through DCCH of the serving UTRAN cell. The UE starts the timer T309. After the UE receives the command it shall configure itself accordingly but cannot complete the cell change, as SS does not respond to the CHANNEL REQUEST message transmitted by UE till the expiry of T309 timer. The SS checks that the cell change has failed by checking that the UE transmits the CELL CHANGE ORDER FROM UTRAN FAILURE message to the SS in UTRAN cell.

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS bring the UE into PS-DCCH _DCH_HSDSCH (State 6-17) in cell 1
2	SS			The SS configures cell 2 as a GSM cell with GPRS enabled
3	←		CELL CHANGE ORDER FROM UTRAN	Send on cell 1 (UTRAN cell) and the message indicates: the target cell description for GSM/GPRS.
4	UE			UE starts the timer T309. The UE accepts the cell change command and switches to the GPRS specified in the CELL CHANGE ORDER FROM UTRAN
5	→		CHANNEL REQUEST	The SS receives this burst on RACH of cell 2 (GPRS cell) to establish temporary block flow
6	→			SS does not respond to the channel request. UE sends M + 1 CHANNEL REQUEST messages
				The SS does not transmit a response and wait for T309 timer to expire.
7	→		CELL CHANGE ORDER FROM UTRAN FAILURE	The SS receives the message on the old channel of UTRAN cell.
				Note The UE may send a ROUTING AREA UPDATE REQUEST to complete the RA Update procedure initiated at step 5.

Specific message contents

CELL CHANGE ORDER FROM UTRAN

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	Now
Target cell description	
- CHOICE Radio Access Technology	
- GSM	
- BSIC	BSIC of Cell 2
- Band Indicator	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- BCCH ARFCN	Allocated BCCH ARFCN of Cell 2
- NC mode	Not present

8.3.11.10.5 Test requirements

In step 5 the UE shall transmit a CHANNEL REQUEST message on RACH.

In step 7 the SS shall receive CELL CHANGE ORDER FROM UTRAN FAILURE message on the old channel of the UTRAN cell.

8.3.11.11 Inter-RAT cell change order from UTRAN/To GPRS/CELL_FACH/No RAB established/Success

8.3.11.11.1 Definition

8.3.11.11.2 Conformance requirement

The purpose of the inter-RAT cell change order procedure is to transfer, under the control of the network, a connection between the UE and UTRAN to another radio access technology (e.g. GSM). This procedure may be used in CELL_DCH and CELL_FACH state. This procedure may be used when no RABs are established or when the established RABs are only from PS domain. This procedure may not be used when there is no PS signalling connection.

The procedure is initiated when UTRAN orders a UE in CELL_DCH or CELL_FACH state, to make a cell change to a radio access technology other than UTRAN, e.g. GSM.

To initiate the procedure, UTRAN sends a CELL CHANGE ORDER FROM UTRAN message.

The UE shall be able to receive a CELL CHANGE ORDER FROM UTRAN message and perform a cell change order to another RAT, even if no prior UE measurements have been performed on the target cell.

If the variable ESTABLISHED_SIGNALLING_CONNECTIONS does not include the CN domain identity "PS domain", or if the variable ESTABLISHED_SIGNALLING_CONNECTIONS includes the CN domain identity "CS domain":

1> the UE shall act as if the message was never received.

The UE shall:

1> start timer T309; and

1> establish the connection to the other radio access technology, as specified within IE "Target cell description". This IE specifies the target cell identity, in accordance with the specifications for that other RAT. In case the target cell is a GSM/ GPRS cell, IE "Target cell description" may also include IE "NC mode", which specifies the cell selection mode to be applied in the target cell; and

1> if IE "NC mode" is not included in the CELL CHANGE ORDER FROM UTRAN:

2> retrieve it from the target cell as specified in [43];

2> act upon IE "NC mode" as specified in [43].

1> if the IE "RAB Information List" is included in the CELL CHANGE ORDER FROM UTRAN message:

2> ignore the contents of the IE "RAB Information List".

NOTE: Requirements concerning the establishment of the radio connection towards the other radio access technology and the signalling procedure are outside the scope of this specification. In case of GSM/GPRS proceed according to the procedure Network control cell reselection procedure as specified in [44].

The UE regards the procedure as completed when it has received a successful response from the target RAT, e.g. in case of GSM when it received the response to a (PACKET) CHANNEL REQUEST in the new cell.

Upon successful completion of the cell change order, the UE shall:

1> stop timer T309;

1> clear or set variables upon leaving UTRA RRC connected mode as specified in subclause 13.4.

Upon indication of the UE having successfully completed the cell change order, UTRAN should:

1> release the radio connection; and

1> remove all context information for the concerned UE.

NOTE: The release of the UMTS radio resources is initiated from another RAT.

Reference(s)

TS 25.331 clause 8.3.11

8.3.11.11.3 Test purpose

To test that the UE shall be able to receive a CELL CHANGE ORDER FROM UTRAN message in CELL_FACH state and perform a cell change to another RAT, when no RABs are established.

8.3.11.11.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 2 is GPRS. 51.010 clauses 20.22 and 40.1.1 shall be referenced for the default parameters of cell 2.

All cells belong to the same PLMN and different location area, routing area.

UE: Registered Idle mode on PS in cell 1

Related ICS/IXIT statement

- UE supports both GSM/GPRS and UTRAN Radio Access Technologies
- UE supports UTRAN interactive/ background UL: 64kbps, DL: 64 kbps/PS RAB + uplink: 3.4 DL: 3.4 kbps SRBs
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480.

Test Procedure

The SS starts the UTRAN cell and the UE is triggered to make an MO PS call. After the SS receives SERVICE REQUEST message, the SS starts GPRS cell, then sends CELL CHANGE ORDER FROM UTRAN indicating the target cell description. After the UE receives the command it shall configure itself accordingly and switch to the new channel on the target GPRS cell. The SS checks whether the cell change is performed by checking that the UE sends a PACKET CHANNEL REQUEST through GPRS cell. The UE sends an RA UPDATE REQUEST message to indicate that the UTRAN UE context needs to be transferred to GPRS.

Step	Direction		Message	Comments
	UE	SS		
1	UE			Trigger the UE to initiate an MO PS call
2	→		SERVICE REQUEST	
3	←		CELL CHANGE ORDER FROM UTRAN	Sent on cell 1 (UTRAN cell) and the message indicates: the target cell description for GPRS.
4	UE			The UE accepts the cell change command and switches to the GPRS cell specified in the CELL CHANGE ORDER FROM UTRAN
5	→		PACKET CHANNEL REQUEST	The SS receives this burst on PRACH of cell 2 (GPRS cell) to establish temporary block flow. It implies that the UE has switched to GPRS cell.
6	←		PACKET UPLINK ASSIGNMENT	Uplink dynamic allocation Sent on PAGCH.
7	→		ROUTING AREA UPDATE REQUEST	

Specific message contents

CELL CHANGE ORDER FROM UTRAN

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	Now
Target cell description	
- CHOICE Radio Access Technology	
- GSM	
- BSIC	BSIC1BSIC of Cell 2
- Band Indicator	DCS 1800 band used Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- BCCH ARFCN	1Allocated BCCH ARFCN of Cell 2
- NC mode	NOT PRESENT

8.3.11.11.5 Test requirement

After step 4, the UE shall transmit a PACKET CHANNEL REQUEST message on PRACH.

8.3.11.12 Inter-RAT cell change order from UTRAN/To GPRS/CELL_DCH/Network Assisted Cell Change/Success

8.3.11.12.1 Definition

8.3.11.12.2 Conformance requirement

1> if the UE supports UTRAN to GERAN Network Assisted Cell Change, the IE "Geran-System Information" is present and the UE is in CELL_DCH state:

2> if according to [44] the IE "GERAN System Information" includes a correct and consistent set of SI or PSI messages:

3> use this information as the system information to begin access on the target GERAN cell.

2> otherwise:

3> ignore the IE "GERAN System Information" and continue the Cell Change Order procedure.

NOTE: The IE "GERAN System Information" is constructed in the same way as in 2G to 2G NACC, i.e. the PSI messages are encoded as such, whereas the SI messages exclude 2 octets of headers, see [44].

Reference(s)

TS 25.331 clause 8.3.11.3.

8.3.11.12.3 Test purpose

To test that the UE shall be able to receive a CELL CHANGE ORDER FROM UTRAN message which includes a correct and consistent set of SI or PSI messages in the IE "GERAN System Information" in CELL_DCH state and perform a cell change to another RAT using this as the system information to begin access on the target GERAN cell, even if no prior UE measurements have been performed on the target cell. The UE regards the procedure as completed when it has received a successful response from the target RAT, e.g. in case of GSM when it received the response to a (PACKET) CHANNEL REQUEST in the new cell.

8.3.11.12.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN. Cell 2 is GPRS, no System Information is broadcast on the BCCH. 51.010 clauses 20.22 and 40.1.1 Cell A parameters shall be referenced for the default parameters of cell 2.

Parameter	Unit	Cell 2 (GSM)
Qsearch_I (TDD)	dBm	15 (never)

All cells belong to the same PLMN. UTRAN and GPRS cells belong to different location area.

Cell 1- SIB 1 T309 set to 8 seconds (see specific message contents).

UE: PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, one PS domain RAB is established.

Related ICS/IXIT statement

- UE supports UTRAN to GERAN NACC,
- UE supports both GSM/GPRS and UTRAN Radio Access Technologies,
- UE supports UTRAN interactive/ background UL: 64kbps, DL: 64 kbps/PS RAB + uplink:3.4 DL:3.4 kbps SRBs,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-850, GSM-PCS, GSM-710, GSM 750, T_GSM-810

Test Procedure

The SS starts the UTRAN cell and brings the UE into PS-DCCH+DTCH_DCH (State 6-10). The SS starts GPRS cell, then sends CELL CHANGE ORDER FROM UTRAN indicating the target cell description, GPRS cell, including GERAN system information, to the UE through DCCH of the serving UTRAN cell. After the UE receives the command it shall configure itself accordingly and switch to the new channel on the target GPRS cell. The SS checks whether the cell change is performed by checking that the UE receives a successful response to the CHANNEL REQUEST message from the SS through GPRS cell. The UE sends a RA UPDATE REQUEST message to indicate that the UTRAN UE context needs to be transferred to GPRS.

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS brings the UE into PS-DCCH+DTCH_DCH (State 6-10) in cell 1
2	SS			The SS configures cell 2 as a GSM cell with GPRS enabled. No system information is broadcast on the BCCH
3	←		CELL CHANGE ORDER FROM UTRAN	Send on cell 1 (UTRAN cell) and the message indicates: the target cell description for GPRS and includes system information for cell 2.
4	UE			The UE accepts the cell change command and switches to the GPRS cell specified in the CELL CHANGE ORDER FROM UTRAN
5	→		CHANNEL REQUEST	The SS receives this burst on the RACH of cell 2 to establish temporary block flow (GPRS cell). It implies that the UE has switched to GPRS cell.
6	←		IMMEDIATE ASSIGNMENT	Uplink dynamic allocation. Sent on AGCH.
7	→		ROUTING AREA UPDATE REQUEST	

Specific message contents

SYSTEM INFORMATION BLOCK TYPE 1

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
T309	8 Sec

CELL CHANGE ORDER FROM UTRAN

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	Now
Target cell description	
- CHOICE Radio Access Technology	
- GSM	
- BSIC	BSIC of Cell 2
- Band Indicator	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- BCCH ARFCN	Allocated BCCH ARFCN of Cell 2
- NC mode	NOT PRESENT
- CHOICE geran-SystemInfoType	
- sI	Encoded to contain default GPRS Cell A system information with the exception the SI_STATUS_IND bit in System Information Type 13 set to “1”.

8.3.11.12.5 Test requirement

After step 3 the UE shall transmit a CHANNEL REQUEST message on RACH.

8.3.11.13 Inter-RAT cell change order from UTRAN/To GPRS/CELL_DCH/Network Assisted Cell Change with Invalid SI/Success

8.3.11.13.1 Definition

8.3.11.13.2 Conformance requirement

1> if the UE supports UTRAN to GERAN Network Assisted Cell Change, the IE "Geran-System Information" is present and the UE is in CELL_DCH state:

2> if according to [44] the IE "GERAN System Information" includes a correct and consistent set of SI or PSI messages:

3> use this information as the system information to begin access on the target GERAN cell.

2> otherwise:

3> ignore the IE "GERAN System Information" and continue the Cell Change Order procedure.

NOTE: The IE "GERAN System Information" is constructed in the same way as in 2G to 2G NACC, i.e. the PSI messages are encoded as such, whereas the SI messages exclude 2 octets of headers, see [44].

Reference(s)

TS 25.331 clause 8.3.11.3.

8.3.11.13.3 Test purpose

To test that the UE shall be able to receive a CELL CHANGE ORDER FROM UTRAN message which includes an incorrect set of SI or PSI messages in the IE "GERAN System Information" in CELL_DCH state and perform a cell change to another RAT, ignoring the IE "GERAN System Information", even if no prior UE measurements have been performed on the target cell. The UE regards the procedure as completed when it has received a successful response from the target RAT, e.g. in case of GSM when it received the response to a (PACKET) CHANNEL REQUEST in the new cell.

8.3.11.13.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 2 is GPRS. 51.010 clauses 20.22 and 40.1.1 Cell A parameters shall be referenced for the default parameters of cell 2 with the exception the SI_STATUS_IND bit in System Information Type 13 set to "1".

Parameter	Unit	Cell 2 (GSM)
Qsearch_I (TDD)	dBm	15 (never)

All cells belong to the same PLMN. UTRAN and GPRS cells belong to different location area.

Cell 1- SIB 1 T309 set to 8 seconds (see specific message contents)

UE: PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, one PS domain RAB is established.

Related ICS/IXIT statement

- UE supports UTRAN to GERAN NACC,
- UE supports both GSM/GPRS and UTRAN Radio Access Technologies,
- UE supports UTRAN interactive/ background UL: 64kbps, DL: 64 kbps/PS RAB + uplink:3.4 DL:3.4 kbps SRBs,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-850, GSM-PCS, GSM-710, GSM 750, T_GSM-810.

Test Procedure

The SS starts the UTRAN cell and brings the UE into PS-DCCH+DTCH_DCH (State 6-10). The SS starts GPRS cell, then sends CELL CHANGE ORDER FROM UTRAN indicating the target cell description, GPRS cell, and including a set of GERAN system information which describes a GPRS cell different to the target cell, and replaced SI 3 with all '1's, to the UE through DCCH of the serving UTRAN cell. This is to test that if any of the SI signalled is not correct, all of the IE is ignored. After the UE receives the command it shall configure itself accordingly and switch to the new channel on the target GPRS cell, ignoring the IE "GERAN System Information" and reading this instead from cell 2. The SS checks whether the cell change is performed by checking that the UE receives a successful response to the CHANNEL REQUEST message from the SS through GPRS cell. The UE sends a RA UPDATE REQUEST message to indicate that the UTRAN UE context needs to be transferred to GPRS.

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS brings the UE into PS-DCCH+DTCH_DCH (State 6-10) in cell 1
2	SS			The SS configures cell 2 as a GSM cell with GPRS enabled
3	←		CELL CHANGE ORDER FROM UTRAN	Send on cell 1 (UTRAN cell) and the message indicates: the target cell description for GPRS, including invalid GERAN system information.
4	UE			The UE accepts the cell change command and switches to the GPRS cell specified in the CELL CHANGE ORDER FROM UTRAN
5	→		CHANNEL REQUEST	The SS receives this burst on the RACH of cell 2 to establish temporary block flow (GPRS cell). It implies that the UE has switched to GPRS cell.
6	←		IMMEDIATE ASSIGNMENT	Uplink dynamic allocation. Sent on AGCH.
7	→		ROUTING AREA UPDATE REQUEST	

Specific message contents

SYSTEM INFORMATION BLOCK TYPE 1

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
T309	8 Sec

CELL CHANGE ORDER FROM UTRAN

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	Now
Target cell description	
- CHOICE Radio Access Technology	
- GSM	
- BSIC	BSIC of Cell 2
- Band Indicator	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- BCCH ARFCN	Allocated BCCH ARFCN of Cell 2
- NC mode	NOT PRESENT
- CHOICE geran-SystemInfoType	
- sI	Encoded to contain default GPRS Cell B system information with the exception the SI_STATUS_IND bit in System Information Type 13 set to “1”. SI 3 encoded PDU is replaced with all ‘1’ bits to test that all of the IE is ignored if any part is incorrect.

8.3.11.13.5 Test requirement

After step 3 the UE shall transmit a CHANNEL REQUEST message on RACH.

8.3.11.14 Inter-RAT Cell Change Order from UTRAN to GPRS/CELL_DCH/Success (stop of E-DCH transmission)

8.3.11.14.1 Definition and applicability

All UEs which support FDD and HS-PDSCH and E-DPDCH and GSM.

8.3.11.14.2 Conformance requirement

The purpose of the inter-RAT cell change order procedure is to transfer, under the control of the network, a connection between the UE and UTRAN to another radio access technology (e.g. GSM). This procedure may be used in CELL_DCH and CELL_FACH state. This procedure may be used when no RABs are established or when the established RABs are only from PS domain. This procedure may not be used when there is no PS signalling connection.

The procedure is initiated when UTRAN orders a UE in CELL_DCH or CELL_FACH state, to make a cell change to a radio access technology other than UTRAN, e.g. GSM.

To initiate the procedure, UTRAN sends a CELL CHANGE ORDER FROM UTRAN message.

…

The UE shall be able to receive a CELL CHANGE ORDER FROM UTRAN message and perform a cell change order to another RAT, even if no prior UE measurements have been performed on the target cell.

If the variable ESTABLISHED_SIGNALLING_CONNECTIONS does not include the CN domain identity "PS domain", or if the variable ESTABLISHED_SIGNALLING_CONNECTIONS includes the CN domain identity "CS domain":

1> the UE shall act as if the message was never received.

The UE shall:

1>For FDD:

2> if the UE has a pending "TGPS reconfiguration CFN" at the activation time received in the CELL CHANGE ORDER FROM UTRAN message the UE may:

3> abort the pending CM activation;

3> set the CM_PATTERN_ACTIVATION_ABORTED to TRUE.

2> otherwise:

3> set the CM_PATTERN_ACTIVATION_ABORTED to FALSE.

1> start timer T309; and

1> establish the connection to the other radio access technology, as specified within IE "Target cell description". This IE specifies the target cell identity, in accordance with the specifications for that other RAT. In case the target cell is a GSM/ GPRS cell, IE "Target cell description" may also include IE "NC mode", which specifies the cell selection mode to be applied in the target cell; and

1> if IE "NC mode" is not included in the CELL CHANGE ORDER FROM UTRAN:

2> retrieve it from the target cell as specified in [43];

2> act upon IE "NC mode" as specified in [43].

1> if the IE "RAB Information List" is included in the CELL CHANGE ORDER FROM UTRAN message:

2> ignore the contents of the IE "RAB Information List".

…

The UE regards the procedure as completed when it has received a successful response from the target RAT, e.g. in case of GSM when it received the response to a (PACKET) CHANNEL REQUEST in the new cell.

Upon successful completion of the cell change order, the UE shall:

1> stop timer T309;

1> clear or set variables upon leaving UTRA RRC connected mode as specified in subclause 13.4.

Upon indication of the UE having successfully completed the cell change order, UTRAN should:

1> release the radio connection; and

1> remove all context information for the concerned UE.

NOTE: The release of the UMTS radio resources is initiated from another RAT.

Reference(s)

TS 25.331 clause 8.3.11

8.3.11.14.3 Test purpose

To test that the UE is able to receive a CELL CHANGE ORDER FROM UTRAN message in CELL_DCH state when Radio bearers are mapped to the E-DCH channel and perform a cell change to another RAT, even if no prior UE measurements have been performed on the target cell and E-DPDCH or E-PUCH channels are active.

8.3.11.14.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 2 is GPRS. 51.010 clauses 20.22 and 40.1.1 shall be referenced for the default parameters of Cell 2.

All cells belong to the same PLMN. UTRAN and GPRS cells belong to different location area.

Cell 1- SIB 1 T309 set to 8 seconds (see specific message contents)

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18) under condition A12, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or TDD
- UE supports HS-PDSCH
- UE supports E-DPDCH
- UE supports GSM/GPRS or E-PUCH

Test Procedure

The UE is in the CELL_DCH state and has a radio bearer mapped on E-DCH and HS-DSCH established with active E-DCH transmission and HS-DSCH reception. The SS configures the GPRS cell, then sends a CELL CHANGE ORDER FROM UTRAN message indicating the target cell description, GPRS cell, to the UE through DCCH of the serving UTRAN cell. After the UE receives the command it shall configure itself accordingly and switch to the new channel on the target GPRS cell. The SS checks whether the cell change is performed by checking that the UE receives a successful response to the CHANNEL REQUEST message from the SS through GPRS cell. The UE sends a ROUTING AREA UPDATE REQUEST message to indicate that the UTRAN UE context needs to be transferred to GPRS.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS brings the UE into PS_DCCH+DTCH E_DCH/HS_DSCH in Cell 1
2	SS			The SS configures Cell 2 as a GSM cell with GPRS enabled
3	←		CELL CHANGE ORDER FROM UTRAN	Sent on Cell 1 (UTRAN cell) and the message indicates: the target cell description for GPRS.
4	UE			The UE accepts the cell change command and switches to the GPRS cell specified in the CELL CHANGE ORDER FROM UTRAN
5	→		CHANNEL REQUEST	The SS receives this burst on the RACH of Cell 2 to establish temporary block flow (GPRS cell). It implies that the UE has switched to GPRS cell.
6	←		IMMEDIATE ASSIGNMENT	Uplink dynamic allocation. Sent on AGCH.
7	→		ROUTING AREA UPDATE REQUEST	

Specific message contents

SYSTEM INFORMATION BLOCK TYPE 1

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
T309	8 Sec

CELL CHANGE ORDER FROM UTRAN

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	Now
Target cell description	
- CHOICE Radio Access Technology	
- GSM	
- BSIC	BSIC of Cell2
- Band Indicator	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- BCCH ARFCN	Allocated BCCH ARFCN of Cell 2
- NC mode	NOT PRESENT

8.3.11.14.5 Test requirements

After step 3 the UE shall transmit a CHANNEL REQUEST message on RACH.

8.3.11.15 Inter-RAT Cell Change Order from UTRAN to GPRS/CELL_DCH/Success (stop of discontinuous uplink transmission)

8.3.11.15.1 Definition

All UEs, which support FDD and UL DTX.

8.3.11.15.2 Conformance requirement

The purpose of the inter-RAT cell change order procedure is to transfer, under the control of the network, a connection between the UE and UTRAN to another radio access technology (e.g. GSM). This procedure may be used in CELL_DCH and CELL_FACH state. This procedure may be used when no RABs are established or when the established RABs are only from PS domain. This procedure may not be used when there is no PS signalling connection.

The procedure is initiated when UTRAN orders a UE in CELL_DCH or CELL_FACH state, to make a cell change to a radio access technology other than UTRAN, e.g. GSM.

To initiate the procedure, UTRAN sends a CELL CHANGE ORDER FROM UTRAN message.

…

The UE shall be able to receive a CELL CHANGE ORDER FROM UTRAN message and perform a cell change order to another RAT, even if no prior UE measurements have been performed on the target cell.

If the variable ESTABLISHED_SIGNALLING_CONNECTIONS does not include the CN domain identity "PS domain", or if the variable ESTABLISHED_SIGNALLING_CONNECTIONS includes the CN domain identity "CS domain":

1> the UE shall act as if the message was never received.

The UE shall:

1> if the UE has a pending "TGPS reconfiguration CFN" at the activation time received in the CELL CHANGE ORDER FROM UTRAN message the UE may:

2> abort the pending CM activation;

2> set the CM_PATTERN_ACTIVATION_ABORTED to TRUE.

1> otherwise:

2> set the CM_PATTERN_ACTIVATION_ABORTED to FALSE.

1> start timer T309; and

1> establish the connection to the other radio access technology, as specified within IE "Target cell description". This IE specifies the target cell identity, in accordance with the specifications for that other RAT. In case the target cell is a GSM/ GPRS cell, IE "Target cell description" may also include IE "NC mode", which specifies the cell selection mode to be applied in the target cell; and

1> if IE "NC mode" is not included in the CELL CHANGE ORDER FROM UTRAN:

2> retrieve it from the target cell as specified in [43];

2> act upon IE "NC mode" as specified in [43].

1> if the IE "RAB Information List" is included in the CELL CHANGE ORDER FROM UTRAN message:

2> ignore the contents of the IE "RAB Information List".

…

The UE regards the procedure as completed when it has received a successful response from the target RAT, e.g. in case of GSM when it received the response to a (PACKET) CHANNEL REQUEST in the new cell.

Upon successful completion of the cell change order, the UE shall:

1> stop timer T309;

1> clear or set variables upon leaving UTRA RRC connected mode as specified in subclause 13.4.

Upon indication of the UE having successfully completed the cell change order, UTRAN should:

1> release the radio connection; and

1> remove all context information for the concerned UE.

NOTE: The release of the UMTS radio resources is initiated from another RAT.

Reference(s)

TS 25.331 clause 8.3.11

8.3.11.15.3 Test purpose

To test that the UE is able to receive a CELL CHANGE ORDER FROM UTRAN message in CELL_DCH state when Radio bearers are mapped to the E-DCH channel with UL DTX and DL DRX (if supported) configured and perform a cell change to another RAT, even if no prior UE measurements have been performed on the target cell and E-DPDCH channels are active.

8.3.11.15.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 2 is GPRS. 51.010 clauses 20.22 and 40.1.1 shall be referenced for the default parameters of Cell 2.

All cells belong to the same PLMN. UTRAN and GPRS cells belong to different location area.

Cell 1- SIB 1 T309 set to 8 seconds (see specific message contents)

UE: PS_DCCH+DTCH E_DCH/HS_DSCH (state 6-18), with UL DTX configured, under condition A20, as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports discontinuous uplink transmission.
- UE supports GSM/GPRS

Test Procedure

The UE is in the CELL_DCH state and has a radio bearer mapped on E-DCH, HS-DSCH established (with DRX enabled if supported) and UL DTX configured with active E-DCH transmission and HS-DSCH reception. The SS configures the GPRS cell, and then sends a CELL CHANGE ORDER FROM UTRAN message indicating the target cell description, GPRS cell, to the UE through DCCH of the serving UTRAN cell. After the UE receives the command it shall configure itself accordingly and switch to the new channel on the target GPRS cell. The SS checks whether the cell change is performed by checking that the UE receives a successful response to the CHANNEL REQUEST message from the SS through GPRS cell. The UE sends a ROUTING AREA UPDATE REQUEST message to indicate that the UTRAN UE context needs to be transferred to GPRS.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS brings the UE into PS_DCCH+DTCH E_DCH/HS_DSCH (with DRX enabled if supported) with UL DTX configured in Cell 1
3	←		CELL CHANGE ORDER FROM UTRAN	Sent on Cell 1 (UTRAN cell) and the message indicates: the target cell description for GPRS.
4	UE			The UE accepts the cell change command and switches to the GPRS cell specified in the CELL CHANGE ORDER FROM UTRAN
5	→		CHANNEL REQUEST	The SS receives this burst on the RACH of Cell 2 to establish temporary block flow (GPRS cell). It implies that the UE has switched to GPRS cell.
6	←		IMMEDIATE ASSIGNMENT	Uplink dynamic allocation. Sent on AGCH.
7	→		ROUTING AREA UPDATE REQUEST	

Specific message contents

SYSTEM INFORMATION BLOCK TYPE 1

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
T309	8 Sec

CELL CHANGE ORDER FROM UTRAN

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	Now
Target cell description	
- CHOICE Radio Access Technology	
- GSM	
- BSIC	BSIC of Cell2
- Band Indicator	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- BCCH ARFCN	Allocated BCCH ARFCN of Cell 2
- NC mode	NOT PRESENT

8.3.11.15.5 Test requirements

At step 4 the UE shall transmit a CHANNEL REQUEST message on RACH.

8.3.11.16 Inter-RAT Cell Change Order from UTRAN to GPRS/ MIMO (Success: with PCI Restrictions and S-CPICH Power Offset)

8.3.11.16.1 Definition and applicability

All UE categories which support MIMO and GSM/GPRS

UE supports FDD and F-DPCH or Enhanced F-DPCH

8.3.11.16.2 Conformance requirement

The purpose of the inter-RAT cell change order procedure is to transfer, under the control of the network, a connection between the UE and UTRAN to another radio access technology (e.g. GSM). This procedure may be used in CELL_DCH and CELL_FACH state. This procedure may be used when no RABs are established or when the established RABs are only from PS domain. This procedure may not be used when there is no PS signalling connection.

The procedure is initiated when UTRAN orders a UE in CELL_DCH or CELL_FACH state, to make a cell change to a radio access technology other than UTRAN, e.g. GSM.

To initiate the procedure, UTRAN sends a CELL CHANGE ORDER FROM UTRAN message.

…

The UE shall be able to receive a CELL CHANGE ORDER FROM UTRAN message and perform a cell change order to another RAT, even if no prior UE measurements have been performed on the target cell.

If the variable ESTABLISHED_SIGNALLING_CONNECTIONS does not include the CN domain identity "PS domain", or if the variable ESTABLISHED_SIGNALLING_CONNECTIONS includes the CN domain identity "CS domain":

1> the UE shall act as if the message was never received.

The UE shall:

1>For FDD:

2> if the UE has a pending "TGPS reconfiguration CFN" at the activation time received in the CELL CHANGE ORDER FROM UTRAN message the UE may:

3> abort the pending CM activation;

3> set the CM_PATTERN_ACTIVATION_ABORTED to TRUE.

2> otherwise:

3> set the CM_PATTERN_ACTIVATION_ABORTED to FALSE.

1> start timer T309; and

1> establish the connection to the other radio access technology, as specified within IE "Target cell description". This IE specifies the target cell identity, in accordance with the specifications for that other RAT. In case the target cell is a GSM/ GPRS cell, IE "Target cell description" may also include IE "NC mode", which specifies the cell selection mode to be applied in the target cell; and

1> if IE "NC mode" is not included in the CELL CHANGE ORDER FROM UTRAN:

2> retrieve it from the target cell as specified in [43];

2> act upon IE "NC mode" as specified in [43].

1> if the IE "RAB Information List" is included in the CELL CHANGE ORDER FROM UTRAN message:

2> ignore the contents of the IE "RAB Information List".

…

The UE regards the procedure as completed when it has received a successful response from the target RAT, e.g. in case of GSM when it received the response to a (PACKET) CHANNEL REQUEST in the new cell.

Upon successful completion of the cell change order, the UE shall:

1> stop timer T309;

1> clear or set variables upon leaving UTRA RRC connected mode as specified in subclause 13.4.

Upon indication of the UE having successfully completed the cell change order, UTRAN should:

1> release the radio connection; and

1> remove all context information for the concerned UE.

NOTE: The release of the UMTS radio resources is initiated from another RAT.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message:

1> if the IE "MIMO parameters" is not included:

2> clear the MIMO_PARAMS variable;

2> trigger lower layers to stop operation in MIMO mode.

1> otherwise:

2> for FDD, if the IE "MIMO N_cqi_type A/M_cqi ratio" is included:

3> store the value of the IE "MIMO N_cqi_type A/M_cqi ratio" in the MIMO_PARAMS variable.

2> for FDD, if the IE "MIMO pilot configuration" is included:

3> store the value of the IE "MIMO pilot configuration" in the MIMO_PARAMS variable.

2> for 1.28 Mcps TDD, if the IE "MIMO SF Mode for HS-PDSCH dual stream" is included:

3> store the value of the IE "MIMO SF Mode for HS-PDSCH dual stream" in the MIMO_PARAMS variable.

2> if the IE "MIMO operation" is set to "start":

3> for FDD, if the IE "Precoding weight set restriction" is included:

4> store the value of the IE "Precoding weight set restriction " in the MIMO_PARAMS variable. In addition, it shall be indicated to lower layers that precoding weight set restriction is configured.

3> else:

4> clear the value of the IE "Precoding weight set restriction" in the MIMO_PARAMS variable. In addition, it shall be indicated to lower layers that precoding weight set restriction is not configured.

2> else if the IE "MIMO operation" is set to "continue":

3> if the IE "Precoding weight set restriction" is included:

4> if the IE "Precoding weight set restriction" is already stored in the variable MIMO_PARAMS before receiving this message:

5> continue using "Precoding weight set restriction" for MIMO operation.

4> else:

5> UE behaviour is undefined.

3> else:

4> if the IE "Precoding weight set restriction" is already stored in the variable MIMO_PARAMS before receiving this message:

5> continue using "Precoding weight set restriction" for MIMO operation.

4> else:

5> continue MIMO operation without using "Precoding weight set restriction".

NOTE: This subclause applies to FDD and 1.28 Mcps TDD only.

[…]

1> for FDD, if the IE "Secondary CPICH Info" is included and if the IE "Channelisation code" in MIMO pilot configuration is different from the IE "Channelisation Code" in Secondary CPICH info:

2> the UE behavior is undefined.

1> for FDD, if the IE "Secondary CPICH Info" is included and if the IE "Power Offset For S-CPICH for MIMO" is provided, then pass the offset value received in the IE "Power Offset For S-CPICH for MIMO" to the lower layers.

[…]

If the UE receives an ACTIVE SET UPDATE, CELL UPDATE CONFIRM, or any reconfiguration message, the UE shall:

1> take actions related to the MIMO_PARAMS variable as specified in subclause 8.5.32;

1> determine the value of the MIMO_STATUS variable.

The MIMO_STATUS variable shall be set to TRUE only when all the following conditions are met:

1> The UE is in CELL_DCH state;

1> the variable HS_DSCH_RECEPTION is set to TRUE;

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO N_cqi_type A/M_cqi ratio"; and

1> for FDD, the variable MIMO_PARAMS contains a value for the IE "MIMO pilot configuration".

1> for 1.28 Mcps TDD, the variable MIMO_PARAMS contains a value for the IE "MIMO SF Mode for HS-PDSCH dual stream".

If any of the above conditions is not met and the MIMO_STATUS variable is set to TRUE, the UE shall:

1> set the MIMO_STATUS variable to FALSE;

1> clear the MIMO_PARAMS variable;

3> trigger lower layers to stop operation in MIMO mode.

[…]

With the exception of the provisions of subclause 6A.3, the following shall apply when the UE is configured in MIMO mode:

1) The UE derives the PCI value as defined in subclause 6A.4 and either a type A or a type B CQI value as

defined in subclause 6A.2.2 depending on which type of CQI shall be reported as defined below.

Reference(s)

3GPP TS 25.331 clause 8.3.11, 8.5.32, 8.5.33, 8.6.6.41

3GPP TS 25.214 clause 6A.1.2.2

8.3.11.16.3 Test purpose

To test that the UE supporting MIMO (when S-CPICH Offset applied and PCI restricted by SS) is able to receive a CELL CHANGE ORDER FROM UTRAN message in CELL_DCH state and perform a cell change to another RAT, even if no prior UE measurements have been performed on the target cell.

8.3.11.16.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 2 is GPRS. 51.010 clauses 20.22 and 40.1.1 shall be referenced for the default parameters of Cell 2.

All cells belong to the same PLMN. UTRAN and GPRS cells belong to different location area.

Cell 1- SIB 1 T309 set to 8 seconds (see specific message contents)

UE: PS-DCCH DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports MIMO
- UE supports HS-PDSCH
- UE supports E-DPDCH
- UE supports F-DPCH or Enhanced F-DPCH
- UE supports GSM/GPRS or E-PUCH

Test Procedure

The UE is in CELL_DCH state and only signalling radio bearers have been established.

The SS transmits a RADIO BEARER SETUP message including the RAB Information for setup IE to configure PS domain RAB and perform SRB mapping from DCH to EDCH/HSDPA (with MIMO configured for L1 with PCI restriction and S-CPICH power offset). The UE transmits a RADIO BEARER SETUP COMPLETE on DCCH. The UE shall configure the lower layers with signalled S-CPICH Power offset. UE sends combined CQI/PCI reports of type A/B continuously every 2 ms. The PCI values reported shall be restricted to 0 or 3 for type A CQIs where one transport block is preferred. For type A CQIs where two transport blocks are preferred, restriction shall not apply.

The SS configures the GPRS cell, and then sends a CELL CHANGE ORDER FROM UTRAN message indicating the target cell description, GPRS cell, to the UE through DCCH of the serving UTRAN cell. After the UE receives the command it shall configure itself accordingly and switch to the new channel on the target GPRS cell. The SS checks whether the cell change is performed by checking that the UE receives a successful response to the CHANNEL REQUEST message from the SS through GPRS cell. The UE sends a ROUTING AREA UPDATE REQUEST message to indicate that the UTRAN UE context needs to be transferred to GPRS.

Expected sequence:

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	Setup PS RAB on EDCH/HSDPA. Reconfiguration of SRB mapping from DCH to EDCH/HSDPA+ S-CPICH Offset and with PCI Restriction.
2	→		RADIO BEARER SETUP COMPLETE	
3				UE shall transmit composite CQI/PCI reports of type A or type B. The SS shall check that for 500 consecutive CQI reports, 250 are type A and 250 of type B. PCI values of 0 or 3 shall be used by the UE for type A CQIs where one transport block is preferred. For type A CQIs where two transport blocks are preferred, the restriction does not apply. The UE shall configure the lower layers with signalled S-CPICH Power offset.
4	←		CELL CHANGE ORDER FROM UTRAN	Sent on Cell 1 (UTRAN cell) and the message indicates: the target cell description for GPRS.
5	UE			The UE accepts the cell change command and switches to the GPRS cell specified in the CELL CHANGE ORDER FROM UTRAN
6	→		CHANNEL REQUEST	The SS receives this burst on the RACH of Cell 2 to establish temporary block flow (GPRS cell). It implies that the UE has switched to GPRS cell.
7	←		IMMEDIATE ASSIGNMENT	Uplink dynamic allocation. Sent on AGCH.
8	→		ROUTING AREA UPDATE REQUEST	

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 1

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
T309	8 Sec

RADIO BEARER SETUP (Step 1)

Use the same message as specified for "Packet to CELL_DCH / E-DCH / HS-DSCH using one multiplexing option (1/1) and SRBs mapped on E-DCH/HS-DSCH", except for the following

Information Element	Value/remark
- RAB information for setup	
- RAB info	(high-speed AM DTCH for PS domain)
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain
- NAS Synchronization Indicator	Not Present

Information Element	Value/remark
- Re-establishment timer	useT315
- RB information to setup	
- RB identity	25
- PDCP info	
- Support for lossless SRNS relocation	FALSE
- Max PDCP SN window size	Not present
- PDCP PDU header	Absent
- Header compression information	Not present
- CHOICE RLC info type	RLC Info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- CHOICE RLC PDU size	Fixed size
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	
- DL HS-DSCH MAC-ehs Queue Id	0
- Logical channel identity	9
- RB information to be affected	
- RB identity	1 (UM DCCH for RRC)
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- CHOICE RLC PDU size	Fixed size
- DDI	1
- RLC PDU size list	1 RLC PDU size

Information Element	Value/remark
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	1
- RB identity	2 (AM DCCH for RRC)
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- CHOICE RLC PDU size	Fixed size
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	2
- RB identity	3 (AM DCCH for NAS High Priority)
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- CHOICE RLC PDU size	Fixed size
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	3
- RB identity	4 (AM DCCH for NAS Low Priority)
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- CHOICE RLC PDU size	Fixed size
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits

Information Element	Value/remark
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	4
Added or Reconfigured DL TrCH information	1 TrCH (HS-DSCH for DTCH and DCCH)
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	
- Number of Processes	12
- CHOICE *Memory Partitioning*	Implicit
- CHOICE *DL MAC header type*	
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	(two queues)
- MAC-ehs queue Id	0 (for DTCH)
- T1	50
- MAC-hs window size	16
- MAC-ehs queue Id	1 (for DCCH)
- MAC-d Flow Identity	1
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not present
- DCH quality target	Not present
MIMO Parameters	
- MIMO Operation	Start
- MIMO N_cqi_typeA/M_cqi ratio	1/2
- MIMO pilot configuration	
- CHOICE Second CPICH pattern	Antenna1 S-CPICH
- Channelisation code	13
Downlink HS-PDSCH Information	
- CHOICE mode	FDD
- DL Scrambling Code	Not Present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	12 (6 dB)
- CQI Feedback cycle, k	2 ms
- CQI repetition factor	1
- Δ_{CQI}	5
- Downlink 64QAM configured	Not Present
- HS-DSCH TB size table	Octet Aligned
MIMO-PilotConfiguration-v7f0ext	
- s-cpich-PowerOffset-Mimo	-6
MIMO-Parameters-v7g0ext	
-precodingWeightSetRestriction	TRUE

CELL CHANGE ORDER FROM UTRAN

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	Now
Target cell description	
- CHOICE Radio Access Technology	
- GSM	
- BSIC	BSIC of Cell2
- Band Indicator	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- BCCH ARFCN	Allocated BCCH ARFCN of Cell 2
- NC mode	NOT PRESENT

8.3.11.16.5 Test requirements

At step 2, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

At step 3, UE shall transmit composite CQI/PCI reports of type A or type B. The SS shall check that for 500 consecutive CQI reports, 250 are type A and 250 of type B. PCI values of 0 or 3 shall be used by the UE for type A CQIs where one transport block is preferred. For type A CQIs where two transport blocks are preferred, the restriction does not apply. The UE shall configure the lower layers with signalled S-CPICH Power offset.

After step 4 the UE shall transmit a CHANNEL REQUEST message on RACH.

8.3.11.17 Inter-RAT Cell Change Order from UTRAN to GPRS/MIMO for S-CPICH based MIMO with DPCH in STTD (Failure;physical channel failure)

8.3.11.17.1 Definition and applicability

All UE categories which support MIMO

UE supports GSM/GPRS

UE supports FDD and F-DPCH or Enhanced F-DPCH

8.3.11.17.2 Conformance requirement

If:

- Timer T309 expires prior to the successful establishment of a connection to the target RAT; or
- If the establishment of the connection to the other RAT failed due to other reasons e.g. (random) access failure, rejection due to lack of resources:

the UE shall:

1> if it received the CELL CHANGE ORDER FROM UTRAN message in state CELL_DCH:

2>For TDD or for FDD if the CM_PATTERN_ACTIVATION_ABORTED flag is not set to TRUE:

3> revert back to the UTRA configuration;

3> establish the UTRA physical channel(s) (including HS-DSCH related channels) used at the time for reception of CELL CHANGE ORDER FROM UTRAN.

2> For FDD:

3> perform the physical layer synchronisation procedure A as specified in [29] (FDD only);

3> if there exists any DTX or DRX configuration prior to the reception of the CELL CHANGE ORDER FROM UTRAN COMMAND, instruct the physical layer to consider only the HS-SCCH orders which were acknowledged prior to the activation time of the received message;

3> if the variable DTX_DRX_STATUS is set to TRUE, re-configure the physical layer to perform discontinuous uplink DPCCH transmission and enable or disable discontinuous downlink reception operations according to the variable DTX_DRX_PARAMS at the CFN corresponding to the frame boundary that is offset by the stored value of the IE "Enabling Delay" from the frame boundary where uplink transmission resumes with the old configuration;

3> apply power control preamble according to [26] during the number of frames indicated in the IE "PC preamble" in the variable LATEST_CONFIGURED_SRB_DELAY_AND_PC_PREAMBLE; and

3> then not send any data on signalling radio bearers RB0 to RB4 during the number of frames indicated in the IE "SRB delay" in the variable LATEST_CONFIGURED_SRB_DELAY_AND_PC_PREAMBLE or while the physical channel is not considered established;

3> if the CM_PATTERN_ACTIVATION_ABORTED flag is set to TRUE or if the UE does not succeed in establishing the UTRA physical channel(s):

4> perform a cell update procedure according to subclause 8.3.1 with cause "Radio link failure";

4> when the cell update procedure has completed successfully:

5> proceed as below.

3> transmit the CELL CHANGE ORDER FROM UTRAN FAILURE message setting the information elements as specified below:

4> include the IE "RRC transaction identifier"; and

4> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

4> clear that entry;

4> set the IE "Inter-RAT change failure" to "physical channel failure".

3> When the CELL CHANGE ORDER FROM UTRAN FAILURE message has been submitted to lower layer for transmission, the procedure ends.

1> if the UE receives the CELL CHANGE ORDER FROM UTRAN message in CELL_FACH state:

2> revert to the cell it was camped on at the reception of the CELL CHANGE ORDER FROM UTRAN message;

2> if the UE is unable to return to this cell:

3> select a suitable UTRA cell according to [4];

3> initiate the cell update procedure according to subclause 8.3.1 using the cause "cell re-selection";

3> when the cell update procedure completed successfully:

4> proceed as below.

2> transmit the CELL CHANGE ORDER FROM UTRAN FAILURE message setting the information elements as specified below:

3> include the IE "RRC transaction identifier"; and

3> set it to the value of "RRC transaction identifier" in the entry for the CELL CHANGE ORDER FROM UTRAN message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> clear that entry;

3> set the IE "Inter-RAT change failure" to "physical channel failure".

2> When the CELL CHANGE ORDER FROM UTRAN FAILURE message has been submitted to lower layer for transmission:

3> the procedure ends.

[…]

If the IE "Tx Diversity Mode" is included the UE shall:

1> if the value of the IE "Tx Diversity Mode" is STTD:

2> configure the Layer 1 to use the Tx diversity mode indicated in the IE "Tx Diversity Mode" for the radio links for which the IE "Closed loop timing adjustment mode" is included, ignoring the actual value of IE "Closed loop timing adjustment mode".

1> if the value of the IE "Tx Diversity Mode" is closed loop mode 1:

2> configure the Layer 1 to use the Tx diversity mode indicated in the IE "Tx Diversity Mode" for the radio links for which the IE "Closed loop timing adjustment mode" is included, using the actual value of the IE "Closed loop timing adjustment mode".

1> if the value of the IE "Tx Diversity Mode" is "none":

2> configure the Layer 1 not to use Tx diversity for all radio links in the active set.

If the IE "Tx Diversity Mode" is not included, the UE shall:

1> continue to use the already configured Tx diversity mode;

1> in case no Tx diversity mod e has been configured:

2> do not apply Tx diversity.

For F-DPCH the UE shall:

1> if the IE "STTD indication" is included in the IE "Downlink F-DPCH info for each RL":

2> use STTD for F-DPCH on the radio links for which the IE "STTD indication" is set to TRUE

…

References

3GPP TS 25.331 clause 8.3.11.5, 8.6.6.24

8.3.11.17.3 Test Purpose

To verify that when MIMO configured(S-CPICH based MIMO with F-DPCH in STTD) UE received CELL CHANGE ORDER FROM UTRAN message in CELL_DCH state and if the establishment of the connection to the other RAT failed due to expiry of timer T309 prior to the successful establishment of a connection to the target RAT:

a. revert back to the UTRA configuration

b. establish the UTRA physical channel(s) used at the time for reception of CELL CHANGE ORDER FROM UTRAN;

c. transmit the CELL CHANGE ORDER FROM UTRAN FAILURE message and set the IE "Inter-RAT change failure" to "physical channel failure".

d. To confirm that the UE configures the radio bearers to start MIMO reception after reverting back to the old config and configures layer 1 to use STTD as Tx diversity mode for F-DPCH

8.3.11.17.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 2 is GPRS. 51.010 clauses 20.22 and 40.1.1 shall be referenced for the default parameters of cell 2.

All cells belong to the same PLMN. UTRAN and GPRS cells belong to different location area.

UE: PS-DCCH DCH (state 6-7) as specified in clause 7.4 of TS 34.108, one PS domain RAB is established.

NOTE: The 'timer poll' value in the SS RLC transmit entity should be set to 800 ms.

Related ICS/IXIT statement

- UE supports FDD
- UE supports MIMO
- UE supports HS-PDSCH
- UE supports F-DPCH
- UE supports GSM/GPRS
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-PCS, GSM-850, GSM-710

Test Procedure

The UE is in CELL_DCH state and only signalling radio bearers have been established.

The SS transmits a RADIO BEARER SETUP message including the RAB Information for setup IE to configure PS domain RAB and perform SRB mapping from DCH to E-DCH/HSDPA (with MIMO configured for L1). The tx-diversity mode for F-DPCH shall be set to STTD.The UE transmits a RADIO BEARER SETUP COMPLETE on DCCH. UE sends combined CQI/PCI reports of type A/B continuously every 2 ms.

The SS configures GPRS cell, then sends CELL CHANGE ORDER FROM UTRAN indicating the target cell description, GPRS cell, to the UE through DCCH of the serving UTRAN cell. The UE starts the timer T309. After the UE receives the command it shall configure itself accordingly but cannot complete the cell change, as SS does not respond to the CHANNEL REQUEST message transmitted by UE till the expiry of T309 timer. The SS checks that the cell change has failed by checking that the UE transmits the CELL CHANGE ORDER FROM UTRAN FAILURE message to the SS in UTRAN cell.The SS checks that UE configures MIMO for L1 and tx-diversity mode for F-DPCH to be STTD. UE sends combined CQI/PCI reports of type A/B continuously every 2 ms.

Expected Sequence:

Step	Direction		Message	Comments
	UE	SS		
1	←		RADIO BEARER SETUP	Setup PS RAB on E-DCH/HSDPA. Reconfiguration of SRB mapping from DCH to E-DCH/HSDPA. Tx-diversity mode for F-DPCH is set to STTD.
2	→		RADIO BEARER SETUP COMPLETE	
3				UE shall transmit composite CQI/PCI reports of type A or type B. The SS shall check that for 500 consecutive CQI reports, 250 are type A and 250 of type B.
4	SS			The SS configures cell 2 as a GSM cell with GPRS enabled
5	←		CELL CHANGE ORDER FROM UTRAN	Send on cell 1 (UTRAN cell) and the message indicates: the target cell description for GSM/GPRS.
6	UE			UE starts the timer T309. The UE accepts the cell change command and switches to the GPRS specified in the CELL CHANGE ORDER FROM UTRAN
7	→		CHANNEL REQUEST	The SS receives this burst on RACH of cell 2 (GPRS cell) to establish temporary block flow
8	→			SS does not respond to the channel request. UE sends M + 1 CHANNEL REQUEST messages
				The SS does not transmit a response and wait for T309 timer to expire.
9	→		CELL CHANGE ORDER FROM UTRAN FAILURE	The SS receives the message on the old channel of UTRAN cell.
				Note: The UE may send a ROUTING AREA UPDATE REQUEST to complete the RA Update procedure initiated at step 7.
10				Tx-diversity mode for F-DPCH is set to STTD. UE shall transmit composite CQI/PCI reports of type A or type B continuously every 2 ms. The SS shall check that for 500 consecutive CQI reports, 250 are type A and 250 of type B.

Specific message contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for "Packet to CELL_DCH / HS-DSCH with enhanced data rate and RLC AM" and SRBs mapped on E-DCH/HS-DSCH(Mac-ehs) under condition A28a as specified in clause 9 of TS34.108, except for the following

Information Element	Value/remark
Added or Reconfigured DL TrCH information	1 TrCH (HS-DSCH for DTCH and DCCH)
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	
- Number of Processes	12
- CHOICE *Memory Partitioning*	Implicit
- CHOICE *DL MAC header type*	
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	(two queues)
- MAC-ehs queue Id	0 (for DTCH)

Information Element	Value/remark
- T1	50
- MAC-hs window size	16
- MAC-ehs queue Id	1 (for DCCH)
- MAC-d Flow Identity	1
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	148
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not present
- DCH quality target	Not present
MIMO Parameters	
- MIMO Operation	Start
- CHOICE mode	FDD
- MIMO N_cqi_type A/M_cqi ratio	½
- MIMO pilot configuration	
- CHOICE Second CPICH pattern	Antenna1 S-CPICH
- Channelisation code	13
Downlink HS-PDSCH Information	
- CHOICE mode	FDD
- DL Scrambling Code	Not Present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	12 (6 dB)
- CQI Feedback cycle, k	2 ms
- CQI repetition factor	1
- Δ_{CQI}	5
- Downlink 64QAM configured	Not Present
- HS-DSCH TB size table	Octet Aligned
DL-CommonInformation	
-dl-DPCH-InfoCommon	
-CHOICE mode	FDD
-tx-DiversityMode	STTD
DL-FDPCH-InfoPerRL-r7	
-sttdIndication	TRUE

CELL CHANGE ORDER FROM UTRAN

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	Now
Target cell description	
- CHOICE Radio Access Technology	
- GSM	
- BSIC	BSIC of Cell 2
- Band Indicator	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- BCCH ARFCN	Allocated BCCH ARFCN of Cell 2
- NC mode	Not present

8.3.11.17.5 Test requirements

In step 2 the UE shall transmit a RADIO BEARER SETUP COMPLETE message

In step 3 the UE shall transmit composite CQI/PCI reports of type A or type B. The SS shall check that for 500 consecutive CQI reports, 250 are type A and 250 of type B. UE configures F-DPCH with Tx-diversity mode set to STTD.

In step 7 the UE shall transmit a CHANNEL REQUEST message on RACH.

In step 9 the UE shall transmit CELL CHANGE ORDER FROM UTRAN FAILURE message on the old channel of the UTRAN cell.

In step 10 the UE shall transmit composite CQI/PCI reports of type A or type B. The SS shall check that for 500 consecutive CQI reports, 250 are type A and 250 of type B.

8.3.11.18 Inter-RAT Cell Change Order from UTRAN to GPRS/ MIMO (Failure; with PCI Restrictions and S-CPICH Power Offset)

8.3.11.18.1 Definition and applicability

All UE categories which support MIMO and GSM/GPRS.

UE supports FDD and F-DPCH or Enhanced F-DPCH

8.3.11.18.2 Conformance requirement

If:

- Timer T309 expires prior to the successful establishment of a connection to the target RAT; or
- If the establishment of the connection to the other RAT failed due to other reasons e.g. (random) access failure, rejection due to lack of resources:

The UE shall:

1> if it received the CELL CHANGE ORDER FROM UTRAN message in state CELL_DCH:

2> if the CM_PATTERN_ACTIVATION_ABORTED flag is not set to TRUE:

3> revert back to the UTRA configuration;

3> establish the UTRA physical channel(s) (including HS-DSCH related channels) used at the time for reception of CELL CHANGE ORDER FROM UTRAN.

2> perform the physical layer synchronisation procedure A as specified in [29] (FDD only);

2> after the establishment of the uplink physical channel, send DPCCH and no DPDCH according to [26] during the number of frames indicated in the IE "PC preamble" in the variable LATEST_CONFIGURED_SRB_DELAY_AND_PC_PREAMBLE; and

2> then not send any data on signalling radio bearers RB0 to RB4 during the number of frames indicated in the IE "SRB delay" in the variable LATEST_CONFIGURED_SRB_DELAY_AND_PC_PREAMBLE;

2> if the CM_PATTERN_ACTIVATION_ABORTED flag is set to TRUE or if the UE does not succeed in establishing the UTRA physical channel(s):

3> perform a cell update procedure according to sub clause 8.3.1 with cause "Radio link failure";

3> when the cell update procedure has completed successfully:

4> proceed as below.

2> transmit the CELL CHANGE ORDER FROM UTRAN FAILURE message setting the information elements as specified below:

3> include the IE "RRC transaction identifier"; and

3> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> clear that entry;

3> set the IE "Inter-RAT change failure" to "physical channel failure".

2> When the CELL CHANGE ORDER FROM UTRAN FAILURE message has been submitted to lower layer for transmission, the procedure ends.

1> if the UE receives the CELL CHANGE ORDER FROM UTRAN message in CELL_FACH state:

2> revert to the cell it was camped on at the reception of the CELL CHANGE ORDER FROM UTRAN message;

2> if the UE is unable to return to this cell:

3> select a suitable UTRA cell according to [4];

3> initiate the cell update procedure according to sub clause 8.3.1 using the cause "cell re-selection";

3> when the cell update procedure completed successfully:

4> proceed as below.

2> transmit the CELL CHANGE ORDER FROM UTRAN FAILURE message setting the information elements as specified below:

3> include the IE "RRC transaction identifier"; and

3> set it to the value of "RRC transaction identifier" in the entry for the CELL CHANGE ORDER FROM UTRAN message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> clear that entry;

3> set the IE "Inter-RAT change failure" to "physical channel failure".

2> When the CELL CHANGE ORDER FROM UTRAN FAILURE message has been submitted to lower layer for transmission:

3> the procedure ends.

References

3GPP TS 25.331 clause 8.3.11, 8.5.32, 8.5.33, 8.6.6.41

3GPP TS 25.214 clause 6A.1.2.2, 6A.2.2

8.3.11.18.3 Test purpose

To verify that when MIMO configured(with PCI Restrictions and S-CPICH Power Offset) UE received CELL CHANGE ORDER FROM UTRAN message in CELL_DCH state and if the establishment of the connection to the other RAT failed due to expiry of timer T309 prior to the successful establishment of a connection to the target RAT:

a. revert back to the UTRA configuration

b. establish the UTRA physical channel(s) used at the time for reception of CELL CHANGE ORDER FROM UTRAN;

c. transmit the CELL CHANGE ORDER FROM UTRAN FAILURE message and set the IE "Inter-RAT change failure" to "physical channel failure".

d. the UE shall transmit CQI reports of type A and type B. PCI values of 0 or 3 shall be used by the UE for type A CQIs where one transport block is preferred. For type A CQIs where two transport blocks are preferred, the restriction does not apply. The UE shall configure the lower layers with signalled S-CPICH Power offset.”

8.3.11.18.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 2 is GPRS. 51.010 clauses 20.22 and 40.1.1 shall be referenced for the default parameters of cell 2.

All cells belong to the same PLMN. UTRAN and GPRS cells belong to different location area.

UE: PS-DCCH DCH (state 6-7) as specified in clause 7.4 of TS 34.108, one PS domain RAB is established.

NOTE: The 'timer poll' value in the SS RLC transmit entity should be set to 800 ms.

Related ICS/IXIT statement

- UE supports FDD
- UE supports MIMO

UE supports HSDSCH

- UE supports F-DPCH or Enhanced F-DPCH
- UE supports GSM/GPRS
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-PCS, GSM-850, GSM-710

Test Procedure

The UE is in CELL_DCH state and only signalling radio bearers have been established.

The SS transmits a RADIO BEARER SETUP message including the RAB Information for setup IE to configure PS domain RAB and perform SRB mapping from DCH to EDCH/HSDPA (with MIMO configured for L1 with PCI restriction and S-CPICH Power Offset). The UE transmits a RADIO BEARER SETUP COMPLETE on DCCH. The UE shall configure the lower layers with signalled S-CPICH Power offset. UE sends combined CQI/PCI reports of type A/B continuously every 2 ms. The PCI values reported shall be restricted to 0 or 3 for type A CQIs where one transport block is preferred. For type A CQIs where two transport blocks are preferred, restriction shall not apply.

The SS starts GPRS cell, then sends CELL CHANGE ORDER FROM UTRAN indicating the target cell description, GPRS cell, to the UE through DCCH of the serving UTRAN cell. The UE starts the timer T309. After the UE receives the command it shall configure itself accordingly but cannot complete the cell change, as SS does not respond to the CHANNEL REQUEST message transmitted by UE till the expiry of T309 timer. The SS checks that the cell change has failed by checking that the UE transmits the CELL CHANGE ORDER FROM UTRAN FAILURE message to the SS in UTRAN cell.

Expected Sequence:

Step	Direction		Message	Comments
	UE	SS		
1	←		RADIO BEARER SETUP	Setup PS RAB on EDCH/HSDPA. Reconfiguration of SRB mapping from DCH to EDCH/HSDPA (with PCI restriction and S-CPICH Power Offset)
2	→		RADIO BEARER SETUP COMPLETE	
3				UE shall transmit composite CQI/PCI reports of type A or type B. The SS shall check that for 500 consecutive CQI reports, 250 are type A and 250 of type B. PCI values of 0 or 3 shall be used by the UE for type A CQIs where one transport block is preferred. For type A CQIs where two transport blocks are preferred, the restriction does not apply. The UE shall configure the lower layers with signalled S-CPICH Power offset.
4	SS			The SS configures cell 2 as a GSM cell with GPRS enabled
5	←		CELL CHANGE ORDER FROM UTRAN	Send on cell 1 (UTRAN cell) and the message indicates: the target cell description for GSM/GPRS.
6	UE			UE starts the timer T309. The UE accepts the cell change command and switches to the GPRS specified in the CELL CHANGE ORDER FROM UTRAN
7	→		CHANNEL REQUEST	The SS receives this burst on RACH of cell 2 (GPRS cell) to establish temporary block flow
8	→			SS does not respond to the channel request. UE sends M + 1 CHANNEL REQUEST messages
				The SS does not transmit a response and wait for T309 timer to expire.
9	→		CELL CHANGE ORDER FROM UTRAN FAILURE	The SS receives the message on the old channel of UTRAN cell.
				Note The UE may send a ROUTING AREA UPDATE REQUEST to complete the RA Update procedure initiated at step 7.
10				UE shall transmit composite CQI/PCI reports of type A or type B. The SS shall check that for 500 consecutive CQI reports, 250 are type A and 250 of type B. PCI values of 0 or 3 shall be used by the UE for type A CQIs where one transport block is preferred. For type A CQIs where two transport blocks are preferred, the restriction does not apply. The UE shall configure the lower layers with signalled S-CPICH Power offset.

Specific message contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for "Packet to CELL_DCH / E-DCH / HS-DSCH using one multiplexing option (1/1) and SRBs mapped on E-DCH/HS-DSCH", except for the following

Information Element	Value/remark
- RAB information for setup	
- RAB info	(high-speed AM DTCH for PS domain)
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	useT315
- RB information to setup	
- RB identity	25
- PDCP info	
- Support for lossless SRNS relocation	FALSE
- Max PDCP SN window size	Not present
- PDCP PDU header	Absent
- Header compression information	Not present
- CHOICE RLC info type	RLC Info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	2
- CHOICE RLC PDU size	Fixed size
- DDI	5
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	
- DL HS-DSCH MAC-ehs Queue Id	0
- Logical channel identity	9
- RB information to be affected	
- RB identity	1 (UM DCCH for RRC)
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present

Information Element	Value/remark
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d flow identity	1
- CHOICE RLC PDU size	Fixed size
- DDI	1
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	1
- RB identity	2 (AM DCCH for RRC)
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- CHOICE RLC PDU size	Fixed size
- DDI	2
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	2
- RB identity	3 (AM DCCH for NAS High Priority)
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- CHOICE RLC PDU size	Fixed size
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	3
- RB identity	4 (AM DCCH for NAS Low Priority)
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1

Information Element	Value/remark
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- CHOICE RLC PDU size	Fixed size
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	4
Added or Reconfigured DL TrCH information	1 TrCH (HS-DSCH for DTCH and DCCH)
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	
- Number of Processes	12
- CHOICE *Memory Partitioning*	Implicit
- CHOICE *DL MAC header type*	
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	(two queues)
- MAC-ehs queue Id	0 (for DTCH)
- T1	50
- MAC-hs window size	16
- MAC-ehs queue Id	1 (for DCCH)
- MAC-d Flow Identity	1
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not present
- DCH quality target	Not present
MIMO Parameters	
- MIMO Operation	Start
- MIMO N_cqi_typeA/M_cqi ratio	1/2
- MIMO pilot configuration	
- CHOICE Second CPICH pattern	Antenna1 S-CPICH
- Channelisation code	13
- Power Offset for S-CPICH for MIMO	-6dB
- Precoding weight set restriction	TRUE
Downlink HS-PDSCH Information	
- CHOICE mode	FDD
- DL Scrambling Code	Not Present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	7
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	12 (6 dB)
- CQI Feedback cycle, k	2 ms
- CQI repetition factor	1
- Δ_{CQI}	5
- Downlink 64QAM configured	Not Present
- HS-DSCH TB size table	Octet Aligned

CELL CHANGE ORDER FROM UTRAN

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	Now
Target cell description	
- CHOICE Radio Access Technology	
- GSM	
- BSIC	BSIC of Cell 2
- Band Indicator	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- BCCH ARFCN	Allocated BCCH ARFCN of Cell 2
- NC mode	Not present

8.3.11.18.5 Test requirements

In step 2 the UE shall transmit a RADIO BEARER SETUP COMPLETE message

In step 3 the UE shall transmit composite CQI/PCI reports of type A or type B. The SS shall check that for 500 consecutive CQI reports, 250 are type A and 250 of type B. PCI values of 0 or 3 shall be used by the UE for type A CQIs where one transport block is preferred. For type A CQIs where two transport blocks are preferred, the restriction does not apply. The UE shall configure the lower layers with signalled S-CPICH Power offset.

In step 7 the UE shall transmit a CHANNEL REQUEST message on RACH.

In step 9 the SS shall receive CELL CHANGE ORDER FROM UTRAN FAILURE message on the old channel of the UTRAN cell.

In step 10 the UE shall transmit composite CQI/PCI reports of type A or type B. The SS shall check that for 500 consecutive CQI reports, 250 are type A and 250 of type B. PCI values of 0 or 3 shall be used by the UE for type A CQIs where one transport block is preferred. For type A CQIs where two transport blocks are preferred, the restriction does not apply. The UE shall configure the lower layers with signalled S-CPICH Power offset.

8.3.12 Handover to CSG/Hybrid Cell

8.3.12.1 Inter-frequency inbound handover to UMTS CSG cell without reporting proximity indication

8.3.12.1.1 Definition

Test to verify the UE can report the Cell Identity, CSG ID and CSG membership indication of inter-frequency member CSG cells without reporting proximity indication.

8.3.12.1.2 Conformance requirement

1: Inter-frequency measurements for CSG/Hybrid cells:

For each cell reported in the IE "Cell measured results" of an inter-frequency Measurement Report, which is also included in the IE "Inter-frequency SI Acquisition" associated with the measurement:

1> if the UE managed to acquire the system information of the concerned cell:

2> include the following IEs in the IE "Cell measured results":

3> "Cell Identity" IE;

3> if the concerned cell broadcasts a CSG identity:

4> "CSG Identity" IE.

4> "CSG Member indication" IE and set it to "member" if CSG identity of the concerned cell is present in UE's CSG whitelist.

If the UE needs measurement gaps to read the system information on the non-used frequency, the system information of the reported cell can be acquired by the UE via autonomous measurement gaps when the IE "Inter-frequency SI Acquisition" is received by the UE, i.e., UE is allowed to temporarily abort communication with the serving cell to perform SI acquisition within the limits (detailed value is FFS). UE shall send the measurement report before the maximum provided time specified in IE "Periodical reporting criteria" if the UE is able to acquire SI early.

2: Inter-frequency Measurement Procedure of CSG and Hybrid cells:

1) The SRNC configures the UE with a measurement having "CSG Proximity detection" as measurement type.

2) The UE sends an "entering" CSG proximity indication when it determines it may be near a cell, (based on UE implementation) whose CSG ID is in the UE's CSG whitelist. The CSG proximity indication includes the RAT and frequency of the cell.

3) The SRNC configures a measurement on the concerned frequency/RAT to measure CSG/hybrid cells. Compressed mode gaps, if required by the UE, are also activated to allow UE to perform measurements on the reported RAT and frequency. The network may also use the proximity indication to minimize the requesting of handover preparation information of CSG/hybrid cells by avoiding requesting such information when the UE is not in the geographical area where cells whose CSG IDs are in the UEs CSG whitelist are located.

4) The UE sends a measurement report including the measured PSCs/PCIs.

5) The SRNC configures the UE to perform SI acquisition and reporting of a particular PSC/PCI.

6) The UE performs SI acquisition using autonomous gaps, i.e., the UE may suspend reception and transmission with the SRNC within the limits (the limit is currently FFS) to acquire the relevant system information from the target HNB/HeNB.

7) The UE sends a measurement report including Cell Identity, CSG ID and CSG membership indication.

8) SRNC can then proceed with the handover processing. The handover processing for inter-frequency handover to a CSG/Hybrid cell is described in [6].

NOTE: The above steps also apply to inter-RAT mobility from UMTS cell to HeNB.

After sending an "entering" CSG proximity indication (step 2), if the UE determines that it is no longer near any cell (on the reported proximate RAT and frequency) whose CSG ID is in the UE's CSG whitelist, the UE sends a "leaving" CSG proximity indication to the SRNC. Upon reception of this indication, the SRNC may reconfigure the UE to stop measurements on the reported RAT and frequency.

In the above procedure, step 2 may not be performed in case the UE has not previously visited the HNB, e.g., when the UE first visits a CSG/hybrid cell.

The PSC/PCI confusion is resolved by steps 5, 6 and 7. The SRNC can request SI acquisition and reporting for any PSC/PCI, not limited to PSCs/PCIs of CSG or hybrid cells

3: The CSG SI acquisition delay is defined as the time between any occurrences that will trigger a SI decoding until the UE starts to transmit over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. The measurement reporting delay also excludes any RRC procedure delay which is defined in [16] when SI reading is initiated by a measurement control message.

For intra frequency CSG cells, CSG SI decoding is typically triggered when a cell with primary scrambling code in a preconfigured range meets the criteria for measurement reporting. For inter frequency CSG cells, CSG SI decoding is explicitly requested by RRC signalling.

The CSG SI reporting delay shall not be more than $T_{CSG\text{-}SI\text{-}Report}$ where $T_{CSG\text{-}SI\text{-}Report}$ in ms is given by

$$T_{CSG\text{-}SI\text{-}Report} = [630] + 40*SIB3\_REP$$

SIB3_REP is the repetition period at which the CSG cell schedules SIB3 blocks in units of frames

This requirement is applicable for CSG target cell configurations where the information required to make the SI report can be determined from the MIB and SIB3 alone, and SIB3 is not segmented into multiple TTI. Additionally, for the requirement to be applicable, the reception conditions shall be [TBD] such that the system frame number of the target CSG cell, the MIB and SIB3 can each be successfully decoded in no more than four attempts.

Test requirement = RRC Procedure delay + $T_{CSG\text{-}SI\text{-}Report}$

Reference

1: 3GPP TS 25.331, clause 14.7a.2.

2: 3GPP TS 25.367, clause 8.1.2.

3: 3GPP TS 25.133, clause 5.13.2, A.5.11.2

8.3.12.1.3 Test purpose

1. To confirm that the UE can report the PSC of inter-frequency CSG cells and the PSC reported is within the range configured by the SRNC.
2. To confirm that the UE can report the Cell Identity, CSG ID and CSG membership indication of inter-frequency member CSG cells.

8.3.12.1.4 Method of test

Initial Condition

System Simulator:

2cells–Cell 1 ,cell 4 are used.

The CSG id of the Cell4 is 2. . Cell 1 does not broadcast CSG ID.

Cell1 is on f1.

Cell 4 is on f2.

The SIB3_REP of cell 4, i.e., SIB3 scheduling is 64.

User Equipment:

The UE Allowed CSG List contains CSG2.

The UE is PS-DCCH+DTCH_DCH (state 6-10) or CS-DCCH+DTCH_DCH (state 6-9) or PS+CS-DCCH+DTCH_DCH (state 6-14) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports Compressed mode.
- UE supports the capability of inter-frequency SI acquisition for HO.

Test Procedure

Table 8.3.12.1-1 illustrates the downlink power to be applied for the 2 cells.

Table 8.3.12.1-1

Parameter	Unit	Cell 1			Cell4					
Test Channel		1								
		T0	T1	T2	T0	T1	T2			
CPICH_Ec	dBm/3.84MHz	-55	-78	-75	OFF	OFF	-60			

Cell 1 is active. The UE is initially in CELL_DCH and has a radio bearer with the cell1.

At instant T0, the downlink is changed according to what is shown in table 8.3.12.1 -1. The SS then sets up inter-frequency measurements (event 2d), by sending a MEASUREMENT CONTROL message to the UE.

At instant T1, the downlink power is changed according to what is shown in table 8.3.12.1 -1. The UE shall thus send a MEASUREMENT REPORT with 2d event to the SS.

The SS sets up an intra-frequency measurement (event 1c) and an inter-frequency CSG measurement (event 2c), by sending separate MEASUREMENT CONTROL messages to the UE. Configuration of 1c event is to enable construction of CSG VAS active set in the UE.

The SS configures then compressed mode (if required), to prepare the UE for inter-frequency measurements, by sending a PHYSICAL CHANNEL RECONFIGURATION message on DCCH using AM-RLC. The UE shall answer with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

At instant T2, the downlink power is changed according to what is shown in table 8.3.12.1 -1. The UE shall thus send a MEASUREMENT REPORT with 2c event to the SS.

The SS then sets up SI acquisition of cell 4 by sending a MEASUREMENT CONTROL message to the UE. Compressed mode is started at the same time in that message (if required). And then the UE shall answer the cell identity, CSG ID and CSG membership indication of the cell 4.

Independent of the UE requiring compressed mode, the SS then continues by sending a PHYSICAL CHANNEL RECONFIGURATION message to the UE on DCCH using AM-RLC, to order it to perform timing reinitialised inter-frequency handover to cell4.

The UE shall then transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS when the inter-frequency handover has succeeded. In case the initial condition was CS-DCCH+DTCH_DCH, that message shall contain the IEs "COUNT-C activation time" and the IE "START list" (in the IE "Uplink counter synchronisation info"), indicating to the SS when and from which value to start incrementing the HFN part of the COUNT-C variable used for ciphering.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The SS changes the power of the two cells according to column T0 in table 8.3.12.1
2	←		MEASUREMENT CONTROL	The SS configures a measurement to the UE. Event 2d is configured.
3				The SS re-adjusts the downlink transmission power settings of the cell1 according to columns "T1" in table 8.3.12.1-1.
4	→		MEASUREMENT REPORT	The UE sends 2d event to the SS.
5	←		MEASUREMENT CONTROL	The SS configures an intra-frequency measurement with 1c event.
6	←		MEASUREMENT CONTROL	The SS configures a CSG inter-frequency measurement with Event 2c. If Compressed Mode is not required (refer ICS/IXIT) go to step 9
7	←		PHYSICAL CHANNELRECONFIGURATION	The SS instructs UE to begin compressed mode operation. (for FDD only)
8	→		PHYSICAL CHANNELRECONFIGURATION COMPLETE	(for FDD only)
9				The SS re-adjusts the downlink transmission power settings of the cells according to columns "T2" in table 8.3.12.1-1.
10	→		MEASUREMENT REPORT	The UE sends a measurement report including the measured PSCs for cell 4 and event 2c.
11	←		MEASUREMENT CONTROL	The SS configures the UE to perform SI acquisition and reporting of cell 4.
12				The UE performs SI acquisition to acquire the relevant system information from the cell4.
13	→		MEASUREMENT REPORT	The UE sends a measurement reporting including the cell identity, CSG ID and CSG membership indication of the cell 4.
14	←		PHYSICAL CHANNEL RECONFIGURATION	The SS orders the UE to perform timing re-initialised inter-frequency handover to cell 4.
15	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	After the UE has succeeded in performing the inter-frequency handover, it shall send a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS using the new configuration
16	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

MEASUREMENT CONTROL (Step 2)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions

Information Element	Value/remark
Measurement identity	1
Measurement command	Setup
CHOICE Measurement type	
-Inter-frequency measurement	
- Inter-frequency cell info list	
- Inter-frequency cell removal	Not present
- New inter-frequency info list	Not present
- Cell for measurement	Not present
- Inter-frequency measurement quantity	
- Filter Coefficient	4
- Frequency quality estimate quantity	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRAN Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Measurement validity	CELL_DCH state
- UE autonomous update mode	Not present
- CHOICE report criteria	
- Inter-frequency measurement reporting criteria	
- Parameters required for each event	
- Inter-frequency event identity	2d
- Threshold used frequency	-70dBm
- W used frequency	0.0
- Hysteresis	2(1dB)
- Time to trigger	5000ms
- Reporting cell status	Not present
Measurement reporting mode	
- Measurement reporting transfer mode	Unacknowledged Mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 4)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured results	Check to see if it is absent
Measured results on RACH	Check to see if it is absent
Additional measured results	Check to see if it is absent
Event results	Inter-frequency measurement event results,
- CHOICE event result	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2d

MEASUREMENT CONTROL (Step 5)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions

Information Element	Value/remark
Measurement identity	2
Measurement command	Setup
Measurement reporting mode	
- Measurement reporting transfer mode	
- Periodic reporting / Event trigger reporting mode	
CHOICE measurement type	Intra-frequency measurement
- intra-frequency measurement	
- Intra-frequency measurement objects list	
- Remove all intra-frequency cells	
- New intra-frequency cells	1
- Intra-frequency cell id	
- Cell info	0 (0dB)
- Cell individual offset	Not Present
- Reference time difference to cell	FALSE
- Read SFN number	FDD
- CHOICE mode	
- Primary CPICH info	100
- Primary scrambling code	Not Present
- Primary CPICH Tx power	FALSE
- TX Diversity indicator	
- Intra-frequency measurement quantity	0
- Filter Coefficient	
- CHOICE mode	
- FDD	CPICH RSCP
- Measurement quantity	
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Intra-frequency measurement reporting criteria	
- Parameters required for each events	
- Intra-frequency event identity	1c
- Hysteresis	4 (2dB)
- Replacement activation threshold	3
- Time to trigger	10 ms
- Amount of reporting	16
- Reporting interval	4000ms
- Reporting cell status	Not present

MEASUREMENT CONTROL (Step 6)

Information Element	Value/remark
Measurement identity	3
Measurement command	Setup
Measurement reporting mode	
- Measurement reporting transfer mode	Unacknowledged Mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
CHOICE measurement type	Inter-frequency measurement
- inter-frequency measurement	
- Inter-frequency cell info list	
- Inter-frequency cell removal	Not Present
- New inter-frequency cells	
- Inter-frequency cell id	4
- Frequency info	Frequency information of cell 4
- cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN indicator	FALSE
- CHOICE mode	
-FDD	
- Primary CPICH info	
- Primary Scrambling Code	Set to primary scrambling code used for cell 4
- Primary CPICH Tx power	Not present
- TX Diversity Indicator	FALSE
- Cell for measurement	Not present
- CSG Inter-frequency cell info	
- CSG Frequency info	
- Frequency info	Frequency of Cell 4
- CSG Inter-frequency cell info for the frequency	
- CSG cell info list	
- CHOICE *mode*	FDD
- Start PSC	300
- Number of PSCs	100
- Inter-frequency SI Acquisition	Not present
- Inter-frequency measurement quantity	
- Filter Coefficient	4
- Frequency quality estimate quantity	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRAN Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement validity	CELL_DCH state
- inter-frequency set update	
- UE autonomous update mode	On with no reporting
- CHOICE report criteria	
- Inter-frequency measurement reporting criteria	
- Parameters required for each event	
- Inter-frequency event identity	2c
- Hysteresis	2(1dB)
- Time to trigger	0 mSec
- Reporting cell status	Not present
- Parameters required for each non-used frequency	
- Threshold non used frequency	-85 dBm
- W non used frequency	0
DPCH compressed mode status info	Not present

PHYSICAL CHANNEL RECONFIGURATION (Step 7)

Use the same message sub-type found in Annex A, which is entitled "(Packet to CELL_DCH from CELL_DCH in PS)", with the following exceptions in the IE(s) concerned:

Information Element	Value/remark	Version
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing Indication	Maintain	
- Downlink DPCH power control information		
- DPC mode	0 (Single)	
- CHOICE Mode	FDD	
- Power offset PPilot-DPDCH	0	
- DL rate matching restriction information	Not present	
- Spreading factor	Refer to the parameter set in TS 34.108	
- Fixed or flexible position	Flexible	
- TFCI existence	TRUE	
- Number of bits for Pilot bits (SF=128, 256)	Not present	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS status flag	Activate	
- TGCFN	(Current CFN+(256 – TTI/10msec)) mod 256	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not Present	
- TGD	Undefined	
- TGPL1	3	
- TGPL2	Not Present	R99 and Rel-4 only
- RPP	Mode 0	
- ITP	Mode 0	
- CHOICE UL/DL mode	UL and DL or DL only or UL only depending on UE capability	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2 or Not present depending on UE capability	
- Downlink frame type	A	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not present	
- DeltaSIRAfter2	Not present	
- N identify abort	Not present	
- T Reconfirm abort	Not present	
- TX diversity mode	None	
- SSDT information	Not present	R99 and Rel-4 only
- Default DPCH offset value	Not present	

MEASUREMENT REPORT (Step 10)

Information Element	Value/remark
Measurement identity	Check to see if set to 3
Measured results	Check to see if it is absent
Additional measured results	Check to see if it is absent
Event results	Inter-frequency measurement event results,
- CHOICE event result	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2c
- Inter-frequency cells	
- Frequency info	Set to same frequency as used for cell 4
- Non frequency related measurement event results	
- CHOICE mode	
- FDD	
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 4

MEASUREMENT CONTROL (Step 11)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Measurement Identity	4
Measurement Command	Setup
CHOICE Measurement type	
- Inter-frequency measurement	
- Inter-frequency measurement objects list	
- Inter-frequency SI Acquisition	
- Frequency info	Set to same frequency as used for cell 4
- CHOICE mode	
- FDD	
- Primary scrambling code	Set to same scrambling code as used for cell 4
- Inter-frequency measurement quantity	
- Filter Coefficient	4
- Frequency quality estimate quantity	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRAN Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- CHOICE report criteria	
- Periodical reporting criteria	
- Amount of reporting	1
- Reporting interval	4000ms
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step13)

Information Element	Value/remark
Measurement identity	Check to see if set to 4
Measured Results	
-CHOICE Measurement	
- Inter-frequency measured results list	
- Inter-frequency measurement results	
- Frequency info	Set to same frequency as used for cell 4
- Inter-frequency cell measurement results	
- Cell measured results	
- Cell Identity	Set to 28-bit Cell identity as used for cell 4
- CSG Identity	Set to same code as used for cell 4(2)
- CSG Member indication	member
- CHOICE mode	
- FDD	
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 4
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent

PHYSICAL CHANNEL RECONFIGURATION (Step 14)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/Remark
RRC State indicator	CELL_DCH
Frequency info	
- CHOICE mode	
- FDD	
- UARFCN downlink (Nd)	UARFCN for the downlink corresponding to cell4
Downlink information common for all radio links	
- CHOICE DPCH info	
- Downlink DPCH info common for all RL	
- Timing indication	Initialise
Downlink information per radio link list	1 radio link
- Downlink information for each radio link	
- CHOICE mode	FDD
- FDD	
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for cell 4

8.3.12.1.5 Test requirement

At step 4, the UE sends 2d event to the cell1.

At step 10, the UE sends 2c event to the cell1 for Cell 4.

At step 13, The UE sends a measurement reporting including the cell identity, CSG ID and CSG membership indication of the cell 4 within 4000ms.

8.3.12.2 Inter-frequency inbound handover to UMTS CSG cell

8.3.12.2.1 Definition

Test to verify the UE can report the Cell Identity, CSG ID and CSG membership indication of inter-frequency CSG cells with reporting proximity indication.

8.3.12.2.2 Conformance requirement

1: Inter-frequency measurements for CSG/Hybrid cells:

For each cell reported in the IE "Cell measured results" of an inter-frequency Measurement Report, which is also included in the IE "Inter-frequency SI Acquisition" associated with the measurement:

1> if the UE managed to acquire the system information of the concerned cell:

2> include the following IEs in the IE "Cell measured results":

3> "Cell Identity" IE;

3> if the concerned cell broadcasts a CSG identity:

4> "CSG Identity" IE.

4> "CSG Member indication" IE and set it to "member" if CSG identity of the concerned cell is present in UE's CSG whitelist.

If the UE needs measurement gaps to read the system information on the non-used frequency, the system information of the reported cell can be acquired by the UE via autonomous measurement gaps when the IE "Inter-frequency SI Acquisition" is received by the UE, i.e., UE is allowed to temporarily abort communication with the serving cell to perform SI acquisition within the limits (detailed value is FFS). UE shall send the measurement report before the maximum provided time specified in IE "Periodical reporting criteria" if the UE is able to acquire SI early.

2: Inter-frequency Measurement Procedure of CSG and Hybrid cells:

1) The SRNC configures the UE with a measurement having "CSG Proximity detection" as measurement type.

2) The UE sends an "entering" CSG proximity indication when it determines it may be near a cell, (based on UE implementation) whose CSG ID is in the UE's CSG whitelist. The CSG proximity indication includes the RAT and frequency of the cell.

3) The SRNC configures a measurement on the concerned frequency/RAT to measure CSG/hybrid cells. Compressed mode gaps, if required by the UE, are also activated to allow UE to perform measurements on the reported RAT and frequency. The network may also use the proximity indication to minimize the requesting of handover preparation information of CSG/hybrid cells by avoiding requesting such information when the UE is not in the geographical area where cells whose CSG IDs are in the UEs CSG whitelist are located.

4) The UE sends a measurement report including the measured PSCs/PCIs.

5) The SRNC configures the UE to perform SI acquisition and reporting of a particular PSC/PCI.

6) The UE performs SI acquisition using autonomous gaps, i.e., the UE may suspend reception and transmission with the SRNC within the limits (the limit is currently FFS) to acquire the relevant system information from the target HNB/HeNB.

7) The UE sends a measurement report including Cell Identity, CSG ID and CSG membership indication.

8) SRNC can then proceed with the handover processing. The handover processing for inter-frequency handover to a CSG/Hybrid cell is described in [6].

NOTE: The above steps also apply to inter-RAT mobility from UMTS cell to HeNB.

After sending an "entering" CSG proximity indication (step 2), if the UE determines that it is no longer near any cell (on the reported proximate RAT and frequency) whose CSG ID is in the UE's CSG whitelist, the UE sends a "leaving" CSG proximity indication to the SRNC. Upon reception of this indication, the SRNC may reconfigure the UE to stop measurements on the reported RAT and frequency.

In the above procedure, step 2 may not be performed in case the UE has not previously visited the HNB, e.g., when the UE first visits a CSG/hybrid cell.

The PSC/PCI confusion is resolved by steps 5, 6 and 7. The SRNC can request SI acquisition and reporting for any PSC/PCI, not limited to PSCs/PCIs of CSG or hybrid cells.

3: The CSG SI acquisition delay is defined as the time between any occurrences that will trigger a SI decoding until the UE starts to transmit over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. The measurement reporting delay also excludes any RRC procedure delay which is defined in [16] when SI reading is initiated by a measurement control message.

For intra frequency CSG cells, CSG SI decoding is typically triggered when a cell with primary scrambling code in a preconfigured range meets the criteria for measurement reporting. For inter frequency CSG cells, CSG SI decoding is explicitly requested by RRC signalling.

The CSG SI reporting delay shall not be more than $T_{CSG\text{-}SI\text{-}Report}$ where $T_{CSG\text{-}SI\text{-}Report}$ in ms is given by

$$T_{CSG\text{-}SI\text{-}Report} = [630] + 40*SIB3\_REP$$

SIB3_REP is the repetition period at which the CSG cell schedules SIB3 blocks in units of frames

This requirement is applicable for CSG target cell configurations where the information required to make the SI report can be determined from the MIB and SIB3 alone, and SIB3 is not segmented into multiple TTI. Additionally, for the requirement to be applicable, the reception conditions shall be [TBD] such that the system frame number of the target CSG cell, the MIB and SIB3 can each be successfully decoded in no more than four attempts.

Test requirement = RRC Procedure delay + $T_{CSG\text{-}SI\text{-}Report}$

Reference

1: 3GPP TS 25.331 clause 14.7a.2.

2: 3GPP TS 25.367, clause 8.1.2.

3: 3GPP TS 25.133, clause 5.13.2, A.5.11.2.

8.3.12.2.3 Test purpose

1. To confirm that the UE can report CSG proximity indication to the SRNC.
2. To confirm that the UE can report the Cell Identity, CSG ID and CSG membership indication of inter-frequency CSG cells.

8.3.12.2.4 Method of test

Initial Condition

System Simulator:

3 cells: Cell 1 ,cell 4 and cell5 are active.

The CSG id of the Cell4 is 2.

The SIB3_REP of cell 4 SIB3 scheduling is 64.

User Equipment:

The UE Allowed CSG List contains CSG2.

The UE is PS-DCCH+DTCH_DCH (state 6-10) or CS-DCCH+DTCH_DCH (state 6-9) or PS+CS-DCCH+DTCH_DCH (state 6-14) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports Compressed mode.
- UE supports Neighbour Cell SI acquisition capability.
- UE supports the capability of inter-frequency SI acquisition for HO.

Test Procedure

Table 8.3.12.2-1 illustrates the downlink power to be applied for the 3 cells.

Table 8.3.12.2-1

Parameter	Unit	Cell 1		Cell 4		Cell5	
Test Channel		1		2		3	
		T0	T1	T0	T1	T0	T1
CPICH Ec	dBm/3.84 MHz	-60	-70	-60	-55	-60	-80

The three cells are all active. The UE is initially in CELL_DCH and has a radio bearer with the cell1.

At instant T0, the downlink is changed according to what is shown in table 8.3.12.1 -1. The SS then activates the UE to detect the CSG proximity by sending a MEASUREMENT CONTROL message to the UE. The UE shall answer the CSG proximity indication to the cell1.

The SS sends MEASUREMENT CONTROL with 1c event to enable the CSG VAS active set in the UE.

The SS configures then compressed mode (if required), to prepare the UE for inter-frequency measurements, by sending a PHYSICAL CHANNEL RECONFIGURATION message on DCCH using AM-RLC. The UE shall answer with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

The SS then sets up inter-frequency measurements (event 2b), by sending a MEASUREMENT CONTROL message to the UE. Compressed mode is started at the same time in that message (if required).

At instant T1, the downlink power is changed according to what is shown in table 8.3.12.1 -1. The UE shall thus send a MEASUREMENT REPORT with 2b event to the SS.

The SS then sets up SI acquisition of cell 4 by sending a MEASUREMENT CONTROL message to the UE. Compressed mode is started at the same time in that message (if required). And then the UE shall answer the cell identity, CSG ID and CSG membership indication of the cell 4.

Independent of the UE requiring compressed mode, the SS then continues by sending a PHYSICAL CHANNEL RECONFIGURATION message to the UE on DCCH using AM-RLC, to order it to perform timing reinitialised inter-frequency handover to cell4.

The UE shall then transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS when the inter-frequency handover has succeeded. In case the initial condition was CS-DCCH+DTCH_DCH, that message shall contain the IEs "COUNT-C activation time" and the IE "START list" (in the IE "Uplink counter synchronisation info"), indicating to the SS when and from which value to start incrementing the HFN part of the COUNT-C variable used for ciphering.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The SS changes the power of the cell1 and cell4 according to column T0 in table 8.3.12.2-1
2	←		MEASUREMENT CONTROL	The SS configures a measurement with detecting the CSG proximity to the UE.
3	→		MEASUREMENT REPORT	UE sends a report with the CSG proximity indication to the SS. The message includes the RAT and frequency of the cell4.
4	←		MEASUREMENT CONTROL	The SS configures a measurement with 1c event. The cell information is set to the same as the cell1.
6	←		PHYSICAL CHANNELRECONFIGURATION	SS instructs UE to begin compressed mode operation. (for FDD only)
7	→		PHYSICAL CHANNELRECONFIGURATION COMPLETE	(for FDD only)
5	←		MEASUREMENT CONTROL	The SS configures a measurement to measure cells. The message includes the PSC range ,the compressed mode gaps and the parameters of the event 2b.
8				SS re-adjusts the downlink transmission power settings of the cell4 according to columns "T1" in table 8.3.12.2-1.
9	→		MEASUREMENT REPORT	The UE sends a measurement report including the measured PSCs for cell 4 and event 2b.
10	←		MEASUREMENT CONTROL	The SS configures the UE to perform SI acquisition and reporting of cell 4.
11				The UE performs SI acquisition to acquire the relevant system information from the cell4.
12	→		MEASUREMENT REPORT	The UE sends a measurement reporting including the cell identity, CSG ID and CSG membership indication of the cell 4.
13	←		PHYSICAL CHANNEL RECONFIGURATION	The SS orders the UE to perform timing re-initialised inter-frequency handover to cell 4.
14	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	After the UE has succeeded in performing the inter-frequency handover, it shall send a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS using the new configuration
15	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

MEASUREMENT CONTROL (Step 2)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions

Information Element	Value/remark
Measurement Identity	1
Measurement Command	Setup
CHOICE Measurement type	
- CSG Proximity detection	enable

MEASUREMENT REPORT (Step 3)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured results	Check to see if it is absent
Additional measured results	Check to see if it is absent
CSG Proximity Indication	
- CSG Proximity Indication	entering

MEASUREMENT CONTROL (Step 4)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions

Information Element	Value/remark
Measurement identity	2
Measurement command	Setup
CHOICE measurement type	Intra-frequency measurement
- intra-frequency measurement	
- Intra-frequency measurement objects list	
- Cells for measurement	
- Intra-frequency cell id	Set to same code as used for cell 1
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Intra-frequency measurement reporting criteria	
- Parameters required for each events	
- Intra-frequency event identity	1c
- Hysteresis	4 (2dB)
- Replacement activation threshold	3
- Time to trigger	10 ms
- Amount of reporting	16
- Reporting interval	4000ms
- Reporting cell status	Not present

PHYSICAL CHANNEL RECONFIGURATION (Step 5)

Use the same message sub-type found in TS 34.108, clause 9.

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Step 6)

Use the same message sub-type found in TS 34.108, clause 9.

MEASUREMENT CONTROL (Step 7)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions

Information Element	Value/remark
Measurement identity	3
Measurement command	Setup
CHOICE Measurement type	
- Inter-frequency measurement objects list	
- New inter-frequency cells	
- Inter-frequency cell id	Set to same code as used for cell 5
- Frequency info	Set to same code as used for cell 5
- cell info	
- Cell individual offset	Set to same code as used for cell 5
- Read SFN indicator	Set to same code as used for cell 5
- CHOICE mode	
-FDD	
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for cell 4(144)
-Inter-frequency measurement	
- Measurement validity	CELL_DCH state
- CHOICE report criteria	
- Inter-frequency measurement reporting criteria	
- Parameters required for each event	
- Inter-frequency event identity	2b
- Threshold used frequency	-65dBm
- W used frequency	0.0
- Hysteresis	2(1dB)
- Parameters required for each non-used frequency	
- Threshold non used frequency	-68 dBm
- W non used frequency	0

MEASUREMENT REPORT (Step 9)

Information Element	Value/remark
Measurement identity	Check to see if set to 3
Measured results	Check to see if it is absent
Additional measured results	Check to see if it is absent
Event results	Inter-frequency measurement event results,
- CHOICE event result	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	Set to same code as used for cell 4
- Non frequency related measurement event results	
- CHOICE mode	
- FDD	
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 4(144)

MEASUREMENT CONTROL (Step 10)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Measurement Identity	4
Measurement Command	Setup
CHOICE Measurement type	
- Inter-frequency measurement	
- Inter-frequency measurement objects list	
- Cells for measurement	
- Inter-frequency cell id	Set to same code as used for cell 4
- Inter-frequency SI Acquisition	
- Frequency info	Set to same code as used for cell 4
- CHOICE mode	
- FDD	
- Primary scrambling code	Set to same code as used for cell 4(144)
- CHOICE report criteria	
- Periodical reporting criteria	
- Amount of reporting	1
- Reporting interval	3240ms

MEASUREMENT REPORT (Step12)

Information Element	Value/remark
Measurement identity	Check to see if set to 4
Measured results	Check to see if it is absent
Additional measured results	Check to see if it is absent
Measured Results	
-CHOICE Measurement	
- Inter-frequency measured results list	
- Inter-frequency measurement results	
- Frequency info	Set to the Default
- Inter-frequency cell measurement results	
- Cell measured results	
- Cell Identity	Set to same code as used for cell 4
- CSG Identity	Set to same code as used for cell 4(2)
- CSG Member indication	member
- CHOICE mode	
- FDD	
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 4(144)

PHYSICAL CHANNEL RECONFIGURATION (Step 13)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/Remark
RRC State indicator	CELL_DCH
Frequency info	
- CHOICE mode	
- FDD	
- UARFCN downlink (Nd)	UARFCN for the downlink corresponding to cell4
Downlink information common for all radio links	
- CHOICE DPCH info	
- Downlink DPCH info common for all RL	
- Timing indication	Initialise
Downlink information per radio link list	1 radio link
- Downlink information for each radio link	
- CHOICE mode	
- FDD	
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for cell 4(144)

8.3.12.2.5 Test requirement

At step 3, the UE sends CSG proximity indication to the cell1.

At step 9, the UE sends 2b event to the cell1.

At step 12, The UE sends a measurement reporting including the cell identity, CSG ID and CSG membership indication of the cell 4 within 3240ms.

8.3.12.3 Inter-frequency inbound handover to UMTS CSG cell with non-member UE

8.3.12.3.1 Definition

Test to verify the UE can report the Cell Identity, CSG ID and CSG membership indication of a non-member CSG cell to the SRNC in the measurement report.

8.3.12.3.2 Conformance requirement

1: Inter-frequency measurements for CSG/Hybrid cells:

For each cell reported in the IE "Cell measured results" of an inter-frequency Measurement Report, which is also included in the IE "Inter-frequency SI Acquisition" associated with the measurement:

1> if the UE managed to acquire the system information of the concerned cell:

2> include the following IEs in the IE "Cell measured results":

3> "Cell Identity" IE;

3> if the concerned cell broadcasts a CSG identity:

4> "CSG Identity" IE.

4> "CSG Member indication" IE and set it to "member" if CSG identity of the concerned cell is present in UE's CSG whitelist.

If the UE needs measurement gaps to read the system information on the non-used frequency, the system information of the reported cell can be acquired by the UE via autonomous measurement gaps when the IE "Inter-frequency SI Acquisition" is received by the UE, i.e., UE is allowed to temporarily abort communication with the serving cell to perform SI acquisition within the limits (detailed value is FFS). UE shall send the measurement report before the maximum provided time specified in IE "Periodical reporting criteria" if the UE is able to acquire SI early.

2: Inter-frequency Measurement Procedure of CSG and Hybrid cells:

1) The SRNC configures the UE with a measurement having "CSG Proximity detection" as measurement type.

2) The UE sends an "entering" CSG proximity indication when it determines it may be near a cell, (based on UE implementation) whose CSG ID is in the UE's CSG whitelist. The CSG proximity indication includes the RAT and frequency of the cell.

3) The SRNC configures a measurement on the concerned frequency/RAT to measure CSG/hybrid cells. Compressed mode gaps, if required by the UE, are also activated to allow UE to perform measurements on the reported RAT and frequency. The network may also use the proximity indication to minimize the requesting of handover preparation information of CSG/hybrid cells by avoiding requesting such information when the UE is not in the geographical area where cells whose CSG IDs are in the UEs CSG whitelist are located.

4) The UE sends a measurement report including the measured PSCs/PCIs.

5) The SRNC configures the UE to perform SI acquisition and reporting of a particular PSC/PCI.

6) The UE performs SI acquisition using autonomous gaps, i.e., the UE may suspend reception and transmission with the SRNC within the limits (the limit is currently FFS) to acquire the relevant system information from the target HNB/HeNB.

7) The UE sends a measurement report including Cell Identity, CSG ID and CSG membership indication.

8) SRNC can then proceed with the handover processing. The handover processing for inter-frequency handover to a CSG/Hybrid cell is described in [6].

NOTE: The above steps also apply to inter-RAT mobility from UMTS cell to HeNB.

After sending an "entering" CSG proximity indication (step 2), if the UE determines that it is no longer near any cell (on the reported proximate RAT and frequency) whose CSG ID is in the UE's CSG whitelist, the UE sends a "leaving" CSG proximity indication to the SRNC. Upon reception of this indication, the SRNC may reconfigure the UE to stop measurements on the reported RAT and frequency.

In the above procedure, step 2 may not be performed in case the UE has not previously visited the HNB, e.g., when the UE first visits a CSG/hybrid cell.

The PSC/PCI confusion is resolved by steps 5, 6 and 7. The SRNC can request SI acquisition and reporting for any PSC/PCI, not limited to PSCs/PCIs of CSG or hybrid cells.

3: The CSG SI acquisition delay is defined as the time between any occurrences that will trigger a SI decoding until the UE starts to transmit over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. The measurement reporting delay also excludes any RRC procedure delay which is defined in [16] when SI reading is initiated by a measurement control message.

For intra frequency CSG cells, CSG SI decoding is typically triggered when a cell with primary scrambling code in a preconfigured range meets the criteria for measurement reporting. For inter frequency CSG cells, CSG SI decoding is explicitly requested by RRC signalling.

The CSG SI reporting delay shall not be more than $T_{CSG\text{-}SI\text{-}Report}$ where $T_{CSG\text{-}SI\text{-}Report}$ in ms is given by

$$T_{CSG\text{-}SI\text{-}Report} = [630] + 40*SIB3\_REP$$

SIB3_REP is the repetition period at which the CSG cell schedules SIB3 blocks in units of frames

This requirement is applicable for CSG target cell configurations where the information required to make the SI report can be determined from the MIB and SIB3 alone, and SIB3 is not segmented into multiple TTI. Additionally, for the requirement to be applicable, the reception conditions shall be [TBD] such that the system frame number of the target CSG cell, the MIB and SIB3 can each be successfully decoded in no more than four attempts.

Test requirement = RRC Procedure delay + $T_{CSG\text{-}SI\text{-}Report}$

Reference

1: 3GPP TS 25.331 clause 14.7a.2.

2: 3GPP TS 25.367, clause 8.1.2.

3: 3GPP TS 25.133, clause 5.13.2, A.5.11.2.

8.3.12.3.3 Test purpose

1. To confirm that the UE can report the measurement report with non-member indication of the CSG cells to the SRNC.

8.3.12.3.4 Method of test

Initial Condition

System Simulator:

2cells: Cell 1, cell 4 are used.

The CSG id of the Cell4 is 2. Cell 1 does not broadcast CSG ID.

The SIB3_REP of cell 4, i.e., SIB3 scheduling is 64.

User Equipment:

The UE Allowed CSG List does not contain CSG2.

The UE is PS-DCCH+DTCH_DCH (state 6-10) or CS-DCCH+DTCH_DCH (state 6-9) or PS+CS-DCCH+DTCH_DCH (state 6-14) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports Compressed mode.
- UE supports Neighbour Cell SI acquisition capability.
- UE supports the capability of inter-frequency SI acquisition for HO.

Test Procedure

Table 8.3.12.3-1 illustrates the downlink power to be applied for the 2 cells.

Table 8.3.12.3-1

Parameter	Unit	Cell 1		Cell 4			
Test Channel		1		2			
		T0	T1	T0	T1		
CPICH Ec	dBm/3.84 MHz	-60	-70	OFF	-55		

Cell 1 is active. The UE is initially in CELL_DCH and has a radio bearer with the cell1.

At instant T0, the downlink is changed according to what is shown in table 8.3.12.1 -1. The SS sends MEASUREMENT CONTROL with 1c event required for construction of the CSG VAS active set in the UE.

The SS configures then compressed mode (if required), to prepare the UE for inter-frequency measurements, by sending a PHYSICAL CHANNEL RECONFIGURATION message on DCCH using AM-RLC. The UE shall answer with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

The SS then sets up CSG inter-frequency measurements (event 2b), by sending a MEASUREMENT CONTROL message to the UE.

At instant T1, the downlink power is changed according to what is shown in table 8.3.12.1 -1. The UE shall thus send a MEASUREMENT REPORT with 2b event to the SS.

The SS then sets up SI acquisition of cell 4 by sending a MEASUREMENT CONTROL message to the UE. And then the UE shall report the cell identity, CSG ID and CSG membership indication of the cell 4.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The SS changes the power of the two cells according to column T0 in table 8.3.12.3-1
2	←		MEASUREMENT CONTROL	Cell1 configures a measurement with 1c event. The cell information is set to the same as the cell1.
3	←		PHYSICAL CHANNELRECONFIGURATION	SS instructs UE to begin compressed mode operation. (for FDD only)
4	→		PHYSICAL CHANNELRECONFIGURATION COMPLETE	(for FDD only)
5	←		MEASUREMENT CONTROL	The SS configures a measurement to measure cells. The message includes the PSC range the compressed mode gaps and the parameters of the event 2b.
6				SS re-adjusts the downlink transmission power settings of the two cells according to columns "T1" in table 8.3.12.3-1.
7	→		MEASUREMENT REPORT	The UE sends a measurement report including the measured PSCs for cell 4 and event 2b to cell 1.
8	←		MEASUREMENT CONTROL	The SS configures the UE to perform SI acquisition and reporting of cell 4.
9				The UE performs SI acquisition to acquire the relevant system information from the cell4.
10	→		MEASUREMENT REPORT	The UE sends a measurement reporting including the cell identity, CSG ID and CSG membership indication of the cell 4 within 4000ms.
11	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

MEASUREMENT CONTROL (Step 2)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions

Information Element	Value/remark
Measurement identity	2
Measurement command	Setup
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
CHOICE measurement type	Intra-frequency measurement
- intra-frequency measurement	
- Intra-frequency measurement objects list	
- Remove all intra-frequency cells	
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 (0dB)
- Reference time difference to cell	Not Present
- Read SFN number	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	100
- Primary CPICH Tx power	Not Present
- TX Diversity indicator	FALSE
- Intra-frequency measurement quantity	
- Filter Coefficient	0
- CHOICE mode	
- FDD	
- Measurement quantity	CPICH RSCP
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Intra-frequency measurement reporting criteria	
- Parameters required for each events	
- Intra-frequency event identity	1c
- Hysteresis	4 (2dB)
- Replacement activation threshold	3
- Time to trigger	10 ms
- Amount of reporting	16
- Reporting interval	4000ms
- Reporting cell status	Not present

PHYSICAL CHANNEL RECONFIGURATION (Step 3)

Use the same message sub-type found in Annex A, which is entitled "(Packet to CELL_DCH from CELL_DCH in PS)", with the following exceptions in the IE(s) concerned:

Information Element	Value/remark	Version
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing Indication	Maintain	
- Downlink DPCH power control information		
- DPC mode	0 (Single)	
- CHOICE Mode	FDD	
- Power offset PPilot-DPDCH	0	
- DL rate matching restriction information	Not present	
- Spreading factor	Refer to the parameter set in TS 34.108	
- Fixed or flexible position	Flexible	
- TFCI existence	TRUE	
- Number of bits for Pilot bits (SF=128, 256)	Not present	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS status flag	Activate	
- TGCFN	(Current CFN+(256 – TTI/10msec)) mod 256	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not Present	
- TGD	Undefined	
- TGPL1	3	
- TGPL2	Not Present	R99 and Rel-4 only
- RPP	Mode 0	
- ITP	Mode 0	
- CHOICE UL/DL mode	UL and DL or DL only or UL only depending on UE capability	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2 or Not present depending on UE capability	
- Downlink frame type	A	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not present	
- DeltaSIRAfter2	Not present	
- N identify abort	Not present	
- T Reconfirm abort	Not present	
- TX diversity mode	None	
- SSDT information	Not present	R99 and Rel-4 only
- Default DPCH offset value	Not present	

MEASUREMENT CONTROL (Step 5)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions

Information Element	Value/remark
Measurement identity	3
Measurement command	Setup
Measurement reporting mode	
- Measurement reporting transfer mode	Unacknowledged Mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
CHOICE Measurement type	
-Inter-frequency measurement	
- Inter-frequency measurement objects list	
- Inter-frequency cell removal	Not Present
- New inter-frequency cells	
- Inter-frequency cell id	1
- Frequency info	Frequency information of cell 4
- cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	
-FDD	
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for cell 4
- Primary CPICH Tx power	Not present
- TX Diversity Indicator	FALSE
- Cell for measurement	Not present
- CSG Inter-frequency cell info	
- CSG Frequency info	
- Frequency info	Frequency of Cell 4
- CSG Inter-frequency cell info for the frequency	
- CSG cell info list	
- CHOICE *mode*	FDD
- Start PSC	300
- Number of PSCs	100
- Inter-frequency SI Acquisition	Not present
- Inter-frequency measurement quantity	
- Filter Coefficient	4
- Frequency quality estimate quantity	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRAN Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement validity	CELL_DCH state
- Inter-frequency set update	
- UE autonomous update mode	On with no reporting
- CHOICE report criteria	
- Inter-frequency measurement reporting criteria	
- Parameters required for each event	
- Inter-frequency event identity	2b
- Threshold used frequency	-65dBm
- W used frequency	0.0
- Hysteresis	2(1dB)
- Time to trigger	0 mSec
- Reporting cell status	Not present
- Parameters required for each non-used frequency	
- Threshold non used frequency	-68 dBm
- W non used frequency	0
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 7)

Information Element	Value/remark
Measurement identity	Check to see if set to 3
Measured results	Check to see if it is absent
Additional measured results	Check to see if it is absent
Event results	Inter-frequency measurement event results,
- CHOICE event result	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	Set to same frequency as used for cell 4
- Non frequency related measurement event results	
- CHOICE mode	
- FDD	
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 4

MEASUREMENT CONTROL (Step 8)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Measurement Identity	4
Measurement Command	Setup
CHOICE Measurement type	
- Inter-frequency measurement	
- Inter-frequency measurement objects list	
- Inter-frequency SI Acquisition	
- Frequency info	Set to same frequency as used for cell 4
- CHOICE mode	
- FDD	
- Primary scrambling code	Set to same scrambling as used for cell 4
- Inter-frequency measurement quantity	
- Filter Coefficient	4
- Frequency quality estimate quantity	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRAN Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- CHOICE report criteria	
- Periodical reporting criteria	
- Amount of reporting	1
- Reporting interval	4000ms
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step10)

Information Element	Value/remark
Measurement identity	Check to see if set to 4
Measured results	Check to see if it is absent
Additional measured results	Check to see if it is absent
Measured Results	
-CHOICE Measurement	
- Inter-frequency measured results list	
- Inter-frequency measurement results	
- Frequency info	Set to the frequency of cell 4
- Inter-frequency cell measurement results	
- Cell measured results	
- Cell Identity	Set to 28-bit Cell identity as used for cell 4
- CSG Identity	Set to same code as used for cell 4(2)
- CSG Member indication	Not present
- CHOICE mode	
- FDD	
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 4
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent

8.3.12.3.5 Test requirement

At step 7, the UE sends 2b event for cell 4 to cell1.

At step 10, The UE sends a measurement reporting including the cell identity, CSG ID and CSG membership(non-member) indication (which should be absent) of the cell 4 within 4000ms.

8.3.12.4 Intra-frequency inbound handover to UMTS CSG cell without specifying PSCs for SI Acquisition

8.3.12.4.1 Definition

Test to verify the UE can report the PSC, Cell Identity, CSG ID and CSG membership indication of intra-frequency CSG cells.

8.3.12.4.2 Conformance requirement

1.Intra-frequency measurements for CSG/Hybrid cells

For each cell reported in the IE "Cell measured results" of an intra-frequency Measurement Report, which is also included in the IE "Intra-frequency SI Acquisition" associated with the measurement:

1> if the UE managed to acquire the valid system information of the concerned cell:

2> include the following IEs in the IE "Cell measured results":

3> "Cell Identity" IE.

3> if the concerned cell broadcasts a CSG identity:

4> "CSG Identity" IE.

4> "CSG Member indication" IE and set it to "member" if the concerned cell is CSG member cell.

The system information of the reported cell(s) can be acquired by the UE without any measurement gaps.

2: Intra-frequency Measurement Procedure of CSG and Hybrid cells:

1) The SRNC configures the UE with a measurement having "CSG Proximity detection" as measurement type.

2) The UE sends an "entering" CSG proximity indication when it determines it may be near a cell, (based on UE implementation) whose CSG ID is in the UE's CSG whitelist.

3) If a measurement configuration for CSG/hybrid cells is not present, the SRNC configures the UE with relevant measurement configuration which includes the PSCs that the UE must measure and the PSCs for which SI acquisition should be performed. The network may use the CSG proximity indication for intra-frequency case to minimize the time during which measurements for CSG/hybrid cells are configured.

4) The UE sends a measurement report including the measured PSC, Cell Identity, CSG ID and CSG membership indication of the target HNB to the SRNC (e.g., due to a triggered intra-frequency event 1d). The UE can acquire MIB and SIB3/SIB4 of intra-frequency target HNB cells in parallel with reception of the serving cell transmissions in CELL_DCH. No measurement gaps are required for reading MIB and SIB3/SIB4.

5) SRNC can then proceeds with the handover processing as described in [6].

After sending an "entering" CSG proximity indication (step 2), if the UE determines that it is no longer near any cell (on the reported proximate RAT and frequency) whose CSG ID is in the UE's CSG whitelist, the UE sends a "leaving" CSG proximity indication to the SRNC. Upon reception of this indication, the SRNC may reconfigure the UE to stop measurements configured.

The PSC confusion is resolved by steps 3 and 4. The SRNC can request SI acquisition and reporting for any PSC, not limited to PSCs of CSG or hybrid cells.

Reference

1: 3GPP TS 25.331 v9.8 , clause 14.7a.1.

2: 3GPP TS 25.367 v9.5, clause 8.1.1.

8.3.12.4.3 Test purpose

1. To confirm that the UE can report the PSC of intra-frequency CSG cells.

2. To confirm that the UE can report the Cell Identity, CSG ID and CSG membership indication of intra-frequency CSG cells.

8.3.12.4.4 Method of test

Initial Condition

System Simulator:

Cell1 is active.

Cell1 is a macro cell.

Cell2 is a CSG cell.

The CSG indicator of the cell2 is set to TRUE.

The CSG id of the Cell2 is 2.

The PSC of the cell 2 is 144.

User Equipment:

The UE Allowed CSG List contains CSG2.

The UE is PS-DCCH+DTCH_DCH (state 6-10) or CS-DCCH+DTCH_DCH (state 6-9) or PS+CS-DCCH+DTCH_DCH (state 6-14) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports the capability of intra-frequency SI acquisition for HO.
- UE supports the capability of intra-frequency proximity indication.

Test Procedure

Table 8.3.12.4-1 illustrates the downlink power to be applied for the 2 cells.

Table 8.3.12.4-1

Parameter	Unit	Cell 1			Cell 2		
Test Channel		1			2		
		T0	T1	T2	T0	T1	T2
CPICH Ec	dBm/3.84 MHz	-55	-55	-70	OFF	-70	-55

The UE is initially in cell_DCH state and has a radio bearer with the cell1. The initial condition is set as the instant T0 shown in table 8.3.12.4 -1.

The SS activates the UE to detect the CSG proximity by sending a MEASUREMENT CONTROL message to the UE.

At instant T1, the downlink is changed according to what is shown in table 8.3.12.4 -1. The UE shall answer the CSG proximity indication to the cell1.The SS then sets up intra-frequency measurements (event 1d), by sending a MEASUREMENT CONTROL message to the UE.

At instant T2, the downlink power is changed according to what is shown in table 8.3.12.4 -1. The UE shall thus send a MEASUREMENT REPORT with 1d event to the SS.

The SS sends ACTIVE SET UPDATE to the UE and commands the UE adds cell2 to the active set.

The UE shall then adds the cell2 to the active set and handover to the cell2.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The initial condition is set as T0 in table8.3.12.4-1.
2	←		MEASUREMENT CONTROL	The SS configures a measurement with detecting the CSG proximity to the UE.
3				The SS re-adjusts the downlink transmission power settings of the cell1 according to columns "T1" in table 8.3.12.4-1.
4	→		MEASUREMENT REPORT	The UE sends a report with the CSG proximity indication to the SS. The message includes the RAT and frequency of the cell2.
5	←		MEASUREMENT CONTROL	The SS configures a measurement to the UE. Event 1d is configured.
6				The SS re-adjusts the downlink transmission power settings of the cell1 according to columns "T2" in table 8.3.12.4-1.
7	→		MEASUREMENT REPORT	The UE sends 1d event to the SS. The report includes the PSC, the cell identity, CSG ID and CSG membership indication of the cell 2.
8	←		ACTIVE SET UPDATE	The SS commands the UE to add cell 2 in active set.
9				The UE adds the cell2 to the active set and handover to the cell2.
10	→		ACTIVE SET UPDATE COMPLETE	
11	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

MEASUREMENT CONTROL (Step 2)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions

Information Element	Value/remark
Measurement Identity	1
Measurement Command	Setup
CHOICE Measurement type	
- CSG Proximity detection	
- UTRA CSG Proximity detection	enable

MEASUREMENT REPORT (Step 4)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured results	Check to see if it is absent
Additional measured results	Check to see if it is absent
CSG Proximity Indication	
- CSG Proximity Indication	entering
- CHOICE *Radio Access Technology*	
- UTRA	
- CSG Frequency info for UTRA	
- CHOICE mode	
- FDD	
- UARFCN uplink (Nu)	The same as the cell2
- UARFCN downlink (Nd)	The same as the cell2

MEASUREMENT CONTROL (Step 5)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Measurement identity	2
Measurement command	Setup
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
CHOICE measurement type	
- Intra-frequency measurement	
- Intra-frequency cell info list	
- CSG Intra-frequency cell info	
- CSG Intra-frequency cell info	
- CSG cell info list	1
- Choice mode	
- FDD	
- Start PSC	
- Primary scrambling code	144
- Number of PSCs	5
- Intra-frequency SI Acquisition	
- CHOICE mode	
- FDD	For all PSC ranges specified in the "CSG Intra-frequency cell info" IE.
- Intra-frequency measurement quantity	
- Filter Coefficient	0
- CHOICE mode	
- FDD	
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	
- FDD	
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	
- FDD	
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Measurement validity	CELL_DCH state
- CHOICE report criteria	
- Intra-frequency measurement reporting criteria	
- Parameters required for each event	
- Intra-frequency event identity	1d
- Hysteresis	4(2dB)
- Time to trigger	
- Time to trigger	10 mSec

MEASUREMENT REPORT (Step 7)

Information Element	Value/remark
Measurement identity	Check to see if set to 2
Measured Results	Check to see if it is absent
- CHOICE *Measurement*	
-Intra-frequency measured results list	
-Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	The same as the cell2
- CSG Identity	2
- CSG Member indication	member
- CHOICE *mode*	
-FDD	
- Primary CPICH info	
- Primary scrambling code	144(The same as the cell2)
Event results	Intra-frequency measurement event results,
- Intra-frequency measurement event results	
- Intra-frequency event identity	
- Intra-frequency event identity	1d
- Cell measurement event results	
- CHOICE *mode*	
-FDD	
- Primary CPICH info	
- Primary scrambling code	144(The same as the cell2)

ACTIVE SET UPDATE (Step 8)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Radio link addition information	
- Radio link addition information	
- Primary CPICH info	
- Primary scrambling code	144(The same as the cell2)
- CHOICE *DPCH info*	
- Downlink DPCH info for each RL	
- CHOICE *mode*	
- FDD	
- Primary CPICH usage for channel estimation	
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Set to value: Default DPCH Offset Value (as currently stored in SS) mod 38 400
- DL channelisation code	
- Spreading factor	Reference to Parameter Set according to the clause 6.10 in TS 34.108
- Code number	0
- TPC combination index	
- TPC combination index	0
- Downlink F-DPCH info for each RL	
- Primary CPICH usage for channel estimation	
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- F-DPCH frame offset	Set to value: Default DPCH Offset Value (as currently stored in SS) mod 38 400
- Code number	0
- TPC combination index	
- TPC combination index	0
Serving Cell Change Parameters	
- Serving Cell Change MAC reset	TRUE
- Serving Cell Change Message Type	RadioBearerSetup
- Serving Cell Change Transaction Id	0

ACTIVE SET UPDATE COMPLETE (Step 10)

Use the same message sub-type found in TS 34.108, clause 9.

8.3.12.4.5 Test requirement

At step 4, the UE sends CSG proximity indication to the cell1.

At step 7, the UE sends 1d event to the cell1 including the psc, cell identity, CSG ID and CSG membership indication of the cell 2.

8.3.12.5 Intra-frequency inbound handover to UMTS CSG cell without reporting proximity indication

8.3.12.5.1 Definition

Test to verify the UE can report Cell Identity, CSG ID and CSG membership indication of intra-frequency CSG cells.

8.3.12.5.2 Conformance requirement

1.Intra-frequency measurements for CSG/Hybrid cells

For each cell reported in the IE "Cell measured results" of an intra-frequency Measurement Report, which is also included in the IE "Intra-frequency SI Acquisition" associated with the measurement:

1> if the UE managed to acquire the valid system information of the concerned cell:

2> include the following IEs in the IE "Cell measured results":

3> "Cell Identity" IE.

3> if the concerned cell broadcasts a CSG identity:

4> "CSG Identity" IE.

4> "CSG Member indication" IE and set it to "member" if CSG identity of the concerned cell is present in UE's CSG whitelist.

The system information of the reported cell(s) can be acquired by the UE without any measurement gaps.

2: Intra-frequency Measurement Procedure of CSG and Hybrid cells:

1) The SRNC configures the UE with a measurement having "CSG Proximity detection" as measurement type.

2) The UE sends an "entering" CSG proximity indication when it determines it may be near a cell, (based on UE implementation) whose CSG ID is in the UE's CSG whitelist.

3) If a measurement configuration for CSG/hybrid cells is not present, the SRNC configures the UE with relevant measurement configuration which includes the PSCs that the UE must measure and the PSCs for which SI acquisition should be performed. The network may use the CSG proximity indication for intra-frequency case to minimize the time during which measurements for CSG/hybrid cells are configured.

4) The UE sends a measurement report including the measured PSC, Cell Identity, CSG ID and CSG membership indication of the target HNB to the SRNC (e.g., due to a triggered intra-frequency event 1d). The UE can acquire MIB and SIB3/SIB4 of intra-frequency target HNB cells in parallel with reception of the serving cell transmissions in CELL_DCH. No measurement gaps are required for reading MIB and SIB3/SIB4.

5) SRNC can then proceeds with the handover processing as described in [6].

After sending an "entering" CSG proximity indication (step 2), if the UE determines that it is no longer near any cell (on the reported proximate RAT and frequency) whose CSG ID is in the UE's CSG whitelist, the UE sends a "leaving" CSG proximity indication to the SRNC. Upon reception of this indication, the SRNC may reconfigure the UE to stop measurements configured.

The PSC confusion is resolved by steps 3 and 4. The SRNC can request SI acquisition and reporting for any PSC, not limited to PSCs of CSG or hybrid cells.

Reference

1: 3GPP TS 25.331, clause 14.7a.1.

2: 3GPP TS 25.367, clause 8.1.1.

8.3.12.5.3 Test purpose

1. To confirm that the UE considers CSG Set as the monitored set for measurement and measurement reporting procedures of intra-frequency CSG cells.
2. To confirm that the UE can report the Cell Identity, CSG ID and CSG membership indication of intra-frequency CSG cells.

8.3.12.5.4 Method of test

Initial Condition

System Simulator:

Cell1 is active.

Cell1 is a macro cell.

Cell2 is a CSG cell.

The “CSG Indicator” in MIB of the cell2 is set to TRUE.

The “CSG Identity” in SIB3 of the Cell2 is 2. “CSG PSC Split Information” is also included in SIB3 with “Start PSC” set to 144 and “Number of PSCs” set to 10.

The PSC of the cell 2 is 150.

The SIB3_REP of cell 2 SIB3 scheduling is 64.

User Equipment:

The UE Allowed CSG List contains CSG2.

The UE is PS-DCCH+DTCH_DCH (state 6-10) or CS-DCCH+DTCH_DCH (state 6-9) or PS+CS-DCCH+DTCH_DCH (state 6-14) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports the capability “Support of intra-frequency SI acquisition for HO”.

Test Procedure

Table 8.3.12.5-1 illustrates the downlink power to be applied for the 2 cells.

Table 8.3.12.5-1

Parameter	Unit	Cell 1		Cell 2	
Test Channel		1		1	
		T0	T1	T0	T1
CPICH Ec	dBm/3.84 MHz	-55	-70	OFF	-55

The UE is initially in cell_DCH state and has a radio bearer with the cell1. The initial condition is set as the instant T0 shown in table 8.3.12.5 -1.

The SS then sets up intra-frequency measurements (event 1d), by sending a MEASUREMENT CONTROL message to the UE.

At instant T1, the downlink is changed according to what is shown in table 8.3.12.5 -1. The UE shall thus send a MEASUREMENT REPORT with 1d event to the SS.

The SS configures the PSC range for SI acquisition to UE. The UE acquires the SI of the cell2 and sends it to the SS with the cell identity, CSG ID and membership indication.

The UE shall handover to the cell2.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The initial condition is set as T0 in table8.3.12.5-1.
2	←		MEASUREMENT CONTROL	The SS configures a measurement to the UE. Event 1d is configured.
3				The SS re-adjusts the downlink transmission power settings of the cell1 and Cell 2 according to columns "T1" in table 8.3.12.5-1.
4	→		MEASUREMENT REPORT	The UE sends a 1d event with the PSC of cell2.
5	←		MEASUREMENT CONTROL	The SS configures the PSC range for SI acquisition.
6				The UE acquires the SI of the cell2.
7	→		MEASUREMENT REPORT	The UE reports the cell identity, CSG ID and CSG membership indication of the cell 2.
8	←		PHYSICAL CHANNEL RECONFIGURATION	The SS orders the UE to perform timing re-initialised intra-frequency handover to cell 2.
9	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	After the UE has succeeded in performing the intra-frequency handover, it shall send a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS using the new configuration
10	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

MEASUREMENT CONTROL (Step 2)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Measurement identity	1
Measurement command	Setup
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
CHOICE measurement type	
- Intra-frequency measurement	
- Intra-frequency cell info list	
- Remove all intra-frequency cells	
- New intra-frequency cells	
- Intra-frequency cell-id	
- Cell info	1
- Cell individual offset	0 (0dB)
- Reference time difference to cell	Not Present
- Read SFN number	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	100
- Primary CPICH Tx power	Not Present
- TX Diversity indicator	FALSE
- CSG Intra-frequency cell info	
- CSG Intra-frequency cell info	
- CSG cell info list	1
- Choice mode	
- FDD	
- Start PSC	
- Primary scrambling code	144
- Number of PSCs	10
- Intra-frequency measurement quantity	
- Filter Coefficient	0
- CHOICE mode	
- FDD	
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	
- FDD	
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	
- FDD	
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	Not Present
- Measurement validity	CELL_DCH state
- CHOICE report criteria	
- Intra-frequency measurement reporting criteria	
- Parameters required for each event	
- Intra-frequency event identity	1d
- Triggering condition 2	Monitored set cells
- Hysteresis	4(2dB)
- Time to trigger	
- Time to trigger	10 mSec
- Reporting cell status	
- CHOICE reported cell	Report cells within monitored set cells on used frequency
- Maximum number of reported cells	2

MEASUREMENT REPORT (Step 4)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity Measured Results - Intra-frequency measured results - Cell measured results - Cell Identity - Cell synchronisation information - Primary CPICH info - Primary scrambling code - CPICH Ec/N0 - CPICH RSCP - Pathloss Measured results on RACH Additional measured results Event results - Intra-frequency measurement event results - Intra-frequency event identity - Intra-frequency event identity - Cell measurement event results - CHOICE *mode* -FDD - Primary CPICH info - Primary scrambling code	Check to see if set to 1 Check to see if measurement results for Cell-2 are included and Cell-1 are not included. Checked that this IE is absent Checked that this IE is absent Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108 Checked that this IE is absent Checked that this IE is present Checked that this IE is absent Checked that this IE is absent Checked that this IE is absent Intra-frequency measurement event results, 1d 150(The same as the cell2)

MEASUREMENT CONTROL (Step 5)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Measurement Identity	2
Measurement Command	Setup
CHOICE Measurement type	
- Intra-frequency measurement	
- Intra-frequency cell info list	
- Intra-frequency SI Acquisition	
- CHOICE mode	
- FDD	
- Inter-frequency SI Acquisition info	
- Primary Scrambling code	
- Primary CPICH info	
- Primary Scrambling code	Set to same code as used for cell 2(150)
- Intra-frequency measurement quantity	
- Filter Coefficient	0
- CHOICE mode	
- FDD	
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for detected set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	
- FDD	
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	
- CHOICE reported cell	Report cells within detected set on used frequency
- Maximum number of reported cells	2
- Measurement validity	Not Present
- CHOICE report criteria	Periodical reporting criteria
- Amount of reporting	1
- Reporting interval	4000 msec

MEASUREMENT REPORT (Step 7)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	Check to see if set to 2
Measured Results	
- CHOICE *Measurement*	
-Intra-frequency measured results list	
-Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	The same as the cell2
- CSG Identity	2
- CSG Member indication	member
- CHOICE *mode*	
-FDD	
- Primary CPICH info	
- Primary scrambling code	150(The same as the cell2)
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	Check that this IE is absent

PHYSICAL CHANNEL RECONFIGURATION (Step 8)

Use the same contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case as found in TS 34.108, clause 9, with sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" with the following exceptions:

Information Element	Value/Remark
RRC State indicator	CELL_DCH
Frequency info	
- CHOICE mode	
- FDD	
- UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 2
- UARFCN downlink (Nd)	UARFCN for the downlink corresponding to cell2
Downlink information common for all radio links	
- CHOICE DPCH info	
- Downlink DPCH info common for all RL	
- Timing indication	Maintain
Downlink information for each radio links	
- CHOICE mode	FDD
- FDD	
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for cell 2(150)

8.3.12.5.5 Test requirement

At step 4, the UE sends event 1d with the information of the cell2.

At step 7, the UE sends cell identity, CSG ID and CSG membership indication of the cell2 within 4000 msec.

8.3.12.6 Intra-frequency inbound handover to UMTS CSG cell

8.3.12.6.1 Definition

Test to verify the UE can report the Cell Identity, CSG ID and CSG membership indication of intra-frequency CSG cells.

8.3.12.6.2 Conformance requirement

1 Intra-frequency measurements for CSG/Hybrid cells

For each cell reported in the IE "Cell measured results" of an intra-frequency Measurement Report, which is also included in the IE "Intra-frequency SI Acquisition" associated with the measurement:

1> if the UE managed to acquire the valid system information of the concerned cell:

2> include the following IEs in the IE "Cell measured results":

3> "Cell Identity" IE.

3> if the concerned cell broadcasts a CSG identity:

4> "CSG Identity" IE.

4> "CSG Member indication" IE and set it to "member" if the concerned cell is CSG member cell.

The system information of the reported cell(s) can be acquired by the UE without any measurement gaps.

2: Intra-frequency Measurement Procedure of CSG and Hybrid cells:

1) The SRNC configures the UE with a measurement having "CSG Proximity detection" as measurement type.

2) The UE sends an "entering" CSG proximity indication when it determines it may be near a cell, (based on UE implementation) whose CSG ID is in the UE's CSG whitelist.

3) If a measurement configuration for CSG/hybrid cells is not present, the SRNC configures the UE with relevant measurement configuration which includes the PSCs that the UE must measure and the PSCs for which SI acquisition should be performed. The network may use the CSG proximity indication for intra-frequency case to minimize the time during which measurements for CSG/hybrid cells are configured.

4) The UE sends a measurement report including the measured PSC, Cell Identity, CSG ID and CSG membership indication of the target HNB to the SRNC (e.g., due to a triggered intra-frequency event 1d). The UE can acquire MIB and SIB3/SIB4 of intra-frequency target HNB cells in parallel with reception of the serving cell transmissions in CELL_DCH. No measurement gaps are required for reading MIB and SIB3/SIB4.

5) SRNC can then proceeds with the handover processing as described in [6].

After sending an "entering" CSG proximity indication (step 2), if the UE determines that it is no longer near any cell (on the reported proximate RAT and frequency) whose CSG ID is in the UE's CSG whitelist, the UE sends a "leaving" CSG proximity indication to the SRNC. Upon reception of this indication, the SRNC may reconfigure the UE to stop measurements configured.

The PSC confusion is resolved by steps 3 and 4. The SRNC can request SI acquisition and reporting for any PSC, not limited to PSCs of CSG or hybrid cells.

Reference

1: 3GPP TS 25.331 v9.8, clause 14.7a.1.

2: 3GPP TS 25.367 v.9.5, clause 8.1.1.

8.3.12.6.3 Test purpose

1. To confirm that the UE can report an "entering" CSG proximity indication as the SRNC configured
2. To confirm that the UE can report the PSC of intra-frequency CSG cells.
3. To confirm that the UE can report the Cell Identity, CSG ID and CSG membership indication of intra-frequency CSG cells.

8.3.12.6.4 Method of test

Initial Condition

System Simulator:

Cell1 is active.

Cell1 is a macro cell.

Cell2 is a CSG cell.

The CSG indicator of the cell2 is set to TRUE.

The CSG id of the Cell2 is 2.

The PSC of the cell 2 is 144.

User Equipment:

The UE Allowed CSG List contains CSG2.

The UE is PS-DCCH+DTCH_DCH (state 6-10) or CS-DCCH+DTCH_DCH (state 6-9) or PS+CS-DCCH+DTCH_DCH (state 6-14) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports FDD

- UE supports the capability of intra-frequency SI acquisition for HO.
- UE supports the capability of intra-frequency proximity indication.

Test Procedure

Table 8.3.12.6-1 illustrates the downlink power to be applied for the 2 cells.

Table 8.3.12.6-1

Parameter	Unit	Cell 1			Cell 2		
Test Channel		1			2		
		T0	T1	T2	T0	T1	T2
CPICH Ec	dBm/3.84 MHz	-55	-55	-70	OFF	-60	-55

The UE is initially in cell_DCH state and has a radio bearer with the cell1. The initial condition is set as the instant T0 shown in table 8.3.12.6 -1.

The SS then activates the UE to detect the CSG proximity by sending a MEASUREMENT CONTROL message to the UE.

At instant T1, the downlink is changed according to what is shown in table 8.3.12.6 -1. The UE shall answer the CSG proximity indication to the cell1.The SS then sets up intra-frequency measurements (event 1d), by sending a MEASUREMENT CONTROL message to the UE.

At instant T2, the downlink power is changed according to what is shown in table 8.3.12.6 -1. The UE shall thus send a MEASUREMENT REPORT with 1d event to the SS with the PSC of the cell2.

The SS configures the PSC range for SI acquisition to UE. The UE acquires the SI of the cell2 and sends it to the SS with the cell identity, CSG ID and membership indication.

The SS sends ACTIVE SET UPDATE to the UE and commands the UE adds cell2 to the active set.

The UE shall then adds the cell2 to the active set and handover to the cell2.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The initial condition is set as T0 in table8.3.12.6-1.
2	←		MEASUREMENT CONTROL	The SS configures a measurement with detecting the CSG proximity to the UE.
3				The SS re-adjusts the downlink transmission power settings of the cell1 according to columns "T1" in table 8.3.12.6-1.
4	→		MEASUREMENT REPORT	The UE sends a report with the CSG proximity indication to the SS.
5	←		MEASUREMENT CONTROL	The SS configures a measurement to the UE. Event 1d is configured.
6				The SS re-adjusts the downlink transmission power settings of the cell1 according to columns "T2" in table 8.3.12.6-1.
7	→		MEASUREMENT REPORT	The UE sends a 1d event with the PSC of cell2.
8	←		MEASUREMENT CONTROL	The SS configures the PSC range for SI acquisition.
9				The UE acquires the SI of the cell2.
10	→		MEASUREMENT REPORT	The UE reports the cell identity, CSG ID and CSG membership indication of the cell 2.
11	←		ACTIVE SET UPDATE	The SS commands the UE to add cell 2 in active set.
12				The UE adds the cell2 to the active set and handover to the cell2.
13	→		ACTIVE SET UPDATE COMPLETE	
14	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

MEASUREMENT CONTROL (Step 2)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions

Information Element	Value/remark
Measurement Identity	1
Measurement Command	Setup
CHOICE Measurement type	
- CSG Proximity detection	
- UTRA CSG Proximity detection	enable

MEASUREMENT REPORT (Step 4)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured results	Check to see if it is absent
Additional measured results	Check to see if it is absent
CSG Proximity Indication	
- CSG Proximity Indication	entering
- CHOICE *Radio Access Technology*	
- UTRA	
- CSG Frequency info for UTRA	
- CHOICE mode	
- FDD	
- UARFCN uplink (Nu)	The same as the cell2
- UARFCN downlink (Nd)	The same as the cell2

MEASUREMENT CONTROL (Step 5)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Measurement identity	2
Measurement command	Setup
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
CHOICE measurement type	
- Intra-frequency measurement	
- Intra-frequency cell info list	
- CSG Intra-frequency cell info	
- CSG Intra-frequency cell info	
- CSG cell info list	1
- Choice mode	
- FDD	
- Start PSC	
- Primary scrambling code	144
- Number of PSCs	5
- Intra-frequency measurement quantity	
- Filter Coefficient	0
- CHOICE mode	
- FDD	
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	
- FDD	
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	
- FDD	
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Measurement validity	CELL_DCH state
- CHOICE report criteria	
- Intra-frequency measurement reporting criteria	
- Parameters required for each event	
- Intra-frequency event identity	1d
- Hysteresis	4(2dB)
- Time to trigger	
- Time to trigger	10 mSec

MEASUREMENT REPORT (Step 7)

Information Element	Value/remark
Measurement identity	Check to see if set to 2
Event results	Intra-frequency measurement event results,
- Intra-frequency measurement event results	
- Intra-frequency event identity	
- Intra-frequency event identity	1d
- Cell measurement event results	
- CHOICE *mode*	
-FDD	
- Primary CPICH info	
- Primary scrambling code	144(The same as the cell2)

MEASUREMENT CONTROL (Step 8)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Measurement Identity	2
Measurement Command	Setup
CHOICE Measurement type	
- Intra-frequency measurement	
- Intra-frequency measurement objects list	
- Intra-frequency SI Acquisition	
- CHOICE mode	
- FDD	
- Inter-frequency SI Acquisition info	
- Primary Scrambling code	
- Primary Scrambling code	Set to same code as used for cell 2(144)

MEASUREMENT REPORT (Step 10)

Information Element	Value/remark
Measurement identity	Check to see if set to 2
Measured Results	
- CHOICE *Measurement*	
-Intra-frequency measured results list	
-Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	The same as the cell2
- CSG Identity	2
- CSG Member indication	member
- CHOICE *mode*	
-FDD	
- Primary CPICH info	
- Primary scrambling code	144(The same as the cell2)

ACTIVE SET UPDATE (Step 11)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Radio link addition information	
- Radio link addition information	
- Primary CPICH info	
- Primary scrambling code	144(The same as the cell2)
- CHOICE *DPCH info*	
- Downlink DPCH info for each RL	
- CHOICE *mode*	
- FDD	
- Primary CPICH usage for channel estimation	
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Set to value: Default DPCH Offset Value (as currently stored in SS) mod 38 400
- DL channelisation code	
- Spreading factor	Reference to Parameter Set according to the clause 6.10 in TS 34.108
- Code number	0
- TPC combination index	
- TPC combination index	0
- Downlink F-DPCH info for each RL	
- Primary CPICH usage for channel estimation	
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- F-DPCH frame offset	Set to value: Default DPCH Offset Value (as currently stored in SS) mod 38 400
- Code number	0
- TPC combination index	
- TPC combination index	0
Serving Cell Change Parameters	
- Serving Cell Change MAC reset	TRUE
- Serving Cell Change Message Type	RadioBearerSetup
- Serving Cell Change Transaction Id	0

ACTIVE SET UPDATE COMPLETE (Step 13)

Use the same message sub-type found in TS 34.108, clause 9.

8.3.12.6.6 Test requirement

At step 4, the UE sends CSG proximity indication to the SS.

At step 7, the UE sends 1d event to the SS including the psc of the cell 2.

At step 10, the UE sends the cell identity, CSG ID and CSG membership indication of the cell 2 to the SS.

8.3.12.7 Intra-frequency Measurements for UMTS CSG Cell for Non-member UE

8.3.12.7.1 Definition

Test to verify that the UE can report the CSG ID and Cell Identity of the not-allowed intra-frequency CSG cell.

8.3.12.7.2 Conformance requirement

1. Intra-frequency measurements for CSG/Hybrid cells

For each cell reported in the IE "Cell measured results" of an intra-frequency Measurement Report, which is also included in the IE "Intra-frequency SI Acquisition" associated with the measurement:

1> if the UE managed to acquire the valid system information of the concerned cell:

2> include the following IEs in the IE "Cell measured results":

3> "Cell Identity" IE.

3> if the concerned cell broadcasts a CSG identity:

4> "CSG Identity" IE.

4> "CSG Member indication" IE and set it to "member" if CSG identity of the concerned cell is present in UE's CSG whitelist.

2. CSG/Hybrid Cell Intra-frequency Measurement Procedure

1) The SRNC configures the UE with a measurement having "CSG Proximity detection" as measurement type.

2) The UE sends an "entering" CSG proximity indication when it determines it may be near a cell, (based on UE implementation) whose CSG ID is in the UE's CSG whitelist.

3) If a measurement configuration for CSG/hybrid cells is not present, the SRNC configures the UE with relevant measurement configuration which includes the PSCs that the UE must measure and the PSCs for which SI acquisition should be performed. The network may use the CSG proximity indication for intra-frequency case to minimize the time during which measurements for CSG/hybrid cells are configured.

4) The UE sends a measurement report including the measured PSC, Cell Identity, CSG ID and CSG membership indication of the target HNB to the SRNC (e.g., due to a triggered intra-frequency event 1d). The UE can acquire MIB and SIB3/SIB4 of intra-frequency target HNB cells in parallel with reception of the serving cell transmissions in CELL_DCH. No measurement gaps are required for reading MIB and SIB3/SIB4.

5) SRNC can then proceeds with the handover processing as described in [6].

After sending an "entering" CSG proximity indication (step 2), if the UE determines that it is no longer near any cell (on the reported proximate RAT and frequency) whose CSG ID is in the UE's CSG whitelist, the UE sends a "leaving" CSG proximity indication to the SRNC. Upon reception of this indication, the SRNC may reconfigure the UE to stop measurements configured.

The PSC confusion is resolved by steps 3 and 4. The SRNC can request SI acquisition and reporting for any PSC, not limited to PSCs of CSG or hybrid cells.

Reference

1. TS 25.331 clause 14.7a.1

2. TS 25.367 clause 8.1.1

8.3.12.7.3 Test purpose

1. To confirm that the UE considers CSG Set as the monitored set for measurement and measurement reporting procedures of intra-frequency CSG cells.

2. To verify that the UE could report the Cell Identity and CSG ID of the not-allowed intra-frequency CSG cell.

8.3.12.7.4 Method of test

Initial conditions

1. There exist 2 cells: Cell 1 and 2 are active.

Cell 1 is macro cell.

Cell2 is a CSG cell.

The "CSG Indicator" in MIB of the cell2 is set to TRUE.

Cell 2 is a CSG HNB cell with the CSG ID of CSG 1. "CSG PSC Split Information" is also included in SIB3 with "Start PSC" set to 144 and "Number of PSCs" set to 10.

The Primary Scrambling Code of Cell 2 is 150.

The SIB3_REP of cell 2 SIB3 scheduling is 64.

2. UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

The UE's Allowed CSG List and the Operator CSG List are empty.

Related ICS/IXIT statement(s)

- UE supports FDD and CSG.
- UE supports the capability "Support of intra-frequency SI acquisition for HO".

Test Procedure

Table 8.3.12.7-1 illustrates the downlink power to be applied for the 3 cells.

Table 8.3.12.7-1

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
Test Channel		1		1	
CPICH Ec	dBm/3.84MHz	-60	-85	-90	-55

The two cells are all active. The UE is initially in CELL_DCH and has a radio bearer with the cell1.

SS configures its downlink transmission power settings according to columns "T0" in table 8.3.12.7-1. The SS configures the UE the PSC range of the intra-frequency HNB cells with a MEASUREMENT CONTROL message configuring event 1D "Change of best cell".

SS configures its downlink transmission power settings according to columns "T1" in table 8.3.12.7-1. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2.

After the MEASUREMENT REPORT message is received, the SS transmits to the UE a MEASUREMENT CONTROL message to configure the UE to read the SI of the cell 2. When the UE receives this message, the UE shall perform the SI acquisition of the cell 2 and transmits a MEASUREMENT REPORT message.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	SS			The SS actives the cell 1and cell 2 according to column T0 in table 8.3.12.7-1
2	←		MEASUREMENT CONTROL	The SS configures a measurement with 1d event and CSG Intra-frequency cell info.
3	SS			SS configures its downlink transmission power settings according to columns "T1" in table 8.3.12.7-1.
4	→		MEASUREMENT REPORT	The UE sends a measurement report including the measured PSC for cell 2 and event 1D.
5	←		MEASUREMENT CONTROL	The SS instructs the UE to perform SI acquisition of cell 2.
6	→		MEASUREMENT REPORT	The UE sends a measurement reporting including the Cell identity and CSG ID, not including the CSG membership indication of the cell 2.
7	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

All messages indicated below shall use the same content as described in default message content, with the following exceptions:

MEASUREMENT CONTROL (Step 2)

Use the same message in TS 34.108, clause 9, with the following exceptions

Information Element	Value/remark
Measurement identity	1
Measurement command	Setup
- CHOICE measurement type	Intra-frequency measurement
- Intra-frequency measurement	
- Intra-frequency cell info list	
- Intra-frequency cell removal	Not present
- New inter-frequency info list	
- Intra-frequency cell-id	
- Cell info	1
- Cell individual offset	0 (0dB)
- Reference time difference to cell	Not Present
- Read SFN number	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	100
- Primary CPICH Tx power	Not Present
- TX Diversity indicator	FALSE
- CSG Intra-frequency cell info	
- CSG cell info list	1
- Choice mode	FDD
- FDD	
- Start PSC	144
- Number of PSCs	10
- Intra-frequency measurement quantity	
- Filter Coefficient	0
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	Not present
- Measurement validity	CELL_DCH state
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Intra-frequency measurement reporting criteria	
- Parameters required for each events	
- Intra-frequency event identity	1D
- Triggering condition 2	Monitored set cells
- Hysteresis	4(2dB)
- Time to trigger	10 mSec
- Reporting cell status	
- CHOICE reported cell	Report cells within monitored set cells on used frequency
- Maximum number of reported cells	2

MEASUREMENT REPORT (Step 4)

Use the same message in TS 34.108, clause 9, with the following exceptions

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	Check to see if set to 1
Measured results	
- Intra-frequency measured results	Check to see if measurement results for Cell-2 are included and Cell-1 are not included.
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	Check to see if set to "Intra-frequency event results"
- Intra-frequency event identity	Check to see if set to "1D"
- Cell measurement event results	
- Primary scrambling code	Check to see if set to "Primary scrambling code of Cell 2"

MEASUREMENT CONTROL (Step 5)

Use the same message in TS 34.108, clause 9, with the following exceptions

Information Element	Value/remark
Measurement identity	2
Measurement command	Setup
- CHOICE measurement type	Intra-frequency measurement
- Intra-frequency measurement	
- Intra-frequency cell info list	
- Intra-frequency cell removal	Not present
- New inter-frequency info list	Not present
- Intra-frequency SI Acquisition	
- Choice mode	FDD
- FDD	
- Intra-frequency SI acquisition Info	
- Primary Scrambling Code	Set to same code as used for cell 2(150)
- Intra-frequency measurement quantity	
- Filter Coefficient	0
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	
- CHOICE reported cell	Report cells within detected set on used frequency
- Maximum number of reported cells	2
- Measurement validity	Not present
- CHOICE report criteria	Periodical reporting criteria
- Amount of reporting	1
- Reporting interval	4000 msec

MEASUREMENT REPORT (Step 6)

Use the same message in TS 34.108, clause 9, with the following exceptions

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	Check to see if set to 2
Measured results	
- Intra-frequency measured results list	
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if set to "Cell Identity of Cell 2"
- CSG Identity	Check to see if set to "CSG Identity of Cell 2 (CSG 1)"
- CSG Member indication	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE *mode*	FDD
- FDD	
- Primary CPICH Info	
- Primary scrambling code	Primary scrambling code for cell 2
- CPICH Ec/No	Check to see if it is absent
- CPICH RSCP	Check to see if it is present
- Pathloss	Check to see if it is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	Check that this IE is absent

8.3.12.7.5 Test Requirements

At step 4, the UE shall send a MEASUREMENT REPORT message including the measured PSC for cell 2 and event 1D.

At step 6, the UE shall send a MEASUREMENT REPORT message including the cell identity and CSG ID of the cell 2 within 4000 msec.

8.3.12.8 Intra-frequency Inbound Handover to UMTS Hybrid Cell

8.3.12.8.1 Definition

Test to verify that the UE can report the CSG ID, Cell Identity and CSG membership indication of the intra-frequency hybrid cell.

8.3.12.8.2 Conformance requirement

1. Intra-frequency measurements for CSG/Hybrid cells

For each cell reported in the IE "Cell measured results" of an intra-frequency Measurement Report, which is also included in the IE "Intra-frequency SI Acquisition" associated with the measurement:

1> if the UE managed to acquire the valid system information of the concerned cell:

2> include the following IEs in the IE "Cell measured results":

3> "Cell Identity" IE.

3> if the concerned cell broadcasts a CSG identity:

4> "CSG Identity" IE.

4> "CSG Member indication" IE and set it to "member" if CSG identity of the concerned cell is present in UE's CSG whitelist.

2. CSG/Hybrid Cell Intra-frequency Measurement Procedure

1) The SRNC configures the UE with a measurement having "CSG Proximity detection" as measurement type.

2) The UE sends an "entering" CSG proximity indication when it determines it may be near a cell, (based on UE implementation) whose CSG ID is in the UE's CSG whitelist.

3) If a measurement configuration for CSG/hybrid cells is not present, the SRNC configures the UE with relevant measurement configuration which includes the PSCs that the UE must measure and the PSCs for which SI acquisition should be performed. The network may use the CSG proximity indication for intra-frequency case to minimize the time during which measurements for CSG/hybrid cells are configured.

4) The UE sends a measurement report including the measured PSC, Cell Identity, CSG ID and CSG membership indication of the target HNB to the SRNC (e.g., due to a triggered intra-frequency event 1d). The UE can acquire MIB and SIB3/SIB4 of intra-frequency target HNB cells in parallel with reception of the serving cell transmissions in CELL_DCH. No measurement gaps are required for reading MIB and SIB3/SIB4.

5) SRNC can then proceeds with the handover processing as described in [6].

After sending an "entering" CSG proximity indication (step 2), if the UE determines that it is no longer near any cell (on the reported proximate RAT and frequency) whose CSG ID is in the UE's CSG whitelist, the UE sends a "leaving" CSG proximity indication to the SRNC. Upon reception of this indication, the SRNC may reconfigure the UE to stop measurements configured.

The PSC confusion is resolved by steps 3 and 4. The SRNC can request SI acquisition and reporting for any PSC, not limited to PSCs of CSG or hybrid cells.

Reference

1. TS 25.331 clause 14.7a.1

2. TS 25.367 clause 8.1.1

8.3.12.8.3 Test purpose

1. To confirm that the UE considers CSG Set as the monitored set for measurement and measurement reporting procedures of intra-frequency CSG cells.

2. To verify that the member UE could report the Cell Identity, CSG ID and CSG membership indication of the intra-frequency hybrid cell and handover to it.

8.3.12.8.4 Method of test

Initial conditions

3. There exist 2 cells: Cell 1 and 2 are active.

Cell 1 is a macro cell.

Cell 2 is a hybrid cell with the CSG ID of CSG 2. "CSG PSC Split Information" is also included in SIB3 with "Start PSC" set to 144 and "Number of PSCs" set to 10.

The Primary Scrambling Code of Cell 2 is 150.

The SIB3_REP of cell 2 SIB3 scheduling is 64.

4. UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

The UE's Allowed CSG List and the Operator CSG List contain CSG2.

Related ICS/IXIT statement(s)

- UE supports FDD and CSG.
- UE supports the capability “Support of intra-frequency SI acquisition for HO”.

Test Procedure

Same test procedure as in clause 8.3.12.5.

Expected sequence

Same expected sequence as in clause 8.3.12.5.

Specific Message Contents

Same specific message content as in clause 8.3.12.5.

8.3.12.8.5 Test Requirements

Same test requirement as in clause 8.3.12.5.

8.3.12.9 Intra-frequency Inbound Handover to UMTS Hybrid Cell for Non-member UE

8.3.12.9.1 Definition

Test to verify that the non-member UE can report the CSG ID and Cell Identity of the intra-frequency hybrid cell.

8.3.12.9.2 Conformance requirement

1. Intra-frequency measurements for CSG/Hybrid cells

For each cell reported in the IE "Cell measured results" of an intra-frequency Measurement Report, which is also included in the IE "Intra-frequency SI Acquisition" associated with the measurement:

1> if the UE managed to acquire the valid system information of the concerned cell:

2> include the following IEs in the IE "Cell measured results":

3> "Cell Identity" IE.

3> if the concerned cell broadcasts a CSG identity:

4> "CSG Identity" IE.

4> "CSG Member indication" IE and set it to "member" if CSG identity of the concerned cell is present in UE’s CSG whitelist.

2. CSG/Hybrid Cell Intra-frequency Measurement Procedure

1) The SRNC configures the UE with a measurement having "CSG Proximity detection" as measurement type.
2) The UE sends an "entering" CSG proximity indication when it determines it may be near a cell, (based on UE implementation) whose CSG ID is in the UE’s CSG whitelist.
3) If a measurement configuration for CSG/hybrid cells is not present, the SRNC configures the UE with relevant measurement configuration which includes the PSCs that the UE must measure and the PSCs for which SI acquisition should be performed. The network may use the CSG proximity indication for intra-frequency case to minimize the time during which measurements for CSG/hybrid cells are configured.
4) The UE sends a measurement report including the measured PSC, Cell Identity, CSG ID and CSG membership indication of the target HNB to the SRNC (e.g., due to a triggered intra-frequency event 1d). The UE can acquire MIB and SIB3/SIB4 of intra-frequency target HNB cells in parallel with reception of the serving cell transmissions in CELL_DCH. No measurement gaps are required for reading MIB and SIB3/SIB4.

5) SRNC can then proceeds with the handover processing as described in [6].

After sending an "entering" CSG proximity indication (step 2), if the UE determines that it is no longer near any cell (on the reported proximate RAT and frequency) whose CSG ID is in the UE's CSG whitelist, the UE sends a "leaving" CSG proximity indication to the SRNC. Upon reception of this indication, the SRNC may reconfigure the UE to stop measurements configured.

The PSC confusion is resolved by steps 3 and 4. The SRNC can request SI acquisition and reporting for any PSC, not limited to PSCs of CSG or hybrid cells.

Reference

1. TS 25.331 clause 14.7a.1

2. TS 25.367 clause 8.1.1

8.3.12.9.3 Test purpose

1. To confirm that the UE considers CSG Set as the monitored set for measurement and measurement reporting procedures of intra-frequency CSG cells.

2. To verify that the non-member UE could report the Cell Identity and CSG ID of the intra-frequency hybrid cell and handover to it..

8.3.12.9.4 Method of test

Initial conditions

5. There exist 2 cells: Cell 1 and 2 are active.

Cell 1 is a macro cell.

Cell 2 is a hybrid cell with the CSG ID of CSG 1. "CSG PSC Split Information" is also included in SIB3 with "Start PSC" set to 144 and "Number of PSCs" set to 10.

The Primary Scrambling Code of Cell 2 is 150.

The Cell 2 is not in the neighbour cell list of Cell 1.

The SIB3_REP of cell 2 SIB3 scheduling is 64.

6. UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

The UE's Allowed CSG List and the Operator CSG List are empty.

Related ICS/IXIT statement(s)

- UE supports FDD and CSG.

- UE supports the capability "Support of intra-frequency SI acquisition for HO".

Test Procedure

Table 8.3.12.9-1 illustrates the downlink power to be applied for the 2 cells.

Table 8.3.12.9-1

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
Test Channel		1		1	
CPICH Ec	dBm/3.84MHz	-60	-85	-90	-55

The two cells are all active. The UE is initially in CELL_DCH and has a radio bearer with the cell 1.

SS configures its downlink transmission power settings according to columns "T0" in table 8.3.12.7-1. The SS configures the UE the PSC range of the intra-frequency HNB cells with a MEASUREMENT CONTROL message configuring event 1D “Change of best cell”.

SS configures its downlink transmission power settings according to columns "T1" in table 8.3.12.9-1. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2.

After the MEASUREMENT REPORT message is received, the SS transmits to the UE a MEASUREMENT CONTROL message to configure the UE to read the system information of the cell 2. When the UE receives this message, the UE shall perform the SI acquisition of the cell 2 and transmits a MEASUREMENT REPORT message.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE on DCCH using AM-RLC, to order it to perform intra-frequency handover to cell 4. The UE shall then transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS when the intra-frequency handover has succeeded.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	SS			The SS actives the cell 1and cell 2 according to column T0 in table 8.3.12.9-1
2	←		MEASUREMENT CONTROL	The SS configures a measurement with 1d event and CSG Intra-frequency cell info.
3	SS			SS configures its downlink transmission power settings according to columns "T1" in table 8.3.12.9-1.
4	→		MEASUREMENT REPORT	The UE sends a measurement report including the measured PSC for cell 2 and event 1D.
5	←		MEASUREMENT CONTROL	The SS instructs the UE to perform SI acquisition of cell 2.
6	→		MEASUREMENT REPORT	The UE sends a measurement reporting including the Cell identity and CSG ID, not including CSG membership indication of the cell 2.
7	←		PHYSICAL CHANNEL RECONFIGURATION	The SS orders the UE to perform intra-frequency handover to cell 2.
8	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	After the UE has succeeded in performing the intra-frequency handover, it shall send a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS using the new configuration
9	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

All messages indicated below shall use the same content as described in default message content, with the following exceptions:

MEASUREMENT CONTROL (Step 2)

Use the same message in TS 34.108, clause 9, with the following exceptions

Information Element	Value/remark
Measurement identity	1
Measurement command	Setup
- CHOICE measurement type	Intra-frequency measurement
- Intra-frequency measurement	
- Intra-frequency cell info list	
- Intra-frequency cell removal	Not present
- New inter-frequency info list	
- Intra-frequency cell-id	
- Cell info	1
- Cell individual offset	0 (0dB)
- Reference time difference to cell	Not Present
- Read SFN number	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	100
- Primary CPICH Tx power	Not Present
- TX Diversity indicator	FALSE
- CSG Intra-frequency cell info	
- CSG cell info list	1
- Choice mode	FDD
- FDD	
- Start PSC	144
- Number of PSCs	10
- Intra-frequency measurement quantity	
- Filter Coefficient	0
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	Not present
- Measurement validity	CELL_DCH state
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Intra-frequency measurement reporting criteria	
- Parameters required for each events	
- Intra-frequency event identity	1D
- Triggering condition 2	Monitored set cells
- Hysteresis	4(2dB)
- Time to trigger	10 mSec
- Reporting cell status	
- CHOICE reported cell	Report cells within monitored set cells on used frequency
- Maximum number of reported cells	2

MEASUREMENT REPORT (Step 4)

Use the same message in TS 34.108, clause 9, with the following exceptions

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	Check to see if set to 1
Measured results	
- Intra-frequency measured results	Check to see if measurement results for Cell-2 are included and Cell-1 are not included.
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	Check to see if set to "Intra-frequency event results"
- Intra-frequency event identity	Check to see if set to "1D"
- Cell measurement event results	
- Primary scrambling code	Check to see if set to "Primary scrambling code of Cell 2"

MEASUREMENT CONTROL (Step 5)

Use the same message in TS 34.108, clause 9, with the following exceptions

Information Element	Value/remark
Measurement identity	2
Measurement command	Setup
- CHOICE measurement type	Intra-frequency measurement
- Intra-frequency measurement	
- Intra-frequency cell info list	
- Intra-frequency cell removal	Not present
- New inter-frequency info list	Not present
- Intra-frequency SI Acquisition	
- Choice mode	FDD
- FDD	
- Intra-frequency SI acquisition Info	
- Primary Scrambling Code	Set to same code as used for cell 2(150)
- Intra-frequency measurement quantity	
- Filter Coefficient	0
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	
- CHOICE reported cell	Report cells within detected set on used frequency
- Maximum number of reported cells	2
- Measurement validity	Not present
- CHOICE report criteria	Periodical reporting criteria
- Amount of reporting	1
- Reporting interval	4000 msec

MEASUREMENT REPORT (Step 6)

Use the same message in TS 34.108, clause 9, with the following exceptions

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	Check to see if set to 2
Measured results	
- Intra-frequency measured results list	
- Intra-frequency measurement results	1
- Cell measured results	
- Cell Identity	Check to see if set to "Cell Identity of Cell 2"
- CSG Identity	Check to see if set to "CSG Identity of Cell 2 (CSG 1)"
- CSG Member indication	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE *mode*	FDD
- FDD	
- Primary CPICH Info	
- Primary scrambling code	Primary scrambling code for cell 2
- CPICH Ec/No	Check to see if it is absent
- CPICH RSCP	Check to see if it is present
- Pathloss	Check to see if it is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	Check that this IE is absent

PHYSICAL CHANNEL RECONFIGURATION (Step 7)

Use the same contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case as found in TS 34.108, clause 9, with sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" the following exceptions:

Information Element	Value/remark
RRC State indicator	CELL_DCH
Frequency info	
- CHOICE mode	FDD
- FDD	
- UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 2
- UARFCN downlink (Nd)	UARFCN for the downlink corresponding to cell2
Downlink information common for all radio links	
- CHOICE DPCH info	
- Downlink DPCH info common for all RL	
- Timing indication	Maintain
- Downlink information for each radio links	
- CHOICE mode	
- FDD	
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for cell 2

8.3.12.9.5 Test Requirements

At step 4, the UE shall send a MEASUREMENT REPORT message including the measured PSC for cell 2 and event 1D.

At step 6, the UE shall send a MEASUREMENT REPORT message including the cell identity and CSG ID of the cell 2 within 4000 msec.

8.3.12.10 Intra-frequency inbound handover to UMTS non-CSG cell

8.3.12.10.1 Definition

Test to verify the UE can report the Cell Identity of the non-CSG cell, but“CSG Identity” and “CSG Member Indication” IEs are not included.

8.3.12.10.2 Conformance requirement

1. Intra-frequency measurements for CSG/Hybrid cells

For each cell reported in the IE "Cell measured results" of an intra-frequency Measurement Report, which is also included in the IE "Intra-frequency SI Acquisition" associated with the measurement:

1> if the UE managed to acquire the valid system information of the concerned cell:

2> include the following IEs in the IE "Cell measured results":

3> "Cell Identity" IE.

3> if the concerned cell broadcasts a CSG identity:

4> "CSG Identity" IE.

4> "CSG Member indication" IE and set it to "member" if CSG identity of the concerned cell is present in UE’s CSG whitelist.

The system information of the reported cell(s) can be acquired by the UE without any measurement gaps.

2. CSG/Hybrid Cell Intra-frequency Measurement Procedure

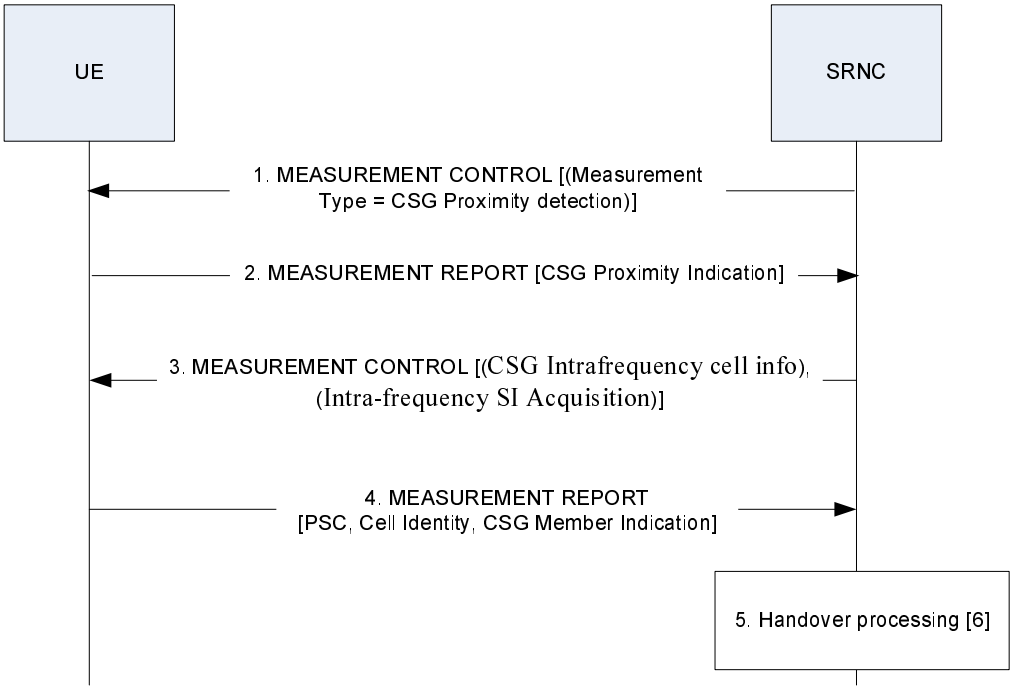


Figure 8.1.1-1: Intra-frequency Measurement Procedure of CSG and Hybrid cells

1) The SRNC configures the UE with a measurement having "CSG Proximity detection" as measurement type.

2) The UE sends an "entering" CSG proximity indication when it determines it may be near a cell, (based on UE implementation) whose CSG ID is in the UE’s CSG whitelist.

3) If a measurement configuration for CSG/hybrid cells is not present, the SRNC configures the UE with relevant measurement configuration which includes the PSCs that the UE must measure and the PSCs for which SI acquisition should be performed. The network may use the CSG proximity indication for intra-frequency case to minimize the time during which measurements for CSG/hybrid cells are configured.

4) The UE sends a measurement report including the measured PSC, Cell Identity, CSG ID and CSG membership indication of the target HNB to the SRNC (e.g., due to a triggered intra-frequency event 1d). The UE can acquire MIB and SIB3/SIB4 of intra-frequency target HNB cells in parallel with reception of the serving cell transmissions in CELL_DCH. No measurement gaps are required for reading MIB and SIB3/SIB4.

5) SRNC can then proceeds with the handover processing as described in [6].

After sending an "entering" CSG proximity indication (step 2), if the UE determines that it is no longer near any cell (on the reported proximate RAT and frequency) whose CSG ID is in the UE's CSG whitelist, the UE sends a "leaving" CSG proximity indication to the SRNC. Upon reception of this indication, the SRNC may reconfigure the UE to stop measurements configured.

The PSC confusion is resolved by steps 3 and 4. The SRNC can request SI acquisition and reporting for any PSC, not limited to PSCs of CSG or hybrid cells.

Reference

1. 3GPP TS 25.331 v970 clause 14.7a.1

2. 3GPP TS 25.367 v950 clause 8.1.1

8.3.12.10.3 Test purpose

1. To confirm that the UE can measure and report the Cell Identity of the non-CSG cell. The CSG Identity and CSG Member indication are not included in the measurement report.

2. To confirm that the SRNC can request SI acquisition and reporting for non-CSG cell.

8.3.12.10.4 Method of test

Initial Condition

System Simulator:

2 cells: Cell1 and Cell2 are on f1.

Cell1 is a macro cell.

Cell2 is a non-CSG cell.

User Equipment:

The UE is PS-DCCH+DTCH_DCH (state 6-10) or CS-DCCH+DTCH_DCH (state 6-9) or PS+CS-DCCH+DTCH_DCH (state 6-14) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports FDD

- UE supports the capability "Support of intra-frequency SI acquisition for HO".

Test Procedure

Table 8.3.12.10-1 illustrates the downlink power to be applied for the 2 cells.

Table 8.3.12.10-1

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		1		1	
CPICH Ec	dBm/3.84MHz	-55	-70	Off	-55

The instant T0, the Cell 1 is active and the UE is initially in CELL_DCH and has a radio bearer with the Cell 1. The Cell 2 (non-CSG cell) is inactive. The SS sends MEASUREMENT CONTROL with event 1d configured to the UE. The PSC of the Cell 2 (144) shall be within the scope of the PSC range in the MEASUREMENT CONTROL.

At instant T1, the downlink is changed according to what is shown in table 8.3.12.10-1. The UE shall thus send a MEASUREMENT REPORT with 1d event to the SS. The UE sends the PSC of the Cell 2.

The SS configures the PSC for SI acquisition to UE. The UE acquires the SI of the Cell 2 and sends it to the SS with the cell identity.

The SS sends a PHYSICAL CHANNEL RECONFIGURATION message on DCCH using AM-RLC to trigger the handover to the Cell 2. The UE shall answer with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The initial condition is set as T0 in table 8.3.12.10-1.
2	←		MEASUREMENT CONTROL	The SS configures a measurement to the UE. Event 1d is configured.
3				The SS re-adjusts the downlink transmission power settings of the Cell 1 and Cell 2 according to columns "T1" in table 8.3.12.10-1.
4	→		MEASUREMENT REPORT	The UE sends a 1d event with the PSC of Cell 2.
5	←		MEASUREMENT CONTROL	The SS configures the PSC for SI acquisition.
6				The UE acquires the SI of the Cell 2.
7	→		MEASUREMENT REPORT	The UE reports the cell identity of the Cell 2.
8	←		PHYSICAL CHANNEL RECONFIGURATION	The SS orders the UE to perform timing re-initialised intra-frequency handover to Cell 2.
9	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	After the UE has succeeded in performing the intra-frequency handover, it shall send a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS using the new configuration.
10	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

MEASUREMENT CONTROL (Step 2)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Measurement identity	1
Measurement command	Setup
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
CHOICE measurement type	
- Intra-frequency measurement	
- Intra-frequency measurement objects list	
- CSG Intrafrequency cell info	
- CSG Intra-frequency cell info	
- CSG cell info list	
- Choice mode	
- FDD	
- Start PSC	
- Primary scrambling code	144
- Number of PSCs	8
- Intra-frequency measurement quantity	
- Filter Coefficient	0
- CHOICE mode	
- FDD	
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for detected set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	
- FDD	
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Measurement validity	
- UE state	CELL_DCH state
- CHOICE report criteria	
- Intra-frequency measurement reporting criteria	
- Parameters required for each event	
- Intra-frequency event identity	1d
- Triggering condition 2	Monitored set cells
- Hysteresis	4(2dB)
- Time to trigger	10 mSec
- Reporting cell status	
- CHOICE reported cell	Report cells within monitored set cells on used frequency
- Maximum number of reported cells	2

MEASUREMENT REPORT (Step 4)

Information Element	Value/remark
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	Check to see if set to 1
Event results	
-CHOICE *event result*	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1d
- Cell measurement event results	
- CHOICE *mode*	
-FDD	
- Primary CPICH info	
- Primary scrambling code	150(The same as the cell2)

MEASUREMENT CONTROL (Step 5)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Measurement Identity	1
Measurement Command	Modify
CHOICE Measurement type	
- Intra-frequency measurement	
- Intra-frequency cell info list	
- Intra-frequency SI Acquisition	
- CHOICE mode	
- FDD	
- Intra-frequency SI Acquisition info	
- Primary Scrambling code	Set to same code as used for cell 2(150)
- Intra-frequency reporting quantity	
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	TRUE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	
- CHOICE reported cell	Report cells within monitored set on used frequency
- Maximum number of reported cells	2
- Measurement validity	Not present
- CHOICE report criteria	Periodical reporting criteria
- Amount of reporting	1
- Reporting interval	4000 msec

MEASUREMENT REPORT (Step 7)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	Check to see if set to 1
Measured Results	
- CHOICE *Measurement*	
-Intra-frequency measured results list	
-Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	The same as the cell2
- CSG Identity	Check that this IE is absent
- CSG Member indication	Check that this IE is absent
- CHOICE *mode*	
-FDD	
- Primary CPICH info	
- Primary scrambling code	150(The same as the cell2)
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	Check that this IE is absent

PHYSICAL CHANNEL RECONFIGURATION (Step 8)

Use the same contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case as found in TS 34.108, clause 9, with sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" with the following exceptions:

Information Element	Value/Remark
RRC State indicator	CELL_DCH
Frequency info	
- CHOICE mode	
- FDD	
- UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 2
- UARFCN downlink (Nd)	UARFCN for the downlink corresponding to cell2
Downlink information common for all radio links	
- CHOICE DPCH info	
- Downlink DPCH info common for all RL	
- Timing indication	Maintain
Downlink information for each radio links	
- CHOICE mode	FDD
- FDD	
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for cell 2(150)

8.3.12.10.5 Test requirement

1. At step 4, the UE reports the PSC of the cell2.
2. At step 7, the UE reports the Cell Identity of the cell2 within 4000msec.

8.3.12.11 Inter-frequency inbound handover to UMTS non-CSG cell

8.3.12.11.1 Definition

Test to verify the UE can report the Cell Identity and does not report CSG ID and CSG Member indicationof a non-CSG cell to the SRNC in the measurement report.

8.3.12.11.2 Conformance requirement

1: Inter-frequency measurements for CSG/Hybrid cells:

For each cell reported in the IE "Cell measured results" of an inter-frequency Measurement Report, which is also included in the IE "Inter-frequency SI Acquisition" associated with the measurement:

1> if the UE managed to acquire the system information of the concerned cell:

2> include the following IEs in the IE "Cell measured results":

3> "Cell Identity" IE;

3> if the concerned cell broadcasts a CSG identity:

4> "CSG Identity" IE.

4> "CSG Member indication" IE and set it to "member" if CSG identity of the concerned cell is present in UE's CSG whitelist.

If the UE needs measurement gaps to read the system information on the non-used frequency, the system information of the reported cell can be acquired by the UE via autonomous measurement gaps when the IE "Inter-frequency SI Acquisition" is received by the UE, i.e., UE is allowed to temporarily abort communication with the serving cell to perform SI acquisition within the limits (detailed value is FFS). UE shall send the measurement report before the maximum provided time specified in IE "Periodical reporting criteria" if the UE is able to acquire SI early.

2: Inter-frequency Measurement Procedure of CSG and Hybrid cells:

1) The SRNC configures the UE with a measurement having "CSG Proximity detection" as measurement type.

2) The UE sends an "entering" CSG proximity indication when it determines it may be near a cell, (based on UE implementation) whose CSG ID is in the UE's CSG whitelist. The CSG proximity indication includes the RAT and frequency of the cell.

3) The SRNC configures a measurement on the concerned frequency/RAT to measure CSG/hybrid cells. Compressed mode gaps, if required by the UE, are also activated to allow UE to perform measurements on the reported RAT and frequency. The network may also use the proximity indication to minimize the requesting of handover preparation information of CSG/hybrid cells by avoiding requesting such information when the UE is not in the geographical area where cells whose CSG IDs are in the UEs CSG whitelist are located.

4) The UE sends a measurement report including the measured PSCs/PCIs.

5) The SRNC configures the UE to perform SI acquisition and reporting of a particular PSC/PCI.

6) The UE performs SI acquisition using autonomous gaps, i.e., the UE may suspend reception and transmission with the SRNC within the limits (the limit is currently FFS) to acquire the relevant system information from the target HNB/HeNB.

7) The UE sends a measurement report including Cell Identity, CSG ID and CSG membership indication.

8) SRNC can then proceed with the handover processing. The handover processing for inter-frequency handover to a CSG/Hybrid cell is described in [6].

NOTE: The above steps also apply to inter-RAT mobility from UMTS cell to HeNB.

After sending an "entering" CSG proximity indication (step 2), if the UE determines that it is no longer near any cell (on the reported proximate RAT and frequency) whose CSG ID is in the UE's CSG whitelist, the UE sends a "leaving"

CSG proximity indication to the SRNC. Upon reception of this indication, the SRNC may reconfigure the UE to stop measurements on the reported RAT and frequency.

In the above procedure, step 2 may not be performed in case the UE has not previously visited the HNB, e.g., when the UE first visits a CSG/hybrid cell.

The PSC/PCI confusion is resolved by steps 5, 6 and 7. The SRNC can request SI acquisition and reporting for any PSC/PCI, not limited to PSCs/PCIs of CSG or hybrid cells.

3: The CSG SI acquisition delay is defined as the time between any occurrences that will trigger a SI decoding until the UE starts to transmit over the Uu interface. This requirement assumes that the measurement report is not delayed by other RRC signalling on the DCCH. The measurement reporting delay also excludes any RRC procedure delay which is defined in [16] when SI reading is initiated by a measurement control message.

For intra frequency CSG cells, CSG SI decoding is typically triggered when a cell with primary scrambling code in a preconfigured range meets the criteria for measurement reporting. For inter frequency CSG cells, CSG SI decoding is explicitly requested by RRC signalling.

The CSG SI reporting delay shall not be more than $T_{CSG\text{-}SI\text{-}Report}$ where $T_{CSG\text{-}SI\text{-}Report}$ in ms is given by

$$T_{CSG\text{-}SI\text{-}Report} = [630]+ 40*SIB3\_REP$$

SIB3_REP is the repetition period at which the CSG cell schedules SIB3 blocks in units of frames

This requirement is applicable for CSG target cell configurations where the information required to make the SI report can be determined from the MIB and SIB3 alone, and SIB3 is not segmented into multiple TTI. Additionally, for the requirement to be applicable, the reception conditions shall be [TBD] such that the system frame number of the target CSG cell, the MIB and SIB3 can each be successfully decoded in no more than four attempts.

Test requirement = RRC Procedure delay + $T_{CSG\text{-}SI\text{-}Report}$

Reference

1: 3GPP TS 25.331 clause 14.7a.2.

2: 3GPP TS 25.367, clause 8.1.2.

3: 3GPP TS 25.133, clause 5.13.2, A.5.11.2.

8.3.12.11.3 Test purpose

1. To confirm that the UE can read and report system information of a non-CSG cell to the SRNC.

8.3.12.11.4 Method of test

Initial Condition

System Simulator:

2 cells: Cell 1, cell 4 are used.

Cell4 and Cell 1 do not broadcast CSG ID.

Cell1 is on f1.

Cell 4 is on f2

The SIB3_REP of cell 4, i.e., SIB3 scheduling is 64.

User Equipment:

The UE Allowed CSG List is empty.

The UE is PS-DCCH+DTCH_DCH (state 6-10) or CS-DCCH+DTCH_DCH (state 6-9) or PS+CS-DCCH+DTCH_DCH (state 6-14) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports Compressed mode.
- UE supports the capability “Support of inter-frequency SI acquisition for HO”.
- UE supports the capability “Support of CSG”.

Test Procedure

Table 8.3.12.11-1 illustrates the downlink power to be applied for the 2 cells.

Table 8.3.12.11-1

Parameter	Unit	Cell 1		Cell 4	
Test Channel		1		2	
		T0	T1	T0	T1
CPICH Ec	dBm/3.84 MHz	-60	-70	OFF	-55

Cell 1 is active. The UE is initially in CELL_DCH and has a radio bearer with the cell1.

At instant T0, the downlink is changed according to what is shown in table 8.3.12.11 -1.

The SS sends MEASUREMENT CONTROL with 1c event required for construction of the CSG VAS active set in the UE.

The SS configures then compressed mode (if required), to prepare the UE for inter-frequency measurements, by sending a PHYSICAL CHANNEL RECONFIGURATION message on DCCH using AM-RLC. The UE shall answer with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

The SS then sets up CSG inter-frequency measurements (event 2b), by sending a MEASUREMENT CONTROL message to the UE.

At instant T1, the downlink power is changed according to what is shown in table 8.3.12.11 -1. The UE shall thus send a MEASUREMENT REPORT with 2b event to the SS.

The SS then sets up SI acquisition of cell 4 by sending a MEASUREMENT CONTROL message to the UE. And then the UE shall report the cell identity, CSG ID and CSG membership indication of the cell 4.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		

1			The SS changes the power of the two cells according to column T0 in table 8.3.12.11-1
2	←	MEASUREMENT CONTROL	Cell1 configures a measurement with 1c event. The cell information is set to the same as the cell1.
3	←	PHYSICAL CHANNELRECONFIGURATION	SS instructs UE to begin compressed mode operation. (for FDD only)
4	→	PHYSICAL CHANNELRECONFIGURATION COMPLETE	(for FDD only)
5	←	MEASUREMENT CONTROL	The SS configures a measurement to measure cells. The message includes the PSC range the compressed mode gaps and the parameters of the event 2b.
6			SS re-adjusts the downlink transmission power settings of the two cells according to columns "T1" in table 8.3.12.11-1.
7	→	MEASUREMENT REPORT	The UE sends a measurement report including the measured PSCs for cell 4 and event 2b to cell 1.
8	←	MEASUREMENT CONTROL	The SS configures the UE to perform SI acquisition and reporting of cell 4.
9			The UE performs SI acquisition to acquire the relevant system information from the cell4.
10	→	MEASUREMENT REPORT	The UE sends a measurement reporting including the cell identity, CSG ID and CSG membership indication of the cell 4 within 4000msec..
11	←→	CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

MEASUREMENT CONTROL (Step 2)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions

Information Element	Value/remark
Measurement identity	2
Measurement command	Setup
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
CHOICE measurement type	Intra-frequency measurement
- intra-frequency measurement	
- Intra-frequency measurement objects list	
- Remove all intra-frequency cells	
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 (0dB)
- Reference time difference to cell	Not Present
- Read SFN number	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	100
- Primary CPICH Tx power	Not Present
- TX Diversity indicator	FALSE
- Intra-frequency measurement quantity	
- Filter Coefficient	0
- CHOICE mode	
- FDD	
- Measurement quantity	CPICH RSCP
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Intra-frequency measurement reporting criteria	
- Parameters required for each events	
- Intra-frequency event identity	1c
- Hysteresis	4 (2dB)
- Replacement activation threshold	3
- Time to trigger	10 ms
- Amount of reporting	16
- Reporting interval	4000ms
- Reporting cell status	Not present

PHYSICAL CHANNEL RECONFIGURATION (Step 3)

Use the same message sub-type found in Annex A, which is entitled "(Packet to CELL_DCH from CELL_DCH in PS)", with the following exceptions in the IE(s) concerned:

Information Element	Value/remark	Version
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing Indication	Maintain	
- Downlink DPCH power control information		
- DPC mode	0 (Single)	
- CHOICE Mode	FDD	
- Power offset PPilot-DPDCH	0	
- DL rate matching restriction information	Not present	
- Spreading factor	Refer to the parameter set in TS 34.108	
- Fixed or flexible position	Flexible	
- TFCI existence	TRUE	
- Number of bits for Pilot bits (SF=128, 256)	Not present	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS status flag	Activate	
- TGCFN	(Current CFN+(256 – TTI/10msec)) mod 256	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not Present	
- TGD	Undefined	
- TGPL1	3	
- TGPL2	Not Present	R99 and Rel-4 only
- RPP	Mode 0	
- ITP	Mode 0	
- CHOICE UL/DL mode	UL and DL or DL only or UL only depending on UE capability	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2 or Not present depending on UE capability	
- Downlink frame type	A	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not present	
- DeltaSIRAfter2	Not present	
- N identify abort	Not present	
- T Reconfirm abort	Not present	
- TX diversity mode	None	
- SSDT information	Not present	R99 and Rel-4 only
- Default DPCH offset value	Not present	

MEASUREMENT CONTROL (Step 5)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions

Information Element	Value/remark
Measurement identity	3
Measurement command	Setup
Measurement reporting mode	
- Measurement reporting transfer mode	Unacknowledged Mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
CHOICE Measurement type	
-Inter-frequency measurement	
- Inter-frequency measurement objects list	
- Inter-frequency cell removal	Not Present
- New inter-frequency cells	
- Inter-frequency cell id	1
- Frequency info	Frequency information of cell 4
- cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	
-FDD	
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for cell 4
- Primary CPICH Tx power	Not present
- TX Diversity Indicator	FALSE
- Cell for measurement	Not present
- CSG Inter-frequency cell info	
- CSG Frequency info	
- Frequency info	Frequency of Cell 4
- CSG Inter-frequency cell info for the frequency	
- CSG cell info list	
- CHOICE *mode*	FDD
- Start PSC	300
- Number of PSCs	100
- Inter-frequency SI Acquisition	Not present
- Inter-frequency measurement quantity	
- Filter Coefficient	4
- Frequency quality estimate quantity	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRAN Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement validity	CELL_DCH state
- inter-frequency set update	
- UE autonomous update mode	On with no reporting
- CHOICE report criteria	
- Inter-frequency measurement reporting criteria	
- Parameters required for each event	
- Inter-frequency event identity	2b
- Threshold used frequency	-65dBm
- W used frequency	0.0
- Hysteresis	2(1dB)
- Time to trigger	0 mSec
- Reporting cell status	Not present
- Parameters required for each non-used frequency	
- Threshold non used frequency	-68 dBm
- W non used frequency	0
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 7)

Information Element	Value/remark
Measurement identity	Check to see if set to 3
Measured results	Check to see if it is absent
Additional measured results	Check to see if it is absent
Event results	Inter-frequency measurement event results,
- CHOICE event result	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	Set to same frequency as used for cell 4
- Non frequency related measurement event results	
- CHOICE mode	
- FDD	
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 4

MEASUREMENT CONTROL (Step 8)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Measurement Identity	4
Measurement Command	Setup
CHOICE Measurement type	
- Inter-frequency measurement	
- Inter-frequency measurement objects list	
- Inter-frequency SI Acquisition	
- Frequency info	Set to same frequency as used for cell 4
- CHOICE mode	
- FDD	
- Primary scrambling code	Set to same scrambling code as used for cell 4
- Inter-frequency measurement quantity	
- Filter Coefficient	4
- Frequency quality estimate quantity	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRAN Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- CHOICE report criteria	
- Periodical reporting criteria	
- Amount of reporting	1
- Reporting interval	4000ms
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step10)

Information Element	Value/remark
Measurement identity	Check to see if set to 4
Measured results	Check to see if it is absent
Additional measured results	Check to see if it is absent
Measured Results	
-CHOICE Measurement	
- Inter-frequency measured results list	
- Inter-frequency measurement results	
- Frequency info	Set to the frequency of cell 4
- Inter-frequency cell measurement results	
- Cell measured results	
- Cell Identity	Set to 28-bit Cell identity as used for cell 4
- CSG Identity	Not present
- CSG Member indication	Not present
- CHOICE mode	
- FDD	
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 4
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent

8.3.12.11.5 Test requirement

At step 7, the UE sends 2b event for cell 4 to the cell1.

At step 10, The UE sends a measurement reporting including the cell identity but not including CSG ID and CSG membership indication of the cell 4 within 4000ms.

8.3.12.13 Membership checking for handover to the CSG Cell

8.3.12.13.1 Definition

Test to verify the UE can check whether a Cell is a CSG member Cell according to the CSG id and ePLMN identity and to verify the UE can report the Cell Identity, CSG ID and CSG membership indication to the SRNC.

8.3.12.13.2 Conformance requirement

1: Definitions

For the purposes of the present document, the terms and definitions given in [1] apply, together as:

Activated uplink frequency (FDD only): For a specific UE, an uplink frequency is said to be activated if the UE is allowed to transmit on that frequency. The primary uplink frequency is always activated when configured while a secondary uplink frequency has to be activated by means of an HS-SCCH order in order to become activated.

Adjacent Frequency: A frequency whose centre is within 5 MHz of the centre of the currently used frequency and belongs to the same frequency band as that of the currently used frequency.

Common E-DCH resource: In FDD, common E-DCH resources are under direct control of the Node B and are shared by UEs in CELL_FACH state and IDLE mode. In 1.28 Mcps TDD, common E-DCH resources used by UEs in CELL_FACH and IDLE mode are under direct control of Node B and are shared by UEs in the CELL_DCH state.

Configured Uplink Frequency (FDD only): For a specific UE, an uplink frequency is said to be configured if the UE has received all relevant information from RRC in order to perform transmission on that frequency.

CSG member Cell: for a UE in RRC_CONNECTED, a Cell broadcasting the identity of the Registered PLMN or Equivalent PLMN and for which CSG whitelist of the UE includes an entry comprising of Cell's CSG ID and the respective PLMN identity.

Current Frequency (FDD only): The frequency that is currently used by the UE. In case of dual Cell or dual band configured, the serving HS-DSCH Cell frequency is treated as current frequency.

2. Intra-frequency measurements for CSG/Hybrid Cells

For each Cell reported in the IE "Cell measured results" of an intra-frequency Measurement Report, which is also included in the IE "Intra-frequency SI Acquisition" associated with the measurement:

1> if the UE managed to acquire the valid system information of the concerned Cell:

2> include the following IEs in the IE "Cell measured results":

3> "Cell Identity" IE.

3> if the concerned Cell broadcasts a CSG identity:

4> "CSG Identity" IE.

4> "CSG Member indication" IE and set it to "member" if the concerned Cell is CSG member Cell.

The system information of the reported Cell(s) can be acquired by the UE without any measurement gaps.

Reference

1: 3GPP TS 25.331 clause 3.1 v9.8

2. 3GPP TS 25.331 clause 14.7a.1 v9.8

8.3.12.13.3 Test purpose

1. To confirm that the UE is considered as "member" when the CSG whitelist of the UE includes an entry comprising of Cell's CSG ID and the EPLMN identity.
2. To verify that the member UE could report the Cell Identity, CSG ID and CSG membership indication of the CSG member Cell and handover to it.

8.3.12.13.4 Method of test

Initial conditions

There exist 3Cells: Cell 1 and Cell 2.

Cell 1 is a macro Cell.

Cell 1 belongs to PLMN 1

Cell 2 is a CSG Cell with the CSG ID of CSG 2. "CSG PSC Split Information" is also included in SIB3 with "Start PSC" set to 144 and "Number of PSCs" set to 10.

The Primary Scrambling Code of Cell 2 is 150.

Cell 2 belongs to PLMN 2

UE's whitelist is set as below:

Table 8.3.12.13-1

CSG ID	PLMN ID
2	2

Related ICS/IXIT statement(s)

- UE supports FDD and CSG.
- UE supports the capability "Support of intra-frequency SI acquisition for HO".

Test Procedure

Table 8.3.12.13 -2 illustrates the downlink power to be applied for the 2 Cells

Table 8.3.12.13-2

Parameter	Unit	Cell 1		Cell 2	
Test Channel		1		2	
		T0	T1	T0	T1
CPICH Ec	dBm/3.84 MHz	-60	-75	-80	-55

The initial condition is set as the instant T0 shown in table 8.3.12.13 -2 and The UE is switched off.

The UE is switched on. The SS waits for random access requests from the UE. A complete Location Update is done. SS specifies PLMN 2 Equivalent to PLMN 1 in Location Update Accept Message.

The UE initiates a PS/CS services with the Cell 1 and keeps in CELL_DCH state and has a radio bearer with the Cell1.

The SS then sets up intra-frequency measurements (event 1d), by sending a MEASUREMENT CONTROL message to the UE.

At instant T1, the downlink is changed according to what is shown in table 8.3.12.13 -2. The UE shall thus send a MEASUREMENT REPORT with 1d (for Cell 2) event to the SS.

The SS configures the PSC range for SI acquisition to UE. The UE acquires the SI of the Cell2 and sends it to the SS with the Cell identity, CSG ID and membership indication.

The UE shall handover to the Cell 2.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is switched on. A complete Location Update is done. SS specifies PLMN 2 Equivalent to PLMN 1 in Location Update Accept Message.The UE initiates a PS/CS services with the Cell 1 and keeps in Cell_DCH state.
2	←		MEASUREMENT CONTROL	The SS configures a measurement to the UE. Event 1d is configured.
3				SS adjusts the downlink transmission power settings of the Cells according to columns "T1" in table 8.3.12.13 -2.
4	→		MEASUREMENT REPORT	The UE sends a 1d event with the PSC of Cell 2.
5	←		MEASUREMENT CONTROL	The SS configures the PSC range for SI acquisition.
6				The UE acquires the SI of the Cell2.
7	→		MEASUREMENT REPORT	The UE reports the Cell identity, CSG ID and CSG membership indication of the Cell 2.
8	←		PHYSICAL CHANNEL RECONFIGURATION	The SS orders the UE to perform timing re-initialised intra-frequency handover to Cell 2.
9	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	After the UE has succeeded in performing the intra-frequency handover to Cell 2, it shall send a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS using the new configuration
10	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

MEASUREMENT CONTROL (Step 2)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Measurement identity	1
Measurement command	Setup
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
CHOICE measurement type	
- Intra-frequency measurement	
- Intra-frequency Cell info list	
- Remove all intra-frequency Cells	
- New intra-frequency Cells	
- Intra-frequency Cell-id	
- Cell info	1
- Cell individual offset	0 (0dB)
- Reference time difference to Cell	Not Present
- Read SFN number	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	100
- Primary CPICH Tx power	Not Present
- TX Diversity indicator	FALSE
- CSG Intra-frequency Cell info	
- CSG Intra-frequency Cell info	
- CSG Cell info list	1
- Choice mode	
- FDD	
- Start PSC	
- Primary scrambling code	144
- Number of PSCs	10
- Intra-frequency measurement quantity	
- Filter Coefficient	0
- CHOICE mode	
- FDD	
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set Cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	
- FDD	
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set Cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	
- FDD	
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting Cell status	Not Present
- Measurement validity	CELL_DCH state
- CHOICE report criteria	
- Intra-frequency measurement reporting criteria	
- Parameters required for each event	
- Intra-frequency event identity	1d
- Triggering condition 2	Monitored set Cells
- Hysteresis	4(2dB)
- Time to trigger	
- Time to trigger	10 mSec
- Reporting Cell status	
- CHOICE reported Cell	Report Cells within monitored set Cells on used frequency
- Maximum number of reported Cells	2

MEASUREMENT REPORT (Step 4)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity Measured Results - Intra-frequency measured results - Cell measured results - Cell Identity - Cell synchronisation information - Primary CPICH info - Primary scrambling code - CPICH Ec/N0 - CPICH RSCP - Pathloss Measured results on RACH Additional measured results Event results - Intra-frequency measurement event results - Intra-frequency event identity - Intra-frequency event identity - Cell measurement event results - CHOICE *mode* -FDD - Primary CPICH info - Primary scrambling code	Check to see if set to 1 Check to see if measurement results for Cell-2 are included and Cell-1 are not included. Checked that this IE is absent Checked that this IE is absent Refer to clause titled "Default settings for Cell No.2 (FDD)" in clause 6.1 of TS 34.108 Checked that this IE is absent Checked that this IE is present Checked that this IE is absent Checked that this IE is absent Checked that this IE is absent Intra-frequency measurement event results, 1d 150(The same as the Cell2)

MEASUREMENT CONTROL (Step 5)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Measurement Identity	2
Measurement Command	Setup
CHOICE Measurement type	
- Intra-frequency measurement	
- Intra-frequency Cell info list	
- Intra-frequency SI Acquisition	
- CHOICE mode	
- FDD	
- Intra-frequency SI Acquisition info	
- Primary Scrambling code	
- Primary CPICH info	
- Primary Scrambling code	Set to same code as used for Cell 2(150)
- Intra-frequency measurement quantity	
- Filter Coefficient	0
- CHOICE mode	
- FDD	
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for detected set Cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	
- FDD	
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting Cell status	
- CHOICE reported Cell	Report Cells within detected set on used frequency
- Maximum number of reported Cells	2
- Measurement validity	Not Present
- CHOICE report criteria	Periodical reporting criteria
- Amount of reporting	1
- Reporting interval	4000 msec

MEASUREMENT REPORT (Step 7)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	Check to see if set to 2
Measured Results	
- CHOICE *Measurement*	
-Intra-frequency measured results list	
-Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	The same as the Cell2
- CSG Identity	2
- CSG Member indication	member
- CHOICE *mode*	
-FDD	
- Primary CPICH info	
- Primary scrambling code	150(The same as the Cell2)
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	Check that this IE is absent

PHYSICAL CHANNEL RECONFIGURATION (Step 8)

Use the same contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case as found in TS 34.108, clause 9, with sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" with the following exceptions:

Information Element	Value/Remark
RRC State indicator	CELL_DCH
Frequency info	
- CHOICE mode	
- FDD	
- UARFCN uplink(Nu)	Same uplink UARFCN as used for Cell 2
- UARFCN downlink (Nd)	UARFCN for the downlink corresponding to Cell2
Downlink information common for all radio links	
- CHOICE DPCH info	
- Downlink DPCH info common for all RL	
- Timing indication	Maintain
Downlink information for each radio links	
- CHOICE mode	FDD
- FDD	
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for Cell 2(150)

8.3.12.13.5 Test requirement

At step 1, The SS waits for random access requests from the UE. A complete Location Update is done.

At step 4, the UE sends event 1d with the information of the Cell2.

At step 7, the UE sends Cell identity, CSG ID and CSG membership indication of the Cell2 within 4000 msec.

8.4 Measurement procedure

3GPP TS 34.123-1 version 10.3.1 Release 10

8.4.1 Measurement Control and Report

8.4.1.1 Measurement Control and Report: Intra-frequency measurement for transition from idle mode to CELL_DCH state (FDD)

8.4.1.1.1 Definition

8.4.1.1.2 Conformance requirement

Upon transition from idle mode to CELL_DCH state:

1> if intra-frequency measurements applicable to CELL_DCH state are stored in the variable MEASUREMENT_IDENTITY:

2> if the cell in which the UE transited from idle mode is included in the active set for the CELL_DCH state, the UE shall:

3> begin measurement reporting.

2> otherwise:

3> the UE should not begin the measurement reporting. If the UE does not begin the measurement reporting, the measurement shall be restarted when a MEASUREMENT CONTROL message is received with the corresponding measurement identity.

In CELL_DCH state, the UE shall:

1> transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT_IDENTITY are met for any ongoing measurements that are being performed in the UE.

…

The reporting criteria are fulfilled if either:

- a periodic MEASUREMENT REPORT message shall be sent according to the IE "Periodical Reporting Criteria"; or

- an event in stored IE "Measurement reporting criteria" was triggered. Events and triggering of reports for different measurement types are described in detail in clause 14.

For the measurement, which triggered the MEASUREMENT REPORT message, the UE shall:

1> set the IE "measurement identity" to the measurement identity, which is associated with that measurement in variable MEASUREMENT_IDENTITY;

1> set the IE "measured results" to include measurements according to the IE "reporting quantity" of that measurement stored in variable MEASUREMENT_IDENTITY; and

2> if all the reporting quantities are set to "false":

3> not set the IE "measured results".

1> set the IE "Measured results" in the IE "Additional measured results" according to the IE "reporting quantity" for all measurements associated with the measurement identities included in the "Additional measurements list" stored in variable MEASUREMENT_IDENTITY of the measurement that triggered the measurement report;

3GPP TS 34.123-1 version 10.3.1 Release 10
and

2> if one or more additional measured results are to be included:

3> include only the available additional measured results, and sort them in ascending order according to their IE "measurement identity" in the MEASUREMENT REPORT message.

1> if the MEASUREMENT REPORT message was triggered by an event (i.e. not a periodical report):

…

The UE shall:

1> transmit the MEASUREMENT REPORT message on the uplink DCCH using either AM or UM RLC according to the stored IE "measurement reporting mode" associated with the measurement identity that triggered the report.

When the MEASUREMENT REPORT message has been submitted to lower layers for transmission:

1> the procedure ends.

…

Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in TS 25.331 subclause 8.6 unless otherwise specified below.

The UE shall:

1> read the IE "Measurement command";

1> if the IE "Measurement command" has the value "setup":

2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

….

2> for measurement types "inter-RAT measurement" or "inter-frequency measurement":

…

2> for measurement type "UE positioning measurement":

…

2> for any other measurement type:

3> if the measurement is valid in the current RRC state of the UE:

4> begin measurements according to the stored control information for this measurement identity.

1> if the IE "Measurement command" has the value "modify":

2> for all IEs present in the MEASUREMENT CONTROL message:

3> if a measurement was stored in the variable MEASUREMENT_IDENTITY associated to the identity by the IE "measurement identity":

4> if the measurement type is quality, UE internal, intra-frequency, inter-frequency or inter-RAT:

5> if the UE is in CELL_FACH state:

6> the UE behaviour is not specified.

4> if measurement type is set to "intra-frequency measurement", for any of the optional IEs "Intra-frequency measurement objects list", "Intra-frequency measurement quantity", "Intra-frequency reporting quantity", "Measurement Validity", "report criteria" and "parameters required for each event" (given "report criteria" is set to "intra-frequency measurement reporting criteria") that are present in the MEASUREMENT CONTROL message:

3GPP TS 34.123-1 version 10.3.1 Release 10

2> for any other measurement type:

3> resume the measurements according to the new stored measurement control information.

1> if the IE "measurement command" has the value "release":

2> terminate the measurement associated with the identity given in the IE "measurement identity";

2> clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY.

If the IE "Reporting Cell Status" is not received for intra-frequency, inter-frequency measurement, or inter-RAT measurement, the UE shall:

1> for intra-frequency measurement, inter-frequency measurement and inter-RAT measurement:

2> exclude the IE "Measured Results" in MEASUREMENT REPORT.

NOTE: The IE "Reporting Cell Status" within "Event Criteria List" defines whether "Cell Measured Results" is present for event-based reporting.

The IE "Reporting Cell Status" is not included in System Information Block 11/12 for periodic intra-frequency measurements. In this case the UE shall assume the default values "Report cells within active set and/or monitored set on used frequency " and "6".Reference

3GPP TS 25.331 clause 8.4.1.8.1, 8.4.1.3, 8.4.2.2, 8.6.7.9.

8.4.1.1.3 Test Purpose

1. To confirm that the UE continues to monitor intra-frequency measurement quantity of the cells listed in System Information Block type 11 or 12 messages, after it has entered CELL_DCH state from idle mode. When the intra-frequency measurement reporting criteria specified in System Information Block type 11 or 12 messages have been met, it shall report the measurements using MEASUREMENT REPORT message(s).

2. To confirm that the UE terminates monitoring and reporting activities for the cells listed in "intra-frequency cell info list" IE in System Information Block type 11 or 12 messages, after it has received a MEASUREMENT CONTROL message that specifies the measurement type to be "intra-frequency measurement" with the same measurement identity as in System Information Block Type 11 or 12 messages. To confirm that the UE reconfigures the monitoring and reporting activities based on the last MEASUREMENT CONTROL message received.

8.4.1.1.4 Method of test

Initial Condition

System Simulator: 3 cells – Cell 1, Cell 2 and Cell 3 are active.

UE: "Registered idle mode on CS" (state 2) or "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

Table 8.4.1.1-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Column marked "T0" denotes the initial conditions, while columns marked "T1" and "T2" are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 8.4.1.1-1

Parameter	Unit	Cell 1			Cell 2			Cell 3		
		T0	T1	T2	T0	T1	T2	T0	T1	T2
3GPP TS 34.123-1 version 10.3.1 Release 10										
UTRA RF Channel Number		Mid Range Test Frequency			Mid Range Test Frequency			Mid Range Test Frequency		
CPICH Ec	dBm/3.84 MHz	-60	-60	-60	-70	-60	-75	-80	-60	-60

The UE is initially in idle mode and has selected cell 1 for camping. The System Information Block type 11 messages are modified with respect to the default settings. The key measurement parameters in the modified System Information Block message are as follow: report criteria = "periodic reporting criteria", reporting interval = "64 seconds".

SS prompts the operator to make an outgoing call of a supported traffic class. SS and UE shall execute procedure P3 (for CS service) or P5 (for PS service). Next SS and UE shall execute procedure P7 (for CS service) or P9 (for PS service). Then SS and UE shall execute procedure P11 (for CS service) or P13 (for PS service). The UE shall send a MEASUREMENT REPORT message after reaching CELL_DCH state, reporting cell 2's CPICH RSCP value. After 64 seconds has passed since SS receives the first MEASUREMENT REPORT message, the UE shall transmit a second MEASUREMENT REPORT message.

NOTE: In P11 or P13 in step 4, in RADIO BEARER SETUP message, IE "Default DPCH Offset Value" and IE "DPCH frame offset" are set to "0".

SS sends a MEASUREMENT CONTROL message on the downlink DCCH. In this message, SS configures an intra-frequency measurement based on the measurement quantity CPICH RSCP. Parameters used in this message are: measurement identity = "1", report criteria = "event-trigger", event identity = "1e", reporting threshold = "-70 dBm". SS checks to see that no MEASUREMENT REPORT messages are sent within the next 64 seconds (which is due to periodic reporting). SS reconfigures the downlink transmission power settings according to values in column "T1" in table 8.4.1.1-1. The UE shall transmit a MEASUREMENT REPORT message when it detects that the CPICH RSCP of cell 3 has risen above the threshold value specified in the previous MEASUREMENT CONTROL message.

SS sends then a new MEASUREMENT CONTROL message to add cell 2 to the list of the cells the UE shall measure. Since the RSCP for cell 2 is above the threshold for event 1e to be triggered, a MEASUREMENT REPORT triggered by cell 2 shall be sent by the UE.

SS reconfigures the downlink transmission power settings according to values in column "T2" in table 8.4.1.1-1. SS sends a new MEASUREMENT CONTROL message on the downlink DCCH. In this message, SS configures an intra-frequency measurement based on the measurement quantity CPICH RSCP. Parameters used in this message are: measurement identity = "1", report criteria = "event-trigger", event identity = "1a", Reporting range 8db. SS reconfigures the downlink transmission power settings according to values in column "T1" in table 8.4.1.1-1. The UE shall transmit a MEASUREMENT REPORT message when it detects that the condition for event 1a is fulfilled. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		System Information Block type 11	The UE is in idle mode and camped onto cell 1. The System Information Block type 11 messages to be transmitted are different from the default settings (see specific message contents)
2	↔		SS executes procedure P3 (clause 7.4.2.1.2) or P5 (clause 7.4.2.2.2) specified in TS 34.108.	
3	↔		SS executes procedure P7 (clause 7.4.2.3.2) or P9 (clause 7.4.2.4.2) specified in TS 34.108.	
4	↔		SS executes procedure P11 (clause 7.4.2.5.2) or P13 (clause 7.4.2.6.2) specified in TS 34.108.	IE "Default DPCH Offset Value" and IE "DPCH frame offset " in RADIO BEARER SETUP message is set to "0".

Step	Direction		Message	Comment
	UE	SS		
5	SS			SS shall wait for a MEASUREMENT REPORT message. This MEASUREMENT REPORT shall be received on or before 64 Seconds.

3GPP TS 34.123-1 version 10.3.1 Release 10

Step	Direction		Message	Comment
	UE	SS		

3GPP TS 34.123-1 version 10.3.1 Release 10

6	→	MEASUREMENT REPORT	After receiving this message, SS shall expect to receive the next MEASUREMENT REPORT message after 64 seconds.
6a	→	MEASUREMENT REPORT	
7	←	MEASUREMENT CONTROL	A measurement with "measurement identity" IE set to "1" is assigned, with the IE "CHOICE reporting criteria" set to "intra-frequency measurement reporting criteria". See specific message content for the rest of the message.
8			SS waits for 64 seconds and verifies that no further MEASUREMENT REPORT messages are detected on the uplink DCCH.
9			SS re-adjusts the downlink transmission power settings according to columns "T1" in table 8.4.1.1-1.
10	→	MEASUREMENT REPORT	SS verifies that UE transmits a MEASUREMENT REPORT message triggered by cell 3 and containing report the measured CPICH RSCP value of cell 3.
10a	←	MEASUREMENT CONTROL	A MEASUREMENT CONTROL is sent to the UE to modify the list of the cells the UE shall monitor.
10b	→	MEASUREMENT REPORT	SS verifies that UE transmits a MEASUREMENT REPORT message triggered by cell 2.
11			SS re-adjusts the downlink transmission power settings according to columns "T2" in table 8.4.1.1-2.
12	←	MEASUREMENT CONTROL	A measurement with "measurement identity" IE set to "1" is assigned, with the IE "CHOICE reporting criteria" set to "intra-frequency measurement reporting criteria". See specific message content for the rest of the message.
13			SS re-adjusts the downlink transmission power settings according to columns "T1" in table 8.4.1.1-3 and waits 5 seconds.
14	→	MEASUREMENT REPORT	SS verifies that UE transmits a MEASUREMENT REPORT message to report occurrence of event 1a.
15	←→	CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

3GPP TS 34.123-1 version 10.3.1 Release 10

Specific Message Contents

All messages indicated below shall use the same content as described in default message content, with the following exceptions:

System Information Block type 11 (Step 1)

3GPP TS 34.123-1 version 10.3.1 Release 10

Use the same System Information Block Type 11 message as found in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/remark
Measurement control system information	
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not Present Absence of this IE is equivalent to default value 1
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present (This IE shall be ignored by the UE for SIB11)
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	TRUE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection	Not Present (The IE shall be absent as this is the serving cell)
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0dB
- Reference time difference to cell	1024
- Read SFN Indicator	TRUE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	Not present For neigbouring cell, if HCS is not used and all the parameters in cell selection and re-selection info are Default value, this IE is absent.
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC

Information Element	Value/remark
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
- CHOICE report criteria	Periodic reporting criteria
3GPP TS 34.123-1 version 10.3.1 Release 10	
- Amount of reporting	Infinity
- Reporting interval	64 seconds

MEASUREMENT REPORT (Step 6 and 6a)

NOTE 1: The Cell measured results for Cell 1 may or may not be present.

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	See Note 1
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 1 (if present)
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is absent
- Pathloss	Check to see if this IE is absent
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 2
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	"Checked to see if set to within an acceptable range"
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event Results	Check to see if this IE is absent

MEASUREMENT CONTROL (Step 7)

Information Element	Value/remark
Measurement Identity	1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra Frequency Cell Info List	
- CHOICE intra-frequency cell removal	Remove all intra-frequency cells
- New intra-frequency cells	2 new intra-frequency cells
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 1
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	256 chips
- Read SFN Indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 3
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present (Default is 0)
- CHOICE Mode	FDD
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	TRUE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	TRUE
- Cell identity reporting indicator	FALSE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	Not Present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each events	
- Intra-frequency event identity	1e
- Triggering condition 1	Not present
- Triggering condition 2	Monitored set cells
- Hysteresis	2 (1 dB)
- Threshold used frequency	-70 dBm
- Time to trigger	0 ms
- Reporting cell status	

Information Element	Value/remark
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
3GPP TS 34.123-1 version 10.3.1 Release 10	
- Maximum number of reported cells	3
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 10)

NOTE 1: Cell measured results for cells 1 and 3 may appear in either order (i.e. cell 1 then cell 3 or cell 3 then cell 1).

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	See Note 1
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if it is absent.
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 1
- CPICH Ec/No	Check to see if this IE is present
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Cell measured results	See Note 1
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is present and that the COUNT-C-SFN frame difference is included in it.
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 3
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional Measured Results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if this IE is set to "Intra-frequency measurement event results"
- Intra-frequency event identity	Check to see if this IE is set to "1e"
- Cell measured event results	
- CHOICE mode	Check to see if this IE is set to "FDD"
- Primary CPICH info	
- Primary Scrambling Code	Check to see if it's the same code for cell 3

MEASUREMENT CONTROL (Step 10a)

Information Element	Value/remark
Measurement Identity	1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Modify
Measurement Reporting Mode	Not Present
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency info list	1 new intra-frequency cell
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	0
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 2
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell for measurement	Not Present
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity	Not Present
- Reporting cell status	Not Present
- Measurement validity	Not Present
- CHOICE report criteria	Not Present

MEASUREMENT REPORT (Step 10b)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	Check to see if measurement results for 3 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	(for cell 1)
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if it is absent.
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 1
- CPICH Ec/No	Check to see if this IE is present
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Cell measured results	(for cell 2)
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is present and that the COUNT-C-SFN frame difference may or may not be included in it.
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 2
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Cell measured results	(for cell 3)
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is present and that the COUNT-C-SFN frame difference is included in it.
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 3
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional Measured Results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if this IE is set to "Intra-frequency measurement event results"
- Intra-frequency event identity	Check to see if this IE is set to "1e"
- Cell measured event results	
- CHOICE mode	Check to see if this IE is set to "FDD"
- Primary CPICH info	
- Primary Scrambling Code	Check to see if it's the same code for cell 2

MEASUREMENT CONTROL (Step 12)

Information Element	Value/remark
Measurement Identity	1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove all intra-frequency cells
- New intra-frequency cells	2 new intra-frequency cells
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 1
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	0 chips
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 2
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present (Default is 0)
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	Not Present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each events	
- Intra-frequency event identity	1a
- Triggering condition 1	Not present
- Triggering condition 2	Monitored set cells
- Reporting range constant	16 (8 dB)
- Cells forbidden to affect reporting range	Not Present
- W	0
- Hysteresis	0 (0 dB)
- Threshold used frequency	Not Present
- Reporting deactivation threshold	1
- Replacement activation threshold	Not Present

Information Element	Value/remark
- Time to trigger	5000 msec
- Amount of reporting	Infinity
- Reporting interval	16 s
- Reporting cell status	Not Present
DPCH compressed mode status info	Not Present

3GPP TS 34.123-1 version 10.3.1 Release 10

MEASUREMENT REPORT (Step 14)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured Results	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional Measured Results	Check to see if this IE is absent
Event Results	
- CHOICE event result	
- Intra-frequency event identity	Check to see if this IE is set to "1a"
- Cell measured event results	
- CHOICE mode	Check to see if this IE is set to "FDD"
- Primary CPICH info	
- Primary Scrambling Code	Check to see if it's the same code for cell 2

8.4.1.1.5 Test Requirement

After step 5 the UE shall start to transmit 2 MEASUREMENT REPORT messages at 64 seconds interval. The measurement quantity "CPICH RSCP" of cell 2 shall be reported in these messages.

After step 7 the UE shall not transmit any MEASUREMENT REPORT messages within 64 seconds after SS has transmitted the MEASUREMENT CONTROL message in step 7.

After step 9 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, to report that the CPICH RSCP value for cell 3 has risen above the threshold stated in the MEASUREMENT CONTROL message transmitted by the SS in step 7. This MEASUREMENT REPORT message shall also contain IE "Event results", indicating the triggering of event '1e' by cell 3. It shall also contain the measured CPICH RSCP value and cell synchronisation information for cell 3, and the measured CPICH Ec/No and RSCP values for cell 1.

After step 10a, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH to report that the CPICH RSCP value for cell 2 has risen above the threshold stated in the MEASUREMENT CONTROL message transmitted by the SS in step 10a. The MEASUREMENT REPORT message shall contain the measured CPICH RSCP value and cell synchronisation information for cell 2 and cell 3, as well as the measured CPICH Ec/No and RSCP for cell 1. The IE "Event results" in this message shall indicate that cell 2 has triggered the event.

After step 13, the UE shall transmit a MEASUREMENT REPORT message containing IE "Event results", indicating the triggering of event '1a' by cell 2. The MEASUREMENT REPORT message shall not contain any measured results.

8.4.1.1a Measurement Control and Report: Intra-frequency measurement for transition from idle mode to CELL_DCH state (TDD)

8.4.1.1a.1 Definition

8.4.1.1a.2 Conformance requirement

The UE shall obey the following rules for different measurement types after transiting from idle mode to CELL_DCH state:

Upon transition from idle mode to CELL_DCH state, the UE shall:

1> if intra-frequency measurements applicable to CELL_DCH state are stored in the variable MEASUREMENT_IDENTITY:

2> begin measurement reporting.

Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in subclause 8.6 in TS 25.331 unless otherwise specified below.

3GPP TS 34.123-1 version 10.3.1 Release 10

The UE shall:

1> read the IE "Measurement command";

1> if the IE "Measurement command" has the value "setup":

2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

2> if the measurement type is quality, UE internal, intra-frequency, inter-frequency or inter-RAT:

3> if, according to its measurement capabilities, the UE does not require compressed mode to perform the measurements:

4> if the measurement is valid in the current RRC state of the UE:

5> begin measurements according to the stored control information for this measurement identity.

2> for any other measurement type:

3> if the measurement is valid in the current RRC state of the UE:

4> begin measurements according to the stored control information for this measurement identity.

1> if the IE "measurement command" has the value "release":

2> terminate the measurement associated with the identity given in the IE "measurement identity";

2> clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY.

1> clear the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> if the UE "Additional Measurement List" is present:

2> if the received measurement configuration in this MEASUREMENT CONTROL message, or any measurement identities in the "Additional Measurement List" do not all have the same validity:

3> set the variable CONFIGURATION_INCOMPLETE to TRUE.

1> and the procedure ends.

The purpose of the measurement reporting procedure is to transfer measurement results from the UE to UTRAN.

In CELL_DCH state, the UE shall:

1> transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT_IDENTITY are met for any ongoing measurements that are being performed in the UE.

The reporting criteria are fulfilled if either:

- the first measurement has been completed according to the requirements set in [19] or [20] for a newly initiated measurement with periodic reporting; or
- the time period indicated in the stored IE "Periodical reporting criteria" has elapsed since the last measurement report was submitted to lower layers for a given measurement; or
- an event in stored IE "Measurement reporting criteria" was triggered. Events and triggering of reports for different measurement types are described in detail in clause 14.

For the measurement, which triggered the MEASUREMENT REPORT message, the UE shall:

3GPP TS 34.123-1 version 10.3.1 Release 10

1> set the IE "measurement identity" to the measurement identity, which is associated with that measurement in variable MEASUREMENT_IDENTITY;

1> set the IE "measured results" to include measurements according to the IE "reporting quantity" of that measurement stored in variable MEASUREMENT_IDENTITY; and

2> if all the reporting quantities are set to "false":

3> not set the IE "measured results".

1> set the IE "Measured results" in the IE "Additional measured results" according to the IE "reporting quantity" for all measurements associated with the measurement identities included in the "Additional measurements list" stored in variable MEASUREMENT_IDENTITY of the measurement that triggered the measurement report; and

2> if more than one additional measured results are to be included:

3> include only the available additional measured results, and sort them in ascending order according to their IE "measurement identity" in the MEASUREMENT REPORT message.

1> if the MEASUREMENT REPORT message was triggered by an event (i.e. not a periodical report):

2> set the IE "Event results" according to the event that triggered the report.

The UE shall:

1> transmit the MEASUREMENT REPORT message on the uplink DCCH using either AM or UM RLC according to the stored IE "measurement reporting mode" associated with the measurement identity that triggered the report.

When the MEASUREMENT REPORT message has been submitted to lower layers for transmission:

1> the procedure ends.

Reference

TS 25.331, clauses 8.4.1.8.1, 8.4.2, 8.4.1.3.

8.4.1.1a.3 Test Purpose

1. To confirm that the UE continues to monitor intra-frequency measurement quantity of the cells listed in System Information Block type 11 or 12 messages, after it has entered CELL_DCH state from idle mode. When the intra-frequency measurement reporting criteria specified in System Information Block type 11 or 12 messages have been met, it shall report the measurements using MEASUREMENT REPORT message(s).

2. To confirm that the UE terminates monitoring and reporting activities for the cells listed in "intra-frequency cell info list" IE in System Information Block type 11 or 12 messages, after it has received a MEASUREMENT CONTROL message that specifies the measurement type to be "intra-frequency measurement" with the same measurement identity as in System Information Block Type 11 or 12 messages.

3. To confirm that the UE reconfigures the monitoring and reporting activities based on the last MEASUREMENT CONTROL message received.

8.4.1.1a.4 Method of test

Initial Condition

System Simulator: 3 cells - Cell 1, Cell 2 and Cell 3 are active.

UE: "Registered idle mode on CS" (state 2) or "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

3GPP TS 34.123-1 version 10.3.1 Release 10 Test Procedure

Table 8.4.1.1a-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution.

Column marked "T0" denotes the initial conditions, while column marked as "T1" will be applied during the test.

Table 8.4.1.1a-1

Parameter	Unit	Cell 1		Cell 2		Cell 3	
		T0	T1	T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency		Mid Range Test Frequency	
PCCPCH_RSCP	dBm	-69	-69	-74	-64	-79	-67

The UE is initially in idle mode and has selected cell 1 for camping. The System Information Block type 11 messages are modified with respect to the default settings to prevent reporting of "Cell synchronisation information" and also to include cell 2 into the monitored neighbour cell list. The key measurement parameters in the modified System Information Block message are as follow: measurement type = "intra-frequency measurement", measurement quantity = "PCCPCH RSCP", report criteria = "periodic reporting criteria", reporting interval = "64 seconds".

SS prompts the operator to make an outgoing call of a supported traffic class. SS and UE shall execute procedure P3 (for CS service) or P5 (for PS service). Next SS and UE shall execute procedure P7 (for CS service) or P9 (for PS service). Then SS and UE shall execute procedure P11 (for CS service) or P13 (for PS service).

The UE shall send a MEASUREMENT REPORT message after reaching CELL_DCH state, reporting cell 2's PCCPCH RSCP value. After 64 seconds has passed since SS receives the first MEASUREMENT REPORT message, the UE shall transmit a second MEASUREMENT REPORT message.

SS sends a MEASUREMENT CONTROL message on the downlink DCCH. In this message, SS configures an intra-frequency measurement based on the measurement quantity PCCPCH RSCP. Parameters used in this message are: measurement identity = "1", report criteria = "event-trigger", event identity = "1g". All intra-frequency cells are removed. Cell 3 is included as new intra-frequency cell. SS checks to see that no MEASUREMENT REPORT messages are sent within the next 64 seconds (which is due to periodic reporting). SS reconfigures the downlink transmission power settings according to values in column "T1" in table 8.4.1.1a-1. The UE shall transmit a MEASUREMENT REPORT message when it detects that the PCCPCH RSCP of cell 3 is present. SS sends another MEASUREMENT CONTROL message on the downlink DCCH to include cell 2 in the monitored cells. SS configures an intra-frequency measurement based on the measurement quantity PCCPCH RSCP. Parameters used in this message are: measurement identity = "1", report criteria = "event-trigger", event identity = "1g". The UE shall transmit a MEASUREMENT REPORT message when it detects that the PCCPCH RSCP of cell 2 and indicating cell 2 as a best cell. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1	←		System Information Block type 11	The UE is in idle mode and camped onto cell 1. The System Information Block type 11 messages to be transmitted are different from the default settings (see specific message contents). Cell 2 is included in CELL_INFO LIST.
2	↔		SS executes procedure P3 (clause 7.4.2.1.2) or P5 (clause 7.4.2.2.2) specified in TS 34.108.	UE reaches PS-CELL_DCH or CS-CELL_DCH
3	↔		SS executes procedure P7 (clause 7.4.2.3.2) or P9 (clause 7.4.2.4.2) specified in TS 34.108.	UE reaches PS-DCCH_DCH or CS-DCCH_DCH
4	↔		SS executes procedure P11 (clause 7.4.2.5.2) or P13 (clause 7.4.2.6.2) specified in TS 34.108.	UE reaches PS-DCCH+DTCH_DCH or CS-DCCH+DTCH_DCH
5	SS			SS shall wait for a MEASUREMENT REPORT message. This MEASUREMENT REPORT shall be received on or before 64 Seconds.
6	→		MEASUREMENT REPORT	After receiving this message, SS shall expect to receive the next MEASUREMENT REPORT message after 64 seconds
7	→		MEASUREMENT REPORT	
7a				
7b				
8	←		MEASUREMENT CONTROL	A measurement with "measurement identity" IE set to "1" is assigned, with the IE "CHOICE reporting criteria" set to "intra-frequency measurement reporting criteria". See specific message content for the rest of the message.
9				SS waits for 64 seconds and verifies that no further MEASUREMENT REPORT messages are detected on the uplink DCCH.
10				SS re-adjusts the downlink transmission power settings according to columns "T1" in table 8.4.1.1a-1.
11	→		MEASUREMENT REPORT	SS verifies that UE transmits a MEASUREMENT REPORT message triggered by cell 3 containing report the measured PCCPCH RSCP value of cell 3.
12	←		MEASUREMENT CONTROL	A MEASUREMENT CONTROL is sent to the UE to modify the list of the cells the UE shall monitor.

Step	Direction		Message	Comment
	UE	SS		

3GPP TS 34.123-1 version 10.3.1 Release 10

13	→	MEASUREMENT REPORT	SS verifies that UE transmits a MEASUREMENT REPORT message triggered by cell 2, containing report the measured PCCPCH RSCP value of cell 2. The UE shall report event 1G for change to best cell, cell2.
14	←→	CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

All messages indicated below shall use the same content as described in default message content, with the following exceptions:

System Information Block type 11 (Step 1)

Information Element	Value/remark
SIB12 indicator	FALSE
3GPP TS 34.123-1 version 10.3.1 Release 10	
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not Present Absence of this IE is equivalent to default value 1
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present (This IE shall be ignored by the UE for SIB11)
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	TRUE
- CHOICE Mode	TDD
- Primary CCPCH Info	Refer to clause titled "Default settings for cell No.1 (TDD)" in clause 6.1.4 of TS 34.108
- Cell selection and Re-selection	Not Present (The IE shall be absent as this is the serving cell)
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0dB
- Reference time difference to cell	1024
- Read SFN Indicator	TRUE
- CHOICE Mode	TDD
- Primary CCPCH Info	Refer to clause titled "Default settings for cell No.2 (TDD)" in clause 6.1.4 of TS 34.108
- Cell selection and Re-selection info	Not present For neigbouring cell, if HCS is not used and all the parameters in cell selection and re-selection info are Default value, this IE is absent.
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present (Default is 0)
- CHOICE Mode	TDD
- Measurement quantity list	
- Measurement quantity	PCCPCH RSCP
- Intra-frequency measurement for RACH reporting	Not Present
- Maximum number of reported cells on RACH	Not Present
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Measurement Reporting Mode	

Information Element	Value/remark
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting

3GPP TS 34.123-1 version 10.3.1 Release 10

- CHOICE report criteria	Periodic reporting criteria
- Amount of reporting	Infinity
- Reporting interval	64 seconds
- Inter-frequency measurement system information	Not present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

MEASUREMENT REPORT (Step 6 and 7)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 2
- Proposed TGSN	Check to see if this IE is absent
- Primary CCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Timeslot list	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 1
- Proposed TGSN	Check to see if this IE is absent
- Primary CCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Timeslot list	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event Results	Check to see if this IE is absent

MEASUREMENT CONTROL (Step 8)

Information Element	Value/remark
Measurement Identity	1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove all intra-frequency cells
- New intra-frequency cells	2 new intra-frequency cells
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	0 chips
- Read SFN Indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH Info	Set to same as used for cell 3
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH Info	Set to same code as for cell 1
- Cell for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present (Default is 0)
- CHOICE Mode	TDD
- Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	TRUE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	Not Present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each events	
- Intra-frequency event identity	1g
- Triggering condition 1	Not present
- Triggering condition 2	Not present
- Hysteresis	2 (1 dB)
- Time to trigger	0 ms
- Reporting cell status	Present
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	3

MEASUREMENT REPORT (Step 11)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	(for cell 1)
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 1
- Proposed TGSN	Check to see if this IE is absent
- Primary CCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Timeslot list	Check to see if this IE is absent
- Cell measured results	(for cell 3)
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is present and that the COUNT-C-SFN frame difference is included in it.
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 3
- Proposed TGSN	Check to see if this IE is absent
- Primary CCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Timeslot list	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional Measured Results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if this IE is set to "Intra-frequency measurement event results"
- Intra-frequency event identity	Check to see if this IE is set to "1g"
- Cell measured event results	
- CHOICE mode	Check to see if this IE is set to "TDD"
- Cell parameters Id	Check to see if it's the same for cell 3

MEASUREMENT CONTROL (Step 12)

Information Element	Value/remark
Measurement Identity	1
Measurement Command	Modify
Measurement Reporting Mode	Not Present
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency info list	1 new intra-frequency cells
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	Set to same as used for cell 2
- Cell for measurement	Not Present
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity	Not Present
- Reporting cell status	Not Present
- Measurement validity	Not Present
- CHOICE report criteria	Not Present

MEASUREMENT REPORT (Step 13)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	Check to see if measurement results for 3 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	(for cell2)
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 2
- Proposed TGSN	Check to see if this IE is absent
- Primary CCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Timeslot list	Check to see if this IE is absent
- Cell measured results	(for cell1)
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 1
- Proposed TGSN	Check to see if this IE is absent
- Primary CCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Timeslot list	Check to see if this IE is absent
- Cell measured results	(for cell 3)
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is present and that the COUNT-C-SFN frame difference is included in it.
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 3
- Proposed TGSN	Check to see if this IE is absent
- Primary CCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Timeslot list	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional Measured Results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if this IE is set to "Intra-frequency measurement event results"
- Intra-frequency event identity	Check to see if this IE is set to "1g"
- Cell measured event results	
- CHOICE mode	Check to see if this IE is set to "TDD"
- Primary CCPCH Info	Check to see if it's the same code for cell 2

8.4.1.1a.5 Test Requirement

After step 5 the UE shall start to transmit 2 MEASUREMENT REPORT messages at 64 seconds interval. The measurement quantity "PCCPCH RSCP" of cell 2 shall be reported in these messages.

After step 8 the UE shall not transmit any MEASUREMENT REPORT messages within 64 seconds after SS has transmitted the MEASUREMENT CONTROL message in step 8.

After step 10 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, to report the PCCPCH RSCP value for cell 3. This MEASUREMENT REPORT message shall also contain IE "Event results", indicating the triggering of event '1g' by cell 3. It shall also contain the measured PCCPCH RSCP value and cell synchronisation information for cell 3, and the measured PCCPCH RSCP values for cell 1.

After step 12 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, to report the PCCPCH RSCP value for cell 2. This MEASUREMENT REPORT message shall also contain IE "Event results", indicating the triggering of event '1g' by cell 2.

8.4.1.2 Measurement Control and Report: Inter-frequency measurement for transition from idle mode to CELL_DCH state (FDD)

3GPP TS 34.123-1 version 10.3.1 Release 10

8.4.1.2.1 Definition

8.4.1.2.2 Conformance requirement

Upon transition from idle mode to CELL_DCH state, the UE shall:

1> stop monitoring the list of cells assigned in the IE "inter-frequency cell info list" in System Information Block type 12 (or System Information Block type 11).

Upon reception of a MEASUREMENT CONTROL message the UE shall:

1> read the IE "Measurement command";

1> if the IE "Measurement command" has the value "setup":

2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

2> for measurement types "inter-RAT measurement" or "inter-frequency measurement" that require measurements on a frequency other than the actually used frequency:

3> if, according to its measurement capabilities, the UE requires compressed mode to perform that measurement type and after reception of this message a compressed mode pattern sequence with an appropriate measurement purpose is active according to the IE "Current TGPS Status Flag" in UE variable TGPS_IDENTITY; or

3> if, according to its measurement capabilities, the UE does not require compressed mode to perform the measurements on at least one supported band of that measurement type:

4> if the measurement is valid in the current RRC state of the UE:

5> begin measurements according to the stored control information for this measurement identity.

If the IE "Reporting Cell Status" is not received for intra-frequency, inter-frequency measurement, or inter-RAT measurement, the UE shall:

1> for intra-frequency measurement, inter-frequency measurement and inter-RAT measurement:

2> exclude the IE "Measured Results" in MEASUREMENT REPORT.

Reference

3GPP TS 25.331 clauses 8.4.1.3, 8.4.1.8.2, 8.6.6.15 and 8.6.7.9

8.4.1.2.3 Test Purpose

1. To confirm that the UE stops monitoring the list of cells assigned in the IE "inter-frequency cell info" in System Information Block type 11 messages, after it enters CELL_DCH state from idle mode.

2. To confirm that the UE, which requires compressed mode, starts to perform inter-frequency measurement and related reporting activities, when it receives a MEASUREMENT CONTROL message with the "DPCH compressed mode status info" IE indicating that a stored compressed mode pattern sequence be simultaneously activated.

3. To confirm that the UE, which does not require compressed mode, starts to perform inter-frequency measurement and related reporting activities when it receives a MEASUREMENT CONTROL message without IE "DPCH compressed mode status info".

4. To confirm that the UE excludes the IE "Measured Results" for any cells in the MEASUREMENT REPORT messages, after it receives a MEASUREMENT CONTROL message with "Reporting cell status" IE omitted.

3GPP TS 34.123-1 version 10.3.1 Release 10

8.4.1.2.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 and cell 4 are active.

UE: "Registered idle mode on CS" (state 2) or "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE. If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Related ICS/IXIT statements

- Compressed mode required yes/no

Test Procedure

Table 8.4.1.2-1 illustrates the downlink power to be applied for the 2 cells.

Table 8.4.1.2-1

Parameter	Unit	Cell 1	Cell 4
UTRA RF Channel Number		Mid Range Test Frequency	High Range Test Frequency
CPICH Ec	dBm/3.84 MHz	-60	-75

The UE is initially in idle mode and has selected cell 1 for camping.

SS prompts the operator to make an outgoing call for one of the traffic classes supported by the UE. SS and UE shall execute procedure P3 (for CS service) or P5 (for PS service). The RRC CONNECTION SETUP message used in procedure P3 or P5 should contain IE "DPCH compressed mode info", setting the "TGPS status flag" to "Deactivate" and configuring transmission pattern gap sequence with TGPSI=1 only if UE requires compressed mode. Next SS and UE shall execute procedure P7 (for CS service) or P9 (for PS service). Then SS and UE shall execute procedure P11 (for CS service) or P13 (for PS service). An optional PHYSICAL CHANNEL RECONFIGURATION message is transmitted by SS to activate the transmission pattern gap sequence with TGPSI=1, if the UE requires compressed mode to perform inter-frequency measurement. Correspondingly, the UE shall start the compressed mode operations at designated time and respond with PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the UL DCCH. The UE shall not transmit any MEASUREMENT REPORT messages, which pertain to measurement readings for cells listed in the IE "inter-frequency cell info list" in System Information Block Type 11.

If UE requires compressed mode, SS sends PHYSICAL CHANNEL RECONFIGURATION message on the downlink DCCH, specifying that compressed mode sequence pattern with TGPSI=1 be deactivated. The UE shall reply with PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH if UE configures according to the PHYSICAL CHANNEL RECONFIGURATION message.

SS sends MEASUREMENT CONTROL message on the downlink DCCH. In this message, SS requests UE to perform inter-frequency measurement with periodic reporting of CPICH RSCP values for cell 4. If UE requires compressed mode, IE "DPCH compressed status info" IE to activate the transmission gap pattern sequence with TGPSI = 1 is included in this message.

The UE shall start inter-frequency measurement and reporting for cell 4's CPICH RSCP values. It shall report this measurement result by transmitting MEASUREMENT REPORT messages on uplink DCCH periodically at 16 seconds interval.

SS sends MEASUREMENT CONTROL message on the downlink DCCH omitting the IE "Reporting cell status". The UE shall send MEASUREMENT REPORT messages on the uplink DCCH, with the IE "Cell measured results" excluded in these messages. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1	←		System Information Block type 11	The UE is idle mode and camped onto cell 1.System Information Block Type 11 to be transmitted is different from the default settings (see specific message contents)
2	↔		SS executes procedure P3 (clause 7.4.2.1.2) or P5 (clause 7.4.2.2.2) specified in TS 34.108.	SS prompts the operator to make an outgoing call.
3	↔		SS executes procedure P7 (clause 7.4.2.3.2) or P9 (clause 7.4.2.4.2) specified in TS 34.108.	
4	↔		SS executes procedure P11 (clause 7.4.2.5.2) or P13 (clause 7.4.2.6.2) specified in TS 34.108.	
5	←		Void (if compressed mode is not required by the UE), or PHYSICAL CHANNEL RECONFIGURATION (if compressed mode is required by the UE)	If compressed mode is not required (refer ICS/IXIT), then goto step 6. Else, activate the compressed mode operation.
5a	→		Void (if compressed mode is not required by the UE), or PHYSICAL CHANNEL RECONFIGURATION COMPLETE (if compressed mode is required by the UE)	UE shall remain in CELL_DCH state.
6				SS checks to see that no MEASUREMENT REPORT messages are received for 10 s. If compressed mode is not required (refer ICS/IXIT), then goto step 9.
7	←		Void (if compressed mode is not required by the UE), or PHYSICAL CHANNEL RECONFIGURATION (if compressed mode is required by the UE)	Existing compressed mode sequence pattern is de-activated in this message.
8	→		Void (if compressed mode is not required by the UE), or PHYSICAL CHANNEL RECONFIGURATION COMPLETE (if compressed mode is required by the UE)	UE shall remain in CELL_DCH state.
9	←		MEASUREMENT CONTROL	SS requests UE to start inter-frequency measurement for cell 4, and performing periodic reporting for cell 4's CPICH RSCP. See specific message content below.
10	→		MEASUREMENT REPORT	UE shall report cell 4's CPICH RSCP reading periodically.
11	←		MEASUREMENT CONTROL	SS changes the reporting criteria of cell 4 to 'event 2c'. "Reporting cell status" IE in this message is omitted.
12	→		MEASUREMENT REPORT	SS monitors the uplink DCCH to make sure that only 1 such message is received almost immediately after step 11. This message shall not contain IE "Inter-frequency cell measured results"
13	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

All messages indicated below shall use the same content as described in default message content, with the following exceptions:

3GPP TS 34.123-1 version 10.3.1 Release 10

System Information Block type 11 (Step 1)

Information Element	Value/remark
SIB12 indicator	FALSE
FACH measurement occasion info	Not Present
Measurement control system information	
-Use of HCS	Not used
-Cell selection and reselection quality measure	CPICH Ec/No
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not Present
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4 of TS 34.108
- Primary CPICH Tx power	Not present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Not present
- Cells for measurement	Not present
- Intra-frequency measurement quantity	Not present
- Intra-frequency reporting quantity for RACH reporting	Not present
- Maximum number of reported cells on RACH	Not present
- Reporting information for state CELL_DCH	Not present
- Inter-frequency measurement system information	
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	Not present
- New inter-frequency cells	
- Inter-frequency cell id	4
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	Reference to table 6.1.2 of TS34.108 for Cell 4
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.4 (FDD)" in clause 6.1.4 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and re-selection info	Not present For neigbouring cell, if HCS is not used and all the parameters in cell selection and re-selection info are Default value, this IE is absent.
-Cells for measurement	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

RRC CONNECTION SETUP (Step 2)

If UE do not require compressed mode, use the message found in TS 34.108 clause 9.

3GPP TS 34.123-1 version 10.3.1 Release 10

If UE requires compressed mode, use the message found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark	Version
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing Indication	Initialise	
- CFN-targetSFN frame offset	Not Present	
- Downlink DPCH power control information		
- DPC mode	Single TPC	
- CHOICE Mode	FDD	
- Power offset $P_{Pilot-DPDCH}$	0	
- DL rate matching restriction information	Not Present	
- Spreading factor	Refer to the parameter set in TS 34.108	
- Fixed or flexible position	Fixed	
- TFCI existence	FALSE	
- Number of bits for Pilot bits (SF=128, 256)	Refer to the parameter set in TS 34.108	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Deactivate	
- TGCFN	Not Present	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not Present	
- TGD	Undefined	
- TGPL1	3	
- TGPL2	Not Present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
- CHOICE UL/DL Mode	UL and DL, UL only or DL only depending the on UE capability	
- Downlink compressed mode method	SF/2 (or Not present depending on the UE capability)	
- Uplink compressed mode method	SF/2 or Not present depending on the UE capability	
- Downlink frame type	B	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not Present	
- DeltaSIR2After2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
- TX Diversity Mode	None	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	0	
Downlink information for each radio link list		
- Downlink information for each radio link		
- CHOICE mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Reference to 34.108	
- PDSCH with SHO DCH info	Not Present	
- PDSCH code mapping	Not Present	
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH can be used	
- DPCH frame offset	Set to value: Default DPCH Offset value mod 38400	
- Secondary CPICH info	Not Present	
- DL Channelisation code		

- Secondary scrambling code - Spreading factor - Code number - Scrambling code change	1 Reference to 34.108 0 No code change	
3GPP TS 34.123-1 version 10.3.1 Release 10		
- TPC combination index - SSDT Cell identity - Closed loop timing adjustment mode SCCPCH information for FACH	0 Not present Not present Not present	 R99 and Rel-4 only R99 and Rel-4 only

PHYSICAL CHANNEL RECONFIGURATION (Step 5)

3GPP TS 34.123-1 version 10.3.1 Release 10

Use the same message sub-type in clause 9 of TS 34.108 titled "Non speech in CS" or "Speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS", with Scrambling code change set to Default1 and with the following exceptions:

Information Element	Value/remark	Version
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing Indication	Maintain	
- Downlink DPCH power control information		
- DPC mode	0 (single)	
- CHOICE mode	FDD	
- Power offset $P_{Pilot-DPDCH}$	0	
- DL rate matching restriction information	Not Present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Fixed or Flexible Position	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Activate	
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256	
- Transmission gap pattern sequence configuration parameters	Not Present	
Downlink information per radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only
-PDSCH code mapping	Not Present	R99 and Rel-4 only
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value : Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	1	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	0	
- Scrambling code change	Set to value Default1: No code change (if the UE has a compressed mode pattern sequence configured in variable TGPS_IDENTITY or included in the message including IE "Downlink DPCH info for each RL", which is using compressed mode method "SF/2")	
- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

PHYSICAL CHANNEL RECONFIGURATION (Step 7)

3GPP TS 34.123-1 version 10.3.1 Release 10

Use the same message sub-type in clause 9 of TS 34.108 titled "Non speech in CS" or "Speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS", with Scrambling code change set to Default1 and with the following exceptions:

Information Element	Value/remark	Version
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing Indication	Maintain	
- Downlink DPCH power control information		
- DPC mode	0 (single)	
- CHOICE mode	FDD	
- Power offset $P_{Pilot-DPDCH}$	0	
- DL rate matching restriction information	Not Present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Fixed or Flexible Position	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- Number of bits for Pilot bits (SF=128,256)	Reference to TS34.108 clause 6.10 Parameter Set	
- DPCH compressed mode info		
- Transmission gap pattern sequence		
- TGPSI	1	
- TPGS status Flag	Deactivate	
- TGCFN	Not Present	
- Transmission gap pattern sequence configuration parameters	Not Present	
- TX Diversity mode	None	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Not Present	
Downlink information per radio link list		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only
- PDSCH code mapping	Not Present	R99 and Rel-4 only
- Serving HS-DSCH radio link indicator	FALSE	Rel-5
- Serving E-DCH radio link indicator	FALSE	Rel-6
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value : Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	5	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	0	
- Scrambling code change	Set to value Default1: No code change (if the UE has a compressed mode pattern sequence configured in variable TGPS_IDENTITY or included in the message including IE "Downlink DPCH info for each RL", which is using compressed mode method "SF/2")	
- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only

- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	Rel-6
- E-HICH Information	Not Present	Rel-6
- E-RGCH Information	Not Present	Rel-6

3GPP TS 34.123-1 version 10.3.1 Release 10

- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

MEASUREMENT CONTROL (Step 9)

3GPP TS 34.123-1 version 10.3.1 Release 10

If UE requires compressed mode.

Information Element	Value/remark
Measurement Identity	1
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency info list	
- Inter-frequency cell id	4
- Frequency info	
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	UARFCN of the downlink frequency for cell 4
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 4
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cells for measurement	Not Present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	Not Present
- Measurement quantity for frequency quality estimate	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	
- CHOICE reported cell	Report cell within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Measurement validity	Not present
- Inter-frequency set update	Not present
- CHOICE report criteria	Periodic reporting criteria
- Amount of reporting	Infinity
- Reporting interval	16 seconds
DPCH compressed mode status info	
- TGPS reconfiguration CFN	(Current CFN + (256 – TTI/10msec))mod 256
- Transmission gap pattern sequence	
- TGPSI	1
- TGPS Status Flag	Activate
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256

If UE do not require compressed mode.

Information Element	Value/Remark
Measurement Identity	1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Periodical reporting
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency info list	
- Inter-frequency cell id	4
- Frequency info	
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	UARFCN of the downlink frequency for cell 4
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 4
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cells for measurement	
- Inter-frequency cell id	4
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	Not Present
- Measurement quantity for frequency quality estimate	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	
- CHOICE reported cell	Report cell within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Measurement validity	Not present
- Inter-frequency set update	Not present
- CHOICE report criteria	Periodic reporting criteria
- Amount of reporting	Infinity
- Reporting interval	16 seconds
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 10)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Inter-frequency measured results list"
- Inter-frequency measurement results	
- Frequency info	
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_4
- UTRA carrier RSSI	Check to see if it is absent
- Inter-frequency cell measurement results	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if it is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if set to the same code for cell 4
- CPICH Ec/No	Check to see if it is absent
- CPICH RSCP	Check to see if it is present
- Pathloss	Check to see if it is absent
Measured Results on RACH	Check to see if it is absent
Additional Measured results	Check to see if it is absent
Event Results	Check to see if it is absent

MEASUREMENT CONTROL (Step 11)

Information Element	Value/remark
Measurement Identity	1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Set up
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency info list	
- Inter-frequency cell id	4
- Frequency info	
- UARFCN uplink (Nu)	UARFCN of the uplink frequency for cell 4
- UARFCN downlink (Nd)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 4
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cells for measurement	Not Present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	Not Present
- Measurement quantity for frequency quality estimate	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	Not Present
- Measurement validity	Not present
- Inter-frequency set update	
-UE Autonomous update mode	On with no reporting
-Non autonomous update mode	Not Present
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each event	
- Inter-frequency event identity	2c
- Threshold used frequency	Not Present
- W used frequency	Not Present
- Hysteresis	1 (0.5 dB)
- Time to trigger	0 milliseconds
- Reporting cell status	Not Present
- Parameters required for each non-used frequency	
- Threshold non used frequency	-85 dBm
- W non used frequency	0
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 12)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	Check to see if it is absent
Measured Results on RACH	Check to see if it is absent
Additional Measured Results	Check to see if it is absent
Event Results	
- CHOICE event result	Check to see if this IE is set to "Inter-frequency measurement event results"
- Inter-frequency event identity	Check to see if this IE is set to "2c"
- Inter-frequency cells	
- Frequency info	
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_4
- Non frequency related measurement event results	
- CHOICE Mode	Check to see if set to "FDD"
- Primary CPICH info	
- Primary Scrambling Code	Check to see if set to the same code as cell 4

8.4.1.2.5 Test Requirement

After step 5 the UE shall not transmit any MEASUREMENT REPORT messages pertaining to the measurement of CPICH RSCP of cell 4.

If UE requires compressed mode operation, after step 5, UE shall activate compressed mode operations at the time indicated by IE "TGCFN" and then transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on uplink DCCH using AM RLC.

If UE requires compressed mode, after step 7, UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on uplink DCCH using AM RLC.

After step 9 the UE shall transmit MEASUREMENT REPORT messages on uplink DCCH, reporting cell 4's CPICH RSCP value at periodic time interval of 16 seconds in "inter-frequency cell measurement results" IE.

After step 11 the UE shall transmit only 1 MEASUREMENT REPORT message on the uplink DCCH. In this message, IE "Measured Results" shall be absent.

8.4.1.2a Measurement Control and Report: Inter-frequency measurement for transition from idle mode to CELL_DCH state (TDD)

8.4.1.2a.1 Definition

8.4.1.2a.2 Conformance requirement

Upon transition from idle mode to CELL_DCH state, the UE shall:

1> stop monitoring the list of cells assigned in the IE "inter-frequency cell info list" in System Information Block type 12 (or System Information Block type 11).

Upon reception of a MEASUREMENT CONTROL message the UE shall:

1> read the IE "Measurement command";

1> if the IE "Measurement command" has the value "setup":

2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

2> for measurement types "inter-frequency measurement":

3> if the IE "Inter-frequency cell info list" for that measurement identity is empty; or

3GPP TS 34.123-1 version 10.3.1 Release 10

3> if, according to its measurement capabilities, the UE does not require compressed mode to perform the measurements:

4> if the measurement is valid in the current RRC state of the UE:

5> begin measurements according to the stored control information for this measurement identity.

If the IE "Reporting Cell Status" is not received for inter-frequency measurement, the UE shall:

1> exclude the IE "Cell Measured Results" for any cell in MEASUREMENT REPORT.

Reference

3GPP TS 25.331 clauses 8.4.1.3, 8.4.1.8.2 and 8.6.7.9

8.4.1.2a.3 Test Purpose

1. To confirm that the UE stops monitoring the list of cells assigned in the IE "inter-frequency cell info" in System Information Block type 11 messages, after it enters CELL_DCH state from idle mode.
2. To confirm that the UE excludes the IE "cell measured results" for any cells in the MEASUREMENT REPORT messages, after it receives a MEASUREMENT CONTROL message with "Reporting cell status" IE omitted.

8.4.1.2a.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 and cell 4 are active.

UE: "Registered idle mode on CS" (state 2) or "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE. If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

Table 8.4.1.2a-1 illustrates the downlink power to be applied for the 2 cells.

Table 8.4.1.2a-1

Parameter	Unit	Cell 1	Cell 4
UTRA RF Channel Number		Mid Range Test Frequency	High Range Test Frequency
PCCPCH RSCP	dBm	-60	-75

The UE is initially in idle mode and has selected cell 1 for camping.

SS prompts the operator to make an outgoing call for one of the traffic classes supported by the UE. SS and UE shall execute procedure P3 (for CS service) or P5 (for PS service). Next SS and UE shall execute procedure P7 (for CS service) or P9 (for PS service). Then SS and UE shall execute procedure P11 (for CS service) or P13 (for PS service).The UE shall not transmit any MEASUREMENT REPORT messages, which pertain to measurement readings for cells listed in the IE "inter-frequency cell info list" in System Information Block Type 11.

SS sends MEASUREMENT CONTROL message on the downlink DCCH. In this message, SS requests UE to perform inter-frequency measurement with periodic reporting of PCCPCH RSCP values for cell 4.

The UE shall start inter-frequency measurement and reporting for cell 4's PCCPCH RSCP values. It shall report this measurement result by transmitting MEASUREMENT REPORT messages on uplink DCCH periodically at 16 seconds interval.

3GPP TS 34.123-1 version 10.3.1 Release 10SS sends MEASUREMENT CONTROL message on the downlink DCCH omitting the IE "Reporting cell status". The UE shall send MEASUREMENT REPORT messages on the uplink DCCH, with the IE "Cell measured results" excluded in these messages. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		System Information Block type 11	The UE is idle mode and camped onto cell 1.System Information Block Type 11 to be transmitted is different from the default settings (see specific message contents)
2	↔		SS executes procedure P3 (clause 7.4.2.1.2) or P5 (clause 7.4.2.2.2) specified in TS 34.108.	SS prompts the operator to make an outgoing call.
3	↔		SS executes procedure P7 (clause 7.4.2.3.2) or P9 (clause 7.4.2.4.2) specified in TS 34.108.	
4	↔		SS executes procedure P11 (clause 7.4.2.5.2) or P13 (clause 7.4.2.6.2) specified in TS 34.108. UE keeps the connection on the secondary carrier of Cell 2.	
5			Void	
6				SS checks to see that no MEASUREMENT REPORT messages are received.
7	←		MEASUREMENT CONTROL	SS requests UE to start inter-frequency measurement for cell 4, and performing periodic reporting for cell 4's PCCPCH RSCP. See specific message content below.
8	→		MEASUREMENT REPORT	UE shall report cell 4's PCCPCH RSCP reading periodically.
9	←		MEASUREMENT CONTROL	SS changes the reporting criteria of cell 4 to 'event 2c'. "Reporting cell status" IE in this message is omitted.
10	→		MEASUREMENT REPORT	SS monitors the uplink DCCH to make sure that only 1 such message is received almost immediately after step 9. This message shall not contain IE "Inter-frequency cell measured results"
11	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

All messages indicated below shall use the same content as described in default message content, with the following exceptions:

System Information Block type 11 (Step 1)

Information Element	Value/remark
SIB12 indicator	FALSE
3GPP TS 34.123-1 version 10.3.1 Release 10	
FACH measurement occasion info	Not Present
Measurement control system information	
-Use of HCS	Not used
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not Present
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH Info	Refer to clause titled "Default settings for cell No.1 (TDD)" in clause 6.1.4 of TS 34.108
- Cell Selection and Re-selection info	Not present
- Intra-frequency measurement quantity	Not present
- Intra-frequency reporting quantity for RACH reporting	Not present
- Maximum number of reported cells on RACH	Not present
- Reporting information for state CELL_DCH	Not present
- Inter-frequency measurement system information	
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	Not present
- New inter-frequency cells	
- Inter-frequency cell id	4
- Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Reference to table 6.1.4 of TS34.108 for Cell 4
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	Refer to clause titled "Default settings for cell No.4 (TDD)" in clause 6.1.4 of TS 34.108
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Cell selection and re-selection info	Not present For neigbouring cell, if HCS is not used and all the parameters in cell selection and re-selection info are Default value, this IE is absent.
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

RRC CONNECTION SETUP (Step 2)

UE will use the message found in TS 34.108 clause 9.

MEASUREMENT CONTROL (Step 7)

Information Element	Value/Remark
Measurement Identity	1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Periodical reporting
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency info list	
- Inter-frequency cell id	4
- Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	UARFCN of the frequency for cell 4
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	Set to same as used for cell 4
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Cells for measurement	Not Present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- CHOICE mode	TDD
- Measurement quantity for frequency quality estimate	PCCPCH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- Primary CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	
- CHOICE reported cell	Report cell within active and/or monitored set on used frequency or within virtual active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Measurement validity	Not present
- Inter-frequency set update	Not present
- CHOICE report criteria	Periodic reporting criteria
- Amount of reporting	Infinity
- Reporting interval	16 seconds
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 8)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Inter-frequency measured results list"
- Inter-frequency measurement results	
- Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Check to see if set to the UARFCN of the frequency for cell 4
- UTRA carrier RSSI	Check to see if it is absent
- Inter-frequency cell measurement results	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if it is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if set to the same for cell 4
- proposed TGSN	Check to see if it is absent
- PCCPCH RSCP	Check to see if it is present
- Pathloss	Check to see if it is absent
- timeslot list	Check to see if it is absent
Measured Results on RACH	Check to see if it is absent
Additional Measured results	Check to see if it is absent
Event Results	Check to see if it is absent

MEASUREMENT CONTROL (Step 9)

Information Element	Value/remark
Measurement Identity	1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Set up
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency info list	
- Inter-frequency cell id	4
- Frequency info	
- UARFCN uplink (Nt)	UARFCN of the frequency for cell 4
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	Set to same as used for cell 4
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Cells for measurement	Not Present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- CHOICE mode	TDD
- Measurement quantity for frequency quality estimate	PCCPCH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- Primary CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement validity	Not present
- Inter-frequency set update	Not present
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each event	
- Inter-frequency event identity	2c
- Threshold used frequency	Not Present
- W used frequency	Not Present
- Hysteresis	1 (0.5 dB)
- Time to trigger	0 milliseconds
- Reporting cell status	Not Present
- Parameters required for each non-used frequency	
- Threshold non used frequency	-85 dBm
- W non used frequency	0
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 10) (3.84 Mcps TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	Check to see if it is absent
Measured Results on RACH	Check to see if it is absent
Additional Measured Results	Check to see if it is absent
Event Results	
- CHOICE event result	Check to see if this IE is set to "Inter-frequency measurement event results"
- Inter-frequency event identity	Check to see if this IE is set to "2c"
- Inter-frequency cells	
- Frequency info	
- CHOICE mode	TDD
- UARFCN(Nt)	Check to see if set to the UARFCN of the frequency for cell 4
- Non frequency related measurement event results	
- CHOICE Mode	Check to see if set to "TDD"
- Primary CCPCH info	
- CHOICE Mode	Check to see if set to "TDD"
- CHOICE *TDD option*	Check to see if set to "3.84 Mcps TDD"
- CHOICE *Sync Case*	Check to see if set to " Sync Case 1"
- Timeslot	Check to see if it's the same for cell 4 (S/B 0)
- Cell parameters Id	Check to see if it's the same for cell 4
- SCTD indicator	Check to see if set to "FALSE"

MEASUREMENT REPORT (Step 10) (1.28 Mcps TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured Results	Check to see if it is absent
Measured Results on RACH	Check to see if it is absent
Additional Measured Results	Check to see if it is absent
Event Results	
- CHOICE event result	Check to see if this IE is set to "Inter-frequency measurement event results"
- Inter-frequency event identity	Check to see if this IE is set to "2c"
- Inter-frequency cells	
- Frequency info	
- CHOICE mode	TDD
- UARFCN(Nt)	Check to see if set to the UARFCN of the frequency for cell 4
- Non frequency related measurement event results	
- CHOICE Mode	Check to see if set to "TDD"
- Primary CCPCH info	
- CHOICE Mode	Check to see if set to "TDD"
- CHOICE *TDD option*	Check to see if set to "1.28 Mcps TDD"
- TSTD indicator	Check to see if set to "FALSE"
- Cell parameters Id	Check to see if it's the same for cell 4
- SCTD indicator	Check to see if set to "FALSE"
- Primary CCPCH info	Check to see if set to the same as cell 4

MEASUREMENT REPORT (Step 10) (7.68 Mcps TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	Check to see if it is absent
Measured Results on RACH	Check to see if it is absent
Additional Measured Results	Check to see if it is absent
Event Results	
- CHOICE event result	Check to see if this IE is set to "Inter-frequency measurement event results"
- Inter-frequency event identity	Check to see if this IE is set to "2c"
- Inter-frequency cells	
- Frequency info	
- CHOICE mode	TDD
- UARFCN(Nt)	Check to see if set to the UARFCN of the frequency for cell 4
- Non frequency related measurement event results	
- CHOICE Mode	Check to see if set to "TDD"
- Primary CCPCH info	
- CHOICE Mode	Check to see if set to "TDD"
- CHOICE *TDD option*	Check to see if set to "7.68 Mcps TDD"
- CHOICE *Sync Case*	Check to see if set to " Sync Case 1"
- Timeslot	Check to see if it's the same for cell 4 (S/B 0)
- Cell parameters Id	Check to see if it's the same for cell 4
- SCTD indicator	Check to see if set to "FALSE"

8.4.1.2a.5 Test Requirement

After step 5 the UE shall not transmit any MEASUREMENT REPORT messages pertaining to the measurement of PCCPCH RSCP of cell 4.

After step 7 the UE shall transmit MEASUREMENT REPORT messages on uplink DCCH, reporting cell 4's PCCPCH RSCP value at periodic time interval of 16 seconds in "inter-frequency cell measurement results" IE.

After step 9 the UE shall transmit only 1 MEASUREMENT REPORT message on the uplink DCCH. In this message, IE "inter-frequency cell measured results" shall be absent.

8.4.1.2b Measurement Control and Report: Inter-band measurement for transition from idle mode to CELL_DCH state (FDD)

8.4.1.2b.1 Definition

This test case is identical to test case 8.4.1.2 except that the cells belong to different frequency bands.

8.4.1.2b.2 Conformance requirement

Same conformance requirement as in clause 8.4.1.2.2.

8.4.1.2b.3 Test Purpose

Same test purpose as in clause 8.4.1.2.3 except that the cells belong to different frequency bands.

8.4.1.2b.4 Method of test

Initial Condition

Same initial conditions as in clause 8.4.1.2.4 except that cell 1 and cell 4 use UARFCNs selected from different frequency bands.

Related ICS/IXIT statements

- Compressed mode required yes/no- UE supports multiple bands simultaneously yes/no

3GPP TS 34.123-1 version 10.3.1 Release 10 Test Procedure

Same test procedure as in clause 8.4.1.2.4.

Note: If the UE supports more than 2 frequency bands, the test may be executed for various band combinations.

Expected Sequence

Same expected sequence as in clause 8.4.1.2.4.

Specific Message Content

Same as Specific Message Content in clause 8.4.1.2.4.

8.4.1.2b.5 Test Requirement

Same test requirement as in clause 8.4.1.2.5.

8.4.1.2c Measurement Control and Report: Inter-frequency measurement for transition from idle mode to CELL_DCH state (Cells belong to different frequency bands for LCR TDD)

8.4.1.2c.1 Definition

This test case is identical to test case 8.4.1.2a except that the cells belong to different frequency bands.

8.4.1.2c.2 Conformance requirement

Same conformance requirement as in clause 8.4.1.2a.2.

8.4.1.2c.3 Test Purpose

Same test purpose as in clause 8.4.1.2a.3 except that the cells belong to different frequency bands.

8.4.1.2c.4 Method of test

Initial Condition

Same initial conditions as in clause 8.4.1.2a.4 except that cell 1 and cell 4 use UARFCNs selected from different frequency bands.

Related ICS/IXIT statements

- Compressed mode required yes/no - UE supports multiple bands simultaneously yes/no

Test Procedure

Same test procedure as in clause 8.4.1.2a.4.

NOTE: If the UE supports more than 2 frequency bands, the test may be executed for various band combinations.

Expected Sequence

Same expected sequence as in clause 8.4.1.2a.4.

Specific Message Content

Same as Specific Message Content in clause 8.4.1.2a.4.

8.4.1.2c.5 Test Requirement

Same test requirement as in clause 8.4.1.2a.5.

8.4.1.3 Measurement Control and Report: Intra-frequency measurement for transition from idle mode to CELL_FACH state (FDD)

8.4.1.3.1 Definition

8.4.1.3.2 Conformance requirement

Upon transition from idle mode to CELL_FACH state, the UE shall:

1> begin or continue monitoring cells listed in the IE "intra-frequency cell info list" received in System Information Block type 12 (or System Information Block type 11).

In CELL_FACH state, the UE shall:

1> include a measurement report in the IE "Measured results on RACH", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in System Information Block type 12 (or "System Information Block Type 11" if "System Information Block Type 12" is not being broadcast);

1> include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported.

Upon transition from CELL_FACH to CELL_DCH state, the UE shall:

1> retrieve each set of measurement control information of measurement type "intra-frequency" stored in the variable MEASUREMENT_IDENTITY;

1> if the IE "measurement validity" for a measurement has been assigned the value "CELL_DCH:

2> resume the measurement reporting.

1> if no intra-frequency measurements applicable to CELL_DCH state are stored in the variable MEASUREMENT_IDENTITY:

2> continue monitoring the list of neighbouring cells assigned in the IE "intra-frequency cell info list" in System Information Block type 12 (or System Information Block type 11);

2> if the IE "intra-frequency measurement reporting criteria" was included in System Information Block type 12 (or System Information Block type 11):

3> send the MEASUREMENT REPORT message when reporting criteria in IE "Reporting information for state CELL_DCH" are fulfilled.

Reference

3GPP TS 25.331, clause 8.4.1.9.1, 8.4.1.7.1, 8.4.2.2.

8.4.1.3.3 Test Purpose

1. To confirm that the UE begins or continues to monitor cells listed in IE "intra-frequency cell info list" of System Information Block type 11 or 12 messages after it has entered CELL_FACH state from idle mode.

2. To confirm that the UE applies the reporting criteria stated in "intra-frequency measurement reporting criteria" IE in System Information Block Type 11 or 12 in a subsequent transition to CELL_DCH state.

3. To confirm that the UE reports measured results on RACH messages, if it receives IE "Intra-frequency reporting quantity for RACH reporting" and IE "Maximum number of reported cells on RACH" from System Information Block Type 11 or 12 upon a transition from idle mode to CELL_FACH state.

3GPP TS 34.123-1 version 10.3.1 Release 10

8.4.1.3.4 Method of test

Initial Condition

System Simulator: 2 cells. Cell 1 and cell 2 are active.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108. If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

Table 8.4.1.3-1 illustrates the downlink power to be applied for the 2 cells in this test case.

Table 8.4.1.3-1

Parameter	Unit	Cell 1	Cell 2
UTRA RF Channel Number		Mid Range Test Frequency	Mid Range Test Frequency
CPICH Ec	dBm/3.84 MHz	-60	-67

The UE is initially in idle mode and camps on cell 1. The System Information Block type 11 are modified compared to the default settings. In the System Information Block type 11 messages, reporting of CPICH RSCP is also required for intra-frequency reporting when transmitting RACH messages on cell 1.

SS prompts the operator to make an outgoing call for one of the traffic classes supported by the UE. SS and UE shall execute procedure P6. Next SS and UE shall execute procedure P10. Then SS and UE shall execute procedure P14. SS starts timer T305 and waits until timer T305 expires, the UE shall send a CELL UPDATE message on the CCCH which includes the measured value of cell 1's CPICH RSCP in IE "Measured results on RACH". SS then replies with CELL UPDATE CONFIRM message on the downlink DCCH, without changing the physical channel resources.

SS transmits PHYSICAL CHANNEL RECONFIGURATION message, and allocates dedicated physical channels to the UE. The UE shall transit to CELL_DCH state and then send a MEASUREMENT REPORT message, correctly stating the measurement identity. The measurement identity indicated shall match the value that was previously broadcast on System Information Block type 11 messages when the UE was still in idle mode. The IE "Measured results" in the MEASUREMENT REPORT messages shall contain measured values of cell 2's CPICH RSCP.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		System Information Block type 1, System Information Block type 11	The UE is in idle mode and camps onto cell 1. System Information Block type 1 and 11 to be transmitted are different from the default settings (see specific message contents)
2	↔		SS executes procedure P6 (clause 7.4.2.2.2) specified in TS 34.108.	SS prompts the test operator to make an outgoing call.
3	↔		SS executes procedure P10 (clause 7.4.2.4.2) specified in TS 34.108.	
4	↔		SS executes procedure P14 (clause 7.4.2.6.2) specified in TS 34.108.	
5			Void	

Step	Direction		Message	Comment
	UE	SS		

6			SS monitors the uplink DCCH to confirm that no MEASUREMENT REPORT messages are detected. SS waits for 5 minutes (for the expiry of T305 timer).
7	→	CELL UPDATE	This message shall contain IE "Measured results on RACH" reporting the measured CPICH RSCP for cell 1.
8	←	CELL UPDATE CONFIRM	SS does not change the physical channel configurations.
9	←	PHYSICAL CHANNEL RECONFIGURATION	SS assigns dedicated physical resources.
10	→	PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall transit to CELL_DCH state.
11	→	MEASUREMENT REPORT	UE shall begin to report cell 2's CPICH RSCP value periodically at 16 seconds interval. The measurement identity shall match the one that is broadcast for use in CELL_DCH in SIB11 in step 1.

Specific Message Content

System Information Block type 1 (Step 1)

Use the same System Information Block Type 1 message as found in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/Remarks
UE Timers and constants in connected mode - T305	5 minutes.
- T312	2

System Information Block type 11 (Step 1)

3GPP TS 34.123-1 version 10.3.1 Release 10

Use the same System Information Block Type 11 message as found in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/remark
SIB12 Indicator	FALSE
Measurement control system information	
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	5
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not Present
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	Not present
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN Indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	
- $Qoffset1_{s,n}$	Not Present (Default is 0 dB)
- $Qoffset2_{s,n}$	Not Present
- Maximum allowed UL TX power	0 dBm
- HCS neighbouring cell information	Not Present
- CHOICE Mode	FDD
- Qqualmin	-20dB
- Qrxlevmin	-58 (-115dBm)
- Cells for measurement	Not Present
- Intra-frequency reporting quantity for RACH reporting	
- SFN-SFN observed time difference reporting indicator	No report
- CHOICE mode	FDD
- Measurement quantity	CPICH RSCP
- Maximum number of reported cells on RACH	Current cell
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	TRUE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	TRUE

Information Element	Value/remark
- Cell identity reporting indicator	FALSE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	FALSE

3GPP TS 34.123-1 version 10.3.1 Release 10

- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1a
- Triggering condition 1	Not Present
- Triggering condition 2	Monitored set cells
- Reporting Range Constant	28 (14 dB)
- Cells forbidden to affect reporting range	Not Present
- W	0.0
- Hysteresis	2 (1.0 dB)
- Threshold used frequency	Not Present
- Reporting deactivation threshold	0
- Replacement activation threshold	Not Present
- Time to trigger	60 ms
- Amount of reporting	Infinity
- Reporting interval	16 seconds
- Reporting Cell Status	
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	2

CELL UPDATE (Step 7)

Information Element	Value/remark
U-RNTI	Check to see if set to same U-RNTI value assigned in the execution of procedure P6.
START list	Checked to see if this IE is present
AM_RLC error indication(RB2, RB3 or RB4)	FALSE
AM_RLC error indication(RB>4)	FALSE
Cell update cause	Check to see if set to 'Periodical cell update'
Failure cause	Check to see if this IE is absent
RB timer indicator	
- T314 expired	Checked to see if it is set to 'FALSE'
- T315 expired	Checked to see if it is set to 'FALSE'
Measured results on RACH	
- Measurement result for current cell	
- CHOICE measurement quantity	Check to see if set to 'CPICH RSCP'
- CPICH RSCP	Checked to see if set to within an acceptable range.
- Measurement results for monitored cells	Checked to see if this IE is absent.

PHYSICAL CHANNEL RECONFIGURATION (Step 9) with the following exception:

Information Element	Value/remark
Downlink information for each radio links	
3GPP TS 34.123-1 version 10.3.1 Release 10	
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Ref. to the Default settings in clause 6.1 (FDD)
- PDSCH with SHO DCH info	Not Present
- PDSCH code mapping	Not Present
- Downlink DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Set to value : Default DPCH Offset Value mod 38 400
- Secondary CPICH info	Not Present
- DL channelisation code	
- Secondary scrambling code	Same value as used for Cell 1
- Spreading factor	Reference to clause 6.10 Parameter Set
- Code number	0
- Scrambling code change	Not present

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "Packet to CELL_DCH from CELL_FACH".

MEASUREMENT REPORT (Step 11)

Information Element	Value/remark
Measurement identity	Check to see if set to 5
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 1
- CPICH Ec/No	Check to see if this IE is present
- CPICH RSCP	Check to see if this IE is absent
- Pathloss	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH Info	Check to see if it's the same code for cell 2
- Primary Scrambling Code	Check to see if this IE is absent
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if set to "Intra-frequency measurement event results"
- Intra-frequency event identity	Check to see if set to "1a"
- Cell measurement event results	
- CHOICE Mode	Check to see if set to "FDD"
- Primary CPICH info	
- Primary Scrambling Code	Check to see if set to the scrambling code of cell 2

8.4.1.3.5 Test Requirement

After step 5 the UE shall not transmit any MEASUREMENT REPORT messages on the uplink DCCH.

After step 6 the UE shall initiate cell update procedure by transmitting CELL UPDATE message on CCCH. In this message, IE "cell update cause" shall be set to "periodic cell update". It shall include IE "measured results on RACH", containing the measurement value for cell 1's CPICH RSCP.

3GPP TS 34.123-1 version 10.3.1 Release 10 After step 10 the UE shall transmit MEASUREMENT REPORT messages at 16 seconds interval. In these messages, cell 2's CPICH RSCP value shall be reported in IE "Measured results". The IE "measurement identity" in this message shall match the IE "Intra-frequency measurement identity" found in System Information Block type 11 messages transmitted in step 1. The MEASUREMENT REPORT messages shall also contain IE "Event results", indicating that intra-frequency event "1a" has triggered in the UE.

8.4.1.3a Measurement Control and Report: Intra-frequency measurement for transition from idle mode to CELL_FACH state (TDD)

8.4.1.3a.1 Definition

8.4.1.3a.2 Conformance requirement

The UE shall obey the follow rules for different measurement types after transiting from idle mode to CELL_FACH state:

Upon transition from idle mode to CELL_FACH state, the UE shall:

1> begin or continue monitoring cells listed in the IE "intra-frequency cell info list" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11, TS 25.331).

The purpose of the measurement reporting procedure is to transfer measurement results from the UE to UTRAN.

In CELL_FACH state, the UE shall:

1> transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT_IDENTITY are met for any ongoing traffic volume measurement or UE positioning measurement that is being performed in the UE;

1> include a measurement report in the IE "Measured results on RACH", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in System Information Block type 12 (or "System Information Block Type 11" if "System Information Block Type 12" is not being broadcast);

1> include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported.

In TDD, if the Radio Bearer associated with the MEASUREMENT_IDENTITY fulfilling the reporting criteria for an ongoing traffic volume measurement is mapped on transport channel of type USCH, the UE shall:

1> initiate the "PUSCH CAPACITY REQUEST" procedure instead of transmitting a MEASUREMENT REPORT (TDD Only).

For the measurement, which triggered the MEASUREMENT REPORT message, the UE shall:

1> set the IE "measurement identity" to the measurement identity, which is associated with that measurement in variable MEASUREMENT_IDENTITY;

1> set the IE "measured results" to include measurements according to the IE "reporting quantity" of that measurement stored in variable MEASUREMENT_IDENTITY; and

2> if all the reporting quantities are set to "false":

3> not set the IE "measured results".

1> set the IE "Measured results" in the IE "Additional measured results" according to the IE "reporting quantity" for all measurements associated with the measurement identities included in the "Additional measurements list" stored in variable MEASUREMENT_IDENTITY of the measurement that triggered the measurement report; and

2> if more than one additional measured results are to be included:

3> include only the available additional measured results, and sort them in ascending order according to their IE "measurement identity" in the MEASUREMENT REPORT message.

3GPP TS 34.123-1 version 10.3.1 Release 10

1> if the MEASUREMENT REPORT message was triggered by an event (i.e. not a periodical report):

2> set the IE "Event results" according to the event that triggered the report.

The UE shall:

1> transmit the MEASUREMENT REPORT message on the uplink DCCH using either AM or UM RLC according to the stored IE "measurement reporting mode" associated with the measurement identity that triggered the report.

When the MEASUREMENT REPORT message has been submitted to lower layers for transmission:

1> the procedure ends.

Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in subclause 8.6 in TS 25.331 unless otherwise specified below.

The UE shall:

1> read the IE "Measurement command";

1> if the IE "Measurement command" has the value "setup":

2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

2> if the measurement type is quality, UE internal, intra-frequency, inter-frequency or inter-RAT:

3> if, according to its measurement capabilities, the UE does not require compressed mode to perform the measurements:

4> if the measurement is valid in the current RRC state of the UE:

5> begin measurements according to the stored control information for this measurement identity.

2> for any other measurement type:

3> if the measurement is valid in the current RRC state of the UE:

4> begin measurements according to the stored control information for this measurement identity.

1> if the IE "measurement command" has the value "release":

2> terminate the measurement associated with the identity given in the IE "measurement identity";

2> clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY.

1> clear the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> if the UE "Additional Measurement List" is present:

2> if the received measurement configuration in this MEASUREMENT CONTROL message, or any measurement identities in the "Additional Measurement List" do not all have the same validity:

3> set the variable CONFIGURATION_INCOMPLETE to TRUE.

1> and the procedure ends.

Reference

TS 25.331, clauses 8.4.1.9.1, 8.4.2, 8.4.1.3

8.4.1.3a.3 Test Purpose

1. To confirm that the UE begins or continues to monitor cells listed in IE "intra-frequency cell info list" of System Information Block type 11 or 12 messages after it has entered CELL_FACH state from idle mode.

2. To confirm that the UE applies the reporting criteria stated in "intra-frequency measurement reporting criteria" IE in System Information Block Type 11 or 12 in a subsequent transition to CELL_DCH state.

3. To confirm that the UE reports measured results on RACH messages, if it receives IE "Intra-frequency reporting quantity for RACH reporting" and IE "Maximum number of reported cells on RACH" from System Information Block Type 11 or 12 upon a transition from idle mode to CELL_FACH state.

8.4.1.3a.4 Method of test

Initial Condition

System Simulator: 2 cells. Cell 1 and cell 2 are active.

UE: "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108. If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

Table 8.4.1.3a-1 illustrates the downlink power to be applied for the 2 cells in this test case.

Table 8.4.1.3a-1

Parameter	Unit	Cell 1	Cell 2
UTRA RF Channel Number		Mid Range Test Frequency	Mid Range Test Frequency
PCCPCH RSCP	dBm	-64	-74

The UE is initially in idle mode and camps on cell 1. The System Information Block type 11 are modified compared to the default settings to prevent reporting of "Cell synchronisation information" and also to include cell 2 into the IE "intra-frequency cell info list".

SS prompts the operator to make an outgoing call for one of the traffic classes supported by the UE. SS and UE shall execute procedure P6. Next SS and UE shall execute procedure P10. Then SS and UE shall execute procedure P14. SS starts timer T305 and waits until timer T305 expires, the UE shall send a CELL UPDATE message on the CCCH which includes the measured value of cell 1's PCCPCH RSCP in IE "Measured results on RACH". SS then replies with CELL UPDATE CONFIRM message on the downlink DCCH, without changing the physical channel resources.

SS transmits PHYSICAL CHANNEL RECONFIGURATION message, and allocates dedicated physical channels to the UE. The UE shall transit to CELL_DCH state and then send a MEASUREMENT REPORT message, correctly stating the measurement identity. The measurement identity indicated shall match the value that was previously broadcast on System Information Block type 11 messages when the UE was still in idle mode. The IE "Measured results" in the MEASUREMENT REPORT messages shall contain measured values of cell 1, 2's PCCPCH RSCP.

NOTE: The Radio Bearer associated with the MEASUREMENT_IDENTITY fulfilling the reporting criteria for an ongoing traffic volume measurement must not be mapped on transport channel of type USCH

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1	←		System Information Block type 1, System Information Block type 11	The UE is in idle mode and camps onto cell 1. System Information Block type 1 and 11 to be transmitted are different from the default settings (see specific message contents)
2	↔		SS executes procedure P6 (clause 7.4.2.2.2) specified in TS 34.108.	SS prompts the test operator to make an outgoing call.
3	↔		SS executes procedure P10 (clause 7.4.2.4.2) specified in TS 34.108.	UE reaches PS-DCCH FACH
4	↔		SS executes procedure P14 (clause 7.4.2.6.2) specified in TS 34.108.	UE reaches PS-DCCH+DTCH FACH
5				SS monitors the uplink DCCH to confirm that no MEASUREMENT REPORT messages are detected. SS waits for 5 minutes (for the expiry of T305 timer).
6	→		CELL UPDATE	This message shall contain IE "Measured results on RACH" reporting the measured PCCPCH RSCP for cell 1.
7	←		CELL UPDATE CONFIRM	SS does not change the physical channel configurations.
8	←		PHYSICAL CHANNEL RECONFIGURATION	SS assigns dedicated physical resources.
9	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall transit to CELL_DCH state.
10	→		MEASUREMENT REPORT	UE shall begin to report cell 1,2's PCCPCH RSCP value. The measurement identity shall match the one that is broadcast for use in CELL_DCH in SIB11 in step 1.

Specific Message Content

System Information Block type 1 (Step 1)

Information Element	Value/Remarks
UE Timers and constants in connected mode	
- T305	5 minutes.

System Information Block type 11 (Step 1)

Information Element	Value/remark
SIB12 indicator	FALSE
3GPP TS 34.123-1 version 10.3.1 Release 10	
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	5
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not Present
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	Refer to clause titled "Default settings for cell No.1 (TDD)" in clause 6.1.4 of TS 34.108
- Cell selection and Re-selection info	Not present
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN Indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH Info	Refer to clause titled "Default settings for cell No.2 (TDD)" in clause 6.1.4 of TS 34.108
- Cell selection and Re-selection info	
- $Qoffset1_{s,n}$	Not Present (Default is 0 dB)
- Maximum allowed UL TX power	0 dBm
- HCS neighbouring cell information	Not Present
- CHOICE Mode	TDD
- Qrxlevmin	-52 (-103dBm)
- Cells for measurement	Not Present
- Intra-frequency Measurement quantity	
- Filter Coefficient	Not Present
- CHOICE Mode	TDD
- Measurement quantity list	
- Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantity for RACH reporting	
- SFN-SFN observed time difference reporting indicator	No report
- CHOICE mode	TDD
- Reporting quantity	PCCPCH RSCP
- Maximum number of reported cells on RACH	Current cell
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	TRUE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not present

Information Element	Value/remark
- Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Periodical reporting

3GPP TS 34.123-1 version 10.3.1 Release 10

- CHOICE report criteria	Periodic reporting criteria
- Amount of reporting	Infinity
- Reporting interval	64 seconds
- Inter-frequency measurement system information	Not Present
- Traffic volume measurement system information	Not Present

CELL UPDATE (Step 6)

Information Element	Value/remark
U-RNTI	Check to see if set to same U-RNTI value assigned in the execution of procedure P6.
START list	Checked to see if this IE is present
AM_RLC error indication(RB2, RB3 or RB4)	FALSE
AM_RLC error indication(RB>4)	FALSE
Cell update cause	Check to see if set to 'Periodical cell update'
Failure cause	Check to see if this IE is absent
Measured results on RACH	
- Measurement result for current cell	
- CHOICE mode	TDD
- Primary CCPCH RSCP	Checked to see if set to within an acceptable range.
- Measurement results for monitored cells	Checked to see if this IE is absent.

PHYSICAL CHANNEL RECONFIGURATION (Step 8)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "Packet to CELL_DCH from CELL_FACH".

MEASUREMENT REPORT (Steps 10)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 1
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 2
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	Check to see if this IE is absent

8.4.1.3a.5 Test Requirement

After step 5 the UE shall not transmit any MEASUREMENT REPORT messages on the uplink DCCH.

3GPP TS 34.123-1 version 10.3.1 Release 10After step 6 the UE shall initiate cell update procedure by transmitting CELL UPDATE message on CCCH. In this message, IE "cell update cause" shall be set to "periodic cell update". It shall include IE "measured results on RACH", containing the measurement value for cell 1's PCCPCH RSCP.

After step 9 the UE shall transmit MEASUREMENT REPORT messages. In these messages, cell 1,2's PCCPCH RSCP value shall be reported in IE "Measured results". The IE "measurement identity" in this message shall match the IE "Intra-frequency measurement identity" found in System Information Block type 11 messages transmitted in step 1. The MEASUREMENT REPORT messages shall not contain IE "Event results".

8.4.1.4 Measurement Control and Report: Inter-frequency measurement for transition from idle mode to CELL_FACH state (FDD)

8.4.1.4.1 Definition

8.4.1.4.2 Conformance requirement

Upon transition from idle mode to CELL_FACH state, the UE shall:

1> begin or continue monitoring cells listed in the IE "inter-frequency cell info list" received in System Information Block type 12 (or System Information Block type 11);

Reference

3GPP TS 25.331, clause 8.4.1.9.2

8.4.1.4.3 Test Purpose

1. To confirm that the UE begins to monitor the list of cells assigned in the IE "inter-frequency cell info list" in System Information Block type 11 or 12 messages, after it enters CELL_FACH state from idle mode. However, it shall not transmit any MEASUREMENT REPORT messages to report measured results for inter-frequency cells.

8.4.1.4.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 and cell 4 are active.

UE: "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE. If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

Table 8.4.1.4-1 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while columns marked "T1 are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 8.4.1.4-1

Parameter	Unit	Cell 1		Cell 4	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec	dBm/3.84 MHz	-60	-75	-75	-60

The UE is initially at idle mode and has selected cell 1 for camping. The System Information Block type 11 messages are modified with respect to the default settings to prevent reporting of "Cell synchronisation information" and also to include cell 4 into the "inter-frequency cell list" IE.

3GPP TS 34.123-1 version 10.3.1 Release 10SS prompts the operator to make an outgoing call of a supported traffic class. SS and UE shall execute procedure P6. Next SS and UE shall execute procedure P10. Then SS and UE shall execute procedure P14. The UE shall not transmit any MEASUREMENT REPORT messages, which pertain to measurement readings for inter-frequency cells belonging to the monitored set. SS re-adjusts its downlink power settings according to columns marked "T1" in table 8.4.1.4-1. This is expected to trigger a cell reselection in the UE. The UE shall send CELL UPDATE message to cell 4 in order to report this event. Upon receiving this message, SS replies with the CELL UPDATE CONFIRM message, which includes IE "New C-RNTI", on the downlink DCCH. UE shall then reply with a UTRAN MOBILITY INFORMATION CONFIRM message.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		System Information Block type 11	The UE is in idle mode in cell 1. System Information Block type 11 to be transmitted is different from the default settings (see specific message contents)
2	↔		SS executes procedure P6 (clause 7.4.4.4.2) specified in TS 34.108.	
3	↔		SS executes procedure P10 (clause 7.4.2.4.2) specified in TS 34.108.	
4	↔		SS executes procedure P6 (clause 7.4.4.4.2) specified in TS 34.108.	
5	→		Void	
6				SS checks to see that no MEASUREMENT REPORT messages are received.
7				SS reconfigures the downlink transmission power, according to columns "T1" of table 8.4.1.4-1.
8	→		CELL UPDATE	UE shall detect that cell 4 has become stronger than cell 1. It sends this message after re-selecting to cell 4
9	←		CELL UPDATE CONFIRM	Use message content.
10	→		UTRAN MOBILITY INFORMATION CONFIRM	

Specific Message Content

All messages indicated below shall use the same content as described in default message content, with the following exceptions:

System Information Block type 11 (Step 1)

Information Element	Value/remark
SIB12 Indicator	FALSE
3GPP TS 34.123-1 version 10.3.1 Release 10	
FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	2
- Inter-frequency FDD measurement indicator	TRUE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	Not Present
Measurement control system information	
- Intra-frequency measurement system information	Not Present
- Inter-frequency measurement system information	
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency cells	
- Inter-frequency cell id	4
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to apply the default duplex distance defined for the operating frequency according to 25.101
- UARFCN downlink (Nd)	Reference to table 6.1.2 of TS 34.108 for Cell 4
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.4 (FDD)" in clause 6.1.4 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and re-selection info	
- $Qoffset_{s,n}$	0 dB
- Maximum allowed UL TX power	0 dBm
- HCS neighbouring cell information	Not Present
- CHOICE Mode	FDD
- Qqualmin	-20dB
- Qrxlevmin	-58 (-115dBm)
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

CELL UPDATE (Step 8)

Information Element	Value/remark
U-RNTI	Check to see if set to same U-RNTI assigned during the execution of procedure P6.
Cell update cause	Check to see if it is set to "Cell Reselection"
Protocol error info	Check to see if it is absent or set to FALSE
Measured results on RACH	Check to see if it is absent
Protocol error information	Check to see if it is absent

CELL UPDATE CONFIRM (Step 9)

Use the message sub-type in default message content defined in Annex A, with the following exceptions.

Information Element	Value/Remarks
New C-RNTI	'1010 1010 1010 1010'

UTRAN MOBILITY INFORMATION CONFIRM (Step 10)

Only the message type is checked.

8.4.1.4.5 Test Requirement

After step 5 the UE shall not transmit any MEASUREMENT REPORT messages pertaining to any measurement quantities for cell 4.

After step 7 the UE shall reselect to cell 4 and transmit a CELL UPDATE message on the uplink CCCH of cell 4.

After step 9, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on uplink DCCH AM RLC.

8.4.1.4a Measurement Control and Report: Inter-frequency measurement for transition from idle mode to CELL_FACH state (TDD)

8.4.1.4a.1 Definition

8.4.1.4a.2 Conformance requirement

Upon transition from idle mode to CELL_FACH state, the UE shall:

1> begin or continue monitoring cells listed in the IE "inter-frequency cell info list" received in System Information Block type 12 (or System Information Block type 11);

Reference

3GPP TS 25.331, clause 8.4.1.9.2

8.4.1.4a.3 Test Purpose

1. To confirm that the UE begins to monitor the list of cells assigned in the IE "inter-frequency cell info list" in System Information Block type 11 or 12 messages, after it enters CELL_FACH state from idle mode. However, it shall not transmit any MEASUREMENT REPORT messages to report measured results for inter-frequency cells.

8.4.1.4a.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 and cell 4 are active.

UE: "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE. If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

Table 8.4.1.4a-1 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while columns marked "T1 are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 8.4.1.4a-1

Parameter	Unit	Cell 1		Cell 4	
		T0	T1	T0	T1

3GPP TS 34.123-1 version 10.3.1 Release 10

UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
PCCPCH RSCP	dBm	-60	-75	-75	-60

The UE is initially at idle mode and has selected cell 1 for camping. The System Information Block type 11 messages are modified with respect to the default settings to prevent reporting of "Cell synchronisation information" and also to include cell 4 into the "inter-frequency cell list" IE.

SS prompts the operator to make an outgoing call of a supported traffic class. SS and UE shall execute procedure P6. Next SS and UE shall execute procedure P10. Then SS and UE shall execute procedure P14. The UE shall not transmit any MEASUREMENT REPORT messages, which pertain to measurement readings for inter-frequency cells belonging to the monitored set. SS re-adjusts its downlink power settings according to columns marked "T1" in table 8.4.1.4a-1. This is expected to trigger a cell reselection in the UE. The UE shall send CELL UPDATE message to cell 4 in order to report this event. Upon receiving this message, SS replies with the CELL UPDATE CONFIRM message, which includes IE "New C-RNTI", on the downlink DCCH. UE shall then reply with a UTRAN MOBILITY INFORMATION CONFIRM message.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		System Information Block type 11	The UE is in idle mode in cell 1. System Information Block type 11 to be transmitted is different from the default settings (see specific message contents)
2	↔		SS executes procedure P6 (clause 7.4.4.4.2) specified in TS 34.108.	
3	↔		SS executes procedure P10 (clause 7.4.2.4.2) specified in TS 34.108.	
4	↔		SS executes procedure P6 (clause 7.4.4.4.2) specified in TS 34.108.	
5	→		Void	
6				SS checks to see that no MEASUREMENT REPORT messages are received.
7				SS reconfigures the downlink transmission power, according to columns "T1" of table 8.4.1.4a-1.
8	→		CELL UPDATE	UE shall detect that cell 4 has become stronger than cell 1. It sends this message after re-selecting to cell 4
9	←		CELL UPDATE CONFIRM	Use message content.
10	→		UTRAN MOBILITY INFORMATION CONFIRM	

Specific Message Content

All messages indicated below shall use the same content as described in TS 34.108 clause 9, with the following exceptions:

System Information Block type 11 (Step 1)

Information Element	Value/remark
SIB12 Indicator	FALSE
3GPP TS 34.123-1 version 10.3.1 Release 10	
FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	2
- Inter-frequency FDD measurement indicator	FALSE
- Inter-frequency TDD measurement indicator	TRUE
- Inter-RAT measurement indicators	Not Present
Measurement control system information	
- Intra-frequency measurement system information	Not Present
- Inter-frequency measurement system information	
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency cells	
- Inter-frequency cell id	4
- Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Reference to table 6.1.4 of TS 34.108 for Cell 4
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	Refer to clause titled "Default settings for cell No.4 (TDD)" in clause 6.1.4 of TS 34.108
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Cell selection and re-selection info	
- $Qoffset_{s,n}$	0 dB
- Maximum allowed UL TX power	0 dBm
- HCS neighbouring cell information	Not Present
- CHOICE Mode	TDD
- Qrxlevmin	-52 (-103 dBm)
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

CELL UPDATE (Step 8)

Information Element	Value/remark
U-RNTI	Check to see if set to same U-RNTI assigned during the execution of procedure P6.
Cell update cause	Check to see if it is set to "Cell Reselection"
Measured results on RACH	Check to see if it is absent

CELL UPDATE CONFIRM (Step 9)

Use the message sub-type in default message content defined in Annex A, with the following exceptions.

Information Element	Value/Remarks
New C-RNTI	'1010 1010 1010 1010'

UTRAN MOBILITY INFORMATION CONFIRM (Step 10)

Only the message type is checked.

8.4.1.4a.5 Test Requirement

After step 5 the UE shall not transmit any MEASUREMENT REPORT messages pertaining to any measurement quantities for cell 4.

After step 7 the UE shall reselect to cell 4 and transmit a CELL UPDATE message on the uplink CCCH of cell 4.

After step 9, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on uplink DCCH AM RLC.

3GPP TS 34.123-1 version 10.3.1 Release 10

8.4.1.5 Measurement Control and Report: Intra-frequency measurement for transition from CELL_DCH to CELL_FACH state (FDD)

8.4.1.5.1 Definition

8.4.1.5.2 Conformance requirement

Upon transition from CELL_DCH to CELL_FACH/CELL_PCH/URA_PCH state, the UE shall:

1> stop intra-frequency type measurement reporting;

1> if the transition is due to a reconfiguration message which included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects a cell other than that indicated by this IE; or

1> if the transition is due to a reconfiguration message which does not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD); or

1> if the transition is not due to a reconfiguration message:

2> delete the measurements of type intra-frequency associated with the variable MEASUREMENT_IDENTITY.

1> begin monitoring cells listed in the IE "intra-frequency cell info list" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11 in [8] TS 25.331).

Upon transition from CELL_FACH to CELL_DCH state, the UE shall:

1> retrieve each set of measurement control information of measurement type "intra-frequency" stored in the variable MEASUREMENT_IDENTITY;

1> if the IE "measurement validity" for a measurement has been assigned the value "CELL_DCH:

2> resume the measurement reporting.

1> if no intra-frequency measurements applicable to CELL_DCH state are stored in the variable MEASUREMENT_IDENTITY:

2> continue monitoring the list of neighbouring cells assigned in the IE "intra-frequency cell info list" in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11 in [8] TS 25.331);

2> if the IE "intra-frequency measurement reporting criteria" was included in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11 in [8] TS 25.331):

3> send the MEASUREMENT REPORT message when reporting criteria in IE "Reporting information for state CELL_DCH" are fulfilled.

Reference

3GPP TS 25.331, clause 8.4.1.6.1, 8.4.1.7.1

8.4.1.5.3 Test Purpose

1. To confirm that the UE stops performing intra-frequency measurement reporting specified in a MEASUREMENT CONTROL message, when it moves from CELL_DCH state to CELL_FACH state.

2. To confirm that the UE reads the System Information Block type 11 or 12 messages when it enters CELL_FACH state from CELL_DCH state, and starts to monitor the cells listed in the IE "intra-frequency cell info list".

3GPP TS 34.123-1 version 10.3.1 Release 103 To confirm that the UE performs measurements on uplink RACH transmissions and appends the measured results in RACH messages, when it receives IE "intra-frequency reporting quantity for RACH reporting" and IE "Maximum number of reported cells on RACH" in the System Information Block type 11 or 12 messages.

4. To confirm that the UE applies the reporting criteria in IE "intra-frequency reporting criteria" in System Information Block Type 11 or 12 messages following a state transition from CELL_FACH to CELL_DCH, if no intra-frequency measurements applicable to CELL_DCH are stored.

8.4.1.5.4 Method of test

Initial Condition

System Simulator: 3 cells – Cell 1 and cell 2 are active, while cell 3 is switched off..

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_DCH (state 6-10) in cell 1 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statements

- PS Supported yes/no

Specific Message Contents

For system information block 11 of Cell 1 (gives IE's which are different from defaults given in 34.108 subclause 6.1) to be transmitted before idle update preamble.

System Information Block type 11

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/remark
SIB12 indicator	FALSE
FACH measurement occasion info	Not Present
Measurement control system information	
3GPP TS 34.123-1 version 10.3.1 Release 10	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	Not present
- Cells for measurement	Not Present
-Intra-frequency measurement quantity	Not Present
-Intra-frequency reporting quantity for RACH reporting	Not Present
-Maximum number of reported cells on RACH	Not Present
-Reporting information for state CELL_DCH	Not Present
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

Test Procedure

Table 8.4.1.5-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while columns marked "T1 are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 8.4.1.5-1

Parameter	Unit	Cell 1		Cell 2		Cell 3	
		T0	T1	T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec	dBm/3.84 MHz	-60	-60	-70	-85	OFF	-70

The UE is initially in CELL_DCH state. The System Information Block type 11 message is modified compared to the default message contents, in order to prevent the reporting of "Cell synchronisation information". No measurement to be applied by the UE in CELL_DCH state is specified in any of the System Information Block type 11 or 12 messages.

SS sends a MEASUREMENT CONTROL message to UE. In this message, the SS requests the establishment of an intra-frequency measurement for the measurement of cell 2's CPICH RSCP. At the same time, reporting of CPICH RSCP values of active set cells and monitored set cells are requested with the reporting criteria set to "periodic reporting" and "reporting interval" set to 16 seconds. The UE shall start transmitting MEASUREMENT REPORT messages at 16 seconds interval corresponding to the requested reporting event.
SS transmits PHYSICAL CHANNEL RECONFIGURATION message to move the UE to CELL_FACH. After receiving this message, the UE shall reconfigure itself and reply with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on RACH. SS starts T305 timer and SS monitors the uplink channels to verify that no MEASUREMENT REPORT messages are received.

SS reconfigures itself according to the settings in columns marked "T1" in table 8.4.1.5-1. SS transmits System Information Block type 12 messages in cell 1, which include cell 3 into the IE "intra-frequency cell info list" and modifies SIB11 to indicate that SIB12 is now being broadcast. IEs "Intra-frequency reporting quantity for RACH

3GPP TS 34.123-1 version 10.3.1 Release 10

Reporting" and IE "Maximum number of Reported cells on RACH" are also specified in the System Information Type 12 messages. Event type 1a reporting criterion is specified for intra-frequency measurements. SS transmit SYSTEM INFORMATION CHANGE INDICATION message to UE. SS waits until T305 has expired. The UE shall respond with a CELL UPDATE message, which comprises IE "Measured results on RACH" to report the readings of CPICH RSCP for cell 1 and cell 3. SS replies with CELL UPDATE CONFIRM message on the downlink DCCH. This message does not change the physical resources nor allocate any new RNTI identities. SS transmits PHYSICAL CHANNEL RECONFIGURATION message again, and configures dedicated physical channel for both uplink and downlink directions. The UE shall send PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and return to CELL_DCH state. SS listens to the uplink DCCH for MEASUREMENT REPORT messages.

SS shall receive the MEASUREMENT REPORT messages at 500 milliseconds interval.

SS verifies that it includes CPICH RSCP values of the cells 1and 3 in IE "Cell measured results" and the triggering of event '1a' on cell 3 in IE "Event results".

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1				UE is in PS-DCCH+DTCH_DCH (state 6-10) in cell 1.
2			Void	
3			Void	
4			Void	
5	←		MEASUREMENT CONTROL	SS requests for measurement of cell 2´s CPICH RSCP value and reporting of CPICH RSCP values of active cells and monitored set cells.
6	→		MEASUREMENT REPORT	UE shall send periodic report at 16 seconds interval.
7	←		PHYSICAL CHANNEL RECONFIGURATION	SS moves the UE to CELL_FACH state.
8	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall move to CELL_FACH state. SS starts T305 timer.
9	←		Master Information Block, Scheduling Block 1, System Information Block type 11, 12	SS reconfigures itself according to the settings stated in column "T1" of table 8.4.1.5-1. SIB 11 is modified to indicate that SIB12 is now broadcast and to add cell 2 as a neighbour cell. SIB 12 indicates that cell 3 is included in the IE "intra-frequency cell info list". SS waits for 1 minute and verifies that no MEASUREMENT REPORT messages are detected on the uplink.
10	←		SYSTEM INFORMATION CHANGE INDICATION	SS waits until T305 has expired.
11	→		CELL UPDATE	UE shall transmit this message with measured results on RACH channels for cell 1 and cell 3 present in this message.
12	←		CELL UPDATE CONFIRM	No changes in physical resource allocation and RNTI identities.
13	←		PHYSICAL CHANNEL RECONFIGURATION	SS configures dedicated physical channels.
14	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall transit to CELL_DCH state.
15	→		MEASUREMENT REPORT	Repeated at 500 milliseconds interval

Specific Message Content

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

MEASUREMENT CONTROL (Step 5)

Information Element	Value/remark
Measurement Identity	5
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency info list	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 2
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present (Default is 0)
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Measurement validity	Not present
- CHOICE report criteria	Periodical reporting criteria
- Amount of reporting	Infinity
- Reporting interval	16 seconds
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 6)

Information Element	Value/remark
Measurement identity	Check to see if set to 5
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measured results list	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 1
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Cell measured results	This object may be absent in the first instance of the MEASUREMENT REPORT, but must be present in subsequent instances. If present the associated IEs should be checked as indicated.
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 2
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured result list	Check to see if this IE is absent
Event results	Check to see if this IE is absent

PHYSICAL CHANNEL RECONFIGURATION (Step 7)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "(Packet to CELL_FACH from CELL_DCH in PS)"

MASTER INFORMATION BLOCK (Step 9)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/Remarks
MIB Value Tag	A value that is different from the previous MIB value tag
SB 1 Cell Value tag	Set to (Current SB1 value tag + 1)

SCHEDULING BLOCK 1 (Step 9)

Information Element	Value/remark
SIB 11 Cell Value tag	Set to (Current SIB 11 value tag + 1)
SIB 12 Cell Value tag	Set to (Current SIB 12 value tag + 1)

System Information Block type 11 (Step 9)

Information Element	Value/remark
SIB12 indicator	TRUE
3GPP TS 34.123-1 version 10.3.1 Release 10	
FACH measurement occasion info	Not Present
Measurement control system information	
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not Present
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	Not present
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN Indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	
- $Qoffset_{s,n}$	0 dB
- Maximum allowed UL TX power	0 dBm
- HCS neighbouring cell information	Not Present
- CHOICE Mode	FDD
- Qqualmin	-20dB
- Qrxlevmin	-58 (-115dBm)
- Cells for measurement	Not Present
-Intra-frequency measurement quantity	Not Present
-Intra-frequency reporting quantity for RACH reporting	Not Present
-Maximum number of reported cells on RACH	Not Present
-Reporting information for state CELL_DCH	Not Present
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

System Information Block type 12 (Step 9)

Information Element	Value/remark
FACH measurement occasion info	Not Present
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	6
- Intra-frequency cell cells	
- CHOICE intra-frequency cell removal	Not Present
- New intra-frequency cells	
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN Indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1.4 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	
- $Qoffset_{s,n}$	0dB
- Maximum allowed UL TX power	0dBm
- HCS neighbouring cell information	Not Present
- CHOICE Mode	FDD
- Qqualmin	-20dB
- Qrxlevmin	-58 (-115dBm)
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present (Default is 0)
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity for RACH reporting	
- SFN-SFN observed time difference reporting indicator	No report
- CHOICE mode	FDD
- Reporting quantity	CPICH RSCP
- Maximum number of reported cells on RACH	Current cell + best neighbour
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameter required for each event	
- Intra-frequency event identity	1a
- Triggering condition 1	Not Present
- Triggering condition 2	Monitored set cells

Information Element	Value/remark
- Reporting range constant	29 (14.5dB)
- Cells forbidden to affect reporting	Not present
- W	0.0

3GPP TS 34.123-1 version 10.3.1 Release 10

- Hysteresis	2 (1.0 dB)
- Threshold used frequency	Not Present
- Reporting deactivation threshold	7
- Replacement activation threshold	Not Present
- Time to trigger	60 ms
- Amount of reporting	Infinity
- Reporting Interval	500 milliseconds
- Reporting cell status	
- CHOICE *reported cell*	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Inter-frequency measurement system information	Not present
- Inter-RAT measurement system information	Not present
- Traffic volume measurement system information	Not present

SYSTEM INFORMATION CHANGE INDICATION (Step 10)

Information Element	Value/Remarks
BCCH modification info	A value that is different from the previous MIB value tag
- MIB Value tag	

CELL UPDATE (Step 11)

Information Element	Value/remark
U-RNTI	Check to see if set to the same value assigned during the execution of procedure P3 or P5.
START list	Checked to see if this IE is present
AM_RLC error indication(RB2, RB3 or RB4)	FALSE
AM_RLC error indication(RB>4)	FALSE
Cell update cause	Check to see if it is set to "Periodical cell update"
Failure case	Check to see if it is absent
Measured results on RACH	
- Measurement result for current cell	
- CHOICE measurement quantity	Check to see if set to "CPICH RSCP"
- CPICH RSCP	Check to see if it is present
- Measurement results for monitored cells	
- SFN-SFN observed time difference	Check to see if it is absent
- Primary CPICH info	
- Primary scrambling code	Check to see if the same as cell 3's code.
- CHOICE measurement quantity	Check to see if set to "CPICH RSCP"
- CPICH RSCP	Check to see if it is present

PHYSICAL CHANNEL RECONFIGURATION (Step 13)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "(Packet to CELL_DCH from CELL_FACH in PS)".

MEASUREMENT REPORT (Step 15)

Information Element	Value/remark
Measurement identity	Check to see if set to 6
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results list	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 1
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 3
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Event results	Check to see if this set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if set to '1a'
- Cell measurement event results	
- CHOICE Mode	Check to see if set to 'FDD'
- Primary CPICH info	
- Primary Scrambling Code	Check to see if set to the same code for cell 3

8.4.1.5.5 Test Requirement

After step 5, the UE shall start to transmit MEASUREMENT REPORT messages at 16 seconds interval. The first message may contain the IE "Cell measured results" to report cell 2's CPICH RSCP value, subsequent messages shall contain this IE.

After step 8, the UE shall not send any MEASUREMENT REPORT messages containing reporting quantities requested in MEASUREMENT CONTROL messages in step 5.

After step 10, the UE shall perform a cell update procedure and transmit a CELL UPDATE message. In this message, measured values CPICH RSCP for cell 1 and cell 3 shall be included in the IE "measured results on RACH".

After step 14, the UE shall apply the intra-frequency measurement reporting criteria" received in System Information Block type 12 messages of step 9. It shall send MEASUREMENT REPORT messages at 500 milliseconds interval. In these messages, triggering of event '1a' shall be reported in IE "Event results" with IE "Primary CPICH info" containing the primary scrambling code for cell 3.

The message shall contain IE "measured result" to report CPICH RSCP values of cell 1and 3.

8.4.1.5a Measurement Control and Report: Intra-frequency measurement for transition from CELL_DCH to CELL_FACH state (TDD)

3GPP TS 34.123-1 version 10.3.1 Release 10

8.4.1.5a.1 Definition

8.4.1.5a.2 Conformance requirement

Upon transition from CELL_DCH to CELL_FACH/CELL_PCH/URA_PCH state, the UE shall:

1> stop intra-frequency type measurement reporting;

1> if the transition is due to a reconfiguration message which included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects a cell other than that indicated by this IE; or

1> if the transition is due to a reconfiguration message which does not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD); or

1> if the transition is not due to a reconfiguration message:

2> delete the measurements of type intra-frequency associated with the variable MEASUREMENT_IDENTITY.

1> begin monitoring cells listed in the IE "intra-frequency cell info list" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11 in [8] TS 25.331).

Reference

3GPP TS 25.331, clause 8.4.1.6.1, 8.4.1.7.1

8.4.1.5a.3 Test Purpose

1. To confirm that the UE stops performing intra-frequency measurement reporting specified in a MEASUREMENT CONTROL message, when it moves from CELL_DCH state to CELL_FACH state.

2. To confirm that the UE reads the System Information Block type 11 or 12 messages when it enters CELL_FACH state from CELL_DCH state, and starts to monitor the cells listed in the IE "intra-frequency cell info list".

3 To confirm that the UE performs measurements on uplink RACH transmissions and appends the measured results in RACH messages, when it receives IE "intra-frequency reporting quantity for RACH reporting" and IE "Maximum number of reported cells on RACH" in the System Information Block type 11 or 12 messages.

4. To confirm that the UE applies the reporting criteria in IE "intra-frequency reporting criteria" in System Information Block Type 11 or 12 messages following a state transition from CELL_FACH to CELL_DCH, if no intra-frequency measurements applicable to CELL_DCH are stored.

8.4.1.5a.4 Method of test

Initial Condition

System Simulator: 3 cells – Cell 1 and cell 2 are active, while cell 3 is switched off.

UE: PS-DCCH+DTCH_DCH (state 6-10) in cell 1 as specified in clause 7.4 of TS 34.108.

Specific Message Contents

For MASTER IFORMATION BLOCK and system information block 11 of Cell 1 (gives IE's which are different from defaults given in 34.108 subclause 6.1) to be transmitted before idle update preamble.

MASTER INFORMATION BLOCK

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

3GPP TS 34.123-1 version 10.3.1 Release 10

Information Element	Value/Remarks
MIB Value Tag	A valid MIB value tag as defined in TS 25.331

System Information Block type 11

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/remark
SIB12 indicator	FALSE
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary PCCPCH Info	Refer to clause titled "Default settings for cell No.1 (TDD)" in clause 6.1.4 of TS 34.108
- Cell selection and Re-selection info	Not present
- Cells for measurement	Not Present
-Intra-frequency measurement quantity	Not Present
-Intra-frequency reporting quantity for RACH reporting	Not Present
-Maximum number of reported cells on RACH	Not Present
-Reporting information for state CELL_DCH	Not Present
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

Test Procedure

Table 8.4.1.5a-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while column marked as "T1" will be applied during the test.

Table 8.4.1.5a-1

Parameter	Unit	Cell 1			Cell 2			Cell 3		
		T0	T1	T2	T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			Mid Range Test Frequency			Mid Range Test Frequency		
PCCPCH RSCP	dBm	-60	-60	-70	-75	-85	-85	OFF	-70	-60

The UE is initially in CELL_DCH state. The System Information Block type 11 message is modified compared to the default message contents, in order to prevent the reporting of "Cell synchronisation information". No measurement to be applied by the UE in CELL_DCH state is specified in any of the System Information Block type 11 or 12 messages.

SS sends a MEASUREMENT CONTROL message to UE. In this message, the SS requests the establishment of an intra-frequency measurement for the measurement of cell 2's PCCPCH RSCP. At the same time, reporting of PCCPCH RSCP values of active set cells and monitored set cells are requested with the reporting criteria set to "periodic reporting" and "reporting interval" set to 16 seconds. The UE shall start transmitting MEASUREMENT REPORT messages at 16 seconds interval corresponding to the requested reporting event.

SS transmits PHYSICAL CHANNEL RECONFIGURATION message to move the UE to CELL_FACH. After receiving this message, the UE shall reconfigure itself and reply with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on RACH. SS monitors the uplink channels to verify that no MEASUREMENT REPORT messages are received.

3GPP TS 34.123-1 version 10.3.1 Release 10

SS reconfigures itself according to the settings in columns marked "T1" in table 8.4.1.5a-1. SS transmits System Information Block type 12 messages in cell 1, which include cell 3 into the IE "intra-frequency cell info list" and modifies SIB11 to indicate that SIB12 is now being broadcast. IEs "Intra-frequency reporting quantity for RACH Reporting" and IE "Maximum number of Reported cells on RACH" are also specified in the System Information Type 12 messages. Event type 1g reporting criterion is specified for intra-frequency measurements. SS transmit SYSTEM INFORMATION CHANGE INDICATION message to UE. SS waits until T305 has expired. The UE shall respond with a CELL UPDATE message, which comprises IE "Measured results on RACH" to report the readings of PCCPCH RSCP for cell 1 and cell 3. SS replies with CELL UPDATE CONFIRM message on the downlink DCCH. This message does not change the physical resources nor allocate any new RNTI identities. SS transmits PHYSICAL CHANNEL RECONFIGURATION message again, and configures dedicated physical channel for both uplink and downlink directions. The UE shall send PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and return to CELL_DCH state. SS listens to the uplink DCCH for MEASUREMENT REPORT messages.

SS reconfigures itself according to the settings in columns marked "T2" in table 8.4.1.5a-1. Event 1g is triggered since the best cell is changed to cell 3 from cell 1.

SS shall receive the MEASUREMENT REPORT messages.

SS verifies that it includes PCCPCH RSCP values of the cells 1, 2 and 3 in IE "Cell measured results" and the triggering of event '1g' on cell 3 in IE "Event results".

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1				UE is in PS-DCCH+DTCH_DCH (state 6-10) in cell 1.
2	←		MEASUREMENT CONTROL	SS requests for measurement of cell 2´s PCCPCH RSCP value and reporting of PCCPCH RSCP values of active cell and monitored set cell.
3	→		MEASUREMENT REPORT	UE shall send periodic report at 16 seconds interval.
4	←		PHYSICAL CHANNEL RECONFIGURATION	SS moves the UE to CELL_FACH state.
5	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE reaches CELL_FACH state.
6	←		Master Information Block System Information Block type 11, 12	SS reconfigures itself according to the settings stated in column "T1" of table 8.4.1.5a-1. SIB 11 is modified to indicate that SIB12 is now broadcast and includes cell 2 as a neighbour cell. SIB 12 indicates that cell 3 is included in the IE "intra-frequency cell info list". Event 1g is also configured for cell 3. SS waits for 1 minute and verifies that no MEASUREMENT REPORT messages are detected on the uplink.
7	←		SYSTEM INFORMATION CHANGE INDICATION	SS waits until T305 has expired.
8	→		CELL UPDATE	UE shall transmit this message with measured results on RACH channels for cell 1 and cell 3 present in this message.
9	←		CELL UPDATE CONFIRM	No changes in physical resource allocation and RNTI identities.
10	←		PHYSICAL CHANNEL RECONFIGURATION	SS configures dedicated physical channels.
11	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall transit to CELL_DCH state.
11a				SS reconfigures itself according to the settings stated in column “T2” of table 8.4.1.5a-1.
12	→		MEASUREMENT REPORT	The UE shall report event 1G for change to best cell, cell3.

Specific Message Content

3GPP TS 34.123-1 version 10.3.1 Release 10

MEASUREMENT CONTROL (Step 2)

Information Element	Value/remark
Measurement Identity	5
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency info list	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	Set to same as used for cell 2
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present (Default is 0)
- CHOICE mode	TDD
- Measurement quantity list	
- Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
CHOICE MODE	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
CHOICE MODE	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Measurement validity	Not present
- CHOICE report criteria	Periodical reporting criteria
- Amount of reporting	Infinity
- Reporting interval	16 seconds

MEASUREMENT REPORT (Step 3)

Information Element	Value/remark
Measurement identity	Check to see if set to 5
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measured results list	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 1
- Proposed TGSN	Check to see if this IE is absent
- Primary CCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Timeslot list	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 2
- Proposed TGSN	Check to see if this IE is absent
- Primary CCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Timeslot list	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured result list	Check to see if this IE is absent
Event results	Check to see if this IE is absent

PHYSICAL CHANNEL RECONFIGURATION (Step 4)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "(Packet to CELL_FACH from CELL_DCH in PS)"

MASTER INFORMATION BLOCK (Step 6)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/Remarks
MIB Value Tag	A valid MIB value tag as defined in TS 25.331 that is different from the previous value

System Information Block type 11 (Step 6)

Information Element	Value/remark
SIB12 indicator	TRUE
3GPP TS 34.123-1 version 10.3.1 Release 10	
FACH measurement occasion info	Not Present
Measurement control system information	
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not Present
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary PCCPCH Info	Refer to clause titled "Default settings for cell No.1 (TDD)" in clause 6.1.4 of TS 34.108
- Cell selection and Re-selection info	Not present
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary PCCPCH Info	Refer to clause titled "Default settings for cell No.2 (TDD)" in clause 6.1.4 of TS 34.108
- Cell selection and Re-selection info	
- $Qoffset_{s,n}$	0 dB
- Maximum allowed UL TX power	0 dBm
- HCS neighbouring cell information	Not Present
- CHOICE Mode	TDD
- Qrxlevmin	-52 (-103 dBm)
- Cells for measurement	Not Present
-Intra-frequency measurement quantity	Not Present
-Intra-frequency reporting quantity for RACH reporting	Not Present
-Maximum number of reported cells on RACH	Not Present
-Reporting information for state CELL_DCH	Not Present
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

System Information Block type 12 (Step 6)

Information Element	Value/remark
FACH measurement occasion info	Not Present
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement control system information	
- Use of HCS	Not used
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	6
- Intra-frequency cell cells	
- CHOICE intra-frequency cell removal	Not Present
- New intra-frequency cells	
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	Refer to clause titled "Default settings for cell No.3 (TDD)" in clause 6.1.4 of TS 34.108
- Cell selection and Re-selection info	
- $Qoffset_{s,n}$	0dB
- Maximum allowed UL TX power	30dBm
- HCS neighbouring cell information	Not Present
- CHOICE Mode	TDD
- Qrxlevmin	-52 (-103dBm)
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present (Default is 0)
- CHOICE mode	TDD
- Measurement list	
- Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantity for RACH reporting	
- SFN-SFN observed time difference reporting indicator	No report
- CHOICE mode	TDD
- Reporting quantity	PCCPCH RSCP
- Maximum number of reported cells on RACH	Current cell + best neighbour
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameter required for each event	
- Intra-frequency event identity	1g
- Reporting range constant	20.0 dB
- W	0.0
- Hysteresis	2 (1.0 dB)
- Time to trigger	60 ms
- Amount of reporting	absent
- Reporting Interval	absent
- Reporting cell status	

Information Element	Value/remark
- CHOICE *reported cell*	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency

3GPP TS 34.123-1 version 10.3.1 Release 10

- Maximum number of reported cells	3
- Inter-frequency measurement system information	Not present
- Inter-RAT measurement system information	Not present
- Traffic volume measurement system information	Not present

SYSTEM INFORMATION CHANGE INDICATION (Step 7)

Information Element	Value/Remarks
BCCH modification info	
- MIB Value tag	A valid MIB value tag as defined in TS 25.331 that is different from the previous value

CELL UPDATE (Step 8)

Information Element	Value/remark
U-RNTI	Check to see if set to the same value assigned during the execution of procedure P3 or P5.
START list	Checked to see if this IE is present
AM_RLC error indication(RB2, RB3 or RB4)	FALSE
AM_RLC error indication(RB>4)	FALSE
Cell update cause	Check to see if it is set to "Periodical cell update"
Failure case	Check to see if it is absent
Measured results on RACH	
- Measurement result for current cell	
- SFN-SFN observed time difference	Not Checked
- CHOICE mode	TDD
- Cell parameters Id	Check to see if the same as cell 1.
- PCCPCH RSCP	Check to see if it is present
- Measurement results for monitored cells	
- SFN-SFN observed time difference	Not Checked
- CHOICE mode	TDD
- Cell parameters Id	Check to see if the same as cell 3.
- PCCPCH RSCP	Check to see if it is present

PHYSICAL CHANNEL RECONFIGURATION (Step 10)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "(Packet to CELL_DCH from CELL_FACH in PS)".

MEASUREMENT REPORT (Step 12)

Information Element	Value/remark
Measurement identity	Check to see if set to 6
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results list	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 3
- Proposed TGSN	Check to see if this IE is absent
- Primary CCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Timeslot list	Check to see if it is absent
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 1
- Proposed TGSN Reporting required	Check to see if this IE is absent
- Primary CCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Timeslot list	Check to see if it is absent
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- Cell parameters Id	Check to see if it's the same for cell 2
- Proposed TGSN Reporting required	Check to see if this IE is absent
- PCCPCH RSCP reporting indicator	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Event results	Check to see if this set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if set to '1g'
- Cell measurement event results	
- CHOICE Mode	Check to see if set to 'TDD'
- Cell parameters id	Check to see if it's the same for cell 3

8.4.1.5a.5 Test Requirement

After step 2, the UE shall start to transmit MEASUREMENT REPORT messages at 16 seconds interval. The message shall contain IE "measured result" to report cell 2's PCCPCH RSCP value.

After step 5, the UE shall not send any MEASUREMENT REPORT messages containing reporting quantities requested in MEASUREMENT CONTROL messages in step 2.

After step 7, the UE shall perform a cell update procedure and transmit a CELL UPDATE message. In this message, measured values PCCPCH RSCP for cell 1 and cell 3 shall be included in the IE "measured results on RACH".

After step 12, the UE shall apply the intra-frequency measurement reporting criteria" received in System Information Block type 12 messages of step 6. It shall send MEASUREMENT REPORT messages. In these messages, triggering of event '1g' shall be reported in IE "Event results" with IE " Cell parameters Id " containing the same for cell 3.

The message shall contain IE "measured result" to report PCCPCH RSCP values of cell 1, 2 and 3.

8.4.1.6 Measurement Control and Report: Inter-frequency measurement for transition from CELL_DCH to CELL_FACH state (FDD)

3GPP TS 34.123-1 version 10.3.1 Release 10

8.4.1.6.1 Definition

8.4.1.6.2 Conformance requirement

Upon transition from CELL_DCH to CELL_FACH/ CELL_PCH/URA_PCH state, the UE shall:

1> stop the inter-frequency type measurement reporting assigned in a MEASUREMENT CONTROL message;

1> begin monitoring cells listed in the IE "inter-frequency cell info list" received in System Information Block type 12 (or System Information Block type 11);

1> in CELL_FACH state:

2> perform measurements on other frequencies according to the IE "FACH measurement occasion info".

Reference

3GPP TS 25.331, clause 8.4.1.6.2

8.4.1.6.3 Test Purpose

1. To confirm that UE ceases inter-frequency type measurement reporting assigned in MEASUREMENT CONTROL message when moving from CELL_DCH state to CELL_FACH.
2. To confirm that the UE begins to monitor the cells listed in "inter-frequency cell info" received in System Information Block type 11 or 12 messages, following a state transition from CELL_DCH state to CELL_FACH state.

8.4.1.6.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 and cell 2 are active.

UE: PS-DCCH+DTCH_DCH (state 6-10) in cell 1 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statements

- Compressed mode required yes/no

Specific Message contents

System Information Block type 4

Use the same message type found in clause 6.1.0b of TS 34.108, with the following exceptions for Cell 1:

- Qqualmin	-16

For system information block 12 for Cell1 (gives IEs which are different from defaults given in 34.108 sec 6.1) to be transmitted before idle update preamble

System Information Block Type 12

Information Element	Value/remark
FACH measurement occasion info	
3GPP TS 34.123-1 version 10.3.1 Release 10	
- FACH Measurement occasion cycle length coefficient	3
- Inter-frequency FDD measurement indicator	FALSE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	Not Present
Measurement control system information	
- Intra-frequency measurement system information	Not Present
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

Test Procedure

Table 8.4.1.6-1 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while columns marked "T1 are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 8.4.1.6-1

Parameter	Unit	Cell 1		Cell 4	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec	dBm/3.84 MHz	-60	-75	-75	-60

The UE is initially in CELL_DCH state. The System Information Block type 12 message is modified with respect to the default settings, so that no measurement tasks are required of the UE. If UE requires compressed mode, SS transmits PHYSICAL CHANNEL RECONFIGURATION message. In this message, IE "DPCH compressed mode info" is present, which indicates that the UE shall apply the given parameters for compressed mode operations. The UE shall return a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to acknowledge that compressed mode mechanism can be exercised.

SS sends a MEASUREMENT CONTROL message to the UE, including cell 4 into the IE "inter-frequency cell info". The IE "CHOICE reporting criteria" in this message is set to "periodic reporting criteria". SS waits for 8 seconds to allow the periodic timer to expire. The UE shall send a MEASUREMENT REPORT message containing IE "inter-frequency cell measurement results" to report cell 4's CPICH RSCP value. SS transmits PHYSICAL CHANNEL RECONFIGURATION message and reconfigures common physical channels. The UE shall move to CELL_FACH state and then return a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to SS.

SS modifies the contents of Master Information Block (MIB) and System Information Block (SIB) type 12. In SIB 12, cell 4 is added to the cells listed in the "inter-frequency cell info" IE. SS transmit SYSTEM INFORMATION CHANGE INDICATION message to UE. SS waits for 8 seconds to detect any uplink MEASUREMENT REPORT messages. SS verifies that no MEASUREMENT REPORT message(s) are received as a result of inter-frequency measurements. SS then reconfigures the downlink transmission power settings of cell 1 and cell 4 according to the values stated in columns "T1" of table 8.4.1.6-1. SS waits for the UE to perform cell re-selection. The UE shall transmit a CELL UPDATE message on the uplink CCCH of cell 4, specifying the "cell update cause" IE as "cell re-selection". SS replies with CELL UPDATE CONFIRM message, which includes IE "New C-RNTI", on the downlink DCCH to complete the cell update procedure. The UE shall reply with a UTRAN MOBILITY INFORMATION CONFIRM message.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1			Void	
2				If compressed mode is not required (refer ICS/IXIT), goto step 8.
3			Void	
4			Void	
5			Void	
6	←		PHYSICAL CHANNEL RECONFIGURATION	SS instructs UE to begin compressed mode operation.
7	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall remain in CELL_DCH state.
8	←		MEASUREMENT CONTROL	SS indicates that the CPICH RSCP of cell 4 shall be monitored and reported. SS waits for 8 seconds for the reception of MEASUREMENT REPORT message.
9	→		MEASUREMENT REPORT	UE shall transmit this message to report cell 4's CPICH RSCP value.
10	←		PHYSICAL CHANNEL RECONFIGURATION	SS configures common physical channels.
11	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall moves to CELL_FACH state.
12	←		Master Information Block, Scheduling Block 1, System Information Block type 12	SS modifies MIB and SIB 12. Cell 4 is included in the IE "inter-frequency cell info"
13	←		SYSTEM INFORMATION CHANGE INDICATION	SS waits for 8 seconds to verify that no MEASUREMENT REPORT messages are detected on the uplink DCCH.
14				SS changes the power settings for cell 1 and cell 4 according to columns marked "T1" of table 8.4.1.6-1, and then waits for the UE to re-select to a new cell.
15	→		CELL UPDATE	UE shall perform cell re-selection and transmit this message on the new cell.
16	←		CELL UPDATE CONFIRM	See message content.
17	→		UTRAN MOBILITY INFORMATION CONFIRM	

Specific Message Content

3GPP TS 34.123-1 version 10.3.1 Release 10

PHYSICAL CHANNEL RECONFIGURATION (Step 6)

Use the same message sub-type found in Annex A, which is entitled "(Packet to CELL_DCH from CELL_DCH in PS)", with the following exceptions in the IE(s) concerned:

Information Element	Value/remark	Version
Downlink information common for all radio links		
- Downlink DPCH info common for all RL	Not Present	
- CHOICE Mode	FDD	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Activate	
- TGCFN	(Current CFN+(256 – TTI/10msec)) mod 256	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not Present	
- TGD	undefined	
- TGPL1	3	
- TGPL2	Not Present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
- CHOICE UL/DL Mode	UL and DL or DL only depending on UE capability	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2 or Not present depending on UE capability	
- Downlink frame type	B	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not Present	
- DeltaSIRAfter2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
- TX Diversity Mode	None	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Not Present	
Downlink information per radio link list		
-Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only
-PDSCH code mapping	Not Present	R99 and Rel-4 only
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value : Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	1	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	0	
- Scrambling code change	No code change	
- TPC combination index	0	

- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	

3GPP TS 34.123-1 version 10.3.1 Release 10

MEASUREMENT CONTROL (Step 8)

Information Element	Value/remark
Measurement Identity	15
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency info list	
- Inter-frequency cell id	4
- Frequency info	
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	UARFCN of the downlink frequency for cell 4
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 4
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cells for measurement	
- Inter-frequency cell id	4
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- Measurement quantity for frequency quality estimate	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Measurement validity	
- UE state	CELL_DCH
- Inter-frequency set update	Not Present
- CHOICE report criteria	Periodic reporting criteria
- Amount of reporting	Infinity
- Reporting interval	8 seconds
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 9)

Information Element	Value/remark
Measurement identity	Check to see if set to 15
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Inter-frequency measured results list"
- Inter-frequency measurement results	
- Frequency info	
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_4
- UTRA carrier RSSI	Check to see if it is absent
- Inter-frequency cell measurement results	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if it is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if set to the same code for cell 4
- CPICH Ec/No	Check to see if it is absent
- CPICH RSCP	Check to see if it is present
- Pathloss	Check to see if it is absent
Measured Results on RACH	Check to see if it is absent
Event Results	Check to see if it is absent

PHYSICAL CHANNEL RECONFIGURATION (Step 10)

If UE do not require compressed mode, use the same message sub-type found in TS 34.108 clause 9, which is entitled "(Packet to CELL_FACH from CELL_DCH in PS)".

If UE requires compressed mode, use the same message sub-type found in TS34.108 clause 9, which is entitled "(Packet to CELL_FACH from CELL_DCH in PS)", with the following exceptions in the IE(s) concerned:

Information Element	Value/Remarks	Version
Downlink information common for all radio links		
- Downlink DPCH info common for all RL	Not Present	
- CHOICE mode	FDD	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Deactivate	
- TGCFN	Not Present	
- Transmission gap pattern sequence configuration parameters	Not Present	
- TX Diversity Mode	None	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Not Present	

Master Information Block (Step 12)

Information Element	Value/Remarks
MIB value tag	A valid MIB value tag as defined in TS 25.331 that is different from the previous value
SB 1 Cell Value tag	Set to (Current SB1 value tag + 1)

Scheduling Block 1 (Step 12)

Information Element	Value/remark
SIB 12 Cell Value tag	Set to (Current SIB 12 value tag + 1)

System Information Block type 12 (Step 12)

Information Element	Value/remark
FACH measurement occasion info	
3GPP TS 34.123-1 version 10.3.1 Release 10	
- FACH Measurement occasion cycle length coefficient	3
- Inter-frequency FDD measurement indicator	TRUE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	Not Present
- Inter-frequency measurement system information	
- Inter-frequency cell info list	
- CHOICE Inter-frequency cell removal	Not Present
- New inter-frequency cells	
- Inter-frequency cell id	4
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	Reference to table 6.1.2 of TS 34.108 for Cell 4
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.4 (FDD)" in clause 6.1.4 of TS 34.108
- Primary CPICH Tx power	Not Present
- TX diversity indicator	FALSE
- Cell selection and re-selection info	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

SYSTEM INFORMATION CHANGE INDICATION (Step 13)

Information Element	Value/Remarks
BCCH modification info	
- MIB Value tag	A valid MIB value tag as defined in TS 25.331 that is different from the previous value

CELL UPDATE (Step 15)

Information Element	Value/remark
U-RNTI	Check to see if same to value assigned in P3 or P5 as described in TS34.108 clause 7.4.2
Cell update cause	Check to see if it is set to "Cell Reselection"
Protocol error info	Check to see if it is absent or set to FALSE
Measured results on RACH	Check to see if it is absent
Protocol error information	Check to see if it is absent

CELL UPDATE CONFIRM (Step 16)

Use the same message sub-type found in Annex A, with the following exceptions.

Information Element	Value/Remarks
New C-RNTI	'1010 1010 1010 1010'

 UTRAN MOBILITY INFORMATION CONFIRM (Step 17)

Only the message type is checked.

8.4.1.6.5 Test Requirement

If UE requires compressed mode, after step 6, the UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 8 the UE shall transmit MEASUREMENT REPORT message to report cell 4's RSCP value in the IE "inter-frequency cell measured results".

After step 10, the UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 11 the UE shall stop sending MEASUREMENT REPORT messages, which contain inter-frequency measured results for cell 4's CPICH RSCP value.

After step 14 the UE shall transmit CELL UPDATE message on the uplink CCCH of cell 4, and the "cell update cause" IE shall be set to "cell reselection".

After step 16, the UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH AM RLC.

8.4.1.6a Measurement Control and Report: Inter-frequency measurement for transition from CELL_DCH to CELL_FACH state (TDD)

8.4.1.6a.1 Definition

8.4.1.6a.2 Conformance requirement

Upon transition from CELL_DCH to CELL_FACH/ CELL_PCH/URA_PCH state, the UE shall:

1> stop the inter-frequency type measurement reporting assigned in a MEASUREMENT CONTROL message;

1> begin monitoring cells listed in the IE "inter-frequency cell info list" received in System Information Block type 12 (or System Information Block type 11);

1> in CELL_FACH state:

2> perform measurements on other frequencies according to the IE "FACH measurement occasion info".

Reference

3GPP TS 25.331, clause 8.4.1.6.2

8.4.1.6a.3 Test Purpose

1. To confirm that UE ceases inter-frequency type measurement reporting assigned in MEASUREMENT CONTROL message when moving from CELL_DCH state to CELL_FACH.

2. To confirm that the UE begins to monitor the cells listed in "inter-frequency cell info" received in System Information Block type 11 or 12 messages, following a state transition from CELL_DCH state to CELL_FACH state.

8.4.1.6a.4 Method of test

3GPP TS 34.123-1 version 10.3.1 Release 10

Initial Condition

System Simulator: 2 cells – Cell 1 and cell 2 are active.

UE: PS-DCCH+DTCH_DCH (state 6-10) in cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.4.1.6a-1 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while columns marked "T1 are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 8.4.1.6a-1

Parameter	Unit	Cell 1		Cell 4	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
PCCPCH RSCP	dBm	-60	-75	-75	-60

The UE is initially in CELL_DCH state. The System Information Block type 12 message is modified with respect to the default settings, so that no measurement tasks are required of the UE.

SS sends a MEASUREMENT CONTROL message to the UE, including cell 4 into the IE "inter-frequency cell info". The IE "CHOICE reporting criteria" in this message is set to "periodic reporting criteria". SS waits for 8 seconds to allow the periodic timer to expire. The UE shall send a MEASUREMENT REPORT message containing IE "inter-frequency cell measurement results" to report cell 4's PCCPCH RSCP value. SS transmits PHYSICAL CHANNEL RECONFIGURATION message and reconfigures common physical channels. The UE shall move to CELL_FACH state and then return a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to SS.

SS modifies the contents of Master Information Block (MIB) and System Information Block (SIB) type 12. In SIB 12, cell 4 is added to the cells listed in the "inter-frequency cell info" IE. SS transmit SYSTEM INFORMATION CHANGE INDICATION message to UE. SS waits for 8 seconds to detect any uplink MEASUREMENT REPORT messages. SS verifies that no MEASUREMENT REPORT message(s) are received as a result of inter-frequency measurements. SS then reconfigures the downlink transmission power settings of cell 1 and cell 4 according to the values stated in columns "T1" of table 8.4.1.6a-1. SS waits for the UE to perform cell re-selection. The UE shall transmit a CELL UPDATE message on the uplink CCCH of cell 4, specifying the "cell update cause" IE as "cell re-selection". SS replies with CELL UPDATE CONFIRM message, which includes IE "New C-RNTI", on the downlink DCCH to complete the cell update procedure. The UE shall reply with a UTRAN MOBILITY INFORMATION CONFIRM message.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1	←		System Information Block type 12	PS-DCCH+DTCH_DCH (state 6-10) in cell 1. System Information Block type 12 is modified with respect to the default settings. All measurement and reporting activities are disabled in this message.
2	←		MEASUREMENT CONTROL	SS indicates that the PCCPCH RSCP of cell 4 shall be monitored and reported. SS waits for 8 seconds for the reception of MEASUREMENT REPORT message.
3	→		MEASUREMENT REPORT	UE shall transmit this message to report cell 4's PCCPCH RSCP value.
4	←		PHYSICAL CHANNEL RECONFIGURATION	SS configures common physical channels.
5	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall moves to CELL_FACH state.
6	←		Master Information Block, System Information Block type 12	SS modifies MIB and SIB 12. Cell 4 is included in the IE "inter-frequency cell info"
7	←		SYSTEM INFORMATION CHANGE INDICATION	SS waits for 8 seconds to verify that no MEASUREMENT REPORT messages are detected on the uplink DCCH.
8				SS changes the power settings for cell 1 and cell 4 according to columns marked "T1" of table 8.4.1.6a-1, and then waits for the UE to re-select to a new cell.
9	→		CELL UPDATE	UE shall perform cell re-selection and transmit this message on the new cell.
10	←		CELL UPDATE CONFIRM	See message content.
11	→		UTRAN MOBILITY INFORMATION CONFIRM	

Specific Message Content

System Information Block Type 12 (Step 1)

Information Element	Value/remark
FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	2
- Inter-frequency FDD measurement indicator	FALSE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	Not Present
Measurement control system information	
- Intra-frequency measurement system information	Not Present
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

MEASUREMENT CONTROL (Step 2)

Information Element	Value/remark
Measurement Identity	15
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency info list	
- Inter-frequency cell id	4
- Frequency info	
- UARFCN (Nt)	UARFCN of the frequency for cell 4
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE Mode	TDD
- Primary CCPCH Info	Set to same as used for cell 4
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Cells for measurement	
- Inter-frequency cell id	4
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- Measurement quantity for frequency quality estimate	PCCPCH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- Primary CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Measurement validity	
- UE state	CELL_DCH
- Inter-frequency set update	Not Present
- CHOICE report criteria	Periodic reporting criteria
- Amount of reporting	Infinity
- Reporting interval	8 seconds
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 3)

Information Element	Value/remark
Measurement identity	Check to see if set to 15
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Inter-frequency measured results list"
- Inter-frequency measurement results	
- Frequency info	
- CHOICE mode	TDD
- UARFCN(Nt)	Check to see if set to the UARFCN of the frequency for cell 4
- UTRA carrier RSSI	Check to see if it is absent
- Inter-frequency cell measurement results	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if it is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if set to the same for cell 4
- proposed TGSN	Check to see if it is absent
- PCCPCH RSCP	Check to see if it is present
- Pathloss	Check to see if it is absent
- timeslot list	Check to see if it is absent
Measured Results on RACH	Check to see if it is absent
Event Results	Check to see if it is absent

PHYSICAL CHANNEL RECONFIGURATION (Step 4)

If UE do not require compressed mode, use the same message sub-type found in TS 34.108 clause 9, which is entitled "(Packet to CELL_FACH from CELL_DCH in PS)".

Master Information Block (Step 12)

Information Element	Value/Remarks
MIB value tag	A valid MIB value tag as defined in TS 25.331 that is different from the previous value

System Information Block type 12 (Step 6)

Information Element	Value/remark
FACH measurement occasion info	
3GPP TS 34.123-1 version 10.3.1 Release 10	
- FACH Measurement occasion cycle length coefficient	2
- Inter-frequency FDD measurement indicator	FALSE
- Inter-frequency TDD measurement indicator	TRUE
- Inter-RAT measurement indicators	Not Present
Measurement control system information	
- Use of HCS	Not used
- Intra-frequency measurement system information	Not Present
- Inter-frequency measurement system information	
- Inter-frequency cell info list	
- CHOICE Inter-frequency cell removal	Not Present
- New inter-frequency cells	
- Inter-frequency cell id	4
- Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Reference to table 6.1.4 of TS 34.108 for Cell 4
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE Mode	TDD
- Primary CCPCH info	Refer to clause titled "Default settings for cell No.4 (TDD)" in clause 6.1.4 of TS 34.108
- Cell selection and re-selection info	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

SYSTEM INFORMATION CHANGE INDICATION (Step 7)

Information Element	Value/Remarks
BCCH modification info	
- MIB Value tag	A valid MIB value tag as defined in TS 25.331 that is different from the previous value

CELL UPDATE (Step 9)

Information Element	Value/remark
U-RNTI	Check to see if same to value assigned in P3 or P5
Cell update cause	Check to see if it is set to "Cell Reselection"
Measured results on RACH	Check to see if it is absent

CELL UPDATE CONFIRM (Step 10)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions.

Information Element	Value/Remarks
New C-RNTI	'1010 1010 1010 1010'

UTRAN MOBILITY INFORMATION CONFIRM (Step 11)

Only the message type is checked.

8.4.1.6a.5 Test Requirement

After step 2 the UE shall transmit MEASUREMENT REPORT message to report cell 4's RSCP value in the IE "inter-frequency cell measured results".

After step 4, the UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 5 the UE shall stop sending MEASUREMENT REPORT messages, which contain inter-frequency measured **3GPP TS 34.123-1 version 10.3.1 Release 10**results for cell 4's PCCPCH RSCP value.

After step 8 the UE shall transmit CELL UPDATE message on the uplink CCCH of cell 4, and the "cell update cause" IE shall be set to "cell reselection".

After step 10, the UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH AM RLC.

8.4.1.7 Measurement Control and Report: Intra-frequency measurement for transition from CELL_FACH to CELL_DCH state (FDD)

8.4.1.7.1 Definition

8.4.1.7.2 Conformance requirement

Upon transition from CELL_FACH to CELL_DCH state:

1> if intra-frequency measurements applicable to CELL_DCH state are stored in the variable MEASUREMENT_IDENTITY:

2> if the cell in which the UE transited from CELL_FACH state is included in the active set for the CELL_DCH state, the UE shall:

3> resume the measurement reporting.

2> otherwise:

3> the UE should not resume the measurement reporting. If the UE does not resume the measurement reporting, the measurement shall be restarted when a MEASUREMENT CONTROL message is received with the corresponding measurement identity.

…

Upon cell reselection while in CELL_FACH/CELL_PCH/URA_PCH state and the cell reselection has occurred after the measurement control information was stored, the UE shall:

1> delete all measurements of type intra-frequency, inter-frequency, and inter-RAT associated with the variable MEASUREMENT_IDENTITY;

…

1> delete the traffic volume measurements that have not been set up or modified through a MEASUREMENT CONTROL message.

…

Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in subclause 8.6 unless otherwise specified below.

The UE shall:

1> read the IE "Measurement command";

1> if the IE "Measurement command" has the value "setup":

2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

2> if the measurement type is quality, UE internal, intra-frequency, inter-frequency or inter-RAT:

3> if the UE is in CELL_FACH state:

4> the UE behaviour is not specified.

3GPP TS 34.123-1 version 10.3.1 Release 10

2> for measurement types "inter-RAT measurement" or "inter-frequency measurement" that require measurements on a frequency other than the actually used frequency:

…

2> for measurement type "inter-frequency measurement" that requires measurements only on the same frequency as the actually used frequency:

…

2> for measurement type "UE positioning measurement":

…

2> for any other measurement type:

3> if the measurement is valid in the current RRC state of the UE:

4> begin measurements according to the stored control information for this measurement identity.

1> if the IE "Measurement command" has the value "modify":

2> for all IEs present in the MEASUREMENT CONTROL message:

3> if a measurement was stored in the variable MEASUREMENT_IDENTITY associated to the identity by the IE "measurement identity":

4> if the measurement type is quality, UE internal, intra-frequency, inter-frequency or inter-RAT:

5> if the UE is in CELL_FACH state:

6> the UE behaviour is not specified.

4> if measurement type is set to "intra-frequency measurement", for any of the optional IEs "Intra-frequency measurement objects list", "Intra-frequency measurement quantity", "Intra-frequency reporting quantity", "Measurement Validity", "report criteria" and "parameters required for each event" (given "report criteria" is set to "intra-frequency measurement reporting criteria") that are present in the MEASUREMENT CONTROL message:

…

5> replace the corresponding information (the IEs listed above and all their children) stored in variable MEASUREMENT_IDENTITY associated to the identity indicated by the IE "measurement identity" with the one received in the MEASUREMENT CONTROL message;

5> leave all other stored information elements unchanged in the variable MEASUREMENT_IDENTITY.

1> if the IE "measurement command" has the value "release":

2> terminate the measurement associated with the identity given in the IE "measurement identity";

2> clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY.

"If the IE "Reporting Cell Status" is received, the UE shall set the IE "Measured Results" in MEASUREMENT REPORT as follows. The UE shall:

1> for intra-frequency measurement and inter-frequency measurement:

2> include the IE "Cell Measured Results" for cells (excluding cells of another RAT) that satisfy the condition (such as "Report cells within active set") specified in the IE "Reporting Cell Status", in descending order by the measurement quantity"

If the IE "Cells for measurement" has been included in a MEASUREMENT CONTROL message, only monitored set cells explicitly indicated for a given intra-frequency (resp. inter-frequency, interRAT) measurement by the IE "Cells for **3GPP TS 34.123-1 version 10.3.1 Release 10**measurement" shall be considered for measurement. If the IE "Cells for measurement" has not been included in a MEASUREMENT CONTROL message, all of the intra-frequency (resp. inter-frequency, inter RAT) cells stored in the variable CELL_INFO_LIST shall be considered for measurement. The IE "Cells for measurement" is not applicable to active set cells or virtual active set cells e.g. when the triggering condition refers to active set cells, the UE shall consider all active set cells in the CELL_INFO_LIST for measurement irrespective if these cells are explicitly indicated by the IE "Cells for measurement".

Reference

3GPP TS 25.331, clause 8.4.1.3, 8.4.1.6a, 8.4.1.7.1, 8.4.0 and 8.6.7.9

8.4.1.7.3 Test Purpose

- To confirm that UE retrieves stored measurement control information for intra-frequency measurement type with "measurement validity" assigned to "CELL_DCH", after it enters CELL_DCH state from CELL_FACH state.
- To confirm that the UE continues to monitor the neighbouring cells listed "intra-frequency cell info" IE in the System Information Block type 11 or 12 messages, if no intra-frequency measurements applicable to CELL_DCH are stored.
- To confirm that the UE transmits MEASUREMENT REPORT messages if reporting criteria stated in IE "intra-frequency measurement reporting criteria" in System Information Block type 11 or 12 messages are fulfilled.
- To confirm that a MEASUREMENT CONTROL message received in CELL_DCH state overrides the measurement and associated reporting contexts maintained in the UE by virtue of System Information Block type 11 or 12.
- To confirm that the UE delete all measurements of type intra-frequency upon cell reselection while in CELL_FACH.

8.4.1.7.4 Method of test

Initial Condition

System Simulator: 3 cells – Cell 1, cell 2 and cell 3 are active.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_FACH (state 6-11).

Test Procedure

Table 8.4.1.7-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Column marked "T0" denotes the initial conditions, while columns marked "T1" are to be applied subsequently. The exact instants on which these values shall be applied are described in the text in this clause.

Table 8.4.1.7-1

Parameter	Unit	Cell 1			Cell 2			Cell 3		
		T0	T1	T2	T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			Mid Range Test Frequency			Mid Range Test Frequency		
CPICH Ec	dBm/3.84 MHz	-60	-70	-70	-65	-60	-60	-70	-70	-60

The UE is brought to CELL_FACH state in cell 1. (step 1) SS sends SYSTEM INFORMATION CHANGE INDICATION message to UE to inform UE of the modification in the system information.

SS sends a RADIO BEARER RECONFIGURATION message to UE (step2), and configures dedicated physical channels on both uplink and downlink directions. The UE shall move to CELL_DCH state and then return RADIO BEARER RECONFIGURATION COMPLETE message (step3). The UE shall send a MEASUREMENT REPORT message containing IE "Measured results" to report cell 2's CPICH RSCP value and IE "event results" to report triggering of event type "1e" (step 4). After receiving the MEASUREMENT REPORT message, SS transmits a MEASUREMENT CONTROL message with only cell 3 included in the IE "intra-frequency cell info" (step 5). After receiving such a message, the UE shall transmit another set of MEASUREMENT REPORT message for measurement identity = 11. SS verifies that measurement readings for cell 3 's CPICH RSCP are reported in IE "cell measured results" in this message (step 6). Cell 3 shall also trigger event 1e for the measurement that the UE had stored from system information, so a MEASUREMENT REPORT message shall be received for measurement identity = 10 (step 6a) as well. The order of steps 6 and 6a is not important and could be reversed.

3GPP TS 34.123-1 version 10.3.1 Release 10

Next, SS sends a PHYSICAL CHANNEL RECONFIGURATION message (step 7). SS configures common physical channels for both the uplink and the downlink directions. The UE shall transit to CELL_FACH state and then reply with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message (step 8). SS waits and checks the uplink RACH to confirm that no MEASUREMENT REPORT messages are received (step 9).

SS transmits then a RADIO BEARER RECONFIGURATION message to the UE, to move it to CELL_DCH state (step 9a). The UE shall move to that state, and transmit a RADIO BEARER RECONFIGURATION COMPLETE message to SS (step 9b). Shortly after, a MEASUREMENT REPORT message shall be received that has been triggered by cell 2, i.e. the UE shall have deleted the measurement configured through the MEASUREMENT CONTROL message of step 5, and instead apply the measurement configured in SIB12: a MEASUREMENT REPORT message with measurement identity 10 shall be received while no such message with measurement identity 11 shall be sent by the UE (step 9c).

SS transmits MEASUREMENT CONTROL message on the downlink DCCH, to configure intra-frequency measurements with validity CELL_DCH (step 10). The UE shall send a MEASUREMENT REPORT message (with IE “Measurement identity” = 12) to the SS triggered by cell 2 (step 14).

SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE to move it to CELL_FACH state (step 14a). The UE shall move to that state and transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to SS (step 14b). SS shall wait and check that no MEASUREMENT REPORT messages are detected on the uplink DCCH (step 14c).

SS transmits a RADIO BEARER RECONFIGURATION message to the UE, to move it to CELL_DCH state (step 14d). The UE shall move to that state, and transmit a RADIO BEARER RECONFIGURATION COMPLETE message to SS (step 14e). Shortly after, a MEASUREMENT REPORT message shall be received that has been triggered by cell 2, i.e. the UE shall have retrieved the measurement configured through the MEASUREMENT CONTROL message of step 10 (step 14f)..

Following the reception of the MEASUREMENT REPORT messages, SS commands the UE using MEASUREMENT CONTROL message to release measurement control information stored in "measurement identity" = 12 (step 16). Thereafter, SS verifies that no MEASUREMENT REPORT messages are detected on the uplink DCCH with "measurement identity" = 12 (step 16a). After this requirement is satisfied, SS sends MEASUREMENT CONTROL on the downlink DCCH once more (step 17). This message is identical to the one sent in step 10 (see specific message content). A MEASUREMENT REPORT message shall be received from the UE triggered by cell 2 (step 17a).

SS transmits a PHYSICAL CHANNEL RECONFIGURATION message on the downlink DCCH and configures common physical channel (step 18). The UE shall transit to CELL_FACH state and then respond with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message (step 19). SS monitors the uplink DCCH once more to verify that no MEASUREMENT REPORT messages are detected (step 20). SS modifies the downlink transmission power of the respect cells according to the settings in columns "T1" in table 8.4.1.7-1. System information block type 11 and System Information Block type 12 for cell 2 shall be different from the default settings according to what is defined in the specific message content part of this section (step 21). The UE shall initiate a cell re-selection procedure. This is verified in the SS when a CELL UPDATE message is received on the uplink CCCH with the "cell update cause" IE set to "cell reselection" (step 22). SS transmits a CELL UPDATE CONFIRM message, which includes "New C-RNTI", on the DCCH (step 23). Then the UE shall reply with UTRAN MOBILITY INFORMATION CONFIRM message (step 23a). Next, SS sends a RADIO BEARER RECONFIGURATION message on the downlink DCCH, assigning dedicated physical channels in both uplink and downlink directions (step 24). The UE shall respond with a RADIO BEARER RECONFIGURATION COMPLETE message and then return to CELL_DCH state (step 25). SS modifies the downlink transmission power of all cells according to the settings in columns "T2" in table 8.4.1.7-1. UE shall then send MEASUREMENT REPORT messages reporting cell 3's CPICH RSCP according to the content in System Information Block type 12 messages broadcasted in cell 2 (step 21).SS transmits a MEASUREMENT

CONTROL message (step 27) whereby the measurement identity is set to the same value as that in the SIB type 12 messages (step 21). UE shall send MEASUREMENT REPORT message (step 28) reporting cell 3's CPICH RSCP according to the MEASUREMENT CONTROL message (step 27).

3GPP TS 34.123-1 version 10.3.1 Release 10

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1	←		System Information Block type 11 and 12, Master Information Block, Scheduling Block 1	UE is initially in PS-DCCH+DTCH_FACH (state 6-11) in cell 1. System Information Block type 11 and 12 messages are changed with respect to the default contents according to the descriptions in "Specific Message Contents" clause.
1a	←		SYSTEM INFORMATION CHANGE INDICATION	
2	←		RADIO BEARER RECONFIGURATION	SS configures dedicated physical channels.
3	→		RADIO BEARER RECONFIGURATION COMPLETE	UE shall move to CELL_DCH state.
4	→		MEASUREMENT REPORT	Reports cell 2's CPICH RSCP measurement value, with “measurement identity” IE set to “10”.
5	←		MEASUREMENT CONTROL	Cell 3 is added to the list of monitored set of the UE.
6	→		MEASUREMENT REPORT	Cell 3 shall trigger the event 1e configured in the measurement identity 11. NOTE: due to ambiguity in 25.331 – two interpretations can be given. These are shown in the specific message contents below.
6a	→		MEASUREMENT REPORT	Cell 3 shall also trigger the event 1e configured in the measurement identity 10. The order of steps 6 and 6a could be reversed.
7	←		PHYSICAL CHANNEL RECONFIGURATION	SS configures PRACH and S-CCPCH physical channels.
8	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall move to CELL_FACH state.
9				SS waits and checks that no MEASUREMENT REPORT messages are sent by UE.
9a	←		RADIO BEARER RECONFIGURATION	SS configures dedicated physical channels.
9b	→		RADIO BEARER RECONFIGURATION COMPLETE	UE shall move to CELL_DCH state.
9c	→		MEASUREMENT REPORT	UE shall report cell 2's CPICH RSCP measurement value, with “measurement identity” IE set to “10”.
9d	←		Void	
9e	→		Void	
10	←		MEASUREMENT CONTROL	SS instructs the UE to setup intra-frequency measurement and reporting for cell 2 (already available as neighbouring cell in UE). Measurement validity" IE is set to CELL_DCH state.
11				
12	←		Void	
13	→		Void	
13a	→		Void	

Step	Direction		Message	Comment
	UE	SS		

14	→	MEASUREMENT REPORT	UE reports cell 2's measured results for CPICH RSCP, with “measurement identity” IE set to “12”.
14a	←	PHYSICAL CHANNEL RECONFIGURATION	SS configures PRACH and S-CCPCH physical channels.
14b	→	PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall move to CELL_FACH state.
14c			SS waits and check that no MEASUREMENT REPORT messages are sent by the UE.
14d	←	RADIO BEARER RECONFIGURATION	SS configures dedicated physical channels.
14e	→	RADIO BEARER RECONFIGURATION COMPLETE	UE shall move to CELL_DCH state.
14f	→	MEASUREMENT REPORT	UE shall have retrieved and resumed the measurement set up through the MEASUREMENT CONTROL of step 10.The “measurement identity” IE shall be set to “12”.
15	→	Void	
16	←	MEASUREMENT CONTROL	Terminate all the intra-frequency measurement and reporting activities related to "measurement identity" = 12.
16a			SS waits and verifies that UE stops transmitting MEASUREMENT REPORT messages with “measurement identity” = 12.
17	←	MEASUREMENT CONTROL	This message is the same as in step 10.
17a	→	MEASUREMENT REPORT	UE shall transmit a MEASUREMENT REPORT message triggered by cell 2, with “measurement identity” IE set to “12”.
17b	→	Void	
18	←	PHYSICAL CHANNEL RECONFIGURATION	Allocates common physical channels.
19	→	PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall move to CELL_FACH state.
20			SS checks that no MEASUREMENT REPORT messages are received.
21	←	System Information Block type 11 System Information Block type 12	SS sends SIB11 and SIB12 with specific values to Cell2. SS reconfigures the downlink transmission power settings for cells 1 to 3 according to column "T1" in table 8.4.1.7.
22	→	CELL UPDATE	UE shall re-selects to cell 2 and then perform a cell update procedure.
23	←	CELL UPDATE CONFIRM	UE shall stay in CELL_FACH state.
23a	→	UTRAN MOBILITY INFORMATION CONFIRM	

Step	Direction		Message	Comment
	UE	SS		

3GPP TS 34.123-1 version 10.3.1 Release 10

24	←	RADIO BEARER RECONFIGURATION	Dedicated physical channels are assigned to the UE in this message.
25	→	RADIO BEARER RECONFIGURATION COMPLETE	UE shall return to CELL_DCH state. UE shall not send Measurement Report message with “measurement identity” = ‘12’.
25a			SS reconfigures the downlink transmission power settings of all cells according to column “T2” in table 8.4.1.7-1.
26	→	MEASUREMENT REPORT	UE begins to report cell 3's measured results for CPICH RSCP, with “measurement identity” IE set to “1”.
27	←	MEASUREMENT CONTROL	
28	→	MEASUREMENT REPORT	UE shall transmit a MEASUREMENT REPORT message triggered by cell 3, with “measurement identity” IE set to “1”.

Specific Message Content

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

Master Information Block (Step 1)

Information Element	Value/Remarks
MIB Value Tag	A valid MIB value tag as defined in TS 25.331 that is different from the previous value
SB 1 Cell Value tag	Set to (Current SB 1 value tag + 1)

Scheduling Block 1 (Step 1)

Information Element	Value/remark
SIB 11 Cell Value tag	Set to (Current SIB 11 value tag + 1)
SIB 12 Cell Value tag	Set to (Current SIB 12 value tag + 1)

System Information Block type 11 for cell 1 (Step 1)

All messages content below shall use the same content as described in default message content specified in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/remark
SIB12 indicator	TRUE
FACH measurement occasion info	Not Present
Measurement control system information	
3GPP TS 34.123-1 version 10.3.1 Release 10	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4 of TS34.108
- Primary CPICH Tx power	Not present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Not present
- Cells for measurement	Not present
- Intra-frequency measurement quantity	Not present
- Intra-frequency reporting quantity for RACH reporting	Not present
- Maximum number of reported cells on RACH	Not present
- Reporting information for state CELL_DCH	Not present
- Inter-frequency measurement system information	As per 34.108 clause 6.1.0b - Contents of System Information Block type 11 (FDD)
- Inter-RAT measurement system information	Not present
- Traffic volume measurement system information	Not Present

System Information Block type 12 for cell 1 (Step 1)

Information Element	Value/remark
FACH measurement occasion info	Not Present
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	10
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present
- New intra-frequency cells	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	Not Present
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter Coefficient	Not present
- CHOICE mode	FDD
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity for RACH reporting	Not present
- Maximum number of reported cells on RACH	No report
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	TRUE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameter required for each event	
- Intra-frequency event identity	1e
- Triggering condition 1	Not present
- Triggering condition 2	Monitored set cells
- Reporting range constant	Not present
- Cells forbidden to affect reporting range	Not present
- W	Not present
- Hysteresis	0 (0 dB)
- Threshold used frequency	-80 dBm
- Reporting deactivation threshold	Not present
- Replacement activation threshold	Not present
- Time to trigger	0

Information Element	Value/remark
- Amount of reporting	Not Present
- Reporting Interval	Not Present
- Reporting cell status	

3GPP TS 34.123-1 version 10.3.1 Release 10

- CHOICE reported cells	Report cells within monitored set cells on used frequency
- Maximum number of reported cells	3
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

SYSTEM INFORMATION CHANGE INDICATION (Step 1a)

Information Element	Value/Remarks
BCCH modification info	
- MIB Value Tag	A valid MIB value tag as defined in TS 25.331 that is different from the previous value
- BCCH modification time	Not Present

RADIO BEARER RECONFIGURATION (Step 2, Step 9a, Step 14d and Step 24)

Use the same message type found in Annex A, with condition set to A4.

MEASUREMENT REPORT (Steps 4 and 9c)

Information Element	Value/remark
Measurement identity	Check to see if set to 10
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 2
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if it's set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if this IE is set to '1e'
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check to see if it's the same code for cell 2

MEASUREMENT CONTROL (Step 5)

Information Element	Value/remark
Measurement Identity	11
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency info list	
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 3
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cells selection and Re-selection info	Not Present
- Cells for measurement	
- Intra-frequency cell id	3
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	TRUE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement criteria
- Parameters required for each event	
- Intra-frequency event identity	1e
- Triggering condition 1	Not Present
- Triggering condition 2	Monitored set cells
- Hysteresis	0 (0 dB)
- Threshold used frequency	-90 dBm
- Time to Trigger	0
- Amount of reporting	Not Present
- Reporting interval	Not Present
- Reporting cell status	
- CHOICE reported cells	Report cells within monitored set cells on used frequency
- Maximum number of reported cells	3
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 6)

NOTE: Due to ambiguity in 25.331 – two interpretations can be given for MEASUREMENT REPORT

3GPP TS 34.123-1 version 10.3.1 Release 10

Information Element	Value/remark
Measurement identity	Check to see if set to 11
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 2
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 3
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if it's set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if this IE is set to '1e'
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check to see if it's the same code for cell 3

MEASUREMENT REPORT (Step 6)

NOTE: Due to ambiguity in 25.331 – two interpretations can be given for MEASUREMENT REPORT

Information Element	Value/remark
Measurement identity	Check to see if set to 11
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 3
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if it's set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if this IE is set to '1e'
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check to see if it's the same code for cell 3

MEASUREMENT REPORT (Step 6a)

Information Element	Value/remark
Measurement identity	Check to see if set to 10
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 2
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 3
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if it's set to 'Intra-frequency measurement event results
- Intra-frequency event identity	Check to see if this IE is set to '1e'
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check to see if it's the same code for cell 3

PHYSICAL CHANNEL RECONFIGURATION (Steps 7, 14a and 18)

Use the same message sub-type found in clause 9 of TS 34.108, which is entitled "Packet to CELL_FACH from CELL_DCH in PS".

MEASUREMENT CONTROL (Steps 10 and 17)

Information Element	Value/remark
Measurement Identity	12
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	Not Present
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	TRUE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	Not present
- Measurement validity	
- UE state	CELL_DCH
- CHOICE report criteria	Intra-frequency measurement criteria
- Parameters required for each event	
- Intra-frequency event identity	1e
- Triggering condition 1	Not Present
- Triggering condition 2	Monitored set cells
- Hysteresis	0 (0 dB)
- Threshold Used Frequency	-80 dBm
- Time to Trigger	0
- Amount of reporting	Not Present
- Reporting interval	Not Present
- Reporting cell status	
- CHOICE reported cell	Report cells within monitored set cells on used frequency
- Maximum number of reported cells	1
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Steps 14, 14f and 17a)

Information Element	Value/remark
Measurement identity	Check to see if set to 12
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 2
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	
Additional measured results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if it's set to 'Intra-frequency measurement event results
- Intra-frequency event identity	Check to see if this IE is set to '1e'
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check to see if it's the same code for cell 2

MEASUREMENT CONTROL (Step 16)

Information Element	Value/remark
Measurement Identity	12
Measurement Command	Release
Measurement Reporting Mode	Not Present
Additional measurements list	Not Present
CHOICE Measurement type	Not Present
DPCH compressed mode status info	Not Present

System Information Block type 11 for cell 2 (Step 21)

3GPP TS 34.123-1 version 10.3.1 Release 10

All messages content below shall use the same content as described in default message content specified in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/Remark
SIB12 indicator	TRUE
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not Present
- New intra-frequency cells	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4
- Primary CPICH Tx power	Not present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Not present
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4
- Primary CPICH Tx power	Not present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Not present
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1.4
- Primary CPICH Tx power	Not present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Not present
- Cells for measurement	Not present
- Intra-frequency measurement quantity	
- Filter coefficient	Not Present
- CHOICE mode	FDD
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity for RACH reporting	Not present
- Maximum number of reported cells on RACH	Not present
- Reporting information for state CELL_DCH	Not present

System Information Block type 12 for cell 2 (Step 21)

Information Element	Value/Remark
FACH measurement occasion info	Not Present
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not present
- Intra-frequency cell info list	Not Present
- Intra-frequency measurement quantity	
- Filter coefficient	Not Present
- CHOICE mode	FDD
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity for RACH reporting	Not present
- Maximum number of reported cells on RACH	Not present
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	TRUE
- CHOICE mode	FDD
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	TRUE
- Cell identity reporting indicator	TRUE
- CHOICE mode	FDD
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not Present
- Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Intra-frequency measurement reporting criteria	
- Intra-frequency event identity	1a
- Triggering condition 2	Monitored set cells
- Reporting Range Constant	10 (5dB)
- Cells forbidden to affect Reporting range	Not Present
- W	0
- Hysteresis	0 (0 dB)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	2
- Replacement activation threshold	Not Present
- Time to trigger	640
- Amount of reporting	4
- Reporting interval	4000
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
- Inter-frequency measurement system information	Not present
- Inter-RAT measurement system information	Not present
- Traffic volume measurement system information	Not Present
- UE internal measurement system information	Not Present

CELL UPDATE (Step 22)

Information Element	Value/remark

3GPP TS 34.123-1 version 10.3.1 Release 10

U-RNTI	Check to see if set to the previous assigned U-RNTI value
START List	Check to see if it is present
AM_RLC error indication(RB2, RB3 or RB4)	Checked to see if it is set to FALSE
AM_RLC error indication(RB>4)	Checked to see if it is set to FALSE
Cell Update Cause	Check to see if set to "Cell Reselection"
RB timer indicator	
- T314 expired	Checked to see if it is set to 'FALSE'
- T315 expired	Checked to see if it is set to 'FALSE'
Measured results on RACH	Check to see if it is absent

CELL UPDATE CONFIRM (Step 23)

Use the default message content of the same message type in Annex A, with the following exceptions.

Information Element	Value/Remarks
New C-RNTI	'1010 1010 1010 1010'

UTRAN MOBILITY INFORMATION CONFIRM (Step 23a)

Only the message type is checked.

MEASUREMENT REPORT (Step 26)

Information Element	Value/Remarks
Measurement identity	Check to see if set to 1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 2
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is present
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 3
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is present
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 1
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if it's set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if this IE is set to '1a'
- Cell measurement event results	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Check to see if it's the same code for cell 3

NOTE: Cells 2 and 3 can be received in any order

MEASUREMENT CONTROL (Step 27)

Information Element	Value/remark
Measurement Identity	1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency info list	Not present
- Cells for measurement	
- Intra-frequency cell id	3
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	TRUE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement criteria
- Parameters required for each event	
- Intra-frequency event identity	1e
- Triggering condition 1	Not Present
- Triggering condition 2	Monitored set cells
- Hysteresis	0 (0 dB)
- Threshold used frequency	-90 dBm
- Time to Trigger	0
- Amount of reporting	Not Present
- Reporting interval	Not Present
- Reporting cell status	
- CHOICE reported cells	Report cells within monitored set cells on used frequency
- Maximum number of reported cells	1
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 28)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 3
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if it's set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if this IE is set to '1e'
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check to see if it's the same code for cell 3

8.4.1.7.5 Test Requirement

After step 3 the UE shall report cell 2's CPICH RSCP value by transmitting MEASUREMENT REPORT messages.

After step 5 the UE shall transmit two MEASUREMENT REPORT messages which contain measured results of cell 3's CPICH RSCP value only, one for measurement identity 10 and one for measurement identity 11.

After step 9 and step 11 the UE shall not transmit MEASUREMENT REPORT messages, which pertain to intra-frequency type measurement reporting.

After step 9b, the UE shall transmit a MEASUREMENT REPORT according to what is broadcast in SIB 11 and 12 of cell 1, and MEASUREMENT REPORT message pertaining to the MEASUREMENT CONTROL message that it had received in step 5.

After steps 13 and 14e, the UE shall resume the measurement and reporting activities as specified in MEASUREMENT CONTROL message received in step 10. The UE shall transmit MEASUREMENT REPORT messages, containing measured results of cell 2's CPICH RSCP value.

After step 16 the UE shall stop measurement activities pertaining to event triggered reporting of cell 2's CPICH RSCP, no MEASUREMENT REPORT messages shall be detectable by the SS on the uplink DCCH with “measurement identity” = 12.

After step 17, the UE shall transmit a MEASUREMENT REPORT message to the SS as specified in the MEASUREMENT CONTROL message received in step 17.

After step 21 the UE shall re-select to cell 2 and initiate a cell update procedure. SS shall receive a CELL UPDATE message on the uplink CCCH of cell 2, with the "cell update cause" IE stated as "cell re-selection".

After step 23, the UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH AM RLC.

After step 25, UE shall not send MEASUREMENT REPORT message with “measurement identity” = ‘12’.

After step 25a the UE shall report cell 3's CPICH RSCP value by transmitting MEASUREMENT REPORT messages.

After step 27, UE shall send MEASUREMENT REPORT message with “measurement identity” = ‘1’.

8.4.1.7a Measurement Control and Report: Intra-frequency measurement for transition from CELL_FACH to CELL_DCH state (TDD)

3GPP TS 34.123-1 version 10.3.1 Release 10

8.4.1.7a.1 Definition

8.4.1.7a.2 Conformance requirement

Upon transition from CELL_FACH to CELL_DCH state:

1> if intra-frequency measurements applicable to CELL_DCH state are stored in the variable MEASUREMENT_IDENTITY:

2> if the cell in which the UE transited from CELL_FACH state is included in the active set for the CELL_DCH state, the UE shall:

3> resume the measurement reporting.

2> otherwise:

3> the UE should not resume the measurement reporting. If the UE does not resume the measurement reporting, the measurement shall be restarted when a MEASUREMENT CONTROL message is received with the corresponding measurement identity.

…

Upon cell reselection while in CELL_FACH/CELL_PCH/URA_PCH state and the cell reselection has occurred after the measurement control information was stored, the UE shall:

1> delete all measurements of type intra-frequency, inter-frequency, and inter-RAT associated with the variable MEASUREMENT_IDENTITY;

…

1> delete the traffic volume measurements that have not been set up or modified through a MEASUREMENT CONTROL message.

…

Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in subclause 8.6 unless otherwise specified below.

The UE shall:

1> read the IE "Measurement command";

1> if the IE "Measurement command" has the value "setup":

2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

2> if the measurement type is quality, UE internal, intra-frequency, inter-frequency or inter-RAT:

3> if the UE is in CELL_FACH state:

4> the UE behaviour is not specified.

2> for measurement types "inter-RAT measurement" or "inter-frequency measurement" that require measurements on a frequency other than the actually used frequency:

…

2> for measurement type "inter-frequency measurement" that requires measurements only on the same frequency as the actually used frequency:

…

2> for measurement type "UE positioning measurement":

3GPP TS 34.123-1 version 10.3.1 Release 10 …

2> for any other measurement type:

3> if the measurement is valid in the current RRC state of the UE:

4> begin measurements according to the stored control information for this measurement identity.

1> if the IE "Measurement command" has the value "modify":

2> for all IEs present in the MEASUREMENT CONTROL message:

3> if a measurement was stored in the variable MEASUREMENT_IDENTITY associated to the identity by the IE "measurement identity":

4> if the measurement type is quality, UE internal, intra-frequency, inter-frequency or inter-RAT:

5> if the UE is in CELL_FACH state:

6> the UE behaviour is not specified.

4> if measurement type is set to "intra-frequency measurement", for any of the optional IEs "Intra-frequency measurement objects list", "Intra-frequency measurement quantity", "Intra-frequency reporting quantity", "Measurement Validity", "report criteria" and "parameters required for each event" (given "report criteria" is set to "intra-frequency measurement reporting criteria") that are present in the MEASUREMENT CONTROL message:

…

5> replace the corresponding information (the IEs listed above and all their children) stored in variable MEASUREMENT_IDENTITY associated to the identity indicated by the IE "measurement identity" with the one received in the MEASUREMENT CONTROL message;

5> leave all other stored information elements unchanged in the variable MEASUREMENT_IDENTITY.

1> if the IE "measurement command" has the value "release":

2> terminate the measurement associated with the identity given in the IE "measurement identity";

2> clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY.

If the IE "Reporting Cell Status" is received, the UE shall set the IE "Measured Results" in MEASUREMENT REPORT as follows. The UE shall:

1> for intra-frequency measurement and inter-frequency measurement:

2> include the IE "Cell Measured Results" for cells (excluding cells of another RAT) that satisfy the condition (such as "Report cells within active set") specified in the IE "Reporting Cell Status", in descending order by the measurement quantity"

If the IE "Cells for measurement" has been included in a MEASUREMENT CONTROL message, only monitored set cells explicitly indicated for a given intra-frequency (resp. inter-frequency, interRAT) measurement by the IE "Cells for measurement" shall be considered for measurement. If the IE "Cells for measurement" has not been included in a MEASUREMENT CONTROL message, all of the intra-frequency (resp. inter-frequency, inter RAT) cells stored in the variable CELL_INFO_LIST shall be considered for measurement. The IE "Cells for measurement" is not applicable to active set cells or virtual active set cells e.g. when the triggering condition refers to active set cells, the UE shall consider all active set cells in the CELL_INFO_LIST for measurement irrespective if these cells are explicitly indicated by the IE "Cells for measurement".

Reference

3GPP TS 25.331, clause 8.4.1.3, 8.4.1.6a, 8.4.1.7.1, 8.4.0 and 8.6.7.9

3GPP TS 34.123-1 version 10.3.1 Release 10

8.4.1.7a.3 Test Purpose

- To confirm that UE retrieves stored measurement control information for intra-frequency measurement type with "measurement validity" assigned to "CELL_DCH", after it enters CELL_DCH state from CELL_FACH state.
- To confirm that the UE continues to monitor the neighbouring cells listed "intra-frequency cell info" IE in the System Information Block type 11 or 12 messages, if no intra-frequency measurements applicable to CELL_DCH are stored.
- To confirm that the UE transmits MEASUREMENT REPORT messages if reporting criteria stated in IE "intra-frequency measurement reporting criteria" in System Information Block type 11 or 12 messages are fulfilled.
- To confirm that a MEASUREMENT CONTROL message received in CELL_DCH state overrides the measurement and associated reporting contexts maintained in the UE by virtue of System Information Block type 11 or 12 messages only if the measurement identities defined within the MEASUREMENT CONTROL message and System Information Block type 11 or 12 are identical.
- To confirm that the UE delete all measurements of type intra-frequency upon cell reselection while in CELL_FACH.

8.4.1.7a.4 Method of test

Initial Condition

System Simulator: 3 cells – Cell 1, cell 2 and cell 3 are active.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_FACH (state 6-11).

Test Procedure

Table 8.4.1.7a-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Column marked "T0" denotes the initial conditions, while columns marked "T1" are to be applied subsequently. The exact instants on which these values shall be applied are described in the text in this clause.

Table 8.4.1.7a-1

Parameter	Unit	Cell 1							Cell 2							Cell 3						
		T0	T1	T2	T3	T4	T5	T6	T0	T1	T2	T3	T4	T5	T6	T0	T1	T2	T3	T4	T5	T6
UTRA RF Channel Number									Mid Range Test Frequency							Mid Range Test Frequency						
PCCPCH Ec	dBm/ 1.28 MHz	-60	-70	-60	-70	-60	-73	-78	-70	-60	-70	-60	-70	-60	-73	-75	-75	-75	-75	-75	-78	-60

The UE is brought to CELL_FACH state in cell 1. (step 1) SS sends SYSTEM INFORMATION CHANGE INDICATION message to UE to inform UE of the modification in the system information.

SS sends a RADIO BEARER RECONFIGURATION message to UE (step2), and configures dedicated physical channels on both uplink and downlink directions. The UE shall move to CELL_DCH state and then return RADIO BEARER RECONFIGURATION COMPLETE message (step3). SS reconfigures the downlink transmission power

settings for cells 1 to 3 according to column "T1" in table 8.4.1.7a .The UE shall send a MEASUREMENT REPORT message containing IE “Measured results” to report cell 2’s PCCPCH RSCP value and IE “event results” to report triggering of event type “1g” (step 4). After receiving the MEASUREMENT REPORT message, SS transmits a MEASUREMENT CONTROL message with cell 3 included in the IE “new intra-frequency cell info” (step 5). After receiving such a message, the UE shall transmit another set of MEASUREMENT REPORT message for measurement identity = 11. SS verifies that measurement readings for cell 1,2,3 ‘s PCCPCHCH RSCP are reported in IE “cell measured results” in this message (step 6). SS modifies the downlink transmission power of the respect cells according to the settings in columns “T2” in table 8.4.1.7a-1. The UE shall send a MEASUREMENT REPORT message containing IE “Measured results” to report cell 1’s PCCPCH RSCP value and IE “event results” to report triggering of event type “1g” (step 6b).Next, SS sends a PHYSICAL CHANNEL RECONFIGURATION message (step 7). SS configures common physical channels for both the uplink and the downlink directions. The UE shall transit to CELL_FACH state and then reply with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message (step 8). SS waits and checks the uplink RACH to confirm that no MEASUREMENT REPORT messages are received (step 9).

SS transmits then a RADIO BEARER RECONFIGURATION message to the UE, to move it to CELL_DCH state (step 9a). The UE shall move to that state, and transmit a RADIO BEARER RECONFIGURATION COMPLETE message to SS (step 9b). SS modifies the downlink transmission power of the respect cells according to the settings in columns “T3” in table 8.4.1.7a-1.Shortly after, a MEASUREMENT REPORT message shall be received which has been triggered by cell 2, i.e. the UE shall have deleted the measurement configured through the MEASUREMENT CONTROL message of step 5, and instead apply the measurement configured in SIB12: a MEASUREMENT REPORT message with measurement identity 10 shall be received while no such message with measurement identity 11 shall be sent by the UE (step 9c). SS modifies the downlink transmission power of the respect cells according to the settings in columns “T4” in table 8.4.1.7a-1. The UE shall send a MEASUREMENT REPORT message containing IE “Measured results” to report cell 1’s PCCPCH RSCP value and IE “event results” to report triggering of event type “1g”.

SS transmits MEASUREMENT CONTROL message on the downlink DCCH, to configure periodic intra-frequency measurements with validity CELL_DCH (step 10). The UE shall send a MEASUREMENT REPORT message (with IE “Measurement identity” = 12) to the SS (step 14).

SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE to move it to CELL_FACH state (step 14a). The UE shall move to that state and transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to SS (step 14b). SS shall wait and check that no MEASUREMENT REPORT messages are detected on the uplink DCCH (step 14c).

SS transmits a RADIO BEARER RECONFIGURATION message to the UE, to move it to CELL_DCH state (step 14d). The UE shall move to that state, and transmit a RADIO BEARER RECONFIGURATION COMPLETE message to SS (step 14e). Shortly after, a MEASUREMENT REPORT message shall be received, i.e. the UE shall have retrieved the measurement configured through the MEASUREMENT CONTROL message of step 10, instead of the ones that are broadcast in SIB12 (step 14f).

Following the reception of the MEASUREMENT REPORT message, SS commands the UE using MEASUREMENT CONTROL message to release measurement control information stored in “measurement identity” = 12 (step 15). Thereafter, SS verifies that no MEASUREMENT REPORT messages are detected on the uplink DCCH (step 16). After this requirement is satisfied, SS sends MEASUREMENT CONTROL on the downlink DCCH once more (step 17). This message is identical to the one sent in step 10 (see specific message content). A periodical MEASUREMENT REPORT message shall be received from the UE (step 17a).

SS transmits a PHYSICAL CHANNEL RECONFIGURATION message on the downlink DCCH and configures common physical channel (step 18). The UE shall transit to CELL_FACH state and then respond with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message (step 19). SS monitors the uplink DCCH once more to

3GPP TS 34.123-1 version 10.3.1 Release 10

verify that no MEASUREMENT REPORT messages are detected (step 20). System information block type 11 and System Information Block type 12 for cell 2 shall be different from the default settings according to what is defined in the specific message content part of this section (step 21). SS modifies the downlink transmission power of the respect cells according to the settings in columns “T5” in table 8.4.1.7a-1. The UE shall initiate a cell re-selection procedure. This is verified in the SS when a CELL UPDATE message is received on the uplink CCCH with the “cell update cause” IE set to “cell reselection” (step 22). SS transmits a CELL UPDATE CONFIRM message, which includes “New C-RNTI”, on the DCCH (step 23). Then the UE shall reply with UTRAN MOBILITY INFORMATION CONFIRM message (step 23a). Next, SS sends a RADIO BEARER RECONFIGURATION message on the downlink DCCH, assigning dedicated physical channels in both uplink and downlink directions (step 24). The UE shall respond with a RADIO BEARER RECONFIGURATION COMPLETE message and then return to CELL_DCH state (step 25). SS modifies the downlink transmission power of all cells according to the settings in columns “T6” in table 8.4.1.7a-1. UE shall then send MEASUREMENT REPORT messages reporting cell 3’s PCCPCH RSCP according to the content in System Information Block type 12 messages broadcasted in cell 2 (step 21).SS transmits a MEASUREMENT CONTROL message (step 27) whereby the measurement identity is set to the same value as that in the SIB type 12 messages (step 21). UE shall send MEASUREMENT REPORT message (step 28) reporting cell 1,2,3’s PCCPCH RSCP according to the MEASUREMENT CONTROL message (step 27).

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1	←		System Information Block type 11 and 12	UE is initially in PS-DCCH+DTCH_FACH (state 6-11) in cell 1. System Information Block type 11 and 12 messages are changed with respect to the default contents according to the descriptions in “Specific Message Contents” clause.
1a	←		SYSTEM INFORMATION CHANGE INDICATION	
2	←		RADIO BEARER RECONFIGURATION	SS configures dedicated physical channels.
3	→		RADIO BEARER RECONFIGURATION COMPLETE	UE shall move to CELL_DCH state.
3a				SS reconfigures the downlink transmission power settings for cells 1 to 3 according to column "T1" in table 8.4.1.7a
4	→		MEASUREMENT REPORT	Reports cell 2's PCCPCH RSCP measurement value, with “measurement identity” IE set to “10”.
5	←		MEASUREMENT CONTROL	A periodic measurement is setup with measurement identity of 11. Cell 3 is added to the list of monitored set of the UE.
6	→		MEASUREMENT REPORT	SS shall receive a MEASUREMENT REPORT message after the period set in step 5 in which the report for cell 1,cell 2 and cell 3 are included.
6a				SS reconfigures the downlink transmission power settings for cells 1 to 3 according to column "T2" in table 8.4.1.7a
6b	→		MEASUREMENT REPORT	Cell 1 shall trigger the event 1g and a MEASUREMENT REPORT message shall be sent to SS with the measurement identity 10.
7	←		PHYSICAL CHANNEL RECONFIGURATION	SS configures PRACH and S-CCPCH physical channels.
8	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall move to CELL_FACH state.
9				SS waits and checks that no MEASUREMENT REPORT messages are sent by UE.
9a	←		RADIO BEARER RECONFIGURATION	SS configures dedicated physical channels.
9b	→		RADIO BEARER RECONFIGURATION COMPLETE	UE shall move to CELL_DCH state.
9b1				SS reconfigures the downlink transmission power settings for cells 1 to 3 according to column "T3" in table 8.4.1.7a

Step	Direction		Message	Comment
	UE	SS		

3GPP TS 34.123-1 version 10.3.1 Release 10

9c	→	MEASUREMENT REPORT	Cell 2 shall trigger the event 1g and a MEASUREMENT REPORT message shall be sent to SS with the measurement identity 10.
9d			SS reconfigures the downlink transmission power settings for cells 1 to 3 according to column "T4" in table 8.4.1.7a
9e	→	MEASUREMENT REPORT	Cell 1 shall trigger the event 1g and a MEASUREMENT REPORT message shall be sent to SS with the measurement identity 10.
10	←	MEASUREMENT CONTROL	SS instructs the UE to setup intra-frequency measurement with measurement identity of 12. Measurement validity" IE is set to CELL_DCH state.
11		Void	
12		Void	
13		Void	
14	→	MEASUREMENT REPORT	UE reports cell 1 and cell 2's measured results for PCCPCH RSCP, with “measurement identity” IE set to “12”.
14a	←	PHYSICAL CHANNEL RECONFIGURATION	SS configures PRACH and S-CCPCH physical channels.
14b	→	PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall move to CELL_FACH state.
14c			SS waits and check that no MEASUREMENT REPORT messages are sent by the UE.
14d	←	RADIO BEARER RECONFIGURATION	SS configures dedicated physical channels.
14e	→	RADIO BEARER RECONFIGURATION COMPLETE	UE shall move to CELL_DCH state.
14f	→	MEASUREMENT REPORT	UE shall have retrieved and resumed the measurement set up through the MEASUREMENT CONTROL of step 10.The “measurement identity” IE shall be set to “12”.
15	←	MEASUREMENT CONTROL	Terminate all the intra-frequency measurement and reporting activities related to "measurement identity" = 12.
16			SS waits and verifies that UE stop transmitting MEASUREMENT REPORT messages.
17	←	MEASUREMENT CONTROL	This message is the same as in step 10.
17a	→	MEASUREMENT REPORT	UE shall transmit a MEASUREMENT REPORT message with “measurement identity” IE set to “12”.
18	←	PHYSICAL CHANNEL RECONFIGURATION	Allocates common physical channels.
19	→	PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall move to CELL_FACH state.

Step	Direction		Message	Comment
	UE	SS		

3GPP TS 34.123-1 version 10.3.1 Release 10

20			SS checks that no MEASUREMENT REPORT messages are received.
21	←	System Information Block type 11 System Information Block type 12	SS sends SIB11 and SIB12 with specific values to Cell2. SS reconfigures the downlink transmission power settings for cells 1 to 3 according to column "T5" in table 8.4.1.7a.
22	→	CELL UPDATE	UE shall re-selects to cell 2 and then perform a cell update procedure.
23	←	CELL UPDATE CONFIRM	UE shall stay in CELL_FACH state.
23a	→	UTRAN MOBILITY INFORMATION CONFIRM	
24	←	RADIO BEARER RECONFIGURATION	Dedicated physical channels are assigned to the UE in this message.
25	→	RADIO BEARER RECONFIGURATION COMPLETE	UE shall return to CELL_DCH state. UE shall not send Measurement Report message with “measurement identity” = ‘12’.
25a			SS reconfigures the downlink transmission power settings of all cells according to column “T6” in table 8.4.1.7a-1.
26	→	MEASUREMENT REPORT	UE begins to report cell 3's measured results for PCCPCH RSCP, with “measurement identity” IE set to “1”,event is 1g.
27	←	MEASUREMENT CONTROL	SS instructs the UE to setup period intra-frequency measurement. “measurement identity” IE set to “1”
28	→	MEASUREMENT REPORT	UE shall transmit a period MEASUREMENT REPORT message, with “measurement identity” IE set to “1”.

Specific Message Content

System Information Block type 1 (TDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

Master Information Block (Step 1)

Information Element	Value/Remarks

3GPP TS 34.123-1 version 10.3.1 Release 10

MIB Value Tag	A valid MIB value tag as defined in TS 25.331 that is different from the previous value

System Information Block type 11 for cell 1 (Step 1)

All messages content below shall use the same content as described in default message content specified in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/remark
SIB12 indicator	TRUE
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	PCCPCH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH info	
- TSTD indicator	FALSE
- Cell parameters Id	Refer to clause titled "Default settings for cell No.1 (TDD)" in clause 6.1.4 of TS34.108
- SCTD indicator	FALSE
- Primary CCPCH Tx power	Not present
- timeslot info list	Not present
- Cell Selection and Re-selection info	Not present
- Cells for measurement	Not present
- Intra-frequency measurement quantity	Not present
- Intra-frequency reporting quantity for RACH reporting	Not present
- Maximum number of reported cells on RACH	Not present
- Reporting information for state CELL_DCH	Not present

System Information Block type 12 for cell 1 (Step 1)

Information Element	Value/remark
FACH measurement occasion info	Not Present
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	PCCPCH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	10
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present
- New intra-frequency cells	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	
- TSTD indicator	FALSE
- Cell parameters Id	Refer to clause titled "Default settings for cell No.2 (TDD)" in clause 6.1.4 of TS34.108
- SCTD indicator	FALSE
- Primary CCPCH Tx power	Not present
- timeslot info list	Not present
- Cell selection and Re-selection info	Not Present
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter Coefficient	Not present
- CHOICE mode	TDD
- Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantity for RACH reporting	Not present
- Maximum number of reported cells on RACH	No report
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameter required for each event	
- Intra-frequency event identity	1g
- Reporting range constant	Not present
- W	Not present
- Hysteresis	2 (1 dB)
- Time to trigger	0
- Amount of reporting	Not Present
- Reporting Interval	Not Present

Information Element	Value/remark
- Reporting cell status	
- CHOICE reported cells	Report cells within active and monitored set cells on used frequency
- Maximum number of reported cells	3
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

3GPP TS 34.123-1 version 10.3.1 Release 10

SYSTEM INFORMATION CHANGE INDICATION (Step 1a)

Information Element	Value/Remarks
BCCH modification info	
- MIB Value Tag	A valid MIB value tag as defined in TS 25.331 that is different from the previous value
- BCCH modification time	Not Present

RADIO BEARER RECONFIGURATION (Step 2, Step 9a, Step 14d and Step 24)

Use the same message type found in Annex A, with condition set to A4.

MEASUREMENT REPORT (Steps 4 and 9c)

Information Element	Value/remark
Measurement identity	Check to see if set to 10
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 1
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 2
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if it's set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if this IE is set to '1g'
- Cell measurement event results	
- Cell parameters Id	Check to see if it's the same code for cell 2

MEASUREMENT CONTROL (Step 5).

Information Element	Value/remark
Measurement Identity	11
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency info list	
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	
- TSTD indicator	FALSE
- Cell parameters Id	Refer to clause titled "Default settings for cell No.2 (TDD)" in clause 6.1.4 of TS34.108
- SCTD indicator	FALSE
- Primary CCPCH Tx power	Not present
- timeslot info list	Not present
- Cells selection and Re-selection info	Not Present
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present
- Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	Periodical reporting criteria
- reporting amount	infinity
- reportingInterval	64s
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Steps 6)

Information Element	Value/remark
Measurement identity	Check to see if set to 11
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 2
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 1
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 3
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	Check to see if this IE is absent

MEASUREMENT REPORT (Steps 6b)

Information Element	Value/remark
Measurement identity	Check to see if set to 10
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 1
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 2
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 3
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if it's set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if this IE is set to '1g'
- Cell measurement event results	
- Cell parameters Id	Check to see if it's the same code for cell 1

PHYSICAL CHANNEL RECONFIGURATION (Steps 7, 14a and 18)

Use the same message sub-type found in clause 9 of TS 34.108, which is entitled "Packet to CELL_FACH from CELL_DCH in PS".

MEASUREMENT REPORT (Steps 9e)

Information Element	Value/remark
Measurement identity	Check to see if set to 10
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 1
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 2
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if it's set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if this IE is set to '1g'
- Cell measurement event results	
- Cell parameters Id	Check to see if it's the same code for cell 1

MEASUREMENT CONTROL (Step 10 and 17).

Information Element	Value/remark
Measurement Identity	12
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency info list	Not Present
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present
- Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	Not present
- Measurement validity	CELL DCH
- CHOICE report criteria	Periodical reporting criteria
- reporting amount	infinity
- reportingInterval	64s
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Steps 14, 14f and 17a)

Information Element	Value/remark
Measurement identity	Check to see if set to 12
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 1
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 2
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	Check to see if this IE is absent

MEASUREMENT CONTROL (Step 15)

Information Element	Value/remark
Measurement Identity	12
Measurement Command	Release
Measurement Reporting Mode	Not Present
Additional measurements list	Not Present
CHOICE Measurement type	Not Present
DPCH compressed mode status info	Not Present

System Information Block type 11 for cell 2 (Step 21)

3GPP TS 34.123-1 version 10.3.1 Release 10

All messages content below shall use the same content as described in default message content specified in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/Remark
SIB12 indicator	TRUE
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	PCCPCH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not Present
- New intra-frequency cells	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH info	
- TSTD indicator	FALSE
- Cell parameters Id	Refer to clause titled "Default settings for cell No.1 (TDD)" in clause 6.1.4 of TS34.108
- SCTD indicator	FALSE
- Primary CCPCH Tx power	Not present
- timeslot info list	Not present
- Cell Selection and Re-selection info	Not present
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	
- TSTD indicator	FALSE
- Cell parameters Id	Refer to clause titled "Default settings for cell No.1 (TDD)" in clause 6.1.4 of TS34.108
- SCTD indicator	FALSE
- Primary CCPCH Tx power	Not present
- timeslot info list	Not present
- Cell Selection and Re-selection info	Not present
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	
- TSTD indicator	FALSE
- Cell parameters Id	Refer to clause titled "Default settings for cell No.1 (TDD)" in clause 6.1.4 of TS34.108
- SCTD indicator	FALSE
- Primary CCPCH Tx power	Not present
- timeslot info list	Not present
- Cell Selection and Re-selection info	Not present
- Cells for measurement	Not present
- Intra-frequency measurement quantity	
- Filter coefficient	Not Present
- CHOICE mode	TDD
- Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantity for RACH reporting	Not present

- Maximum number of reported cells on RACH	Not present
- Reporting information for state CELL_DCH	Not present

3GPP TS 34.123-1 version 10.3.1 Release 10 System Information Block type 12 for cell 2 (Step 21)

Information Element	Value/Remark
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	PCCPCH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not present
- Intra-frequency cell info list	Not Present
- Intra-frequency measurement quantity	
- Filter coefficient	Not Present
- CHOICE mode	TDD
- Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantity for RACH reporting	Not present
- Maximum number of reported cells on RACH	Not present
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not Present
- Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Intra-frequency measurement reporting criteria	
- Intra-frequency event identity	1g
- W	0
- Hysteresis	2 (1dB)
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	2
- Replacement activation threshold	Not Present
- Time to trigger	0
- Amount of reporting	Not Present
- Reporting interval	Not Present
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
- Inter-frequency measurement system information	Not present
- Inter-RAT measurement system information	Not present
- Traffic volume measurement system information	Not Present
- UE internal measurement system information	Not Present

CELL UPDATE (Step 22)

Information Element	Value/remark
U-RNTI	
3GPP TS 34.123-1 version 10.3.1 Release 10	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
START List	Check to see if it is present
AM_RLC error indication(RB2, RB3 or RB4)	Checked to see if it is set to FALSE
AM_RLC error indication(RB>4)	Checked to see if it is set to FALSE
Cell Update Cause	Check to see if set to 'Cell Re-selection'
RB timer indicator	
- T314 expired	Checked to see if it is set to 'FALSE'
- T315 expired	Checked to see if it is set to 'FALSE'
Measured results on RACH	Check to see if it is absent

CELL UPDATE CONFIRM (Step 23)

Use the default message content of the same message type in Annex A, with the following exceptions.

Information Element	Value/Remarks
New C-RNTI	'1010 1010 1010 1010'

UTRAN MOBILITY INFORMATION CONFIRM (Step 23a)

Only the message type is checked.

MEASUREMENT REPORT (Step 26)

Information Element	Value/Remarks
Measurement identity	Check to see if set to 1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 3
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is present
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 2
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is present
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 1
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if it's set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if this IE is set to '1g'
- Cell measurement event results	
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same code for cell 3

NOTE: Cells 2 and 3 can be received in any order

MEASUREMENT CONTROL (Step 27)

Information Element	Value/remark
Measurement Identity	1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Period
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency info list	Not Present
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present
- Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	period measurement criteria
- reporting amount	infinity
- reportingInterval	64s
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 28)

Information Element	Value/Remarks
Measurement identity	Check to see if set to 1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 3
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is present
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 2
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is present
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 1
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	Check to see if this IE is absent

8.4.1.7a.5 Test Requirement

After step 3 the UE shall report cell 2's PCCPCH RSCP value by transmitting MEASUREMENT REPORT messages.

After step 9 and step 11 the UE shall not transmit MEASUREMENT REPORT messages, which pertain to intra-frequency type measurement reporting.

After step 9b, the UE shall transmit a MEASUREMENT REPORT according to what is broadcast in SIB 11 and 12 of cell 1, and MEASUREMENT REPORT message pertaining to the MEASUREMENT CONTROL message that it had received in step 5.

After steps 13 and 14e, the UE shall resume the measurement and reporting activities as specified in MEASUREMENT CONTROL message received in step 10. The UE shall transmit MEASUREMENT REPORT messages, containing measured results of cell 2's PCCPCH RSCP value.

After step 15 the UE shall stop measurement activities pertaining to periodic reporting of cell 2's PCCPCH RSCP, no MEASUREMENT REPORT messages shall be detectable by the SS on the uplink DCCH.

After step 17, the UE shall transmit a MEASUREMENT REPORT message to the SS as specified in the MEASUREMENT CONTROL message received in step 17.

After step 21 the UE shall re-select to cell 2 and initiate a cell update procedure. SS shall receive a CELL UPDATE message on the uplink CCCH of cell 2, with the "cell update cause" IE stated as "cell re-selection".

After step 23, the UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH AM RLC.

After step 25, UE shall not send MEASUREMENT REPORT message with “measurement identity” = ‘12’.

After step 25a the UE shall report cell 3's PCCPCH RSCP value by transmitting MEASUREMENT REPORT messages.

After step 27, UE shall send MEASUREMENT REPORT message with "measurement identity" = '1'.

3GPP TS 34.123-1 version 10.3.1 Release 10

8.4.1.8 Measurement Control and Report: Inter-frequency measurement for transition from CELL_FACH to CELL_DCH state (FDD)

8.4.1.8.1 Definition

8.4.1.8.2 Conformance requirement

Upon transition from CELL_FACH to CELL_DCH state, the UE shall:

1> if inter-frequency measurements applicable to CELL_DCH state are stored in the variable MEASUREMENT_IDENTITY:

2> if the cell in which the UE transited from CELL_FACH state is included in the active set for the CELL_DCH state, the UE shall:

3> resume the measurement reporting.

2> otherwise, the UE shall:

3> not resume the measurement reporting. The measurement shall be restarted when a MEASUREMENT CONTROL message is received with the corresponding measurement identity.

…

If the IE "DPCH compressed mode info" is included, and if the IE group "transmission gap pattern sequence configuration parameters" is included, the UE shall for each transmission gap pattern sequence perform the following consistency checks:

1> if UE, according to its measurement capabilities, and for the measurement purpose indicated by IE "TGMP", requires UL compressed mode for measurements on any of the cells to be measured according to UE variable CELL_INFO_LIST, and CHOICE 'UL/DL mode' indicates 'DL only':

2> set the variable INVALID_CONFIGURATION to TRUE.

1> if UE, according to its measurement capabilities, and for the measurement purpose indicated by IE "TGMP", requires DL compressed mode for measurements on any of the cells to be measured according to UE variable CELL_INFO_LIST, and CHOICE 'UL/DL mode' indicates 'UL only':

2> set the variable INVALID_CONFIGURATION to TRUE.

1> if UE already has an active transmission gap pattern sequence that, according to IE "TGMP", has the same measurement purpose, and both patterns will be active after the new configuration has been taken into use:

2> set the variable INVALID_CONFIGURATION to TRUE.

If variable INVALID_CONFIGURATION has value FALSE after UE has performed the checks above, the UE shall:

1> if pattern sequence corresponding to IE "TGPSI" is already active (according to "TGPS Status Flag"):

2> deactivate this pattern sequence at the beginning of the frame, indicated by IE "Activation time" received in this message, when the new configuration received in this message is taken into use.

1> update each pattern sequence to the variable TGPS_IDENTITY according to the IE "TGPSI";

1> update into the variable TGPS_IDENTITY the configuration information defined by IE group" transmission gap pattern sequence configuration parameters ";

1> after the new configuration has been taken into use:

2> activate the stored pattern sequence corresponding to each IE "TGPSI" for which the "TGPS status flag" is set to "activate" at the time indicated by IE "TGCFN"; and

2> begin the inter-frequency corresponding to the pattern sequence measurement purpose of each activated
3GPP TS 34.123-1 version 10.3.1 Release 10pattern sequence;

2> if the new configuration is taken into use at the same CFN as indicated by IE "TGCFN":

3> start the concerned pattern sequence immediately at that CFN.

1> monitor if the parallel transmission gap pattern sequences create an illegal overlap, and in case of overlap, take actions as specified in TS 25.331 subclause 8.2.11.2.

Reference

3GPP TS 25.331 clause 8.4.1.7.2, 8.6.6.15

8.4.1.8.3 Test Purpose

1. To confirm that the UE resumes inter-frequency measurements and reporting stored for which the measurement control information has IE "measurement validity" assigned to the value "CELL_DCH", after it re-enters CELL_DCH state from CELL_FACH state.

2. To confirm that the UE resumes inter-frequency measurement and reporting activities after it has received a MEASUREMENT CONTROL message specifying that a stored compressed mode pattern sequence be re-activated.

8.4.1.8.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1, cell 5 are active.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statements

- Compressed mode required yes/no

Table 8.4.1.8-1 illustrates the downlink power to be applied for the 2 cells in this test.

Table 8.4.1.8-1

Para-meter	Unit	Cell 1	Cell 5
UTRA RF Channel Number		Mid Range Test Frequency	High Range Test Frequency
CPICH Ec	dBm/3.84 MHz	-60	-75

The UE is in CELL_DCH state in cell 1 (step 1). SS transmits MEASUREMENT CONTROL message to add cell 5 into the IE "inter-frequency cell info" (step 2). If UE requires compressed mode, SS checks that no MEASUREMENT REPORT messages are detected on the uplink DCCH after it has transmitted the MEASUREMENT CONTROL message. (step 3). SS checks that the UE sends a MEASUREMENT REPORT message on the uplink DCCH only if UE does not require compressed mode.

SS sends a PHYSICAL CHANNEL RECONFIGURATION message on the downlink DCCH to move the UE to CELL_FACH state (step 4). The UE shall reconfigure itself to receive and transmit using the common physical channels assigned, and send PHYSICAL CHANNEL RECONFIGURATION COMPLETE on the uplink DCCH (step 5). SS modifies the content of Master Information Block and System Information Block type 12 messages, including cell 5 in the IE "inter-frequency cell info" (step 6) and providing FACH Measurement Occasion Info. SS

transmits SYSTEM INFORMATION CHANGE INDICATION message to UE. Once again, SS verifies that the UE does not transmit MEASUREMENT REPORT messages in the uplink direction (step 7).

SS sends PHYSICAL CHANNEL RECONFIGURATION message, and configures dedicated physical. If UE requires **3GPP TS 34.123-1 version 10.3.1 Release 10**compressed mode, in this message, SS commands the UE to start applying compressed mode mechanism for DPCH. The UE shall move to CELL_DCH state and then reply with PHYSICAL CHANNEL RECONFIGURATION COMPLETE message (step 9). The UE shall transmit 1 MEASUREMENT REPORT message, containing the selected frequency quality estimate (in this case CPICH RSCP) of cell 5. The UE shall also report the triggering of event '2c' in the IE "Event results" of MEASUREMENT REPORT message (step 10).

SS transmits a MEASUREMENT CONTROL message on the downlink DCCH using AM-RLC (step 11). The UE shall transmit MEASUREMENT REPORT messages at 2 seconds interval (step 12).

If UE requires compressed mode, SS transmits a PHYSICAL CHANNEL RECONFIGURATION message and deactivates the compressed mode pattern sequence with "TGPSI" IE set to 1 (step 13). The UE shall respond by sending PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and also either stop the periodic reporting activities or continue the periodic measurement reporting without any measured results (step 14).

Following this if UE requires compressed mode, SS sends a MEASUREMENT CONTROL message and re-activates the compressed mode pattern sequence by using the "DPCH compressed mode status info" IE (step 15). SS confirms that the UE has reconfigured itself to start measurement reporting with measured results included again. The SS shall receive MEASUREMENT REPORT messages continuously at 2 seconds interval (step 16). The SS then sends a MEASUREMENT CONTROL ordering the UE to release the measurement corresponding to identity 14, and to stop compressed mode (step 17). At reception of that message, the UE shall stop compressed mode and delete the measurement corresponding to that identity (step 18). The SS then transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE to order the UE to start compressed mode once again (step 19). The UE answers with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message, and starts compressed mode (step 20). SS checks then that it does not receive any MEASUREMENT REPORT message from the UE after that point (step 21).

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1				The initial state of UE is in CELL_DCH state of cell 1.
2	←		MEASUREMENT CONTROL	SS specifies inter-frequency measurement and reporting parameters for cell 5, with "measurement validity" IE present and "UE state" set to "CELL_DCH".
3	→		MEASUREMENT REPORT	If compressed mode is not required (refer ICS/IXIT), SS checks that UE transmit this message, or else SS checks that no MEASUREMENT REPORT messages are detected on the uplink DCCH.
4	←		PHYSICAL CHANNEL RECONFIGURATION	SS moves the UE to CELL_FACH state.
5	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall move to CELL_FACH state.
6	←		Master Information Block, Scheduling Block 1 System Information Block type 12	SS modifies MIB and SIB 12 including cell 5 in "inter-frequency cell info", and providing FACH Measurement occasion info.
7	←		SYSTEM INFORMATION CHANGE INDICATION	After SS transmits this message, SS confirms that there are no transmissions of MEASUREMENT REPORT message in the uplink direction.
8	←		PHYSICAL CHANNEL RECONFIGURATION	See specific message content below.
9	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
10	→		MEASUREMENT REPORT	UE shall resume inter-frequency measurement task for cell 5 and report the measured CPICH RSCP value for cell 5. (See Specific Message Contents)
11	←		MEASUREMENT CONTROL	SS changes the reporting criteria for cell 5 to 'periodic reporting'
12	→		MEASUREMENT REPORT	UE shall begin to transmit this message at 2 seconds interval. If compressed mode is not required (refer ICS/IXIT), the test ends here.
13	←		PHYSICAL CHANNEL RECONFIGURATION	SS deactivates the currently used pattern sequence for compressed mode operation.
14	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE stays in CELL_DCH state. SS verifies that either no MEASUREMENT REPORT messages are received, or MEASUREMENT REPORTS are received every 2s with IE “Measured results” not included.

Step	Direction		Message	Comment
	UE	SS		
15	←		MEASUREMENT CONTROL	SS activates the pattern sequence stored by the UE.

16	→	MEASUREMENT REPORT	SS checks that MEASURE-MENT REPORT messages with IE “Measured results” included are received at 2 seconds interval.
17	←	MEASUREMENT CONTROL	SS orders the UE to release the measurement with identity 14, and to stop compressed mode.
18			SS waits for 5s to check that UE does not send MEASUREMENT REPORT. This verifies that the UE has stopped compressed mode.
19	←	PHYSICAL CHANNEL RECONFIGURATION	SS orders the UE to start compressed mode again.
20	→	PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE transmits the response message and starts compressed mode
21			SS wait for 5s to check that the UE does not send any MEASUREMENT REPORT.

Specific Message Content

Unless explicitly stated, the messages below shall be used.

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

MEASUREMENT CONTROL (Step 2)

Information Element	Value/remark
Measurement Identity	14
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency info list	
- Inter-frequency cell id	5
- Frequency info	
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	UARFCN of the downlink frequency for cell 5
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 5
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cells for measurement	Not Present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- Measurement quantity for frequency quality estimate	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	TRUE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	Not present
- Measurement validity	
- UE State	CELL_DCH
- Inter-frequency set update	
-UE autonomous update	On with no reporting
- Non autonomous update mode	Not Present
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each event	
- Inter-frequency event identity	2c
- Threshold used frequency	Not Present
- W used frequency	Not Present
- Hysteresis	2 (1 dB)
- Time to trigger	10 ms
- Reporting cell status	
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Parameters required for each non-used frequency	
- Threshold non used frequency	-85 dBm
- W non-used frequency	0.0
DPCH compressed mode status info	Not Present

PHYSICAL CHANNEL RECONFIGURATION (Step 4)

Use the same message sub-type found in [9] TS 34.108 clause 9 titled "(Packet to CELL_FACH from CELL_DCH in PS)".

3GPP TS 34.123-1 version 10.3.1 Release 10

Information Element	Value/Remark	Version
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Scrambling code for cell 1. Ref. to the Default setting in TS34.108 clause 6.1 (FDD)	
- PDSCH with SHO DCH info	Not Present	
- PDSCH code mapping	Not Present	
- Downlink DPCH info for each RL	Not Present	
- SCCPCH Information for FACH	Not Present	R99 and Rel-4 only

Master Information Block (Step 6)

Information Element	Value/Remark
MIB Value Tag	A valid MIB value tag as defined in TS 25.331 that is different from the previous value
SB 1 Cell Value tag	Set to (Current SB1 value tag + 1)

Scheduling Block 1 (Step 6)

Information Element	Value/remark
SIB 12 Cell Value tag	Set to (Current SIB 12 value tag + 1)

System Information Block type 12 (Step 6)

Information Element	Value/remark
FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	3
- Inter-frequency FDD measurement indicator	TRUE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	Not Present
Measurement control system information	
-Use of HCS	Not used
-Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	Not Present
- Inter-frequency measurement system information	
- Inter-frequency cell info list	
- CHOICE inter-frequency cells removal	Not Present
- New inter-frequency info list	
- Inter-frequency cell id	Set to id of cell 5
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.5 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	Not Present – use default values
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

PHYSICAL CHANNEL RECONFIGURATION (Step 8)

Use the same message sub-type found in [9] TS 34.108 clause 9 titled ("Packet to CELL_DCH from CELL_FACH in PS")

3GPP TS 34.123-1 version 10.3.1 Release 10

Information Element	Value/Remark	Version
New U-RNTI	Not Present	
New C-RNTI	Not Present	
New DSCH-RNTI	Not Present	
RRC State indicator	CELL_DCH	
UTRAN DRX cycle length coefficient	Not Present	
CN information info	Not Present	
URA identity	Not Present	
Downlink counter synchronisation info	Not Present	
Frequency info	Not Present	
Maximum allowed UL TX power	Not Present	
CHOICE *mode*	FDD	
- Downlink PDSCH information	Not Present	
Downlink information common for all radio links		
- CHOICE mode	FDD	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Activate	
- TGCFN	(Current CFN+(256 – TTI/10msec)) mod 256	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not Present	
- TGD	undefined	
- TGPL1	3	
- TGPL2	Not Present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
- CHOICE UL/DL Mode	UL and DL, UL only or DL only (depending on the UE capability)	
- Downlink compressed mode method	SF/2 (or not sent, depending on the UE capability)	
- Uplink compressed mode method	SF/2 (or not sent, depending on the UE capability)	
- Downlink frame type	B	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not Present	
- DeltaSIRAfter2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
- TX Diversity mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Not Present	

MEASUREMENT REPORT (Step 3)

Information Element	Value/remark
Measurement identity	Check to see if set to 14
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Inter-frequency measured results list"
- Inter-frequency measurement results	
- Frequency info	
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_5
- UTRA carrier RSSI	Check to see if it is absent
- Inter-frequency cell measurement results	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if it is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if set to the same code for cell 5
- CPICH Ec/No	Check to see if it is absent
- CPICH RSCP	Check to see if it is present
- Pathloss	Check to see if it is absent
Measured Results on RACH	Check to see if it is absent
Event Results	
- CHOICE event result	Inter-frequency event results
- Inter-frequency event identity	Check to see if it's set to '2c'
- Inter-frequency cells	
- Frequency Info	
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_5
- Non frequency related measurement event results	
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if set to the same code for cell 5

MEASUREMENT CONTROL (Step 11)

Information Element	Value/remark
Measurement Identity	14
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Set up
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Periodical reporting
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency info list	
- Inter-frequency cell id	5
- Frequency info	
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	UARFCN of the downlink frequency for cell 5
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 5
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cells for measurement	
- Inter-frequency cell id	5
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- Measurement quantity for frequency quality estimate	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	TRUE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Measurement validity	Not Present
- Inter-frequency set update	Not Present
- CHOICE report criteria	Periodic reporting criteria
- Amount of reporting	Infinity
- Reporting interval	2000 milliseconds
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 12, 16)

Information Element	Value/remark
Measurement identity	Check to see if set to 14
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Inter-frequency measured results list"
- Inter-frequency measurement results	
- Frequency info	
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_5
- UTRA carrier RSSI	Check to see if it is absent
- Inter-frequency cell measurement results	
- Cell measured results	
- Cell Identity	Check to see if is absent
- Cell synchronisation information	Check to see if it is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if set to the same code for cell 5
- CPICH Ec/No	Check to see if it is absent
- CPICH RSCP	Check to see if it is present
- Pathloss	Check to see if it is absent
- CFN-SFN observed time difference	Check to see if it is absent
Measured Results on RACH	Check to see if it is absent
Event Results	Check to see if it is absent

PHYSICAL CHANNEL RECONFIGURATION (Step 13)

Information Element	Value/Remark	Version
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256	
New U-RNTI	Not Present	
New C-RNTI	Not Present	
New DSCH-RNTI	Not Present	
RRC State indicator	CELL_DCH	
UTRAN DRX cycle length coefficient	Not Present	
CN information info	Not Present	
URA identity	Not Present	
Downlink counter synchronisation info	Not Present	
Frequency info	Not Present	
Maximum allowed UL TX power	Not Present	
CHOICE channel requirement	Not Present	
CHOICE *mode*	FDD	
>Downlink PDSCH information	Not Present	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL	Not Present	
- CHOICE mode	FDD	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Deactivate	
- TGCFN	Not Present	
- Transmission gap pattern sequence configuration parameters	Not Present	
- TX Diversity mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Not Present	
Downlink information for each radio link	Not Present	

MEASUREMENT CONTROL (Step 15)

Information Element	Value/remark
Measurement Identity	14
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Modify
Measurement Reporting Mode	Not Present
Additional measurements list	Not Present
CHOICE measurement type	Not Present
DPCH compressed mode status info	
- TGPS reconfiguration CFN	(Current CFN+(256 – TTI/10msec)) mod 256
- Transmission gap pattern sequence	
- TGPSI	1
- TGPS Status Flag	Activate
- TGCFN	(Current CFN+(256 – TTI/10msec)) mod 256

MEASUREMENT CONTROL (Step 17)

Information Element	Value/remark
Measurement Identity	14
Measurement Command	Release
Measurement Reporting Mode	Not Present
Additional measurements list	Not Present
CHOICE measurement type	Not Present
DPCH compressed mode status info	
- TGPS reconfiguration CFN	(Current CFN+(256 – TTI/10msec)) mod 256
- Transmission gap pattern sequence	
- TGPSI	1
- TGPS Flag	Deactivate
- TGCFN	Not present

PHYSICAL CHANNEL RECONFIGURATION (Step 19)

Information Element	Value/Remark	Version
Activation time	Not Present	
3GPP TS 34.123-1 version 10.3.1 Release 10		
New U-RNTI	Not Present	
New C-RNTI	Not Present	
New DSCH-RNTI	Not Present	
RRC State indicator	CELL_DCH	
UTRAN DRX cycle length coefficient CN information info URA identity Downlink counter synchronisation info Frequency info Maximum allowed UL TX power	Not Present Not Present Not Present Not Present Not Present Not Present	
CHOICE channel requirement	Not Present	
CHOICE *mode*	FDD	
- Downlink PDSCH information	Not Present	
Downlink information common for all radio links - Downlink DPCH info common for all RL - CHOICE mode - DPCH compressed mode info - TGPSI - TGPS Status Flag - TGCFN - Transmission gap pattern sequence configuration parameters - TGMP - TGPRC - TGSN - TGL1 - TGL2 - TGD - TGPL1 - TGPL2 - RPP - ITP - CHOICE UL/DL Mode - Downlink compressed mode method - Uplink compressed mode method - Downlink frame type - DeltaSIR1 - DeltaSIRAfter1 - DeltaSIR2 - DeltaSIRAfter2 - N identify abort - T Reconfirm abort - TX Diversity mode - SSDT information - Default DPCH Offset Value	 Not Present FDD 1 Activate (Current CFN+(256 – TTI/10msec)) mod 256 FDD Measurement Infinity 4 7 Not Present undefined 3 Not Present Mode 0 Mode 0 UL and DL, UL only or DL only (depending on the UE capability) SF/2 (or not sent, depending on the UE capability) SF/2 (or not sent, depending on the UE capability) B 20 (2.0) 10 (1.0) Not Present Not Present Not Present Not Present Not Present Not Present Not Present	 R99 and REL-4 only R99 and Rel-4 only
Downlink information for each radio link		
- CHOICE mode	FDD	
- Primary CPICH info	Set to scrambling code of cell 1	
- Cell ID	Not present	
- PDSCH with SHO DCH info	Not present	
- PDSCH code mapping	Not present	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as	

Information Element	Value/Remark	Version
	currently stored in SS) mod 38400	
- Secondary CPICH info	Not present	

- DL channelisation code		
- Secondary scrambling code	5	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	Same as the code currently allocated to the UE	
- Scrambling code change	Code change	
- TPC combination index	0	
- SSDT cell identity	Not present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not present	

8.4.1.8.5 Test Requirement

After step 2, if UE requires compressed mode the UE shall not send any MEASUREMENT REPORT messages on the uplink DCCH of cell 1. If UE do not require compressed mode, the UE shall send a MEASUREMENT REPORT message on the uplink DCCH of cell 1.

After step 4 and 8, UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 8, the UE shall start compressed mode using the method specified in the PHYSICAL CHANNEL RECONFIGURATION message sent in step 8.

After step 9 the UE shall transmit a MEASUREMENT REPORT message, containing the IE "measured results" reporting cell 5's CPICH RSCP. The UE shall also report the triggering of event '2c' by including IE "Event results" in the MEASUREMENT REPORT message.

After step 11 the UE shall send MEASUREMENT REPORT messages, containing cell 5's CPICH RSCP measured value in IE "Measured results" at 2 seconds interval. The "Event results" IE shall be omitted in these messages.

If UE requires compressed mode, after step 14, the UE shall either not transmit any MEASUREMENT REPORT messages at all, or continue to transmit MEASUREMENT REPORT messages every 2s, but without including IE “Measured results”.

If UE requires compressed mode, after step 15, the UE shall start compressed mode and resume the transmission of MEASUREMENT REPORT messages with identical contents as in those received after step 11.

After step 17, the UE shall deactivate compressed mode.

After step 20, the UE shall not transmit any MEASUREMENT REPORT message to SS.

8.4.1.8a Measurement Control and Report: Inter-frequency measurement for transition from CELL_FACH to CELL_DCH state (TDD)

8.4.1.8a.1 Definition

8.4.1.8a.2 Conformance requirement

Upon transition from CELL_FACH to CELL_DCH state, the UE shall:

if inter-frequency measurements applicable to CELL_DCH state are stored in the variable MEASUREMENT_IDENTITY:

2> if the cell in which the UE transited from CELL_FACH state is included in the active set for the CELL_DCH state, the UE shall:

3> resume the measurement reporting.

2> otherwise, the UE shall:

3GPP TS 34.123-1 version 10.3.1 Release 103> not resume the measurement reporting. The measurement shall be restarted when a MEASUREMENT CONTROL message is received with the corresponding measurement identity.

Reference

3GPP TS 25.331 clause 8.4.1.7.2

8.4.1.8a.3 Test Purpose

1. To confirm that the UE resumes inter-frequency measurements and reporting stored for which the measurement control information has IE "measurement validity" assigned to the value "CELL_DCH", after it re-enters CELL_DCH state from CELL_FACH state.

8.4.1.8a.4 Method of test

Initial Condition

System Simulator: 2 cells – Cells 1 and cell 5 are active.

UE: PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.4.1.8a-1 illustrates the downlink power to be applied for the 2 cells in this test.

Table 8.4.1.8a-1

Para-meter	Unit	Cell 1	Cell 5
UTRA RF Channel Number		Mid Range Test Frequency	High Range Test Frequency
PCCPCH RSCP	dBm	-60	-75

Test procedure when the initial condition is that the UE is connected to the PS domain:

The UE is in CELL_DCH state in cell 1 (step 1). SS transmits MEASUREMENT CONTROL message to add cell 5 into the IE "inter-frequency cell info" (step 2). SS checks that UE transmit this message, or else SS checks that the UE sends a MEASUREMENT REPORT messages on the uplink DCCH (step 3).

SS sends a PHYSICAL CHANNEL RECONFIGURATION message on the downlink DCCH to move the UE to CELL_FACH state (step 4). The UE shall reconfigure itself to receive and transmit using the common physical channels assigned, and send PHYSICAL CHANNEL RECONFIGURATION COMPLETE on the uplink DCCH (step 5). SS modifies the content of Master Information Block and System Information Block type 12 messages, including cell 5 in the IE "inter-frequency cell info" (step 6) and providing FACH Measurement Occasion Info. SS transmits SYSTEM INFORMATION CHANGE INDICATION message to UE. Once again, SS verifies that the UE does not transmit MEASUREMENT REPORT messages in the uplink direction (step 7).

SS sends PHYSICAL CHANNEL RECONFIGURATION message, and configures dedicated physical (step 8). The UE shall move to CELL_DCH state and then reply with PHYSICAL CHANNEL RECONFIGURATION COMPLETE message (step 9). The UE shall transmit 1 MEASUREMENT REPORT message, containing the selected frequency quality estimate (in this case PCCPCH RSCP) of cell 5. The UE shall also report the triggering of event '2c' in the IE "Event results" of MEASUREMENT REPORT message (step 10).

SS transmits a MEASUREMENT CONTROL message on the downlink DCCH using AM-RLC (step 10). The UE shall transmit MEASUREMENT REPORT messages at 2 seconds interval (step 12).

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1				The initial state of UE is in CELL_DCH state of cell 1.
2	←		MEASUREMENT CONTROL	SS specifies inter-frequency measurement and reporting parameters for cell 5, with "measurement validity" IE present and "UE state" set to "CELL_DCH".
3	→		MEASUREMENT REPORT	SS checks that UE transmit this message.
4	←		PHYSICAL CHANNEL RECONFIGURATION	SS moves the UE to CELL_FACH state.
5	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall move to CELL_FACH state.
6	←		Master Information Block System Information Block type 12	SS modifies MIB and SIB 12 including cell 5 in the list of cells in IE "inter-frequency cell info", and providing FACH Measurement occasion info.
7	←		SYSTEM INFORMATION CHANGE INDICATION	After SS transmits this message, SS confirms that there are no transmissions of MEASUREMENT REPORT message in the uplink direction.
8	←		PHYSICAL CHANNEL RECONFIGURATION	SS moves the UE to CELL_DCH state.
9	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall move to CELL_DCH state.
10	→		MEASUREMENT REPORT	UE shall resume inter-frequency measurement task for cell 5 and report the measured PCCPCH RSCP value for cell 5.
11	←		MEASUREMENT CONTROL	SS changes the reporting criteria for cell 5 to 'periodic reporting'
12	→		MEASUREMENT REPORT	UE shall begin to transmit this message at 2 seconds interval.

Specific Message Content

Unless explicitly stated, the messages below shall be used for both the CS case and the PS case.

MEASUREMENT CONTROL (Step 2)

Information Element	Value/remark
Measurement Identity	14
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency info list	
- Inter-frequency cell id	5
- Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	UARFCN of the frequency for cell 5
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE Mode	TDD
- Primary CCPCH Info	Set to same code as used for cell 5
- Cells for measurement	Not Present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- Measurement quantity for frequency quality estimate	PCCPCH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	TRUE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- Primary CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement validity	
- UE State	CELL_DCH
- Inter-frequency set update	
-UE autonomous update	On with no reporting
- Non autonomous update mode	Not Present
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each event	
- Inter-frequency event identity	2c
- Threshold used frequency	Not Present
- W used frequency	Not Present
- Hysteresis	2 (1 dB)
- Time to trigger	10 seconds
- Reporting cell status	
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Parameters required for each non-used frequency	
- Threshold non used frequency	-85 dBm
- W non-used frequency	0.0
DPCH compressed mode status info	Not Present

PHYSICAL CHANNEL RECONFIGURATION (Step 4)

Use the same message sub-type found in TS 34.108 clause 9 titled "(Packet to CELL_FACH from CELL_DCH in PS)".

Information Element	Value/Remark	Version
- Downlink information for each radio link		
- Choice mode	TDD	

3GPP TS 34.123-1 version 10.3.1 Release 10

- Primary CCPCH info	For cell 1. Ref. to the Default setting in TS34.108 clause 6.1 (TDD)	
- PDSCH with SHO DCH info	Not Present	
- PDSCH code mapping	Not Present	
- Downlink DPCH info for each RL	Not Present	
- SCCPCH Information for FACH	Not Present	R99 and Rel-4 only

Master Information Block (Step 6)

Information Element	Value/Remark
MIB Value Tag	A valid MIB value tag as defined in TS 25.331 that is different from the previous value

System Information Block type 12 (Step 6)

Information Element	Value/remark
FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	3
- Inter-frequency FDD measurement indicator	FALSE
- Inter-frequency TDD measurement indicator	TRUE
- Inter-RAT measurement indicators	Not Present
Measurement control system information	
-Use of HCS	Not used
- Intra-frequency measurement system information	Not Present
- Inter-frequency measurement system information	
- Inter-frequency cell info list	
- CHOICE inter-frequency cells removal	Not Present
- New inter-frequency info list	
- Inter-frequency cell id	Set to id of cell 5
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE Mode	TDD
- Primary CCPCH Info	Refer to clause titled "Default settings for cell No.5 (TDD)" in clause 6.1.4
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Cell selection and Re-selection info	Not Present – use default values
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

PHYSICAL CHANNEL RECONFIGURATION (Step 8 only for the PS case)

UE will use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "(Packet to CELL_DCH from CELL_FACH in PS)".

MEASUREMENT REPORT (Step 3, 10)

Information Element	Value/remark
Measurement identity	Check to see if set to 14

3GPP TS 34.123-1 version 10.3.1 Release 10

Measured Results	
- CHOICE measurement	Check to see if set to "Inter-frequency measured results list"
- Inter-frequency measurement results	
- Frequency info	
- CHOICE mode	TDD
- UARFCN	Check to see if set to the UARFCN of the frequency for cell 5
- UTRA carrier RSSI	Check to see if it is absent
- Inter-frequency cell measurement results	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- SFN-SFN observed time difference	Check to see if it is absent
- Cell synchronisation information	Check to see if it is absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 5
- Timeslot ISCP	Check to see if it is absent
- Proposed TGSN	Check to see if it is absent
- Primary CCPCH Info	Check to see if set to the same code for cell 5
- PCCPCH RSCP	Check to see if it is present
- Pathloss	Check to see if it is absent
Measured Results on RACH	Check to see if it is absent
Event Results	
- CHOICE event result	Inter-frequency event results
- Inter-frequency event identity	Check to see if it's set to '2c'
- Inter-frequency cells	
- Frequency Info	
- CHOICE mode	TDD
- UARFCN	Check to see if set to the UARFCN of the frequency for cell 5
- Non frequency related measurement event results	
- Primary CCPCH Info	Check to see if set to the same for cell 5

MEASUREMENT CONTROL (Step 11)

Information Element	Value/remark
Measurement Identity	14
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Set up
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Periodical reporting
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency info list	
- Inter-frequency cell id	5
- Frequency info	
- CHOICE mode	TDD
- UARFCN uplink (Nt)	UARFCN of the frequency for cell 5
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE Mode	TDD
- Primary CCPCH Info	Set to same as used for cell 5
- Cells for measurement	
- Inter-frequency cell id	5
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- Measurement quantity for frequency quality estimate	PCCPCH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	TRUE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Measurement validity	Not Present
- Inter-frequency set update	Not Present
- CHOICE report criteria	Periodic reporting criteria
- Amount of reporting	Infinity
- Reporting interval	2000 milliseconds
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 12)

Information Element	Value/remark
Measurement identity	Check to see if set to 14
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Inter-frequency measured results list"
- Inter-frequency measurement results	
- Frequency info	
- UARFCN	Check to see if set to the UARFCN of the frequency for cell 5
- UTRA carrier RSSI	Check to see if it is absent
- Inter-frequency cell measurement results	
- Cell measured results	
- Cell Identity	Check to see if is absent
- Cell synchronisation information	Check to see if it is absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 5
- Timeslot ISCP	Check to see if it is absent
- Proposed TGSN	Check to see if it is absent
- Primary CCPCH Info	Check to see if set to the same for cell 5
- PCCPCH RSCP	Check to see if it is present
- Pathloss	Check to see if it is absent
- CFN-SFN observed time difference	Check to see if it is absent
Measured Results on RACH	Check to see if it is absent
Event Results	Check to see if it is absent

8.4.1.8a.5 Test Requirement

After step 2,. UE shall send a MEASUREMENT REPORT message on the uplink DCCH of cell 1.

After step 4 and 8, UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 9 the UE shall transmit a MEASUREMENT REPORT message, containing the IE "measured results" reporting cell 5's PCCPCH RSCP. The UE shall also report the triggering of event '2c' by including IE "Event results" in the MEASUREMENT REPORT message.

After step 11 the UE shall send MEASUREMENT REPORT messages, containing cell 5's PCCPCH RSCP measured value in IE "Measured results" at 2 seconds interval. The "Event results" IE shall be omitted in these messages.

8.4.1.9 Measurement Control and Report: Unsupported measurement in the UE

8.4.1.9.1 Definition

8.4.1.9.2 Conformance requirement

If UTRAN instructs the UE to perform a measurement that is not supported by the UE, the UE shall:

1> retain the measurement configuration that was valid before the MEASUREMENT CONTROL message was received;

1> set the IE "RRC transaction identifier" in the MEASUREMENT CONTROL FAILURE message to the value of "RRC transaction identifier" in the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry.

1> set the cause value in IE "failure cause" to "unsupported measurement";

1> submit the MEASUREMENT CONTROL FAILURE message to lower layers for transmission on the DCCH using AM RLC;

1> continue with any ongoing processes and procedures as if the invalid MEASUREMENT CONTROL message has not been received;

1> and the procedure ends.

3GPP TS 34.123-1 version 10.3.1 Release 10

Reference

3GPP TS 25.331 clause 8.4.1.4

8.4.1.9.3 Test purpose

1. To confirm that the UE transmits a MEASUREMENT CONTROL FAILURE message, with the value "unsupported measurement" in IE "failure cause" when the SS instructs the UE to perform an unsupported measurement by sending a MEASUREMENT CONTROL message. To confirm that the UE retains its existing valid measurement configuration, after receiving a MEASUREMENT CONTROL message containing an unsupported measurement.

8.4.1.9.4 Method of test

Initial Condition

System Simulator: 1cell

UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

[Editor's note: It is assumed in this test that the UE under test does not possess any inter-RAT measurement capability. The mandatory type(s) of measurement capability that shall be implemented by the UE is to be discussed]

Test Procedure

The UE is in the CELL_DCH state. SS sends MEASUREMENT CONTROL message to command the UE to perform internal measurement and reporting for UE transmitted power. The UE shall transmit MEASUREMENT REPORT messages on DCCH at 1 second interval. The SS transmits a MEASUREMENT CONTROL message to configure inter-RAT measurements. The UE hall transmit a MEASUREMENT CONTROL FAILURE message on the uplink DCCH using AM RLC. SS verifies that the UE continues to transmit MEASURMENT REPORT messages on uplink DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the CELL_DCH state.
2	←		MEASUREMENT CONTROL	UE internal measurement and reporting is requested.
3	→		MEASUREMENT REPORT	Contains estimated reading for UE transmitted power.
4	←		MEASUREMENT CONTROL	Inter-RAT measurements are requested in this message
5	→		MEASUREMENT CONTROL FAILURE	The value "unsupported measurement" is set in IE "failure cause".
6	→		MEASUREMENT REPORT	SS verifies that UE continue to send this message on uplink DCCH.

Specific Message Content

3GPP TS 34.123-1 version 10.3.1 Release 10

MEASUREMENT CONTROL (Step 2)

Information Element	Value/remark
Measurement Identity	1
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurements list	Not Present
CHOICE measurement type	UE internal measurement
- UE internal measurement quantity	
- CHOICE mode	FDD
- Measurement quantity	UE Transmitted Power
- Filter Coefficient	0
- UE internal reporting quantity	
- UE Transmitted Power	TRUE
- CHOICE mode	FDD
- UE Rx-Tx time difference	FALSE
- CHOICE report criteria	Periodical reporting criteria
- Amount of reporting	Infinity
- Reporting interval	1000 msec
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 3 and Step 6)

Information Element	**Value/remark**
Measurement Identity number	Check to see if it's set to '1'
Measured Results	
- CHOICE measurement	Check to see if it's set to "UE internal measured results"
- CHOICE mode	Check to see if it's set to "FDD"
- UE Transmitted Power	Check to see if the reported power is compatible with RF class
- UE Rx-Tx report entries	Check to see if it is absent
Measured Results on RACH	Check to see if it is absent
Additional Measured results	Check to see if it is absent
Event results	Check to see if it is absent

MEASUREMENT CONTROL (Step 4)

Information Element	Value/remark	Version
RRC transaction identifier	Select an arbitrary an integer between 0 and 3	
3GPP TS 34.123-1 version 10.3.1 Release 10		
Measurement Identity	2	
Measurement Command	Setup	
Measurement Reporting Mode		
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC	
Additional measurements list	Not Present	
CHOICE measurement type	Inter-RAT measurement	
- Inter-RAT cell info list		
- CHOICE inter-RAT cell removal	Remove no inter-RAT cells	
- New inter-RAT cells		
- Inter-RAT cell id	1	
- CHOICE Radio Access Technology	GSM	
- Cell individual offset	0	
- Cell selection and re-selection info	Not Present	
- BSIC	Set to the BSIC code of cell 2	
- BSIC ARFCN	Set to the ARFCN assigned to cell 2	
- Output power	Not Present	
- Cells for measurement		
- Inter-RAT cell id	2	
- Inter-RAT measurement quantity		
- CHOICE system	GSM	
- Measurement quantity	GSM Carrier RSSI	
- Filter Coefficient	0	
- BSIC verification required	Not required	
- Inter-RAT reporting quantity		
- UTRAN estimate quantity	FALSE	
- CHOICE system	GSM	
- Pathloss	FALSE	
- Observed time difference to GSM cell	FALSE	R99 and Rel-4 only
Reporting indicator		
- GSM Carrier RSSI	TRUE	
- Reporting cell status	Not Present	
- CHOICE report criteria	No reporting	
DPCH compressed mode status info	Not Present	

MEASUREMENT CONTROL FAILURE (Step 5)

Information Element	Value/remark
RRC transaction identifier	Check if it is set to the same value of the same IE in the MEASUREMENT CONTROL message sent in Step 4.
Failure cause	Check if it is set to "Unsupported measurement"

8.4.1.9.5 Test requirement

After step 2 the UE shall transmit a MEASUREMENT REPORT messages at 1 second interval. In these messages, the IE "CHOICE measurement" shall be set to "UE internal measured results", and it shall contain the measured UL transmitted power reading in IE "UE Transmitted Power".

After step 4 the UE shall transmit a MEASUREMENT CONTROL FAILURE message. In this message, the value "unsupported measurement" shall be specified in IE "failure cause".

After step 5 the UE shall continue to transmit MEASUREMENT REPORT messages on the uplink DCCH, with the contents of the messages identical to that received by SS after step 2.

8.4.1.10 Measurement Control and Report: Failure (Invalid Message Reception)

3GPP TS 34.123-1 version 10.3.1 Release 10

8.4.1.10.1 Definition

8.4.1.10.2 Conformance requirement

If the MEASUREMENT CONTROL message contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to TS 25.331 clause 9, the UE shall perform procedure specific error handling as follows. The UE shall:

1> set the IE "RRC transaction identifier" in the MEASUREMENT CONTROL FAILURE message to the value of "RRC transaction identifier" in the entry for the MEASUREMENT CONTROL message in the table "Rejected transactions" in the variable TRANSACTIONS; and

1> clear that entry.

1> set the IE "failure cause" to the cause value "protocol error";

1> include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;

1> submit the MEASUREMENT CONTROL FAILURE message to lower layers for transmission on the DCCH using AM RLC;

1> continue with any ongoing processes and procedures as if the invalid MEASUREMENT CONTROL message has not been received;

1> and the procedure ends.

Reference

3GPP TS 25.331 clauses 8.4.1.5 and 9.2

8.4.1.10.3 Test Purpose

1. To confirm that the UE continues its ongoing processes and procedures after it has received an invalid MEASUREMENT CONTROL message.

2. To confirm that the UE transmits MEASUREMENT CONTROL FAILURE message, after it has received an invalid MEASUREMENT CONTROL message.

8.4.1.10.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Test Procedure

The UE is initially brought to CELL_DCH. SS transmits a MEASUREMENT CONTROL message to the UE, commanding it to start transmitting report messages for the reporting quantity "UE Transmitted Power". SS waits for the UE to transmit MEASUREMENT RERORT message on the uplink DCCH. After the MEASUREMENT REPORT message is received, SS transmits an invalid MEASUREMENT CONTROL message again. The UE shall reply with MEASURMENT CONTROL FAILURE message as it has detected a protocol error. It shall continue to report its UL transmission power level using MEASUREMENT REPORT messages.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1				The UE is CELL_DCH state in cell 1.
2	←		MEASUREMENT CONTROL	SS transmits this message on downlink DCCH to instruct UE to start reporting the quantity "UE transmitted power".
3	→		MEASUREMENT REPORT	UE shall send this message periodically at 32 seconds interval
4	←		MEASURMENT CONTROL	See message content.
5	→		MEASUREMENT CONTROL FAILURE	UE shall continue its current measurement and reporting processes and procedures after sending this message.
6	→		MEASUREMENT REPORT	UE shall continue to transmit this message to the SS at 32 seconds interval.

Specific Message Content

MEASUREMENT CONTROL (Step 2)

Information Element	Value/remark
Measurement Identity	3
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurements list	Not Present
CHOICE measurement type	UE internal measurement
- UE internal measurement quantity	
- Measurement quantity	UE Transmitted Power
- Filter coefficient	0
- UE internal reporting quantity	
- UE Transmitted Power	TRUE
- UE Rx-Tx time difference	FALSE
CHOICE report criteria	Periodical reporting criteria
- Amount of reporting	Infinity
- Reporting interval	32 seconds
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 3 and Step 6)

Information Element	Value/remark
Measurement identity	Check to see if set to 3
Measured Results	
CHOICE measurement	Check to see if set to "UE internal measurement results"
- CHOICE mode	Check to see if it's set to "FDD"
- UE Transmitted Power	Check to see if the reported power is compatible with RF class
- UE Rx-Tx report entries	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event Results	Check to see if this IE is absent

MEASUREMENT CONTROL (Step 4)

Use the MEASUREMENT CONTROL message as defined in [9] TS 34.108 clause 9, with the following exceptions:

3GPP TS 34.123-1 version 10.3.1 Release 10

Information Element	Value/Remark
Critical extensions	'FF'H

MEASUREMENT CONTROL FAILURE (Step 5)

Information Element	Value/remark
Failure cause Protocol error information	Check to see if set to "protocol error" Check to see if set to " Message extension not comprehended "

8.4.1.10.5 Test Requirement

After step 4 the UE shall transmit MEASUREMENT CONTROL FAILURE message, stating the IE "failure cause" as "protocol error" and IE "protocol error information" as "Message extension not comprehended".

After step 5 the UE shall continue to send MEASUREMENT REPORT, with the measurement identity number set to 3 and "measured results" IE containing measured readings of UE Tx power, at 32 seconds interval.

8.4.1.11 Void

8.4.1.12 Void

8.4.1.13 Void

8.4.1.14 Measurement Control and Report: Cell forbidden to affect reporting range (FDD)

8.4.1.14.1 Definition

8.4.1.14.2 Conformance requirement

The reporting range affects the reporting events 1A and 1B. The reporting range is defined as a function of all the Primary CPICHs in the active set. If the parameter W is set to 0, the reporting range is defined relative to the best Primary CPICH. However, there could be cases where it is good to forbid a specific Primary CPICH to affect the reporting range. This mechanism could be effective if the operator knows by experience that the quality of a Primary CPICH is very unstable in a specific area and therefore should not affect the reporting of the other Primary CPICHs.

The UE shall ignore that a Primary CPICH is forbidden to affect the reporting range if all of the following conditions are fulfilled:

- the Primary CPICH is included in active set; and
- all cells in active set are defined as Primary CPICHs forbidden to affect the reporting range.

Reference

3GPP TS 25.331 clause 14.1.2.1, 14.1.2.2, clause 14.1.5.4

8.4.1.14.3 Test Purpose

3GPP TS 34.123-1 version 10.3.1 Release 10

1. To confirm that the UE reports the triggering of event 1A to the SS, if a primary CPICH currently measured by the UE enters the reporting range.

2. To confirm that the UE reports the triggering of event 1B to the SS, if a primary CPICH currently measured by the UE leaves the reporting range.

3. To confirm that the UE use the forbidden cell indicated in the MEASUREMENT CONTROL message to affect the reporting range.

4. To confirm that the UE ignores that a primary CPICH is forbidden to affect the reporting range when (a) the primary CPICH concerned is included in active set and (b) all cells in the active set are defined as primary CPICHs forbidden to affect the reporting range.

8.4.1.14.4 Method of test

Initial Condition

System Simulator: 3 cells – Cell 1, cell 2 and cell 3 are active. SCH_Ec is set to 0 dB relative to CPICH_Ec.

UE: CS-DCCH+DTCH _DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Test Procedure

Table 8.4.1.14-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Column marked "T0" denotes the initial conditions. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 8.4.1.14-1

Parameter	Unit	Cell1				Cell2				Cell3			
		T0	T1	T2	T3	T0	T1	T2	T3	T0	T1	T2	T3
UTRA RF Channel		Mid Range Test Frequency				Mid Range Test Frequency				Mid Range Test Frequency			
CPICH Ec	dBm/3.84 MHz	-55	-55	-60	-60	-60	-63	-67	-67	-68	-66	-66	-74

The UE is initially in CELL_DCH state of cell 1.

SS sends a MEASUREMENT CONTROL message with cell 1, cell 2 and cell 3 listed in IE "intra-frequency cell info list". In this message the IE "CHOICE reporting criteria" is set to "intra-frequency measurement report criteria", with the IE "intra-frequency event identity" set to "1A". The IE "reporting range" is set to 9 dB in the MEASUREMENT CONTROL message. The UE shall send a MEASUREMENT REPORT on the uplink DCCH, which contains the IE "Event results" to report that intra-frequency event 1A is triggered by cell 2.

SS executes the active set update procedure, requesting that cell 2 be added to the active set. The UE shall respond with ACTIVE SET UPDATE COMPLETE message on the uplink DCCH and then include cell 2 into its current active set. SS sends a MEASUREMENT CONTROL message to command that cell 1 in the active set is forbidden to affect the

reporting range for event 1A. SS reconfigures the downlink transmission power settings according to values in column "T1" in table 8.4.1.14-1. The UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH to report the triggering of intra-frequency event 1A. In this message, the IE "Events results" shall indicate that intra-frequency event 1A is triggered by cell 3. SS executes the active set update procedure, requesting that cell 3 be added to the active set. The UE shall respond with ACTIVE SET UPDATE COMPLETE message on the uplink DCCH and then include cell 3 into its current active set. SS sends a MEASUREMENT CONTROL message to command that cell 1 in the active set is forbidden to affect the reporting range for event 1B. The IE "reporting range" is set to 7 dB in the MEASUREMENT CONTROL message. SS checks that no measurement report is sent by the UE. SS reconfigures the downlink transmission power settings according to values in column "T2" in table 8.4.1.14-1. SS sends a MEASUREMENT CONTROL message to command that cell 1 in the active set to be removed from the "forbidden to affect the reporting range for event 1B" cell list. SS reconfigures the downlink transmission power settings according to values in column "T3" in table 8.4.1.14-1. The UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH to report the triggering of intra-frequency event 1B. In this message, the IE "Events results" shall indicate that intra-frequency event 1B is triggered by cell 3. SS reconfigures the downlink transmission power settings according to values in column "T2" in table 8.4.1.14-1. SS sends a MEASUREMENT CONTROL message to command that all cells in the active set are forbidden to update the reporting range for event 1B. SS reconfigures the downlink transmission power settings according to values in column "T3" in table 8.4.1.14-1. The UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH to report the triggering of intra-frequency event 1B. In these messages, the IE "Events results" shall indicate that intra-frequency event 1B is triggered by cell 3.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		MEASUREMENT CONTROL	UE is initially in CELL_DCH state in cell 1. Cell 1, cell 2 and cell 3 are listed in IE "Intra-frequency cell info list". The IE "CHOICE reporting criteria" is set to "Intra-frequency measurement reporting criteria" and IE "Intra-frequency event identity" is set to "1A", with IE "reporting range" set to 9 dB.
2	→		MEASUREMENT REPORT	Measurement made on cell 2 shall trigger event 1A
3	←		ACTIVE SET UPDATE	SS requests UE to add cell 2 into active set.
4	→		ACTIVE SET UPDATE COMPLETE	
5	←		MEASUREMENT CONTROL	SS request UE to monitor cell 3 for event '1A'. SS set cell 1 to be forbidden to affect reporting range. IE “Reporting Range” set to 7 dB.
5a				SS configures the downlink power according to column 'T1' of table 8.4.1.14-1.
6	→		MEASUREMENT REPORT	Measurement made on cell 3 shall trigger event 1A
6a	←		ACTIVE SET UPDATE	SS requests UE to add cell 3 into active set.
6b	→		ACTIVE SET UPDATE COMPLETE	
7	←		MEASUREMENT CONTROL	SS set cell 1 to be forbidden to affect reporting range for event '1B'.
7a				SS checks that no measurement report is sent by the UE for 20 seconds.
7b				SS configures the downlink power according to column 'T2' of table 8.4.1.14-1.

Step	Direction		Message	Comment
	UE	SS		
7c	←		MEASUREMENT CONTROL	Cell 1 shall not be forbidden to affect event '1B'.

7d			SS configures the downlink power according to column 'T3' of table 8.4.1.14-1.
8	→	MEASUREMENT REPORT	Measurement made on cell 3 shall trigger event 1B.
8a			SS configures the downlink power according to column 'T2' of table 8.4.1.14-1.
9		Void	
9a		Void	
10	→	Void	
11	←	MEASUREMENT CONTROL	SS request UE to monitor cell 3 for event '1B'. SS forbids all cells in active list to affect the reporting range. The SS requests UE to report the CPICH RSCP value of the active set cells.
11a			SS configures the downlink power according to column 'T3' of table 8.4.1.14-1.
12	→	MEASUREMENT REPORT	

Specific Message Contents

3GPP TS 34.123-1 version 10.3.1 Release 10

MEASUREMENT CONTROL (Step 1)

The contents of MEASUREMENT CONTROL message for this test step is identical to the same message found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	1
Measurement Identity	1
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency
- New intra-frequency info list	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 1
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	TRUE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 2
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	TRUE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 3
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell for measurement	
- Intra-frequency cell id	1, 2 and 3
- Intra-frequency measurement quantity	
- Filter Coefficient	0
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE

Information Element	Value/remark
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	TRUE
3GPP TS 34.123-1 version 10.3.1 Release 10	
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each events	
- Intra-frequency event identity	1a
- Triggering conditions 1	Not Present
- Triggering conditions 2	monitored set cells
- Reporting range	18 (9.0 dB)
- Cells forbidden to affect reporting range	Not Present
- W	0
- Hysteresis	0 (0 dB)
- Threshold used frequency	Not Present
- Reporting deactivation threshold	3
- Replacement activation threshold	Not Present
- Time to trigger	0 msec
- Amount of reporting	Infinity
- Reporting interval	4000
- Reporting cell status	
- CHOICE reported cells	Report cells within monitored set on used frequency
- Maximum number of reported cells	3
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 2)

NOTE 1: Cell measured results for cell 3 may or may not be present (depends upon the capability of the UE and test uncertainties in power level)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured Results	

- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 2
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 3
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional Measured Results	Check to see if this IE is absent
Event Results	Check to see if set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if set to '1a'
- Cell measurement event results	
- CHOICE Mode	Check to see if set to 'FDD'
- Primary CPICH info	
- Primary Scrambling Code	Check to see if set to the same code for cell 2

ACTIVE SET UPDATE (Step 3)

3GPP TS 34.123-1 version 10.3.1 Release 10

The contents of ACTIVE SET UPDATE message for this test step is identical to the same message found in Clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark	Version
RRC transaction identifier	0	
Radio link addition information		
- Primary CPICH Info		
- Primary Scrambling Code	Set to same code as assigned for cell 2	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH can be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not Present	
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	1	
- Spreading factor	Refer to TS 34.108 clause 6.10.2.4 "Typical radio parameter sets"	
- Code Number	For each DPCH, assign the same code number in the current code given in cell 1.	
- Scrambling code change	Not Present	
- TPC Combination Index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Close loop timing adjustment mode	Not Present	
- TFCI Combining Indicator	FALSE	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only
Radio link removal information	Not Present	

ACTIVE SET UPDATE COMPLETE (Step 4 and 6b)

Information Element	Value/remark
RRC transaction identifier	Check to see if it is set to 0

MEASUREMENT CONTROL (Step 5)

3GPP TS 34.123-1 version 10.3.1 Release 10

The contents of MEASUREMENT CONTROL message for this test step is identical to the same message found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	1
Measurement Identity	1
Measurement Command	Modify
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	Not Present
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity	Not Present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each events	
- Intra-frequency event identity	1a
- Triggering conditions 1	Not Present
- Triggering conditions 2	monitored set cells
- Reporting range	14 (7.0 dB)
- Cells forbidden to affect reporting range	
- CHOICE Mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to the same code as in cell 1
- W	0
- Hysteresis	0 (0 dB)
- Threshold used frequency	Not Present
- Reporting deactivation threshold	3
- Replacement activation threshold	Not Present
- Time to trigger	0 msec
- Amount of reporting	Infinity
- Reporting interval	4000
- Reporting cell status	
- CHOICE reported cells	Report cells within monitored set on used frequency
- Maximum number of reported cells	3
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 6)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 3
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional Measured Results	Check to see if this IE is absent
Event Results	Check to see if set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if set to '1a'
- Cell measurement event results	
- CHOICE Mode	Check to see if set to 'FDD'
- Primary CPICH info	
- Primary Scrambling Code	Check to see if set to the same code for cell 3

ACTIVE SET UPDATE (Step 6a)

The contents of ACTIVE SET UPDATE message for this test step is identical to the same message found in Clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark	Version
RRC transaction identifier	0	
Radio link addition information		
- Primary CPICH Info		
- Primary Scrambling Code	Set to same code as assigned for cell 3	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH can be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not Present	
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	2	
- Spreading factor	Refer to TS 34.108 clause 6.10.2.4 "Typical radio parameter sets"	
- Code Number	For each DPCH, assign the same code number in the current code given in cell 1.	
- Scrambling code change	Not Present	
- TPC Combination Index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Close loop timing adjustment mode	Not Present	
- TFCI Combining Indicator	FALSE	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only
Radio link removal information	Not Present	

MEASUREMENT CONTROL (Step 7)

3GPP TS 34.123-1 version 10.3.1 Release 10

The contents of MEASUREMENT CONTROL message for this test step is identical to the same message found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	1
Measurement Identity	1
Measurement Command	Modify
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	Not Present
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity	Not Present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each events	
- Intra-frequency event identity	1b
- Triggering conditions 1	Active set cells
- Triggering conditions 2	Not Present
- Reporting range	14 (7.0 dB)
- Cells forbidden to affect reporting range	
- CHOICE Mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to the same code as in cell 1
- W	0
- Hysteresis	0 (0 dB)
- Time to trigger	0 msec
- Reporting cell status	
- CHOICE reported cells	Report cells within monitored set on used frequency
- Maximum number of reported cells	3
DPCH compressed mode status info	Not Present

MEASUREMENT CONTROL (Step 7c)

3GPP TS 34.123-1 version 10.3.1 Release 10

The contents of MEASUREMENT CONTROL message for this test step is identical to the same message found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	1
Measurement Identity	1
Measurement Command	Modify
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	Not Present
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity	Not Present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each events	
- Intra-frequency event identity	1b
- Triggering conditions 1	Active set cells
- Triggering conditions 2	Not Present
- Reporting range	21 (10.5 dB)
- Cells forbidden to affect reporting range	Not Present
- W	0
- Hysteresis	0 (0 dB)
- Time to trigger	0 msec
- Reporting cell status	
- CHOICE reported cells	Report cells within monitored set on used frequency
- Maximum number of reported cells	3
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 8)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured Results	Not Present
Measured Results on RACH	Check to see if this IE is absent
Additional Measured Results	Check to see if this IE is absent
Event Results	Check to see if set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if set to '1b'
- Cell measurement event results	
- CHOICE Mode	Check to see if set to 'FDD'
- Primary CPICH info	
- Primary Scrambling Code	Check to see if set to the same code for cell 3

MEASUREMENT CONTROL (Step 11)

3GPP TS 34.123-1 version 10.3.1 Release 10

The contents of MEASUREMENT CONTROL message for this test step is identical to the same message found in Clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	1
Measurement Identity	1
Measurement Command	Modify
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	Not Present
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	TRUE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each events	
- Intra-frequency event identity	1b
- Triggering conditions 1	Active set cells
- Triggering conditions 2	Not Present
- Reporting range	21 (10.5 dB)
- Cells forbidden to affect reporting range	
- CHOICE Mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to the same code as in cell 1
- CHOICE Mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to the same code as in cell 2
- CHOICE Mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to the same code as in cell 3
- W	0
- Hysteresis	0 (0 dB)
- Time to trigger	0 msec
- Reporting cell status	
- CHOICE reported cells	Report cells within active set
- Maximum number of reported cells	3
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 12)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if it is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 1
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if it is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 2
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if it is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 3
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional Measured Results	Check to see if this IE is absent
Event Results	Check to see if set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if set to '1b'
- Cell measurement event results	
- CHOICE Mode	Check to see if set to 'FDD'
- Primary CPICH info	
- Primary Scrambling Code	Check to see if set to the same code for cell 3

8.4.1.14.5 Test requirement

After step 1, the UE shall send a MEASUREMENT REPORT message on the uplink DCCH. The message shall contain the IE "Event results" to report that cell 2 has triggered intra-frequency event 1A.

After step 3, the UE shall send a ACTIVE SET UPDATE COMPLETE message on the uplink DCCH.

After step 5a, the UE shall transmit MEASUREMENT REPORT message on the uplink DCCH. The message shall contain IE "Event results" to report that cell 3 has triggered intra-frequency event 1A.

After step 6a, the UE shall send a ACTIVE SET UPDATE COMPLETE message on the uplink DCCH.

After step 7d, the UE shall transmit MEASUREMENT REPORT message on the uplink DCCH. The message shall contain IE "Event results" to report that cell 3 has triggered intra-frequency event 1B.

After step 11a, the UE shall send a MEASUREMENT REPORT message on the uplink DCCH. The message shall contain IE "Event results" to report that cell 3 has triggered intra-frequency event 1B.

8.4.1.15 Measurement Control and Report: Configuration Incomplete

3GPP TS 34.123-1 version 10.3.1 Release 10

8.4.1.15.1 Definition

8.4.1.15.2 Conformance requirement

If IE "Traffic volume measurement" is received by the UE in a MEASUREMENT CONTROL message, where IE "measurement command" has the value "setup", but IE "Traffic volume measurement quantity" or IE "Traffic volume reporting quantity" is not received, the UE shall:

1> clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY;

1> set the variable CONFIGURATION_INCOMPLETE to TRUE.

…

If IE "Measurement Reporting Mode" is not received by the UE in MEASUREMENT CONTROL message, where IE "measurement command" has the value "setup", the UE shall:

1> clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY;

1> set the variable CONFIGURATION_INCOMPLETE to TRUE.

…

If IE "Inter-frequency measurement" is received by the UE in a MEASUREMENT CONTROL message, where IE "measurement command" has the value "setup", but IE "Inter-frequency measurement quantity", IE "Inter-frequency reporting quantity" or "CHOICE Report criteria" is not received, the UE shall:

1> clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY;

1> set the variable CONFIGURATION_INCOMPLETE to TRUE;

…

If IE "Intra-frequency measurement" is received by the UE in a MEASUREMENT CONTROL message, where IE "measurement command" has the value "setup", but IE "Intra-frequency measurement quantity", IE "Intra-frequency reporting quantity" or "CHOICE Report criteria" is not received, the UE shall:

1> clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY;

1> set the variable CONFIGURATION_INCOMPLETE to TRUE.

…

If IE "Quality measurement" is received by the UE in a MEASUREMENT CONTROL message, where IE "measurement command" has the value "setup", but IE "Quality reporting quantity" is not received, the UE shall:

1> clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY;

1> set the variable CONFIGURATION_INCOMPLETE to TRUE.

…

If IE "UE internal measurement" is received by the UE in a MEASUREMENT CONTROL message, where IE "measurement command" has the value "setup", but IE "UE internal measurement quantity" or IE "UE internal reporting quantity" is not received, the UE shall:

1> clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY;

1> set the variable CONFIGURATION_INCOMPLETE to TRUE.

3GPP TS 34.123-1 version 10.3.1 Release 10

…

If the variable CONFIGURATION_INCOMPLETE is set to TRUE, the UE shall:

1> retain the measurement configuration that was valid before the MEASUREMENT CONTROL message was received;

1> set the IE "RRC transaction identifier" in the MEASUREMENT CONTROL FAILURE message to the value of "RRC transaction identifier" in the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS and clear that entry;

1> clear the variable CONFIGURATION_INCOMPLETE;

1> set the cause value in IE "failure cause" to "Configuration incomplete";

1> submit the MEASUREMENT CONTROL FAILURE message to lower layers for transmission on the DCCH using AM RLC;

1> continue with any ongoing processes and procedures as if the invalid MEASUREMENT CONTROL message has not been received;

1> and the procedure ends.

Reference

3GPP TS 25.331 clause 8.4.1.4a, 8.6.7.10, 8.6.7.13, 8.6.7.14, 8.6.7.16, 8.6.7.17, 8.6.7.18

8.4.1.15.3 Test Purpose

1. To confirm that the UE sends a MEASUREMENT CONTROL FAILURE message, after receiving a MEASUREMENT CONTROL message with IE "Measurement command" set to "Setup" and the following contents:
   - "CHOICE measurement type" IE is set to "Intra-frequency measurement" and "Intra-frequency measurement quantity" is omitted; or
   - "CHOICE measurement type" IE is set to "Inter-frequency measurement" and "Inter-frequency reporting quantity" is omitted; or
   - "Reporting mode" IE is omitted. or
   - "CHOICE measurement type" IE is set to "Quality measurement" and IE "Quality reporting quantity" is omitted or
   - "CHOICE measurement type" IE is set to "UE internal measurement" and IE "UE internal measurement quantity" is omitted or
   - "CHOICE measurement type" IE is set to "UE internal measurement" and IE "UE internal reporting quantity" is omitted or
   - "CHOICE measurement type" IE is set to "Traffic volume measurement" and IE "Traffic volume measurement quantity" is omitted or
   - "CHOICE measurement type" IE is set to "Traffic volume measurement" and IE "Traffic volume reporting quantity" is omitted
2. To confirm that the UE set the "failure cause" IE to value "incomplete configuration" in the uplink MEASUREMENT CONTROL FAILURE message.

8.4.1.15.4 Method of test

3GPP TS 34.123-1 version 10.3.1 Release 10

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Test Procedure

The UE is initially brought to CELL_DCH. SS then send a MEASUREMENT CONTROL message to UE. The UE shall perform periodical traffic volume measurement according to this message and then transmit MEASUREMENT REPORT message back to SS.

SS transmits a MEASUREMENT CONTROL message to the UE, commanding it to start an intra-frequency measurement and reporting task. However, IE "Intra-frequency measurement quantity" is absent in the message. The UE shall not establish the intra-frequency measurement. It shall send a MEASUREMENT CONTROL FAILURE message to report that a "configuration incomplete" error has been detected.

Next, SS sends the MEASUREMENT CONTROL message once more. In this message, SS commands the establishment of an inter-frequency measurement and reporting task, but IE "Inter-frequency reporting quantity" is omitted in this message. The UE shall not establish the intra-frequency measurement. It shall send a MEASUREMENT CONTROL FAILURE message to report that a "configuration incomplete" error has been detected.

Next, SS sends a third MEASUREMENT CONTROL message. In this message, SS commands the establishment of an intra-frequency measurement and reporting task, but IE "Measurement reporting mode" is omitted in this message. The UE shall not establish the intra-frequency measurement. It shall send a MEASUREMENT CONTROL FAILURE message to report that a "configuration incomplete" error has been detected.

Next, SS sends a fourth MEASUREMENT CONTROL message. In this message, SS commands the establishment of a quality measurement and reporting task, but IE "Quality reporting quantity" is omitted in this message. The UE shall not establish the quality measurement. It shall send a MEASUREMENT CONTROL FAILURE message to report that a "configuration incomplete" error has been detected.

Next, SS sends a fifth MEASUREMENT CONTROL message. In this message, SS commands the establishment of UE internal measurement and reporting task, but IE "UE internal measurement quantity" is omitted in this message. The UE shall not establish the UE internal measurement. It shall send a MEASUREMENT CONTROL FAILURE message to report that a "configuration incomplete" error has been detected.

Next, SS sends a sixth MEASUREMENT CONTROL message. In this message, SS commands the establishment of UE internal measurement and reporting task, but IE "UE internal reporting quantity" is omitted in this message. The UE shall not establish the UE internal measurement. It shall send a MEASUREMENT CONTROL FAILURE message to report that a "configuration incomplete" error has been detected.

Next, SS sends a seventh MEASUREMENT CONTROL message. In this message, SS commands the establishment of a traffic volume measurement and reporting task, but IE "Traffic volume measurement quantity" is omitted in this message. The UE shall not establish the traffic volume measurement. It shall send a MEASUREMENT CONTROL FAILURE message to report that a "configuration incomplete" error has been detected.

In the final sequence, SS sends an eight MEASUREMENT CONTROL message. In this message, SS commands the establishment of a traffic volume measurement and reporting task, but IE "Traffic volume reporting quantity" is omitted in this message. The UE shall not establish the traffic volume measurement. It shall send a MEASUREMENT CONTROL FAILURE message to report that a "configuration incomplete" error has been detected. UE shall continue its traffic volume measurement and send MEASUREMENT REPORT messages back to SS periodically. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1				The UE is CELL_DCH state in cell 1.
1a	←		MEASUREMENT CONTROL	SS requests UE to perform periodical traffic volume measurement.
1b	→		MEASUREMENT REPORT	
2	←		MEASUREMENT CONTROL	SS commands the start of an intra-frequency measurement and reporting task. IE "Intra-frequency measurement quantity" is absent.
3	→		MEASUREMENT CONTROL FAILURE	UE reports the occurrence of "incomplete configuration"
4	←		MEASUREMENT CONTROL	SS commands the start of an inter-frequency measurement and reporting task. IE "Inter-frequency reporting quantity" is absent.
5	→		MEASUREMENT CONTROL FAILURE	UE reports the occurrence of "incomplete configuration"
6	←		MEASUREMENT CONTROL	SS commands the start of an inter-frequency measurement and reporting task. IE "Measurement reporting mode" is absent.
7	→		MEASUREMENT CONTROL FAILURE	UE reports the occurrence of "incomplete configuration"
8	←		MEASUREMENT CONTROL	SS commands the start of a Quality measurement and reporting task. IE "Quality reporting quantity" is absent.
9	→		MEASUREMENT CONTROL FAILURE	UE reports the occurrence of "incomplete configuration"
10	←		MEASUREMENT CONTROL	SS commands the start of an UE internal measurement and reporting task. IE "UE internal measurement quantity" is absent.
11	→		MEASUREMENT CONTROL FAILURE	UE reports the occurrence of "incomplete configuration"
12	←		MEASUREMENT CONTROL	SS commands the start of an UE internal measurement and reporting task. IE "UE internal reporting quantity" is absent.
13	→		MEASUREMENT CONTROL FAILURE	UE reports the occurrence of "incomplete configuration"
14	←		MEASUREMENT CONTROL	SS commands the start of a Traffic volume measurement and reporting task. IE "Traffic volume measurement quantity" is absent.
15	→		MEASUREMENT CONTROL FAILURE	UE reports the occurrence of "incomplete configuration"
16	←		MEASUREMENT CONTROL	SS commands the start of a Traffic volume measurement and reporting task. IE "Traffic volume reporting quantity" is absent.
17	→		MEASUREMENT CONTROL FAILURE	UE reports the occurrence of "incomplete configuration"

Step	Direction		Message	Comment
	UE	SS		
18	→		MEASUREMENT REPORT	

19	←→	CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

MEASUREMENT CONTROL (Step 1a)

Use the MEASUREMENT CONTROL message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/Remark
Measurement Identity	1
Measurement Command	Setup
Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurement list	Not Present
CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	
- Uplink transport channel type	DCH
- UL Target Transport Channel ID	5
- Traffic volume measurement quantity	
- Measurement quantity	RLC Buffer Payload
- Time Interval to take an average or a variance	Not Present
- Traffic volume reporting quantity	
- RLC Buffer Payload for each RB	True
- Average of RLC Buffer Payload for each RB	False
- Variance of RLC Buffer Payload for each RB	False
- Measurement validity	
- UE state	All states
- CHOICE Reporting criteria	Periodical Reporting Criteria
- Amount of reporting	Infinity
- Reporting interval	8000
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 1b and 18)

Check to see if the same message type found in [9] TS 34.108 Clause 9 is received, with the following exceptions:

3GPP TS 34.123-1 version 10.3.1 Release 10

Information Element	Value/Remarks
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

MEASUREMENT CONTROL (Step 2)

Information Element	Value/remark
Measurement Identity	1
3GPP TS 34.123-1 version 10.3.1 Release 10	
RRC transaction Identifier	Arbitrarily selected between 0 and 3
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting/Event Trigger Reporting Mode	Periodical reporting
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cell	Not Present
- Cell for measurement	
- Intra-frequency cell id	Set to id of cell 1
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- SFN-SFN observed time difference reporting indicator	No report
- Cell synchronization information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- SFN-SFN observed time difference reporting indicator	No report
- Cell synchronization information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	
- CHOICE reported cell	Report cells within active set
- Maximum number of reported cells	1
- Measurement validity	CELL_DCH
- CHOICE report criteria	Periodical reporting criteria
- Amount of reporting	Infinity
- Reporting interval	32 seconds
DPCH compressed mode status info	Not Present

MEASUREMENT CONTROL FAILURE (Step 3)

Information Element	Value/remark
RRC transaction identifier	Check if it is set to the same value of the same IE in the MEASUREMENT CONTROL message sent in Step 2
Failure cause	Check to see if set to "incomplete configuration"

MEASUREMENT CONTROL (Step 4) (Note 1)

Information Element	Value/remark
Measurement Identity	2
3GPP TS 34.123-1 version 10.3.1 Release 10	
RRC transaction Identifier	Arbitrarily selected between 0 and 3
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting/Event Trigger Reporting Mode	Periodical reporting
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency cell	
- Inter-frequency cell id	Set to id of cell 4
- Frequency info	
- CHOICE Mode	FDD
- UARFCN uplink (Nu)	Set to the same UARFCN as cell 4 in clause 6.1 of TS 34.108
- UARFCN downlink (Nu)	Set to the same UARFCN as cell 4 in clause 6.1 of TS 34.108
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	0 chips
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 4
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and re-selection info	Not Present
- Cell for measurement	
- Inter-frequency cell id	Set to id of cell 4
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter coefficients	0
- CHOICE mode	FDD
- Measurement quantity for frequency quality estimate	CPICH RSCP
- Inter-frequency reporting quantity	Not Present
- Reporting cell status	
- CHOICE reported cell	Report cells within monitored set on non-used frequency
- Maximum number of reported cells	1
- Measurement validity	CELL_DCH
- CHOICE report criteria	Periodical reporting criteria
- Amount of reporting	Infinity
- Reporting interval	32 seconds
- Inter-frequency set update	Not Present
DPCH compressed mode status info	Not Present

MEASUREMENT CONTROL FAILURE (Step 5)

Information Element	Value/remark
RRC transaction identifier	Check if it is set to the same value of the same IE in the MEASUREMENT CONTROL message sent in Step 4
Failure cause	Check to see if set to "incomplete configuration"

MEASUREMENT CONTROL (Step 6)

Information Element	Value/remark
Measurement Identity	3
3GPP TS 34.123-1 version 10.3.1 Release 10	
RRC transaction Identifier	Arbitrarily selected between 0 and 3
Measurement Command	Setup
Measurement Reporting Mode	Not Present
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cell	Not Present
- Cell for measurement	
- Intra-frequency cell id	Set to id of cell 1
- Intra-frequency measurement quantity	
- Filter coefficient	0
- CHOICE mode	FDD
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- SFN-SFN observed time difference reporting indicator	No report
- Cell synchronization information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- SFN-SFN observed time difference reporting indicator	No report
- Cell synchronization information reporting indicator	No report
- Cell identity reporting indicator	FALSE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	
- CHOICE reported cell	Report cells within active set
- Maximum number of reported cells	1
- Measurement validity	CELL_DCH
- CHOICE report criteria	Periodical reporting criteria
- Amount of reporting	Infinity
- Reporting interval	32 seconds
DPCH compressed mode status info	Not Present

MEASUREMENT CONTROL FAILURE (Step 7)

Information Element	Value/remark
RRC transaction identifier	Check if it is set to the same value of the same IE in the MEASUREMENT CONTROL message sent in Step 6
Failure cause	Check to see if set to "incomplete configuration"

MEASUREMENT CONTROL (Step 8)

Information Element	Value/remark
Measurement identity	16
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement command	Setup
- CHOICE measurement type	Quality measurement
- Quality reporting quantity	Not present
- Reporting criteria	Periodical reporting criteria
- Reporting amount	Infinity
- Reporting interval	64 sec
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	Periodic
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT CONTROL FAILURE (Step 9)

Information Element	**Value/remark**
RRC transaction identifier	Check if it is set to the same value of the same IE in the MEASUREMENT CONTROL message sent in Step 8
Failure cause	Check to see if set to "incomplete configuration"

MEASUREMENT CONTROL (Step 10)

Information Element	**Value/remark**
Measurement Identity	1
Measurement Command	Setup
CHOICE measurement type	UE internal measurement
- UE internal measurement quantity	Not present
- UE internal reporting quantity	
- UE Transmitted Power	TRUE
- CHOICE mode	FDD
- UE Rx-Tx time difference	FALSE
- CHOICE report criteria	Periodical reporting criteria
- Amount of reporting	Infinity
- Reporting interval	1000 msec
Measurement Reporting Mode	Not Present
Additional measurements list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT CONTROL FAILURE (Step 11)

Information Element	Value/remark
RRC transaction identifier	Check if it is set to the same value of the same IE in the MEASUREMENT CONTROL message sent in Step 10
Failure cause	Check to see if set to "incomplete configuration"

MEASUREMENT CONTROL (Step 12)

Information Element	Value/remark
Measurement Identity	1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
CHOICE measurement type	UE internal measurement
- UE internal measurement quantity	
- CHOICE mode	FDD
- Measurement quantity	UE Transmitted Power
- Filter Coefficient	0
- UE internal reporting quantity	Not present
- CHOICE report criteria	Periodical reporting criteria
- Amount of reporting	Infinity
- Reporting interval	1000 msec
Measurement Reporting Mode	Not Present
Additional measurements list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT CONTROL FAILURE (Step 13)

Information Element	Value/remark
RRC transaction identifier	Check if it is set to the same value of the same IE in the MEASUREMENT CONTROL message sent in Step 12
Failure cause	Check to see if set to "incomplete configuration"

MEASUREMENT CONTROL (Step 14)

Information Element	Value/remark
Measurement Identity	1
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	Not Present
- Traffic volume measurement quantity	Not present
- Traffic volume reporting quantity	
- RB buffer payload	True
- RB buffer payload average	TRUE
- RB buffer payload variance	False
- Measurement validity	Not Present
- Report criteria	Periodical Reporting Criteria
- Reporting amount	8
- Reporting interval	8 Sec
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	Periodic
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT CONTROL FAILURE (Step 15)

Information Element	Value/remark
RRC transaction identifier	Check if it is set to the same value of the same IE in the MEASUREMENT CONTROL message sent in Step 14
Failure cause	Check to see if set to "incomplete configuration"

MEASUREMENT CONTROL (Step 16)

Information Element	Value/remark
Measurement Identity	1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	Not Present
- Traffic volume measurement quantity	RLC Buffer Payload
- Traffic volume reporting quantity	Not present
- Measurement validity	Not Present
- Report criteria	Periodical Reporting Criteria
- Reporting amount	8
- Reporting interval	8 Sec
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	Periodic
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT CONTROL FAILURE (Step 17)

Information Element	Value/remark
RRC transaction identifier	Check if it is set to the same value of the same IE in the MEASUREMENT CONTROL message sent in Step 16
Failure cause	Check to see if set to "incomplete configuration"

NOTE: For the MEASUREMENT CONTROL message in step 4, cell 4 is signalled to be added as a new cell into the UE's inter-frequency cell list. However, SS does not need to transmit cell 4 in the downlink, as the UE is not expected to perform measurement and reporting for this cell.

8.4.1.15.5 Test Requirement

After step 1a, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

After step 2, 4, 6, 8, 10, 12, 14 and step 16, the UE shall transmit MEASUREMENT CONTROL FAILURE message, stating the IE "failure cause" as "incomplete configuration". The UE shall not transmit any MEASUREMENT REPORT messages during the execution of this test case.

After step 17, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

8.4.1.16 Measurement Control and Report: Traffic volume measurement for transition from idle mode to CELL_FACH state

8.4.1.16.1 Definition

8.4.1.16.2 Conformance requirement

Upon transition from idle mode to CELL_FACH state, the UE shall:

1> store the measurement control information from the IE "Traffic volume measurement system information" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11) in the variable MEASUREMENT_IDENTITY;

1> begin traffic volume measurement reporting according to the assigned information.

Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in TS 25.331 subclause 8.6 unless otherwise specified below.

The UE shall:

1> read the IE "Measurement command";

1> if the IE "Measurement command" has the value "setup":

2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

2> for measurement types "inter-RAT measurement" or "inter-frequency measurement":

…

2> for measurement type "UE positioning measurement":

…

2> for any other measurement type:

3> if the measurement is valid in the current RRC state of the UE:

4> begin measurements according to the stored control information for this measurement identity.

Reference

3GPP TS 25.331 clause 8.4.1.9.4, 3GPP TS 25.331 clause 8.4.1.3.

8.4.1.16.3 Test Purpose

1. To confirm that after a state transition from idle mode to CELL_FACH state, the UE shall begin a traffic volume type measurement, as specified in System Information Block type 11 or 12 messages on BCCH.
2. To confirm that in CELL_FACH state, the UE shall send a MEASUREMENT REPORT message when reporting criteria is satisfied. During CELL_FACH state, if the UE receives a MEASUREMENT CONTROL message, it shall perform the measurement and reporting tasks based on the MEASUREMENT CONTROL message received.

8.4.1.16.4 Method of test

Initial Condition

System Simulator: 1cell

UE: "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108. If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

The UE is initially in idle mode. The System Information Block type 11 message is modified with respect to the default settings to request UE to perform traffic volume measurements. Key measurement parameters are as follows: measurement quantity = "RLC Buffer Payload", report criteria = "periodic reporting criteria", reporting interval = "6 seconds", reporting amount = 'infinity'. The System Information type 12 message is not broadcasted.

SS prompts the operator to make an outgoing call for one of the traffic classes supported by the UE. SS and UE shall execute procedure P6. Then the UE shall begin traffic volume measurements, and shall send MEASUREMENT REPORT message after completing first measurement. Next SS and UE shall execute procedure P10. Then SS and UE shall execute procedure P14.

UE shall continue to send MEASUREMENT REPORT messages at 6 seconds interval.

SS sends MEASUREMENT CONTROL message to the UE. This message overwrites measurement information saved from System information type 11. Key measurement parameters are as follow: measurement type = "traffic volume measurement", measurement quantity = "RLC Buffer Payload", report criteria = "Event triggered, event 4B: Transport

3GPP TS 34.123-1 version 10.3.1 Release 10
Channel Traffic Volume becomes smaller than an absolute threshold ", Time to trigger = "5 seconds", pending time after trigger = "16 seconds", "reporting threshold = '4K'. Since there is no uplink traffic, UE shall send MEASUREMENT REPORT message after 5 seconds (time to trigger interval). SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		System Information Block type 11	The UE is idle mode and camped onto cell 1. System Information Block type 11 to be transmitted is different from the default settings (see specific message contents)
2	↔		SS executes procedure P6 (clause 7.4.2.2.2) specified in TS 34.108.	SS prompts the test operator to make an outgoing call.
2a	→		MEASUREMENT REPORT	The UE shall send the first MEASUREMENT REPORT message, as specified in SIB11.
3	↔		SS executes procedure P10 (clause 7.4.2.4.2) specified in TS 34.108.	
4	↔		SS executes procedure P14 (clause 7.4.2.6.2) specified in TS 34.108.	
5	→		Void	
6	→		MEASUREMENT REPORT	The report is received within 6 seconds (reporting interval)
7	→		MEASUREMENT REPORT	Time difference between any two consecutive MEASUREMENT REPORT messages should be 6 Seconds.
8	←		MEASUREMENT CONTROL	Traffic volume measurement reporting is requested if measurement is below threshold.
9				SS monitors the uplink DCCH to confirm that no MEASUREMENT REPORT messages are received in 5 seconds.
10	→		MEASUREMENT REPORT	Measurement report because event 4b is triggered
11	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Content

3GPP TS 34.123-1 version 10.3.1 Release 10

System Information Block type 11 (Step 1) (FDD)

Information Element	Value/remark
SIB12 indicator	FALSE
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not Present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 1
- Primary CPICH Tx power	Not Present
- TX Diversity indicator	FALSE
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity for RACH reporting	Not Present
- Maximum number of reported cells on RACH	Not Present
- Reporting information for state CELL_DCH	Not Present
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	
- Traffic volume measurement ID	4
- Traffic volume measurement object list	Rach
- Traffic volume measurement quantity	RLC Buffer Payload
- Traffic volume reporting quantity	
- RB buffer payload	True
- RB buffer payload average	False
- RB buffer payload variance	False
- Traffic volume measurement reporting criteria	Not Present
- Measurement validity	All States except CELL_DCH
- Measurement reporting mode	
- Measurement report transfer mode	Acknowledged Mode
- Periodical or event trigger	Periodical
- Report criteria system Information	Periodical reporting criteria
- Reporting amount	Infinity
- Reporting interval	6 seconds

System Information Block type 11 (Step 1) (TDD)

Information Element	Value/remark
SIB12 indicator	FALSE
3GPP TS 34.123-1 version 10.3.1 Release 10	
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not Present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	Set to same as used for cell 1
- TX Diversity indicator	FALSE
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity for RACH reporting	Not Present
- Maximum number of reported cells on RACH	Not Present
- Reporting information for state CELL_DCH	Not Present
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	
- Traffic volume measurement ID	4
- Traffic volume measurement object list	RACH
- Traffic volume measurement quantity	RLC Buffer Payload
- Traffic volume reporting quantity	
- RB buffer payload	TRUE
- RB buffer payload average	False
- RB buffer payload variance	False
- Traffic volume measurement reporting criteria	Not Present
- Measurement validity	All States except CELL_DCH
- Measurement reporting mode	
- Measurement report transfer mode	Acknowledged Mode
- Periodical or event trigger	Periodical
- Report criteria system Information	Periodical reporting criteria
- Reporting amount	Infinity
- Reporting interval	6 seconds

MEASUREMENT REPORT (Step 2a)

The order in which the RBs are reported is not checked.

3GPP TS 34.123-1 version 10.3.1 Release 10

Information Element	Value/remark
Measurement identity	Check to see if set to 4
Measured Results	
- CHOICE measurement	Check to see if set to "traffic volume measured results list"
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

MEASUREMENT REPORT (Step 6 and 7)

The order in which the RBs are reported is not checked.

Information Element	Value/remark
Measurement identity	Check to see if set to 4
Measured Results	
- CHOICE measurement	Check to see if set to "traffic volume measured results list"
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	20
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

MEASUREMENT CONTROL (Step 8)

Information Element	Value/remark
Measurement Identity	4
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	Not Present
- Traffic volume measurement quantity	RLC Buffer Payload
- Traffic volume reporting quantity	
- RB buffer payload	True
- RB buffer payload average	False
- RB buffer payload variance	False
- Measurement validity	Not Present
- CHOICE reporting criteria	Traffic Volume Measurement Reporting Criteria
- Parameters sent for each transport channel	
- Uplink transport channel type	Rach
- UL Transport Channel ID	Not Present
- Parameters required for each Event	
- Traffic volume event identity	4B
- Reporting threshold	4K
- Time to trigger	5000 ms
- Pending time after trigger	16000 ms
- Tx interruption after trigger	Not Present
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	Event trigger
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 10)

The order in which the RBs are reported is not checked.

Information Element	Value/remark
Measurement identity	4
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	20
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Traffic Volume Measurement Event Results
- Uplink transport channel type causing the event	Rach
- UL Transport Channel identity	Not Present
- Traffic volume event identity	4B

8.4.1.16.5 Test Requirement

After step 5 the UE shall send MEASUREMENT REPORT messages on the uplink DCCH contain RLC buffer payload information for all SRBs. After 6 seconds UE shall send second MEASUREMENT REPORT messages contain RLC **3GPP TS 34.123-1 version 10.3.1 Release 10**buffer payload information for all SRBs and RAB.

After step 8 the UE shall overwrite measurement information received from system information type 11 with measurement information in MEASUREMENT CONTROL message. The UE shall not send MEASUREMENT REPORT message within time to trigger interval. After step 9 the UE shall transmit MEASUREMENT REPORT messages with event identity 4B.

8.4.1.17 Measurement Control and Report: Traffic volume measurement for transition from idle mode to CELL_DCH state

8.4.1.17.1 Definition

8.4.1.17.2 Conformance requirement

Upon transition from idle mode to CELL_DCH state, the UE shall:

1> begin a traffic volume type measurement, assigned in System Information Block type 11 (or System Information Block type 12.

Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in TS 25.331 subclause 8.6 unless otherwise specified below.

The UE shall:

1> read the IE "Measurement command";

1> if the IE "Measurement command" has the value "setup":

2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

2> for measurement types "inter-RAT measurement" or "inter-frequency measurement":

…

2> for measurement type "UE positioning measurement":

…

2> for any other measurement type:

3> if the measurement is valid in the current RRC state of the UE:

4> begin measurements according to the stored control information for this measurement identity.

Reference

3GPP TS 25.331 clause 8.4.1.8.4, 3GPP TS 25.331 clause 8.4.1.3.

8.4.1.17.3 Test Purpose

1. To confirm that after a state transition from idle mode to CELL_DCH state, the UE begin a traffic volume type measurement, as specified in System Information Block type 11 or 12 messages on BCCH. When entering CELL_DCH state, the UE shall send a MEASUREMENT REPORT message when reporting criteria is satisfied.

2. During CELL_DCH state, if the UE receives a MEASUREMENT CONTROL message, it shall perform the measurement and reporting tasks based on the MEASUREMENT CONTROL message received.

8.4.1.17.4 Method of test

3GPP TS 34.123-1 version 10.3.1 Release 10

Initial Condition

System Simulator: 1cell

UE: "Registered idle mode on CS" (state 2) or "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE. If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

The UE is initially in idle mode. The System Information Block type 11 message is modified with respect to the default settings to request UE to perform traffic volume measurements. Key measurement parameters are as follows: measurement quantity = "Average RLC Buffer Payload", report criteria = "Event triggered, event 4B", reporting threshold = "8K", report transfer mode = "Unacknowledged mode". The System Information type 12 message is not broadcasted.

SS prompts the operator to make an outgoing call of a supported traffic class. SS and UE shall execute procedure P3 (for CS service) or P5 (for PS service). Next SS and UE shall execute procedure P7 (for CS service) or P9 (for PS service). Then SS and UE shall execute procedure P11 (for CS service) or P13 (for PS service).

UE shall begin traffic volume measurements after entering in CELL_DCH state. The UE shall send MEASUREMENT REPORT message because uplink traffic is below threshold.

SS sends MEASUREMENT CONTROL message to the UE. This message reconfigures measurement information saved from System information type 11. Key measurement parameters are as follow: measurement type = "traffic volume measurement", measurement quantity = "RLC Buffer Payload", report criteria = "Periodic reporting criteria", reporting interval = "8 seconds", reporting amount = "8". The UE shall periodically send MEASUREMENT REPORT message to report RLC Buffer Payload for each RB.

SS sends MEASUREMENT CONTROL message to release traffic volume measurement. UE shall not send measurement report after receiving this message. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1	←		System Information Block type 11	The UE is idle mode and camped onto cell 1. System Information Block type 11 to be transmitted is different from the default settings (see specific message contents)
2	↔		SS executes procedure P3 (clause 7.4.2.1.2) or P5 (clause 7.4.2.2.2) specified in TS 34.108.	
3	↔		SS executes procedure P7 (clause 7.4.2.3.2) or P9 (clause 7.4.2.4.2) specified in TS 34.108.	
4	↔		SS executes procedure P11 (clause 7.4.2.5.2) or P13 (clause 7.4.2.6.2) specified in TS 34.108.	
5	→		Void	
6	→		MEASUREMENT REPORT	Event 4B is triggered on DCH 5. This message should come on RB1.
6a	→		MEASUREMENT REPORT	Event 4B is triggered on DCH 1. This message should come on RB1 (only for PS)
7	←		MEASUREMENT CONTROL	Periodic Traffic volume measurement reporting is requested.
8	→		MEASUREMENT REPORT	This message should come on RB2.This MEASUREMENT REPORT shall be received on or before 8 Seconds.
9	→		MEASUREMENT REPORT	Time difference between earlier and this MEASUREMENT REPORT message should be 8 Seconds.
10	←		MEASUREMENT CONTROL	Release traffic volume measurement.
11				Wait for 8 Seconds to confirm that UE does not send measurement report message.
12	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

3GPP TS 34.123-1 version 10.3.1 Release 10

System Information Block type 11 (Step 1) (FDD)

Information Element	Value/remark
SIB12 indicator	FALSE
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not Present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 1
- Primary CPICH Tx power	Not Present
- TX Diversity indicator	FALSE
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity for RACH reporting	Not Present
- Maximum number of reported cells on RACH	Not Present
- Reporting information for state CELL_DCH	Not Present
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	
- Traffic volume measurement ID	2
- Traffic volume measurement object list	Not Present
- Traffic volume measurement quantity	Average RLC Buffer Payload
- Time Interval to take an average	200 msec
- Traffic volume reporting quantity	
- RB buffer payload	False
- RB buffer payload average	True
- RB buffer payload variance	False
- Traffic volume measurement reporting criteria	Not Present
- Measurement validity	CELL_DCH
- Measurement reporting mode	
- Measurement report transfer mode	Unacknowledged Mode
- Periodical or event trigger	Event Trigger
- CHOICE reporting criteria	Traffic volume measurement reporting criteria
- Parameters sent for each transport channel	
- Uplink transport channel type	Not Present
- UL transport channel id	Not Present
- Parameters required for each Event	
- Traffic volume event identity	4B
- Reporting threshold	8K
- Time to trigger	5000 ms
- Pending time after trigger	16000 ms
- Tx interruption after trigger	Not Present

System Information Block type 11 (Step 1) (TDD)

Information Element	Value/remark
SIB12 indicator	FALSE
3GPP TS 34.123-1 version 10.3.1 Release 10	
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not Present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	Set to same as used for cell 1
- TX Diversity indicator	FALSE
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity for RACH reporting	Not Present
- Maximum number of reported cells on RACH	Not Present
- Reporting information for state CELL_DCH	Not Present
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	
- Traffic volume measurement ID	2
- Traffic volume measurement object list	Not Present
- Traffic volume measurement quantity	Average RLC Buffer Payload
- Traffic volume reporting quantity	
- Time Interval to take an average	200 msec
- RB buffer payload	FALSE
- RB buffer payload average	TRUE
- RB buffer payload variance	FALSE
- Traffic volume measurement reporting criteria	Not Present
- Measurement validity	CELL_DCH
- Measurement reporting mode	
- Measurement report transfer mode	Unacknowledged Mode
- Periodical or event trigger	Event Trigger
- Report criteria system Information	Traffic volume reporting criteria
- Event specific parameters	
- Event id	4B
- Reporting threshold	8K
- Time to trigger	5000 ms
- Pending time after trigger	16000 ms
- Tx interruption after trigger	Not Present

MEASUREMENT REPORT (Step 6/6a)

The order in which the RBs are reported is not checked.

3GPP TS 34.123-1 version 10.3.1 Release 10

Information Element	Value/remark
Measurement identity	Check to see if set to 2
Measured Results	
- CHOICE measurement	Check to see if set to "traffic volume measured results list"
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is absent
- RLC buffer payload average	Check to see if this IE is present
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is absent
- RLC buffer payload average	Check to see if this IE is present
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is absent
- RLC buffer payload average	Check to see if this IE is present
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is absent
- RLC buffer payload average	Check to see if this IE is present
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	20 (for the PS case only)
- RLC buffer payload	Check to see if this IE is absent
- RLC buffer payload average	Check to see if this IE is present
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	
- UL transport channel type causing the event	DCH
- UL Transport Channel identity	5 (step 6), 1(step 6a)
- Traffic volume event identity	4B

MEASUREMENT CONTROL (Step 7)

Information Element	Value/remark
Measurement Identity	2
Measurement Command	Set up
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	Periodic
Additional measurement list	Not Present
CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	
- Uplink transport channel type	DCH
- UL Target Transport Channel ID	5
- Traffic volume measurement quantity	
- Measurement quantity	RLC Buffer Payload
- Time Interval to take an average or a variance	Not Present
- Traffic volume reporting quantity	
- RLC Buffer Payload for each RB	True
- Average of RLC Buffer Payload for each RBe	False
- Variance of RLC Buffer Payload for each RB	False
- Measurement validity	Not Present
- CHOICE Reporting criteria	Periodical Reporting Criteria
- Amount of reporting	8
- Reporting interval	8 Sec
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 8,9)

The order in which the RBs are reported is not checked.

3GPP TS 34.123-1 version 10.3.1 Release 10

Information Element	Value/remark
Measurement identity	2
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

MEASUREMENT CONTROL (Step 10)

Information Element	Value/remark
Measurement Identity	2
Measurement Command	Release
Measurement reporting mode	Not Present
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

8.4.1.17.5 Test Requirement

After step 5, due to triggering of event 4B, the UE shall send MEASUREMENT REPORT message using unacknowledged mode of RLC. After step 7, UE shall send MEASUREMENT REPORT message using Acknowledged mode of RLC. After 8 seconds UE shall send second MEASUREMENT REPORT message. After step 10, the UE shall not send MEASUREMENT REPORT message.

8.4.1.18 Measurement Control and Report: Traffic volume measurement for transition from CELL_FACH state to CELL_DCH state

8.4.1.18.1 Definition

8.4.1.18.2 Conformance requirement

Upon transition from CELL_FACH to CELL_DCH state, the UE shall:

- retrieve each set of measurement control information of measurement type "traffic volume" stored;
  - if the optional IE "measurement validity" for this measurement has not been included:
    - delete the measurement;

- if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "all states except CELL_DCH":

  - stop measurement reporting; and

3GPP TS 34.123-1 version 10.3.1 Release 10

  - save the measurement to be used after the next transition to CELL_FACH state;

- if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "all states":

  - continue measurement reporting;

- if the IE "measurement validity" has been included and the IE "UE state" has been assigned to value "CELL_DCH":

  - resume this measurement and associated reporting;

- if no traffic volume type measurement has been assigned to the UE with a MEASUREMENT CONTROL message when transiting to CELL_DCH state:

  - continue an ongoing traffic volume type measurement, assigned in System Information Block type 11 or System Information Block type 12.

Reference

3GPP TS 25.331 clause 8.4.1.7.4

8.4.1.18.3 Test Purpose

1. To confirm that the UE performs traffic volume measurements and the associated reporting when it enters CELL_DCH state from CELL_FACH state, and that such measurement contexts (and optionally, the reporting context) valid for CELL_DCH state have been previously stored.

2. To confirm that the UE shall continue to perform traffic volume measurement listed in the System Information Block type 11 or 12 messages, if no previously assigned measurements are present. The UE shall transmit MEASUREMENT REPORT messages if reporting conditions stated in System Information Block type 11 or 12 messages have been satisfied.

8.4.1.18.4 Method of test

Initial Condition

System Simulator: 1 cell

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108

Test Procedure

Initially the UE is in CELL_FACH state. MEASUREMENT CONTROL message is sent to the UE to establish traffic volume measurement context with optional IE "measurement validity" is not present. The UE shall perform measurement and reporting as assigned in MEASUREMENT CONTROL message. RADIO BEARER RECONFIGURATION procedure is used to take the UE from CELL_FACH state to CELL_DCH state. While entering CELL_DCH state from CELL_FACH state, the UE shall delete traffic volume measurement contexts if optional IE "measurement validity" is not present. So, in CELL_DCH state UE shall not perform traffic volume measurement and reporting. UE is taken to the CELL_FACH state from CELL_DCH state using RADIO BEARER RECONFIGURATION procedure. The UE shall not send MEASUREMENT REPORT message as measurement context is already deleted.

The behaviour of the UE when moved from CELL_FACH state to CELL_DCH state and assigned traffic volume measurement context is present with IE "measurement validity" is set to "All But CELL_DCH state" or "CELL_DCH state" or "All states" is tested in a similar way.

When the UE is in CELL_FACH state, System Information is modified to assign traffic volume measurement and reporting to the UE. No previously assigned traffic volume measurement contexts are present in the UE. A SYSTEM INFORMATION CHANGE INDICATION is sent on FACH to inform the UE about the change. The UE is taken to CELL_DCH state from CELL_FACH state using RADIO BEARER RECONFIGURATION procedure. In CELL_DCH state the UE shall continue traffic volume measurement and reporting as assigned in System Information. Traffic volume measurement and reporting is released by sending MEASUREMENT CONTROL message.

3GPP TS 34.123-1 version 10.3.1 Release 10

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1	←		MEASUREMENT CONTROL	Optional IE "measurement validity" is not included.
2	→		MEASUREMENT REPORT	
3	←		RADIO BEARER RECONFIGURATION	
4	→		RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_DCH state from CELL_FACH state UE shall delete measurement context setup by MEASUREMENT CONTROL message (Step 1).
5				SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.
6	←		RADIO BEARER RECONFIGURATION	
7	→		RADIO BEARER RECONFIGURATION COMPLETE	UE is in CELL_FACH state.
8				SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.
9	←		MEASUREMENT CONTROL	IE "measurement validity" is set to "All But CELL_DCH".
10	→		MEASUREMENT REPORT	.
11	←		RADIO BEARER RECONFIGURATION	
12	→		RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_DCH state from CELL_FACH state UE shall stop traffic volume measurement setup by MEASUREMENT CONTROL message (Step 9).
13				SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.
14	←		MEASUREMENT CONTROL	UE shall release measurement context setup by MEASUREMENT CONTROL message (Step 9).
15	←		RADIO BEARER RECONFIGURATION	
16	→		RADIO BEARER RECONFIGURATION COMPLETE	UE is in CELL_FACH state.
17	←		MEASUREMENT CONTROL	IE "measurement validity" is set to "CELL_DCH".
18				SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.
19	←		RADIO BEARER RECONFIGURATION	
20	→		RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_DCH state from CELL_FACH state UE shall start traffic volume measurement setup by MEASUREMENT CONTROL message (Step 17).
21	→		MEASUREMENT REPORT	

Step	Direction		Message	Comment
	UE	SS		

3GPP TS 34.123-1 version 10.3.1 Release 10

22	←	MEASUREMENT CONTROL	UE shall release measurement context setup by MEASUREMENT CONTROL message (Step 17)
23	←	RADIO BEARER RECONFIGURATION	
24	→	RADIO BEARER RECONFIGURATION COMPLETE	UE is in CELL_FACH state.
25	←	MEASUREMENT CONTROL	IE "measurement validity" is set to "All states".
26	→	MEASUREMENT REPORT	
27	←	RADIO BEARER RECONFIGURATION	
28	→	RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_DCH state from CELL_FACH state UE shall continue traffic volume measurement setup by MEASUREMENT CONTROL message (Step 25).
29	→	MEASUREMENT REPORT	
30	←	MEASUREMENT CONTROL	UE shall release measurement context setup by MEASUREMENT CONTROL message (Step 25)
31	←	RADIO BEARER RECONFIGURATION	
32	→	RADIO BEARER RECONFIGURATION COMPLETE	UE is in CELL_FACH state.
33	←	MIB, Scheduling Block 1, and SIB12 modified	Traffic volume measurements and reporting is assigned to UE
33a	←	SYSTEM INFORMATION CHANGE INDICATION	
34	→	MEASUREMENT REPORT	
35	←	RADIO BEARER RECONFIGURATION	
36	→	RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_DCH state from CELL_FACH state UE shall continue traffic volume measurement assigned in System Information (Step 33).
37	→	MEASUREMENT REPORT	
38	←	MEASUREMENT CONTROL	UE shall release measurement context assigned in System Information (Step 33).

Specific Message Content

System Information Block type 1 (FDD or 1.28Mcps TDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

MEASUREMENT CONTROL (Step 1)

Information Element	Value/remark
Measurement Identity	1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	Not Present
- Traffic volume measurement quantity	RLC Buffer Payload
- Traffic volume reporting quantity	
- RB buffer payload	True
- RB buffer payload average	False
- RB buffer payload variance	False
- Measurement validity	Not Present
- Report criteria	Periodical Reporting Criteria
- Reporting amount	8
- Reporting interval	8 Sec
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	Periodic
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 2)

The order in which the RBs are reported is not checked.

Information Element	**Value/remark**
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	20
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

RADIO BEARER RECONFIGURATION (Step 3, 11, 19, 27, and 35)

Use the same message type found in TS 34.108 clause 9 with condition set to A4.

RADIO BEARER RECONFIGURATION (Step 6, 15, 23, and 31)

Use the same message type found in TS 34.108 clause 9 with condition set to A5.

MEASUREMENT CONTROL (Step 9)

The contents of this message are identical to MEASUREMENT CONTROL (Step 1) message with the following exceptions:

3GPP TS 34.123-1 version 10.3.1 Release 10

Information Element	Value/remark
Measurement Identity	2
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Measurement validity	All But CELL_DCH

MEASUREMENT REPORT (Step 10)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	Value/Remarks
Measurement identity	2

MEASUREMENT CONTROL (Step 14)

Information Element	Value/remark
Measurement Identity	2
Measurement Command	Release
Measurement reporting mode	Not Present
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT CONTROL (Step 17)

The contents of this message are identical to MEASUREMENT CONTROL (Step 1) message with the following exceptions:

Information Element	Value/remark
Measurement Identity	3
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Measurement validity	CELL_DCH

MEASUREMENT REPORT (Step 21)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	Value/Remarks
Measurement identity	3

MEASUREMENT CONTROL (Step 22)

The contents of this message are identical to MEASUREMENT CONTROL (Step 14) message with the following exceptions:

Information Element	Value/Remark
Measurement Identity	3

MEASUREMENT CONTROL (Step 25)

The contents of this message are identical to MEASUREMENT CONTROL (Step 1) message with the following exceptions:

3GPP TS 34.123-1 version 10.3.1 Release 10

Information Element	Value/remark
Measurement Identity	4
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	
- UL transport channel identity	RACH
- UL transport channel identity	DCH :1
- UL transport channel identity	DCH : 5
- Measurement validity	All States

MEASUREMENT REPORT (Step 26, and 29)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	Value/Remarks
Measurement identity	4

MEASUREMENT CONTROL (Step 30)

The contents of this message are identical to MEASUREMENT CONTROL (Step 14) message with the following exceptions:

Information Element	Value/Remark
Measurement Identity	4

Master Information Block (Step 33)

Information Element	Value/Remarks
MIB Value Tag	A valid MIB value tag as defined in TS 25.331 that is different from the previous value
SB 1 Cell Value tag	Set to (Current SB 1 value tag + 1)

Scheduling Block 1 (Step 33)

Information Element	Value/remark
SIB 12 Cell Value tag	Set to (Current SIB 12 value tag + 1)

System Information Block type 12 (Step 33) (FDD)

Information Element	Value/remark
FACH measurement occasion info	Not Present
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not Present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 1
- Primary CPICH Tx power	Not Present
- TX Diversity indicator	FALSE
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity for RACH reporting	Not Present
- Maximum number of reported cells on RACH	Not Present
- Reporting information for state CELL_DCH	Not Present
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	
- Traffic volume measurement ID	5
- Traffic volume measurement object list	
- UL transport channel identity	RACH
- UL transport channel identity	DCH :1
- UL transport channel identity	DCH : 5
- Traffic volume measurement quantity	RLC Buffer Payload
- Traffic volume reporting quantity	
- RB buffer payload	True
- RB buffer payload average	False
- RB buffer payload variance	False
- Traffic volume measurement reporting criteria	Not Present
- Measurement validity	All states
- Measurement reporting mode	
- Measurement report transfer mode	Acknowledged Mode
- Periodical or event trigger	Periodical
- Report criteria system Information	Periodical reporting criteria
- Reporting amount	Infinity
- Reporting interval	8 seconds

System Information Block type 12 (Step 1) (TDD)

Information Element	Value/remark
FACH measurement occasion info	Not Present
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement control system information	
- Use of HCS	Not used
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not Present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	Set to same as used for cell 1
- TX Diversity indicator	FALSE
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity for RACH reporting	Not Present
- Maximum number of reported cells on RACH	Not Present
- Reporting information for state CELL_DCH	Not Present
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	
- Traffic volume measurement ID	5
- Traffic volume measurement object list	
- UL transport channel identity	RACH
- UL transport channel identity	DCH :1
- UL transport channel identity	DCH : 5
- Traffic volume measurement quantity	RLC Buffer Payload
- Traffic volume reporting quantity	
- RB buffer payload	TRUE
- RB buffer payload average	FALSE
- RB buffer payload variance	FALSE
- Traffic volume measurement reporting criteria	Not Present
- Measurement validity	All states
- Measurement reporting mode	
- Measurement report transfer mode	Acknowledged Mode
- Periodical or event trigger	Periodical
- Report criteria system Information	Periodical reporting criteria
- Reporting amount	Infinity
- Reporting interval	8 seconds

SYSTEM INFORMATION CHANGE INDICATION (Step 33a)

Information Element	Value/Remarks
Paging record list	Not Present
BCCH modification info	
- MIB Value Tag	A valid MIB value tag as defined in TS 25.331 that is different from the previous value
- BCCH modification time	Not Present

MEASUREMENT REPORT (Step 34, and 37)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	Value/Remarks
Measurement identity	5

MEASUREMENT CONTROL (Step 38)

The contents of this message are identical to MEASUREMENT CONTROL (Step 14) message with the following exceptions:

3GPP TS 34.123-1 version 10.3.1 Release 10

Information Element	Value/Remark
Measurement Identity	5

8.4.1.18.5 Test Requirement

The UE shall send MEASUREMENT REPORT message in steps 21, 29 and 37. The UE shall not send MEASUREMENT REPORT message in steps 5, 8, and 13.

8.4.1.18a Measurement Control and Report: Traffic volume measurement for transition from Enhanced CELL_FACH state (common E-DCH in UL and HS-DSCH DL) to CELL_DCH state

8.4.1.18a.1 Definition

8.4.1.18a.2 Conformance requirement

Upon transition from CELL_FACH to CELL_DCH state, the UE shall:

1> retrieve each set of measurement control information of measurement type "traffic volume" stored in the variable MEASUREMENT_IDENTITY;

2> if the optional IE "measurement validity" for this measurement has not been included:

3> delete the measurement associated with the variable MEASUREMENT_IDENTITY.

2> if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "all states except CELL_DCH":

3> stop measurement reporting; and

3> save the measurement associated with the variable MEASUREMENT_IDENTITY to be used after the next transition to CELL_FACH/CELL_PCH/URA_PCH state.

2> if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "all states":

3> if variable READY_FOR_COMMON_EDCH is set to FALSE before state transition:

4> continue measurement reporting.

3> else:

4> for FDD:

5> resume this measurement and associated reporting.

4> for 1.28 Mcps TDD:

5> continue measurement reporting.

2> if the IE "measurement validity" has been included and the IE "UE state" has been assigned to value "CELL_DCH":

3> resume this measurement and associated reporting.

1> if no traffic volume type measurement has been assigned to the UE with a MEASUREMENT CONTROL message that is valid in CELL_DCH and has the same identity as the one indicated in the IE "Traffic volume measurement system information":

2> store the measurement control information from the IE "Traffic volume measurement system information" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11) in the variable MEASUREMENT_IDENTITY;

3GPP TS 34.123-1 version 10.3.1 Release 10 2> begin traffic volume measurement reporting according to the assigned information.

When a traffic volume measurement is set up, the UE shall:

1> for FDD, if variable READY_FOR_COMMON_EDCH is set to TRUE:

2> if one transport channel that is referenced in the IE "Traffic volume measurement object" as "DCH" and IE "measurement validity" is set to "all states except CELL_DCH":

3> the uplink transport channel on which the UE is supposed to report in CELL_FACH state is of type E-DCH.

1> for 1.28 Mcps TDD, if one transport channel that is referenced in the IE "Traffic volume measurement object" as "USCH" and the IE "UL target transport channel id" is set to 32 and IE "measurement validity" is set to "all states" or "all states except CELL_DCH":

2> the uplink transport channel on which the UE is supposed to report is of type E-DCH.

[…]

Reference

3GPP TS 25.331 clause 8.4.1.7.4, 14.4.2

8.4.1.18a.3 Test Purpose

1. To confirm that the UE performs traffic volume measurements and the associated reporting when it enters CELL_DCH state from enhanced CELL_FACH state (common E-DCH in UL), and that such measurement contexts (and optionally, the reporting context) valid for CELL_DCH state have been previously stored.

2. To confirm that the UE shall continue to perform traffic volume measurement listed in the System Information Block type 11 or 12 messages, if no previously assigned measurements are present. The UE shall transmit MEASUREMENT REPORT messages if reporting conditions stated in System Information Block type 11 or 12 messages have been satisfied.

8.4.1.18a.4 Method of test

Initial Condition

System Simulator: 1 cell

SYSTEM INFORMATION BLOCK TYPE 1 and 5 (see specific message contents).

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD or 1.28Mcps TDD
- UE supports common E-DCH

Test Procedure

Initially the UE is in Enhanced CELL_FACH state (common E-DCH in UL). MEASUREMENT CONTROL message is sent to the UE to establish traffic volume measurement context with optional IE "measurement validity" is not present. The UE shall perform measurement and reporting as assigned in MEASUREMENT CONTROL message. RADIO BEARER RECONFIGURATION procedure is used to take the UE from Enhanced CELL_FACH state (common E-DCH in UL) to CELL_DCH state. While entering CELL_DCH state from Enhanced CELL_FACH state

(common E-DCH in UL), the UE shall delete traffic volume measurement contexts if optional IE "measurement validity" is not present. So, in CELL_DCH state UE shall not perform traffic volume measurement and reporting. UE is taken to the Enhanced CELL_FACH state (common E-DCH in UL) from CELL_DCH state using RADIO BEARER RECONFIGURATION procedure. The UE shall not send MEASUREMENT REPORT message as measurement context is already deleted.

3GPP TS 34.123-1 version 10.3.1 Release 10

The behaviour of the UE when moved from Enhanced CELL_FACH state (common E-DCH in UL) to CELL_DCH state and assigned traffic volume measurement context is present with IE "measurement validity" is set to "All But CELL_DCH state" or "CELL_DCH state" or "All states" is tested in a similar way.

When the UE is in Enhanced CELL_FACH state (common E-DCH in UL), System Information is modified to assign traffic volume measurement and reporting to the UE. No previously assigned traffic volume measurement contexts are present in the UE. A SYSTEM INFORMATION CHANGE INDICATION is sent on FACH to inform the UE about the change. The UE is taken to CELL_DCH state from Enhanced CELL_FACH state (common E-DCH in UL) using RADIO BEARER RECONFIGURATION procedure. In CELL_DCH state the UE shall continue traffic volume measurement and reporting as assigned in System Information. Traffic volume measurement and reporting is released by sending MEASUREMENT CONTROL message.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1	←		MEASUREMENT CONTROL	Optional IE "measurement validity" is not included.
2	→		MEASUREMENT REPORT	
3	←		RADIO BEARER RECONFIGURATION	
4	→		RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_DCH state from Enhanced CELL_FACH state (common E-DCH in UL) UE shall delete measurement context setup by MEASUREMENT CONTROL message (Step 1).
5				SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.
6	←		RADIO BEARER RECONFIGURATION	
7	→		RADIO BEARER RECONFIGURATION COMPLETE	UE is in Enhanced CELL_FACH state (common E-DCH in UL).
8				SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.
9	←		MEASUREMENT CONTROL	IE "measurement validity" is set to "All But CELL_DCH".
10	→		MEASUREMENT REPORT	.
11	←		RADIO BEARER RECONFIGURATION	
12	→		RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_DCH state from Enhanced CELL_FACH state (common E-DCH in UL) UE shall stop traffic volume measurement setup by MEASUREMENT CONTROL message (Step 9).
13				SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.
14	←		MEASUREMENT CONTROL	UE shall release measurement context setup by MEASUREMENT CONTROL message (Step 9).
15	←		RADIO BEARER RECONFIGURATION	
16	→		RADIO BEARER RECONFIGURATION COMPLETE	UE is in Enhanced CELL_FACH state (common E-DCH in UL).
17	←		MEASUREMENT CONTROL	IE "measurement validity" is set to "CELL_DCH".
18				SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.
19	←		RADIO BEARER RECONFIGURATION	
20	→		RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_DCH state from Enhanced CELL_FACH state (common E-DCH in UL) UE shall start traffic volume measurement setup by MEASUREMENT CONTROL message (Step 17).
21	→		MEASUREMENT REPORT	

Step	Direction		Message	Comment
	UE	SS		

22	←	MEASUREMENT CONTROL	UE shall release measurement context setup by MEASUREMENT CONTROL message (Step 17)
23	←	RADIO BEARER RECONFIGURATION	
24	→	RADIO BEARER RECONFIGURATION COMPLETE	UE is in Enhanced CELL_FACH state (common E-DCH in UL).
25	←	MEASUREMENT CONTROL	IE "measurement validity" is set to "All states".
26	→	MEASUREMENT REPORT	
27	←	RADIO BEARER RECONFIGURATION	
28	→	RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_DCH state from Enhanced CELL_FACH state (common E-DCH in UL) UE shall continue traffic volume measurement setup by MEASUREMENT CONTROL message (Step 25).
29	→	MEASUREMENT REPORT	
30	←	MEASUREMENT CONTROL	UE shall release measurement context setup by MEASUREMENT CONTROL message (Step 25)
31	←	RADIO BEARER RECONFIGURATION	
32	→	RADIO BEARER RECONFIGURATION COMPLETE	UE is in Enhanced CELL_FACH state (common E-DCH in UL).
33	←	MIB, Scheduling Block 1, and SIB12 modified	Traffic volume measurements and reporting is assigned to UEs
33a	←	SYSTEM INFORMATION CHANGE INDICATION	
34	→	MEASUREMENT REPORT	
35	←	RADIO BEARER RECONFIGURATION	
36	→	RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_DCH state from Enhanced CELL_FACH state (common E-DCH in UL) UE shall continue traffic volume measurement assigned in System Information (Step 33).
37	→	MEASUREMENT REPORT	
38	←	MEASUREMENT CONTROL	UE shall release measurement context assigned in System Information (Step 33).

Specific Message Content

System Information Block type 1 (FDD or 1.28Mcps TDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

SYSTEM INFORMATION BLOCK TYPE 5 (FDD)

Use the same message type found in clause 6.1 of TS 34.108 condition B3 “Only for cells which configure common E-DCH and HS-DSCH reception in CELL_FACH”..

SYSTEM INFORMATION BLOCK TYPE 5 (1.28Mcps TDD)

Use the same message type found in clause 6.1 of TS 34.108 condition B1 “Only for cells which configure common E-DCH and HS-DSCH reception in CELL_FACH”..

MEASUREMENT CONTROL (Step 1)

Information Element	Value/remark
Measurement Identity	1
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	Not Present
- Traffic volume measurement quantity	RLC Buffer Payload
- Traffic volume reporting quantity	
- RB buffer payload	True
- RB buffer payload average	False
- RB buffer payload variance	False
- Measurement validity	Not Present
- Report criteria	Periodical Reporting Criteria
- Reporting amount	8
- Reporting interval	8 Sec
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	Periodic
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 2)

The order in which the RBs are reported is not checked.

Information Element	Value/remark
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	25
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

RADIO BEARER RECONFIGURATION (Step 3, 11, 19, 27, and 35) (FDD)

Use the same message type found in TS 34.108 clause 9 with condition set to A4.

3GPP TS 34.123-1 version 10.3.1 Release 10

Information Element	Value/remark
- RB information to be affected	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A30 for SRB1, 2, 3 and 4 and RB25
- Added or Reconfigured UL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A30
- Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A30
- Uplink DPCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A30
- E-DCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A30
- Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A30
- Downlink information common for all radio links	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A30
- Downlink information for each radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A30

RADIO BEARER RECONFIGURATION (Step 3, 11, 19, 27, and 35)(1.28Mcps TDD)

Use the same message type found in TS 34.108 clause 9 with condition set to A4.

Information Element	Value/remark
- RB information to be affected	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A24 for SRB1, 2, 3 and 4 and RB25
- Added or Reconfigured UL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A24
- Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A24
- Uplink DPCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A24
- E-DCH info	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A24
- Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A24
- Downlink information common for all radio links	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A24
- Downlink information for each radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A24

RADIO BEARER RECONFIGURATION (Step 6, 15, 23, and 31)

Use the same message as specified for "Packet to CELL_FACH from CELL_DCH in PS" (condition A5) in TS 34.108 clause 9, except for the following, except for the following:

Information Element	Value/remark
- New C-RNTI	'1010 1010 1010 1011'
- New H-RNTI	'1010 1010 1010 1011'
- New Primary E-RNTI	'1010 1010 1010 1011'
3GPP TS 34.123-1 version 10.3.1 Release 10	
- RB information to be affected	
- RB identity	1
- RB mapping info	
- Information for each multiplexing option	1 RB Mux Option
- RLC logical channel mapping indicator	Not Present
- Number of Uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	1
- E-DCH MAC-d low identity	1
- DDI	1
- CHOICE RLC PDU size	Fixed size
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	1
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not present
- CHOICE DL MAC header type	MAC-ehs
- DL HS-DSCH MAC-ehs Queue ID	0
- Logical channel identity	1
- RB information to be affected	
- RB identity	2
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	2
- E-DCH MAC-d flow identity	1
- DDI	2
- CHOICE RLC PDU size	Fixed size
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	2
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	2
- RB information to be affected	
- RB identity	3
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	3
- E-DCH MAC-d flow identity	1
- CHOICE RLC PDU size	Fixed size
- DDI	3
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	3
- Downlink RLC logical channel info	
- Number of RLC logical channels	1

Information Element	Value/remark
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
3GPP TS 34.123-1 version 10.3.1 Release 10	
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	3
- RB information to be affected	
- RB identity	4
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	4
- E-DCH MAC-d flow identity	1
- CHOICE RLC PDU size	Fixed size
- DDI	4
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	144 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	1
- Logical channel identity	4
- RB information to be affected	
- RB identity	25
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	7
- E-DCH MAC-d flow identity	1
- CHOICE RLC PDU size	Flexible size
- Length indicator size	15 bit
- Minimum UL RLC PDU size	96 bits
- Largest UL RLC PDU size	400 bits
- Include in scheduling info	FALSE
- MAC logical channel priority	4
- Downlink RLC logical channel info	
- Number of RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- CHOICE *DL MAC header type*	MAC-ehs
- DL HS-DSCH MAC-ehs Queue Id	0
- Logical channel identity	7
Deleted UL TrCH information	
- Uplink transport channel type	E-DCH
- E-DCH MAC-d flow identity	3
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-ehs reordering queue	3

MEASUREMENT CONTROL (Step 9)

The contents of this message are identical to MEASUREMENT CONTROL (Step 1) message with the following exceptions:

Information Element	Value/remark
Measurement Identity	2
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
3GPP TS 34.123-1 version 10.3.1 Release 10	
- Measurement validity	All But CELL_DCH

MEASUREMENT REPORT (Step 10)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	Value/Remarks
Measurement identity	2

MEASUREMENT CONTROL (Step 14)

Information Element	Value/remark
Measurement Identity	2
Measurement Command	Release
Measurement reporting mode	Not Present
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT CONTROL (Step 17)

The contents of this message are identical to MEASUREMENT CONTROL (Step 1) message with the following exceptions:

Information Element	Value/remark
Measurement Identity	3
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Measurement validity	CELL_DCH

MEASUREMENT REPORT (Step 21)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	Value/Remarks
Measurement identity	3

MEASUREMENT CONTROL (Step 22)

The contents of this message are identical to MEASUREMENT CONTROL (Step 14) message with the following exceptions:

Information Element	Value/Remark
Measurement Identity	3

MEASUREMENT CONTROL (Step 25) (FDD)

The contents of this message are identical to MEASUREMENT CONTROL (Step 1) message with the following exceptions:

Information Element	Value/remark
Measurement Identity	4
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement

3GPP TS 34.123-1 version 10.3.1 Release 10

- Traffic volume measurement object list	
- UL transport channel type	DCH
- UL transport channel identity	1 (Not used as common E-DCH resource used in CELL_FACH state and E-DCH used in CELL_DCH but value must be supplied for ASN.1 backwards compatibility)
- Measurement validity	All States

MEASUREMENT CONTROL (Step 25)(1.28Mcps TDD)

The contents of this message are identical to MEASUREMENT CONTROL (Step 1) message with the following exceptions:

Information Element	Value/remark
Measurement Identity	4
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	
- UL transport channel type	USCH
- UL transport channel identity	1 (Not used as common E-DCH resource used in CELL_FACH state and E-DCH used in CELL_DCH but value must be supplied for ASN.1 backwards compatibility)
- Measurement validity	All States

MEASUREMENT REPORT (Step 26, and 29)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	Value/Remarks
Measurement identity	4

MEASUREMENT CONTROL (Step 30)

The contents of this message are identical to MEASUREMENT CONTROL (Step 14) message with the following exceptions:

Information Element	Value/Remark
Measurement Identity	4

Master Information Block (Step 33)

Information Element	Value/Remarks
MIB Value Tag	A valid MIB value tag as defined in TS 25.331 that is different from the previous value
SB 1 Cell Value tag	Set to (Current SB 1 value tag + 1)

Scheduling Block 1 (Step 33)

Information Element	Value/remark
SIB 12 Cell Value tag	Set to (Current SIB 12 value tag + 1)

System Information Block type 12 (Step 33)

Information Element	Value/remark
FACH measurement occasion info	Not Present
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not Present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 1
- Primary CPICH Tx power	Not Present
- TX Diversity indicator	FALSE
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity for RACH reporting	Not Present
- Maximum number of reported cells on RACH	Not Present
- Reporting information for state CELL_DCH	Not Present
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	
- Traffic volume measurement ID	5
- Traffic volume measurement object list	
- UL transport channel type	DCH
- UL transport channel identity	1 (Not used as common E-DCH resource used in CELL_FACH state and E-DCH used in CELL_DCH but value must be supplied for ASN.1 backwards compatibility)
- Traffic volume measurement quantity	RLC Buffer Payload
- Traffic volume reporting quantity	
- RB buffer payload	True
- RB buffer payload average	False
- RB buffer payload variance	False
- Traffic volume measurement reporting criteria	Not Present
- Measurement validity	All states
- Measurement reporting mode	
- Measurement report transfer mode	Acknowledged Mode
- Periodical or event trigger	Periodical
- Report criteria system Information	Periodical reporting criteria
- Reporting amount	Infinity
- Reporting interval	8 seconds

System Information Block type 12 (Step 33)(1.28Mcps TDD)

Information Element	Value/remark
FACH measurement occasion info	Not Present
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not Present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	
- CHOICE *mode*	TDD
- CHOICE *TDD option*	1.28 Mcps TDD
- TSTD indicator	FALSE
- Cell parameters ID	Set to same code as used for cell 1
- SCTD indicator	FALSE
- Primary CCPCH Tx power	Not Present
- Timeslot list	Not Present
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity for RACH reporting	Not Present
- Maximum number of reported cells on RACH	Not Present
- Reporting information for state CELL_DCH	Not Present
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	
- Traffic volume measurement ID	5
- Traffic volume measurement object list	
- UL transport channel type	USCH
- UL transport channel identity	1 (Not used as common E-DCH resource used in CELL_FACH state and E-DCH used in CELL_DCH but value must be supplied for ASN.1 backwards compatibility)
- Traffic volume measurement quantity	RLC Buffer Payload
- Traffic volume reporting quantity	
- RB buffer payload	True
- RB buffer payload average	False
- RB buffer payload variance	False
- Traffic volume measurement reporting criteria	Not Present
- Measurement validity	All states
- Measurement reporting mode	
- Measurement report transfer mode	Acknowledged Mode
- Periodical or event trigger	Periodical
- Report criteria system Information	Periodical reporting criteria
- Reporting amount	Infinity
- Reporting interval	8 seconds

SYSTEM INFORMATION CHANGE INDICATION (Step 33a)

Information Element	Value/Remarks
Paging record list	Not Present
BCCH modification info	
- MIB Value Tag	A valid MIB value tag as defined in TS 25.331 that is different from the previous value
- BCCH modification time	Not Present

MEASUREMENT REPORT (Step 34, and 37)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

3GPP TS 34.123-1 version 10.3.1 Release 10

Information Element	Value/Remarks
Measurement identity	5

MEASUREMENT CONTROL (Step 38)

The contents of this message are identical to MEASUREMENT CONTROL (Step 14) message with the following exceptions:

Information Element	Value/Remark
Measurement Identity	5

8.4.1.18a.5 Test Requirement

The UE shall send MEASUREMENT REPORT message in steps 21, 29 and 37. The UE shall not send MEASUREMENT REPORT message in steps 5, 8, and 13.

8.4.1.19 Measurement Control and Report: Traffic volume measurement for transition from CELL_DCH to CELL_FACH state

8.4.1.19.1 Definition

8.4.1.19.2 Conformance requirement

Upon transition from CELL_DCH to CELL_FACH or CELL_PCH or URA_PCH state, the UE shall:

1> retrieve each set of measurement control information of measurement type "traffic volume" stored in the variable MEASUREMENT_IDENTITY; and

2> if the optional IE "measurement validity" for this measurement has not been included:

3> delete the measurement associated with the variable MEASUREMENT_IDENTITY.

2> if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "CELL_DCH":

3> stop measurement reporting;

3> store the measurement associated with the variable MEASUREMENT_IDENTITY to be used after the next transition to CELL_DCH state.

2> if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "all states":

3> continue measurement reporting.

2> if the IE "measurement validity" has been included and the IE "UE state" has been assigned to value "all states except CELL_DCH":

3> resume this measurement and associated reporting.

1> if no traffic volume type measurement has been assigned to the UE with a MEASUREMENT CONTROL message that is valid in CELL_FACH or CELL_PCH or URA_PCH states (stored in the variable MEASUREMENT_IDENTITY), which has the same identity as the one indicated in the IE "Traffic volume measurement system information":

2> store the measurement control information from the IE "Traffic volume measurement system information" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11) in the variable MEASUREMENT_IDENTITY;

3GPP TS 34.123-1 version 10.3.1 Release 102> begin traffic volume measurement reporting according to the assigned information.

Reference

3GPP TS 25.331 clauses 8.4.1.6.6.

8.4.1.19.3 Test Purpose

1. The UE shall performs traffic volume measurements and the associated reporting when it enters CELL_FACH state from CELL_DCH state, and that such measurement contexts (and optionally, the reporting context) valid for CELL_FACH state have been previously stored.

2. The UE shall perform traffic volume measurement listed in the System Information Block type 11 or 12 messages, if no previously assigned measurements are present. The UE shall transmit MEASUREMENT REPORT messages if reporting conditions has been satisfied.

Reference

3GPP TS 25.331 clause 8.4.1.6.6

8.4.1.19.4 Method of test

Initial Condition

System Simulator: 1 cell

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108

Test Procedure

Initially the UE is in CELL_DCH state. MEASUREMENT CONTROL message is sent to the UE to establish traffic volume measurement context with optional IE "measurement validity" is not present. The UE shall perform measurement and reporting as assigned in MEASUREMENT CONTROL message. RADIO BEARER RECONFIGURATION procedure is used to take the UE from CELL_DCH state to CELL_FACH state. While entering CELL_FACH state from CELL_DCH state, the UE shall delete traffic volume measurement contexts if optional IE "measurement validity" is not present. So, in CELL_FACH state UE shall not perform traffic volume measurement and reporting. UE is taken to the CELL_DCH state from CELL_FACH state using RADIO BEARER RECONFIGURATION procedure. The UE shall not send MEASUREMENT REPORT message as measurement context is already deleted.

The behaviour of the UE when moved from CELL_DCH state to CELL_FACH state and assigned traffic volume measurement context is present with IE "measurement validity" is set to "All But CELL_DCH state" or "CELL_DCH state" or "All states" is tested in a similar way.

When the UE is in CELL_DCH state, System Information is modified to assign traffic volume measurement and reporting to the UE. No previously assigned traffic volume measurement contexts are present in the UE. The UE is taken to CELL_FACH state from CELL_DCH state using RADIO BEARER RECONFIGURATION procedure. In CELL_FACH state the UE shall perform traffic volume measurement and reporting as assigned in System Information. Traffic volume measurement and reporting is released by sending MEASUREMENT CONTROL message.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1	←		MEASUREMENT CONTROL	Optional IE "measurement validity" is not included.
2	→		MEASUREMENT REPORT	
3	←		RADIO BEARER RECONFIGURATION	
4	→		RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_FACH state from CELL_DCH state UE shall delete measurement context setup by MEASUREMENT CONTROL message (Step 1).
5				SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.
6	←		RADIO BEARER RECONFIGURATION	
7	→		RADIO BEARER RECONFIGURATION COMPLETE	UE is in CELL_DCH state.
8				SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.
9	←		MEASUREMENT CONTROL	IE "measurement validity" is set to "All But CELL_DCH".
10				SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.
11	←		RADIO BEARER RECONFIGURATION	
12	→		RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_FACH state from CELL_DCH state UE shall start traffic volume measurement setup by MEASUREMENT CONTROL message (Step 9).
13	→		MEASUREMENT REPORT	
14	←		MEASUREMENT CONTROL	UE shall release measurement context setup by MEASUREMENT CONTROL message (Step 9).
15	←		RADIO BEARER RECONFIGURATION	
16	→		RADIO BEARER RECONFIGURATION COMPLETE	UE is in CELL_DCH state.
17	←		MEASUREMENT CONTROL	IE "measurement validity" is set to "CELL_DCH".
18	→		MEASUREMENT REPORT	
19	←		RADIO BEARER RECONFIGURATION	
20	→		RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_FACH state from CELL_DCH state UE shall stop traffic volume measurement setup by MEASUREMENT CONTROL message (Step 17).
21				SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.
22	←		MEASUREMENT CONTROL	UE shall release measurement context setup by MEASUREMENT CONTROL message (Step 17)
23	←		RADIO BEARER RECONFIGURATION	

Step	Direction		Message	Comment
	UE	SS		
24	→		RADIO BEARER RECONFIGURATION COMPLETE	UE is in CELL_DCH state.

3GPP TS 34.123-1 version 10.3.1 Release 10

25	←	MEASUREMENT CONTROL	IE "measurement validity" is set to "All states".
26	→	MEASUREMENT REPORT	
27	←	RADIO BEARER RECONFIGURATION	
28	→	RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_FACH state from CELL_DCH state UE shall continue traffic volume measurement setup by MEASUREMENT CONTROL message (Step 25).
29	→	MEASUREMENT REPORT	
30	←	MEASUREMENT CONTROL	UE shall release measurement context setup by MEASUREMENT CONTROL message (Step 25)
31	←	RADIO BEARER RECONFIGURATION	
32	→	RADIO BEARER RECONFIGURATION COMPLETE	UE is in CELL_DCH state.
33	←	SIB12 modified	Traffic volume measurements and reporting is assigned to UEs
34	←	RADIO BEARER RECONFIGURATION	
35	→	RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_FACH state from CELL_DCH state UE shall start traffic volume measurement as assigned in System Information (Step 33).
36	→	MEASUREMENT REPORT	
37	←	MEASUREMENT CONTROL	UE shall release measurement context assigned in System Information (Step 33).

Specific Message Content

System Information Block type 1 (FDD or 1.28Mcps TDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

MEASUREMENT CONTROL (Step 1)

Information Element	Value/remark
Measurement Identity	1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	Not Present
- Traffic volume measurement quantity	RLC Buffer Payload
- Traffic volume reporting quantity	
- RB buffer payload	True
- RB buffer payload average	False
- RB buffer payload variance	False
- Measurement validity	Not Present
- Report criteria	Periodical Reporting Criteria
- Reporting amount	8
- Reporting interval	8 Sec
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	Periodic
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 2)

The order in which the RBs are reported is not checked.

Information Element	Value/remark
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	20
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

RADIO BEARER RECONFIGURATION (Step 3, 11, 19, 27, and 34)

Use the same message type found in TS 34.108 clause 9 with condition set to A5.

RADIO BEARER RECONFIGURATION (Step 6, 15, 23, and 31)

Use the same message type found in TS 34.108 clause 9 with condition set to A4.

MEASUREMENT CONTROL (Step 9)

The contents of this message are identical to MEASUREMENT CONTROL (Step 1) message with the following exceptions:

3GPP TS 34.123-1 version 10.3.1 Release 10

Information Element	Value/remark
Measurement Identity	2
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Measurement validity	All But CELL_DCH

MEASUREMENT REPORT (Step 13)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	Value/Remarks
Measurement identity	2

MEASUREMENT CONTROL (Step 14)

Information Element	Value/remark
Measurement Identity	2
Measurement Command	Release
Measurement reporting mode	Not Present
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT CONTROL (Step 17)

The contents of this message are identical to MEASUREMENT CONTROL (Step 1) message with the following exceptions:

Information Element	Value/remark
Measurement Identity	3
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Measurement validity	CELL_DCH

MEASUREMENT REPORT (Step 18)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	Value/Remarks
Measurement identity	3

MEASUREMENT CONTROL (Step 22)

The contents of this message are identical to MEASUREMENT CONTROL (Step 14) message with the following exceptions:

Information Element	Value/Remark
Measurement Identity	3

MEASUREMENT CONTROL (Step 25)

The contents of this message are identical to MEASUREMENT CONTROL (Step 1) message with the following exceptions:

3GPP TS 34.123-1 version 10.3.1 Release 10

Information Element	Value/remark
Measurement Identity	4
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	
- UL transport channel identity	RACH
- UL transport channel identity	DCH :1
- UL transport channel identity	DCH : 5
- Measurement validity	All States

MEASUREMENT REPORT (Step 26, and 29)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	Value/Remarks
Measurement identity	4

MEASUREMENT CONTROL (Step 30)

The contents of this message are identical to MEASUREMENT CONTROL (Step 14) message with the following exceptions:

Information Element	Value/Remark
Measurement Identity	4

System Information Block type 12 (Step 33) (FDD)

Information Element	Value/remark
FACH measurement occasion info	Not Present
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement control system information	
- Use of HCS	Not used
- Cell_selection_and_reselection_quality	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	1
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 1
- Primary CPICH Tx power	Not Present
- TX Diversity indicator	FALSE
- Cell selection and re-selection info for SIB11/12	
- $Qoffset1_{s,n}$	0dB
- $Qoffset1_{s,n}$	Not present
- Maximum allowed UL Tx Power	Reference to table 6.1.1
- HCS neighbouring cell information	Not Present
- CHOICE mode	FDD
- Qqualmin	Reference to table 6.1.1
- Qrxlevmin	Reference to table 6.1.1
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity for RACH reporting	Not Present
- Maximum number of reported cells on RACH	Not Present
- Reporting information for state CELL_DCH	Not Present
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	
- Traffic volume measurement ID	5
- Traffic volume measurement object list	Not Present
- Traffic volume measurement quantity	RLC Buffer Payload
- Traffic volume reporting quantity	
- RB buffer payload	True
- RB buffer payload average	False
- RB buffer payload variance	False
- Traffic volume measurement reporting criteria	Not Present
- Measurement validity	Not Present
- Measurement reporting mode	
- Measurement report transfer mode	Acknowledged Mode
- Periodical or event trigger	Periodical
- Report criteria system Information	Periodical reporting criteria
- Reporting amount	Infinity
- Reporting interval	8 seconds

System Information Block type 12 (Step 33) (TDD)

Information Element	Value/remark
FACH measurement occasion info	Not Present
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement control system information	
- Use of HCS	Not used
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not Present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	Set to same as used for cell 1
- TX Diversity indicator	FALSE
- Cell selection and re-selection info for SIB11/12	
- $Qoffset1_{s,n}$	0dB
- $Qoffset1_{s,n}$	Not present
- Maximum allowed UL Tx Power	Reference to table 6.1.1
- HCS neighbouring cell information	Not Present
- CHOICE mode	TDD
- Qrxlevmin	Reference to table 6.1.1
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity for RACH reporting	Not Present
- Maximum number of reported cells on RACH	Not Present
- Reporting information for state CELL_DCH	Not Present
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	
- Traffic volume measurement ID	5
- Traffic volume measurement object list	Not Present
- Traffic volume measurement quantity	RLC Buffer Payload
- Traffic volume reporting quantity	
- RB buffer payload	TRUE
- RB buffer payload average	FALSE
- RB buffer payload variance	FALSE
- Traffic volume measurement reporting criteria	Not Present
- Measurement validity	Not Present
- Measurement reporting mode	
- Measurement report transfer mode	Acknowledged Mode
- Periodical or event trigger	Periodical
- Report criteria system Information	Periodical reporting criteria
- Reporting amount	Infinity
- Reporting interval	8 seconds

MEASUREMENT REPORT (Step 36)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	Value/Remarks
Measurement identity	5

MEASUREMENT CONTROL (Step 37)

3GPP TS 34.123-1 version 10.3.1 Release 10
The contents of this message are identical to MEASUREMENT CONTROL (Step 14) message with the following exceptions:

Information Element	Value/Remark
Measurement Identity	5

8.4.1.19.5 Test Requirement

The UE shall send MEASUREMENT REPORT message in steps 13, 29 and 36. The UE shall not send MEASUREMENT REPORT message in steps 5, 8, and 21.

8.4.1.20 Void

8.4.1.21 Void

8.4.1.22 Measurement Control and Report: Quality measurements

8.4.1.22.1 Definition

8.4.1.22.2 Conformance requirement

Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in TS 25.331 subclause 8.6 unless otherwise specified below.

The UE shall:

1> read the IE "Measurement command";

1> if the IE "Measurement command" has the value "setup":

2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

2> for measurement types "inter-RAT measurement" or "inter-frequency measurement":

…

2> for measurement type "UE positioning measurement":

…

2> for any other measurement type:

3> if the measurement is valid in the current RRC state of the UE:

4> begin measurements according to the stored control information for this measurement identity.

Reference

3GPP TS 25.331 clause 8.4.1.3

8.4.1.22.3 Test Purpose

1. To confirm that the UE performs quality measurement as specified in MEASUREMENT CONTROL message received. In CELL_DCH state, the UE shall send MEASUREMENT REPORT message when the reporting criteria is fulfilled for any ongoing quality measurement.

8.4.1.22.4 Method of test

3GPP TS 34.123-1 version 10.3.1 Release 10

Initial Condition

System Simulator: 1 cell

UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH state. MEASUREMENT CONTROL message is sent to UE to assign quality measurement and reporting. As assigned in MEASUREMENT CONTROL message, the UE shall periodically send MEASUREMENT REPORT message reporting BLER of downlink transport channel(s). SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		MEASUREMENT CONTROL	The UE is requested to perform "Quality measurements"
2	→		MEASUREMENT REPORT	
3	→		MEASUREMENT REPORT	UE shall send second MEASUREMENT REPORT message after 64 seconds.
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

MEASUREMENT CONTROL (Step 1) (FDD)

Information Element	Value/remark
Measurement identity	16
Measurement command	Setup
Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
Additional measurement list	Not Present
- CHOICE measurement type	Quality measurement
- Quality reporting quantity	
- DL transport channel BLER	True
- Transport channels for BLER reporting	Not present
- CHOICE mode	FDD
- CHOICE report criteria	Periodical reporting criteria
- Reporting amount	Infinity
- Reporting interval	64 sec
DPCH compressed mode status	Not Present

MEASUREMENT CONTROL (Step 1) (1.28 Mcps TDD)

Information Element	Value/remark
Measurement identity	16
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement command	Setup
- CHOICE measurement type	Quality measurement
- Quality reporting quantity	
- DL transport channel BLER	True
- Transport channels for BLER reporting	Not present
- CHOICE mode	TDD
- SIR measurement list	
- TFCS ID	Not present
- CHOICE Reporting criteria	Periodical reporting criteria
- Reporting amount	Infinity
- Reporting interval	64 sec
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	Periodic
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 2,3) (FDD)

In case of CS speech call,

Information Element	**Value/remark**
Measurement identity	16
Measured Results	
- CHOICE measurement	Quality measurement
- BLER measurement results list	
- Transport channel identity	6
- DL transport channel BLER	Check to see if this IE is present
- Transport channel identity	7
- DL transport channel BLER	Check to see if this IE is present
- Transport channel identity	8
- DL transport channel BLER	Check to see if this IE is present
- Transport channel identity	10
- DL transport channel BLER	Check to see if this IE is present
- CHOICE mode	FDD
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

MEASUREMENT REPORT (Step 2,3) (1.28 Mcps TDD)

Information Element	Value/remark
Measurement identity	16
Measured Results	
- CHOICE measurement	Quality measurement
- BLER measurement results list	
- DL Transport channel identity	10
- DL transport channel BLER	Check to see if this IE is present
- CHOICE Mode	TDD
- SIR measurement results	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

In any cases except CS speech call:

Information Element	Value/remark
Measurement identity	16
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Quality measurement
- BLER measurement results list	
- Transport channel identity	6
- DL transport channel BLER	Check to see if this IE is present
- Transport channel identity	10
- DL transport channel BLER	Check to see if this IE is present
- CHOICE *mode*	FDD
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

8.4.1.22.5 Test Requirement

In step 2 and 3, the UE shall send MEASUREMENT REPORT message to report BLER for downlink DCH transport channel.

8.4.1.23 Measurement Control and Report: Intra-frequency measurement for events 1C and 1D

8.4.1.23.1 Definition

8.4.1.23.2 Conformance requirement

1. When event 1C is configured in the UE, the UE shall:

   1> if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for one or more primary CPICHs, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:

      2> if all required reporting quantities are available for that cell; and

      2> if the equations have been fulfilled for a time period indicated by "Time to trigger", and if the primary CPICH that is better is not included in the active set but the other primary CPICH is any of the primary CPICHs included in the active set, and if that first primary CPICH is not included in the "cells triggered" in the variable TRIGGERED_1C_EVENT:

         3> include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED_1C_EVENT.

   1> if the value of "Replacement activation threshold" for this event is less than or equal to the current number of cells in the active set or equal to 0 and if any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED_1C_EVENT:

      2> if "Reporting interval" for this event is not equal to 0:

         3> if the IE "Periodical reporting running" in the variable TRIGGERED_1C_EVENT is set to FALSE:

            4> start a timer for with the value of "Reporting interval" for this event and set the IE "Periodical reporting running" in the variable TRIGGERED_1C_EVENT to TRUE.

         3> set "sent reports" for that primary CPICH in the variable TRIGGERED_1C_EVENT to 1.

      2> send a measurement report with IEs set as below:

         3> set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1c"; and

3> include in "cell measurement event results" all entries of the "cells recently triggered" in the variable TRIGGERED_1C_EVENT not in the active set as well as the "primary CPICH info" of all the primary CPICHs in the active set for which the measured value is worse (i.e. greater for pathloss and less for the

3GPP TS 34.123-1 version 10.3.1 Release 10

other measurement quantities) than the one of the entry in "cell recently triggered" that has the best measured value. The "primary CPICH info" for those cells shall be ordered according to their measured value taking into account their cell individual offset, beginning with the best cell to the worst one;

3> set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2, not taking into account the cell individual offset for each cell.

2> ….

2. This section applies to R99 & Rel-4 releases:

When an intra-frequency measurement configuring event 1d is set up, the UE shall:

1> create a variable TRIGGERED_1D_EVENT related to that measurement, which shall initially contain the best cell in the active set when the measurement is initiated;

1> delete this variable when the measurement is released.

When event 1D is configured in the UE, the UE shall:

1> if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for a primary CPICH that is not stored in "Best cell" in variable BEST_CELL_1D_EVENT, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for a primary CPICH that is not stored in "Best cell" in variable BEST_CELL_1D_EVENT:

NOTE: If the equations are simultaneously fulfilled for more than one primary CPICH, the UE should report only one event 1D, triggered by the best primary CPICH.

2> if all required reporting quantities are available for that cell, and if the equations have been fulfilled for a time period indicated by "Time to trigger":

3> set "best cell" in the variable BEST_CELL_1D_EVENT to that primary CPICH that triggered the event;

3> send a measurement report with IEs set as below:

4> set in "intra-frequency measurement event results"; "Intrafrequency event identity" to "1d" and "cell measurement event results" to the CPICH info of the primary CPICH that triggered the report, not taking into account the cell individual offset for each cell.

4> set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2, not taking into account the cell individual offset for each cell.

NOTE: Event 1D can be triggered by an active or by a non-active CPICH.

3. This section applies from Rel-5 releases onwards:

When an intra-frequency measurement configuring event 1d is set up, the UE shall:

1> create a variable TRIGGERED_1D_EVENT related to that measurement, which shall initially contain the best cell in the active set when the measurement is initiated;

1> delete this variable when the measurement is released.

1> As soon as the best cell in the active set has been evaluated by the UE (and stored in the TRIGGERED_1D_EVENT variable) and provided that there is more than one cell in the active set, trigger an immediate measurement report with IEs set as below:

2> set in "intra-frequency measurement event results"; "Intrafrequency event identity" to "1d" and "cell measurement event results" to the CPICH info of the primary CPICH stored in the TRIGGERED_1D_EVENT variable;

2> set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2

When event 1D is configured in the UE, the UE shall:

1> if IE "useCIO" is present and its value is TRUE, take into account the Cell Individual Offset for evaluation of the Equation 1 and 2, otherwise do not take it into account.

3GPP TS 34.123-1 version 10.3.1 Release 10

1> if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for a primary CPICH that is not stored in "Best cell" in variable BEST_CELL_1D_EVENT, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for a primary CPICH that is not stored in "Best cell" in variable BEST_CELL_1D_EVENT:

NOTE: If the equations are simultaneously fulfilled for more than one primary CPICH, the UE should report only one event 1D, triggered by the best primary CPICH.

2> if all required reporting quantities are available for that cell, and if the equations have been fulfilled for a time period indicated by "Time to trigger" and if IE "Triggering condition 2" is absent or if it is present and that primary CPICH is part of cells allowed to trigger the event according to "Triggering condition 2":

3> set "best cell" in the variable BEST_CELL_1D_EVENT to that primary CPICH that triggered the event;

3> send a measurement report with IEs set as below:

4> set in "intra-frequency measurement event results"; "Intrafrequency event identity" to "1d" and "cell measurement event results" to the CPICH info of the primary CPICH that triggered the report.

4> set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.

Reference

3GPP TS 25.331 clause 14.1.2.3, 14.1.2.4.

8.4.1.23.3 Test Purpose

1.A To confirm that the UE sends MEASUREMENT REPORT message if event 1C is configured, and number of cells in active set is greater than or equal to 'Replacement activation threshold' parameter, and if monitored or detected primary CPICH on same frequency becomes better than a primary CPICH in active set.

1.B To confirm that the UE does not send MEASUREMENT REPORT message indicating event 1C if number of cells in active set is less than 'Replacement activation threshold' parameter, and if monitored or detected primary CPICH on same frequency becomes better than a primary CPICH in active set.

1.C To confirm that the UE stops periodic reporting of event 1C if the cell that triggered event 1C is added into active set.

2.A To confirm that from Rel-5 onwards the UE sends a MEASUREMENT REPORT message as soon as event 1D is configured, when there is more than one cell in the active set.

2.B To confirm that the UE sends MEASUREMENT REPORT message if event 1D is configured and intra-frequency measurement indicates change in best cell.

8.4.1.23.4 Method of test

Initial Condition

System Simulator: 3 cells – The initial configurations of the 3 cells in the SS shall follow the values indicated in the column marked "T0" in table 8.4.1.23-1. The table is found in "Test Procedure" clause.

UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Test Procedure

Table 8.4.1.23-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Column marked "T0" denotes the initial conditions, while columns marked "T1", "T2", “T3” and “T4” are to

be applied subsequently. The exact instants on which these values shall be applied are described in the text in this clause.

Table 8.4.1.23-1

Parameter	Unit	Cell 1					Cell 2					Cell 3				
		T0	T1	T2	T3	T4	T0	T1	T2	T3	T4	T0	T1	T2	T3	T4
UTRA RF Channel Number		Mid Range Test Frequency					Mid Range Test Frequency					Mid Range Test Frequency				
CPICH Ec	dBm	-60	-60	-60	-60	-66	-80	-60	-70	-70	OFF	-80	-60	OFF	-70	-60

The UE is initially in CELL_DCH state of cell 1 and has received the default broadcast information from SIB11/12 in Cell 1.

SS configures its downlink transmission power settings according to columns "T1" in table 8.4.1.**23**-1. UE shall be triggered to transmit a MEASUREMENT REPORT message, which includes the primary scrambling code for cell 2.

SS then performs a soft handover procedure by sending ACTIVE SET UPDATE message on the downlink DCCH. The UE shall reply with an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH, and include cell 2 to the active set when the activation time specified has elapsed.

SS configures its downlink transmission power settings according to columns "T2" in table 8.4.1.23-1

SS then ask the UE to perform Intra-frequency measurement and report event 1C and event 1D. In MEASUREMENT CONTROL message, IE 'Replacement activation threshold' is set to 3 and IE 'Cell individual offset' is set to +6 dBm for Cell 3. From Rel-5 onwards the UE will send an initial measurement report containing the best cell due to event 1D configuration (R99 & Rel-4 UE releases shall not send a MESUREMENT REPORT). SS configures itself according to the values in columns "T3" shown above. Cell 3 becomes better than Cell 2 that is in active set of the UE, due to parameter 'Cell Individual offset' for Cell 3. However the UE shall not send MEASUREMENT REPORT message indicating event 1C because number of cells in active set is less than parameter 'Replacement Activation Threshold'.

SS then sends MEASUREMENT CONTROL message to the UE to modify earlier configured intra-frequency measurement. Now, IE 'Replacement activation threshold' is set to 1. MEASUREMENT CONTROL message contains only those IEs that are modified and the UE shall continue to use current values of parameters that are not modified. The UE sends MEASUREMENT REPORT message reporting event 1C, monitored Cell 3 is better than Cell 2 that is in active set. The UE sends second MEASUREMENT REPORT message reporting event 1C after 4 seconds, equals to parameter 'Reporting interval'.

SS then performs soft handover procedure by sending ACTIVE SET UPDATE message on the downlink DCCH. In this message SS commands UE to add Cell 3 and remove Cell 2 from active set. The UE shall reply with an ACTIVE SET UPDATE COMPLETE message. The UE shall also stop periodic reporting of event 1C because the Cell that triggered it is added into active set. SS then configures itself according to the values in columns "T4" shown above. This triggers event 1D and the UE sends MEASUREMENT REPORT message indicating Cell 3 as a best cell. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
0				UE is initially in CELL_DCH state in cell 1.
0a				SS configures its downlink transmission power settings according to columns "T1" in table 8.4.1.23-1
0b	→		MEASUREMENT REPORT	See specific message contents for this message.
0c				SS configures its downlink transmission power settings according to columns "T2" in table 8.4.1.23-1
1	←		ACTIVE SET UPDATE	SS command the UE to add Cell 2 in active set.
2	→		ACTIVE SET UPDATE COMPLETE	
3	←		MEASUREMENT CONTROL	Event 1C and 1D are configured. IE "Replacement activation threshold" is set to 3. R99 & Rel-4 UE's will go directly to step 4
3a	→		MEASUREMENT REPORT (Rel-5 onwards)	Event 1D is triggered. The UE shall report that Cell 1 is the best cell.
4				SS re-adjusts the downlink transmission power settings according to columns "T3" in table 8.4.1.23-1.
5				Check for 10 seconds, the UE shall not send MEASUREMENT REPORT message.
6	←		MEASUREMENT CONTROL	Measurement configured in step 3 is modified to set parameter 'replacement activation threshold' to 1.
7	→		MEASUREMENT REPORT	Event 1C is triggered. The UE shall report that Cell 3 is better than Cell 2. The report is received within 4 seconds (reporting interval)
8	→		MEASUREMENT REPORT	The UE shall send second report after 4 seconds (Reporting interval)
9	←		ACTIVE SET UPDATE	SS command the UE to replace Cell 2 in active set by Cell 3.
10	→		ACTIVE SET UPDATE COMPLETE	
11				Check for 10 seconds, the UE shall not send MEASUREMENT REPORT message.
12				SS re-adjusts the downlink transmission power settings according to columns "T4" in table 8.4.1.23-1.
13	→		MEASUREMENT REPORT	The UE shall report event 1D change of best cell
14	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

All messages indicated below shall use the same content as described in default message content, with the following exceptions:

3GPP TS 34.123-1 version 10.3.1 Release 10

MEASUREMENT REPORT (Step 0b)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 3 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	The UE may include either or both of the following cells.(the order in which the different cells are reported is not important)
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 1)

Information Element	Value/remark	Version
Radio link addition information		
3GPP TS 34.123-1 version 10.3.1 Release 10		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 2	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not present	
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	1	
- Spreading factor	Refer to the parameter set in TS 34.108	
- Code number	For each DPCH, assign the same code number in the current code given in cell 1.	
- Scrambling code change	Not present	
- TPC combination index	0	
- SSDT cell identity	Not present	R99 and Rel-4 only
- Close loop timing adjustment mode	Not present	
- TFCI combining indicator	TRUE	
- SCCPCH information for FACH	Not present	R99 and Rel-4 only

MEASUREMENT CONTROL (Step 3)

Information Element	Value/remark
Measurement identity	1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement command	Setup
- CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- Intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency info list	
- Intra-frequency cell id	Id of Cell 3
- Cell info	
- Cell individual offset	6 dBm
- Reference time difference to cell	Not present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary scrambling code	Primary scrambling code of Cell 3
- Primary CPICH TX power	Not present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection Info	Not Present
- Cell for measurement	
- Intra-frequency cell id list	Set to id of cell 1, 2 and 3.
- Intra-frequency measurement quantity	
- Filter Coefficient	0
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each events	
- Intra-frequency event identity	1C
- Replacement activation threshold	3
- Reporting amount	16
- Reporting interval	4 seconds
- Hysteresis	4 (2dB)
- Time to trigger	10 mSec
- Reporting cell status	Not present
- Intra-frequency event identity	1D
- Hysteresis	4(2dB)
- Time to trigger	10 mSec
- Reporting cell status	Not present
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 3a)

Information Element	Value/remark
Measurement identity	1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured results	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	Check to see if set to "Intra-frequency event results"
- Event ID	Check to see if set to "1D"
- Cell measurement event results	
- Primary scrambling code	Check to see if set to "Primary scrambling code of Cell 1"

MEASUREMENT CONTROL (Step 6)

Information Element	Value/remark
Measurement identity	1
Measurement command	Modify
- CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	Not present
- Intra-frequency measurement quantity	Not present
- Intra-frequency reporting quantity	Not present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each events	
- Intra-frequency event identity	1C
- Replacement activation threshold	1
- Reporting amount	16
- Reporting interval	4 seconds
- Hysteresis	4 (2dB)
- Time to trigger	10 mSec
- Reporting cell status	Not present
- Intra-frequency event identity	1D
- Hysteresis	4(2dB)
- Time to trigger	10 mSec
- Reporting cell status	Not present
Measurement reporting mode	Not present
Additional measurement list	Not present
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 7 and 8)

Information Element	Value/remark
Measurement identity	1
Measured results	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	Checked to see if set to "Intra Frequency Event results"
- Event ID	Check to see if set to "1C"
- Cell measurement event results	
- Primary scrambling code	Check to see if set to Primary scrambling code of Cell 3
- Primary scrambling code	Check to see if set to Primary scrambling code of Cell 2

ACTIVE SET UPDATE (Step 9)

Information Element	Value/remark	Version
Radio link addition information		
3GPP TS 34.123-1 version 10.3.1 Release 10		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 3	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH may be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not present	
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	1	
- Spreading factor	Refer to the parameter set in TS 34.108	
- Code Number	For each DPCH, assign the same code number in the current code given in cell 1.	
- Scrambling code change	No code change	
- TPC Combination Index	0	
- SSDT Cell Identity	Not present	R99 and Rel-4 only
- Close loop timing adjustment mode	Not present	
- TFCI Combining Indicator	FALSE	
- SCCPCH information for FACH	Not present	R99 and Rel-4 only
Radio link removal information		
- Primary CPICH Info		
- Primary scrambling code	Primary scrambling code of Cell 2	

MEASUREMENT REPORT (Step 13)

Information Element	Value/remark
Measurement identity	1
Measured results	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	Check to see if set to "Intra-frequency event results"
- Event ID	Check to see if set to "1D"
- Cell measurement event results	
- Primary scrambling code	Check to see if set to "Primary scrambling code of Cell 3"

8.4.1.23.5 Test Requirement

2.A In step 3a a R99 or Rel-4 UE shall not send MEASUREMENT REPORT message, but a Rel-5 and onwards UE shall send a MEASUREMENT REPORT message indicating event 1D.

1.A In steps 7 and 8 the UE shall send MEASUREMENT REPORT message indicating event 1C. IE 'Cell measurement event results' in MEASUREMENT REPORT message shall contain primary scrambling code of Cell 3 and Cell 2 in that order.

1.B In step 5 the UE shall not send MEASUREMENT REPORT message.

1.C In step 11 the UE shall not send MEASUREMENT REPORT message.

2.B In step 13 the UE shall send MEASUREMENT REPORT message indicating event 1D. IE 'Cell measurement event results' in MEASUREMENT REPORT message shall contain primary scrambling code of Cell 3.

8.4.1.24 Measurement Control and Report: Inter-frequency measurement for event 2A

3GPP TS 34.123-1 version 10.3.1 Release 10

8.4.1.24.1 Definition

8.4.1.24.2 Conformance requirement

When event 2a is configured in the UE within a measurement, the UE shall:

1> when the measurement is initiated or resumed:

2> store the used frequency in the variable BEST_FREQUENCY_2A_EVENT.

1> if equation 1 below has been fulfilled for a time period indicated by "Time to trigger" for a frequency included for that event and which is not stored in the variable BEST_FREQUENCY_2A_EVENT:

2> send a measurement report with IEs set as below:

3> set in "inter-frequency measurement event results":

4> "inter-frequency event identity" to "2a"; and

4> "Frequency info" to the frequency that triggered the event; and

4> "Non frequency related measurement event results" to the "Primary CPICH info" of the best primary CPICH for FDD cells or "Primary CCPCH info" to the "Cells parameters ID" of the best primary CCPCH for TDD cells on that frequency, not taking into account the cell individual offset;

3> if a non-used frequency triggered the measurement report:

4> set the IE "measured results" and the IE "additional measured results" according to TS 25.331 subclause 8.4.2, not taking into account the cell individual offset;

3> if the used frequency triggered the measurement report:

4> do not include the IE "Inter-frequency measured results list" in the measurement report;

2> update the variable BEST_FREQUENCY_2A_EVENT with that frequency.

Equation 1:

$$Q_{NotBest} \geq Q_{Best} + H_{2a} / 2$$

The variables in the formula are defined as follows:

$\boldsymbol{Q_{Not\ Best}}$ is the quality estimate of a frequency not stored the "best frequency" in the variable BEST_FREQUENCY_2A_EVENT.

$\boldsymbol{Q_{Best}}$ is the quality estimate of the frequency stored in "best frequency" in the variable BEST_FREQUENCY_2A_EVENT.

$\boldsymbol{H_{2a}}$ is the hysteresis parameter for the event 2a in that measurement.

Reference

3GPP TS 25.331 clause 14.2.1.1

8.4.1.24.3 Test Purpose

1.A To confirm that the UE sends MEASUREMENT REPORT message if event 2A is configured, and if any of the non- used frequencies quality estimate becomes better than the currently used frequency quality estimate.

1.B To confirm that the UE does not send MEASUREMENT REPORT message indicating event 2A if hysteresis condition is not fulfilled.

1.C To confirm that the UE does not send MEASUREMENT REPORT message indicating event 2A if time to
3GPP TS 34.123-1 version 10.3.1 Release 10trigger condition is not fulfilled.

8.4.1.24.4 Method of test

Initial Condition

System Simulator: 2 cells – The initial configurations of the 2 cells in the SS shall follow the values indicated in the column marked "T0" in table 8.4.1.24-1. The table is found in "Test Procedure" clause.

UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Related ICS/IXIT statements

- Compressed mode required yes/no

Test Procedure

Table 8.4.1.24-1 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Column marked "T0" denotes the initial conditions, while columns marked "T1", "T2", "T3", "T4" and "T5" are to be applied subsequently. The exact instants on which these values shall be applied are described in the text in this clause.

Table 8.4.1.24-1

Parameter	Unit	Cell 1						Cell 4					
		T0	T1	T2	T3	T4	T5	T0	T1	T2	T3	T4	T5
UTRA RF Channel Number		Mid Range Test Frequency						High Range Test Frequency					
CPICH Ec (FDD)	dBm/ 3.84 Mhz	-65	-63	-65	-70	-65	-70	-75	-60	-75	-55	-75	-55
P-CCPCH RSCP (TDD)	dBm	-65	-63	-65	-70	-65	-70	-75	-60	-75	-55	-75	-55
P-CCPCH TS (3.84Mcps TDD and 7.68Mcps TDD)		TS 0						TS 4					

The UE is initially in CELL_DCH state of cell 1. SS commands the UE to perform measurements of transmitted power using MEASUREMENT CONTROL message. This measurement is setup to confirm that while sending MEASUREMENT REPORT message, the UE sets IE "Additional measured results" correctly. If UE requires compressed mode (for FDD only), SS performs PHYSICAL CHANNEL RECONFIGURATION procedure to activate compressed mode. SS then commands the UE to perform Inter-frequency measurements and report event 2A by sending MEASUREMENT CONTROL message. In MEASUREMENT CONTROL message, IE "Hysteresis" is set to 14.5 dB and IE "Additional measurement list" is set to id of "UE Internal measurements" configured earlier. SS then configures itself according to the values in columns "T1" shown above. Even though quality estimate for Cell 4 has become better than that of Cell 1, event 2A will not be triggered since hysteresis condition is not fulfilled. SS then configures itself according to the values in columns "T2" shown above.

SS sends MEASUREMENT CONTROL message to modify parameter "Hysteresis" of Inter-frequency measurements to 1 dB. SS then configures Cell 1 and Cell 4 according to columns "T3" for short duration (less than 5 seconds), and then configures itself according to columns "T4" shown above. The UE will not send MEASUREMENT REPORT message because time to trigger condition is not fulfilled. SS then configures itself according to the values in columns "T5" shown above. The UE sends MEASUREMENT REPORT message reporting even 2A as well as measurement of transmitted power.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Important Note: Duration between time instant "T3" and "T4" (between steps 9 and 10 of expected sequence) must be less than 5 seconds.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1	←		MEASUREMENT CONTROL	To setup UE Internal measurement. If Compressed Mode not required (refer ICS/IXIT) go to step 4
2	←		PHYSICAL CHANNEL RECONFIGURATION	SS instructs UE to begin compressed mode operation. (for FDD only)
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	(for FDD only)
4	←		MEASUREMENT CONTROL	SS commands the UE to perform Inter-frequency measurements and to report event 2A.
5				SS re-adjusts the downlink transmission power settings according to columns "T1" in table 8.4.1.24-1.
6				Check for 10 seconds, the UE shall not send MEASUREMENT REPORT message, as hysteresis condition is not fulfilled.
7				SS re-adjusts the downlink transmission power settings according to columns "T2" in table 8.4.1.24-1.
8	←		MEASUREMENT CONTROL	Modify hysteresis parameter for event 2A.
9				SS re-adjusts the downlink transmission power settings according to columns "T3" in table 8.4.1.24-1.
10				SS re-adjusts the downlink transmission power settings according to columns "T4" in table 8.4.1.24-1. This step should be completed within 5 seconds after completing step 9.
11				Check for 10 seconds, the UE shall not send MEASUREMENT REPORT message, as time to trigger condition is not fulfilled.
12				SS re-adjusts the downlink transmission power settings according to columns "T5" in table 8.4.1.24-1.
13	→		MEASUREMENT REPORT	This message should come at least 5 seconds later after changing power setting of Cell 4.
14	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

All messages indicated below shall use the same content as described in default message content, with the following exceptions:

3GPP TS 34.123-1 version 10.3.1 Release 10

MEASUREMENT CONTROL (Step 1) (FDD)

Information Element	Value/remark
Measurement identity	1
Measurement command	Setup
CHOICE measurement type	UE internal measurement
- UE internal measurement quantity	
- Measurement quantity	UE transmitted power
- Filter Coefficient	4
- UE internal reporting quantity	
- UE Transmitted Power	TRUE
- CHOICE mode	FDD
- UE Rx-Tx time difference	FALSE
- CHOICE report criteria	No reporting
Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Event Trigger Reporting Mode
Additional measurements list	Not present
DPCH compressed mode status	Not present

MEASUREMENT CONTROL (Step 1) (1.28 Mcps TDD)

Information Element	Value/remark
Measurement identity	1
Measurement command	Setup
CHOICE measurement type	UE internal measurement
- UE internal measurement quantity	
- Measurement quantity	UE transmitted power
- Filter Coefficient	4
- UE internal reporting quantity	
- UE Transmitted Power	TRUE
- CHOICE mode	TDD
-CHOICE TDD option	1.28 Mcps TDD
- T_{ADV} info	FALSE
- CHOICE report criteria	No reporting
Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Event Trigger Reporting Mode
Additional measurements list	Not present
DPCH compressed mode status	Not present

MEASUREMENT CONTROL (Step 1) (3.84 Mcps TDD)

Information Element	Value/remark
Measurement identity	1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement command	Setup
CHOICE measurement type	UE internal measurement
- UE internal measurement quantity	
- Measurement quantity	UE transmitted power
- Filter Coefficient	4
- UE internal reporting quantity	
- UE Transmitted Power	TRUE
- CHOICE mode	TDD
-CHOICE TDD option	3.84 Mcps TDD
- Applied TA	FALSE
- CHOICE report criteria	No reporting
Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Event Trigger Reporting Mode
Additional measurements list	Not present
DPCH compressed mode status	Not present

MEASUREMENT CONTROL (Step 1) (7.68 Mcps TDD)

Information Element	**Value/remark**
Measurement identity	1
Measurement command	Setup
CHOICE measurement type	UE internal measurement
- UE internal measurement quantity	
- Measurement quantity	UE transmitted power
- Filter Coefficient	4
- UE internal reporting quantity	
- UE Transmitted Power	TRUE
- CHOICE mode	TDD
-CHOICE TDD option	7.68 Mcps TDD
- Applied TA	FALSE
- CHOICE report criteria	No reporting
Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Event Trigger Reporting Mode
Additional measurements list	Not present
DPCH compressed mode status	Not present

PHYSICAL CHANNEL RECONFIGURATION (Step 2) (FDD)

Use the same message sub-type found in clause 9 of TS 34.108, which is entitled "(Packet to CELL_DCH from CELL_DCH in PS)FDD", with the following exceptions in the IE(s) concerned:

Information Element	Value/remark	Version
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing Indication	Maintain	
3GPP TS 34.123-1 version 10.3.1 Release 10		
- Downlink DPCH power control information		
- DPC mode	0 (Single)	
- CHOICE Mode	FDD	
- Power offset PPilot-DPDCH	0	
- DL rate matching restriction information	Not present	
- Spreading factor	Refer to the parameter set in TS 34.108	
- Fixed or flexible position	Flexible	
- TFCI existence	TRUE	
- Number of bits for Pilot bits (SF=128, 256)	Not present	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS status flag	Activate	
- TGCFN	(Current CFN+(256 – TTI/10msec)) mod 256	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not Present	
- TGD	Undefined	
- TGPL1	3	
- TGPL2	Not Present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
- CHOICE UL/DL mode	UL and DL or DL only or UL only depending on UE capability	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2 or Not present depending on UE capability	
- Downlink frame type	B	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not present	
- DeltaSIRAfter2	Not present	
- N identify abort	Not present	
- T Reconfirm abort	Not present	
- TX diversity mode	None	
- SSDT information	Not present	R99 and Rel-4 only
- Default DPCH offset value	Not present	

MEASUREMENT CONTROL (Step 4) (FDD)

Information Element	Value/remark
Measurement identity	2
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement command	Setup
- CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- Inter-frequency cell removal	Not present
- New inter-frequency info list	
- Inter-frequency cell id	Id of Cell 4
- Frequency Information	Frequency of Cell 4
- Cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- CHOICE mode	FDD
- Read SFN Indicator	FALSE
- Primary CPICH Info	
- Primary scrambling code	Primary scrambling code of Cell 4
- Primary CPICH TX power	Not present
- TX Diversity Indicator	FALSE
- Cell for measurement	Not present
- Inter-frequency measurement quantity	
- Filter Coefficient	0
- Frequency quality estimate quantity	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRAN carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Measurement validity	CELL_DCH state
- Inter-frequency SET UPDATE	
- UE autonomous update mode	On with no reporting
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each events	
- Inter-frequency event identity	2A
- Used frequency threshold	Not present
- Used frequency W	0
- Hysteresis	29 (14.5 dB)
- Time to trigger	5000 mSec
- Reporting cell status	Not present
- Non-used frequency parameter list	
- Non-used frequency threshold	-72 dBm
- Non-used frequency W	0
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	
- Measurement identity	1
DPCH compressed mode status info	Not present

MEASUREMENT CONTROL (Step 4) (1.28 Mcps TDD)

Information Element	Value/remark
Measurement identity	2
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement command	Setup
- CHOICE measurement type	Inter-frequency measurement
- Inter-frequency measurement objects list	
- Inter-frequency cell removal	Not present
- New inter-frequency cells	
- Inter-frequency cell id	Id of Cell 4
- Frequency Info	Frequency of Cell 4
- Cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	
-CHOICE TDD option	1.28 Mcps TDD
- Cell parameters ID	Cell parameters ID of Cell 4
- Primary CCPCH TX power	Not present
- Timeslot list	Not present
- Cell for measurement	Not present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- Measurement quantity for frequency quality estimate	P-CCPCH RSCP
- Inter-frequency reporting quantity	
- UTRAN carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related quantities	
- SFN-SFN observed time difference reporting indicator	No report
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Measurement validity	CELL_DCH state
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each events	
- Inter-frequency event identity	2A
- Threshold used frequency	Not present
- W used frequency	0
- Hysteresis	29 (14.5 dB)
- Time to trigger	5000 mSec
- Reporting cell status	Not present
- Parameters required for each non-used frequency	
- Threshold non-used frequency	-72 dBm
- W non-used frequency	0
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	
- Measurement identity	1
DPCH compressed mode status info	Not present

MEASUREMENT CONTROL (Step 4) (3.84 Mcps TDD)

Information Element	Value/remark
Measurement identity	2
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement command	Setup
- CHOICE measurement type	Inter-frequency measurement
- Inter-frequency measurement objects list	
- Inter-frequency cell removal	Not present
- New inter-frequency cells	
- Inter-frequency cell id	Id of Cell 4
- Frequency Info	Frequency of Cell 4
- Cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- CHOICE SyncCase	SyncCase 1
- Timeslot	4
- Cell parameters ID	Cell parameters ID of Cell 4
- SCTD indicator	FALSE
- Primary CCPCH TX power	Not present
- Timeslot list	Not present
- Cell for measurement	Not present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- CHOICE mode	TDD
- Measurement quantity for frequency quality estimate	P-CCPCH RSCP
- Inter-frequency reporting quantity	
- UTRAN carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related quantities	
- SFN-SFN observed time difference reporting indicator	No report
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Measurement validity	CELL_DCH state
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each events	
- Inter-frequency event identity	2A
- Threshold used frequency	Not present
- W used frequency	0
- Hysteresis	29 (14.5 dB)
- Time to trigger	5000 mSec
- Reporting cell status	Not present
- Parameters required for each non-used frequency	
- Threshold non-used frequency	-72 dBm
- W non-used frequency	0
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	
- Measurement identity	1
DPCH compressed mode status info	Not present

MEASUREMENT CONTROL (Step 4) (7.68 Mcps TDD)

Information Element	Value/remark
Measurement identity	2
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement command	Setup
- CHOICE measurement type	Inter-frequency measurement
- Inter-frequency measurement objects list	
- Inter-frequency cell removal	Not present
- New inter-frequency cells	
- Inter-frequency cell id	Id of Cell 4
- Frequency Info	Frequency of Cell 4
- Cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- CHOICE SyncCase	SyncCase 1
- Timeslot	4
- Cell parameters ID	Cell parameters ID of Cell 4
- SCTD indicator	FALSE
- Primary CCPCH TX power	Not present
- Timeslot list	Not present
- Cell for measurement	Not present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- CHOICE mode	TDD
- Measurement quantity for frequency quality estimate	P-CCPCH RSCP
- Inter-frequency reporting quantity	
- UTRAN carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related quantities	
- SFN-SFN observed time difference reporting indicator	No report
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Measurement validity	CELL_DCH state
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each events	
- Inter-frequency event identity	2A
- Threshold used frequency	Not present
- W used frequency	0
- Hysteresis	29 (14.5 dB)
- Time to trigger	5000 mSec
- Reporting cell status	Not present
- Parameters required for each non-used frequency	
- Threshold non-used frequency	-72 dBm
- W non-used frequency	0
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	
- Measurement identity	1
DPCH compressed mode status info	Not present

MEASUREMENT CONTROL (Step 8)

Information Element	Value/remark
Measurement identity	2
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement command	Modify
- CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- Inter-frequency cell removal	Not present
- New inter-frequency info list	Not present
- Cell for measurement	Not present
- Inter-frequency measurement quantity	Not present
- Inter-frequency reporting quantity	Not present
- Measurement validity	Not present
- UE autonomous update mode	Not present
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each events	
- Inter-frequency event identity	2A
- Threshold used frequency	Not present
- W used frequency	0
- Hysteresis	2 (1 dB)
- Time to trigger	5000 mSec
- Reporting cell status	Not present
- Parameters required for each non-used frequency	
- Threshold non-used frequency	-72 dBm
- W non-used frequency	0
Measurement reporting mode	Not present
Additional measurement list	Not present
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 13) (FDD)

Information Element	**Value/remark**
Measurement identity	Check to see if set to 2
Measured results	Check to see if it is absent
Measured results on RACH	Check to see if it is absent
Additional measured results	
- Measured results	UE internal measured results
- UE transmitted power	Check to see if it is present
- UE RX TX report entry list	Check to see if it is absent
Event results	Inter-frequency measurement event results,
- Inter-frequency event identity	2A
- Cell measurement event results	
- Frequency info	
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_4
- Primary CPICH info	
- Primary scrambling code	Primary scrambling code of Cell 4

MEASUREMENT REPORT (Step 13) (1.28 Mcps TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 2
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured results	Check to see if it is absent
Measured results on RACH	Check to see if it is absent
Additional measured results	
- Measured results	UE internal measured results
- UE transmitted power	Check to see if it is present
- T_{ADV}	Check to see if it is absent
Event results	Check to see if set to "Inter-frequency measurement event results"
- Inter-frequency event identity	Check to see if set to "2A"
- Inter-frequency Cells	
- Frequency info	Check to see if set to Frequency of Cell 4
- Non frequency related measurement event results	
- CHOICE mode	Check to see if set to "TDD"
- Primary CCPCH info	
- Cell parameters ID	Check to see if set to Cell parameter ID of Cell 4

MEASUREMENT REPORT (Step 13) (3.84 Mcps TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 2
Measured results	Check to see if it is absent
Measured results on RACH	Check to see if it is absent
Additional measured results	
- Measured results	UE internal measured results
CHOICE mode	Check to see if set to "TDD"
- UE transmitted power	Check to see if it is present
CHOICE TDD option	Check to see if set to "3.84 Mcps TDD"
- Applied TA	Check to see if it is absent
Event results	Check to see if set to "Inter-frequency measurement event results"
- Inter-frequency event identity	Check to see if set to "2A"
- Inter-frequency Cells	
- Frequency info	Check to see if set to Frequency of Cell 4
- Non frequency related measurement event results	
CHOICE mode	Check to see if set to "TDD"
- Primary CCPCH info	
CHOICE mode	Check to see if set to "TDD"
CHOICE TDD option	Check to see if set to "3.48 Mcps TDD"
CHOISE SyncCase	Check to see if set to "Sync Case 1"
- Timeslot	Check to see if set to "4"
- Cell parameters ID	Check to see if set to Cell parameter ID of Cell 4
- SCTD indicator	Check to see if set to "FALSE"

MEASUREMENT REPORT (Step 13) (7.68 Mcps TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 2
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured results	Check to see if it is absent
Measured results on RACH	Check to see if it is absent
Additional measured results	
- Measured results	UE internal measured results
CHOICE mode	Check to see if set to “TDD”
- UE transmitted power	Check to see if it is present
CHOICE TDD option	Check to see if set to “7.68 Mcps TDD”
- Applied TA	Check to see if it is absent
Event results	Check to see if set to “Inter-frequency measurement event results”
- Inter-frequency event identity	Check to see if set to “2A”
- Inter-frequency Cells	
- Frequency info	Check to see if set to Frequency of Cell 4
- Non frequency related measurement event results	
CHOICE mode	Check to see if set to “TDD”
- Primary CCPCH info	
CHOICE mode	Check to see if set to “TDD”
CHOICE TDD option	Check to see if set to “7.68 Mcps TDD”
CHOISE SyncCase	Check to see if set to “Sync Case 1”
- Timeslot	Check to see if set to “4”
- Cell parameters ID	Check to see if set to Cell parameter ID of Cell 4
- SCTD indicator	Check to see if set to “FALSE”

8.4.1.24.5 Test Requirement

1.A In step 13 the UE shall send MEASUREMENT REPORT message indicating event 2A. IE ' Inter-frequency Cells ' in MEASUREMENT REPORT message shall contain frequency information and primary scrambling code (for FDD) or Cell parameters ID (forTDD) of Cell 4.

1.B In step 6, the UE shall not send MEASUREMENT REPORT message.

1.C In step 11, the UE shall not send MEASUREMENT REPORT message.

8.4.1.24a Measurement Control and Report: Inter-band measurement for event 2A

8.4.1.24a.1 Definition

This test case is identical to test case 8.4.1.24 except that the cells belong to different frequency bands.

8.4.1.24a.2 Conformance requirement

Same conformance requirement as in clause 8.4.1.24.2.

8.4.1.24a.3 Test Purpose

Same test purpose as in clause 8.4.1.24.3 except that the cells belong to different frequency bands.

8.4.1.24a.4 Method of test

Initial Condition

Same initial conditions as in clause 8.4.1.24.4 except that cell1 and cell4 use URAFCNs selected from different frequency band.

Related ICS/IXIT statements

- Compressed mode required yes/no

- UE supports multiple bands simultaneously yes/no

3GPP TS 34.123-1 version 10.3.1 Release 10

Test Procedure

Same test procedure as in clause 8.4.1.24.4.

Note: If the UE supports more than 2 frequency bands, the test may be executed for various band combinations.

Expected Sequence

Same expected sequence as in clause 8.4.1.24.4.

Specific Message Content

Same specific message content as in clause 8.4.1.24.4.

8.4.1.24a.5 Test Requirement

Same test requirement as in clause 8.4.1.24.5.

8.4.1.25 Measurement Control and Report: Inter-frequency measurement for events 2B and 2E

8.4.1.25.1 Definition

8.4.1.25.2 Conformance requirement

When event 2b is configured in the UE within a measurement, the UE shall:

1> if equations 1 and 2 below have been fulfilled for a time period indicated by "Time to Trigger" from the same instant, respectively for one or several non-used frequencies included for that event and for the used frequency:

2> if any of those non-used frequency is not stored in the variable TRIGGERED_2B_EVENT:

3> store the non-used frequencies that triggered the event and that were not previously stored in the variable TRIGGERED_2B_EVENT into that variable;

3> send a measurement report with IEs set as below:

4> set in "inter-frequency measurement event results":

5> "inter-frequency event identity" to "2b"; and

5> for each non-used frequency that triggered the event, beginning with the best frequency:

6> "Frequency info" to that non-used frequency; and

6> "Non frequency related measurement event results" to the "Primary CPICH info" of the best primary CPICH for FDD cells or "Primary CCPCH info" to the "Cell parameters ID" of the best primary CCPCH for TDD cells on that non-used frequency, not taking into account the cell individual offset;

4> set the IE "measured results" and the IE "additional measured results" according to TS 25.331 subclause 8.4.2, not taking into account the cell individual offset;

1> if equation 3 below is fulfilled for a non-used frequency stored in the variable TRIGGERED_2B_EVENT:

2> remove that non-used frequency from the variable TRIGGERED_2B_EVENT.

1> if equation 4 below is fulfilled for the used frequency:

2> clear the variable TRIGGERED_2B_EVENT.

Triggering conditions:

Equation 1:

$$Q_{Non\ used} \geq T_{Non\ used\ 2b} + H_{2b} / 2$$

The variables in the formula are defined as follows:

$Q_{Non\ used}$ is the quality estimate of a non-used frequency that becomes better than an absolute threshold.

$T_{Non\ used\ 2b}$ is the absolute threshold that applies for this non-used frequency in that measurement.

H_{2b} is the hysteresis parameter for the event 2b.

Equation 2:

$$Q_{Used} \leq T_{Used\ 2b} - H_{2b} / 2$$

The variables in the formula are defined as follows:

Q_{Used} is the quality estimate of the used frequency.

$T_{Used\ 2b}$ is the absolute threshold that applies for the used frequency in that measurement.

H_{2b} is the hysteresis parameter for the event 2b.

Leaving triggered state condition:

Equation 3:

$$Q_{Non\ used} < T_{Non\ used\ 2b} - H_{2b} / 2$$

The variables in the formula are defined as follows:

$Q_{Non\ used}$ is the quality estimate of a non-used frequency that is stored in the variable TRIGGERED_2B_EVENT.

$T_{Non\ used\ 2b}$ is the absolute threshold that applies for this non-used frequency in that measurement.

H_{2b} is the hysteresis parameter for the event 2b.

Equation 4:

$$Q_{Used} > T_{Used\ 2b} + H_{2b} / 2$$

The variables in the formula are defined as follows:

Q_{Used} is the quality estimate of the used frequency.

$T_{Used\ 2b}$ is the absolute threshold that applies for the used frequency in that measurement.

H_{2b} is the hysteresis parameter for the event 2b.

…

When event 2e is configured in the UE within a measurement, the UE shall:

1> if equation 1 below has been fulfilled for one or several non-used frequencies included for that event during the time "Time to trigger":

2> if any of those non-used frequencies is not stored in the variable TRIGGERED_2E_EVENT:

3> store the non-used frequencies that triggered the event and that were not previously stored in the variable TRIGGERED_2E_EVENT into that variable;

3> send a measurement report with IEs set as below:

3GPP TS 34.123-1 version 10.3.1 Release 10

4> set in "inter-frequency measurement event results":

5> "inter-frequency event identity" to "2e"; and

5> for each non-used frequency that triggered the event, beginning with the best frequency:

6> "Frequency info" to that non-used frequency; and

6> "Non frequency related measurement event results" to the "Primary CPICH info" of the best primary CPICH for FDD cells or "Primary CCPCH info" to the "Cell parameters ID" of the best primary CCPCH for TDD cells on that non-used frequency, not taking into account the cell individual offset;

4> set the IE "measured results" and the IE "additional measured results" according to TS 25.331 subclause 8.4.2, not taking into account the cell individual offset;

1> if equation 2 below is fulfilled for a non-used frequency stored in the variable TRIGGERED_2E_EVENT:

2> remove that non-used frequency from the variable TRIGGERED_2E_EVENT.

Triggering condition:

Equation 1:

$$Q_{Non\ used} \leq T_{Non\ used\ 2e} - H_{2e} / 2$$

The variables in the formula are defined as follows:

$Q_{Non\ used}$ is the quality estimate of a non-used frequency that becomes worse than an absolute threshold.

$T_{Non\ used\ 2e}$ is the absolute threshold that applies for that non-used frequency for that event.

H_{2e} is the hysteresis parameter for the event 2e.

Leaving triggered state condition:

Equation 2:

$$Q_{Non\ used} > T_{Non\ used\ 2e} + H_{2e} / 2$$

The variables in the formula are defined as follows:

$Q_{Non\ used}$ is the quality estimate of a non-used frequency stored in the variable TRIGGERED_2E_EVENT.

$T_{Non\ used\ 2e}$ is the absolute threshold that applies for that non-used frequency for that event.

H_{2e} is the hysteresis parameter for the event 2e.

Reference

3GPP TS 25.331 clause 14.2.1.2, 14.2.1.5.

8.4.1.25.3 Test Purpose

1. To confirm that the UE sends MEASUREMENT REPORT message when event 2E is configured and the estimated quality of a non-used frequency is below the value of the IE "Threshold non-used frequency". This MEASUREMENT REPORT message shall contain at least the best primary CPICH info (for FDD) or primary CCPCH info (for TDD) on the non-used frequency that triggered the event.
2. To confirm that the UE sends MEASUREMENT REPORT message when event 2B is configured and estimated quality of the currently used frequency is below the value of the IE "Threshold used frequency" and the

estimated quality of a non-used frequency is above the value of the IE "Threshold non-used frequency". This MEASUREMENT REPORT message shall contain at least the best primary CPICH info (for FDD) or primary CCPCH info (for TDD)on the non-used frequency that triggered the event.

3GPP TS 34.123-1 version 10.3.1 Release 10

8.4.1.25.4 Method of test

Initial Condition

System Simulator: 2 cells – The initial configurations of the 2 cells in the SS shall follow the values indicated in the column marked "T0" in table 8.4.1.25-1. The table is found in "Test Procedure" clause.

UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Related ICS/IXIT statements

- Compressed mode required yes/no

Test Procedure

Table 8.4.1.25-1 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Column marked "T0" denotes the initial conditions, while columns marked "T1" and "T2" are to be applied subsequently. The exact instants on which these values shall be applied are described in the text in this clause.

Table 8.4.1.25-1

Parameter	Unit	Cell 1			Cell 4		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			High Range Test Frequency		
CPICH Ec (FDD)	dBm/3.84 MHz	-55	-55	-85	-85	-55	-55
P-CCPCH RSCP(TDD)	dBm	-60	-60	-80	-80	-60	-60
P-CCPCH TS (3.84 Mcps TDD) and 7.68 Mcps TDD		TS 0			TS 4		

The UE is initially in CELL_DCH state of cell 1. SS commands the UE to perform Inter-frequency measurements and report event 2B and event 2E by sending MEASUREMENT CONTROL message. Note that the Filter Coefficient IE has a value of 4 so Layer 3 Filtering applies in this case.

If UE requires compressed mode, SS performs PHYSICAL CHANNEL RECONFIGURATION procedure to activate compressed mode (for FDD only).

Since quality estimate of non-used frequency is below threshold, the UE sends MEASUREMENT REPORT message indicating event 2E.

SS then configures itself according to the values in columns "T1" shown above. Now quality estimate of used and non-used frequency is above threshold and hence neither event 2B nor event 2E will be triggered. SS then configures itself according to the values in columns "T2" shown above. Quality estimate for used frequency is now below threshold, while that of non-used frequency is above threshold, the UE sends MEASUREMENT REPORT message to report event 2B.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1	←		MEASUREMENT CONTROL	SS commands the UE to perform Inter-frequency measurements and to report event 2B and 2E. If Compressed Mode not required (refer ICS/IXIT) go to step 4
2	←		PHYSICAL CHANNEL RECONFIGURATION	SS instructs UE to begin compressed mode operation. (for FDD only)
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	(for FDD only)
4	→		MEASUREMENT REPORT	The UE shall report event 2E. Time duration between activation of compressed mode and reception of this message should be at least 5 seconds. Layer 3 Filtering causes an additional delay.
5				SS re-adjusts the downlink transmission power settings according to columns "T1" in table 8.4.1.25-1.
6				Check for 10 seconds the UE shall not send measurement report message.
7				SS re-adjusts the downlink transmission power settings according to columns "T2" in table 8.4.1.25-1.
8	→		MEASUREMENT REPORT	The UE shall report event 2B. Time duration between changing power levels according to columns "T2" and reception of this message should be at least 5 seconds. Layer 3 Filtering causes an additional delay. For Cell 1 the CPICH Ec value of -80 dBm(for FDD)or the P-CCPCH RSCP value of -75 dBm (for TDD) would have to be reported at least three times from the Physical Layer to cause the Cell 1 frequency threshold to be reached. Depending on tolerance values this number will be greater (CPICH Ec (for FDD) or P-CCPCH RSCP(for TDD) is +/- 3 dBm, SS set Hysteresis value is +/- 2dB)
9	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

All messages indicated below shall use the same content as described in default message content, with the following exceptions:

MEASUREMENT CONTROL (Step 1)(FDD)

Information Element	Value/remark
Measurement identity	4
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement command	Setup
- CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- Inter-frequency cell removal	Not present
- New inter-frequency info list	
- Inter-frequency cell id	Id of Cell 4
- Frequency Information	Frequency of Cell 4
- Cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- CHOICE mode	FDD
- Read SFN Indicator	FALSE
- Primary CPICH Info	
- Primary scrambling code	Primary scrambling code of Cell 4
- Primary CPICH TX power	Not present
- TX Diversity Indicator	FALSE
- Cell for measurement	Not present
- Inter-frequency measurement quantity	
- Filter Coefficient	4
- Frequency quality estimate quantity	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRAN Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement validity	Not present
- Inter-frequency SET UPDATE	
- UE autonomous update mode	On with no reporting
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each events	
- Inter-frequency event identity	2E
- Hysteresis	2 (1 dB)
- Time to trigger	5000 mSec
- Reporting cell status	Not present
- Non used frequency parameter list	
- Non used frequency threshold	-70 dBm
- Non used frequency W	0
- Inter-frequency event identity	2B
- Used frequency threshold	-70 dBm
- Used frequency W	0.4
- Hysteresis	2 (1 dB)
- Time to trigger	5000 mSec
- Reporting cell status	Within active set or within virtual active set or of the other RAT
- Maximum number of reporting cells	1
- Non used frequency parameter list	
- Non used frequency threshold	-70 dBm
- Non used frequency W	0
Measurement reporting mode	
- Measurement reporting transfer mode	Unacknowledged Mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
DPCH compressed mode status info	Not present

MEASUREMENT CONTROL (Step 1)(1.28 Mcps TDD)

Information Element	Value/remark
Measurement identity	4
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement command	Setup
- CHOICE measurement type	Inter-frequency measurement
- Inter-frequency measurement objects list	
- Inter-frequency cell removal	Not present
- New inter-frequency cells	
- Inter-frequency cell id	Id of Cell 4
- Frequency Information	Frequency of Cell 4
- Cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- TSTD Indicator	FALSE
- Cell parameters ID	Cell parameters ID of Cell 4
- Primary CCPCH TX power	Not present
- Timeslot list	Not present
- Cell for measurement	Not present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	4
- CHOICE mode	TDD
- Measurement quantity for frequency quality estimate	P-CCPCH RSCP
- Inter-frequency reporting quantity	
- UTRAN Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement validity	Not present
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each events	
- Inter-frequency event identity	2E
- Hysteresis	2 (1 dB)
- Time to trigger	5000 mSec
- Reporting cell status	Not present
- Parameters required for each non-used frequency	
- Threshold non used frequency	-70dBm
- W non-used frequency	0
- Inter-frequency event identity	2B
- Threshold used frequency	-70 dBm
- W used frequency	0.4
- Hysteresis	2 (1 dB)
- Time to trigger	5000 mSec
- Reporting cell status	Within active set or within virtual active set or of the other RAT
- Maximum number of reporting cells	1
- Parameters required for each non-used frequency	
- Threshold non used frequency	-70 dBm
- W non-used frequency	0
Measurement reporting mode	
- Measurement reporting transfer mode	Unacknowledged Mode RLC

Information Element	Value/remark
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
DPCH compressed mode status info	Not present

MEASUREMENT CONTROL (Step 1)(3.84 Mcps TDD)

Information Element	Value/remark
Measurement identity	4
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement command	Setup
- CHOICE measurement type	Inter-frequency measurement
- Inter-frequency measurement objects list	
- Inter-frequency cell removal	Not present
- New inter-frequency cells	
- Inter-frequency cell id	Id of Cell 4
- Frequency Information	Frequency of Cell 4
- Cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- CHOICE SyncCase	SyncCase 1
- Timeslot	4
- Cell parameters ID	Cell parameters ID of Cell 4
- SCTD indicator	FALSE
- Primary CCPCH TX power	Not present
- Timeslot list	Not present
- Cell for measurement	Not present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	4
- CHOICE mode	TDD
- Measurement quantity for frequency quality estimate	P-CCPCH RSCP
- Inter-frequency reporting quantity	
- UTRAN Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement validity	Not present
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each events	
- Inter-frequency event identity	2E
- Hysteresis	2 (1 dB)
- Time to trigger	5000 mSec
- Reporting cell status	Within active set or within virtual active set or of the other RAT
- Parameters required for each non-used frequency	
- Threshold non used frequency	-70dBm
- W non-used frequency	0
- Inter-frequency event identity	2B
- Threshold used frequency	-70 dBm
- W used frequency	0.4
- Hysteresis	2 (1 dB)
- Time to trigger	5000 mSec
- Reporting cell status	Not present
- Maximum number of reporting cells	1
- Parameters required for each non-used frequency	
- Threshold non used frequency	-70 dBm
- W non-used frequency	0

Information Element	Value/remark
Measurement reporting mode	
- Measurement reporting transfer mode	Unacknowledged Mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger

3GPP TS 34.123-1 version 10.3.1 Release 10

Additional measurement list	Not present
DPCH compressed mode status info	Not present

MEASUREMENT CONTROL (Step 1)(3.84 Mcps TDD)

Information Element	Value/remark
Measurement identity	4
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement command	Setup
- CHOICE measurement type	Inter-frequency measurement
- Inter-frequency measurement objects list	
- Inter-frequency cell removal	Not present
- New inter-frequency cells	
- Inter-frequency cell id	Id of Cell 4
- Frequency Information	Frequency of Cell 4
- Cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- CHOICE SyncCase	SyncCase 1
- Timeslot	4
- Cell parameters ID	Cell parameters ID of Cell 4
- SCTD indicator	FALSE
- Primary CCPCH TX power	Not present
- Timeslot list	Not present
- Cell for measurement	Not present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	4
- CHOICE mode	TDD
- Measurement quantity for frequency quality estimate	P-CCPCH RSCP
- Inter-frequency reporting quantity	
- UTRAN Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement validity	Not present
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each events	
- Inter-frequency event identity	2E
- Hysteresis	2 (1 dB)
- Time to trigger	5000 mSec
- Reporting cell status	Within active set or within virtual active set or of the other RAT
- Parameters required for each non-used frequency	
- Threshold non used frequency	-70dBm
- W non-used frequency	0
- Inter-frequency event identity	2B
- Threshold used frequency	-70 dBm
- W used frequency	0.4
- Hysteresis	2 (1 dB)
- Time to trigger	5000 mSec
- Reporting cell status	Not present
- Maximum number of reporting cells	1
- Parameters required for each non-used frequency	
- Threshold non used frequency	-70 dBm
- W non-used frequency	0

Information Element	Value/remark
Measurement reporting mode	
- Measurement reporting transfer mode	Unacknowledged Mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger

3GPP TS 34.123-1 version 10.3.1 Release 10

Additional measurement list	Not present
DPCH compressed mode status info	Not present

PHYSICAL CHANNEL RECONFIGURATION (Step 2)

Use the same message sub-type found in Annex A, which is entitled "(Packet to CELL_DCH from CELL_DCH in PS)", with the following exceptions in the IE(s) concerned:

Information Element	Value/remark	Version
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing Indication	Maintain	
- Downlink DPCH power control information		
- DPC mode	0 (Single)	
- CHOICE Mode	FDD	
- Power offset PPilot-DPDCH	0	
- DL rate matching restriction information	Not present	
- Spreading factor	Refer to the parameter set in TS 34.108	
- Fixed or flexible position	Flexible	
- TFCI existence	TRUE	
- Number of bits for Pilot bits (SF=128, 256)	Not present	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS status flag	Activate	
- TGCFN	(Current CFN+(256 – TTI/10msec)) mod 256	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not Present	
- TGD	Undefined	
- TGPL1	3	
- TGPL2	Not Present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
- CHOICE UL/DL mode	UL and DL or DL only or UL only depending on UE capability	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2 or Not present depending on UE capability	
- Downlink frame type	A	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not present	
- DeltaSIRAfter2	Not present	
- N identify abort	Not present	
- T Reconfirm abort	Not present	
- TX diversity mode	None	
- SSDT information	Not present	R99 and Rel-4 only
- Default DPCH offset value	Not present	

MEASUREMENT REPORT (Step 4) (FDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 4
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured results	Check to see if it is absent
Measured results on RACH	Check to see if it is absent
Additional measured results	Check to see if it is absent
Event results	Inter-frequency measurement event results,
- Inter-frequency event identity	2E
- Cell measurement event results	
- Frequency info	
- UARFCN uplink (Nu)	The presence of this IE is not checked
- UARFCN downlink (Nd)	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_4
- Primary CPICH info	
- Primary scrambling code	Primary scrambling code of Cell 4

MEASUREMENT REPORT (Step 4) (1.28 Mcps TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 4
Measured results	Check to see if it is absent
Measured results on RACH	Check to see if it is absent
Additional measured results	Check to see if it is absent
Event results	
- CHOICE event results	Check to see if set to “Inter-frequency measurement event results”
- Inter-frequency event identity	Check to see if set to “2E”
- Inter-frequency cells	
- Frequency info	Check to see if set to Frequency of Cell 4
- Non-frequency related measurement event results	
- CHOICE mode	Check to see if set to “TDD”
- Primary CCPCH info	
- CHOICE mode	Check to see if set to “TDD”
- CHOICE mode option	Check to see if set to “1.28 Mcps TDD”
- TSTD Indicator	Check to see if set to “FALSE”
- Cell parameters ID	Check to see if set to Cell parameters ID of Cell 4
- SCTD Indicator	Check to see if set to “FALSE”

MEASUREMENT REPORT (Step 4) (3.84 Mcps TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 4
Measured results	Check to see if it is absent
Measured results on RACH	Check to see if it is absent
Additional measured results	Check to see if it is absent
Event results	
- CHOICE event results	Check to see if set to “Inter-frequency measurement event results”
- Inter-frequency event identity	Check to see if set to “2E”
- Inter-frequency cells	
- Frequency info	Check to see if set to Frequency of Cell 4
- Non-frequency related measurement event results	
- CHOICE mode	Check to see if set to “TDD”
- Primary CCPCH info	
CHOICE mode	Check to see if set to “TDD”
- CHOICE mode option	Check to see if set to “3.48 Mcps TDD”
CHOISE SyncCase	Check to see if set to “Sync Case 1”
- Timeslot	Check to see if set to “4”
- Cell parameters ID	Check to see if set to Cell parameters ID of Cell 4
- SCTD indicator	Check to see if set to “FALSE”

MEASUREMENT REPORT (Step 4) (7.68 Mcps TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 4
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured results	Check to see if it is absent
Measured results on RACH	Check to see if it is absent
Additional measured results	Check to see if it is absent
Event results	
- CHOICE event results	Check to see if set to "Inter-frequency measurement event results"
- Inter-frequency event identity	Check to see if set to "2E"
- Inter-frequency cells	
- Frequency info	Check to see if set to Frequency of Cell 4
- Non-frequency related measurement event results	
- CHOICE mode	Check to see if set to "TDD"
- Primary CCPCH info	
CHOICE mode	Check to see if set to "TDD"
- CHOICE mode option	Check to see if set to "7.68 Mcps TDD"
CHOISE SyncCase	Check to see if set to "Sync Case 1"
- Timeslot	Check to see if set to "4"
- Cell parameters ID	Check to see if set to Cell parameters ID of Cell 4
- SCTD indicator	Check to see if set to "FALSE"

MEASUREMENT REPORT (Step 8) (FDD)

Information Element	Value/remark
Measurement identity	4
Measured results	Inter-frequency measured results
- Frequency info	
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_4
- UTRA carrier RSSI	Check to see if it is absent
- Inter-frequency cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- Mode Specific Info	FDD
- Primary CPICH Info	
- Primary scrambling code	Primary scrambling code for cell 4
- CPICH Ec/No	Check to see if it is absent
- CPICH RSCP	Check to see if it is present
- Pathloss	Check to see if it is absent
Measured results on RACH	Check to see if it is absent
Additional measured results	Check to see if it is absent
Event results	Inter-frequency measurement event results,
- Inter-frequency event identity	2B
- Cell measurement event results	
- Frequency info	
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_4
- Primary CPICH info	
- Primary scrambling code	Primary scrambling code of Cell 4

MEASUREMENT REPORT (Step 8) (1.28 Mcps TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 4
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured results	Check to see if it set to "Inter-frequency measured results list"
- Frequency information	Check to see if set to Frequency of Cell 4
- UTRA carrier RSSI	Check to see if it is absent
- Inter-frequency cell measured results	
- Cell measurement results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	Check to see if set to "TDD"
- Cell parameters ID	Check to see if set to Cell parameters ID for cell 4
- Proposed TGSN	Check to see if it is absent
- Primary CCPCH RSCP	Check to see if it is present
- Pathloss	Check to see if it is absent
- Timeslot List/ISCP	Check to see if it is absent
Measured results on RACH	Check to see if it is absent
Additional measured results	Check to see if it is absent
Event results	
- CHOICE event results	Check to see if set to "Inter-frequency measurement event results"
- Inter-frequency event identity	Check to see if set to "2B"
- Inter-frequency cells	
- Frequency info	Check to see if set to Frequency of Cell 4
- Non-frequency related measurement event results	
- CHOICE mode	Check to see if set to "TDD"
- Primary CCPCH info	
- CHOICE mode	Check to see if set to "TDD"
- CHOICE mode option	Check to see if set to "1.28 Mcps TDD"
- TSTD Indicator	Check to see if set to "FALSE"
- Cell parameters ID	Check to see if set to Cell parameters ID of Cell 4
- SCTD Indicator	Check to see if set to "FALSE"

MEASUREMENT REPORT (Step 8) (3.84Mcps TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 4
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured results	Check to see if it set to "Inter-frequency measured results list"
- Frequency information	Check to see if set to Frequency of Cell 4
- UTRA carrier RSSI	Check to see if it is absent
- Inter-frequency cell measured results	
- Cell measurement results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	Check to see if set to "TDD"
- Cell parameters ID	Check to see if set to Cell parameters ID for cell 4
- Proposed TGSN	Check to see if it is absent
- Primary CCPCH RSCP	Check to see if it is present
- Pathloss	Check to see if it is absent
- Timeslot list/ISCP	Check to see if it is absent
Measured results on RACH	Check to see if it is absent
Additional measured results	Check to see if it is absent
Event results	
- CHOICE event results	Check to see if set to "Inter-frequency measurement event results"
- Inter-frequency event identity	Check to see if set to "2B"
- Inter-frequency cells	
- Frequency info	Check to see if set to Frequency of Cell 4
- Non-frequency related measurement event results	
- CHOICE mode	Check to see if set to "TDD"
- Primary CCPCH info	
CHOICE mode	Check to see if set to "TDD"
- CHOICE mode option	Check to see if set to "3.84 Mcps TDD"
CHOISE SyncCase	Check to see if set to "Sync Case 1"
- Timeslot	Check to see if set to "4"
- Cell parameters ID	Check to see if set to Cell parameters ID of Cell 4
- SCTD indicator	Check to see if set to "FALSE"

MEASUREMENT REPORT (Step 8) (7.68Mcps TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 4
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured results	Check to see if it set to “Inter-frequency measured results list”
- Frequency information	Check to see if set to Frequency of Cell 4
- UTRA carrier RSSI	Check to see if it is absent
- Inter-frequency cell measured results	
- Cell measurement results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	Check to see if set to “TDD”
- Cell parameters ID	Check to see if set to Cell parameters ID for cell 4
- Proposed TGSN	Check to see if it is absent
- Primary CCPCH RSCP	Check to see if it is present
- Pathloss	Check to see if it is absent
- Timeslot list/ISCP	Check to see if it is absent
Measured results on RACH	Check to see if it is absent
Additional measured results	Check to see if it is absent
Event results	
- CHOICE event results	Check to see if set to “Inter-frequency measurement event results”
- Inter-frequency event identity	Check to see if set to “2B”
- Inter-frequency cells	
- Frequency info	Check to see if set to Frequency of Cell 4
- Non-frequency related measurement event results	
- CHOICE mode	Check to see if set to “TDD”
- Primary CCPCH info	
CHOICE mode	Check to see if set to “TDD”
- CHOICE mode option	Check to see if set to “7.68 Mcps TDD”
CHOISE SyncCase	Check to see if set to “Sync Case 1”
- Timeslot	Check to see if set to “4”
- Cell parameters ID	Check to see if set to Cell parameters ID of Cell 4
- SCTD indicator	Check to see if set to “FALSE”

8.4.1.25.5 Test Requirement

1. In step 4 the UE shall send MEASUREMENT REPORT message indicating event 2E. IE "Cell measurement event results" in this message shall contain frequency information and primary scrambling code(for FDD) or Cell parameters ID (TDD) of Cell 4.

2. In step 8 the UE shall send MEASUREMENT REPORT message indicating event 2B. IE "Cell measurement event results" in this message shall contain frequency information and primary scrambling code (for FDD) or Cell parameters ID (TDD) of Cell 4.

8.4.1.25a Measurement Control and Report: Inter-band measurement for events 2B and 2E

8.4.1.25a.1 Definition

This test case is identical to test case 8.4.1.25 except that the cells belong to different frequency bands.

8.4.1.25a.2 Conformance requirement

Same conformance requirement as in clause 8.4.1.25.2.

8.4.1.25a.3 Test Purpose

Same test purpose as in clause 8.4.1.25.3 except that the cells belong to different frequency bands.

8.4.1.25a.4 Method of test

3GPP TS 34.123-1 version 10.3.1 Release 10

Initial Condition

Same initial conditions as in clause 8.4.1.25.4 except that cell1 and cell4 use URAFCNs selected from different frequency bands.

Related ICS/IXIT statements

- Compressed mode required yes/no
- UE supports multiple bands simultaneously yes/no

Test Procedure

Same test procedure as in clause 8.4.1.25.4.

Note: If the UE supports more than 2 frequency bands, the test may be executed for various band combinations.

Expected Sequence

Same expected sequence as in clause 8.4.1.25.4.

Specific Message Content

Same specific message content as in clause 8.4.1.25.4.

8.4.1.25a.5 Test Requirement

Same test requirement as in clause 8.4.1.25.5.

8.4.1.26 Measurement Control and Report: Measurement for events 2D and 2F

8.4.1.26.1 Definition

8.4.1.26.2 Conformance requirement

When event 2d is configured in the UE within a measurement, the UE shall:

1> if equation 1 below has been fulfilled for the used frequency during the time "Time to trigger":

2> if the variable TRIGGERED_2D_EVENT is set to FALSE:

3> set the variable TRIGGERED_2D_EVENT to TRUE;

3> send a measurement report with IEs set as below:

4> set in "inter-frequency event results": "inter-frequency event identity" to "2d" and no IE "Inter-frequency cells";

4> set the IE "measured results" and the IE "additional measured results" according to TS 25.331 subclause 8.4.2.

1> if the variable TRIGGERED_2D_EVENT is set to TRUE and if equation 2 is fulfilled for the used frequency:

2> set the variable TRIGGERED_2D_EVENT to FALSE.

Triggering condition:

Equation 1:

3GPP TS 34.123-1 version 10.3.1 Release 10

$$Q_{Used} \leq T_{Used\ 2d} - H_{2d} / 2$$

The variables in the formula are defined as follows:

Q_{Used} is the quality estimate of the used frequency.

$T_{Used\ 2d}$ is the absolute threshold that applies for the used frequency and event 2d.

H_{2d} is the hysteresis parameter for the event 2d.

Leaving triggered state condition:

Equation 2:

$$Q_{Used} > T_{Used\ 2d} + H_{2d} / 2$$

The variables in the formula are defined as follows:

Q_{Used} is the quality estimate of the used frequency.

$T_{Used\ 2d}$ is the absolute threshold that applies for the used frequency and event 2d.

H_{2d} is the hysteresis parameter for the event 2d.

…

When event 2f is configured in the UE within a measurement, the UE shall:

1> if equation 1 below has been fulfilled for the used frequency during the time "Time to trigger":

2> if the variable TRIGGERED_2F_EVENT is set to FALSE:

3> set the variable TRIGGERED_2F_EVENT to TRUE;

3> send a measurement report with IEs set as below:

4> set in "inter-frequency event results": "inter-frequency event identity" to "2f", and no IE "Inter-frequency cells";

4> set the IE "measured results" and the IE "additional measured results" according to TS 25.331 subclause 8.4.2.

1> if the variable TRIGGERED_2F_EVENT is set to TRUE and if equation 2 is fulfilled for the used frequency:

2> set the variable TRIGGERED_2F_EVENT to FALSE.

Triggering condition:

Equation 1:

$$Q_{Used} \geq T_{Used\ 2f} + H_{2f} / 2$$

The variables in the formula are defined as follows:

Q_{Used} is the quality estimate of the used frequency.

$T_{Used\ 2f}$ is the absolute threshold that applies for the used frequency and event 2f.

H_{2f} is the hysteresis parameter for the event 2f.

Leaving triggered state condition:

Equation 2:

3GPP TS 34.123-1 version 10.3.1 Release 10

$$Q_{Used} < T_{Used\ 2f} - H_{2f} / 2$$

The variables in the formula are defined as follows:

Q_{Used} is the quality estimate of the used frequency.

$T_{Used\ 2f}$ is the absolute threshold that applies for the used frequency and event 2f.

H_{2f} is the hysteresis parameter for the event 2f.

Reference

3GPP TS 25.331 clause 14.2.1.4, 14.2.1.6

8.4.1.26.3 Test Purpose

1. To confirm that the UE sends MEASUREMENT REPORT message when event 2F is configured and estimated quality of the currently used frequency is above the value of the IE "Threshold used frequency".
2. To confirm that the UE sends MEASUREMENT REPORT message when event 2D is configured and estimated quality of the currently used frequency is below the value of the IE "Threshold used frequency".

8.4.1.26.4 Method of test

Initial Condition

System Simulator: 1 cells – The initial configurations of the cell in the SS shall follow the values indicated in the column marked "T0" in table 8.4.1.26-1. The table is found in "Test Procedure" clause.

UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Test Procedure

Table 8.4.1.26-1 illustrates the downlink power to be applied for the cell at various time instants of the test execution. Column marked "T0" denotes the initial conditions, while columns marked "T1" is to be applied subsequently. The exact instant on which these values shall be applied is described in the text in this clause.

Table 8.4.1.26-1

Parameter	Unit	Cell 1	
		T0	T1
UTRA RF Channel Number		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84 MHz	-55	-75
P-CCPCH RSCP(TDD)	dBm	-60	-75

The UE is initially in CELL_DCH state of cell 1. SS commands the UE to perform Inter-frequency measurements and report event 2D and/or event 2F by sending MEASUREMENT CONTROL message. Since quality estimate of used frequency is above threshold, the UE sends MEASUREMENT REPORT message indicating event 2F. SS then

3GPP TS 34.123-1 version 10.3.1 Release 10
configures itself according to the values in columns "T1" shown above. Quality estimate for used frequency is now below threshold, the UE sends MEASUREMENT REPORT message to report it. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2			Void	
3			Void	
4	←		MEASUREMENT CONTROL	SS commands the UE to perform Inter-frequency measurements and to report event 2D and 2F.
5	→		MEASUREMENT REPORT	The UE shall report event 2F
6				SS re-adjusts the downlink transmission power settings according to columns "T1" in table 8.4.1.26-1.
7	→		MEASUREMENT REPORT	The UE shall report event 2D.
8	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

All messages indicated below shall use the same content as described in default message content, with the following exceptions.

MEASUREMENT CONTROL (Step 4) (FDD)

Information Element	Value/remark
Measurement identity	10
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement command	Setup
- CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- Inter-frequency cell removal	Not present
- New inter-frequency info list	
- Inter-frequency cell id	Any valid identity other than that of Cell 1
- Frequency Information	Any valid frequency other than that of Cell 1
- Cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- CHOICE mode	FDD
- Read SFN Indicator	FALSE
- Primary CPICH Info	
- Primary scrambling code	Any value of Primary scrambling code
- Primary CPICH TX power	Not present
- TX Diversity Indicator	FALSE
- Cell for measurement	Not present
- Inter-frequency measurement quantity	
- Filter Coefficient	4
- Frequency quality estimate quantity	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRAN Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Measurement validity	CELL_DCH state
- UE autonomous update mode	Not present
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each events	
- Inter-frequency event identity	2D
- Used frequency threshold	-70 dBm
- Used frequency W	0
- Hysteresis	2 (1 dB)
- Time to trigger	5000 mSec
- Reporting cell status	Not present
- Inter-frequency event identity	2F
- Used frequency threshold	-70 dBm
- Used frequency W	0
- Hysteresis	2 (1 dB)
- Time to trigger	5000 mSec
- Reporting cell status	Not present
Measurement reporting mode	
- Measurement reporting transfer mode	Unacknowledged Mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
DPCH compressed mode status info	Not present

MEASUREMENT CONTROL (Step 4) (1.28 Mcps TDD)

Information Element	Value/remark
Measurement identity	10
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement command	Setup
Measurement reporting mode	
- Measurement reporting transfer mode	Unacknowledged Mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
- CHOICE measurement type	Inter-frequency measurement
- Inter-frequency measurement objects list	
- Inter-frequency cell removal	Not present
- New inter-frequency info list	
- Inter-frequency cell id	Any valid identity other than that of Cell 1
- Frequency Information	Any valid frequency other than that of Cell 1
- Cell info	
- Cell individual offset	0
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	
- CHOICE Mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- TSTD indicator	FALSE
- Cell parameters ID	Any value of Cell parameters ID
- SCTD indicator	FALSE
- Primary CCPCH TX power	Not present
- Timeslot list	Not present
- Cell for measurement	Not present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	4
- CHOICE mode	TDD
- Measurement quantity for frequency quality estimate	P-CCPCH RSCP
- Inter-frequency reporting quantity	
- UTRAN Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Measurement validity	CELL_DCH state
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each events	
- Inter-frequency event identity	2D
- Threshold used frequency	-70 dBm
- W used frequency	0
- Hysteresis	2 (1 dB)
- Time to trigger	5000 mSec
- Reporting cell status	Not present
- Maximum number of reported cells	2
- Inter-frequency event identity	2F
- Threshold used frequency	-70 dBm
- W used frequency	0
- Hysteresis	2 (1 dB)
- Time to trigger	5000 mSec
- Reporting cell status	Not present
DPCH compressed mode status info	Not present

MEASUREMENT CONTROL (Step 4) (3.84 Mcps TDD)

Information Element	Value/remark	Release
Measurement identity	10	
3GPP TS 34.123-1 version 10.3.1 Release 10		
Measurement command	Setup	
Measurement reporting mode		
- Measurement reporting transfer mode	Unacknowledged Mode RLC	
- Periodic reporting / Event trigger reporting mode	Event trigger	
Additional measurement list	Not present	
- CHOICE measurement type	Inter-frequency measurement	
- Inter-frequency measurement objects list		
- Inter-frequency cell removal	Not present	
- New inter-frequency info list		
- Inter-frequency cell id	Any valid identity other than that of Cell 1	
- Frequency Information	Any valid frequency other than that of Cell 1	
- Cell info		
- Cell individual offset	0	
- Reference time difference to cell	Not present	
- Read SFN Indicator	FALSE	
- CHOICE mode	TDD	
- Primary CCPCH Info		
- CHOICE Mode	TDD	
- CHOICE TDD option	3.84 Mcps TDD	REL-4
- Cell parameters ID	Any value of Cell parameters ID	
- SCTD indicator	FALSE	
- Primary CCPCH TX power	Not present	
- Timeslot list	Not present	
- Cell for measurement	Not present	
- Inter-frequency measurement quantity		
- CHOICE reporting criteria	Inter-frequency reporting criteria	
- Filter Coefficient	4	
- CHOICE mode	TDD	
- Measurement quantity for frequency quality estimate	P-CCPCH RSCP	
- Inter-frequency reporting quantity		
- UTRAN Carrier RSSI	FALSE	
- Frequency quality estimate	FALSE	
- Non frequency related quantities		
- Cell synchronisation information reporting indicator	FALSE	
- Cell identity reporting indicator	FALSE	
- CHOICE mode	TDD	
- Timeslot ISCP reporting indicator	FALSE	
- Proposed TGSN reporting indicator	FALSE	
- Primary CCPCH RSCP reporting indicator	FALSE	
- Pathloss reporting indicator	FALSE	
- Measurement validity	CELL_DCH state	
- CHOICE report criteria	Inter-frequency measurement reporting criteria	
- Parameters required for each events		
- Inter-frequency event identity	2D	
- Threshold used frequency	-70 dBm	
- W used frequency	0	
- Hysteresis	2 (1 dB)	
- Time to trigger	5000 mSec	
- Reporting cell status	Not present	
- Inter-frequency event identity	2F	
- Threshold used frequency	-70 dBm	
- W used frequency	0	
- Hysteresis	2 (1 dB)	
- Time to trigger	5000 mSec	
- Reporting cell status	Not present	
DPCH compressed mode status info	Not present	

MEASUREMENT CONTROL (Step 4) (7.68 Mcps TDD)

Information Element	Value/remark	Release
Measurement identity	10	
3GPP TS 34.123-1 version 10.3.1 Release 10		
Measurement command	Setup	
Measurement reporting mode		
- Measurement reporting transfer mode	Unacknowledged Mode RLC	
- Periodic reporting / Event trigger reporting mode	Event trigger	
Additional measurement list	Not present	
- CHOICE measurement type	Inter-frequency measurement	
- Inter-frequency measurement objects list		
- Inter-frequency cell removal	Not present	
- New inter-frequency info list		
- Inter-frequency cell id	Any valid identity other than that of Cell 1	
- Frequency Information	Any valid frequency other than that of Cell 1	
- Cell info		
- Cell individual offset	0	
- Reference time difference to cell	Not present	
- Read SFN Indicator	FALSE	
- CHOICE mode	TDD	
- Primary CCPCH Info		
- CHOICE Mode	TDD	
- CHOICE TDD option	7.68 Mcps TDD	REL-7
- Cell parameters ID	Any value of Cell parameters ID	
- SCTD indicator	FALSE	
- Primary CCPCH TX power	Not present	
- Timeslot list	Not present	
- Cell for measurement	Not present	
- Inter-frequency measurement quantity		
- CHOICE reporting criteria	Inter-frequency reporting criteria	
- Filter Coefficient	4	
- CHOICE mode	TDD	
- Measurement quantity for frequency quality estimate	P-CCPCH RSCP	
- Inter-frequency reporting quantity		
- UTRAN Carrier RSSI	FALSE	
- Frequency quality estimate	FALSE	
- Non frequency related quantities		
- Cell synchronisation information reporting indicator	FALSE	
- Cell identity reporting indicator	FALSE	
- CHOICE mode	TDD	
- Timeslot ISCP reporting indicator	FALSE	
- Proposed TGSN reporting indicator	FALSE	
- Primary CCPCH RSCP reporting indicator	FALSE	
- Pathloss reporting indicator	FALSE	
- Measurement validity	CELL_DCH state	
- CHOICE report criteria	Inter-frequency measurement reporting criteria	
- Parameters required for each events		
- Inter-frequency event identity	2D	
- Threshold used frequency	-70 dBm	
- W used frequency	0	
- Hysteresis	2 (1 dB)	
- Time to trigger	5000 mSec	
- Reporting cell status	Not present	
- Inter-frequency event identity	2F	
- Threshold used frequency	-70 dBm	
- W used frequency	0	
- Hysteresis	2 (1 dB)	
- Time to trigger	5000 mSec	
- Reporting cell status	Not present	
DPCH compressed mode status info	Not present	

MEASUREMENT REPORT (Step 5) (FDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 10
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured results	Check to see if it is absent
Measured results on RACH	Check to see if it is absent
Additional measured results	Check to see if it is absent
Event results	Inter-frequency measurement event results,
- Inter-frequency event identity	2F

MEASUREMENT REPORT (Step 5)(TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 10
Measured results	Check to see if it is absent
Measured results on RACH	Check to see if it is absent
Additional measured results	Check to see if it is absent
Event results	
- CHOICE event results	Check to see if set to Inter-frequency measurement event results,
- Inter-frequency event identity	Check to see if set to 2F

MEASUREMENT REPORT (Step 7) (FDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 10
Measured results	Check to see if it is absent
Measured results on RACH	Check to see if it is absent
Additional measured results	Check to see if it is absent
Event results	Inter-frequency measurement event results,
- Inter-frequency event identity	2D

MEASUREMENT REPORT (Step 7)(TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 10
Measured results	Check to see if it is absent
Measured results on RACH	Check to see if it is absent
Additional measured results	Check to see if it is absent
Event results	
- CHOICE event results	Check to see if set to Inter-frequency measurement event results,
- Inter-frequency event identity	Check to see if set to 2D

8.4.1.26.5 Test Requirement

1. In step 5 the UE shall send MEASUREMENT REPORT message indicating event 2F.
2. In step 7 the UE shall send MEASUREMENT REPORT message indicating event 2D.

8.4.1.27 Measurement Control and Report: UE internal measurement for events 6A and 6B

3GPP TS 34.123-1 version 10.3.1 Release 10

8.4.1.27.1 Definition

8.4.1.27.2 Conformance requirement

When event 6A is ordered by UTRAN in a measurement control message, the UE shall send a measurement report when the UE transmission power (for TDD within a single TS) becomes larger than a predefined threshold. The corresponding report identifies the threshold that was exceeded.

When event 6B is ordered by UTRAN in a measurement control message, the UE shall send a measurement report when the UE transmission power (for TDD within a single TS) becomes less than a predefined threshold. The corresponding report identifies the threshold that the UE Tx power went below.

Reference

3GPP TS 25.331, clauses 14.6.2.1 and 14.6.2.2.

8.4.1.27.3 Test Purpose

1. To confirm that the UE performs UE internal measurements and reporting for events 6A and 6B, when requested by the UTRAN to do so in the MEASUREMENT CONTROL message.

8.4.1.27.4 Method of test

Initial Condition

System Simulator: 1 cell, cell 1.

UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Test Procedure

The UE is in CELL_DCH state in cell 1, after successfully executing procedures P11 or P13 as specified in clause 7.4 of TS 34.108. Next, SS transmits MEASUREMENT CONTROL message to request the UE to perform UE internal measurements and reporting for events 6A and 6B.

SS increases the UE Tx power above the threshold set to event 6A. After 'time to trigger' UE sends MEASUREMENT REPORT, triggered by event 6A, to SS.

SS decreases the UE Tx power below the threshold set to event 6B. After 'time to trigger' UE sends MEASUREMENT REPORT, triggered by event 6B, to SS. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1				UE is initially in CELL_DCH state in cell 1.
2	←		MEASUREMENT CONTROL	SS requests for measurement and reporting of events 6A and 6B.
3				SS sets the UE transmission power above 18 dBm.
4	→		MEASUREMENT REPORT	UE shall send 6A event measurement report.
5				SS sets the UE transmission power below 15 dBm.
6	→		MEASUREMENT REPORT	UE shall send 6B event measurement report.
7	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

MEASUREMENT CONTROL (Step 2) (FDD)

Information Element	Value/remark
Measurement Identity	5
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger Reporting
Additional measurements list	Not Present
CHOICE measurement type	UE internal measurement
- UE internal measurement	
- UE internal measurement quantity	Present
-CHOICE *mode*	FDD
-UE internal measurement quantity	UE Transmitted Power
-Filter coefficient	0
- UE internal reporting quantity	Present
- UE Transmitted Power	TRUE
- CHOICE *mode*	FDD
- UE Rx-Tx time difference	FALSE
- CHOICE *report criteria*	UE internal measurement reporting criteria
- Parameters sent for each UE internal measurement event	
-UE internal event identity	6A
-Time-to-trigger	100 milliseconds
-UE Transmitted Power Tx power threshold	18 dBm
-UE internal event identity	6B
-Time-to-trigger	100 milliseconds
-UE Transmitted Power Tx power threshold	15 dBm
DPCH compressed mode status info	Not Present

MEASUREMENT CONTROL (Step 2)(1.28 Mcps TDD)

Information Element	Value/remark
Measurement Identity	5
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	UE internal measurement
- UE internal measurement quantity	
-CHOICE *mode*	TDD
- measurement quantity	UE Transmitted Power
-Filter coefficient	0
- UE internal reporting quantity	
- UE Transmitted Power	TRUE
- CHOICE *mode*	TDD
- CHOICE TDD option	1.28 Mcps TDD
- T_{ADV} info	FALSE
- CHOICE *report criteria*	UE internal measurement reporting criteria
- Parameters sent for each UE internal measurement event	
-UE internal event identity	6A
-Time-to-trigger	100 milliseconds
-UE Transmitted Power Tx power threshold	18 dBm
-UE internal event identity	6B
-Time-to-trigger	100 milliseconds
-UE Transmitted Power Tx power threshold	15 dBm
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 4) (FDD)

Information Element	**Value/remark**
Measurement identity	Check to see if set to 5
Measured Results	
- CHOICE measurement	Check to see if set to "UE Internal measured results"
- UE internal measured results	
-CHOICE *mode*	Check to see if set to "FDD"
UE Transmitted Power	Check to see if present and value is reasonable
Measured Results on RACH	Check to see if this IE is absent
Event results	
-CHOICE *event result*	Check to see if set to "UE internal measurement event results"
-UE internal event identity	Check to see if set to "6A"
-CHOICE *mode*	Check to see if set to "FDD"
-Primary CPICH info	Check to see if this IE is absent

MEASUREMENT REPORT (Step 4)(1.28Mcps TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 5
Measured Results	
- CHOICE measurement	Check to see if set to "UE Internal measured results"
-CHOICE *mode*	Check to see if set to "TDD"
UE Transmitted Power	Check to see if present and value is reasonable
Measured Results on RACH	Check to see if this IE is absent
Event results	
-CHOICE *event result*	Check to see if set to "UE internal measurement event results"
-UE internal event identity	Check to see if set to "6A"

MEASUREMENT REPORT (Step 6) (FDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 5
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "UE Internal measured results"
- UE internal measured results	
-CHOICE *mode*	Check to see if set to "FDD"
UE Transmitted Power	Check to see if present and value is reasonable
Measured Results on RACH	Check to see if this IE is absent
Event results	
-CHOICE *event result*	Check to see if set to "UE internal measurement event results"
-UE internal event identity	Check to see if set to "6B"
-CHOICE *mode*	Check to see if set to "FDD"
-Primary CPICH info	Check to see if this IE is absent

MEASUREMENT REPORT (Step 6)(1.28 Mcps TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 5
Measured Results	
- CHOICE measurement	Check to see if set to "UE Internal measured results"
-CHOICE *mode*	Check to see if set to "TDD"
- UE Transmitted Power	Check to see if present and value is reasonable
Measured Results on RACH	Check to see if this IE is absent
Event results	
-CHOICE *event result*	Check to see if set to "UE internal measurement event results"
-UE internal event identity	Check to see if set to "6B"

8.4.1.27.5 Test Requirement

After step 3, the UE shall transmit MEASUREMENT REPORT message, containing measured results for UE transmitted power. The 'Event results' IE contains event identity 6A.

After step 5, the UE shall transmit MEASUREMENT REPORT message, containing measured results for UE transmitted power. The 'Event results' IE contains event identity 6B.

8.4.1.28 Measurement Control and Report: UE internal measurement for events 6F (FDD) and 6G

8.4.1.28.1 Definition

8.4.1.28.2 Conformance requirement

When event 6F is ordered by UTRAN in a MEASUREMENT CONTROL message, the UE shall send a MEASUREMENT REPORT message when the UE Rx-Tx time difference becomes larger than the threshold defined by the IE "UE Rx-Tx time difference threshold".

When event 6G is ordered by UTRAN in a MEASUREMENT CONTROL message, the UE shall send a MEASUREMENT REPORT when the UE Rx-Tx time difference becomes less than the threshold defined by the IE "UE Rx-Tx time difference threshold".

Reference

3GPP TS 25.331, clauses 14.6.2.6 and 14.6.2.7.

8.4.1.28.3 Test Purpose

1. To confirm that the UE performs UE internal measurements and reporting for events 6F and 6G, when requested by the UTRAN to do so in the MEASUREMENT CONTROL message.

3GPP TS 34.123-1 version 10.3.1 Release 10

8.4.1.28.4 Method of test

Initial Condition

System Simulator: 2 cells – The initial configuration of the cells in the SS shall follow the values indicated in table 6.1.2 of TS 34.108.

UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Test Procedure

Table 8.4.1.28 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while columns marked "T1" and "T2" are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 8.4.1.28

Parameter	Unit	Cell 1			Cell 2		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			Mid Range Test Frequency		
CPICH Ec (FDD)	dBm/3.84MHz	-60	-60	-60	-75	-60	-70

The UE is in CELL_DCH state in cell 1, after successfully executing procedures P11 or P13 as specified in clause 7.4 of TS 34.108.

SS configures its downlink transmission power settings according to columns "T1" in table 8.4.128. UE shall be triggered to transmit a MEASUREMENT REPORT message, which includes the primary scrambling code for cell 2.

After the MEASUREMENT REPORT message is received, SS then performs an active set update procedure by sending ACTIVE SET UPDATE REQUEST message on the downlink DCCH. Cell 2 is to be added to the active set, according to the content of this downlink message. The UE shall reply with an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH, and include cell 2 to the active set when the activation time specified has elapsed. SS then configures its downlink transmission power settings according to columns "T2" in table 8.4.1.28.. SS sets the initial timing of cell 2 to be the timing of cell 1 - 5 chips.

Next, SS transmits MEASUREMENT CONTROL message to request the UE to perform UE internal measurements and reporting for events 6F and 6G.

SS adjusts the Tx timing of cell 2 above the threshold set to event 6F. After 'time to trigger' UE sends MEASUREMENT REPORT, triggered by event 6F, to SS.

SS adjusts the Tx timing of cell 2 below the threshold set to event 6G. After 'time to trigger' UE sends MEASUREMENT REPORT, triggered by event 6G, to SS. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1				UE is initially in CELL_DCH state in cell 1.
1a				SS configures its downlink transmission power settings according to columns "T1" in table 8.4.1.28.
1b	→		MEASUREMENT REPORT	See specific message contents for this message.
2	←		ACTIVE SET UPDATE	SS asks UE to add cell 2 into the active set.
3	→		ACTIVE SET UPDATE COMPLETE	
3a				SS configures its downlink transmission power settings according to columns "T2" in table 8.4.1.28
4	←		MEASUREMENT CONTROL	SS requests for measurement and reporting of events 6F and 6G.
5				SS switches the Tx timing of Cell 2, with respect to Cell 1 to a delay of – 19 chips.
6	→		MEASUREMENT REPORT	UE shall send 6F event measurement report.
7				SS switches the Tx timing of Cell 2 with respect to Cell 1 to a delay of 19 chips.
8	→		MEASUREMENT REPORT	UE shall send 6G event measurement report.
9	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

3GPP TS 34.123-1 version 10.3.1 Release 10

MEASUREMENT REPORT (Step 1b)

Information Element	Value/remark
Message Type	
Integrity check info - Message authentication code - RRC Message sequence number	 This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I. This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results - Intra-frequency measured results - Cell measured results - Cell Identity - Cell synchronisation information - Primary CPICH info - Primary scrambling code - CPICH Ec/N0 - CPICH RSCP - Pathloss - Cell measured results - Cell Identity - Cell synchronisation information - Primary CPICH info - Primary scrambling code - CPICH Ec/N0 - CPICH RSCP - Pathloss	 Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important) Checked that this IE is absent Checked that this IE is absent Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108 Checked that this IE is absent Checked that this IE is present Checked that this IE is absent Checked that this IE is absent Checked that this IE is present and includes IE COUNT-C-SFN frame difference Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108 Checked that this IE is absent Checked that this IE is present Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results - Intra-frequency measurement event results - Intra-frequency event identity - Cell measurement event results - Primary CPICH info - Primary scrambling code	 1a Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 2)

The contents of ACTIVE SET UPDATE message for this test step is identical to the same message found in Annex A with the following exceptions:

Information Element	Value/remark	Version
RRC transaction identifier	0	
Activation Time	[256+Current CFN-[current CFN mod 8 + 8]]MOD 256	

3GPP TS 34.123-1 version 10.3.1 Release 10

Radio link addition information		
- Primary CPICH Info		
- Primary Scrambling Code	Set to same code as assigned for cell 2	
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	P-CPICH can be used.	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not Present	
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE	
- Secondary scrambling code	1	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code Number	For each DPCH, assign the same code number in the current code given in cell 1.	
- Scrambling code change	Not Present	
- TPC Combination Index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Close loop timing adjustment mode	Not Present	
- TFCI Combining Indicator	FALSE	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only
Radio link removal information	Not Present	

ACTIVE SET UPDATE COMPLETE (Step 3)

Information Element	Value/remark
RRC transaction identifier	Check to see if it is set to 0

MEASUREMENT CONTROL (Step 4)

Information Element	Value/remark
Measurement Identity	5
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger Reporting
Additional measurements list	Not Present
CHOICE measurement type	UE internal measurement
- UE internal measurement	
-UE Internal measurement quantity	Present
- CHOICE *mode*	FDD
- Measurement quantity	UE Rx-Tx time difference
- Filter coefficient	0
- UE internal reporting quantity	Present
- UE Transmitted Power	FALSE
- CHOICE *mode*	FDD
- UE Rx-Tx time difference	TRUE
- CHOICE *report criteria*	UE internal measurement reporting criteria
- Parameters sent for each UE internal measurement event	
-UE internal event identity	6F
-Time-to-trigger	0 milliseconds
-UE Rx-Tx time difference threshold	1037
-UE internal event identity	6G
-Time-to-trigger	0 milliseconds
-UE Rx-Tx time difference threshold	1011
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 6)

Information Element	Value/remark
Measurement identity	Check to see if set to 5
Measured Results	
- CHOICE measurement	Check to see if set to "UE Internal measured results"
- UE internal measured results	
-CHOICE *mode*	Check to see if set to "FDD"
UE Rx-Tx report entries	
- Primary CPICH info	
-Primary scrambling code	Check to see if set to codes assigned for cell 1 & cell 2. UE may report the measured results for the cells in any order.
-UE Rx-Tx time difference type 1	Check to see if present and value is reasonable
Measured Results on RACH	Check to see if this IE is absent
Event results	
-CHOICE *event result*	Check to see if set to "UE internal measurement event results"
-UE internal event identity	Check to see if set to "6F"
-CHOICE *mode*	Check to see if set to "FDD"
-Primary CPICH info	
-Primary scrambling code	Check to see if set to code assigned for cell 2.

MEASUREMENT REPORT (Step 8)

Information Element	Value/remark
Measurement identity	Check to see if set to 5
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "UE Internal measured results"
- UE internal measured results	
-CHOICE *mode*	Check to see if set to "FDD"
UE Rx-Tx report entries	
- Primary CPICH info	
-Primary scrambling code	Check to see if set to codes assigned for cell 1 & cell 2. UE may report the measured results for the cells in any order.
-UE Rx-Tx time difference type 1	Check to see if present and value is reasonable
Measured Results on RACH	Check to see if this IE is absent
Event results	
-CHOICE *event result*	Check to see if set to "UE internal measurement event results"
-UE internal event identity	Check to see if set to "6G"
-CHOICE *mode*	Check to see if set to "FDD"
-Primary CPICH info	
-Primary scrambling code	Check to see if set to code assigned for cell 2

8.4.1.28.5 Test Requirement

After step 5, the UE shall transmit MEASUREMENT REPORT message, containing measured results for UE Rx-Tx time difference. The 'Event results' IE contains event identity 6F.

After step 7, the UE shall transmit MEASUREMENT REPORT message, containing measured results for UE Rx-Tx time difference. The 'Event results' IE contains event identity 6G.

8.4.1.28a Measurement Control and Report: UE internal measurement for event 6F (1.28 Mcps TDD)

8.4.1.28a.1 Definition

8.4.1.28a.2 Conformance requirement

When event 6F is ordered by UTRAN in a MEASUREMENT CONTROL message, the UE shall send a MEASUREMENT REPORT message when the absolute value of the difference between the measured T_{ADV} and the T_{ADV} stored in the variable TRIGGERED_6F_EVENT becomes larger than the threshold defined by the IE " T_{ADV} Threshold ".

Reference

3GPP TS 25.331, clauses 14.6.2.6a

8.4.1.28a.3 Test Purpose

1. To confirm that the UE performs UE internal measurements and reporting for event 6F, when requested by the UTRAN to do so in the MEASUREMENT CONTROL message.

8.4.1.28a.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

3GPP TS 34.123-1 version 10.3.1 Release 10

Test Procedure

The UE is in CELL_DCH state.

SS transmits MEASUREMENT CONTROL message to request the UE to perform UE internal measurements and reporting for event 6F.

SS adjusts the Tx timing of cell 1 until the time difference indicated by T_{ADV} becomes above the threshold set to event 6F. After 'time to trigger' UE sends MEASUREMENT REPORT, triggered by event 6F, to SS.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1				UE is initially in CELL_DCH state in cell 1.
2	←		MEASUREMENT CONTROL	SS requests for measurement and reporting of event 6F.
3				SS adjusts the Tx timing of cell 1 until the time difference indicated by T_{ADV} becomes above a certain threshold.
4	→		MEASUREMENT REPORT	UE shall send 6F event measurement report.
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

3GPP TS 34.123-1 version 10.3.1 Release 10

MEASUREMENT CONTROL (Step 2)

Information Element	Value/remark
Measurement Identity	5
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	UE internal measurement
-UE Internal measurement quantity	
- CHOICE *mode*	TDD
- Measurement quantity	T_{ADV}
- Filter coefficient	0
- UE internal reporting quantity	
- UE Transmitted Power	FALSE
- CHOICE *mode*	TDD
- CHOICE TDD option	1.28 Mcps TDD
- T_{ADV} info	TRUE
- CHOICE *report criteria*	UE internal measurement reporting criteria
- Parameters sent for each UE internal measurement event	
-UE internal event identity	6F
-Time-to-trigger	0
- T_{ADV} threshold	60
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 4)

Information Element	Value/remark
Measurement identity	Check to see if set to 5
Measured Results	
- CHOICE measurement	Check to see if set to "UE Internal measured results"
-CHOICE *mode*	Check to see if set to "TDD"
- CHOICE TDD option	Check to see if set to “1.28 Mcps TDD”
- T_{ADV}	Check to see if present and value is reasonable
Measured Results on RACH	Check to see if this IE is absent
Event results	
-CHOICE *event result*	Check to see if set to "UE internal measurement event results"
-UE internal event identity	Check to see if set to "6F"

8.4.1.28a.5 Test Requirement

After step 3, the UE shall transmit MEASUREMENT REPORT message, containing measured results for T_{ADV}. The 'Event results' IE contains event identity 6F.

8.4.1.29 Measurement Control and Report: Event based Traffic Volume measurement in CELL_FACH state.

8.4.1.29.1 Definition

8.4.1.29.2 Conformance requirement

Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in TS 25.331 subclause 8.6 unless otherwise specified below.

The UE shall:

1> read the IE "Measurement command";

1> if the IE "Measurement command" has the value "setup":

2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

2> for measurement types "inter-RAT measurement" or "inter-frequency measurement":

…

2> for measurement type "UE positioning measurement":

…

2> for any other measurement type:

3> if the measurement is valid in the current RRC state of the UE:

4> begin measurements according to the stored control information for this measurement identity.

…

For traffic volume measurements in the UE only one quantity is compared with the thresholds. This quantity is Transport Channel Traffic Volume (which equals the sum of Buffer Occupancies of RBs multiplexed onto a transport channel) in number of bytes. Every TTI, UE measures the Transport Channel Traffic Volume for each transport channel and compares it with the configured thresholds. If the monitored Transport Channel Traffic Volume exceeds an absolute threshold, i.e. if TCTV>Reporting threshold, this is an event (event 4a) that could trigger a report. The corresponding report specifies at least which measurement ID the event that triggered the report belongs to.

In CELL_FACH state, the UE shall:

1> transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT_IDENTITY are met for any ongoing traffic volume measurement or UE positioning measurement that is being performed in the UE;

1> include a measurement report in the IE "Measured results on RACH", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in System Information Block type 12 (or "System Information Block Type 11" if "System Information Block Type 12" is not being broadcast);

1> include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported.

Reference

3GPP TS 25.331, clause 14.4.2.1, 3GPP TS 25.331, clause 8.4.1.3, 8.4.2.2.

8.4.1.29.3 Test Purpose

1. To verify that in CELL_FACH state when event 4a triggered at TVM set up UE sends Measurement Report with correct measurement identity and indication of UL transport channel type, radio bearer identities and corresponding RLC buffer payloads in number of bytes.

2 To verify that in CELL_FACH state when event 4a triggered after TVM set up UE sends Measurement Report with correct measurement identity and indication of UL transport channel type, radio bearer identities and corresponding RLC buffer payloads in number of bytes.

3. To confirm that the UE sends MEASUREMENT REPORT message, with measurement report in IE "Measurement results on RACH" as specified in System Information Block type 12.

8.4.1.29.4 Method of test

3GPP TS 34.123-1 version 10.3.1 Release 10

Initial Condition

System Simulator: 1 cell

UE: Idle state (State 3 or State 7) as specified in clause 7.4 of TS 34.108.

System Information Block type 11 or 12 does not include Traffic Volume measurement system information.

Test Procedure

The UE is brought to the CELL_FACH state after a successful incoming call attempt. The SS follows the procedure in TS 34.108 clause 7.1.3 (Mobile Terminated), to set up a user RAB, but with the default RAB replaced by the one described in 34.108, clause 6.10.2.4.3.2(for FDD) , clause 6.10.3.4.4.2(for 3.84 Mcps TDD), clause 6.11.5.4.4.2(for 1.28 Mcps TDD) or clause 6.11.6.4.4.2(for 7.68 Mcps TDD): Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH for DL and 6.10.2.4.4.1: Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH (for FDD), 6.10.2.4.4.1: Interactive/Background 12.8 kbps PS RAB + SRB for CCCH + SRB for DCCH (for 3.84 Mcps TDD), clause 6.11.5.4.5.2 Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRBs for DCCH for UL(for 1.28Mcps TDD) or 6.11.6.4.4.1: Interactive/Background 12.8 kbps PS RAB + SRB for CCCH + SRB for DCCH (for 7.68 Mcps TDD) for DL. The radio bearer is placed into UE test loop mode 1 described in 34.109 clause 5.3. The System Information Block type 12 is modified compared to the default settings so that CPICH RSCP (for FDD) or P-CCPCH RSCP (for TDD) is reported for intra-frequency reporting when transmitting RACH messages. After this modification, SS configures transport channel traffic volume so as to exceed threshold and then sends to UE MEASUREMENT CONTROL message, which includes traffic volume measurement control parameters e.g. uplink transport channel type and reporting threshold. Transport channel traffic volume exceeds threshold and after 'time to trigger' UE sends MEASUREMENT REPORT to SS. SS does not respond and after 'pending time after trigger' UE sends the same MEASUREMENT REPORT again. SS configures UE's transport channel load decreases to zero and UE sends no MEASUREMENT REPORT message. SS configures transport channel traffic volume so as to exceed threshold again and after 'time to trigger' UE sends MEASUREMENT REPORT message to SS. After 'pending time after trigger' UE sends again same MEASUREMENT REPORT message. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1	←		PAGING TYPE1	The SS transmits the message, which includes a allocated identity (P-TMSI).
1a	→		RRC CONNECTION REQUEST	
1b	←		RRC CONNECTION SETUP	
1c	→		RRC CONNECTION SETUP COMPLETE	
1d	→		SERVICE REQUEST	
1e	←		AUTHENTICATION AND CIPHERING REQUEST	
1f	→		AUTHENTICATION AND CIPHERING RESPONSE	
1g	←		SECURITY MODE COMMAND	
1h	→		SECURITY MODE COMPLETE	
1i	←		ACTIVATE RB TEST MODE	TC
1j	→		ACTIVATE RB TEST MODE COMPLETE	
1k	←		RADIO BEARER SETUP	RRC RAB SETUP See specific message contents for this message
1l	→		RADIO BEARER SETUP COMPLETE	
1m	←		CLOSED UE TEST LOOP	TC UE Test Loop Mode1
1n	→		CLOSED UE TEST LOOP COMPLETE	TC
1o	←		MASTER INFORMATION BLOCK, SCHEDULING BLOCK 1, SYSTEM INFORMATION BLOCK TYPE 12	System Information Block type 12 is different from the default settings (see specific message contents)
1p	←		SYSTEM INFORMATION CHANGE INDICATION	To notify the modification of SYSTEM INFORMATION BLOCK TYPE 12, this message Is transmitted.
1q				SS configures transport channel traffic volume so as to exceed threshold.
2	←		MEASUREMENT CONTROL	SS provides Traffic Volume measurement criteria to UE.
3	→		MEASUREMENT REPORT	UE reports that Traffic Volume measurement event 4A is triggered.
4	→		MEASUREMENT REPORT	UE repeats message after 1100 ms.
4a				SS configures UE's transport channel load decreases to zero
4b				SS receive no MEASUREMENT REPORT message.
4c				SS configures transport channel traffic volume so as to exceed threshold
4d	→		MEASUREMENT REPORT	UE reports that Traffic Volume measurement event 4A is triggered.
4e	→		MEASUREMENT REPORT	UE repeats message after 1100 ms.
5	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Content

3GPP TS 34.123-1 version 10.3.1 Release 10

PAGING TYPE 1 (Step 1)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
CHOICE Used paging identity	CN identity
- Paging cause	Terminating Call with one of the supported services
- CN domain identity	PS Domain
- CHOICE UE Identity	P-TMSI
- p-TMSI	Allocated identity during the attach procedure.
BCCH modification info	Not Present

RRC CONNECTION REQUEST (Step 1a)

Information Element	Value/remark
Message type	
Initial UE identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Check to see if it is set to the same value as "Paging Cause" IE in the PAGING TYPE 1 message transmitted on step 1
Protocol Error Indicator	Check to see if it is set to FALSE
Measured results on RACH	Not checked.

System Information Block type 12 (Step 1o) (FDD)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

3GPP TS 34.123-1 version 10.3.1 Release 10

Information Element	Value/remark
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	5
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not present
- Read SFN Indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 2
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and re-selection info for SIB12	
- $Qoffset1_{s,n}$	0dB
- $Qoffset2_{s,n}$	Not present
- Maximum allowed UL Tx Power	Reference to table 6.1.1
- HCS neighbouring cell information	Not Present
- CHOICE mode	FDD
- Qqualmin	Reference to table 6.1.1
- Qrxlevmin	Reference to table 6.1.1
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not present
- Read SFN Indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 3
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and re-selection info for SIB12	
- $Qoffset1_{s,n}$	0dB
- $Qoffset2_{s,n}$	Not present
- Maximum allowed UL Tx Power	Reference to table 6.1.1
- HCS neighbouring cell information	Not Present
- CHOICE mode	FDD
- Qqualmin	Reference to table 6.1.1
- Qrxlevmin	Reference to table 6.1.1
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not present
- Read SFN Indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 4
- Primary CPICH TX power	Not present
- TX Diversity Indicator	FALSE
- Cell selection and re-selection info for SIB12	
- $Qoffset1_{s,n}$	0dB
- $Qoffset2_{s,n}$	Not present
- Maximum allowed UL Tx Power	Reference to table 6.1.1
- HCS neighbouring cell information	Not Present
- CHOICE mode	FDD

Information Element	Value/remark
- Qqualmin	Reference to table 6.1.1
- Qrxlevmin	Reference to table 6.1.1
- Intra-frequency cell id	4
3GPP TS 34.123-1 version 10.3.1 Release 10	
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not present
- Read SFN Indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 5
- Primary CPICH TX power	Not present
- TX Diversity Indicator	FALSE
- Cell selection and re-selection info for SIB12	
- $Qoffset1_{s,n}$	0dB
- $Qoffset2_{s,n}$	Not present
- Maximum allowed UL Tx Power	Reference to table 6.1.1
- HCS neighbouring cell information	Not Present
- CHOICE mode	FDD
- Qqualmin	Reference to table 6.1.1
- Qrxlevmin	Reference to table 6.1.1
- Intra-frequency Measurement quantity	
- Filter Coefficient	Not Present
- Measurement quantity	CPICH RSCP
- Intra-frequency measurement for RACH reporting	
- SFN-SFN observed time difference	No report
- Reporting quantity	CPICH RSCP
- Maximum number of reported cells on RACH	Current cell
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	TRUE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not present
- Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1a
- Triggering condition 1	Not Present
- Triggering condition 2	Monitored set cells
- Reporting Range Constant	29 (14.5 dB)
- Cells forbidden to affect reporting range	Not Present
- W	0.0
- Hysteresis	2 (1 dB)
- Threshold used frequency	Not Present
- Reporting deactivation threshold	0
- Replacement activation threshold	Not Present
- Time to trigger	60 ms
- Amount of reporting	Infinity
- Reporting interval	16 seconds
- Reporting Cell Status	
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency

Information Element	Value/remark
- Maximum number of reported cells	2
- Inter-frequency measurement system information	Not Present
- Traffic volume measurement system information	Not Present

System Information Block type 12 (Step 1o) (1.28 Mcps TDD)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

3GPP TS 34.123-1 version 10.3.1 Release 10

Information Element	Value/remark
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	5
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	
- CHOICE TDD option	1.28 Mcps TDD
- Cell parameters ID	Set to same Cell parameters ID as used for cell 1
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Cell selection and Re-selection info	Not present
- Intra-frequency Measurement quantity	
- Filter Coefficient	Not Present
- CHOICE mode	TDD
- Measurement quantity	P-CCPCH RSCP
- Intra-frequency measurement for RACH reporting	
- SFN-SFN observed time difference	No report
- CHOICE mode	TDD
- Reporting quantity	P-CCPCH RSCP
- Maximum number of reported cells on RACH	Current cell
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not present
- Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1g
- Triggering condition 1	Not Present
- Triggering condition 2	Not Present
- Reporting Range Constant	Not Present
- Cells forbidden to affect reporting range	Not Present
- W	Not Present

Information Element	Value/remark
- Hysteresis	2 (1.0 dB)
- Threshold used frequency	Not Present
- Reporting deactivation threshold	Not Present
3GPP TS 34.123-1 version 10.3.1 Release 10	
- Replacement activation threshold	Not Present
- Time to trigger	60 ms
- Amount of reporting	Infinity
- Reporting interval	16 seconds
- Reporting Cell Status	
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within virtual active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Inter-frequency measurement system information	Not Present
- Traffic volume measurement system information	Not Present

System Information Block type 12 (Step 1o) (3.84 Mcps TDD)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

3GPP TS 34.123-1 version 10.3.1 Release 10

Information Element	Value/remark
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	5
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	
- CHOICE TDD option	3.84 Mcps TDD
- Cell parameters ID	Set to same Cell parameters ID as used for cell 1
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Cell selection and Re-selection info	Not present
- Intra-frequency Measurement quantity	
- Filter Coefficient	Not Present
- CHOICE mode	TDD
- Measurement quantity	P-CCPCH RSCP
- Intra-frequency measurement for RACH reporting	
- SFN-SFN observed time difference	No report
- CHOICE mode	TDD
- Reporting quantity	P-CCPCH RSCP
- Maximum number of reported cells on RACH	Current cell
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not present
- Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1g
- Triggering condition 1	Not Present
- Triggering condition 2	Not Present
- Reporting Range Constant	Not Present
- Cells forbidden to affect reporting range	Not Present
- W	Not Present

Information Element	Value/remark
- Hysteresis	2 (1.0 dB)
- Threshold used frequency	Not Present
- Reporting deactivation threshold	Not Present
3GPP TS 34.123-1 version 10.3.1 Release 10	
- Replacement activation threshold	Not Present
- Time to trigger	60 ms
- Amount of reporting	Infinity
- Reporting interval	16 seconds
- Reporting Cell Status	
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within virtual active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Inter-frequency measurement system information	Not Present
- Traffic volume measurement system information	Not Present

System Information Block type 12 (Step 1o) (7.68 Mcps TDD)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

3GPP TS 34.123-1 version 10.3.1 Release 10

Information Element	Value/remark
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	5
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	
- CHOICE TDD option	7.68 Mcps TDD
- Cell parameters ID	Set to same Cell parameters ID as used for cell 1
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Cell selection and Re-selection info	Not present
- Intra-frequency Measurement quantity	
- Filter Coefficient	Not Present
- CHOICE mode	TDD
- Measurement quantity	P-CCPCH RSCP
- Intra-frequency measurement for RACH reporting	
- SFN-SFN observed time difference	No report
- CHOICE mode	TDD
- Reporting quantity	P-CCPCH RSCP
- Maximum number of reported cells on RACH	Current cell
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not present
- Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1g
- Triggering condition 1	Not Present
- Triggering condition 2	Not Present
- Reporting Range Constant	Not Present
- Cells forbidden to affect reporting range	Not Present
- W	Not Present

Information Element	Value/remark
- Hysteresis	2 (1.0 dB)
- Threshold used frequency	Not Present
- Reporting deactivation threshold	Not Present

3GPP TS 34.123-1 version 10.3.1 Release 10

- Replacement activation threshold	Not Present
- Time to trigger	60 ms
- Amount of reporting	Infinity
- Reporting interval	16 seconds
- Reporting Cell Status	
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within virtual active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Inter-frequency measurement system information	Not Present
- Traffic volume measurement system information	Not Present

MASTER INFORMATION BLOCK (Step 1o)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/remark
MIB Value tag	A valid MIB value tag as defined in TS 25.331 that is different from the previous value
SB 1 Cell Value tag	Set to (Current SB 1 value tag + 1)

SCHEDULING BLOCK 1 (Step 1o)

Information Element	**Value/remark**
SIB 12 Cell Value tag	Set to (Current SIB 12 value tag + 1)

SYSTEM INFORMATION CHANGE INDICATION (Step 1p)

Information Element	Value/remark
Message Type	
BCCH modification info	
MIB Value Tag	A valid MIB value tag as defined in TS 25.331 that is different from the previous value
BCCH Modification time	Not Present

MEASUREMENT CONTROL (Step 2)

Information Element	Value/remark
Measurement Identity	15
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Traffic volume measurement
- Traffic volume measurement object	
- Uplink transport channel type	RACH
- Traffic volume measurement quantity	
- Measurement quantity	RLC buffer payload
- Traffic volume reporting quantity	
- RLC Buffer Payload for each RB	TRUE
- Average of RLC Buffer Payload for each RB	FALSE
- Variance of RLC Buffer Payload for each RB	FALSE
- Measurement validity	
- UE state	All states except CELL_DCH
CHOICE report criteria	Traffic volume measurement reporting criteria
- Parameters sent for each transport channel	
- Parameters required for each event	
- Traffic volume event identity	4a
- Reporting threshold	8
- Time to trigger	100
- Pending time after trigger	1000
- Tx interruption after trigger	250

MEASUREMENT REPORT (Step 3, step 4, step 4d and step 4e) (FDD)

The order in which the RBs are reported is not checked.

Information Element	Value/remark
Measurement identity	Check to see if set to 15
Measured Results	

- CHOICE measurement	Check to see if set to "Traffic volume measured results list"
- Traffic volume measurement results	
- RB Identity	1
- RLC Buffers Payload	Check to see if this IE is present
- Average of RLC Buffer Payload	Check to see if this IE is absent
- Variance of RLC Buffer Payload	Check to see if this IE is absent
- RB Identity	2
- RLC Buffers Payload	Check to see if this IE is present
- Average of RLC Buffer Payload	Check to see if this IE is absent
- Variance of RLC Buffer Payload	Check to see if this IE is absent
- RB Identity	3
- RLC Buffers Payload	Check to see if this IE is present
- Average of RLC Buffer Payload	Check to see if this IE is absent
- Variance of RLC Buffer Payload	Check to see if this IE is absent
- RB Identity	4
- RLC Buffers Payload	Check to see if this IE is present
- Average of RLC Buffer Payload	Check to see if this IE is absent
- Variance of RLC Buffer Payload	Check to see if this IE is absent
- RB Identity	20
- RLC Buffers Payload	Check to see if the value is above the threshold
- Average of RLC Buffer Payload	Check to see if this IE is absent
- Variance of RLC Buffer Payload	Check to see if this IE is absent
Measured Results on RACH	
- Measurement result for current cell	Check to see if set to 'CPICH RSCP'
- CHOICE measurement quantity	
- CPICH RSCP	Checked to see if this IE is present and within the acceptable range
Additional Measured results	Not checked
Event Results	
- Uplink transport channel type causing the event	Check to see if set to "RACH"
- UL transport channel identity	Check that this IE is absent
- Traffic volume event identity	Check to see if set to "4a"

MEASUREMENT REPORT (Step 3, step 4, step 4d and step 4e) (TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 15
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Traffic volume measured results list"
- Traffic volume measurement results	
- RB Identity	1
- RLC Buffers Payload	Check to see if this IE is present
- Average of RLC Buffer Payload	Check to see if this IE is absent
- Variance of RLC Buffer Payload	Check to see if this IE is absent
- RB Identity	2
- RLC Buffers Payload	Check to see if this IE is present
- Average of RLC Buffer Payload	Check to see if this IE is absent
- Variance of RLC Buffer Payload	Check to see if this IE is absent
- RB Identity	3
- RLC Buffers Payload	Check to see if this IE is present
- Average of RLC Buffer Payload	Check to see if this IE is absent
- Variance of RLC Buffer Payload	Check to see if this IE is absent
- RB Identity	4
- RLC Buffers Payload	Check to see if this IE is present
- Average of RLC Buffer Payload	Check to see if this IE is absent
- Variance of RLC Buffer Payload	Check to see if this IE is absent
- RB Identity	20
- RLC Buffers Payload	Check to see if the value is above the threshold
- Average of RLC Buffer Payload	Check to see if this IE is absent
- Variance of RLC Buffer Payload	Check to see if this IE is absent
Measured Results on RACH	
- Measurement result for current cell	
- CHOICE mode	Check to see if set to'TDD'
- Primary CCPCH RSCP	Checked to see if this IE is present and the value is within an acceptable range
- Measurement results for monitored cells	
- CHOICE mode	Check to see if set to'TDD'
- Primary CCPCH RSCP	Checked to see if this IE is absent
Additional Measured results	Not checked
Event Results	
CHOICE event result	Check to see if set to'Traffic volume measurement event results'
- Uplink transport channel type causing the event	Check to see if set to "RACH"
- UL transport channel identity	Check to see that is not set
- Traffic volume event identity	Check to see if set to "4a"

8.4.1.29.5 Test Requirement

In step 3 UE sends MEASUREMENT REPORT with correct measurement identity indication. RB identity and RLC buffers payload has reasonable values. The IE "measured results on RACH", containing the measurement value for cell 1's CPICH RSCP (for FDD) or P-CCPCH RSCP (for TDD) shall be included in this message.

In step 4, 4d and 4e UE repeats message sent in step 3.

After step 3 UE is not allowed to send user data during the 'Tx interruption after trigger' timer is running.

8.4.1.30 Measurement Control and Report: Event based Traffic Volume measurement in CELL_DCH state.

3GPP TS 34.123-1 version 10.3.1 Release 10

8.4.1.30.1 Definition

8.4.1.30.2 Conformance requirement

Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in TS 25.331 subclause 8.6 unless otherwise specified below.

The UE shall:

1> read the IE "Measurement command";

1> if the IE "Measurement command" has the value "setup":

2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

2> for measurement types "inter-RAT measurement" or "inter-frequency measurement":

…

2> for measurement type "UE positioning measurement":

…

2> for any other measurement type:

3> if the measurement is valid in the current RRC state of the UE:

4> begin measurements according to the stored control information for this measurement identity.

…

For traffic volume measurements in the UE only one quantity is compared with the thresholds. This quantity is Transport Channel Traffic Volume (which equals the sum of Buffer Occupancies of RBs multiplexed onto a transport channel) in number of bytes. Every TTI, UE measures the Transport Channel Traffic Volume for each transport channel and compares it with the configured thresholds.

If the monitored Transport Channel Traffic Volume exceeds an absolute threshold, i.e. if TCTF>Reporting threshold, this is an event (event 4a) that could trigger a report. The corresponding report specifies at least which measurement ID the event that triggered the report belongs to.

If the monitored Transport Channel Traffic Volume becomes smaller than an absolute threshold, i.e. if TCTF<Reporting threshold, this is an event (4b) that could trigger a report. The corresponding report specifies at least which measurement ID the event that triggered the report belongs to.

Reference

3GPP TS 25.331, clause 14.4.2.2, 3GPP TS 25.331, clause 8.4.1.3.

8.4.1.30.3 Test Purpose

1. To verify that in CELL_DCH state when event 4a or 4b triggered at setup TVM UE sends RRC: Measurement Report with correct measurement identity and indication of uplink transport channel type and identity, radio bearer identities and corresponding RLC buffer payloads in number of bytes.
2. To verify that in CELL_DCH state when event 4a or 4b triggered after setup TVM UE sends RRC: Measurement Report with correct measurement identity and indication of uplink transport channel type and identity, radio bearer identities and corresponding RLC buffer payloads in number of bytes.

8.4.1.30.4 Method of test

3GPP TS 34.123-1 version 10.3.1 Release 10

Initial Condition

System Simulator: 1 cell

UE: Idle state (State 3 or State 7) as specified in clause 7.4 of TS 34.108.

System Information Block type 11 nor 12 does not include Traffic Volume measurement system information.

Test Procedure

The UE is brought to the CELL_DCH state after a successful incoming call attempt. The SS follows the procedure in TS 34.108 clause 7.1.3 (Mobile Terminated), to set up a user RAB, but with the default RAB replaced by the one described in 34.108, clause 6.10.2.4.1.26: Interactive or background / UL: 64 DL: 64 kbps / PS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH. The SS limits the UE allowed Uplink transport format combinations according to the ‘Restricted UL TFCIs’, using the RRC Transport Format Combination control procedure. The radio bearer is placed into UE test loop mode 1 described in TS 34.109 clause 5.3. SS configures UE's transport channel traffic volume to exceeds threshold. SS sends to UE RRC: MEASUREMENT CONTROL messages, which includes in addition to measurement identity traffic volume measurement control parameters e.g. uplink transport channel type and identity and reporting threshold for events 4a, and after 'time to trigger' UE sends RRC: MEASUREMENT REPORT message to SS. SS does not respond and after 'pending time after trigger' UE sends again same RRC: MEASUREMENT REPORT message. SS configures UE's transport channel load decreases to zero and sends UE RRC: MEASUREMENT CONTROL messages, which includes in addition to measurement identity traffic volume measurement control parameters e.g. uplink transport channel type and identity and reporting threshold for event 4b. Event 4b triggers and after 'time to trigger' UE sends RRC: MEASUREMENT REPORT message to SS. SS does not respond and after 'pending time after trigger' UE sends again same RRC: MEASUREMENT REPORT message. SS increases transport channel traffic volume to exceeds threshold. Event 4a is triggered and after 'time to trigger' UE sends RRC: MEASUREMENT REPORT message to SS. SS decreases transport channel traffic volume to zero. Event 4b is triggered and after 'time to trigger' UE sends RRC: MEASUREMENT REPORT message to SS. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1	←		PAGING TYPE1	The SS transmits the message, which includes a allocated identity (P-TMSI).
1a	→		RRC CONNECTION REQUEST	
1b	←		RRC CONNECTION SETUP	
1c	→		RRC CONNECTION SETUP COMPLETE	
1d	→		SERVICE REQUEST	
1e	←		AUTHENTICATION AND CIPHERING REQUEST	
1f	→		AUTHENTICATION AND CIPHERING RESPONSE	
1g	←		SECURITY MODE COMMAND	
1h	→		SECURITY MODE COMPLETE	
1i	←		ACTIVATE RB TEST MODE	TC
1j	→		ACTIVATE RB TEST MODE COMPLETE	
1k	←		RADIO BEARER SETUP	RRC RAB SETUP See specific message contents for this message
1l	→		RADIO BEARER SETUP COMPLETE	
1la	←		TRANSPORT FORMAT COMBINATION CONTROL (DCCH)	The SS transmits the message, to setup the needed traffic for the test purpose.
1m	←		CLOSED UE TEST LOOP	TC UE Test Loop Mode1
1n	→		CLOSED UE TEST LOOP COMPLETE	TC
1o				SS configures transport channel traffic volume so as to exceed threshold
2	←		MEASUREMENT CONTROL	SS provides Traffic Volume measurement criteria (event 4a) to UE.
3			Void	
4	→		MEASUREMENT REPORT	UE's transport channel is loaded. UE reports that Traffic Volume measurement event 4A is triggered.
5	→		MEASUREMENT REPORT	UE repeats message after 2100 ms.
5a				UE's transport channel traffic volume decreases to zero.
5b	←		MEASUREMENT CONTROL	SS provides Traffic Volume measurement criteria (event 4b) to UE.
6	→		MEASUREMENT REPORT	UE reports that Traffic Volume measurement event 4B is triggered.
7	→		MEASUREMENT REPORT	UE repeats message after 2100 ms.
7a				SS increases transport channel traffic volume so as to exceed threshold
7b	→		MEASUREMENT REPORT	IE "Measurement Identity" is set to "15".
7c				UE's transport channel traffic volume decreases to zero.
7d	→		MEASUREMENT REPORT	IE "Measurement Identity" is set to "14".
8	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

3GPP TS 34.123-1 version 10.3.1 Release 10

PAGING TYPE 1 (Step 1)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
CHOICE Used paging identity	CN identity
- Paging cause	Terminating Call with one of the supported services
- CN domain identity	PS Domain
- CHOICE UE Identity	p-TMSI
- p-TMSI	Allocated identity during the attach procedure
BCCH modification info	Not Present

RRC CONNECTION REQUEST (Step 1a)

Information Element	Value/remark
Message type	
Initial UE identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Check to see if it is set to the same value as "Paging Cause" IE in the PAGING TYPE 1 message transmitted on step 1
Protocol Error Indicator	Check to see if it is set to FALSE
Measured results on RACH	Not checked.

TRANSPORT FORMAT COMBINATION CONTROL (Step 1 la)

Information Element	**Value/remark**
TrCH information elements	
-DPCH/PUSCH TFCS uplink in uplink	
- Allowed TFI	0,1,5,6

MEASUREMENT CONTROL (Step 2)

Information Element	Value/remark
Measurement Identity	15
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	
- Traffic volume measurement objects	
- Uplink transport channel type	DCH
- UL target transport channel ID	1
- Traffic volume measurement quantity	
- Measurement quantity	RLC buffer payload
- Traffic volume reporting quantity	
- RLC Buffer Payload for each RB	TRUE
- Average of RLC Buffer Payload for each RB	FALSE
- Variance of RLC Buffer Payload for each RB	FALSE
- Measurement validity	
- UE state	CELL_DCH
- Traffic volume measurement reporting criteria	
- Uplink transport channel type	Not present
- UL Transport Channel ID	Not present
- Traffic volume event identity	4a
- Reporting threshold	256
- Time to trigger	100
- Pending time after trigger	2000
- Tx interruption after trigger	Not present

MEASUREMENT CONTROL (Step 5b)

Information Element	Value/remark
Measurement Identity	14
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	
- Traffic volume measurement objects	
- Uplink transport channel type	DCH
- UL target transport channel ID	1
- Traffic volume measurement quantity	
- Measurement quantity	RLC buffer payload
- Traffic volume reporting quantity	
- RLC Buffer Payload for each RB	TRUE
- Average of RLC Buffer Payload for each RB	FALSE
- Variance of RLC Buffer Payload for each RB	FALSE
- Measurement validity	
- UE state	CELL_DCH
- Traffic volume measurement reporting criteria	
- Uplink transport channel type	Not present
- UL Transport Channel ID	Not present
- Traffic volume event identity	4b
- Reporting threshold	32
- Time to trigger	100
- Pending time after trigger	2000
- Tx interruption after trigger	Not present

MEASUREMENT REPORT (Step 4, step 5 and step 7b)

Information Element	Value/remark
Measurement identity	Check to see if set to 15
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Traffic volume measured results list"
- Traffic volume measurement results	
- RB Identity	20
- RLC Buffers Payload	Check to see if the value is above the threshold
- Average of RLC Buffer Payload	Check to see if this IE is absent
- Variance of RLC Buffer Payload	Check to see if this IE is absent
Measured Results on RACH	Not checked
Additional Measured results	Not checked
Event Results	
- Uplink transport channel type causing the event	Check to see if set to "DCH"
- UL transport channel identity	Check to see if set to "1"
- Traffic volume event identity	Check to see if set to "4a"

MEASUREMENT REPORT (Step 6, step 7 and 7d)

Information Element	Value/remark
Measurement identity	Check to see if set to 14
Measured Results	
- CHOICE measurement	Check to see if set to "Traffic volume measured results list"
- Traffic volume measurement results	
- RB identity	Check that value is 20
- RLC buffers payload	Check that value is below the threshold
Measured Results on RACH	Not checked
Additional Measured results	Not checked
Event Results	
- Uplink transport channel type causing the event	Check to see if set to "DCH"
- UL transport channel identity	Check to see if set to "1"
- Traffic volume event identity	Check to see if set to "4b"

8.4.1.30.5 Test Requirement

In steps 4, 5, 6, 7, 7b and 7d UE sends RRC: MEASUREMENT REPORT with correct measurement identity indication. RB identity and RLC buffers payload has correct values. Measurement identity, transport channel type, transport channel identity and event identity has to match with set values.

8.4.1.31 Measurement Control and Report: Inter-RAT measurement in CELL_DCH state.

8.4.1.31.1 Definition

8.4.1.31.2 Conformance requirement

A UE supporting both FDD (or TDD) and GSM shall be able to perform the GSM RSSI measurement and the GSM Initial BSIC identification measurement.

If, according to its capabilities, the UE requires compressed mode to perform GSM RSSI measurements, the UE shall perform GSM RSSI measurements in the gaps of a compressed mode pattern sequence specified for GSM RSSI measurement purpose.

If, according to its capabilities, the UE requires compressed mode to perform GSM Initial BSIC identification measurements, the UE shall perform GSM Initial BSIC identification in a compressed mode pattern sequence specified for Initial BSIC identification measurement purpose.

3GPP TS 34.123-1 version 10.3.1 Release 10 Reference

3GPP TS 25.133, clause 8.1.2.5; 3GPP TS 25.331, clauses 8.6.7.6, 14.3.2.

8.4.1.31.3 Test Purpose

Purpose of this test is to verify that UE is capable to perform GSM RSSI and GSM Initial BSIC identification measurements.

8.4.1.31.4 Method of test

Initial Condition

System Simulator: 1 UTRAN FDD cell (or TDD cell) and 2 GSM cells.

Parameter	Unit	Cell 1 (GSM)	Cell 2 (GSM)
Test Channel	#	1	2
RF Signal Level	dBm	-70	-85
BCCH ARFCN	#	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
CELL identity	#	0	1
BSIC	#	BSIC1	BSIC2

UE: CELL_DCH state, state 6-9 as specified in clause 7.4 of TS 34.108.

System Information Block type 11 nor 12 does not include Inter-RAT measurement system information.

Related ICS/IXIT statements

- Compressed mode required yes/no
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-PCS, GSM-850.

Test Procedure

The UE is brought to the CELL_DCH state after a successful outgoing call attempt. If the UE requires compressed mode (refer ICS/IXIT), the SS sends a PHYSICAL CHANNEL RECONFIGURATION message to the UE to configure the compressed mode pattern sequence parameters. Two compressed mode patterns are configured, according to the message specified below. When the PHYSICAL CHANNEL RECONFIGURATION COMPLETE is received from the UE, the SS sends a MEASUREMENT CONTROL message.

The first RRC: MEASUREMENT CONTROL message is used to provide measurement control parameters (GSM RSSI) to the UE and to start compressed mode for the measurement if required according to the UE capabilities. The UE replies according to request by sending RRC: MEASUREMENT REPORT messages periodically to SS. Reporting period is 4000 ms.

After two RRC: MEASUREMENT REPORT messages, the SS sends a second RRC: MEASUREMENT CONTROL message to start GSM Initial BSIC identification measurement. The UE replies similarly as in GSM RSSI measurement case but now with a period of 12000ms.

The SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1				The UE is brought to the CELL_DCH state in the cell 1. If the UE does not require compressed mode (refer ICS/IXIT), then goto step 4.
2	←		PHYSICAL CHANNEL RECONFIGURATION	Compressed mode pattern sequence parameters are loaded to UE.
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
4	←		MEASUREMENT CONTROL	SS provides GSM RSSI measurement control parameters to UE. If the UE requires compressed mode (refer ICS/IXIT), compressed mode for GSM RSSI measurement is started.
5	→		MEASUREMENT REPORT	UE reports measurement results of GSM RSSI measurement to SS.
6	→		MEASUREMENT REPORT	Next periodical measurement report.
7	←		MEASUREMENT CONTROL	SS provides GSM Initial BSIC identification measurement control parameters to UE. If the UE requires compressed mode (refer ICS/IXIT),compressed mode for GSM Initial BSIC identification measurement is started.
8	→		MEASUREMENT REPORT	UE reports measurement results of GSM Initial BSIC identification measurement to SS.
9	→		MEASUREMENT REPORT	Next periodical measurement report.
10	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

3GPP TS 34.123-1 version 10.3.1 Release 10

PHYSICAL CHANNEL RECONFIGURATION (Step 2)

Use the same message sub-type as in TS 34.108 titled "Speech in CS", with Scrambling code change set to Default1 and with the following exceptions:

Information Element	Value/remark	Version
Downlink information common for all radio links		
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
- Transmission gap pattern sequence configuration parameters		
- TGMP	GSM Carrier RSSI Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not present	
- TGD	undefined	
- TGPL1	12	
- TGPL2	Not present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2	
- Downlink frame type	A	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not Present	
- DeltaSIR2After2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
- TGPSI	2	
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
- Transmission gap pattern sequence configuration parameters		
- TGMP	GSM Initial BSIC identification	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not present	
- TGD	undefined	
- TGPL1	8	
- TGPL2	Not present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2	
- Downlink frame type	A	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not Present	
- DeltaSIR2After2	Not Present	
- N identify abort	128	
- T Reconfirm abort	Not Present	
Downlink information per radio link list		

- Choice mode - Primary CPICH info - Primary scrambling code	FDD Ref. to the Default setting in clause 6.1 (FDD)	

3GPP TS 34.123-1 version 10.3.1 Release 10

- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only
- PDSCH code mapping	Not Present	R99 and Rel-4 only
- Serving HS-DSCH radio link indicator	FALSE	Rel-5
- Serving E-DCH radio link indicator	FALSE	Rel-6
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value : Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	5	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	0	
- Scrambling code change	Set to value Default1: No code change (if the UE has a compressed mode pattern sequence configured in variable TGPS_IDENTITY or included in the message including IE "Downlink DPCH info for each RL", which is using compressed mode method "SF/2")	
- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	Rel-6
- E-HICH Information	Not Present	Rel-6
- E-RGCH Information	Not Present	Rel-6
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

MEASUREMENT CONTROL (Step 4)(FDD)

Information Element	Value/remark
Measurement Identity	15
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Periodical reporting
Additional measurements list	Not Present
CHOICE measurement type	
- inter-RAT measurement	
- inter-RAT measurement object list	
CHOICE Inter-RAT Cell Removal	Remove no inter-RAT cells
- New inter-RAT cells	
- inter-RAT cell id	0
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC1
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- inter-RAT cell id	1
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC2
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- Cell for measurement	Not present
- inter-RAT measurement quantity	
- Measurement quantity for UTRAN quality estimate	Not present
CHOICE system	GSM
- Measurement quantity	GSM carrier RSSI
- Filter coefficient	0
- BSIC verification required	not required
- inter-RAT reporting quantity	
UTRAN estimated quality	FALSE
CHOICE system	GSM
- Observed time difference to GSM cell reporting indicator	FALSE
- GSM carrier RSSI reporting indicator	TRUE
- Reporting cell status	
CHOICE reported cell	
- Reported cells within active set or within virtual active set or of the other RAT	
- Maximum number of reported cells	6
CHOICE report criteria	
- Periodical reporting criteria	
- Amount of reporting	infinity
- Reporting interval	4000
Physical channel information elements	
- DPCH compressed mode status info	If the UE requires compressed mode (refer ICS/IXIT), this IE is present and contains the IEs as follows. If the UE does not require compressed mode (refer ICS/IXIT), this IE is not present.
- TGPS reconfiguration CFN	(Current CFN + (256 – TTI/10msec))mod 256
- Transmission gap pattern sequence	
- TGPSI	1
- TGPS status flag	Activate
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256

MEASUREMENT CONTROL (Step 4)(TDD)

Information Element	Value/remark
Measurement Identity	15
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Periodical reporting
Additional measurements list	Not Present
CHOICE measurement type	
- inter-RAT measurement	
- inter-RAT measurement object list	
CHOICE Inter-RAT Cell Removal	Remove no inter-RAT cells
- New inter-RAT cells	
- inter-RAT cell id	0
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC1
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- inter-RAT cell id	1
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC2
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- Cell for measurement	Not present
- inter-RAT measurement quantity	
- Measurement quantity for UTRAN quality estimate	Not present
CHOICE system	GSM
- Measurement quantity	GSM carrier RSSI
- Filter coefficient	0
- BSIC verification required	not required
- inter-RAT reporting quantity	
UTRAN estimated quality	FALSE
CHOICE system	GSM
- Observed time difference to GSM cell reporting indicator	FALSE
- GSM carrier RSSI reporting indicator	TRUE
- Reporting cell status	
CHOICE reported cell	
- Reported cells within active set or within virtual active set or of the other RAT	
- Maximum number of reported cells	6
CHOICE report criteria	
- Periodical reporting criteria	
- Amount of reporting	infinity
- Reporting interval	4000

MEASUREMENT REPORT, if the UE requires compressed mode (refer ICS/IXIT) (Step 5 and step 6)

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 15	
3GPP TS 34.123-1 version 10.3.1 Release 10		
Measured Results		
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"	
- Inter-RAT measured result list		
- CHOICE system	GSM	
- Measured GSM cells		
- GSM carrier RSSI	Check to see if present	
CHOICE BSIC	Check to see if present	
- Observed time difference to GSM cell	Check that not present	R99 and Rel-4 only
- GSM carrier RSSI	Check to see if present	
CHOICE BSIC	Check to see if present	
- Observed time difference to GSM cell	Check that not present	R99 and Rel-4 only
Measured results on RACH	Check that not present	
Additional Measured results	Check that not present	
Event results	Check that not present	

MEASUREMENT REPORT, if the UE doesn't requires compressed mode (refer ICS/IXIT) (Step 5 and step 6)

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 15	
Measured Results		
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"	
- Inter-RAT measured result list		
- CHOICE system	GSM	
- Measured GSM cells		
- GSM carrier RSSI	Check to see if present	
CHOICE BSIC	verified BSIC	
- Inter-RAT cell id	Check that is set to "0"	
- Observed time difference to GSM cell	Check that not present	R99 and Rel-4 only
- GSM carrier RSSI	Check to see if present	
CHOICE BSIC	verified BSIC	
- Inter-RAT cell id	Check that is set to "1"	
- Observed time difference to GSM cell	Check that not present	R99 and Rel-4 only
Measured results on RACH	Check that not present	
Additional Measured results	Check that not present	
Event results	Check that not present	

MEASUREMENT REPORT (1.28Mcps TDD) (Step 5 and step 6)

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 15	
3GPP TS 34.123-1 version 10.3.1 Release 10		
Measured Results	Check that not present	
Measured results on RACH	Check that not present	
Additional Measured results	Check that not present	
Non Critical Extensions		
- Additional Measured results - LCR		
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"	
- Inter-RAT measured result list		
- CHOICE system	GSM	
- Measured GSM cells		
- GSM carrier RSSI	Check to see if present	
CHOICE BSIC	Check to see if present	
- Observed time difference to GSM cell	Check that not present	R99 and Rel-4 only
- GSM carrier RSSI	Check to see if present	
CHOICE BSIC	Check to see if present	
- Observed time difference to GSM cell	Check that not present	R99 and Rel-4 only
Event results	Check that not present	

MEASUREMENT CONTROL (Step 7)

Information Element	Value/remark
Measurement Identity	15
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Modify
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Periodical reporting
Additional measurements list	Not Present
CHOICE measurement type	
- inter-RAT measurement	
- inter-RAT measurement object list	Not present
- inter-RAT measurement quantity	
- Measurement quantity for UTRAN quality estimate	Not present
CHOICE system	GSM
- Measurement quantity	GSM carrier RSSI
- Filter coefficient	0
- BSIC verification required	required
- inter-RAT reporting quantity	
UTRAN estimated quality	FALSE
CHOICE system	GSM
- Observed time difference to GSM cell reporting indicator	FALSE
- GSM carrier RSSI reporting indicator	TRUE
- Reporting cell status	
CHOICE reported cell	
- Reported cells within active set or within virtual active set or of the other RAT	
- Maximum number of reported cells	6
CHOICE report criteria	
- Periodical reporting criteria	
- Amount of reporting	infinity
- Reporting interval	12000
Physical channel information elements	
- DPCH compressed mode status info	If the UE requires compressed mode (refer ICS/IXIT), this IE is present and contains the IEs as follows. If the UE does not require compressed mode (refer ICS/IXIT), this IE is not present.
- TGPS reconfiguration CFN	(Current CFN + (256 – TTI/10msec))mod 256
- Transmission gap pattern sequence	
- TGPSI	1
- TGPS status flag	Deactivate
- TGCFN	Not present
- TGPSI	2
- TGPS status flag	Activate
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256

MEASUREMENT REPORT, if the UE requires compressed mode (refer ICS/IXIT) (Step 8)

3GPP TS 34.123-1 version 10.3.1 Release 10

EITHER

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 15	
Measured Results		
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"	
- Inter-RAT measured result list		
- CHOICE system	GSM	
- Measured GSM cells		
- GSM carrier RSSI	Not checked	
CHOICE BSIC	Verified BSIC	
- Inter-RAT cell id	Check that is set to "0"	
- Observed time difference to GSM cell	Check that not present	R99 and Rel-4 only
Measured results on RACH	Check that not present	
Additional Measured results	Check that not present	
Event results	Check that not present	

OR

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 15	
Measured Results		
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"	
- Inter-RAT measured result list		
- CHOICE system	GSM	
- Measured GSM cells		
- GSM carrier RSSI	Not checked	
CHOICE BSIC	Verified BSIC	
- Inter-RAT cell id	Check that is set to "0" or “1”	
- Observed time difference to GSM cell	Check that not present	R99 and Rel-4 only
- GSM carrier RSSI	Not checked	
CHOICE BSIC	Verified BSIC	
- Inter-RAT cell id	Check that is set to "1" or “0” (the cell id shall be different from the first reported cell id)	
- Observed time difference to GSM cell	Check that not present	R99 and Rel-4 only
Measured results on RACH	Check that not present	
Additional Measured results	Check that not present	
Event results	Check that not present	

MEASUREMENT REPORT, if the UE does not require compressed mode (refer ICS/IXIT) (Step 8)

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 15	
3GPP TS 34.123-1 version 10.3.1 Release 10		
Measured Results		
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"	
- Inter-RAT measured result list		
- CHOICE system	GSM	
- Measured GSM cells		
- GSM carrier RSSI	Check to see if present	
CHOICE BSIC	Verified BSIC	
- Inter-RAT cell id	Check that is set to "0"	
- Observed time difference to GSM cell	Check that not present	R99 and Rel-4 only
- GSM carrier RSSI	Check to see if present	
CHOICE BSIC	Verified BSIC	
- Inter-RAT cell id	Check that is set to "1"	
- Observed time difference to GSM cell	Check that not present	R99 and Rel-4 only
Measured results on RACH	Check that not present	
Additional Measured results	Check that not present	
Event results	Check that not present	

MEASUREMENT REPORT (Step 8) (1.28 Mcps TDD)

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 15	
Measured Results	Check that not present	
Measured results on RACH	Check that not present	
Additional Measured results	Check that not present	
Non Critical Extensions		
- Additional Measured results - LCR		
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"	
- Inter-RAT measured result list		
- CHOICE system	GSM	
- Measured GSM cells		
- GSM carrier RSSI	Check to see if present	
CHOICE BSIC	Verified BSIC	
- Inter-RAT cell id	Check that is set to "0"	
- Observed time difference to GSM cell	Check that not present	R99 and Rel-4 only
- GSM carrier RSSI	Check to see if present	
CHOICE BSIC	Verified BSIC	
- Inter-RAT cell id	Check that is set to "1"	
- Observed time difference to GSM cell	Check that not present	R99 and Rel-4 only
Event results	Check that not present	

MEASUREMENT REPORT (Step 9)

Either:

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 15	
Measured Results		

3GPP TS 34.123-1 version 10.3.1 Release 10

- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"	
- Inter-RAT measured result list		
- CHOICE system	GSM	
- Measured GSM cells		
- GSM carrier RSSI	Not checked	
CHOICE BSIC	Verified BSIC	
- Inter-RAT cell id	Check that is set to "0" or “1”	
- Observed time difference to GSM cell	Check that not present	R99 and Rel-4 only
- GSM carrier RSSI	Not checked	
CHOICE BSIC	Verified BSIC	
- Inter-RAT cell id	Check that is set to "1" or “0” (the cell id shall be different from the first reported cell id)	
- Observed time difference to GSM cell	Check that not present	R99 and Rel-4 only
Measured results on RACH	Check that not present	
Additional Measured results	Check that not present	
Event results	Check that not present	

Or:

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 15	
Measured Results	Check that not present	
Measured results on RACH	Check that not present	
Additional Measured results	Check that not present	
Event results	Check that not present	

MEASUREMENT REPORT (Step 9) (1.28 Mcps TDD)

Either:

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 15	
Measured Results	Check that not present	
Measured results on RACH	Check that not present	
Additional Measured results	Check that not present	
Non Critical Extensions		
- Additional Measured results - LCR		
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"	
- Inter-RAT measured result list		
- CHOICE system	GSM	
- Measured GSM cells		
- GSM carrier RSSI	Not checked	
CHOICE BSIC	Verified BSIC	
- Inter-RAT cell id	Check that is set to "0" or “1”	
- Observed time difference to GSM cell	Check that not present	R99 and Rel-4 only
- GSM carrier RSSI	Not checked	
CHOICE BSIC	Verified BSIC	
- Inter-RAT cell id	Check that is set to "1" or “0” (the cell id shall be different from the first reported cell id)	
- Observed time difference to GSM cell	Check that not present	R99 and Rel-4 only
Event results	Check that not present	

Or:

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 15	
Measured Results	Check that not present	
Measured results on RACH	Check that not present	
3GPP TS 34.123-1 version 10.3.1 Release 10		
Additional Measured results	Check that not present	
Event results	Check that not present	

8.4.1.31.5 Test Requirement

In step 5 and step 6 UE reports correctly GSM RSSI values.

In step 8 UE reports correctly BSIC values.

In step 9 UE sends the next periodical report.

Reporting period is the requested one.

8.4.1.32 Void

8.4.1.33 Measurement Control and Report: Inter-RAT measurement, event 3a

8.4.1.33.1 Definition

8.4.1.33.2 Conformance requirement

1. When this event is ordered by UTRAN in a MEASUREMENT CONTROL message the UE shall send a report when the estimated quality of the currently used frequency is below the value of the IE "Threshold own system" and the hysteresis and time to trigger conditions are fulfilled and the estimated quality of the other system is above the value of the IE "Threshold other system" and the hysteresis and time to trigger conditions are fulfilled.
2. If the IE "DPCH Compressed Mode Status Info" is present, [in the MEASUREMENT CONTROL message]:
   - after the time indicated by IE "TGPS reconfiguration CFN" has elapsed:
     - activate the pattern sequence stored in the variable TGPS_IDENTITY corresponding to each IE "TGPSI" for which the "TGPS status flag" is set to "activate" at the time indicated by IE "TGCFN"; and
     - begin the inter-frequency and/or inter-RAT measurements corresponding to the pattern sequence measurement purpose of each activated pattern sequence;
     - if the values of IE "TGPS reconfiguration CFN" and IE "TGCFN" are equal:
       - start the concerned pattern sequence immediately at that CFN;
   - not alter pattern sequences stored in variable TGPS_IDENTITY, but not identified in IE "TGPSI"

Alternative 3 for R99 and Rel-4 only:

3. The UE shall perform GSM RSSI measurements in the gaps of compressed mode pattern sequence specified for GSM RSSI measurement purpose. The UE shall perform Initial BSIC identification in compressed mode pattern sequence specified for Initial BSIC identification measurement purpose. The UE shall be able to measure the

3GPP TS 34.123-1 version 10.3.1 Release 10

"Observed time difference to GSM cell" during a compressed mode pattern sequence configured for this purpose. The UE shall perform BSIC re-confirmation in compressed mode pattern sequence specified for BSIC re-confirmation measurement purpose.

Alternative 3a for Rel-5 onwards:

3a. The UE shall perform GSM RSSI measurements in the gaps of compressed mode pattern sequence specified for GSM RSSI measurement purpose. The UE shall perform Initial BSIC identification in compressed mode pattern sequence specified for Initial BSIC identification measurement purpose. The UE shall perform BSIC re-confirmation in compressed mode pattern sequence specified for BSIC re-confirmation measurement purpose.

4. If the IE "Inter-RAT measurement quantity" is received in a MEASUREMENT CONTROL message and CHOICE system is GSM, the UE shall:

   - if IE "BSIC verification required" is set to "required", for cells that match any of the BCCH ARFCN and BSIC combinations in the list of inter-RAT cells that the UE has received in IE "Inter-RAT cell info list", and that has a "verified" BSIC:

     - report measurement quantities according to IE "inter-RAT reporting quantity" taking into account the restrictions defined in TS 25.331 clause 8.6.7.6;

     - trigger inter-RAT events according to IE "inter-RAT measurement reporting criteria"; and

   - perform event evaluation for event-triggered reporting after BSIC has been verified for a GSM cell

   - indicate non-verified BSIC for a GSM cell in the "Inter-RAT measured results list" IE

5. The UE shall include measured results in MEASUREMENT REPORT as specified in the IE "Inter-RAT reporting quantity".

Alternative 6 for R99 and Rel-4 only:

6. If IE "Observed time difference to GSM cell Reporting indicator " is set to "TRUE" [, the UE shall]:

   include optional IE "Observed time difference to GSM cell" with the value set to the time difference to that GSM cell for the GSM cells that have a BSIC that is "verified", and that match any of the BCCH ARFCN and BSIC combinations in the list of inter-RAT cells that the UE has received in IE "Inter-RAT cell info list".

   - if IE "GSM Carrier RSSI" is set to "TRUE"[, the UE shall]:

     - include optional IE "GSM Carrier RSSI" with a value set to the measured RXLEV to that GSM cell in IE "Inter-RAT measured results list".

   - if the BSIC of reported GSM cell is "verified"[, the UE shall]:

     - set the CHOICE BSIC to "Verified BSIC" and IE "inter-RAT cell id" to the value that GSM cell had in the IE "Inter-RAT cell info list";

Alternative 6a for Rel-5 onwards:

6a. If

   - IE "GSM Carrier RSSI" is set to "TRUE"[, the UE shall]:

     - include optional IE "GSM Carrier RSSI" with a value set to the measured RXLEV to that GSM cell in IE "Inter-RAT measured results list".

   - if the BSIC of reported GSM cell is "verified"[, the UE shall]:

     - set the CHOICE BSIC to "Verified BSIC" and IE "inter-RAT cell id" to the value that GSM cell had in the IE "Inter-RAT cell info list";

7. If the IE "Reporting Cell Status" is received, the UE shall set the IE "Measured Results" in MEASUREMENT REPORT as follows.

   - the maximum number of the IE "Cell Measured Results" to be included in the IE "Measured Results" is the

3GPP TS 34.123-1 version 10.3.1 Release 10number specified in "Reporting Cell Status".

Reference

3GPP TS 25.331 clauses 8.4.1.3, 8.6.7.5, 8.6.7.6, 8.6.7.9, 14.3.1.1, 14.3.2.1, 14.3.2.2, 14.3.2.3.

8.4.1.33.3 Test Purpose

1. To confirm that the UE starts compressed mode and inter-RAT measurements when so required by the network in a MEASUREMENT CONTROL message.
2. To confirm that the UE sends MEASUREMENT REPORT message if event 3a is configured, if the quality of the currently used UTRAN frequency is below a given threshold and the estimated quality of the other system is above a certain threshold.
3. To confirm that the hysteresis and time to trigger behaviours for event 3a are correctly implemented.
4. To confirm that the UE verifies the BSIC of the cell triggering the event if so required by UTRAN and if the proper compressed mode patterns have been configured in the UE by UTRAN.
5. To confirm that the content of the MEASUREMENT REPORT sent by the UE is according to what was required by UTRAN.

NOTE: Test purpose 1 verifies conformance requirement 1 and 2.

NOTE: Test purpose 2 and 3 verifies conformance requirement 1.

NOTE: Test purpose 4 verifies conformance requirement 2, 3 and 4.

NOTE: Test purpose 5 verifies conformance requirement 4, 5, 6 and 7.

8.4.1.33.4 Method of test

Initial Condition

System simulator: 1 UTRAN FDD cell (or TDD cell) and 3 GSM cells. The initial configurations of the 3 cells in the SS shall follow the values indicated in the column marked T0. The table is found in "Test procedure". The UTRAN FDD cell shall use UARFCN according to the band under test except in the case of where FDD band VIII is tested and GSM900 is used for the Inter-RAT cells, then “High Range” test frequency for Band VIII is used instead, to avoid the test channels overlapping.

UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 (UTRA) as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Related ICS/IXIT statements

- Compressed mode required yes/no
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-PCS, GSM-850.

Test procedure

3GPP TS 34.123-1 version 10.3.1 Release 10

Table 8.4.1.33.4-1

Parameter	Unit	Cell 1 (GSM)					Cell 2 (GSM)					Cell 3 (GSM)				
		T0	T1	T2	T3	T4	T0	T1	T2	T3	T4	T0	T1	T2	T3	T4
Test Channel	#	GSM Ch.1					GSM Ch.2					GSM Ch.3				
BCCH ARFCN	#	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)					Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)					Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)				
CELL identity	#	0					1					2				
BSIC	#	BSIC 1					BSIC 2					BSIC 3				
RF Signal Level	dBm	-85	-85	-70	-76	-70	-85	-85	-85	-84	-84	-90	-90	-90	-90	-90

Table 8.4.1.33.4-2

Parameter	Unit	Cell 1 (UTRA)				
		T0	T1	T2	T3	T4
UTRA RF Channel Number		Mid Range Test Frequency				
CPICH Ec (FDD)	dBm/3.84Mhz	-60	-80	-80	-80	-60
P-CCPCH (TDD)	dBm	-60	-80	-80	-80	-60

The two tables above illustrate the downlink power to be applied for the two cells at various instants of the test execution. Column marked "T0" denotes the initial conditions, while columns marked "T1", "T2", "T3" and "T4" indicate the values to be applied subsequently.

The UE is initially in CELL_DCH state as specified in clause 7.4 of TS 34.108. UTRA cell 1 is the only cell in the active set of the UE. If the UE requires compressed mode (refer ICS/IXIT), the SS sends a PHYSICAL CHANNEL RECONFIGURATION message to the UE to configure the compressed mode pattern sequence parameters to the UE. Three compressed mode patterns are configured, according to the message specified below. When the PHYSICAL CHANNEL RECONFIGURATION COMPLETE is received from the UE, the SS sends a MEASUREMENT CONTROL message to the UE, to set up inter-RAT measurements. Event 3a is set up in this message, and if the UE requires compressed mode (refer ICS/IXIT), compressed mode is activated.

At instant T1, the CPICH Ec drops as described in table 8.4.1.33.4-2.

At instant T2, the RF signal for GSM cell 1 increases, and crosses the threshold for the other system defined for event 3a.

After reception of the MEASUREMENT REPORT message, at instant T3, the RF signal strength for GSM cell 2 increases but remains below the threshold for the other system for event 3a. During that time, the RF signal strength for GSM cell 1 decreases, but remains above the releasing condition for event 3a.

At instant T4, the RF signal strength for GSM cell 1 increases above the threshold for the other system for event 3a+hysteresis. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1				The UE is brought to the CELL_DCH state in the cell 1. If the UE does not require compressed mode (refer ICS/IXIT), then goto step 4.
2	←		PHYSICAL CHANNEL RECONFIGURATION	Compressed mode pattern sequence parameters are loaded to UE.
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
4	←		MEASUREMENT CONTROL	SS configures event 3a in the UE. If the UE requires compressed mode (refer ICS/IXIT), compressed mode is started.
5				SS re-adjusts the downlink transmission power settings according to columns "T1" in tables 8.4.1.33.4-1 and 8.4.1.33.4-2.
6				SS waits for approximately 10 seconds and verifies that no MEASUREMENT REPORT messages are detected on uplink DCCH.
7				SS re-adjusts the downlink transmission power settings according to columns "T2" in tables 8.4.1.33.4-1 and 8.4.1.33.4-2.
8	→		MEASUREMENT REPORT	After about 2s, the UE sends a MEASUREMENT REPORT to SS triggered by event 3a.
9				SS re-adjusts the downlink transmission power settings according to columns "T3" in tables 8.4.1.33.4-1 and 8.4.1.33.4-2.
10				SS waits for approximately 10 seconds and verifies that no MEASUREMENT REPORT messages are detected on uplink DCCH.
11				SS re-adjusts the downlink transmission power settings according to columns "T4" in tables 8.4.1.33.4-1 and 8.4.1.33.4-2.
12				SS waits for approximately 10 seconds and verifies that no MEASUREMENT REPORT messages are detected on uplink DCCH.
13	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

3GPP TS 34.123-1 version 10.3.1 Release 10

PHYSICAL CHANNEL RECONFIGURATION (Step 2)

Use the same message sub-type in clause 9 of TS 34.108 titled "Non speech in CS" or "Speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS, with Scrambling code change set to Default1 and with the following exceptions:

Information Element	Value/remark	Version
Downlink information common for all radio links		
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
- Transmission gap pattern sequence configuration parameters		
- TGMP	GSM Carrier RSSI Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not present	
- TGD	undefined	
- TGPL1	12	
- TGPL2	Not present	R99 and REL-4 only
- RPP	Mode 1	
- ITP	Mode 0	
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2	
- Downlink frame type	A	
- DeltaSIR1	10 (1.0)	
- DeltaSIRAfter1	5 (0.5)	
- DeltaSIR2	Not Present	
- DeltaSIR2After2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
- TGPSI	2	
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
- Transmission gap pattern sequence configuration parameters		
- TGMP	GSM BSIC identification	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not present	
- TGD	undefined	
- TGPL1	8	
- TGPL2	Not present	R99 and REL-4 only
- RPP	Mode 1	
- ITP	Mode 0	
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2	
- Downlink frame type	A	
- DeltaSIR1	10 (1.0)	
- DeltaSIRAfter1	5 (0.5)	
- DeltaSIR2	Not Present	
- DeltaSIR2After2	Not Present	
- N identify abort	66	
- T Reconfirm abort	Not Present	
- TGPSI	3	

- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
- Transmission gap pattern sequence configuration parameters		

3GPP TS 34.123-1 version 10.3.1 Release 10

- TGMP	GSM BSIC re-confirmation	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not present	
- TGD	undefined	
- TGPL1	8	
- TGPL2	Not present	R99 and REL-4 only
- RPP	Mode 1	
- ITP	Mode 0	
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2	
- Downlink frame type	A	
- DeltaSIR1	10 (1.0)	
- DeltaSIRAfter1	5 (0.5)	
- DeltaSIR2	Not Present	
- DeltaSIR2After2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	10 (5 s)	
Downlink information per radio link list		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only
- PDSCH code mapping	Not Present	R99 and Rel-4 only
- Serving HS-DSCH radio link indicator	FALSE	Rel-5
- Serving E-DCH radio link indicator	FALSE	Rel-6
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value : Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	5	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	0	
- Scrambling code change	Set to value Default1: No code change (if the UE has a compressed mode pattern sequence configured in variable TGPS_IDENTITY or included in the message including IE "Downlink DPCH info for each RL", which is using compressed mode method "SF/2")	
- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	Rel-6
- E-HICH Information	Not Present	Rel-6
- E-RGCH Information	Not Present	Rel-6
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

MEASUREMENT CONTROL (Step 4) (FDD)

Information Element	Value/remark
Measurement Identity	3
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event triggered
Additional measurements list	Not Present
CHOICE measurement type	
- inter-RAT measurement	
- inter-RAT measurement object list	
CHOICE Inter-RAT Cell Removal	Remove all inter-RAT cells
-Remove all inter-RAT cells	(No Data)
New inter-RAT cells (1 to <MaxCellMeas>)	
- inter-RAT cell id	0
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC1
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- inter-RAT cell id	1
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC2
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- inter-RAT cell id	2
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC3
- Band indicator	DCS 1800 band used
- BCCH ARFCN	39
- Cell for measurement	Not present
- inter-RAT measurement quantity	
- Measurement quantity for UTRAN quality estimate	
- Intra-frequency measurement quantity	
- Filter coefficient	0
- CHOICE mode	FDD
- Measurement quantity	CPICH RSCP
CHOICE system	GSM
- Measurement quantity	GSM carrier RSSI
- Filter coefficient	0
- BSIC verification required	required
- inter-RAT reporting quantity	
CHOICE system	GSM
- Observed time difference to GSM cell reporting indicator	FALSE
- GSM carrier RSSI reporting indicator	TRUE
CHOICE report criteria	
- Inter-RAT measurements reporting criteria	
- Parameters required for each event (1 to<maxMeasEvent>)	
- Inter-RAT event identity	3a
- Threshold own system	-66
- W	0
- Threshold other system	-80
- Hysteresis	5 (2.5 dB)
- Time to Trigger	640 ms

Information Element	Value/remark
- Reporting cell status	Report cells within active set or within virtual active set or of the other RAT
- Maximum number of reported cells	2 cells

3GPP TS 34.123-1 version 10.3.1 Release 10

Physical channel information elements	
- DPCH compressed mode status info	If the UE requires compressed mode (refer ICS/IXIT), this IE is present and contains the IEs as follows. If the UE does not require compressed mode (refer ICS/IXIT), this IE is not present.
- TGPS reconfiguration CFN	(Current CFN + (250 – TTI/10msec))mod 256
- Transmission gap pattern sequence (1 to <MaxTGPS>)	
- TGPSI	1
- TGPS status flag	Activate
- TGCFN	(Current CFN + (252 – TTI/10msec))mod 256
- TGPSI	2
- TGPS status flag	Activate
- TGCFN	(Current CFN + (254 – TTI/10msec))mod 256
- TGPSI	3
- TGPS status flag	Activate
- TGCFN	(Current CFN + (250 – TTI/10msec))mod 256

MEASUREMENT CONTROL (Step 4) (TDD)

Information Element	Value/remark
Measurement Identity	3
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event triggered
Additional measurements list	Not Present
CHOICE measurement type	
- inter-RAT measurement	
- inter-RAT measurement object list	
CHOICE Inter-RAT Cell Removal	Remove all inter-RAT cells
-Remove all inter-RAT cells	(No Data)
New inter-RAT cells (1 to <MaxCellMeas>)	
- inter-RAT cell id	0
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC1
- Band indicator	DCS 1800 band used
- BCCH ARFCN	1
- inter-RAT cell id	1
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC2
- Band indicator	DCS 1800 band used
- BCCH ARFCN	7
- inter-RAT cell id	2
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC3
- Band indicator	DCS 1800 band used
- BCCH ARFCN	39
- Cell for measurement	Not present
- inter-RAT measurement quantity	
- Measurement quantity for UTRAN quality estimate	
- Intra-frequency measurement quantity	
- Filter coefficient	0
- CHOICE mode	TDD
- Measurement quantity	CCPCH RSCP
CHOICE system	GSM
- Measurement quantity	GSM carrier RSSI
- Filter coefficient	0
- BSIC verification required	required
- inter-RAT reporting quantity	
CHOICE system	GSM
- Observed time difference to GSM cell reporting indicator	FALSE
- GSM carrier RSSI reporting indicator	TRUE
CHOICE report criteria	
- Inter-RAT measurements reporting criteria	
- Parameters required for each event (1 to<maxMeasEvent>)	
- Inter-RAT event identity	3a
- Threshold own system	-66
- W	0
- Threshold other system	-80
- Hysteresis	5 (2.5 dB)
- Time to Trigger	640 ms
- Reporting cell status	Report cells within active set or within virtual active set or of the other RAT
- Maximum number of reported cells	2 cells
Physical channel information elements	

3GPP TS 34.123-1 version 10.3.1 Release 10

MEASUREMENT REPORT (Step 8)

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 3	
Measured Results		
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"	
- Inter-RAT measured result list		
- CHOICE system	GSM	
- Measured GSM cells	Check that measurement results for two GSM cells are included	
- GSM carrier RSSI	Check that measurement result is reasonable. RXLEV is mapped to a value between 0 and 63. The RSSI bits are numbered b0 to b5, where b0 is the least significant bit. When mapping the RXLEV value to the RSSI bit string, the first/ leftmost bit of the bit string contains the most significant bit.	
CHOICE BSIC	Check it is set to verified BSIC	
- inter-RAT cell id	Check that it is set to 0.	
- Observed time difference to GSM cell	Check that not present	R99 and Rel-4 only
- GSM carrier RSSI	Check that measurement result is reasonable	
CHOICE BSIC	Verified BSIC	
- inter-RAT cell id	Check that is set to 1	
- Observed time difference to GSM cell	Check that not present	R99 and Rel-4 only
Measured results on RACH	Check that not present	
Additional Measured results	Check that not present	
Event results	Check that the IE is included	
- CHOICE event result	Check that this is set to inter-RAT measurement event results	
- Inter-RAT event identity	Check that this is set to 3a	
- Cells to report (1 to <maxCellMeas>)	Check that <maxCellMeas> is set to 1	
- CHOICE BSIC	Check that this is set to verified BSIC	
- Inter-RAT cell id	Check that this is set to 0.	

MEASUREMENT REPORT (Step 8) (1.28 Mcps TDD)

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 3	
3GPP TS 34.123-1 version 10.3.1 Release 10		
Measured Results	Check that not present	
Measured results on RACH	Check that not present	
Additional Measured results	Check that not present	
Non Critical Extensions		
- Additional Measured results - LCR		
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"	
- Inter-RAT measured result list		
- CHOICE system	GSM	
- Measured GSM cells	Check that measurement results for two GSM cells are included	
- GSM carrier RSSI	Check that measurement result is reasonable. RXLEV is mapped to a value between 0 and 63. The RSSI bits are numbered b0 to b5, where b0 is the least significant bit. When mapping the RXLEV value to the RSSI bit string, the first/ leftmost bit of the bit string contains the most significant bit.	
CHOICE BSIC	Check it is set to verified BSIC	
- inter-RAT cell id	Check that it is set to 0.	
- Observed time difference to GSM cell	Check that not present	R99 and Rel-4 only
- GSM carrier RSSI	Check that measurement result is reasonable	
CHOICE BSIC	Verified BSIC	
- inter-RAT cell id	Check that is set to 1	
- Observed time difference to GSM cell	Check that not present	R99 and Rel-4 only
Event results	Check that the IE is included	
- CHOICE event result	Check that this is set to inter-RAT measurement event results	
- Inter-RAT event identity	Check that this is set to 3a	
- Cells to report (1 to <maxCellMeas>)	Check that <maxCellMeas> is set to 1	
- CHOICE BSIC	Check that this is set to verified BSIC	
- Inter-RAT cell id	Check that this is set to 0.	

8.4.1.33.5 Test requirement

The UE shall not send any measurement report between instants T1 and T2.

Event 3a shall be triggered in the UE (i.e. the transmission of the MEASUREMENT REPORT) after instant T2.

Between instants T2 and T3, no MEASUREMENT REPORT message shall be received from the UE (since the hysteresis condition for triggering event 3a is not fulfilled).

No MEASUREMENT REPORT message shall be received from the UE after instant T4 (since the signal strength for cell 1 has not dropped under Threshold for event 3a-hysteresis).

8.4.1.34 Measurement Control and Report: Inter-RAT measurement, event 3b

8.4.1.34.1 Definition

8.4.1.34.2 Conformance requirement

If the IE "Inter-RAT cell info list" is received in a MEASUREMENT CONTROL message, the UE shall update the variable CELL_INFO_LIST accordingly and in the following order. The UE shall:

- if the IE "Removed Inter-RAT cells" is received, at the position indicated by the IE "Inter-RAT cell id":

- clear the cell information stored in the variable CELL_INFO_LIST; and
- mark the position "vacant";

3GPP TS 34.123-1 version 10.3.1 Release 10

- if the IE "New Inter-RAT cells" is received, for each cell, and in the same order as the cells appear in the IE:
  - update the variable CELL_INFO_LIST as follows:
    - if the IE "Inter-RAT cell id" is received:
      - store received cell information at this position in the Inter-RAT cell info list in the variable CELL_INFO_LIST, possibly overwriting any existing information in this position; and
      - mark the position "occupied";
    - if the IE "Inter-RAT cell id" is not received:
      - store the received cell information at the first vacant position in ascending order in the Inter-RAT cell info list in the variable CELL_INFO_LIST; and
  - mark the position as "occupied";

When event 3b is configured in the UE within a measurement, the UE shall:

1> if the other RAT is GSM, and if IE "BSIC verification required" is set to "required":

2> if equation 1 below has been fulfilled for a time period indicated by "time to trigger" for one or several GSM cells that match any of the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement:

3> if the inter-RAT cell id of any of those GSM cell is not stored in the variable TRIGGERED_3B_EVENT:

4> store the inter-RAT cell ids of the GSM cells that triggered the event and that were not previously stored in the variable TRIGGERED_3B_EVENT into that variable;

4> send a measurement report with IEs set as below:

5> set in "inter-RAT measurement event result": "inter-RAT event identity" to "3b", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cells that triggered the event (worst one first);

5> set the IE "measured results" and the IE "additional measured results" according to TS 25.331 subclause 8.4.2 , not taking into account the cell individual offset;

2> if equation 2 below is fulfilled for a GSM cell whose inter-RAT cell id is stored in the variable TRIGGERED_3B_EVENT:

3> remove the inter-RAT cell id of that GSM cell from the variable TRIGGERED_3B_EVENT.

1> if the other RAT is GSM, and if IE "BSIC verification required" is set to "not required":

2> if equation 1 below has been fulfilled for a time period indicated by "time to trigger" for one or several of the BCCH ARFCNs considered in that inter-RAT measurement:

3> if any of those BCCH ARFCN is not stored into the variable TRIGGERED_3B_EVENT:

4> store the BCCH ARFCNs that triggered the event and that were not previously stored in the variable TRIGGERED_3B_EVENT into that variable;

4> send a measurement report with IEs set as below:

5> set in "inter-RAT measurement event result": "inter-RAT event identity" to "3b", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to BCCH ARFCNs that triggered the event (worst one first);

5> set the IE "measured results" and the IE "additional measured results" according to 8.4.2, not taking into account the cell individual offset;

3GPP TS 34.123-1 version 10.3.1 Release 10

2> if equation 2 below is fulfilled for a BCCH ARFCN that is stored in the variable TRIGGERED_3B_EVENT:

3> remove that BCCH ARFCN from the variable TRIGGERED_3B_EVENT.

Triggering condition:

Equation 1:

$$M_{Other\ \ RAT} + CIO_{Other\ \ RAT} \leq T_{Other\ \ RAT} - H_{3b} / 2$$

The variables in the formula are defined as follows:

$\boldsymbol{M_{Other\ RAT}}$ is the measurement quantity for the cell of the other system.

$\boldsymbol{CIO_{Other\ RAT}}$ is the cell individual offset for the cell of the other system.

$\boldsymbol{T_{Other\ RAT}}$ is the absolute threshold that applies for the other system in that measurement.

$\boldsymbol{H_{3b}}$ is the hysteresis parameter for event 3b.

Leaving triggered state condition:

Equation 2:

$$M_{Other\ \ RAT} + CIO_{Other\ \ RAT} > T_{Other\ \ RAT} + H_{3b} / 2$$

The variables in the formula are defined as follows:

$\boldsymbol{M_{Other\ RAT}}$ is the measurement quantity for the cell of the other system. $\boldsymbol{M_{Other\ RAT}}$ is expressed in dBm.

$\boldsymbol{CIO_{Other\ RAT}}$ is the cell individual offset for the cell of the other system.

$\boldsymbol{T_{Other\ RAT}}$ is the absolute threshold that applies for the other system in that measurement.

$\boldsymbol{H_{3b}}$ is the hysteresis parameter for event 3b.

Reference

3GPP TS 25.331 clause 8.6.7.3, 14.3.1.2

8.4.1.34.3 Test Purpose

1 To confirm that the UE sends MEASUREMENT REPORT message if event 3b is configured, if the estimated quality of the other system is below a given threshold.

2 To confirm that the hysteresis and time to trigger behaviours for event 3b are correctly implemented. To confirm that the UE updates the list of inter-RAT cells it stores according to what is ordered in the MEASUREMENT CONTROL messages received from UTRAN.

8.4.1.34.4 Method of test

Initial Condition

System simulator: 1 UTRAN FDD cell (or TDD cell) and 3 GSM cells. The initial configurations of the 3 GSM cells in the SS shall follow the values indicated in the column marked T0. The table is found in "Test procedure". The UTRAN FDD cell shall use UARFCN according to the band under test except in the case of where FDD band VIII is tested and GSM900 is used for the Inter-RAT cells, then “High Range” test frequency for Band VIII is used instead, to avoid the test channels overlapping.

UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 (UTRA) as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

3GPP TS 34.123-1 version 10.3.1 Release 10

Related ICS/IXIT statements

- Compressed mode required yes/no
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-PCS, GSM-850.

Test procedure

Table 8.4.1.34.4-1

Parameter	Unit	Cell 1 (GSM)		Cell 2 (GSM)		Cell 3 (GSM)	
		T0	T1	T0	T1	T0	T1
Test Channel	#	GSM Ch.1		GSM Ch.2		GSM Ch.3	
BCCH ARFCN	#	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)		Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)		Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)	
CELL identity	#	0		1		2	
BSIC	#	BSIC 1		BSIC 2		BSIC 3	
RF Signal Level	dBm	-70	-90	-70	-70	-90	-90

The table above illustrate the downlink power to be applied for the cells at various instants of the test execution. Column marked "T0" denotes the initial conditions, while column marked "T1" indicates the values to be applied subsequently.

The UE is initially in CELL_DCH state as specified in clause 7.4 of TS 34.108. UTRA cell 1 is the only cell in the active set of the UE. If the UE requires compressed mode (refer ICS/IXIT), the SS sends a PHYSICAL CHANNEL RECONFIGURATION message to the UE to configure the compressed mode pattern sequence parameters to the UE. Three compressed mode patterns are configured, according to the message specified below. When the PHYSICAL CHANNEL RECONFIGURATION COMPLETE is received from the UE, the SS sends a MEASUREMENT CONTROL message to the UE, to set up inter-RAT measurements. Event 3b is set up in this message, and if the UE requires compressed mode (refer ICS/IXIT), compressed mode is activated. The monitored GSM cells at measurement establishment are GSM cells 1 and 2.

At instant T1, the RF signal strength for GSM cell 1 drops as described in table 8.4.1.34.4-1.

When the MEASUREMENT REPORT has been received by the SS, a MEASUREMENT CONTROL message is sent to the UE, to add GSM cell 3 to the monitored GSM cells.

A second MEASUREMENT REPORT triggered by event 3b shall be received shortly after by the SS. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1				The UE is brought to the CELL_DCH state in the cell 1. If the UE does not require compressed mode (refer ICS/IXIT), then goto step 4.
2	←		PHYSICAL CHANNEL RECONFIGURATION	Compressed mode pattern sequence parameters are loaded to UE.
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
4	←		MEASUREMENT CONTROL	SS configures event 3b in the UE. If the UE requires compressed mode (refer ICS/IXIT), compressed mode is started.
5				SS waits for approximately 10 seconds and verifies that no MEASUREMENT REPORT messages are detected on uplink DCCH.
6				SS re-adjusts the downlink transmission power settings according to columns "T1" in tables 8.4.1.34.4-1.
7	→		MEASUREMENT REPORT	After about 1020m s, the UE sends a MEASUREMENT REPORT to SS triggered by event 3b.
8	←		MEASUREMENT CONTROL	SS adds GSM cell 3 to the list of the monitored GSM cells.
9	→		MEASUREMENT REPORT	After about 5.8 s, the UE sends a MEASUREMENT REPORT to SS triggered by event 3b.
10	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

3GPP TS 34.123-1 version 10.3.1 Release 10

PHYSICAL CHANNEL RECONFIGURATION (Step 2)

Use the same message sub-type in clause 9 of TS 34.108 titled "Non speech in CS" or "Speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS, with Scrambling code change set to Default1 and with the following exceptions:

Information Element	Value/remark	Version
Downlink information common for all radio links		
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
- Transmission gap pattern sequence configuration parameters		
- TGMP	GSM Carrier RSSI Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not present	
- TGD	undefined	
- TGPL1	12	
- TGPL2	Not present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2	
- Downlink frame type	A	
- DeltaSIR1	10 (1.0)	
- DeltaSIRAfter1	5 (0.5)	
- DeltaSIR2	Not Present	
- DeltaSIR2After2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
- TGPSI	2	
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
- Transmission gap pattern sequence configuration parameters		
- TGMP	GSM BSIC identification	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not present	
- TGD	undefined	
- TGPL1	8	
- TGPL2	Not present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2	
- Downlink frame type	A	
- DeltaSIR1	10 (1.0)	
- DeltaSIRAfter1	5 (0.5)	
- DeltaSIR2	Not Present	
- DeltaSIR2After2	Not Present	
- N identify abort	66	
- T Reconfirm abort	Not Present	
- TGPSI	3	

Information Element	Value/remark	Version
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	

3GPP TS 34.123-1 version 10.3.1 Release 10

- Transmission gap pattern sequence configuration parameters		
- TGMP	GSM BSIC re-confirmation	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not present	
- TGD	undefined	
- TGPL1	8	
- TGPL2	Not present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2	
- Downlink frame type	A	
- DeltaSIR1	10 (1.0)	
- DeltaSIRAfter1	5 (0.5)	
- DeltaSIR2	Not Present	
- DeltaSIR2After2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	10 (5 s)	
Downlink information per radio link list		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only
- PDSCH code mapping	Not Present	R99 and Rel-4 only
- Serving HS-DSCH radio link indicator	FALSE	Rel-5
- Serving E-DCH radio link indicator	FALSE	Rel-6
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value : Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	5	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	0	
- Scrambling code change	Set to value Default1: No code change (if the UE has a compressed mode pattern sequence configured in variable TGPS_IDENTITY or included in the message including IE "Downlink DPCH info for each RL", which is using compressed mode method "SF/2")	
- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	Rel-6
- E-HICH Information	Not Present	Rel-6
- E-RGCH Information	Not Present	Rel-6
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

MEASUREMENT CONTROL (Step 4)(FDD)

Information Element	Value/remark
Measurement Identity	3
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event triggered
Additional measurements list	Not Present
CHOICE measurement type	
- inter-RAT measurement	
- inter-RAT measurement object list	
CHOICE Inter-RAT Cell Removal	Remove all inter-RAT cells
-Remove all inter-RAT cells	(No Data)
New inter-RAT cells (1 to <MaxCellMeas>)	
- inter-RAT cell id	0
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC1
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- inter-RAT cell id	1
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC2
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- Cell for measurement	Not present
- inter-RAT measurement quantity	
- Measurement quantity for UTRAN quality estimate	Not included
CHOICE system	GSM
- Measurement quantity	GSM carrier RSSI
- Filter coefficient	0
- BSIC verification required	required
- inter-RAT reporting quantity	
CHOICE system	GSM
- Observed time difference to GSM cell reporting indicator	FALSE
- GSM carrier RSSI reporting indicator	TRUE
CHOICE report criteria	
- Inter-RAT measurements reporting criteria	
- Parameters required for each event (1 to<maxMeasEvent>)	
- Inter-RAT event identity	3b
- Threshold own system	Not included
- W	Not included
- Threshold other system	-80
- Hysteresis	2 (1 dB)
- Time to Trigger	60 ms
- Reporting cell status	Report cells within active set or within virtual active set or of the other RAT
- Maximum number of reported cells	3
Physical channel information elements	
- DPCH compressed mode status info	If the UE requires compressed mode (refer ICS/IXIT), this IE is present and contains the IEs as follows. If the UE does not require compressed mode (refer ICS/IXIT), this IE is not present.
- TGPS reconfiguration CFN	(Current CFN + (250 – TTI/10msec))mod 256
- Transmission gap pattern sequence (1 to <MaxTGPS>)	

Information Element	Value/remark
- TGPSI	1
- TGPS status flag	Activate
- TGCFN	(Current CFN + (252 – TTI/10msec))mod 256

3GPP TS 34.123-1 version 10.3.1 Release 10

- TGPSI	2
- TGPS status flag	Activate
- TGCFN	(Current CFN + (254 – TTI/10msec))mod 256
- TGPSI	3
- TGPS status flag	Activate
- TGCFN	(Current CFN + (250 – TTI/10msec))mod 256

MEASUREMENT CONTROL (Step 4)(TDD)

Information Element	Value/remark
Measurement Identity	3
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event triggered
Additional measurements list	Not Present
CHOICE measurement type	
- inter-RAT measurement	
- inter-RAT measurement object list	
CHOICE Inter-RAT Cell Removal	Remove all inter-RAT cells
-Remove all inter-RAT cells	(No Data)
New inter-RAT cells (1 to <MaxCellMeas>)	
- inter-RAT cell id	0
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC1
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- inter-RAT cell id	1
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC2
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- Cell for measurement	Not present
- inter-RAT measurement quantity	
- Measurement quantity for UTRAN quality estimate	Not included
CHOICE system	GSM
- Measurement quantity	GSM carrier RSSI
- Filter coefficient	0
- BSIC verification required	required
- inter-RAT reporting quantity	
CHOICE system	GSM
- Observed time difference to GSM cell reporting indicator	FALSE
- GSM carrier RSSI reporting indicator	TRUE
CHOICE report criteria	
- Inter-RAT measurements reporting criteria	
- Parameters required for each event (1 to<maxMeasEvent>)	
- Inter-RAT event identity	3b
- Threshold own system	Not included
- W	Not included
- Threshold other system	-80
- Hysteresis	2 (1 dB)
- Time to Trigger	60 ms
- Reporting cell status	Report cells within active set or within virtual active set or of the other RAT
- Maximum number of reported cells	3

MEASUREMENT REPORT (Step 7)

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 3	
3GPP TS 34.123-1 version 10.3.1 Release 10		
Measured Results		
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"	
- Inter-RAT measured result list		
- CHOICE system	GSM	
- Measured GSM cells	Check that measurement results for two GSM cells are included	
- GSM carrier RSSI	Check that measurement result is reasonable. RXLEV is mapped to a value between 0 and 63. The RSSI bits are numbered b0 to b5, where b0 is the least significant bit. When mapping the RXLEV value to the RSSI bit string, the first/ leftmost bit of the bit string contains the most significant bit.	
CHOICE BSIC	Check it is set to verified BSIC	
- inter-RAT cell id	Check that it is set to 1	
- Observed time difference to GSM cell	Check that the IE is not included	R99 and Rel-4 only
- GSM carrier RSSI	Check that measurement result is reasonable	
CHOICE BSIC	Verified BSIC	
- inter-RAT cell id	Check that it is set to 0.	
- Observed time difference to GSM cell	Check that the IE is not present	R99 and Rel-4 only
Measured results on RACH	Check that not present	
Additional Measured results	Check that not present	
Event results	Check that the IE is included	
- CHOICE event result	Check that this is set to inter-RAT measurement event results	
- Inter-RAT event identity	Check that this is set to 3b	
- Cells to report (1 to <maxCellMeas>)	Check that <maxCellMeas> is set to 1	
- CHOICE BSIC	Check that this is set to verified BSIC	
- Inter-RAT cell id	Check that this is set to 0.	

MEASUREMENT REPORT (Step 7) (1.28 Mcps TDD)

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 3	
3GPP TS 34.123-1 version 10.3.1 Release 10		
Measured Results	Check that not present	
Measured results on RACH	Check that not present	
Additional Measured results	Check that not present	
Non Critical Extensions		
- Additional Measured results - LCR		
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"	
- Inter-RAT measured result list		
- CHOICE system	GSM	
- Measured GSM cells	Check that measurement results for two GSM cells are included	
- GSM carrier RSSI	Check that measurement result is reasonable. RXLEV is mapped to a value between 0 and 63. The RSSI bits are numbered b0 to b5, where b0 is the least significant bit. When mapping the RXLEV value to the RSSI bit string, the first/ leftmost bit of the bit string contains the most significant bit.	
CHOICE BSIC	Check it is set to verified BSIC	
- inter-RAT cell id	Check that it is set to 1	
- Observed time difference to GSM cell	Check that the IE is not included	R99 and Rel-4 only
- GSM carrier RSSI	Check that measurement result is reasonable	
CHOICE BSIC	Verified BSIC	
- inter-RAT cell id	Check that it is set to 0.	
- Observed time difference to GSM cell	Check that the IE is not present	R99 and Rel-4 only
Event results	Check that the IE is included	
- CHOICE event result	Check that this is set to inter-RAT measurement event results	
- Inter-RAT event identity	Check that this is set to 3b	
- Cells to report (1 to <maxCellMeas>)	Check that <maxCellMeas> is set to 1	
- CHOICE BSIC	Check that this is set to verified BSIC	
- Inter-RAT cell id	Check that this is set to 0.	

MEASUREMENT CONTROL (Step 8)

Information Element	Value/remark
Measurement Identity	3
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Modify
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Not present
- Periodic Reporting / Event Trigger Reporting Mode	Not present
Additional measurements list	Not Present
CHOICE measurement type	
- inter-RAT measurement	
- inter-RAT measurement object list	
CHOICE Inter-RAT Cell Removal	Remove no inter-RAT cells
New inter-RAT cells (1 to <MaxCellMeas>)	
- inter-RAT cell id	Not present
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC3
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- Cell for measurement	Not present
- inter-RAT measurement quantity	Not present
CHOICE report criteria	
- Inter-RAT measurements reporting criteria	
- Parameters required for each event (1 to<maxMeasEvent>)	Not Present
Physical channel information elements	Not present

MEASUREMENT REPORT (Step 9)

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 3	
3GPP TS 34.123-1 version 10.3.1 Release 10		
Measured Results		
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"	
- Inter-RAT measured result list		
- CHOICE system	GSM	
- Measured GSM cells	Check that measurement results for three GSM cells are included	
- GSM carrier RSSI	Check that measurement result is reasonable. RXLEV is mapped to a value between 0 and 63. The RSSI bits are numbered b0 to b5, where b0 is the least significant bit. When mapping the RXLEV value to the RSSI bit string, the first/ leftmost bit of the bit string contains the most significant bit.	
CHOICE BSIC	Check it is set to verified BSIC	
- inter-RAT cell id	Check that it is set to 1	
- Observed time difference to GSM cell	Check that the IE is not included	R99 and Rel-4 only
- GSM carrier RSSI	Check that measurement result is reasonable	
CHOICE BSIC	Verified BSIC	
- inter-RAT cell id	Check that is set to 0 or 2.	
- Observed time difference to GSM cell	Check that the IE is not present	R99 and Rel-4 only
- GSM carrier RSSI	Check that measurement result is reasonable	
CHOICE BSIC	Verified BSIC	
- inter-RAT cell id	Check that is set to 0 or 2 and that this inter-RAT cell id is different from the two previous inter-RAT cell id.	
- Observed time difference to GSM cell	Check that the IE is not present	R99 and Rel-4 only
Measured results on RACH	Check that not present	
Additional Measured results	Check that not present	
Event results	Check that the IE is included	
- CHOICE event result	Check that this is set to inter-RAT measurement event results	
- Inter-RAT event identity	Check that this is set to 3b	
- Cells to report (1 to <maxCellMeas>)	Check that <maxCellMeas> is set to 1	
- CHOICE BSIC	Check that this is set to verified BSIC	
- Inter-RAT cell id	Check that this is set to 2.	

MEASUREMENT REPORT (Step 9) (1.28 Mcps TDD)

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 3	
3GPP TS 34.123-1 version 10.3.1 Release 10		
Measured Results	Check that not present	
Measured results on RACH	Check that not present	
Additional Measured results	Check that not present	
Non Critical Extensions		
- Additional Measured results - LCR		
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"	
- Inter-RAT measured result list		
- CHOICE system	GSM	
- Measured GSM cells	Check that measurement results for three GSM cells are included	
- GSM carrier RSSI	Check that measurement result is reasonable. RXLEV is mapped to a value between 0 and 63. The RSSI bits are numbered b0 to b5, where b0 is the least significant bit. When mapping the RXLEV value to the RSSI bit string, the first/ leftmost bit of the bit string contains the most significant bit.	
CHOICE BSIC	Check it is set to verified BSIC	
- inter-RAT cell id	Check that it is set to 1	
- Observed time difference to GSM cell	Check that the IE is not included	R99 and Rel-4 only
- GSM carrier RSSI	Check that measurement result is reasonable	
CHOICE BSIC	Verified BSIC	
- inter-RAT cell id	Check that is set to 0 or 2.	
- Observed time difference to GSM cell	Check that the IE is not present	R99 and Rel-4 only
- GSM carrier RSSI	Check that measurement result is reasonable	
CHOICE BSIC	Verified BSIC	
- inter-RAT cell id	Check that is set to 0 or 2 and that this inter-RAT cell id is different from the two previous inter-RAT cell id.	
- Observed time difference to GSM cell	Check that the IE is not present	R99 and Rel-4 only
Event results	Check that the IE is included	
- CHOICE event result	Check that this is set to inter-RAT measurement event results	
- Inter-RAT event identity	Check that this is set to 3b	
- Cells to report (1 to <maxCellMeas>)	Check that <maxCellMeas> is set to 1	
- CHOICE BSIC	Check that this is set to verified BSIC	
- Inter-RAT cell id	Check that this is set to 2.	

8.4.1.34.5 Test requirement

Between instants T0 and T1, the UE shall not send any MEASUREMENT REPORT message to the SS.

Event 3b shall be triggered in the UE (i.e. the transmission of the first MEASUREMENT REPORT message shall begin) after instant T1.

After the reception by the UE of the second MEASUREMENT CONTROL message, the UE shall begin to transmit the second MEASUREMENT REPORT message (since the signal strength for GSM cell 3 is below the threshold for triggering event 3b).

8.4.1.35 Measurement Control and Report: Inter-RAT measurement, event 3c

3GPP TS 34.123-1 version 10.3.1 Release 10

8.4.1.35.1 Definition

8.4.1.35.2 Conformance requirement

When event 3c is configured in the UE within a measurement, the UE shall:

1> if the other RAT is GSM, and if IE "BSIC verification required" is set to "required":

2> if equation 1 below has been fulfilled for a time period indicated by "time to trigger" for one or several GSM cells that match any of the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement:

3> if the inter-RAT cell id of any of those GSM cell is not stored in the variable TRIGGERED_3C_EVENT:

4> store the Inter-RAT cell ids of the GSM cells that triggered the event and that were not previously stored in the variable TRIGGERED_3C_EVENT into that variable;

4> send a measurement report with IEs set as below:

5> set in "inter-RAT measurement event result": "inter-RAT event identity" to "3c", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cells that triggered the event (best one first);

5> set the IE "measured results" and the IE "additional measured results" according to 8.4.2, not taking into account the cell individual offset;

2> if equation 2 below is fulfilled for a GSM cell whose inter-RAT cell id is stored in the variable TRIGGERED_3C_EVENT:

3> remove the inter-RAT cell id of that GSM cell from the variable TRIGGERED_3C_EVENT.

1> if the other RAT is GSM, and if IE "BSIC verification required" is set to "not required":

2> if equation 1 below has been fulfilled for a time period indicated by "time to trigger" for one or several of the BCCH ARFCNs considered in that inter-RAT measurement:

3> if any of those BCCH ARFCN is not stored into the variable TRIGGERED_3C_EVENT:

4> store the BCCH ARFCNs that triggered the event and that were not previously stored in the variable TRIGGERED_3C_EVENT into that variable;

4> send a measurement report with IEs set as below:

5> set in "inter-RAT measurement event result": "inter-RAT event identity" to "3c", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to BCCH ARFCNs that triggered the event (best one first);

5> set the IE "measured results" and the IE "additional measured results" according to TS 25.331 subclause 8.4.2, not taking into account the cell individual offset;

2> if equation 2 is fulfilled for a BCCH ARFCN that is stored in the variable TRIGGERED_3C_EVENT:

3> remove that BCCH ARFCN from the variable TRIGGERED_3C_EVENT.

Triggering condition:

Equation 1:

$$M_{Other\ \ RAT} + CIO_{Other\ \ RAT} \geq T_{Other\ \ RAT} + H_{3c} / 2$$

The variables in the formula are defined as follows:

$M_{Other\ RAT}$ is the measurement quantity for the cell of the other system. $M_{Other\ RAT}$ is expressed in dBm.

$CIO_{Other\ RAT}$ is the cell individual offset for the cell of the other system.

$T_{Other\ RAT}$ is the absolute threshold that applies for the other system in that measurement.

H_{3c} is the hysteresis parameter for event 3c.

Leaving triggered state condition:

Equation 2:

$$M_{Other\ \ RAT} + CIO_{Other\ \ RAT} < T_{Other\ \ RAT} - H_{3c} / 2$$

The variables in the formula are defined as follows:

$M_{Other\ RAT}$ is the measurement quantity for the cell of the other system. $M_{Other\ RAT}$ is expressed in dBm.

$CIO_{Other\ RAT}$ is the cell individual offset for the cell of the other system.

$T_{Other\ RAT}$ is the absolute threshold that applies for the other system in that measurement.

H_{3c} is the hysteresis parameter for event 3c.

Reference

3GPP TS 25.331 clauses 14.3.1.3, 8.4.2.2.

8.4.1.35.3 Test Purpose

1 To confirm that the UE sends MEASUREMENT REPORT message if event 3c is configured, and if the quality of the other system becomes better than the given threshold for event 3c.

2 To confirm that no other UE MEASUREMENT REPORT message is sent by the UE for a cell that has already triggered event 3c as long as the hysteresis condition for triggering once again event 3c has not been fulfilled.

8.4.1.35.4 Method of test

Initial Condition

System simulator: 1 UTRAN FDD cell (or TDD cell) and 2 GSM cells. The initial configurations of the 2 GSM cells in the SS shall follow the values indicated in the column marked T0. The table is found in "Test procedure".

UE: CELL CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 (UTRA) as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Related ICS/IXIT statements

- Compressed mode required yes/no
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-PCS, GSM-850.

Test procedure

3GPP TS 34.123-1 version 10.3.1 Release 10

Table 8.4.1.35.4-1

Parameter	Unit	Cell 1 (GSM)				Cell 2 (GSM)			
		T0	T1	T2	T3	T0	T1	T2	T3
Test Channel	#	GSM Ch.1				GSM Ch.2			
BCCH ARFCN	#	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)				Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)			
CELL identity	#	0				1			
BSIC	#	BSIC 1				BSIC 2			
RF Signal Level	dBm	-90	-75	-80	-75	-75	-75	-75	-75

The table above illustrate the downlink power to be applied for the two cells at various instants of the test execution. Column marked "T0" denotes the initial conditions, while column marked "T1", "T2" and "T3" indicate the values to be applied subsequently.

The UE is initially in CELL_DCH state as specified in clause 7.4 of TS 34.108. UTRA cell 1 is the only cell in the active set of the UE. If the UE requires compressed mode (refer ICS/IXIT), the SS sends a PHYSICAL CHANNEL RECONFIGURATION message to the UE to configure the compressed mode pattern sequence parameters to the UE. Three compressed mode patterns are configured, according to the message specified below. When the PHYSICAL CHANNEL RECONFIGURATION COMPLETE is received from the UE, the SS sends a MEASUREMENT CONTROL message to the UE, to set up inter-RAT measurements. Event 3c is set up in this message, and if the UE requires compressed mode (refer ICS/IXIT), compressed mode is activated.

At instant T1, the RF signal strength for GSM cell 1 increases as described in table 8.4.1.35.4-1.

At instant T2, the RF signal strength for GSM cell 1 drops as described in table 8.4.1.35.4-1, and at instant T3, it increases again to its previous level. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1				The UE is brought to the CELL_DCH state in the cell 1. If the UE does not require compressed mode (refer ICS/IXIT), then goto step 4.
2	←		PHYSICAL CHANNEL RECONFIGURATION	Compressed mode pattern sequence parameters are loaded to UE.
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
4	←		MEASUREMENT CONTROL	SS configures event 3c in the UE. If the UE requires compressed mode (refer ICS/IXIT), compressed mode is started.
5				SS waits for approximately 10 seconds and verifies that no MEASUREMENT REPORT messages are detected on uplink DCCH.
6				SS re-adjusts the downlink transmission power settings according to columns "T1" in table 8.4.1.35.4-1.
7	→		MEASUREMENT REPORT	After about 0.9 s, the UE sends a MEASUREMENT REPORT to SS triggered by event 3c.
8				SS re-adjusts the downlink transmission power settings according to columns "T2" in table 8.4.1.35.4-1.
9				SS re-adjusts the downlink transmission power settings according to columns "T3" in table 8.4.1.35.4-1.
10				SS waits for approximately 10 seconds and verifies that no MEASUREMENT REPORT messages are detected on uplink DCCH.
11	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

3GPP TS 34.123-1 version 10.3.1 Release 10

PHYSICAL CHANNEL RECONFIGURATION (Step 2)

Use the same message sub-type in clause 9 of TS 34.108 titled "Non speech in CS" or "Speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS, with Scrambling code change set to Default1 and with the following exceptions:

Information Element	Value/remark	Version
Downlink information common for all radio links		
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
- Transmission gap pattern sequence configuration parameters		
- TGMP	GSM Carrier RSSI Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not present	
- TGD	undefined	
- TGPL1	12	
- TGPL2	Not present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2	
- Downlink frame type	A	
- DeltaSIR1	10 (1.0)	
- DeltaSIRAfter1	5 (0.5)	
- DeltaSIR2	Not Present	
- DeltaSIR2After2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
- TGPSI	2	
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
- Transmission gap pattern sequence configuration parameters		
- TGMP	GSM BSIC identification	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not present	
- TGD	undefined	
- TGPL1	8	
- TGPL2	Not present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2	
- Downlink frame type	A	
- DeltaSIR1	10 (1.0)	
- DeltaSIRAfter1	5 (0.5)	
- DeltaSIR2	Not Present	
- DeltaSIR2After2	Not Present	
- N identify abort	66	
- T Reconfirm abort	Not Present	
- TGPSI	3	

Information Element	Value/remark	Version
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	

3GPP TS 34.123-1 version 10.3.1 Release 10

- Transmission gap pattern sequence configuration parameters		
- TGMP	GSM BSIC re-confirmation	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not present	
- TGD	undefined	
- TGPL1	8	
- TGPL2	Not present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2	
- Downlink frame type	A	
- DeltaSIR1	10 (1.0)	
- DeltaSIRAfter1	5 (0.5)	
- DeltaSIR2	Not Present	
- DeltaSIR2After2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	10 (5 s)	
Downlink information per radio link list		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only
- PDSCH code mapping	Not Present	R99 and Rel-4 only
- Serving HS-DSCH radio link indicator	FALSE	Rel-5
- Serving E-DCH radio link indicator	FALSE	Rel-6
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value : Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	5	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	0	
- Scrambling code change	Set to value Default1: No code change (if the UE has a compressed mode pattern sequence configured in variable TGPS_IDENTITY or included in the message including IE "Downlink DPCH info for each RL", which is using compressed mode method "SF/2")	
- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	Rel-6
- E-HICH Information	Not Present	Rel-6
- E-RGCH Information	Not Present	Rel-6
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

MEASUREMENT CONTROL (Step 4)(FDD)

Information Element	Value/remark
Measurement Identity	3
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event triggered
Additional measurements list	Not Present
CHOICE measurement type	
- inter-RAT measurement	
- inter-RAT measurement object list	
CHOICE Inter-RAT Cell Removal	Remove all inter-RAT cells
-Remove all inter-RAT cells	(No Data)
New inter-RAT cells (1 to <MaxCellMeas>)	
- inter-RAT cell id	0
CHOICE Radio Access Technology	GSM
- Cell individual offset	10
- Cell selection and re-selection info	Not present
- BSIC	BSIC1
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- inter-RAT cell id	1
CHOICE Radio Access Technology	GSM
- Cell individual offset	-3
- Cell selection and re-selection info	Not present
- BSIC	BSIC2
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- Cell for measurement	Not present
- inter-RAT measurement quantity	
- Measurement quantity for UTRAN quality estimate	Not included
CHOICE system	GSM
- Measurement quantity	GSM carrier RSSI
- Filter coefficient	0
- BSIC verification required	required
- inter-RAT reporting quantity	
CHOICE system	GSM
- Observed time difference to GSM cell reporting indicator	FALSE
- GSM carrier RSSI reporting indicator	TRUE
CHOICE report criteria	
- Inter-RAT measurements reporting criteria	
- Parameters required for each event (1 to<maxMeasEvent>)	
- Inter-RAT event identity	3c
- Threshold own system	Not included
- W	Not included
- Threshold other system	-74
- Hysteresis	5 (2.5 dB)
- Time to Trigger	100 ms
- Reporting cell status	Report cells within active set or within virtual active set or of the other RAT
- Maximum number of reported cells	2
Physical channel information elements	
- DPCH compressed mode status info	If the UE requires compressed mode (refer ICS/IXIT), this IE is present and contains the IEs as follows. If the UE does not require compressed mode (refer ICS/IXIT), this IE is not present.
- TGPS reconfiguration CFN	(Current CFN + (250 – TTI/10msec))mod 256
- Transmission gap pattern sequence (1 to <MaxTGPS>)	

Information Element	Value/remark
- TGPSI	1
- TGPS status flag	Activate
- TGCFN	(Current CFN + (252 – TTI/10msec))mod 256
3GPP TS 34.123-1 version 10.3.1 Release 10	
- TGPSI	2
- TGPS status flag	Activate
- TGCFN	(Current CFN + (254 – TTI/10msec))mod 256
- TGPSI	3
- TGPS status flag	Activate
- TGCFN	(Current CFN + (250 – TTI/10msec))mod 256

MEASUREMENT CONTROL (Step 4)(TDD)

Information Element	Value/remark
Measurement Identity	3
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event triggered
Additional measurements list	Not Present
CHOICE measurement type	
- inter-RAT measurement	
- inter-RAT measurement object list	
CHOICE Inter-RAT Cell Removal	Remove all inter-RAT cells
-Remove all inter-RAT cells	(No Data)
New inter-RAT cells (1 to <MaxCellMeas>)	
- inter-RAT cell id	0
CHOICE Radio Access Technology	GSM
- Cell individual offset	10
- Cell selection and re-selection info	Not present
- BSIC	BSIC1
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- inter-RAT cell id	1
CHOICE Radio Access Technology	GSM
- Cell individual offset	-3
- Cell selection and re-selection info	Not present
- BSIC	BSIC2
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- Cell for measurement	Not present
- inter-RAT measurement quantity	
- Measurement quantity for UTRAN quality estimate	Not included
CHOICE system	GSM
- Measurement quantity	GSM carrier RSSI
- Filter coefficient	0
- BSIC verification required	required
- inter-RAT reporting quantity	
CHOICE system	GSM
- Observed time difference to GSM cell reporting indicator	FALSE
- GSM carrier RSSI reporting indicator	TRUE
CHOICE report criteria	
- Inter-RAT measurements reporting criteria	
- Parameters required for each event (1 to<maxMeasEvent>)	
- Inter-RAT event identity	3c
- Threshold own system	Not included
- W	Not included
- Threshold other system	-74
- Hysteresis	5 (2.5 dB)
- Time to Trigger	100 ms
- Reporting cell status	Report cells within active set or within virtual active set or of the other RAT
- Maximum number of reported cells	2

MEASUREMENT REPORT (Step 7)

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 3	
3GPP TS 34.123-1 version 10.3.1 Release 10		
Measured Results		
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"	
- Inter-RAT measured result list		
- CHOICE system	GSM	
- Measured GSM cells	Check that measurement results for two GSM cells are included	
- GSM carrier RSSI	Check that measurement result is reasonable. RXLEV is mapped to a value between 0 and 63. The RSSI bits are numbered b0 to b5, where b0 is the least significant bit. When mapping the RXLEV value to the RSSI bit string, the first/ leftmost bit of the bit string contains the most significant bit.	
CHOICE BSIC	Check it is set to verified BSIC	
- inter-RAT cell id	Check that it is set to either 0 or 1	
- Observed time difference to GSM cell	Check that the IE is not included	R99 and Rel-4 only
- GSM carrier RSSI	Check that measurement result is reasonable	
CHOICE BSIC	Verified BSIC	
- inter-RAT cell id	Check that is set to 1 if the previous inter-RAT cell id was set to 0 or to 0 if the previous cell if was set to 1.	
- Observed time difference to GSM cell	Check that the IE is not present	R99 and Rel-4 only
Measured results on RACH	Check that not present	
Additional Measured results	Check that not present	
Event results	Check that the IE is included	
- CHOICE event result	Check that this is set to inter-RAT measurement event results	
- Inter-RAT event identity	Check that this is set to 3c	
- Cells to report (1 to <maxCellMeas>)	Check that <maxCellMeas> is set to 1	
- CHOICE BSIC	Check that this is set to verified BSIC	
- Inter-RAT cell id	Check that this is set to 0.	

MEASUREMENT REPORT (Step 7) (1.28 Mcps TDD)

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 3	
3GPP TS 34.123-1 version 10.3.1 Release 10		
Measured Results	Check that not present	
Measured results on RACH	Check that not present	
Additional Measured results	Check that not present	
Non Critical Extensions		
- Additional Measured results - LCR		
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"	
- Inter-RAT measured result list		
- CHOICE system	GSM	
- Measured GSM cells	Check that measurement results for two GSM cells are included	
- GSM carrier RSSI	Check that measurement result is reasonable. RXLEV is mapped to a value between 0 and 63. The RSSI bits are numbered b0 to b5, where b0 is the least significant bit. When mapping the RXLEV value to the RSSI bit string, the first/ leftmost bit of the bit string contains the most significant bit.	
CHOICE BSIC	Check it is set to verified BSIC	
- inter-RAT cell id	Check that it is set to either 0 or 1	
- Observed time difference to GSM cell	Check that the IE is not included	R99 and Rel-4 only
- GSM carrier RSSI	Check that measurement result is reasonable	
CHOICE BSIC	Verified BSIC	
- inter-RAT cell id	Check that is set to 1 if the previous inter-RAT cell id was set to 0 or to 0 if the previous cell if was set to 1.	
- Observed time difference to GSM cell	Check that the IE is not present	R99 and Rel-4 only
Event results	Check that the IE is included	
- CHOICE event result	Check that this is set to inter-RAT measurement event results	
- Inter-RAT event identity	Check that this is set to 3c	
- Cells to report (1 to <maxCellMeas>)	Check that <maxCellMeas> is set to 1	
- CHOICE BSIC	Check that this is set to verified BSIC	
- Inter-RAT cell id	Check that this is set to 0.	

8.4.1.35.5 Test requirement

After instant T1, since the cell individual offset for GSM cell 1 is +10 dB, event 3c shall be triggered in the UE, i.e. the UE shall begin to transmit a MEASUREMENT REPORT to the SS. Note that GSM cell 2 has not triggered event 3c even though the RF signal strength for GSM cell 2 is the same as for cell 1, because the cell individual offset for GSM cell 2 is -3 dB.

After instant T2, no MEASUREMENT REPORT shall be received from the UE, since GSM cell 1 has already triggered event 3c, and since the RF signal strength has not dropped enough for the leaving condition to be met.

8.4.1.36 Measurement Control and Report: Inter-RAT measurement, event 3d

8.4.1.36.1 Definition

-

8.4.1.36.2 Conformance requirement

When event 3d is configured in the UE within a measurement, the UE shall:

1> if the other RAT is GSM, and if IE "BSIC verification required" is set to "required":

2> when the measurement is initiated or resumed:

3> store in the variable BEST_CELL_3D_EVENT the Inter-RAT cell id of the GSM cell that has the best measured quantity among the GSM cells that match any of the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement

3GPP TS 34.123-1 version 10.3.1 Release 103> send a measurement report with IE set as below:

4> set in "inter-RAT measurement event result": "inter-RAT event identity" to "3d", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cell that is stored in the variable BEST_CELL_3D_EVENT;

4> set the IE "measured results" and the IE "additional measured results" according to TS 25.331 subclause 8.4.2, not taking into account the cell individual offset;

2> if equation 1 has been fulfilled for a time period indicated by "time to trigger" for a GSM cell that is different from the one stored in BEST_CELL_3D_EVENT and that matches any of the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement:

3> store the Inter-RAT cell id of that GSM cell in the variable BEST_CELL_3D_EVENT;

3> send a measurement report with IEs set as below:

4> set in "inter-RAT measurement event result": "inter-RAT event identity" to "3d", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cell is now stored in BEST_CELL_3D_EVENT;

4> set the IE "measured results" and the IE "additional measured results" according to TS 25.331 subclause 8.4.2, not taking into account the cell individual offset;

1> if the other RAT is GSM, and if IE "BSIC verification required" is set to "not required":

2> when the measurement is initiated or resumed:

3> store in the variable BEST_CELL_3D_EVENT the BCCH ARFCN of the GSM cell that has the best measured quantity among the BCCH ARFCNs considered in that inter-RAT measurement;

3> send a measurement report with IE set as below:

4> set in "inter-RAT measurement event result": "inter-RAT event identity" to "3d", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to the BCH ARFCN that is stored in the variable BEST_CELL_3D_EVENT;

4> set the IE "measured results" and the IE "additional measured results" according to TS 25.331 subclause 8.4.2, not taking into account the cell individual offset;

2> if equation 1 below has been fulfilled for a time period indicated by "time to trigger" for one of the BCCH ARFCNs considered in that inter-RAT measurement and different from the one stored in BEST_CELL_3D_EVENT:

3> store the BCCH ARFCN of that GSM cell in the variable BEST_CELL_3D_EVENT;

3> send a measurement report with IEs set as below:

4> set in "inter-RAT measurement event result": "inter-RAT event identity" to "3d", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to the BCCH ARFCN that is now stored in the variable BEST_CELL_3D_EVENT;

4> set the IE "measured results" and the IE "additional measured results" according to TS 25.331 subclause 8.4.2, not taking into account the cell individual offset;

Equation 1:

$$M_{New} \geq M_{Best} + H_{3d} / 2$$

The variables in the formula are defined as follows:

M_{New} is the measurement quantity for a GSM cell that is not stored in the variable BEST_CELL_3D.

M_{Best} is the measurement quantity for a GSM cell that is stored in the variable BEST_CELL_3D.

H_{3d} is the hysteresis parameter for event 3d.

Reference

3GPP TS 25.331 clause 14.3.1.4.

8.4.1.36.3 Test Purpose

1. To confirm that the UE sends MEASUREMENT REPORT message if event 3d is configured, and if the best cell changes in the other system. To confirm that no other UE MEASUREMENT REPORT message is sent by the UE for a cell that has already triggered event 3d as long as the hysteresis condition for triggering once again event 3d has not been fulfilled.

8.4.1.36.4 Method of test

Initial Condition

System simulator: 1 UTRAN FDD cell (or TDD cell) and 2 GSM cells. The initial configurations of the 2 GSM cells in the SS shall follow the values indicated in the column marked T0. The table is found in "Test procedure".

UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 (UTRA) as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Related ICS/IXIT statements

- Compressed mode required yes/no
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-PCS, GSM-850.

Test procedure

Table 8.4.1.36.4-1

Parameter	Unit	Cell 1 (GSM)		Cell 2 (GSM)	
		T0	T1	T0	T1
Test Channel	#	GSM Ch.1		GSM Ch.2	
BCCH ARFCN	#	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)		Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)	
CELL identity	#	0		1	
BSIC	#	BSIC 1		BSIC 2	
RF Signal Level	dBm	-70	-90	-90	-70

The table above illustrate the downlink power to be applied for the two cells at various instants of the test execution. Column marked "T0" denotes the initial conditions, while column marked "T1"indicates the values to be applied subsequently.

The UE is initially in CELL_DCH state as specified in clause 7.4 of TS 34.108. UTRA cell 1 is the only cell in the active set of the UE. If the UE requires compressed mode (refer ICS/IXIT), the SS sends a PHYSICAL CHANNEL RECONFIGURATION message to the UE to configure the compressed mode pattern sequence parameters to the UE. Three compressed mode patterns are configured, according to the message specified below. When the PHYSICAL CHANNEL RECONFIGURATION COMPLETE is received from the UE, the SS sends a MEASUREMENT CONTROL message to the UE, to set up inter-RAT measurements. Event 3d is set up in this message, and if the UE requires compressed mode (refer ICS/IXIT), compressed mode is activated.

At instant T1, the RF signal strength for GSM cell 1 increases while the RF signal strength for GSM cell 2 decreases as described in table 8.4.1.36.4-1.

A MEASUREMENT CONTROL is then sent to the UE that releases the inter-RAT measurement, and deactivates compressed mode. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1				The UE is brought to the CELL_DCH state in the cell 1. If the UE does not require compressed mode (refer ICS/IXIT), then goto step 4.
2	←		PHYSICAL CHANNEL RECONFIGURATION	Compressed mode pattern sequence parameters are loaded to UE.
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
4	←		MEASUREMENT CONTROL	SS configures event 3d in the UE. If the UE requires compressed mode (refer ICS/IXIT), compressed mode is started.
5	→		MEASUREMENT REPORT	The UE sends a MEASUREMENT REPORT to UTRAN indicating which is/are the best GSM cell/Cells just after the initiation of the measurement SS should wait long enough for the reception of this message as UE that needs compressed mode takes time to activate compressed mode patterns as well as complete BSIC verification before sending the report
6				SS re-adjusts the downlink transmission power settings according to columns "T1" in tables 8.4.1.36.4-1.
7	→		MEASUREMENT REPORT	The UE sends a MEASUREMENT REPORT to SS triggered by event 3d. SS should wait long enough for the reception of this message as UE that needs compressed mode takes time to complete BSIC verification before sending the report
8	←		MEASUREMENT CONTROL	SS releases the inter-RAT measurements, and, if the UE requires compressed mode (refer ICS/IXIT), deactivates compressed mode.
9				If the UE requires compressed mode (refer ICS/IXIT), SS checks that the UE has deactivated compressed mode.
10	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

3GPP TS 34.123-1 version 10.3.1 Release 10

PHYSICAL CHANNEL RECONFIGURATION (Step 2)

Use the same message sub-type in clause 9 of TS 34.108 titled "Non speech in CS" or "Speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS, with Scrambling code change set to Default1 and with the following exceptions:

Information Element	Value/remark	Version
Downlink information common for all radio links		
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
- Transmission gap pattern sequence configuration parameters		
- TGMP	GSM Carrier RSSI Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not present	
- TGD	undefined	
- TGPL1	12	
- TGPL2	Not present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability) depends on UE's Measurement capability)	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2	
- Downlink frame type	A	
- DeltaSIR1	10 (1.0)	
- DeltaSIRAfter1	5 (0.5)	
- DeltaSIR2	Not Present	
- DeltaSIR2After2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
- TGPSI	2	
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
- Transmission gap pattern sequence configuration parameters		
- TGMP	GSM BSIC identification	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not present	
- TGD	undefined	
- TGPL1	8	
- TGPL2	Not present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2	
- Downlink frame type	A	
- DeltaSIR1	10 (1.0)	
- DeltaSIRAfter1	5 (0.5)	
- DeltaSIR2	Not Present	
- DeltaSIR2After2	Not Present	
- N identify abort	66	
- T Reconfirm abort	Not Present	

Information Element	Value/remark	Version
- TGPSI	3	
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
3GPP TS 34.123-1 version 10.3.1 Release 10		
- Transmission gap pattern sequence configuration parameters		
- TGMP	GSM BSIC re-confirmation	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not present	
- TGD	undefined	
- TGPL1	8	
- TGPL2	Not present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2	
- Downlink frame type	A	
- DeltaSIR1	10 (1.0)	
- DeltaSIRAfter1	5 (0.5)	
- DeltaSIR2	Not Present	
- DeltaSIR2After2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	10 (5 s)	
Downlink information per radio link list		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only
- PDSCH code mapping	Not Present	R99 and Rel-4 only
- Serving HS-DSCH radio link indicator	FALSE	Rel-5
- Serving E-DCH radio link indicator	FALSE	Rel-6
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value : Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	5	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	0	
- Scrambling code change	Set to value Default1: No code change (if the UE has a compressed mode pattern sequence configured in variable TGPS_IDENTITY or included in the message including IE "Downlink DPCH info for each RL", which is using compressed mode method "SF/2")	
- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	Rel-6
- E-HICH Information	Not Present	Rel-6
- E-RGCH Information	Not Present	Rel-6
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

MEASUREMENT CONTROL (Step 4)(FDD)

Information Element	Value/remark
Measurement Identity	3
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event triggered
Additional measurements list	Not Present
CHOICE measurement type	
- inter-RAT measurement	
- inter-RAT measurement object list	
CHOICE Inter-RAT Cell Removal	Remove all inter-RAT cells
-Remove all inter-RAT cells	(No Data)
New inter-RAT cells (1 to <MaxCellMeas>)	
- inter-RAT cell id	Not present
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC1
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- inter-RAT cell id	Not present
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC2
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- Cell for measurement	Not present
- inter-RAT measurement quantity	
- Measurement quantity for UTRAN quality estimate	Not included
CHOICE system	GSM
- Measurement quantity	GSM carrier RSSI
- Filter coefficient	0
- BSIC verification required	required
- inter-RAT reporting quantity	
CHOICE system	GSM
- Observed time difference to GSM cell reporting indicator	FALSE
- GSM carrier RSSI reporting indicator	TRUE
CHOICE report criteria	
- Inter-RAT measurements reporting criteria	
- Parameters required for each event (1 to<maxMeasEvent>)	
- Inter-RAT event identity	3d
- Threshold own system	Not present
- W	Not present
- Threshold other system	Not present
- Hysteresis	5 (2.5 dB)
- Time to Trigger	200 ms
- Reporting cell status	Report cells within active set or within virtual active set or of the other RAT
- Maximum number of reported cells	2
Physical channel information elements	
- DPCH compressed mode status info	If the UE requires compressed mode (refer ICS/IXIT), this IE is present and contains the IEs as follows. If the UE does not require compressed mode (refer ICS/IXIT), this IE is not present.
- TGPS reconfiguration CFN	(Current CFN + (250 – TTI/10msec))mod 256
- Transmission gap pattern sequence (1 to <MaxTGPS>)	

Information Element	Value/remark
- TGPSI	1
- TGPS status flag	Activate
- TGCFN	(Current CFN + (252 – TTI/10msec))mod 256
3GPP TS 34.123-1 version 10.3.1 Release 10	
- TGPSI	2
- TGPS status flag	Activate
- TGCFN	(Current CFN + (254 – TTI/10msec))mod 256
- TGPSI	3
- TGPS status flag	Activate
- TGCFN	(Current CFN + (250 – TTI/10msec))mod 256

MEASUREMENT CONTROL (Step 4)(TDD)

Information Element	Value/remark
Measurement Identity	3
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event triggered
Additional measurements list	Not Present
CHOICE measurement type	
- inter-RAT measurement	
- inter-RAT measurement object list	
CHOICE Inter-RAT Cell Removal	Remove all inter-RAT cells
-Remove all inter-RAT cells	(No Data)
New inter-RAT cells (1 to <MaxCellMeas>)	
- inter-RAT cell id	Not present
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC1
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- inter-RAT cell id	Not present
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC2
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- Cell for measurement	Not present
- inter-RAT measurement quantity	
- Measurement quantity for UTRAN quality estimate	Not included
CHOICE system	GSM
- Measurement quantity	GSM carrier RSSI
- Filter coefficient	0
- BSIC verification required	required
- inter-RAT reporting quantity	
CHOICE system	GSM
- Observed time difference to GSM cell reporting indicator	FALSE
- GSM carrier RSSI reporting indicator	TRUE
CHOICE report criteria	
- Inter-RAT measurements reporting criteria	
- Parameters required for each event (1 to<maxMeasEvent>)	
- Inter-RAT event identity	3d
- Threshold own system	Not present
- W	Not present
- Threshold other system	Not present
- Hysteresis	5 (2.5 dB)
- Time to Trigger	200 ms
- Reporting cell status	Report cells within active set or within virtual active set or of the other RAT
- Maximum number of reported cells	2

MEASUREMENT REPORT (Step 5)

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 3	
3GPP TS 34.123-1 version 10.3.1 Release 10		
Measured Results		
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"	
- Inter-RAT measured result list		
- CHOICE system	GSM	
- Measured GSM cells	Optional to have both Cells since a UE requiring compressed mode for inter-RAT measurements may take longer time for BSIC verification and hence need not include both the Cells	
- GSM carrier RSSI	Check that measurement result is reasonable. RXLEV is mapped to a value between 0 and 63. The RSSI bits are numbered b0 to b5, where b0 is the least significant bit. When mapping the RXLEV value to the RSSI bit string, the first/ leftmost bit of the bit string contains the most significant bit.	
CHOICE BSIC	Check it is set to verified BSIC	
- inter-RAT cell id	Check that it is set to 0	
- Observed time difference to GSM cell	Check that the IE is not included	R99 and Rel-4 only
- GSM carrier RSSI	Check that measurement result is reasonable (Optional as this can be included only if BSIC verification is completed)	
CHOICE BSIC	Verified BSIC (Optional as this can be included only if BSIC verification is completed)	
- inter-RAT cell id	Check that it is set to 1(Optional)	
- Observed time difference to GSM cell	Check that the IE is not present (Optional)	R99 and Rel-4 only
Measured results on RACH	Check that not present	
Additional Measured results	Check that not present	
Event results	Check that the IE is included	
- CHOICE event result	Check that this is set to inter-RAT measurement event results	
- Inter-RAT event identity	Check that this is set to 3d	
- Cells to report (1 to <maxCellMeas>)	Check that <maxCellMeas> is set to 1	
- CHOICE BSIC	Check that this is set to verified BSIC	
- Inter-RAT cell id	Check that this is set to 0.	

MEASUREMENT REPORT (Step 5) (1.28 Mcps TDD)

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 3	
3GPP TS 34.123-1 version 10.3.1 Release 10		
Measured Results	Check that not present	
Measured results on RACH	Check that not present	
Additional Measured results	Check that not present	
Non Critical Extensions		
- Additional Measured results - LCR		
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"	
- Inter-RAT measured result list		
- CHOICE system	GSM	
- Measured GSM cells	Optional to have both Cells since a UE requiring compressed mode for inter-RAT measurements may take longer time for BSIC verification and hence need not include both the Cells	
- GSM carrier RSSI	Check that measurement result is reasonable. RXLEV is mapped to a value between 0 and 63. The RSSI bits are numbered b0 to b5, where b0 is the least significant bit. When mapping the RXLEV value to the RSSI bit string, the first/ leftmost bit of the bit string contains the most significant bit.	
CHOICE BSIC	Check it is set to verified BSIC	
- inter-RAT cell id	Check that it is set to 0	
- Observed time difference to GSM cell	Check that the IE is not included	R99 and Rel-4 only
- GSM carrier RSSI	Check that measurement result is reasonable (Optional as this can be included only if BSIC verification is completed)	
CHOICE BSIC	Verified BSIC (Optional as this can be included only if BSIC verification is completed)	
- inter-RAT cell id	Check that it is set to 1(Optional)	
- Observed time difference to GSM cell	Check that the IE is not present (Optional)	R99 and Rel-4 only
Event results	Check that the IE is included	
- CHOICE event result	Check that this is set to inter-RAT measurement event results	
- Inter-RAT event identity	Check that this is set to 3d	
- Cells to report (1 to <maxCellMeas>)	Check that <maxCellMeas> is set to 1	
- CHOICE BSIC	Check that this is set to verified BSIC	
- Inter-RAT cell id	Check that this is set to 0.	

MEASUREMENT REPORT (Step 7)

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 3	
3GPP TS 34.123-1 version 10.3.1 Release 10		
Measured Results		
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"	
- Inter-RAT measured result list		
- CHOICE system	GSM	
- Measured GSM cells	Check that measurement results for two GSM cells are included	
- GSM carrier RSSI	Check that measurement result is reasonable. RXLEV is mapped to a value between 0 and 63. The RSSI bits are numbered b0 to b5, where b0 is the least significant bit. When mapping the RXLEV value to the RSSI bit string, the first/ leftmost bit of the bit string contains the most significant bit.	
CHOICE BSIC	Check it is set to verified BSIC	
- inter-RAT cell id	Check that it is set to 1	
- Observed time difference to GSM cell	Check that the IE is not included	R99 and Rel-4 only
- GSM carrier RSSI	Check that measurement result is reasonable	
CHOICE BSIC	Verified BSIC	
- inter-RAT cell id	Check that it is set to 0.	
- Observed time difference to GSM cell	Check that the IE is not present	R99 and Rel-4 only
Measured results on RACH	Check that not present	
Additional Measured results	Check that not present	
Event results	Check that the IE is included	
- CHOICE event result	Check that this is set to inter-RAT measurement event results	
- Inter-RAT event identity	Check that this is set to 3d	
- Cells to report (1 to <maxCellMeas>)	Check that <maxCellMeas> is set to 1	
- CHOICE BSIC	Check that this is set to verified BSIC	
- Inter-RAT cell id	Check that this is set to 1.	

MEASUREMENT REPORT (Step 7) (1.28 Mcps TDD)

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 3	
3GPP TS 34.123-1 version 10.3.1 Release 10		
Measured Results	Check that not present	
Measured results on RACH	Check that not present	
Additional Measured results	Check that not present	
Non Critical Extensions		
- Additional Measured results - LCR		
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"	
- Inter-RAT measured result list		
- CHOICE system	GSM	
- Measured GSM cells	Check that measurement results for two GSM cells are included	
- GSM carrier RSSI	Check that measurement result is reasonable. RXLEV is mapped to a value between 0 and 63. The RSSI bits are numbered b0 to b5, where b0 is the least significant bit. When mapping the RXLEV value to the RSSI bit string, the first/ leftmost bit of the bit string contains the most significant bit.	
CHOICE BSIC	Check it is set to verified BSIC	
- inter-RAT cell id	Check that it is set to 1	
- Observed time difference to GSM cell	Check that the IE is not included	R99 and Rel-4 only
- GSM carrier RSSI	Check that measurement result is reasonable	
CHOICE BSIC	Verified BSIC	
- inter-RAT cell id	Check that it is set to 0.	
- Observed time difference to GSM cell	Check that the IE is not present	R99 and Rel-4 only
Event results	Check that the IE is included	
- CHOICE event result	Check that this is set to inter-RAT measurement event results	
- Inter-RAT event identity	Check that this is set to 3d	
- Cells to report (1 to <maxCellMeas>)	Check that <maxCellMeas> is set to 1	
- CHOICE BSIC	Check that this is set to verified BSIC	
- Inter-RAT cell id	Check that this is set to 1.	

MEASUREMENT CONTROL (Step 8)

Information Element	Value/remark
Measurement Identity	3
Measurement Command	Release
Physical channel information elements	
- DPCH compressed mode status info	If the UE requires compressed mode (refer ICS/IXIT), this IE is present and contains the IEs as follows. If the UE does not require compressed mode (refer ICS/IXIT), this IE is not present.
- TGPS reconfiguration CFN	(Current CFN + (256 – TTI/10msec))mod 256
- Transmission gap pattern sequence (1 to <MaxTGPS>)	
- TGPSI	1
- TGPS status flag	Deactivate
- TGCFN	Not present
- TGPSI	2
- TGPS status flag	Deactivate
- TGCFN	Not present
- TGPSI	3
- TGPS status flag	Deactivate
- TGCFN	Not present

8.4.1.36.5 Test requirement

Shortly after the UE has received the first MEASUREMENT CONTROL message it shall transmit a MEASUREMENT REPORT to the SS.

3GPP TS 34.123-1 version 10.3.1 Release 10

After instant T1, the UE shall begin to transmit a MEASUREMENT REPORT triggered by event 3d to the SS.

After receiving the second MEASUREMENT CONTROL message, the UE shall then stop running compressed mode.

8.4.1.37 Measurement Control and Report: UE internal measurement, event 6c

8.4.1.37.1 Definition

8.4.1.37.2 Conformance requirement

When this event is ordered by UTRAN in a measurement control message, the UE shall send a measurement report when the UE Tx power reaches its minimum value.

Reference

3GPP TS 25.331 clause 14.6.2.3.

8.4.1.37.3 Test Purpose

1. To confirm that the UE sends a measurement report for event 6c when the UE Tx power reaches its minimum value when event 6c has been configured in the UE through a MEASUREMENT CONTROL message.

8.4.1.37.4 Method of test

Initial Condition

System simulator: 1 UTRAN cell.

UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Test procedure

The UE is initially in CELL_DCH state as specified in clause 7.4 of TS 34.108.

The SS sends a MEASUREMENT CONTROL message to the UE that configures event 6c.

For FDD and 1.28 Mcps TDD: The SS sends TPC_cmd equal to -1 until the transmitter power of the UE reaches its minimum value.

For 3.84 Mcps TDD and 7.68 Mcps TDD: The SS sets the ISCP reported for the timeslot containing the uplink DPCH to the minimum reportable value (< -120)

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1				The UE is brought to the CELL_DCH state in the cell 1.
2	←		MEASUREMENT CONTROL	SS configures event 6c in the UE.
3	←			For FDD and 1.28 Mcps TDD: The SS sends TPC_cmd equal to -1 until the transmitter power of the UE reaches its minimum value, which shall be below –50 dBm.
3a	←			For 3.84 Mcps TDD and 7.68 Mcps: The SS sets the ISCP reported for the timeslot containing the uplink DPCH to the minimum reportable value (< -120)
4	→		MEASUREMENT REPORT	After about 10 ms, the UE sends a MEASUREMENT REPORT to SS triggered by event 6c.
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific message content

MEASUREMENT CONTROL (Step 2) (FDD)

Information Element	Value/remark
Measurement Identity	6
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event triggered
Additional measurements list	Not Present
CHOICE measurement type	
- UE internal measurement	
- UE internal measurement quantity	UE Transmitter Power
- Filter coefficient	0
- UE internal reporting quantity	
- UE Transmitted power	TRUE
CHOICE mode	
- UE Rx-Tx time difference	FALSE
CHOICE report criteria	
- UE internal measurement reporting criteria	
- Parameters sent for each UE internal measurement event	1 event
- UE internal event identity	event 6c
- Time to trigger	10

MEASUREMENT CONTROL (Step 2)(1.28 Mcps TDD)

Information Element	Value/remark
Measurement Identity	6
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event trigger
Additional measurements list	Not Present
CHOICE measurement type	UE internal measurement
- CHOICE *mode*	TDD
- measurement quantity	UE Transmitter Power
- Filter coefficient	0
- UE internal reporting quantity	
- UE Transmitted power	TRUE
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- T_{ADV} info	FALSE
- CHOICE report criteria	UE internal measurement reporting criteria
- Parameters sent for each UE internal measurement event	
- UE internal event identity	6c
- Time to trigger	0

MEASUREMENT CONTROL (Step 2) (3.84 Mcps TDD)

Information Element	Value/remark
Measurement Identity	6
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event trigger
Additional measurements list	Not Present
CHOICE measurement type	UE internal measurement
- CHOICE *mode*	TDD
- measurement quantity	UE Transmitter Power
- Filter coefficient	0
- UE internal reporting quantity	
- UE Transmitted power	TRUE
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Applied TA	FALSE
- CHOICE report criteria	UE internal measurement reporting criteria
- Parameters sent for each UE internal measurement event	
- UE internal event identity	6c
- Time to trigger	0

MEASUREMENT CONTROL (Step 2) (7.68 Mcps TDD)

Information Element	Value/remark
Measurement Identity	6
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event trigger
Additional measurements list	Not Present
CHOICE measurement type	UE internal measurement
- CHOICE *mode*	TDD
- measurement quantity	UE Transmitter Power
- Filter coefficient	0
- UE internal reporting quantity	
- UE Transmitted power	TRUE
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Applied TA	FALSE
- CHOICE report criteria	UE internal measurement reporting criteria
- Parameters sent for each UE internal measurement event	
- UE internal event identity	6c
- Time to trigger	0

MEASUREMENT REPORT (Step 4) (FDD)

Information Element	**Value/remark**
Measurement identity	Check to see if set to 6
Measured Results	
- CHOICE measurement	Check to see if set to "UE internal measurement"
- UE internal measured results	
- UE Transmitted Power	Check that this IE is set a value that is equal to –50 dBm.
- UE Rx-Tx report entities	Check that this IE is not included
Measured results on RACH	Check that this IE is not included
Additional measured results	Check that this IE is not included
Event Results	
CHOICE *event result*	Check that this IE is set to UE internal measurement event results
UE internal measurement results	
UE internal event identity	Check that this IE is set to 6c
CHOICE *mode*	
Primary CPICH info	This IE should not be included

MEASUREMENT REPORT (Step 4) (1.28 Mcps TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 6
Measured Results	
- CHOICE measurement	Check to see if set to "UE internal measured results "
-CHOICE *mode*	Check to see if set to TDD
- UE Transmitted Power	Check that this IE is set a value that is below –49 dBm.
- CHOICE TDD option	Check to see if set to"1.28 Mcps TDD"
- T_{ADV}	Check that this IE is not included
Measured results on RACH	Check that this IE is not included
Additional measured results	Check that this IE is not included
Event Results	
CHOICE *event result*	Check that this IE is set to UE internal measurement event results
UE internal measurement results	
UE internal event identity	Check that this IE is set to 6c

MEASUREMENT REPORT (Step 4) (3.84 Mcps TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 6
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "UE internal measured results "
-CHOICE *mode*	Check to see if set to TDD
- UE Transmitted Power	Check that this IE is set a value that is below –45 dBm.
- CHOICE TDD option	Check to see if set to"3.84 Mcps TDD"
- Applied TA	Check that this IE is not included
Measured results on RACH	Check that this IE is not included
Additional measured results	Check that this IE is not included
Event Results	
CHOICE *event result*	Check that this IE is set to UE internal measurement event results
UE internal measurement results	
UE internal event identity	Check that this IE is set to 6c

MEASUREMENT REPORT (Step 4) (7.68 Mcps TDD)

Information Element	**Value/remark**
Measurement identity	Check to see if set to 6
Measured Results	
- CHOICE measurement	Check to see if set to "UE internal measured results "
-CHOICE *mode*	Check to see if set to TDD
- UE Transmitted Power	Check that this IE is set a value that is below –45 dBm.
- CHOICE TDD option	Check to see if set to"7.68 Mcps TDD"
- Applied TA	Check that this IE is not included
Measured results on RACH	Check that this IE is not included
Additional measured results	Check that this IE is not included
Event Results	
CHOICE *event result*	Check that this IE is set to UE internal measurement event results
UE internal measurement results	
UE internal event identity	Check that this IE is set to 6c

8.4.1.37.5 Test requirement

The UE shall then begin transmitting a MEASUREMENT REPORT message to SS triggered by event 6c when its transmit power has reached its minimum output power. The minimum transmitted power of the UE shall be less than –50dBm.(for FDD), -49dBm (for 1.28 Mcps TDD), and -45dBm (for 3.84 Mcps TDD and 7.68 Mcps TDD)

8.4.1.38 Measurement Control and Report: UE internal measurement, event 6d

8.4.1.38.1 Definition

8.4.1.38.2 Conformance requirement

When this event is ordered by UTRAN in a measurement control message, the UE shall send a measurement report when the UE Tx power reaches its maximum value.

Reference

3GPP TS 25.331 clause 14.6.2.4

8.4.1.38.3 Test Purpose

1. To confirm that the UE sends a measurement report for event 6d when the UE Tx power reaches its maximum value when event 6d has been configured in the UE through a MEASUREMENT CONTROL message.

8.4.1.38.4 Method of test

3GPP TS 34.123-1 version 10.3.1 Release 10

Initial Condition

System simulator: 1 UTRAN cell.

UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Test procedure

The UE is initially in CELL_DCH state as specified in clause 7.4 of TS 34.108.

For FDD and 1.28 Mcps TDD: The SS sends TPC_cmd equal to +1 until the transmitter power of the UE reaches its maximum value.

For 3.84 Mcps TDD and 7.68 Mcps TDD: The SS sets the ISCP reported for the timeslot containing the uplink DPCH to the maximum reportable.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to the CELL_DCH state in the cell 1.
2	←		MEASUREMENT CONTROL	SS configures event 6d in the UE.
3	←			For FDD and 1.28 Mcps TDD: The SS sends TPC_cmd equal to +1 until the transmitter power of the UE reaches its maximum value.
3a	←			For 3.84 Mcps TDD and 7.68 Mcps TDD: The SS sets the ISCP reported for the timeslot containing the uplink DPCH to the maximum reportable.
4	→		MEASUREMENT REPORT	After about 200 ms, the UE sends a MEASUREMENT REPORT to SS triggered by event 6d.
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

MEASUREMENT CONTROL (Step 2) (FDD)

Information Element	Value/remark
Measurement Identity	6
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event triggered
Additional measurements list	Not Present
CHOICE measurement type	
- UE internal measurement	
- UE internal measurement quantity	UE Transmitter Power
- Filter coefficient	0
- UE internal reporting quantity	
- UE Transmitted power	TRUE
- CHOICE mode	
- UE Rx-Tx time difference	FALSE
CHOICE report criteria	
- UE internal measurement reporting criteria	
- Parameters sent for each UE internal measurement event	1 event
- UE internal event identity	event 6d
- Time to trigger	200

MEASUREMENT CONTROL (Step 2)(1.28 Mcps TDD)

Information Element	Value/remark
Measurement Identity	6
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event triggered
Additional measurements list	Not Present
CHOICE measurement type	UE internal measurement
- CHOICE mode	TDD
- measurement quantity	UE Transmitter Power
- Filter coefficient	0
- UE internal reporting quantity	
- UE Transmitted power	TRUE
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- T_{ADV} info	FALSE
- CHOICE report criteria	UE internal measurement reporting criteria
- Parameters sent for each UE internal measurement event	
- UE internal event identity	6d
- Time to trigger	200

MEASUREMENT CONTROL (Step 2) (3.84 Mcps TDD)

Information Element	Value/remark
Measurement Identity	6
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event triggered
Additional measurements list	Not Present
CHOICE measurement type	UE internal measurement
- CHOICE mode	TDD
- measurement quantity	UE Transmitter Power
- Filter coefficient	0
- UE internal reporting quantity	
- UE Transmitted power	TRUE
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Applied TA	FALSE
- CHOICE report criteria	UE internal measurement reporting criteria
- Parameters sent for each UE internal measurement event	
- UE internal event identity	6d
- Time to trigger	200

MEASUREMENT CONTROL (Step 2) (7.68 Mcps TDD)

Information Element	Value/remark
Measurement Identity	6
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event triggered
Additional measurements list	Not Present
CHOICE measurement type	UE internal measurement
- CHOICE mode	TDD
- measurement quantity	UE Transmitter Power
- Filter coefficient	0
- UE internal reporting quantity	
- UE Transmitted power	TRUE
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Applied TA	FALSE
- CHOICE report criteria	UE internal measurement reporting criteria
- Parameters sent for each UE internal measurement event	
- UE internal event identity	6d
- Time to trigger	200

MEASUREMENT REPORT (Step 4) (FDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 6
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "UE internal measurement"
- UE internal measured results	
- UE Transmitted Power	Check that this IE is set to the maximum out power of the UE.
- UE Rx-Tx report entities	Check that this IE is not included
Measured results on RACH	Check that this IE is not included
Additional measured results	Check that this IE is not included
Event Results	
CHOICE *event result*	Check that this IE is set to UE internal measurement event results
UE internal measurement results	
UE internal event identity	Check that this IE is set to 6d
CHOICE *mode*	
Primary CPICH info	This IE should not be included

MEASUREMENT REPORT (Step 4)(1.28 Mcps TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 6
Measured Results	
- CHOICE measurement	Check to see if set to "UE internal measured results "
- CHOICE mode	Check to see if set to TDD
- UE Transmitted Power	Check that this IE is set to the maximum out power of the UE.
- CHOICE TDD option	Check to see if set to “1.28 Mcps TDD”
- T_{ADV}	Check that this IE is not included
Measured results on RACH	Check that this IE is not included
Additional measured results	Check that this IE is not included
Event Results	
CHOICE *event result*	Check that this IE is set to UE internal measurement event results
UE internal event identity	Check that this IE is set to 6d

MEASUREMENT REPORT (Step 4) (3.84 Mcps TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 6
Measured Results	
- CHOICE measurement	Check to see if set to "UE internal measured results "
- CHOICE mode	Check to see if set to TDD
- UE Transmitted Power	Check that this IE is set to the maximum out power of the UE.
- CHOICE TDD option	Check to see if set to “3.84 Mcps TDD”
- Applied TA	Check that this IE is not included
Measured results on RACH	Check that this IE is not included
Additional measured results	Check that this IE is not included
Event Results	
CHOICE *event result*	Check that this IE is set to UE internal measurement event results
UE internal event identity	Check that this IE is set to 6d

MEASUREMENT REPORT (Step 4) (7.68 Mcps TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 6
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "UE internal measured results "
- CHOICE mode	Check to see if set to TDD
- UE Transmitted Power	Check that this IE is set to the maximum out power of the UE.
- CHOICE TDD option	Check to see if set to “7.68 Mcps TDD”
- Applied TA	Check that this IE is not included
Measured results on RACH	Check that this IE is not included
Additional measured results	Check that this IE is not included
Event Results	
CHOICE *event result*	Check that this IE is set to UE internal measurement event results
UE internal event identity	Check that this IE is set to 6d

8.4.1.38.5 Test requirement

The UE shall then begin transmitting a MEASUREMENT REPORT message to SS triggered by event 6d when its transmit power has reached its maximum. The maximum transmitted power of the UE shall be according to the class of the UE.

8.4.1.39 Measurement Control and Report: UE internal measurement, event 6e

8.4.1.39.1 Definition

8.4.1.39.2 Conformance requirement

When this event is ordered by UTRAN in a measurement control message, the UE shall send a measurement report when the UE RSSI reaches the UE's dynamic receiver range.

Reference

3GPP TS 25.331 clause 14.6.2.5

8.4.1.39.3 Test Purpose

1. To confirm that the UE sends a measurement report for event 6e when the UE RSSI reaches the UE's dynamic receiver range when event 6e has been configured in the UE through a MEASUREMENT CONTROL message.

8.4.1.39.4 Method of test

Initial Condition

System simulator: 1 UTRAN cell.

UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Test procedure

The UE is initially in CELL_DCH state as specified in clause 7.4 of TS 34.108.

The SS increases its output power by 1dB step until the UE RSSI reaches the UE's receiver dynamic range. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1				The UE is brought to the CELL_DCH state in the cell 1.
2	←		MEASUREMENT CONTROL	SS configures event 6e in the UE.
3	←			The SS increases its output power by 1 dB steps until the UE RSSI reaches the UE's receiver dynamic range.
4	→		MEASUREMENT REPORT	The UE sends a MEASUREMENT REPORT to SS triggered by event 6e.
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

MEASUREMENT CONTROL (Step 2) (FDD)

Information Element	Value/remark
Measurement Identity	6
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event triggered
Additional measurements list	Not Present
CHOICE measurement type	
- UE internal measurement	
- UE internal measurement quantity	UTRA Carrier RSSI
- Filter coefficient	0
- UE internal reporting quantity	
- UE Transmitted Power	TRUE
- CHOICE mode	FDD
- UE Rx-Tx time difference	FALSE
CHOICE report criteria	
- UE internal measurement reporting criteria	
- Parameters sent for each UE internal measurement event	1 event
- UE internal event identity	event 6e
- Time to trigger	0

MEASUREMENT CONTROL (Step 2) (1.28 Mcps TDD)

Information Element	Value/remark
Measurement Identity	6
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event triggered
Additional measurements list	Not Present
CHOICE measurement type	UE internal measurement
- UE internal measurement quantity	
- CHOICE mode	TDD
- measurement quantity	UTRA Carrier RSSI
- Filter coefficient	0
- UE internal reporting quantity	
- UE Transmitted Power	False
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- T_{ADV} info	False
CHOICE report criteria	UE internal measurement reporting criteria
- Parameters sent for each UE internal measurement event	
- UE internal event identity	6e
- Time to trigger	0

MEASUREMENT CONTROL (Step 2) (3.84 Mcps TDD)

Information Element	Value/remark
Measurement Identity	6
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event triggered
Additional measurements list	Not Present
CHOICE measurement type	UE internal measurement
- UE internal measurement quantity	
- CHOICE mode	TDD
- measurement quantity	UTRA Carrier RSSI
- Filter coefficient	0
- UE internal reporting quantity	
- UE Transmitted Power	False
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Tadvance	False
CHOICE report criteria	UE internal measurement reporting criteria
- Parameters sent for each UE internal measurement event	
- UE internal event identity	6e
- Time to trigger	0

MEASUREMENT CONTROL (Step 2) (7.68 Mcps TDD)

Information Element	Value/remark
Measurement Identity	6
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event triggered
Additional measurements list	Not Present
CHOICE measurement type	UE internal measurement
- UE internal measurement quantity	
- CHOICE mode	TDD
- measurement quantity	UTRA Carrier RSSI
- Filter coefficient	0
- UE internal reporting quantity	
- UE Transmitted Power	False
- CHOICE mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- Tadvance	False
CHOICE report criteria	UE internal measurement reporting criteria
- Parameters sent for each UE internal measurement event	
- UE internal event identity	6e
- Time to trigger	0

MEASUREMENT REPORT (Step 4) (FDD)

Information Element	**Value/remark**
Measurement identity	Check to see if set to 6
Measured Results	
- CHOICE measurement	UE internal measured results
- CHOICE mode	FDD
- UE transmitted power	Check that this value is within reasonable range of value.
- UE Rx-TX report entries	Check that this IE is not included
Measured results on RACH	Check that this IE is not included
Additional measured results	Check that this IE is not included
Event Results	
CHOICE event result	Check that this IE is set to UE internal measurement event results
UE internal measurement results	
UE internal event identity	Check that this IE is set to 6e
CHOICE *mode*	
Primary CPICH info	This IE should not be included

MEASUREMENT REPORT (Step 4) (TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 6
Measured Results	Check that this IE is not included
Measured results on RACH	Check that this IE is not included
Additional measured results	Check that this IE is not included
Event Results	
CHOICE event result	Check that this IE is set to UE internal measurement event results
UE internal event identity	Check that this IE is set to 6e

8.4.1.39.5 Test requirement

The UE shall then begin transmitting a MEASUREMENT REPORT message to SS triggered by event 6e when the UE RSSI reaches the UE's receiver dynamic range.

8.4.1.40 Measurement Control and Report: Inter-RAT measurement, event 3C, in CELL_DCH state using sparse compressed mode pattern

3GPP TS 34.123-1 version 10.3.1 Release 10

8.4.1.40.1 Definition

8.4.1.40.2 Conformance requirement

1. Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in 3GPP TS 25.331 clause 8.6 unless otherwise specified below.

   The UE shall:

   - read the IE "Measurement command";
   - if the IE "measurement command" has the value "setup":
     - store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", possibly overwriting the measurement previously stored with that identity;
     - for measurement types "inter-RAT measurement" or "inter-frequency measurement":
       - if, according to its measurement capabilities, the UE requires compressed mode to perform the measurements and a compressed mode pattern sequence with an appropriate measurement purpose is simultaneously activated by the IE "DPCH compressed mode status info"; or
       - if, according to its measurement capabilities, the UE does not require compressed mode to perform the measurements:
         - begin measurements according to the stored control information for this measurement identity;
2. Event 3c: The estimated quality of other system is above a certain threshold. When this event is ordered by UTRAN in a measurement control message the UE shall send a report when the estimated quality of the other system is above the value of the IE "Threshold other system" and the hysteresis and time to trigger conditions are fulfilled. The corresponding report contains information specific for the other system.

Reference

3GPP TS 25.331 clause 8.4.1.3, 14.3.1.3.

8.4.1.40.3 Test Purpose

This test case is only applicable to UEs supporting both FDD and GSM, and which require compressed mode to perform the GSM related measurements.

1. To verify that the UE performs Inter-RAT measurement using a sparse compressed mode pattern as specified in the MEASUREMENT CONTROL message.
2. To verify that the UE send MEASUREMENT REPORT message when event 3C is triggered, and if the quality of the other system becomes better than the given threshold for event 3c.
3. To confirm that no other UE MEASUREMENT REPORT message is sent by the UE for a cell that has already triggered event 3c as long as the hysteresis condition for triggering once again event 3c has not been fulfilled.

8.4.1.40.4 Method of test

3GPP TS 34.123-1 version 10.3.1 Release 10

Table 8.4.1.40.4-1 Sparse compressed mode pattern for Inter RAT measurement

TGMP	TGCFN	TGSN	TGL1	TGD	TGPL1	RPP	ITP	TGPL2	Comment
GSM carrier RSSI measurement	Note 1	Inf.	4	7	Not sent	undefined	16	See note 2	Set-up to monitor 12 GSM neighbours every second measurement period, i.e. every second 480ms period.
GSM Initial BSIC identification	Note 1	Inf.	8	14	Not sent	undefined	24	See note 2	Equal to Pattern 6 in TS 25.133 table 8.7.
GSM BSIC re-confirmation	Note 1	Inf.	8	14	Not sent	undefined	24	See note 2	Equal to Pattern 12 in TS 25.133 table 8.8.

NOTE 1: TGCFN can be found in the MEASUREMENT CONTROL message.

NOTE 2: For R99 and Rel-4: TGPL2 is not sent. For Rel-5 and later releases: Not applicable.

Initial Condition

System simulator: 1 UTRAN FDD cell and 2 GSM cells. The initial configurations of the cells in the SS shall follow the values indicated in the column marked T0 in table 8.4.1.40-2. The UTRAN FDD cell shall use UARFCN according to the band under test except in the case of where FDD band VIII is tested and GSM900 is used for the Inter-RAT cells, then “High Range” test frequency for Band VIII is used instead, to avoid the test channels overlapping.

UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 (UTRA) as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Related ICS/IXIT statements

- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-PCS, GSM-850.

Test procedure

Table 8.4.1.40.4-2 Inter-RAT cell specific data

Parameter	Unit	Cell 1 (GSM)				Cell 2 (GSM)			
		T0	T1	T2	T3	T0	T1	T2	T3
Test Channel	#	GSM Ch.1				GSM Ch.2			
BCCH ARFCN	#	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)				Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)			
CELL identity	#	0				1			
BSIC	#	BSIC 1				BSIC 2			
RF Signal Level	dBm	-90	-75	-80	-75	-75	-75	-75	-75

GSM cell 3 to 12 as indicated in the a MEASUREMENT CONTROL message shall not be active in the test, i.e. no BCCH carrier shall be transmitted for GSM cell 3 to 12 in this test.

The table above illustrate the downlink power to be applied for the two cells at various instants of the test execution. Column marked "T0" denotes the initial conditions, while column marked "T1", "T2" and "T3" indicate the values to be applied subsequently.

The UE is initially in CELL_DCH state as specified in clause 7.4 of TS 34.108. UTRA cell 1 is the only cell in the active set of the UE. The SS sends a PHYSICAL CHANNEL RECONFIGURATION message to the UE to configure the compressed mode pattern sequence parameters to the UE. Three compressed mode patterns are configured, according to the message specified below. When the PHYSICAL CHANNEL RECONFIGURATION COMPLETE is received from the UE, the SS sends a MEASUREMENT CONTROL message to the UE, to set up inter-RAT measurements on 12 GSM cells. Event 3c is set up in this message, and compressed mode is activated.

At instant T1, the RF signal strength for GSM cell 1 increases as described in table 8.4.1.40.4-2, since the cell individual offset for GSM cell 1 is 10 dB, event 3c shall be triggered in the UE. A MEASUREMENT REPORT shall be sent to the SS. Note that GSM cell 2 has not triggered event 3c even though the RF signal strength for GSM cell 2 is the same as for cell 1, because the cell individual offset for GSM cell 2 is -3 dB.

3GPP TS 34.123-1 version 10.3.1 Release 10

At instant T2, the RF signal strength for GSM cell 1 drops as described in table 8.4.1.40.4-2, and at instant T3, it increases again to its previous level. No MEASUREMENT REPORT shall be received from the UE, since GSM cell 1 has already triggered event 3c, and since the RF signal strength has not dropped enough for the leaving condition to be met. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to the CELL_DCH state in the cell 1.
2	←		PHYSICAL CHANNEL RECONFIGURATION	Compressed mode pattern sequence parameters are loaded to UE.
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
4	←		MEASUREMENT CONTROL	SS configures event 3c in the UE, compressed mode is started.
5				SS waits for approximately 10 seconds and verifies that no MEASUREMENT REPORT messages are detected on uplink DCCH.
6				SS re-adjusts the downlink transmission power settings according to columns "T1" in table 8.4.1.40.4-2.
7	→		MEASUREMENT REPORT	After about 1.6 s, the UE sends a MEASUREMENT REPORT to SS triggered by event 3c.
8				SS re-adjusts the downlink transmission power settings according to columns "T2" in table 8.4.1.40.4-2.
9				SS re-adjusts the downlink transmission power settings according to columns "T3" in table 8.4.1.40.4-2.
10				SS waits for approximately 10 seconds and verifies that no MEASUREMENT REPORT messages are detected on uplink DCCH.
11	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

3GPP TS 34.123-1 version 10.3.1 Release 10

PHYSICAL CHANNEL RECONFIGURATION (Step 2)

Use the same message sub-type in clause 9 of TS 34.108 titled "Non speech in CS" or "Speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS, with Scrambling code change set to Default1 and with the following exceptions:

Information Element	Value/remark	Version
Downlink information common for all radio links		
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
- Transmission gap pattern sequence configuration parameters		
- TGMP	GSM Carrier RSSI Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not present	
- TGD	undefined	
- TGPL1	16	
- TGPL2	Not present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2	
- Downlink frame type	A	
- DeltaSIR1	10 (1.0)	
- DeltaSIRAfter1	5 (0.5)	
- DeltaSIR2	Not Present	
- DeltaSIR2After2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
- TGPSI	2	
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
- Transmission gap pattern sequence configuration parameters		
- TGMP	GSM BSIC identification	
- TGPRC	Infinity	
- TGSN	8	
- TGL1	14	
- TGL2	Not present	
- TGD	undefined	
- TGPL1	24	
- TGPL2	Not present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2	
- Downlink frame type	A	
- DeltaSIR1	10 (1.0)	
- DeltaSIRAfter1	5 (0.5)	
- DeltaSIR2	Not Present	
- DeltaSIR2After2	Not Present	
- N identify abort	66	
- T Reconfirm abort	Not Present	
- TGPSI	3	

- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
- Transmission gap pattern sequence configuration parameters		

3GPP TS 34.123-1 version 10.3.1 Release 10

- TGMP	GSM BSIC re-confirmation	
- TGPRC	Infinity	
- TGSN	8	
- TGL1	14	
- TGL2	Not present	
- TGD	undefined	
- TGPL1	24	
- TGPL2	Not present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2	
- Downlink frame type	A	
- DeltaSIR1	10 (1.0)	
- DeltaSIRAfter1	5 (0.5)	
- DeltaSIR2	Not Present	
- DeltaSIR2After2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	10 (5 s)	
Downlink information per radio link list		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only
- PDSCH code mapping	Not Present	R99 and Rel-4 only
- Serving HS-DSCH radio link indicator	FALSE	Rel-5
- Serving E-DCH radio link indicator	FALSE	Rel-6
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value : Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	5	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	0	
- Scrambling code change	Set to value Default1: No code change (if the UE has a compressed mode pattern sequence configured in variable TGPS_IDENTITY or included in the message including IE "Downlink DPCH info for each RL", which is using compressed mode method "SF/2")	
- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	Rel-6
- E-HICH Information	Not Present	Rel-6
- E-RGCH Information	Not Present	Rel-6
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

MEASUREMENT CONTROL (Step 4)

Information Element	Value/remark
Measurement Identity	3
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event triggered
Additional measurements list	Not Present
CHOICE measurement type	
- inter-RAT measurement	
- inter-RAT measurement object list	
CHOICE Inter-RAT Cell Removal	Remove all inter-RAT cells
-Remove all inter-RAT cells	(No Data)
New inter-RAT cells (1 to <MaxCellMeas>)	
- inter-RAT cell id	0
CHOICE Radio Access Technology	GSM
- Cell individual offset	10
- Cell selection and re-selection info	Not present
- BSIC	BSIC1
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- inter-RAT cell id	1
CHOICE Radio Access Technology	GSM
- Cell individual offset	-3
- Cell selection and re-selection info	Not present
- BSIC	BSIC2
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- inter-RAT cell id	2
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC3
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- inter-RAT cell id	3
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC4
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- inter-RAT cell id	4
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC5
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- inter-RAT cell id	5
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC6
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)

Information Element	Value/remark
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- inter-RAT cell id	6

3GPP TS 34.123-1 version 10.3.1 Release 10

CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC7
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- inter-RAT cell id	7
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC8
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- inter-RAT cell id	8
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC9
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- inter-RAT cell id	9
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC10
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- inter-RAT cell id	10
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC11
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- inter-RAT cell id	11
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC12
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- Cell for measurement	Not present
- inter-RAT measurement quantity	
- Measurement quantity for UTRAN quality estimate	Not included
CHOICE system	GSM
- Measurement quantity	GSM carrier RSSI
- Filter coefficient	0
- BSIC verification required	required
- inter-RAT reporting quantity	
CHOICE system	GSM

Information Element	Value/remark
- Observed time difference to GSM cell reporting indicator	FALSE
- GSM carrier RSSI reporting indicator	TRUE

3GPP TS 34.123-1 version 10.3.1 Release 10

CHOICE report criteria	
- Inter-RAT measurements reporting criteria	
- Parameters required for each event (1 to<maxMeasEvent>)	
- Inter-RAT event identity	3c
- Threshold own system	Not included
- W	Not included
- Threshold other system	-74
- Hysteresis	5 (2.5 dB)
- Time to Trigger	100 ms
- Reporting cell status	Report cells within active set or within virtual active set or of the other RAT
- Maximum number of reported cells	2
Physical channel information elements	
- DPCH compressed mode status info	
- TGPS reconfiguration CFN	(Current CFN + (256 - 11 – TTI/10msec))mod 256
- Transmission gap pattern sequence (1 to <MaxTGPS>)	
- TGPSI	1
- TGPS status flag	Activate
- TGCFN	(Current CFN + (256 – 11 – TTI/10msec)) mod 256
- TGPSI	2
- TGPS status flag	Activate
- TGCFN	(Current CFN + (256 – 7 – TTI/10msec)) mod 256
- TGPSI	3
- TGPS status flag	Activate
- TGCFN	(Current CFN + (256 – TTI/10msec)) mod 256

MEASUREMENT REPORT (Step 7)

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 3	
3GPP TS 34.123-1 version 10.3.1 Release 10		
Measured Results		
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"	
- Inter-RAT measured result list		
- CHOICE system	GSM	
- Measured GSM cells	Check that measurement results for two GSM cells are included	
- GSM carrier RSSI	Check that measurement result is reasonable. RXLEV is mapped to a value between 0 and 63. The RSSI bits are numbered b0 to b5, where b0 is the least significant bit. When mapping the RXLEV value to the RSSI bit string, the first/ leftmost bit of the bit string contains the most significant bit.	
CHOICE BSIC	Check it is set to verified BSIC	
- inter-RAT cell id	Check that it is set to either 0 or 1	
- Observed time difference to GSM cell	Check that the IE is not included	R99 and Rel-4 only
- GSM carrier RSSI	Check that measurement result is reasonable	
CHOICE BSIC	Verified BSIC	
- inter-RAT cell id	Check that is set to 1 if the previous inter-RAT cell id was set to 0 or to 0 if the previous cell if was set to 1.	
- Observed time difference to GSM cell	Check that the IE is not present	R99 and Rel-4 only
Measured results on RACH	Check that not present	
Additional Measured results	Check that not present	
Event results	Check that the IE is included	
- CHOICE event result	Check that this is set to inter-RAT measurement event results	
- Inter-RAT event identity	Check that this is set to 3c	
- Cells to report (1 to <maxCellMeas>)	Check that <maxCellMeas> is set to 1	
- CHOICE BSIC	Check that this is set to verified BSIC	
- Inter-RAT cell id	Check that this is set to 0.	

8.4.1.40.5 Test Requirement

After instant T1, since the cell individual offset for GSM cell 1 is +10 dB, event 3c shall be triggered in the UE, i.e. the UE shall begin to transmit a MEASUREMENT REPORT to the SS. Note that GSM cell 2 has not triggered event 3c even though the RF signal strength for GSM cell 2 is the same as for cell 1, because the cell individual offset for GSM cell 2 is -3 dB.

After instant T2, no MEASUREMENT REPORT shall be received from the UE, since GSM cell 1 has already triggered event 3c, and since the RF signal strength has not dropped enough for the leaving condition to be met.

8.4.1.41 Measurement Control and Report: Additional Measurements list

8.4.1.41.1 Definition

8.4.1.41.2 Conformance requirement

For the measurement, which triggered the MEASUREMENT REPORT message, the UE shall:

…..

1> set the IE "Measured results" in the IE "Additional measured results" according to the IE "reporting quantity" for all measurements associated with the measurement identities included in the "Additional measurements list" stored in variable MEASUREMENT_IDENTITY of the measurement that triggered the measurement report; and

2> if more than one additional measured results are to be included:

3> include only the available additional measured results, and sort them in ascending order according to their IE "measurement identity" in the MEASUREMENT REPORT message.

3GPP TS 34.123-1 version 10.3.1 Release 10

……

If the IE "Additional Measurement List" is received in a MEASUREMENT CONTROL message, the UE shall:

1> if the received measurement configuration in this MEASUREMENT CONTROL message, or any measurement referenced in the "Additional Measurement List" do not all have the same validity (for this consistency check the UE should assume "CELL_DCH" as the measurement validity for measurements of type "inter-RAT", "UE internal", and "quality"):

2> set the variable CONFIGURATION_INCOMPLETE to TRUE.

1> if any of the measurements referenced in the "Additional Measurement List" is an intra-frequency, inter-frequency or inter-RAT measurement, and this measurement is configured with event based reporting:

2> the UE behaviour is not specified.

1> if the result of this MEASUREMENT CONTROL message is such that more than one additional measurement of the same type will be referenced in the IE "Additional Measurement List" in the MEASUREMENT_IDENTITY variable:

2> the UE behaviour is not specified.

…

If the measurement configured with the MEASUREMENT CONTROL message triggers a measurement report, the UE shall also include the reporting quantities for the measurements referenced by the additional measurement identities. The contents of the IE "Additional Measured results" is completely determined by the measurement configuration of the referenced additional measurement.

…..

Reference

3GPP TS 25.331, clause 8.4.2.2, 8.6.7.22

8.4.1.41.3 Test Purpose

1. To confirm that the UE reports measured results for a referenced additional measurement.
2. To confirm that the UE transmits MEASUREMENT REPORT messages for a measurement, also if this measurement is referenced as an additional measurement by another measurement.

8.4.1.41.4 Method of test

Initial Condition

System Simulator: 1 cell, cell 1.

UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Test Procedure

The UE is in CELL_DCH state in cell 1, after successfully executing procedures P11 or P13 as specified in clause 7.4 of TS 34.108. Next, SS transmits MEASUREMENT CONTROL message to request the UE to perform UE internal measurements and reporting for events 6A and 6B, followed by a MEASUREMENT CONTROL message to request the UE to perform a periodic intra-frequency measurement. The intra-frequency measurement configuration references as an additional measurement the measurement defined by the first MEASUREMENT CONTROL message.

The UE will start to periodically send MEASUREMENT REPORT messages for the intra-frequency measurement. The reports shall include the UE Tx power as an additional measurement result.

After two MEASUREMENT REPORT messages, the SS increases the UE Tx power above the threshold set to event **3GPP TS 34.123-1 version 10.3.1 Release 10**6A. After 'time to trigger' the UE sends MEASUREMENT REPORT, triggered by event 6A, to the SS.

Next the SS decreases the UE Tx power below the threshold set for event 6B. After 'time to trigger' UE sends MEASUREMENT REPORT, triggered by event 6B, to the SS.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1			void	
2	←		MEASUREMENT CONTROL	SS requests for measurement and reporting for events 6A and 6B.
3	←		MEASUREMENT CONTROL	SS requests a periodic intra-frequency measurement.
3a	→		MEASUREMENT REPORT	UE shall send a periodical measurement report. Check the current transmission power of UE from the IE transmitted power FDD or TDD of measurement report.
3b				SS sets the UE transmission power between 6dbm and 18 dBm.
4	→		MEASUREMENT REPORT	
5	→		MEASUREMENT REPORT	Time difference between earlier and this MEASUREMENT REPORT message should be 32 seconds.
6				SS sets the UE transmission power above 18 dBm.
7	→		MEASUREMENT REPORT	UE shall send 6A event measurement report.
8				SS sets the UE transmission power below 6 dBm.
9	→		MEASUREMENT REPORT	UE shall send 6B event measurement report.

Specific Message Content

3GPP TS 34.123-1 version 10.3.1 Release 10

MEASUREMENT CONTROL (Step 2)(FDD)

Information Element	Value/remark
Measurement Identity	5
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger Reporting
Additional measurements list	Not Present
CHOICE measurement type	UE internal measurement
- UE internal measurement	
- UE internal measurement quantity	Present
-CHOICE *mode*	FDD
-UE internal measurement quantity	UE Transmitted Power
-Filter coefficient	0
- UE internal reporting quantity	Present
- UE Transmitted Power	TRUE
- CHOICE *mode*	FDD
- UE Rx-Tx time difference	FALSE
- CHOICE *report criteria*	UE internal measurement reporting criteria
- Parameters sent for each UE internal measurement event	
-UE internal event identity	6A
-Time-to-trigger	100 milliseconds
-UE Transmitted Power Tx power threshold	18 dBm
-UE internal event identity	6B
-Time-to-trigger	100 milliseconds
-UE Transmitted Power Tx power threshold	6 dBm
DPCH compressed mode status info	Not Present

MEASUREMENT CONTROL (Step 2)(1.28Mcps TDD)

Information Element	Value/remark
Measurement Identity	5
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger Reporting
Additional measurements list	Not Present
CHOICE measurement type	UE internal measurement
- UE internal measurement	
- UE internal measurement quantity	Present
-CHOICE *mode*	TDD
-UE internal measurement quantity	UE Transmitted Power
-Filter coefficient	0
- UE internal reporting quantity	Present
- UE Transmitted Power	TRUE
- CHOICE *mode*	TDD
- CHOICE *TDD option*	1.28 Mcps TDD
- T_{ADV} info	FALSE
- CHOICE *report criteria*	UE internal measurement reporting criteria
- Parameters sent for each UE internal measurement event	
-UE internal event identity	6A
-Time-to-trigger	100 milliseconds
-UE Transmitted Power Tx power threshold	18 dBm
-UE internal event identity	6B
-Time-to-trigger	100 milliseconds
-UE Transmitted Power Tx power threshold	6 dBm
DPCH compressed mode status info	Not Present

MEASUREMENT CONTROL (Step 3) (FDD)

Information Element	Value/remark
Measurement Identity	1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurements list	
- Additional measurement identity	5
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	Not Present
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present (Default is 0)
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- SFN-SFN observed time difference reporting indicator	No report
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- SFN-SFN observed time difference reporting indicator	No report
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	
- CHOICE reported cell	Report cells within active set
- Maximum number of reported cells	2
- Measurement validity	CELL_DCH
- CHOICE report criteria	Periodical reporting criteria
- Amount of reporting	Infinity
- Reporting interval	32 seconds
DPCH compressed mode status info	Not Present

MEASUREMENT CONTROL (Step 3)(1.28Mcps TDD)

Information Element	Value/remark
Measurement Identity	1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurements list	
- Additional measurement identity	5
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	Not Present
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present (Default is 0)
- Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- SFN-SFN observed time difference reporting indicator	No report
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- SFN-SFN observed time difference reporting indicator	No report
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	
- CHOICE reported cell	Report cells within active set
- Maximum number of reported cells	1
- Measurement validity	CELL_DCH
- CHOICE report criteria	Periodical reporting criteria
- Amount of reporting	Infinity
- Reporting interval	32 seconds
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 3a) (FDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- SFN-SFN observed time difference	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 1
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional Measured Results	
- Measured results	UE internal measured results
- UE transmitted power	Check to see if it is present
- UE RX TX report entry list	Check to see if it is absent
Event Results	Check to see if this IE is absent

MEASUREMENT REPORT (Step 3a) (1.28Mcps TDD)

Information Element	**Value/remark**
Measurement identity	Check to see if set to 1
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	
- Cell parameters Id	Check to see if it's the same code for cell 1
- Proposed TGSN	Check to see if this IE is absent
- Primary CCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Timeslot list	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional Measured Results	
- Measured results	UE internal measured results
- UE transmitted power	Check to see if it is present
- UE RX TX report entry list	Check to see if it is absent
Event Results	Check to see if this IE is absent

MEASUREMENT REPORT (Step 4 and step 5) (FDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- SFN-SFN observed time difference	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 1
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional Measured Results	
- Measured results	UE internal measured results
- UE transmitted power	Check to see if it is present and value is reasonable
- UE RX TX report entry list	Check to see if it is absent
Event Results	Check to see if this IE is absent

MEASUREMENT REPORT (Step 4 and step 5) (1.28Mcps TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	
- Cell parameters Id	Check to see if it's the same code for cell 1
- Proposed TGSN	Check to see if this IE is absent
- Primary CCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Timeslot list	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional Measured Results	
- Measured results	UE internal measured results
- UE transmitted power	Check to see if it is present and value is reasonable
- UE RX TX report entry list	Check to see if it is absent
Event Results	Check to see if this IE is absent

MEASUREMENT REPORT (Step 7) (FDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 5
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "UE Internal measured results"
- UE internal measured results	
-CHOICE *mode*	Check to see if set to "FDD"
UE Transmitted Power	Check to see if present and value is reasonable
Measured Results on RACH	Check to see if this IE is absent
Event results	
-CHOICE *event result*	Check to see if set to "UE internal measurement event results"
-UE internal event identity	Check to see if set to "6A"
-CHOICE *mode*	Check to see if set to "FDD"
-Primary CPICH info	Check to see if this IE is absent

MEASUREMENT REPORT (Step 7) (1.28Mcps TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 5
Measured Results	
- CHOICE measurement	Check to see if set to "UE Internal measured results"
- UE internal measured results	
-CHOICE *mode*	Check to see if set to "TDD"
-UE Transmitted Power list	
UE Transmitted Power	Check to see if present and value is reasonable
Measured Results on RACH	Check to see if this IE is absent
Event results	
-CHOICE *event result*	Check to see if set to "UE internal measurement event results"
-UE internal event identity	Check to see if set to "6A"
-CHOICE *mode*	Check to see if set to "TDD"

MEASUREMENT REPORT (Step 9) (FDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 5
Measured Results	
- CHOICE measurement	Check to see if set to "UE Internal measured results"
- UE internal measured results	
-CHOICE *mode*	Check to see if set to "FDD"
UE Transmitted Power	Check to see if present and value is reasonable
Measured Results on RACH	Check to see if this IE is absent
Event results	
-CHOICE *event result*	Check to see if set to "UE internal measurement event results"
-UE internal event identity	Check to see if set to "6B"
-CHOICE *mode*	Check to see if set to "FDD"
-Primary CPICH info	Check to see if this IE is absent

MEASUREMENT REPORT (Step 9) (1.28Mcps TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 5
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "UE Internal measured results"
- UE internal measured results	
-CHOICE *mode*	Check to see if set to "TDD"
-UE Transmitted Power list	
UE Transmitted Power	Check to see if present and value is reasonable
Measured Results on RACH	Check to see if this IE is absent
Event results	
-CHOICE *event result*	Check to see if set to "UE internal measurement event results"
-UE internal event identity	Check to see if set to "6B"
-CHOICE *mode*	Check to see if set to "TDD"

8.4.1.41.5 Test Requirement

After step 3, the UE shall periodically transmit a MEASUREMENT REPORT message for measurement identity 5. In addition to the CPICH RSCP, these reports shall also include the UL Tx power with a reasonable value.

After step 6, the UE shall transmit a MEASUREMENT REPORT message, containing measured results for UE transmitted power. The 'Event results' IE contains event identity 6A.

After step 8, the UE shall transmit a MEASUREMENT REPORT message, containing measured results for UE transmitted power. The 'Event results' IE contains event identity 6B.

8.4.1.42 Measurement Control and Report: Change of Compressed Mode Method

8.4.1.42.1 Definition

8.4.1.42.2 Conformance requirement

If variable INVALID_CONFIGURATION has value FALSE after UE has performed the checks above, the UE shall:

1> if pattern sequence corresponding to IE "TGPSI" is already active (according to "Current TGPS Status Flag") in the variable TGPS_IDENTITY):

2> if the "TGPS Status Flag" in this message is set to "deactivate" for the corresponding pattern sequence:

3> deactivate this pattern sequence at the beginning of the frame, indicated by IE "Activation time"(see subclause 8.6.3.1) received in this message, when the new configuration received in this message is taken into use.

3> set the "Current TGPS Status Flag" for this pattern sequence in the variable TGPS_IDENTITY to "inactive" at the frame, indicated by IE "Activation time" (see subclause 8.6.3.1) received in this message, when the new configuration received in this message is taken into use.

2> if the "TGPS Status Flag" in this message is set to "activate" for the corresponding pattern sequence:

3> deactivate this pattern sequence at the beginning of the frame, indicated by IE "Activation time"(see subclause 8.6.3.1) received in this message, when the new configuration received in this message is taken into use.

NOTE1: The temporary deactivation of pattern sequences for which the status flag is set to "activate" can be used by the network to align the timing of already active patterns with newly activated patterns.

NOTE2: The deactivation of pattern sequences only occurs as a result of RRC messages received by the UE, i.e. the UE does not set the "Current TGPS Status Flag" to "inactive" after the final gap of a finite length pattern sequence.

1> update each pattern sequence to the variable TGPS_IDENTITY according to the IE "TGPSI";

1> update into the variable TGPS_IDENTITY the configuration information defined by IE group" transmission gap pattern sequence configuration parameters ";

3GPP TS 34.123-1 version 10.3.1 Release 10

1> after the instant in which the message is to be executed, as specified in subclause 8.6.3.1:

2> activate the stored pattern sequence corresponding to each IE "TGPSI" for which the "TGPS status flag" in the variable TGPS_IDENTITY is set to "activate" at the time indicated by IE "TGCFN"; and

2> set the "Current TGPS Status Flag" for this pattern sequence in the variable TGPS_IDENTITY to "active".

NOTE1: If the pattern is activated with a message that includes the IE "Activation time", and if the CFN value indicated by the IE "Activation Time" and the CFN value indicated by the TGCFN are included in the same TTI (but not at the TTI boundary) common to all the transport channels that are multiplexed onto the reference CCTrCh (as defined in subclause 8.6.3.1), and if the CFN value indicated by the TGCFN is equal or higher than the CFN value indicated by the IE "Activation Time" (as defined in subclause 8.6.3.1) value, the UE behaviour is not specified.

NOTE2: If the pattern is activated with a message used to perform timing re-initialised hard handover, the UE can start evaluating the activation of the pattern (i.e. compare the value of the CFN in the new configuration with the value of the TGCFN) at any time between the message activation time and the completion of the synchronisation procedure A.

2> if the IE "DPCH compressed mode info" is included in a message used to perform a Hard Handover with change of frequency (see subclause 8.3.5); or

2> if the IE "DPCH compressed mode info" is included in a message used to transfer the UE from Cell_FACH to Cell_DCH, and the cell in which the UE transited from CELL_FACH state is not included in the active set for the CELL_DCH state (see subclause 8.4.1.7.2):

3> not begin the inter-frequency measurement reporting corresponding to the pattern sequence measurement purpose of each activated pattern sequence.

2> else:

3> begin the inter-frequency measurement reporting corresponding to the pattern sequence measurement purpose of each activated pattern sequence.

2> begin the inter-RAT measurement reporting corresponding to the pattern sequence measurement purpose of each activated pattern sequence;

2> if the new configuration is taken into use at the same CFN as indicated by IE "TGCFN":

3> start the concerned pattern sequence immediately at that CFN.

1> monitor if the parallel transmission gap pattern sequences create an illegal overlap, and in case of overlap, take actions as specified in subclause 8.2.11.2.

….

Uplink and downlink compressed mode methods are described in TS 25.212. For UL "higher layer scheduling" compressed mode method and transport format combination selection, see TS 25.321.

Reference

3GPP TS 25.331 clause 8.6.6.15.

8.4.1.42.3 Test purpose

To confirm that the UE supports change of compressed mode method included in a RADIO BEARER SETUP message.

To confirm that the UE supports change of compressed mode method included in a RADIO BEARER RELEASE message.

8.4.1.42.4 Method of test

3GPP TS 34.123-1 version 10.3.1 Release 10

Initial Condition

System Simulator: 3 cells – Cell 1 on frequency f_1, cell 4 on frequency f_2 and cell 5 on frequency f_3.

UE: "PS-DCCH_DCH" (state 6-7) as specified in clause 7.4 of TS 34.108.

This test case applies only for UEs requiring compressed mode to perform inter- frequency measurements and supporting both PS and CS domains.

Test Procedure

Table 8.4.1.42-1 illustrates the downlink power to be applied for the 3 cells, as well as the frequency and scrambling code for each cell.

Table 8.4.1.42-1a

Parameter	Unit	Cell 1					
Frequency		f_1					
Scrambling code		Scrambling code 1					
		T0	T1	T2	T3	T4	T5
CPICH Ec	dBm/3.84 MHz	-60	-70	-70	-60	-70	-70

Table 8.4.1.42-1b

Parameter	Unit	Cell 4						Cell 5					
Frequency		f_2						f_3					
Scrambling code		Scrambling code 3						Scrambling code 2					
		T0	T1	T2	T3	T4	T5	T0	T1	T2	T3	T4	T5
CPICH Ec	dBm/3.84 MHz	-95	-60	-60	-95	-60	-60	-95	-95	-60	-95	-95	-60

The UE is initially in CELL_DCH, and has only cell 1 in its active set.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to download compressed mode parameters in the UE but without activating compressed mode. The UE shall answer with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

The SS then sets up inter-frequency measurements (event 2b), by sending a MEASUREMENT CONTROL message to the UE.

The SS waits for 2560 ms for the UE to activate compressed mode.

At instant T1, the downlink power is changed according to what is shown in table 8.4.1.42-1. Frequency f_2 shall then trigger event 2b, and the UE shall transmit a MEASUREMENT REPORT message to the SS.

The SS establishes PS domain RAB and changes compressed mode method (from SF/2 to HLS) by sending a RADIO BEARER SETUP message on DCCH using AM-RLC. The UE shall answer with a RADIO BEARER SETUP COMPLETE message.

At instant T2, the downlink power is changed according to what is shown in table 8.4.1.42-1. Frequency f_3 shall then trigger event 2b, and the UE shall transmit a MEASUREMENT REPORT message to the SS.

At instant T3, the downlink power is changed according to what is shown in table 8.4.1.42-1.The increased quality of the used frequency should result in clearing of the concerning TRIGGERED_2B_EVENT.

The SS initiates an MT CS call, establishes a CS domain RAB and changes the compressed mode method to (from HLS to SF/2), by sending a RADIO BEARER SETUP message on DCCH using AM-RLC. The UE shall answer with a RADIO BEARER SETUP COMPLETE message.

At instant T4, the downlink power is changed according to what is shown in table 8.4.1.42-1. Frequency f_2 shall then trigger event 2b, and the UE shall transmit a MEASUREMENT REPORT message to the SS.

Next, the SS releases the CS domain RAB and changes compressed mode method (from SF/2 to HLS) by sending a **3GPP TS 34.123-1 version 10.3.1 Release 10**RADIO BEARER RELEASE message on DCCH using AM-RLC. The UE shall answer with a RADIO BEARER RELEASE COMPLETE message.

At instant T5, the downlink power is changed according to what is shown in table 8.4.1.42-1. Frequency f_3 shall then trigger event 2b, and the UE shall transmit a MEASUREMENT REPORT message to the SS.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1	←		PHYSICAL CHANNEL RECONFIGURATION	SS downloads compressed mode parameters (using SF/2 method) without activating compressed mode
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE acknowledges the downloading of compressed mode parameters
3	←		MEASUREMENT CONTROL	The SS configures inter-frequency measurements in the UE and activates compressed mode
4				The SS changes the power of the cells according to column T1 in table 8.4.1.42-1.
5	→		MEASUREMENT REPORT	Frequency f_2 triggers event 2b in the UE, which sends a MEASUREMENT REPORT message to the SS.
5a	←		RADIO BEARER SETUP	SS establishes PS domain RAB and changes compressed mode method to HLS.
5b	→		RADIO BEARER SETUP COMPLETE	The UE acknowledges the establishment of the RAB and the compressed mode method change.
5c				The SS changes the power of the cells according to column T2 in table 8.4.1.42-1.
5d	→		MEASUREMENT REPORT	Frequency f_3 triggers event 2b in the UE, which sends a MEASUREMENT REPORT message to the SS.
5e				The SS changes the power of the cells according to T3 in table 8.4.1.42-1 (so the UE can trigger event 2b again for both frequencies if suitable conditions arise)
5f	←		PAGING TYPE 2	Initiates MT CS call
5g	→		INITIAL DIRECT TRANSFER (PAGING RESPONSE)	RR
5h	←		DOWNLINK DIRECT TRANSFER (AUTHENTICATION REQUEST)	MM
5i	→		UPLINK DIRECT TRANSFER (AUTHENTICATION RESPONSE)	MM
5j	←		SECURITY MODE COMMAND	
5k	→		SECURITY MODE COMPLETE	
5l	←		DOWNLINK DIRECT TRANSFER (SET UP)	CC
5m	→		UPLINK DIRECT TRANSFER (CALL CONFIRMED)	CC
6	←		RADIO BEARER SETUP	SS establishes CS domain RAB and changes to SF/2 compressed mode method
7	→		RADIO BEARER SETUP COMPLETE	The UE acknowledges the establishment of the RAB and the compressed mode method change.
7a	→		UPLINK DIRECT TRANSFER (ALERTING)	CC (This message is optional)
7b	→		UPLINK DIRECT TRANSFER (CONNECT)	CC

Step	Direction		Message	Comment
	UE	SS		
7c	←		DOWNLINK DIRECT TRANSFER (CONNECT ACKNOWLEDGE)	CC

3GPP TS 34.123-1 version 10.3.1 Release 10

8			The SS changes the power of the cells according to column T4 in table 8.4.1.42-1.
9	→	MEASUREMENT REPORT	Frequency f_2 triggers event 2b in the UE, which sends a MEASUREMENT REPORT message to the SS.
10		Void	
11		Void	
12		Void	
13		Void	
14		Void	
15	←	RADIO BEARER RELEASE	SS releases the CS domain RAB and changes compressed mode method toHLS.
16	→	RADIO BEARER RELEASE COMPLETE	The UE acknowledges the release of the RAB and the compressed mode method change.
17			The SS changes the power of the cells according to column T5 in table 8.4.1.42-1.
18	→	MEASUREMENT REPORT	Frequency f_3 triggers event 2b in the UE, which sends a MEASUREMENT REPORT message to the SS.

Specific Message Content

All messages shall use the same content as defined in [9] TS 34.108 clause 9, with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION MESSAGE (Step 1)

Information Element	Value/Remark	Version
Activation time	Not Present	
3GPP TS 34.123-1 version 10.3.1 Release 10		
New U-RNTI	Not Present	
New C-RNTI	Not Present	
New DSCH-RNTI	Not Present	
RRC State indicator	CELL_DCH	
UTRAN DRX cycle length coefficient	Not Present	
CN information info	Not Present	
URA identity	Not Present	
Downlink counter synchronisation info	Not Present	
Frequency info	Not Present	
Maximum allowed UL TX power	Not Present	
CHOICE channel requirement	Not Present	
CHOICE *mode*	FDD	
- Downlink PDSCH information	Not Present	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL	Not Present	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not Present	
- TGD	undefined	
- TGPL1	3	
- TGPL2	Not Present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
- CHOICE UL/DL Mode	UL and DL, UL only or DL only (depending on the UE capability)	
- Downlink compressed mode method	SF/2 (or not sent, depending on the UE capability)	
- Uplink compressed mode method	SF/2 (or not sent, depending on the UE capability)	
- Downlink frame type	B	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not Present	
- DeltaSIRAfter2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
- TX Diversity mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Not Present	
Downlink information for each radio link	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A3.	

MEASUREMENT CONTROL (Step 3)

Information Element	Value/Remark
Measurement Identity	2
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency info list	2 inter-frequency cells
- Inter-frequency cell id	4
- Frequency info	
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	UARFCN for the downlink corresponding to f_2
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Scrambling code 3
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Inter-frequency cell id	5
- Frequency info	
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	UARFCN for the downlink corresponding to f_3
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	Not present
- Primary Scrambling Code	Scrambling code 2
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cells for measurement	Not present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- Measurement quantity for frequency quality estimate	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- SFN-SFN observed time difference reporting indicator	No report
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	TRUE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	Not present

- Measurement validity	
- UE State	CELL_DCH
- Inter-frequency set update	
- UE autonomous update	On with no reporting

3GPP TS 34.123-1 version 10.3.1 Release 10

- Non autonomous update mode	Not present
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each event	
- Inter-frequency event identity	2b
- Threshold used frequency	-65 dBm
- W used frequency	0.0
- Hysteresis	2 (1 dB)
- Time to trigger	100 ms
- Reporting cell status	Report cells within monitored and/or virtual active set on non-used frequency
- Maximum number of reported cells per reported non-used frequency	2
- Parameters required for each non-used frequency	
- Threshold non used frequency	-68 dBm
- W non-used frequency	0
DPCH compressed mode status info	
- TGPS reconfiguration CFN	(Current CFN + (256 – TTI/10msec))mod 256
- Transmission gap pattern sequence	
- TGPSI	1
- TGPS Status Flag	Activate
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256

MEASUREMENT REPORT (Step 5,9)

Information Element	Value/Remark
Message Type	
3GPP TS 34.123-1 version 10.3.1 Release 10	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	2
Measured Results	
- Inter-frequency measured results list	
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_2
- UTRA carrier RSSI	Check that this IE is absent
- Inter-frequency cell measurement results	Check that the value of this IE is set to 1 cell reported
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_2
- Non freq related measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3

RADIO BEARER SETUP (Step 5a)

3GPP TS 34.123-1 version 10.3.1 Release 10

Use the same message sub-type found in TS 34.108 clause 9, which is entitled "Packet to CELL_DCH from CELL_DCH in PS", with Scrambling code change set to Default1 and with the following modifications:

Information Element	Value/Remark	Version
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Activate	
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not Present	
- TGD	undefined	
- TGPL1	3	
- TGPL2	Not Present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
- CHOICE UL/DL Mode	UL and DL, UL only or DL only (depending on the UE capability)	
- Downlink compressed mode method	HLS(or not sent, depending on the UE capability)	
- Uplink compressed mode method	HLS(or not sent, depending on the UE capability)	
- Downlink frame type	B	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not Present	
- DeltaSIRAfter2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only
- PDSCH code mapping	Not Present	R99 and Rel-4 only
- Serving HS-DSCH radio link indicator	FALSE	Rel-5
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	1	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	0	
- Scrambling code change	Set to value Default1: No code change (if the UE has a compressed mode pattern sequence configured in variable TGPS_IDENTITY or included in the message including IE "Downlink DPCH info for each RL", which is using compressed mode method "SF/2")	
- TPC combination index	0	

- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	

3GPP TS 34.123-1 version 10.3.1 Release 10

- SCCPCH information for FACH	Not Present	R99 and Rel-4 only
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only
- PDSCH code mapping	Not Present	R99 and Rel-4 only
- Serving HS-DSCH radio link indicator	FALSE	Rel-5
- Downlink DPCH info for each RL	Not present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

PAGING TYPE 2 (Step 5f)

Use the same message type found in TS 34.108 clause 9.

RADIO BEARER SETUP (Step 6)

Use the same message sub-type found in TS 34.108 clause 9, which is entitled "Non speech to CELL_DCH from CELL_DCH in CS" or "Speech to CELL_DCH from CELL_DCH in CS", with Scrambling code change set to Default1 and with the following modifications:

Information Element	Value/Remark	Version
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Activate	
3GPP TS 34.123-1 version 10.3.1 Release 10		
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not Present	
- TGD	undefined	
- TGPL1	3	
- TGPL2	Not Present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
- CHOICE UL/DL Mode	UL and DL, UL only or DL only (depending on the UE capability)	
- Downlink compressed mode method	SF/2(or not sent, depending on the UE capability)	
- Uplink compressed mode method	SF/2(or not sent, depending on the UE capability)	
- Downlink frame type	B	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not Present	
- DeltaSIRAfter2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only
- PDSCH code mapping	Not Present	R99 and Rel-4 only
- Serving HS-DSCH radio link indicator	FALSE	Rel-5
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	1	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	0	
- Scrambling code change	Set to value Default1: No code change (if the UE has a compressed mode pattern sequence configured in variable TGPS_IDENTITY or included in the message including IE "Downlink DPCH info for each RL", which is using compressed mode method "SF/2")	
- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only
Downlink information for each radio link list		
- Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		

- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only

3GPP TS 34.123-1 version 10.3.1 Release 10

- PDSCH code mapping	Not Present	R99 and Rel-4 only
- Serving HS-DSCH radio link indicator	FALSE	Rel-5
- Downlink DPCH info for each RL	Not present	
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

MEASUREMENT REPORT (Step 5d,18)

NOTE: Due to ambiguity in 25.331 clause 14.2.1.2 – two interpretations can be given for MEASUREMENT REPORT

Information Element	Value/Remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	2
Measured Results	
- Inter-frequency measured results list	
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_3
- UTRA carrier RSSI	Check that this IE is absent
- Inter-frequency cell measurement results	Check that the value of this IE is set to 1 cell reported
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 2 (on f_3)
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_3
- Non freq related measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 2 (on f_3)

OR:

Information Element	Value/Remark
Message Type	
3GPP TS 34.123-1 version 10.3.1 Release 10	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	2
Measured Results	
- Inter-frequency measured results list	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	Check that the value of this IE is set to UARFCN for the uplink corresponding to f_2 (Could be absent in case the duplex distance is the default duplex distance)
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_2
- UTRA carrier RSSI	Check that this IE is absent
- Inter-frequency cell measurement results	Check that the value of this IE is set to 2 cells reported
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3 (on f_2)
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	Check that the value of this IE is set to UARFCN for the uplink corresponding to f_3(Could be absent in case the duplex distance is the default duplex distance)
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_3
- UTRA carrier RSSI	Check that this IE is absent
- Inter-frequency cell measurement results	
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code Scrambling code 2 (on f_3)
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	
- Inter-frequency measurement event results	Check to see if event results for 2 cells are included (the order in which the different cells are reported is not important)
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	Check that the value of this IE is set to UARFCN for the uplink corresponding to f_2 (Could be absent in case the duplex distance is the default duplex distance)

Information Element	Value/Remark
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_2
- Non freq related measurement event results	

3GPP TS 34.123-1 version 10.3.1 Release 10

- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3 (on f_2)
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	Check that the value of this IE is set to UARFCN for the uplink corresponding to f_3(Could be absent in case the duplex distance is the default duplex distance)
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_3
- Non freq related measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 2 (on f_3)

RADIO BEARER RELEASE (Step 15)

3GPP TS 34.123-1 version 10.3.1 Release 10

Use the same message sub-type found in TS 34.108 clause 9, which is entitled “Non speech in CS” or "Speech in CS", with Scrambling code change set to Default1 and with the following modifications

Information Element	Value/Remark	Version
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Activate	
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not Present	
- TGD	undefined	
- TGPL1	3	
- TGPL2	Not Present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
- CHOICE UL/DL Mode	UL and DL, UL only or DL only (depending on the UE capability)	
- Downlink compressed mode method	HLS(or not sent, depending on the UE capability)	
- Uplink compressed mode method	HLS(or not sent, depending on the UE capability)	
- Downlink frame type	B	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not Present	
- DeltaSIRAfter2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
Downlink information for each radio link list		
-Downlink information for each radio link		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only
- PDSCH code mapping	Not Present	R99 and Rel-4 only
- Serving HS-DSCH radio link indicator	FALSE	Rel-5
- Serving E-DCH radio link indicator	FALSE	Rel-6
- Downlink DPCH info for each RL		
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- Secondary scrambling code		
- channelisation code		
- DL channelisation code		
- Secondary scrambling code	3	
- Spreading factor	Reference to clause 6.10 Parameter Set	
- Code number	0	

3GPP TS 34.123-1 version 10.3.1 Release 10

- Scrambling code change	Set to value Default1: No code change (if the UE has a compressed mode pattern sequence configured in variable TGPS_IDENTITY or included in the message including IE "Downlink DPCH info for each RL", which is using compressed mode method "SF/2") Set to value: OMIT (otherwise)	Default2
- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not present	Rel-6
- E-HICH Information	Not present	Rel-6
- E-RGCH Information	Not present	Rel-6
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

8.4.1.42.5 Test Requirement

After step 1, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS to acknowledge the downloading of compressed mode parameters that were included in the PHYSICAL CHANNEL RECONFIGURATION message of step 1.

After step 4, the UE shall transmit a MEASUREMENT REPORT message triggered by frequency f_2. That message shall only include cell 4 within the IE event results.

After step 5a, the UE shall send a RADIO BEARER SETUP COMPLETE message to the SS to acknowledge the establishment of the RAB and the change of compressed mode method that were included in the RADIO BEARER SETUP message of step 5a.

After step 5c, the UE shall transmit a MEASUREMENT REPORT message triggered by frequency f_3.

After step 6, the UE shall send a RADIO BEARER SETUP COMPLETE message to acknowledge the establishment of the RAB and the compressed mode method change that were included in the RADIO BEARER SETUP message of step 6.

After step 8, the UE shall transmit a MEASUREMENT REPORT message triggered by frequency f_2. That message shall only include cell 4 within the IE event results.

After step 15, the UE shall send a RADIO BEARER RELEASE COMPLETE message to acknowledge the release of the RAB and the compressed mode method change that were included in the RADIO BEARER RELEASE message of step 15.

After step 17, the UE shall transmit a MEASUREMENT REPORT message triggered by frequency f_3.

8.4.1.43 Measurement Control and Report: Compressed Mode Reconfiguration

8.4.1.43.1 Definition

8.4.1.43.2 Conformance requirement

If variable INVALID_CONFIGURATION has value FALSE after UE has performed the checks above, the UE shall:

1> if pattern sequence corresponding to IE "TGPSI" is already active (according to "Current TGPS Status Flag") in the variable TGPS_IDENTITY):

2> if the "TGPS Status Flag" in this message is set to "deactivate" for the corresponding pattern sequence:

3> deactivate this pattern sequence at the beginning of the frame, indicated by IE "Activation time"(see subclause 8.6.3.1) received in this message, when the new configuration received in this message is taken

3GPP TS 34.123-1 version 10.3.1 Release 10into use.

3> set the "Current TGPS Status Flag" for this pattern sequence in the variable TGPS_IDENTITY to "inactive" at the frame, indicated by IE "Activation time" (see subclause 8.6.3.1) received in this message, when the new configuration received in this message is taken into use.

2> if the "TGPS Status Flag" in this message is set to "activate" for the corresponding pattern sequence:

3> deactivate this pattern sequence at the beginning of the frame, indicated by IE "Activation time"(see subclause 8.6.3.1) received in this message, when the new configuration received in this message is taken into use.

NOTE 1: The temporary deactivation of pattern sequences for which the status flag is set to "activate" can be used by the network to align the timing of already active patterns with newly activated patterns.

NOTE 2: The deactivation of pattern sequences only occurs as a result of RRC messages received by the UE, i.e. the UE does not set the "Current TGPS Status Flag" to "inactive" after the final gap of a finite length pattern sequence.

1> update each pattern sequence to the variable TGPS_IDENTITY according to the IE "TGPSI";

1> update into the variable TGPS_IDENTITY the configuration information defined by IE group" transmission gap pattern sequence configuration parameters ";

1> after the instant in which the message is to be executed, as specified in subclause 8.6.3.1:

2> activate the stored pattern sequence corresponding to each IE "TGPSI" for which the "TGPS status flag" in the variable TGPS_IDENTITY is set to "activate" at the time indicated by IE "TGCFN"; and

2> set the "Current TGPS Status Flag" for this pattern sequence in the variable TGPS_IDENTITY to "active".

NOTE 1: If the pattern is activated with a message that includes the IE "Activation time", and if the CFN value indicated by the IE "Activation Time" and the CFN value indicated by the TGCFN are included in the same TTI (but not at the TTI boundary) common to all the transport channels that are multiplexed onto the reference CCTrCh (as defined in subclause 8.6.3.1), and if the CFN value indicated by the TGCFN is equal or higher than the CFN value indicated by the IE "Activation Time" (as defined in subclause 8.6.3.1) value, the UE behaviour is not specified.

NOTE 2: If the pattern is activated with a message used to perform timing re-initialised hard handover, the UE can start evaluating the activation of the pattern (i.e. compare the value of the CFN in the new configuration with the value of the TGCFN) at any time between the message activation time and the completion of the synchronisation procedure A.

2> if the IE "DPCH compressed mode info" is included in a message used to perform a Hard Handover with change of frequency (see subclause 8.3.5); or

2> if the IE "DPCH compressed mode info" is included in a message used to transfer the UE from Cell_FACH to Cell_DCH, and the cell in which the UE transited from CELL_FACH state is not included in the active set for the CELL_DCH state (see subclause 8.4.1.7.2):

3> not begin the inter-frequency measurement reporting corresponding to the pattern sequence measurement purpose of each activated pattern sequence.

2> else:

3> begin the inter-frequency measurement reporting corresponding to the pattern sequence measurement purpose of each activated pattern sequence.

2> begin the inter-RAT measurement reporting corresponding to the pattern sequence measurement purpose of each activated pattern sequence;

2> if the new configuration is taken into use at the same CFN as indicated by IE "TGCFN":

3> start the concerned pattern sequence immediately at that CFN.

1> monitor if the parallel transmission gap pattern sequences create an illegal overlap, and in case of overlap, take actions as specified in subclause 8.2.11.2.

3GPP TS 34.123-1 version 10.3.1 Release 10

If the IE "DPCH compressed mode info" is included, and if the IE group "transmission gap pattern sequence configuration parameters" is not included, the UE shall:

1> if, as the result of this message, UE will have more than one transmission gap pattern sequence with the same measurement purpose active (according to IEs "TGMP" and "Current TGPS Status Flag" in variable TGPS_IDENTITY):

2> set the variable CONFIGURATION_INCOMPLETE to TRUE.

1> if there is any pending "TGPS reconfiguration CFN" or any pending "TGCFN":

2> the UE behaviour is unspecified.

1> if pattern sequence corresponding to IE "TGPSI" is already active (according to "Current TGPS Status Flag" in the variable TGPS_IDENTITY):

2> if the "TGPS Status Flag" in this message is set to "deactivate" for the corresponding pattern sequence:

3> deactivate this pattern sequence at the beginning of the frame, indicated by IE "Activation time"(see subclause 8.6.3.1) received in this message, when the new configuration received in this message is taken into use;

3> set the "Current TGPS Status Flag" for this pattern sequence in the variable TGPS_IDENTITY to "inactive" at the frame, indicated by IE "Activation time"(see subclause 8.6.3.1) received in this message, when the new configuration received in this message is taken into use.

2> if the "TGPS Status Flag" in this message is set to "activate" for the corresponding pattern sequence:

3> deactivate this pattern sequence at the beginning of the frame, indicated by IE "Activation time"(see subclause 8.6.3.1) received in this message, when the new configuration received in this message is taken into use.

NOTE 1: The temporary deactivation of pattern sequences for which the status flag is set to "activate" can be used by the network to align the timing of already active patterns with newly activated patterns.

NOTE 2: The deactivation of pattern sequences only occurs as a result of RRC messages received by the UE, i.e. the UE does not set the "Current TGPS Status Flag" to "inactive" after the final gap of a finite length pattern sequence.

1> after the instant in which the message is to be executed, as specified in subclause 8.6.3.1:

2> activate the stored pattern sequence corresponding to each IE "TGPSI" for which the "TGPS status flag" is set to "activate" at the time indicated by IE "TGCFN"; and

NOTE 1: If the pattern is activated with a message that includes the IE "Activation time", and if the CFN value indicated by the IE "Activation Time" and the CFN value indicated by the TGCFN are included in the same TTI (but not at the TTI boundary) common to all the transport channels that are multiplexed onto the reference CCTrCh (as defined in subclause 8.6.3.1), and if the CFN value indicated by the TGCFN is equal or higher than the CFN value indicated by the IE "Activation Time" (as defined in subclause 8.6.3.1) value, the UE behaviour is not specified.

NOTE 2: If the pattern is activated with a message used to perform timing re-initialised hard handover, the UE can start evaluating the activation of the pattern (i.e. compare the value of the CFN in the new configuration with the value of the TGCFN) at any time between the message activation time and the completion of the synchronisation procedure A.

2> set the "Current TGPS Status Flag" for this pattern sequence in the variable TGPS_IDENTITY to "active".

2> if the IE "DPCH compressed mode info" is included in a message used to perform a Hard Handover with change of frequency (see subclause 8.3.5); or

2> if the IE "DPCH compressed mode info" is included in a message used to transfer the UE from Cell_FACH to Cell_DCH, and the cell in which the UE transited from CELL_FACH state is not included in the active set for the CELL_DCH state (see subclause 8.4.1.7.2):

3GPP TS 34.123-1 version 10.3.1 Release 103> not begin the inter-frequency measurement reporting corresponding to the pattern sequence measurement purpose of each activated pattern sequence.

2> else:

3> begin the inter-frequency measurement reporting corresponding to the pattern sequence measurement purpose of each activated pattern sequence.

2> begin the inter-RAT measurement reporting corresponding to the pattern sequence measurement purpose of each activated pattern sequence;

2> if the new configuration is taken into use at the same CFN as indicated by IE "TGCFN":

3> start the concerned pattern sequence immediately at that CFN.

For transmission gap pattern sequences stored in variable TGPS_IDENTITY, but not identified in IE "TGPSI" (either due to the absence of the IE "DPCH compressed mode info" in the received message or due to not receiving the corresponding TGPSI value in the IE "DPCH compressed mode info"), the UE shall:

1> if the received message implies a timing re-initialised hard handover (see subclause 8.3.5.1):

2> deactivate such transmission gap pattern sequences at the beginning of the frame, indicated by IE "Activation time" (see subclause 8.6.3.1) received in this message; and

2> set IE "Current TGPS Status Flag" in corresponding UE variable TGPS_IDENTITY to 'inactive'.

1> if the received message not implies a timing re-initialised hard handover (see subclause 8.3.5.1):

2> continue such transmission gap pattern sequence according to IE "Current TGPS Status Flag" in the corresponding UE variable TGPS_IDENTITY.

Uplink and downlink compressed mode methods are described in [27]. For UL "higher layer scheduling" compressed mode method and transport format combination selection, see [15].

Reference

3GPP TS 25.331 clause 8.6.6.15.

8.4.1.43.3 Test purpose

To confirm that the UE supports de- activation of compressed mode included in a RADIO BEARER SETUP message.

To confirm that the UE supports reconfiguration of transport channel parameters (rate reduction PS RAB) and change of compressed mode method included in a TRANSPORT CHANNEL RECONFIGURATION message.

To confirm that the UE supports change of compressed mode included in a RADIO BEARER RELEASE message.

To confirm that the UE supports reconfiguration of transport channel parameters (rate increase PS RAB) without performing hard handover included in a TRANSPORT CHANNEL RECONFIGURATION message.

8.4.1.43.4 Method of test

Initial Condition

System Simulator: 3 cells – Cell 1 on frequency f_1, cell 4 on frequency f_2 and cell 5 on frequency f_3.

UE: "CS-DCCH + DTCH_DCH" (state 6-9) as specified in clause 7.4 of TS 34.108.

This test case applies only for UEs requiring compressed mode to perform inter- frequency measurements and supporting both PS and CS domains.

Test Procedure

Table 8.4.1.43-1 illustrates the downlink power to be applied for the 3 cells, as well as the frequency and scrambling code for each cell.

Table 8.4.1.43-1a

Parameter	Unit	Cell 1					
Frequency		f_1					
Scrambling code		Scrambling code 1					
		T0	T1	T2	T3	T4	T5
CPICH Ec	dBm/3.84 MHz	-60	-70	-70	-60	-70	-70

Table 8.4.1.43-1b

Parameter	Unit	Cell 4						Cell 5					
Frequency		f_2						f_3					
Scrambling code		Scrambling code 3						Scrambling code 2					
		T0	T1	T2	T3	T4	T5	T0	T1	T2	T3	T4	T5
CPICH Ec	dBm/3.84 MHz	-95	-60	-60	-95	-60	-60	-95	-95	-60	-95	-95	-60

The UE is initially in CELL_DCH, and has only cell 1 in its active set.

Next, SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to download compressed mode parameters in the UE without activating compressed mode. The UE shall answer with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

The SS then sets up inter-frequency measurements (event 2b) and activates compressed mode, by sending a MEASUREMENT CONTROL message to the UE.

The SS waits for 2560 ms for the UE to activate compressed mode.

The test operator is prompted to setup a PS call. The SS establishes a PS domain RAB and de-activates compressed mode, by sending a RADIO BEARER SETUP message on DCCH using AM-RLC. The UE shall answer with a RADIO BEARER SETUP COMPLETE message.

At instant T1, the downlink power is changed according to what is shown in table 8.4.1.43-1. The SS shall then verify that the UE does not transmit a MEASUREMENT REPORT message.

Next the SS downloads compressed mode parameters and activates compressed mode (using HLS method) by sending a PHYSICAL CHANNEL RECONFIGURATION message on DCCH using AM-RLC. The UE shall answer with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

Frequency f_2 shall then trigger event 2b, and the UE shall transmit a MEASUREMENT REPORT message to the SS.

Next, SS transmits a TRANSPORT CHANNEL RECONFIGURATION message to reconfigure transport channel parameters (rate reduction PS RAB) and to change compressed mode method (to SF/2). The UE shall answer with a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message.

At instant T2, the downlink power is changed according to what is shown in table 8.4.1.43-1. Frequency f_3 shall then trigger event 2b, and the UE shall transmit a MEASUREMENT REPORT message to the SS.

At instant T3, the downlink power is changed according to what is shown in table 8.4.1.43-1.The increased quality of the used frequency should result in clearing of the concerning TRIGGERED_2B_EVENT.

Next, SS transmits a RADIO BEARER RELEASE message to release the CS domain RAB and change compressed mode method (from SF/2 to HLS). The UE shall answer with a RADIO BEARER RELEASE COMPLETE message.

At instant T4, the downlink power is changed according to what is shown in table 8.4.1.43-1. Frequency f_2 shall then trigger event 2b, and the UE shall transmit a MEASUREMENT REPORT message to the SS.

Next, SS transmits a TRANSPORT CHANNEL RECONFIGURATION message to reconfigure transport channel parameters (rate increase PS RAB) – without performing hard handover. The UE shall answer with a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message.

3GPP TS 34.123-1 version 10.3.1 Release 10 At instant T5, the downlink power is changed according to what is shown in table 8.4.1.43-1. Frequency f_3 shall then trigger event 2b, and the UE shall transmit a MEASUREMENT REPORT message to the SS.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	SS downloads compressed mode parameters (using SF/2 method) without activating compressed mode.
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE acknowledges the downloading of compressed mode parameters.
3	←		MEASUREMENT CONTROL	The SS configures inter-frequency measurements in the UE and activates compressed mode.
3a				SS waits for 2560 ms.
3b	→		INITIAL DIRECT TRANSFER (SERVICE REQUEST)	GMM (PS session setup is initiated from the UE side).
3c	←		DOWNLINK DIRECT TRANSFER (AUTHENTICATION AND CIPHERING REQUEST)	GMM
3d	→		UPLINK DIRECT TRANSFER (AUTHENTICATION AND CIPHERING RESPONSE)	GMM
3e	←		SECURITY MODE COMMAND	
3f	→		SECURITY MODE COMPLETE	
3g	→		UPLINK DIRECT TRANSFER (ACTIVATE PDP CONTEXT REQUEST)	SM
4	←		RADIO BEARER SETUP	SS establishes PS domain RAB and de- activates compressed mode.

Step	Direction		Message	Comment
	UE	SS		

3GPP TS 34.123-1 version 10.3.1 Release 10

5	→	RADIO BEARER SETUP COMPLETE	The UE acknowledges the establishment of the RAB and the de- activation of compressed mode
5a	←	DOWNLINK DIRECT TRANSFER (ACTIVATE PDP CONTEXT ACCEPT)	SM
6			The SS changes the power of the cells according to column T1 in table 8.4.1.43-1.
7			SS verifies that the UE does not transmit a MEASUREMENT REPORT message to the SS.
8	←	PHYSICAL CHANNEL RECONFIGURATION	SS downloads compressed mode parameters (using HLS method) and activates compressed mode.
9	→	PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE acknowledges the downloading of compressed mode parameters and the activation of compressed mode.
10	→	MEASUREMENT REPORT	Frequency f2 triggers event 2b in the UE, which sends a MEASUREMENT REPORT message to the SS.
11	←	TRANSPORT CHANNEL RECONFIGURATION	SS reconfigures transport channel parameters (rate reduction PS RAB) and changes compressed mode method to SF/2. Rate should be reduced to 0 kbps – no PS RAB room left to use for gap.
12	→	TRANSPORT CHANNEL RECONFIGURATION COMPLETE	The UE acknowledges the transport channel reconfiguration and the change of compressed mode method
13			The SS changes the power of the cells according to column T2 in table 8.4.1.43-1.
14	→	MEASUREMENT REPORT	Frequency f_3 triggers event 2b in the UE, which sends a MEASUREMENT REPORT message to the SS.
15			The SS changes the power of the cells according to T3 in table 8.4.1.43-1 (so the UE can trigger event 2b again for both frequencies).
16	←	RADIO BEARER RELEASE	SS releases the CS domain RAB and changes compressed mode method to HLS.
17	→	RADIO BEARER RELEASE COMPLETE	The UE acknowledges the release of the RAB and the compressed mode method change.
18			The SS changes the power of the cells according to column T4 in table 8.4.1.43-1.

Step	Direction		Message	Comment
	UE	SS		

3GPP TS 34.123-1 version 10.3.1 Release 10

19	→	MEASUREMENT REPORT	Frequency f_2 triggers event 2b in the UE, which sends a MEASUREMENT REPORT message to the SS.
20	←	TRANSPORT CHANNEL RECONFIGURATION	SS reconfigures transport channel parameters (rate increase PS RAB) – without performing hard handover.
21	→	TRANSPORT CHANNEL RECONFIGURATION COMPLETE	The UE acknowledges the transport channel parameters change.
22			The SS changes the power of the cells according to column T5 in table 8.4.1.43-1.
23	→	MEASUREMENT REPORT	Frequency f_3 triggers event 2b in the UE, which sends a MEASUREMENT REPORT message to the SS.

Specific Message Content

All messages shall use the same content as defined in [9] TS 34.108 clause 9, with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION MESSAGE (Step 1)

Information Element	Value/Remark	Version
Activation time	Not Present	
3GPP TS 34.123-1 version 10.3.1 Release 10		
New U-RNTI	Not Present	
New C-RNTI	Not Present	
New DSCH-RNTI	Not Present	
RRC State indicator	CELL_DCH	
UTRAN DRX cycle length coefficient	Not Present	
CN information info	Not Present	
URA identity	Not Present	
Downlink counter synchronisation info	Not Present	
Frequency info	Not Present	
Maximum allowed UL TX power	Not Present	
CHOICE channel requirement	Not Present	
CHOICE *mode*	FDD	
- Downlink PDSCH information	Not Present	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL	Not Present	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not Present	
- TGD	undefined	
- TGPL1	3	
- TGPL2	Not Present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
- CHOICE UL/DL Mode	UL and DL, UL only or DL only (depending on the UE capability)	
- Downlink compressed mode method	SF/2(or not sent, depending on the UE capability)	
- Uplink compressed mode method	SF/2(or not sent, depending on the UE capability)	
- Downlink frame type	B	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not Present	
- DeltaSIRAfter2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
- TX Diversity mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Not Present	
Downlink information for each radio link	Not Present	

MEASUREMENT CONTROL (Step 3)

Information Element	Value/Remark
Measurement Identity	2
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency info list	2 inter-frequency cells
- Inter-frequency cell id	4
- Frequency info	
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	UARFCN for the downlink corresponding to f_2
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Scrambling code 3
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Inter-frequency cell id	5
- Frequency info	
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink (Nd)	UARFCN for the downlink corresponding to f_3
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	Not present
- Primary Scrambling Code	Scrambling code 2
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cells for measurement	Not present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- Measurement quantity for frequency quality estimate	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- SFN-SFN observed time difference reporting indicator	No report
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	TRUE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	Not present

Information Element	Value/Remark
- Measurement validity	
- UE State	CELL_DCH
- Inter-frequency set update	
- UE autonomous update	On with no reporting
- Non autonomous update mode	Not present
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each event	
- Inter-frequency event identity	2b
- Threshold used frequency	-70 dBm
- W used frequency	0.0
- Hysteresis	2 (1 dB)
- Time to trigger	100 ms
- Reporting cell status	Report cells within monitored and/or virtual active set on non-used frequency
- Maximum number of reported cells per reported non-used frequency	2
- Parameters required for each non-used frequency	
- Threshold non used frequency	-65 dBm
- W non-used frequency	0
DPCH compressed mode status info	
- TGPS reconfiguration CFN	(Current CFN + (256 – TTI/10msec))mod 256
- Transmission gap pattern sequence	
- TGPSI	1
- TGPS Status Flag	Activate
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256

3GPP TS 34.123-1 version 10.3.1 Release 10

RADIO BEARER SETUP (Step 4)

Use the same message sub-type found in TS 34.108 clause 9, which is entitled " Packet RAB Setup after Speech RAB Setup in CELL_DCH ", with the following modifications:

Information Element	Value/Remark
- DPCH compressed mode info	
- TGPSI	1
- TGPS Status Flag	De-activate
- TGCFN	Not present

PHYSICAL CHANNEL RECONFIGURATION MESSAGE (Step 8)

Information Element	Value/Remark	Version
Activation time	Not Present	
3GPP TS 34.123-1 version 10.3.1 Release 10		
New U-RNTI	Not Present	
New C-RNTI	Not Present	
New DSCH-RNTI	Not Present	
RRC State indicator	CELL_DCH	
UTRAN DRX cycle length coefficient	Not Present	
CN information info	Not Present	
URA identity	Not Present	
Downlink counter synchronisation info	Not Present	
Frequency info	Not Present	
Maximum allowed UL TX power	Not Present	
CHOICE channel requirement	Not Present	
CHOICE *mode*	FDD	
- Downlink PDSCH information	Not Present	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL	Not Present	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Activate	
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not Present	
- TGD	undefined	
- TGPL1	3	
- TGPL2	Not Present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
- CHOICE UL/DL Mode	UL and DL, UL only or DL only (depending on the UE capability)	
- Downlink compressed mode method	HLS(or not sent, depending on the UE capability)	
- Uplink compressed mode method	HLS(or not sent, depending on the UE capability)	
- Downlink frame type	B	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not Present	
- DeltaSIRAfter2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
- TX Diversity mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Not Present	
Downlink information for each radio link	Not Present	

MEASUREMENT REPORT (Step 10,19)

Information Element	Value/Remark
Message Type	
3GPP TS 34.123-1 version 10.3.1 Release 10	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	2
Measured Results	
- Inter-frequency measured results list	
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_2
- UTRA carrier RSSI	Check that this IE is absent
- Inter-frequency cell measurement results	Check that the value of this IE is set to 1 cell reported
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_2
- Non freq related measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3

TRANSPORT CHANNEL RECONFIGURATION (Step 11)

3GPP TS 34.123-1 version 10.3.1 Release 10

The contents of TRANSPORT CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 [9], with the following exceptions:

Information Element	Value/remark	Version
UL Transport channel information for all transport channels	Do not include TFCs with TF's other than TF0 for PS RAB	
Added or Reconfigured UL TrCH information	Reconfigure PS RAB TFS, only include TF0 and UL Transport channel identity as 4	
DL Transport channel information common for all transport channel	Do not include TFCs with TF's other than TF0 for PS RAB	
Added or Reconfigured DL TrCH information	Reconfigure PS RAB TFS, only include TF0 and DL Transport channel identity as 9	
Frequency info	Not Present	
Maximum allowed UL TX power	Not Present	
Downlink information common for all radio links		
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Activate	
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not Present	
- TGD	undefined	
- TGPL1	3	
- TGPL2	Not Present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
- CHOICE UL/DL Mode	UL and DL, UL only or DL only (depending on the UE capability)	
- Downlink compressed mode method	SF/2(or not sent, depending on the UE capability)	
- Uplink compressed mode method	SF/2(or not sent, depending on the UE capability)	
- Downlink frame type	B	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not Present	
- DeltaSIRAfter2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
- TX Diversity mode	Not Present	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Not Present	

MEASUREMENT REPORT (Step 14,23)

3GPP TS 34.123-1 version 10.3.1 Release 10

NOTE: Due to ambiguity in 25.331 clause 14.2.1.2 – two interpretations can be given for MEASUREMENT REPORT

Information Element	Value/Remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	2
Measured Results	
- Inter-frequency measured results list	
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	Check that the value of this IE is set to UARFCN for the uplink corresponding to f_3 (Could be absent in case the duplex distance is the default duplex distance)
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_3
- UTRA carrier RSSI	Check that this IE is absent
- Inter-frequency cell measurement results	Check that the value of this IE is set to 1 cell reported
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 2 (on f_3)
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	Check that the value of this IE is set to UARFCN for the uplink corresponding to f_3 (Could be absent in case the duplex distance is the default duplex distance)
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_3
- Non freq related measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set Scrambling code 2 (on f_3)

OR:

Information Element	Value/Remark
Message Type	
3GPP TS 34.123-1 version 10.3.1 Release 10	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	2
Measured Results	
- Inter-frequency measured results list	
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_2 or f_3
- UTRA carrier RSSI	Check that this IE is absent
- Inter-frequency cell measurement results	Check that the value of this IE is set to 1 cell reported
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3 (on f_2) or Scrambling code 2 (on f_3)
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_2 or f_3
- UTRA carrier RSSI	Check that this IE is absent
- Inter-frequency cell measurement results	Check that the value of this IE is set to 1 cell reported
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3 (on f_2) or Scrambling code 2 (on f_3)
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_2 or f_3
- Non freq related measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3 (on f_2) or Scrambling code 2 (on f_3)
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the

Information Element	Value/Remark
- Non freq related measurement event results - Primary CPICH info	downlink corresponding to f_2 or f_3

3GPP TS 34.123-1 version 10.3.1 Release 10

- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3 (on f_2) or Scrambling code 2 (on f_3)

RADIO BEARER RELEASE (Step 16)

Use the same message sub-type found in TS 34.108 clause 9, which is entitled "Non speech in CS" or "Speech in CS", with the following modifications:

Information Element	Value/Remark	Version
Added or Reconfigured UL TrCH information		
- Uplink transport channel type	DCH	
- UL Transport channel identity	4	
3GPP TS 34.123-1 version 10.3.1 Release 10		
- TFS		
- CHOICE Transport channel type	Dedicated transport channels	
- Dynamic Transport format information		
- RLC Size	Reference to 6.11.4b in TS34.108	
- Number of TBs and TTI List	(This IE is repeated for TFI number.)	
- Transmission Time Interval	Not Present	
- Number of Transport blocks	Reference to 6.11.4b in TS34.108	
- CHOICE Logical channel list	All	
- Semi-static Transport Format information		
- Transmission time interval	Reference to 6.11.4b in TS34.108	
- Type of channel coding	Reference to 6.11.4b in TS34.108	
- Coding Rate	Reference to 6.11.4b in TS34.108	
- Rate matching attribute	Reference to 6.11.4b in TS34.108	
- CRC size	Reference to 6.11.4b in TS34.108	
Added or Reconfigured DL TrCH information		
- Downlink transport channel type	DCH	
- DL Transport channel identity	9	
- CHOICE DL parameters	Same as UL	
- Uplink transport channel type	DCH	
- UL TrCH identity	4	
- DCH quality target		
- BLER Quality value	Not Present	
CHOICE channel requirement		
- Uplink DPCH power control info	Uplink DPCH info	
- DPCCH power offset	-40 (-80dB)	
- PC Preamble	1 frame	
- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- Δ_{ACK}	Not Present	
- Δ_{NACK}	Not Present	
- Ack-Nack repetition factor	Not Present	
- TPC step size	0 (1dB)	
- Scrambling code type	Long	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- spreading factor	Reference to 6.11.4b in TS34.108	
- TFCI existence	Reference to 6.11.4b in TS34.108	
- Number of FBI bit	Reference to 6.11.4b in TS34.108	
- Puncturing Limit	Reference to 6.11.4b in TS34.108	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indicator	Maintain	
- CFN-targetSFN frame offset	Not Present	
- Downlink DPCH power control information		
- DPC mode	0 (single)	
- CHOICE mode	FDD	
- Power offset $P_{Pilot-DPDCH}$	0	
- DL rate matching restriction information	Not Present	
- Spreading factor	Reference to 6.11.4b in TS34.108	
- Fixed or Flexible Position	Reference to 6.11.4b in TS34.108	
- TFCI existence	Reference to 6.11.4b in TS34.108	
- CHOICE SF	Reference to 6.11.4b in TS34.108	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Activate	
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	

Information Element	Value/Remark	Version
- TGL2	Not Present	
- TGD	undefined	
- TGPL1	3	
3GPP TS 34.123-1 version 10.3.1 Release 10		
- TGPL2	Not Present	R99 and REL-4 only
- RPP	Mode 0	
- ITP	Mode 0	
- CHOICE UL/DL Mode	UL and DL, UL only or DL only (depending on the UE capability)	
- Downlink compressed mode method	HLS(or not sent, depending on the UE capability)	
- Uplink compressed mode method	HLS(or not sent, depending on the UE capability)	
- Downlink frame type	B	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not Present	
- DeltaSIRAfter2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	

TRANSPORT CHANNEL RECONFIGURATION (Step 20)

The content of the TRANSPORT CHANNEL RECONFIGURATION message at this step is identical to the message sub-type titled "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 [9].

8.4.1.43.5 Test Requirement

After step 1, the UE shall send a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS to acknowledge the downloading of the compressed mode parameters without activating compressed mode that were included in the PHYSICAL CHANNEL RECONFIGURATION message of step 1.

After step 4, the UE shall send a RADIO BEARER SETUP COMPLETE message to acknowledge the establishment of the PS domain RAB and the de- activation of compressed mode that were included in the RADIO BEARER SETUP message of step 4.

After step 6, the UE shall not transmit a MEASUREMENT REPORT message.

After step 8, the UE shall send a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS to acknowledge the downloading of the compressed mode parameters and the activation of compressed mode that were included in the PHYSICAL CHANNEL RECONFIGURATION message of step 8.

After step 9, the UE shall transmit a MEASUREMENT REPORT message triggered by frequency f_2. That message shall only include cell 4 within the IE event results.

After step 11, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message to the SS to acknowledge the change of transport channel parameters and the change of compressed mode method that were included in the TRANSPORT CHANNEL RECONFIGURATION message of step 11.

After step 13, the UE shall transmit a MEASUREMENT REPORT message triggered by frequency f_3.

After step 17, the UE shall transmit a RADIO BEARER RELEASE COMPLETE message to the SS to acknowledge the release of the RAB and the change of compressed mode method that were included in the RADIO BEARER RELEASE message of step 17.

After step 18, the UE shall transmit a MEASUREMENT REPORT message triggered by frequency f_2. That message shall only include cell 4 within the IE event results.

After step 20, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message to the SS to acknowledge the change of transport channel parameters that were included in the TRANSPORT CHANNEL RECONFIGURATION message of step 20.

After step 22, the UE shall transmit a MEASUREMENT REPORT message triggered by frequency f_3.

8.4.1.44 Measurement Control and Report: Intra-frequency measurement for events 1H and 1I (TDD)

8.4.1.44.1 Definition

8.4.1.44.2 Conformance requirement

When event 1h is configured in the UE, the UE shall:

1> if equation 1 is fulfilled for a time period indicated by "Time to trigger" and if that P-CCPCH is not included in the IE "cells triggered" in the variable TRIGGERED_1H_EVENT:

2> include that P-CCPCH in the IE "cells triggered" in the variable TRIGGERED_1H_EVENT;

2> send a measurement report with the IEs set as below:

3> set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1h" and in "cell measurement event results" the "Cell parameters ID" of the P-CCPCH that triggered the report;

3> include in "Cell measured results" the "Timeslot ISCP" of those cells that are included in the variable TRIGGERED_1H_EVENT.

1> if a primary CCPCH is included in the "cells triggered" in the variable TRIGGERED_1H_EVENT:

2> send a measurement report with IEs set as below:

3> set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1h" and "cell measurement event results" to the "Cell parameters ID" of the P-CCPCH that triggered the report;

3> set in "measured results " the "Timeslot ISCP" of those cells that are included in the variable TRIGGERED_1H_EVENT and "additional measured results" according to subclause 8.4.2 in TS 25.331, not taking into account the cell individual offset for each cell.

1> if Equation 2 below is fulfilled for a primary CCPCH:

2> if a primary CCPCH is included in the "cells triggered" in the variable TRIGGERED_1H_EVENT:

3> remove the entry of that primary CCPCH from "cells triggered" in the variable TRIGGERED_1H_EVENT.

The UE shall use the equations below for evaluation of reporting event 1h:

Equation 1

$$10 \cdot LogM_i + H_{1h} + O_i < T_{1h},$$

Equation 2

$$10 \cdot LogM_i - H_{1h} + O_i > T_{1h},$$

The variables in the formula are defined as follows:

$\boldsymbol{M_i}$ is the Timeslot ISCP of the currently evaluated cell ***i*** expressed in mW

$\boldsymbol{O_i}$ is the cell individual offset of the currently evaluated cell ***i***

$\boldsymbol{T_{1h}}$ is the Threshold for event 1h

$\boldsymbol{H_{1h}}$ is the hysteresis parameter for the event 1h.

Before any evaluation is done, the Timeslot ISCP expressed in mW is filtered according to subclause 8.6.7.2. in TS 25.331

When event 1i is configured in the UE, the UE shall:

3GPP TS 34.123-1 version 10.3.1 Release 10

1> if equation 1 is fulfilled for a time period indicated by "Time to trigger" and if that P-CCPCH is not included in the IE "cells triggered" in the variable TRIGGERED_1I_EVENT:

2> include that P-CCPCH in the IE "cells triggered" in the variable TRIGGERED_1I_EVENT;

2> send a measurement report with the IEs set as below:

3> set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1i" and in "cell measurement event results" to the "Cell parameters ID" of the P-CCPCH that triggered the report;

3> include in "measured results" the "Timeslot ISCP" of those cells that are included in the variable TRIGGERED_1I_EVENT and "additional measured results" according to 8.4.2 in TS 25.331, not taking into account the cell individual offset for each cell.

1> if a primary CCPCH is included in the "cells triggered" in the variable TRIGGERED_1I_EVENT:

2> if Equation 2 below is fulfilled for a primary CCPCH:

3> if a primary CCPCH is included in the "cells triggered" in the variable TRIGGERED_1I_EVENT:

4> remove the entry of that primary CCPCH from "cells triggered" in the variable TRIGGERED_1I_EVENT.

The UE shall use the equation below for evaluation of reporting event 1i:

Equation 1

$$10 \cdot LogM_i - H_{1i} + O_i > T_{1h},$$

Equation 2

$$10 \cdot LogM_i + H_{1i} + O_i < T_{1h},$$

The variables in the formula are defined as follows:

$\boldsymbol{M_i}$ is the Timeslot ISCP of the currently evaluated cell ***i*** expressed in mW

$\boldsymbol{O_i}$ is the cell individual offset of the currently evaluated cell ***i***

$\boldsymbol{T_{1i}}$ is the Threshold for event 1i

$\boldsymbol{H_{1i}}$ is the hysteresis parameter for the event 1i.

Before any evaluation is done, the Timeslot ISCP expressed in mW is filtered according to subclause 8.6.7.2. in TS 25.331

Reference

3GPP TS 25.331 clause 14.1.3.2, 14.1.3.3.

8.4.1.44.3 Test Purpose

1. To confirm that the UE sends MEASUREMENT REPORT message if event 1I is configured and intra-frequency measurement indicates that Timeslot ISCP is above a certain threshold

2. To confirm that the UE sends MEASUREMENT REPORT message if event 1H is configured, and intra-frequency measurement indicates that Timeslot ISCP is below a certain threshold

8.4.1.44.4 Method of test

3GPP TS 34.123-1 version 10.3.1 Release 10

8.4.1.44.4.1 3.84 Mcps option

<FFS>

8.4.1.44.4.2 1.28 Mcps option

Initial Condition

System Simulator: 1 cell – The initial configurations of the cell in the SS shall follow the values indicated in the column marked "T1" in table 8.4.1.44.4.2-1. Threshold for events 1H and 1I are specified in table 8.4.1.44.4.2-2

UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

The test consists of four successive time periods, with a time duration of T1, T2, T3 and T4 respectively. Two cells shall be present in the test, being cell 1 the current serving cell. Timeslot ISCP values are specified for the cell, to check against a certain threshold.

Test Procedure

Table 8.4.1.44.4.2-1 illustrates the Cell 1 specific test parameters for correct event 1H and 1I reporting in AWGN propagation condition. The other RF values needed for the test are referred to section 8 in TS 34.122

Column marked "T1" denotes the initial conditions, while columns marked "T2", "T3" and "T4" are to be applied subsequently. The exact instants on which these values shall be applied are described in the text below.

Table 8.4.1.44.4.2-1

Parameter	Unit	Cell 1			
		T1	T2	T3	T4
UTRA RF Channel Number		Channel 1			
DL timeslot number		6			
PCCPCH RSCP	dBm	n.a.			
TS ISCP, Note 1		-74	-64	-74	-64
I_{oc}	dBm / 1.28 MHz	-70			
NOTE 1: The TS ISCP level is a calculated value.					

Table 8.4.1.44.4.2-2

Parameter	Unit	Value	Comment
Threshold used frequency	dBm	-69	Applicable for event 1H, cell 1 timeslot 6
Threshold used frequency	dBm	-69	Applicable for event 1I, cell 1 timeslot 6

The UE is initially in CELL_DCH state of cell 1. System Information Block type 11 is configured according to allow measurement for intra-frequency, 1 Cell is defined and Timeslot 6 is defined for measurements. SS then sends MEASUREMENT CONTROL message to the UE to modify earlier configured intra-frequency measurement and a primary CCPCH is included in the "cells triggered" in the variable TRIGGERED_1I_EVENT and TRIGGERED_1H_EVENT.

UE shall report TRIGGERED_1H_EVENT or TRIGGERED_1I_EVENT in the different time periods during the test. SS re-adjusts the downlink transmission power settings according to columns "T2", "T3" and "T4" successively in table 8.4.1.44.4.2-1

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1	←		System Information Block type 11	The UE is in CELL_DCH and camped onto cell 1. The System Information Block type 11 messages to be transmitted are different from the default settings
2	←		MEASUREMENT CONTROL	Event 1I and 1H are configured. IEs and threshold values are included
3	→		MEASUREMENT REPORT	Event 1H is triggered. The UE shall report that for cell 1 timeslot 6, ISCP is below than threshold
4				SS re-adjusts the downlink transmission power settings according to columns "T2" in table 8.4.1.44.4.2-1.
5	→		MEASUREMENT REPORT	Event 1I is triggered. The UE shall report that for cell 1 timeslot 6 ISCP is above threshold
6				SS re-adjusts the downlink transmission power settings according to columns "T3" in table 8.4.1.44.4.2-1.
7	→		MEASUREMENT REPORT	Event 1H is triggered. The UE shall report that for cell 1 timeslot 6, ISCP is below than threshold
8				SS re-adjusts the downlink transmission power settings according to columns "T4" in table 8.4.1.44.4.2-1.
9	→		MEASUREMENT REPORT	Event 1I is triggered. The UE shall report that for cell 1 timeslot 6 ISCP is above threshold
10	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails

Specific Message Contents

All messages indicated below shall use the same content as described in default message content, with the following exceptions.

System Information Block type 11 (Step 1)

Information Element	Value/remark
SIB12 indicator	FALSE
3GPP TS 34.123-1 version 10.3.1 Release 10	
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not Present Absence of this IE is equivalent to default value 1
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present (This IE shall be ignored by the UE for SIB11)
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE Mode	TDD
- Primary CCPCH Info	Refer to clause titled "Default settings for cell No.1 (TDD)" in clause 6.1.4 of TS 34.108
- Primary CCPCH TX Power	Not present
- Timeslot List	
- Timeslot Number	6
- Burst Type	Type 1
- Cell selection and Re-selection	Not Present (The IE shall be absent as this is the serving cell)
- Intra-frequency measurement quantity	Not present
- Intra-frequency measurement for RACH reporting	Not Present
- Maximum number of reported cells on RACH	Not Present
- Reporting information for state CELL_DCH	Not Present
- Inter-frequency measurement system information	Not present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

MEASUREMENT CONTROL (Step 2)

Information Element	Value/remark
Measurement Identity	1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	Not present
- Intra-frequency measurement quantity	
- Filter Coefficient	0
- CHOICE Mode	TDD
- Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- Timeslot ISCP reporting indicator	TRUE
- Proposed TGSN reporting indicator	FALSE
- PCCPCH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- PCCPCH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each events	
- Intra-frequency event identity	1h
- Threshold used frequency	-69 dB
- Hysteresis	0 (0 dB)
- Time to Trigger	0
- Intra-frequency event identity	1i
- Threshold used frequency	-69 dB
- Hysteresis	0 (0 dB)
- Time to Trigger	0

MEASUREMENT REPORT (Step 3)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- Cell parameters ID	Check to see if it's the same for cell 1
- PCCPCH RSCP	Check to see if this IE is absent
- Pathloss	Check to see if this IE is absent
- Timeslot ISCP	Check to see if this IE is present
Measured Results on RACH	Check to see if this IE is absent
Additional Measured Results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if this IE is set to "Intra-frequency measurement event results"
- Intra-frequency event identity	Check to see if this IE is set to "1H"

MEASUREMENT REPORT (Step 5)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- Cell parameters ID	Check to see if it's the same for cell 1
- PCCPCH RSCP	Check to see if this IE is absent
- Pathloss	Check to see if this IE is absent
- Timeslot ISCP	Check to see if this IE is present
Measured Results on RACH	Check to see if this IE is absent
Additional Measured Results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if this IE is set to "Intra-frequency measurement event results"
- Intra-frequency event identity	Check to see if this IE is set to "1I"

MEASUREMENT REPORT (Step 7)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- Cell parameters ID	Check to see if it's the same for cell 1
- PCCPCH RSCP	Check to see if this IE is absent
- Pathloss	Check to see if this IE is absent
- Timeslot ISCP	Check to see if this IE is present
Measured Results on RACH	Check to see if this IE is absent
Additional Measured Results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if this IE is set to "Intra-frequency measurement event results"
- Intra-frequency event identity	Check to see if this IE is set to "1H"

MEASUREMENT REPORT (Step 9)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- Cell parameters ID	Check to see if it's the same for cell 1
- PCCPCH RSCP	Check to see if this IE is absent
- Pathloss	Check to see if this IE is absent
- Timeslot ISCP	Check to see if this IE is present
Measured Results on RACH	Check to see if this IE is absent
Additional Measured Results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if this IE is set to "Intra-frequency measurement event results"
- Intra-frequency event identity	Check to see if this IE is set to "1I"

8.4.1.44.5 Test Requirement

The UE shall send one event 1H triggered measurement report, with a measurement reporting delay less than 400 ms from the beginning of time period T2.

3GPP TS 34.123-1 version 10.3.1 Release 10

The UE shall send one event 1I triggered measurement report, with a measurement reporting delay less than 400 ms from the beginning of time period T3.

The UE shall send one event 1H triggered measurement report, with a measurement reporting delay less than 400 ms from the beginning of time period T4.

The UE shall not send event 1H or 1I triggered measurement reports, as long as the reporting criteria are not fulfilled.

8.4.1.45 Measurement Control and Report: Intra-frequency measurement for event 1G (TDD)

8.4.1.45.1 Definition

8.4.1.45.2 Conformance requirement

When event 1G is configured in the UE, the UE shall:

1> if the equation 1 is fulfilled for a P-CCPCHs during the time "Time to trigger" and if that P-CCPCH is not included in the "primary CCPCH info" in the variable TRIGGERED_1G_EVENT:

2> include that P-CCPCH in "cells triggered" in the variable TRIGGERED_1G_EVENT;

2> send a measurement report with IEs set as below:

3> set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1g";

3> set the first entry in "cell measurement event results" to the "Cell parameters ID" of the P-CCPCH which was stored in the variable TRIGGERED_1G_EVENT;

3> include all entries in "cells triggered" in variable TRIGGERED_1G_EVENT in "cell measurement event results" in the measurement report in descending order according to:

$$10 \cdot LogM + O$$

where ***M*** is the P-CCPCH RSCP and ***O*** the individual offset of a cell;

3> set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2, not taking into account the cell individual offset for each cell.

1> if Equation 2 below is fulfilled for a primary CCPCH:

2> if a primary CCPCH is included in the "cells triggered" in the variable TRIGGERED_1G_EVENT:

3> remove the entry of that primary CCPCH from "cells triggered" in the variable TRIGGERED_1G_EVENT;

The UE shall use the equations below for evaluation of reporting event 1g:

Equation 1

$$10 \cdot LogM_i + O_i - H_{1g} > 10 \cdot LogM_{previous\_best} + O_{previous\_best}$$

The variables in the formula are defined as follows:

$M_{previous\_best}$ is the current P-CCPCH RSCP of the previous best cell expressed in mW

$O_{previous\_best}$ is the cell individual offset of the previous best cell

M_i is the current P-CCPCH RSCP of the currently evaluated cell ***i*** expressed in mW

O_i is the cell individual offset of the currently evaluated cell ***i***

H_{1g} is the hysteresis parameter for the event 1g.

3GPP TS 34.123-1 version 10.3.1 Release 10Equation 2

$$10 \cdot LogM_i + O_i + H_{1g} < 10 \cdot LogM_{previous\_best} + O_{previous\_best}$$

The variables in the formula are defined as follows:

$M_{previous\_best}$ is the current P-CCPCH RSCP of the previous best cell expressed in mW

$O_{previous\_best}$ is the cell individual offset of the previous best cell

M_i is the current P-CCPCH RSCP of the currently evaluated cell ***i*** expressed in mW

O_i is the cell individual offset of the currently evaluated cell ***i***

H_{1g} is the hysteresis parameter for the event 1g.

Reference

3GPP TS 25.331, clauses 14.1.3.1

8.4.1.45.3 Test Purpose

1. To confirm that the UE sends MEASUREMENT REPORT message if event 1G is configured and intra-frequency measurement indicates change of best cell.

8.4.1.45.4 Method of test

Initial Condition

System Simulator: 2 cell(cell 1 and cell 2 are active).The initial configurations of the 2 cells in the SS shall follow the values indicated in the column marked "T0" in table 8.4.1.45-1. The table is found in "Test Procedure" clause.

UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Test Procedure

Table 8.4.1.45-1 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Column marked "T0" denotes the initial conditions, while column marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the text in this clause.

Table 8.4.1.45-1

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RFChannel Number		Mid Range Test Frequency		Mid Range Test Frequency	
P-CCPCH RSCP	dBm	-65	-65	-70	-60
P-CCPCH TS (3.84 Mcps TDD and 7.68 Mcps TDD)		TS 0		TS 0	

The UE is initially in CELL_DCH state of cell 1.

SS transmits MEASUREMENT CONTROL message to request the UE to perform intra-frequency measurement. The key measurement parameters are as follow: measurement type = "intra-frequency measurement", measurement quantity = "PCCPCH RSCP", report criteria = "periodic reporting criteria", reporting interval = "64 seconds". UE shall transmit a MEASUREMENT REPORT message and another after 64 seconds.

SS transmits a new MEASUREMENT CONTROL message to request UE to perform intra-frequency measurement and report Event 1G. All intra-frequency cells are removed, and Cell 2 is included as new intra-frequency cell. SS checks to see that no MEASUREMENT REPORT messages are sent within the next 64 seconds (which is due to periodic

3GPP TS 34.123-1 version 10.3.1 Release 10
reporting).

SS reconfigures the downlink transmission power settings according to values in column "T1" in table 8.4.1.45-1. The UE shall transmit a MEASUREMENT REPORT message when it detects that the PCCPCH RSCP of cell 2 and indicating Cell 2 as a best cell. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
0				The UE is in CELL_DCH of cell 1.
1	←		MEASUREMENT CONTROL	Intra-frequency measurement is configured.
2	→		MEASUREMENT REPORT	The message should be repeated after 64 seconds
3	→		MEASUREMENT REPORT	
4	←		MEASUREMENT CONTROL	Event 1G is configured
5				SS wait for 64seconds to verify that no MEASUREMENT REPORTmessage is received
6				SS re-adjusts the downlink transmission power settings according to columns "T1" in table 8.4.1.45-1.
7	→		MEASUREMENT REPORT	UE report that Event 1G is triggered and cell 2 is the best cell
8	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

3GPP TS 34.123-1 version 10.3.1 Release 10

MEASUREMENT CONTROL (Step 1) (1.28 Mcps TDD)

Information Element	Value/remark
Measurement identity	16
Measurement command	Setup
- CHOICE measurement type	Intra-frequency measurement
- Intra Frequency Cell Info List	
- CHOICE Intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency info list	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	
- CHOICE TDD option	1.28 Mcps TDD
- Cell parameters ID	Set to same cell parameters ID as used for cell 1
- Cell for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter coefficient	0
- Measurement quantity	P-CCPCH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not Present
- Reporting cell status	
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	3
- Measurement validity	Not Present
- CHOICE report criteria	Periodical reporting criteria
- Amount of reporting	Infinity
- Reporting interval	64 sec
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	Periodical reporting
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT CONTROL (Step 1) (3.84 Mcps TDD)

Information Element	Value/remark
Measurement identity	16
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement command	Setup
- CHOICE measurement type	Intra-frequency measurement
- Intra Frequency Cell Info List	
- CHOICE Intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency info list	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	
- CHOICE TDD option	3.84 Mcps TDD
- CHOICE *SyncCase*	Sync Case 1
- Timeslot	0
- Cell parameters ID	Set to same cell parameters ID as used for cell 1
- Cell for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter coefficient	0
- Measurement quantity	P-CCPCH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not Present
- Reporting cell status	Not Present
- Measurement validity	Not Present
- CHOICE report criteria	Periodical reporting criteria
- Amount of reporting	Infinity
- Reporting interval	64 sec
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	Periodical reporting
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT CONTROL (Step 1) (7.68 Mcps TDD)

Information Element	Value/remark
Measurement identity	16
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement command	Setup
- CHOICE measurement type	Intra-frequency measurement
- Intra Frequency Cell Info List	
- CHOICE Intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency info list	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	
- CHOICE TDD option	7.68 Mcps TDD
- CHOICE *SyncCase*	Sync Case 1
- Timeslot	0
- Cell parameters ID	Set to same cell parameters ID as used for cell 1
- Cell for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter coefficient	0
- Measurement quantity	P-CCPCH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not Present
- Reporting cell status	Not Present
- Measurement validity	Not Present
- CHOICE report criteria	Periodical reporting criteria
- Amount of reporting	Infinity
- Reporting interval	64 sec
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	Periodical reporting
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 2 and 3) (TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 16
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	
- CHOICE measurement	Check to see if set to “Intra-frequency measured results list”
- Cell measured results	
- Cell Identity	Check to see if is absent
- Cell synchronisation information	Check to see if is absent
- cell parameters ID	Check to see if it is the same for cell 1
- PCCPCH RSCP	Check to see if is present and value is reasonable
- Pathloss	Check to see if is absent
Measured results on RACH	Check to see if is absent
Additional measured results	Check to see if is absent
Event results	Check to see if is absent

MEASUREMENT CONTROL (Step 4) (TDD)

Information Element	Value/remark
Measurement identity	16
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement command	Setup
- CHOICE measurement type	Intra-frequency measurement
- Intra Frequency Cell Info List	
- CHOICE Intra-frequency cell removal	Remove all intra-frequency cells
- New intra-frequency info list	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	Set to same cell parameters ID as used for cell 1
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	Set to same cell parameters ID as used for cell 2
- Cell for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter coefficient	0
- Measurement quantity	P-CCPCH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not Present
- Reporting cell status	Not Present
- Measurement validity	Not Present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each events	
- Intra-frequency event identity	1g
- Triggering condition 1	Not Present
- Triggering condition 2	Not Present
- Reporting range Constant	Not Present
- Cells forbidden to affect reporting range	Not Present
- W	Not Present
- Hysteresis	2 (1 dB)
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	Not Present
- Time to trigger	0 ms
- Amount of reporting	Infinity
- Reporting interval	Not Present
- Reporting cell status	Not Present
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	Event trigger
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

3GPP TS 34.123-1 version 10.3.1 Release 10

MEASUREMENT REPORT (Step 7) (TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 16
Measured Results	
- CHOICE measurement	Check to see if set to “Intra-frequency measured results list”
- Cell measured results	
- Cell Identity	Check to see if is absent
- Cell synchronisation information	Check to see if is absent
- cell parameters ID	Check to see if it is the same for cell 1
- PCCPCH RSCP	Check to see if is present and value is reasonable
- Pathloss	Check to see if is absent
- Cell Identity	Check to see if is absent
- Cell synchronisation information	Check to see if is absent
- cell parameters ID	Check to see if it is the same for cell 2
- PCCPCH RSCP	Check to see if is present and value is reasonable
- Pathloss	Check to see if is absent
Measured results on RACH	Check to see if is absent
Additional measured results	Check to see if is absent
Event results	Check to see if is absent
- CHOICE event result	Check to see if set to “Intra-frequency measurement event results”
- Intra-frequency event identity	Check to see if set to “1g”
- Cell measurement event results	
- CHOICE mode	Check to see if set to “TDD”
- Cell parameters Id	Check to see if it is the same for cell 2

8.4.1.45.5 Test Requirement

After step 1, the UE shall transmit MEASUREMENT REPORT message periodically with the interval of 64 seconds.

After step 4, the UE shall not transmit any MEASUREMENT REPORT message.

After step 6, the UE shall transmit MEASUREMENT REPORT message, containing measured results for P-CCPCH RSCP. The 'Event results' IE contains event identity 1G.

8.4.1.46 Void

8.4.1.47 Measurement Control and Report: Event triggered periodic measurement for event 1B (FDD)

8.4.1.47.1 Definition

8.4.1.47.2 Conformance requirement

When an intra-frequency measurement configuring event 1b is set up, the UE shall:

1> create a variable TRIGGERED_1B_EVENT related to that measurement, which shall initially be empty;

1> delete this variable when the measurement is released.

When event 1B is configures in the UE, the UE shall:

1> if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for one or more primary CPICHs, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:

2> if all required reporting quantities are available for that cell, and if the equations have been fulfilled for a time period indicated by "Time to trigger", and if that primary CPICH is part of cells allowed to trigger the event according to "Triggering condition 1", and if that primary CPICH is not included in the "cells triggered" in the variable TRIGGERED_1B_EVENT:

3GPP TS 34.123-1 version 10.3.1 Release 10

3> include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED_1B_EVENT.

1> if any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED_1B_EVENT:

2> if "Periodic reporting info-1b" is present, and "Reporting interval" for this event is not equal to 0:

3> if the IE "Periodical reporting running" in the variable TRIGGERED_1B_EVENT is set to FALSE:

4> start a timer with the value of "Reporting interval" for this event and set the IE "Periodical reporting running" in the variable TRIGGERED_1B_EVENT to TRUE;

3> set "sent reports" for the primary CPICHs in "cells recently triggered" in the variable TRIGGERED_1B_EVENT to 1.

2> send a measurement report with IEs set as below:

3> set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1b"; and

3> include in "cell measurement event results" all entries of "cells recently triggered" in the variable TRIGGERED_1B_EVENT in ascending order according to the configured measurement quantity taking into account the cell individual offset for each of those cells;

3> set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2, not taking into account the cell individual offset for each cell.

2> move all entries from IE "cells recently triggered" to "cells triggered" in the variable TRIGGERED_1B_EVENT.

1> if the timer for the periodical reporting has expired:

2> if any primary CPICH is included in the "cells triggered" in the variable TRIGGERED_1B_EVENT:

3> if "Periodic reporting info-1b" is present:

4> if "Reporting interval" is not equal to 0, and if "Amount of reporting" is greater than "sent reports" stored for any of these primary CPICHs, in "cells triggered" in the variable TRIGGERED_1B_EVENT:

5> increment the stored counter "sent reports" for all CPICHs in "cell triggered" in variable TRIGGERED_1B_EVENT;

5> start a timer with the value of "Reporting interval-1b" for this event;

5> send a measurement report with IEs set as below:

6> set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1b"; and

6> include in "cell measurement event results" all entries of the variable TRIGGERED_1B_EVENT with value of IE "sent reports" smaller than value of "Amount of reporting" in ascending order according to the configured measurement quantity taking into account the cell individual offset for each of those cells;

6> set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2, not taking into account the cell individual offset for each cell.

5> if "sent reports" in variable TRIGGERED_1B_EVENT is greater than "Amount of reporting" for all entries:

6> set the IE "Periodical Reporting running" in the variable TRIGGERED_1B_EVENT to FALSE and disable the timer for the periodical reporting.

1> if "Measurement quantity" is "pathloss" and Equation 3 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 4 below is fulfilled for a primary CPICH; or

3GPP TS 34.123-1 version 10.3.1 Release 10

1> if a primary CPICH is no longer part of the cells allowed to trigger the event according to the "Triggering condition 1":

2> if that primary CPICH is included in the "cells triggered" in the variable TRIGGERED_1B_EVENT:

3> remove the entry of that primary CPICH from "cells triggered" in the variable TRIGGERED_1B_EVENT.

When a cell enters the removal range and triggers event 1B, the UE shall transmit a MEASUREMENT REPORT to the UTRAN and typically this may result in the removal of the weakest active cell. If the UTRAN is unable to receive MEASUREMENT REPORT after the maximum retransmission, it is beneficial to receive continuous reports in this case as well.

The UE shall revert to periodical measurement reporting if the UTRAN does not update the active set after the transmission of the measurement report. This is illustrated in Figure 14.1.4.1a. During periodic reporting the UE shall transmit MEASUREMENT REPORT messages to the UTRAN at predefined intervals.

Event-triggered periodic measurement reporting shall be terminated if:

1> there are no longer any monitored cell(s) within the removal range; or

1> the UTRAN has removed cells from the active set so that there are no longer the minimum amount of active cells for event 1B to be triggered; or

1> the UE has sent the maximum number of MEASUREMENT REPORT messages (defined by the "amount of reporting" parameter).

The reporting period is assigned by the UTRAN (with the "Reporting interval" parameter). If the reporting interval is set to zero, event-triggered periodic measurement reporting shall not be applied.

Reference

3GPP TS 25.331 clause 14.1.2.2, clause 14.1.4.1a

8.4.1.47.3 Test Purpose

1. To confirm that the UE reverts to periodical measurement reporting of event 1B, after event 1B has been initially triggered, when primary CPICH currently measured by the UE leaves the reporting range.
2. To confirm that the event triggered periodic measurement reporting is terminated after UE no longer finds any monitored cell within the removal range.
3. To confirm that the event triggered periodic measurement reporting is terminated after UTRAN has removed cells from the active set so that there is no longer the minimum amount of active cells for event 1B to be triggered.
4. To confirm that the event triggered periodic measurement is no longer triggered if the reporting interval is set to zero.
5. To confirm that the event-triggered periodic measurement reporting is terminated after UE has sent the maximum number of MEASUREMENT REPORT messages (defined by the "amount of reporting" parameter).

8.4.1.47.4 Method of test

Initial Condition

System Simulator: 2 Cells – Cell 1, Cell 2 are active.

UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

3GPP TS 34.123-1 version 10.3.1 Release 10

Test Procedure

Table 8.4.1.47-1

Parameter	Unit	Cell1		Cell2	
		T0	T1	T0	T1
UTRA RF Channel		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-60	-60	-66	-75

Table 8.4.1.47-1 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE is initially in CELL_DCH state in Cell 1 with the downlink transmission power settings according to values in column “T0” in table 8.4.1.47-1.
SS sends a MEASUREMENT CONTROL message to set up events 1A & 1B. In this message the IE “periodicReportingInfo-1b” is included with “reportingInterval” set to a non-zero value. The IE "reporting range" is set to 9dB. The UE shall send a MEASUREMENT REPORT on the uplink DCCH, which contains the IE "Event results" to report that event 1A has been triggered by Cell 2.
SS executes the ACTIVE SET UPDATE procedure, requesting Cell 2 to be added to the active set. When the UE receives this message, it shall configure layer 1 to begin reception without affecting the current uplink and downlink activities of existing radio links. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

SS reconfigures the downlink transmission power settings according to values in column “T1” in table 8.4.1.47-1. The UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH to report the triggering of event 1B. In this message, the IE "Events results" shall indicate that event 1B has been triggered by Cell 2. SS does not respond to the first report and waits for a few more reports, say half the number of the value as defined by the IE "amount of reporting" in the MEASUREMENT CONTROL message.

SS now reconfigures the downlink transmission power settings according to values in column “T0” in table 8.4.1.47-1 so as to get the power levels of Cell 2 go above event 1B reporting range threshold. UE now stops triggering any more event 1B measurement reports.

SS reconfigures the downlink transmission power settings according to values in column “T1” in table 8.4.1.47-1. UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH to report the triggering of event 1B. In this message, the IE "Events results" shall indicate that event 1B has been triggered by Cell 2. SS waits for a few reports, say half the number of the value as defined by the IE "amount of reporting" in the MEASUREMENT CONTROL message.

SS executes the ACTIVE SET UPDATE procedure, requesting Cell 2 to be removed from the active set. The UE shall respond with ACTIVE SET UPDATE COMPLETE message on the uplink DCCH indicating the successful removal of Cell 2 from the current active set. . The UE should however stop transmitting Measurement Reports for event 1B for Cell 2, as Cell 1 is now the only active cell. SS waits for 10s to make sure that no further measurement reports for event 1B are triggered.

SS sends a MEASUREMENT CONTROL message to modify the configuration of event 1B. The IE “reporting interval” is now set to zero.

SS executes the ACTIVE SET UPDATE procedure, requesting Cell 2 to be added to the active set. When the UE receives this message, the UE shall configure layer 1 to begin reception without affecting the current uplink and downlink activities of existing radio links. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

The UE shall send a MEASUREMENT REPORT on the uplink DCCH, which contains the IE "Event results" to report that intra-frequency event 1B is triggered by Cell 2. SS waits for 10s to make sure that no further Measurement Reports are triggered for event 1B.

3GPP TS 34.123-1 version 10.3.1 Release 10SS reconfigures the downlink transmission power settings according to values in column “T0” in table 8.4.1.47-1 and sends a MEASUREMENT CONTROL message to modify the configuration of event 1B. The IE “reportingInterval” is set back to a non-zero value.

SS reconfigures the downlink transmission power settings according to values in column “T1” in table 8.4.1.47-1.
The UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH to report the triggering of event 1B. In this message, the IE "Events results" shall indicate that event 1B is triggered by Cell 2. SS waits to receive the full number of reports as defined by the IE "amount of reporting" in the last received MEASUREMENT CONTROL message. SS waits for 10s to make sure that no further measurement reports are triggered.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1	←		MEASUREMENT CONTROL	UE is initially in CELL_DCH state in Cell 1. SS set up events 1A & 1B in the UE. The IE "PeriodicReportingInfo-1b" is present with "reportingInterval" set to a non zero value.
2	→		MEASUREMENT REPORT	Measurement made on Cell 2 shall trigger event 1A.
3	←		ACTIVE SET UPDATE	SS requests UE to add Cell 2 into the active set.
4	→		ACTIVE SET UPDATE COMPLETE	
5				SS configures the downlink power according to column "T1" of table 8.4.1.47-1.
6	→		MEASUREMENT REPORT	Measurement made on Cell 2 shall trigger event 1B and should be repeated every 8s.
7				SS waits for half the number of event 1B reports, i.e. half to that mentioned in the IE "amount of reporting".
8				SS configures the downlink power according to column "T0" of table 8.4.1.47-1.
9				SS waits for 10s to verify that no MEASUREMENT REPORT for Event 1B message is received.
10				SS configures the downlink power according to column "T1" of table 8.4.1.47-1.
11	→		MEASUREMENT REPORT	Measurement made on Cell 2 shall trigger event 1B & should be repeated every 8s. SS waits for half the number of reports, i.e. half to that mentioned in the IE "amount of reporting".
12	←		ACTIVE SET UPDATE	SS requests UE to remove Cell 2 from the active set.
13	→		ACTIVE SET UPDATE COMPLETE	Only Cell 1 is in the active set now.
14			Void	
15				. SS checks that no measurement report for Event 1B is sent by the UE for 10s.
16	←		MEASUREMENT CONTROL	Event 1B configuration is modified, "reporting Interval" is now set to 'no periodical reporting'.
17	←		ACTIVE SET UPDATE	SS requests UE to add Cell 2 to the active set.
18	→		ACTIVE SET UPDATE COMPLETE	Cell 1 & Cell 2 are in the active set now.
19	→		MEASUREMENT REPORT	Triggers just one measurement report indicating event 1B (periodic event triggered measurements terminated)
20				SS checks that no measurement report is sent by the UE for 10s.

Step	Direction		Message	Comment
	UE	SS		

21			SS configures the downlink power according to column “T0” of table 8.4.1.47-1.
22	←	MEASUREMENT CONTROL	Event 1B configuration is modified, “reporting Interval” is now set back to a non-zero value.
23			SS configures the downlink power according to column “T1” of table 8.4.1.47-1.
24	→	MEASUREMENT REPORT	Measurement made on cell 2 shall trigger event 1B
25			SS waits to receive the full number of reports as defined in the IE "amount of reporting" in Measurement Control
26			SS checks that no measurement report is sent by the UE for 10s.
27	←→	CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

All messages indicated below shall use the same content as described in default message content found in [9] TS 34.108 clause 9, with the following exceptions:

MEASUREMENT CONTROL (Step 1)

Information Element	Value/remark
RRC transaction identifier	1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Identity	1
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency
- New intra-frequency info list	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	TRUE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 2
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell for measurement	
- Intra-frequency cell id	1, 2
- Intra-frequency measurement quantity	
- Filter Coefficient	0
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	TRUE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each events	
- Intra-frequency event identity	1a
- Triggering conditions 1	Not Present
- Triggering conditions 2	Monitored set cells
- Reporting range	18 (9.0 dB)
- Cells forbidden to affect reporting range	Not Present
- W	0
- Hysteresis	0 (0 dB)
- Threshold used frequency	Not Present
- Reporting deactivation threshold	3
- Replacement activation threshold	Not Present
- Time to trigger	0 msec
- Amount of reporting	1
- Reporting interval	No periodical reporting
- Reporting cell status	
- CHOICE reported cells	Report cells within monitored set on used frequency
- Maximum number of reported cells	2
- Intra-frequency event identity	1b

Information Element	Value/remark
- Triggering conditions 1	ActiveSetCellsOnly
- Triggering conditions 2	Not Present
- Reporting range	18 (9.0 dB)

3GPP TS 34.123-1 version 10.3.1 Release 10

- Cells forbidden to affect reporting range	Not Present
- W	0
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	Not Present
- Hysteresis	0 (0 dB)
- Threshold used frequency	Not Present
- Time to trigger	0 msec
- Reporting cell status	Not Present
- PeriodicReportingInfo-1b	
- Amount of reporting	16
- Reporting interval	8000
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 2)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for Cell 2
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional Measured Results	Check to see if this IE is absent
Event Results	Check to see if set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if set to '1a'
- Cell measurement event results	
- CHOICE Mode	Check to see if set to 'FDD'
- Primary CPICH info	
- Primary Scrambling Code	Check to see if set to the same code for Cell 2

ACTIVE SET UPDATE (Step 3 & 17)

Information Element	Value/remark
RRC transaction identifier	0
3GPP TS 34.123-1 version 10.3.1 Release 10	
Radio link addition information	
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as assigned for Cell 2
- Downlink DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	P-CPICH can be used
- DPCH frame offset	Calculated value from Cell synchronisation information
- Secondary CPICH info	Not Present
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE
- Secondary scrambling code	1
- Spreading factor	Refer to TS 34.108 clause 6.10.2.4 "Typical radio parameter sets"
- Code Number	For each DPCH, assign the same code number in the current code given in Cell 1.
- Scrambling code change	Not Present
- TPC Combination Index	0
- SSDT Cell Identity	Not Present
- Close loop timing adjustment mode	Not Present
- TFCI Combining Indicator	FALSE
- SCCPCH information for FACH	Not Present
Radio link removal information	Not Present

ACTIVE SET UPDATE COMPLETE (Steps 4, 13 & 18)

Information Element	Value/remark
RRC transaction identifier	Check to see if it is set to 0

MEASUREMENT REPORT (Steps 6, 7, 11, 19, 24 & 25)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured Results	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional Measured Results	Check to see if this IE is absent
Event Results	Check to see if set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if set to '1b'
- Cell measurement event results	
- CHOICE Mode	Check to see if set to 'FDD'
- Primary CPICH info	
- Primary Scrambling Code	Check to see if set to the same code for Cell 2

ACTIVE SET UPDATE (Step 12)

Information Element	Value/remark
RRC transaction identifier	0
Radio link removal information	
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as assigned for Cell 2

MEASUREMENT CONTROL (Step 16)

Information Element	Value/remark
RRC transaction identifier	1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Identity	1
Measurement Command	Modify
Measurement Reporting Mode	Not Present
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	Not Present
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity	Not Present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each events	
- Intra-frequency event identity	1b
- Triggering conditions 1	ActiveSetCellsOnly
- Triggering conditions 2	Not Present
- Reporting range	18 (9.0 dB)
- Cells forbidden to affect reporting range	Not Present
- W	0
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	Not Present
- Hysteresis	0 (0 dB)
- Threshold used frequency	Not Present
- Time to trigger	100 msec
- Reporting cell status	Not present
- PeriodicReportingInfo-1b	
- Amount of reporting	16
- Reporting interval	No periodical reporting
DPCH compressed mode status info	Not Present

MEASUREMENT CONTROL (Step 22)

Information Element	Value/remark
RRC transaction identifier	1
Measurement Identity	1
Measurement Command	Modify
Measurement Reporting Mode	Not Present
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency event identity	1b
- Triggering conditions 1	ActiveSetCellsOnly
- Triggering conditions 2	Not Present
- Reporting range	18 (9.0 dB)
- Cells forbidden to affect reporting range	Not Present
- W	0
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	Not Present
- Hysteresis	(0 dB)
- Threshold used frequency	Not Present
- Time to trigger	0 msec
- Reporting cell status	Not present
- PeriodicReportingInfo-1b	
- Amount of reporting	16
- Reporting interval	8000
DPCH compressed mode status info	Not Present

8.4.1.47.5 Test requirement

After step 1, the UE shall send a MEASUREMENT REPORT message on the uplink DCCH. The message shall contain the IE "Event results" to report that Cell 2 has triggered intra-frequency event 1A.

After step 3, the UE shall send an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH indicating the successful addition of Cell 2 to the active set.

After step 5, the UE shall transmit a number of MEASUREMENT REPORTS on the uplink DCCH. The message shall **3GPP TS 34.123-1 version 10.3.1 Release 10**contain IE "Event results" to report that Cell 2 has triggered intra-frequency event 1B.

After step 10, the UE shall start to transmit a number of MEASUREMENT REPORTS on the uplink DCCH. The message shall contain IE "Event results" to report that Cell 2 has triggered intra-frequency event 1B.

After step 12, the UE shall send an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH indicating the successful removal of Cell 2 from the active set.

After step 17, UE shall send an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH indicating the successful addition of Cell 2 to the active set.

After step 18, the UE shall transmit just one MEASUREMENT REPORT message on the uplink DCCH indicating that the periodic event-triggered reporting is now terminated for event 1B. The message shall contain IE "Event results" to report that Cell 2 has triggered intra-frequency event 1B.

After step 23, the UE shall start to transmit a series of MEASUREMENT REPORTs equal to the number as mentioned in the IE ‘ amount of reports’, on the uplink DCCH with the IE "Event results” indicating that Cell 2 has triggered intra-frequency event 1B.

SS waits to see that no further Measurement reports are received in addition to what is mentioned in the IE ’amount of reporting’.

8.4.1.48 Measurement Control and Report: Combined Inter-frequency measurement for event 2b and Inter-RAT measurement, event 3a (FDD)

8.4.1.48.1 Definition

-

8.4.1.48.2 Conformance requirement

When event 2b is configured in the UE within a measurement, the UE shall:

1> if equations 1 and 2 below have been fulfilled for a time period indicated by "Time to Trigger" from the same instant, respectively for one or several non-used frequencies included for that event and for the used frequency:

2> if any of those non-used frequency is not stored in the variable TRIGGERED_2B_EVENT:

3> store the non-used frequencies that triggered the event and that were not previously stored in the variable TRIGGERED_2B_EVENT into that variable;

3> send a measurement report with IEs set as below:

4> set in "inter-frequency measurement event results":

5> "inter-frequency event identity" to "2b"; and

5> for each non-used frequency that triggered the event, beginning with the best frequency:

6> "Frequency info" to that non-used frequency; and

6> "Non frequency related measurement event results" to the "Primary CPICH info" of the best primary CPICH for FDD cells or "Primary CCPCH info" to the "Cell parameters ID" of the best primary CCPCH for TDD cells on that non-used frequency, not taking into account the cell individual offset;

4> set the IE "measured results" and the IE "additional measured results" according to TS 25.331 subclause 8.4.2, not taking into account the cell individual offset;

1> if equation 3 below is fulfilled for a non-used frequency stored in the variable TRIGGERED_2B_EVENT:

2> remove that non-used frequency from the variable TRIGGERED_2B_EVENT.

1> if equation 4 below is fulfilled for the used frequency:

3GPP TS 34.123-1 version 10.3.1 Release 102> clear the variable TRIGGERED_2B_EVENT.

Triggering conditions:

Equation 1:

$$Q_{Non\ used} \geq T_{Non\ used\ 2b} + H_{2b} / 2$$

The variables in the formula are defined as follows:

$Q_{Non\ used}$ is the quality estimate of a non-used frequency that becomes better than an absolute threshold.

$T_{Non\ used\ 2b}$ is the absolute threshold that applies for this non-used frequency in that measurement.

H_{2b} is the hysteresis parameter for the event 2b.

Equation 2:

$$Q_{Used} \leq T_{Used\ 2b} - H_{2b} / 2$$

The variables in the formula are defined as follows:

Q_{Used} is the quality estimate of the used frequency.

$T_{Used\ 2b}$ is the absolute threshold that applies for the used frequency in that measurement.

H_{2b} is the hysteresis parameter for the event 2b.

Leaving triggered state condition:

Equation 3:

$$Q_{Non\ used} < T_{Non\ used\ 2b} - H_{2b} / 2$$

The variables in the formula are defined as follows:

$Q_{Non\ used}$ is the quality estimate of a non-used frequency that is stored in the variable TRIGGERED_2B_EVENT.

$T_{Non\ used\ 2b}$ is the absolute threshold that applies for this non-used frequency in that measurement.

H_{2b} is the hysteresis parameter for the event 2b.

Equation 4:

$$Q_{Used} > T_{Used\ 2b} + H_{2b} / 2$$

The variables in the formula are defined as follows:

Q_{Used} is the quality estimate of the used frequency.

$T_{Used\ 2b}$ is the absolute threshold that applies for the used frequency in that measurement.

H_{2b} is the hysteresis parameter for the event 2b.

…..

When an inter-RAT measurement configuring event 3a is set up, the UE shall:

1> create a variable TRIGGERED_3A_EVENT related to that measurement, which shall initially be empty;

1> delete this variable when the measurement is released.

When event 3a is configured in the UE within a measurement, the UE shall:

1> if the other RAT is GSM, and if IE "BSIC verification required" is set to "required":

2> if equations 1 and 2 below have both been fulfilled for a time period indicated by "Time to trigger" from the same instant, respectively for the used UTRAN frequency and for one or several GSM cells that match any of
the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement:

3> if the Inter-RAT cell id of any of those GSM cells is not stored in the variable TRIGGERED_3A_EVENT:

4> store the Inter-RAT cell ids of the GSM cells that triggered the event and that were not previously stored in the variable TRIGGERED_3A_EVENT into that variable.

4> send a measurement report with IEs set as below:

5> in "inter-RAT measurement event result": "inter-RAT event identity" to "3a", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cells that triggered the event (best one first), taking into account the cell individual offset of the GSM cells;

5> "measured results" and possible "additional measured results" according to subclause 8.6.7.5 and 8.4.2, respectively, not taking into account the cell individual offset.

2> if equation 4 is fulfilled for a GSM cell whose inter-RAT cell id is stored in the variable TRIGGERED_3A_EVENT:

3> remove the inter-RAT cell id of that GSM cell from the variable TRIGGERED_3A_EVENT.

2> if equation 3 is fulfilled for the used frequency in UTRAN:

3> clear the variable TRIGGERED_3A_EVENT.

1> if the other RAT is GSM, and if IE "BSIC verification required" is set to "not required":

2> if equations 1 and 2 below have been fulfilled for a time period indicated by "Time to trigger" from the same instant, respectively for the used UTRAN frequency and for one or several BCCH ARFCNs considered in that inter-RAT measurement:

3> if any of those BCCH ARFCNs is not stored into the variable TRIGGERED_3A_EVENT:

4> store the BCCH ARFCNs that triggered the event and that were not previously stored in the variable TRIGGERED_3A_EVENT into that variable;

4> send a measurement report with IEs set as below:

5> in "inter-RAT measurement event result": "inter-RAT event identity" to "3a", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to BCCH ARFCNs that triggered the event (best one first), taking into account the cell individual offset of the GSM cells;

5> "measured results" and possible "additional measured results" according to subclause 8.6.7.5 and 8.4.2, respectively, not taking into account the cell individual offset.

2> if equation 4 is fulfilled for a BCCH ARFCN that is stored in the variable TRIGGERED_3A_EVENT:

3> remove that BCCH ARFCN from the variable TRIGGERED_3A_EVENT.

2> if equation 3 is fulfilled for the used frequency in UTRAN:

3> clear the variable TRIGGERED_3A_EVENT.

Triggering conditions:

Equation 1:

$$Q_{Used} \leq T_{Used} - H_{3a}/2$$

The variables in the formula are defined as follows:

Q_{Used} is the quality estimate of the used UTRAN frequency.

T_{Used} is the absolute threshold that applies for the used frequency in that measurement.

3GPP TS 34.123-1 version 10.3.1 Release 10

H_{3a} is the hysteresis parameter for event 3a.

Equation 2:

$$M_{Other\ RAT}+CIO_{OtherRAT} \geq T_{Other\ RAT}+H_{3a}/2$$

The variables in the formula are defined as follows:

$M_{Other\ RAT}$ is the measurement quantity for the cell of the other system.

$CIO_{Other\ RAT}$ is the cell individual offset for the cell of the other system.

$T_{Other\ RAT}$ is the absolute threshold that applies for the other system in that measurement.

H_{3a} is the hysteresis parameter for event 3a.

Leaving triggered state conditions:

Equation 3:

$$Q_{Used} > T_{Used}+H_{3a}/2$$

The variables in the formula are defined as follows:

Q_{Used} is the quality estimate of the used UTRAN frequency.

T_{Used} is the absolute threshold that applies for the used frequency in that measurement.

H_{3a} is the hysteresis parameter for event 3a.

Equation 4:

$$M_{Other\ RAT}+CIO_{OtherRAT} < T_{Other\ RAT}-H_{3a}/2$$

The variables in the formula are defined as follows:

$M_{Other\ RAT}$ is the measurement quantity for the cell of the other system. $M_{Other\ RAT}$ is expressed in dBm.

$CIO_{Other\ RAT}$ is the cell individual offset for the cell of the other system.

$T_{Other\ RAT}$ is the absolute threshold that applies for the other system in that measurement.

H_{3a} is the hysteresis parameter for event 3a.

H_{3c} is the hysteresis parameter for event 3c.

Reference

3GPP TS 25.331 clauses 14.2.1.2, 14.3.1.1.

8.4.1.48.3 Test Purpose

1. To confirm that the UE sends MEASUREMENT REPORT message when event 2b and 3a are configured and estimated quality of the currently used frequency is below the value of the IE "Threshold used frequency" and the estimated quality of a non-used frequency is above the value of the IE "Threshold non-used frequency". This MEASUREMENT REPORT message shall contain at least the best primary CPICH info of the non-used frequency that triggered the event.

2. To confirm that the UE sends MEASUREMENT REPORT message when event 2b and 3a are configured and estimated quality of the currently used UTRAN frequency is below the value of the IE "Threshold own system" and the estimated quality of the other system is above the value of the IE "Threshold other system". This MEASUREMENT REPORT message shall contain the inter-RAT cell id of the GSM cell that triggered the event.

3GPP TS 34.123-1 version 10.3.1 Release 10

8.4.1.48.4 Method of test

Initial Condition

System Simulator: 2 UTRAN FDD cells and 1 GSM cell. The initial configurations of the 3 cells in the SS shall follow the values indicated in the column marked "T0" in table 8.4.1.48-1. The table is found in "Test Procedure" clause.

UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Related ICS/IXIT statements

- Compressed mode required yes/no

Test Procedure

Table 8.4.1.48-1 and 8.4.1.48-2 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Column marked "T0" denotes the initial conditions, while columns marked "T1" and "T2" are to be applied subsequently. The exact instants on which these values shall be applied are described in the text in this clause.

Table 8.4.1.48-1

Parameter	Unit	Cell 1			Cell 4		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			High Range Test Frequency		
CPICH Ec (FDD)	dBm/3.84 Mhz	-60	-80	-80	-80	-60	-80
Qrxlevmin	dBm	-115 (Note)					
Note Qrxlevmin is set to minimum value (-115) to avoid that cell trigger “out of service” condition.							

Table 8.4.1.48-2

Parameter	Unit	Cell 9 (GSM)		
		T0	T1	T2
Test Channel	-	GSM Ch.1		
BCCH ARFCN	-	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)		
CELL identity	-	0		
BSIC	-	BSIC 1		
RF Signal Level	DBm	-90	-90	-70

The UE is initially in CELL_DCH on Cell1. UTRA cell 1 is the only cell in the active set of the UE. If the UE requires compressed mode (refer ICS/IXIT), the SS sends a PHYSICAL CHANNEL RECONFIGURATION message to the UE to configure the compressed mode pattern sequence parameters to the UE. Four compressed mode patterns: one for inter-frequency handover and three for inter-RAT handover (RSSI, BSIC decoding and BSIC reconfirmation) are configured, according to the message specified below. When the PHYSICAL CHANNEL RECONFIGURATION COMPLETE is received from the UE, the SS sends two MEASUREMENT CONTROL messages to the UE, to set up inter-frequency and inter-RAT measurements respectively. Event 2b and 3a is set up in these message, and if the UE requires compressed mode (refer ICS/IXIT), compressed mode is activated.

The SS then configures the UTRA cells Cell1 and Cell4 and the GSM cell Cell9 according to the values in columns "T1" in table 8.4.1.48-1 and table 8.4.1.48-2. As the estimate for the used frequency is below the threshold configured by the IE " Threshold used frequency " (-70dBm) and the estimate for the non-used frequency is above the threshold configured by the IE "Threshold non-used frequency" (-70dBm) then event 2b is triggered by the UE. The SS waits for the MEASUREMENT REPORT message from the UE reporting event 2b.

3GPP TS 34.123-1 version 10.3.1 Release 10

The SS then configures the UTRA cells Cell1 and Cell4 and the GSM cell Cell9 according to the values in columns "T2" in table 8.4.1.48-1 and table 8.4.1.48-2. As the estimated quality of the currently used UTRAN frequency is below the value of the IE "Threshold own system" (-70dBm) and the estimated quality of the other system is above the value of the IE "Threshold other system" (-80 dBm) then event 3a is triggered by the UE. The SS waits for a MEASUREMENT REPORT message from the UE reporting event 3a.

The SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←			The UE is brought to the CELL_DCH state in cell 1. If Compressed Mode not required (refer ICS/IXIT) go to step 4
2	←		PHYSICAL CHANNEL RECONFIGURATION	SS instructs UE to configure compressed mode patterns for inter-frequency and inter-RAT.
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
4	←		MEASUREMENT CONTROL	SS sets measurement parameters for event 2b .
5	←		MEASUREMENT CONTROL	If UE require compressed mode (refer ICS/IXIT) then SS activates compressed mode operation for Inter-RAT and Inter-frequency. SS commands the UE to perform Inter-RAT measurements and Inter-frequency to report event 3a and event 2b.
6				SS re-adjusts the downlink transmission power settings according to columns "T1" in table 8.4.1.48-1 and table 8.4.1.48-2.
7	→		MEASUREMENT REPORT	Measurement report indicating event 2b. This message should come at least 640 ms later after changing power setting of Cell 4. Layer 3 Filtering causes an additional delay.
8				SS re-adjusts the downlink transmission power settings according to columns "T2" in table 8.4.1.48-1 and table 8.4.1.48-2.
9	→		MEASUREMENT REPORT	Measurement report indicating event 3a. This message should come at least 640 ms later after changing power setting of Cell 9.
10	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

All messages indicated below shall use the same content as described in default message content, with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION (Step 2)

Use the same message sub-type found in clause 9 of TS 34.108, which is entitled "(Packet to CELL_DCH from CELL_DCH in PS)", with Scrambling code change set to Default1 and with the following exceptions in the IE(s) **3GPP TS 34.123-1 version 10.3.1 Release 10**concerned:

Four compressed mode patterns: one for inter-frequency handover and three for inter-RAT handover (RSSI, BSIC decoding and BSIC reconfirmation) are configured, based on the compressed mode pattern in clause 6.8.2.2 of 34.108

Information Element	Value/remark	Version
Downlink information common for all radio links - DPCH compressed mode info		
- TGPSI	1	
3GPP TS 34.123-1 version 10.3.1 Release 10		
- TGPS status flag - TGCFN - Transmission gap pattern sequence configuration parameters - TGMP - TGPRC - TGSN - TGL1 - TGL2 - TGD - TGPL1 - TGPL2 - RPP - ITP - CHOICE UL/DL mode - Downlink compressed mode method - Uplink compressed mode method - Downlink frame type - DeltaSIR1 - DeltaSIRAfter1 - DeltaSIR2 - DeltaSIRAfter2 - N identify abort - T Reconfirm abort	Deactivate Not Present FDD Measurement Infinity 8 14 Not Present undefined 12 Not Present Mode 0 Mode 0 UL and DL or DL only or UL only depending on UE capability SF/2 SF/2 or Not present depending on UE capability A 20 (2.0) 10 (1.0) Not present Not present Not present Not present	R99 and Rel-4 only
- TGPSI - TGPS Status Flag - TGCFN - Transmission gap pattern sequence configuration parameters - TGMP - TGPRC - TGSN - TGL1 - TGL2 - TGD - TGPL1 - TGPL2 - RPP - ITP CHOICE UL/DL Mode - Downlink compressed mode method - Uplink compressed mode method - Downlink frame type - DeltaSIR1 - DeltaSIRAfter1 - DeltaSIR2 - DeltaSIR2After2 - N identify abort - T Reconfirm abort	2 Deactivate Not present GSM Carrier RSSI Measurement Infinity 8 14 Not present 60 24 Not present Mode 0 Mode 0 UL&DL or UL-only or DL-only (depends on UE's Measurement capability) SF/2 SF/2 or Not present depending on UE capability A 10 (1.0) 5 (0.5) Not Present Not Present Not Present Not Present	R99 and Rel-4
- TGPSI - TGPS Status Flag - TGCFN - Transmission gap pattern sequence configuration parameters - TGMP - TGPRC - TGSN - TGL1 - TGL2	3 Deactivate Not present GSM BSIC identification Infinity 8 14 Not present	

- TGD - TGPL1 - TGPL2	45 24 Not present	 R99 and Rel-4

3GPP TS 34.123-1 version 10.3.1 Release 10

- RPP - ITP CHOICE UL/DL Mode - Downlink compressed mode method - Uplink compressed mode method - Downlink frame type - DeltaSIR1 - DeltaSIRAfter1 - DeltaSIR2 - DeltaSIR2After2 - N identify abort - T Reconfirm abort	Mode 0 Mode 0 UL&DL or UL-only or DL-only (depends on UE's Measurement capability) SF/2 SF/2 or Not present depending on UE capability A 10 (1.0) 5 (0.5) Not Present Not Present 66 Not Present	
- TGPSI - TGPS Status Flag - TGCFN - Transmission gap pattern sequence configuration parameters - TGMP - TGPRC - TGSN - TGL1 - TGL2 - TGD - TGPL1 - TGPL2 - RPP - ITP CHOICE UL/DL Mode - Downlink compressed mode method - Uplink compressed mode method - Downlink frame type - DeltaSIR1 - DeltaSIRAfter1 - DeltaSIR2 - DeltaSIR2After2 - N identify abort - T Reconfirm abort	4 Deactivate Not present GSM BSIC re-confirmation Infinity 8 14 Not present undefined 24 Not present Mode 0 Mode 0 UL&DL or UL-only or DL-only (depends on UE's Measurement capability) SF/2 SF/2 or Not present depending on UE capability A 10 (1.0) 5 (0.5) Not Present Not Present Not Present 10 (5 s)	R99 and Rel-4
Downlink information per radio link list - Choice mode - Primary CPICH info - Primary scrambling code - PDSCH with SHO DCH info - PDSCH code mapping - Serving HS-DSCH radio link indicator - Serving E-DCH radio link indicator - Downlink DPCH info for each RL - CHOICE mode - Primary CPICH usage for channel estimation - DPCH frame offset - Secondary CPICH info - DL channelisation code - Secondary scrambling code - Spreading factor - Code number - Scrambling code change	 FDD Ref. to the Default setting in clause 6.1 (FDD) Not Present Not Present FALSE FALSE FDD Primary CPICH may be used Set to value : Default DPCH Offset Value (as currently stored in SS) mod 38 400 Not Present 5 Reference to clause 6.10 Parameter Set 0 Set to value Default1: No code change (if the UE has a compressed mode pattern sequence	 R99 and Rel-4 only R99 and Rel-4 only Rel-5 Rel-6

	configured in variable TGPS_IDENTITY or included in the message including IE "Downlink DPCH info for each RL", which is using compressed mode method "SF/2")	
3GPP TS 34.123-1 version 10.3.1 Release 10		
- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	Rel-6
- E-HICH Information	Not Present	Rel-6
- E-RGCH Information	Not Present	Rel-6
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

MEASUREMENT CONTROL (Step 4)

Information Element	Value/remark
Measurement identity	2
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement command	Setup
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- Inter-frequency cell removal	Not present
- New inter-frequency info list	
- Inter-frequency cell id	Id of Cell 4
- Frequency Information	Frequency of Cell 4
- Cell info	
- Cell individual offset	Default value
- Reference time difference to cell	Not present
- CHOICE mode	FDD
- Read SFN Indicator	FALSE
- Primary CPICH Info	
- Primary scrambling code	Primary scrambling code of Cell 4
- Primary CPICH TX power	Not present
- TX Diversity Indicator	FALSE
- Cell for measurement	Not present
- Inter-frequency measurement quantity	
- Filter Coefficient	4
- Frequency quality estimate quantity	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRAN carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement validity	CELL_DCH state
- Inter-frequency SET UPDATE	
- UE autonomous update mode	On with no reporting
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each events	
- Inter-frequency event identity	2b
- Threshold used frequency	-70 dBm
- W used frequency	0
- Hysteresis	2 (1 dB)
- Time to trigger	640 ms
- Reporting cell status	Within active set or within virtual active set or of the other RAT
- Maximum number of reporting cells	1
- Non used frequency parameter list	
- Threshold non used frequency	-70 dBm
- W non-used frequency	0
DPCH compressed mode status info	Not Present

MEASUREMENT CONTROL (Step 5)

Information Element	Value/remark
Measurement Identity	3
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event triggered
Additional measurements list	Not Present
CHOICE measurement type	
- inter-RAT measurement	
- inter-RAT measurement object list	
CHOICE Inter-RAT Cell Removal	Remove all inter-RAT cells
-Remove all inter-RAT cells	(No Data)
New inter-RAT cells (1 to <MaxCellMeas>)	
- inter-RAT cell id	Id of Cell9
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC1
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- Cell for measurement	Not present
- inter-RAT measurement quantity	
- Measurement quantity for UTRAN quality estimate	
- Intra-frequency measurement quantity	
- Filter coefficient	0
- CHOICE mode	FDD
- Measurement quantity	CPICH RSCP
CHOICE system	GSM
- Measurement quantity	GSM carrier RSSI
- Filter coefficient	0
- BSIC verification required	Required
- inter-RAT reporting quantity	
CHOICE system	GSM
- Observed time difference to GSM cell reporting indicator	FALSE
- GSM carrier RSSI reporting indicator	TRUE
CHOICE report criteria	
- Inter-RAT measurements reporting criteria	
- Parameters required for each event (1 to<maxMeasEvent>)	
- Inter-RAT event identity	3a
- Threshold own system	-70 dBm
- W	0
- Threshold other system	-80 dBm
- Hysteresis	2 (1 dB)
- Time to Trigger	640 ms
- Reporting cell status	Report cells within active set or within virtual active set or of the other RAT
- Maximum number of reported cells	1
Physical channel information elements	
- DPCH compressed mode status info	If the UE requires compressed mode (refer ICS/IXIT), this IE is present and contains the IEs as follows. If the UE does not require compressed mode (refer ICS/IXIT), this IE is not present.
- TGPS reconfiguration CFN	(Current CFN+(232-TTI/10msec))mod256
- Transmission gap pattern sequence (1 to <MaxTGPS>)	
- TGPSI	1
- TGPS status flag	Activate
- TGCFN	(TGPS reconfiguration CFN +6)mod 256
- TGPSI	2
- TGPS status flag	Activate

- TGCFN	(TGPS reconfiguration CFN +10)mod 256
- TGPSI	3
- TGPS status flag	Activate
- TGCFN	(TGPS reconfiguration CFN +24)mod 256

3GPP TS 34.123-1 version 10.3.1 Release 10

- TGPSI	4
- TGPS status flag	Activate
- TGCFN	(TGPS reconfiguration CFN +21)mod 256

MEASUREMENT REPORT (Step 7)

Information Element	Value/remark
Measurement identity	Check to see if set to 2
Measured results	
- Frequency info	
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_4
- UTRA carrier RSSI	Check to see if it is not present
- Inter-frequency cell measured results	
- Cell Identity	Check to see if it is not present
- Cell synchronisation information	Check to see if it is not present
- Mode Specific Info	FDD
- Primary CPICH Info	
- Primary scrambling code	Primary scrambling code for cell 4
- CPICH Ec/No	Check to see if it is not present
- CPICH RSCP	Check that measurement result is present
- Pathloss	Check to see if it is not present
Measured results on RACH	Check to see if it is not present
Additional measured results	Check to see if it is not present
Event results	Inter-frequency measurement event results,
- Inter-frequency event identity	2b
- Cell measurement event results	
- Frequency info	
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_4
- Primary CPICH info	
- Primary scrambling code	Primary scrambling code of Cell 4

MEASUREMENT REPORT (Step 9)

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 3	
3GPP TS 34.123-1 version 10.3.1 Release 10		
Measured Results		
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"	
- Inter-RAT measured result list		
- CHOICE system	GSM	
- Measured GSM cells	Check that measurement results for one GSM cells is included	
- GSM carrier RSSI	Check that measurement result is present	
CHOICE BSIC	Check it is set to verified BSIC	
- inter-RAT cell id	Check that it is set to Cell id for Cell9	
- Observed time difference to GSM cell	Check to see if it is not present	R99 and Rel-4 only
Measured results on RACH	Check to see if it is not present	
Additional Measured results	Check to see if it is not present	
Event results	Check that the IE is present	
- CHOICE event result	Check that this is set to inter-RAT measurement event results	
- Inter-RAT event identity	Check that this is set to 3a	
- Cells to report (1 to <maxCellMeas>)	Check that <maxCellMeas> is set to 1	
- CHOICE BSIC	Check that this is set to verified BSIC	
- Inter-RAT cell id	Check that this is set to Cell id of Cell 9.	

8.4.1.48.5 Test Requirement

1. In step 7 the UE shall send a MEASUREMENT REPORT message indicating event 2b. IE 'Inter-frequency Cells' in MEASUREMENT REPORT message shall contain frequency information and primary scrambling code of Cell 4.

2 In step 9 the UE shall send a MEASUREMENT REPORT message indicating event 3a with IE “Inter-RAT cell id” indicating Cell 9.

8.4.1.48a Measurement Control and Report: Combined Inter-frequency measurement for event 2b and Inter-RAT measurement, event 3a (TDD)

8.4.1.48a.1 Definition

8.4.1.48a.2 Conformance requirement

When event 2b is configured in the UE within a measurement, the UE shall:

1> if equations 1 and 2 below have been fulfilled for a time period indicated by "Time to Trigger" from the same instant, respectively for one or several non-used frequencies included for that event and for the used frequency:

2> if any of those non-used frequency is not stored in the variable TRIGGERED_2B_EVENT:

3> store the non-used frequencies that triggered the event and that were not previously stored in the variable TRIGGERED_2B_EVENT into that variable;

3> send a measurement report with IEs set as below:

4> set in "inter-frequency measurement event results":

5> "inter-frequency event identity" to "2b"; and

5> for each non-used frequency that triggered the event, beginning with the best frequency:

6> "Frequency info" to that non-used frequency; and

6> "Non frequency related measurement event results" to the "Primary CPICH info" of the best primary CPICH for FDD cells or "Primary CCPCH info" to the "Cell parameters ID" of the best primary CCPCH for TDD cells on that non-used frequency, not taking into account the cell individual offset;

3GPP TS 34.123-1 version 10.3.1 Release 10

4> set the IE "measured results" and the IE "additional measured results" according to TS 25.331 subclause 8.4.2, not taking into account the cell individual offset;

1> if equation 3 below is fulfilled for a non-used frequency stored in the variable TRIGGERED_2B_EVENT:

2> remove that non-used frequency from the variable TRIGGERED_2B_EVENT.

1> if equation 4 below is fulfilled for the used frequency:

2> clear the variable TRIGGERED_2B_EVENT.

Triggering conditions:

Equation 1:

$$Q_{Non\ used} \geq T_{Non\ used\ 2b} + H_{2b} / 2$$

The variables in the formula are defined as follows:

$\boldsymbol{Q_{Non\ used}}$ is the quality estimate of a non-used frequency that becomes better than an absolute threshold.

$\boldsymbol{T_{Non\ used\ 2b}}$ is the absolute threshold that applies for this non-used frequency in that measurement.

$\boldsymbol{H_{2b}}$ is the hysteresis parameter for the event 2b.

Equation 2:

$$Q_{Used} \leq T_{Used\ 2b} - H_{2b} / 2$$

The variables in the formula are defined as follows:

$\boldsymbol{Q_{Used}}$ is the quality estimate of the used frequency.

$\boldsymbol{T_{Used\ 2b}}$ is the absolute threshold that applies for the used frequency in that measurement.

$\boldsymbol{H_{2b}}$ is the hysteresis parameter for the event 2b.

Leaving triggered state condition:

Equation 3:

$$Q_{Non\ used} < T_{Non\ used\ 2b} - H_{2b} / 2$$

The variables in the formula are defined as follows:

$\boldsymbol{Q_{Non\ used}}$ is the quality estimate of a non-used frequency that is stored in the variable TRIGGERED_2B_EVENT.

$\boldsymbol{T_{Non\ used\ 2b}}$ is the absolute threshold that applies for this non-used frequency in that measurement.

$\boldsymbol{H_{2b}}$ is the hysteresis parameter for the event 2b.

Equation 4:

$$Q_{Used} > T_{Used\ 2b} + H_{2b} / 2$$

The variables in the formula are defined as follows:

$\boldsymbol{Q_{Used}}$ is the quality estimate of the used frequency.

$\boldsymbol{T_{Used\ 2b}}$ is the absolute threshold that applies for the used frequency in that measurement.

H_{2b} is the hysteresis parameter for the event 2b.

…..

3GPP TS 34.123-1 version 10.3.1 Release 10

When an inter-RAT measurement configuring event 3a is set up, the UE shall:

1> create a variable TRIGGERED_3A_EVENT related to that measurement, which shall initially be empty;

1> delete this variable when the measurement is released.

When event 3a is configured in the UE within a measurement, the UE shall:

1> if the other RAT is GSM, and if IE "BSIC verification required" is set to "required":

2> if equations 1 and 2 below have both been fulfilled for a time period indicated by "Time to trigger" from the same instant, respectively for the used UTRAN frequency and for one or several GSM cells that match any of the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement:

3> if the Inter-RAT cell id of any of those GSM cells is not stored in the variable TRIGGERED_3A_EVENT:

4> store the Inter-RAT cell ids of the GSM cells that triggered the event and that were not previously stored in the variable TRIGGERED_3A_EVENT into that variable.

4> send a measurement report with IEs set as below:

5> in "inter-RAT measurement event result": "inter-RAT event identity" to "3a", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cells that triggered the event (best one first), taking into account the cell individual offset of the GSM cells;

5> "measured results" and possible "additional measured results" according to subclause 8.6.7.5 and 8.4.2, respectively, not taking into account the cell individual offset.

2> if equation 4 is fulfilled for a GSM cell whose inter-RAT cell id is stored in the variable TRIGGERED_3A_EVENT:

3> remove the inter-RAT cell id of that GSM cell from the variable TRIGGERED_3A_EVENT.

2> if equation 3 is fulfilled for the used frequency in UTRAN:

3> clear the variable TRIGGERED_3A_EVENT.

1> if the other RAT is GSM, and if IE "BSIC verification required" is set to "not required":

2> if equations 1 and 2 below have been fulfilled for a time period indicated by "Time to trigger" from the same instant, respectively for the used UTRAN frequency and for one or several BCCH ARFCNs considered in that inter-RAT measurement:

3> if any of those BCCH ARFCNs is not stored into the variable TRIGGERED_3A_EVENT:

4> store the BCCH ARFCNs that triggered the event and that were not previously stored in the variable TRIGGERED_3A_EVENT into that variable;

4> send a measurement report with IEs set as below:

5> in "inter-RAT measurement event result": "inter-RAT event identity" to "3a", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to BCCH ARFCNs that triggered the event (best one first), taking into account the cell individual offset of the GSM cells;

5> "measured results" and possible "additional measured results" according to subclause 8.6.7.5 and 8.4.2, respectively, not taking into account the cell individual offset.

2> if equation 4 is fulfilled for a BCCH ARFCN that is stored in the variable TRIGGERED_3A_EVENT:

3> remove that BCCH ARFCN from the variable TRIGGERED_3A_EVENT.

2> if equation 3 is fulfilled for the used frequency in UTRAN:

3> clear the variable TRIGGERED_3A_EVENT.

3GPP TS 34.123-1 version 10.3.1 Release 10 Triggering conditions:

Equation 1:

$$Q_{Used} \leq T_{Used} - H_{3a}/2$$

The variables in the formula are defined as follows:

$\boldsymbol{Q_{Used}}$ is the quality estimate of the used UTRAN frequency.

$\boldsymbol{T_{Used}}$ is the absolute threshold that applies for the used frequency in that measurement.

$\boldsymbol{H_{3a}}$ is the hysteresis parameter for event 3a.

Equation 2:

$$M_{Other\ RAT} + CIO_{OtherRAT} \geq T_{Other\ RAT} + H_{3a}/2$$

The variables in the formula are defined as follows:

$\boldsymbol{M_{Other\ RAT}}$ is the measurement quantity for the cell of the other system.

$\boldsymbol{CIO_{Other\ RAT}}$ is the cell individual offset for the cell of the other system.

$\boldsymbol{T_{Other\ RAT}}$ is the absolute threshold that applies for the other system in that measurement.

$\boldsymbol{H_{3a}}$ is the hysteresis parameter for event 3a.

Leaving triggered state conditions:

Equation 3:

$$Q_{Used} > T_{Used} + H_{3a}/2$$

The variables in the formula are defined as follows:

$\boldsymbol{Q_{Used}}$ is the quality estimate of the used UTRAN frequency.

$\boldsymbol{T_{Used}}$ is the absolute threshold that applies for the used frequency in that measurement.

$\boldsymbol{H_{3a}}$ is the hysteresis parameter for event 3a.

Equation 4:

$$M_{Other\ RAT} + CIO_{OtherRAT} < T_{Other\ RAT} - H_{3a}/2$$

The variables in the formula are defined as follows:

$\boldsymbol{M_{Other\ RAT}}$ is the measurement quantity for the cell of the other system. $\boldsymbol{M_{Other\ RAT}}$ is expressed in dBm.

$\boldsymbol{CIO_{Other\ RAT}}$ is the cell individual offset for the cell of the other system.

$\boldsymbol{T_{Other\ RAT}}$ is the absolute threshold that applies for the other system in that measurement.

$\boldsymbol{H_{3a}}$ is the hysteresis parameter for event 3a.

$\boldsymbol{H_{3c}}$ is the hysteresis parameter for event 3c.

Reference

3GPP TS 25.331 clauses 14.2.1.2, 14.3.1.1.

8.4.1.48a.3 Test Purpose

1. To confirm that the UE sends MEASUREMENT REPORT message when event 2b and 3a are configured and estimated quality of the currently used frequency is below the value of the IE "Threshold used frequency" and the estimated quality of a non-used frequency is above the value of the IE "Threshold non-used frequency". This MEASUREMENT REPORT message shall contain at least the best primary CCPCH info of the non-used frequency that triggered the event.

2. To confirm that the UE sends MEASUREMENT REPORT message when event 2b and 3a are configured and estimated quality of the currently used UTRAN frequency is below the value of the IE "Threshold own system" and the estimated quality of the other system is above the value of the IE "Threshold other system". This MEASUREMENT REPORT message shall contain the inter-RAT cell id of the GSM cell that triggered the event.

8.4.1.48a.4 Method of test

Initial Condition

System Simulator: 2 UTRAN TDD cells and 1 GSM cell. The initial configurations of the 3 cells in the SS shall follow the values indicated in the column marked "T0" in table 8.4.1.48a-1. The table is found in "Test Procedure" clause.

UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Related ICS/IXIT statements

- Compressed mode required yes/no

Test Procedure

Table 8.4.1.48a-1 and 8.4.1.48a-2 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Column marked "T0" denotes the initial conditions, while columns marked "T1" and "T2" are to be applied subsequently. The exact instants on which these values shall be applied are described in the text in this clause.

Table 8.4.1.48a-1

Parameter	Unit	Cell 1			Cell 4		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			High Range Test Frequency		
P-CCPCH (TDD)	dBm	-60	-80	-80	-80	-60	-80
Qrxlevmin	dBm	-115 (Note)					
Note: Qrxlevmin is set to minimum value (-115) to avoid that cell trigger “out of service” condition.							

Table 8.4.1.48a-2

Parameter	Unit	Cell 9 (GSM)		
		T0	T1	T2
Test Channel	-	GSM Ch.1		
BCCH ARFCN	-	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)		
CELL identity	-	0		
BSIC	-	BSIC 1		
RF Signal Level	DBm	-90	-90	-70

3GPP TS 34.123-1 version 10.3.1 Release 10

The UE is initially in CELL_DCH on Cell1. UTRA cell 1 is the only cell in the active set of the UE. the SS sends two MEASUREMENT CONTROL messages to the UE, to set up inter-frequency and inter-RAT measurements respectively. Event 2b and 3a is set up in these message.

The SS then configures the UTRA cells Cell1 and Cell4 and the GSM cell Cell9 according to the values in columns "T1" in table 8.4.1.48a-1 and table 8.4.1.48a-2. As the estimate for the used frequency is below the threshold configured by the IE " Threshold used frequency " (-70dBm) and the estimate for the non-used frequency is above the threshold configured by the IE "Threshold non-used frequency" (-70dBm) then event 2b is triggered by the UE. The SS waits for the MEASUREMENT REPORT message from the UE reporting event 2b.

The SS then configures the UTRA cells Cell1 and Cell4 and the GSM cell Cell9 according to the values in columns "T2" in table 8.4.1.48a-1 and table 8.4.1.48a-2. As the estimated quality of the currently used UTRAN frequency is below the value of the IE "Threshold own system" (-70dBm) and the estimated quality of the other system is above the value of the IE "Threshold other system" (-80 dBm) then event 3a is triggered by the UE. The SS waits for a MEASUREMENT REPORT message from the UE reporting event 3a.

The SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1	←			The UE is brought to the CELL_DCH state in cell 1.
2	←		MEASUREMENT CONTROL	SS sets measurement parameters for event 2b .
3	←		MEASUREMENT CONTROL	SS commands the UE to perform Inter-RAT measurements and Inter-frequency to report event 3a and event 2b.
4				SS re-adjusts the downlink transmission power settings according to columns "T1" in table 8.4.1.48a-1 and table 8.4.1.48a-2.
5	→		MEASUREMENT REPORT	Measurement report indicating event 2b. This message should come at least 640 ms later after changing power setting of Cell 4. Layer 3 Filtering causes an additional delay.
6				SS re-adjusts the downlink transmission power settings according to columns "T2" in table 8.4.1.48a-1 and table 8.4.1.48a-2.
7	→		MEASUREMENT REPORT	Measurement report indicating event 3a. This message should come at least 640 ms later after changing power setting of Cell 9.
8	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.
9				
10				

Specific Message Contents

All messages indicated below shall use the same content as described in default message content, with the following exceptions:

MEASUREMENT CONTROL (Step 2)

Information Element	Value/remark
Measurement identity	2
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement command	Setup
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- Inter-frequency cell removal	Not present
- New inter-frequency info list	
- Inter-frequency cell id	Id of Cell 4
- Frequency Information	Frequency of Cell 4
- Cell info	
- Cell individual offset	Default value
- Reference time difference to cell	Not present
- CHOICE mode	TDD
- Read SFN Indicator	FALSE
- Primary CCPCH Info	
- Primary scrambling code	Primary scrambling code of Cell 4
- Primary CCPCH TX power	Not present
- TX Diversity Indicator	FALSE
- Cell for measurement	Not present
- Inter-frequency measurement quantity	
- Filter Coefficient	4
- Frequency quality estimate quantity	PCCPCH RSCP
- Inter-frequency reporting quantity	
- UTRAN carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement validity	CELL_DCH state
- Inter-frequency SET UPDATE	
- UE autonomous update mode	On with no reporting
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each events	
- Inter-frequency event identity	2b
- Threshold used frequency	-70 dBm
- W used frequency	0
- Hysteresis	2 (1 dB)
- Time to trigger	640 ms
- Reporting cell status	Within active set or within virtual active set or of the other RAT
- Maximum number of reporting cells	1
- Non used frequency parameter list	
- Threshold non used frequency	-70 dBm
- W non-used frequency	0
DPCH compressed mode status info	Not Present

MEASUREMENT CONTROL (Step 3)

Information Element	Value/remark
Measurement Identity	3
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event triggered
Additional measurements list	Not Present
CHOICE measurement type	
- inter-RAT measurement	
- inter-RAT measurement object list	
CHOICE Inter-RAT Cell Removal	Remove all inter-RAT cells
-Remove all inter-RAT cells	(No Data)
New inter-RAT cells (1 to <MaxCellMeas>)	
- inter-RAT cell id	Id of Cell9
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC1
- Band indicator	GSM/DCS-1800 or GSM/PCS-1900 (dependent on band used)
- BCCH ARFCN	Value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)
- Cell for measurement	Not present
- inter-RAT measurement quantity	
- Measurement quantity for UTRAN quality estimate	
- Intra-frequency measurement quantity	
- Filter coefficient	0
- CHOICE mode	TDD
- Measurement quantity	PCCPCH RSCP
CHOICE system	GSM
- Measurement quantity	GSM carrier RSSI
- Filter coefficient	0
- BSIC verification required	Required
- inter-RAT reporting quantity	
CHOICE system	GSM
- Observed time difference to GSM cell reporting indicator	FALSE
- GSM carrier RSSI reporting indicator	TRUE
CHOICE report criteria	
- Inter-RAT measurements reporting criteria	
- Parameters required for each event (1 to<maxMeasEvent>)	
- Inter-RAT event identity	3a
- Threshold own system	-70 dBm
- W	0
- Threshold other system	-80 dBm
- Hysteresis	2 (1 dB)
- Time to Trigger	640 ms
- Reporting cell status	Report cells within active set or within virtual active set or of the other RAT
- Maximum number of reported cells	1

MEASUREMENT REPORT (Step 5)

Information Element	Value/remark
Measurement identity	Check to see if set to 2
3GPP TS 34.123-1 version 10.3.1 Release 10	Check to see if it set to “Inter-frequency measured results list”
- Frequency information	Check to see if set to Frequency of Cell 4
- UTRA carrier RSSI	Check to see if it is absent
- Inter-frequency cell measured results	
- Cell measurement results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	Check to see if set to “TDD”
- Cell parameters ID	Check to see if set to Cell parameters ID for cell 4
- Proposed TGSN	Check to see if it is absent
- Primary CCPCH RSCP	Check to see if it is present
- Pathloss	Check to see if it is absent
- Timeslot List/ISCP	Check to see if it is absent
Measured results on RACH	Check to see if it is absent
Additional measured results	Check to see if it is absent
Event results	
- CHOICE event results	Check to see if set to “Inter-frequency measurement event results”
- Inter-frequency event identity	Check to see if set to “2B”
- Inter-frequency cells	
- Frequency info	Check to see if set to Frequency of Cell 4
- Non-frequency related measurement event results	
- CHOICE mode	Check to see if set to “TDD”
- Primary CCPCH info	
- CHOICE mode	Check to see if set to “TDD”
- CHOICE mode option	Check to see if set to “1.28 Mcps TDD”
- TSTD Indicator	Check to see if set to “FALSE”
- Cell parameters ID	Check to see if set to Cell parameters ID of Cell 4
- SCTD Indicator	Check to see if set to “FALSE”

MEASUREMENT REPORT (Step 7)

Information Element	Value/remark	Version
Measurement identity	Check to see if set to 3	
Measured Results		
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"	
- Inter-RAT measured result list		
- CHOICE system	GSM	
- Measured GSM cells	Check that measurement results for one GSM cells is included	
- GSM carrier RSSI	Check that measurement result is present	
CHOICE BSIC	Check it is set to verified BSIC	
- inter-RAT cell id	Check that it is set to Cell id for Cell9	
- Observed time difference to GSM cell	Check to see if it is not present	R99 and Rel-4 only
Measured results on RACH	Check to see if it is not present	
Additional Measured results	Check to see if it is not present	
Event results	Check that the IE is present	
- CHOICE event result	Check that this is set to inter-RAT measurement event results	
- Inter-RAT event identity	Check that this is set to 3a	
- Cells to report (1 to <maxCellMeas>)	Check that <maxCellMeas> is set to 1	
- CHOICE BSIC	Check that this is set to verified BSIC	
- Inter-RAT cell id	Check that this is set to Cell id of Cell 9.	

8.4.1.48a.5 Test Requirement

1. In step 7 the UE shall send a MEASUREMENT REPORT message indicating event 2b. IE 'Inter-frequency Cells' in MEASUREMENT REPORT message shall contain frequency information and primary scrambling code of Cell 4.

2 In step 9 the UE shall send a MEASUREMENT REPORT message indicating event 3a with IE “Inter-RAT cell id” indicating Cell 9.

8.4.1.49 Measurement Control and Report: Intra-frequency measurement for event 1J

8.4.1.49.1 Definition

8.4.1.49.2 Conformance requirement

When an intra-frequency measurement configuring event 1j is set up, the UE shall:

1> create a variable TRIGGERED_1J_EVENT related to that measurement, which shall initially be empty;

1> delete this variable when the measurement is released.

When event 1J is configured in the UE, the UE shall:

1> if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for one or more primary CPICHs, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:

2> if all required reporting quantities are available for that cell; and

2> if the equations have been fulfilled for a time period indicated by "Time to trigger", and if the primary CPICH that is better is not included in the E-DCH active set but included in DCH active set and the other primary CPICH is any of the primary CPICHs included in the E-DCH active set, and if that first primary CPICH is not included in the "cells triggered" in the variable TRIGGERED_1J_EVENT:

3> include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED_1J_EVENT.

1> if the value of "Replacement activation threshold" for this event is less than or equal to the current number of cells in the E-DCH active set or equal to 0 and if any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED_1J_EVENT:

2> if "Reporting interval" for this event is not equal to 0:

3> if the IE "Periodical reporting running" in the variable TRIGGERED_1J_EVENT is set to FALSE:

4> start a timer for with the value of "Reporting interval" for this event and set the IE "Periodical reporting running" in the variable TRIGGERED_1J_EVENT to TRUE.

3> set "sent reports" for that primary CPICH in the variable TRIGGERED_1J_EVENT to 1.

2> send a measurement report with IEs set as below:

3> set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1J"; and

3> include in "cell measurement event results" all entries of the "cells recently triggered" in the variable TRIGGERED_1J_EVENT not in the E-DCH active set but included in DCH active set as well as the "primary CPICH info" of all the primary CPICHs in the E-DCH active set for which the measured value is worse (i.e. greater for pathloss and less for the other measurement quantities) than the one of the entry in "cell recently triggered" that has the best measured value taking into account their cell individual offset. The "primary CPICH info" for those cells shall be ordered according to their measured value taking into account their cell individual offset, beginning with the best cell to the worst one;

3> set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2, not taking into account the cell individual offset for each cell.

2> …

Reference

3GPP TS 25.331 clause 14.1.2.7

3GPP TS 34.123-1 version 10.3.1 Release 10

8.4.1.49.3 Test Purpose

1. To confirm that the UE sends MEASUREMENT REPORT message if event 1J is configured, and the number of cells in the E-DCH active set is greater than or equal to 'Replacement activation threshold' parameter, and if the primary CPICH that is not included in the E-DCH active set but included in the DCH active set becomes better than any of the primary CPICHs included in the E-DCH active set.

2. To confirm that the UE does not send MEASUREMENT REPORT message indicating event 1J if the number of cells in the active E-DCH set is less than 'Replacement activation threshold' parameter, even if the primary CPICH that is not included in the E-DCH active set but included in the DCH active set becomes better than any of the primary CPICHs included in the E-DCH active set.

3. To confirm that the UE does not send MEASUREMENT REPORT message indicating event 1J, even if the cell that is not in the DCH active set becomes better than any of the primary CPICHs included in the E-DCH active set.

4. To confirm that the UE stops periodic reporting of event 1J when the "sent reports" in variable TRIGGERED_1J_EVENT is greater than "Amount of reporting".

8.4.1.49.4 Method of Test

Initial Condition

System Simulator: 3 cells – The initial configuration of the 3 cells in the SS shall follow the values indicated in the column marked "T0" in table 8.4.1.49-1. The table is found in "Test Procedure" clause

UE: PS-DCCH +DTCH_HS-DSCH +DTCH_E-DCH (state 6-18) under condition A12 in Cell 1 as specified in clause 7.4 of TS 34.108

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH
- UE supports E-DPDCH

Test Procedure

Table 8.4.1.49-1 illustrates the downlink power to be applied for the 3 cells at various instants of the test execution. Columns marked "T0" denotes the initial conditions, while "T1", "T2", "T3", "T4", and "T5" are to be applied subsequently. The exact instants on which these values shall be applied are described in the text in this clause.

Table 8.4.1.49-1

Parameter	Unit	Cell 1					
		T0	T1	T2	T3	T4	T5
UTRA RF Channel Number		Ch.1					
CPICH Ec (FDD)	dBm/3.84Mhz	-60	-60	-60	-60	-66	-66

Parameter	Unit	Cell 2					
		T0	T1	T2	T3	T4	T5
UTRA RF Channel Number		Ch.1					
CPICH Ec (FDD)	dBm/3.84Mhz	-80	-60	-72	-72	-78	-60

Parameter	Unit	Cell 3					
		T0	T1	T2	T3	T4	T5
UTRA RF Channel Number		Ch.1					

3GPP TS 34.123-1 version 10.3.1 Release 10

CPICH Ec (FDD)	dBm/3.84Mhz	-80	-60	-78	-66	-60	-60

The UE is in the CELL_DCH state and has a radio bearer mapped on E-DCH and HS-DSCH established with active E-DCH transmission and HS-DSCH reception.

SS configures its downlink transmission power settings according to columns "T1" in table 8.4.1.49-1. UE shall be triggered to transmit a MEASUREMENT REPORT message, which includes the primary scrambling code for cell 2.

SS performs a soft handover by sending ACTIVE SET UPDATE on the DL DCCH. The UE shall respond with ACTIVE SET UPDATE COMPLETE on the uplink DCCH and include Cell 2 and Cell 3 in the DCH active set.

SS configures its downlink transmission power settings according to columns "T2" in table 8.4.1.49-1.Setup event 1J by MEASUREMENT CONTROL with IE. 'Replacement activation threshold' set to 1.

SS configures itself according to the values in columns "T3" by increasing the power of Cell 3 (but not above Cell 1 and outside the reporting range for Cell 1). There shall be no measurement reports generated for this condition.

SS configures itself according to the values in columns "T4" to trigger event 1J and waits for 10 seconds. There shall be 2 measurement reports reporting event 1J. The "cell measurement event" of the measurement report contains the information of primary CPICH for Cell 3 and Cell 1.

SS removes Cell 2 from the DCH active set by sending ACTIVE SET UPDATE on the DL DCCH. The UE shall respond with ACTIVE SET UPDATE COMPLETE on the uplink DCCH

SS configures itself according to the values in the columns "T5". Cell 2 is better than Cell 1, however the UE shall not send a MEASUREMENT REPORT message indicating event 1J as the event is only triggered for cells in the DCH active set.

The SS then sends MEASUREMENT CONTROL message to the UE to modify the earlier configured 1J measurement. Now IE 'Replacement activation threshold' is set to 2. MEASUREMENT CONTROL messages contain only those IEs that are modified and the UE shall continue to use current values of parameters that are not modified. Add Cell 2 to the DCH active set by sending ACTIVE SET UPDATE on the DL DCCH. The UE shall respond with ACTIVE SET UPDATE COMPLETE. Now Cell 2 is better than Cell 1 and is in the DCH active set. However the UE shall not send MEASUREMENT REPORT message indicating 1J because the number of cells in the E-DCH active set is less than parameter "Replacement Activation Threshold". The SS then sends MEASUREMENT CONTROL message to set the IE ‘Replacement activation threshold’ back to 1 and wait 10 seconds. There shall be 2 measurement reports reporting event 1J. The “cell measurement event” of the measurement report contains the information of primary CPICH for Cell 2,3 and 1.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
0				UE is initially in CELL_DCH state in cell 1.
0a				SS configures its downlink transmission power settings according to columns "T1" in table 8.4.1.49-1
0b	→		MEASUREMENT REPORT	See specific message contents for this message.
0c				SS configures its downlink transmission power settings according to columns "T2" in table 8.4.1.49-1
1	←		ACTIVE SET UPDATE	SS command the UE to add Cell 2 and Cell 3 in the DCH active set.
2	→		ACTIVE SET UPDATE COMPLETE	
3	←		MEASUREMENT CONTROL	Event 1J is setup. IE "Replacement activation threshold" is set to 1.
4				SS re-adjusts the downlink transmission power settings according to columns "T3" in table 8.4.1.49-1.
5				Check for 10 seconds, the UE shall not send MEASUREMENT REPORT message.
6				SS re-adjusts the downlink transmission power settings according to columns "T4" in table 8.4.1.49-1.
7	→		MEASUREMENT REPORT	Event 1J is triggered. The UE report contains the information of primary CPICH for Cell 3 and Cell 1.
8	→		MEASUREMENT REPORT	The UE shall send a second report. Check for 10 seconds, the UE shall send no further measurement reports
9	←		ACTIVE SET UPDATE	SS command the UE to remove Cell 2 from the DCH active set
10	→		ACTIVE SET UPDATE COMPLETE	
11				SS re-adjusts the downlink transmission power settings according to columns "T5" in table 8.4.1.49-1.
12				Check for 10 seconds, the UE shall not send MEASUREMENT REPORT MESSAGE (Cell 2 is not in the active DCH set)
13	←		MEASUREMENT CONTROL	Event 1J is setup to set IE "Replacement activation threshold" is set to 2.
14	←		ACTIVE SET UPDATE	SS commands the UE to add Cell 2 back to the DCH active set
15	→		ACTIVE SET UPDATE COMPLETE	
16				Check for 10 seconds, the UE shall not send MEASUREMENT REPORT MESSAGE (number of cells in the E-DCH active set is less than threshold)
17	←		MEASUREMENT CONTROL	Event 1J is setup to set IE "Replacement activation threshold" back to 1.

18	→	MEASUREMENT REPORT	Event 1J is triggered. The UE report contains the information of primary CPICH for cell3, Cell 2 and Cell 1.

3GPP TS 34.123-1 version 10.3.1 Release 10

19	→	MEASUREMENT REPORT	The UE shall send second report. Check for 10 seconds, the UE shall send no further measurement reports
20	←→	CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

All messages indicated below shall use the same content as described in TS 34.108 clause 9, with the following exceptions:

MEASUREMENT REPORT (Step 0b)

Information Element	Value/remark
Message Type	
3GPP TS 34.123-1 version 10.3.1 Release 10	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 3 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	The UE may include either or both of the following cells.(the order in which the different cells are reported is not important)
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 1)

Information Element	Value/remark	Version
Radio link addition information		
3GPP TS 34.123-1 version 10.3.1 Release 10		
- Primary CPICH info		
- Primary scrambling code	Primary scrambling code of Cell 2	
- Downlink DPCH info for each RL		
- CHOICE MODE	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not Present	
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE on Cell 2	
- Secondary scrambling code	1	
- Spreading factor	Reference to TS34.108 clause 6 Parameter Set	
- Code number	For each DPCH, assign the same code number in the current code given in cell 1	
- Scrambling code change	Not Present	
- TPC combination index	0	
- Closed loop timing adjustment mode	Not Present	
- Primary CPICH info		
- Primary scrambling code	Primary scrambling code of Cell 3	
- Downlink DPCH info for each RL		
- CHOICE MODE	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not Present	
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE on Cell 3	
- Secondary scrambling code	1	
- Spreading factor	Reference to TS34.108 clause 6 Parameter Set	
- Code number	For each DPCH, assign the same code number in the current code given in cell 1	
- Scrambling code change	Not Present	
- TPC combination index	0	
- SSDT cell identity	Not Present	
- Closed loop timing adjustment mode	Not Present	

MEASUREMENT CONTROL (Steps 3 and 17)

Information Element	Value/remark
Measurement Identity	1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting/Event Trigger Reporting Mode	Periodical reporting
CHOICE Measurement type	Intra-frequency measurement
- Intra-frequency measurement	
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cells	
- Intra-frequency cell-id	Id of Cell 2
- Cell info	
- Cell individual offset	0 (0dB)
- Reference time difference to cell	Not Present
- Read SFN number	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Primary scrambling code of Cell 2
- Primary CPICH Tx power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection Info	Not Present
- Intra-frequency cell-id	Id of Cell 3
- Cell info	
- Cell individual offset	0 (0dB)
- Reference time difference to cell	Not Present
- Read SFN number	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Primary scrambling code of Cell 3
- Primary CPICH Tx power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection Info	Not Present
- Cells for measurement	
- Intra-frequency cell id list	Set to id of cell 1, 2 and 3
- Intra-frequency measurement quantity	
- Filter coefficient	0
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronization information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronization information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not Present
- Reporting cell status	Not Present
- Measurement validity	Not Present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1J
- Hysteresis	0
- Replacement activation threshold	1
- Time to trigger	200 ms
- Amount of reporting	2
- Reporting interval	500 ms
- Reporting cell status	
- Report cells within active set and/or monitored	

set cells on used frequency	
- Maximum number of reported cells	3
DPCH Compressed mode status info	Not Present

MEASUREMENT REPORT (Step 7 and 8)

Information Element	Value/remark
Measurement identity	1
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	Check to see if measurement results for 3 cells are included
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 3
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 1
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 2
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	Check to see if set to “Intra-frequency measurement event results“
- Intra-frequency event identity	Check to see if set to “1J”
- Cell measurement event results	
- Primary CPICH info	Check to see if set to “Primary scrambling code of Cell 3
- Primary CPICH info	Check to see if set to “Primary scrambling code of Cell 1

ACTIVE SET UPDATE (Step 9)

Information Element	Value/remark	Version
Radio link removal information		
- Primary CPICH info		
- Primary scrambling code	Primary scrambling code of Cell 2	

MEASUREMENT CONTROL (step 13)

Use the same message as defined for steps 3 and 17 with the exception of the following IE

3GPP TS 34.123-1 version 10.3.1 Release 10

Information Element	Value/remark
CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1J
- Hysteresis	0
- Replacement activation threshold	2
- Time to trigger	200 ms
- Amount of reporting	2
- Reporting interval	500 ms
- Reporting cell status	
- Report cells within active set and/or monitored set cells on used frequency	
- Maximum number of reported cells	3

ACTIVE SET UPDATE (Step 14)

Information Element	Value/remark	Version
Radio link addition information		
- Primary CPICH info		
- Primary scrambling code	Primary scrambling code of Cell 2	
- Downlink DPCH info for each RL		
- CHOICE MODE	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Calculated value from Cell synchronisation information	
- Secondary CPICH info	Not Present	
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE on Cell 2	
- Secondary scrambling code	1	
- Spreading factor	Reference to TS34.108 clause 6 Parameter Set	
- Code number	For each DPCH, assign the same code number in the current code given in cell 1	
- Scrambling code change	Not Present	
- TPC combination index	0	
- Closed loop timing adjustment mode	Not Present	
- TPC combination index	0	
- SSDT cell identity	Not Present	
- Closed loop timing adjustment mode	Not Present	

MEASUREMENT REPORT (Step 18 and 19)

Information Element	Value/remark
Measurement identity	1
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured Results	Check to see if this IE is present
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	Check to see if measurement results for 3 cells are included (the order in which cells 2 and 3 are reported is not important)
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 2
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 3
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 1
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	Check to see if set to “Intra-frequency measurement event results“
- Intra-frequency event identity	Check to see if set to “1J”
- Cell measurement event results	Check to see if measurement results for 3 cells are included (the order in which cells 2 and 3 are reported is not important)
- Primary CPICH info	Check to see if set to “Primary scrambling code of Cell 3”
- Primary CPICH info	Check to see if set to “Primary scrambling code of Cell 2
- Primary CPICH info	Check to see if set to “Primary scrambling code of Cell 1

8.4.1.49.5 Test Requirement

In steps 7, 8, 18 and 19 the UE shall send a MEASUREMENT REPORT indicating event 1J. For steps 7 and 8 the IE ‘Cell measurement event results’ in the MEASUREMENT REPORT message should contain primary scrambling codes of Cell 3 and Cell 1. For steps 18 and 19 the IE ‘Cell measurement event results’ in the MEASUREMENT REPORT message should contain primary scrambling codes of Cell 2 and Cell 1.

In step 16 the UE shall not send a MEASUREMENT REPORT message.

In step 12 the UE shall not send a MEASUREMENT REPORT message.

In steps 7 and 8 the UE shall send 2 measurement reports only.

8.4.1.50 Measurement reporting when moving from CELL_PCH to CELL_FACH

8.4.1.50.1 Definition and applicability

All UEs which support FDD and HS-PDSCH in CELL_PCH and URA_PCH.

8.4.1.50.2 Conformance requirement

In CELL_PCH or URA_PCH state, the UE shall:

3GPP TS 34.123-1 version 10.3.1 Release 10

1> if the measurement reporting is not initiated according to subclause 8.5.40:

2> first perform the cell update procedure according to subclause 8.3.1, using the cause "uplink data transmission", in order to transit to CELL_FACH state; and then

2> transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT_IDENTITY are fulfilled for any ongoing UE positioning measurement which is being performed in the UE.

For FDD, the UE in CELL_PCH state shall:

1> if variable H_RNTI is set:

2> if the measurement reporting is initiated according to subclause 8.5.40:

3> set the IE "measurement identity" to "16";

3> not set the IE "measured results";

3> include the IE "measured results on RACH";

3> if an event triggered traffic volume measurement has been configured:

4> if the TCTV is larger than the threshold in the IE "Reporting threshold" for a traffic volume measurement stored in the MEASUREMENT_IDENTITY variable and that traffic volume measurement has "measurement identity" equal to 4, "Traffic volume event identity" equal to "4a", "Measurement validity" equal to "all states" or "all states except CELL_DCH":

5> set the IE "Traffic volume event identity" to "4a";

3> and then transmit the MEASUREMENT REPORT message on the uplink DCCH using AM RLC; when the MEASUREMENT REPORT message has been submitted to lower layers for transmission the procedure ends.

…

When the IE "HS-DSCH paging system information" is included in System Information Block type 5 or System Information Block type 5bis and the UE is in CELL_PCH or URA_PCH state, the UE shall:

1> set the variable HS_DSCH_RECEPTION_GENERAL to TRUE;

1> if variable H_RNTI and variable C_RNTI are set:

2> if the UE is in CELL_PCH state:

3> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer for DCCH or DTCH reception; and

3> for BCCH reception perform HS-DSCH reception procedures by listening to the first indexed HS-SCCH code listed in the IE "HS-SCCH channelisation code" with "BCCH specific H-RNTI" as received in IE "HS-DSCH common system information" from System Information Block type 5 or System Information Block type 5bis.

3> if the UE detects the value of the variable H_RNTI in the HS-SCCH reception procedure:

4> initiate the measurement report procedure as specified in subclause 8.4.2:

5> if the UE has an uplink RLC PDU on RB1 or upwards to transmit:

6> move to CELL_FACH;

6> stop timer T319 if it is running.

3> if the UE has uplink RLC data PDU or uplink RLC control PDU on RB1 or upwards to transmit:

4> initiate the measurement report procedure as specified in subclause 8.4.2:

3GPP TS 34.123-1 version 10.3.1 Release 104> move to CELL_FACH state;

4> stop timer T319 if it is running.

Reference

3GPP TS 25.331 clause 8.5.40 and 8.4.2

8.4.1.50.3 Test purpose

1. To confirm that the UE performs measurements reporting on SRB2 when moving from Cell PCH state to Cell FACH state when HS-DSCH is configured with dedicated H-RNTI

2. To confirm that the UE performs measurements reporting with a cell update procedure when moving from Cell PCH state to Cell FACH state when HS-DSCH is configured with no dedicated H-RNTI.

8.4.1.50.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_FACH state as specified in clause 7.4 of TS 34.108, with a valid H-RNTI

The UE is registered in both CS and PS domains.

Test Procedure

The UE is in the CELL_FACH state with HS-DSCH reception enabled. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message with IE "RRC State Indicator" set to "CELL_PCH " and assigns a dedicated H_RNTI. The UE shall reply with PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and move to CELL_PCH state. The SS transmits a UE CAPABILITY ENQUIRY message. This triggers the UE to move to CELL_FACH state and transmit a MEASUREMENT REPORT and UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM mode. SS completes the procedure by transmitting a UE CAPABILITY INFORMATION CONFIRM message. The UE shall remain in CELL_FACH state.

The SS then transmits a PHYSICAL CHANNEL RECONFIGURATION message with IE "RRC State Indicator" set to "CELL_PCH " and with no dedicated H_RNTI. The UE shall reply with PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and move to CELL_PCH state. The SS transmits a PAGING TYPE 1 message which includes a matched identifier and the optional IE "CN originated page to connected mode UE" The UE then moves to CELL_FACH state and transmits a CELL UPDATE message to the SS on the uplink CCCH, with the IE "Cell update cause" set to value "uplink data transmission" and IE ‘Measurement Results on RACH’ containing the measured CPICH RSCP for cell 1 . After receiving such a message, SS transmits a CELL UPDATE CONFIRM message on downlink DCCH mapped to HS-DSCH. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities. The UE shall stay in CELL_FACH state and transmit an INITIAL DIRECT TRANSFER message using AM RLC on DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1				The UE is brought to CELL_FACH state.
2	←		PHYSICAL CHANNEL RECONFIGURATION	IE "RRC State Indicator" set to "CELL_PCH" and dedicated H-RNTI
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE moves to CELL_PCH state.
4	←		UE CAPABILITY ENQUIRY	
5	→		MEASUREMENT REPORT	This message shall contain IE "Measured results on RACH" reporting the measured CPICH RSCP for cell 1 and the "Measurement identity" to "16
6	→		UE CAPABILITY INFORMATION	The order of MEASUREMENT REPORT and UE CAPABILITY INFORMATION is not important.
6a	←		UE CAPABILITY INFORMATION CONFIRM	
7	←		PHYSICAL CHANNEL RECONFIGURATION	IE "RRC State Indicator" set to "CELL_PCH" and no dedicated H-RNTI
8	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE moves to CELL_PCH state.
9	←		PAGING TYPE 1	Includes Matched identifier and optional IE “CN originated page to connected mode UE"
10	→		CELL UPDATE	The UE moves to CELL FACH state and transmit this message which is set to "uplink data transmission" in IE "Cell update cause". This message shall contain IE "Measured results on RACH" reporting the measured CPICH RSCP for cell 1
11	←		CELL UPDATE CONFIRM	See message content .
12	→		UTRAN MOBILITY INFORMATION CONFIRM	
13	→		INITIAL DIRECT TRANSFER	Response to the paging message sent in step 9
14	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

3GPP TS 34.123-1 version 10.3.1 Release 10

System Information Block type 11 (Step 1)

Use the same System Information Block Type 11 message as found in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/remark
Intra-frequency reporting quantity for RACH reporting - SFN-SFN observed time difference reporting indicator - CHOICE mode - Measurement quantity - Maximum number of reported cells on RACH	 No report FDD CPICH RSCP Current cell

PHYSICAL CHANNEL RECONFIGURATION (Step 2)

Use the same message sub-type found in TS 34.108 clause 9, which is entitled "Packet to CELL_FACH from CELL_FACH in PS", with the following exceptions:

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'
New H-RNTI	Set to an arbitrary string different from '1010 1010 1010 1010'
RRC State Indicator UTRAN DRX cycle length coefficient	CELL_PCH 3

UE CAPABILITY ENQUIRY (Step 4)

Use the same message sub-type found in TS 34.108 clause 9.1.

PAGING TYPE 1 (Step 9)

Information Element	Value/remark
Message Type Paging record list Paging record - CHOICE Used paging identity - U-RNTI - SRNC Identity - S-RNTI - CN originated page to connected mode UE -Paging cause -CN domain identity -Paging record type identifier BCCH modification info	 Only 1 entry UTRAN identity Set to the previously assigned SRNC identity Set to previously assigned S-RNTI Terminating Conversational Call CS Domain Set to "TMSI (GSM-MAP)/P-TMSI" for UEs supporting GSM-MAP core network type or "TMSI (DS-41)" for UEs supporting ANSI-41 core network type. Not Present

MEASUREMENT REPORT (Step 5)

Information Element	Value/remark
Message Type	
3GPP TS 34.123-1 version 10.3.1 Release 10	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	16
Measured Results	NOT PRESENT
Measured results on RACH	Checked that this IE is present
Additional measured results	Checked that this IE is absent
Event results	Checked that this IE is absent
GSM OTD reference cell	Checked that this IE is absent
Inter-RAT cell info indication	Checked that this IE is absent

UE CAPABILITY INFORMATION (Step 6)

Use the same message sub-type found in TS 34.108 clause 9.

UE CAPABILITY INFORMATION CONFIRM (Step 6a)

Use the same message sub-type found in TS 34.108 clause 9.1.

PHYSICAL CHANNEL RECONFIGURATION (Step 7)

Use the same message sub-type found in TS 34.108 clause 9, which is entitled "Packet to CELL_FACH from CELL_FACH in PS", with the following exceptions:

Information Element	Value/remark
New H-RNTI	NOT PRESENT
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3

CELL UPDATE (Step 10)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to ‘uplink data transmission'
Measured results on RACH	Checked that this IE is present

CELL UPDATE CONFIRM (Step 11)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	Set to an arbitrary string different from '1010 1010 1010 1010'

INITIAL DIRECT TRANSFER (Step13) – for UEs supporting GSM-MAP core networks

Check to see if the same message type found in TS 34.108 clause 9 is received, with the following exceptions:

Information Element	Value/remark
CN domain identity	CS domain
Intra Domain NAS Node Selector	
- CHOICE version	R99

3GPP TS 34.123-1 version 10.3.1 Release 10

-- CHOICE CN type	GSM
--- CHOICE Routing basis	Local(P)TMSI
---- Routing parameter	This bit string is set to bits b14 through b23 of the TMSI. The TMSI consists of 4 octets (32bits). This can be represented by a string of bits numbered from b0 to b31, with bit b0 being the least significant. The "Routing parameter" bit string consists of bits b14 through b23 of the TMSI. The first/ leftmost/ most significant bit of the bit string contains bit b23 of the TMSI
--- Entered parameter	Not checked
NAS message	Not checked

INITIAL DIRECT TRANSFER (Step13) – for UEs supporting ANSI-41 core networks

Information Element	Value/remark
CN domain identity	CS Domain
Intra Domain NAS Node Selector	
- CHOICE version	ANSI-41: Bitstring(14), all bits set to 0
NAS message	Not checked
START	Not checked
Measured results on RACH	Not checked

8.4.1.50.5 Test requirement

After step 2, UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and move to CELL_PCH state.

After step 4, the UE shall move to CELL_FACH state and transmits a RRC STATUS message and MEASUREMENT REPORT message on SRB2 containing the IE "Measured results on RACH" reporting the measured CPICH RSCP for cell 1 and the IE "Measurement identity" set to "16".

After step 7, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and move to CELL_PCH state.

After step 10, the UE shall move to CELL_FACH state and initiate a cell update procedure and transmits a CELL UPDATE message on RACH containing the IE "Measured results on RACH" reporting the measured CPICH RSCP for cell 1.

After step 12, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 13, UE shall transmit a INITIAL DIRECT TRANSFER message to SS using AM RLC on DCCH.

8.4.1.51 Measurement Control and Report: Inter-frequency measurement for events 2C for CSG cells

8.4.1.51.1 Definition

Test to verify the UE can report the 2c events for CSG cells.

8.4.1.51.2 Conformance requirement

1. Event 2c: The estimated quality of a non-used frequency is above a certain threshold

When an inter-frequency measurement configuring event 2c is set up, the UE shall:

1> create a variable TRIGGERED_2C_EVENT related to that measurement, which shall initially be empty;

1> delete this variable when the measurement is released.

3GPP TS 34.123-1 version 10.3.1 Release 10 When event 2c is configured in the UE within a measurement, the UE shall:

1> if equation 1 below has been fulfilled for one or several non-used frequencies included for that event during the time "Time to trigger":

2> if any of those non-used frequencies is not stored in the variable TRIGGERED_2C_EVENT:

2> if the CSG virtual active set has been updated, since the last measurement report for this event associated with CSG measurement, for any of those non-used frequency which are stored in the variable TRIGGERED_2C_EVENT:

3> store the non-used frequencies that triggered the event and that were not previously stored in the variable TRIGGERED_2C_EVENT into that variable;

3> send a measurement report with IEs set as below:

4> set in "inter-frequency measurement event results":

5> "inter-frequency event identity" to "2c"; and

5> for each non-used frequency that triggered the event, beginning with the best frequency:

6> "Frequency info" to that non-used frequency; and

6> "Non frequency related measurement event results" to the "Primary CPICH info" of the best primary CPICH for FDD cells or "Primary CCPCH info" to the "Cell parameters ID" of the best primary CCPCH for TDD cells on that non-used frequency, not taking into account the cell individual offset.

4> include in IE "Inter-frequency measured results list" the measured results for each non-used frequency that triggered the event, not taking into account the cell individual offset;

4> set the IE "additional measured results" according to subclause 8.4.2 not taking into account the cell individual offset.

1> if equation 1 below has been fulfilled but the CSG virtual active set is updated for a non-used frequency included for that event:

2> restart evaluation of this event for this frequency.

1> if equation 2 below is fulfilled for a non-used frequency stored in the variable TRIGGERED_2C_EVENT:

2> remove that non-used frequency from the variable TRIGGERED_2C_EVENT.

Triggering condition:

Equation 1:

$$Q_{Nonused} \geq T_{Nonused2c} + H_{2c}/2$$

The variables in the formula are defined as follows:

$\boldsymbol{Q_{Non\ used}}$ is the quality estimate of a non-used frequency that becomes better than an absolute threshold.

$\boldsymbol{T_{Non\ used\ 2c}}$ is the absolute threshold that applies for this non-used frequency in that measurement.

$\boldsymbol{H_{2c}}$ is the hysteresis parameter for the event 2c.

Leaving triggered state condition:

Equation 2:

$$Q_{Nonused} < T_{Nonused2c} - H_{2c}/2$$

The variables in the formula are defined as follows:

3GPP TS 34.123-1 version 10.3.1 Release 10 $Q_{Non\ used}$ is the quality estimate of a non-used frequency stored in the variable TRIGGERED_2C_EVENT.

$T_{Non\ used\ 2c}$ is the absolute threshold that applies for this non-used frequency in that measurement.

H_{2c} is the hysteresis parameter for the event 2c.

Reference

1: 3GPP TS 25.331 clause 14.2.1.3.

8.4.1.51.3 Test purpose

1. To confirm that the UE sends MEASUREMENT REPORT message when event 2c is configured and a non-used frequency is above a certain threshold. This MEASUREMENT REPORT message shall contain at least the best primary CPICH info (for FDD) on the non-used frequency that triggered the event and the best primary CPICH info is of the CSG cell present in CSG virtual active set.

2. To confirm that event 2C triggered for a non-used frequency when another CSG cell becomes stronger than the CSG cell in CSG virtual active set.

3. To confirm that evaluation of event 2C is re-started when CSG virtual active set is updated.

8.4.1.51.4 Method of test

Initial Condition

System Simulator:

4 cells: Cell 1, cell 4, cell 6 and cell5 are used. Column marked "T0" in table 8.4.1.51-1 found in "Test Procedure" clause denotes the initial power conditions.

The CSG id of the Cell 5 is 2 and cell 6 is 3. Cell 4 does not broadcast CSG ID.

Cell1 is on f1.

Cell 4, cell 6 and cell 5 are on f2.

User Equipment:

The UE's Allowed CSG List contains CSG Ids 2 & 3. UE's operator CSG list is empty.

The UE is PS-DCCH+DTCH_DCH (state 6-10) or CS-DCCH+DTCH_DCH (state 6-9) or PS+CS-DCCH+DTCH_DCH (state 6-14) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports compressed mode
- UE supports inter-frequency SI acquisition for HO.

Test Procedure

Table8.4.1.51-1 illustrates the downlink power to be applied for the 4 cells.

Table 8.4.1.51-1

Parameter	Unit	Cell 1			Cell4			Cell 5			Cell 6		
Test Channel		1			2						2		
3GPP TS 34.123-1 version 10.3.1 Release 10													
		T0	T1	T2	T0	T1	T2	T0	T1	T2	T0	T1	T2
CPICH_Ec	dBm/3.84MHz	-65	-65	-65	-75	-55	OFF	-75	-65	-65	OFF	OFF	-55

The UE is initially in CELL_DCH and has a radio bearer with the cell 1.

At instant T0, the downlink is according to what is shown in table 8.4.1.51-1. The SS then sets up an intra-frequency measurement (event 1c) and an inter-frequency CSG measurement (event 2c), by sending separate MEASUREMENT CONTROL messages to the UE. Configuration of event 1c is important for the UE to construct CSG VAS active set.

The SS configures then compressed mode (if required), to prepare the UE for inter-frequency measurements, by sending a PHYSICAL CHANNEL RECONFIGURATION message on DCCH using AM-RLC. The UE shall answer with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

At instant T1, the downlink power is changed according to what is shown in table 8.4.1.51-1. The UE shall thus send a MEASUREMENT REPORT with 2c event to the SS. The MEASUREMENT REPORT message contains PSC of Cell-5 (which is a CSG cell) and not PSC of Cell-4 (which is a non-CSG cell), since event 2c is configured for CSG cells.

At instant T2, the downlink power is changed according to what is shown in table 8.4.1.51-1. The UE shall thus send a MEASUREMENT REPORT with 2c event to the SS with PSC of Cell-6. This happens due to Cell-6 being stronger CSG cell than Cell-5. However, this measurement report is not sent before summation of time-to-triggers of both event 1c and 2c.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1				The SS maintains the power of the three cells according to column T0 in table 8.4.1.51 -1
2	←		MEASUREMENT CONTROL	The SS configures an intra-frequency measurement to the UE. Event 1c is configured.
3	←		MEASUREMENT CONTROL	The SS configures an inter-frequency measurement to the UE. Event 2c is configured. If Compressed Mode not required (refer ICS/IXIT) go to step 6
4	←		PHYSICAL CHANNELRECONFIGURATION	The SS instructs UE to begin compressed mode operation. (for FDD only)
5	→		PHYSICAL CHANNELRECONFIGURATION COMPLETE	(for FDD only)
6				The SS re-adjusts the downlink transmission power settings of the cells according to columns "T1" in table8.4.1.51 -1.
7	→		MEASUREMENT REPORT	The UE sends a measurement report including the measured PSC for cell 5 and event 2c.
8				The SS re-adjusts the downlink transmission power settings of the cells according to columns "T2" in table 8.4.1.51-1.
9	→		MEASUREMENT REPORT	The UE sends a measurement report including the PSC for cell 6 and event 2c. Check that this measurement report should not come before 10 sec (i.e., 5000ms TTT of event 1c + 5000ms TTT of event 2c)

Specific Message Contents

MEASUREMENT CONTROL (Step 2)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions

Information Element	Value/remark
Measurement identity	1

3GPP TS 34.123-1 version 10.3.1 Release 10

Measurement command	Setup
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
CHOICE measurement type	Intra-frequency measurement
- intra-frequency measurement	
- Intra-frequency cell info list	
- Cells for measurement	
- Intra-frequency cell id	Set to same code as used for cell 1
- Cell info	
- Cell individual offset	0 (0dB)
- Reference time difference to cell	Not Present
- Read SFN number	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	100
- Primary CPICH Tx power	Not Present
- TX Diversity indicator	FALSE
- Intra-frequency measurement quantity	
- Filter Coefficient	0
- CHOICE mode	
- FDD	
- Measurement quantity	CPICH RSCP
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Intra-frequency measurement reporting criteria	
- Parameters required for each events	
- Intra-frequency event identity	1c
- Hysteresis	4 (2dB)
- Replacement activation threshold	3
- Time to trigger	5000 ms
- Amount of reporting	16
- Reporting interval	4000ms
- Reporting cell status	Not present

MEASUREMENT CONTROL (Step 3)

Information Element	Value/remark
Measurement identity	2
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement command	Setup
Measurement reporting mode	
- Measurement reporting transfer mode	Unacknowledged Mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
CHOICE measurement type	Inter-frequency measurement
- inter-frequency measurement	
- Inter-frequency cell info list	
- Inter-frequency cell removal	Not Present
- New inter-frequency cells	
- Inter-frequency cell id	4
- Frequency info	Set to same code as used for cell 4
- cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN indicator	FALSE
- CHOICE mode	
-FDD	
- Primary CPICH info	

3GPP TS 34.123-1 version 10.3.1 Release 10

- Primary Scrambling Code	Set to same code as used for cell 4
- Primary CPICH Tx power	Not present
- TX Diversity Indicator	FALSE
- Inter-frequency cell id	5
- Frequency info	Frequency of Cell 5
- cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN indicator	FALSE
- CHOICE mode	
-FDD	
- Primary CPICH info	
- Primary Scrambling Code	Primary scrambling code of Cell 5
- Primary CPICH Tx power	Not present
- TX Diversity Indicator	FALSE
- Inter-frequency cell id	6
- Frequency info	Frequency of Cell 6
- cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN indicator	FALSE
- CHOICE mode	
-FDD	
- Primary CPICH info	
- Primary Scrambling Code	Primary scrambling code of Cell 6
- Primary CPICH Tx power	Not present
- TX Diversity Indicator	FALSE
- Cell for measurement	Not present
- CSG Inter-frequency cell info	
- CSG Frequency info	
- Frequency info	Frequency of Cell 4, 5, 6
- CSG Inter-frequency cell info for the frequency	
- CSG cell info list	
- CHOICE *mode*	FDD
- Start PSC	300
- Number of PSCs	100
- Inter-frequency SI Acquisition	Not present
- Inter-frequency measurement quantity	
- Filter Coefficient	4
- Frequency quality estimate quantity	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRAN Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement validity	CELL_DCH state
- inter-frequency set update	
- UE autonomous update mode	On with no reporting
- CHOICE report criteria	
- Inter-frequency measurement reporting criteria	
- Parameters required for each event	
- Inter-frequency event identity	2c
- Hysteresis	2(1dB)
- Time to trigger	5000 mSec
- Reporting cell status	Not present
- Parameters required for each non-used frequency	
- Threshold non used frequency	-70 dBm

- W non used frequency	0
DPCH compressed mode status info	Not present

3GPP TS 34.123-1 version 10.3.1 Release 10 PHYSICAL CHANNEL RECONFIGURATION (Step 4)

Use the same message sub-type found in Annex A, which is entitled "(Packet to CELL_DCH from CELL_DCH in PS)", with the following exceptions in the IE(s) concerned:

Information Element	Value/remark	Version
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing Indication	Maintain	
- Downlink DPCH power control information		
- DPC mode	0 (Single)	
- CHOICE Mode	FDD	
- Power offset PPilot-DPDCH	0	
- DL rate matching restriction information	Not present	
- Spreading factor	Refer to the parameter set in TS 34.108	
- Fixed or flexible position	Flexible	
- TFCI existence	TRUE	
- Number of bits for Pilot bits (SF=128, 256)	Not present	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS status flag	Activate	
- TGCFN	(Current CFN+(256 – TTI/10msec)) mod 256	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	4	
- TGL1	7	
- TGL2	Not Present	
- TGD	Undefined	
- TGPL1	3	
- TGPL2	Not Present	R99 and Rel-4 only
- RPP	Mode 0	
- ITP	Mode 0	
- CHOICE UL/DL mode	UL and DL or DL only or UL only depending on UE capability	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2 or Not present depending on UE capability	
- Downlink frame type	A	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not present	
- DeltaSIRAfter2	Not present	
- N identify abort	Not present	
- T Reconfirm abort	Not present	
- TX diversity mode	None	
- SSDT information	Not present	R99 and Rel-4 only
- Default DPCH offset value	Not present	

MEASUREMENT REPORT (Step 7)

Information Element	Value/remark
Measurement identity	Check to see if set to 2
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured results	Check to see if it is absent
Additional measured results	Check to see if it is absent
Event results	Inter-frequency measurement event results,
- CHOICE event result	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2c
- Inter-frequency cells	
- Frequency info	Set to same code as used for cell 5
- Non frequency related measurement event results	
- CHOICE mode	
- FDD	
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 5

MEASUREMENT REPORT (Step 9)

Information Element	Value/remark
Measurement identity	Check to see if set to 2
Measured results	Check to see if it is absent
Additional measured results	Check to see if it is absent
Event results	Inter-frequency measurement event results,
- CHOICE event result	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2c
- Inter-frequency cells	
- Frequency info	Frequency of cell 6
- Non frequency related measurement event results	
- CHOICE mode	
- FDD	
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 6

8.4.1.51.5 Test requirement

1. At step 7, the UE sends 2c event to the SS. IE "Inter-frequency measurement event results" in this message shall contain frequency information and primary scrambling code of Cell 5.

2. At step 9, the UE sends 2c event to the SS. IE "Inter-frequency measurement event results " in this message shall contain frequency information and primary scrambling code of Cell 6. This message shall only be sent after 10 secs of SS adjusting its power as per Step 8.

8.4.1.52 Measurement Control and Report: Inter-frequency measurement for events 2B for CSG cells

8.4.1.52.1 Definition

Test to verify the UE can report the 2b events for CSG cells.

8.4.1.52.2 Conformance requirement

1: Event 2b: The estimated quality of the currently used frequency is below a certain threshold **and** the estimated quality of a non-used frequency is above a certain threshold.

When an inter-frequency measurement configuring event 2b is set up, the UE shall:

1> create a variable TRIGGERED_2B_EVENT related to that measurement, which shall initially be empty;

1> delete this variable when the measurement is released.

When event 2b is configured in the UE within a measurement, the UE shall:

3GPP TS 34.123-1 version 10.3.1 Release 10

1> if equations 1 and 2 below have been fulfilled for a time period indicated by "Time to Trigger" from the same instant, respectively for one or several non-used frequencies included for that event and for the used frequency:

2> if any of those non-used frequency is not stored in the variable TRIGGERED_2B_EVENT:

2> if the CSG virtual active set has been updated, since the last measurement report for this event associated with CSG measurement, for any of those non-used frequency which are stored in the variable TRIGGERED_2B_EVENT:

3> store the non-used frequencies that triggered the event and that were not previously stored in the variable TRIGGERED_2B_EVENT into that variable;

3> send a measurement report with IEs set as below:

4> set in "inter-frequency measurement event results":

5> "inter-frequency event identity" to "2b"; and

5> for each non-used frequency that triggered the event, beginning with the best frequency:

6> "Frequency info" to that non-used frequency; and

6> "Non frequency related measurement event results" to the "Primary CPICH info" of the best primary CPICH for FDD cells or "Primary CCPCH info" to the "Cell parameters ID" of the best primary CCPCH for TDD cells on that non-used frequency, not taking into account the cell individual offset.

4> include in IE "Inter-frequency measured results list" the measured results for each non-used frequency that triggered the event, not taking into account the cell individual offset;

4> set the IE "additional measured results" according to subclause 8.4.2, not taking into account the cell individual offset.

1> if this equations 1 and 2 below have been fulfilled but the CSG virtual active set is updated for a frequency included for that event:

2> restart evaluation of this event for this frequency.

1> if equation 3 below is fulfilled for a non-used frequency stored in the variable TRIGGERED_2B_EVENT:

2> remove that non-used frequency from the variable TRIGGERED_2B_EVENT.

1> if equation 4 below is fulfilled for the used frequency:

2> clear the variable TRIGGERED_2B_EVENT.

Triggering conditions:

Equation 1:

$$Q_{Nonused} \geq T_{Nonused2b} + H_{2b}/2$$

The variables in the formula are defined as follows:

$\boldsymbol{Q_{Non\ used}}$ is the quality estimate of a non-used frequency that becomes better than an absolute threshold.

$\boldsymbol{T_{Non\ used\ 2b}}$ is the absolute threshold that applies for this non-used frequency in that measurement.

$\boldsymbol{H_{2b}}$ is the hysteresis parameter for the event 2b.

Equation 2:

$$Q_{Used} \leq T_{Used2b} - H_{2b}/2$$

The variables in the formula are defined as follows:

Q_{Used} is the quality estimate of the used frequency.

3GPP TS 34.123-1 version 10.3.1 Release 10 $T_{Used\ 2b}$ is the absolute threshold that applies for the used frequency in that measurement.

H_{2b} is the hysteresis parameter for the event 2b.

Leaving triggered state condition:

Equation 3:

$$Q_{Non used} < T_{Non used 2b} - H_{2b}/2$$

The variables in the formula are defined as follows:

$Q_{Non\ used}$ is the quality estimate of a non-used frequency that is stored in the variable TRIGGERED_2B_EVENT.

$T_{Non\ used\ 2b}$ is the absolute threshold that applies for this non-used frequency in that measurement.

H_{2b} is the hysteresis parameter for the event 2b.

Equation 4:

$$Q_{Used} > T_{Used 2b} + H_{2b}/2$$

The variables in the formula are defined as follows:

Q_{Used} is the quality estimate of the used frequency.

$T_{Used\ 2b}$ is the absolute threshold that applies for the used frequency in that measurement.

H_{2b} is the hysteresis parameter for the event 2b.

Reference

1: 3GPP TS 25.331 clause 14.2.1.2.

8.4.1.52.3 Test purpose

1. To confirm that the UE sends MEASUREMENT REPORT message when event 2B is configured and estimated quality of the currently used frequency is below the value of the IE "Threshold used frequency" and the estimated quality of a non-used frequency is above the value of the IE "Threshold non-used frequency". This MEASUREMENT REPORT message shall contain at least the best primary CPICH info (for FDD) on the non-used frequency that triggered the event and the best primary CPICH info is of the CSG cell present in CSG virtual active set.

2. To confirm that event 2B triggered for a non-used frequency when another CSG cell becomes stronger than the CSG cell in CSG virtual active set.

3. To confirm that evaluation of event 2B is re-started when CSG virtual active set is updated.

8.4.1.52.4 Method of test

Initial Condition

System Simulator:

4 cells: Cell 1, cell 4, cell 6 and cell 5 are used. Column marked "T0" in table 8.4.1.52-1 found in "Test Procedure" clause denotes the initial power conditions.

The CSG id of the Cell5 is 2 and cell 6 is 3. Cell 4 does not broadcast CSG ID.

Cell1 is on f1.

Cell 4, cell 6 and cell 5 are on f2.

User Equipment:

3GPP TS 34.123-1 version 10.3.1 Release 10 The UE's Allowed CSG List contains CSG Ids 2 & 3. UE's operator CSG list is empty.

The UE is PS-DCCH+DTCH_DCH (state 6-10) or CS-DCCH+DTCH_DCH (state 6-9) or PS+CS-DCCH+DTCH_DCH (state 6-14) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports compressed mode
- UE supports inter-frequency SI acquisition for HO.

Test Procedure

Table 8.4.1.52-1 illustrates the downlink power to be applied for the 4 cells.

Table 8.4.1.52-1

Parameter	Unit	Cell 1			Cell4			Cell 5			Cell 6		
Test Channel		1			2						2		
		T0	T1	T2	T0	T1	T2	T0	T1	T2	T0	T1	T2
CPICH_Ec	dBm/3.84MHz	-55	-75	-75	-55	-55	OFF	-65	-65	-65	OFF	OFF	-55

The UE is initially in CELL_DCH and has a radio bearer with the cell 1.

At instant T0, the downlink is according to what is shown in table 8.4.1.52-1. The SS then sets up an intra-frequency measurement (event 1c) and an inter-frequency CSG measurement (event 2b), by sending separate MEASUREMENT CONTROL messages to the UE. Configuration of event 1c is important for the UE to construct CSG VAS active set.

The SS configures then compressed mode (if required), to prepare the UE for inter-frequency measurements, by sending a PHYSICAL CHANNEL RECONFIGURATION message on DCCH using AM-RLC. The UE shall answer with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

At instant T1, the downlink power is changed according to what is shown in table 8.4.1.52-1. The UE shall thus send a MEASUREMENT REPORT with 2b event to the SS. The MEASUREMENT REPORT message contains PSC of Cell-5 (which is a CSG cell) and not PSC of Cell-4 (which is a non-CSG cell), since event 2b is configured for CSG cells.

At instant T2, the downlink power is changed according to what is shown in table 8.4.1.52-1. The UE shall thus send a MEASUREMENT REPORT with 2b event to the SS with PSC of Cell-6. This happens due to Cell-6 being stronger CSG cell than Cell-5. However, this measurement report is not sent before summation of time-to-triggers of both event 1c and 2b.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
3GPP TS 34.123-1 version 10.3.1 Release 10				
1				The SS maintains the power of the cells according to column T0 in table 8.4.1.52-1
2	←		MEASUREMENT CONTROL	The SS configures an intra-frequency measurement to the UE. Event 1c is configured.
3	←		MEASUREMENT CONTROL	The SS configures an inter-frequency CSG measurement to the UE. Event 2b is configured. If Compressed Mode not required (refer ICS/IXIT) go to step 6
4	←		PHYSICAL CHANNELRECONFIGURATION	The SS instructs UE to begin compressed mode operation. (for FDD only)
5	→		PHYSICAL CHANNELRECONFIGURATION COMPLETE	(for FDD only)
6				The SS re-adjusts the downlink transmission power settings of the cells according to columns "T1" in table 8.4.1.52-1.
7	→		MEASUREMENT REPORT	The UE sends a measurement report including the PSC for cell 5 and event 2b.
8				The SS re-adjusts the downlink transmission power settings of the cells according to columns "T2" in table 8.4.1.52-1.
9	→		MEASUREMENT REPORT	The UE sends a measurement report including the PSC for cell 6 and event 2b. Check that this measurement report should not come before 10 sec (i.e., 5000ms TTT of event 1c + 5000ms TTT of event 2b)

Specific Message Contents

MEASUREMENT CONTROL (Step 2)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions

Information Element	Value/remark
Measurement identity	1

3GPP TS 34.123-1 version 10.3.1 Release 10

Measurement command	Setup
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
CHOICE measurement type	Intra-frequency measurement
- intra-frequency measurement	
- Intra-frequency cell info list	
- Cells for measurement	
- Intra-frequency cell id	Set to same code as used for cell 1
- Cell info	
- Cell individual offset	0 (0dB)
- Reference time difference to cell	Not Present
- Read SFN number	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	100
- Primary CPICH Tx power	Not Present
- TX Diversity indicator	FALSE
- Intra-frequency measurement quantity	
- Filter Coefficient	0
- CHOICE mode	
- FDD	
- Measurement quantity	CPICH RSCP
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Intra-frequency measurement reporting criteria	
- Parameters required for each events	
- Intra-frequency event identity	1c
- Hysteresis	4 (2dB)
- Replacement activation threshold	3
- Time to trigger	5000 ms
- Amount of reporting	16
- Reporting interval	4000ms
- Reporting cell status	Not present

MEASUREMENT CONTROL (Step 3)

Information Element	Value/remark
Measurement identity	2
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measurement command	Setup
Measurement reporting mode	
- Measurement reporting transfer mode	Unacknowledged Mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
CHOICE measurement type	Inter-frequency measurement
- inter-frequency measurement	
- Inter-frequency cell info list	
- Inter-frequency cell removal	Not Present
- New inter-frequency cells	
- Inter-frequency cell id	4
- Frequency info	Set to same code as used for cell 4
- cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN indicator	FALSE
- CHOICE mode	
-FDD	
- Primary CPICH info	

3GPP TS 34.123-1 version 10.3.1 Release 10

- Primary Scrambling Code	Set to same code as used for cell 4
- Primary CPICH Tx power	Not present
- TX Diversity Indicator	FALSE
- Inter-frequency cell id	5
- Frequency info	Frequency of Cell 5
- cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN indicator	FALSE
- CHOICE mode	
-FDD	
- Primary CPICH info	
- Primary Scrambling Code	Primary scrambling code of Cell 5
- Primary CPICH Tx power	Not present
- TX Diversity Indicator	FALSE
- Inter-frequency cell id	6
- Frequency info	Frequency of Cell 6
- cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN indicator	FALSE
- CHOICE mode	
-FDD	
- Primary CPICH info	
- Primary Scrambling Code	Primary scrambling code of Cell 6
- Primary CPICH Tx power	Not present
- TX Diversity Indicator	FALSE
- Cell for measurement	Not present
- CSG Inter-frequency cell info	
- CSG Frequency info	
- Frequency info	Frequency of Cell 4, 5, 6
- CSG Inter-frequency cell info for the frequency	
- CSG cell info list	
- CHOICE *mode*	FDD
- Start PSC	300
- Number of PSCs	100
- Inter-frequency SI Acquisition	Not present
- Inter-frequency measurement quantity	
- Filter Coefficient	4
- Frequency quality estimate quantity	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRAN Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement validity	CELL_DCH state
- inter-frequency set update	
- UE autonomous update mode	On with no reporting
- CHOICE report criteria	
- Inter-frequency measurement reporting criteria	
- Parameters required for each event	
- Inter-frequency event identity	2b
- Threshold used frequency	-70dBm
- W used frequency	0.0
- Hysteresis	2(1dB)
- Time to trigger	5000 mSec
- Reporting cell status	Not present
- Parameters required for each non-used frequency	

- Threshold non used frequency	-70 dBm
- W non used frequency	0
DPCH compressed mode status info	Not present

3GPP TS 34.123-1 version 10.3.1 Release 10

PHYSICAL CHANNEL RECONFIGURATION (Step 4)

Use the same message sub-type found in Annex A, which is entitled "(Packet to CELL_DCH from CELL_DCH in PS)", with the following exceptions in the IE(s) concerned:

Information Element	Value/remark
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing Indication	Maintain
- Downlink DPCH power control information	
- DPC mode	0 (Single)
- CHOICE Mode	FDD
- Power offset PPilot-DPDCH	0
- DL rate matching restriction information	Not present
- Spreading factor	Refer to the parameter set in TS 34.108
- Fixed or flexible position	Flexible
- TFCI existence	TRUE
- Number of bits for Pilot bits (SF=128, 256)	Not present
- DPCH compressed mode info	
- TGPSI	1
- TGPS status flag	Activate
- TGCFN	(Current CFN+(256 – TTI/10msec)) mod 256
- Transmission gap pattern sequence configuration parameters	
- TGMP	FDD Measurement
- TGPRC	Infinity
- TGSN	4
- TGL1	7
- TGL2	Not Present
- TGD	Undefined
- TGPL1	3
- TGPL2	Not Present
- RPP	Mode 0
- ITP	Mode 0
- CHOICE UL/DL mode	UL and DL or DL only or UL only depending on UE capability
- Downlink compressed mode method	SF/2
- Uplink compressed mode method	SF/2 or Not present depending on UE capability
- Downlink frame type	A
- DeltaSIR1	20 (2.0)
- DeltaSIRAfter1	10 (1.0)
- DeltaSIR2	Not present
- DeltaSIRAfter2	Not present
- N identify abort	Not present
- T Reconfirm abort	Not present
- TX diversity mode	None
- SSDT information	Not present
- Default DPCH offset value	Not present

MEASUREMENT REPORT (Step 7)

Information Element	Value/remark
Measurement identity	Check to see if set to 2
3GPP TS 34.123-1 version 10.3.1 Release 10	
Measured results	Check to see if it is absent
Additional measured results	Check to see if it is absent
Event results	Inter-frequency measurement event results,
- CHOICE event result	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	Set to same code as used for cell 5
- Non frequency related measurement event results	
- CHOICE mode	
- FDD	
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 5

MEASUREMENT REPORT (Step 9)

Information Element	Value/remark
Measurement identity	Check to see if set to 2
Measured results	Check to see if it is absent
Additional measured results	Check to see if it is absent
Event results	Inter-frequency measurement event results,
- CHOICE event result	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	Frequency of cell 6
- Non frequency related measurement event results	
- CHOICE mode	
- FDD	
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 6

8.4.1.52.5 Test requirement

1. At step 7, the UE sends 2b event to the SS. IE "Inter-frequency measurement event results " in this message shall contain frequency information and primary scrambling code of Cell 5.

2. At step 9, the UE sends 2b event to the SS. IE "Inter-frequency measurement event results " in this message shall contain frequency information and primary scrambling code of Cell 6. This message shall only be sent after 10 secs of SS adjusting its power as per Step 8.

8.5 MBMS Specific Procedures

8.5.1 MBMS Session Start

8.5.1.1 MBMS PTP Session Start at MCCH Acquisition in Idle mode / MBMS Selected Service

8.5.1.1.1 Definition

This test is applicable for all UEs that support MBMS broadcast services.

8.5.1.1.2 Conformance requirement

The UE applies the MCCH acquisition procedure to determine the MBMS services available in the cell and to initiate reception of the services that the UE has joined. The procedure applies to all UEs supporting MBMS, irrespective of their state (idle, URA_PCH, CELL_PCH, CELL_FACH and CELL_DCH).

…

If the variable MBMS_ACTIVATED_SERVICES is not empty, the UE shall apply the MCCH acquisition procedure upon selecting (e.g. upon power on) or re- selecting a cell supporting MBMS, upon change of MBMS controlling cell (e.g. due to an active set update or hard handover), upon entering UTRA from another RAT, upon release of a MBMS PTP RB for the purpose of changing transfer mode, upon return from loss of coverage and upon receiving an indication from upper layers that the set of activated services has changed.

…

The UE shall detect the available MBMS services by acquiring the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3.

The UE shall immediately acquire the MBMS ACCESS INFORMATION and the MBMS GENERAL INFORMATION messages i.e. it shall not delay reception of these messages until it has completed the acquisition of the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages. Likewise, the UE should immediately acquire the MBMS CURRENT CELL P-T-M RB INFORMATION and MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages.

The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information e.g. both the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION message should be acquired in the same modification period.

…

When requested to acquire MBMS control information other than the MBMS ACCESS INFORMATION message , the UE shall:

1> if requested to start reading MCCH at the next modification period:

2> start reading MCCH at the beginning of the next modification period.

1> otherwise

2> start reading MCCH at the beginning of the next repetition period.

1> if requested to stop reading MCCH at the end of the modification period:

2> continue reading MCCH until the required MBMS control information is received or until the UE detects a TTI in which no MCCH information is transmitted, whichever is first;

2> continue reading MCCH in this manner at every subsequent repetition period, until the information is received correctly or until the end of the modification period.

1> otherwise:

2> continue reading MCCH until the required MBMS control information is received or until the UE detects a TTI in which no MCCH information is transmitted, whichever is first;

2> continue reading MCCH in this manner at every subsequent repetition period, until the information is received correctly.

NOTE 1: The UE may combine information received at different repetition periods within a modification period.

When requested to acquire the MBMS ACCESS INFORMATION message, the UE shall:

1> if requested to start reading MCCH at the next modification period:

2> start reading MCCH at the beginning of the next modification period.

1> otherwise:

2> start reading MCCH at the beginning of the next access info period.

1> continue reading MCCH in this manner at every subsequent access info period, until the message is received correctly or until the end of the modification period.

If the UE is CELL_DCH and has a compressed mode pattern that overlaps with the period in which it needs to read MCCH, the UE may temporarily refrain from receiving MCCH unless it is capable of simultaneous operation. If the UE is CELL_FACH and has a measurement occasion that overlaps with the period in which it needs to read MCCH, the UE may temporarily refrain from receiving MCCH unless it is capable of simultaneous operation. A UE in CELL_FACH may omit performing measurements during a measurement occasion in order to receive MCCH provided that this does not prevent it from fulfilling the measurement performance requirements as specified in [19]. In Idle mode as well as in CELL_PCH and URA_PCH states the UE may temporarily refrain from receiving MCCH if needed to fulfil the measurements performance requirements as specified in [19].

NOTE 2: The UTRAN should endeavour to ensure that for each UE in CELL_FACH the assigned measurement occasions do not overlap constantly with the periodic MCCH transmissions.

If the UE selects to another cell, the UE shall re-establish the RLC entity used for MCCH reception.

…

The UE may:

1> if in idle mode, URA_PCH, CELL_PCH or CELL_FACH state; and

1> if not receiving an MBMS service provided via a p-t-m radio bearer:

2> monitor the MBMS notification Indicator Channel (MICH).

2> if a notification on the MICH for one or more of the MBMS services included in the variable MBMS_ACTIVATED_SERVICES is detected:

3> acquire the MBMS MODIFIED SERVICES INFORMATION message with delaying the reading of MCCH until the next modification period and with stopping at the end of the modification period, in accordance with subclause 8.7.1.3;

3> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4.

The UE shall:

1> if in idle mode, URA_PCH, CELL_PCH or CELL_FACH state:

2> if receiving an MBMS service that is provided via a p-t-m radio bearer; or

2> if not receiving an MBMS service that is provided via a p-t-m radio bearer and not monitoring MICH:

3> acquire the MBMS MODIFIED SERVICES INFORMATION message from MCCH at the start of every modification period, in accordance with subclause 8.7.1.3;

3> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4.

…

If the IE "MBMS required UE action" is included and concerns an MBMS activated service the UE shall:

…

1> if the IE "MBMS required UE action" is set to 'Request PTP RB':

2> if the UE is in idle mode:

3> indicate to upper layers that establishment of a PS signalling connection is required to receive the concerned MBMS service [5], unless the UE has already requested p-t-p RB establishment in the current modification period, and use the establishment cause set to 'MBMS ptp RB request' in the RRC connection establishment procedure.

…

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

…

1> if the UE performs connection establishment for MBMS ptp radio bearer request as specified in subclause 8.6.9.6; and

1> if one or more of the MBMS services for which the UE initiates the ptp radio bearer request concerns an MBMS Selected Service:

2> for each MBMS Selected Service that is indicated on MCCH and for which the UE initiates the ptp radio bearer request:

3> order the MBMS Selected Services such that those selected with a higher priority are listed in the IE "MBMS Selected Services Short" before those selected with a lower priority;

3> include the IE "MBMS Selected Service ID" within the IE "MBMS Selected Services Short" and set it to a value in accordance with subclause 8.6.9.8.

…

In the UE, the initial direct transfer procedure shall be initiated, when the upper layers request establishment of a signalling connection. This request also includes a request for the transfer of a NAS message.

Upon initiation of the initial direct transfer procedure the UE shall:

1> set the variable ESTABLISHMENT_CAUSE to the cause for establishment indicated by upper layers.

Upon initiation of the initial direct transfer procedure when the UE is in idle mode, the UE shall:

1> perform an RRC connection establishment procedure, according to subclause 8.1.3;

NOTE: If an RRC connection establishment is ongoing, this procedure continues unchanged, i.e. it is not interrupted.

1> if the RRC connection establishment procedure was not successful:

2> if the establishment cause for the failed RRC connection establishment was set to "MBMS reception" and a different cause value is stored in the variable "ESTABLISHMENT_CAUSE":

3> UE-AS (RRC) initiates a new RRC connection establishment procedure, using the establishment cause as contained in the variable ESTABLISHMENT_CAUSE.

2> otherwise:

3> indicate failure to establish the signalling connection to upper layers and end the procedure.

1> when the RRC connection establishment procedure is completed successfully:

2> continue with the initial direct transfer procedure as below.

Upon initiation of the initial direct transfer procedure when the UE is in CELL_PCH or URA_PCH state, the UE shall:

1> perform a cell update procedure, according to subclause 8.3.1, using the cause "uplink data transmission";

1> when the cell update procedure completed successfully:

2> continue with the initial direct transfer procedure as below.

The UE shall, in the INITIAL DIRECT TRANSFER message:

1> set the IE "NAS message" as received from upper layers; and

1> set the IE "CN domain identity" as indicated by the upper layers; and

1> set the IE "Intra Domain NAS Node Selector" as follows:

2> derive the IE "Intra Domain NAS Node Selector" from TMSI/PMTSI, IMSI, or IMEI; and

2> provide the coding of the IE "Intra Domain NAS Node Selector" according to the following priorities:

1. derive the routing parameter for IDNNS from TMSI (CS domain) or PTMSI (PS domain) whenever a valid TMSI/PTMSI is available;

2. base the routing parameter for IDNNS on IMSI when no valid TMSI/PTMSI is available;

3. base the routing parameter for IDNNS on IMEI only if no (U)SIM is inserted in the UE.

1> if the UE, on the existing RRC connection, has received a dedicated RRC message containing the IE "Primary PLMN Identity" in the IE "CN Information Info":

2> set the IE "PLMN identity" in the INITIAL DIRECT TRANSFER message to the latest PLMN information received via dedicated RRC signalling. If NAS has indicated the PLMN towards which a signalling connection is requested, and this PLMN is not in agreement with the latest PLMN information received via dedicated RRC signalling, then the initial direct transfer procedure shall be aborted, and NAS shall be informed.

1> if the UE, on the existing RRC connection, has not received a dedicated RRC message containing the IE "CN Information Info" , and if the IE "Multiple PLMN List" was broadcast in the cell where the current RRC connection was established:

2> set the IE "PLMN identity" in the INITIAL DIRECT TRANSFER message to the PLMN chosen by higher layers [5, 25] amongst the PLMNs in the IE "Multiple PLMN List" broadcast in the cell where the RRC connection was established.

1> if the IE "Activated service list" within variable MBMS_ACTIVATED_SERVICES includes one or more MBMS services with the IE "Service type" set to "Multicast" and;

1> if the IE "CN domain identity" as indicated by the upper layers is set to "CS domain" and;

1> if the variable ESTABLISHED_SIGNALLING_CONNECTIONS does not include the CN domain identity 'PS domain':

2> include the IE "MBMS joined information";

2> include the IE "P-TMSI" within the IE "MBMS joined information" if a valid PTMSI is available.

1> if the variable ESTABLISHMENT_CAUSE_ is initialised:

2> set the IE "Establishment cause" to the value of the variable ESTABLISHMENT_CAUSE;

2> clear the variable ESTABLISHMENT_CAUSE.

1> calculate the START according to subclause 8.5.9 for the CN domain as set in the IE "CN Domain Identity"; and

1> include the calculated START value for that CN domain in the IE "START".

The UE shall:

1> transmit the INITIAL DIRECT TRANSFER message on the uplink DCCH using AM RLC on signalling radio bearer RB3;

1> when the INITIAL DIRECT TRANSFER message has been submitted to lower layers for transmission:

2> confirm the establishment of a signalling connection to upper layers; and

2> add the signalling connection with the identity indicated by the IE "CN domain identity" in the variable ESTABLISHED_SIGNALLING_CONNECTIONS.

1> when the successful delivery of the INITIAL DIRECT TRANSFER message has been confirmed by RLC:

2> the procedure ends.

When not stated otherwise elsewhere, the UE may also initiate the initial direct transfer procedure when another procedure is ongoing, and in that case the state of the latter procedure shall not be affected.

A new signalling connection request may be received from upper layers during transition to idle mode. In those cases, from the time of the indication of release to upper layers until the UE has entered idle mode, any such upper layer request to establish a new signalling connection shall be queued. This request shall be processed after the UE has entered idle mode.

…

The UE shall:

1> if the IE "Secondary CCPCH system information MBMS" is included:

2> apply the Secondary CCPCH and FACH indicated by the IE "FACH carrying MCCH" for receiving MCCH.

1> otherwise, if the IE "Secondary CCPCH system information" includes the IE "MCCH configuration information":

2> apply the Secondary CCPCH and FACH indicated by the IE “MCCH configuration information” for receiving MCCH.

…

The UE shall select the Secondary CCPCH for acquiring MCCH information according to the following rules:

1> if System Information Block type 5 or System Information Block type 5bis is defined and includes an S-CCPCH within the IE "Secondary CCPCH system information" including a FACH for which the IE "MCCH configuration information" is included:

2> select that S-CCPCH and FACH for receiving MCCH.

1> otherwise if System Information Block type 5 or System Information Block type 5bis is defined and includes an SCCPCH within the IE "Secondary CCPCH system information MBMS" for which the IE "FACH carrying MCCH" is included:

2> select that S-CCPCH and FACH for receiving MCCH.

Reference

3GPP TS 25.331 clauses 8.7.2, 8.7.1.3, 8.7.3.3.1, 8.6.9.6, 8.1.3.3, 8.1.8.2, 8.1.1.6.5, 8.5.19a.

8.5.1.1.3 Test purpose

To verify that the UE receives the MBMS info in idle mode state and to verify that the UE starts the reception of MBMS services at MCCH acquisition.

8.5.1.1.4 Method of test

Initial condition

System Simulator:

2 MBMS cells, Cell 21 and Cell 22.

User Equipment:

The UE is in Idle Mode as specified in clause 7.6 of TS 34.108.

The UE is interested in the selected service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Broadcast service application available on UE Yes/No.

Test procedure

Table 8.5.1.1

Parameter	Unit	Cell 21		Cell 22	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF	-70	-60
P-CCPCH RSCP (TDD)	dBM	-60	OFF	-70	-60

Table 8.5.1.1 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

1) The UE is camping on cell 21, the SS configures its downlink transmission power settings according to columns "T1" in table 8.5.1.1, the UE re-selects to cell 22 supporting MBMS (MBMS_ACTIVATED_SERVICES is not empty). The SS transmits SYSTEM INFORMATION BLOCK TYPE 5 or 5bis messages including the MCCH configuration specified within the IE "Secondary CCPCH system information" (there is only one S-CCPCH in this cell, SS uses S-CCPCH combination from TS34.108 clause 6.10.2.4.3.9 Interactive/Background 32 kbps RAB + SRB for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH + SRB for MCCH) mapped on to an S-CCPCH also used for non-MBMS purposes. The UE shall perform the MCCH acquisition procedure:

2) The UE shall detect the available MBMS services by acquiring the MBMS MODIFIED SERVICES INFORMATION, the MBMS UNMODIFIED SERVICES INFORMATION (including both IEs “MBMS required UE action” set to “Request PTP RB”) and the MBMS GENERAL INFORMATION.

3) The UE shall request a p-t-p RB establishment.

4) The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of a radio access bearer. The UE shall establish this radio bearer. Then the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC.

5) SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
				The UE re-selects to cell 22 supporting MBMS (MBMS service already activated).
1	←		SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis	
2	←		MBMS MODIFIED SERVICES INFORMATION	

Step	Direction		Message	Comments
	UE	SS		
3				The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information in the same modification period.
4	←		MBMS UNMODIFIED SERVICES INFORMATION	"MBMS required UE action" set to Request PTP RB.
5	←		MBMS GENERAL INFORMATION	
6	→		RRC CONNECTION REQUEST	The UE transmits the message with Establishment cause set to “MBMS ptp RB request” and with the “MBMS Selected Services Short” IE referring to the concerned MBMS Selected service and the corresponding Modification period identity.
7	←		RRC CONNECTION SETUP	RRC state indicator set to Cell_FACH
8	→		RRC CONNECTION SETUP COMPLETE	
8a	→		MBMS MODIFICATION REQUEST	The UE completing the RRC Connection Setup procedure shall initiate the MBMS MODIFICATION REQUEST procedure. This message may be received at any point after step 8 and before step 14.
9	UE			UE transmits SERVICE REQUEST, with IE "Service type" set to "MBMS Broadcast service Reception”.
10	←		SECURITY MODE COMMAND	
11	→		SECURITY MODE COMPLETE	
12	←		RADIO BEARER SETUP	
13	→		RADIO BEARER SETUP COMPLETE	
14	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific message contents

All messages have the same content as defined in 34.108 clause 9.1.1 with the following exceptions:

MBMS MODIFIED SERVICES INFORMATION (Step 2)

Information Element	Value/remark
Modified services list - MBMS Transmission identity - MBMS required UE action	Only 1 entry MBMS Transmission identity (different from the MBMS activated service) request PTP RB

MBMS UNMODIFIED SERVICES INFORMATION (Step 4)

Information Element	Value/remark
Unmodified services list - MBMS Transmission identity MBMS required UE action	Only 1 entry MBMS Transmission identity indicating MBMS activated service Request PTP RB

RRC CONNECTION REQUEST (Step 6)

Information Element	Value/remark
Message type	
Initial UE identity	Same as the registered TMSI or P-TMSI
Establishment Cause	MBMS ptp RB request
Domain indicator	PS domain
MBMS Selected Services	
- MBMS Selected Services	Only 1 entry
- MBMS Selected Service ID	MBMS short transmission identity referring to the service the UE has selected
- Modification period identity	Indicates the modification period the MBMS short transmission identities refer to

RRC CONNECTION SETUP (Step 7)

Information Element	Value/remark
Message type	
Initial UE identity	Set to same value as received in Step 6
RRC State Indicator	Cell_FACH

MBMS MODIFICATION REQUEST (Step 8a)

Information Element	Value/remark
MBMS preferred frequency request	Check that the IE is not present
MBMS RB list requested to be released	Check that the IE is not present
MBMS Selected Service Info	
- CHOICE Status	Some
- MBMS Selected Services Full	
- MBMS Selected Service ID	Only 1 entry
- MBMS Service ID	MBMS service ID of the activated MBMS service
- CHOICE PLMN identity	Check to see that one of the below choice element is present
- SameAs-MIB	(no data)
- explicitPLMN_Id	Check to see if it is set to the same value as "PLMN ID" in the Master Information block transmitted for the current serving cell.

RADIO BEARER SETUP (Step 12)

Use the same message as the one specified for "MBMS PtP" in TS 34.108 clause 9, with the condition B2.

SYSTEM INFORMATION BLOCK TYPE 5 and 5bis (Step1)

As specified in TS 34.108 clause 6.1 and by using condition M2 for SYSTEM INFORMATION BLOCK TYPE 5 message.

8.5.1.1.5 Test requirements

After step 2, after the UE has received a MBMS modified services Information message, the UE continues acquiring the MBMS informations.

At step 4, after the UE has received an MBMS unmodified services Information message including the IE “MBMS required UE action” set to Request PTP RB, the UE shall indicate to upper layers that the establishment of an RRC connection is required to receive the concerned MBMS service with the establishment cause set to “MBMS ptp RB request”.

At step 13, the UE shall send a RADIO BEARER SETUP COMPLETE message.

8.5.1.1m MBMS PTP Session Start at MCCH Acquisition in Idle mode / MBMS Multicast Service

8.5.1.1m.1 Definition

This test is applicable for all UEs that support MBMS multicast services.

8.5.1.1m.2 Conformance requirement

Same conformance requirement as in clause 8.5.1.1.2 except there is no reference to 3GPP TS 25.331 clause 8.1.3.3.

Reference

3GPP TS 25.331 clauses 8.7.2, 8.7.1.3, 8.7.3.3.1, 8.6.9.6, 8.1.8.2, 8.1.1.6.5, 8.5.19a.

8.5.1.1m.3 Test purpose

Same test purpose as in clause 8.5.1.1.3.

8.5.1.1m.4 Method of test

Initial condition

System Simulator:

2 MBMS cells, Cell 21 and Cell 22.

User Equipment:

The UE is in Idle Mode as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 8.5.1.1.4.

Expected sequence

Same expected sequence as in clause 8.5.1.1.4 except for RRC CONNECTION REQUEST message content (step 6) and MODIFICATION REQUEST procedure not required.

Step	Direction		Message	Comments
	UE	SS		
				The UE re-selects to cell 22 supporting MBMS (MBMS service already activated).
1	←		SYSTEM INFORMATION BLOCK TYPE 5 / SYSTEM INFORMATION BLOCK TYPE 5bis	
2	←		MBMS MODIFIED SERVICES INFORMATION	
3				The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information in the same modification period.
4	←		MBMS GENERAL INFORMATION	
5	←		MBMS UNMODIFIED SERVICES INFORMATION	"MBMS required UE action" set to Request PTP RB.

Step	Direction		Message	Comments
	UE	SS		
6	→		RRC CONNECTION REQUEST	The UE transmits the message with Establishment cause set to “MBMS ptp RB request”.
7	←		RRC CONNECTION SETUP	RRC state indicator set to Cell_FACH
8	→		RRC CONNECTION SETUP COMPLETE	
9	UE			UE transmits SERVICE REQUEST, with IE "Service type" set to "MBMS Multicast service Reception”.
10	←		SECURITY MODE COMMAND	
11	→		SECURITY MODE COMPLETE	
12	←		RADIO BEARER SETUP	
13	→		RADIO BEARER SETUP COMPLETE	
14	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific message contents

Same specific messages contents as in clause 8.5.1.1.4 except for RRC CONNECTION REQUEST message content (step 6).

RRC CONNECTION REQUEST (Step 6)

Information Element	Value/remark
Message type	
Initial UE identity	Same as the registered TMSI or P-TMSI
Establishment Cause	MBMS ptp RB request
Domain indicator	PS domain

8.5.1.1m.5 Test requirements

Same test requirement as in clause 8.5.1.1.5.

8.5.1.2 MBMS PTP Session Start at MCCH Notification in CELL_PCH / MBMS Selected Service

8.5.1.2.1 Definition

This test is applicable for all UEs that support MBMS broadcast services.

8.5.1.2.2 Conformance requirement

The MBMS notification procedure is used by the UE to respond to a notification provided by UTRAN, indicating a change applicable for one or more MBMS services the UE has joined. The procedure applies to all UEs supporting MBMS, irrespective of their state (idle and connected mode: URA_PCH, CELL_PCH, CELL_FACH and CELL_DCH). The actual notification mechanism to be used depends on the UE state.

…

The UE shall:

1> if in idle mode, URA_PCH, CELL_PCH or CELL_FACH state:

2> if receiving an MBMS service that is provided via a p-t-m radio bearer; or

2> if not receiving an MBMS service that is provided via a p-t-m radio bearer and not monitoring MICH:

3> acquire the MBMS MODIFIED SERVICES INFORMATION message from MCCH at the start of every modification period, in accordance with subclause 8.7.1.3;

3> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4.

….

If the IE "MBMS required UE action" is included and concerns an MBMS activated service the UE shall:

…

1> if the IE "MBMS required UE action" is set to 'Request PTP RB':

…

2> if the UE is in URA_PCH, Cell_PCH, or CELL_FACH states:

3> perform a cell update procedure with cause "MBMS ptp RB request", as specified in subclause 8.3.1.2, unless the UE has already requested p-t-p RB establishment in the current modification period.

…

A UE shall initiate the cell update procedure in the following cases:

....

1> MBMS ptp RB request:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

2> if the UE is in URA_PCH, Cell_PCH or Cell_FACH state; and

2> if the UE should perform cell update for MBMS ptp radio bearer request as specified in 8.6.9.6:

3> perform cell update using the cause "MBMS ptp RB request".

…

The UE shall set the IEs in the CELL UPDATE message as follows:

…

1> if the UE performs cell update for MBMS ptp radio bearer request as specified in subclause 8.6.9.6; and

1> if one or more of the MBMS services for which the UE initiates the ptp radio bearer request concerns an MBMS Selected Service:

2> for each MBMS Selected Service that is indicated on MCCH and for which the UE initiates ptp radio bearer request:

3> include the IE "MBMS Selected Service ID" within the IE "MBMS Selected Services Short" and set it to a value in accordance with subclause 8.6.9.8.

1> otherwise, if the UE performs cell update for MBMS counting as specified in subclause 8.7.4; and

1> if one or more of the MBMS services for which the UE initiates the counting response concerns an MBMS Selected Service:

2> for each MBMS Selected Service that is indicated on MCCH and for which the UE initiates the counting response:

3> include the IE "MBMS Selected Service ID" within the IE "MBMS Selected Services Short" and set it to a value in accordance with subclause 8.6.9.8.

1> if the UE included one or more "MBMS Selected Service ID" IEs:

2> include the IE "MBMS Modification Period identity" and set it to a value in accordance with subclause 8.5.29.

Reference

3GPP TS 25.331 clauses 8.7.3.1, 8.7.3.3.1, 8.6.9.6, 8.3.1.2, 8.3.1.3.

8.5.1.2.3 Test purpose

To verify that the UE in Cell_PCH state, correctly handle the Notification procedure after receiving the MODIFIED SERVICES INFORMATION message via MCCH.

8.5.1.2.4 Method of test

Initial condition

System Simulator:

1 MBMS cell

User Equipment:

The UE is in CELL_PCH state as specified in clause 7.6 of TS 34.108.

The UE is interested in the selected service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Broadcast service application available on UE Yes/No.

Test procedure

1) The UE in Cell_PCH, shall detect the available MBMS services by acquiring the MBMS MODIFIED SERVICES INFORMATION including the IE “MBMS required UE action” set to “Request PTP RB”.

2) The UE shall perform a cell update procedure with cause "MBMS ptp RB request". The UE transmits a CELL UPDATE message including the IE "MBMS Selected Service ID" of the concerned MBMS Selected service within the IE "MBMS Selected Services Short" and the IE "MBMS Modification Period identity".

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
				The UE is in Cell_PCH state.
1	←		MBMS MODIFIED SERVICES INFORMATION	"MBMS required UE action" set to Request PTP RB".
2	→		CELL UPDATE	The UE enters the CELL_FACH state. UE performs cell update procedure. The CELL UPDATE message shall contain the value "Cell Update Cause" set to "MBMS ptp RB request" and the “MBMS Selected Services Short” IE referring to the concerned MBMS Selected service and the corresponding Modification period identity.
3	←		CELL UPDATE CONFIRM	
3a	→		UTRAN MOBILITY INFORMATION CONFIRM	
4	←		RADIO BEARER SETUP	
5	→		RADIO BEARER SETUP COMPLETE	
5a	→		MBMS MODIFICATION REQUEST	This message may be received at any point after step 4 and before step 6.

Step	Direction		Message	Comments
	UE	SS		
6	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific message contents

All messages have the same content as defined in 34.108 clause 9.1.1 with the following exceptions:

MBMS MODIFIED SERVICES INFORMATION (Step 1)

Information Element	Value/remark
Modified services list - MBMS Transmission identity - MBMS required UE action	Only 1 entry MBMS Transmission identity indicating MBMS activated service request PTP RB

CELL UPDATE (Step 2)

Information Element	Value/remark
Cell update cause MBMS Selected Services - MBMS Selected Services - MBMS Selected Service ID - Modification period identity	MBMS ptp RB request Only 1 entry MBMS short transmission identity referring to the service the UE has activated Indicates the modification period the MBMS short transmission identities refer to

CELL UPDATE CONFIRM (Step 3)

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'

RADIO BEARER SETUP (Step 4)

Use the same message as the one specified for "MBMS PtP" in TS 34.108 clause 9, with the condition B4.

MBMS MODIFICATION REQUEST (step 5a)

Information Element	Value/remark
MBMS preferred frequency request	Check that the IE is not present
MBMS RB list requested to be released	Check that the IE is not present
MBMS Selected Service Info - CHOICE Status - MBMS Selected Services Full - MBMS Selected Service ID - MBMS Service ID - CHOICE PLMN identity - SameAs-MIB - explicitPLMN_Id	 Some MBMS service ID of the activated MBMS service Check to see that one of the below choice element is present (no data) Check to see if it is set to the same value as "PLMN ID" in the Master Information block transmitted for the current serving cell.

8.5.1.2.5 Test requirements

At step 2, the UE shall initiate a cell update procedure for MBMS ptp radio bearer request.

8.5.1.2m MBMS PTP Session Start at MCCH Notification in CELL_PCH / MBMS Multicast Service

8.5.1.2m.1 Definition

This test is applicable for all UEs that support MBMS multicast services.

8.5.1.2m.2 Conformance requirement

Same conformance requirement as in clause 8.5.1.2.2 except there is no reference to 3GPP TS 25.331 clause 8.3.1.3.

8.5.1.2m.3 Test purpose

Same test purpose as in clause 8.5.1.2.3.

8.5.1.2m.4 Method of test

Initial condition

System Simulator:

1 MBMS cell

User Equipment:

The UE is in CELL_PCH state as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.

Test procedure

1) The UE in Cell_PCH, shall detect the available MBMS services by acquiring the MBMS MODIFIED SERVICES INFORMATION including the IE “MBMS required UE action” set to “Request PTP RB”.

2) The UE shall perform a cell update procedure with cause "MBMS ptp RB request".

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
				The UE is in Cell_PCH state.
1	←		MBMS MODIFIED SERVICES INFORMATION	"MBMS required UE action" set to Request PTP RB".
2	→		CELL UPDATE	The UE enters the CELL_FACH state. UE performs cell update procedure. The CELL UPDATE message shall contain the value "Cell Update Cause" set to "MBMS ptp RB request"
3	←		CELL UPDATE CONFIRM	

Step	Direction		Message	Comments
	UE	SS		
4	←		RADIO BEARER SETUP	
5	→		RADIO BEARER SETUP COMPLETE	
6	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific message contents

Same specific messages contents as in clause 8.5.1.2.4 except for CELL UPDATE message content (step 2).

CELL UPDATE (Step 2)

Information Element	Value/remark
Cell update cause	MBMS ptp RB request

8.5.1.2m.5 Test requirements

Same test requirement as in clause 8.5.1.2.5.

8.5.1.3 MBMS PTM Session Start at MCCH Acquisition in CELL_FACH state / MBMS Broadcast Service

8.5.1.3.1 Definition and applicability

This test case is applicable for all UEs that support MBMS broadcast services.

8.5.1.3.2 Conformance requirement

If the variable MBMS_ACTIVATED_SERVICES is not empty, the UE shall apply the MCCH acquisition procedure upon selecting (e.g. upon power on) or re-selecting a cell supporting MBMS, upon change of MBMS controlling cell (e.g. due to an active set update or hard handover), upon entering UTRA from another RAT, upon release of a MBMS PTP RB for the purpose of changing transfer mode, upon return from loss of coverage and upon receiving an indication from upper layers that the set of activated services has changed.

…

The UE shall detect the available MBMS services by acquiring the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3 of TS 25.331.

The UE shall immediately acquire the MBMS ACCESS INFORMATION and the MBMS GENERAL INFORMATION messages i.e. it shall not delay reception of these messages until it has completed the acquisition of the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages. Likewise, the UE should immediately acquire the MBMS CURRENT CELL P-T-M RB INFORMATION and MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages.

The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information e.g. both the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION message should be acquired in the same modification period.

…

1> if the IE "MBMS required UE action" is set to 'Acquire PTM RB info'; or

1> if the IE "MBMS required UE action" is set to 'Acquire counting info– PTM RBs unmodified' and the UE is not receiving a p-t-m RB for the concerned service:

2> continue acquiring the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3

2> act upon the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION message, if received, in accordance with subclause 8.7.5;

Reference

3GPP TS 25.331 clauses 8.7.2.2, 8.7.2.3, 8.6.9.6.

8.5.1.3.3 Test purpose

1. To verify that the UE receives the MBMS information on MCCH in CELL_FACH state.
2. To verify that the UE correctly handles the notification procedure after receiving the MBMS MODIFIED SERVICES INFORMATION message via MCCH if no ongoing MBMS p-t-m session (MICH supported/not supported by the UE).
3. To verify that the UE starts the reception of MBMS services according to notification via MICH/MCCH when the UE is in CELL_FACH state.

8.5.1.3.4 Method of test

Initial Condition

System Simulator:

2 MBMS cells, Cell 21 and Cell 22.

User Equipment:

The UE is in CELL_FACH state as specified in clause 7.6 of TS 34.108.

The UE is interested in the broadcast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statement(s)

- MBMS Broadcast service application available on UE Yes/No

Test Procedure

Table 8.5.1.3

Parameter	Unit	Cell 21		Cell 22	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF	-70	-60
P-CCPCH RSCP (TDD)	dBM	-60	OFF	-70	-60

Table 8.5.1.3 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE is in the CELL_FACH state in Cell 21 and is interested in the broadcast service to be provided by the SS.

The SS applies the power settings of “T1” in table 8.5.1.3. The UE shall reselect to Cell 22 and send a CELL UPDATE message. The UE shall perform the MCCH acquisition procedure. The UE shall continue acquiring the MBMS information messages until it has received a consistent set of MCCH information. The UE received an MBMS

UNMODIFIED SERVICES INFORMATION message including IE “MBMS required UE action” set to “Acquire PTM RB info”.

The SS waits for the UE to start reception of the MBMS data on MTCH.

The MBMS radio bearer on MTCH is put into loopback mode 3.

The SS sends 10 RLC SDUs of MBMS data on MTCH on the concerned MBMS radio bearer, then retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The number of received RLC SDUs reported by the UE shall be at least one.

The loopback mode 3 in the UE is deactivated.

SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
				The UE is in Cell_FACH in Cell 21
1	←		ACTIVATE RB TEST MODE	
2	→		ACTIVATE RB TEST MODE COMPLETE	
				SS reconfigures itself according to the settings stated in column "T1" of table 8.5.3.5-1.
3	→		CELL UPDATE	This message is transmitted in Cell 22
4	←		CELL UPDATE CONFIRM	
5	←		MBMS UNMODIFIED SERVICES INFORMATION	MBMS required UE action set to ‘Acquire PTM info’
6	←		CLOSE UE TEST LOOP	
7	→		CLOSE UE TEST LOOP COMPLETE	Loop back mode 3 on MTCH is activated.
8		SS		The SS broadcasts 10 RLC SDUs of MBMS data on MTCH on the concerned MBMS radio bearer.
9	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
10	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the UE has received MBMS data.
11	←		OPEN UE TEST LOOP	
12	→		OPEN UE TEST LOOP COMPLETE	
13	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

MBMS UNMODIFIED SERVICES INFORMATION (Step 5)

Information Element	Value/remark
Unmodified service list	
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
- MBMS required UE action	Acquire PTM RB info

UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE (Step 10)

Information Element	Value/remark
RLC SDU Counter Value	Check that the number is greater than zero.

8.5.1.3.5 Test requirement

After step 9, the UE shall transmit a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message with the number of reported RLC SDUs shall be greater than zero.

8.5.1.3m MBMS PTM Session Start at MCCH Acquisition in CELL_FACH state / MBMS Multicast Service

8.5.1.3m.1 Definition

This test is applicable for all UEs that support MBMS multicast services.

8.5.1.3m.2 Conformance requirement

Same conformance requirement as in clause 8.5.1.3.2.

8.5.1.3m.3 Test purpose

Same test purpose as in clause 8.5.1.3.3.

8.5.1.3m.4 Method of test

Initial condition

System Simulator:

2 MBMS cells, Cell 21 and Cell 22.

User Equipment:

The UE is in CELL_FACH state as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 8.5.1.3.4.

Specific message contents

Same specific messages contents as in clause 8.5.1.3.4.

8.5.1.3m.5 Test requirements

Same test requirement as in clause 8.5.1.3.5.

8.5.1.4 MBMS PTM Session Start at MCCH Notification in CELL_DCH state / MBMS Broadcast Service

8.5.1.4.1 Definition

This test case is applicable for all UEs that support MBMS broadcast services and support MBMS p-t-m reception in CELL_DCH state.

8.5.1.4.2 Conformance requirement

The UE shall detect the available MBMS services by acquiring the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3 of TS 25.331.

The UE shall immediately acquire the MBMS ACCESS INFORMATION and the MBMS GENERAL INFORMATION messages i.e. it shall not delay reception of these messages until it has completed the acquisition of the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages. Likewise, the UE should immediately acquire the MBMS CURRENT CELL P-T-M RB INFORMATION and MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages.

The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information e.g. both the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION message should be acquired in the same modification period.

…

1> if the IE "MBMS required UE action" is set to 'Acquire PTM RB info'; or

1> if the IE "MBMS required UE action" is set to 'Acquire counting info– PTM RBs unmodified' and the UE is not receiving a p-t-m RB for the concerned service:

2> continue acquiring the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3

2> act upon the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION message, if received, in accordance with subclause 8.7.5;

Reference

3GPP TS 25.331 clauses 8.7.2.3, 8.7.3.3.1, 8.6.9.6.

8.5.1.4.3 Test purpose

1 To verify that the UE handles reading of MCCH during compressed mode measurements in CELL_DCH state if the UE requires compressed mode.

2. To verify that the UE correctly handles the notification procedure after receiving the MBMS MODIFIED SERVICES INFORMATION message via MCCH in CELL_DCH state.

3. To verify that the UE starts the p-t-m reception of MBMS services according to notification via MCCH when the UE is in CELL_DCH state.

8.5.1.4.4 Method of test

Initial Condition

System Simulator:

2 MBMS cells, Cell 21 and Cell 24

User Equipment:

The UE is in CELL_DCH state as specified in clause 7.6 of TS 34.108.

The UE is interested in the broadcast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statement(s)

- MBMS Broadcast service application available on UE Yes/No
- UE supports MBMS p-t-m reception in CELL_DCH state Yes/No
- Compressed mode required Yes/No

Test Procedure

Table 8.5.1.4

Parameter	Unit	Cell 21		Cell 24	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-70	-70	-60
P-CCPCH RSCP (TDD)	dBm	-60	-70	-70	-60

The UE is in the CELL_DCH state in cell 21 and has selected the broadcast service to be provided by the SS.

The SS configures then compressed mode (if required), to prepare the UE for inter-frequency measurements, by sending a PHYSICAL CHANNEL RECONFIGURATION message on DCCH using AM-RLC. The UE shall answer with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

The SS then sets up inter-frequency measurements (event 2b), by sending a MEASUREMENT CONTROL message to the UE. Compressed mode is started at the same time in that message (if required).

The SS notifies on MCCH about the start of an MBMS session. The SS waits for the UE to start reception of the MBMS data on MTCH and then the MBMS radio bearer on MTCH is put into loopback mode 3.

The SS sends 10 RLC SDUs of MBMS data on MTCH on the concerned MBMS radio bearer. The SS then applies the power settings according to column “T1” in table 8.5.1.4. The UE transmits a MEASUREMENT REPORT message to the SS.

The SS retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The number of received RLC SDUs reported by the UE shall be at least one.

The loopback mode 3 in the UE is deactivated.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		ACTIVATE RB TEST MODE	
2	→		ACTIVATE RB TEST MODE COMPLETE	If compressed mode is not required (refer ICS/IXIT), goto step 5.
3	←		PHYSICAL CHANNEL RECONFIGURATION	The SS downloads the compressed mode parameters in the UE.
4	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE acknowledges the downloading of the compressed mode parameters.
5	←		MEASUREMENT CONTROL	The SS configures inter-frequency measurements in the UE, and If compressed mode is required (refer ICS/IXIT) activates compressed mode.
6	←		MBMS MODIFIED SERVICES INFORMATION	MBMS session start.
7	SS			The SS waits for the UE to start MTCH reception according to the activation time.
8	←		CLOSE UE TEST LOOP	
9	→		CLOSE UE TEST LOOP COMPLETE	Loop back mode 3 on MTCH is activated.
10	SS			The SS sends 10 RLC SDUs of MBMS data on MTCH on the concerned MBMS radio bearer.
11				The SS changes the power of the cells according to column T1 in table 8.5.1.4.
12	→		MEASUREMENT REPORT	Cell 24 triggers event 2b in the UE, which sends a MEASUREMENT REPORT message to the SS.
13	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
14	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the UE has received MBMS data.
15	←		OPEN UE TEST LOOP	
16	→		OPEN UE TEST LOOP COMPLETE	
17	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 3)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/Remark	Version
Downlink information common for all radio links		
- Downlink DPCH info common for all RL	Not Present	
- DPCH compressed mode info		
- TGPSI	1	
- TGPS Status Flag	Deactivate	
- TGCFN	Not present	
- Transmission gap pattern sequence configuration parameters		
- TGMP	FDD Measurement	
- TGPRC	Infinity	
- TGSN	8	
- TGL1	14	
- TGL2	Not Present	
- TGD	undefined	
- TGPL1	4	
- RPP	Mode 0	
- ITP	Mode 0	
- CHOICE UL/DL Mode	UL and DL, UL only or DL only (depending on the UE capability)	
- Downlink compressed mode method	SF/2	
- Uplink compressed mode method	SF/2	
- Downlink frame type	11B	
- DeltaSIR1	20 (2.0)	
- DeltaSIRAfter1	10 (1.0)	
- DeltaSIR2	Not Present	
- DeltaSIRAfter2	Not Present	
- N identify abort	Not Present	
- T Reconfirm abort	Not Present	
- TX Diversity mode	Not Present	
- Default DPCH Offset Value	Not Present	
Downlink information per radio link list		
- Choice mode	FDD	
- Primary CPICH info		
- Primary scrambling code	Ref. to the Default setting in clause 6.1 (FDD)	
- PDSCH with SHO DCH info	Not Present	R99 and Rel-4 only
- PDSCH code mapping	Not Present	R99 and Rel-4 only
- Serving HS-DSCH radio link indicator	FALSE	Rel-5
- Serving E-DCH radio link indicator	FALSE	Rel-6
- Downlink DPCH info for each RL		
- CHOICE mode	FDD	
- Primary CPICH usage for channel estimation	Primary CPICH may be used	
- DPCH frame offset	Set to value : Default DPCH Offset Value (as currently stored in SS) mod 38 400	
- Secondary CPICH info	Not Present	
- DL channelisation code		
- Secondary scrambling code	5	
- Spreading factor	Reference to clause 6.10 Parameter Set 0	
- Code number		
- Scrambling code change	Set to value default1: No code change (if the UE has a compressed mode pattern sequence configured in variable TGPS_IDENTITY or included in the message including IE "Downlink DPCH info for each RL", which is using compressed mode method "SF/2")	

- TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- E-AGCH Info	Not Present	Rel-6
- E-HICH Information	Not Present	Rel-6
- E-RGCH Information	Not Present	Rel-6
- SCCPCH information for FACH	Not Present	R99 and Rel-4 only

MEASUREMENT CONTROL (Step 5)(FDD)

Information Element	Value/Remark
Measurement Identity	2
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency info list	1 inter-frequency cell
- Inter-frequency cell id	24
- Frequency info	Set to the frequency of cell 24
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Scrambling code of cell 24
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cells for measurement	Not present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- Measurement quantity for frequency quality estimate	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- SFN-SFN observed time difference reporting indicator	No report
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	TRUE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement validity	
- UE State	CELL_DCH
- Inter-frequency set update	
- UE autonomous update	On with no reporting
- Non autonomous update mode	Not present
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each event	
- Inter-frequency event identity	2b
- Threshold used frequency	-65 dBm
- W used frequency	0 (0.0)
- Hysteresis	2 (1.0 dB)
- Time to trigger	100 ms
- Reporting cell status	Report cells within monitored and/or virtual active set on non-used frequency
- Maximum number of reported cells per reported non-used frequency	1
- Parameters required for each non-used frequency	
- Threshold non used frequency	-65 dBm
- W non-used frequency	0
DPCH compressed mode status info	If the UE requires compressed mode (refer ICS/IXIT), this IE is present and contains the IEs as follows. If the UE does not require compressed mode (refer ICS/IXIT), this IE is not present.

Information Element	Value/Remark
- TGPS reconfiguration CFN	((Current CFN + (256 – TTI/10msec))mod 256
- Transmission gap pattern sequence	
- TGPSI	1
- TGPS Status Flag	Activate
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256

MEASUREMENT CONTROL (Step 5)(3.84Mcps, 1.28Mcps and 7.68Mcps TDD)

Information Element	Value/Remark
Measurement Identity	2
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency info list	1 inter-frequency cell
- Inter-frequency cell id	24
- Frequency info	Set to the frequency of cell 24
- Cell info	
- Cell individual offset	0 (0 dB)
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE Mode	TDD
- Primary CCPCH Info	
- CHOICE Mode	TDD
- CHOICE TDD option	1.28Mcps TDD
-TSTD indicator	FALSE
- Cell parameters ID	Set to same code as used for cell 24
- SCTD indicator	FALSE
- Primary CCPCH Tx power	Not present
- Timeslot list	Not present
- Cells for measurement	Not present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- Measurement quantity for frequency quality estimate	PCCPCH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- SFN-SFN observed time difference reporting indicator	No report
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- Primary CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement validity	
- UE State	CELL_DCH
- Inter-frequency set update	Not present
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each event	
- Inter-frequency event identity	2b
- Threshold used frequency	-65 dBm
- W used frequency	0 (0.0)
- Hysteresis	2 (1.0 dB)
- Time to trigger	100 ms
- Reporting cell status	Report cells within monitored and/or virtual active set on non-used frequency
- Maximum number of reported cells per reported non-used frequency	1
- Parameters required for each non-used frequency	
- Threshold non used frequency	-65 dBm
- W non-used frequency	0.0
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 12)(FDD)

Information Element	Value/Remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	2
Measured Results	
- Inter-frequency measured results list	
- Frequency info	
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to the downlink UARFN of cell 24
- UTRA carrier RSSI	Check that this IE is absent
- Inter-frequency cell measurement results	Check that the value of this IE is set to 1 cell reported
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code of cell 24
- CPICH Ec/N0	Check that this IE is present
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	
- UARFCN uplink	The presence of this IE is not checked
- UARFCN downlink	Check that the value of this IE is set to the downlink UARFN of cell 24
- Non freq related measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code of cell 24

MEASUREMENT REPORT (Step 12) (1.28Mcps TDD)

Information Element	Value/Remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	2
Measured Results	
- Inter-frequency measured results list	
- Frequency info	
- CHOICE mode	TDD
- UARFCN	Check that the value of this IE is set to the UARFN of cell 24
- UTRA carrier RSSI	Check that this IE is absent
- Inter-frequency cell measurement results	Check that the value of this IE is set to 1 cell reported
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 24
- Proposed TGSN	Check that this IE is absent
- Primary CCPCH Info	Check that this IE is present
- PCCPCH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
-Timeslot list	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	
- UARFCN	Check that the value of this IE is set to the UARFN of cell 24
- Non freq related measurement event results	Cell measurement event results
- CHOICE *mode*	TDD
- Primary CCPCH info	
- CHOICE *mode*	TDD
- CHOICE *TDD option*	1.28 Mcps TDD
- TSTD indicator	FALSE
- Cell parameters ID	Check to see if set to the same for cell 24
- SCTD indicator	FALSE

MEASUREMENT REPORT (Step 12) (3.84Mcps TDD)

Information Element	Value/Remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	2
Measured Results	
- Inter-frequency measured results list	
- Frequency info	
- CHOICE mode	TDD
- UARFCN	Check that the value of this IE is set to the UARFN of cell 4
- UTRA carrier RSSI	Check that this IE is absent
- Inter-frequency cell measurement results	Check that the value of this IE is set to 1 cell reported
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 4
- Proposed TGSN	Check that this IE is absent
- Primary CCPCH Info	Check that this IE is present
- PCCPCH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
-Timeslot list	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	
- UARFCN	Check that the value of this IE is set to the UARFN of cell 4
- Non freq related measurement event results	
- CHOICE *mode*	TDD
- Primary CCPCH info	
- CHOICE *mode*	TDD
- CHOICE *TDD option*	3.84 Mcps TDD
- CHOICE SyncCase	Sync Case 2
- Timeslot	0
- Cell parameters ID	Check to see if set to the same for cell 4
- SCTD indicator	FALSE

MEASUREMENT REPORT (Step 12) (7.68Mcps TDD)

Information Element	Value/Remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	2
Measured Results	
- Inter-frequency measured results list	
- Frequency info	
- CHOICE mode	TDD
- UARFCN	Check that the value of this IE is set to the UARFN of cell 4
- UTRA carrier RSSI	Check that this IE is absent
- Inter-frequency cell measurement results	Check that the value of this IE is set to 1 cell reported
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 4
- Proposed TGSN	Check that this IE is absent
- Primary CCPCH Info	Check that this IE is present
- PCCPCH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
-Timeslot list	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	
- UARFCN	Check that the value of this IE is set to the UARFN of cell 4
- Non freq related measurement event results	
- CHOICE *mode*	TDD
- Primary CCPCH info	
- CHOICE *mode*	TDD
- CHOICE *TDD option*	7.68 Mcps TDD
- CHOICE SyncCase	Sync Case 2
- Timeslot	0
- Cell parameters ID	Check to see if set to the same for cell 4
- SCTD indicator	FALSE

UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE (Step 14)

Information Element	Value/remark
RLC SDU Counter Value	Check that the number is greater than zero.

8.5.1.4.5 Test requirement

After step 3, if compression is required, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

After step 11, the UE shall transmit a MEASUREMENT REPORT message with cell 24 as the reported cell.After step 13, the UE shall transmit a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message with the number of reported RLC SDUs shall be greater than zero.

8.5.1.4m MBMS PTM Session Start at MCCH Notification in CELL_DCH state / MBMS Multicast Service

8.5.1.4m.1 Definition

This test is applicable for all UEs that support MBMS multicast services and support MBMS p-t-m reception in CELL_DCH state.

8.5.1.4m.2 Conformance requirement

Same conformance requirement as in clause 8.5.1.4.2

8.5.1.4m.3 Test purpose

Same test purpose as in clause 8.5.1.4.3.

8.5.1.4m.4 Method of test

Initial condition

System Simulator:

2 MBMS cells, Cell 21 and Cell 24.

User Equipment:

The UE is in CELL_DCH state as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.
- UE supports MBMS p-t-m reception in CELL_DCH state Yes/No

Test procedure

Same test procedure as in clause 8.5.1.4.4.

Specific message contents

Same specific messages contents as in clause 8.5.1.4.4

8.5.1.4m.5 Test requirements

Same test requirement as in clause 8.5.1.4.5.

8.5.1.5 MBMS PTM Session Start at MCCH Acquisition in CELL_DCH (for a non-MBMS service) when entering into an MBMS cell (UE capable of MBMS p-t-m reception in CELL_DCH) / MBMS Broadcast Service

8.5.1.5.1 Definition and applicability

This test case is applicable for all UEs that support MBMS broadcast services and support MBMS p-t-m reception in CELL_DCH state.

8.5.1.5.2 Conformance requirement

The UE shall detect the available MBMS services by acquiring the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3 of TS 25.331.

The UE shall immediately acquire the MBMS ACCESS INFORMATION and the MBMS GENERAL INFORMATION messages i.e. it shall not delay reception of these messages until it has completed the acquisition of the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages. Likewise, the UE should immediately acquire the MBMS CURRENT CELL P-T-M RB INFORMATION and MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages.

The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information e.g. both the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION message should be acquired in the same modification period.

…

1> if the IE "MBMS required UE action" is set to 'Acquire PTM RB info'; or

1> if the IE "MBMS required UE action" is set to 'Acquire counting info– PTM RBs unmodified' and the UE is not receiving a p-t-m RB for the concerned service:

2> continue acquiring the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3

2> act upon the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION message, if received, in accordance with subclause 8.7.5;

Reference

3GPP TS 25.331 clauses 8.7.2.3, 8.7.3.3.1, 8.6.9.6.

8.5.1.5.3 Test purpose

1. To verify that the UE receives the MBMS information on MCCH in CELL_DCH state.
2. To verify that the UE, when entering into an MBMS cell in CELL_DCH state, starts the p-t-m reception of MBMS services according to the information on MCCH.

8.5.1.5.4 Method of test

Initial Condition

System Simulator:

2 MBMS cells, Cell 21 and Cell 24.

User Equipment:

The UE is in CELL_DCH state as specified in clause 7.6 of TS 34.108.

The UE is interested in the broadcast service be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statement(s)

- MBMS Broadcast service application available on UE Yes/No
- UE supports MBMS p-t-m reception in CELL_DCH state Yes/No

Test Procedure

Table 8.5.1.5

Parameter	Unit	Cell 21		Cell 24	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-70	-70	-60
P-CCPCH RSCP (TDD)	dBm	-60	-70	-70	-60

Table 8.5.1.5 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE is in the CELL_DCH state in cell 21 and has selected the broadcast service or joined the multicast service to be provided by the SS. The SS has configured its downlink transmission power setting according to columns "T0" in table 8.5.1.5.

The SS then configures its downlink transmission power setting according to columns "T1" in table 8.5.1.5 and transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE ordering the UE to change to Cell 24 on frequency Ch 2. At the activation time the UE changes to Cell 24 and transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC.

The SS waits for the UE to start reception of the MBMS data on MTCH and then the MBMS radio bearer on MTCH is put into loopback mode 3.

The SS sends 10 RLC SDUs of MBMS data on MTCH on the concerned MBMS radio bearer. The SS retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The number of received RLC SDUs reported by the UE shall be at least one.

The loopback mode 3 in the UE is deactivated.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		ACTIVATE RB TEST MODE	
2	→		ACTIVATE RB TEST MODE COMPLETE	
3				The SS changes the power of the cells according to column T1 in table 8.5.1.5.
4	←		PHYSICAL CHANNEL RECONFIGURATION	The SS instructs the UE to change to Cell 24.
5	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
6	SS			The SS waits for the UE to activate MTCH reception in cell 24.
7	←		CLOSE UE TEST LOOP	
8	→		CLOSE UE TEST LOOP COMPLETE	Loop back mode 3 on MTCH is activated.
9	SS			The SS broadcasts 10 RLC SDUs of MBMS data on MTCH on the concerned MBMS radio bearer.
10	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
11	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the UE has received MBMS data.
12	←		OPEN UE TEST LOOP	
13	→		OPEN UE TEST LOOP COMPLETE	
14	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 4) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
Frequency info	Set to the frequency of cell 24	
Downlink information per radio link list	1 radio link	
Downlink information for each radio link		
- CHOICE mode	FDD	
- Primary CPICH info	Set to the scrambling code for cell 24	

PHYSICAL CHANNEL RECONFIGURATION (Step 4) (3.84Mcps, 1.28Mcps and 7.68Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark	Version
Frequency info	Set to the frequency of cell 24	
Downlink information per radio link list	1 radio link	
- Downlink information for each radio link		
- CHOICE mode	TDD	
- Primary CCPCH info	Set to same code as used for cell 24	

UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE (Step 11)

Information Element	Value/remark
RLC SDU Counter Value	Check that the number is greater than zero.

8.5.1.5.5 Test requirement

After step 4, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message in cell 24.

After step 10, the UE shall transmit a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message with the number of reported RLC SDUs shall be greater than zero.

8.5.1.5m MBMS PTM Session Start at MCCH Acquisition in CELL_DCH (for a non-MBMS service) when entering into an MBMS cell (UE capable of MBMS p-t-m reception in CELL_DCH) / MBMS Multicast Service

8.5.1.5m.1 Definition

This test is applicable for all UEs that support MBMS multicast services and support MBMS p-t-m reception in CELL_DCH state.

8.5.1.5m.2 Conformance requirement

Same conformance requirement as in clause 8.5.1.5.2

8.5.1.5m.3 Test purpose

Same test purpose as in clause 8.5.1.5.3.

8.5.1.5m.4 Method of test

Initial condition

System Simulator:

2 MBMS cells, Cell 21 and Cell 24.

User Equipment:

The UE is in CELL_DCH state as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 8.5.1.5.4.

Specific message contents

Same specific messages contents as in clause 8.5.1.5.4

8.5.1.5m.5 Test requirements

Same test requirement as in clause 8.5.1.5.5.

8.5.1.6 Void

8.5.1.6m Void

8.5.1.7 Void

8.5.1.7m Void

8.5.1.8 Void

8.5.1.9 MBMS PTM Session Start at MCCH Notification in Idle Mode / MBMS Broadcast Service

8.5.1.9.1 Definition and applicability

This test case is applicable for all UEs that support MBMS broadcast services.

8.5.1.9.2 Conformance requirement

The UE shall detect the available MBMS services by acquiring the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3.

The UE shall immediately acquire the MBMS ACCESS INFORMATION and the MBMS GENERAL INFORMATION messages i.e. it shall not delay reception of these messages until it has completed the acquisition of the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages. Likewise, the UE should immediately acquire the MBMS CURRENT CELL P-T-M RB INFORMATION and MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages.

The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information e.g. both the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION message should be acquired in the same modification period.

…

The UE may:

1> monitor the MBMS notification Indicator Channel (MICH);

1> if a notification on the MICH for one or more of the MBMS services included in the variable MBMS_ACTIVATED_SERVICES is detected:

2> acquire the MBMS MODIFIED SERVICES INFORMATION message with delaying the reading of MCCH until the next modification period and with stopping at the end of the modification period, in accordance with subclause 8.7.1.3;

2> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4.

The UE shall:

1> if in idle mode, URA_PCH, CELL_PCH or CELL_FACH state:

2> if not monitoring MICH:

3> acquire the MBMS MODIFIED SERVICES INFORMATION message from MCCH at the start of every modification period, in accordance with subclause 8.7.1.3;

3> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4.

…

1> if the IE "MBMS required UE action" is set to 'Acquire PTM RB info'; or

1> if the IE "MBMS required UE action" is set to 'Acquire counting info– PTM RBs unmodified' and the UE is not receiving a p-t-m RB for the concerned service:

2> continue acquiring the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3;

2> act upon the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION message, if received, in accordance with subclause 8.7.5.

Reference

3GPP TS 25.331 clause 8.7.2.3, 8.7.3.3.1, 8.6.9.6.

8.5.1.9.3 Test purpose

1. To verify that the UE receives the MBMS information on MCCH in Idle Mode.
2. To verify that the UE correctly handles the notification procedure after receiving the MBMS MODIFIED SERVICES INFORMATION message via MCCH if no ongoing MBMS p-t-m session (MICH supported/not supported by the UE).
3. To verify that the UE starts the reception of MBMS services according to notification via MICH/MCCH when the UE is in Idle Mode.

8.5.1.9.4 Method of test

Initial Condition

System Simulator:

- 1 MBMS cell.

User Equipment:

- The UE is in Idle mode as specified in clause 7.6 of TS 34.108.
- The UE is interested in the broadcast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statement(s)

- MBMS Broadcast service application available on UE Yes/No

Test Procedure

UE is moved to CELL_DCH for RB Test Mode to be activated and then the RRC Connection is released to move UE back to Idle Mode.

The SS notifies on MICH and MCCH about the start of an MBMS session. The SS waits for the UE to start reception of the MBMS data on MTCH.

UE is moved to CELL_DCH for the UE Test Loop Mode 3 to be closed and then the RRC Connection is released to move UE back to Idle Mode.

The SS sends 10 RLC SDUs of MBMS data on MTCH on the concerned MBMS radio bearer.

UE is moved to CELL_DCH then retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The number of received RLC SDUs reported by the UE shall be at least one.

The UE Test Loop is opened and RB Test Mode in the UE is deactivated.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PAGING TYPE1	Paging (PS domain, P-TMSI)
2	→		RRC CONNECTION REQUEST	
3	←		RRC CONNECTION SETUP	
4	→		RRC CONNECTION SETUP COMPLETE	
5	→		SERVICE REQUEST	
6	←		AUTHENTICATION AND CIPHERING REQUEST	
7	→		AUTHENTICATION AND CIPHERING RESPONSE	
8	←		SECURITY MODE COMMAND	
9	→		SECURITY MODE COMPLETE	
10	←		ACTIVATE RB TEST MODE	
11	→		ACTIVATE RB TEST MODE COMPLETE	
12	←		RRC CONNECTION RELEASE	
13	→		RRC CONNECTION RELEASE COMPLETE	
14	←		MBMS MODIFIED SERVICES INFORMATION	MBMS session start. The SS also sets the Notification Indicator on MICH. The SS waits for the UE to establish the MTCH according to MBMS p-t-m activation time set to the first TTI of the next modification period.
15	←		PAGING TYPE1 (PCCH)	Paging (PS domain, P-TMSI)
16	→		RRC CONNECTION REQUEST	
17	←		RRC CONNECTION SETUP	
18	→		RRC CONNECTION SETUP COMPLETE	
19	→		SERVICE REQUEST	
20	←		AUTHENTICATION AND CIPHERING REQUEST	
21	→		AUTHENTICATION AND CIPHERING RESPONSE	
22	←		SECURITY MODE COMMAND	
23	→		SECURITY MODE COMPLETE	
24	←		CLOSE UE TEST LOOP	
25	→		CLOSE UE TEST LOOP COMPLETE	Loop back mode 3 on MTCH is activated.
26	←		RRC CONNECTION RELEASE	
27	→		RRC CONNECTION RELEASE COMPLETE	
28	SS			The SS broadcasts 10 RLC SDUs of MBMS data on MTCH on the concerned MBMS radio bearer.
29	←		PAGING TYPE1	Paging (PS domain, P-TMSI)
30	→		RRC CONNECTION REQUEST	
31	←		RRC CONNECTION SETUP	
32	→		RRC CONNECTION SETUP COMPLETE	
33	→		SERVICE REQUEST	
34	←		AUTHENTICATION AND CIPHERING REQUEST	
35	→		AUTHENTICATION AND CIPHERING RESPONSE	
36	←		SECURITY MODE COMMAND	
37	→		SECURITY MODE COMPLETE	
38	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
39	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the UE has received MBMS data.
40	←		OPEN UE TEST LOOP	
41	→		OPEN UE TEST LOOP COMPLETE	
42	←		DEACTIVATE RB TEST MODE	
43	→		DEACTIVATE RB TEST MODE COMPLETE	

Specific Message Contents

UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE (Step 39)

Information Element	Value/remark
RLC SDU Counter Value	Check that the number is greater than zero.

8.5.1.9.5 Test requirement

After step 38, the UE shall transmit a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message with the number of reported RLC SDUs shall be greater than zero.

8.5.1.9m MBMS PTM Session Start at MCCH Notification in Idle Mode / MBMS Multicast Service

8.5.1.9m.1 Definition

This test is applicable for all UEs that support MBMS multicast services.

8.5.1.9m.2 Conformance requirement

Same conformance requirement as in clause 8.5.1.9.2

8.5.1.9m.3 Test purpose

Same test purpose as in clause 8.5.1.9.3.

8.5.1.9m.4 Method of test

Initial Condition

System Simulator:

- 1 MBMS cell.

User Equipment:

- The UE is in Idle Mode as specified in clause 7.6 of TS 34.108.
- The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 8.5.1.9.4.

Specific message contents

Same specific messages contents as in clause 8.5.1.9.4

8.5.1.9m.5 Test requirements

Same test requirement as in clause 8.5.1.9.5.

8.5.1.10 Void

8.5.1.11 MBMS PTP Session Start at MCCH Notification in Idle Mode / MBMS Selected Service

8.5.1.11.1 Definition

This test is applicable for all UEs that support MBMS broadcast services.

8.5.1.11.2 Conformance requirement

If the IE "MBMS required UE action" is included and concerns an MBMS activated service the UE shall:

…

1> if the IE "MBMS required UE action" is set to 'Request PTP RB':

2> if the UE is in idle mode:

3> indicate to upper layers that establishment of a PS signalling connection is required to receive the concerned MBMS [5], unless the UE has already requested p-t-p RB establishment in the current modification period, and use the establishment cause set to 'MBMS ptp RB request' in the RRC connection establishment procedure.

…

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

1> set the IE "Establishment cause" to the value of the variable ESTABLISHMENT_CAUSE;

1> set the IE "Initial UE identity" to the value of the variable INITIAL_UE_IDENTITY;

1> set the IE "Protocol error indicator" to the value of the variable PROTOCOL_ERROR_INDICATOR; and

1> include the IE "Predefined configuration status information" and set this IE to true if the UE has all pre-configurations stored with the same value tag as broadcast in the cell in which the RRC connection establishment is initiated.

1> if the UE is attempting to establish the signalling connection to PS-domain:

2> include the IE "Domain Indicator" and set it to "PS domain".

1> else if the UE is attempting to establish the signalling connection to CS domain:

2> include the IE "Domain Indicator" and set it to "CS domain".

1> if the UE only supports HS-DSCH but not E-DCH:

2> include the IE "UE capability indication" and set it to the "HS-DSCH" value.

1> if the UE supports HS-DSCH and E-DCH:

2> include the IE "UE capability indication" and set it to the "HS-DSCH+E-DCH" value.

1> if the UE performs connection establishment for MBMS ptp radio bearer request as specified in subclause 8.6.9.6; and

1> if one or more of the MBMS services for which the UE initiates the ptp radio bearer request concerns an MBMS Selected Service:

2> for each MBMS Selected Service that is indicated on MCCH and for which the UE initiates the ptp radio bearer request:

3> include the IE "MBMS Selected Service ID" within the IE "MBMS Selected Services Short" and set it to a value in accordance with subclause 8.6.9.8.

1> otherwise if the UE performs connection establishment for MBMS counting as specified in subclause 8.7.4; and

1> if one or more of the MBMS services for which the UE initiates the counting response concerns an MBMS Selected Service:

2> for each MBMS Selected Service that is indicated on MCCH and for which the UE initiates the counting response:

3> include the IE "MBMS Selected Service ID" within the IE "MBMS Selected Services Short" and set it to a value in accordance with subclause 8.6.9.8.

1> if the UE included one or more "MBMS Selected Service ID" IEs:

2> include the IE "MBMS Modification Period identity" and set it to a value in accordance with subclause 8.5.29.

The UE shall not include the IE "UE Specific Behaviour Information 1 idle".

…

If the IE "MBMS short transmission ID" is included the UE shall:

1> if the value of the "MBMS short transmission ID" is less than or equal to the number of services identified by the IE "Modified services list" included in the MBMS MODIFIED SERVICES INFORMATION message acquired in the same modification period as the one in which the "MBMS short transmission ID" is received:

2> consider the "MBMS short transmission ID" to be an index to the list of services contained in the IE "Modified services list" and apply the MBMS transmission identity specified for this entry.

1> otherwise:

2> compile a list of available MBMS services, as included in the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages acquired in the same modification period as the one in which the "MBMS short transmission ID" is received:

3> concatenate the services contained in IE "Modified services list" included in the MBMS MODIFIED SERVICES INFORMATION and the services contained in IE "Unmodified services list" included in the MBMS UNMODIFIED SERVICES INFORMATION.

2> consider the "MBMS short transmission ID" to be the index of the entry in the list of available services and apply the MBMS transmission identity specified for this entry.

…

The UE shall calculate the identity of a Modification period as follows:

MP identity= (SFNMP div MPlen) mod 2

With SFN_{MP} being the SFN corresponding with the frame in which the concerned Modification Period starts

MP_{len} being the length of the Modification Period, that is indicated by the IE "Modification period coefficient" that is included in System Information Block type 5 and 5bis.

Reference

3GPP TS 25.331 clauses 8.6.9.6, 8.1.3.3, 8.6.9.8, 8.5.29.

8.5.1.11.3 Test purpose

To verify that the UE receives the MBMS info in idle mode state and correctly triggers the P-t-p request procedure.

8.5.1.11.4 Method of test

Initial condition

System Simulator:

1 MBMS cell

User Equipment:

The UE is in Idle Mode as specified in clause 7.6 of TS 34.108.

The UE is interested in the selected service to be provided by the SS (included inMBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Broadcast service application available on UE Yes/No.

Test procedure

1) The UE camping on Cell 21, receives an MBMS MODIFIED SERVICES INFORMATION messages including IEs “MBMS required UE action” set to “Request PTP RB”.

2) The UE shall request a p-t-p RB establishment. The UE transmits a RRC CONNECTION REQUEST message including the IE "MBMS Selected Service ID" of the concerned MBMS selected services within the IE "MBMS Selected Services Short" and the IE "MBMS Modification Period identity".

3) The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of a radio access bearer. The UE shall establish this radio bearer. Then the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		MBMS MODIFIED SERVICES INFORMATION	"MBMS required UE action" set to Request PTP RB.
2	→		RRC CONNECTION REQUEST	The UE transmits the message with Establishment cause set to “MBMS ptp RB request” and with the “MBMS Selected Services Short” IE referring to the concerned MBMS Selected service and the corresponding Modification period identity.
3	←		RRC CONNECTION SETUP	RRC state indicator set to Cell_DCH
4	→		RRC CONNECTION SETUP COMPLETE	
5	→		MBMS MODIFICATION REQUEST	The UE completing the RRC connection Setup procedure shall initiate the MBMS MODIFICATION REQUEST procedure. This message may be received at any point after step 5 and before step 11.
6	UE			UE transmits SERVICE REQUEST, with IE "Service type" set to "MBMS Broadcast service Reception”.
7	←		SECURITY MODE COMMAND	
8	→		SECURITY MODE COMPLETE	
9	←		RADIO BEARER SETUP	
10	→		RADIO BEARER SETUP COMPLETE	
11	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes otherwise it fails.

Specific message contents

All messages have the same content as defined in 34.108 clause 9.1.1 with the following exceptions:

MBMS MODIFIED SERVICES INFORMATION (Step 1)

Information Element	Value/remark
Modified service list	Only 1 entry
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
- MBMS required UE action	Request PTP RB
- Continue MCCH reading	FALSE

RRC CONNECTION REQUEST (Step 2)

Information Element	Value/remark
Message type	
Initial UE identity	Same as the registered TMSI or P-TMSI.
Establishment Cause	MBMS ptp RB request
Protocol Error Indicator	Check to see if it is set to FALSE
Measured results on RACH	Not checked.
MBMS Selected Services	
MBMS Selected Services	Only 1 entry
- MBMS Selected Service ID	MBMS short transmission identity referring to the service the UE has selected
- Modification period identity	Indicates the modification period the MBMS short transmission identities refer to

RRC CONNECTION SETUP (Step 3)

Information Element	Value/remark
Message type	
RRC State Indicator	Cell_DCH

MBMS MODIFICATION REQUEST (steps 5)

Information Element	Value/remark
MBMS preferred frequency request	Check that the IE is not present
MBMS RB list requested to be released	Check that the IE is not present
MBMS Selected Service Info	
- CHOICE Status	Some
- MBMS Selected Services Full	
- MBMS Selected Service ID	Only 1 entry
- MBMS Service ID	MBMS service ID of the activated MBMS service
- CHOICE PLMN identity	Check to see that one of the below choice element is present
- SameAs-MIB	(no data)
- explicitPLMN_Id	Check to see if it is set to the same value as "PLMN ID" in the Master Information block transmitted for the current serving cell.

RADIO BEARER SETUP (Step 9)

Use the same message as the one specified for "MBMS PtP" in TS 34.108 clause 9 with the condition B1.

8.5.1.11.1.5 Test requirements

At step 2, the UE shall transmit a RRC CONNECTION REQUEST message with Establishment cause set to “MBMS ptp RB request”. The UE shall include the IE "MBMS Selected Service ID" within the IE "MBMS Selected Services Short" and the IE "MBMS Modification Period identity".

8.5.1.11m MBMS PTP Session Start at MCCH Notification in Idle Mode / MBMS Multicast Service

8.5.1.11m.1 Definition

This test is applicable for all UEs that support MBMS multicast services.

8.5.1.11m.2 Conformance requirement

Same conformance requirement as in clause 8.5.1.11.2 except there is no reference to 3GPP TS 25.331 clause 8.1.3.3..

Reference

3GPP TS 25.331 clauses 8.6.9.6, 8.6.9.8, 8.5.29.

8.5.1.11m.3 Test purpose

Same test purpose as in clause 8.5.1.11.3.

8.5.1.11m.4 Method of test

Initial condition

System Simulator:

1 MBMS cell

User Equipment:

The UE is in Idle Mode as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 8.5.1.11.4 except for the point 2:

2) The UE shall request a p-t-p RB establishment. The UE transmits a RRC CONNECTION REQUEST message.

Expected sequence

Same expected sequence as in clause 8.5.5.11.4 except for RRC CONNECTION REQUEST message content (step 2) and MODIFICATION REQUEST procedure not required.

Step	Direction		Message	Comments
	UE	SS		
1	←		MBMS MODIFIED SERVICES INFORMATION	"MBMS required UE action" set to Request PTP RB.
2	→		RRC CONNECTION REQUEST	The UE transmits the message with Establishment cause set to “MBMS ptp RB request”
3	←		RRC CONNECTION SETUP	RRC state indicator set to Cell_DCH
4	→		RRC CONNECTION SETUP COMPLETE	
5	UE			UE transmits SERVICE REQUEST, with IE "Service type" set to "MBMS Multicast service Reception”.
6	←		SECURITY MODE COMMAND	
7	→		SECURITY MODE COMPLETE	
8	←		RADIO BEARER SETUP	
9	→		RADIO BEARER SETUP COMPLETE	
10	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes otherwise it fails.

Specific message contents

Same specific messages contents as in clause 8.5.1.11.4 except for RRC CONNECTION REQUEST message content (step 2)

RRC CONNECTION REQUEST (Step 2)

Information Element	Value/remark
Message type	
Initial UE identity	Same as the registered TMSI or P-TMSI.
Establishment Cause	MBMS ptp RB request
Protocol Error Indicator	Check to see if it is set to FALSE
Measured results on RACH	Not checked.
MBMS Selected Services	Not Present

8.5.1.11m.5 Test requirements

At step 2, the UE shall transmit a RRC CONNECTION REQUEST message with Establishment cause set to “MBMS ptp RB request”.

8.5.1.12 MBMS PTP Session Start at MCCH Notification in URA_PCH / MBMS Selected Service

8.5.1.12.1 Definition

This test is applicable for all UEs that support MBMS broadcast services.

8.5.1.12.2 Conformance requirement

The MBMS notification procedure is used by the UE to respond to a notification provided by UTRAN, indicating a change applicable for one or more MBMS services the UE has joined. The procedure applies to all UEs supporting MBMS, irrespective of their state (idle and connected mode: URA_PCH, CELL_PCH, CELL_FACH and CELL_DCH). The actual notification mechanism to be used depends on the UE state.

…

The UE shall:

1> if in idle mode, URA_PCH, CELL_PCH or CELL_FACH state:

2> if not monitoring MICH:

3> acquire the MBMS MODIFIED SERVICES INFORMATION message from MCCH at the start of every modification period, in accordance with subclause 8.7.1.3;

3> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4.

….

If the IE "MBMS required UE action" is included and concerns an MBMS activated service the UE shall:

…

1> if the IE "MBMS required UE action" is set to 'Request PTP RB':

…

2> if the UE is in URA_PCH, Cell_PCH or CELL_FACH states:

3> indicate to upper layers to initiate a service request procedure [5] to receive the concerned MBMS service;

3> perform the cell update procedure with cause "MBMS ptp RB request", as specified in subclause 8.3.1.2, unless the UE has already requested p-t-p RB establishment in the current modification period.

…

A UE shall initiate the cell update procedure in the following cases:

....

1> MBMS ptp RB request:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

2> if the UE is in URA_PCH, Cell_PCH or Cell_FACH state; and

2> if the UE should perform cell update for MBMS ptp radio bearer request as specified in 8.6.9.6:

3> perform cell update using the cause "MBMS ptp RB request".

…

The UE shall set the IEs in the CELL UPDATE message as follows:

…

1> if the UE performs cell update for MBMS ptp radio bearer request as specified in subclause 8.6.9.6; and

1> if one or more of the MBMS services for which the UE initiates the ptp radio bearer request concerns an MBMS Selected Service:

2> for each MBMS Selected Service that is indicated on MCCH and for which the UE initiates ptp radio bearer request:

3> order the MBMS Selected Services such that those selected with a higher priority are listed in the IE "MBMS Selected Services Short" before those selected with a lower priority;

3> include the IE "MBMS Selected Service ID" within the IE "MBMS Selected Services Short" and set it to a value in accordance with subclause 8.6.9.8.

1> otherwise, if the UE performs cell update for MBMS counting as specified in subclause 8.7.4; and

1> if one or more of the MBMS services for which the UE initiates the counting response concerns an MBMS Selected Service:

2> for each MBMS Selected Service that is indicated on MCCH and for which the UE initiates the counting response:

3> order the MBMS Selected Services such that those selected with a higher priority are listed in the IE "MBMS Selected Services Short" before those selected with a lower priority;

3> include the IE "MBMS Selected Service ID" within the IE "MBMS Selected Services Short" and set it to a value in accordance with subclause 8.6.9.8.

1> if the UE included one or more "MBMS Selected Service ID" IEs:

2> include the IE "MBMS Modification Period identity" and set it to a value in accordance with subclause 8.5.29.

…

If the IE "MBMS short transmission ID" is included the UE shall:

1> if the value of the "MBMS short transmission ID" is less than or equal to the number of services identified by the IE "Modified services list" included in the MBMS MODIFIED SERVICES INFORMATION message acquired in the same modification period as the one in which the "MBMS short transmission ID" is received:

2> consider the "MBMS short transmission ID" to be an index to the list of services contained in the IE "Modified services list" and apply the MBMS transmission identity specified for this entry.

1> otherwise:

2> compile a list of available MBMS services, as included in the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages acquired in the same modification period as the one in which the "MBMS short transmission ID" is received:

3> concatenate the services contained in IE "Modified services list" included in the MBMS MODIFIED SERVICES INFORMATION and the services contained in IE "Unmodified services list" included in the MBMS UNMODIFIED SERVICES INFORMATION.

2> consider the "MBMS short transmission ID" to be the index of the entry in the list of available services and apply the MBMS transmission identity specified for this entry.

…

The UE shall calculate the identity of a Modification period as follows:

MP identity= (SFNMP div MPlen) mod 2

With SFN_{MP} being the SFN corresponding with the frame in which the concerned Modification Period starts

MP_{len} being the length of the Modification Period, that is indicated by the IE "Modification period coefficient" that is included in System Information Block type 5 and 5bis.

Reference

3GPP TS 25.331 clauses 8.7.3.1, 8.7.3.3.1, 8.6.9.6, 8.3.1.2, 8.3.1.3, 8.6.9.8, 8.5.29.

8.5.1.12.3 Test purpose

To verify that the UE receives the MBMS info in URA_PCH state and correctly triggers the P-t-p request procedure.

8.5.1.12.4 Method of test

Initial condition

System Simulator:

1 MBMS cell.

User Equipment:

The UE is in URA_PCH state as specified in clause 7.6 of TS 34.108

The UE is interested in the selected service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Broadcast service application available on UE Yes/No.

Test procedure

1) The UE is in URA_PCH state, shall detect the available MBMS services by acquiring the MBMS MODIFIED SERVICES INFORMATION including the IE “MBMS required UE action” set to “Request PTP RB”.

2) The UE shall perform a cell update procedure with cause "MBMS ptp RB request". In case of MBMS Selected service, the UE transmits a CELL UPDATE message including the IE "MBMS Selected Service ID" of the concerned MBMS Selected service within the IE "MBMS Selected Services Short" and the IE "MBMS Modification Period identity".

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		MBMS MODIFIED SERVICES INFORMATION	"MBMS required UE action" set to Request PTP RB".
1a				The UE enters the CELL_FACH state(Test procedure 2 and 3 only).
2	→		CELL UPDATE	UE performs cell update procedure. The CELL UPDATE message shall contain the value "Cell Update Cause" set to "MBMS ptp RB request"
3	←		CELL UPDATE CONFIRM	RRC State Indicator is set to CELL_FACH
3a	→		UTRAN MOBILITY INFORMATION CONFIRM	
4	UE			UE transmits SERVICE REQUEST, with IE "Service type" set to "MBMS Broadcast service Reception”.
5	SS			SS transmits the SERVICE ACCEPT message to the UE.
6	←		RADIO BEARER SETUP	RRC State Indicator is set to CELL_DCH
7	→		RADIO BEARER SETUP COMPLETE	
7a	→		MBMS MODIFICATION REQUEST	This message may be received at any point after step 6 and before step 8.
8	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific message contents

MBMS MODIFIED SERVICES INFORMATION (Step 1)

Information Element	Value/remark
Modified services list - MBMS Transmission identity - MBMS required UE action	Only 1 entry MBMS Transmission identity indicating MBMS activated service request PTP RB

CELL UPDATE (Step 2)

Information Element	Value/remark
Cell update cause MBMS Selected Services - MBMS Selected Services - MBMS Selected Service ID - Modification period identity	MBMS ptp RB request Only 1 entry MBMS short transmission identity referring to the service the UE has selected Indicates the modification period the MBMS short transmission identities refer to

CELL UPDATE CONFIRM (Step 3)

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'

RADIO BEARER SETUP (Step 6)

Use the same message as the one specified for "MBMS PtP" in TS 34.108 clause 9 with the condition B4.

MBMS MODIFICATION REQUEST (step 7a)

Information Element	Value/remark
MBMS preferred frequency request	Check that the IE is not present
MBMS RB list requested to be released	Check that the IE is not present
MBMS Selected Service Info - CHOICE Status - MBMS Selected Services Full - MBMS Selected Service ID - MBMS Service ID - CHOICE PLMN identity - SameAs-MIB - explicitPLMN_Id	 Some MBMS service ID of the activated MBMS service Check to see that one of the below choice element is present (no data) Check to see if it is set to the same value as "PLMN ID" in the Master Information block transmitted for the current serving cell.

8.5.1.12.5 Test requirements

At step 2, the UE shall initiate a cell update procedure for MBMS ptp radio bearer request. The UE shall include in the transmitted CELL_UPDATE message the IE "MBMS Selected Service ID" within the IE "MBMS Selected Services Short" and the IE "MBMS Modification Period identity" in case of MBMS Selected service.

8.5.1.12m MBMS PTP Session Start at MCCH Notification in URA_PCH / MBMS Multicast Service

8.5.1.12m.1 Definition

This test is applicable for all UEs that support MBMS multicast services.

8.5.1.12m.2 Conformance requirement

Same conformance requirement as in clause 8.5.1.12.2.

8.5.1.12m.3 Test purpose

Same test purpose as in clause 8.5.1.12.3.

8.5.1.12m.4 Method of test

Initial condition

System Simulator:

1 MBMS cell

User Equipment:

The UE is in URA_PCH state as specified in clause 7.6 of TS 34.108

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 8.5.1.12.4, except that at step 4 UE transmits Service Request, with IE "Service type" set to "MBMS Multicast service Reception".

Specific message contents

Same specific messages contents as in clause 8.5.1.12.4 except for CELL UPDATE (Step 2) and Service Request (Step 4)

CELL UPDATE (Step 2)

Information Element	Value/remark
Cell update cause	MBMS ptp RB request
MBMS Selected Services	Not present

8.5.1.12m.5 Test requirements

At step 2, the UE shall initiate a cell update procedure for MBMS ptp radio bearer request .

8.5.1.13 MBMS PTP Session Start at MCCH Notification in CELL_FACH / MBMS Selected Service

8.5.1.13.1 Definition

This test is applicable for all UEs that support MBMS broadcast services.

8.5.1.13.2 Conformance requirement

The MBMS notification procedure is used by the UE to respond to a notification provided by UTRAN, indicating a change applicable for one or more MBMS services the UE has joined. The procedure applies to all UEs supporting MBMS, irrespective of their state (idle and connected mode: URA_PCH, CELL_PCH, CELL_FACH and CELL_DCH). The actual notification mechanism to be used depends on the UE state.

…

The UE shall:

1> if in idle mode, URA_PCH, CELL_PCH or CELL_FACH state:

2> if not monitoring MICH:

3> acquire the MBMS MODIFIED SERVICES INFORMATION message from MCCH at the start of every modification period, in accordance with subclause 8.7.1.3;

3> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4.

….

If the IE "MBMS required UE action" is included and concerns an MBMS activated service the UE shall:

…

1> if the IE "MBMS required UE action" is set to 'Request PTP RB':

…

2> if the UE is in URA_PCH, Cell_PCH or CELL_FACH states:

3> indicate to upper layers to initiate a service request procedure [5] to receive the concerned MBMS service;

3> perform the cell update procedure with cause "MBMS ptp RB request", as specified in subclause 8.3.1.2, unless the UE has already requested p-t-p RB establishment in the current modification period.

…

A UE shall initiate the cell update procedure in the following cases:

....

1> MBMS ptp RB request:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

2> if the UE is in URA_PCH, Cell_PCH or Cell_FACH state; and

2> if the UE should perform cell update for MBMS ptp radio bearer request as specified in 8.6.9.6:

3> perform cell update using the cause "MBMS ptp RB request".

…

The UE shall set the IEs in the CELL UPDATE message as follows:

…

1> if the UE performs cell update for MBMS ptp radio bearer request as specified in subclause 8.6.9.6; and

1> if one or more of the MBMS services for which the UE initiates the ptp radio bearer request concerns an MBMS Selected Service:

2> for each MBMS Selected Service that is indicated on MCCH and for which the UE initiates ptp radio bearer request:

3> order the MBMS Selected Services such that those selected with a higher priority are listed in the IE "MBMS Selected Services Short" before those selected with a lower priority;

3> include the IE "MBMS Selected Service ID" within the IE "MBMS Selected Services Short" and set it to a value in accordance with subclause 8.6.9.8.

1> otherwise, if the UE performs cell update for MBMS counting as specified in subclause 8.7.4; and

1> if one or more of the MBMS services for which the UE initiates the counting response concerns an MBMS Selected Service:

2> for each MBMS Selected Service that is indicated on MCCH and for which the UE initiates the counting response:

3> order the MBMS Selected Services such that those selected with a higher priority are listed in the IE "MBMS Selected Services Short" before those selected with a lower priority;

3> include the IE "MBMS Selected Service ID" within the IE "MBMS Selected Services Short" and set it to a value in accordance with subclause 8.6.9.8.

1> if the UE included one or more "MBMS Selected Service ID" IEs:

2> include the IE "MBMS Modification Period identity" and set it to a value in accordance with subclause 8.5.29.

…

If the IE "MBMS short transmission ID" is included the UE shall:

1> if the value of the "MBMS short transmission ID" is less than or equal to the number of services identified by the IE "Modified services list" included in the MBMS MODIFIED SERVICES INFORMATION message acquired in the same modification period as the one in which the "MBMS short transmission ID" is received:

2> consider the "MBMS short transmission ID" to be an index to the list of services contained in the IE "Modified services list" and apply the MBMS transmission identity specified for this entry.

1> otherwise:

2> compile a list of available MBMS services, as included in the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages acquired in the same modification period as the one in which the "MBMS short transmission ID" is received:

3> concatenate the services contained in IE "Modified services list" included in the MBMS MODIFIED SERVICES INFORMATION and the services contained in IE "Unmodified services list" included in the MBMS UNMODIFIED SERVICES INFORMATION.

2> consider the "MBMS short transmission ID" to be the index of the entry in the list of available services and apply the MBMS transmission identity specified for this entry.

…

The UE shall calculate the identity of a Modification period as follows:

MP identity= (SFNMP div MPlen) mod 2

With SFN_{MP} being the SFN corresponding with the frame in which the concerned Modification Period starts

MP_{len} being the length of the Modification Period, that is indicated by the IE "Modification period coefficient" that is included in System Information Block type 5 and 5bis.

Reference

3GPP TS 25.331 clauses 8.7.3.1, 8.7.3.3.1, 8.6.9.6, 8.3.1.2, 8.3.1.3, 8.6.9.8, 8.5.29.

8.5.1.13.3 Test purpose

To verify that the UE receives the MBMS info in Cell_FACH state and correctly triggers the P-t-p request procedure.

8.5.1.13.4 Method of test

Initial condition

System Simulator:

1 MBMS cell.

User Equipment:

The UE is in CELL_FACH state as specified in clause 7.6 of TS 34.108.

The UE is interested in the selected service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Broadcast service application available on UE Yes/No.

Test procedure

1) The UE is in Cell_FACH state, shall detect the available MBMS services by acquiring the MBMS MODIFIED SERVICES INFORMATION including the IE “MBMS required UE action” set to “Request PTP RB”.

2) The UE shall perform a cell update procedure with cause "MBMS ptp RB request". In case of MBMS Selected service, the UE transmits a CELL UPDATE message including the IE "MBMS Selected Service ID" of the concerned MBMS Selected service within the IE "MBMS Selected Services Short" and the IE "MBMS Modification Period identity".

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		MBMS MODIFIED SERVICES INFORMATION	"MBMS required UE action" set to Request PTP RB".
2	→		CELL UPDATE	UE performs cell update procedure. The CELL UPDATE message shall contain the value "Cell Update Cause" set to "MBMS ptp RB request"
3	←		CELL UPDATE CONFIRM	RRC State Indicator is set to CELL_FACH
4	UE			UE transmits SERVICE REQUEST, with IE "Service type" set to "MBMS Broadcast service Reception".
5	SS			SS transmits the SERVICE ACCEPT message to the UE.
6	←		RADIO BEARER SETUP	RRC State Indicator is set to CELL_DCH
7	→		RADIO BEARER SETUP COMPLETE	
7a	→		MBMS MODIFICATION REQUEST	This message may be received at any point after step 6 and before step 8.
8	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific message contents

MBMS MODIFIED SERVICES INFORMATION (Step 1)

Information Element	Value/remark
Modified services list - MBMS Transmission identity - MBMS required UE action	Only 1 entry MBMS Transmission identity indicating MBMS activated service request PTP RB

CELL UPDATE (Step 2)

Information Element	Value/remark
Cell update cause MBMS Selected Services - MBMS Selected Services - MBMS Selected Service ID - Modification period identity	MBMS ptp RB request Only 1 entry MBMS short transmission identity referring to the service the UE has selected Indicates the modification period the MBMS short transmission identities refer to

RADIO BEARER SETUP (Step 6)

Use the same message as the one specified for "MBMS PtP" in TS 34.108 clause 9 with the condition B4.

MBMS MODIFICATION REQUEST (step 7a)

Information Element	Value/remark
MBMS preferred frequency request	Check that the IE is not present
MBMS RB list requested to be released	Check that the IE is not present
MBMS Selected Service Info - CHOICE Status - MBMS Selected Services Full - MBMS Selected Service ID - MBMS Service ID - CHOICE PLMN identity - SameAs-MIB - explicitPLMN_Id	 Some MBMS service ID of the activated MBMS service Check to see that one of the below choice element is present (no data) Check to see if it is set to the same value as "PLMN ID" in the Master Information block transmitted for the current serving cell.

8.5.1.13.5 Test requirements

At step 2, the UE shall initiate a cell update procedure for MBMS ptp radio bearer request. The UE shall include in the transmitted CELL_UPDATE message the IE "MBMS Selected Service ID" within the IE "MBMS Selected Services Short" and the IE "MBMS Modification Period identity" in case of MBMS Selected service.

8.5.1.13m MBMS PTP Session Start at MCCH Notification in CELL_FACH / MBMS Multicast Service

8.5.1.13m.1 Definition

This test is applicable for all UEs that support MBMS multicast services.

8.5.1.13m.2 Conformance requirement

Same conformance requirement as in clause 8.5.1.13.2.

8.5.1.13m.3 Test purpose

Same test purpose as in clause 8.5.1.13.3.

8.5.1.13m.4 Method of test

Initial condition

System Simulator:

1 MBMS cell

User Equipment:

The UE is in CELL_FACH state as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICESvariable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 8.5.1.13.4, except that at step 4 UE transmits Service Request, with IE "Service type" set to "MBMS Multicast service Reception".

Specific message contents

Same specific messages contents as in clause 8.5.1.13.4 except for CELL UPDATE (Step 2) and Service request(step 4)

CELL UPDATE (Step 2)

Information Element	Value/remark
Cell update cause	MBMS ptp RB request
MBMS Selected Services	Not present

8.5.1.13m.5 Test requirements

At step 2, the UE shall initiate a cell update procedure for MBMS ptp radio bearer request.

8.5.1.14 MBMS PTM Session Start at MCCH Acquisition / MBSFN mode

8.5.1.14.1 Definition

This test is applicable for UEs that support MBMS broadcast services in MBSFN mode and which support either both transmit and receive functions or MBSFN receive only function.

8.5.1.14.2 Conformance requirement

The UE applies the MCCH acquisition procedure to determine the MBMS services available in the cell and to initiate reception of the services that the UE has activated. The procedure applies to all UEs supporting MBMS, irrespective of their state (idle, URA_PCH, CELL_PCH, CELL_FACH and CELL_DCH).

For 1.28 Mcps TDD, if the cell is operating in MBSFN mode, the MCCH will be deployed on the MBSFN Special Timeslot [30].

…

If the variable MBMS_ACTIVATED_SERVICES is not empty, the UE shall apply the MCCH acquisition procedure upon selecting (e.g. upon power on) or re- selecting a cell supporting MBMS or an MBSFN cluster, upon change of MBMS controlling cell (e.g. due to an active set update or hard handover), upon entering UTRA from another RAT, upon release of a MBMS PTP RB for the purpose of changing transfer mode, upon return from loss of coverage and upon receiving an indication from upper layers that the set of activated services has changed.

…

The UE shall detect the available MBMS services by acquiring the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3.

...

For cells operating in MBSFN mode as indicated in subclause 8.1.1.6.3 the UE shall immediately acquire the MBMS GENERAL INFORMATION messages i.e. it shall not delay reception of these messages until it has completed the acquisition of the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages. Likewise for cells operating in MBSFN mode as indicated in subclause 8.1.1.6.3, the UE should immediately acquire the MBMS CURRENT CELL P-T-M RB INFORMATION.

The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information e.g. both the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION message should be acquired in the same modification period.

…

When requested to acquire MBMS control information other than the MBMS ACCESS INFORMATION message , the UE shall:

1> if requested to start reading MCCH at the next modification period:

2> start reading MCCH at the beginning of the next modification period.

1> otherwise

2> start reading MCCH at the beginning of the next repetition period.

1> if requested to stop reading MCCH at the end of the modification period:

2> continue reading MCCH until the required MBMS control information is received or until the UE detects a TTI in which no MCCH information is transmitted, whichever is first;

2> continue reading MCCH in this manner at every subsequent repetition period, until the information is received correctly or until the end of the modification period.

1> otherwise:

2> continue reading MCCH until the required MBMS control information is received or until the UE detects a TTI in which no MCCH information is transmitted, whichever is first;

2> continue reading MCCH in this manner at every subsequent repetition period, until the information is received correctly.

NOTE 1: The UE may combine information received at different repetition periods within a modification period.

…

If the IE "MBMS required UE action" is included and concerns an MBMS activated service the UE shall:

…

1> if the IE "MBMS required UE action" is set to 'Acquire PTM RB info'; or

1> if the IE "MBMS required UE action" is set to 'Acquire counting info– PTM RBs unmodified' and the UE is not receiving a p-t-m RB for the concerned service:

2> continue acquiring the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3

2> act upon the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION message, if received, in accordance with subclause 8.7.5;

…

Upon completing the reception of the MBMS COMMON P-T-M RB INFORMATION and the MBMS CURRENT CELL P-T-M RB INFORMATION messages for an activated MBMS service, the UE shall:

1> if the UE is already receiving an MTCH and does not have the capability to receive the new service in addition:

2> the UE behaviour is undefined.

NOTE: In this case, the UE may request upper layers to prioritise the services and only receive the service(s) prioritised by upper layers.

1> act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following;

1> if the UE previously received the service by means of a p-t-m radio bearer from a cell belonging to another MBMS cell group:

2> re-establish RLC;

2> re-initialise PDCP.

1> start immediately to use the indicated configuration unless specified otherwise;

1> start or continue receiving the indicated p-t-m radio bearers depending on its UE capabilities.

The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information i.e. the MBMS MODIFIED SERVICES INFORMATION message, MBMS UNMODIFIED SERVICES INFORMATION message, MBMS COMMON P-T-M RB INFORMATION and the MBMS CURRENT CELL P-T-M RB INFORMATION message should be acquired in the same modification period.

…

The UE shall:

1> if the IE "Secondary CCPCH system information MBMS" is included:

2> apply the Secondary CCPCH and FACH indicated by the IE "FACH carrying MCCH" for receiving MCCH.

1> otherwise, if the IE "Secondary CCPCH system information" includes the IE "MCCH configuration information":

2> apply the Secondary CCPCH and FACH indicated by the IE “MCCH configuration information” for receiving MCCH.

1> for TDD, if the IE "TDD MBSFN Information" is included:

2> apply the scrambling codes (as referenced by the "Cell parameters ID") to each timeslot indicated by "TDD MBSFN Information".

…

The UE shall select the Secondary CCPCH for acquiring MCCH information according to the following rules:

1> if System Information Block type 5 or System Information Block type 5bis is defined and includes an S-CCPCH within the IE "Secondary CCPCH system information" including a FACH for which the IE "MCCH configuration information" is included:

2> select that S-CCPCH and FACH for receiving MCCH.

1> otherwise if System Information Block type 5 or System Information Block type 5bis is defined and includes an SCCPCH within the IE "Secondary CCPCH system information MBMS" for which the IE "FACH carrying MCCH" is included:

2> select that S-CCPCH and FACH for receiving MCCH.

Reference

3GPP TS 25.331 clauses 8.7.2.1, 8.7.2.2, 8.7.2.3, 8.7.1.3, 8.6.9.6, 8.7.5.3, 8.1.1.6.5, 8.5.19a.

8.5.1.14.3 Test purpose

1. To verify that the UE acquires the MBMS information on MCCH after selecting the MBSFN cluster.
2. To verify that the UE, after acquiring the MBMS information on MCCH, starts the p-t-m reception of MBMS services according to the information on MCCH.

8.5.1.14.4 Method of test

Initial condition

System Simulator:

- MBSFN carrier: 2 cells, Cell 31 (PLMN1) and Cell 33 (PLMN1). Cell 33 is powered off. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 and Default1 MCCH scheduling (No ongoing session) according to subclause 11.2 of TS 34.108.

- Unicast carrier : 1 cell, Cell 1 with default parameters.

User Equipment:

- On the unicast carrier cell the UE is in registered Idle Mode on PS (state 3) if the UE only supports PS domain or registered Idle Mode on CS/PS (state 7) if the UE supports both CS and PS domains, as specified in clause 7.2.2 of TS 34.108.

- The UE is in MBSFN Idle mode with no services activated as specified in clause 7.6.3 of TS 34.108.

Related ICS/IXIT statements

- MBMS Broadcast services in MBSFN mode application available on UE Yes/No.

- Support of transmit and receive functions available on UE Yes/No.

- Support of MBSFN receive only function available on UE Yes/No.

Test procedure

Table 8.5.1.14

Parameter	Unit	Cell 1		Cell 31		Cell 33	
		T0	T1	T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 2		Ch. 3	
CPICH Ec (FDD)	dBm / 3.84MHz	-60	-60	-60	OFF	OFF	-60
P-CCPCH RSCP (TDD)	dBM	-60	-60	-60	OFF	OFF	-60

Table 8.5.1.14 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution.

a) The UE is camping on Cell 1 and Cell 31. SS requests the UE to activate a local service for which there will be a session ongoing on MBSFN Cell 33 (see TS 34.108 clause 11.2.4) when the UE selects that MBSFN cell.

b) The SS sends ACTIVATE RB TEST MODE on the unicast carrier and the UE responds with ACTIVATE RB TEST MODE COMPLETE.

c) The SS then sends CLOSE UE TEST LOOP to activate RLC SDU counting on the MTCH of Cell 33 (Transmission identity corresponding to the activated local service).

d) The SS switches off Cell 31 and powers on Cell 33.

e) The UE camps on Cell 33 on the MBSFN carrier. The SS transmits the SYSTEM INFORMATION BLOCK TYPE 5 message indicating the configuration of the S-CCPCH carrying MCCH within the IE " Secondary CCPCH system information MBMS". In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 33 using MBMS configuration C2 (one PTM session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108. The service is carried on a 129.6kbps RB for MTCH with 80 ms TTI as specified in clause 6.10.3.4.4.6(FDD) or a 124 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.9 (3.84 Mcps TDD) or clause 6.11.6.4.4.9 (7.68 Mcps TDD) or clause 6.11.5.4.4.9 (1.28 Mcps TDD).

f) The UE shall perform the MCCH acquisition procedure. The UE shall detect the available MBMS services by acquiring the MBMS MODIFIED SERVICES INFORMATION, the MBMS UNMODIFIED SERVICES INFORMATION, the MBMS GENERAL INFORMATION, the MBMS COMMON P-T-M RB INFORMATION and the MBMS CURRENT CELL P-T-M INFORMATION.

g) The UE shall continue acquiring the above MBMS messages until it has received a consistent set of MCCH information in the same modification period. The UE shall start receiving the p-t-m radio bearer for the ongoing activated MBMS service indicated in the MBMS UNMODIFIED SERVICES INFORMATION message according to the configuration defined in the MBMS CURRENT CELL P-T-M INFORMATION (one ongoing session corresponding to the service activated at the UE. The UE closes the test loop and starts counting successfully received RLC PDUs on the MTCH. The UE will send CLOSE UE TEST LOOP COMPLETE.

h) The SS broadcasts 10 RLC SDUs on the MTCH configured on the MBMS p-t-m radio bearer for the activated service.

i) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST and waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is > 0.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1					SS requests the UE to activate a local service.
2	←		U	ACTIVATE RB TEST MODE	
3	→		U	ACTIVATE RB TEST MODE COMPLETE	
4	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated. Short Transmission Identity for the selected local service on Cell 33.
5	SS				The SS powers off Cell 31 and powers on Cell 33.
6	←		M	SYSTEM INFORMATION BLOCK TYPE 5	
7	←		M	MBMS MCCH Message Configuration C2	No modified services. One ongoing service corresponding to that activated at the UE 129.6(FDD) or 124(TDD) kbps PS RAB
8	UE		M		The UE shall continue acquiring the above MBMS messages until it has received a consistent set of MCCH information in the same modification period.
9	→		U	CLOSE UE TEST LOOP COMPLETE	The UE shall establish the indicated p-t-m radio bearer and close the test loop.
10	SS		M		The SS transmits 10 RLC SDUs on the MTCH.
11	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
12	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is greater than zero.
13	←		U	OPEN UE TEST LOOP	
14	→		U	OPEN UE TEST LOOP COMPLETE	
15	←		U	DEACTIVATE RB TEST MODE	
16	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific message contents

All messages have the same content as defined in 34.108 clause 9.1 with the following exceptions:

There are no exceptions for this test case.

8.5.1.14.5 Test requirements

1) After step 12, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number > 0 for Cell 33 MTCH.

8.5.1.15 MBMS PTM Session Start at MCCH Notification / MBSFN mode

8.5.1.15.1 Definition

This test is applicable for UEs that support MBMS broadcast services in MBSFN mode and which support either both transmit and receive functions or MBSFN receive only function.

8.5.1.15.2 Conformance requirement

The UE applies the MCCH acquisition procedure to determine the MBMS services available in the cell and to initiate reception of the services that the UE has activated. The procedure applies to all UEs supporting MBMS, irrespective of their state (idle, URA_PCH, CELL_PCH, CELL_FACH and CELL_DCH).

For 1.28 Mcps TDD, if the cell is operating in MBSFN mode, the MCCH will be deployed on the MBSFN Special Timeslot [30].

…

The UE shall detect the available MBMS services by acquiring the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3.

...

For cells operating in MBSFN mode as indicated in subclause 8.1.1.6.3 the UE shall immediately acquire the MBMS GENERAL INFORMATION messages i.e. it shall not delay reception of these messages until it has completed the acquisition of the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages. Likewise for cells operating in MBSFN mode as indicated in subclause 8.1.1.6.3, the UE should immediately acquire the MBMS CURRENT CELL P-T-M RB INFORMATION.

The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information e.g. both the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION message should be acquired in the same modification period.

…

When requested to acquire MBMS control information other than the MBMS ACCESS INFORMATION message , the UE shall:

1> if requested to start reading MCCH at the next modification period:

2> start reading MCCH at the beginning of the next modification period.

1> otherwise

2> start reading MCCH at the beginning of the next repetition period.

1> if requested to stop reading MCCH at the end of the modification period:

2> continue reading MCCH until the required MBMS control information is received or until the UE detects a TTI in which no MCCH information is transmitted, whichever is first;

2> continue reading MCCH in this manner at every subsequent repetition period, until the information is received correctly or until the end of the modification period.

1> otherwise:

2> continue reading MCCH until the required MBMS control information is received or until the UE detects a TTI in which no MCCH information is transmitted, whichever is first;

2> continue reading MCCH in this manner at every subsequent repetition period, until the information is received correctly.

NOTE 1: The UE may combine information received at different repetition periods within a modification period.

…

The MBMS notification procedure is used by the UE to respond to a notification provided by UTRAN, indicating a change applicable for one or more MBMS services the UE has activated. The procedure applies to all UEs supporting MBMS, irrespective of their state (idle and connected mode: URA_PCH, CELL_PCH, CELL_FACH and CELL_DCH). The actual notification mechanism to be used depends on the UE state.

…

The UE may:

1> monitor the MBMS notification Indicator Channel (MICH);

1> if a notification on the MICH for one or more of the MBMS services included in the variable MBMS_ACTIVATED_SERVICES is detected:

2> acquire the MBMS MODIFIED SERVICES INFORMATION message with delaying the reading of MCCH until the next modification period and with stopping at the end of the modification period, in accordance with subclause 8.7.1.3;

2> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4.

The UE shall:

1> if in idle mode, URA_PCH, CELL_PCH or CELL_FACH state:

2> if not monitoring MICH during the current or the previous modification period:

3> acquire the MBMS MODIFIED SERVICES INFORMATION message from MCCH at the start of every modification period, in accordance with subclause 8.7.1.3;

3> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4.

…

If the IE "MBMS required UE action" is included and concerns an MBMS activated service the UE shall:

…

1> if the IE "MBMS required UE action" is set to 'Acquire PTM RB info'; or

1> if the IE "MBMS required UE action" is set to 'Acquire counting info– PTM RBs unmodified' and the UE is not receiving a p-t-m RB for the concerned service:

2> continue acquiring the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3

2> act upon the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION message, if received, in accordance with subclause 8.7.5;

…

Upon completing the reception of the MBMS COMMON P-T-M RB INFORMATION and the MBMS CURRENT CELL P-T-M RB INFORMATION messages for an activated MBMS service, the UE shall:

1> if the UE is already receiving an MTCH and does not have the capability to receive the new service in addition:

2> the UE behaviour is undefined.

NOTE: In this case, the UE may request upper layers to prioritise the services and only receive the service(s) prioritised by upper layers.

1> act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following;

1> if the UE previously received the service by means of a p-t-m radio bearer from a cell belonging to another MBMS cell group:

2> re-establish RLC;

2> re-initialise PDCP.

1> start immediately to use the indicated configuration unless specified otherwise;

1> start or continue receiving the indicated p-t-m radio bearers depending on its UE capabilities.

The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information i.e. the MBMS MODIFIED SERVICES INFORMATION message, MBMS UNMODIFIED SERVICES INFORMATION message, MBMS COMMON P-T-M RB INFORMATION and the MBMS CURRENT CELL P-T-M RB INFORMATION message should be acquired in the same modification period.

…

The UE shall:

1> if the IE "Secondary CCPCH system information MBMS" is included:

2> apply the Secondary CCPCH and FACH indicated by the IE "FACH carrying MCCH" for receiving MCCH.

1> otherwise, if the IE "Secondary CCPCH system information" includes the IE "MCCH configuration information":

2> apply the Secondary CCPCH and FACH indicated by the IE “MCCH configuration information” for receiving MCCH.

1> for TDD, if the IE "TDD MBSFN Information" is included:

2> apply the scrambling codes (as referenced by the "Cell parameters ID") to each timeslot indicated by "TDD MBSFN Information".

Reference

3GPP TS 25.331 clauses 8.7.2.1, 8.7.2.3, 8.7.1.3, 8.7.3.1, 8.7.3.3.1, 8.6.9.6, 8.7.5.3, 8.1.1.6.5

8.5.1.15.3 Test purpose

1. To verify that the UE receives updated MBMS information on MCCH of the MBSFN cluster.
2. To verify that the UE correctly handles the notification procedure after receiving the MBMS MODIFIED SERVICES INFORMATION message via MCCH if there is no ongoing MBMS p-t-m session (MICH supported/not supported by the UE).
3. To verify that the UE starts the reception of MBMS services according to notification via MICH/MCCH.

8.5.1.15.4 Method of test

Initial condition

System Simulator:

- MBSFN carrier: 1 cell, Cell 31 (PLMN1). In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 and Default1 MCCH scheduling (No ongoing session) according to subclause 11.2 of TS 34.108.
- Unicast carrier : 1 cell, Cell 1 with default parameters.

User Equipment:

- On the unicast carrier cell the UE is in registered Idle Mode on PS (state 3) if the UE only supports PS domain or registered Idle Mode on CS/PS (state 7) if the UE supports both CS and PS domains, as specified in clause 7.2.2 of TS 34.108.
- The UE is in MBSFN Idle mode with one activated service as specified in clause 7.6.4 of TS 34.108. The UE has selected (i.e. it is included in MBMS_ACTIVATED_SERVICES variable) a national service for which a session will start on MBSFN Cell 31 (see TS 34.108 clause 11.2.4) during the test.

Related ICS/IXIT statements

- MBMS Broadcast services in MBSFN mode application available on UE Yes/No.
- Support of transmit and receive functions available on UE Yes/No.
- Support of MBSFN receive only function available on UE Yes/No.

Test procedure

a) The UE is camping on Cell 1 and Cell 31. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 (no session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

b) The SS sends ACTIVATE RB TEST MODE on the unicast carrier and the UE responds with ACTIVATE RB TEST MODE COMPLETE.

c) The SS sends CLOSE UE TEST LOOP to activate RLC SDU counting on Cell 31 MTCH (Transmission identity indicating the MBMS activated service).

d) The SS notifies on MCCH about the start of an MBMS session for one modification period. MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C4 (one PTM session starting) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

e) From the first SFN of the next modification period the SS transmits MCCH messages on Cell 31 using MBMS configuration C2 (one PTM session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108; and the SS broadcasts 10 RLC SDUs on the MTCH configured on the MBMS p-t-m radio bearer for the activated service. The service is carried on a 129.6kbps RB for MTCH with 80 ms TTI as specified in clause 6.10.3.4.4.6(FDD) or a 124 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.9 (3.84 Mcps TDD) or clause 6.11.6.4.4.9 (7.68 Mcps TDD) or clause 6.11.5.4.4.9 (1.28 Mcps TDD).

f) The UE establishes the p-t-m radio bearer for the activated service according to the specified service activation time (i.e. the first SFN of the modification period following the notification (step d). The UE closes the test loop and starts counting successfully received RLC PDUs on the MTCH. The UE will send CLOSE UE TEST LOOP COMPLETE.

g) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST and waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is > 0.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1	←		U	ACTIVATE RB TEST MODE	
2	→		U	ACTIVATE RB TEST MODE COMPLETE	
3	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated on Cell 31 for the selected national service on MTCH.
4	←		M	MBMS MCCH Message Configuration C4	Includes the national service activated at UE in the modified services list for one modification period. Activation time is the start of the next modification period.
5	←		M	MBMS MCCH Message Configuration C2	No modified services. One ongoing service corresponding to that activated at the UE 129.6(FDD) or 124(TDD) kbps PS RAB
6	→		U	CLOSE UE TEST LOOP COMPLETE	The UE shall establish the indicated p-t-m radio bearer and close the test loop.
7	SS		M		The SS transmits 10 RLC SDUs on the MTCH starting at the indicated activation time.
8	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
9	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is greater than zero.
10	←		U	OPEN UE TEST LOOP	
11	→		U	OPEN UE TEST LOOP COMPLETE	
12	←		U	DEACTIVATE RB TEST MODE	
13	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific message contents

All messages have the same content as defined in 34.108 clause 9.1 with the following exceptions:

There are no exceptions for this test case.

8.5.1.15.5 Test requirements

1) After step 9, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number > 0 for the identified MTCH RB on Cell 33.

8.5.2 MBMS Session Reconfiguration

8.5.2.1 MBMS PTP Session Reconfiguration – Change of Activated Service / MBMS Selected Service

8.5.2.1.1 Definition

This test is applicable for all UEs that support MBMS broadcast services and MBMS service change for a ptp RB and capable of reading MCCH in CELL_DCH state.

8.5.2.1.2 Conformance requirement

If the UE has included the IE "Support of MBMS service change for a ptp RB" in a previous MBMS MODIFICATION REQUEST message and if the IE "RAB information for MBMS ptp bearer" is included then the UE shall:

1> if an entry for the radio access bearer identified by the IE "RB Identity" already exists in the variable ESTABLISHED_RABS and a value of the IE "MBMS Service Identity" is stored in this entry of the variable ESTABLISHED_RABS:

2> notify upper layers that the radio access bearer characterised by the parameters currently stored in this entry of the variable ESTABLISHED_RABS is released;

2> reuse this entry of the variable ESTABLISHED_RABS and update it with the received value of IE "MBMS Service Identity" and, if included, with the received value of IE "MBMS Session Identity";

2> notify upper layers that the radio access bearer characterised by the updated parameters in this entry is established.

1> else:

2> set the variable INVALID_CONFIGURATION to TRUE.

…

The UE may:

1> if not receiving an MBMS service provided via a p-t-m radio bearer; or

1> if receiving an MBMS service provided via a p-t-m radio bearer that has scheduling information for that service on MSCH:

2> monitor the MBMS notification Indicator Channel (MICH).

2> if a notification on the MICH for one or more of the MBMS services included in the variable MBMS_ACTIVATED_SERVICES is detected:

3> acquire the MBMS MODIFIED SERVICES INFORMATION message with delaying the reading of MCCH until the next modification period and with stopping at the end of the modification period, in accordance with subclause 8.7.1.3;

3> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4.

…

The UE shall:

…

1> if in CELL_DCH state:

2> if receiving an MBMS service that is provided via a p-t-m radio bearer:

3> acquire the MBMS MODIFIED SERVICES INFORMATION message from MCCH at the start of every modification period, in accordance with subclause 8.7.1.3;

3> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4.

…

If the IE "MBMS required UE action" is included and concerns an MBMS activated service the UE shall:

1> if the IE "MBMS required UE action" is set to 'Acquire PTM RB info'; or

1> if the IE "MBMS required UE action" is set to 'Acquire counting info– PTM RBs unmodified' and the UE is not receiving a p-t-m RB for the concerned service:

2> continue acquiring the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3;

2> act upon the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION message, if received, in accordance with subclause 8.7.5

…

The UE shall set the contents of the MBMS MODIFICATION REQUEST message as follows:

…

1> if there is a change in selection of one or more of the MBMS Selected Services:

2> if the UE has not selected any MBMS Selected Service:

3> include the IE "MBMS Selected Service Info" and set the Status to 'None'.

2> otherwise:

3> include the IE "MBMS Selected Service Info" and set the Status to 'Some';

3> if the UE supports the actions specified upon reception of the IE "RAB information for MBMS ptp bearer":

4> include the IE "Support of MBMS service change for a ptp RB";

3> for each MBMS Selected Service:

4> order the MBMS Selected Services such that those selected with a higher priority are listed in the IE "MBMS Selected Services Full" before those selected with a lower priority;

4> include the IE "MBMS Selected Service ID" within the IE "MBMS Selected Services Full".

Reference

3GPP TS 25.331 clauses 8.6.4.2b, 8.7.3.3.1, 8.6.9.6, 8.7.6.2a.

8.5.2.1.3 Test purpose

To verify that the UE in Cell_DCH, stops the reception of an MBMS service and starts the reception of a new MBMS service.

8.5.2.1.4 Method of test

Initial condition

System Simulator:

2 MBMS cells, Cell 21 and Cell 24

User Equipment:

The UE is in Idle Mode as specified in clause 7.6 of TS 34.108.

The UE has selected the broadcast service to be provided by the SS (MBMS Selected Services: Service_1 included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Broadcast service application available on UE Yes/No
- UE supports MCCH reception in CELL_DCH state Yes/No
- UE Supports MBMS service change for a ptp RB Yes/No

Test procedure

1) The UE camping on cell 21, receives an MBMS UNMODIFIED SERVICES INFORMATION message including the IE “MBMS required UE action” set to “Request PTP RB”.

2) The UE shall request a p-t-p RB establishment. The UE transmits a RRC CONNECTION REQUEST message including the IE “MBMS Selected Service ID” of the concerned MBMS selected services within the IE “MBMS Selected Services Short” and the IE “MBMS Modification Period identity”.

3) Upon reception of the RADIO BEARER SETUP message, the UE shall establish this radio bearer. Then the UE transmits a RADIO BEARER SETUP COMPLETE message and starts receiving the MBMS service provided by the p-t-p RB. The variable ESTABLISHED_RABS contains the RB Identity and the MBMS Service Identity of MBMS Selected Service Service_1.

4) The UE selects the MBMS Service_2 and indicates there is a change in selection of the MBMS Selected Services by transmitting an MBMS MODIFICATION REQUEST message including the IE “Support of MBMS service change for a ptp RB” to indicate it supports the actions upon reception of IE “RAB information for MBMS ptp bearer”.

5) The SS transmits a RADIO BEARER RECONFIGURATION including IE "RAB information for MBMS ptp bearer list " with RAB information for MBMS Selected Service Service_2:

   - The radio access bearer for MBMS Service_1 is released, the UE stops the reception of MBMS Service_1.

   - The ESTABLISHED_RABS is updated with the parameters for MBMS Selected Service Service_2. The radio access bearer for MBMS Selected Service Service_2 is established.

6) The UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on Cell 24.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				Service_1 is available in Cell 21
1	←		MBMS MODIFIED SERVICES INFORMATION	
2	←		MBMS GENERAL INFORMATION	
3	←		MBMS UNMODIFIED SERVICES INFORMATION	"MBMS required UE action" set to Request PTP RB.
4	→		RRC CONNECTION REQUEST	The UE transmits the message with Establishment cause set to “MBMS ptp RB request” and with the “MBMS Selected Services Short” IE referring to the concerned MBMS Selected service and the corresponding Modification period identity.
5	←		RRC CONNECTION SETUP	RRC state indicator set to Cell_FACH
6	→		RRC CONNECTION SETUP COMPLETE	
6a	→		MBMS MODIFICATION REQUEST	The UE completing the RRC Connection Setup procedure shall initiate the MBMS MODIFICATION REQUEST procedure. This message may be received at any point after step 6 and before step 12.
7	UE			UE transmits SERVICE REQUEST, with IE "Service type" set to "MBMS Broadcast service Reception”.
8	←		SECURITY MODE COMMAND	
9	→		SECURITY MODE COMPLETE	
10	←		RADIO BEARER SETUP	
11	→		RADIO BEARER SETUP COMPLETE	
12	UE			The UE is receiving the MBMS service provided by the p-t-p RB. RB Identity and MBMS Service Identity of MBMS Service_1 stored in ESTABLISHED_RABS

13	UE		The UE selects the MBMS Service_2 and de-selects MBMS Service_1 (via MMI command)
14	→	MBMS MODIFICATION REQUEST	The UE transmits the message with IE “Support of MBMS service change for a ptp RB” set to TRUE.
15	←	RADIO BEARER RECONFIGURATION	IE "RAB information for MBMS ptp bearer list" with RAB information for MBMS Selected Service_2.
16	UE		-RAB for MBMS Selected Service_1 is released. The UE stops receiving the MBMS service 1. -ESTABLISHED_RABS is updated with RB Identity and MBMS Service Identity of MBMS Service_2. -RAB for MBMS Selected Service_2 is established. The UE shall move to the Cell 24 where Service_2 is available
17	→	RADIO BEARER RECONFIGURATION COMPLETE	
18	UE		The UE is receiving the MBMS Selected Service_2 provided by the p-t-p RB.
19	←→	CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific message contents

All messages have the same content as defined in 34.108 clause 9.1.1 with the following exceptions:

MBMS UNMODIFIED SERVICES INFORMATION (Step 3)

Information Element	Value/remark
Unmodified services list	Only 1 entry
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
MBMS required UE action	Request PTP RB

RRC CONNECTION REQUEST (Step 4)

Information Element	Value/remark
Message type	
Initial UE identity	Same as the registered TMSI or P-TMSI
Establishment Cause	MBMS ptp RB request
Domain indicator	PS domain
MBMS Selected Services	
- MBMS Selected Services	Only 1 entry
- MBMS Selected Service ID	MBMS short transmission identity referring to the service the UE has selected
- Modification period identity	Indicates the modification period the MBMS short transmission identities refer to

RRC CONNECTION SETUP (Step 5)

Information Element	Value/remark
Message type	
Initial UE identity	Set to same value as received in Step 4
RRC State Indicator	Cell_FACH

MBMS MODIFICATION REQUEST (Step 6a)

Information Element	Value/remark
MBMS preferred frequency request	Check that the IE is not present
MBMS RB list requested to be released	Check that the IE is not present
MBMS Selected Service Info	
- CHOICE Status	Some
- MBMS Selected Services Full	
- MBMS Selected Service ID	Only 1 entry
- MBMS Service ID	MBMS service ID of the activated MBMS service
- CHOICE PLMN identity	Check to see that one of the below choice element is present
- SameAs-MIB	(no data)
- explicitPLMN_Id	Check to see if it is set to the same value as "PLMN ID" in the Master Information block transmitted for the current serving cell.

RADIO BEARER SETUP (Step 10)

Use the same message as the one specified for "MBMS PtP" in TS 34.108 clause 9, with the condition B2.

MBMS MODIFICATION REQUEST (Step 14)

Information Element	Value/remark
Message Type	
MBMS Selected Service Info	
MBMS RB list requested to be released	
- RB information to release	
- RB identity	RB identity for MBMS service1 provided via ptp RB
MBMS Selected Service Info	
- MBMS Selected Service ID	Only 1entry
- MBMS Service ID	MBMS short transmission identity referring to the service the UE has selected Service_2
Support of MBMS service change for a ptp RB	TRUE

RADIO BEARER RECONFIGURATION (Step 15)

Information Element	Value/remark
RB information elements	
- RAB information for MBMS ptp bearer list	Only 1 entry
- RAB information for MBMS ptp bearer	
- RB Identity	RBid_1
- MBMS Service Identity	Coded as octets 3 to 5 of the IE *Temporary Mobile Group Identity* for Service_2
- MBMS Session Identity	Session_id_2

8.5.2.1.5 Test requirements

At step 4, the UE shall transmit a RRC CONNECTION REQUEST message with Establishment cause set to “MBMS reception” and with the IE “MBMS Selected Service ID” within the IE “MBMS Selected Services Short” and the IE “MBMS Modification Period identity”.

After step 6, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

At step 13, the UE shall request MBMS P-T-P Modification Request.

After step 15, upon reception of a RADIO BEARER RECONFIGURATION message, the radio access bearer for ptp transmission of MBMS Selected Service Service_1 is released and the radio access bearer used for ptp transmission of MBMS Selected Service Service_2 is established. The UE stops receiving the MBMS Selected Service Service_1 and moves to cell 24.

At step 17, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

8.5.2.1m MBMS PTM Session Reconfiguration - Change of Activated Service / MBSFN mode (FDD)

8.5.2.1m.1 Definition

This test is applicable for UEs that support MBMS broadcast services in MBSFN mode and which support either both transmit and receive functions or MBSFN receive only function.

8.5.2.1m.2 Conformance requirement

The UE applies the MCCH acquisition procedure to determine the MBMS services available in the cell and to initiate reception of the services that the UE has activated. The procedure applies to all UEs supporting MBMS, irrespective of their state (idle, URA_PCH, CELL_PCH, CELL_FACH and CELL_DCH).

If the variable MBMS_ACTIVATED_SERVICES is not empty, the UE shall apply the MCCH acquisition procedure upon selecting (e.g. upon power on) or re- selecting a cell supporting MBMS or an MBSFN cluster, upon change of MBMS controlling cell (e.g. due to an active set update or hard handover), upon entering UTRA from another RAT, upon release of a MBMS PTP RB for the purpose of changing transfer mode, upon return from loss of coverage and upon receiving an indication from upper layers that the set of activated services has changed.

…

The UE shall detect the available MBMS services by acquiring the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3.

...

For cells operating in MBSFN mode as indicated in subclause 8.1.1.6.3 the UE shall immediately acquire the MBMS GENERAL INFORMATION messages i.e. It shall not delay reception of these messages until it has completed the acquisition of the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages. Likewise for cells operating in MBSFN mode as indicated in subclause 8.1.1.6.3, the UE should immediately acquire the MBMS CURRENT CELL P-T-M RB INFORMATION.

The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information e.g. Both the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION message should be acquired in the same modification period.

…

When requested to acquire MBMS control information other than the MBMS ACCESS INFORMATION message, the UE shall:

1> if requested to start reading MCCH at the next modification period:

2> start reading MCCH at the beginning of the next modification period.

1> otherwise

2> start reading MCCH at the beginning of the next repetition period.

1> if requested to stop reading MCCH at the end of the modification period:

2> continue reading MCCH until the required MBMS control information is received or until the UE detects a TTI in which no MCCH information is transmitted, whichever is first;

2> continue reading MCCH in this manner at every subsequent repetition period, until the information is received correctly or until the end of the modification period.

1> otherwise:

2> continue reading MCCH until the required MBMS control information is received or until the UE detects a TTI in which no MCCH information is transmitted, whichever is first;

2> continue reading MCCH in this manner at every subsequent repetition period, until the information is received correctly.

NOTE 1: The UE may combine information received at different repetition periods within a modification period.

…

If the IE "MBMS required UE action" is included and concerns an MBMS activated service the UE shall:

…

1> if the IE "MBMS required UE action" is set to 'Acquire PTM RB info'; or

1> if the IE "MBMS required UE action" is set to 'Acquire counting info– PTM RBs unmodified' and the UE is not receiving a p-t-m RB for the concerned service:

2> continue acquiring the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3

2> act upon the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION message, if received, in accordance with subclause 8.7.5;

…

Upon completing the reception of the MBMS COMMON P-T-M RB INFORMATION and the MBMS CURRENT CELL P-T-M RB INFORMATION messages for an activated MBMS service, the UE shall:

1> if the UE is already receiving an MTCH and does not have the capability to receive the new service in addition:

2> the UE behaviour is undefined.

NOTE: In this case, the UE may request upper layers to prioritise the services and only receive the service(s) prioritised by upper layers.

1> act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following;

1> if the UE previously received the service by means of a p-t-m radio bearer from a cell belonging to another MBMS cell group:

2> re-establish RLC;

2> re-initialise PDCP.

1> start immediately to use the indicated configuration unless specified otherwise;

1> start or continue receiving the indicated p-t-m radio bearers depending on its UE capabilities.

The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information i.e. the MBMS MODIFIED SERVICES INFORMATION message, MBMS UNMODIFIED SERVICES INFORMATION message, MBMS COMMON P-T-M RB INFORMATION and the MBMS CURRENT CELL P-T-M RB INFORMATION message should be acquired in the same modification period.

…

The UE shall:

1> if the IE "Secondary CCPCH system information MBMS" is included:

2> apply the Secondary CCPCH and FACH indicated by the IE "FACH carrying MCCH" for receiving MCCH.

1> otherwise, if the IE "Secondary CCPCH system information" includes the IE "MCCH configuration information":

2> apply the Secondary CCPCH and FACH indicated by the IE “MCCH configuration information” for receiving MCCH.

1> for TDD, if the IE "TDD MBSFN Information" is included:

2> apply the scrambling codes (as referenced by the "Cell parameters ID") to each timeslot indicated by "TDD MBSFN Information".

…

The UE shall select the Secondary CCPCH for acquiring MCCH information according to the following rules:

1> if System Information Block type 5 or System Information Block type 5bis is defined and includes an S-CCPCH within the IE "Secondary CCPCH system information" including a FACH for which the IE "MCCH configuration information" is included:

2> select that S-CCPCH and FACH for receiving MCCH.

1> otherwise if System Information Block type 5 or System Information Block type 5bis is defined and includes an SCCPCH within the IE "Secondary CCPCH system information MBMS" for which the IE "FACH carrying MCCH" is included:

2> select that S-CCPCH and FACH for receiving MCCH.

Reference

3GPP TS 25.331 clauses 8.7.2.1, 8.7.2.2, 8.7.2.3, 8.7.1.3, 8.6.9.6, 8.7.5.3, 8.1.1.6.5, 8.5.19a.

8.5.2.1m.3 Test purpose

To verify that on indication from upper layers that there has been a change to the activated service the UE stops the reception of the currently received MBMS service.

To verify that the UE starts the reception of the new MBMS service now available on the same MBSFN cluster.

8.5.2.1m.4 Method of test

Initial condition

System Simulator:

- MBSFN carrier: 1 cell, Cell 31.

User Equipment:

- On the unicast carrier cell the UE is in registered Idle Mode on PS (state 3) if the UE only supports PS domain or registered Idle Mode on CS/PS (state 7) if the UE supports both CS and PS domains, as specified in clause 7.2.2 of TS 34.108.
- The UE is in MBSFN Idle mode with no services activated as specified in clause 7.6.3 of TS 34.108.

Related ICS/IXIT statements

- MBMS Broadcast services in MBSFN mode application available on UE Yes/No.
- Support of transmit and receive functions available on UE Yes/No.
- Support of MBSFN receive only function available on UE Yes/No.

Test procedure

a) The UE is camping on cell 31, receives an MBMS UNMODIFIED SERVICES INFORMATION message including the IE “MBMS required UE action” set to “Acquire PTM RB”.

b) The UE start reception of the MBMS data on MTCH.

c) A new session is setting up by up layer. The SS then notifies on the MCCH the change in services. The SS transmits an MBMS MODIFIED SERVICES INFORMATION including new IE "Service Identity " and "required UE action" Selected Service Service_2

d) The UE selects the MBMS Service_2.:

- The UE stops the reception of MBMS Service_1.

- The ESTABLISHED_RABS is updated with the parameters for MBMS Selected Service Service_2. The UE establish to receive MBMS Service_2

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
				Service_1 is available in Cell 31
1	←		MBMS MODIFIED SERVICES INFORMATION	
2	←		MBMS COMMON P-T-M RB INFORMATION	
3	←		MBMS UNMODIFIED SERVICES INFORMATION	"MBMS required UE action" set to 'Acquire PTM RB'.
4	UE			The UE establish to receive Service_1
5	←		MBMS MODIFIED SERVICES INFORMATION	When a new session is set up the SS notifies on the MCCH the change in the MBMS service at another modification period.
6	←		MBMS COMMON P-T-M RB INFORMATION	
7	←		MBMS UNMODIFIED SERVICES INFORMATION	Service_2 is available in Cell 31
8	UE			The UE selects the MBMS Service_2
9	UE			The UE stop to receive Service_1
10	UE			The UE establish to receive Service_2
11	←		CLOSE UE TEST LOOP	
12	→		CLOSE UE TEST LOOP COMPLETE	Loop back mode 3 on MTCH is activated.
13				The SS broadcasts MBMS data 10 RLC SDUs of on MTCH on the concerned MBMS radio bearer.
14	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	The SS checks that the UE has received MBMS data.
15	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	
16	←		OPEN UE TEST LOOP	
17	→		OPEN UE TEST LOOP COMPLETE	

Specific message contents

All messages have the same content as defined in 34.108 clause 9.1 with the following exceptions:

MBMS UNMODIFIED SERVICES INFORMATION (Step 3)

Information Element	Value/remark
Unmodified services list - MBMS Transmission identity MBMS required UE action	Only 1 entry MBMS Transmission identity indicating MBMS activated service Acquire PTM RB

MBMS UNMODIFIED SERVICES INFORMATION (Step 5)

Information Element	Value/remark
- MBMS Service ID MBMS required UE action	2 MBMS Service ID Acquire PTM RB

8.5.2.1m.5 Test requirements

At step 4, the UE shall establish receive Service_1.

After step 5, a new session is set up by up layer

At step 10, the UE stops receive Service_1 and establish to receive Service_2

Step	Direction		Message	Comment
	UE	SS		
1	←		MBMS MODIFIED SERVICES INFORMATION	MBMS session start. The SS also sets the Notification Indicator on MICH. The SS waits for the UE to establish the MTCH. SS: MCCH message combination C4 for 1 modification period, then combination C2
2	←		MBMS COMMON P-T-M RB INFORMATION	UE begins reception of the MBMS service using the 256kbps radio bearer configuration as specified in TS 34.108 clause 6.10.2.4.3.7(FDD) or clause 6.11.5.4.4.7 (1.28 Mcps TDD).
3	←		CLOSE UE TEST LOOP	
4	→		CLOSE UE TEST LOOP COMPLETE	Loop back mode 3 on MTCH is activated.
5	SS			The SS broadcasts 10 RLC SDUs of MBMS data on MTCH on the concerned MBMS radio bearer.
6	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
7	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC PDUs is greater than zero and records the value.
8	←		MBMS MODIFIED SERVICES INFORMATION	SS indicates a change in the MBMS Broadcast Service for Service ID 1 with MBMS p-t-m activation time set to the first TTI of the next modification period. SS: MCCH message combination C4 for 1 modification period, then combination C2
9			MBMS COMMON P-T-M RB INFORMATION	UE begins reception of the MBMS service using the 128kbps radio bearer configuration as specified in TS 34.108 clause 6.10.2.4.3.6(FDD) or clause 6.11.5.4.4.6 (1.28 Mcps TDD).
10				The SS broadcasts 10 RLC SDUs of MBMS data on MTCH on the concerned MBMS radio bearer, starting at MBMS p-t-m activation time.
11	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
12	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC PDUs is greater than the reported value at step 9,
13	←		OPEN UE TEST LOOP	
14	→		OPEN UE TEST LOOP COMPLETE	

Specific Message Contents.

MBMS MODIFIED SERVICES INFORMATION (Step 1)

Information Element	Value/remark
Modified service list	
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
- MBMS required UE action	Acquire PTM RB info

MBMS MODIFIED SERVICES INFORMATION (Step 8)

Information Element	Value/remark
Modified service list	
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
- MBMS required UE action	Acquire PTM RB info
MBMS p-t-m activation time	Set to the first TTI of the next modification period.

UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE (Step 7)

Information Element	Value/remark
RLC SDU Counter Value	Check that the number is greater than zero.

8.5.1.15.5 Test requirements

At step 7 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.

At step 12 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

NOTE: For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the test runs without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at previous check.

8.5.2.2 MBMS PTM Session Reconfiguration – Transfer Mode Change to PTP / MBMS Selected Service

8.5.2.2.1 Definition

This test is applicable for all UEs supporting MBMS broadcast services.

8.5.2.2.2 Conformance requirement

The UE shall:

1> if in idle mode, URA_PCH, CELL_PCH or CELL_FACH state:

2> if receiving an MBMS service that is provided via a p-t-m radio bearer; or

2> if not receiving an MBMS service that is provided via a p-t-m radio bearer and not monitoring MICH:

3> acquire the MBMS MODIFIED SERVICES INFORMATION message from MCCH at the start of every modification period, in accordance with subclause 8.7.1.3;

3> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4.

1> if in CELL_DCH state:

2> if receiving an MBMS service that is provided via a p-t-m radio bearer:

3> acquire the MBMS MODIFIED SERVICES INFORMATION message from MCCH at the start of every modification period, in accordance with subclause 8.7.1.3;

3> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4.

….

1> if the IE "MBMS required UE action" is set to 'Request PTP RB':

2> if the UE is in idle mode:

3> indicate to upper layers that establishment of a PS signalling connection is required to receive the concerned MBMS service [5], unless the UE has already requested p-t-p RB establishment in the current modification period, and use the establishment cause set to 'MBMS ptp RB request' in the RRC connection establishment procedure.

2> if the UE is in URA_PCH, Cell_PCH, or CELL_FACH states:

3> indicate to upper layers to initiate a service request procedure [5] to receive the concerned MBMS service;

3> perform the cell update procedure with cause "MBMS ptp RB request", as specified in subclause 8.3.1.2, unless the UE has already requested p-t-p RB establishment in the current modification period.

1> if the IE "MBMS required UE action" is set to 'Release PTM RB':

2> stop receiving the concerned MBMS service;

2> if the UE is in a state other than CELL_DCH (for FDD) or if the UE is in Idle mode, URA_PCH or CELL_PCH state (for TDD); and

2> if the UE does not decide to receive an MBMS service for which a preferred frequency applies; and

2> if the IE ‘MBMS dispersion indicator’ is set to TRUE; and

2> if the variable MBMS_PREV_FREQUENCY_INFO is not empty:

3> if any frequency in SIB11 or SIB12 has the same frequency stored in the variable MBMS_PREV_FREQUENCY_INFO:

4> select a suitable UTRA cell in that frequency.

4> if no suitable UTRA cell in that frequency is found:

5> select a suitable UTRA cell in another frequency.

3> if no frequency in SIB11 or SIB12 has the same frequency stored in the variable MBMS_PREV_FREQUENCY_INFO.

4> select a frequency randomly among the inter-frequencies indicated in SIB11 or SIB12.

5> select a suitable UTRA cell in the selected frequency

5> if no suitable UTRA cell in the selected frequency is found:

6> select a suitable UTRA cell in another frequency.

3> clear the variable MBMS_PREV_FREQUENCY_INFO.

2> clear all service specific information applicable for the concerned service.

NOTE: The UE is only required to acquire the relevant SIB11 or SIB12, according to what is specified in subclauses 8.1.1.6.11 and 8.1.1.6.12.

…

1> if the UE performs cell update for MBMS ptp radio bearer request as specified in subclause 8.6.9.6; and

1> if one or more of the MBMS services for which the UE initiates the ptp radio bearer request concerns an MBMS Selected Service:

2> for each MBMS Selected Service that is indicated on MCCH and for which the UE initiates ptp radio bearer request:

3> order the MBMS Selected Services such that those selected with a higher priority are listed in the IE "MBMS Selected Services Short" before those selected with a lower priority;

3> include the IE "MBMS Selected Service ID" within the IE "MBMS Selected Services Short" and set it to a value in accordance with subclause 8.6.9.8.

Reference

3GPP TS 25.331, clauses 8.7.3.3.1, 8.6.9.6, 8.3.1.3.

8.5.2.2.3 Test purpose

To verify UE correctly handles the transfer mode change from MBMS PTM RB to MBMS PTP RB.

8.5.2.2.4 Method of test

Initial condition

System Simulator:

1 MBMS cell, Cell 21

User Equipment:

The UE is in Cell_FACH state as specified in clause 7.6 of TS 34.108.

The UE is interested in the selected service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Broadcast service application available on UE Yes/No

Test procedure

1) The UE in Cell_FACH state, receives an MBMS MODIFIED SERVICES INFORMATION messages including IEs “MBMS required UE action” set to “Acquire PTM RB info”. The UE starts receiving the indicated p-t-m radio bearer.

2) The SS waits for the UE to start reception of the MBMS data on MTCH and then the MBMS radio bearer on MTCH is put into loopback mode 3.

3) The SS starts broadcasting MBMS data on MTCH on the new concerned MBMS radio bearer. The SS continues to transmit MBMS data for 5s and then the SS retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The number of received RLC SDUs reported by the UE shall be at least one.

4) The UE receives an MBMS MODIFIED SERVICES INFORMATION message including IE “MBMS required UE action” set to “Request PTP RB” for the same concerned MBMS.

5) The UE releases the MBMS PTM RB and shall request a p-t-p RB establishment. The UE shall perform a cell_update procedure with cause “MBMS ptp RB request”.

6) The UE requests reception of the PTP service by transmitting a SERVICE REQUEST message.

7) The SS initiates establishment of a pt-p radio bearer by sending a RADIO BEARER SETUP message to the UE. The UE returns a RADIO BEARER SETUP COMPLETE to confirm that the p-t-p MBMS bearer is established.

8) SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The UE is in cell_FACH.
0a	←		ACTIVATE RB TEST MODE	
0b	→		ACTIVATE RB TEST MODE COMPLETE	
1	←		MBMS MODIFIED SERVICES INFORMATION	“MBMS required UE action” IE is set to "Acquire PTM RB info".
2			VOID	
3			VOID	
4			VOID	
5	→			The SS waits a few seconds for the UE to activate MTCH reception
6	←		CLOSE UE TEST LOOP	
7	→		CLOSE UE TEST LOOP COMPLETE	Loop back mode 3 on MTCH is activated.
8	←			The SS broadcasts MBMS data 10 RLC SDUs of on MTCH on the concerned MBMS radio bearer.
9	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	The SS checks that the UE has received MBMS data.
10	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	
11	SS		OPEN UE TEST LOOP	
12	←		OPEN UE TEST LOOP COMPLETE	
13	←		MBMS MODIFIED SERVICES INFORMATION	“MBMS required UE action” IE is set to "Request PTP RB”.
14	→		CELL UPDATE	The UE transmits the message with cell update cause set to “MBMS ptp RB request” and with the “MBMS Selected Services Short” IE referring to the concerned MBMS Selected service and the corresponding Modification period identity.
15	←		CELL UPDATE CONFIRM	RRC State Indicator is set to CELL-FACH
16	UE			UE transmits SERVICE REQUEST, with IE "Service type" set to "MBMS Broadcast service Reception”.
17	SS			SS transmits the SERVICE ACCEPT message to the UE.
18	←		RADIO BEARER SETUP	RRC State Indicator set to CELL-DCH
19	→		RADIO BEARER SETUP COMPLETE	
20	→		MBMS MODIFICATION REQUEST	This message may be received at any point after step 18 and before step 21.
21	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails

Specific message contents

All messages have the same content as defined in 34.108 clause 9.1.1 with the following exceptions:

MBMS MODIFIED SERVICES INFORMATION (Step 1)

Information Element	Value/remark
Modified service list	Only 1 entry
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
MBMS required UE action	Acquire PTM RB info

MBMS MODIFIED SERVICES INFORMATION (Step 13)

Information Element	Value/remark
Modified service list	Only 1 entry
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
MBMS required UE action	Request PTP RB

CELL UPDATE (Step 14)

Information Element	Value/remark
Cell update cause	MBMS ptp RB request
MBMS Selected Services	
- MBMS Selected Services	Only 1 entry
- MBMS Selected Service ID	MBMS short transmission identity referring to the service the UE has selected
- Modification period identity	Indicates the modification period the MBMS short transmission identities refer to

RADIO BEARER SETUP (Step 18)

Use the same message as the one specified for "MBMS PtP" in TS 34.108 clause 9, with the condition B4.

MBMS MODIFICATION REQUEST (STEP 20)

Information Element	Value/remark
MBMS Selected Service Info	
- CHOICE Status	Some
- MBMS Selected Services Full	
- MBMS Selected Service ID	
- MBMS Service ID	MBMS service ID of the activated MBMS service
- CHOICE PLMN identity	Check to see that one of the below choice element is present
- SameAs-MIB	(no data)
- explicitPLMN_Id	Check to see if it is set to the same value as "PLMN ID" in the Master Information block transmitted for the current serving cell.

8.5.2.2.5 Test requirements

At step 11, the UE shall transmit a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message with the number of reported RLC SDUs shall be greater than zero.

At step 14, the UE shall send a CELL UPDATE message with Cell update cause set to “MBMS ptp RB request”.

At step 19, the UE shall transmit RADIO BEARER SETUP COMPLETE message.

8.5.2.2m MBMS PTM Session Reconfiguration - Transfer Mode Change to PTP / MBMS Multicast Service

8.5.2.2m.1 Definition

This test is applicable for all UEs that support MBMS multicast services.

8.5.2.2m.2 Conformance requirement

Same conformance requirement as in clause 8.5.2.2.2.

8.5.2.2m.3 Test purpose

Same test purpose as in clause 8.5.2.2.3.

8.5.2.2m.4 Method of test

Initial condition

System Simulator:

1 MBMS cell, Cell 21.

User Equipment:

The UE is in Cell_FACH as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 8.5.2.2.4.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The UE is in cell_FACH.
0a		←	ACTIVATE RB TEST MODE	
0b		→	ACTIVATE RB TEST MODE COMPLETE	
1		←	MBMS MODIFIED SERVICES INFORMATION	“MBMS required UE action” IE is set to "Acquire PTM RB info".
2		←	MBMS GENERAL INFORMATION	
3		←	MBMS COMMON P-T-M RB INFORMATION	
4		←	MBMS CURRENT CELL P-T-M RB INFORMATION	
5				The SS waits a few seconds for the UE to activate MTCH reception
6		←	CLOSE UE TEST LOOP	
7		→	CLOSE UE TEST LOOP COMPLETE	Loop back mode 3 on MTCH is activated.
8		←		The SS broadcasts MBMS data 10 RLC SDUs of on MTCH on the concerned MBMS radio bearer.
9		←	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	The SS checks that the UE has received MBMS data.
10		→	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	

Step	Direction		Message	Comments
	UE	SS		
11	←		OPEN UE TEST LOOP	
12	→		OPEN UE TEST LOOP COMPLETE	
13	←		MBMS MODIFIED SERVICES INFORMATION	“MBMS required UE action” IE is set to "Request PTP RB”.
14	→		CELL UPDATE	The UE transmits the message with cell update cause set to “MBMS ptp RB request” and with the “MBMS Selected Services Short” IE referring to the concerned MBMS Selected service and the corresponding Modification period identity.
15	←		CELL UPDATE CONFIRM	RRC State Indicator is set to CELL-FACH
16	UE			UE transmits SERVICE REQUEST, with IE "Service type" set to "MBMS Multicast service Reception”.
17	SS			SS transmits the SERVICE ACCEPT message to the UE.
18	←		RADIO BEARER SETUP	RRC State Indicator set to CELL-DCH
19	→		RADIO BEARER SETUP COMPLETE	
20	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails

Specific message contents

Same specific messages contents as in clause 8.5.2.2.4 except for CELL UPDATE message content (step 14).

CELL UPDATE (Step 14)

Information Element	Value/remark
Cell update cause	MBMS ptp RB request

8.5.2.2m.5 Test requirements

Same test requirement as in clause 8.5.2.2.5.

8.5.2.3 MBMS PTP Session Reconfiguration - Transfer mode change to PTM / MBMS Selected Service

8.5.2.3.1 Definition

This test is applicable for all UEs that support MBMS broadcast services and capable of reading MCCH in CELL_DCH state.

8.5.2.3.2 Conformance requirement

If the variable MBMS_ACTIVATED_SERVICES is not empty, the UE shall apply the MCCH acquisition procedure upon selecting (e.g. upon power on) or re- selecting a cell supporting MBMS, upon change of MBMS controlling cell (e.g. due to an active set update or hard handover), upon entering UTRA from another RAT, upon release of a MBMS PTP RB for the purpose of changing transfer mode, upon return from loss of coverage and upon receiving an indication from upper layers that the set of activated services has changed.

…

A UE entering CELL_DCH shall initiate the MBMS modification request procedure in the following cases:

1> if the UE has any MBMS Selected Service; and

1> if the IE "MCCH configuration information" was received in System Information Block Type 5 or System Information Block Type 5bis prior to entering CELL_DCH.

A UE completing an RRC Connection Setup procedure shall initiate the MBMS modification request procedure in the following cases:

1> if the UE has any MBMS Selected Service; and

1> if the IE "MCCH configuration information" was received in System Information Block Type 5 or System Information Block Type 5bis prior to completing the RRC Connection Setup procedure.

A UE in CELL_DCH shall initiate the MBMS modification request procedure in the following cases:

1> the preferred frequency applicable for the MBMS service prioritised by upper layers is different from the currently used frequency;

1> upper layers request to discontinue reception of an MBMS service provided via a p-t-p radio bearer e.g. because this inhibits reception of a higher priority service;

1> upon a change in selection of the MBMS Selected Services.

NOTE: The above case may occur upon receiving a dedicated notification or in other cases e.g. a change of transfer mode from p-t-p to p-t-m for the UE's highest priority MBMS service.

…

If the IE "MBMS RB list released to change transfer mode" is included the UE shall:

1> perform the service prioritisation procedure as specified in subclause 8.5.26, taking into account that the MBMS service(s) for which the radio bearers are released will be provided via p-t-m radio bearer(s).

…

A UE in CELL_DCH shall initiate the MBMS modification request procedure in the following cases:

1> the preferred frequency applicable for the MBMS service prioritised by upper layers is different from the currently used frequency;

1> upper layers request to discontinue reception of an MBMS service provided via a p-t-p radio bearer e.g. because this inhibits reception of a higher priority service;

1> upon a change of the MBMS Selected Services.

NOTE: The above case may occur upon receiving a dedicated notification or in other cases e.g. a change of transfer mode from p-t-p to p-t-m for the UE's highest priority MBMS service.

…

1> if the IE "MBMS required UE action" is set to 'Request PTP RB':

2> if the UE is in idle mode:

3> indicate to upper layers that establishment of a PS signalling connection is required to receive the concerned MBMS service [5], unless the UE has already requested p-t-p RB establishment in the current modification period, and use the establishment cause set to 'MBMS ptp RB request' in the RRC connection establishment procedure.

…

If the IE "MBMS RB list released to change transfer mode" is included the UE shall:

1> perform the service prioritisation procedure as specified in subclause 8.5.26, taking into account that the MBMS service(s) for which the radio bearers are released will be provided via p-t-m radio bearer(s).

Reference

3GPP TS 25.331 clauses 8.7.2.2, 8.7.6.2, 8.6.9.5, 8.6.9.6, 8.6.9.5.

8.5.2.3.3 Test purpose

To verify that the UE shall apply the MCCH acquisition procedure upon release of a MBMS PTP RB for the purpose of changing transfer mode.

8.5.2.3.4 Method of test

Initial condition

System Simulator: 1 MBMS cell, Cell 21.

User Equipment:

The UE has a valid IMSI.

The UE is interested in the selected service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

The UE is in Idle Mode as specified in clause 7.6 of TS 34.108.

Related ICS/IXIT statements

- MBMS Broadcast service application available on UE Yes/No
- UE supports MCCH reception in CELL_DCH Yes/No

Test procedure

1) The UE camping on cell A, receives an MBMS MODIFIED SERVICES INFORMATION message including IE “MBMS required UE action” set to “Request PTP RB”.
2) The UE shall request a p-t-p RB establishment. The UE transmits a RRC CONNECTION REQUEST message including the IE "MBMS Selected Service ID" of the concerned MBMS selected services within the IE "MBMS Selected Services Short" and the IE "MBMS Modification Period identity".
3) Upon reception of the RADIO BEARER SETUP message, the UE shall establish this radio bearer. Then the UE transmits a RADIO BEARER SETUP COMPLETE message and start receiving the MBMS service provided by the p-t-p RB.
4) Upon reception of the RADIO BEARER RELEASE message including the IE “MBMS RB list released to change transfer mode”, the UE shall release the MBMS p-t-p radio bearer for the purpose of changing transfer mode.
5) The UE shall apply the MCCH acquisition procedure. The UE receives a MBMS UNMODIFIED SERVICES INFORMATION message with “MBMS required UE action” IE set to “Acquire PTM RB info”. The UE start receiving the indicated p-t-m radio bearer.
6) The SS waits for the UE to start reception of the MBMS data on MTCH and then the MBMS radio bearer on MTCH is put into loopback mode 3.
7) The SS starts broadcasting MBMS data on MTCH on the new concerned MBMS radio bearer. The SS continues to transmit MBMS data for 5s and then the SS retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The number of received RLC SDUs reported by the UE shall be at least one.
8) The loopback mode 3 in the UE is deactivated and SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				UE in Idle mode on Cell 21.

Step	Direction		Message	Comments
	UE	SS		
1	←		MBMS MODIFIED SERVICES INFORMATION	"MBMS required UE action" set to Request PTP RB.
2			void	
3			void	
4	→		RRC CONNECTION REQUEST	The UE transmits the message with Establishment cause set to “MBMS ptp RB request” and with the “MBMS Selected Services Short” IE referring to the concerned MBMS Selected service and the corresponding Modification period identity.
5	←		RRC CONNECTION SETUP	RRC state indicator set to Cell_FACH
6	→		RRC CONNECTION SETUP COMPLETE	
6a	→		MBMS MODIFICATION REQUEST	The UE completing the RRC Connection Setup procedure shall initiate the MBMS MODIFICATION REQUEST procedure. This message may be received at any point after step 6 and before step 12
7	UE			UE transmits SERVICE REQUEST, with IE "Service type" set to "MBMS Broadcast service Reception”.
8	←		SECURITY MODE COMMAND	
9	→		SECURITY MODE COMPLETE	
10	←		RADIO BEARER SETUP	
11	→		RADIO BEARER SETUP COMPLETE	
12	UE			The UE is receiving the MBMS service provided by the p-t-p RB.
13	←		RADIO BEARER RELEASE	IE "RAB information for MBMS ptp bearer list " with RAB information for MBMS Selected Service_1
14	→		RADIO BEARER RELEASE COMPLETE	the UE releases the MBMS p-t-p radio bearer for the purpose of changing transfer mode.
15	←		ACTIVATE RB TEST MODE	The SS activates the RB TEST MODE
16	→		ACTIVATE RB TEST MODE COMPLETE	
17	SS			The following messages are sent on the next MP.
18	←		MBMS MODIFIED SERVICES INFORMATION	“MBMS required UE action” IE is set to "Acquire PTM RB info".
19			void	
20			void	
21			void	
22			void	
23	SS			The SS waits a few seconds for the UE to activate MTCH reception
24	←		CLOSE UE TEST LOOP	
25	→		CLOSE UE TEST LOOP COMPLETE	Loop back mode 3 on MTCH is activated.
26				The SS broadcasts MBMS data 10 RLC SDUs of on MTCH on the concerned MBMS radio bearer.
27	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	The SS checks that the UE has received MBMS data.
28	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	
29	←		OPEN UE TEST LOOP	
30	→		OPEN UE TEST LOOP COMPLETE	
31	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific message contents

All messages have the same content as defined in 34.108 clause 9.1.1 with the following exceptions:

MBMS MODIFIED SERVICES INFORMATION (Step 1)

Information Element	Value/remark
Modified services list - MBMS Transmission identity - MBMS required UE action	Only 1 entry MBMS Transmission identity Request PTP RB

RRC CONNECTION REQUEST (Step 4)

Information Element	Value/remark
Message type Initial UE identity Establishment Cause Domain indicator MBMS Selected Services - MBMS Selected Services - MBMS Selected Service ID - Modification period identity	 Same as the registered TMSI or P-TMSI MBMS ptp RB request PS domain Only 1 entry MBMS short transmission identity referring to the service the UE has selected Indicates the modification period the MBMS short transmission identities refer to

RRC CONNECTION SETUP (Step 5)

Information Element	Value/remark
Message type Initial UE identity RRC State Indicator	 Set to same value as received in Step 4 Cell_FACH

MBMS MODIFICATION REQUEST (steps 6a)

Information Element	Value/remark
MBMS preferred frequency request MBMS RB list requested to be released MBMS Selected Service Info - CHOICE Status - MBMS Selected Services Full - MBMS Selected Service ID - MBMS Service ID - CHOICE PLMN identity - SameAs-MIB - explicitPLMN_Id	Check that the IE is not present Check that the IE is not present Some Only 1 entry MBMS service ID of the activated MBMS service Check to see that one of the below choice element is present (no data) Check to see if it is set to the same value as "PLMN ID" in the Master Information block transmitted for the current serving cell.

RADIO BEARER SETUP (Step 10)

Use the same message as the one specified for "MBMS PtP" in TS 34.108 clause 9, with the condition B2.

RADIO BEARER RELEASE (Step 13)

Information Element	Value/remark
MBMS RB list released to change transfer mode - RB information to release - RB identity	Only 1 entry RB identity for MBMS service1 provided via ptp RB

MBMS MODIFIED SERVICES INFORMATION (Step 18)

Information Element	Value/remark
Modified service list - MBMS Transmission identity - MBMS required UE action	Only 1 entry MBMS Transmission identity indicating MBMS activated service Acquire PTM RB info

8.5.2.3.5 Test requirements

At step 6, the UE shall send a RRC CONNECTION SETUP COMPLETE message.

At step 11, the UE shall send a RADIO BEARER SETUP COMPLETE message.

At step 14, the UE shall send a RADIO BEARER RELEASE COMPLETE message.

At step 28, the UE shall transmit a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message with the number of reported RLC SDUs shall be greater than zero.

8.5.2.3m MBMS PTP Session Reconfiguration - Transfer mode change to PTM / MBMS Multicast Service

8.5.2.3m.1 Definition

This test is applicable for all UEs that support MBMS multicast services and capable of reading MCCH in CELL_DCH state.

8.5.2.3m.2 Conformance requirement

Same conformance requirement as in clause 8.5.2.3.2

8.5.2.3m.3 Test purpose

Same test purpose as in clause 8.5.2.3.3.

8.5.2.3m.4 Method of test

Initial condition

System Simulator:

1 MBMS cell

User Equipment:

The UE is in Idle Mode as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.
- UE supports MCCH reception in CELL_DCH Yes/No

Test procedure

Same test procedure as in clause 8.5.2.2.4 except for the point 2:

2) The UE shall request a p-t-p RB establishment. The UE transmits a RRC CONNECTION REQUEST message.

Expected Sequence

Same expected sequence as in clause 8.5.2.3.4 except for RRC CONNECTION REQUEST message content (step 4) and MODIFICATION REQUEST procedure not required.

Step	Direction		Message	Comments
	UE	SS		
				UE in Idle mode on Cell 21.
1	←		MBMS MODIFIED SERVICES INFORMATION	
2	←		MBMS GENERAL INFORMATION	
3	←		MBMS UNMODIFIED SERVICES INFORMATION	"MBMS required UE action" set to Request PTP RB.
4	→		RRC CONNECTION REQUEST	The UE transmits the message with Establishment cause set to “MBMS ptp RB request”
5	←		RRC CONNECTION SETUP	RRC state indicator set to Cell_FACH
6	→		RRC CONNECTION SETUP COMPLETE	
7	UE			UE transmits SERVICE REQUEST, with IE "Service type" set to "MBMS Multicast service Reception”.
8	←		SECURITY MODE COMMAND	
9	→		SECURITY MODE COMPLETE	
10	←		RADIO BEARER SETUP	
11	→		RADIO BEARER SETUP COMPLETE	
12	UE			The UE is receiving the MBMS service provided by the p-t-p RB.
13	←		RADIO BEARER RELEASE	IE "RAB information for MBMS ptp bearer list " with RAB information for MBMS Service_1
14	→		RADIO BEARER RELEASE COMPLETE	the UE releases the MBMS p-t-p radio bearer for the purpose of changing transfer mode.
15	←		ACTIVATE RB TEST MODE	The SS activates the RB TEST MODE
16	→		ACTIVATE RB TEST MODE COMPLETE	
17	SS			The following messages are sent on the next MP.
18	←		MBMS MODIFIED SERVICES INFORMATION	“MBMS required UE action” IE is set to "Acquire PTM RB info".
19	←		MBMS UNMODIFIED SERVICES INFORMATION	
20	←		MBMS GENERAL INFORMATION	
21	←		MBMS COMMON P-T-M RB INFORMATION	
22	←		MBMS NEIGHBOURING CELL P-T-M RB INFORMATION	
23	SS			The SS waits a few seconds for the UE to activate MTCH reception
24	←		CLOSE UE TEST LOOP	
25	→		CLOSE UE TEST LOOP COMPLETE	Loop back mode 3 on MTCH is activated.
26				The SS broadcasts MBMS data 10 RLC SDUs of on MTCH on the concerned MBMS radio bearer.
27	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	The SS checks that the UE has received MBMS data.
28	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	
29	←		OPEN UE TEST LOOP	
30	→		OPEN UE TEST LOOP COMPLETE	
31	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific message contents

Same specific messages contents as in clause 8.5.2.3.4 except for RRC CONNECTION REQUEST message content (step 4).

RRC CONNECTION REQUEST (Step 4)

Information Element	Value/remark
Message type	
Initial UE identity	Same as the registered TMSI or P-TMSI
Establishment Cause	MBMS ptp RB request
Domain indicator	PS domain

8.5.2.3m.5 Test requirements

Same test requirement as in clause 8.5.2.3.5.

8.5.2.4 MBMS PTM Session Reconfiguration – MTCH data rate change / MBMS Broadcast Service

8.5.2.4.1 Definition and applicability

This test case is applicable for all UEs that support MBMS broadcast services.

8.5.2.4.2 Conformance requirement

The UE shall detect the available MBMS services by acquiring the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3.

The UE shall immediately acquire the MBMS ACCESS INFORMATION and the MBMS GENERAL INFORMATION messages i.e. it shall not delay reception of these messages until it has completed the acquisition of the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages. Likewise, the UE should immediately acquire the MBMS CURRENT CELL P-T-M RB INFORMATION and MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages.

The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information e.g. both the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION message should be acquired in the same modification period.

…

The UE may:

1> monitor the MBMS notification Indicator Channel (MICH);

1> if a notification on the MICH for one or more of the MBMS services included in the variable MBMS_ACTIVATED_SERVICES is detected:

2> acquire the MBMS MODIFIED SERVICES INFORMATION message with delaying the reading of MCCH until the next modification period and with stopping at the end of the modification period, in accordance with subclause 8.7.1.3;

2> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4.

The UE shall:

1> if in idle mode, URA_PCH, CELL_PCH or CELL_FACH state:

2> if not monitoring MICH:

3> acquire the MBMS MODIFIED SERVICES INFORMATION message from MCCH at the start of every modification period, in accordance with subclause 8.7.1.3;

3> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4.

…

1> if the IE "MBMS required UE action" is set to 'Acquire PTM RB info'; or

1> if the IE "MBMS required UE action" is set to 'Acquire counting info– PTM RBs unmodified' and the UE is not receiving a p-t-m RB for the concerned service:

2> continue acquiring the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3;

2> act upon the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION message, if received, in accordance with subclause 8.7.5.

Reference

3GPP TS 25.331 clauses 8.7.2.3, 8.7.3.3.1, 8.6.9.6.

8.5.2.4.3 Test purpose

To verify that the UE shall receive the MBMS notification information while receiving an ongoing MBMS service via a p-t-m radio bearer, and apply the new p-t-m radio bearer configuration.

8.5.2.4.4 Method of test

Initial Condition

System Simulator:

1 MBMS cell.

User Equipment:

The UE is in CELL_FACH state as specified in clause 7.6 of TS 34.108.

The UE is interested in the broadcast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statement(s)

- MBMS Broadcast service application available on UE Yes/No

Test Procedure

The UE is in the CELL_FACH state and has selected the broadcast service or joined the multicast service to be provided by the SS..

The SS notifies on MICH and MCCH about the start of an MBMS session. The SS waits for the UE to start reception of the MBMS data on MTCH.

The MBMS radio bearer on MTCH is put into loopback mode 3.

The SS sends 10 RLC SDUs of MBMS data on MTCH on the concerned MBMS radio bearer, then retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The number of received RLC SDUs reported by the UE shall be at least one.

The SS then notifies on the MCCH the change in the MBMS session . The UE reconfigures the radio bearer to new configuration. The SS sends 10 RLC SDUs of MBMS data on the MTCH on the concerned MBMS radio bearer, then retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The number reported by the UE shall be one more than the value reported at the previous check.

The loopback mode 3 in the UE is deactivated.

SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		ACTIVATE RB TEST MODE	
2	→		ACTIVATE RB TEST MODE COMPLETE	
3	←		MBMS MODIFIED SERVICES INFORMATION	MBMS session start. The SS also sets the Notification Indicator on MICH. The SS waits for the UE to establish the MTCH. SS: MCCH message combination C4 for 1 modification period, then combination C2
4	←		MBMS COMMON P-T-M RB INFORMATION	UE begins reception of the MBMS service using the 259.2kbps radio bearer configuration as specified in TS 34.108 clause 6.10.2.4.3.7(FDD) or clause 6.11.5.4.4.7 (1.28 Mcps TDD).
5	←		CLOSE UE TEST LOOP	
6	→		CLOSE UE TEST LOOP COMPLETE	Loop back mode 3 on MTCH is activated.
7	SS			The SS broadcasts 10 RLC SDUs of MBMS data on MTCH on the concerned MBMS radio bearer.
8	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
9	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC PDUs is greater than zero and records the value.
10	←		MBMS MODIFIED SERVICES INFORMATION	SS indicates a change in the MBMS Broadcast Service for Service ID 1 with MBMS p-t-m activation time set to the first TTI of the next modification period. SS: MCCH message combination C4 for 1 modification period, then combination C2
11			MBMS COMMON P-T-M RB INFORMATION	UE begins reception of the MBMS service using the 129.6kbps radio bearer configuration as specified in TS 34.108 clause 6.10.2.4.3.6(FDD) or clause 6.11.5.4.4.6 (1.28 Mcps TDD).
12				The SS broadcasts 10 RLC SDUs of MBMS data on MTCH on the concerned MBMS radio bearer, starting at MBMS p-t-m activation time.
13	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
14	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC PDUs is greater than the reported value at step 9,
15	←		OPEN UE TEST LOOP	
16	→		OPEN UE TEST LOOP COMPLETE	
17	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

MBMS MODIFIED SERVICES INFORMATION (Step 3)

Information Element	Value/remark
Modified service list	
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
- MBMS required UE action	Acquire PTM RB info

MBMS MODIFIED SERVICES INFORMATION (Step 10)

Information Element	Value/remark
Modified service list	
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
- MBMS required UE action	Acquire PTM RB info
MBMS p-t-m activation time	Set to the first TTI of the next modification period.

UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE (Step 9)

Information Element	Value/remark
RLC SDU Counter Value	Check that the number is greater than zero.

8.5.2.4.5 Test requirement

At step 9 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.

At step 14 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

Note For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the test runs without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at previous check.

8.5.2.4m MBMS PTM Session Reconfiguration – MTCH data rate change / MBMS Multicast Service

8.5.2.4m.1 Definition

This test is applicable for all UEs that support MBMS multicast services.

8.5.2.4m.2 Conformance requirement

Same conformance requirement as in clause 8.52.4.2

8.5.2.4m.3 Test purpose

Same test purpose as in clause 8.5.2.4.3

8.5.2.4m.4 Method of test

Initial condition

System Simulator:

1 MBMS cell

User Equipment:

The UE is in CELL_FACH state as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 8.5.2.4.4

Specific message contents

Same specific messages contents as in clause 8.5.2.4.4

8.5.2.4m.5 Test requirements

Same test requirement as in clause 8.5.2.4.5

8.5.2.5 MBMS PTM Session Reconfiguration - MTCH Data Rate Change / MBSFN mode

8.5.2.5.1 Definition

This test is applicable for UEs that support MBMS broadcast services in MBSFN mode and which support either both transmit and receive functions or MBSFN receive only function.

8.5.2.5.2 Conformance requirement

The UE shall detect the available MBMS services by acquiring the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3.

...

For cells operating in MBSFN mode as indicated in subclause 8.1.1.6.3 the UE shall immediately acquire the MBMS GENERAL INFORMATION messages i.e. it shall not delay reception of these messages until it has completed the acquisition of the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages. Likewise for cells operating in MBSFN mode as indicated in subclause 8.1.1.6.3, the UE should immediately acquire the MBMS CURRENT CELL P-T-M RB INFORMATION.

The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information e.g. both the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION message should be acquired in the same modification period.

…

The UE may:

1> monitor the MBMS notification Indicator Channel (MICH);

1> if a notification on the MICH for one or more of the MBMS services included in the variable MBMS_ACTIVATED_SERVICES is detected:

2> acquire the MBMS MODIFIED SERVICES INFORMATION message with delaying the reading of MCCH until the next modification period and with stopping at the end of the modification period, in accordance with subclause 8.7.1.3;

2> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4.

The UE shall:

1> if in idle mode, URA_PCH, CELL_PCH or CELL_FACH state:

2> if not monitoring MICH during the current or the previous modification period:

3> acquire the MBMS MODIFIED SERVICES INFORMATION message from MCCH at the start of every modification period, in accordance with subclause 8.7.1.3;

3> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4.

…

If the IE "MBMS required UE action" is included and concerns an MBMS activated service the UE shall:

…

1> if the IE "MBMS required UE action" is set to 'Acquire PTM RB info'; or

1> if the IE "MBMS required UE action" is set to 'Acquire counting info– PTM RBs unmodified' and the UE is not receiving a p-t-m RB for the concerned service:

2> continue acquiring the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3

2> act upon the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION message, if received, in accordance with subclause 8.7.5;

…

Upon completing the reception of the MBMS COMMON P-T-M RB INFORMATION and the MBMS CURRENT CELL P-T-M RB INFORMATION messages for an activated MBMS service, the UE shall:

1> if the UE is already receiving an MTCH and does not have the capability to receive the new service in addition:

2> the UE behaviour is undefined.

NOTE: In this case, the UE may request upper layers to prioritise the services and only receive the service(s) prioritised by upper layers.

1> act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following;

1> if the UE previously received the service by means of a p-t-m radio bearer from a cell belonging to another MBMS cell group:

2> re-establish RLC;

2> re-initialise PDCP.

1> start immediately to use the indicated configuration unless specified otherwise;

1> start or continue receiving the indicated p-t-m radio bearers depending on its UE capabilities.

The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information i.e. the MBMS MODIFIED SERVICES INFORMATION message, MBMS UNMODIFIED SERVICES INFORMATION message, MBMS COMMON P-T-M RB INFORMATION and the MBMS CURRENT CELL P-T-M RB INFORMATION message should be acquired in the same modification period.

Reference

3GPP TS 25.331 clauses 8.7.2.3, 8.7.3.3.1, 8.6.9.6, 8.7.5.3

8.5.2.5.3 Test purpose

To verify that the UE receives the MBMS notification information while receiving an ongoing MBMS service via a p-t-m radio bearer, and applies the new p-t-m radio bearer configuration.

8.5.2.5.4 Method of test

Initial condition

System Simulator:

- MBSFN carrier: 1 cell, Cell 31 (PLMN1). In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 and Default1 MCCH scheduling (No ongoing session) according to subclause 11.2 of TS 34.108.
- Unicast carrier : 1 cell, Cell 1 with default parameters.

User Equipment:

- On the unicast carrier cell the UE is in registered Idle Mode on PS (state 3) if the UE only supports PS domain or registered Idle Mode on CS/PS (state 7) if the UE supports both CS and PS domains, as specified in clause 7.2.2 of TS 34.108.
- The UE is in MBSFN Idle mode with one activated service as specified in clause 7.6.4 of TS 34.108. The UE has selected (i.e. it is included in MBMS_ACTIVATED_SERVICES variable) a national service for which a session will start on MBSFN Cell 31 (see TS 34.108 clause 11.2.4) during the test.

Related ICS/IXIT statements

- MBMS Broadcast services in MBSFN mode application available on UE Yes/No.
- Support of transmit and receive functions available on UE Yes/No.
- Support of MBSFN receive only function available on UE Yes/No.

Test procedure

a) The UE is camping on Cell 1 and Cell 31. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 (no session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

b) The SS sends ACTIVATE RB TEST MODE on the unicast carrier and the UE responds with ACTIVATE RB TEST MODE COMPLETE.

c) The SS sends CLOSE UE TEST LOOP to activate RLC SDU counting on Cell 31 MTCH (Transmission identity indicating the MBMS activated service).

d) The SS notifies on MCCH about the start of an MBMS session for one modification period. MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C4 (one PTM session starting) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

e) MCCH messages are then transmitted by the SS on Cell 31 using MBMS configuration C2 (one PTM session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

f) The UE establishes the p-t-m radio bearer for the activated service according to the specified service activation time (i.e. the first SFN of the modification period following the notification (step d). The UE closes the test loop and starts counting successfully received RLC PDUs on the MTCH. The UE will send CLOSE UE TEST LOOP COMPLETE.

g) The SS broadcasts 10 RLC SDUs on the MTCH configured on the MBMS p-t-m radio bearer for the activated service. The service is carried on a 129.6kbps RB for MTCH with 80 ms TTI as specified in clause 6.10.3.4.4.6(FDD) or a 124 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.9 (3.84 Mcps TDD) or clause 6.11.5.4.4.9 (1.28 Mcps TDD) or clause 6.11.6.4.4.9 (7.68 Mcps TDD).

h) The SS shall then send UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The UE shall respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is > 0. The SS shall store the counter value.

i) The SS notifies on MCCH about the modification of the MBMS session for one modification period. MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C4 (service modification indicated) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

j) MCCH messages are then transmitted by the SS on Cell 31 using MBMS configuration C2 (one PTM session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

k) The UE reconfigures the p-t-m radio bearer for the activated service according to the received MBMS COMMON P-T-M RB INFORMATION at the specified service activation time (i.e. the first SFN of the modification period following the notification (step i).

l) The SS broadcasts 10 RLC SDUs on the modified MTCH configured on the MBMS p-t-m radio bearer for the activated service. The service is carried on a 259.2 kbps RB for MTCH with 80 ms TTI as specified in clause 6.10.3.4.4.7(FDD) or a 497.6 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.11 (3.84 Mcps TDD) or clause 6.11.5.4.4.11 (1.28 Mcps TDD) or clause 6.11.6.4.4.11 (7.68 Mcps TDD).

m) The SS shall then send UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The UE shall respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE corresponds to > 0 received RLC SDUs

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1	←		U	ACTIVATE RB TEST MODE	
2	→		U	ACTIVATE RB TEST MODE COMPLETE	
3	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated on Cell 31 for the selected national service on MTCH.
4	←		M	MBMS MCCH Message Configuration C4	Includes the national service activated at UE in the modified services list for one modification period.
5	←		M	MBMS MCCH Message Configuration C2	No modified services. One ongoing service corresponding to that activated at the UE 129.6(FDD) or 124(TDD) kbps PS RAB
6	→		U	CLOSE UE TEST LOOP COMPLETE	The UE shall establish the indicated p-t-m radio bearer and close the test loop.
7		SS	M		The SS transmits 10 RLC SDUs on the MTCH starting at the indicated activation time.
8	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
9	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC PDUs received on the MTCH is greater than zero. SS stores value.
10	←		M	MBMS MCCH Message Configuration C4	Includes the ongoing national service in the modified services list for one modification period. New data rate is 259.2 (FDD) or 496(TDD) kbps.
11	←		M	MBMS MCCH Message Configuration C2	No modified services. One ongoing service corresponding to that activated at the UE.
12		SS	M		The SS waits for the UE to reconfigure reception of the modified MTCH according to the activation time. Then the SS transmits 10 RLC SDUs on the MTCH.
13	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
14	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is greater than zero.
15	←		U	OPEN UE TEST LOOP	
16	→		U	OPEN UE TEST LOOP COMPLETE	
17	←		U	DEACTIVATE RB TEST MODE	
18	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific message contents

All messages have the same content as defined in 34.108 clause 9.1 with the following exceptions:

There are no exceptions for this test case.

8.5.2.5.5 Test requirements

1) After step 9, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number > 0 for the service/session activated on the Cell 33 MTCH.

1) After step 14, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number > 0 for the service/session activated on the Cell 33 MTCH.

8.5.3 MBMS Frequency Layer Convergence and Dispersion

8.5.3.1 MBMS Session Start (Frequency Layer Convergence)/Session Stop (Frequency Layer Dispersion) in Idle mode / MBMS Selected Service

8.5.3.1.1 Definition

This test is applicable for all UEs supporting MBMS broadcast services.

8.5.3.1.2 Conformance requirement

The UE shall perform the MBMS frequency layer selection procedure upon receiving the IE "MBMS Preferred frequency information" or when specified explicitly e.g. as in subclause 8.6.9.2, or when the priority for an MBMS service as indicated by upper layers changes.

The UE shall:

1> if there exist two or more preferred frequencies for services included in variable MBMS_ACTIVATED_SERVICES:

2> request from upper layers the priorities of the different MBMS services included in variable MBMS_ACTIVATED_SERVICES for which a preferred frequency has been received.

1> if the UE is in idle mode:

2> if a preferred frequency layer applies for a service included in variable MBMS_ACTIVATED_SERVICES:

3> select the preferred frequency indicated for the MBMS service(s) prioritised most by upper layers for which a preferred frequency exists as the preferred frequency.

….

1> if a preferred frequency has been selected:

2> if the UE is not in CELL_DCH state:

3> apply the cell-reselection procedure as described in [4], using the received "MBMS Preferred frequency information" applicable to the selected frequency:

4> if HCS is not used, and the IE "Qoffmbms" is not present for the MBMS preferred frequency:

5> consider the cells on the MBMS preferred frequency having a Qoffmbms equal to "infinity".

4> if HCS is used, and the IE "HCS_OFFmbms" is not present for the MBMS preferred frequency:

5> consider the cells on the MBMS preferred frequency having the highest HCS priority level.

3> if the UE re-selects to a cell on the indicated preferred frequency:

4> if the UE is in CELL_FACH, CELL_PCH or URA_PCH:

5> act according to subclause 8.3.1.2.

4> store the frequency information of the frequency on which the UE was operating prior to cell-reselection to the preferred frequency in the variable MBMS_PREV_FREQUENCY_INFORMATION.

4> apply the MCCH acquisition procedure, as specified in subclause 8.7.2.

…

If the IE "MBMS required UE action" is included and concerns an MBMS activated service the UE shall:

1> if the "MBMS required UE action" is set to 'None':

2> take no action with respect to this IE.

1> if the IE "MBMS required UE action" is set to 'Acquire counting info' or set to 'Acquire counting info– PTM RBs unmodified':

2> perform the MBMS counting procedure as specified in subclause 8.7.4;

NOTE: If upper layers indicate that an MBMS transmission has already been received correctly, the UE will continue as if the information about the concerned MBMS transmission was not included in the message. This implies that the UE does not respond to counting for a transmission already received correctly.

1> if the IE "MBMS required UE action" is set to 'Acquire PTM RB info'; or

1> if the IE "MBMS required UE action" is set to 'Acquire counting info– PTM RBs unmodified' and the UE is not receiving a p-t-m RB for the concerned service:

2> continue acquiring the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3

2> act upon the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION message, if received, in accordance with subclause 8.7.5;

…

1> if the IE "MBMS required UE action" is set to 'Release PTM RB':

2> stop receiving the concerned MBMS service;

2> if the UE is in a state other than CELL_DCH (for FDD) or if the UE is in Idle mode, URA_PCH or CELL_PCH state (for TDD); and

2> if the UE does not decide to receive an MBMS service; and

2> if the variable MBMS_PREV_FREQUENCY_INFO is not empty:

3> if any frequency in SIB11 or SIB12 has the same frequency stored in the variable MBMS_PREV_FREQUENCY_INFO:

4> select a suitable UTRA cell in that frequency.

4> if no suitable UTRA cell in that frequency is found:

5> select a suitable UTRA cell in another frequency.

3> if no frequency in SIB11 or SIB12 has the same frequency stored in the variable MBMS_PREV_FREQUENCY_INFO.

4> select a frequency randomly among the inter-frequencies indicated in SIB11 or SIB12.

5> select a suitable UTRA cell in the selected frequency

5> if no suitable UTRA cell in the selected frequency is found:

6> select a suitable UTRA cell in another frequency.

3> clear the variable MBMS_PREV_FREQUENCY_INFO.

2> clear all service specific information applicable for the concerned service.

NOTE: The UE is only required to acquire the relevant SIB11 or SIB12, according to what is specified in subclauses 8.1.1.6.11 and 8.1.1.6.12.

…

If the UE is receiving an MBMS service that is not included in variable MBMS_ACTIVATED_SERVICES and that is using a p-t-m radio bearer, the UE shall:

1> stop receiving the concerned MBMS service and clear all service specific information applicable for the concerned service.

Upon completing the reception of the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages, the UE shall

1> act as follows for each of the services included in these messages provided that the service is included in variable MBMS_ACTIVATED_SERVICES and upper layers indicate that the session has not yet been received correctly (referred to as 'applicable services');

1> act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following;

1> if one or more preferred frequency applies for the applicable services:

2> delay acting upon the "MBMS Preferred frequency information" until receiving the relevant MCCH information i.e. the MBMS GENERAL INFORMATION message;

2> act upon the "MBMS Preferred frequency information" as specified in subclause 8.6.9.4 for the service(s) that upper layers indicate to have highest priority.

1> perform MBMS frequency selection procedure as specified in subclause 8.5.27;

1> if the UE receives an MBMS service using a p-t-m radio bearer and the received messages do not contain an IE "MBMS required UE action" set to "Acquire PTM RB info" or set to "Acquire counting info– PTM RBs unmodified" for that service then the UE shall:

2> stop receiving the concerned MBMS service and clear all service specific information applicable for the concerned service.

…

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

1> otherwise if the UE performs connection establishment for MBMS counting as specified in subclause 8.7.4; and

1> if one or more of the MBMS services for which the UE initiates the counting response concerns an MBMS Selected Service:

2> for each MBMS Selected Service that is indicated on MCCH and for which the UE initiates the counting response:

3> order the MBMS Selected Services such that those selected with a higher priority are listed in the IE "MBMS Selected Services Short" before those selected with a lower priority;

3> include the IE "MBMS Selected Service ID" within the IE "MBMS Selected Services Short" and set it to a value in accordance with subclause 8.6.9.8.

Reference

3GPP TS 25.331 clauses 8.5.27, 8.6.9.6, 8.7.2.4, 8.1.3.3.

8.5.3.1.3 Test purpose

To verify that in idle mode, the UE at session start, re-selects to the preferred Frequency Layer for the MBMS services it has activated.

To verify that at session stop the UE re-selects to the frequency where it has previously camped.

8.5.3.1.4 Method of test

Initial condition

System Simulator:

2 MBMS (Cell 21, Cell 24).

User Equipment:

The UE is in Idle Mode as specified in clause 7.6 of TS 34.108.

The UE is interested in the broadcast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Broadcast service application available on UE Yes/No.

Test procedure

The UE receives, at notification via MCCH, an MBMS MODIFIED SERVICES INFORMATION message including a preferred frequency in the IE “MBMS preferred frequency”.

The UE shall consider this frequency as the preferred frequency layer for cell re-selection and re-select to Cell 24 at session start for the MBMS service it has activated. The UE shall store the frequency information of the frequency on which the UE was operating prior to cell-reselection to the preferred frequency in the variable MBMS_PREV_FREQUENCY_INFORMATION.

The UE shall perform the MCCH acquisition procedure on the new cell.

The SS transmits an MBMS MODIFIED SERVICE INFORMATION message which includes in the “Modified service list” for the MBMS activated service “MBMS required UE action” set to “Acquire counting info” and MBMS ACCESS INFORMATION message, which includes the MBMS Short Transmission ID associated to the MBMS activated service and “Access probability factor – Idle” set to 0 (corresponds to an actual Probability Factor = 1).

The UE shall transmit an RRC CONNECTION REQUEST message, with “Establishment cause” set to “MBMS reception”. The SS transmits a RRC CONNECTION SETUP. The UE establishes an RRC connection and transmits an RRC CONNECTION SETUP COMPLETE message.

The UE receives an MBMS MODIFIED SERVICES INFORMATION message “MBMS required UE action” IE set to “Acquire PTM RB info”. The UE shall apply the MBMS p-t-m radio bearer configuration procedure to acquire the radio bearer configuration for the MBMS service provided by the SS.

The UE starts receiving the indicated p-t-m radio bearer.

The UE receives an MBMS MODIFIED SERVICES INFORMATION message with IE “MBMS required UE action” set to “Release PTM RB”. The UE shall stop receiving the concerned MBMS service. The variable MBMS_PREV_FREQUENCY_INFO is not empty, and any frequency in SIB11 or SIB12 has the same frequency stored in the variable MBMS_PREV_FREQUENCY_INFO, therefore the UE shall select Cell 21 (suitable UTRA cell in that frequency).

Expected sequence

Step	Direction		Message	Comments
Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
1				The UE is in Idle mode on cell 21.

Step	Direction	Message	Comments
Step	Direction UE | SS	Message	Comments
2	←	MBMS MODIFIED SERVICES INFORMATION	Service_id = service activated "MBMS required UE action is set to "none (FLC)" and PFL index is set to the index of the frequency of f2 in the preferred frequency list in MBMS GENERAL INFORMATION.
3	←	MBMS GENERAL INFORMATION	MBMS preferred frequency information is set to f2.
4			The UE re-selects to cell 24. The SS allows 2 modification periods for the UE to reselect before sending the following messages on cell 24.
5	←	MBMS MODIFIED SERVICES INFORMATION	"MBMS required UE action" IE is set to "Acquire counting info".
6	←	MBMS GENERAL INFORMATION	MBMS preferred frequency information set without index into SIB11 neighbour list.
7	←	MBMS ACCESS INFORMATION	"MBMS short transmission ID" IE set to 1, "Access probability factor – Idle" set to 0 (corresponding to the actual probability factor value 1). SS sends MBMS ACCESS INFORMATION throughout the modification period as defined in 34.108 clause 11.1.2
8	→	RRC CONNECTION REQUEST	The UE transmits the message with Establishment cause set to "MBMS reception" and in case of MBMS Selected service with the "MBMS Selected Services Short" IE referring to the concerned MBMS Selected service and the corresponding Modification period identity.
9	←	RRC CONNECTION SETUP	
10	→	RRC CONNECTION SETUP COMPLETE	
10a	→	MBMS MODIFICATION REQUEST	The UE completing the RRC connection Setup procedure shall initiate the MBMS MODIFICATION REQUEST procedure in case of MBMS Selected service. This message may be received at any point after step 10 and before step 12.
11	UE		UE transmits SERVICE REQUEST, with IE "Service type" set to "MBMS Broadcast service Reception".
12	←	RRC CONNECTION RELEASE	
13	→	RRC CONNECTION RELEASE COMPLETE	The UE shall enter idle mode.
14	SS		The following MBMS messages sent on the MCCH will be received in the next Modification Period.
15	←	MBMS MODIFIED SERVICES INFORMATION	"MBMS required UE action" IE is set to "Acquire PTM RB info".
16	←	MBMS GENERAL INFORMATION	MBMS preferred frequency information set without index into SIB11 neighbour list.
17	SS		The following MBMS messages sent on the MCCH will be received in a new Modification Period.
18	←	**VOID**	
19	←	MBMS MODIFIED SERVICES INFORMATION	"MBMS required UE action" IE is set to "Release PTM RB".
20			The UE stops receiving the concerned MBMS service and reselects to Cell 21.

Step	Direction	Message	Comments
Step	Direction	Message	Comments
	UE SS		
21	←→	CALL C.1	If the test result of C.1 indicates that UE is in Idle Mode state, the test passes, otherwise it fails.

Specific message contents

All messages have the same content as defined in 34.108 clause 9.1.1 with the following exceptions:

MBMS MODIFIED SERVICES INFORMATION (Step 2)

Information Element	Value/remark
Modified service list - MBMS Transmission identity - MBMS required UE action - MBMS preferred frequency - PFL index	Only 1 entry MBMS Transmission identity indicating MBMS activated service None (FLC) Index of the frequency of Cell 24 in the preferred frequency list

MBMS GENERAL INFORMATION(Step 3)

Information Element	Value/remark
MBMS preferred frequency information MBMS preferred frequency list - MBMS preferred frequency - CHOICE Layer convergence information - Qoffmbms	Only 1 entry Value N corresponds with the nth frequency included in the IE New inter-frequency cells that is specified within SIB 11, corresponding to cell 24 frequency (f2). No HCS Infinity

MBMS MODIFIED SERVICES INFORMATION (Step 5)

Information Element	Value/remark
Modified service list -MBMS Transmission identity -MBMS required UE action - MBMS preferred frequency - PFL index	Only 1 entry MBMS Transmission identity indicating MBMS activated service Acquire counting info - Set to the index of the frequency of Cell 24 in the preferred frequency list

MBMS GENERAL INFORMATION (Steps 6 and 16)

Information Element	Value/remark
MBMS preferred frequency information MBMS preferred frequency list - MBMS preferred frequency - CHOICE Layer convergence information - Qoffmbms	Only 1 entry Not present (indicates PFL is current cell frequency) No HCS Infinity

MBMS ACCESS INFORMATION (Step 7)

Information Element	Value/remark
Service list	Only 1 entry
- MBMS short transmission ID	Index to the MBMS transmission identity in the previous MBMS MODIFIED SERVICES INFORMATION
- Access probability factor - Idle	0 (corresponding to the actual probability factor value 1)
- Connected mode counting scope	
- URA_PCH	FALSE
- CELL_PCH	FALSE
- CELL_FACH	FALSE

MBMS MODIFICATION REQUEST (steps 10a)

Information Element	Value/remark
MBMS preferred frequency request	Check that the IE is not present
MBMS RB list requested to be released	Check that the IE is not present
MBMS Selected Service Info	
- CHOICE Status	Some
- MBMS Selected Services Full	
- MBMS Selected Service ID	Only 1 entry
- MBMS Service ID	MBMS service ID of the activated MBMS service
- CHOICE PLMN identity	Check to see that one of the below choice element is present
- SameAs-MIB	(no data)
- explicitPLMN_Id	Check to see if it is set to the same value as "PLMN ID" in the Master Information block transmitted for the current serving cell.

MBMS MODIFIED SERVICES INFORMATION (Step 15)

Information Element	Value/remark
Modified service list	1
-MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
-MBMS required UE action	Acquire PTM RB info
- MBMS preferred frequency	-
- PFL index	Set to the index of the frequency of Cell 24 in the preferred frequency list

MBMS MODIFIED SERVICES INFORMATION (Step 19)

Information Element	Value/remark
Modified service list	1
-MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
-MBMS required UE action	'Release PTM RB'

8.5.3.1.1.5 Test requirements

At step 8, the UE shall send an RRC CONNECTION REQUEST message on Cell 24 with Establishment cause set to “MBMS reception”.

At step 21, the test result of C.1 shall indicate that the UE is in idle mode on Cell 21.

8.5.3.1m MBMS Session Start (Frequency Layer Convergence)/Session Stop (Frequency Layer Dispersion) in Idle mode / MBMS Multicast Service

8.5.3.1m.1 Definition

This test is applicable for all UEs that support MBMS multicast services.

8.5.3.1m.2 Conformance requirement

Same conformance requirement as in clause 8.5.3.1.2

8.5.3.1m.3 Test purpose

Same test purpose as in clause 8.5.3.1.3.

8.5.3.1m.4 Method of test

Initial condition

System Simulator:

2 MBMS cells, Cell 21, Cell 24.

User Equipment:

The UE is in Idle Mode as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 8.5.3.1.4, except that at step 11 UE transmits Service Request, with IE "Service type" set to "MBMS Multicast service Reception".

Specific message contents

Same specific messages contents as in clause 8.5.3.1.4

8.5.3.1m.5 Test requirements

Same test requirement as in clause 8.5.3.1.5.

8.5.3.2 MBMS Session Start (Frequency Layer Convergence)/Session Stop (Frequency Layer Dispersion) in CELL_PCH / MBMS Broadcast Service

8.5.3.2.1 Definition

This test is applicable for all UEs supporting MBMS broadcast services.

8.5.3.2.2 Conformance requirement

The UE shall perform the MBMS frequency layer selection procedure upon receiving the IE "MBMS Preferred frequency information", when specified explicitly e.g. as in subclause 8.6.9.2, or when the preferred MBMS service changes.

The UE shall:

1> if there exist two or more preferred frequencies for services included in variable MBMS_ACTIVATED_SERVICES:

2> request from upper layers the priorities of the different MBMS services included in variable MBMS_ACTIVATED_SERVICES for which a preferred frequency has been received.

1> if the UE is in idle mode:

2> if a preferred frequency layer applies for a service included in variable MBMS_ACTIVATED_SERVICES:

3> select the preferred frequency indicated for the MBMS service(s) prioritised most by upper layers for which a preferred frequency exists as the preferred frequency.

1> if the UE is in CELL_FACH, CELL_PCH or URA_PCH state; and

1> if there exists one or more preferred frequencies for services included in variable MBMS_ACTIVATED_SERVICES and the variable MBMS_PL_SERVICE_RESTRICTION_INFO_DEDICATED is set to FALSE:

2>if the IE "RAB information" in the variable ESTABLISHED_RABS is not empty:

3> if the current frequency is the frequency corresponding with the preferred frequency indicated for the MBMS service(s) prioritised most by upper layers for which a preferred frequency exists:

4> select the current frequency as the preferred frequency.

3> else:

4> if there exists one or more preferred frequencies for services included in variable MBMS_ACTIVATED_SERVICES for which the IE "MBMS PL Service Restriction Information" has not been received in the MBMS GENERAL INFORMATION message:

5> select the preferred frequency indicated for the MBMS service(s) prioritised most by upper layers for which a preferred frequency exists for which the IE "MBMS PL Service Restriction Information" has not been received in the MBMS GENERAL INFORMATION message as the preferred frequency.

2> else:

3> select the preferred frequency indicated for the MBMS service(s) prioritised most by upper layers for which a preferred frequency exists as the preferred frequency.

…

1> if a preferred frequency has been selected:

2> if the UE is not in CELL_DCH state:

3> apply the cell-reselection procedure as described in [4], using the received "MBMS Preferred frequency information" applicable to the selected frequency:

4> if HCS is not used, and the IE "Qoffmbms" is not present for the MBMS preferred frequency:

5> consider the cells on the MBMS preferred frequency having a Qoffmbms equal to "infinity".

4> if HCS is used, and the IE "HCS_OFFmbms" is not present for the MBMS preferred frequency:

5> consider the cells on the MBMS preferred frequency having the highest HCS priority level.

3> if the UE re-selects to a cell on the indicated preferred frequency:

4> if the UE is in CELL_FACH, CELL_PCH or URA_PCH:

5> act according to subclause 8.3.1.2.

4> store the frequency information of the frequency on which the UE was operating prior to cell-reselection to the preferred frequency in the variable MBMS_PREV_FREQUENCY_INFORMATION.

4> apply the MCCH acquisition procedure, as specified in subclause 8.7.2.

1> else:

2> if the UE is not in CELL_DCH state:

3> stop applying any "MBMS Preferred frequency information".

…

If the IE "MBMS required UE action" is included and concerns an MBMS activated service the UE shall:

1> if the "MBMS required UE action" is set to 'None':

2> take no action with respect to this IE.

1> if the IE "MBMS required UE action" is set to 'Acquire counting info' or set to 'Acquire counting info– PTM RBs unmodified':

2> perform the MBMS counting procedure as specified in subclause 8.7.4;

NOTE: If upper layers indicate that an MBMS transmission has already been received correctly, the UE will continue as if the information about the concerned MBMS transmission was not included in the message. This implies that the UE does not respond to counting for a transmission already received correctly.

1> if the IE "MBMS required UE action" is set to 'Acquire PTM RB info'; or

1> if the IE "MBMS required UE action" is set to 'Acquire counting info– PTM RBs unmodified' and the UE is not receiving a p-t-m RB for the concerned service:

2> continue acquiring the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3

2> act upon the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION message, if received, in accordance with subclause 8.7.5;

…

1> if the IE "MBMS required UE action" is set to 'Release PTM RB':

2> stop receiving the concerned MBMS service;

2> if the UE is in a state other than CELL_DCH (for FDD) or if the UE is in Idle mode, URA_PCH or CELL_PCH state (for TDD); and

2> if the UE does not decide to receive an MBMS service; and

2> if the variable MBMS_PREV_FREQUENCY_INFO is not empty:

3> if any frequency in SIB11 or SIB12 has the same frequency stored in the variable MBMS_PREV_FREQUENCY_INFO:

4> select a suitable UTRA cell in that frequency.

4> if no suitable UTRA cell in that frequency is found:

5> select a suitable UTRA cell in another frequency.

3> if no frequency in SIB11 or SIB12 has the same frequency stored in the variable MBMS_PREV_FREQUENCY_INFO.

4> select a frequency randomly among the inter-frequencies indicated in SIB11 or SIB12.

5> select a suitable UTRA cell in the selected frequency.

5> if no suitable UTRA cell in the selected frequency is found:

6> select a suitable UTRA cell in another frequency.

3> clear the variable MBMS_PREV_FREQUENCY_INFO.

2> clear all service specific information applicable for the concerned service.

NOTE: The UE is only required to acquire the relevant SIB11 or SIB12, according to what is specified in subclauses 8.1.1.6.11 and 8.1.1.6.12.

…

If the UE is receiving an MBMS service that is not included in variable MBMS_ACTIVATED_SERVICES and that is using a p-t-m radio bearer, the UE shall:

1> stop receiving the concerned MBMS service and clear all service specific information applicable for the concerned service.

Upon completing the reception of the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages, the UE shall

1> act as follows for each of the services included in these messages provided that the service is included in variable MBMS_ACTIVATED_SERVICES and upper layers indicate that the session has not yet been received correctly (referred to as 'applicable services');

1> act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following;

1> if one or more preferred frequency applies for the applicable services:

2> delay acting upon the "MBMS Preferred frequency information" until receiving the relevant MCCH information i.e. the MBMS GENERAL INFORMATION message;

2> act upon the "MBMS Preferred frequency information" as specified in subclause 8.6.9.4 for the service(s) that upper layers indicate to have highest priority.

1> perform MBMS frequency selection procedure as specified in subclause 8.5.27;

1> if the UE receives an MBMS service using a p-t-m radio bearer and the received messages do not contain an IE "MBMS required UE action" set to "Acquire PTM RB info" or set to "Acquire counting info– PTM RBs unmodified" for that service then the UE shall:

2> stop receiving the concerned MBMS service and clear all service specific information applicable for the concerned service.

Reference

3GPP TS 25.331 clauses 8.5.27, 8.6.9.6, 8.7.2.4.

8.5.3.2.3 Test purpose

To verify that in CELL_PCH, the UE at session start re-selects to the preferred Frequency Layer for the MBMS services it has activated.

To verify that at session stop the UE re-select to the frequency where it has previously camped.

8.5.3.2.4 Method of test

Initial condition

System Simulator:

System Simulator: 2 MBMS cells, Cell21 and Cell24

User Equipment:

The UE is in CELL_PCH state as specified in clause 7.6 of TS 34.108.

The UE is interested in the broadcast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Broadcast service application available on UE Yes/No.

Test procedure

The UE receives, at notification via MCCH, an MBMS MODIFIED SERVICES INFORMATION message including a preferred frequency in the IE ”MBMS preferred frequency”.

The UE shall consider this frequency as the preferred frequency layer for cell re-selection and re-select to Cell 24 at session start for the MBMS service it has activated. The UE shall store the frequency information of the frequency on which the UE was operating prior to cell-reselection to the preferred frequency in the variable MBMS_PREV_FREQUENCY_INFORMATION.

The UE shall perform the MCCH acquisition procedure on the new cell.

The UE shall transmit a CELL UPDATE message on the uplink CCCH of Cell 24 and set IE "Cell update cause" to "cell reselection".

After the SS receives this message, it transmits a CELL UPDATE CONFIRM message to the UE on the downlink CCCH. The UE shall move to the CELL_PCH state as indicated by the IE "RRC State Indicator".

The UE receives a MBMS MODIFIED SERVICES INFORMATION message “MBMS required UE action” IE set to Acquire PTM RB info”. The UE shall apply the MBMS p-t-m radio bearer configuration procedure to acquire the radio bearer configuration for the MBMS services the UE has activated.

The UE start receiving the indicated p-t-m radio bearer.

The UE receives a MBMS MODIFIED SERVICES INFORMATION message with IE "MBMS required UE action" set to 'Release PTM RB'. The UE shall stop receiving the concerned MBMS service. The variable MBMS_PREV_FREQUENCY_INFO is not empty, and any frequency in SIB11 or SIB12 has the same frequency stored in the variable MBMS_PREV_FREQUENCY_INFO , therefore the UE shall select cell 21 (suitable UTRA cell in that frequency).

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is in CELL_PCH on cell 21.
2	←		MBMS MODIFIED SERVICES INFORMATION	“MBMS required UE action” IE is set to “none” and the “MBMS preferred frequency” IE indicates the reference to f2.
3	←		MBMS GENERAL INFORMATION	MBMS preferred frequency information is set to f2.
4	UE			The UE re-selects to cell 24.
5	→		CELL UPDATE	The CELL UPDATE message shall contain the value "Cell Update Cause" set to "cell reselection"

Step	Direction		Message	Comments
	UE	SS		
6	←		CELL UPDATE CONFIRM	IE "RRC State Indicator is set to CELL_PCH.
7	←		MBMS MODIFIED SERVICES INFORMATION	"MBMS required UE action" IE is set to "Acquire PTM RB info".
8	←		MBMS GENERAL INFORMATION	MBMS preferred frequency information set without index into SIB11 neighbour list.
9			VOID	
10	←		MBMS MODIFIED SERVICES INFORMATION	"MBMS required UE action" IE is set to "Release PTM RB"
11	←		MBMS GENERAL INFORMATION	MBMS preferred frequency information set without index into SIB11 neighbour list.
12	←		SYSTEM INFORMATION BLOCK TYPE 12 SYSTEM INFORMATION BLOCK TYPE 11	The cell 24 contains cell 21 in SIB11 and SIB12.
13	UE			The UE stops receiving the concerned MBMS services and re-selects to cell 21.
14	→		CELL UPDATE	The CELL UPDATE message shall contain the value "Cell Update Cause" set to "cell reselection"
15	←		CELL UPDATE CONFIRM	IE "RRC State Indicator is set to CELL_PCH.
16	←→		CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.

Specific message contents

All messages have the same content as defined in 34.108 clause 9.1.1 with the following exceptions:

MBMS MODIFIED SERVICES INFORMATION (Step 2)

Information Element	Value/remark
Modified service list - MBMS Transmission identity - MBMS required UE action - MBMS preferred frequency - PFL index	At least the entry including the activated service MBMS Transmission identity indicating MBMS activated service None Index for f2 (the frequency that UEs shall consider as the preferred frequency layer for cell re-selection during a session for an MBMS service the UE has activated)

MBMS GENERAL INFORMATION (Step 3)

Information Element	Value/remark
MBMS preferred frequency information	
- MBMS preferred frequency list	Only 1 Entry
- CHOICE Layer convergence information	f2 (the frequency that UEs shall consider as the preferred frequency layer for cell re-selection during a session for an MBMS service the UE has activated)

CELL UPDATE (Step 5 and 14)

Use the message sub-type in default message content defined in 3GPP TS 34.108 [9] clause 9, with the following exceptions.

Information Element	Value/remark
Cell update cause	cell reselection

CELL UPDATE CONFIRM (Step 6 and 15)

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	7

MBMS MODIFIED SERVICES INFORMATION (Step 7)

Information Element	Value/remark
Modified service list - MBMS Transmission identity - MBMS required UE action - MBMS preferred frequency - PFL index	At least the entry including the activated service MBMS Transmission identity indicating MBMS activated service Acquire PTM RB' - Set to the index of the frequency of Cell 24 in the preferred frequency list

MBMS GENERAL INFORMATION (Steps 8 and 11)

Information Element	Value/remark
MBMS preferred frequency information MBMS preferred frequency list - MBMS preferred frequency - CHOICE Layer convergence information - Qoffmbms	Only 1 entry Not present (indicates PFL is current cell frequency) No HCS Infinity

MBMS MODIFIED SERVICES INFORMATION (Step 10)

Information Element	Value/remark
Modified service list - MBMS Transmission identity - MBMS required UE action	At least the entry including the activated service MBMS Transmission identity indicating MBMS activated service 'Release PTM RB'

8.5.3.2.5 Test requirements

At step 5, the UE shall perform the cell update procedure using the cause value “MBMS reception” set to “cell reselection” on cell 24.

At step 14, the UE shall perform the cell update procedure using the cause value “MBMS reception” set to “cell reselection” on cell 21.

At step 16, the procedure C.4 shall verify that the UE is in CELL_PCH state.

8.5.3.2m MBMS Session Start (Frequency Layer Convergence)/Session Stop (Frequency Layer Dispersion) in CELL_PCH / MBMS Multicast Service

8.5.3.2m.1 Definition

This test is applicable for all UEs that support MBMS multicast services.

8.5.3.2m.2 Conformance requirement

Same conformance requirement as in clause 8.5.3.2.2

8.5.3.2m.3 Test purpose

Same test purpose as in clause 8.5.3.2.3.

8.5.3.2m.4 Method of test

Initial condition

System Simulator:

2 MBMS cells, Cell 21, Cell 24.

User Equipment:

The UE is in CELL_PCH state as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 8.5.3.2.4.

Specific message contents

Same specific messages contents as in clause 8.5.3.2.4

8.5.3.2m.5 Test requirements

Same test requirement as in clause 8.5.3.2.5.

8.5.3.3 MBMS Session Start (Frequency Layer Convergence)/Session Stop (Frequency Layer Dispersion) in CELL_FACH / MBMS Broadcast Service

8.5.3.3.1 Definition

This test is applicable for all UEs supporting MBMS broadcast services.

8.5.3.3.2 Conformance requirement

The UE shall perform the MBMS frequency layer selection procedure upon receiving the IE "MBMS Preferred frequency information", when specified explicitly e.g. as in subclause 8.6.9.2, or when the preferred MBMS service changes.

The UE shall:

1> if there exist two or more preferred frequencies for services included in variable MBMS_ACTIVATED_SERVICES:

2> request from upper layers the priorities of the different MBMS services included in variable MBMS_ACTIVATED_SERVICES for which a preferred frequency has been received.

1> if the UE is in idle mode:

2> if a preferred frequency layer applies for a service included in variable MBMS_ACTIVATED_SERVICES:

3> select the preferred frequency indicated for the MBMS service(s) prioritised most by upper layers for which a preferred frequency exists as the preferred frequency.

1> if the UE is in CELL_FACH, CELL_PCH or URA_PCH state; and

1> if there exists one or more preferred frequencies for services included in variable MBMS_ACTIVATED_SERVICES and the variable MBMS_PL_SERVICE_RESTRICTION_INFO_DEDICATED is set to FALSE:

2>if the IE "RAB information" in the variable ESTABLISHED_RABS is not empty:

3> if the current frequency is the frequency corresponding with the preferred frequency indicated for the MBMS service(s) prioritised most by upper layers for which a preferred frequency exists:

4> select the current frequency as the preferred frequency.

3> else:

4> if there exists one or more preferred frequencies for services included in variable MBMS_ACTIVATED_SERVICES for which the IE "MBMS PL Service Restriction Information" has not been received in the MBMS GENERAL INFORMATION message:

5> select the preferred frequency indicated for the MBMS service(s) prioritised most by upper layers for which a preferred frequency exists for which the IE "MBMS PL Service Restriction Information" has not been received in the MBMS GENERAL INFORMATION message as the preferred frequency.

2> else:

3> select the preferred frequency indicated for the MBMS service(s) prioritised most by upper layers for which a preferred frequency exists as the preferred frequency.

…

1> if a preferred frequency has been selected:

2> if the UE is not in CELL_DCH state:

3> apply the cell-reselection procedure as described in [4], using the received "MBMS Preferred frequency information" applicable to the selected frequency:

4> if HCS is not used, and the IE "Qoffmbms" is not present for the MBMS preferred frequency:

5> consider the cells on the MBMS preferred frequency having a Qoffmbms equal to "infinity".

4> if HCS is used, and the IE "HCS_OFFmbms" is not present for the MBMS preferred frequency:

5> consider the cells on the MBMS preferred frequency having the highest HCS priority level.

3> if the UE re-selects to a cell on the indicated preferred frequency:

4> if the UE is in CELL_FACH, CELL_PCH or URA_PCH:

5> act according to subclause 8.3.1.2.

4> store the frequency information of the frequency on which the UE was operating prior to cell-reselection to the preferred frequency in the variable MBMS_PREV_FREQUENCY_INFORMATION.

4> apply the MCCH acquisition procedure, as specified in subclause 8.7.2.

1> else:

2> if the UE is not in CELL_DCH state:

3> stop applying any "MBMS Preferred frequency information".

…

If the IE "MBMS required UE action" is included and concerns an MBMS activated service the UE shall:

1> if the "MBMS required UE action" is set to 'None':

2> take no action with respect to this IE.

1> if the IE "MBMS required UE action" is set to 'Acquire counting info' or set to 'Acquire counting info– PTM RBs unmodified':

2> perform the MBMS counting procedure as specified in subclause 8.7.4;

NOTE: If upper layers indicate that an MBMS transmission has already been received correctly, the UE will continue as if the information about the concerned MBMS transmission was not included in the message. This implies that the UE does not respond to counting for a transmission already received correctly.

1> if the IE "MBMS required UE action" is set to 'Acquire PTM RB info'; or

1> if the IE "MBMS required UE action" is set to 'Acquire counting info– PTM RBs unmodified' and the UE is not receiving a p-t-m RB for the concerned service:

2> continue acquiring the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3

2> act upon the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION message, if received, in accordance with subclause 8.7.5;

…

1> if the IE "MBMS required UE action" is set to 'Release PTM RB':

2> stop receiving the concerned MBMS service;

2> if the UE is in a state other than CELL_DCH (for FDD) or if the UE is in Idle mode, URA_PCH or CELL_PCH state (for TDD); and

2> if the UE does not decide to receive an MBMS service; and

2> if the variable MBMS_PREV_FREQUENCY_INFO is not empty:

3> if any frequency in SIB11 or SIB12 has the same frequency stored in the variable MBMS_PREV_FREQUENCY_INFO:

4> select a suitable UTRA cell in that frequency.

4> if no suitable UTRA cell in that frequency is found:

5> select a suitable UTRA cell in another frequency.

3> if no frequency in SIB11 or SIB12 has the same frequency stored in the variable MBMS_PREV_FREQUENCY_INFO.

4> select a frequency randomly among the inter-frequencies indicated in SIB11 or SIB12.

5> select a suitable UTRA cell in the selected frequency.

5> if no suitable UTRA cell in the selected frequency is found:

6> select a suitable UTRA cell in another frequency.

3> clear the variable MBMS_PREV_FREQUENCY_INFO.

2> clear all service specific information applicable for the concerned service.

NOTE: The UE is only required to acquire the relevant SIB11 or SIB12, according to what is specified in subclauses 8.1.1.6.11 and 8.1.1.6.12.

…

If the UE is receiving an MBMS service that is not included in variable MBMS_ACTIVATED_SERVICES and that is using a p-t-m radio bearer, the UE shall:

1> stop receiving the concerned MBMS service and clear all service specific information applicable for the concerned service.

Upon completing the reception of the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages, the UE shall

1> act as follows for each of the services included in these messages provided that the service is included in variable MBMS_ACTIVATED_SERVICES and upper layers indicate that the session has not yet been received correctly (referred to as 'applicable services');

1> act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following;

1> if one or more preferred frequency applies for the applicable services:

2> delay acting upon the "MBMS Preferred frequency information" until receiving the relevant MCCH information i.e. the MBMS GENERAL INFORMATION message;

2> act upon the "MBMS Preferred frequency information" as specified in subclause 8.6.9.4 for the service(s) that upper layers indicate to have highest priority.

1> perform MBMS frequency selection procedure as specified in subclause 8.5.27;

1> if the UE receives an MBMS service using a p-t-m radio bearer and the received messages do not contain an IE "MBMS required UE action" set to "Acquire PTM RB info" or set to "Acquire counting info– PTM RBs unmodified" for that service then the UE shall:

2> stop receiving the concerned MBMS service and clear all service specific information applicable for the concerned service.

Reference

3GPP TS 25.331 clauses 8.5.27, 8.6.9.6, 8.7.2.4.

8.5.3.3.3 Test purpose

To verify that in CELL_FACH, the UE at session start re-selects to the preferred Frequency Layer for the MBMS services it has activated.

To verify that at session stop the UE re-select to the one of the frequencies indicated in the System Information.

8.5.3.3.4 Method of test

Initial condition

System Simulator:

3 MBMS cells, Cell 21, Cell 24 and Cell 27

Table 8.5.3.3-1

Parameter	Unit	Cell 21	Cell 24	Cell 27
UTRA RF Channel Number		f1	f2	f3
Test Frequency ID		Mid Range	High Range	Low Range
CPICH Ec (FDD)	dBm/3.84 MHz	-60	-66	-66
P-CCPCH RSCP (TDD)	dBm	-60	-66	-66

User Equipment:

The UE is in CELL_FACH state as specified in clause 7.6 of TS 34.108.

The UE is interested in the broadcast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Broadcast service application available on UE Yes/No.

Test procedure

SS broadcasts SYSTEM INFORMATION BLOCK TYPE 11 with FACH Measurement Occasion details on Cell 21. The UE receives, at notification via MCCH, an MBMS MODIFIED SERVICES INFORMATION message including a preferred frequency in the IE "MBMS preferred frequency".

The UE shall consider this frequency as the preferred frequency layer for cell re-selection and re-select to Cell 24 at session start for the MBMS service it has activated. The UE shall store the frequency information of the frequency on which the UE was operating prior to cell-reselection to the preferred frequency in the variable MBMS_PREV_FREQUENCY_INFORMATION.

The UE shall perform the MCCH acquisition procedure on the new cell.

The UE shall transmit a CELL UPDATE message on the uplink CCCH of Cell 24 and set IE "Cell update cause" to "cell reselection".

After the SS receives this message, it transmits a CELL UPDATE CONFIRM message to the UE on the downlink CCCH. The UE shall stay in CELL_FACH state as indicated by the IE "RRC State Indicator".

The UE receives a MBMS MODIFIED SERVICES INFORMATION message “MBMS required UE action” IE set to Acquire PTM RB info”. The UE shall apply the MBMS p-t-m radio bearer configuration procedure to acquire the radio bearer configuration for the MBMS services the UE has activated.

The UE starts receiving the indicated p-t-m radio bearer and in order to check this, loop back mode 3 is used.

The UE receives a MBMS MODIFIED SERVICES INFORMATION message with IE "MBMS required UE action" set to 'Release PTM RB'. The UE shall stop receiving the concerned MBMS service. The variable MBMS_PREV_FREQUENCY_INFO is not empty. The frequencies in SIB11 or SIB12 are different from the frequency stored in the variable MBMS_PREV_FREQUENCY_INFO therefore the UE shall select Cell 27 (suitable UTRA cell in the indicated frequency) even if Cell 21 is present.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is in CELL_FACH on Cell 21.
1a	←		SYSTEM INFORMATION BLOCK TYPE 11	SS transmits modified SIB 11, with contents given in specific message contents.
2	←		MBMS MODIFIED SERVICES INFORMATION	“MBMS required UE action” IE is set to “none” and the “MBMS preferred frequency” IE indicates the f2.
3	←		MBMS GENERAL INFORMATION	MBMS preferred frequency information is set to f2.
4	UE			The UE re-selects to Cell 24.
5	→		CELL UPDATE	The CELL UPDATE message shall contain the value "Cell Update Cause" set to "cell reselection"
6	←		CELL UPDATE CONFIRM	IE "RRC State Indicator is set to CELL_FACH.
6a	→		UTRAN MOBILITY INFORMATION CONFIRM	
7	←		ACTIVATE RB TEST MODE	The SS activates the RB TEST MODE
8	→		ACTIVATE RB TEST MODE COMPLETE	
9	←		MBMS MODIFIED SERVICES INFORMATION	“MBMS required UE action” IE is set to "Acquire PTM RB info".

Step	Direction		Message	Comments
	UE	SS		
10	←		MBMS GENERAL INFORMATION	MBMS preferred frequency information set without index into SIB11 neighbour list.
11	←		CLOSE UE TEST LOOP	The SS closes the Loop back mode 3 on MTCH.
12	→		CLOSE UE TEST LOOP COMPLETE	
13		SS		The SS starts to broadcast MBMS data on MTCH on the concerned MBMS radio bearer. The SS transmits 10 RLC SDUs on the MTCH..
14	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
15	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the UE has received MBMS data.
16	←		OPEN UE TEST LOOP	
17	→		OPEN UE TEST LOOP COMPLETE	
18	←		SYSTEM INFORMATION BLOCK TYPE 11	Sent on cell 24, with Cell 27, but not the frequency of cell 21 in the neighbour list.
19	←		SYSTEM INFORMATION BLOCK TYPE 4	Sent on cell 27. $Qhyst1_s$ is set to 12dB in SIB4, to prevent reselection from this cell.
20	←		MBMS MODIFIED SERVICES INFORMATION	“MBMS required UE action” IE is set to "Release PTM RB”. The UE stops receiving the concerned MBMS services and re-selects to Cell 27
21	←		MBMS GENERAL INFORMATION	MBMS preferred frequency information set without index into SIB11 neighbour list.
22	→		CELL UPDATE	The CELL UPDATE message shall contain the value "Cell Update Cause" set to "cell reselection"
23	←		CELL UPDATE CONFIRM	"RRC State Indicator is set to CELL_FACH.
23a	→		UTRAN MOBILITY INFORMATION CONFIRM	
24	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific message contents

SYSTEM INFORMATION BLOCK TYPE 11 (Step 1a)(FDD)

Use the message sub-type in default message content defined in 3GPP TS 34.108 clause 6.1.4 for Cell 21, with the following exceptions.

Information Element	Value/remark
FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	3
- Inter-frequency FDD measurement indicator	TRUE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	Not Present

All messages have the same content as defined in 34.108 clause 9.1.1 with the following exceptions:

MBMS MODIFIED SERVICES INFORMATION (Step 2)

Information Element	Value/remark
Modified service list - MBMS Transmission identity - MBMS required UE action - MBMS preferred frequency - PFL index	At least the entry including the activated service MBMS Transmission identity indicating MBMS activated service None Index for f2 (the frequency that UEs shall consider as the preferred frequency layer for cell re-selection during a session for an MBMS service the UE has activated)

MBMS GENERAL INFORMATION (Step 3)

Information Element	Value/remark
MBMS preferred frequency information - MBMS preferred frequency list - CHOICE Layer convergence information	 Only 1 Entry f2 (the frequency that UEs shall consider as the preferred frequency layer for cell re-selection during a session for an MBMS service the UE has activated)

CELL UPDATE (Step 5 and 22)

Information Element	Value/remark
Cell update cause	cell reselection

CELL UPDATE CONFIRM (Step 6 and 23)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'

MBMS MODIFIED SERVICES INFORMATION (Step 9)

Information Element	Value/remark
Modified service list - MBMS Transmission identity - MBMS required UE action - MBMS preferred frequency - PFL index	At least the entry including the activated service MBMS Transmission identity indicating MBMS activated service ‘Acquire PTM RB' - Set to the index of the frequency of Cell 24 in the preferred frequency list

MBMS GENERAL INFORMATION (Steps 10 and 21)

Information Element	Value/remark
MBMS preferred frequency information MBMS preferred frequency list - MBMS preferred frequency - CHOICE Layer convergence information - Qoffmbms	Only 1 entry Not present (indicates PFL is current cell frequency) No HCS Infinity

SYSTEM INFORMATION BLOCK TYPE 11 (Step 18)(FDD)

Use the message sub-type in default message content defined in 3GPP TS 34.108 [9] clause 6.1.4 for Cell 24, with the following exceptions.

Information Element	Value/remark
- Inter-frequency measurement system information	
…..	
- Inter frequency cell id	27
- Frequency info	Same content as specified for Inter-frequency cell id=7 in SIB11 for Cell 7 in clause 6.1.4.2
- Cell info	Same content as specified for Intra-frequency cell id=7 in SIB11 for Cell 1 in clause 6.1.0b with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.27 (TDD)" in clause 6.1.4.3
- Inter frequency cell id	28
- Frequency info	Not present
- Cell info	Same content as specified for Intra-frequency cell id=8 in SIB11 for Cell 1 in clause 6.1.0b with the exception that value for Primary scrambling code shall be according to clause titled "Default settings for cell No.28 (TDD)" in clause 6.1.4.3
- Inter frequency cell id	7
- Frequency info	Not Present
- Cell info	Same content as specified for Inter-frequency cell id=7 in SIB11 for Cell 1 in clause 6.1.0b
- Inter frequency cell id	8
- Frequency info	Not present
- Cell info	Same content as specified for Inter-frequency cell id=8 in SIB11 for Cell 1 in clause 6.1.0b

SYSTEM INFORMATION BLOCK TYPE 11 (Step 18)(1.28Mcps TDD)

Use the message sub-type in default message content defined in 3GPP TS 34.108 [9] clause 6.1.4 for Cell 24, with the following exceptions.

Information Element	Value/remark
- Inter-frequency measurement system information	
…..	
- New inter-frequency cells	
- Inter-frequency cell id	1
- Frequency info	
- UARFCN	Low Range

SYSTEM INFORMATION BLOCK TYPE 4 (Step 19)

Use the message sub-type in default message content defined in 3GPP TS 34.108 [9] clause 6.1.4 for Cell 27, with the following exceptions.

Information Element	Value/remark
Cell selection and re-selection info	
- $Qhyst1_S$	6 (12dB)

MBMS MODIFIED SERVICES INFORMATION (Step 20)

Information Element	Value/remark
Modified service list	At least the entry including the activated service
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
- MBMS required UE action	'Release PTM RB'

8.5.3.3.5 Test requirements

At step 5, the UE shall perform the cell update procedure on cell 24 using the cause value “cell reselection” set to “cell reselection”.

At step 15, the UE shall transmit a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message and the number of reported RLC SDUs shall be greater than zero.

At step 22, the UE shall perform the cell update procedure on cell 27 using the cause value “cell reselection”.

At step 24 the procedure C.2 shall verify that the UE is in CELL_FACH state.

8.5.3.3m MBMS Session Start (Frequency Layer Convergence)/Session Stop (Frequency Layer Dispersion) in CELL_FACH / MBMS Multicast Service

8.5.3.3m.1 Definition

This test is applicable for all UEs that support MBMS multicast services.

8.5.3.3m.2 Conformance requirement

Same conformance requirement as in clause 8.5.3.3.2

8.5.3.3m.3 Test purpose

Same test purpose as in clause 8.5.3.3.3.

8.5.3.3m.4 Method of test

Initial condition

System Simulator:

3 MBMS cells, Cell 21, Cell 24 and Cell 27.

User Equipment:

The UE is in CELL_FACH state as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 8.5.3.3.4.

Specific message contents

Same specific messages contents as in clause 8.5.3.3.4

8.5.3.3m.5 Test requirements

Same test requirement as in clause 8.5.3.3.5.

8.5.3.4 MBMS Session Stop with Frequency Layer Dispersion - no previous frequency layer available (Idle Mode) / MBMS Broadcast Service

8.5.3.4.1 Definition

This test is applicable for all UEs supporting MBMS broadcast services.

8.5.3.4.2 Conformance requirement

1> if the IE "MBMS required UE action" is set to 'Release PTM RB':

2> stop receiving the concerned MBMS service;

2> if the UE is in a state other than CELL_DCH (for FDD) or if the UE is in Idle mode, URA_PCH or CELL_PCH state (for TDD); and

2> if the UE does not decide to receive an MBMS service; and

2> if the variable MBMS_PREV_FREQUENCY_INFO is not empty:

3> if any frequency in SIB11 or SIB12 has the same frequency stored in the variable MBMS_PREV_FREQUENCY_INFO:

4> select a suitable UTRA cell in that frequency.

4> if no suitable UTRA cell in that frequency is found:

5> select a suitable UTRA cell in another frequency.

3> if no frequency in SIB11 or SIB12 has the same frequency stored in the variable MBMS_PREV_FREQUENCY_INFO.

4> select a frequency randomly among the inter-frequencies indicated in SIB11 or SIB12.

5> select a suitable UTRA cell in the selected frequency

5> if no suitable UTRA cell in the selected frequency is found:

6> select a suitable UTRA cell in another frequency.

3> clear the variable MBMS_PREV_FREQUENCY_INFO.

2> clear all service specific information applicable for the concerned service.

NOTE: The UE is only required to acquire the relevant SIB11 or SIB12, according to what is specified in subclauses 8.1.1.6.11 and 8.1.1.6.12.

Reference

3GPP TS 25.331 clause 8.6.9.6.

8.5.3.4.3 Test purpose

To verify that in idle mode state, the UE performs frequency layer dispersion procedure at session stop, when no suitable cell in the previously stored frequency is found.

8.5.3.4.4 Method of test

Initial condition

System Simulator: 3 MBMS cells (Cell 21, Cell 24 and Cell 27), with the downlink transmission power shown in column marked "T0" in table 8.5.3.5-1.

User Equipment:

The UE is interested in the broadcast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

The UE is in Idle Mode as specified in clause 7.6 of TS 34.108.

Related ICS/IXIT statements

- MBMS Broadcast service application available on UE Yes/No

Test procedure

Table 8.5.3.4-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while columns marked "T1 are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 8.5.3.4-1

Parameter	Unit	Cell 21		Cell 24		Cell 27	
		T0	T1	T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency		Low Range Test Frequency	
LAC		0001		0002		0003	
CPICH Ec (FDD)	dBm/3.84 MHz	-60	OFF	-70	-70	-70	-60
P-CCPCH RSCP (TDD)	dBm	-60	OFF	-70	-70	-70	-60

Method C is applied (as described and used in clause 6 of TS 34.123-1).

The SS activates Cell 21, Cell 24 and Cell 27 and monitors them for access requests from the UE. The UE is in idle mode on Cell 21.The UE receives, at notification via MCCH, an MBMS MODIFIED SERVICES INFORMATION message including a preferred frequency in the IE" MBMS preferred frequency".

The UE shall consider this frequency as the preferred frequency layer for cell re-selection. The SS waits for random access requests from the UE. The UE moves to Cell 24 at session start for the concerned MBMS service. The UE shall store the frequency information of the frequency on which the UE was operating prior to cell-reselection to the preferred frequency in the variable MBMS_PREV_FREQUENCY_INFORMATION.

The UE shall perform the MCCH acquisition procedure on the new cell.

The UE receives an MBMS MODIFIED SERVICES INFORMATION message with the "MBMS required UE action" IE set to "Acquire PTM RB info". The UE shall apply the MBMS p-t-m radio bearer configuration procedure to acquire the radio bearer configuration for the MBMS service provided by the SS.

The UE starts receiving the indicated p-t-m radio bearer.

SS reconfigures itself according to the settings stated in column "T1" of table 8.5.3.4-1. The SS waits to see if there are any random access requests from the UE. The UE receives a MBMS MODIFIED SERVICES INFORMATION message with IE "MBMS required UE action" is set to 'Release PTM RB'. The UE shall stop receiving the concerned MBMS service. The variable MBMS_PREV_FREQUENCY_INFO is not empty, and no frequency in SIB11 or SIB12 has the same frequency stored in the variable MBMS_PREV_FREQUENCY_INFO. The SS waits for random access requests from the UE. The UE shall select Cell 27 (suitable UTRA).

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1				The UE is in Idle mode on Cell 21.
2	←		MBMS MODIFIED SERVICES INFORMATION	Service_id = service activated "MBMS required UE action is set to "none (FLC)".
3	←		MBMS GENERAL INFORMATION	MBMS preferred frequency information is set to f4.

Step	Direction		Message	Comments
	UE	SS		
4				The SS waits for random access requests from the UE. The UE shall respond on Cell 24, a GMM registration procedure is performed.
5				The following MBMS messages sent on the MCCH will be received in the next Modification Period.
6	←		MBMS MODIFIED SERVICES INFORMATION	
7	←		MBMS UNMODIFIED SERVICES INFORMATION	"MBMS required UE action" IE is set to "Acquire PTM RB info".
8	←		MBMS GENERAL INFORMATION	MBMS preferred frequency information set without index into SIB11 neighbour list.
9				UE starts receiving the indicated p-t-m radio bearer
10		SS		The SS reconfigures itself according to the settings stated in column "T1" of table 8.5.3.4-1.
11	←		MBMS MODIFIED SERVICES INFORMATION	"MBMS required UE action" IE is set to "Release PTM RB".
12	←		MBMS GENERAL INFORMATION	MBMS preferred frequency information set without index into SIB11 neighbour list.
13				The UE stops receiving the concerned MBMS services. The SS waits for random access requests from the UE. The UE shall respond on Cell 27, a GMM registration procedure is performed.
14	←→		CALL C.1	If the test result of C.1 indicates that UE is in Idle Mode state, the test passes, otherwise it fails.

Specific message contents

All messages have the same content as defined in 34.108 clause 9.1.1 with the following exceptions:

MBMS MODIFIED SERVICES INFORMATION (Step 2)

Information Element	Value/remark
Modified service list	Only 1 entry
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
- MBMS required UE action	None (FLC)
- MBMS preferred frequency	
- PFL index	index of the frequency of Cell 24 in the preferred frequency list

MBMS GENERAL INFORMATION (Step 3)

Information Element	Value/remark
MBMS preferred frequency information	
MBMS preferred frequency list - MBMS preferred frequency	Value N corresponds with the nth frequency included in the IE New inter-frequency cells that is specified within SIB 11, corresponding to cell 24 frequency.

MBMS UNMODIFIED SERVICES INFORMATION (Step 7)

Information Element	Value/remark
Modified service list	Only 1 entry
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
- MBMS required UE action	Acquire PTM RB info
- MBMS preferred frequency	-
- PFL index	index of the frequency of Cell 24 in the preferred frequency list

MBMS GENERAL INFORMATION (Steps 8 and 12)

Information Element	Value/remark
MBMS preferred frequency information	Only 1 entry
MBMS preferred frequency list	
- MBMS preferred frequency	Not present (indicates PFL is current cell frequency)
- CHOICE Layer convergence information	No HCS
- Qoffmbms	infinity

MBMS MODIFIED SERVICES INFORMATION (Step 11)

Information Element	Value/remark
Modified service list	Only 1 entry
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
- MBMS required UE action	'Release PTM RB'

8.5.3.4.5 Test requirements

At step 4, the UE shall respond on Cell 24.

At step 13, the UE shall respond on Cell 27.

At step 14 the procedure C.1 shall verify that the UE is in Idle Mode.

8.5.3.4m MBMS Session Stop with Frequency Layer Dispersion - no previous frequency layer available (Idle Mode) / MBMS Multicast Service

8.5.3.4m.1 Definition

This test is applicable for all UEs that support MBMS multicast services.

8.5.3.4m.2 Conformance requirement

Same conformance requirement as in clause 8.5.3.4.2

8.5.3.4m.3 Test purpose

Same test purpose as in clause 8.5.3.4.3.

8.5.3.4m.4 Method of test

Initial condition

System Simulator:

3 MBMS cells, Cell 21, Cell 24 and Cell 27.

User Equipment:

The UE is in Idle Mode as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 8.5.3.4.4.

Specific message contents

Same specific messages contents as in clause 8.5.3.4.4

8.5.3.4m.5 Test requirements

Same test requirement as in clause 8.5.3.4.5.

8.5.3.5 MBMS Session Stop with Frequency Layer Dispersion - no previous frequency layer available (URA_PCH) / MBMS Broadcast Service

8.5.3.5.1 Definition

This test is applicable for all UEs supporting MBMS broadcast services.

8.5.3.5.2 Conformance requirement

1> if the IE "MBMS required UE action" is set to 'Release PTM RB':

2> stop receiving the concerned MBMS service;

2> if the UE is in a state other than CELL_DCH (for FDD) or if the UE is in Idle mode, URA_PCH or CELL_PCH state (for TDD); and

2> if the UE does not decide to receive an MBMS service; and

2> if the variable MBMS_PREV_FREQUENCY_INFO is not empty:

3> if any frequency in SIB11 or SIB12 has the same frequency stored in the variable MBMS_PREV_FREQUENCY_INFO:

4> select a suitable UTRA cell in that frequency.

4> if no suitable UTRA cell in that frequency is found:

5> select a suitable UTRA cell in another frequency.

3> if no frequency in SIB11 or SIB12 has the same frequency stored in the variable MBMS_PREV_FREQUENCY_INFO.

4> select a frequency randomly among the inter-frequencies indicated in SIB11 or SIB12.

5> select a suitable UTRA cell in the selected frequency

5> if no suitable UTRA cell in the selected frequency is found:

6> select a suitable UTRA cell in another frequency.

3> clear the variable MBMS_PREV_FREQUENCY_INFO.

2> clear all service specific information applicable for the concerned service.

NOTE: The UE is only required to acquire the relevant SIB11 or SIB12, according to what is specified in subclauses 8.1.1.6.11 and 8.1.1.6.12.

Reference

3GPP TS 25.331, clause 8.6.9.6

8.5.3.5.3 Test purpose

To verify UE performs frequency layer dispersion procedure at session stop in URA_PCH state, when no suitable cell in the previously stored frequency is found.

8.5.3.5.4 Method of test

Initial condition

System Simulator:

3 MBMS cells, Cell 21, Cell 24 and Cell 27

User Equipment:

The UE is in URA_PCH state as specified in clause 7.6 of TS 34.108.

The UE is interested in the broadcast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Broadcast service application available on UE Yes/No

Test procedure

Table 8.5.3.5-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while columns marked "T1 are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 8.5.3.5-1

Parameter	Unit	Cell 21		Cell 24		Cell 27	
		T0	T1	T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency		Low Range Test Frequency	
URA ID		URA-ID 1		URA-ID 2		URA-ID 3	
CPICH Ec (FDD)	dBm/3.84 MHz	-60	OFF	-70	-70	-70	-60
P-CCPCH RSCP (TDD)	dBm	-60	OFF	-70	-70	-70	-60

The UE is in URA_PCH state on cell 21. SS indicates on MICH and modifies the MCCH to indicate the start of the service which the UE has activated. The UE moves to cell 24 with a cell update and begins reception of the MBMS service using the 64.8kbps radio bearer configuration as specified in TS 34.108 clause 6.10.2.4.3.5. The SS reconfigures itself according to the settings stated in column "T1" of table 8.5.3.5-1. The SS terminates the MBMS service with an indication that the UE should perform frequency layer dispersion. The UE moves to cell 27 with a cell update.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		MBMS MODIFIED SERVICES INFORMATION (Cell 21)	SS indicates availability of the MBMS broadcast or multicast service on cell 24. (Preferred frequency for this service is set to the index of the frequency of Cell 24 in the preferred frequency list) SS: MCCH message combination C4 for 1 modification period, then combination C2.
2	←		MBMS GENERAL INFORMATION (Cell 21)	MBMS Qoffset for the preferred frequency for this service set to infinity)
3	→		URA UPDATE	UE reselects to cell 24. URA Update cause = “change of URA”
4	←		URA UPDATE CONFIRM	RRC State indicator = URA_PCH
5	←		MBMS UNMODIFIED SERVICES INFORMATION (Cell 24)	UE begins reception of the MBMS service using the 64.8kbps radio bearer configuration as specified in TS 34.108 clause 6.10.2.4.3.5. SS: MCCH message combination C2.
6	←		MBMS GENERAL INFORMATION	MBMS preferred frequency information set without index into SIB11 neighbour list.
7				SS reconfigures itself according to the settings stated in column "T1" of table 8.5.3.5-1.
8	←		MBMS MODIFIED SERVICES INFORMATION (Cell 24)	The SS terminates the MBMS service with an indication to perform frequency layer dispersion. SS: MCCH message combination C4 for 1 modification period.
9	←		MBMS GENERAL INFORMATION	MBMS preferred frequency information set without index into SIB11 neighbour list.
10	→		URA UPDATE	UE reselects to cell 27. URA Update cause = “change of URA”
11	←		URA UPDATE CONFIRM	RRC State indicator = URA_PCH
12	←→		CALL C.5	If the test result of C.5 indicates that UE is in URA_PCH state, the test passes, otherwise it fails

Specific message contents

All messages have the same content as defined in 34.108 clause 9.1.1 with the following exceptions:

SYSTEM INFORMATION BLOCK TYPE 2

Cell 21:

Information Element	Value/remark
- URA identity list - URA identity	 0000 0000 0000 0001B

Cell 24:

Information Element	Value/remark
- URA identity list - URA identity	 0000 0000 0000 0010B

Cell 27:

Information Element	Value/remark
- URA identity list - URA identity	 0000 0000 0000 0011B

MBMS MODIFIED SERVICES INFORMATION (Step 1)

Information Element	Value/remark
MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
MBMS required UE action	None
MBMS preferred frequency - PFL index	 Set to the index of the frequency of Cell 24 in the preferred frequency list

MBMS GENERAL INFORMATION (Step 2)

Information Element	Value/remark
MBMS preferred frequency list MBMS preferred frequency Layer convergence information MBMS Qoffset	 Value N corresponds with the nth frequency included in the IE New inter-frequency cells that is specified within SIB 11, corresponding to cell 24 frequency. No HCS Infinity

URA UPDATE (Steps 3 and 10)

Information Element	Value/remark
U-RNTI - SRNC Identity - S-RNTI URA Update Cause	 Check to see if set to '0000 0000 0001' Check to see if set to '0000 0000 0000 0000 0001' Check to see if set to 'change of URA'

URA UPDATE CONFIRM (Steps 4 and 11)

Information Element	Value/remark
UTRAN DRX cycle length coefficient	7

MBMS UNMODIFIED SERVICES INFORMATION (Step 5)

Information Element	Value/remark
MBMS Transmission identity MBMS required UE action MBMS preferred frequency - PFL index	MBMS Transmission identity indicating MBMS activated service Acquire PTM RB info Set to the index of the frequency of Cell 24 in the preferred frequency list

MBMS GENERAL INFORMATION (Steps 6 and 9)

Information Element	Value/remark
MBMS preferred frequency information MBMS preferred frequency list - MBMS preferred frequency - CHOICE Layer convergence information - Qoffmbms	Only 1 entry Not present (indicates PFL is current cell frequency) No HCS infinity

MBMS MODIFIED SERVICES INFORMATION (Step 8)

Information Element	Value/remark
MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
MBMS required UE action	Release PTM RB

8.5.3.5.5 Test requirements

At step 3, the UE performs URA update on cell 24.

At step 10, the UE performs URA update on cell 27.

8.5.3.5m MBMS Session Stop with Frequency Layer Dispersion - no previous frequency layer available (URA_PCH) / MBMS Multicast Service

8.5.3.5m.1 Definition

This test is applicable for all UEs that support MBMS multicast services.

8.5.3.5m.2 Conformance requirement

Same conformance requirement as in clause 8.5.3.5.2

8.5.3.5m.3 Test purpose

Same test purpose as in clause 8.5.3.5.3.

8.5.3.5m.4 Method of test

Initial condition

System Simulator:

3 MBMS cells, Cell 21, Cell 24 and Cell 27.User Equipment:

The UE is in URA_PCH state as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 8.5.3.5.4.

Specific message contents

Same specific messages contents as in clause 8.5.3.5.4

8.5.3.5m.5 Test requirements

Same test requirement as in clause 8.5.3.5.5.

8.5.3.6 MBMS Session Stop with Frequency Layer Dispersion - no previous frequency layer available (CELL_FACH) / MBMS Broadcast Service

8.5.3.6.1 Definition

This test is applicable for all UEs supporting MBMS broadcast services.

8.5.3.6.2 Conformance requirement

1> if the IE "MBMS required UE action" is set to 'Release PTM RB':

2> stop receiving the concerned MBMS service;

2> if the UE is in a state other than CELL_DCH (for FDD) or if the UE is in Idle mode, URA_PCH or CELL_PCH state (for TDD); and

2> if the UE does not decide to receive an MBMS service; and

2> if the variable MBMS_PREV_FREQUENCY_INFO is not empty:

3> if any frequency in SIB11 or SIB12 has the same frequency stored in the variable MBMS_PREV_FREQUENCY_INFO:

4> select a suitable UTRA cell in that frequency.

4> if no suitable UTRA cell in that frequency is found:

5> select a suitable UTRA cell in another frequency.

3> if no frequency in SIB11 or SIB12 has the same frequency stored in the variable MBMS_PREV_FREQUENCY_INFO.

4> select a frequency randomly among the inter-frequencies indicated in SIB11 or SIB12.

5> select a suitable UTRA cell in the selected frequency

5> if no suitable UTRA cell in the selected frequency is found:

6> select a suitable UTRA cell in another frequency.

3> clear the variable MBMS_PREV_FREQUENCY_INFO.

2> clear all service specific information applicable for the concerned service.

NOTE: The UE is only required to acquire the relevant SIB11 or SIB12, according to what is specified in subclauses 8.1.1.6.11 and 8.1.1.6.12.

Reference

3GPP TS 25.331, clause 8.6.9.6.

8.5.3.6.3 Test purpose

To verify UE performs frequency layer dispersion procedure at session stop in CELL_FACH state, when no suitable cell in the previously stored frequency is found.

8.5.3.6.4 Method of test

Initial condition

System Simulator:

3 MBMS cells, Cell 21, Cell 24 and Cell 27.

User Equipment:

The UE is in CELL_FACH state as specified in clause 7.6 of TS 34.108.

The UE is interested in the broadcast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Broadcast service application available on UE Yes/No

Test procedure

Table 8.5.3.6-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while columns marked "T1 are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 8.5.3.6-1

Parameter	Unit	Cell 21		Cell 24		Cell 27	
		T0	T1	T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency		Low Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84 MHz	-60	OFF	-70	-70	-70	-60
P-CCPCH RSCP (TDD)	dBm	-60	OFF	-70	-70	-70	-60

The UE is in CELL_FACH state on cell 21. The SS broadcasts SYSTEM INFORMATION BLOCK TYPE 11 with FACH Measurement Occasion details on Cell 21. SS indicates on MICH and modifies the MCCH to indicate the start of the service which the UE has activated. The UE moves to cell 24 with a cell update and begins reception of the MBMS service using the 64.8kbps radio bearer configuration as specified in TS 34.108 clause 6.10.2.4.3.5. The SS reconfigures itself according to the settings stated in column "T1" of table 8.5.3.6-1. The SS terminates the MBMS service with an indication that the UE should perform frequency layer dispersion. The UE moves to cell 27 with a cell update.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
0	←		SYSTEM INFORMATION BLOCK TYPE 11	SS transmits modified SIB 11, with contents given in specific message contents.
1	←		MBMS MODIFIED SERVICES INFORMATION (Cell 21)	SS indicates availability of the MBMS broadcast or multicast service on Cell 24. (Preferred frequency for this service is set to the index of the frequency of Cell 24 in the preferred frequency list) SS: MCCH message combination C4 for 1 modification period, then combination C2.
2	←		MBMS GENERAL INFORMATION (Cell 21)	MBMS Qoffset for the preferred frequency for this service set to infinity
3	→		CELL UPDATE	UE reselects to Cell 24. Cell Update cause = "Cell reselection"
4	←		CELL UPDATE CONFIRM	RRC State indicator = CELL_FACH
4a	→		UTRAN MOBILITY INFORMATION CONFIRM	
5	←		MBMS UNMODIFIED SERVICES INFORMATION (Cell 24)	UE begins reception of the MBMS service using the 64.8kbps radio bearer configuration as specified in TS 34.108 clause 6.10.2.4.3.5. SS: MCCH message combination C2.
6	←		MBMS GENERAL INFORMATION	MBMS preferred frequency information set without index into SIB11 neighbour list.
7				SS reconfigures itself according to the settings stated in column "T1" of table 8.5.3.6-1.
8	←		MBMS MODIFIED SERVICES INFORMATION (Cell 24)	The SS terminates the MBMS service. SS: MCCH message combination C4 for 1 modification period.
9	←		MBMS GENERAL INFORMATION	MBMS preferred frequency information set without index into SIB11 neighbour list.
10	→		CELL UPDATE	UE reselects to Cell 27. Cell Update cause = "Cell reselection"
11	←		CELL UPDATE CONFIRM	RRC State indicator = CELL_FACH
11a	→		UTRAN MOBILITY INFORMATION CONFIRM	
12	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific message contents

All messages have the same content as defined in 34.108 clause 9.1.1 with the following exceptions:

SYSTEM INFORMATION BLOCK TYPE 11 (Step 0)(FDD)

Use the message sub-type in default message content defined in 3GPP TS 34.108 clause 6.1.4 for Cell 21, with the following exceptions.

Information Element	Value/remark
FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	3
- Inter-frequency FDD measurement indicator	TRUE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	Not Present

MBMS MODIFIED SERVICES INFORMATION (Step 1)

Information Element	Value/remark
MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
MBMS required UE action	None
MBMS preferred frequency	
- PFL index	Set to the index of the frequency of Cell 24 in the preferred frequency list

MBMS GENERAL INFORMATION (Step 2)

Information Element	Value/remark
MBMS preferred frequency list	
MBMS preferred frequency	Value N corresponds with the nth frequency included in the IE New inter-frequency cells that is specified within SIB 11, corresponding to Cell 24 frequency.
Layer convergence information	No HCS
MBMS Qoffset	Infinity

MBMS UNMODIFIED SERVICES INFORMATION (Step 5)

Information Element	Value/remark
MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
MBMS required UE action	Acquire PTM RB info
MBMS preferred frequency	
- PFL index	Set to the index of the frequency of Cell 24 in the preferred frequency list

MBMS GENERAL INFORMATION (Steps 6 and 9)

Information Element	Value/remark
MBMS preferred frequency information	Only 1 entry
MBMS preferred frequency list	
- MBMS preferred frequency	Not present (indicates PFL is current cell frequency)
- CHOICE Layer convergence information	No HCS
- Qoffmbms	infinity

MBMS MODIFIED SERVICES INFORMATION (Step 8)

Information Element	Value/remark
MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
MBMS required UE action	Release PTM RB

CELL UPDATE (Step 3 and 10)

Information Element	Value/remark
Cell Update Cause	'Cell Reselection'

CELL UPDATE CONFIRM (Step 4 and 11)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'

8.5.3.6.5 Test requirements

At step 3, the UE performs cell update on cell 24.

At step 10, the UE performs cell update on cell 27.

8.5.3.6m MBMS Session Stop with Frequency Layer Dispersion - no previous frequency layer available (CELL_FACH) / MBMS Multicast Service

8.5.3.6m.1 Definition

This test is applicable for all UEs that support MBMS multicast services.

8.5.3.6m.2 Conformance requirement

Same conformance requirement as in clause 8.5.3.6.2

8.5.3.6m.3 Test purpose

Same test purpose as in clause 8.5.3.6.3.

8.5.3.6m.4 Method of test

Initial condition

System Simulator:

3 MBMS cells, Cell 21, Cell 24 and Cell 27

User Equipment:

The UE is in CLL_FACH state as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 8.5.3.6.4.

Specific message contents

Same specific messages contents as in clause 8.5.3.6.4

8.5.3.6m.5 Test requirements

Same test requirement as in clause 8.5.3.6.5.

8.5.4 MBMS Modification Request

8.5.4.1 Transmission of the MBMS Selected Services Information when entering RRC connected mode and CELL_DCH state / MBMS Selected Service

8.5.4.1.1 Definition

This test is applicable for all UEs that support MBMS broadcast services.

8.5.4.1.2 Conformance requirement

A UE entering CELL_DCH shall initiate the MBMS modification request procedure in the following cases:

1> if the UE has any MBMS Selected Service; and

1> if the IE "MCCH configuration information" was received in System Information Block Type 5 or System Information Block Type 5bis prior to entering CELL_DCH.

A UE completing an RRC Connection Setup procedure shall initiate the MBMS modification request procedure in the following cases:

1> if the UE has any MBMS Selected Service; and

1> if the IE "MCCH configuration information" was received in System Information Block Type 5 or System Information Block Type 5bis prior to completing the RRC Connection Setup procedure.

…

The UE shall set the contents of the MBMS MODIFICATION REQUEST message as follows:

1> if there is a change in selection of one or more of the MBMS Selected Services:

2> if the UE has not selected any MBMS Selected Service:

3> include the MBMS Selected Service Info and set the Status to 'None'.

2> otherwise:

3> include the MBMS Selected Service Info and set the Status to 'Some'.

3> for each MBMS Selected Service:

4> include the MBMS Selected Service ID.

Reference

3GPP TS 25.331 clauses 8.7.6.2, 8.7.6.2a.

8.5.4.1.3 Test purpose

1. To verify that when the list of MBMS Selected Services is not empty, the UE sends the MBMS Selected Services Information to the network when entering RRC connected mode.
2. To verify that when the list of MBMS Selected Services is not empty, the UE sends the MBMS Selected Services Information to the network when entering CELL_DCH state.

8.5.4.1.4 Method of test

Initial condition

System Simulator:

1 MBMS cell.

User Equipment:

The UE is interested in the selected service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

The UE is in Idle Mode as specified in clause 7.6 of TS 34.108.

Related ICS/IXIT statements

- MBMS Broadcast service application available on UE Yes / No

Test procedure

The UE is in idle mode and has selected MBMS Service 1. The UE performs an outgoing call to setup a PS service. After the RRC connection establishment, the UE transmits an MBMS MODIFICATION REQUEST message containing the selected service to the SS.

Then the SS transmits a PHYSICAL CHANEL RECONFIGURATION message to move the UE to CELL_DCH state. After entering CELL_DCH state, the UE transmits an MBMS MODIFICATION REQUEST message containing the selected service to the SS.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	→		RRC CONNECTION REQUEST	
2	←		RRC CONNECTION SETUP	
3	→		RRC CONNECTION SETUP COMPLETE	
4	→		MBMS MODIFICATION REQUEST	This message may be received at any point after step 3 but before step 10.
5			VOID	
6	←		SECURITY MODE COMMAND	
7	→		SECURITY MODE COMPLETE	
8	←		RADIO BEARER SETUP	
9	→		RADIO BEARER SETUP COMPLETE	
10	←		PHYSICAL CHANNEL RECONFIGURATION	
11	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE enters CELL_DCH state
12	→		MBMS MODIFICATION REQUEST	

Specific message contents

RRC CONNECTION SETUP (Step 2)

Use the message sub-type titled “Transition to CELL_FACH” in TS 34.108 clause 9.

MBMS MODIFICATION REQUEST (steps 4 and 12)

Information Element	Value/remark
MBMS preferred frequency request	Check that the IE is not present
MBMS RB list requested to be released	Check that the IE is not present
MBMS Selected Service Info - CHOICE Status - MBMS Selected Services Full - MBMS Selected Service ID - MBMS Service ID - CHOICE PLMN identity - SameAs-MIB - explicitPLMN_Id	 Some MBMS service ID of the activated MBMS service Check to see that one of the below choice element is present (no data) Check to see if it is set to the same value as "PLMN ID” in the Master Information block transmitted for the current serving cell.

RADIO BEARER SETUP (Step 8)

Use the message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in 34.108 clause 9.PHYSICAL CHANNEL RECONFIGURATION (Step 10)

Use the message sub-type titled "Packet to CELL_DCH from CELL_FACH in PS" in 34.108 clause 9.

8.5.4.1.5 Test requirements

After step 3, the UE shall transmit an MBMS MODIFICATION REQUEST message.

After step 11, the UE shall transmit an MBMS MODIFICATION REQUEST message.

8.5.4.2 Modification of the MBMS Selected Services list whilst in URA_PCH & Cell_FACH / MBMS Selected Service

8.5.4.2.1 Definition

This test is applicable for Rel-6 UEs supporting MBMS broadcast services.

8.5.4.2.2 Conformance requirement

A UE in CELL_FACH, CELL_PCH or URA_PCH state shall initiate the MBMS modification request procedure in the following cases:

1> upon a change of the MBMS Selected Services; and

1> if the IE "Indicate changes in MBMS Selected Services" that is included in the MBMS GENERAL INFORMATION message is set to TRUE.

If the UE is required to initiate the MBMS modification request procedure as specified in the conditions above, the UE shall:

1> transmit an MBMS MODIFICATION REQUEST message with the contents as specified in subclause 8.7.6.2a.

The UE shall set the contents of the MBMS MODIFICATION REQUEST message as follows:

1> if the preferred frequency applicable for the MBMS service prioritised by upper layers is different from the currently used frequency:

2> include the IE "MBMS preferred frequency request" and set it to the prioritised MBMS service identity.

1> if upper layers request to discontinue reception of an MBMS service provided via a p-t-p radio bearer:

2> include the p-t-p radio bearers used for the corresponding MBMS services within the IE "MBMS RB list requested to be released".

1> if the UE enters CELL_DCH; or

1> if the UE completes the RRC connection establishment procedure; or

1> if there is a change in selection of one or more of the MBMS Selected Services:

2> if the UE has not selected any MBMS Selected Service:

3> include the MBMS Selected Service Info and set the Status to 'None'.

2> otherwise:

3> include the MBMS Selected Service Info and set the Status to 'Some'.

3> for each MBMS Selected Service:

4> include the MBMS Selected Service ID.

Reference

3GPP TS 25.331, clauses 8.7.6.2, 8.7.6.2a.

8.5.4.2.3 Test purpose

To verify that when a UE is in URA_PCH the introduction of a MBMS Service ID onto the MCCH does not trigger the UE to send a update to the network.

To verify that when the list of MBMS Selected Services is modified in the UE in URA_PCH or CELL_FACH, when the network indicates it should do so (in the MBMS General Information message), the UE informs the network that the MBMS selected Services have changed.

To verify that when the list of MBMS Selected Services is modified in the UE in CELL_FACH, when the network indicates it should not update the network (in the MBMS General Information message), ensure that the UE does not inform the network that the MBMS selected Services have changed.

8.5.4.2.4 Method of test

Initial condition

System Simulator:

1 MBMS cell.

User Equipment:

The UE is in URA_PCH state as specified in clause 7.6 of TS 34.108.

The UE is interested in the selected service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Broadcast service application available on UE Yes / No

Test procedure

a) The MCCH on Cell 21 is modified to indicate the availability of service 1, and the Notification Indicator on MICH corresponding to service 1 is set. The IE “MBMS re- acquire MCCH” that is included in MBMS MODIFIED SERVICES INFORMATION is set to TRUE. The IE "Indicate changes in MBMS Selected Services" that is included in the MBMS GENERAL INFORMATION message is set to TRUE. The SS starts service 1 using the 64.8kbps radio bearer configuration as specified in TS 34.108 clause 6.10.2.4.3.5.

b) The SS verifies for 1 complete modification period that the UE does not perform a Cell Update or send MBMS MODIFICATION REQUEST.

c) Service 1 is removed from the UE selected services.

d) The UE performs a Cell Update, indicating “Uplink data transmission”. The Cell Update Confirm message moves the UE to CELL_FACH state.

e) The UE transmits MBMS MODIFICATION REQUEST indicating the list of selected services (Status = “None”).

f) Service 1 is added to the UE selected services.

g) The UE transmits MBMS MODIFICATION REQUEST indicating the list of selected services (service 1).

h) The MCCH on Cell 21 is modified, and the Notification Indicator on MICH corresponding to service 1 is set. The IE “MBMS re- acquire MCCH” that is included in MBMS MODIFIED SERVICES INFORMATION is set to TRUE. The IE "Indicate changes in MBMS Selected Services" that is included in the MBMS GENERAL INFORMATION message is set to FALSE.

i) After 1 complete modification period, service 1 is removed from the UE selected services.

j) The SS verifies for 1 complete modification period that the UE does not perform a Cell Update and/or send MBMS MODIFICATION REQUEST.

k) Service 1 is added to the UE selected services.

l) The SS verifies for 1 complete modification period that the UE does not perform a Cell Update and/or send MBMS MODIFICATION REQUEST.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1				The UE state in Cell 21 is: URA_PCH UE: Service 1 only is selected.
2	←		MBMS MODIFIED SERVICES INFORMATION	SS indicates the availability of the MBMS broadcast service 1. 'MBMS re- acquire MCCH' = TRUE SS: MCCH message combination C4 for 1 modification period, then combination C2.
3	←		MBMS GENERAL INFORMATION	'Indicate changes in MBMS Selected Services' = TRUE
4				SS verifies for 1 complete modification period that the UE does not send MBMS MODIFICATION REQUEST.
5				Service 1 is removed from the UE selected services.
6	→		CELL UPDATE	
7	←		CELL UPDATE CONFIRM	The UE shall move to CELL_FACH state
7a	→		UTRAN MOBILITY INFORMATION CONFIRM	
8	→		MBMS MODIFICATION REQUEST	MBMS Selected Service Info: Status = 'None'.
9				Service 1 is added to the UE selected services.
10	→		MBMS MODIFICATION REQUEST	MBMS Selected Service Info: Status = 'Some'. MBMS Selected Service ID = 5
11	←		MBMS MODIFIED SERVICES INFORMATION	SS indicates a change in MBMS broadcast service 1. SS: MCCH message combination C4 for 1 modification period, then combination C2.
12	←		MBMS GENERAL INFORMATION	'Indicate changes in MBMS Selected Services' = FALSE
13				After 1 complete modification period, the UE removes service 1 from the selected services.
14				SS verifies that the UE does not send MBMS MODIFICATION REQUEST or Cell Update.
15				After 1 complete modification period, the UE adds service 1 to the selected services.
16				SS verifies that the UE does not send MBMS MODIFICATION REQUEST or Cell Update.

Specific message contents

MBMS MODIFIED SERVICES INFORMATION (Step 2)

The same message found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Modified service list - MBMS Transmission identity - MBMS Service ID - MBMS Session ID - MBMS required UE action - Continue MCCH reading	 '000005' 1 Acquire PTM RB Info FALSE
MBMS re- acquire MCCH	TRUE

MBMS GENERAL INFORMATION (Step 3)

The same message found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Indicate changes in MBMS Selected Services	TRUE

CELL UPDATE (Step 6)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
Cell Update Cause	Check to see if set to 'uplink data transmission'

CELL UPDATE CONFIRM (Step 7)

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'

MBMS MODIFICATION REQUEST (STEP 8)

Information Element	Value/remark
MBMS Selected Service Info - CHOICE Status	 None

MBMS MODIFICATION REQUEST (STEP 10)

Information Element	Value/remark
MBMS Selected Service Info - CHOICE Status - MBMS Selected Services - MBMS Selected Service ID - CHOICE PLMN identity - SameAs-MIB - explicitPLMN_Id	 Some '000005' Check to see that one of the below choice element is present (no data) Check to see if it is set to the same value as "PLMN ID" in the Master Information block transmitted for the current serving cell.

MBMS MODIFIED SERVICES INFORMATION (Step 11)

The same message found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Modified service list - MBMS Transmission identity - MBMS Service ID - MBMS Session ID - MBMS required UE action - Continue MCCH reading	 '000005' 1 None FALSE
MBMS re- acquire MCCH	TRUE

MBMS GENERAL INFORMATION (Step 12)

The same message found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Indicate changes in MBMS Selected Services	FALSE

8.5.4.2.5 Test requirements

In steps b, j, and l the UE shall not send MBMS MODIFICATION REQUEST.

In step e the UE shall transmit MBMS GENERAL INFORMATION indicating the list of selected services (Status = "None").

In step g the UE shall transmit MBMS GENERAL INFORMATION indicating the list of selected services (Status = "Some", MBMS Selected Service ID = '000005').

8.5.4.3 Testing of the MBMS Selected Services indication from the network whilst in CELL_DCH / MBMS Selected Service

8.5.4.3.1 Definition

This test is applicable for Rel-6 UEs supporting MBMS broadcast services and MBMS p-t-m reception in CELL_DCH state.

8.5.4.3.2 Conformance requirement

A UE in CELL_DCH shall initiate the MBMS modification request procedure in the following cases:

1> the preferred frequency applicable for the MBMS service prioritised by upper layers is different from the currently used frequency;

1> upper layers request to discontinue reception of an MBMS service provided via a p-t-p radio bearer e.g. because this inhibits reception of a higher priority service;

1> upon a change in selection of the MBMS Selected Services.

NOTE: The above case may occur upon receiving a dedicated notification or in other cases e.g. a change of transfer mode from p-t-p to p-t-m for the UE's highest priority MBMS service.

...

If the UE is required to initiate the MBMS modification request procedure as specified in the conditions above, the UE shall:

1> transmit an MBMS MODIFICATION REQUEST message with the contents as specified in subclause 8.7.6.2a.

The UE shall set the contents of the MBMS MODIFICATION REQUEST message as follows:

1> if the preferred frequency applicable for the MBMS service prioritised by upper layers is different from the currently used frequency:

2> include the IE "MBMS preferred frequency request" and set it to the prioritised MBMS service identity.

1> if upper layers request to discontinue reception of an MBMS service provided via a p-t-p radio bearer:

2> include the p-t-p radio bearers used for the corresponding MBMS services within the IE "MBMS RB list requested to be released".

1> if the UE enters CELL_DCH; or

1> if the UE completes the RRC connection establishment procedure; or

1> if there is a change in selection of one or more of the MBMS Selected Services:

2> if the UE has not selected any MBMS Selected Service:

3> include the MBMS Selected Service Info and set the Status to 'None'.

2> otherwise:

3> include the MBMS Selected Service Info and set the Status to 'Some'.

3> for each MBMS Selected Service:

4> include the MBMS Selected Service ID.

Reference

3GPP TS 25.331, clauses 8.7.6.2, 8.7.6.2a.

8.5.4.3.3 Test purpose

To verify that the UE updates the MBMS Selected Service Information at the introduction of a MBMS Service ID on the MCCH, when the UE is in CELL_DCH state.

8.5.4.3.4 Method of test

Initial condition

System Simulator:

- 1 MBMS cell.

User Equipment:

- The UE is in CELL_DCH state as specified in clause 7.6 of TS 34.108.
- The UE is interested in the selected service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Broadcast service application available on UE Yes/No
- UE supports MBMS MCCH reception in CELL_DCH state Yes/No

Test procedure

a) The MCCH on Cell 21 is modified to indicate the availability of service 1, and the Notification Indicator on MICH corresponding to service 1 is set. The IE “MBMS re- acquire MCCH” that is included in MBMS MODIFIED SERVICES INFORMATION is set to TRUE. The SS starts service 1 using the 64.8kbps radio bearer configuration as specified in TS 34.108 clause 6.10.2.4.3.5.

b) The SS verifies for 1 complete modification period that the UE does not send MBMS MODIFICATION REQUEST.

c) Service 1 is removed from the UE selected services.

d) The UE transmits MBMS MODIFICATION REQUEST indicating the list of selected services (Status = "None").

e) Service 1 is added to the UE selected services.

f) The UE transmits MBMS MODIFICATION REQUEST indicating the list of selected services (service 1).

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1				The UE state in Cell 21 is: CELL_DCH UE: Service 1 only is selected.
2	←		MBMS MODIFIED SERVICES INFORMATION	SS indicates the availability of the MBMS broadcast service 1. 'MBMS re- acquire MCCH' = TRUE SS: MCCH message combination C4 for 1 modification period, then combination C2.
3				SS verifies for 1 complete modification period that the UE does not send MBMS MODIFICATION REQUEST.
4				Service 1 is removed from the UE selected services.
5	→		MBMS MODIFICATION REQUEST	MBMS Selected Service Info: Status = 'None'.
6				Service 1 is added to the UE selected services.
7	→		MBMS MODIFICATION REQUEST	MBMS Selected Service Info: Status = 'Some'. MBMS Selected Service ID = 5

Specific message contents

MBMS MODIFIED SERVICES INFORMATION (Step 2)

The same message found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Modified service list	
- MBMS Transmission identity	
- MBMS Service ID	'000005'
- MBMS Session ID	1
- MBMS required UE action	Acquire PTM RB Info
- Continue MCCH reading	FALSE
MBMS re- acquire MCCH	TRUE

MBMS MODIFICATION REQUEST (STEP 5)

Information Element	Value/remark
MBMS Selected Service Info	
- CHOICE Status	None

MBMS MODIFICATION REQUEST (STEP 7)

Information Element	Value/remark
MBMS Selected Service Info	
- CHOICE Status	Some
- MBMS Selected Services Full	
- MBMS Selected Service ID	
- MBMS Service ID	'000005'
- CHOICE PLMN identity	Check to see that one of the below choice element is present
- SameAs-MIB	(no data)
- explicitPLMN_Id	Check to see if it is set to the same value as "PLMN ID" in the Master Information block transmitted for the current serving cell.

8.5.4.3.5 Test requirements

In step 3 the UE shall not send MBMS MODIFICATION REQUEST.

In step 5 the UE shall transmit MBMS MODIFICATION REQUEST indicating the list of selected services (Status = "None").

In step 7 the UE shall transmit MBMS MODIFICATION REQUEST indicating the list of selected services (Status = "Some", MBMS Service ID = '000005').

8.5.5 MBMS Counting

8.5.5.1 MBMS Counting in Idle Mode / MBMS Selected Service

8.5.5.1.1 Definition

This test case is applicable for all UEs supporting MBMS broadcast services.

8.5.5.1.2 Conformance requirement

The MBMS counting procedure is used by the UE to inform UTRAN about its interest to receive an MBMS transmission.

…

The UE initiates the MBMS counting procedure for an MBMS transmission upon receiving an MBMS MODIFIED SERVICES message including IE "MBMS required UE action" with the value set to 'Acquire counting info' or set to "Acquire counting info– PTM RBs unmodified".

…

Upon receiving the MBMS ACCESS INFORMATION message including one or more MBMS service(s) it has joined, and/ or including one or more MBMS Selected Services the UE shall for each joined and / or selected service:

1> if the UE is in idle mode:

2> draw a random number, "rand", uniformly distributed in the range: $0 \leq rand < 1$

2> if 'rand' is lower than the value indicated by the IE 'Access probability factor-Idle' for the concerned service:

3> indicate to upper layers that establishment of an RRC connection is required to receive the concerned MBMS service, with the establishment cause set to 'MBMS reception';

3> if the above condition applies for more than one service, initiate a single indication to upper layers;

3> if the RRC connection establishment succeeds, the procedure ends.

…

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

…

1> otherwise if the UE performs connection establishment for MBMS counting as specified in subclause 8.7.4; and

1> if one or more of the MBMS services for which the UE initiates the counting response concerns an MBMS Selected Service:

2> for each MBMS Selected Service that is indicated on MCCH and for which the UE initiates the counting response:

3> order the MBMS Selected Services such that those selected with a higher priority are listed in the IE "MBMS Selected Services Short" before those selected with a lower priority;

3> include the IE "MBMS Selected Service ID" within the IE "MBMS Selected Services Short" and set it to a value in accordance with subclause 8.6.9.8.

1> if the UE included one or more "MBMS Selected Service ID" IEs:

2> include the IE "MBMS Modification Period identity" and set it to a value in accordance with subclause 8.5.29.

Reference

3GPP TS 25.331 clauses 8.7.4, 8.7.4.1, 8.7.4.2, 8.7.4.3, 8.1.3.3.

8.5.5.1.3 Test purpose

To confirm that the UE starts the MBMS counting procedure in idle mode upon receiving an MBMS MODIFIED SERVICES message including IE "MBMS required UE action" and an ACCESS INFORMATION message including IE "Access probability factor – Idle" set to 0 (corresponding to the actual probability factor value 1).

To verify that the UE correctly includes the IE "MBMS Selected Service ID" within the IE "MBMS Selected Services Short" and IE "MBMS Modification Period identity" in the counting response initiated for a MBMS Selected Service.

8.5.5.1.4 Method of test

Initial Condition

System Simulator: 1 MBMS cell (cell 21) using MCCH Longest Default scheduling, and combination C1 as defined in TS 34.108 clause 11.

User Equipment:

The UE is in Idle Mode as specified in clause 7.6 of TS 34.108.

The UE is interested in the selected service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Broadcast service application available on UE Yes/No.

Test Procedure

The SS transmits an MBMS MODIFIED SERVICE INFORMATION message which includes in the “Modified service list” for the MBMS activated service “MBMS required UE action” set to “Acquire counting info”.

The SS transmits an MBMS ACCESS INFORMATION message, which includes the MBMS Short transmission ID associated to the MBMS activated service and “Access probability factor – Idle” set to 0.

NOTE: The “Access probability factor” sent in the MBMS ACCESS INFORMATION message set to 0 corresponds to an actual Probability Factor = 1, according to the formula in TS 25.331 clause 10.2.16e.

The UE transmits an RRC CONNECTION REQUEST message to the SS, with “Establishment cause” set to “MBMS reception”.

The SS transmits an RRC CONNECTION SETUP message to the UE which moves the UE to CELL_DCH state.

When the UE receives this message, the UE establishes an RRC connection and transmits an RRC CONNECTION SETUP COMPLETE message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
				The UE is in idle mode.
1		←	MBMS MODIFIED SERVICES INFORMATION	The SS transmits the message, which includes “MBMS required UE action” set to “Acquire counting info”
2		←	MBMS ACCESS INFORMATION	The SS transmits the message, which includes “MBMS short transmission ID” IE referring to the service the UE has activated and “Access probability factor – Idle” IE set to 0 (corresponding to actual Access Probability = 1).
3		→	RRC CONNECTION REQUEST	The UE transmits the message with Establishment cause set to “MBMS reception” and with the “MBMS Selected Services Short” IE referring to the concerned MBMS Selected service and the corresponding Modification period identity.
4		←	RRC CONNECTION SETUP	SS assigns DPCH resources to allow UE to establish an RRC connection. RRC state indicator set to CELL_DCH.
5		→	RRC CONNECTION SETUP COMPLETE	
5a		→	MBMS MODIFICATION REQUEST	The UE completing the RRC Connection Setup procedure shall initiate the MBMS MODIFICATION REQUEST procedure. This message may be received at any point after step 5 and before step 7.
6	UE			UE transmits SERVICE REQUEST, with IE "Service type" set to "MBMS Broadcast service Reception”.
7		←→	CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

All messages have the same content as defined in 34.108 clause 9.1.1 with the following exceptions:

MBMS MODIFIED SERVICES INFORMATION (Step 1)

Information Element	Value/remark
Modified service list - MBMS Transmission identity - MBMS required UE action	Only 1 entry MBMS Transmission identity indicating MBMS activated service Acquire counting info

MBMS ACCESS INFORMATION (Step 2)

Information Element	Value/remark
Service list	Only 1 entry
- MBMS short transmission ID	Index to the MBMS transmission identity in the previous MBMS MODIFIED SERVICES INFORMATION
- Access probability factor – Idle	0 (corresponding to the actual probability factor value 1)
- Connected mode counting scope	
- URA_PCH	FALSE
- CELL_PCH	FALSE
- CELL_FACH	FALSE

RRC CONNECTION REQUEST (Step 3)

Information Element	Value/remark
Message type	
Initial UE identity	Same as the registered TMSI or P-TMSI.
Establishment Cause	MBMS reception
Protocol Error Indicator	Check to see if it is set to FALSE
Measured results on RACH	Not checked.
MBMS Selected Services	
- MBMS Selected Services	Only 1 entry
- MBMS Selected Service ID	MBMS short transmission identity referring to the service the UE has selected
- Modification period identity	Indicates the modification period the MBMS short transmission identities refer to

MBMS MODIFICATION REQUEST (steps 5a)

Information Element	Value/remark
MBMS preferred frequency request	Check that the IE is not present
MBMS RB list requested to be released	Check that the IE is not present
MBMS Selected Service Info	
- CHOICE Status	Some
- MBMS Selected Services Full	
- MBMS Selected Service ID	Only 1 entry
- MBMS Service ID	MBMS service ID of the activated MBMS service
- CHOICE PLMN identity	Check to see that one of the below choice element is present
- SameAs-MIB	(no data)
- explicitPLMN_Id	Check to see if it is set to the same value as "PLMN ID" in the Master Information block transmitted for the current serving cell.

8.5.5.1.5 Test requirement

At step 3, the UE shall transmit an RRC CONNECTION REQUEST message with “Establishment Cause” set to “MBMS reception” on the uplink CCCH and including in case of MBMS Selected services the IE “MBMS Selected Service ID” of the concerned MBMS selected service within the IE “MBMS Selected Services Short” and the IE “MBMS Modification Period identity”.

At step 5, the UE shall transmit an RRC CONNECTION SETUP COMPLETE message on a dedicated channel.

8.5.5.1m MBMS Counting in Idle Mode / MBMS Multicast Service

8.5.5.1m.1 Definition

This test is applicable for all UEs that support MBMS multicast services.

8.5.5.1m.2 Conformance requirement

Same conformance requirement as in clause 8.5.5.1.2 except there is no reference to 3GPP TS 25.331 clause 8.1.3.3.

Reference

3GPP TS 25.331 clauses 8.7.4, 8.7.4.1, 8.7.4.2, 8.7.4.3.

8.5.5.1m.3 Test purpose

To confirm that the UE starts the MBMS counting procedure in idle mode upon receiving an MBMS MODIFIED SERVICES message including IE "MBMS required UE action" and an ACCESS INFORMATION message including IE "Access probability factor – Idle" set to 0 (corresponding to the actual probability factor value 1).

8.5.5.1m.4 Method of test

Initial condition

System Simulator:

2 MBMS cells, Cell 21 and Cell 22

User Equipment:

The UE is in Idle Mode as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 8.5.5.1.4.

Expected sequence

Same expected sequence as in clause 8.5.5.1.4 except for RRC CONNECTION REQUEST message content (step 3) and MODIFICATION REQUEST procedure not required.

Step	Direction		Message	Comment
	UE	SS		
				The UE is in idle mode.
1	←		MBMS MODIFIED SERVICES INFORMATION	The SS transmits the message, which includes “MBMS required UE action” set to “Acquire counting info”
2	←		MBMS ACCESS INFORMATION	The SS transmits the message, which includes “MBMS short transmission ID” IE referring to the service the UE has joined and “Access probability factor – Idle” IE set to 0 (corresponding to actual Access Probability = 1).
3	→		RRC CONNECTION REQUEST	The UE transmits the message with Establishment cause set to “MBMS reception”
4	←		RRC CONNECTION SETUP	SS assigns DPCH resources to allow UE to establish an RRC connection. RRC state indicator set to CELL_DCH.
5	→		RRC CONNECTION SETUP COMPLETE	
6	UE			UE transmits SERVICE REQUEST, with IE "Service type" set to "MBMS Multicast service Reception”.
7	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific message contents

Same specific messages contents as in clause 8.5.5.1.4 except for RRC CONNECTION REQUEST message content (step 3).

RRC CONNECTION REQUEST (Step 3)

Information Element	Value/remark
Message type	
Initial UE identity	Same as the registered TMSI or P-TMSI.
Establishment Cause	MBMS reception
Protocol Error Indicator	Check to see if it is set to FALSE
Measured results on RACH	Not checked.
MBMS Selected Services	Not present

8.5.5.1m.5 Test requirements

At step 3, the UE shall transmit an RRC CONNECTION REQUEST message with “Establishment Cause” set to “MBMS reception” on the uplink CCCH.

At step 5, the UE shall transmit an RRC CONNECTION SETUP COMPLETE message on a dedicated channel.

8.5.5.2 MBMS Counting in CELL_FACH / MBMS Selected Service

8.5.5.2.1 Definition

This test case is applicable for UEs that support MBMS broadcast services.

8.5.5.2.2 Conformance requirement

If the IE "MBMS required UE action" is included and concerns an MBMS activated service the UE shall:

…

1> if the IE "MBMS required UE action" is set to 'Acquire counting info' or set to 'Acquire counting info– PTM RBs unmodified':

2> perform the MBMS counting procedure as specified in subclause 8.7.4;

NOTE: If upper layers indicate that an MBMS transmission has already been received correctly, the UE will continue as if the information about the concerned MBMS transmission was not included in the message. This implies that the UE does not respond to counting for a transmission already received correctly.

…

The MBMS counting procedure is used by the UE to inform UTRAN about its interest to receive an MBMS transmission. The procedure applies to UEs supporting MBMS that are in idle mode or in connected mode. In connected mode the procedure applies to the URA_PCH, Cell_PCH and/ or Cell_FACH states dependent upon the value of the IE "Connected mode counting scope".

…

The UE initiates the MBMS counting procedure for an MBMS transmission upon receiving an MBMS MODIFIED SERVICES message including IE "MBMS required UE action" with the value set to 'Acquire counting info' or set to "Acquire counting info– PTM RBs unmodified".

…

Upon receiving the MBMS ACCESS INFORMATION message including one or more MBMS service(s) it has joined, and/ or including one or more MBMS Selected Services the UE shall for each joined and / or selected service:

…

1> if the UE is in URA_PCH state, Cell_PCH or Cell_FACH state and the IE "Connected mode counting scope" indicates that counting is applicable for this UE state:

2> draw a random number, "rand", uniformly distributed in the range: $0 \leq rand < 1$.

2> if 'rand' is lower than the value indicated by the IE 'Access probability factor-connected' for the concerned service:

3> if a cell update has not been successfully transmitted for this service in the current modification period:

4> initiate the cell update procedure with 'Cell update cause' set to "MBMS reception", in accordance with subclause 8.3.1;

4> if the above condition applies for more than one service, initiate a single cell update;

4> if the cell update procedure succeeds,

5> the procedure ends.

2> otherwise:

3> if the message triggering the MBMS counting procedure included the IE "Continue MCCH reading" with a value set to TRUE:

4> continue acquiring further MBMS ACCESS INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3.

3> otherwise:

4> continue acquiring further MBMS ACCESS INFORMATION messages without delaying reading of MCCH until the next modification period and with stopping at the end of the modification period, in accordance with subclause 8.7.1.3.

1> otherwise:

2> the procedure ends;

Upon receiving the MBMS ACCESS INFORMATION message not including an MBMS service(s) the UE has joined:

1> the procedure ends;

…

The UE shall set the IEs in the CELL UPDATE message as follows:

…

1> otherwise, if the UE performs cell update for MBMS counting as specified in subclause 8.7.4; and

1> if one or more of the MBMS services for which the UE initiates the counting response concerns an MBMS Selected Service:

2> for each MBMS Selected Service that is indicated on MCCH and for which the UE initiates the counting response:

3> order the MBMS Selected Services such that those selected with a higher priority are listed in the IE "MBMS Selected Services Short" before those selected with a lower priority;

3> include the IE "MBMS Selected Service ID" within the IE "MBMS Selected Services Short" and set it to a value in accordance with subclause 8.6.9.8.

1> if the UE included one or more "MBMS Selected Service ID" IEs:

2> include the IE "MBMS Modification Period identity" and set it to a value in accordance with subclause 8.5.29.

Reference

3GPP TS 25.331 clauses 8.6.9.6, 8.7.4, 8.7.4.1, 8.7.4.2, 8.7.4.3, 8.3.1.3.

8.5.5.2.3 Test purpose

To verify that the UE correctly handles the counting procedure in cell_FACH state, upon receiving an MBMS MODIFIED SERVICES message including IE "MBMS required UE action" and an ACCESS INFORMATION message including IE "Access probability factor – Connected" set to 0.

To verify that the UE correctly includes the IE "MBMS Selected Service ID" within the IE "MBMS Selected Services Short" and IE "MBMS Modification Period identity" in the counting response initiated for a MBMS Selected Service.

8.5.5.2.4 Method of test

Initial condition

System Simulator: one MBMS cell (cell 21) using MCCH Shortest Default scheduling, and combination C1 as defined in TS 34.108 clause 11.

User Equipment:

The UE is in CELL_FACH state as specified in clause 7.6 of TS 34.108.

The UE is interested in the selected service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Broadcast service application available on UE Yes/No.

Test procedure

1) The SS sends a MBMS MODIFIED SERVICES INFORMATION message which includes the IE “MBMS required UE action” set to ‘Acquire counting info’ for the MBMS Service identity in the MBMS Transmission identity matching the one in the MBMS_ACTIVATED_SERVICES variable.

2) The SS sends in the same Modification Period the MBMS ACCESS INFORMATION message which includes:

   - the “MBMS short transmission ID” IE referring to the service the UE has activated
   - the “Connected mode counting scope” IE set to TRUE applicable to the UE connected state and
   - the value for “Access probability factor – connected” IE set to 0 (corresponding to the actual probability factor value 1)

3) The UE shall perform the MBMS counting procedure. The UE shall draw a random number ‘rand’. If ‘rand’ is lower than the value indicated by the IE “Access probability factor – connected”, it shall send a CELL UPDATE message to the SS on the uplink CCCH of cell 21 and set IE "Cell update cause" to "MBMS reception". The IE "MBMS Selected Service ID" within the IE "MBMS Selected Services Short" and the IE "MBMS Modification Period identity" shall be included in the counting response initiated for a MBMS Selected Service. After the SS receives this message, it transmits a CELL UPDATE CONFIRM message to the UE on the downlink CCCH.

4) The SS sends the MBMS ACCESS INFORMATION message again in the same Modification Period. The UE shall not perform the MBMS counting procedure during the same Modification Period.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		MBMS MODIFIED SERVICES INFORMATION	“MBMS required UE action” IE is set to "Acquire counting info"
2	←		MBMS ACCESS INFORMATION	“MBMS short transmission ID” IE referring to the service the UE has activated, “Connected mode counting scope” IE set to "TRUE", “Access probability factor – connected” IE set to 0.
3	→		CELL UPDATE	The CELL UPDATE message shall contain the value "Cell Update Cause" set to "MBMS reception" and in case of MBMS Selected service the “MBMS Selected Services Short” IE referring to the concerned MBMS Selected service and the corresponding Modification period identity.
4	←		CELL UPDATE CONFIRM	
5	←		MBMS ACCESS INFORMATION	The SS sends again in the same MP a MBMS access Information message.
6				The SS check that the UE shall not perform again the counting procedure by sending another cell update message.
7	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific message contents

All messages have the same content as defined in 34.108 clause 9.1.1 with the following exceptions:

MBMS MODIFIED SERVICES INFORMATION (Step 1)

Information Element	Value/remark
Modified services list	Only 1 entry
-MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
-MBMS required UE action	Acquire counting info

MBMS Access Information (Steps 2 and 5)

Information Element	Value/remark
Service list	Only 1 entry
-MBMS short transmission ID	Index to the MBMS transmission identity in the previous MBMS MODIFIED SERVICES INFORMATION
-Access probability factor – connected	0 (corresponding to the actual probability factor value 1)
-Connected mode counting scope	
- URA_PCH	FALSE
- CELL_PCH	FALSE
- CELL_FACH	TRUE

CELL UPDATE (Step 3)

Information Element	Value/remark
Cell update cause	MBMS reception
MBMS Selected Services	present in case of MBMS Selected service
- MBMS Selected Services	Only 1 entry
- MBMS Selected Service ID	MBMS short transmission identity referring to the service the UE has selected
- Modification period identity	Indicates the modification period the MBMS short transmission identities refer to

8.5.5.2.5 Test requirements

At step 3, check that the UE performs the MBMS counting procedure by performing the cell update procedure using the cause value “MBMS reception" and using in case of MBMS Selected services the IE “MBMS Selected Service ID” of the concerned MBMS selected service within the IE “MBMS Selected Services Short” and the IE “MBMS Modification Period identity”.

At step 6, check that the UE does not perform the MBMS counting again during the same Modification Period.

8.5.5.2m MBMS Counting in CELL_FACH / MBMS Multicast Service

8.5.5.2m.1 Definition

This test is applicable for all UEs that support MBMS multicast services.

8.5.5.2m.2 Conformance requirement

Same conformance requirement as in clause 8.5.5.2.2 except there is no reference to 3GPP TS 25.331 clause 8.3.1.3.

8.5.5.2m.3 Test purpose

To verify that the UE correctly handles the counting procedure in cell_FACH state, upon receiving an MBMS MODIFIED SERVICES message including IE "MBMS required UE action" and an ACCESS INFORMATION message including IE "Access probability factor – Connected" set to 0.

8.5.5.2m.4 Method of test

Initial condition

System Simulator:

2 MBMS cells, Cell 21 and Cell 22

User Equipment:

The UE is in CELL_FACH state as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 8.5.5.2.4 except for the points 2 and 3:

2) The SS sends in the same Modification Period the MBMS ACCESS INFORMATION message which includes:
   - the “MBMS short transmission ID” IE referring to the service the UE has joined
   - the “Connected mode counting scope” IE set to TRUE applicable to the UE connected state and
   - the value for “Access probability factor – connected” IE set to 0 (corresponding to the actual probability factor value 1)

3) The UE shall perform the MBMS counting procedure. The UE shall draw a random number ‘rand’. If ‘rand’ is lower than the value indicated by the IE “Access probability factor – connected”, it shall send a CELL UPDATE message to the SS on the uplink CCCH of cell 21 and set IE "Cell update cause" to "MBMS reception". After the SS receives this message, it transmits a CELL UPDATE CONFIRM message to the UE on the downlink CCCH.

Expected sequence

Same expected sequence as in clause 8.5.5.2.4 except for CELL UPDATE message content (step 3).

Step	Direction		Message	Comments
	UE	SS		
1	←		MBMS MODIFIED SERVICES INFORMATION	“MBMS required UE action” IE is set to "Acquire counting info"
2	←		MBMS ACCESS INFORMATION	“MBMS short transmission ID” IE referring to the service the UE has joined, “Connected mode counting scope” IE set to "TRUE", “Access probability factor – connected” IE set to 0.
3	→		CELL UPDATE	The CELL UPDATE message shall contain the value "Cell Update Cause" set to "MBMS reception".
4	←		CELL UPDATE CONFIRM	
5	←		MBMS ACCESS INFORMATION	The SS sends again in the same MP a MBMS access Information message.
6				The SS check that the UE shall not perform again the counting procedure by sending another cell update message.
7	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific message contents

Same specific messages contents as in clause 8.5.5.2.4 except for CELL UPDATE message content (step 3).

CELL UPDATE (Step 3)

Use the message sub-type in default message content defined in 3GPP TS 34.108 [9] clause 9, with the following exceptions.

Information Element	Value/remark
Cell update cause	MBMS reception

8.5.5.2m.5 Test requirements

At step 3, check that the UE performs the MBMS counting procedure by performing the cell update procedure using the cause value “MBMS reception”.

At step 6, check that the UE does not perform the MBMS counting again during the same Modification Period.

8.5.5.3 MBMS No Counting in CELL_DCH / MBMS Selected Service

8.5.5.3.1 Definition

This test is applicable for all UEs that support MBMS broadcast services and capable of reading MCCH in CELL_DCH state.

8.5.5.3.2 Conformance requirement

If the IE "MBMS required UE action" is included and concerns an MBMS activated service the UE shall:

1> if the "MBMS required UE action" is set to 'None':

2> take no action with respect to this IE.

1> if the IE "MBMS required UE action" is set to 'Acquire counting info' or set to 'Acquire counting info– PTM RBs unmodified':

2> perform the MBMS counting procedure as specified in subclause 8.7.4;

NOTE: If upper layers indicate that an MBMS transmission has already been received correctly, the UE will continue as if the information about the concerned MBMS transmission was not included in the message. This implies that the UE does not respond to counting for a transmission already received correctly.

…

The MBMS counting procedure is used by the UE to inform UTRAN about its interest to receive an MBMS transmission. The procedure applies to UEs supporting MBMS that are in idle mode or in connected mode. In connected mode the procedure applies to the URA_PCH, Cell_PCH and/ or Cell_FACH states dependent upon the value of the IE "Connected mode counting scope".

The UE initiates the MBMS counting procedure for an MBMS transmission upon receiving an MBMS MODIFIED SERVICES message including IE "MBMS required UE action" with the value set to 'Acquire counting info' or set to "Acquire counting info– PTM RBs unmodified".

The UE shall acquire the MBMS ACCESS INFORMATION message without delaying reading of MCCH until the next modification period in accordance with subclause 8.7.1.3. If the procedure the UE would apply to respond to counting (Idle mode: RRC connection establishment, connected mode: Cell update) is ongoing, the UE may defer acquiring the MBMS ACCESS INFORMATION message until this procedure has completed.

The UE behaviour upon receiving an MBMS ACCESS INFORMATION message that is contained in more than one TTI is not specified.

Upon receiving the MBMS ACCESS INFORMATION message including one or more MBMS service(s) it has joined, and/or including one or more MBMS Selected Services the UE shall for each joined and/or selected service:

1> if the UE is in idle mode:

…

1> if the UE is in URA_PCH state, Cell_PCH or Cell_FACH state and the IE "Connected mode counting scope" indicates that counting is applicable for this UE state:

…

1> otherwise:

2> the procedure ends;

Reference

3GPP TS 25.331 clauses 8.6.9.6, 8.7.4.1, 8.7.4.2, 8.7.4.3.

8.5.5.3.3 Test purpose

To verify that the UE in CELL_DCH state (with the probability factor set to 1) does not perform the MBMS counting procedure.

8.5.5.3.4 Method of test

Initial condition

System Simulator: one MBMS cell (cell 21) using MCCH Default2 scheduling, and combination C1 as defined in TS 34.108 clause 11.

User Equipment:

The UE is in CELL_DCH state as specified in clause 7.6 of TS 34.108. The UE has been registered in both CS and PS domains.

The UE is interested in the selected service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Broadcast service application available on UE Yes/No.
- UE supports MCCH reception in CELL_DCH state Yes/No.

Test procedure

The UE is in CELL_DCH state. The SS transmits an MBMS MODIFIED SERVICES INFORMATION message which includes the IE “MBMS required UE action” set to "Acquire counting info" for the MBMS Service identity in the MBMS Transmission identity matching the one in the MBMS_ACTIVATED_SERVICES variable.

The UE receives an MBMS ACCESS INFORMATION message including the concerned MBMS Selected service.

The UE shall not perform the MBMS counting procedure.

The SS continues to send MBMS ACCESS INFORMATION messages including the MBMS Selected service in the same Modification Period. The UE shall not perform the MBMS counting procedure.

The UE receives an MBMS ACCESS INFORMATION message including the MBMS Selected service in the next Modification Period. The UE shall not perform the MBMS counting procedure.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
				The UE is in CELL_DCH state.
1	←		MBMS MODIFIED SERVICES INFORMATION	"MBMS required UE action" IE is set to "Acquire counting info"
2	←		MBMS ACCESS INFORMATION	"MBMS short transmission ID" IE referring to the service the UE has activated, "Connected mode counting scope" IE set to "TRUE", "Access probability factor – connected" IE " set to 0 (corresponding to the actual probability factor value 1).
3				The SS checks that the UE does not perform the counting procedure.
4	←		MBMS ACCESS INFORMATION	The SS continues to send MBMS access Information messages in the same MP.
5				The SS checks that the UE does not perform the counting procedure.
6	←		MBMS ACCESS INFORMATION	The SS sends a MBMS access Information message in the next MP.
7				The SS checks that the UE does not perform the counting procedure.
8	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific message contents

MBMS MODIFIED SERVICES INFORMATION (Step 1)

Information Element	Value/remark
Modified service list - MBMS Transmission identity - MBMS required UE action - Continue MCCH reading	Only 1 entry MBMS Transmission identity indicating MBMS activated service Acquire counting info TRUE

MBMS ACCESS INFORMATION (Step 2, Step 4 and Step 6)

Information Element	Value/remark
Service list - MBMS short transmission ID - Access probability factor - Idle - Connected mode counting scope - URA_PCH - CELL_PCH - CELL_FACH	Only 1 entry Index to the MBMS transmission identity in the previous MBMS MODIFIED SERVICES INFORMATION 0 (corresponding to the actual probability factor value 1) TRUE TRUE TRUE

8.5.5.3.5 Test requirements

After step 2, the UE shall not perform the MBMS counting procedure.

After step 4, the UE shall not perform the MBMS counting procedure.

After step 6, the UE shall not perform the MBMS counting procedure.

8.5.5.3m MBMS No Counting in CELL_DCH / MBMS Multicast Service

8.5.5.3m.1 Definition

This test is applicable for all UEs that support MBMS multicast services and capable of reading MCCH in CELL_DCH state.

8.5.5.3m.2 Conformance requirement

Same conformance requirement as in clause 8.5.5.3.2.

8.5.5.3m.3 Test purpose

Same test purpose as in clause 8.5.5.3.3.

8.5.5.3m.4 Method of test

Initial condition

System Simulator:

2 MBMS cells, Cell 21 and Cell 22

User Equipment:

The UE is in CELL_DCH state as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.
- UE supports MCCH reception in CELL_DCH state Yes/No.

Test procedure

The UE is in CELL_DCH state. The SS transmits an MBMS MODIFIED SERVICES INFORMATION message which includes the IE “MBMS required UE action” set to "Acquire counting info" for the MBMS Service identity in the MBMS Transmission identity matching the one in the MBMS_ACTIVATED_SERVICES variable.

The UE receives an MBMS ACCESS INFORMATION message including the MBMS service the UE has joined.

The UE shall not perform the MBMS counting procedure.

The SS continues to send MBMS ACCESS INFORMATION messages including the MBMS service the UE has joined in the same Modification Period. The UE shall not perform the MBMS counting procedure.

The UE receives an MBMS ACCESS INFORMATION message including the MBMS service the UE has joined in the next Modification Period. The UE shall not perform the MBMS counting procedure.

Expected sequence

Same expected sequence as in clause 8.5.5.3.4 except for MBMS ACCESS INFORMATION message contents (steps 2, 4 and 6).

Step	Direction		Message	Comments
	UE	SS		
				The UE is in CELL_DCH state.

Step	Direction		Message	Comments
	UE	SS		
1	←		MBMS MODIFIED SERVICES INFORMATION	“MBMS required UE action” IE is set to "Acquire counting info"
2	←		MBMS ACCESS INFORMATION	“MBMS short transmission ID” IE referring to the service the UE has joined.
3				The SS checks that the UE does not perform the counting procedure.
4	←		MBMS ACCESS INFORMATION	The SS continues to send MBMS access Information messages in the same MP.
5				The SS checks that the UE does not perform the counting procedure.
6	←		MBMS ACCESS INFORMATION	The SS sends a MBMS access Information message in the next MP.
7				The SS checks that the UE does not perform the counting procedure.
8	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific message contents

Same specific messages contents as in clause 8.5.5.3.4.

8.5.5.3m.5 Test requirements

Same test requirement as in clause 8.5.5.3.5.

8.5.5.4 MBMS Counting in CELL_PCH / MBMS Selected Service

8.5.5.4.1 Definition

This test case is applicable for UEs that support MBMS broadcast services.

8.5.5.4.2 Conformance requirement

The MBMS counting procedure is used by the UE to inform UTRAN about its interest to receive an MBMS transmission. The procedure applies to UEs supporting MBMS that are in idle mode or in connected mode. In connected mode the procedure applies to the URA_PCH, Cell_PCH and/ or Cell_FACH states dependent upon the value of the IE "Connected mode counting scope".

…

The UE initiates the MBMS counting procedure for an MBMS transmission upon receiving an MBMS MODIFIED SERVICES message including IE "MBMS required UE action" with the value set to 'Acquire counting info' or set to "Acquire counting info– PTM RBs unmodified".

…

Upon receiving the MBMS ACCESS INFORMATION message including one or more MBMS service(s) it has joined, and/ or including one or more MBMS Selected Services the UE shall for each joined and / or selected service:

…

1> if the UE is in URA_PCH state, Cell_PCH or Cell_FACH state and the IE "Connected mode counting scope" indicates that counting is applicable for this UE state:

2> draw a random number, "rand", uniformly distributed in the range: $0 \leq \text{rand} < 1$.

2> if 'rand' is lower than the value indicated by the IE 'Access probability factor-connected' for the concerned service:

3> if a cell update has not been successfully transmitted for this service in the current modification period:

4> initiate the cell update procedure with 'Cell update cause' set to "MBMS reception", in accordance with subclause 8.3.1;

4> if the above condition applies for more than one service, initiate a single cell update;

4> if the cell update procedure succeeds,

5> the procedure ends.

2> otherwise:

3> if the message triggering the MBMS counting procedure included the IE "Continue MCCH reading" with a value set to TRUE:

4> continue acquiring further MBMS ACCESS INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3.

3> otherwise:

4> continue acquiring further MBMS ACCESS INFORMATION messages without delaying reading of MCCH until the next modification period and with stopping at the end of the modification period, in accordance with subclause 8.7.1.3.

1> otherwise:

2> the procedure ends;

Upon receiving the MBMS ACCESS INFORMATION message not including an MBMS service(s) the UE has joined:

1> the procedure ends;

…

The UE shall set the IEs in the CELL UPDATE message as follows:

…

1> otherwise, if the UE performs cell update for MBMS counting as specified in subclause 8.7.4; and

1> if one or more of the MBMS services for which the UE initiates the counting response concerns an MBMS Selected Service:

2> for each MBMS Selected Service that is indicated on MCCH and for which the UE initiates the counting response:

3> order the MBMS Selected Services such that those selected with a higher priority are listed in the IE "MBMS Selected Services Short" before those selected with a lower priority;

3> include the IE "MBMS Selected Service ID" within the IE "MBMS Selected Services Short" and set it to a value in accordance with subclause 8.6.9.8.

1> if the UE included one or more "MBMS Selected Service ID" IEs:

2> include the IE "MBMS Modification Period identity" and set it to a value in accordance with subclause 8.5.29.

Reference

3GPP TS 25.331 clauses 8.7.4, 8.7.4.1, 8.7.4.2, 8.7.4.3, 8.3.1.3.

8.5.5.4.3 Test purpose

To verify that the UE correctly handles the counting procedure in cell_PCH state, upon receiving an MBMS MODIFIED SERVICES message including IE "MBMS required UE action" and an ACCESS INFORMATION message including IE "Access probability factor – Connected" set to 0 for the selected services.

To verify that the UE correctly includes the IE "MBMS Selected Service ID" within the IE "MBMS Selected Services Short" and IE "MBMS Modification Period identity" in the counting response initiated for a MBMS Selected Service.

8.5.5.4.4 Method of test

Initial condition

System Simulator: one MBMS cell (cell 21)

User Equipment:

The UE is in CELL_PCH state as specified in clause 7.6 of TS 34.108.

The UE is interested in the selected service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Broadcast service application available on UE Yes/No.

Test procedure

1) The SS sends a MBMS MODIFIED SERVICES INFORMATION message which includes the IE “MBMS required UE action” set to ‘Acquire counting info’ for the MBMS Service identity in the MBMS Transmission identity matching the one in the MBMS_ACTIVATED_SERVICES variable.

2) The SS sends in the same Modification Period the MBMS ACCESS INFORMATION message which includes:

   - the “MBMS short transmission ID” IE referring to the service the UE has activated
   - the “Connected mode counting scope” IE set to TRUE applicable to the UE connected state and
   - the value for “Access probability factor – connected” IE set to 0 (corresponding to the actual probability factor value 1)

3) The UE shall perform the MBMS counting procedure. The UE shall draw a random number ‘rand’. If ‘rand’ is lower than the value indicated by the IE “Access probability factor – connected”, it shall send a CELL UPDATE message to the SS on the uplink CCCH of cell 21 and set IE "Cell update cause" to "MBMS reception". The IE "MBMS Selected Service ID" within the IE "MBMS Selected Services Short" and the IE "MBMS Modification Period identity" shall be included in the counting response initiated for the MBMS Selected Service. After the SS receives this message, it transmits a CELL UPDATE CONFIRM message to the UE on the downlink CCCH. The UE shall move to the Cell_PCH state as indicated by the IE "RRC State Indicator".

4) The SS sends the MBMS ACCESS INFORMATION message again in the same Modification Period. The UE shall not perform the MBMS counting procedure during the same Modification Period.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
				The UE is in cell_PCH
1	←		MBMS MODIFIED SERVICES INFORMATION	“MBMS required UE action” IE is set to "Acquire counting info"

Step	Direction		Message	Comments
	UE	SS		
2	←		MBMS ACCESS INFORMATION	"MBMS short transmission ID" IE referring to the service the UE has activated and "Connected mode counting scope" IE set to "TRUE", "Access probability factor – connected" IE set to 0.
3	→		CELL UPDATE	The UE shall perform the MBMS counting procedure which triggers the cell updating procedure which moves the UE into CELL_FACH state. The CELL UPDATE message shall contain the value "Cell Update Cause" set to "MBMS reception" and the "MBMS Selected Services Short" IE referring to the concerned MBMS Selected service and the corresponding Modification period identity.
4	←		CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to CELL_PCH.
5	←		MBMS ACCESS INFORMATION	The SS sends again in the same MP a MBMS access Information message.
6				The SS check that the UE shall not perform again the counting procedure by sending another cell update message.
7	←→		CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.

Specific message contents

MBMS MODIFIED SERVICES INFORMATION (Step 1)

Information Element	Value/remark
Modified services list	Only 1 entry
-MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
-MBMS required UE action	Acquire counting info

MBMS ACCESS INFORMATION (Steps 2 and 5)

Information Element	Value/remark
Service list	Only 1 entry
-MBMS short transmission ID	Index to the MBMS transmission identity in the previous MBMS MODIFIED SERVICES INFORMATION
-Access probability factor – connected	0 (corresponding to the actual probability factor value 1)
-Connected mode counting scope	
- URA_PCH	TRUE
- CELL_PCH	TRUE
- CELL_FACH	TRUE

CELL UPDATE (Step 3)

Use the message sub-type in default message content defined in 3GPP TS 34.108 [9] clause 9, with the following exceptions.

Information Element	Value/remark
Cell update cause	MBMS reception
MBMS Selected Services	
- MBMS Selected Services	Only 1 entry
- MBMS Selected Service ID	MBMS short transmission identity referring to the service the UE has selected
- Modification period identity	Indicates the modification period the MBMS short transmission identities refer to

CELL UPDATE CONFIRM (Step 4)

Use the message sub-type in default message content defined in 3GPP TS 34.108 [9] clause 9, with the following exceptions.

Information Element	Value/remark
RRC State Indicator	Cell_PCH
UTRAN DRX cycle length coefficient	7

8.5.5.4.5 Test requirements

At step 3, check that the UE performs the MBMS counting procedure by performing the cell update procedure using the cause value “MBMS reception” and using in case of MBMS Selected services the IE “MBMS Selected Service ID” of the concerned MBMS selected service within the IE “MBMS Selected Services Short” and the IE “MBMS Modification Period identity”.

At step 6, check that the UE does not perform the MBMS counting again during the same Modification Period.

8.5.5.4m MBMS Counting in CELL_PCH / MBMS Multicast Service

8.5.5.4m.1 Definition

This test is applicable for all UEs that support MBMS multicast services.

8.5.5.4m.2 Conformance requirement

Same conformance requirement as in clause 8.5.5.4.2 except there is no reference to 3GPP TS 25.331 clause 8.3.1.3.

8.5.5.4m.3 Test purpose

To verify that the UE correctly handles the counting procedure in cell_PCH state, upon receiving an MBMS MODIFIED SERVICES message including IE "MBMS required UE action" and an ACCESS INFORMATION message including IE "Access probability factor – Connected" set to 0.

8.5.5.4m.4 Method of test

Initial condition

System Simulator:

2 MBMS cells, Cell 21 and Cell 22

User Equipment:

The UE is in CELL_PCH state as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 8.5.5.2.4 except for the points 2 and 3:

2) The SS sends in the same Modification Period the MBMS ACCESS INFORMATION message which includes:
   - the “MBMS short transmission ID” IE referring to the service the UE has joined
   - the “Connected mode counting scope” IE set to TRUE applicable to the UE connected state and
   - the value for “Access probability factor – connected” IE set to 0 (corresponding to the actual probability factor value 1)
3) The UE shall perform the MBMS counting procedure. The UE shall draw a random number ‘rand’. If ‘rand’ is lower than the value indicated by the IE “Access probability factor – connected”, it shall send a CELL UPDATE message to the SS on the uplink CCCH of cell 21 and set IE "Cell update cause" to "MBMS reception". After the SS receives this message, it transmits a CELL UPDATE CONFIRM message to the UE on the downlink CCCH. The UE shall move to the Cell_PCH state as indicated by the IE "RRC State Indicator".

Expected sequence

Same expected sequence as in clause 8.5.5.4.4 except for MBMS ACCESS INFORMATION message content (step 2) and CELL UPDATE message content (step 3).

Step	Direction		Message	Comments
	UE	SS		
				The UE is in cell_PCH
1	←		MBMS MODIFIED SERVICES INFORMATION	“MBMS required UE action” IE is set to "Acquire counting info"
2	←		MBMS ACCESS INFORMATION	“MBMS short transmission ID” IE referring to the service the UE has joined and “Connected mode counting scope” IE set to "TRUE", “Access probability factor – connected” IE set to 0.
3	→		CELL UPDATE	The UE shall perform the MBMS counting procedure which triggers the cell updating procedure which moves the UE into CELL_FACH state. The CELL UPDATE message shall contain the value "Cell Update Cause" set to "MBMS reception".
4	←		CELL UPDATE CONFIRM	IE "RRC State Indicator” is set to CELL_PCH.
5	←		MBMS ACCESS INFORMATION	The SS sends again in the same MP a MBMS access Information message.
6				The SS check that the UE shall not perform again the counting procedure by sending another cell update message.
7	←→		CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.

Specific message contents

Same specific messages contents as in clause 8.5.5.4.4.

CELL UPDATE (Step 3)

Use the message sub-type in default message content defined in 3GPP TS 34.108 [9] clause 9, with the following exceptions.

Information Element	Value/remark
Cell update cause	MBMS reception

CELL UPDATE CONFIRM (Step 4)

Use the same specific message content as in clause 8.5.5.4.4 for CELL UPDATE CONFIRM message at Step 4.

8.5.5.4m.5 Test requirements

At step 3, check that the UE performs the MBMS counting procedure by performing the cell update procedure using the cause value “MBMS reception”.

At step 6, check that the UE does not perform the MBMS counting again during the same Modification Period.

8.5.5.5 Void

8.5.5.6 Void

8.5.5.7 RRC Connection establishment for MBMS Counting :Success after T318 Timeout/ MBMS Selected Service

8.5.5.7.1 Definition

This test case is applicable for UEs that support MBMS broadcast services.

8.5.5.7.2 Conformance requirement

The MBMS counting procedure is used by the UE to inform UTRAN about its interest to receive an MBMS transmission. The procedure applies to UEs supporting MBMS that are in idle mode or in connected mode for cells not operating in MBSFN mode as indicated in subclause 8.1.1.6.3.

…

The UE initiates the MBMS counting procedure for an MBMS transmission upon receiving an MBMS MODIFIED SERVICES message including IE "MBMS required UE action" with the value set to 'Acquire counting info' or set to "Acquire counting info– PTM RBs unmodified".

…

Upon receiving the MBMS ACCESS INFORMATION message for cells not operating in MBSFN mode as indicated in subclause 8.1.1.6.3 including one or more MBMS service(s) it has joined and/or including one or more MBMS Selected Services, the UE shall for each joined and/or selected service:

1> if the UE is in idle mode:

2> draw a random number, "rand", uniformly distributed in the range: $0 \leq \text{rand} < 1$

2> if 'rand' is lower than the value indicated by the IE 'Access probability factor-Idle' for the concerned service:

3> indicate to upper layers that establishment of an RRC connection is required to receive the concerned MBMS service, with the establishment cause set to 'MBMS reception';

3> if the above condition applies for more than one service, initiate a single indication to upper layers;

3> if the RRC connection establishment succeeds, the procedure ends.

…

1> submit the RRC CONNECTION REQUEST message for transmission on the uplink CCCH;

1> set counter V300 to 1; and

1> if the variable ESTABLISHMENT_CAUSE is set to "MBMS reception":

2> when the MAC layer indicates success or failure to transmit the message:

3> if the MAC layer indicates failure:

4> enter idle mode;

4> consider the procedure to be unsuccessful;

4> perform other actions when entering idle mode from connected mode as specified in subclause 8.5.2;

4> the procedure ends.

3> else:

4> start timer T318;

4> apply value 0 for counter N300 regardless of the value included in IE "UE Timers and Constants in idle mode".

…

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

…

1> otherwise if the UE performs connection establishment for MBMS counting as specified in subclause 8.7.4; and

1> if one or more of the MBMS services for which the UE initiates the counting response concerns an MBMS Selected Service:

2> for each MBMS Selected Service that is indicated on MCCH and for which the UE initiates the counting response:

3> include the IE "MBMS Selected Service ID" within the IE "MBMS Selected Services Short" and set it to a value in accordance with subclause 8.6.9.8.

1> if the UE included one or more "MBMS Selected Service ID" IEs:

2> include the IE "MBMS Modification Period identity" and set it to a value in accordance with subclause 8.5.29.

…

If the counting response procedure (RRC connection establishment or Cell update) fails, the UE shall:

1> if the failure occurs in the same modification period as the one in which the UE initiated the counting response procedure; or

1> if the message triggering the MBMS counting procedure included the IE "Continue MCCH reading" with a value set to TRUE that is applicable in the modification period in which the UE detects the failure:

2> continue acquiring further MBMS ACCESS INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3.

1> otherwise:

2> the procedure ends.

Reference

3GPP TS 25.331 clauses 8.7.4, 8.7.4.1, 8.7.4.2, 8.7.4.3, 8.1.3.2, 8.1.3.3, 8.7.4.5.

8.5.5.7.3 Test purpose

To confirm that the UE starts T318 timer once UE MAC layer indicates successful transmission of RRC Connection Request message for MBMS counting.

To verify that the UE continues to acquire MBMS ACCESS INFORMATION messages after Expiry of T318, and hence re-start RRC Connection Request procedure for counting.

8.5.5.7.4 Method of test

Initial Condition

System Simulator: 1 MBMS cell (cell 21).

User Equipment:

The UE is in Idle Mode as specified in clause 7.6 of TS 34.108.

The UE is interested in the selected service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Longest MCCH scheduling configuration defined in 34.108 clause 11.1.1.3 is used.

Related ICS/IXIT statements

- MBMS Broadcast service application available on UE Yes/No.

Test Procedure

The SS transmits an MBMS MODIFIED SERVICE INFORMATION message which includes in the “Modified service list” for the MBMS activated service “MBMS required UE action” set to “Acquire counting info”.

The SS transmits an MBMS ACCESS INFORMATION message, which includes the MBMS Short transmission ID associated to the MBMS activated service and “Access probability factor – Idle” set to 0.

NOTE: The “Access probability factor” sent in the MBMS ACCESS INFORMATION message set to 0 corresponds to an actual Probability Factor = 1, according to the formula in TS 25.331 clause 10.2.16e.

The UE transmits an RRC CONNECTION REQUEST message to the SS, with “Establishment cause” set to “MBMS reception”. After MAC indication on successful transmission, starts T318 timer.

SS does not respond to the RRC CONNECTION REQUEST message.

After expiry of T318, UE Re-acquires MBMS ACCESS INFORMATION, and re-starts the counting procedure. The UE transmits an RRC CONNECTION REQUEST message to the SS, with “Establishment cause” set to “MBMS reception”.

The SS transmits an RRC CONNECTION SETUP message to the UE which moves the UE to CELL_DCH state.

When the UE receives this message, the UE establishes an RRC connection and transmits an RRC CONNECTION SETUP COMPLETE message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
				The UE is in idle mode.
1		←	MBMS MODIFIED SERVICES INFORMATION	The SS transmits the message, which includes “MBMS required UE action” set to “Acquire counting info”
2		←	MBMS ACCESS INFORMATION	The SS transmits the message, which includes “MBMS short transmission ID” IE referring to the service the UE has activated and “Access probability factor – Idle” IE set to 0 (corresponding to actual Access Probability = 1).
3		←	MBMS GENERAL INFORMATION	
4		→	RRC CONNECTION REQUEST	The UE transmits the message with Establishment cause set to “MBMS reception”
5				SS does not respond to RRC Connection Request message in step 4.
6		→	RRC CONNECTION REQUEST	The UE re-sends the message with Establishment cause set to “MBMS reception” with the “MBMS Selected Services Short” IE referring to the concerned MBMS Selected service and the corresponding Modification period identity.
7		←	RRC CONNECTION SETUP	SS assigns DPCH resources to allow UE to establish an RRC connection. RRC state indicator set to CELL_DCH.
8		→	RRC CONNECTION SETUP COMPLETE	
8a		→	MBMS MODIFICATION REQUEST	The UE completing the RRC connection Setup procedure shall initiate the MBMS MODIFICATION REQUEST procedure. This message may be received at any point after step 8 and before step 10.
9	UE			UE transmits SERVICE REQUEST, with IE "Service type" set to "MBMS Broadcast service Reception”.
10		←→	CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in idle mode	
-T300	8000 milliseconds

MBMS MODIFIED SERVICES INFORMATION (Step 1)

Information Element	Value/remark
Modified service list	Only 1 entry
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
- MBMS required UE action	Acquire counting info
- Continue MCCH reading	TRUE

MBMS ACCESS INFORMATION (Step 2)

Information Element	Value/remark
Service list	Only 1 entry
- MBMS short transmission ID	Index to the MBMS transmission identity in the previous MBMS MODIFIED SERVICES INFORMATION
- Access probability factor – Idle	0 (corresponding to the actual probability factor value 1)

MBMS GENERAL INFORMATION (Step 3)

Use the default message type found in TS 34.108, 9.1.1 except for

MBMS timers and counters	
- T318	1500 ms

RRC CONNECTION REQUEST (Step 4 and 6)

Information Element	Value/remark
Message type	
Initial UE identity	Same as the registered TMSI or P-TMSI.
Establishment Cause	MBMS reception
Protocol Error Indicator	Check to see if it is set to FALSE
Measured results on RACH	Not checked.
MBMS Selected Services	
- MBMS Selected Services	Only 1 entry
- MBMS Selected Service ID	MBMS short transmission identity referring to the service the UE has selected
- Modification period identity	Indicates the modification period the MBMS short transmission identities refer to

RRC CONNECTION SETUP (Step 7)

Use the default message type found in TS 34.108, 9.1.1.

RRC CONNECTION SETUP COMPLETE (Step 8)

Use the default message type found in TS 34.108, 9.1.1.

MBMS MODIFICATION REQUEST (steps 8a)

Information Element	Value/remark
MBMS preferred frequency request	Check that the IE is not present
MBMS RB list requested to be released	Check that the IE is not present
MBMS Selected Service Info	
- CHOICE Status	Some
- MBMS Selected Services Full	
- MBMS Selected Service ID	Only 1 entry
- MBMS Service ID	MBMS service ID of the activated MBMS service
- CHOICE PLMN identity	Check to see that one of the below choice element is present
- SameAs-MIB	(no data)
- explicitPLMN_Id	Check to see if it is set to the same value as "PLMN ID" in the Master Information block transmitted for the current serving cell.

8.5.5.7.5 Test requirement

At step 4 and 6, the UE shall transmit an RRC CONNECTION REQUEST message with "Establishment Cause" set to "MBMS reception" on the uplink CCCH and including the IE "MBMS Selected Service ID" of the concerned MBMS selected service within the IE "MBMS Selected Services Short" and the IE "MBMS Modification Period identity".

The time difference between step 4 and 6 should be at least 1500 milliseconds (T318 expiry), and less than 6 seconds (T318 [1500ms] +2*AP [1280ms] +Transmission time on PRACH)

At step 8, the UE shall transmit an RRC CONNECTION SETUP COMPLETE message on a dedicated channel.

8.5.5.7m RRC Connection establishment for MBMS Counting :Success after T318 Timeout / MBMS Multicast Service

8.5.5.7m.1 Definition

This test is applicable for all UEs that support MBMS multicast services.

8.5.5.7m.2 Conformance requirement

Same conformance requirement as in clause 8.5.5.7.2.

8.5.5.7m.3 Test purpose

Same test purpose as in clause 8.5.5.7.3.

8.5.5.7m.4 Method of test

Initial Condition

System Simulator: 1 MBMS cell (cell 21).

User Equipment:

The UE is in Idle Mode as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 8.5.5.7.4, except expected sequence step 8a is not applicable and at step 9 UE transmits Service Request, with IE "Service type" set to "MBMS Multicast service Reception".

Specific message contents

Same specific messages contents as in clause 8.5.5.7.4 except for RRC CONNECTION REQUEST message content (step 4 and 6). Step 8a contents are not applicable.

RRC CONNECTION REQUEST (Step 4 and 6)

Information Element	Value/remark
Message type	
Initial UE identity	Same as the registered P-TMSI.
Establishment Cause	MBMS reception
Protocol Error Indicator	Check to see if it is set to FALSE
Measured results on RACH	Not checked.
MBMS Selected Services	Not present

8.5.5.7m.5 Test requirements

Same Test Requirements as in clause 8.5.5.7.5, except UE shall not include in the IE “MBMS Selected Service ID” of the concerned MBMS selected service within the IE “MBMS Selected Services Short” and the IE “MBMS Modification Period identity” in step 4 and 6.

8.5.5.8 RRC Connection establishment for MBMS Counting :Success after MAC Layer Failure Indication/ MBMS Selected Service

8.5.5.8.1 Definition

This test case is applicable for UEs that support MBMS broadcast services.

8.5.5.8.2 Conformance requirement

The MBMS counting procedure is used by the UE to inform UTRAN about its interest to receive an MBMS transmission. The procedure applies to UEs supporting MBMS that are in idle mode or in connected mode for cells not operating in MBSFN mode as indicated in subclause 8.1.1.6.3.

…

The UE initiates the MBMS counting procedure for an MBMS transmission upon receiving an MBMS MODIFIED SERVICES message including IE "MBMS required UE action" with the value set to 'Acquire counting info' or set to "Acquire counting info– PTM RBs unmodified".

…

Upon receiving the MBMS ACCESS INFORMATION message for cells not operating in MBSFN mode as indicated in subclause 8.1.1.6.3 including one or more MBMS service(s) it has joined and/or including one or more MBMS Selected Services, the UE shall for each joined and/or selected service:

1> if the UE is in idle mode:

2> draw a random number, "rand", uniformly distributed in the range: $0 \leq rand < 1$

2> if 'rand' is lower than the value indicated by the IE 'Access probability factor-Idle' for the concerned service:

3> indicate to upper layers that establishment of an RRC connection is required to receive the concerned MBMS service, with the establishment cause set to 'MBMS reception';

3> if the above condition applies for more than one service, initiate a single indication to upper layers;

3> if the RRC connection establishment succeeds, the procedure ends.

…

1> submit the RRC CONNECTION REQUEST message for transmission on the uplink CCCH;

1> set counter V300 to 1; and

1> if the variable ESTABLISHMENT_CAUSE is set to "MBMS reception":

2> when the MAC layer indicates success or failure to transmit the message:

3> if the MAC layer indicates failure:

4> enter idle mode;

4> consider the procedure to be unsuccessful;

4> perform other actions when entering idle mode from connected mode as specified in subclause 8.5.2;

4> the procedure ends.

3> else:

4> start timer T318;

4> apply value 0 for counter N300 regardless of the value included in IE "UE Timers and Constants in idle mode".

…

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

…

1> otherwise if the UE performs connection establishment for MBMS counting as specified in subclause 8.7.4; and

1> if one or more of the MBMS services for which the UE initiates the counting response concerns an MBMS Selected Service:

2> for each MBMS Selected Service that is indicated on MCCH and for which the UE initiates the counting response:

3> include the IE "MBMS Selected Service ID" within the IE "MBMS Selected Services Short" and set it to a value in accordance with subclause 8.6.9.8.

1> if the UE included one or more "MBMS Selected Service ID" IEs:

3> include the IE "MBMS Modification Period identity" and set it to a value in accordance with subclause 8.5.29.

…

If the counting response procedure (RRC connection establishment or Cell update) fails, the UE shall:

1> if the failure occurs in the same modification period as the one in which the UE initiated the counting response procedure; or

1> if the message triggering the MBMS counting procedure included the IE "Continue MCCH reading" with a value set to TRUE that is applicable in the modification period in which the UE detects the failure:

2> continue acquiring further MBMS ACCESS INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3.

1> otherwise:

2> the procedure ends.

Reference

3GPP TS 25.331 clauses 8.7.4, 8.7.4.1, 8.7.4.2, 8.7.4.3, 8.1.3.2, 8.1.3.3, 8.7.4.5.

8.5.5.8.3 Test purpose

To confirm that the UE does not start T318 timer once UE MAC layer indicates un-successful transmission of RRC Connection Request message for MBMS counting.

To verify that the UE continues to acquire MBMS ACCESS INFORMATION messages after MAC layer failure indication for first RRC Connection Request transmission, and hence re-start RRC Connection Request procedure for counting.

8.5.5.8.4 Method of test

Initial Condition

System Simulator: 1 MBMS cell (cell 21).

User Equipment:

The UE is in Idle Mode as specified in clause 7.6 of TS 34.108.

The UE is interested in the selected service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Longest MCCH scheduling configuration defined in 34.108 clause 11.1.1.3 is used.

Related ICS/IXIT statements

- MBMS Broadcast service application available on UE Yes/No.

Test Procedure

The SS transmits an MBMS MODIFIED SERVICE INFORMATION message which includes in the “Modified service list” for the MBMS activated service “MBMS required UE action” set to “Acquire counting info”.

The SS transmits an MBMS ACCESS INFORMATION message, which includes the MBMS Short transmission ID associated to the MBMS activated service and “Access probability factor – Idle” set to 0.

NOTE: The “Access probability factor” sent in the MBMS ACCESS INFORMATION message set to 0 corresponds to an actual Probability Factor = 1, according to the formula in TS 25.331 clause 10.2.16e.

The UE submits RRC CONNECTION REQUEST message for transmission, with “Establishment cause” set to “MBMS reception”.

SS does not acknowledge the RACH access on AICH.

After Failure indication by UE MAC Layer, UE Re-acquires MBMS ACCESS INFORMATION, and re-starts the counting procedure. The UE transmits RRC CONNECTION REQUEST message to the SS, with “Establishment cause” set to “MBMS reception”.

The SS transmits an RRC CONNECTION SETUP message to the UE which moves the UE to CELL_DCH state.

When the UE receives this message, the UE establishes an RRC connection and transmits an RRC CONNECTION SETUP COMPLETE message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
				The UE is in idle mode.
1	←		MBMS MODIFIED SERVICES INFORMATION	The SS transmits the message, which includes “MBMS required UE action” set to “Acquire counting info”
2	←		MBMS ACCESS INFORMATION	The SS transmits the message, which includes “MBMS short transmission ID” IE referring to the service the UE activated and “Access probability factor – Idle” IE set to 0 (corresponding to actual Access Probability = 1).
3	←		MBMS GENERAL INFORMATION	
4	→		ACCESS PREAMBLE(RRC CONNECTION REQUEST)	
5				SS does not respond to ACCESS PREAMBLE on AICH channel.
6				After Failure indication by MAC Layer, UE starts acquiring MBMS ACCESS INFORMATION
7	→		RRC CONNECTION REQUEST	The UE re-sends the message with Establishment cause set to “MBMS reception”. (SS ACKS on AICH for ACCESS PREAMBLE)
8	←		RRC CONNECTION SETUP	SS assigns DPCH resources to allow UE to establish an RRC connection. RRC state indicator set to CELL_DCH.
9	→		RRC CONNECTION SETUP COMPLETE	
9a	→		MBMS MODIFICATION REQUEST	The UE completing the RRC connection Setup procedure shall initiate the MBMS MODIFICATION REQUEST procedure. This message may be received at any point after step 9 and before step 11.
10	UE			UE transmits SERVICE REQUEST, with IE "Service type" set to "MBMS Broadcast service Reception”.
11	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in idle mode	
-T300	8000 milliseconds

MBMS MODIFIED SERVICES INFORMATION (Step 1)

Information Element	Value/remark
Modified service list	Only 1 entry
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
- MBMS required UE action	Acquire counting info
- Continue MCCH reading	TRUE

MBMS ACCESS INFORMATION (Step 2)

Information Element	Value/remark
Service list	Only 1 entry
- MBMS short transmission ID	Index to the MBMS transmission identity in the previous MBMS MODIFIED SERVICES INFORMATION
- Access probability factor – Idle	0 (corresponding to the actual probability factor value 1)

MBMS GENERAL INFORMATION (Step 3)

Use the default message type found in TS 34.108, 9.1.1 except for

MBMS timers and counters	
- T318	16000 ms

RRC CONNECTION REQUEST (Step 7)

Information Element	Value/remark
Message type	
Initial UE identity	Same as the registered TMSI or P-TMSI.
Establishment Cause	MBMS reception
Protocol Error Indicator	Check to see if it is set to FALSE
Measured results on RACH	Not checked.
MBMS Selected Services	
- MBMS Selected Services	Only 1 entry
- MBMS Selected Service ID	MBMS short transmission identity referring to the service the UE has selected
- Modification period identity	Indicates the modification period the MBMS short transmission identities refer to

RRC CONNECTION SETUP (Step 8)

Use the default message type found in TS 34.108, 9.1.1.

RRC CONNECTION SETUP COMPLETE (Step 9)

Use the default message type found in TS 34.108, 9.1.1.

MBMS MODIFICATION REQUEST (steps 9a)

Information Element	Value/remark
MBMS preferred frequency request	Check that the IE is not present
MBMS RB list requested to be released	Check that the IE is not present
MBMS Selected Service Info	
- CHOICE Status	Some
- MBMS Selected Services Full	
- MBMS Selected Service ID	Only 1 entry
- MBMS Service ID	MBMS service ID of the activated MBMS service
- CHOICE PLMN identity	Check to see that one of the below choice element is present
- SameAs-MIB	(no data)
- explicitPLMN_Id	Check to see if it is set to the same value as "PLMN ID" in the Master Information block transmitted for the current serving cell.

8.5.5.8.5 Test requirement

At step 7, the UE shall transmit an RRC CONNECTION REQUEST message with "Establishment Cause" set to "MBMS reception" on the uplink CCCH and including the IE "MBMS Selected Service ID" of the concerned MBMS selected service within the IE "MBMS Selected Services Short" and the IE "MBMS Modification Period identity".

The time difference between step 4(last Access Preamble Reception) and 7 should be at least 1280 milliseconds (one AP), and less than 4 seconds (2*AP[1280ms]+Transmission time on PRACH).

At step 9, the UE shall transmit an RRC CONNECTION SETUP COMPLETE message on a dedicated channel.

8.5.5.8m RRC Connection establishment for MBMS Counting :Success after MAC Layer Failure Indication / MBMS Multicast Service

8.5.5.8m.1 Definition

This test is applicable for all UEs that support MBMS multicast services.

8.5.5.8m.2 Conformance requirement

Same conformance requirement as in clause 8.5.5.8.2.

8.5.5.8m.3 Test purpose

Same test purpose as in clause 8.5.5.8.3.

8.5.5.8m.4 Method of test

Initial Condition

System Simulator: 1 MBMS cell (cell 21).

User Equipment:

The UE is in Idle Mode as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 8.5.5.8.4, except expected sequence step 9a is not applicable and at step 10 UE transmits Service Request, with IE "Service type" set to "MBMS Multicast service Reception".

Specific message contents

Same specific messages contents as in clause 8.5.5.8.4 except for RRC CONNECTION REQUEST message content (step 7). Step 9a contents are not applicable.

RRC CONNECTION REQUEST (Step 7)

Information Element	Value/remark
Message type	
Initial UE identity	Same as the registered P-TMSI.
Establishment Cause	MBMS reception
Protocol Error Indicator	Check to see if it is set to FALSE
Measured results on RACH	Not checked.
MBMS Selected Services	Not present

8.5.5.8m.5 Test requirements

Same Test Requirements as in clause 8.5.5.8.5, except UE shall not include in the IE “MBMS Selected Service ID” of the concerned MBMS selected service within the IE “MBMS Selected Services Short” and the IE “MBMS Modification Period identity” in step 7.

8.5.6 MBMS Controlling Cell Change

8.5.6.1 MBMS Controlling Cell Change - Idle mode - Frequency Layer Convergence – HCS Not Used / MBMS Selected Service

8.5.6.1.1 Definition

Test to verify that the UE performs the cell reselection correctly if system information parameters Qoffset, Qhyst, Qoffmbms and Treselection are applied for non-hierarchical cell structures. This test case is applicable for all UEs that support MBMS broadcast services.

8.5.6.1.2 Conformance requirement

When camped normally, the UE shall perform the following tasks:

- select and monitor the indicated PICH and PCH of the cell as specified in clause 8 according to information sent in system information;
- monitor relevant System Information. This is specified in [8];
- perform necessary measurements for the cell reselection evaluation procedure;
- execute the cell reselection evaluation process on the following occasions/triggers:
  1) UE internal triggers, so as to meet performance as specified in [22] and [23];
  2) When information on the BCCH used for the cell reselection evaluation procedure has been modified

If the UE supports MBMS and MBMS is active in the cell and the UE is permitted to receive MBMS services in the cell, the UE shall perform MBMS tasks as specified in subclause 6.3 of TS 25.304.

…

The cell-ranking criterion R is defined by:

$$R_s = Q_{meas,s} + Qhyst_s + Qoffmbms$$

$$R_n = Q_{meas,n} - Qoffset_{s,n} + Qoffmbms - TO_n * (1 - L_n)$$

where:

the signalled value Qoffmbms is only applied to those cells (serving or neighbouring) belonging to the MBMS PL

…

The cells shall be ranked according to the R criteria specified above, deriving $Q_{meas,n}$ and $Q_{meas,s}$ and calculating the R values using CPICH RSCP, P-CCPCH RSCP and the averaged received signal level as specified in [22] and [23] for FDD, TDD and GSM cells, respectively.

The offset $Qoffset1_{s,n}$ is used for $Qoffset_{s,n}$ to calculate R_n, the hysteresis $Qhyst1_s$ is used for $Qhyst_s$ to calculate R_s. For UE in RRC connected mode states CELL_PCH or URA_PCH the hysteresis $Qhyst_s$ takes the value $Qhyst1_{s,PCH}$ to calculate R_s, if provided in SIB4 [see 8]. For UE in RRC connected mode state CELL_FACH the hysteresis $Qhyst_s$ takes the value $Qhyst1_{s,FACH}$ to calculate R_s, if provided in SIB4 [see 8].

…

If an FDD cell is ranked as the best cell and the quality measure for cell selection and re-selection is set to CPICH RSCP, the UE shall perform cell re-selection to that FDD cell. If this cell is found to be not suitable, the UE shall behave according to subclause 5.2.6.1.3 of TS 25.304.

…

In all cases, the UE shall reselect the new cell, only if the following conditions are met:

- the new cell is better ranked than the serving cell during a time interval Treselection. For UE in RRC connected mode states CELL_PCH or URA_PCH the interval $Treselection_{s,PCH}$ applies, if provided in SIB4 [see 8], while for UE in RRC connected mode state CELL_FACH the interval $Treselection_{s,FACH}$ applies, if provided in SIB4 [see 8]. For hierarchical cell structures when high mobility state has not been detected, if according to the HCS rules the serving cell is not ranked then all the ranked cells are considered to be better ranked than the serving cell.

Reference

3GPP TS 25.304 clauses 5.2.5.1, 5.2.6.1.4.

8.5.6.1.3 Test purpose

1. To verify that a UE in idle mode calculates R from Qhyst, and Qoffset and Qoffmbms, which triggers the cell reselection evaluation process.
2. To verify that a UE in idle mode performs a Serving Cell Reselection to the Preferred Layer at Session Start.
3. To verify that a UE in idle mode performs an intra-frequency Cell Reselection on the Preferred Layer during an ongoing Session

8.5.6.1.4 Method of test

Initial Condition

System Simulator: 3 MBMS cells (Cell 21, Cell 24, Cell 26) with the downlink transmission power shown in column marked "T0" in table 8.5.6.1-1.

The UE is in Idle Mode as specified in clause 7.6 of TS 34.108 and camped on Cell 21.

The UE is interested in the broadcast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Specific message contents for System information blocks 3 and 11 are used in Cell 21.

Related ICS/IXIT statement(s)

- MBMS Broadcast service application available on UE Yes/No

Test procedure

Table 8.5.6.1-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while columns marked "T1" are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 8.5.6.1-1

Parameter	Unit	Cell 21		Cell 24		Cell 26	
		T0	T1	T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84 MHz	-60	-60	-66	-75	-75	-66
P-CCPCH RSCP (TDD)	dBm	-60	-60	-66	-75	-75	-66

The UE is in idle mode in Cell 21.

The SS notifies on MICH and MCCH in Cell 1 about the start of an MBMS session including a preferred frequency in the IE "MBMS preferred frequency". The UE reselects to Cell 24 (Frequency Layer Convergence).

The SS transmits an MBMS MODIFIED SERVICE INFORMATION message which includes in the "Modified service list" for the MBMS activated service "MBMS required UE action" set to "Acquire counting info" and MBMS ACCESS INFORMATION message, which includes the MBMS Short Transmission ID associated to the MBMS activated service and "Access probability factor – Idle" set to 0 (corresponds to an actual Probability Factor = 1).

The UE shall transmit an RRC CONNECTION REQUEST message, with "Establishment cause" set to "MBMS reception". The SS transmits a RRC CONNECTION SETUP. The UE establishes an RRC connection and transmits an RRC CONNECTION SETUP COMPLETE message.

The UE receives an MBMS MODIFIED SERVICES INFORMATION message "MBMS required UE action" IE set to "Acquire PTM RB info". The UE receives an MBMS NEIGHBOURING CELL P-T-M RB INFORMATION including MBMS neighbouring cell information for Cell 26. The UE shall apply the MBMS p-t-m radio bearer configuration procedure to acquire the radio bearer configuration for the MBMS service provided by the SS.

The UE starts receiving the indicated p-t-m radio bearer.

The SS applies the power settings of "T1" in table 8.5.6.1-1. Then the UE shall reselect to Cell 26 applying the Qoffmbms.

The UE receives an MBMS UNMODIFIED SERVICES INFORMATION message "MBMS required UE action" IE set to "Acquire PTM RB info". The UE receives an MBMS NEIGHBOURING CELL P-T-M RB INFORMATION including MBMS neighbouring cell information for Cell 24. The UE shall apply the MBMS p-t-m radio bearer configuration and continues receiving the indicated p-t-m radio bearer.

SS calls for generic procedure C.1 to check that UE is in idle mode.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	UE			The UE is in idle mode on Cell 21.
2	←		SYSTEM INFORMATION	See specific message contents for SIB3
3	←		MBMS MODIFIED SERVICES INFORMATION	"MBMS required UE action" IE is set to "none" and the "MBMS preferred frequency" IE indicates the reference to Ch. 2.
4	←		MBMS GENERAL INFORMATION	MBMS preferred frequency information is set to Ch. 2. Qoffmbms is set to 12 dB.
5	UE			UE reselects to Cell 24
5a	SS			The following MCCH messages are sent on Cell 24.
6	←		MBMS MODIFIED SERVICES INFORMATION	Transmitted "MBMS required UE action" IE is set to "Acquire counting info"
7	←		MBMS ACCESS INFORMATION	"MBMS short transmission ID" IE set to 1, "Access probability factor – Idle" set to 0 (corresponding to the actual probability factor value 1).
8	←		MBMS GENERAL INFORMATION	MBMS preferred frequency information set without index into SIB11 neighbour list.
9	→		RRC CONNECTION REQUEST	The UE transmits the message with Establishment cause set to "MBMS reception" and in case of MBMS Selected service with the "MBMS Selected Services Short" IE referring to the concerned MBMS Selected service and the corresponding Modification period identity.
10	←		RRC CONNECTION SETUP	
11	→		RRC CONNECTION SETUP COMPLETE	
11a	→		MBMS MODIFICATION REQUEST	The UE completing the RRC connection Setup procedure shall initiate the MBMS MODIFICATION REQUEST procedure in case of MBMS selected Service. This message may be received at any point after step 11 and before step 13.
12	UE			UE transmits SERVICE REQUEST, with IE "Service type" set to "MBMS Broadcast service Reception".
13	←		RRC CONNECTION RELEASE	
14	→		RRC CONNECTION RELEASE COMPLETE	The UE shall enter idle state.
15	←		MBMS MODIFIED SERVICES INFORMATION	MBMS session start. The SS also sets the Notification Indicator on MICH. The SS waits for the UE to establish the MTCH.
16	←		MBMS GENERAL INFORMATION	MBMS preferred frequency information set without index into SIB11 neighbour list.
17	←		MBMS NEIGHBOURING CELL P-T-M RB INFORMATION	This message has info for neighbouring cell 26
18	SS			The SS applies the power settings of "T1" in Table 8.5.6.1-1

19	UE		UE performs reselection applying Qoffmbms and reselects the Cell 26
20	←	MBMS UNMODIFIED SERVICES INFORMATION	There is no change in MBMS services already ongoing in previous cell
21	←	MBMS GENERAL INFORMATION	MBMS preferred frequency information set without index into SIB11 neighbour list.
22	←	MBMS NEIGHBOURING CELL P-T-M RB INFORMATION	This message has info for neighbouring cell 24
23	←→	CALL C.1	If the test result of C.1 indicates that UE is in idle mode, the test passes, otherwise it fails.

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 3 (Step 2)

Information Element	Value/remark
Sintersearch	Not Present

MBMS MODIFIED SERVICES INFORMATION (Step 3)

Information Element	Value/remark
Modified service list	Only 1 entry
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
- MBMS required UE action	None
- MBMS preferred frequency	
- PFL index	Index for Ch 2 (the frequency that UEs shall consider as the preferred frequency layer for cell re-selection during a session for an MBMS service the UE has activated)
- Continue MCCH reading	FALSE

MBMS GENERAL INFORMATION (Step 4)

Information Element	Value/remark
MBMS preferred frequency information	
- MBMS preferred frequency list	Only 1 entry
- MBMS preferred frequency	Ch 2 (the frequency that UEs shall consider as the preferred frequency layer for cell re-selection during a session for an MBMS service the UE has activated)
- CHOICE Layer convergence information	
- No HCS	
- Qoffmbms	12 dB

MBMS MODIFIED SERVICES INFORMATION (Step 6)

Information Element	Value/remark
Modified service list	Only 1 entry
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
- MBMS required UE action	Acquire counting info
- Continue MCCH reading	FALSE

MBMS MODIFIED SERVICES INFORMATION (Step 15)

Information Element	Value/remark
Message type	
Modified service list	
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
- MBMS required UE action	Acquire PTM RB info
MBMS p-t-m activation time	SS shall choose a value which is sufficient far ahead for the UE to establish the MTCH

MBMS UNMODIFIED SERVICES INFORMATION (Step 20)

Information Element	Value/remark
Message type	
Unmodified service list	
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
- MBMS required UE action	Acquire PTM RB info

8.5.6.1.5 Test requirement

After step 6, the UE upon receiving an MBMS MODIFIED SERVICES INFORMATION message with IE "MBMS required UE action" set to 'Acquire counting info', shall perform the counting procedure.

At step 8, the UE shall send an RRC CONNECTION REQUEST message with "Establishment cause" set to 'MBMS reception'.

After step 15, the UE shall reselect to Cell 26 applying the Qoffmbms and the SS shall check that the UE is camped on Cell 26 in idle mode.

8.5.6.1m MBMS Controlling Cell Change - Idle mode - Frequency Layer Convergence – HCS Not Used / MBMS Multicast Service

8.5.6.1m.1 Definition

This test is applicable for all UEs that support MBMS multicast services.

8.5.6.1m.2 Conformance requirement

Same conformance requirement as in clause 8.5.6.1.2

8.5.6.1m.3 Test purpose

Same test purpose as in clause 8.5.6.1.3.

8.5.6.1m.4 Method of test

Initial condition

System Simulator:

3 MBMS cells , Cell 21, Cell 24, Cell 26.

User Equipment:

The UE is in Idle Mode as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 8.5.6.1.4, except that at step 12 UE transmits Service Request, with IE "Service type" set to "MBMS Multicast service Reception".

Specific message contents

Same specific messages contents as in clause 8.5.6.1.4

8.5.6.1m.5 Test requirements

Same test requirement as in clause 8.5.6.1.5.

8.5.6.2 MBMS Controlling Cell Change in CELL_FACH during ongoing session / MBMS Broadcast Service

8.5.6.2.1 Definition and applicability

This test case is applicable for all UEs that support MBMS broadcast services.

8.5.6.2.2 Conformance requirement

The UE shall detect the available MBMS services by acquiring the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3 of TS 25.331.

The UE shall immediately acquire the MBMS ACCESS INFORMATION and the MBMS GENERAL INFORMATION messages i.e. it shall not delay reception of these messages until it has completed the acquisition of the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages. Likewise, the UE should immediately acquire the MBMS CURRENT CELL P-T-M RB INFORMATION and MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages.

The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information e.g. both the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION message should be acquired in the same modification period.

…

The UE may:

1> if in idle mode, URA_PCH, CELL_PCH or CELL_FACH state; and

1> if not receiving an MBMS service provided via a p-t-m radio bearer:

2> monitor the MBMS notification Indicator Channel (MICH).

2> if a notification on the MICH for one or more of the MBMS services included in the variable MBMS_ACTIVATED_SERVICES is detected:

3> acquire the MBMS MODIFIED SERVICES INFORMATION message with delaying the reading of MCCH until the next modification period and with stopping at the end of the modification period, in accordance with subclause 8.7.1.3 of TS 25.331;

3> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4 of TS 25.331.

The UE shall:

1> if in idle mode, URA_PCH, CELL_PCH or CELL_FACH state:

2> if receiving an MBMS service that is provided via a p-t-m radio bearer; or

2> if not receiving an MBMS service that is provided via a p-t-m radio bearer and not monitoring MICH:

3> acquire the MBMS MODIFIED SERVICES INFORMATION message from MCCH at the start of every modification period, in accordance with subclause 8.7.1.3 of TS 25.331;

3> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4 of TS 25.331.

…

1> if the IE "MBMS required UE action" is set to 'Acquire PTM RB info'; or

1> if the IE "MBMS required UE action" is set to 'Acquire counting info– PTM RBs unmodified' and the UE is not receiving a p-t-m RB for the concerned service:

2> continue acquiring the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3

2> act upon the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION message, if received, in accordance with subclause 8.7.5;

Reference

3GPP TS 25.331 clause 8.7.2.3, 8.7.3.3.1, 8.6.9.6.

8.5.6.2.3 Test purpose

1. To verify that a UE in CELL_FACH state performs an inter-frequency MBMS Controlling Cell Change during an ongoing Session.
2. To verify that a UE in CELL_FACH state performs an intra-frequency MBMS Controlling Cell Change during an ongoing Session.
3. To verify that the UE is able to read MCCH in combination with FACH measurements.
4. To verify that a UE in CELL_FACH is able to apply MBMS NEIGHBOURING CELLS P-T-M RB INFORMATION and receive data on this p-t-m radio bearer.

8.5.6.2.4 Method of test

Initial Condition

System Simulator:

3 MBMS cells, Cell 21, Cell 24 and Cell 26.

User Equipment:

The UE is in CELL_FACH state as specified in clause 7.6 of TS 34.108.

The UE is interested in the broadcast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Specific message contents for System information blocks 3 and 11 are used in Cell 21.

Related ICS/IXIT statement(s)

- MBMS Broadcast service application available on UE Yes/No

Test Procedure

Table 8.5.6.2-1 illustrates the downlink power to be applied for the 3 cells in this test case. Initially, the SS applies the power settings of column "T0".

Table 8.5.6.2-1

Parameter	Unit	Cell 21			Cell 24			Cell 26		
		T0	T1	T2	T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			High Range Test Frequency			High Range Test Frequency		
CPICH Ec (FDD)	dBm/3.84 MHz	-60	-80	-80	-70	-60	-70	-70	-70	-60
P-CCPCH RSCP (TDD)	dBm	-60	-80	-80	-70	-60	-70	-70	-70	-60

The UE is in CELL_FACH state in Cell 21. The SS notifies on MICH and MCCH about the start of an MBMS session and waits for the UE to activate MTCH reception. The MBMS radio bearer on MTCH is put into loopback mode 3.

The SS sends 10 RLC SDUs of MBMS data on MTCH in Cell 21 on the concerned MBMS radio bearer. The SS retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The SS checks that the UE has received at least one RLC SDUs.

The SS applies the power settings of "T1" in table 8.5.6.2-1. Then the UE shall reselect to Cell 24 and send a CELL UPDATE message on the CCCH. SS then replies with CELL UPDATE CONFIRM message on the downlink DCCH.

The SS provides information about the ongoing MBMS service in cell 24 by sending MBMS UNMODIFIED SERVICES INFORMATION. The SS informs the UE about Cell 26 as neighbouring cell by sending MBMS NEIGHBOURING CELL P-T-M RB INFORMATION in Cell 24. The MBMS radio bearer on MTCH is put into loopback mode 3, and SDU counter is reset to 0.The SS transmits 10 RLC SDUs of MBMS data in Cell 24. The SS retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The SS checks that the reported number is greater than zero.

The SS transmits 10 RLC SDUs of MBMS data in neighbouring Cell 26. The SS retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The SS checks that the reported number is greater than the number reported previously at step 16 of expected sequence.

The SS applies the power settings of "T2" in table 8.5.6.2-1. Then the UE shall reselect to Cell 26 and send a CELL UPDATE message on the CCCH. SS then replies with CELL UPDATE CONFIRM message on the downlink DCCH.

The SS provides information about the ongoing MBMS service in cell 26 by MBMS UNMODIFIED SERVICES INFORMATION. The SS informs the UE about Cell 24 as neighbouring cell by sending MBMS NEIGHBOURING CELL P-T-M RB INFORMATION in Cell 26.

The SS transmits 10 RLC SDUs of MBMS data in Cell 26. The SS retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The SS checks that the reported number is greater than the number reported by the UE previously at step 19 of expected sequence.

The SS transmits 10 RLC SDUs of MBMS data in neighbouring Cell 24. The SS retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The SS checks that the reported number is greater than the number reported by the UE at step 27 of expected sequence. The loopback mode 3 in the UE is deactivated.

SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

NOTE: If the UE fails the test because of selecting the wrong cell, the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←		SYSTEM INFORMATION	See specific message contents for SIB3 and SIB11
1	←		ACTIVATE RB TEST MODE	
2	→		ACTIVATE RB TEST MODE COMPLETE	
3	←		MBMS MODIFIED SERVICES INFORMATION	MBMS session start. The SS also sets the Notification Indicator on MICH. The SS waits for the UE to establish the MTCH.
4	←		CLOSE UE TEST LOOP	
5	→		CLOSE UE TEST LOOP COMPLETE	Loop back mode 3 on MTCH is activated.
6	SS			The SS broadcasts 10 RLC SDUs of MBMS data in Cell 21.
7	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
8	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the UE has received MBMS data in Cell 21. The SS checks that the number of reported RLC PDUs is greater than zero and records that value.
9	SS			The SS applies the power settings of “T1” in table 8.5.6.2-1.
10	→		CELL UPDATE	This message is transmitted in Cell 24.
11	←		CELL UPDATE CONFIRM	
11a	→		UTRAN MOBILITY INFORMATION CONFIRM	After receipt of this message the SS waits for the UE to establish the MTCH
11b	←		CLOSE UE TEST LOOP	
11c	→		CLOSE UE TEST LOOP COMPLETE	Loop back mode 3 on MTCH is activated.
12	←		MBMS UNMODIFIED SERVICES INFORMATION	
13	←		MBMS NEIGHBOURING CELL P-T-M RB INFORMATION	This message has info for neighbouring cell 26
14	SS			The SS transmits 10 RLC SDUs of MBMS data in Cell 24.
15	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
16	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the UE has received MBMS data also in Cell 24. The SS checks that the number of reported RLC PDUs is greater than 0.
17	SS			The SS transmits 10 RLC SDUs of MBMS data in neighbouring Cell 26.
18	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
19	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the UE has received MBMS data also from Cell 26. The SS checks that the number of reported RLC PDUs is greater than the value at step 16.
20	SS			The SS applies the power settings of “T2” in table 8.5.6.2-1

21	→	CELL UPDATE	This message is transmitted in cell 26
22	←	CELL UPDATE CONFIRM	
22a	→	UTRAN MOBILITY INFORMATION CONFIRM	
23	←	MBMS UNMODIFIED SERVICES INFORMATION	
24	←	MBMS NEIGHBOURING CELL P-T-M RB INFORMATION	This message has info for cell 24 RAB
25	SS		The SS transmits 10 RLC SDUs of MBMS data in Cell 26.
26	←	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
27	→	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the UE has received MBMS data also in Cell 26. The SS checks that the number of reported RLC PDUs is greater than the value at step 19.
28	SS		The SS transmits 10 RLC SDUs of MBMS data in neighbouring Cell 24.
29	←	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
30	→	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the UE has received MBMS data also from neighbouring cell 24. The SS checks that the number of reported RLC PDUs is greater than the value at step 27.
31	←	OPEN UE TEST LOOP	
32	→	OPEN UE TEST LOOP COMPLETE	
33	←→	CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 3 (Step 0)

Information Element	Value/remark
Sintersearch	Not Present

SYSTEM INFORMATION BLOCK TYPE 11 (Step 0) (FDD)

Information Element	Value/remark
FACH measurement occasion cycle length coefficient	3
Inter-frequency FDD measurement indicator	TRUE

SYSTEM INFORMATION BLOCK TYPE 11 (Step 0) (1.28Mcps TDD)

Information Element	Value/remark
FACH measurement occasion cycle length coefficient	3
Inter-frequency TDD 1.28 Mcps measurement indicator	TRUE

SYSTEM INFORMATION BLOCK TYPE 11 (Step 0) (3.84Mcps TDD)

Information Element	Value/remark
FACH measurement occasion cycle length coefficient	2
Inter-frequency TDD 3.84 Mcps measurement indicator	TRUE

SYSTEM INFORMATION BLOCK TYPE 11 (Step 0) (7.68Mcps TDD)

Information Element	Value/remark
FACH measurement occasion cycle length coefficient	2
Inter-frequency TDD 7.68 Mcps measurement indicator	TRUE

MBMS UNMODIFIED SERVICES INFORMATION (Step 12 and 23)

Information Element	Value/remark
Message type	
Unmodified service list	
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
- MBMS required UE action	Acquire PTM RB info

CELL UPDATE (Step 10 and 21)

Information Element	Value/remark
Cell update cause	Check that the value is set to “Cell reselection”

CELL UPDATE CONFIRM (Step 11 and 22)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'

UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE (Steps 8, 16, 19, 27 and 30)

Information Element	Value/remark
RLC SDU Counter Value	Check that the number is greater than previous sub-test

8.5.6.2.5 Test requirement

After step 7 , the UE shall transmit a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message with the number of reported RLC SDUs shall be greater than zero.

After step 9, the UE shall transmit a CELL UPDATE message in Cell 24.

After step 15, the UE shall transmit a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message with the number of reported RLC SDUs shall be greater than zero.

After step 18, the UE shall transmit a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message with the number of reported RLC SDUs shall be greater than the number reported in step 16.

After step 26, the UE shall transmit a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message with the number of reported RLC SDUs shall be greater than the number reported in step 19.

After step 29, the UE shall transmit a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message with the number of reported RLC SDUs shall be greater than the number reported in step 27.

8.5.6.2m MBMS Controlling Cell Change in CELL_FACH during ongoing session / MBMS Multicast Service

8.5.6.2m.1 Definition

This test is applicable for all UEs that support MBMS multicast services.

8.5.6.2m.2 Conformance requirement

Same conformance requirement as in clause 8.5.6.2.2

8.5.6.2m.3 Test purpose

Same test purpose as in clause 8.5.6.2.3.

8.5.6.2m.4 Method of test

Initial condition

System Simulator:

2 MBMS cells, Cell 21 and Cell 24

User Equipment:

The UE is in CELL_FACH state as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 8.5.6.2.4.

Specific message contents

Same specific messages contents as in clause 8.5.6.2.4

8.5.6.2m.5 Test requirements

Same test requirement as in clause 8.5.6.2.5.

8.5.6.3 MBMS Controlling Cell Change in CELL_PCH during ongoing session / MBMS Broadcast Service

8.5.6.3.1 Definition and applicability

This test case is applicable for all UEs that support MBMS broadcast services.

8.5.6.3.2 Conformance requirement

The UE shall detect the available MBMS services by acquiring the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3 of TS 25.331.

The UE shall immediately acquire the MBMS ACCESS INFORMATION and the MBMS GENERAL INFORMATION messages i.e. it shall not delay reception of these messages until it has completed the acquisition of the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages. Likewise, the UE should immediately acquire the MBMS CURRENT CELL P-T-M RB INFORMATION and MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages.

The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information e.g. both the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION message should be acquired in the same modification period.

…

The UE may:

1> if in idle mode, URA_PCH, CELL_PCH or CELL_FACH state; and

1> if not receiving an MBMS service provided via a p-t-m radio bearer:

2> monitor the MBMS notification Indicator Channel (MICH).

2> if a notification on the MICH for one or more of the MBMS services included in the variable MBMS_ACTIVATED_SERVICES is detected:

3> acquire the MBMS MODIFIED SERVICES INFORMATION message with delaying the reading of MCCH until the next modification period and with stopping at the end of the modification period, in accordance with subclause 8.7.1.3 of TS 25.331;

3> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4 of TS 25.331.

The UE shall:

1> if in idle mode, URA_PCH, CELL_PCH or CELL_FACH state:

2> if receiving an MBMS service that is provided via a p-t-m radio bearer; or

2> if not receiving an MBMS service that is provided via a p-t-m radio bearer and not monitoring MICH:

3> acquire the MBMS MODIFIED SERVICES INFORMATION message from MCCH at the start of every modification period, in accordance with subclause 8.7.1.3 of TS 25.331;

3> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4 of TS 25.331.

…

1> if the IE "MBMS required UE action" is set to 'Acquire PTM RB info'; or

1> if the IE "MBMS required UE action" is set to 'Acquire counting info– PTM RBs unmodified' and the UE is not receiving a p-t-m RB for the concerned service:

2> continue acquiring the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3

2> act upon the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION message, if received, in accordance with subclause 8.7.5;

Reference

3GPP TS 25.331 clauses 8.7.2.3, 8.7.3.3.1, 8.6.9.6.

8.5.6.3.3 Test purpose

1. To verify that a UE in CELL_PCH state performs an inter-frequency MBMS Controlling Cell Change during an ongoing Session.

2. To verify that a UE in CELL_PCH state performs an intra-frequency MBMS Controlling Cell Change during an ongoing Session.

3. To verify that a UE in CELL_PCH is able to apply MBMS NEIGHBOURING CELLS P-T-M RB INFORMATION and receive data on this p-t-m radio bearer.

8.5.6.3.4 Method of test

Initial Condition

System Simulator:

3 MBMS cells, Cell 21, Cell 24 and Cell 26.

User Equipment:

The UE is in CELL_FACH state as specified in clause 7.6 of TS 34.108.

The UE is interested in the broadcast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statement(s)

- MBMS Broadcast service application available on UE Yes/No

Test Procedure

Table 8.5.6.3-1 illustrates the downlink power to be applied for the 2 cells in this test case. Initially, the SS applies the power settings of column "T0".

Table 8.5.6.3-1

Parameter	Unit	Cell 21			Cell 24			Cell 26		
		T0	T1	T2	T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			High Range Test Frequency			High Range Test Frequency		
CPICH Ec (FDD)	dBm/3.84 MHz	-60	-80	-80	-70	-60	-70	-70	-70	-60
P-CCPCH RSCP (TDD)	dBm	-60	-80	-80	-70	-60	-70	-70	-70	-60

The UE is in CELL_FACH state in Cell 21. The SS notifies on MICH and MCCH about the start of an MBMS session and waits for the UE to activate MTCH reception.

The SS orders the UE to move to CELL_PCH state by transmitting a PHYSICAL CHANNEL RECONFIGURATION message with the RRC state indicator set to "CELL_PCH".

The SS applies the power settings of "T1" in table 8.5.6.3-1. At this point the UE shall reselect to Cell 24 and send a CELL UPDATE message on the CCCH. SS then replies with CELL UPDATE CONFIRM message on the downlink DCCH and orders the UE to stay in CELL_FACH state. The UE replies with a UTRAN MOBILITY INFORMATION CONFIRM message, and waits for the UE to activate MTCH reception. The MBMS radio bearer on MTCH is put into loopback mode 3.

The SS orders the UE to move to CELL_PCH state by transmitting a PHYSICAL CHANNEL RECONFIGURATION message with the RRC state indicator set to "CELL_PCH". The UE responds with PHYSICAL CHANNEL RECONIGURATION COMPLETE.

The SS provides information about the ongoing MBMS service in cell 24 by sending MBMS UNMODIFIED SERVICES INFORMATION. The SS informs the UE about Cell 26 as neighbouring cell by sending MBMS NEIGHBOURING CELL P-T-M RB INFORMATION in Cell 24. The SS sends 10 RLC SDUs of MBMS data in neighbouring cell 26.

The SS transmits a PAGING TYPE 1 message to the UE on the PCH and the UE moves to CELL_FACH state, sending a CELL UPDATE message. The SS replies with a CELL UPDATE CONFIRM message and UE confirms the received C-RNTI to be used in CELL FACH state by transmitting a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH.

Then the SS retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The SS checks that the reported number is greater than the number reported previously at step 14 of expected sequence.

The SS orders the UE to move to CELL_PCH state by transmitting a PHYSICAL CHANNEL RECONFIGURATION message with the RRC state indicator set to “CELL_PCH”. When the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message has been received, the SS sends 10 RLC SDUs of MBMS data in serving Cell 24.

The SS applies the power settings of “T2” in table 8.5.6.3-1. At this point the UE shall reselect to Cell 26 and send a CELL UPDATE message on the CCCH. SS then replies with CELL UPDATE CONFIRM message on the downlink DCCH and orders the UE to stay in CELL_FACH state. The UE replies with a UTRAN MOBILITY INFORMATION CONFIRM message.

The SS provides information about the ongoing MBMS service in cell 26 by sending MBMS UNMODIFIED SERVICES INFORMATION. The SS informs the UE about Cell 24 as neighbouring cell by sending MBMS NEIGHBOURING CELL P-T-M RB INFORMATION in Cell 26.

The SS retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The SS checks that the UE has received greater number of RLC SDU than reported in previous step 25 of expected sequence.

The SS orders the UE to move to CELL_PCH state by transmitting a PHYSICAL CHANNEL RECONFIGURATION message with the RRC state indicator set to “CELL_PCH” and the UE responds with PHYSICAL CHANNEL RECONIGURATION COMPLETE.

The SS sends 10 RLC SDUs of MBMS data in neighbouring Cell 24.The SS transmits a PAGING TYPE 1 message to the UE on the PCH and the UE moves to CELL_FACH state, sending a CELL UPDATE message. The SS replies with a CELL UPDATE CONFIRM message and UE confirms the received C-RNTI to be used in CELL FACH state by transmitting a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH.

The SS retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The SS checks that the reported number is greater than the number previously reported by the UE at step 34 of expected sequence.

The loopback mode 3 in the UE is deactivated.

SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

NOTE: If the UE fails the test because of selecting the wrong cell, the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		ACTIVATE RB TEST MODE	
2	→		ACTIVATE RB TEST MODE COMPLETE	
3	←		MBMS MODIFIED SERVICES INFORMATION	MBMS session start. The SS also sets the Notification Indicator on MICH. The SS waits for the UE to establish the MTCH.
4			Void	
5			Void	
6	←		PHYSICAL CHANNEL RECONFIGURATION	
7	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE now transits to CELL_PCH state
8			Void	
9		SS		The SS applies the power settings of “T1” in table 8.5.6.3-1.
10	→		CELL UPDATE	This message is transmitted in Cell 24.
11	←		CELL UPDATE CONFIRM	
12	→		UTRAN MOBILITY INFORMATION CONFIRM	The UE stays in CELL_FACH state in Cell 24. The SS waits for the UE to establish the MTCH
13	←		CLOSE UE TEST LOOP	
14	→		CLOSE UE TEST LOOP COMPLETE	Loop back mode 3 on MTCH is activated.
15	←		PHYSICAL CHANNEL RECONFIGURATION	
16	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE now transits to CELL_PCH state
17	←		MBMS UNMODIFIED SERVICES INFORMATION	
18	←		MBMS NEIGHBOURING CELL P-T-M RB INFORMATION	This message has info for neighbouring cell 26
19				The SS transmits 10 RLC SDUs of MBMS data from neighbouring Cell 26.
20	←		PAGING TYPE 1	
21	→		CELL UPDATE	Paging response
22	←		CELL UPDATE CONFIRM	
23	→		UTRAN MOBILITY CONFIRM	
24	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
25	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC PDUs is greater than 0.
26	←		PHYSICAL CHANNEL RECONFIGURATION	
27	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE now transits to CELL_PCH state
28		SS		The SS transmits 10 RLC SDUs of MBMS data from Cell 24.
29		SS		The SS applies the power settings of “T2” in table 8.5.6.3-1
30	→		CELL UPDATE	This message is transmitted in Cell 26.
31	←		CELL UPDATE CONFIRM	
32	→		UTRAN MOBILITY INFORMATION CONFIRM	The UE stays in CELL_FACH state in Cell 26

33	←	MBMS UNMODIFIED SERVICES INFORMATION	
34	←	MBMS NEIGHBOURING CELL P-T-M RB INFORMATION	This message has info for neighbouring cell 24
35	←	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
36	→	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC PDUs is greater than the previously reported number of RLC PDUs at step 25.
37	←	PHYSICAL CHANNEL RECONFIGURATION	
38	→	PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE now transits to CELL_PCH state
39			The SS transmits 10 RLC SDUs of MBMS data from neighbouring Cell 24.
40	←	PAGING TYPE 1	
41	→	CELL UPDATE	Paging response
42	←	CELL UPDATE CONFIRM	
43	→	UTRAN MOBILITY INFORMATION CONFIRM	
44	←	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
45	→	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC PDUs is greater than the previously reported number of RLC PDUs at step 34.
46	←	OPEN UE TEST LOOP	
47	→	OPEN UE TEST LOOP COMPLETE	
48	←→	CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

MBMS UNMODIFIED SERVICES INFORMATION (Step 17 and 33)

Information Element	Value/remark
Message type	
Unmodified service list	
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
- MBMS required UE action	Acquire PTM RB info

PHYSICAL CHANNEL RECONFIGURATION (Steps 6, 15, 26 and 37)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	7

PAGING TYPE 1 (Step 20 and 40)

Use the following message:

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to the previously assigned SRNC identity
- S-RNTI	Set to previously assigned S-RNTI
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE (Steps 10 and 30)

Information Element	Value/remark
Cell update cause	Check that the value is set to “Cell reselection”

CELL UPDATE CONFIRM (Steps 11, 22, 31 and 42)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New C-RNTI	'1010 1010 1010 1010'

UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE (Step 14)

Information Element	Value/remark
RLC SDU Counter Value	Check that the number is greater than zero

CELL UPDATE (Steps 21 and 41)

Information Element	Value/remark
Cell update cause	Check that the value is set to “Paging response”

UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE (Step 25, 36 and 45)

Information Element	Value/remark
RLC SDU Counter Value	Check that the number is greater than the value reported at the previous sub-test.

8.5.6.3.5 Test requirement

After step 9, the UE shall transmit a CELL UPDATE message in Cell 24.

After step 24, the UE shall transmit a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message with the number of reported RLC SDUs shall be greater than zero.

After step 35, the UE shall transmit a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message with the number of reported RLC SDUs shall be greater than the number reported in step 25.

After step 44, the UE shall transmit a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message with the number of reported RLC SDUs shall be greater than the number reported in step 36.

8.5.6.3m MBMS Controlling Cell Change in CELL_PCH during ongoing session / MBMS Multicast Service

8.5.6.3m.1 Definition

This test is applicable for all UEs that support MBMS multicast services.

8.5.6.3m.2 Conformance requirement

Same conformance requirement as in clause 8.5.6.3.2

8.5.6.3m.3 Test purpose

Same test purpose as in clause 8.5.6.3.3.

8.5.6.3m.4 Method of test

Initial condition

System Simulator:

2 MBMS cells, Cell 21 and Cell 24

User Equipment:

The UE is in CELL_PCH state as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 8.5.6.3.4.

Specific message contents

Same specific messages contents as in clause 8.5.6.3.4

8.5.6.3m.5 Test requirements

Same test requirement as in clause 8.5.6.3.5.

8.5.6.4 MBMS Controlling Cell Change - Idle mode - Frequency Layer Convergence – With HCS / MBMS Selected Service

8.5.6.4.1 Definition

Test to verify that the UE performs the cell reselection correctly for hierarchical cell structures. This shall be done according to the HCS priority, the received signal quality value Q and the quality level threshold criterion H. This test case is applicable for all UEs that support MBMS broadcast services.

8.5.6.4.2 Conformance requirement

When camped normally, the UE shall perform the following tasks:

- select and monitor the indicated PICH and PCH of the cell as specified in clause 8 according to information sent in system information;
- monitor relevant System Information. This is specified in [8];
- perform necessary measurements for the cell reselection evaluation procedure;
- execute the cell reselection evaluation process on the following occasions/triggers:
  1) UE internal triggers, so as to meet performance as specified in [22] and [23];
  2) When information on the BCCH used for the cell reselection evaluation procedure has been modified

If the UE supports MBMS and MBMS is active in the cell and the UE is permitted to receive MBMS services in the cell, the UE shall perform MBMS tasks as specified in subclause 6.3 of TS 25.304.

…

In the cell reselection process, an MBMS PL shall only be applicable while the UE is receiving an MBMS session from one or more of the ongoing activated MBMS services for which this PL is indicated.

…

The measurement rules below apply in Idle, URA_PCH, CELL_PCH states. In CELL_FACH state the UE is required to perform measurements on all intra-frequency, inter-frequency and inter-RAT cells listed in system information according to requirements specified in [10]. In Idle, URA_PCH, CELL_PCH and CELL_FACH states the UE shall only consider those cells the UE is mandated to measure according to the measurement rules below as measured cells in the cell reselection criteria (subclause 5.2.6.1.4).

If the system information broadcast in the serving cell indicates that HCS is used, then for intra-frequency and inter-frequency measurements, the UE shall:

use HCS $priority_1$ as the HCS priority broadcast in the system information and apply the following rule:

IF an MBMS PL is used THEN

- If the UE is in HCS low mobility state, for serving cell and neighbour cells belonging to the MBMS PL set the HCS priority = HCS $priority_1$ + HCS_OFF_{mbms}.
- If the UE is in HCS high mobility state, for serving cell and neighbour cells belonging to the MBMS PL set the HCS priority = HCS $priority_1$.
- for serving cell and neighbour cells not belonging to the MBMS PL, set the HCS priority = HCS $priority_1$.

IF an MBMS PL is not used THEN

For serving cell and all neighbour cells set HCS priority = HCS $priority_1$

…

The quality level threshold criterion H for hierarchical cell structures is used to determine whether prioritised ranking according to hierarchical cell re-selection rules shall apply, and is defined by:

$$H_s = Q_{meas,s} - Qhcs_s$$

$$H_n = Q_{meas,n} - Qhcs_n - TO_n * L_n$$

…

The cell-ranking criterion R is defined by:

$$R_s = Q_{meas,s} + Qhyst_s + Qoffmbms$$

$$R_n = Q_{meas,n} - Qoffset_{s,n} + Qoffmbms - TO_n * (1 - L_n)$$

where:

the signalled value Qoffmbms is only applied to those cells (serving or neighbouring) belonging to the MBMS PL

where:

$$TO_n = TEMP\_OFFSET_n * W(PENALTY\_TIME_n - T_n)$$

$L_n = 0$ if $HCS\_PRIO_n = HCS\_PRIO_s$
$L_n = 1$ if $HCS\_PRIO_n <> HCS\_PRIO_s$

$W(x) = 0$ for $x < 0$
$W(x) = 1$ for $x >= 0$

$TEMP\_OFFSET_n$ applies an offset to the H and R criteria for the duration of $PENALTY\_TIME_n$ after a timer T_n has started for that neighbouring cell.

$TEMP\_OFFSET_n$ and $PENALTY\_TIME_n$ are only applicable if the usage of HCS is indicated in system information.

…

If HCS is used in the serving cell the UE shall perform ranking of all cells that fulfil the criterion S among

1. when in low-mobility (see subclause 5.2.6.1.2),
   - all measured cells, that have the highest HCS_PRIO among those cells that fulfil the criterion H >= 0.
   - all measured cells, not considering HCS priority levels, if no cell fulfil the criterion H >= 0.

…

If the usage of HCS is indicated in system information, $TEMP\_OFFSET1_n$ is used for $TEMP\_OFFSET_n$ to calculate TO_n. If it is indicated in system information that HCS is not used, $TEMP\_OFFSET_n$ is not applied when calculating R_n. The best ranked cell is the cell with the highest R value.

…

If a TDD or GSM cell is ranked as the best cell, then the UE shall perform cell re-selection to that TDD or GSM cell

…

If an FDD cell is ranked as the best cell and the quality measure for cell selection and re-selection is set to CPICH RSCP, the UE shall perform cell re-selection to that FDD cell. If this cell is found to be not suitable, the UE shall behave according to subclause 5.2.6.1.3.

…

The cells shall be ranked according to the R criteria specified above, deriving $Q_{meas,n}$ and $Q_{meas,s}$ and calculating the R values using CPICH RSCP, P-CCPCH RSCP and the averaged received signal level as specified in [22] and [23] for FDD, TDD and GSM cells, respectively.

The offset $Qoffset1_{s,n}$ is used for $Qoffset_{s,n}$ to calculate R_n, the hysteresis $Qhyst1_s$ is used for $Qhyst_s$ to calculate R_s. For UE in RRC connected mode states CELL_PCH or URA_PCH the hysteresis $Qhyst_s$ takes the value $Qhyst1_{s,PCH}$ to

calculate R_s, if provided in SIB4 [see 8]. For UE in RRC connected mode state CELL_FACH the hysteresis $Qhyst_s$ takes the value $Qhyst1_{s,FACH}$ to calculate R_s, if provided in SIB4 [see 8].

…

If an FDD cell is ranked as the best cell and the quality measure for cell selection and re-selection is set to CPICH RSCP, the UE shall perform cell re-selection to that FDD cell. If this cell is found to be not suitable, the UE shall behave according to subclause 5.2.6.1.3 of TS 25.304.

…

In all cases, the UE shall reselect the new cell, only if the following conditions are met:

- the new cell is better ranked than the serving cell during a time interval Treselection. For UE in RRC connected mode states CELL_PCH or URA_PCH the interval $Treselection_{s,PCH}$ applies, if provided in SIB4 [see 8], while for UE in RRC connected mode state CELL_FACH the interval $Treselection_{s,FACH}$ applies, if provided in SIB4 [see 8]. For hierarchical cell structures when high mobility state has not been detected, if according to the HCS rules the serving cell is not ranked then all the ranked cells are considered to be better ranked than the serving cell.

...

The UE shall perform the MBMS frequency layer selection procedure upon receiving the IE "MBMS Preferred frequency information", when specified explicitly e.g. as in subclause 8.6.9.2, or when the priority for an MBMS service as indicated by upper layers changes.

The UE shall:

1> if there exist two or more preferred frequencies for services included in variable MBMS_ACTIVATED_SERVICES:

2> request from upper layers the priorities of the different MBMS services included in variable MBMS_ACTIVATED_SERVICES for which a preferred frequency has been received.

1> if the UE is in idle mode:

2> if a preferred frequency layer applies for a service included in variable MBMS_ACTIVATED_SERVICES:

3> select the preferred frequency indicated for the MBMS service(s) prioritised most by upper layers for which a preferred frequency exists as the preferred frequency.

Reference

3GPP TS 25.304 clauses 5.2.5.1, 5.2.6.1.0, 5.2.6.1.2, 5.2.6.1.4.

3GPP TS 25.331 clause 8.5.27.

8.5.6.4.3 Test purpose

1. To verify that a UE in idle mode ranks cells based on both HCS priority and R. Qhyst, Qoffset and PENALTY TIME are not applied so R equals CPICH_RSCP.
2. To verify that a UE in idle mode performs a Serving Cell Reselection to the Preferred Layer at Session Start.
3. To verify that a UE in idle mode performs an intra-frequency Cell Reselection on the Preferred Layer during an ongoing Session

8.5.6.4.4 Method of test

Initial Condition

System Simulator: 3 MBMS cells (Cell 21, Cell 24, Cell 26) with the downlink transmission power shown in column marked "T0" in table 8.5.6.4-1.

SS shall indicate in System Information that HCS is in use. Qhcs = 0 so all cells fulfil the criterion H >=0.

Each cell shall include the other cells as neighbouring cells in System Information Block Type 11.

UE:

The UE is in Idle Mode as specified in clause 7.6 of TS 34.108.

The UE is interested in the broadcast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Specific message contents for System information blocks 3 and 11 are used in Cell 21.

Related ICS/IXIT statement(s)

- MBMS Broadcast service application available on UE Yes/No

Test procedure

Table 8.5.6.4-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while columns marked "T1 are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 8.5.6.4-1

Parameter	Unit	Cell 21		Cell 24		Cell 26	
		T0	T1	T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84 MHz	-60	-60	-60	-75	-75	-60
P-CCPCH RSCP (TDD)	dBm	-60	-60	-60	-75	-75	-60
HCS_PRIO		5		3		3	

Method C is applied (as described and used in clause 6 of TS 34.123-1).

The SS activates Cell 21, Cell 24 and Cell 26 and monitors them for access request from the UE. The UE is in idle mode state on Cell 21.The UE receives at notification via MCCH, an MBMS MODIFIED SERVICES INFORMATION message including a preferred frequency in the IE “MBMS preferred frequency”. The HCS_OFFmbms is added to the normal HCS priority level of cells on this MBMS preferred frequency. Cell 24 and Cell 26 have the highest priority.

The UE shall consider this frequency as the preferred frequency layer for cell re-selection. The SS waits for random access requests from the UE. The UE moves to Cell 24 at session start for the concerned MBMS service. The UE shall store the frequency information of the frequency on which the UE was operating prior to cell-reselection to the preferred frequency in the variable MBMS_PREV_FREQUENCY_INFORMATION.

The HCS_OFFmbms is added to the normal HCS priority level of cells on this MBMS preferred frequency. Cell 24 and Cell 26 have the highest priority.

The SS transmits an MBMS MODIFIED SERVICE INFORMATION message which includes in the “Modified service list” for the MBMS activated service “MBMS required UE action” set to “Acquire counting info” and MBMS ACCESS INFORMATION message, which includes the MBMS Short Transmission ID associated to the MBMS activated service and “Access probability factor – Idle” set to 0 (corresponds to an actual Probability Factor = 1).

The UE shall transmit an RRC CONNECTION REQUEST message, with “Establishment cause” set to “MBMS reception”. The SS transmits a RRC CONNECTION SETUP. The UE establishes an RRC connection and transmits an RRC CONNECTION SETUP COMPLETE message.

The UE receives an MBMS MODIFIED SERVICES INFORMATION message “MBMS required UE action” IE set to “Acquire PTM RB info”. The UE receives an MBMS NEIGHBOURING CELL P-T-M RB INFORMATION including MBMS neighbouring cell information for Cell 26. The UE shall apply the MBMS p-t-m radio bearer configuration procedure to acquire the radio bearer configuration for the MBMS service provided by the SS.

The UE starts receiving the indicated p-t-m radio bearer.

The SS applies the power settings of “T1” in table 8.5.6.4-1. The SS waits for random access requests from the UE. The UE shall reselect to Cell 26.

The UE receives an MBMS UNMODIFIED SERVICES INFORMATION message “MBMS required UE action” IE set to “Acquire PTM RB info”. The UE receives an MBMS NEIGHBOURING CELL P-T-M RB INFORMATION including MBMS neighbouring cell information for Cell 24. The UE shall apply the MBMS p-t-m radio bearer configuration and continues receiving the indicated p-t-m radio bearer.

SS calls for generic procedure C.1 to check that UE is in idle mode.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	UE			The UE is in idle mode on Cell 21.
2	←		SYSTEM INFORMATION	SS indicates that HCS is used.
3	←		MBMS MODIFIED SERVICES INFORMATION	"MBMS required UE action" IE is set to "none" and the "MBMS preferred frequency" IE indicates the reference to Ch. 2.
4	←		MBMS GENERAL INFORMATION	MBMS preferred frequency information is set to Ch. 2.
5				The SS waits for random access requests from the UE. The UE shall responds on Cell 24.
6	←		MBMS MODIFIED SERVICES INFORMATION	"MBMS required UE action" IE is set to "Acquire counting info"
7	←		MBMS GENERAL INFORMATION	MBMS preferred frequency information set without index into SIB11 neighbour list.
8	←		MBMS ACCESS INFORMATION	"MBMS short transmission ID" IE set to 1, "Access probability factor – Idle" set to 0 (corresponding to the actual probability factor value 1).
9	→		RRC CONNECTION REQUEST	Establishment cause set to MBMS reception.
10	←		RRC CONNECTION SETUP	
11	→		RRC CONNECTION SETUP COMPLETE	
11a	→		MBMS MODIFICATION REQUEST	The UE completing the RRC connection Setup procedure shall initiate the MBMS MODIFICATION REQUEST procedure in case of MBMS selected Service. This message may be received at any point after step 11 and before step 13.
12	UE			UE transmits SERVICE REQUEST, with IE "Service type" set to "MBMS Broadcast service Reception".
13	←		RRC CONNECTION RELEASE	
14	→		RRC CONNECTION RELEASE COMPLETE	The UE shall enter idle state.
15	←		MBMS MODIFIED SERVICES INFORMATION	MBMS session start. The SS also sets the Notification Indicator on MICH. The SS waits for the UE to establish the MTCH.
16	←		MBMS GENERAL INFORMATION	MBMS preferred frequency information set without index into SIB11 neighbour list.
17	←		MBMS NEIGHBOURING CELL P-T-M RB INFORMATION	This message has info for neighbouring cell 26
18	SS			The SS applies the power settings of "T1" in Table 8.5.6.4-1
19	UE			The SS waits for random access requests from the UE. The UE shall responds on Cell 26.
20	←		MBMS UNMODIFIED SERVICES INFORMATION	There is no change in MBMS services already ongoing in previous cell
21	←		MBMS GENERAL INFORMATION	MBMS preferred frequency information set without index into SIB11 neighbour list.

22	←	MBMS NEIGHBOURING CELL P-T-M RB INFORMATION	This message has info for neighbouring cell 24
23	←→	CALL C.1	If the test result of C.1 indicates that UE is in idle mode, the test passes, otherwise it fails.

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 3 (Step 2)

Information Element	Value/remark
Sintersearch	Not Present

MBMS MODIFIED SERVICES INFORMATION (Step 3)

Information Element	Value/remark
Modified service list	Only 1 Entry
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
- MBMS required UE action	None
- MBMS preferred frequency	
- PFL index	Index for Ch 2 (the frequency that UEs shall consider as the preferred frequency layer for cell re-selection during a session for an MBMS service the UE has activated)
- Continue MCCH reading	FALSE

MBMS GENERAL INFORMATION (Step 4)

Information Element	Value/remark
MBMS preferred frequency information	
- MBMS preferred frequency list	Only 1 Entry
- MBMS preferred frequency	Ch 2 (the frequency that UEs shall consider as the preferred frequency layer for cell re-selection during a session for an MBMS service the UE has activated)
- CHOICE Layer convergence information	
- HCS	
- HCS_OFFmbms	4 (Offset added to the normal HCS priority level of cells on this MBMS preferred frequency)
- MBMS PL Service Restriction Information	TRUE

MBMS MODIFIED SERVICES INFORMATION (Step 6)

Information Element	Value/remark
Modified service list	Only 1 entry
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
- MBMS required UE action	Acquire counting info
- Continue MCCH reading	FALSE

MBMS MODIFIED SERVICES INFORMATION (Step 15)

Information Element	Value/remark
Message type	
Modified service list	
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
- MBMS required UE action	Acquire PTM RB info
MBMS p-t-m activation time	Set to the first TTI of the next modification period

MBMS UNMODIFIED SERVICES INFORMATION (Step 20)

Information Element	Value/remark
Message type	
Unmodified service list	
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
- MBMS required UE action	Acquire PTM RB info

8.5.6.4.5 Test requirement

At step 5, the UE shall respond on Cell 24.

At step 15, the UE shall respond on Cell 26.

8.5.6.4m MBMS Controlling Cell Change - Idle mode - Frequency Layer Convergence – With HCS / MBMS Multicast Service

8.5.6.4m.1 Definition

This test is applicable for all UEs that support MBMS multicast services.

8.5.6.4m.2 Conformance requirement

Same conformance requirement as in clause 8.5.6.4.2

8.5.6.4m.3 Test purpose

Same test purpose as in clause 8.5.6.4.3.

8.5.6.4m.4 Method of test

Initial condition

System Simulator:

3 MBMS cells, Cell 21, Cell 24, Cell 26.

User Equipment:

The UE is in Idle Mode as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 8.5.6.4.4, except that at step 12 UE transmits Service Request, with IE "Service type" set to "MBMS Multicast service Reception".

Specific message contents

Same specific messages contents as in clause 8.5.6.4.4

8.5.6.4m.5 Test requirements

Same test requirement as in clause 8.5.6.4.5.

8.5.6.5 MBMS Controlling Cell Change in CELL_DCH during ongoing session / MBMS Broadcast Service

8.5.6.5.1 Definition and applicability

This test case is applicable for all UEs that support MBMS broadcast services and support MBMS p-t-m reception in CELL_DCH state.

8.5.6.5.2 Conformance requirement

The UE shall detect the available MBMS services by acquiring the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3 of TS 25.331.

The UE shall immediately acquire the MBMS ACCESS INFORMATION and the MBMS GENERAL INFORMATION messages i.e. it shall not delay reception of these messages until it has completed the acquisition of the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages. Likewise, the UE should immediately acquire the MBMS CURRENT CELL P-T-M RB INFORMATION and MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages.

The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information e.g. both the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION message should be acquired in the same modification period.

Reference

3GPP TS 25.331 clause 8.7.2.3.

8.5.6.5.3 Test purpose

1. To verify that a UE in CELL_DCH state performs an inter-frequency MBMS Controlling Cell Change during an ongoing Session.
2. To verify that a UE in CELL_DCH state performs an intra-frequency MBMS Controlling Cell Change during an ongoing Session.
3. To verify that a UE in CELL_DCH is able to apply MBMS NEIGHBOURING CELLS P-T-M RB INFORMATION and receive data on this p-t-m radio bearer.

8.5.6.5.4 Method of test

Initial Condition

System Simulator:

3 MBMS cells, Cell 21, Cell 24 and Cell 26.

User Equipment:

The UE is in CELL_DCH state as specified in clause 7.6 of TS 34.108.

The UE is interested in the broadcast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statement(s)

- MBMS Broadcast service application available on UE Yes/No
- UE supports MBMS p-t-m reception in CELL_DCH state Yes/No

Test Procedure

Table 8.5.6.5-1 illustrates the downlink power to be applied for the 3 cells in this test case. Initially, the SS applies the power settings of column "T0".

Table 8.5.6.5-1

Parameter	Unit	Cell 21			Cell 24			Cell 26		
		T0	T1	T2	T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			High Range Test Frequency			High Range Test Frequency		
CPICH Ec (FDD)	dBm/3.84 MHz	-60	-80	-80	-70	-60	-70	-70	-70	-60
P-CCPCH RSCP (TDD)	dBm	-60	-80	-80	-70	-60	-70	-70	-70	-60

The UE is in the CELL_DCH state in Cell 21. The SS notifies on MICH and MCCH about the start of an MBMS session and waits for the UE to activate MTCH reception. The MBMS radio bearer on MTCH is put into loopback mode 3.

The SS sends 10 RLC SDUs of MBMS data on MTCH in Cell 21 on the concerned MBMS radio bearer. The retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The SS checks that the UE has received at least one RLC SDU.

The SS applies the power settings of "T1" in table 8.5.6.5-1 and orders an inter-frequency hard handover to Cell 24 by transmitting a PHYSICAL CHANNEL RECONFIGURATION message. The UE establishes the dedicated physical channel in Cell 24 and replies with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message, and waits for the UE to activate MTCH reception.

The SS provides information about the ongoing MBMS services in cell 24 by sending MBMS UNMODIFIED SERVICES INFORMATION. The SS informs the UE about Cell 26 as neighbouring cell by sending MBMS NEIGHBOURING CELL P-T-M RB INFORMATION in Cell 24.

The SS sends 10 RLC SDUs of MBMS data in cell 24. The SS retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The SS checks that the reported number is greater than zero.

The SS then sends 10 RLC SDUs of MBMS data in neighbouring cell 26 and SS retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. UE should be able to receive the MBMS data from neighbouring Cell 26 when camped in Cell 24. The SS checks that the reported number is greater than the number reported by the UE at step 16 of expected sequence. The SS applies the power settings of "T2" in table 8.5.6.5-1 and then orders handover to Cell 26 by transmitting a PHYSICAL CHANNEL RECONFIGURATION message. The UE establishes the dedicated physical channel in Cell 26 and replies with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

The SS provides information about the ongoing MBMS service in cell 26 by sending MBMS UNMODIFIED SERVICES INFORMATION. The SS informs the UE about Cell 24 as neighbouring cell by sending MBMS NEIGHBOURING CELL P-T-M RB INFORMATION in Cell 24.

The SS sends 10 RLC SDUs of MBMS data in cell 26. The SS retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The SS checks that the reported number is greater than the number reported by the UE at step 19.

The SS then sends 10 RLC SDUs of MBMS data in neighbouring cell 24 and SS retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The SS checks that the reported number is greater than the previous number reported by the UE at step 27.

The loopback mode 3 in the UE is deactivated.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

NOTE: If the UE fails the test because of selecting the wrong cell, the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		ACTIVATE RB TEST MODE	
2	→		ACTIVATE RB TEST MODE COMPLETE	
3	←		MBMS MODIFIED SERVICES INFORMATION	MBMS session start. The SS also sets the Notification Indicator on MICH. The SS waits for the UE to establish the MTCH.
4	←		CLOSE UE TEST LOOP	
5	→		CLOSE UE TEST LOOP COMPLETE	Loop back mode 3 on MTCH is activated.
6	SS			The SS broadcasts 10 RLC SDUs of MBMS data in Cell 21.
7	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
8	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the UE has received MBMS data in Cell 21. The SS checks that the number of reported RLC PDUs is greater than zero and record the value.
9	SS			The SS applies the power settings of “T1” in table 8.5.6.5-1.
10			PHYSICAL CHANNEL RECONFIGURATION	Inter-frequency hard handover to Cell 24.
11	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The SS waits for the UE to establish the MTCH according to the messages in steps 12-13
12	←		MBMS UNMODIFIED SERVICES INFORMATION	There is no change in MBMS services already ongoing in previous cell
13	←		MBMS NEIGHBOURING CELL P-T-M RB INFORMATION	This message has info for neighbouring cell 26
13a	←		CLOSE UE TEST LOOP	
13b	→		CLOSE UE TEST LOOP COMPLETE	Loop back mode 3 on MTCH is activated.
14	SS			The SS transmits 10 RLC SDUs of MBMS data in Cell 24.
15	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
16	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the UE has received MBMS data also in Cell 24. The SS checks that the number of reported RLC PDUs is greater than 0.
17	SS			SS transmits 10 RLC SDUs of MBMS data in Cell 26.
18	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
19	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the UE has received MBMS data sent in neighbouring cell 26. The SS checks that the number of reported RLC PDUs is greater than the value at step 16.
20	SS			The SS applies the power settings of “T2” in table 8.5.6.5-1
21			PHYSICAL CHANNEL RECONFIGURATION	UE moves to Cell 26.
22	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	

23	←	MBMS UNMODIFIED SERVICES INFORMATION	There is no change in MBMS services already ongoing in previous cell
24	←	MBMS NEIGHBOURING CELL P-T-M RB INFORMATION	This message has info for neighbouring cell 24
25	SS		SS transmits 10 RLC SDUs of MBMS data in Cell 26.
26	←	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
27	→	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the UE has received MBMS data also in Cell 26. The SS checks that the number of reported RLC PDUs is greater than the value at step 19.
28	SS		SS transmits 10 RLC SDUs of MBMS data in Cell 24.
29	←	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
30	→	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the UE has received MBMS data sent in neighbouring cell 24. The SS checks that the number of reported RLC PDUs is greater than the value at step 27.
31	←	OPEN UE TEST LOOP	
32	→	OPEN UE TEST LOOP COMPLETE	
33	←→	CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 10) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
Frequency info	
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink(Nd)	Same downlink UARFCN as used for Cell 24
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indication	Initialise
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to the scrambling code for Cell 24

PHYSICAL CHANNEL RECONFIGURATION (Step 10) (1.28Mcps and 7.68Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
Frequency info	
- UARFCN (Nt)	Same UARFCN as used for cell 24
CHOICE channel requirement	Not present
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indication	Initialise
- CFN-targetSFN frame offset	0
- Downlink DPCH power control information	Not Present
- MAC-d HFN initial value	Not Present
- CHOICE mode	TDD
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- TSTD indicator	FALSE
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
- CHOICE mode	TDD
- Default DPCH Offset Value	0 Integer(0..7)
- MAC-hs reset indicator	FALSE
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- CHOICE mode	TDD
- Primary CCPCH info	Set to the Cell parameters ID for cell 4
- Downlink DPCH info for each RL	
- CHOICE mode	TDD
- TFCS ID	Reference to TS34.108 clause 6.11 Parameter Set
- Time info	Reference to TS34.108 clause 6.11 Parameter Set
- Common timeslot info	Reference to TS34.108 clause 6.11 Parameter Set
- Downlink DPCH timeslots and codes	as used for cell 4

PHYSICAL CHANNEL RECONFIGURATION (Step 10) (3.84Mcps TDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
Frequency info	
- UARFCN (Nt)	Same UARFCN as used for cell 4
CHOICE channel requirement	Not present
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indication	Initialise
- CFN-targetSFN frame offset	0
- Downlink DPCH power control information	Not Present
- Downlink rate matching restriction information	Not Present
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Fixed or flexible position	Reference to TS34.108 clause 6.10 Parameter Set
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set
- DPCH compressed mode info	Not present
- TX Diversity mode	Not Present
- SSDT information	Not Present
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
- MAC-hs reset indicator	FALSE
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- CHOICE mode	TDD
- Primary CCPCH info	Set to the Cell parameters ID for cell 4
- Downlink DPCH info for each RL	
- CHOICE mode	TDD
- TFCS ID	Reference to TS34.108 clause 6.10 Parameter Set
- Time info	Reference to TS34.108 clause 6.10 Parameter Set
- Common timeslot info	Reference to TS34.108 clause 6.10 Parameter Set
- Downlink DPCH timeslots and codes	as used for cell 4

UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE (Step 8)

Information Element	Value/remark
RLC SDU Counter Value	Check that the number is greater than zero

UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE (Step 16,19,27,30)

Information Element	Value/remark
RLC SDU Counter Value	Check that the number is greater than the value reported at the previous sub-test.

PHYSICAL CHANNEL RECONFIGURATION (Step 21) (FDD)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
Frequency info	
- UARFCN uplink(Nu)	Not present Absence of this IE is equivalent to applying the default duplex distance defined for the operating frequency according to 3GPP TS 25.101 [21]
- UARFCN downlink(Nd)	Same downlink UARFCN as used for Cell 26
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indication	Initialise
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to the scrambling code for Cell 26

8.5.6.5.5 Test requirement

After step 7, the UE shall transmit a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message with the number of reported RLC SDUs shall be greater than zero.

After step 10, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message in Cell 24.

After step 15, the UE shall transmit a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message with the number of reported RLC SDUs shall be greater than zero

After step 18, the UE shall transmit a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message with the number of reported RLC SDUs shall be greater than the number reported in step 16.

After step 26, the UE shall transmit a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message with the number of reported RLC SDUs shall be greater than the number reported in step 19.

After step 29, the UE shall transmit a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message with the number of reported RLC SDUs shall be greater than the number reported in step 27.

8.5.6.5m MBMS Controlling Cell Change in CELL_DCH during ongoing session / MBMS Multicast Service

8.5.6.5m.1 Definition

This test is applicable for all UEs that support MBMS multicast services and support MBMS p-t-m reception in CELL_DCH state.

8.5.6.5m.2 Conformance requirement

Same conformance requirement as in clause 8.5.6.5.2

8.5.6.5m.3 Test purpose

Same test purpose as in clause 8.5.6.5.3.

8.5.6.5m.4 Method of test

Initial condition

System Simulator:

2 MBMS cells, Cell 21 and Cell 24.

User Equipment:

The UE is in Idle Mode as specified in clause 7.6 of TS 34.108.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

- MBMS Multicast service application available on UE Yes/No.
- UE supports MBMS p-t-m reception in CELL_DCH state Yes/No

Test procedure

Same test procedure as in clause 8.5.6.5.4.

Specific message contents

Same specific messages contents as in clause 8.5.6.5.4

8.5.6.5m.5 Test requirements

Same test requirement as in clause 8.5.6.5.5.

8.5.7 MBSFN Specific Procedures (FDD/TDD)

8.5.7.1 Cell Update: cell reselection in CELL_PCH (unicast carrier) during ongoing MBMS session in MBSFN mode

8.5.7.1.1 Definition

This test is applicable for UEs that support MBMS broadcast services in MBSFN mode and which support either both transmit and receive functions or MBSFN receive only function.

8.5.7.1.2 Conformance requirement

The UE reception of MBMS services provided in MBSFN mode shall not affect the UE behaviour on the unicast carrier. Especially the UE mobility on the unicast carrier is not affected by the reception of MBMS services provided on a cell operating in MBSFN mode and can imply that the reception of the MBMS service on the cell operating in MBSFN mode is impossible due to the limited support of combination of frequency bands for MBMS SFN reception and unicast reception.

…

A UE that is capable of receiving MBMS services on cells operating in MBSFN mode as specified in subclause 8.1.1.6.3 is operating in idle mode and acts on RRC messages and system information received from this cell operating in MBSFN mode independently from messages received from cells not operating in MBSFN mode. This implies that procedures executed based on messages and system information received from a cell operating in MBSFN mode shall not interact with messages and system information received from a cell not operating in MBSFN mode unless explicitly specified otherwise.

NOTE 1: This implies that the UE is operating an independent stack for the reception of MBMS services on cells operating in MBSFN mode as specified in subclause 8.1.1.6.3.

NOTE 2: For 1.28 Mcps TDD, if the cell is operating in MBSFN mode, system information and MCCH messages are transmitted on the MBSFN Special Timeslot [30].

…

A cell provides MBMS service in MBSFN mode if it is indicated so in system information, see subclause 8.1.1.6.3. A UE that supports MBSFN operation may receive MBMS services via a cell operating in MBSFN mode. For FDD, 3.84 Mcps TDDIMB and 3.84/7.68 Mcps TDD in order to receive an MBMS service via a MBSFN cluster the UE shall select the MBSFN cluster as specified in [4] in addition to selecting a cell for normal camping as specified in [4]. For 1.28 Mcps TDD in order to receive an MBMS service via an MBSFN cluster the UE shall at the first step camp on a unicast cell and get the frequency and "cell parameter ID" from the system information, and then get synchronized to the MBSFN cluster operating with that frequency and "cell parameter ID". For 3.84/7.68 Mcps TDD a cell shall be considered to be operating in MBSFN mode when individual scrambling codes are assigned to all timeslots (via the IE "TDD MBSFN Information").

…

Reference

3GPP TS 25.346 clauses 7.1A.

3GPP TS 25.331 clauses 7.2.1, 8.5.43.

8.5.7.1.3 Test purpose

To verify that the UE will perform a Cell Update on the unicast carrier while receiving an ongoing MBMS service via a p-t-m radio bearer on the MBSFN cluster.

8.5.7.1.4 Method of test

Initial condition

System Simulator:

- MBSFN carrier: 1 cell, Cell 31 (PLMN1). In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 and Default1 MCCH scheduling (No ongoing session) according to subclause 11.2 of TS 34.108.
- Unicast carrier : 2 cells, Cell 1 and Cell 2 with default parameters.

User Equipment:

- On the unicast carrier the UE is in CELL_PCH (state 6-12) in Cell 1 as specified in clause 7.4 of TS 34.108.
- The UE is in MBSFN Idle mode with one activated service as specified in clause 7.6.4 of TS 34.108. The UE has selected (i.e. it is included in MBMS_ACTIVATED_SERVICES variable) a national service for which a session will start on MBSFN Cell 31 (see TS 34.108 clause 11.2.4) during the test.

Related ICS/IXIT statements

- MBMS Broadcast services in MBSFN mode application available on UE Yes/No.

- Support of transmit and receive functions available on UE Yes/No.
- Support of MBSFN receive only function available on UE Yes/No.

Test procedure

The SS shall apply the downlink power settings as shown below:

Step 1-13:

Parameter	Unit	Cell 1	Cell 2	Cell 31
UTRA RF Channel Number		Ch. 1	Ch. 1	Ch. 2
P-CCPCH RSCP	dBm	-60	-69	-60
CPICH Ec (FDD)	dBm/3.84MHz	-60	-69	-60
P-CPICH (IMB)	dBm/3.84MHz			-60
T-CPICH (IMB)	dBm/3.84MHz			-50.5

Step 14-25:

Parameter	Unit	Cell 1	Cell 2	Cell 31
UTRA RF Channel Number		Ch. 1	Ch. 1	Ch. 2
P-CCPCH RSCP	dBm	-69	-60	-60
CPICH Ec (FDD)	dBm/3.84MHz	-69	-60	-60
P-CPICH (IMB)	dBm/3.84MHz			-60
T-CPICH (IMB)	dBm/3.84MHz			-50.5

a) The UE is camping on Cell 1 and Cell 31. For 3.84 Mcps TDD IMB, the UE is camping on the FDD unicast carrier cell 1 and IMB cell 31. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 (no session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

b) The SS sends ACTIVATE RB TEST MODE on the unicast carrier and the UE responds with ACTIVATE RB TEST MODE COMPLETE.

c) The SS sends CLOSE UE TEST LOOP to activate RLC SDU counting on Cell 31 MTCH (Transmission identity indicating the MBMS activated service).

d) The SS notifies on MCCH about the start of an MBMS session for one modification period. MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C4 (one PTM session starting) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

e) MCCH messages are then transmitted by the SS on Cell 31 using MBMS configuration C2 (one PTM session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

f) The UE establishes the p-t-m radio bearer for the activated service according to the specified service activation time (i.e. the first SFN of the modification period following the notification (step d). The UE closes the test loop and starts counting successfully received RLC PDUs on the MTCH. The UE will send CLOSE UE TEST LOOP COMPLETE.

g) The SS broadcasts 10 RLC SDUs on the MTCH configured on the MBMS p-t-m radio bearer for the activated service. The service is carried on a 129.6kbps RB for MTCH with 80 ms TTI as specified in clause 6.10.3.4.4.6(FDD) or a 124 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.9 (3.84 Mcps TDD) or clause 6.11.5.4.4.9 (1.28 Mcps TDD) or clause 6.11.6.4.4.9 (7.68 Mcps TDD) or a 124.4 kbps RB for MTCH with 80 ms TTI as specified in clause 6.11.7.2.2.1 (3.84 Mcps TDD IMB).

h) The SS shall then send UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST. The UE shall respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is > 0. The SS shall store the counter value.

i) The SS adjusts the power settings for Cell 1 and Cell 2. When the UE detects the presence of cell 2, it moves to CELL_FACH state and transmits a CELL UPDATE message on the uplink CCCH. The value "cell reselection" shall be set in IE "Cell update cause" in CELL UPDATE message.

j) Upon reception of the CELL_UPDATE message, the SS replies with a CELL UPDATE CONFIRM message with the IE "RRC State Indicator" set to "CELL_PCH". After receiving this message, the UE returns to CELL_PCH state without transmitting any uplink message.

k) The SS calls for generic procedure C.4 to check that the UE is in CELL_PCH state.

l) The SS broadcasts 10 RLC SDUs on the MTCH configured on the MBSFN MBMS p-t-m radio bearer for the activated service.

m) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST and waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE corresponds to > 0 received RLC SDUs.

NOTE: If the UE fails the test because of a failure to reselect to the right unicarrier cell (Cell 2), then the operator may re-run the test.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1	←		U	ACTIVATE RB TEST MODE	
2	→		U	ACTIVATE RB TEST MODE COMPLETE	
3	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated on Cell 31 for the selected local service on MTCH.
4	←		M	MBMS MCCH Message Configuration C4	Includes the national service activated at UE in the modified services list for one modification period.
5	←		M	MBMS MCCH Message Configuration C2	No modified services. One ongoing service corresponding to that activated at the UE 129.6(FDD) or 124(TDD) kbps PS RAB, 124.4 kbps (IMB)
6	→		U	CLOSE UE TEST LOOP COMPLETE	The UE shall establish the indicated p-t-m radio bearer and close the test loop.
7	SS		M		After delaying for a period equal to the MCCH modification period, the SS transmits 10 RLC SDUs on the MTCH.
8	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
9	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is greater than zero. SS stores value.
10			U		The SS transmits 10 RLC SDUs on the MTCH starting at the indicated activation time.
11	→		U	CELL UPDATE	The UE moves to CELL_FACH state and transmits this message with the IE "Cell update cause" set to "cell reselection"
12	←		U	CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_PCH".
13	UE		U		The UE is in CELL_PCH state.
14	← →		U	CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.
15	SS		M		The SS transmits 10 RLC SDUs on the MTCH.
16	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
17	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is greater than zero.
18	←		U	OPEN UE TEST LOOP	
19	→		U	OPEN UE TEST LOOP COMPLETE	
20	←		U	DEACTIVATE RB TEST MODE	
21	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific message contents

With the following exceptions, all messages have the same content as defined in TS 34.108 clause 9.1.3 for the MBSFN carriers and in TS 34.108 clause 9.1.1 or 9.1.2 for the unicast carrier:

CELL UPDATE (Step 11)

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'Cell Re-selection'

CELL UPDATE CONFIRM (Step 162)

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3

8.5.7.1.5 Test requirements

1) After step 9, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number > 0 for Cell 31 MTCH.

3) After step 11, the UE shall reselect to Cell 2 and transmit a CELL UPDATE message, containing the IE "Cell update cause" set to "cell reselection".

4) After step 13, the UE shall enter CELL_PCH state.

5) After step 17, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a number > 0 for Cell 31 MTCH.

8.5.7.2 Re-acquire MCCH - modified MBSFN inter frequency neighbour list / All MBSFN services notified

8.5.7.2.1 Definition

This test is applicable for UEs that support MBMS broadcast services in MBSFN mode and which support either both transmit and receive functions or MBSFN receive only function.

8.5.7.2.2 Conformance requirement

Upon receiving the MBMS GENERAL INFORMATION message, the UE should store all relevant IEs included in this message. The UE shall also:

1> act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following.

…

For FDD 3.84 Mcps TDD IMB and 3.84/7.68 Mcps TDD if the IE "MBSFN inter frequency neighbour list" is included and the UE does not receive a service from this MBSFN cluster, the UE shall:

1> consider that MBMS services transmitted in MBSFN mode are available on these frequencies;

…

1> if at least one frequency is listed for which "MBSFN services not notified" is indicated in the IE "MBSFN inter frequency neighbour list":

2> if the IE "All MBSFN services notified" is included for one frequency as defined in [21] for FDD and [22] for TDD on which the UE supports reception in MBSFN mode:

3> attempt to receive notifications on one of the frequencies for which the IE "All MBSFN services notified" is included according to subclause 8.7.3.

…

Upon receiving the MBMS MODIFIED SERVICES INFORMATION message, the UE shall act as follows for each of the services included in this messages provided that the service is included in variable MBMS_ACTIVATED_SERVICES and upper layers indicate that the session has not yet been received correctly (referred to as 'applicable services'):

…

1> act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following

…

If the UE receives the IE " MBMS re- acquire MCCH", the UE shall:

1> perform the MCCH acquisition procedure as specified in subclause 8.7.2.

Reference

3GPP TS 25.331 clauses 8.7.2.5, 8.6.9.9ad, 8.7.3.4, 8.6.9.6a.

8.5.7.2.3 Test purpose

1. To verify that the UE correctly re-acquires the MCCH information when the UE receives the IE MBMS re-acquire MCCH in a received MBMS MODIFIED SERVICES INFORMATION message.
2. To verify that the UE acts upon the modified IE MBSFN inter frequency neighbour list received in the re-acquired MBMS GENERAL INFORMATION message when a service not received on the current MBSFN cluster is present in the variable MBMS_ACTIVATED_SERVICES.
3. To verify that the UE attempts to receive notifications, for the service not received on the current MBSFN cluster, on one of the frequencies for which the IE "All MBSFN services notified" is included.

8.5.7.2.4 Method of test

Initial condition

System Simulator:

- MBSFN carrier: 3 cells, Cell 31, Cell 36 and Cell 38 (all PLMN1). Cell 36 and Cell 38 are powered off. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 and Default1 MCCH scheduling (No ongoing session) according to subclause 11.2 of TS 34.108.

  Unicast carrier: 1 cell, Cell 1 (PLMN1) default configuration.

User Equipment:

- On the unicast carrier cell the UE is in registered Idle Mode on PS (state 3) if the UE only supports PS domain or registered Idle Mode on CS/PS (state 7) if the UE supports both CS and PS domains, as specified in clause 7.2.2 of TS 34.108.
- The UE is in MBSFN Idle mode with no activated service as specified in clause 7.6.3 of TS 34.108.

Related ICS/IXIT statements

- MBMS Broadcast services in MBSFN mode application available on UE Yes/No.
- Support of transmit and receive functions available on UE Yes/No.
- Support of MBSFN receive only function available on UE Yes/No.

Test procedure

The SS shall apply the downlink power settings as shown below:

Step 1-7:

Parameter	Unit	Cell 1	Cell 31	Cell 33	Cell 36
UTRA RF Channel Number		Ch. 1	Ch. 2	Ch. 3	Ch. 4
P-CCPCH RSCP	dBm	-60	-60	OFF	OFF
CPICH Ec (FDD)	dBm/3.84MHz	-60	-60	OFF	OFF
P-CPICH (IMB)	dBm/3.84MHz		-60	OFF	OFF
T-CPICH (IMB)	dBm/3.84MHz		-50.5	OFF	OFF

Step 8-33:

Parameter	Unit	Cell 1	Cell 31	Cell 33	Cell 36
UTRA RF Channel Number		Ch. 1	Ch. 2	Ch. 3	Ch. 4
P-CCPCH RSCP	dBm	-60	-60	-60	-70
CPICH Ec (FDD)	dBm/3.84MHz	-60	-60	-60	-70
P-CPICH (IMB)	dBm/3.84MHz		-60	-60	-70
T-CPICH (IMB)	dBm/3.84MHz		-50.5	-50.5	-60.5

a) The UE is camping on Cell 1 and Cell 31. For 3.84 Mcps TDD IMB, the UE is camping on the FDD unicast carrier cell 1 and IMB cell 31. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 (no session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108. Note: The IE "MBSFN inter frequency neighbour list" is not present in MBMS GENERAL INFORMATION.

b) The SS sends ACTIVATE RB TEST MODE on the unicast carrier and the UE responds with ACTIVATE RB TEST MODE COMPLETE.

c) The SS sends CLOSE UE TEST LOOP to activate RLC SDU counting on MTCH. The Short Transmission identity is set to value "0" corresponding to National Service 5 (see TS 34.108 clause 11.2.4) on either Cell 33 or Cell 36.

d) For Cell 31 in the IE "MBSFN inter frequency neighbour list" of the MBMS GENERAL INFORMATION message the SS adds (i) the frequency for Cell 36 with the IE "MBSFN services notification" set to "MBSFN services not notified" and with the option "All MBSFN services notified" included, and (ii) the frequency for Cell 33 with the IE "MBSFN services notification" set to "MBSFN services not notified" without the option "All MBSFN services notified". The SS sends MBMS MODIFIED SERVICES INFORMATION with IE "MBMS re- acquire MCCH" set to "True".

e) The UE shall re-perform the MCCH acquisition procedure on Cell 31.

f) The SS powers on Cell 33 and Cell 36. MCCH messages are transmitted by the SS on Cell 36 using MBMS configuration C2 (one PTM session ongoing - National Service 5) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108. MCCH messages are transmitted by the SS on Cell 33 using MBMS configuration C2 (one PTM session ongoing - National Service 5) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

g) National Service 5 is activated at the UE.

h) The UE shall retune to the frequency for Cell 36, perform MBSFN cluster reselection and shall perform the MCCH acquisition procedure on Cell 36.

i) The UE immediately establishes the p-t-m radio bearer for National Service 5. The UE closes the test loop and starts counting successfully received RLC PDUs on the MTCH. The UE will send CLOSE UE TEST LOOP COMPLETE.

j) On Cell 33 the SS broadcasts 10 RLC SDUs on the MTCH configured on the MBMS p-t-m radio bearer for National Service 5. The service is carried on a 129.6kbps RB for MTCH with 80 ms TTI as specified in clause 6.10.3.4.4.6(FDD) or a 124.4 kbps RB for MTCH with 80 ms TTI as specified in clause 6.11.7.2.2.1 (3.84 Mcps TDD IMB) or a 124 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.9 (3.84 Mcps TDD) or clause 6.11.5.4.4.9 (1.28 Mcps TDD) or clause 6.11.6.4.4.9 (7.68 Mcps TDD).

k) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST and waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is = 0.

l) On Cell 36 the SS broadcasts 10 RLC SDUs on the MTCH configured on the MBMS p-t-m radio bearer for National Service 5. The service is carried on a 129.6kbps RB for MTCH with 80 ms TTI as specified in clause 6.10.3.4.4.6(FDD), or a 124.4 kbps RB for MTCH with 80 ms TTI as specified in clause 6.11.7.2.2.1 (3.84 Mcps TDD IMB) or a 124 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.9 (3.84 Mcps TDD) or clause 6.11.5.4.4.9 (1.28 Mcps TDD) or clause 6.11.6.4.4.9 (7.68 Mcps TDD).

m) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST and waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is > 0.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1	←		M	MBMS MCCH Message Configuration C1	No sessions ongoing. IE "MBSFN inter frequency neighbour list" not present in MBMS GENERAL INFORMATION
2	←		U	ACTIVATE RB TEST MODE	
3	→		U	ACTIVATE RB TEST MODE COMPLETE	
4	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated with Short Transmission Identity = "0".
5	←		M	MBMS MCCH Message Configuration C1	Cell 31: IE "MBMS re-acquire MCCH" set to "True" in MBMS MODIFIED SERVICES INFO. Frequencies for Cell 33 and Cell 36 have been added to IE "MBSFN inter frequency neighbour list".
6	UE		M		UE re-acquires MCCH on Cell 31.
7	SS				The SS powers on Cell 33 and Cell 36.
8	←		M	MBMS MCCH Message Configuration C2	Cell 33: One PTM session ongoing (National Service 5). 129.6(FDD) or 124(TDD)kbps PS RAB, 124.4 kbps (IMB)
9	←		M	MBMS MCCH Message Configuration C2	Cell 36: One PTM session ongoing (National Service 5). 129.6(FDD) or 124(TDD)kbps PS RAB, 124.4 kbps (IMB)
10	UE		M		National Service 5 is activated at the UE.
11	UE		M		UE retunes to frequency for Cell 36 and acquires the MCCH.
12	→		U	CLOSE UE TEST LOOP COMPLETE	The UE shall establish the indicated p-t-m radio bearer for National Service 5 and close the test loop.
13	SS		M		The SS transmits 10 RLC SDUs on the MTCH for Cell 33.
14	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
15	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is equal to zero.
16	SS		M		The SS transmits 10 RLC SDUs on the MTCH for Cell 36.
17	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
18	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is greater than zero.
19	←		U	OPEN UE TEST LOOP	
20	→		U	OPEN UE TEST LOOP COMPLETE	
21	←		U	DEACTIVATE RB TEST MODE	
22	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific message contents

With the following exceptions, all messages have the same content as defined in TS 34.108 clause 9.1.3 for the MBSFN carriers and in TS 34.108 clause 9.1.1 or 9.1.2 for the unicast carrier:

MBMS MODIFIED SERVICES INFORMATION (Step 1, Step 8, and Step 9)

Information Element	Value/remark	Version
Modified service list	Not Present	Rel-6
MBMS re- acquire MCCH	Not Present	Rel-6
MBMS dynamic persistence level	Not Present	Rel-6
End of modified MCCH information	Not Present	Rel-6
MBMS number of neighbour cells	0	Rel-6
MBMS all unmodified p-t-m services	Not Present	Rel-6
MBMS p-t-m activation time	Not Present	Rel-6
MIB Value tag	Not Present	Rel-7

MBMS UNMODIFIED SERVICES INFORMATION (Dedicated National carrier) (Step 1 and Step 5)

Information Element	Value/remark	Version
Message type		Rel-6
Unmodified service list	Not Present	Rel-6

MBMS GENERAL INFORMATION (Step 1)

Information Element	Value/remark	Version
…		
MBSFN inter frequency neighbour list	Not Present	Rel-7

MBMS MODIFIED SERVICES INFORMATION (Step 5)

Information Element	Value/remark	Version
Modified service list	Not Present	Rel-6
MBMS re- acquire MCCH	True	Rel-6
MBMS dynamic persistence level	Not Present	Rel-6
End of modified MCCH information	Not Present	Rel-6
MBMS number of neighbour cells	0	Rel-6
MBMS all unmodified p-t-m services	Not Present	Rel-6
MBMS p-t-m activation time	Not Present	Rel-6
MIB Value tag	Not Present	Rel-7

MBMS GENERAL INFORMATION (Step 5)(FDD)

Information Element	Value/remark	Version
…		
MBSFN inter frequency neighbour list		Rel-7
- MBSFN frequency		
- CHOICE *mode*	FDD	
- UARFCN downlink (Nd)	Refer to clause 5.1 "Test frequencies" for frequency "f2"	
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		
- MBSFN frequency		
- CHOICE *mode*	FDD	
- UARFCN downlink (Nd)	Refer to clause 5.1 "Test frequencies" for frequency "f3"	
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		

MBMS GENERAL INFORMATION (Step 5)(TDD)

Information Element	Value/remark	Version
…		
MBSFN inter frequency neighbour list		Rel-7
- MBSFN frequency		
- CHOICE *mode*	TDD	
- UARFCN (Nt)	Refer to clause 5.1 "Test frequencies" for frequency "f2"	
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		
- MBSFN frequency		
- CHOICE *mode*	TDD	
- UARFCN (Nt)	Refer to clause 5.1 "Test frequencies" for frequency "f3"	
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- All MBSFN services notified	TRUE	

MBMS GENERAL INFORMATION (Step 5)(IMB)

Information Element	Value/remark	Version
…		
MBSFN inter frequency neighbour list		Rel-7
- MBSFN frequency		
- CHOICE *mode*	TDD	
- UARFCN (Nt)	Refer to clause 5.1 "Test frequencies" for frequency "f2"	
- IMB indication	TRUE	Rel-8
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		
- MBSFN frequency		
- CHOICE *mode*	TDD	
- UARFCN (Nt)	Refer to clause 5.1 "Test frequencies" for frequency "f3"	
- IMB indication	TRUE	Rel-8
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- All MBSFN services notified	TRUE	

MBMS UNMODIFIED SERVICES INFORMATION (Step 8)

Information Element	Value/remark	Version
Message type		Rel-6
Unmodified service list	4 services	Rel-6
- MBMS Transmission identity		
- MBMS Service ID	(National Service 5)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	'01'	
- MBMS required UE action	Acquire PTM RB info	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 6)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(Local Service 1)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		

Information Element	Value/remark	Version
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(Local Service 2)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7

MBMS UNMODIFIED SERVICES INFORMATION (Step 8)(IMB)

Information Element	Value/remark	Version
Message type		Rel-6
Unmodified service list	2 services	Rel-6
- MBMS Transmission identity		
- MBMS Service ID	(National Service 5)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	'01'	
- MBMS required UE action	Acquire PTM RB info	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 6)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7

MBMS GENERAL INFORMATION (Step 8)(FDD)

Information Element	Value/remark	Version
…		
MBSFN inter frequency neighbour list		Rel-7
- MBSFN frequency		
- CHOICE *mode*	FDD	
- UARFCN downlink (Nd)	Refer to clause 5.1 "Test frequencies" for frequency "f2"	
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		
- MBSFN frequency		
- CHOICE *mode*	FDD	
- UARFCN downlink (Nd)	Refer to clause 5.1 "Test frequencies" for frequency "f3"	
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		

MBMS GENERAL INFORMATION (Step 8)(TDD)

Information Element	Value/remark	Version
…		
MBSFN inter frequency neighbour list		Rel-7
- MBSFN frequency		
- CHOICE *mode*	TDD	
- UARFCN (Nt)	Refer to clause 5.1 "Test frequencies" for frequency "f1"	
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		
- MBSFN frequency		
- CHOICE *mode*	TDD	
- UARFCN (Nt)	Refer to clause 5.1 "Test frequencies" for frequency "f3"	
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		

MBMS GENERAL INFORMATION (Step 8)(IMB)

Information Element	Value/remark	Version
…		
MBSFN inter frequency neighbour list		Rel-7
- MBSFN frequency		
- CHOICE *mode*	TDD	
- UARFCN (Nt)	Refer to clause 5.1 "Test frequencies" for frequency "f2"	
- IMB indication	TRUE	Rel-8
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		
- MBSFN frequency		
- CHOICE *mode*	TDD	
- UARFCN (Nt)	Refer to clause 5.1 "Test frequencies" for frequency "f3"	
- IMB indication	TRUE	Rel-8
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		

MBMS UNMODIFIED SERVICES INFORMATION (Step 9)

Information Element	Value/remark	Version
Message type		Rel-6
Unmodified service list	8 services	Rel-6
- MBMS Transmission identity		
- MBMS Service ID	(National Service 1)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	1	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 2)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	1	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 3)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	1	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 4)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	1	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 5)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	'01'	
- MBMS required UE action	Acquire PTM RB info	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	2	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 6)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	2	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(Local Service 1)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	

Information Element	Value/remark	Version
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	2	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(Local Service 2)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	2	Rel-7

MBMS UNMODIFIED SERVICES INFORMATION (Step 9) (IMB)

Information Element	Value/remark	Version
Message type		Rel-6
Unmodified service list	6 services	Rel-6
- MBMS Transmission identity		
- MBMS Service ID	(National Service 1)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	1	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 2)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	1	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 3)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	1	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 4)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	1	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 5)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	'01'	
- MBMS required UE action	Acquire PTM RB info	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	2	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 6)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	2	Rel-7

MBMS GENERAL INFORMATION (Step 9)

Information Element	Value/remark	Version
…		
MBSFN inter frequency neighbour list		Rel-7
- MBSFN frequency		
- CHOICE *mode*	TDD	
- UARFCN (Nt)	Refer to clause 5.1 "Test frequencies" for frequency "f1"	
- CHOICE *MBSFN services notification*	MBSFN services notified	
- no data		
- MBSFN frequency		
- CHOICE *mode*	TDD	
- UARFCN (Nt)	Refer to clause 5.1 "Test frequencies" for frequency "f2"	
- CHOICE *MBSFN services notification*	MBSFN services notified	
- no data		

MBMS GENERAL INFORMATION (Step 9)(IMB)

Information Element	Value/remark	Version
…		
MBSFN inter frequency neighbour list		Rel-7
- MBSFN frequency		
- CHOICE *mode*	TDD	
- UARFCN (Nt)	Refer to clause 5.1 "Test frequencies" for frequency "f2"	
- IMB indication	TRUE	Rel-8
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		
- MBSFN frequency		
- CHOICE *mode*	TDD	
- UARFCN (Nt)	Refer to clause 5.1 "Test frequencies" for frequency "f3"	
- IMB indication	TRUE	Rel-8
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		

8.5.7.2.5 Test requirements

1) After step 15, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report that zero RLC SDUs have been received.

2) After step 18, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report that > 0 RLC SDUs have been received.

8.5.7.3 Re-acquire MCCH - modified MBSFN inter frequency neighbour list / MBSFN services not notified

8.5.7.3.1 Definition

This test is applicable for UEs that support MBMS broadcast services in MBSFN mode and which support either both transmit and receive functions or MBSFN receive only function.

8.5.7.3.2 Conformance requirement

Upon receiving the MBMS GENERAL INFORMATION message, the UE should store all relevant IEs included in this message. The UE shall also:

1> act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following.

…

For FDD, 3.84 Mcps TDD IMB and 3.84/7.68 Mcps TDD if the IE "MBSFN inter frequency neighbour list" is included and the UE does not receive a service from this MBSFN cluster, the UE shall:

1> consider that MBMS services transmitted in MBSFN mode are available on these frequencies;

…

1> if at least one frequency is listed for which "MBSFN services not notified" is indicated in the IE "MBSFN inter frequency neighbour list":

2> if the IE "All MBSFN services notified" is included for one frequency as defined in [21] for FDD and [22] for TDD on which the UE supports reception in MBSFN mode:

…

2> else:

3> attempt to receive notifications on all frequencies for which the IE “MBSFN services not notified” is indicated as specified in subclause 8.7.3 on that band.

…

Upon receiving the MBMS MODIFIED SERVICES INFORMATION message, the UE shall act as follows for each of the services included in this messages provided that the service is included in variable MBMS_ACTIVATED_SERVICES and upper layers indicate that the session has not yet been received correctly (referred to as 'applicable services'):

…

1> act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following

…

If the UE receives the IE " MBMS re- acquire MCCH", the UE shall:

1> perform the MCCH acquisition procedure as specified in subclause 8.7.2.

Reference

3GPP TS 25.331 clauses 8.7.2.3, 8.7.2.5, 8.6.9.9ad, 8.7.3.4, 8.6.9.6a.

8.5.7.3.3 Test purpose

1. To verify that the UE correctly re-acquires the MCCH information when the UE receives the IE MBMS re-acquire MCCH in a received MBMS MODIFIED SERVICES INFORMATION message.
2. To verify that the UE acts upon the modified IE MBSFN inter frequency neighbour list received in the re-acquired MBMS GENERAL INFORMATION message when a service not received on the current MBSFN cluster is present in the variable MBMS_ACTIVATED_SERVICES.
3. To verify that in the absence of the IE "All MBSFN services notified" the UE attempts to receive notifications on all frequencies for which the IE “MBSFN services not notified” is indicated on that band.

8.5.7.3.4 Method of test

Initial condition

System Simulator:

- MBSFN carrier: 3 cells, Cell 31, Cell 36 and Cell 38 (all PLMN1). Cell 36 and Cell 38 are powered off. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 and Default1 MCCH scheduling (No ongoing session) according to subclause 11.2 of TS 34.108.

Unicast carrier: 1 cell, Cell 1 (PLMN1) default configuration.

User Equipment:

- On the unicast carrier cell the UE is in registered Idle Mode on PS (state 3) if the UE only supports PS domain or registered Idle Mode on CS/PS (state 7) if the UE supports both CS and PS domains, as specified in clause 7.2.2 of TS 34.108.
- The UE is in MBSFN Idle mode with no activated service as specified in clause 7.6.3 of TS 34.108.

Related ICS/IXIT statements

- MBMS Broadcast services in MBSFN mode application available on UE Yes/No.
- Support of transmit and receive functions available on UE Yes/No.
- Support of MBSFN receive only function available on UE Yes/No.

Test procedure

The test shall be performed as two independent sub-tests with the UE and SS being returned to Initial Conditions between the sub-tests. The test method shall be the same for the two sub-tests with the exception that:

- In sub-test 1, Local Service 1 in Service Area 1 (Cell 33) shall be activated in the UE;
- In sub-test 2, Local Service 1 in Service Area 4 (Cell 36) shall be activated in the UE.

The SS shall apply the downlink power settings as shown below:

Step 1-7:

Parameter	Unit	Cell 1	Cell 31	Cell 33	Cell 36
UTRA RF Channel Number		Ch. 1	Ch. 2	Ch. 3	Ch. 4
P-CCPCH RSCP	dBm	-60	-60	OFF	OFF
CPICH Ec (FDD)	dBm/3.84MHz	-60	-60	-	-
P-CPICH (IMB)	dBm/3.84MHz		-60	OFF	OFF
T-CPICH (IMB)	dBm/3.84MHz		-50.5	OFF	OFF

Step 8-33:

Parameter	Unit	Cell 1	Cell 31	Cell 33	Cell 36
UTRA RF Channel Number		Ch. 1	Ch. 2	Ch. 3	Ch. 4
P-CCPCH RSCP	dBm	-60	-60	-60	-60
CPICH Ec (FDD)	dBm/3.84MHz	-60	-60	-60	-60
P-CPICH (IMB)	dBm/3.84MHz		-60	-60	-60
T-CPICH (IMB)	dBm/3.84MHz		-50.5	-50.5	-50.5

a) The UE is camping on Cell 1 and Cell 31. For 3.84 Mcps TDD IMB, the UE is camping on the FDD unicast carrier cell 1 and IMB cell 31. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 (no session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108. Note: The IE "MBSFN inter frequency neighbour list" is not present in MBMS GENERAL INFORMATION.

b) The SS sends ACTIVATE RB TEST MODE on the unicast carrier and the UE responds with ACTIVATE RB TEST MODE COMPLETE.

c) The SS sends CLOSE UE TEST LOOP to activate RLC SDU counting on MTCH. The Short Transmission identity is set to value "2" corresponding to Local Service 1 (see TS 34.108 clause 11.2.4) on either Cell 33 or Cell 36.

d) For Cell 31 in the IE "MBSFN inter frequency neighbour list" of the MBMS GENERAL INFORMATION message the SS adds (i) the frequency for Cell 36 with the IE "MBSFN services notification" set to "MBSFN services not notified" and without the option "All MBSFN services notified", and (ii) the frequency for Cell 33 with the IE "MBSFN services notification" set to "MBSFN services not notified" without the option "All

MBSFN services notified". The SS sends MBMS MODIFIED SERVICES INFORMATION with IE "MBMS re- acquire MCCH" set to "True".

e) The UE shall re-perform the MCCH acquisition procedure on Cell 31.

f) The SS powers on Cell 33 and Cell 36. MCCH messages are transmitted by the SS on Cell 36 using MBMS configuration C2 (one PTM session ongoing - Local Service 1) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108. MCCH messages are transmitted by the SS on Cell 33 using MBMS configuration C2 (one PTM session ongoing - Local Service 1) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

g) Local Service 1 for the Service Area determined by the sub-test number (see above) is activated at the UE.

h) The UE shall re-tune to the frequency for Cell 33 or Cell 36, perform MBSFN cluster reselection and shall perform the MCCH acquisition procedure. If the UE determines that the selected MBMS service is available on this cell then the UE proceeds to the next step. Otherwise, the UE re-tunes to the other frequency, performs MBSFN cluster reselection and again performs the MCCH acquisition procedure to find the selected MBMS service.

i) The UE immediately establishes the p-t-m radio bearer for Local Service 1. The UE closes the test loop and starts counting successfully received RLC PDUs on the MTCH. The UE will send CLOSE UE TEST LOOP COMPLETE.

j) On Cell 33 the SS broadcasts 10 RLC SDUs on the MTCH configured on the MBMS p-t-m radio bearer for Local Service 1. The service is carried on a 129.6kbps RB for MTCH with 80 ms TTI as specified in clause 6.10.3.4.4.6(FDD), or a 124.4 kbps RB for MTCH with 80 ms TTI as specified in clause 6.11.7.2.2.1 (3.84 Mcps TDD IMB) or a 124 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.9 (3.84 Mcps TDD) or clause 6.11.5.4.4.9 (1.28 Mcps TDD) or clause 6.11.6.4.4.9 (7.68 Mcps TDD).

k) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST and waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check the counter returned by the UE for the MTCH in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS stores the value.

l) On Cell 36 the SS broadcasts 10 RLC SDUs on the MTCH configured on the MBMS p-t-m radio bearer for Local Service 1. The service is carried on a 129.6kbps RB for MTCH with 80 ms TTI as specified in clause 6.10.3.4.4.6(FDD), or a 124.4 kbps RB for MTCH with 80 ms TTI as specified in clause 6.11.7.2.2.1 (3.84 Mcps TDD IMB) or a 124 kbps RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.9 (3.84 Mcps TDD) or clause 6.11.5.4.4.9 (1.28 Mcps TDD) or clause 6.11.6.4.4.9 (7.68 Mcps TDD).

m) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST and waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check the counter returned by the UE for the MTCH in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE, using the stored initial count from step k).

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1	←		M	MBMS MCCH Message Configuration C1	No sessions ongoing. IE "MBSFN inter frequency neighbour list" not present in MBMS GENERAL INFORMATION
2	←		U	ACTIVATE RB TEST MODE	
3	→		U	ACTIVATE RB TEST MODE COMPLETE	
4	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated with Short Transmission Identity = "2".
5	←		M	MBMS MCCH Message Configuration C1	Cell 31: IE "MBMS re-acquire MCCH" set to "True" in MBMS MODIFIED SERVICES INFO. Frequencies for Cell 33 and Cell 36 have been added to IE "MBSFN inter frequency neighbour list".
6	UE		M		UE re-acquires MCCH on Cell 31.
7	SS				The SS powers on Cell 33 and Cell 36.
8	←		M	MBMS MCCH Message Configuration C2	Cell 33: One PTM session ongoing (Local Service 1). 129.6(FDD) or 124(TDD)kbps PS RAB.
9	←		M	MBMS MCCH Message Configuration C2	Cell 36: One PTM session ongoing (Local Service 1). 129.6(FDD) or 124(TDD)kbps PS RAB.
10	UE		M		Local Service 1 is activated at the UE, for the Service Area determined by the sub-test execution number (see above).
11	SS				The SS shall set a timer value of 300 seconds to wait for CLOSE UE TEST LOOP COMPLETE from the UE. If a timeout occurs the test shall be deemed failed and execution continues from step 20.
12	UE		M		UE retunes to frequency for Cell 33 and/or Cell 36 and acquires the MCCH.
13	→		U	CLOSE UE TEST LOOP COMPLETE	The UE shall establish the indicated p-t-m radio bearer for Local Service 1 and close the test loop.
14	SS		M		The SS transmits 10 RLC SDUs on the MTCH for Cell 33.
15	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
16	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks the number of reported RLC SDUs received on the MTCH. SS stores the value.
17	SS		M		The SS transmits 10 RLC SDUs on the MTCH for Cell 36.
18	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
19	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks the number of reported RLC SDUs received on the MTCH.
20	←		U	OPEN UE TEST LOOP	
21	→		U	OPEN UE TEST LOOP COMPLETE	
22	←		U	DEACTIVATE RB TEST MODE	
23	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific message contents

With the following exceptions, all messages have the same content as defined in TS 34.108 clause 9.1.3 for the MBSFN carriers and in TS 34.108 clause 9.1.1 or 9.1.2 for the unicast carrier:

MBMS MODIFIED SERVICES INFORMATION (Step 1, Step 8, and Step 9)

Information Element	Value/remark	Version
Modified service list	Not Present	Rel-6
MBMS re- acquire MCCH	Not Present	Rel-6
MBMS dynamic persistence level	Not Present	Rel-6
End of modified MCCH information	Not Present	Rel-6
MBMS number of neighbour cells	0	Rel-6
MBMS all unmodified p-t-m services	Not Present	Rel-6
MBMS p-t-m activation time	Not Present	Rel-6
MIB Value tag	Not Present	Rel-7

MBMS UNMODIFIED SERVICES INFORMATION (Dedicated National carrier) (Step 1 and Step 5)

Information Element	Value/remark	Version
Message type		Rel-6
Unmodified service list	Not Present	Rel-6

MBMS GENERAL INFORMATION (Step 1)

Information Element	Value/remark	Version
…		
MBSFN inter frequency neighbour list	Not Present	Rel-7

MBMS MODIFIED SERVICES INFORMATION (Step 5)

Information Element	Value/remark	Version
Modified service list	Not Present	Rel-6
MBMS re- acquire MCCH	True	Rel-6
MBMS dynamic persistence level	Not Present	Rel-6
End of modified MCCH information	Not Present	Rel-6
MBMS number of neighbour cells	0	Rel-6
MBMS all unmodified p-t-m services	Not Present	Rel-6
MBMS p-t-m activation time	Not Present	Rel-6
MIB Value tag	Not Present	Rel-7

MBMS GENERAL INFORMATION (Step 5) (FDD)

Information Element	Value/remark	Version
…		
MBSFN inter frequency neighbour list		Rel-7
- MBSFN frequency		
- CHOICE *mode*	FDD	
- UARFCN downlink (Nd)	Refer to clause 5.1 "Test frequencies" for frequency "f2"	
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		
- MBSFN frequency		
- CHOICE *mode*	FDD	
- UARFCN downlink (Nd)	Refer to clause 5.1 "Test frequencies" for frequency "f3"	
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		

MBMS GENERAL INFORMATION (Step 5) (TDD)

Information Element	Value/remark	Version
…		
MBSFN inter frequency neighbour list		Rel-7
- MBSFN frequency		
- CHOICE *mode*	TDD	
- UARFCN (Nt)	Refer to clause 5.1 "Test frequencies" for frequency "f2"	
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		
- MBSFN frequency		
- CHOICE *mode*	TDD	
- UARFCN (Nt)	Refer to clause 5.1 "Test frequencies" for frequency "f3"	
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		

MBMS GENERAL INFORMATION (Step 5)(IMB)

Information Element	Value/remark	Version
…		
MBSFN inter frequency neighbour list		Rel-7
- MBSFN frequency		
- CHOICE *mode*	TDD	
- UARFCN (Nt)	Refer to clause 5.1 "Test frequencies" for frequency "f2"	
- IMB indication	TRUE	
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		
- MBSFN frequency		
- CHOICE *mode*	TDD	
- UARFCN (Nt)	Refer to clause 5.1 "Test frequencies" for frequency "f3"	
- IMB indication	TRUE	
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		

MBMS UNMODIFIED SERVICES INFORMATION (Step 8)

Information Element	Value/remark	Version
Message type		Rel-6
Unmodified service list	4 services	Rel-6
- MBMS Transmission identity		
- MBMS Service ID	(National Service 5)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 6)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(Local Service 1)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	'01'	
- MBMS required UE action	Acquire PTM RB info	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(Local Service 2)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7

MBMS UNMODIFIED SERVICES INFORMATION (Step 8)(IMB)

Information Element	Value/remark	Version
Message type		Rel-6
Unmodified service list	2 services	Rel-6
- MBMS Transmission identity		
- MBMS Service ID	(National Service 5)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 6)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7

MBMS GENERAL INFORMATION (Step 8)(FDD)

Information Element	Value/remark	Version
…		
MBSFN inter frequency neighbour list		Rel-7
- MBSFN frequency		
- CHOICE *mode*	FDD	
- UARFCN downlink (Nd)	Refer to clause 5.1 "Test frequencies" for frequency "f2"	
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		
- MBSFN frequency		
- CHOICE *mode*	FDD	
- UARFCN downlink (Nd)	Refer to clause 5.1 "Test frequencies" for frequency "f3"	
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		

MBMS GENERAL INFORMATION (Step 8)(TDD)

Information Element	Value/remark	Version
…		
MBSFN inter frequency neighbour list		Rel-7
- MBSFN frequency		
- CHOICE *mode*	TDD	
- UARFCN (Nt)	Refer to clause 5.1 "Test frequencies" for frequency "f1"	
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		
- MBSFN frequency		
- CHOICE *mode*	TDD	
- UARFCN (Nt)	Refer to clause 5.1 "Test frequencies" for frequency "f3"	
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		

MBMS GENERAL INFORMATION (Step 8)(IMB)

Information Element	Value/remark	Version
…		
MBSFN inter frequency neighbour list		Rel-7
- MBSFN frequency		
- CHOICE *mode*	TDD	
- UARFCN (Nt)	Refer to clause 5.1 "Test frequencies" for frequency "f2"	
- IMB indication	TRUE	
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		
- MBSFN frequency		
- CHOICE *mode*	TDD	
- UARFCN (Nt)	Refer to clause 5.1 "Test frequencies" for frequency "f3"	
- IMB indication	TRUE	
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		

MBMS UNMODIFIED SERVICES INFORMATION (Step 9)

Information Element	Value/remark	Version
Message type		Rel-6
Unmodified service list	4 services	Rel-6
- MBMS Transmission identity		
- MBMS Service ID	(National Service 5)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 6)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(Local Service 1)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	'01'	
- MBMS required UE action	Acquire PTM RB info	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(Local Service 2)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7

MBMS UNMODIFIED SERVICES INFORMATION (Step 9) (IMB)

Information Element	Value/remark	Version
Message type		Rel-6
Unmodified service list	2 services	Rel-6
- MBMS Transmission identity		
- MBMS Service ID	(National Service 5)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7
- MBMS Transmission identity		
- MBMS Service ID	(National Service 6)	
- MBMS Service ID	Refer to clause 11.2.4 "MBSFN service availability"	
- CHOICE PLMN identity	SameAs-MIB	
- no data		
- MBMS Session ID	Not Present	
- MBMS required UE action	None	
- MBMS preferred frequency	Not Present	
- MBSFN cluster frequency	Not Present (MD)	Rel-7

MBMS GENERAL INFORMATION (Step 9)

Information Element	Value/remark	Version
…		
MBSFN inter frequency neighbour list		Rel-7
- MBSFN frequency		
- CHOICE *mode*	TDD	
- UARFCN (Nt)	Refer to clause 5.1 "Test frequencies" for frequency "f1"	
- CHOICE *MBSFN services notification*	MBSFN services notified	
- no data		
- MBSFN frequency		
- CHOICE *mode*	TDD	
- UARFCN (Nt)	Refer to clause 5.1 "Test frequencies" for frequency "f2"	
- CHOICE *MBSFN services notification*	MBSFN services notified	
- no data		

MBMS GENERAL INFORMATION (Step 9)(IMB)

Information Element	Value/remark	Version
…		
MBSFN inter frequency neighbour list		Rel-7
- MBSFN frequency		
- CHOICE *mode*	TDD	
- UARFCN (Nt)	Refer to clause 5.1 "Test frequencies" for frequency "f2"	
- IMB indication	TRUE	
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		
- MBSFN frequency		
- CHOICE *mode*	TDD	
- UARFCN (Nt)	Refer to clause 5.1 "Test frequencies" for frequency "f3"	
- IMB indication	TRUE	
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		

8.5.7.3.5 Test requirements

For sub-test 1:

1) After step 15, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a count > 0 for the number of RLC SDUs received.

2) After step 18, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a count corresponding to zero RLC SDUs.

For sub-test 2:

1) After step 15, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a count = 0 for the number of RLC SDUs received.

2) After step 18, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report a count > 0 for the number of RLC SDUs received.

8.5.7.4 MBSFN TDM Information / TDM services de-multiplexing

8.5.7.4.1 Definition

This test is applicable for UEs that support MBMS broadcast services in MBSFN mode and which support either both transmit and receive functions or MBSFN receive only function.

8.5.7.4.2 Conformance requirement

For cells operating in MBSFN mode as indicated in subclause 8.1.1.6.3 upon receiving the MBMS CURRENT CELL P-T-M RB INFORMATION message, the UE shall act as specified in subclauses 8.7.5.3.

…

The UE applies the MBMS p-t-m radio bearer configuration procedure whenever it detects that one of the activated services is provided by means of a p-t-m radio bearer. This may occur as part of the MCCH acquisition or the MBMS Notification procedure.

…

Upon completing the reception of the MBMS COMMON P-T-M RB INFORMATION and the MBMS CURRENT CELL P-T-M RB INFORMATION messages for an activated MBMS service, the UE shall:

1> if the UE is already receiving an MTCH and does not have the capability to receive the new service in addition:

2> the UE behaviour is undefined.

NOTE: In this case, the UE may request upper layers to prioritise the services and only receive the service(s) prioritised by upper layers.

1> act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following;

1> if the UE previously received the service by means of a p-t-m radio bearer from a cell belonging to another MBMS cell group:

2> re-establish RLC;

2> re-initialise PDCP.

1> start immediately to use the indicated configuration unless specified otherwise;

1> start or continue receiving the indicated p-t-m radio bearers depending on its UE capabilities.

The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information i.e. the MBMS MODIFIED SERVICES INFORMATION message, MBMS UNMODIFIED SERVICES INFORMATION

message, MBMS COMMON P-T-M RB INFORMATION and the MBMS CURRENT CELL P-T-M RB INFORMATION message should be acquired in the same modification period.

…

If the IE "MBSFN TDM Information List" is included, the UE shall:

1> assume that the MBMS service identified in IE "MBMS short transmission ID" can be received only in frame(s) with the CFN fulfilling the following equation:

(CFN div N) mod TDM_Rep = TDM_Offset + i, i = 0 to TDM_Length - 1

where

- N is the TTI (in number of 10ms frames) of the FACH
- TDM_Rep is the repetition period
- TDM_Offset is the offset
- TDM_Length is the number of TTIs the MBMS Service is transmitted, starting from TDM _Offset
- CFN is set according to subclause 8.5.15.3 (Initialisation for Cell_FACH).

Reference

3GPP TS 25.331 clauses 8.7.2.5, 8.7.5.2, 8.7.5.3, 8.6.9.9ae

8.5.7.4.3 Test purpose

1. To verify that the UE correctly acquires the MCCH, when two services included in the variable MBMS_ACTIVATED_SERVICES are broadcast in a time division multiplexed fashion in the current MBSFN cluster.
2. To verify that the UE correctly acts upon the IE MBSFN TDM Information List received in the MBMS CURRENT CELL P-T-M RB INFORMATION messages for the two services in the variable MBMS_ACTIVATED_SERVICES and correctly de-multiplexes the two sessions.

8.5.7.4.4 Method of test

Initial condition

System Simulator:

- MBSFN carrier: 1 cell, Cell 31 (PLMN1). In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 and Default1 MCCH scheduling (one ongoing session) according to subclause 11.2 of TS 34.108.
- Unicast carrier : 1 cell, Cell 1 with default parameters.

User Equipment:

- On the unicast carrier cell the UE is in registered Idle Mode on PS (state 3) if the UE only supports PS domain or registered Idle Mode on CS/PS (state 7) if the UE supports both CS and PS domains, as specified in clause 7.2.2 of TS 34.108.
- The UE is in MBSFN Idle mode with one activated service as specified in clause 7.6.4 of TS 34.108. The UE has selected (i.e. it is included in MBMS_ACTIVATED_SERVICES variable) a national service for which a session will start on MBSFN Cell 31 (see TS 34.108 clause 11.2.4) during the test.

Related ICS/IXIT statements

- MBMS Broadcast services in MBSFN mode application available on UE Yes/No.
- Support of transmit and receive functions available on UE Yes/No.

- Support of MBSFN receive only function available on UE Yes/No.

Test procedure

a) The UE is camping on Cell 1 and Cell 31. For 3.84 Mcps TDD IMB, the UE is camping on the FDD unicast carrier cell 1 and IMB cell 31. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 (no session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

b) The SS sends ACTIVATE RB TEST MODE on the unicast carrier and the UE responds with ACTIVATE RB TEST MODE COMPLETE. The SS then sends CLOSE UE TEST LOOP to activate RLC SDU counting on Cell 31 MTCH (Transmission identity indicating the MBMS activated service).

c) The SS notifies on MCCH, for one modification period, about the start of the MBMS sessions. MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C4 (two PTM sessions starting) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

d) From the first SFN of the next modification period the SS transmits MCCH messages on Cell 31 using MBMS configuration C2 (two PTM sessions ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108

e) The UE establishes the p-t-m radio bearer for the activated service according to the specified service activation time (i.e. the first SFN of the modification period following the notification (step c). The UE closes the test loop and starts counting successfully received RLC PDUs on the MTCH. The UE will send CLOSE UE TEST LOOP COMPLETE.

f) The SS then broadcasts 10 RLC SDUs on the MTCH configured for the MBMS service not activated by the UE. The service is carried on a 129.6kbps RB for MTCH with 80 ms TTI as specified in clause 6.10.3.4.4.6(FDD) or a 124.4 kbps RB for MTCH with 80 ms TTI as specified in clause 6.11.7.2.2.1 (3.84 Mcps TDD IMB) or the RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.9 (3.84 Mcps TDD) or clause 6.11.5.4.4.9 (1.28 Mcps TDD) or clause 6.11.6.4.4.9 (7.68 Mcps TDD) of TS 34.108. The nominal data rate of the RB as given in TS 34.108 will be scaled down by the factor (TDM_Length/TDM_Rep) as described in TS 25.331 clause 8.6.9.9ae.

g) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST and waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is = 0.

h) The SS then broadcasts 10 RLC SDUs on the MTCH configured for the MBMS service activated by the UE. The service is carried on a 129.6kbps RB for MTCH with 80 ms TTI as specified in clause 6.10.3.4.4.6(FDD) or a 124.4 kbps RB for MTCH with 80 ms TTI as specified in clause 6.11.7.2.2.1 (3.84 Mcps TDD IMB)or the RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.9 (3.84 Mcps TDD) or clause 6.11.5.4.4.9 (1.28 Mcps TDD) or clause 6.11.6.4.4.9 (7.68 Mcps TDD) of TS 34.108. The nominal data rate of the RB as given in TS 34.108 will be scaled down by the factor (TDM_Length/TDM_Rep) as described in TS 25.331 clause 8.6.9.9ae.

i) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST and waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is > 0.

j) The SS sends OPEN UE TEST LOOP. The UE responds with OPEN UE TEST LOOP COMPLETE.

k) MCCH messages are then transmitted by the SS on Cell 31 using MBMS configuration C1 (no sessions ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.

l) The SS then delays for 5*modification period and then sends CLOSE UE TEST LOOP to re-start RLC SDU counting on Cell 31 MTCH (Transmission identity indicating the MBMS activated service).

m) The SS notifies on MCCH, for one modification period, about the start of the MBMS sessions. MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C4 (two PTM sessions starting) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108. A different TDM configuration from that notified in step c) is used.

n) From the first SFN of the next modification period the SS transmits MCCH messages on Cell 31 using MBMS configuration C2 (two PTM sessions ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108

o) The UE establishes the p-t-m radio bearer for the activated service according to the specified service activation time (i.e. the first SFN of the modification period following the notification (step c). The UE closes the test loop and starts counting successfully received RLC PDUs on the MTCH. The UE will send CLOSE UE TEST LOOP COMPLETE.

p) The SS then broadcasts 10 RLC SDUs on the MTCH configured for the MBMS service not activated by the UE. The service is carried on a 129.6kbps RB for MTCH with 80 ms TTI as specified in clause 6.10.3.4.4.6(FDD) or a 124.4 kbps RB for MTCH with 80 ms TTI as specified in clause 6.11.7.2.2.1 (3.84 Mcps TDD IMB) or the RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.9 (3.84 Mcps TDD) or clause 6.11.5.4.4.9 (1.28 Mcps TDD) or clause 6.11.6.4.4.9 (7.68 Mcps TDD) of TS 34.108. The nominal data rate of the RB as given in TS 34.108 will be scaled down by the factor (TDM_Length/TDM_Rep) as described in TS 25.331 clause 8.6.9.9ae.

q) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST and waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is = 0.

r) The SS then broadcasts 10 RLC SDUs on the MTCH configured for the MBMS service activated by the UE. The service is carried on a 129.6kbps RB for MTCH with 80 ms TTI as specified in clause 6.10.3.4.4.6(FDD) or a 124.4 kbps RB for MTCH with 80 ms TTI as specified in clause 6.11.7.2.2.1 (3.84 Mcps TDD IMB) or the RB for MBSFN MTCH with 80ms TTI as specified in clause 6.10.3.4.4.9 (3.84 Mcps TDD) or clause 6.11.5.4.4.9 (1.28 Mcps TDD) or clause 6.11.6.4.4.9 (7.68 Mcps TDD) of TS 34.108. The nominal data rate of the RB as given in TS 34.108 will be scaled down by the factor (TDM_Length/TDM_Rep) as described in TS 25.331 clause 8.6.9.9ae.

s) The SS sends UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST and waits for the UE to respond with UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE. The SS shall check that the counter returned by the UE for the MTCH of the activated service in the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE is > 0.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1	←		U	ACTIVATE RB TEST MODE	
2	→		U	ACTIVATE RB TEST MODE COMPLETE	
3	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated for the selected national service on MTCH.
4	←		M	MBMS MCCH Message Configuration C4	For one modification period. Two sessions starting, one of which is the activated service.
5	←		M	MBMS MCCH Message Configuration C2	No modified services. Two sessions ongoing.
6	→		U	CLOSE UE TEST LOOP COMPLETE	The UE shall establish the indicated p-t-m radio bearer and close the test loop.
7	SS		M		Then SS transmits 10 RLC SDUs on the MTCH, for the service not activated by the UE.
8	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
9	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH equals zero.
10	SS		M		Then the SS transmits 10 RLC SDUs on the MTCH for the service activated by the UE.
11	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
12	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is greater than zero.
13	←		U	OPEN UE TEST LOOP	
14	→		U	OPEN UE TEST LOOP COMPLETE	
15	←		M	MBMS MCCH Message Configuration C1	No sessions ongoing
16	SS		M		SS delays for a period 5*modification period.
17	←		U	CLOSE UE TEST LOOP	Loop back mode 3 is activated for the selected national service on MTCH.
18	←		M	MBMS MCCH Message Configuration C4	For one modification period. Two sessions starting, one of which is the activated service.
19	←		M	MBMS MCCH Message Configuration C2	No modified services. Two sessions ongoing
20	→		U	CLOSE UE TEST LOOP COMPLETE	The UE shall establish the indicated p-t-m radio bearer and close the test loop.
21	SS		M		Then SS transmits 10 RLC SDUs on the MTCH, for the service not activated by the UE.
22	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
23	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH equals zero.
24	SS		M		Then the SS transmits 10 RLC SDUs on the MTCH for the service activated by the UE.
25	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
26	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC SDUs received on the MTCH is greater than zero.
27	←		U	OPEN UE TEST LOOP	
28	→		U	OPEN UE TEST LOOP COMPLETE	
29	←		U	DEACTIVATE RB TEST MODE	
30	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific message contents

With the following exceptions, all messages have the same content as defined in TS 34.108 clause 9.1.3 for the MBSFN carriers and in TS 34.108 clause 9.1.1 or 9.1.2 for the unicast carrier:

MBMS CURRENT CELL P-T-M RB INFORMATION (Step 4 and Step 5)

Information Element	Value/remark	Version
…		
MBSFN TDM Info List		Rel-7
- MBMS short transmission ID	Index to the activated service	
- TDM_Rep	8	
- TDM_Offset	4	
- TDM_Length	4	
- MBMS short transmission ID	Index to the not activated service	
- TDM_Rep	8	
- TDM_Offset	0	
- TDM_Length	2	

MBMS CURRENT CELL P-T-M RB INFORMATION (Step 18 and Step 19)

Information Element	Value/remark	Version
…		
MBSFN TDM Info List		Rel-7
- MBMS short transmission ID	Index to the activated service	
- TDM_Rep	4	
- TDM_Offset	0	
- TDM_Length	1	
- MBMS short transmission ID	Index to the not activated service	
- TDM_Rep	4	
- TDM_Offset	1	
- TDM_Length	3	

8.5.7.4.5 Test requirements

1) After step 9, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report an SDU count = 0.

2) After step 12, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report an SDU count > 0.

3) After step 23, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report an SDU count = 0.

4) After step 26, the UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE message shall report an SDU count > 0.

8.5.7.5 MBSFN Session Reconfiguration / Change of MBSFN Cluster frequency on notification via MCCH (FDD)

8.5.7.5.1 Definition

This test is applicable for UEs that support MBMS broadcast services in MBSFN mode and which support either both transmit and receive functions or MBSFN receive only function.

8.5.7.5.2 Conformance requirement

The UE applies the MCCH acquisition procedure to determine the MBMS services available in the cell and to initiate reception of the services that the UE has activated. The procedure applies to all UEs supporting MBMS, irrespective of their state (idle, URA_PCH, CELL_PCH, CELL_FACH and CELL_DCH).

…

The UE shall detect the available MBMS services by acquiring the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3.

...

For cells operating in MBSFN mode as indicated in subclause 8.1.1.6.3 the UE shall immediately acquire the MBMS GENERAL INFORMATION messages i.e. It shall not delay reception of these messages until it has completed the acquisition of the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages. Likewise for cells operating in MBSFN mode as indicated in subclause 8.1.1.6.3, the UE should immediately acquire the MBMS CURRENT CELL P-T-M RB INFORMATION.

The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information e.g. Both the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION message should be acquired in the same modification period.

…

When requested to acquire MBMS control information other than the MBMS ACCESS INFORMATION message, the UE shall:

1> if requested to start reading MCCH at the next modification period:

2> start reading MCCH at the beginning of the next modification period.

1> otherwise

2> start reading MCCH at the beginning of the next repetition period.

1> if requested to stop reading MCCH at the end of the modification period:

2> continue reading MCCH until the required MBMS control information is received or until the UE detects a TTI in which no MCCH information is transmitted, whichever is first;

2> continue reading MCCH in this manner at every subsequent repetition period, until the information is received correctly or until the end of the modification period.

1> otherwise:

2> continue reading MCCH until the required MBMS control information is received or until the UE detects a TTI in which no MCCH information is transmitted, whichever is first;

2> continue reading MCCH in this manner at every subsequent repetition period, until the information is received correctly.

NOTE 1: The UE may combine information received at different repetition periods within a modification period.

…

The MBMS notification procedure is used by the UE to respond to a notification provided by UTRAN, indicating a change applicable for one or more MBMS services the UE has activated. The procedure applies to all UEs supporting MBMS, irrespective of their state (idle and connected mode: URA_PCH, CELL_PCH, CELL_FACH and CELL_DCH). The actual notification mechanism to be used depends on the UE state.

…

The UE may:

1> monitor the MBMS notification Indicator Channel (MICH);

1> if a notification on the MICH for one or more of the MBMS services included in the variable MBMS_ACTIVATED_SERVICES is detected:

2> acquire the MBMS MODIFIED SERVICES INFORMATION message with delaying the reading of MCCH until the next modification period and with stopping at the end of the modification period, in accordance with subclause 8.7.1.3;

2> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4.

The UE shall:

1> if in idle mode, URA_PCH, CELL_PCH or CELL_FACH state:

2> if not monitoring MICH during the current or the previous modification period:

3> acquire the MBMS MODIFIED SERVICES INFORMATION message from MCCH at the start of every modification period, in accordance with subclause 8.7.1.3;

3> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4.

…

If the IE "MBMS required UE action" is included and concerns an MBMS activated service the UE shall:

…

1> if the IE "MBMS required UE action" is set to 'Acquire PTM RB info'; or

1> if the IE "MBMS required UE action" is set to 'Acquire counting info– PTM RBs unmodified' and the UE is not receiving a p-t-m RB for the concerned service:

2> continue acquiring the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3

2> act upon the MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION message, if received, in accordance with subclause 8.7.5;

…

Upon completing the reception of the MBMS COMMON P-T-M RB INFORMATION and the MBMS CURRENT CELL P-T-M RB INFORMATION messages for an activated MBMS service, the UE shall:

1> if the UE is already receiving an MTCH and does not have the capability to receive the new service in addition:

2> the UE behaviour is undefined.

NOTE: In this case, the UE may request upper layers to prioritise the services and only receive the service(s) prioritised by upper layers.

1> act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following;

1> if the UE previously received the service by means of a p-t-m radio bearer from a cell belonging to another MBMS cell group:

2> re-establish RLC;

2> re-initialise PDCP.

1> start immediately to use the indicated configuration unless specified otherwise;

1> start or continue receiving the indicated p-t-m radio bearers depending on its UE capabilities.

The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information i.e. the MBMS MODIFIED SERVICES INFORMATION message, MBMS UNMODIFIED SERVICES INFORMATION message, MBMS COMMON P-T-M RB INFORMATION and the MBMS CURRENT CELL P-T-M RB INFORMATION message should be acquired in the same modification period.

…

The UE shall:

1> if the IE "Secondary CCPCH system information MBMS" is included:

2> apply the Secondary CCPCH and FACH indicated by the IE "FACH carrying MCCH" for receiving MCCH.

1> otherwise, if the IE "Secondary CCPCH system information" includes the IE "MCCH configuration information":

2> apply the Secondary CCPCH and FACH indicated by the IE “MCCH configuration information” for receiving MCCH.

1> for TDD, if the IE "TDD MBSFN Information" is included:

2> apply the scrambling codes (as referenced by the "Cell parameters ID") to each timeslot indicated by "TDD MBSFN Information".

Reference

3GPP TS 25.331 clauses 8.7.2.1, 8.7.2.3, 8.7.1.3, 8.7.3.1, 8.7.3.3.1, 8.6.9.6, 8.7.5.3, 8.1.1.6.5

8.5.7.5.3 Test purpose

To verify that the UE correctly handles the notification procedure after receiving the MBMS MODIFIED SERVICES INFORMATION message via MCCH indicating a change in available services.

To verify that the UE acts upon service priority indications from upper layers that require a change in MBSFN cluster frequency.

To verify that the UE acquires the MBMS information on MCCH after selecting the new MBSFN cluster.

To verify that the UE, after acquiring the MBMS information on MCCH, starts the p-t-m reception of the higher priority MBMS service according to the information on MCCH..

8.5.7.5.4 Method of test

Initial condition

System Simulator:

- MBSFN carrier: 2 cells, Cell 31 and Cell 33, the tow cells are in deferent MBSFN cluster.

User Equipment:

- The UE is in MBSFN Idle mode with one activated service as specified in clause 7.6.4 of TS 34.108. The UE has selected (i.e. it is included in MBMS_ACTIVATED_SERVICES variable) a national service for which a session will start on MBSFN Cell 31 during the test.

Related ICS/IXIT statements

- MBMS Broadcast services in MBSFN mode application available on UE Yes/No.
- Support of transmit and receive functions available on UE Yes/No.
- Support of MBSFN receive only function available on UE Yes/No.

Test procedure

a) The UE camps on Cell 31 in idle state and establish to start receiving MBMS Service_1.

b) Another MBMS Service_2 is set up in Cell 33 and the SS sends a notification to the UE about the active services in Cell 31 by MCCH.

c) The UE gets the IE"MBSFN cluster frequency" which is updated and selects MBMS Service_2,then ,the UE shall stop receiving Service_1 and perform Cell Reselection from Cell 31 to Cell 33.

d) After selecting the new MBSFN cluster, the UE acquires the MBMS information on MCCH; the UE starts the p-t-m reception of the MBMS Service_2.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
				The UE camps on Cell 31 and starts reception of the MBMS Service_1
1	←		MBMS MODIFIED SERVICES INFORMATION	The MBMS Service_2 has been activated by upper layer in the other MBSFN cluster. The SS notifies the UE the MBMS Service_2 is available on the MCCH.
2	←		MBMS GENERAL INFORMATION	The UE gets the MBSFN inter frequency neighbour list including Cell 33.
3				The UE selects the MBMS Service_2
4				The UE performs Cell Reselection to select new MBSFN cluster.
5	←		MBMS MODIFIED SERVICES INFORMATION	In Cell 33, the UE acquires the MBMS information on MCCH.
6	←		MBMS COMMON P-T-M RB INFORMATION	
7	←		MBMS UNMODIFIED SERVICES INFORMATION	The UE starts reception of the MBMS Service_2 on MTCH.
8	←		CLOSE UE TEST LOOP	
9	→		CLOSE UE TEST LOOP COMPLETE	Loop back mode 3 on MTCH is activated.
10	SS			The SS broadcasts 10 RLC SDUs of MBMS data on MTCH on the concerned MBMS radio bearer.
11	←		UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
12	→		UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC PDUs is greater than zero and records the value.

Specific Message Contents.

MBMS MODIFIED SERVICES INFORMATION (Step 1)

Information Element	Value/remark
Modified service list	
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
- MBMS required UE action	Acquire PTM RB info
- MBSFN cluster frequency	2

MBMS GENERAL INFORMATION (Step 2)

Information Element	Value/remark	Version
…		
MBSFN inter frequency neighbour list		Rel-7
- MBSFN frequency		
- CHOICE *mode*	FDD	
- UARFCN downlink (Nd)	Refer to clause 5.1 "Test frequencies" for frequency "f2"	
- CHOICE *MBSFN services notification*	MBSFN services not notified	
- no data		

MBMS MODIFIED SERVICES INFORMATION (Step 5)

Information Element	Value/remark
Modified service list	
- MBMS Transmission identity	MBMS Transmission identity indicating MBMS activated service
- MBMS required UE action	Acquire PTM RB info
- MBSFN cluster frequency	The Current MBSFN Cluster

UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE (Step 7)

Information Element	Value/remark
RLC SDU Counter Value	Check that the number is greater than zero.

8.5.7.5.5 Test requirements

At step 4 the UE shall select new MBSFN Cluster and perform Cell Reselection from Cell 31 to Cell 33.

At step 12 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater zero.

8.6.2.2 Logged MDT / Intra-frequency measurement, logging and reporting / CELL_PCH

8.6.2.2.1 Definition

8.6.2.2.2 Conformance requirement

[TS 25.304, clause 5.7 (TP1)]

The UE may be configured to perform logging of measurement results in idle mode, CELL_PCH and URA_PCH state with LOGGING MEASUREMENT CONFIGURATION message specified in TS 25.331 [4]. This configuration is valid while the logging duration timer is running.

If the configuration of logged measurements is valid, the UE shall perform logging of measurement results if all of the following conditions are met:

- the UE is in *camped normally* state in idle mode, CELL_PCH or URA_PCH state;
- RPLMN of the UE is the same as the RPLMN at the point of time of LOGGING MEASUREMENT CONFIGURATION message reception
- the UE is camped on a cell belonging to Area Configuration (see TS 25.331 [4]), if configured;
- the UE is camped on the RAT where the logged measurement configuration was received.

Otherwise, the logging of measurement results shall be suspended.

NOTE: Even if logging of measurement results is suspended, the logging duration timer and time stamp will continue, and the logged measurement configuration and corresponding log are kept.

[TS 25.331, clause 8.3.1.3 (TP3)]

In case of cell update procedure the UE shall transmit a CELL UPDATE message.

…

The UE shall set the IEs in the CELL UPDATE message as follows:

…

1> if an IE "Logged Measurement Info-FDD" or "Logged Measurement Info-TDD" in variable LOGGED_MEAS_REPORT_VARIABLE is present and registered PLMN is the same as the IE "PLMN Identity" stored in variable LOGGED_MEAS_REPORT_VARIABLE:

2> include IE "Logged Meas Available".

…

[TS 25.331, clause 8.5.63.3 (TP1)]

Upon receiving the LOGGING MEASUREMENT CONFIGURATION message the UE shall:

1> if IE "Logged Measurements Configuration Info" is present:

2> if stored, discard the existing logged measurement configuration as well as the logged measurement information as specified in 8.5.66;

2> store the received IEs "Logging Duration", "Logging Interval", "Area Configuration" if included in IE "Logged Measurements Configuration Info" in variable LOGGED_MEAS_CONFIG and IEs "Absolute Time Info", "Trace reference", "Trace recording session" and "TCE Id" in variable LOGGED_MEAS_REPORT_VARIABLE;

2> store the current Registered PLMN in the IE "PLMN Identity" in variable LOGGED_MEAS_REPORT_VARIABLE;

2> start timer T326 with the timer value set to the IE "Logging Duration".

NOTE: The UE shall not stop timer T326 unless explicitly stated when it moves to another RAT.

…

[TS 25.331, clause 8.5.64.3 (TP2)]

UE Shall:

1> if IE "Logged Measurements Report Request" is present:

2> if Registered PLMN is the same as the IE "PLMN Identity" stored in variable LOGGED_MEAS_REPORT_VARIABLE:

3> if an IE "Logged Measurement Info-FDD" or "Logged Measurement Info-TDD" in variable LOGGED_MEAS_REPORT_VARIABLE is present:

4> set IE "Logged Meas Report" in the UE INFORMATION RESPONSE as follows:

5> include the IE "Absolute Time Info" and set it to the value of the IE "Absolute Time Info" in the variable LOGGED_MEAS_REPORT_VARIABLE;

5> include the IE "Trace reference" and set it to the value of IE "Trace reference" in the variable LOGGED_MEAS_REPORT_VARIABLE;

5> include the IE "Trace recording session" and set it to the value of IE "Trace recording session" in the variable LOGGED_MEAS_REPORT_VARIABLE;

5> include the IE "TCE Id" and set it to the value of IE "TCE Id" in the variable LOGGED_MEAS_REPORT_VARIABLE;

5> include the IEs "Logged Measurement Info-FDD" or "Logged Measurement Info-TDD" and set it to include, in the same order as logged, one or more entries from LOGGED_MEAS_REPORT_VARIABLE;

5> clear the logged measurement results included in the list of IEs "Logged Measurement Info-FDD" or "Logged Measurement Info-TDD" from LOGGED_MEAS_REPORT_VARIABLE;

5> if the variable LOGGED_MEAS_REPORT_VARIABLE is not empty:

6> include IE "Logged Meas Available";

2> transmit a UE INFORMATION RESPONSE message on the uplink DCCH using AM RLC.

…

[TS 25.331, clause 8.5.65 (TP1, TP2)]

When in idle mode, CELL_PCH or URA_PCH state and Logged Measurements has been configured, the UE shall:

1> Store the available measurements according to the logged measurements configuration in LOGGED_MEAS_CONFIG variable as specified in subclause 8.5.65.2.

[TS 25.331, clause 8.5.65.2 (TP1, TP2)]

While T326 is running, the UE shall:

1> perform this logging in accordance with the following:

2> perform the logging while camping normally on an UTRA cell and the RPLMN of the UE is the same as the PLMN Identity stored in LOGGED_MEAS_REPORT_VARIABLE and, if the IE "Area Configuration" is present in variable LOGGED_MEAS_CONFIG, that is part of the concerned area;

2> perform the logging at regular intervals, as defined by the IE "Logging Interval" in variable LOGGED_MEAS_CONFIG;

2> when adding a logged measurement entry in variable LOGGED_MEAS_REPORT_VARIABLE, include the fields in accordance with the following:

3> set the IE "Relative Time Stamp" to indicate time relative to the moment at which the logged measurement configuration was received;

3> if GNSS location information became available during the last logging interval:

4> if the UE has been able to calculate a 3-dimensional position:

5> set IE "Ellipsoid point with altitude" to include the location coordinates;

4>else:

5> set IE "Ellipsoid point" to include the location coordinates:

3> set the IE "Cell ID" to indicate cell identity of the cell the UE is camping on obtained from system information;

3> set the IE "CPICH Ec/N0" and "CPICH RSCP" to include measured quantities of the cell that the UE is camping on for UTRA FDD;

3> set the "P-CCPCH RSCP" to include measured quantities for the cell that the UE is camping on for UTRA 1.28 Mcps TDD;

3> set the IE "Logged Measurements Intra Frequency Neighbouring Cells list", "Logged Measurements Inter Frequency list", "Logged Measurements E-UTRA frequency list", in order of decreasing ranking quantity as used for cell re-selection in each frequency for at most the following number of neighbouring cells; 6

intra-frequency and 3 inter-frequency neighbours per frequency as well as 3 inter-RAT neighbours, per frequency per RAT;

3> set the IE "Logged Measurements GSM Neighbouring Cells list" in order of decreasing RXLEV.

NOTE: The UE includes, only once, the latest available results of the measurement performed for cell reselection, which are performed in accordance with the regular performance requirements as specified in [19].

2> when the memory reserved for the logging of measurements becomes full, stop timer T326 and performs the same actions as performed upon expiry of T326, as specified in 8.5.63.4.

Reference

3GPP TS 25.304 clause 5.7 and TS 25.331 clauses 8.3.1.3, 8.5.63, 8.5.65, 8.5.65.2.

8.6.2.2.3 Test Purpose

1. Verify logging of configured Logged MDT measurements in CELL_PCH state.
2. Verify logging and reporting of Logged MDT Intra-frequency measurements.
3. Verify indication of availability of Logged MDT measurements in CELL UPDATE message.

8.6.2.2.4 Method of test

Initial Condition

System Simulator: 2 cells, Cell 1 and Cell 2 are active.

UE: PS-DCCH+DTCH_DCH (state 6-10) in Cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.6.2.2-1 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Column marked "T0" denotes the initial conditions, while column marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 8.6.2.2-1

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-69	-69	-60
P-CCPCH RSCP (TDD)	dBm	-60	-69	-69	-60

The UE is in CELL_DCH state of cell 1. SS transmits a LOGGING MEASUREMENT CONFIGURATION message to the UE to configure logged measurements.

SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, which invokes the UE to transit from CELL_DCH to CELL_PCH.

The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and enters CELL_PCH state.

Wait 5s to allow UE to activate logging.

SS configures its downlink transmission power settings according to columns "T1" in Table 8.6.2.2-1

When the UE detects the presence of cell 2, it moves to CELL_FACH state and transmits a CELL UPDATE message on the uplink CCCH. The IE "Logged Meas Available" shall be present in the message.

Upon reception of CELL_UPDATE message, SS replies with a CELL UPDATE CONFIRM message with the IE "RRC State Indicator" set to "CELL_DCH".

SS transmits a UE INFORMATION REQUEST message, and the IE "Logged Measurements Report Request" is present.

UE shall transmits a UE INFORMATION REPONSE message, and include IE "Logged Measurement Info-FDD" or "Logged Measurement Info-TDD".

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		LOGGING MEASUREMENT CONFIGURATION	
2	←		PHYSICAL CHANNEL RECONFIGURATION	The IE "RRC state indicator" is set to "CELL_PCH".
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE sends this message before it completes state transition.
4				Wait 5s to allow UE to activate logging.
5				SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.6.2.2-1. The UE shall find that the cell 2 is better and attempt to perform a cell reselection.
6	→		CELL UPDATE	The UE moves to CELL_FACH state and transmits this message with the IE "Logged Meas Available" set as true
7	←		CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_DCH".
8	←		UE INFORMATION REQUEST	SS transmits a UE INFORMATION REQUEST message with IE" Logged Measurements Report Request" set to “true”.
9	→		UE INFORMATION RESPONSE	UE shall transmit a UE INFORMATION RESPONSE message.

Specific Message Contents

All messages have the same content as defined in 34.108 clause 9 with the following exceptions:

LOGGING MEASUREMENT CONFIGURATION (Step 1)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.

Logged ANR configuration Info	
- Absolute Time Info	Set to value corresponding to the absolute time when the message is sent
- Logging Duration	10 min
- Logging Interval	2.56
- Trace reference	
- PLMN Identity	Same as MIB
- Trace ID	'0EF'H
-Trace recording session	'1A'H
- TCE Id	'5'H
- CHOICE Area Configuration	Not present

PHYSICAL CHANNEL RECONFIGURATION (Steps 2)

Use the same message sub-type titled "Packet to CELL_PCH from CELL_DCH in PS" in TS 34.108 clause 9.

CELL UPDATE (Step 6)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'Cell Re-selection'
Logged Meas Available	TRUE

UE INFORMATION REQUEST (Step 8)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged Measurements Report Request	TRUE
Logged ANR Report Request	Not Present

UE INFORMATION RESPONSE (FDD) (Step 9)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged Meas Report	
- Absolute Time Info	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace reference	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace recording session	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- TCE Id	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- CHOICE mode	FDD
- List of measurements FDD	At least 1 entry where at least one entry complies to entry with index 'x'

Information Element	Value/remark
	below.
- Logged Measurement Info-FDD[x]	
- Relative Time Stamp[x]	Not checked
- Logged Measurements Serving Cell[x]	
- Cell ID[x]	Cell 1
- Primary CCPCH RSCP[x]	(0..91)
- CPICH Ec/N0	(0..49)
- Logged Measurements Intra Frequency list[x]	Only 1 intra Frequency cell
- Primary CPICH info	Set to the scrambling code for cell 2
- CPICH RSCP	(0..91)
- CPICH Ec/N0	(0..49)
- Logged Meas Available	Not checked

UE INFORMATION RESPONSE (TDD) (Step 9)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged Meas Report	
- Absolute Time Info	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace reference	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace recording session	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- TCE Id	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- CHOICE mode	TDD
- List of measurements TDD	At least 1 entry where at least one entry complies to entry with index 'x' below.
- Logged Measurement Info-TDD[x]	
- Relative Time Stamp[x]	Not checked
- Logged Measurements Serving Cell[x]	
- Cell ID	Cell 1
- Primary CCPCH RSCP	(0..91)
- Logged Measurements Intra Frequency list[x]	Only 1 intra Frequency cell
- Cell parameters Id	Cell parameter Id of Cell 2
- Primary CCPCH RSCP	(0..91)
- Logged Meas Available	Not checked

8.6.2.2.5 Test requirement

At step 6 the UE shall transmit a CELL UPDATE message on uplink DCCH including the IE "Logged Meas Available" (TP3).

At step 9 the UE shall transmit a UE INFORMATION RESPONSE message includes IE "Logged Meas Report" with logged Measurements of Cell 2 in the "Logged Measurements Intra Frequency Neighbouring Cells list" (TP1, TP2).

8.6.2.3 Logged MDT / Inter-frequency measurement, logging and reporting / URA_PCH

8.6.2.3.1 Definition

8.6.2.3.2 Conformance requirement

[TS 25.304, clause 5.7 (TP1)]

The UE may be configured to perform logging of measurement results in idle mode, CELL_PCH and URA_PCH state with LOGGING MEASUREMENT CONFIGURATION message specified in TS 25.331 [4]. This configuration is valid while the logging duration timer is running.

If the configuration of logged measurements is valid, the UE shall perform logging of measurement results if all of the following conditions are met:

- the UE is in *camped normally* state in idle mode, CELL_PCH or URA_PCH state;
- RPLMN of the UE is the same as the RPLMN at the point of time of LOGGING MEASUREMENT CONFIGURATION message reception
- the UE is camped on a cell belonging to Area Configuration (see TS 25.331 [4]), if configured;
- the UE is camped on the RAT where the logged measurement configuration was received.

Otherwise, the logging of measurement results shall be suspended.

NOTE: Even if logging of measurement results is suspended, the logging duration timer and time stamp will continue, and the logged measurement configuration and corresponding log are kept.

[TS 25.331, clause 8.3.1.3 (TP3)]

…

In case of URA update procedure the UE shall transmit a URA UPDATE message.

…

The UE shall set the IEs in the URA UPDATE message as follows:

…

1> if an IE "Logged Measurement Info-FDD" or "Logged Measurement Info-TDD" in variable LOGGED_MEAS_REPORT_VARIABLE is present and registered PLMN is the same as the IE "PLMN Identity" stored in variable LOGGED_MEAS_REPORT_VARIABLE:

2> include IE "Logged Meas Available".

…

[TS 25.331, clause 8.5.63.3 (TP1)]

Upon receiving the LOGGING MEASUREMENT CONFIGURATION message the UE shall:

1> if IE "Logged Measurements Configuration Info" is present:

2> if stored, discard the existing logged measurement configuration as well as the logged measurement information as specified in 8.5.66;

2> store the received IEs "Logging Duration", "Logging Interval", "Area Configuration" if included in IE "Logged Measurements Configuration Info" in variable LOGGED_MEAS_CONFIG and IEs "Absolute Time Info", "Trace reference", "Trace recording session" and "TCE Id" in variable LOGGED_MEAS_REPORT_VARIABLE;

2> store the current Registered PLMN in the IE "PLMN Identity" in variable LOGGED_MEAS_REPORT_VARIABLE;

2> start timer T326 with the timer value set to the IE "Logging Duration".

NOTE: The UE shall not stop timer T326 unless explicitly stated when it moves to another RAT.

…

[TS 25.331, clause 8.5.64.3 (TP2)]

UE Shall:

1> if IE "Logged Measurements Report Request" is present:

2> if Registered PLMN is the same as the IE "PLMN Identity" stored in variable LOGGED_MEAS_REPORT_VARIABLE:

3> if an IE "Logged Measurement Info-FDD" or "Logged Measurement Info-TDD" in variable LOGGED_MEAS_REPORT_VARIABLE is present:

5> set IE "Logged Meas Report" in the UE INFORMATION RESPONSE as follows:

5> include the IE "Absolute Time Info" and set it to the value of the IE "Absolute Time Info" in the variable LOGGED_MEAS_REPORT_VARIABLE;

5> include the IE "Trace reference" and set it to the value of IE "Trace reference" in the variable LOGGED_MEAS_REPORT_VARIABLE;

5> include the IE "Trace recording session" and set it to the value of IE "Trace recording session" in the variable LOGGED_MEAS_REPORT_VARIABLE;

5> include the IE "TCE Id" and set it to the value of IE "TCE Id" in the variable LOGGED_MEAS_REPORT_VARIABLE;

5> include the IEs "Logged Measurement Info-FDD" or "Logged Measurement Info-TDD" and set it to include, in the same order as logged, one or more entries from LOGGED_MEAS_REPORT_VARIABLE;

5> clear the logged measurement results included in the list of IEs "Logged Measurement Info-FDD" or "Logged Measurement Info-TDD" from LOGGED_MEAS_REPORT_VARIABLE;

5> if the variable LOGGED_MEAS_REPORT_VARIABLE is not empty:

6> include IE "Logged Meas Available";

2> transmit a UE INFORMATION RESPONSE message on the uplink DCCH using AM RLC.

…

[TS 25.331, clause 8.5.65 (TP1, TP2)]

When in idle mode, CELL_PCH or URA_PCH state and Logged Measurements has been configured, the UE shall:

1> Store the available measurements according to the logged measurements configuration in LOGGED_MEAS_CONFIG variable as specified in subclause 8.5.65.2.

[TS 25.331, clause 8.5.65.2 (TP1, TP2)]

While T326 is running, the UE shall:

1> perform this logging in accordance with the following:

2> perform the logging while camping normally on an UTRA cell and the RPLMN of the UE is the same as the PLMN Identity stored in LOGGED_MEAS_REPORT_VARIABLE and, if the IE "Area Configuration" is present in variable LOGGED_MEAS_CONFIG, that is part of the concerned area;

2> perform the logging at regular intervals, as defined by the IE "Logging Interval" in variable LOGGED_MEAS_CONFIG;

2> when adding a logged measurement entry in variable LOGGED_MEAS_REPORT_VARIABLE, include the fields in accordance with the following:

3> set the IE "Relative Time Stamp" to indicate time relative to the moment at which the logged measurement configuration was received;

3> if GNSS location information became available during the last logging interval:

4> if the UE has been able to calculate a 3-dimensional position:

5> set IE "Ellipsoid point with altitude" to include the location coordinates;

4>else:

5> set IE "Ellipsoid point" to include the location coordinates:

3> set the IE "Cell ID" to indicate cell identity of the cell the UE is camping on obtained from system information;

3> set the IE "CPICH Ec/N0" and "CPICH RSCP" to include measured quantities of the cell that the UE is camping on for UTRA FDD;

3> set the "P-CCPCH RSCP" to include measured quantities for the cell that the UE is camping on for UTRA 1.28 Mcps TDD;

3> set the IE "Logged Measurements Intra Frequency Neighbouring Cells list", "Logged Measurements Inter Frequency list", "Logged Measurements E-UTRA frequency list", in order of decreasing ranking quantity as used for cell re-selection in each frequency for at most the following number of neighbouring cells; 6 intra-frequency and 3 inter-frequency neighbours per frequency as well as 3 inter-RAT neighbours, per frequency per RAT;

3> set the IE "Logged Measurements GSM Neighbouring Cells list" in order of decreasing RXLEV.

NOTE: The UE includes, only once, the latest available results of the measurement performed for cell reselection, which are performed in accordance with the regular performance requirements as specified in [19].

2> when the memory reserved for the logging of measurements becomes full, stop timer T326 and performs the same actions as performed upon expiry of T326, as specified in 8.5.63.4.

8.6.2.3.3 Test Purpose

1. Verify logging of configured Logged MDT measurements in URA_PCH state
2. Verify logging and reporting of Logged MDT Inter-frequency measurements
3. Verify indication of availability of Logged MDT measurements in URA UPDATE message

8.6.2.3.4 Method of test

Initial Condition

System Simulator: 2 cells, Cell 1 and Cell 4 are active.

UE: PS-DCCH+DTCH_DCH (state 6-10) in Cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.6.2.3-1 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Column marked "T0" denotes the initial conditions, while column marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 8.6.2.3-1

Parameter	Unit	Cell 1		Cell 4	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		High Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-69	-69	-60
P-CCPCH RSCP (TDD)	dBm	-60	-69	-69	-60
URA ID		URA-ID 1		URA-ID 2	

The UE is in CELL_DCH state of cell 1. SS transmits a LOGGING MEASUREMENT CONFIGURATION message to the UE to configure logged measurements.

SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, which invokes the UE to transit from CELL_DCH toURA_PCH.

The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and enters URA_PCH state.

Wait 5s to allow UE to activate logging.

SS configures its downlink transmission power settings according to columns "T1" in Table 8.6.2.3-1.

When the UE detects the presence of cell 2, it moves to CELL_FACH state and transmits a URA UPDATE message on the uplink CCCH. The IE "Logged Meas Available" shall be present in the message.

Upon reception of URA_UPDATE message, SS replies with a URA UPDATE CONFIRM message with the IE "RRC State Indicator" set to "CELL_DCH".

SS transmits a UE INFORMATION REQUEST message, and the IE "Logged Measurements Report Request" is present.

UE shall transmits a UE INFORMATION REPONSE message, and include IE "Logged Measurement Info-FDD" or "Logged Measurement Info-TDD".

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		LOGGING MEASUREMENT CONFIGURATION	The UE is in idle mode and camped onto cell 1. The System Information Block type 11 messages to be transmitted are different from the default settings (see specific message contents)
2	←		PHYSICAL CHANNEL RECONFIGURATION	The IE "RRC state indicator" is set to "URA_PCH".
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE sends this message before it completes state transition.
4				Wait 5s to allow UE to activate logging.
5				SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.6.2.3-1. The UE shall find that the Cell 4 is better and attempt to perform a cell reselection.

Step	Direction		Message	Comment
	UE	SS		
6	→		URA UPDATE	The UE transmits this message with the IE "Logged Meas Available" set as true
7	←		URA UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_DCH".
8	←		UE INFORMATION REQUEST	SS transmits a UE INFORMATION REQUEST message with IE "Logged Measurements Report Request" set to “true”.
9	→		UE INFORMATION RESPONSE	UE shall transmit a UE INFORMATION RESPONSE message includes IE “Logged Meas Report" and the IEs "Absolute Time Info", "Trace reference", "Trace recording session", "TCE Id" set to same value as received in the LOGGING MEASUREMENT CONFIGURATION in step 1. And at least one IE "Logged Measurement Info-FDD" or "Logged Measurement Info-TDD" includes “Logged Measurements Serving Cell” and “Logged Measurements Inter Frequency Neighbouring Cells list”. And Logged Measurements of Cell 4 is in the Logged Measurements inter Frequency Neighbouring Cells list”.

Specific Message Contents

LOGGING MEASUREMENT CONFIGURATION (Step 1)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged ANR configuration Info	
- Absolute Time Info	Set to value corresponding to the absolute time when the message is sent
- Logging Duration	10 min
- Logging Interval	2.57
- Trace reference	
- PLMN Identity	Same as MIB
- Trace ID	‘0EF’H
-Trace recording session	‘1A’H
- TCE Id	‘5’H
- CHOICE Area Configuration	Not present

PHYSICAL CHANNEL RECONFIGURATION (Steps 2)

Use the same message sub-type titled "Packet to URA_PCH from CELL_DCH in PS" in TS 34.108 clause 9.

CELL UPDATE (Step 6)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'Cell Re-selection'
Logged Meas Available	TRUE

UE INFORMATION REQUEST (Step 8)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged Measurements Report Request	TRUE
Logged ANR Report Request	Not Present

UE INFORMATION RESPONSE (FDD) (Step 9)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged Meas Report	
- Absolute Time Info	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace reference	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace recording session	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- TCE Id	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- CHOICE mode	FDD
- List of measurements FDD	At least 1 entry where at least one entry complies to entry with index ‘x’ below.
- Logged Measurement Info-FDD[x]	
- Relative Time Stamp[x]	Not checked
- Logged Measurements Serving Cell[x]	
- Cell ID[x]	Cell 1
- Primary CCPCH RSCP[x]	(0..91)
- CPICH Ec/N0	(0..49)
- Logged Measurements Inter Frequency	Only 1 inter Frequency
Neighbouring Cells list[x]	
- Frequency Info	f2
- Logged Measurements Inter-frequency	Only 1 cell
Neighbouring Cells list	
- Primary CPICH info	Set to the scrambling code for cell 4
- CPICH RSCP	(0..91)
- CPICH Ec/N0	(0..49)
- Logged Meas Available	Not checked

UE INFORMATION RESPONSE (TDD) (Step 9)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged Meas Report	
- Absolute Time Info	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace reference	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace recording session	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- TCE Id	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- CHOICE mode	TDD
- List of measurements TDD	At least 1 entry where at least one entry complies to entry with index 'x' below.
- Logged Measurement Info-TDD[x]	
- Relative Time Stamp[x]	Not checked
- Logged Measurements Serving Cell[x]	
- Cell ID	Cell 1
- Primary CCPCH RSCP	(0..91)
- Logged Measurements Inter Frequency Neighbouring Cells list[x]	Only 1 inter Frequency
- Frequency Info	f2
- Logged Measurements Inter-frequency Neighbouring Cells list	Only 1 cell
- Cell parameters Id	Cell parameter Id of Cell 4
- Logged Measurements Inter Frequency Neighbouring Cells list[x]	(0..91)
- Frequency Info	
- Logged Measurements Inter-frequency Neighbouring Cells list	
- Logged Meas Available	Not checked

8.6.2.3.5 Test requirement

At step 6 the UE shall transmit a URA UPDATE message on uplink DCCH including the IE "Logged Meas Available" (TP3).

At step 9 the UE shall transmit a UE INFORMATION RESPONSE message includes IE "Logged Meas Report" with logged Measurements of Cell 2 in the "Logged Measurements Inter Frequency Neighbouring Cells list" (TP1, TP2).

8.6.2.4 Logged MDT / Intra-frequency measurement, logging and reporting / Idle mode / Limiting area scope

8.6.2.4.1 Definition

This test is applicable for all UEs that support Logged MDT services.

8.6.2.4.2 Conformance requirement

[TS 25.304, clause 5.7 (TP1, TP2, TP3)]

The UE may be configured to perform logging of measurement results in idle mode, CELL_PCH and URA_PCH state with LOGGING MEASUREMENT CONFIGURATION message specified in TS 25.331 [4]. This configuration is valid while the logging duration timer is running.

If the configuration of logged measurements is valid, the UE shall perform logging of measurement results if all of the following conditions are met:

- the UE is in camped normally state in idle mode, CELL_PCH or URA_PCH state;

- RPLMN of the UE is the same as the RPLMN at the point of time of LOGGING MEASUREMENT CONFIGURATION message reception

- the UE is camped on a cell belonging to Area Configuration (see TS 25.331 [4]), if configured;

- the UE is camped on the RAT where the logged measurement configuration was received.

Otherwise, the logging of measurement results shall be suspended.

NOTE: Even if logging of measurement results is suspended, the logging duration timer and time stamp will continue, and the logged measurement configuration and corresponding log are kept.

[TS 25.331, clause 8.5.65.2 (TP1, TP2, TP3)]

While T326 is running, the UE shall:

1> perform this logging in accordance with the following:

2> perform the logging while camping normally on an UTRA cell and the RPLMN of the UE is the same as the PLMN Identity stored in LOGGED_MEAS_REPORT_VARIABLE and, if the IE "Area Configuration" is present in variable LOGGED_MEAS_CONFIG, that is part of the concerned area;

2> perform the logging at regular intervals, as defined by the IE "Logging Interval" in variable LOGGED_MEAS_CONFIG;

2> when adding a logged measurement entry in variable LOGGED_MEAS_REPORT_VARIABLE, include the fields in accordance with the following:

3> set the IE "Relative Time Stamp" to indicate time relative to the moment at which the logged measurement configuration was received;

3> if GNSS location information became available during the last logging interval:

4> if the UE has been able to calculate a 3-dimensional position:

5> set IE "Ellipsoid point with altitude" to include the location coordinates;

4>else:

5> set IE "Ellipsoid point" to include the location coordinates:

3> set the IE "Cell ID" to indicate cell identity of the cell the UE is camping on obtained from system information;

3> set the IE "CPICH Ec/N0" and "CPICH RSCP" to include measured quantities of the cell that the UE is camping on for UTRA FDD;

3> set the "P-CCPCH RSCP" to include measured quantities for the cell that the UE is camping on for UTRA 1.28 Mcps TDD;

3> set the IE "Logged Measurements Intra Frequency Neighbouring Cells list", "Logged Measurements Inter Frequency list", "Logged Measurements E-UTRA frequency list", in order of decreasing ranking quantity as used for cell re-selection in each frequency for at most the following number of neighbouring cells; 6 intra-frequency and 3 inter-frequency neighbours per frequency as well as 3 inter-RAT neighbours, per frequency per RAT;

3> set the IE "Logged Measurements GSM Neighbouring Cells list" in order of decreasing RXLEV.

NOTE: The UE includes, only once, the latest available results of the measurement performed for cell reselection, which are performed in accordance with the regular performance requirements as specified in [19].

2> when the memory reserved for the logging of measurements becomes full, stop timer T326 and performs the same actions as performed upon expiry of T326, as specified in 8.5.63.4.

Reference

TS 25.304 clause 5.7 and TS 25.331 clause 8.5.65.2

.8.6.2.4.3 Test Purpose

1. Verify limiting area scope logging of configured Logged MDT measurements when area scope based on cell list is configured

2. Verify limiting area scope logging of configured Logging MDT measurements when area scope based on list of Location Areas is configured

3. Verify limiting area scope logging of configured Logging MDT measurements when area scope based on list of Routing Areas is configured.

8.6.2.4.4 Method of test

Initial conditions

System Simulator:

3 cells, cell 1, cell 2 and cell 3.

User Equipment:

UE: CELL_DCH state as specified in clause 7.4 of TS 34.108 after executing a location registration and/or attach procedure. The UE has been registered in both CS and PS domains.

Test procedure

Table 8.6.2.4.4-1 illustrates the downlink power to be applied for the 3 cells. Column marked "T0" denotes the initial conditions, while columns marked "T1", "T2", “T3”,"T4", “T5” and “T6” are to be applied subsequently. The exact instants on which these values shall be applied are described in the text in this clause.

Parameter	Unit	Cell 1							Cell 2							Cell 3						
		T0	T1	T2	T3	T4	T5	T6	T0	T1	T2	T3	T4	T5	T6	T0	T1	T2	T3	T4	T5	T6
JTRA RF Channel Number		Mid Range Test Frequency							Mid Range Test Frequency							Mid Range Test Frequency						
.AC		1							2							1						
RAC		1							2							2						
CPICH Ec FDD)	dBm/3.84 MHz	-60	OFF	OFF	-60	OFF	OFF	-60	OFF	-60	OFF	OFF	-60	OFF	OFF	OFF	OFF	-60	OFF	OFF	-60	OFF
P-CCPCH RSCP(TDD)	dBm	-60	OFF	OFF	-60	OFF	OFF	-60	OFF	-60	OFF	OFF	-60	OFF	OFF	OFF	OFF	-60	OFF	OFF	-60	OFF

a) SS transmits a LOGGING MEASUREMENT CONFIGURATION message with a cell list on Cell 1 and only Cell 3 in the configured cell list. SS changes Cell 1, Cell 2 and Cell 3 level, and the UE moves to idle mode on Cell 2.Verify Logging MDT measurements on Cell 2.

b) SS changes Cell 1, Cell 2 and Cell 3 level, and the UE moves to idle mode on Cell 3. Verify Logging MDT measurements on Cell 3.

c) Re-configure logged measurement with limiting area scope using Location Areas list, only Cell 2 belongs to Location Areas in the list. SS changes Cell 1, Cell 2 and Cell 3 level, and the UE moves to idle mode on Cell 1. Verify Logging MDT measurements on Cell 1.

d) SS changes Cell 1, Cell 2 and Cell 3 level, and the UE moves to idle mode on Cell 2. Verify Logging MDT measurements on Cell 2.

e) Re-configure logged measurement with limiting area scope using Routing Areas list and only Cell 1 belongs to Routing Areas in configured Routing Areas list. SS changes Cell 1, Cell 2 and Cell 3 level, and the UE moves to idle mode on Cell 3. Verify Logging MDT measurements on Cell 3.

f) SS changes Cell 1, Cell 2 and Cell 3 level, and the UE moves to idle mode on Cell 1. Verify Logging MDT measurements on Cell 1.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<--		LOGGING MEASUREMENT CONFIGURATION	SS transmits a LOGGING MEASUREMENT CONFIGURATION message with a cell list on Cell 1. Only Cell 3 in configured cell list.
2	<--		RRC CONNECTION RELEASE	SS transmits a RRC CONNECTION RELEASE message to release the RRC connection.
3	-->		RRC CONNECTION RELEASE COMPLETE	UE confirms the connection release and returns to Idle mode.
4	-			SS changes Cell 1, Cell 2 and Cell 3 level according to the T1 in Table 8.6.2.4.4-1. UE performs cell reselection and the UE moves to idle mode on Cell 2.
5	-		-	Wait 10 seconds for UE logging interval timer to expire at least once
6	<--		Paging	SS transmits a Paging message.
7	-->		RRC CONNECTION REQUEST	The UE transmits an RRC CONNECTION REQUEST message.
8	<--		RRC CONNECTION SETUP	SS transmit an RRC CONNECTION SETUP message.
9	-->		RRC CONNECTION SETUP COMPLETE	The UE shall transmit an RRC CONNECTION SETUP COMPLETE message with IE “Logged Meas Available” not present.
10	<--		RRC CONNECTION RELEASE	SS transmits a RRC CONNECTION RELEASE message to release the RRC connection.
11	-->		RRC CONNECTION RELEASE COMPLETE	The UE confirms the connection release and returns to Idle mode.
12				SS changes Cell 1, Cell 2 and Cell 3 level according to the T2 in Table 8.6.2.4.4-1. UE performs cell reselection and the UE moves to idle mode on Cell 3.
13				Wait 10 seconds for UE logging interval timer to expire at least once
14	<--		Paging	SS transmits a Paging message.
15	-->		RRC CONNECTION REQUEST	The UE transmits an RRC CONNECTION REQUEST message.
16	<--		RRC CONNECTION SETUP	SS transmit an RRC CONNECTION SETUP message.
17	-->		RRC CONNECTION SETUP COMPLETE	The UE shall transmit an RRC CONNECTION SETUP COMPLETE message including IE “Logged Meas Available”.
18	<--		UE INFORMATION REQUEST	SS send an UE INFORMATION REQUEST message to get logMeasReport.
19	-->		UE INFORMATION RESPONSE	The UE shall send an UE INFORMATION RESPONSE message with Logged Meas Report of Cell 3.
20	<--		LOGGING MEASUREMENT CONFIGURATION	SS transmits a LOGGING MEASUREMENT CONFIGURATION message with a using Location Areas list on Cell 3, only Cell 2 belongs to Location Areas in the list.
21	<--		RRC CONNECTION RELEASE	SS transmits a RRC CONNECTION RELEASE message to release RRC connection and moves to idle mode on Cell 3.
22	-->		RRC CONNECTION RELEASE COMPLETE	UE confirms the connection release and returns to Idle mode
23				SS changes Cell 1, Cell 2 and Cell 3 level according to the T3 in Table 8.6.2.4.4-1. UE performs cell reselection and the UE moves to idle mode on Cell 1.

Step	Direction		Message	Comments
	UE	SS		
24				Wait 10 seconds for UE logging interval timer to expire at least once
25	<--		Paging	SS transmits a Paging message.
26	-->		RRC CONNECTION REQUEST	The UE transmits an RRC CONNECTION REQUEST message.
27	<--		RRC CONNECTION SETUP	SS transmit an RRC CONNECTION SETUP message.
28	-->		RRC CONNECTION SETUP COMPLETE	The UE shall transmit an RRC CONNECTION SETUP COMPLETE message with IE “Logged Meas Available” not present.
29	<--		RRC CONNECTION RELEASE	SS transmits a RRC CONNECTION RELEASE message to release the RRC connection.
30	-->		RRC CONNECTION RELEASE COMPLETE	The UE confirms the connection release and returns to Idle mode.
31				SS changes power level of Cell 1, Cell 2, and Cell 3 according to the T4 in Table 8.6.2.4.4-1. UE performs cell reselection and the UE moves to idle mode on Cell 2.
32				Wait 10 seconds for UE logging interval timer to expire at least once.
33	<--		Paging	SS transmits a Paging message on Cell 2.
34	-->		RRC CONNECTION REQUEST	The UE transmits an RRC CONNECTION REQUEST message on Cell 2.
35	<--		RRC CONNECTION SETUP	SS transmit an RRC CONNECTION SETUP message on Cell 2.
36	-->		RRC CONNECTION SETUP COMPLETE	The UE shall transmit an RRC CONNECTION SETUP COMPLETE message including IE “Logged Meas Available”.
37	<--		UE INFORMATION REQUEST	SS send a UE INFORMATION REQUEST message to get logMeasReport.
38	-->		UE INFORMATION RESPONSE	The UE shall send an UE INFORMATION RESPONSE message with Logged Meas Report of Cell 2.
39	<--		LOGGING MEASUREMENT CONFIGURATION	SS transmits a LOGGING MEASUREMENT CONFIGURATION message with a Routing Areas List on Cell 2. Only Cell 1 belongs to Routing Areas in configured Routing Areas list.
40	<--		RRC CONNECTION RELEASE	SS transmits a RRC CONNECTION RELEASE message to release RRC connection and moves to idle mode on Cell 2.
41	-->		RRC CONNECTION RELEASE COMPLETE	UE confirms the connection release and returns to Idle mode.
42	-		-	SS changes Cell 1, Cell 2 and Cell 3 level according to the T5 in Table 8.6.2.4.4-1. UE performs cell reselection and the UE moves to idle mode on Cell 3.
43			-	Wait 10 seconds for UE logging interval timer to expire at least once
44	<--		Paging	SS transmits a Paging message.
45	-->		RRC CONNECTION REQUEST	The UE transmits an RRC CONNECTION REQUEST message.
46	<--		RRC CONNECTION SETUP	SS transmit an RRC CONNECTION SETUP message.
47	-->		RRC CONNECTION SETUP COMPLETE	The UE shall transmit an RRC CONNECTION SETUP COMPLETE message and IE “Logged Meas Available” is not present.
48	<--		RRC CONNECTION RELEASE	SS transmits an RRC CONNECTION RELEASE message to release the RRC connection.
49	-->		RRC CONNECTION RELEASE COMPLETE	UE confirms the connection release and returns to Idle mode.
50				SS changes Cell 1, Cell 2 and Cell 3 level according to the T6 in Table 8.6.2.4.4-1. UE performs cell reselection and the UE moves to idle mode on Cell 1.
51				Wait 10 seconds for UE logging interval timer to expire at least once
52	<--		Paging	SS transmits a Paging message on Cell 1.
53	-->		RRC CONNECTION REQUEST	The UE transmits an RRC CONNECTION REQUEST message on Cell1.
54	<--		RRC CONNECTION SETUP	SS transmit an RRC CONNECTION SETUP message on Cell 1.
55	-->		RRC CONNECTION SETUP COMPLETE	The UE shall transmit an RRC CONNECTION SETUP COMPLETE message including IE Logged Meas Available.
56	<--		UE INFORMATION REQUEST	SS send a UE INFORMATION REQUEST message to get logMeasReport.
57	-->		UE INFORMATION RESPONSE	The UE shall send an UE INFORMATION RESPONSE message with Logged Meas Report of Cell 1?

Step	Direction		Message	Comments
	UE	SS		
58	<--		RRC CONNECTION RELEASE	SS transmits an RRC CONNECTION RELEASE message to release the RRC connection.
59	-->		RRC CONNECTION RELEASE COMPLETE	UE confirms the connection release and returns to Idle mode.

Specific message contents

All messages have the same content as defined in 34.108 clause 9 with the following exceptions:

LOGGING MEASUREMENT CONFIGURATION (Step 1)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged ANR configuration Info	
- Absolute Time Info	Set to value corresponding to the absolute time when the message is sent
- Logging Duration	10 min
- Logging Interval	2.58
- Trace reference	
- PLMN Identity	Same as MIB
- Trace ID	'0EF'H
-Trace recording session	'1A'H
- TCE Id	'5'H
- CHOICE Area Configuration	
- Cell IDList	
- Cell ID	Cell 3

RRC CONNECTION SETUP COMPLETE (step 9)

Information Element	Value/remark
Message Type	
RRC transaction identifier	The value of this IE is checked to see that it matches the value of the same IE transmitted in the downlink RRC CONNECTION SETUP message.
Logged Meas Available	Not present

RRC CONNECTION SETUP COMPLETE (step 17)

Information Element	Value/remark
Message Type	
RRC transaction identifier	The value of this IE is checked to see that it matches the value of the same IE transmitted in the downlink RRC CONNECTION SETUP message.
Logged Meas Available	True

UE INFORMATION RESPONSE (FDD) (Step 19)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.

Information Element	Value/remark
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged Meas Report	
- Absolute Time Info	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace reference	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace recording session	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- TCE Id	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- CHOICE mode	FDD
- List of measurements FDD	At least 1 entry where at least one entry complies to entry with index 'x' below.
- Logged Measurement Info-FDD[x]	
- Relative Time Stamp[x]	Not checked
- Logged Measurements Serving Cell[x]	
- Cell ID[x]	Cell 3
- Primary CCPCH RSCP[x]	(0..91)
- CPICH Ec/N0	(0..49)
- Logged Meas Available	Not checked

UE INFORMATION RESPONSE (TDD) (Step 19)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged Meas Report	
- Absolute Time Info	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace reference	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace recording session	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- TCE Id	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- CHOICE mode	TDD
- List of measurements TDD	At least 1 entry where at least one entry complies to entry with index 'x' below.
- Logged Measurement Info-TDD[x]	
- Relative Time Stamp[x]	Not checked
- Logged Measurements Serving Cell[x]	
- Cell ID	Cell 3
- Primary CCPCH RSCP	(0..91)
- Logged Meas Available	Not checked

LOGGING MEASUREMENT CONFIGURATION (Step 20)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged ANR configuration Info	
- Absolute Time Info	Set to value corresponding to the absolute time when the message is sent
- Logging Duration	10 min
- Logging Interval	
- Trace reference	
- PLMN Identity	Same as MIB
- Trace ID	'0EF'H
-Trace recording session	'1A'H
- TCE Id	'5'H
- CHOICE Area Configuration	
- Location Area Code List	
- LAI	
- PLMN identity	Same as MIB
- LAC	2

RRC CONNECTION SETUP COMPLETE (step 28)

Information Element	Value/remark
Message Type	
RRC transaction identifier	The value of this IE is checked to see that it matches the value of the same IE transmitted in the downlink RRC CONNECTION SETUP message.
Logged Meas Available	Not present

RRC CONNECTION SETUP COMPLETE (step 36)

Information Element	Value/remark
Message Type	
RRC transaction identifier	The value of this IE is checked to see that it matches the value of the same IE transmitted in the downlink RRC CONNECTION SETUP message.
Logged Meas Available	True

UE INFORMATION RESPONSE (FDD) (Step 38)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged Meas Report	
- Absolute Time Info	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace reference	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace recording session	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- TCE Id	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- CHOICE mode	FDD

Information Element	Value/remark
- List of measurements FDD	At least 1 entry where at least one entry complies to entry with index 'x' below.
- Logged Measurement Info-FDD[x]	
- Relative Time Stamp[x]	Not checked
- Logged Measurements Serving Cell[x]	
- Cell ID[x]	Cell 2
- Primary CCPCH RSCP[x]	(0..91)
- CPICH Ec/N0	(0..49)
- Logged Meas Available	Not checked

UE INFORMATION RESPONSE (TDD) (Step 38)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged Meas Report	
- Absolute Time Info	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace reference	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace recording session	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- TCE Id	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- CHOICE mode	TDD
- List of measurements TDD	At least 1 entry where at least one entry complies to entry with index 'x' below.
- Logged Measurement Info-TDD[x]	
- Relative Time Stamp[x]	Not checked
- Logged Measurements Serving Cell[x]	
- Cell ID	Cell 2
- Primary CCPCH RSCP	(0..91)
- Logged Meas Available	Not checked

LOGGING MEASUREMENT CONFIGURATION (Step 39)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged ANR configuration Info	
- Absolute Time Info	Set to value corresponding to the absolute time when the message is sent
- Logging Duration	10 min
- Logging Interval	
- Trace reference	
- PLMN Identity	Same as MIB
- Trace ID	'0EF'H
-Trace recording session	'1A'H
- TCE Id	'5'H
- CHOICE Area Configuration	
- Location Area Code List	
- RAI	
- LAI	PLMN identity set to Same as MIB, and LAC=1
- RAC	1

RRC CONNECTION SETUP COMPLETE (step 28)

Information Element	Value/remark
Message Type	
RRC transaction identifier	The value of this IE is checked to see that it matches the value of the same IE transmitted in the downlink RRC CONNECTION SETUP message.
Logged Meas Available	Not present

RRC CONNECTION SETUP COMPLETE (step 36)

Information Element	Value/remark
Message Type	
RRC transaction identifier	The value of this IE is checked to see that it matches the value of the same IE transmitted in the downlink RRC CONNECTION SETUP message.
Logged Meas Available	True

UE INFORMATION RESPONSE (FDD) (Step 38)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged Meas Report	
- Absolute Time Info	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace reference	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace recording session	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- TCE Id	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- CHOICE mode	FDD

Information Element	Value/remark
- List of measurements FDD	At least 1 entry where at least one entry complies to entry with index 'x' below.
- Logged Measurement Info-FDD[x]	
- Relative Time Stamp[x]	Not checked
- Logged Measurements Serving Cell[x]	
- Cell ID[x]	Cell 1
- Primary CCPCH RSCP[x]	(0..91)
- CPICH Ec/N0	(0..49)
- Logged Meas Available	Not checked

UE INFORMATION RESPONSE (TDD) (Step 38)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged Meas Report	
- Absolute Time Info	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace reference	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace recording session	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- TCE Id	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- CHOICE mode	TDD
- List of measurements TDD	At least 1 entry where at least one entry complies to entry with index 'x' below.
- Logged Measurement Info-TDD[x]	
- Relative Time Stamp[x]	Not checked
- Logged Measurements Serving Cell[x]	
- Cell ID	Cell 1
- Primary CCPCH RSCP	(0..91)
- Logged Meas Available	Not checked

8.6.2.4.5 Test requirements

At step 9, the UE shall transmit an RRC CONNECTION SETUP COMPLETE message with IE "Logged Meas Available" not present (TP1).

At step 17, the UE shall transmit an RRC CONNECTION SETUP COMPLETE message including IE "Logged Meas Available" (TP1).

At step 19, the UE shall send an UE INFORMATION RESPONSE message with Logged Meas Report of Cell 3(TP1).

At step 28, the UE shall transmit an RRC CONNECTION SETUP COMPLETE message with IE "Logged Meas Available" not present (TP2).

At step 36, the UE shall transmit an RRC CONNECTION SETUP COMPLETE message including IE "Logged Meas Available" (TP2).

At step 38, the UE shall send an UE INFORMATION RESPONSE message with Logged Meas Report of Cell 2 (TP2).

At step 47, the UE shall transmit an RRC CONNECTION SETUP COMPLETE message with IE "Logged Meas Available" not present (TP3).

At step 55 the UE shall transmit an RRC CONNECTION SETUP COMPLETE message including IE "Logged Meas Available" (TP3).

At step 57 the UE shall send an UE INFORMATION RESPONSE message with Logged Meas Report of Cell 1(TP3).

8.6.2.5 Logged MDT / Release of logged MDT measurement configuration / Expire of duration timer

8.6.2.5.1 Definition

8.6.2.5.2 Conformance requirement

[TS 25.331, clause 8.5.63.3 (TP1, TP2)]

Upon receiving the LOGGING MEASUREMENT CONFIGURATION message the UE shall:

1> if IE "Logged Measurements Configuration Info" is present:

2> if stored, discard the existing logged measurement configuration as well as the logged measurement information as specified in 8.5.66;

2> store the received IEs "Logging Duration", "Logging Interval", "Area Configuration" if included in IE "Logged Measurements Configuration Info" in variable LOGGED_MEAS_CONFIG and IEs "Absolute Time Info", "Trace reference", "Trace recording session" and "TCE Id" in variable LOGGED_MEAS_REPORT_VARIABLE;

2> store the current Registered PLMN in the IE "PLMN Identity" in variable LOGGED_MEAS_REPORT_VARIABLE;

2> start timer T326 with the timer value set to the IE "Logging Duration".

NOTE: The UE shall not stop timer T326 unless explicitly stated when it moves to another RAT.

1> if IE "Logged ANR configuration Info" is present:

2> if variable LOG_ANR_CONFIG was already stored, discard the existing logged measurement configuration for ANR purpose as well as the associated logged measurement information as specified in 8.5.68;

2> store the received IEs in the IE "Logged ANR configuration Info" in variable LOG_ANR_CONFIG;

2> store the current Registered PLMN in the IE "PLMN Identity" in variable LOG_ANR_REPORT_VARIABLE;

2> store the list of Equivalent PLMNs in the IE "Equivalent PLMN Identity List" in variable LOG_ANR_REPORT_VARIABLE;

2> start timer T327 with the timer value set to the IE "Logging Duration" included in IE "Logged ANR configuration Info".

When in idle mode, CELL_PCH or URA_PCH state and Logged Measurements has been configured, the UE shall:

1> Store the available measurements according to the logged measurements configuration in LOGGED_MEAS_CONFIG variable as specified in subclause 8.5.65.2.

[TS 25.331, clause 8.5.63.4 (TP1)]

When timer T326 expires, the UE shall:

1> release variable LOGGED_MEAS_CONFIG.

The UE is allowed to release stored logged measurements, i.e. to release LOGGED_MEAS_REPORT_VARIABLE 48 hours after T326 expiry.

[TS 25.331, clause 8.5.64.3 (TP2)]

UE Shall:

1> if IE "Logged Measurements Report Request" is present:

2> if Registered PLMN is the same as the IE "PLMN Identity" stored in variable LOGGED_MEAS_REPORT_VARIABLE:

3> if an IE "Logged Measurement Info-FDD" or "Logged Measurement Info-TDD" in variable LOGGED_MEAS_REPORT_VARIABLE is present:

6> set IE "Logged Meas Report" in the UE INFORMATION RESPONSE as follows:

5> include the IE "Absolute Time Info" and set it to the value of the IE "Absolute Time Info" in the variable LOGGED_MEAS_REPORT_VARIABLE;

5> include the IE "Trace reference" and set it to the value of IE "Trace reference" in the variable LOGGED_MEAS_REPORT_VARIABLE;

5> include the IE "Trace recording session" and set it to the value of IE "Trace recording session" in the variable LOGGED_MEAS_REPORT_VARIABLE;

5> include the IE "TCE Id" and set it to the value of IE "TCE Id" in the variable LOGGED_MEAS_REPORT_VARIABLE;

5> include the IEs "Logged Measurement Info-FDD" or "Logged Measurement Info-TDD" and set it to include, in the same order as logged, one or more entries from LOGGED_MEAS_REPORT_VARIABLE;

5> clear the logged measurement results included in the list of IEs "Logged Measurement Info-FDD" or "Logged Measurement Info-TDD" from LOGGED_MEAS_REPORT_VARIABLE;

5> if the variable LOGGED_MEAS_REPORT_VARIABLE is not empty:

6> include IE "Logged Meas Available";

2> transmit a UE INFORMATION RESPONSE message on the uplink DCCH using AM RLC.

1> if IE "Logged ANR Report Request" is present:

2> if Registered PLMN is the same as one of the PLMNs in the IE "PLMN Identity" or IE "Equivalent PLMN Identity List" stored in variable LOG_ANR_REPORT_VARIABLE:

3> if IE "Logged ANR Report Info" in variable LOG_ANR_REPORT_VARIABLE is present:

4> set IEs "Logged ANR Report Info" in the UE INFORMATION RESPONSE as follows:

5> include the IEs "Logged ANR Report Info List" and set it to include entries from LOG_ANR_REPORT_VARIABLE;

5> clear the logged measurement results included in the list of IEs "Logged ANR Report Info List" from the LOG_ANR_REPORT_VARIABLE;

5> clear the variable LOG_ANR_CONFIG and stop timer T327.

2> transmit a UE INFORMATION RESPONSE message on the uplink DCCH using AM RLC.

[TS 25.331, clause 8.5.65.2 (TP1, TP2)]

While T326 is running, the UE shall:

1> perform this logging in accordance with the following:

2> perform the logging while camping normally on an UTRA cell and the RPLMN of the UE is the same as the PLMN Identity stored in LOGGED_MEAS_REPORT_VARIABLE and, if the IE "Area Configuration" is present in variable LOGGED_MEAS_CONFIG, that is part of the concerned area;

2> perform the logging at regular intervals, as defined by the IE "Logging Interval" in variable LOGGED_MEAS_CONFIG;

2> when adding a logged measurement entry in variable LOGGED_MEAS_REPORT_VARIABLE, include the fields in accordance with the following:

3> set the IE "Relative Time Stamp" to indicate time relative to the moment at which the logged measurement configuration was received;

3> if GNSS location information became available during the last logging interval:

4> if the UE has been able to calculate a 3-dimensional position:

5> set IE "Ellipsoid point with altitude" to include the location coordinates;

4>else:

5> set IE "Ellipsoid point" to include the location coordinates:

3> set the IE "Cell ID" to indicate cell identity of the cell the UE is camping on obtained from system information;

3> set the IE "CPICH Ec/N0" and "CPICH RSCP" to include measured quantities of the cell that the UE is camping on for UTRA FDD;

3> set the "P-CCPCH RSCP" to include measured quantities for the cell that the UE is camping on for UTRA 1.28 Mcps TDD;

3> set the IE "Logged Measurements Intra Frequency Neighbouring Cells list", "Logged Measurements Inter Frequency list", "Logged Measurements E-UTRA frequency list", in order of decreasing ranking quantity as used for cell re-selection in each frequency for at most the following number of neighbouring cells; 6 intra-frequency and 3 inter-frequency neighbours per frequency as well as 3 inter-RAT neighbours, per frequency per RAT;

3> set the IE "Logged Measurements GSM Neighbouring Cells list" in order of decreasing RXLEV.

NOTE: The UE includes, only once, the latest available results of the measurement performed for cell reselection, which are performed in accordance with the regular performance requirements as specified in [19].

2> when the memory reserved for the logging of measurements becomes full, stop timer T326 and performs the same actions as performed upon expiry of T326, as specified in 8.5.63.4.

Reference

3GPP TS 25.331 clauses 8.5.63.3, 8.5.63.4, 8.5.64.3 and 8.5.65.2

8.6.2.5.3 Test Purpose

1. Verify release of Logged MDT measurement configuration up on stop or expire of logging duration timer.
2. Verify that UE, when being requested to report logged MDT measurements before the duration timer has expired, deletes the reported logged MDT measurements.

8.6.2.5.4 Method of test

Initial Condition

System Simulator: Cell 1 is active.

UE: PS-DCCH+DTCH_DCH (state 6-10) in Cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_DCH state of cell 1. SS transmits a LOGGING MEASUREMENT CONFIGURATION message to the UE to configure logged measurements.

SS transmits an RRC CONNECTION RELEASE message to the UE to disconnect the connection.

The UE transmits an RRC CONNECTION RELEASE COMPLETE message using unacknowledged mode

Wait 5s to allow UE to activate logging.

SS request Logged Meas Report until all the Logged Meas Report has been transmitted.

SS transmits a UE INFORMATION REQUEST message, and the IE "Logged Measurements Report Request" is present.

The UE shall transmit a UE INFORMATION REPONSE message, without IE “Logged Meas Report ".

SS transmits an RRC CONNECTION RELEASE message to the UE to disconnect the connection.

The UE transmits an RRC CONNECTION RELEASE COMPLETE message using unacknowledged mode

Wait 10 minutes for UE performing the logging at regular time intervals as to ensure timer T326 has expired.

The UE transmits an RRC CONNECTION REQUEST message to SS.

SS transmits an RRC CONNECTION SETUP message to the UE.

The UE transmits an RRC CONNECTION SETUP COMPLETE message to SS, and enters CELL_DCH state.

SS request Logged Meas Report until all the Logged Meas Report has been transmitted.

SS transmits an RRC CONNECTION RELEASE message to the UE to disconnect the connection.

The UE transmits an RRC CONNECTION RELEASE COMPLETE message using unacknowledged mode.

Wait 10 s.

The UE transmits an RRC CONNECTION REQUEST message to SS.

SS transmits an RRC CONNECTION SETUP message to the UE.

The UE transmits an RRC CONNECTION SETUP COMPLETE message to SS, and without IE "Logged Meas Available"

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		LOGGING MEASUREMENT CONFIGURATION	Include IE “Logged Measurements Configuration Info”, with “Logging Interval” set as 2.56s and “Logging Duration” set as 10min.
2	←		RRC CONNECTION RELEASE	
3	→		RRC CONNECTION RELEASE COMPLETE	
4				Wait 5s to allow UE to active logging.
5	→		RRC CONNECTION REQUEST	By outgoing call operation.
6	←		RRC CONNECTION SETUP	
7	→		RRC CONNECTION SETUP COMPLETE	
8	←		UE INFORMATION REQUEST	SS transmits a UE INFORMATION REQUEST message with IE "Logged Measurements Report Request" set to “true”.
9	→		UE INFORMATION RESPONSE	
				EXCEPTION: In case the IE “Logged Meas Available” present in IE “Logged Meas Report” in message UE INFORMATION RESPONSE in step 9, steps 9a1 and 9a2 will be executed.

Step	Direction		Message	Comment
	UE	SS		
9a1	←		UE INFORMATION REQUEST	SS transmits a UE INFORMATION REQUEST message with IE "Logged Measurements Report Request" set to “true”.
9a2	→		UE INFORMATION RESPONSE	
				EXCEPTION: In case the IE “Logged Meas Available” present in IE “Logged Meas Report” in message UE INFORMATION RESPONSE in step 9a2, steps 9a1 and 9a2 will be executed again.
10	←		UE INFORMATION REQUEST	SS transmits a UE INFORMATION REQUEST message with IE "Logged Measurements Report Request" set to “true”.
11	→		UE INFORMATION RESPONSE	The UE shall send a UE INFORMATION RESPONSE message, without IE “Logged Meas Report”.
12	←		RRC CONNECTION RELEASE	
13	→		RRC CONNECTION RELEASE COMPLETE	The UE sends this message before it completes state transition.
14				Wait 10 min for UE performing the logging at regular time intervals as to ensure timer T326 has expired.
15	→		RRC CONNECTION REQUEST	By outgoing call operation.
16	←		RRC CONNECTION SETUP	
17	→		RRC CONNECTION SETUP COMPLETE	
18	←		UE INFORMATION REQUEST	SS transmits a UE INFORMATION REQUEST message with IE "Logged Measurements Report Request" set to “true”.
19	→		UE INFORMATION RESPONSE	The UE sends a UE INFORMATION RESPONSE message; include IE “Logged Meas Report” of Cell 1.
				EXCEPTION: In case the IE “Logged Meas Available” present in IE “Logged Meas Report” in message UE INFORMATION RESPONSE in step 19, steps 19a1 and 19a2 will be executed.
19a1	←		UE INFORMATION REQUEST	SS transmits a UE INFORMATION REQUEST message with IE "Logged Measurements Report Request" set to “true”.
19a2	→		UE INFORMATION RESPONSE	
				EXCEPTION: In case the IE “Logged Meas Available” present in IE “Logged Meas Report” in message UE INFORMATION RESPONSE in step 19a2, steps 19a1 and 19a2 will be executedagain.
20	←		RRC CONNECTION RELEASE	
21	→		RRC CONNECTION RELEASE COMPLETE	
			Void	Wait 10s.

Step	Direction		Message	Comment
	UE	SS		
22	→		RRC CONNECTION REQUEST	
23	←		RRC CONNECTION SETUP	
24	→		RRC CONNECTION SETUP COMPLETE	The UE shall transmit a RRC CONNECTION SETUP COMPLETE message, without IE “Logged Meas Available”.

Specific Message Contents

All messages have the same content as defined in 34.108 clause 9 with the following exceptions:

LOGGING MEASUREMENT CONFIGURATION (Step 1)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged ANR configuration Info	
- Absolute Time Info	Set to value corresponding to the absolute time when the message is sent
- Logging Duration	10 min
- Logging Interval	2.59
- Trace reference	
- PLMN Identity	Same as MIB
- Trace ID	‘0EF’H
-Trace recording session	‘1A’H
- TCE Id	‘5’H
- CHOICE Area Configuration	Not present

UE INFORMATION REQUEST (Step 8 and 10)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged Measurements Report Request	TRUE
Logged ANR Report Request	Not Present

UE INFORMATION RESPONSE (FDD) (Step 9)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged Meas Report	
- Absolute Time Info	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1

Information Element	Value/remark
- Trace reference	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace recording session	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- TCE Id	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- CHOICE mode	FDD
- List of measurements FDD	At least 1 entry where at least one entry complies to entry with index 'x' below.
- Logged Measurement Info-FDD[x]	
- Relative Time Stamp[x]	Not checked
- Logged Measurements Serving Cell[x]	
- Cell ID	Cell 1
- Primary CCPCH RSCP	(0..91)
- CPICH Ec/N0	(0..49)
- Logged Meas Available	Not present or TRUE

UE INFORMATION RESPONSE (TDD) (Step 9)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged Meas Report	
- Absolute Time Info	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace reference	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace recording session	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- TCE Id	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- CHOICE mode	TDD
- List of measurements TDD	At least 1 entry where at least one entry complies to entry with index 'x' below.
- Logged Measurement Info-TDD[x]	
- Relative Time Stamp[x]	Not checked
- Logged Measurements Serving Cell[x]	
- Cell ID	Cell 1
- Primary CCPCH RSCP	(0..91)
- Logged Meas Available	Not present or TRUE

UE INFORMATION RESPONSE (Step 11)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged Meas Report	Not present

RRC CONNECTION SETUP COMPLETE (step 24)

Information Element	Value/remark
Message Type	

RRC transaction identifier	The value of this IE is checked to see that it matches the value of the same IE transmitted in the downlink RRC CONNECTION SETUP message.
Logged Meas Available	Not present

8.6.2.5.5 Test requirement

At step 11, the UE shall send an UE INFORMATION RESPONSE message, without IE “Logged Meas Report” (TP2).

At step 24, the UE shall transmit a RRC CONNECTION SETUP COMPLETE message, without IE “Logged Meas Available” (TP1).

8.6.2.6 Logged MDT / Release of logged MDT measurement configuration / Reception of new logged measurement configuration, Detach or UE power off

8.6.2.6.1 Definition

8.6.2.6.2 Conformance requirement

[TS 25.331, clause 8.5.63.3 (TP1, TP2)]

Upon receiving the LOGGING MEASUREMENT CONFIGURATION message the UE shall:

1> if IE "Logged Measurements Configuration Info" is present:

2> if stored, discard the existing logged measurement configuration as well as the logged measurement information as specified in 8.5.66;

2> store the received IEs "Logging Duration", "Logging Interval", "Area Configuration" if included in IE "Logged Measurements Configuration Info" in variable LOGGED_MEAS_CONFIG and IEs "Absolute Time Info", "Trace reference", "Trace recording session" and "TCE Id" in variable LOGGED_MEAS_REPORT_VARIABLE;

2> store the current Registered PLMN in the IE "PLMN Identity" in variable LOGGED_MEAS_REPORT_VARIABLE;

2> start timer T326 with the timer value set to the IE "Logging Duration".

NOTE: The UE shall not stop timer T326 unless explicitly stated when it moves to another RAT.

1> if IE "Logged ANR configuration Info" is present:

2> if variable LOG_ANR_CONFIG was already stored, discard the existing logged measurement configuration for ANR purpose as well as the associated logged measurement information as specified in 8.5.68;

2> store the received IEs in the IE "Logged ANR configuration Info" in variable LOG_ANR_CONFIG;

2> store the current Registered PLMN in the IE "PLMN Identity" in variable LOG_ANR_REPORT_VARIABLE;

2> store the list of Equivalent PLMNs in the IE "Equivalent PLMN Identity List" in variable LOG_ANR_REPORT_VARIABLE;

2> start timer T327 with the timer value set to the IE "Logging Duration" included in IE "Logged ANR configuration Info".

When in idle mode, CELL_PCH or URA_PCH state and Logged Measurements has been configured, the UE shall:

1> Store the available measurements according to the logged measurements configuration in LOGGED_MEAS_CONFIG variable as specified in subclause 8.5.65.2.

[TS 25.331, clause 8.5.66.2 (TP1, TP2)]

The UE initiates the procedure upon receiving a logged measurement configuration in UTRAN or in another RAT. The UE also shall initiate the procedure upon switch off or detach.

The UE shall:

1> if stored, discard the existing logged measurement configuration as well as the logged measurement information, i.e. release the UE variables LOGGED MEAS CONFIG and LOGGED_MEAS_REPORT_VARIABLE and stop timer T326.

Reference

TS 25.331 clauses 8.5.63.3, 8.5.66.2

8.6.2.6.3 Test Purpose

1. Verify release of logged measurement configuration and logs up on reception of new logged measurement configuration
2. Verify release of logged measurement configuration and logs upon UE switch off or detach

8.6.2.6.4 Method of test

Initial Condition

System Simulator: Cell 1 is active.

UE: PS-DCCH+DTCH_DCH (state 6-10) in Cell 1 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

Switch off button Yes/No.

Test Procedure

The UE is in CELL_DCH state of cell 1. SS transmits a LOGGING MEASUREMENT CONFIGURATION message to the UE to configure logged measurements.

SS transmits an RRC CONNECTION RELEASE message to the UE to disconnect the connection.

The UE transmits an RRC CONNECTION RELEASE COMPLETE message using unacknowledged mode

Wait 10s to allow UE to activate logging.

The UE transmits an RRC CONNECTION REQUEST message to SS.

SS transmits an RRC CONNECTION SETUP message to the UE.

The UE transmits an RRC CONNECTION SETUP COMPLETE message to SS, and enters CELL_DCH state.

SS transmits a LOGGING MEASUREMENT CONFIGURATION message to the UE to configure logged measurements.

SS transmits a UE INFORMATION REQUEST message, and the IE "Logged Measurements Report Request" is present.

The UE shall transmit a UE INFORMATION REPONSE message, without IE “Logged Meas Report ".

SS transmits an RRC CONNECTION RELEASE message to the UE to disconnect the connection.

The UE transmits an RRC CONNECTION RELEASE COMPLETE message using unacknowledged mode

Wait 10s to allow UE to activate logging.

The UE transmits an RRC CONNECTION REQUEST message to SS.

SS transmits an RRC CONNECTION SETUP message to the UE.

The UE transmits an RRC CONNECTION SETUP COMPLETE message to SS, and enters CELL_DCH state.

SS transmits a UE INFORMATION REQUEST message, and the IE "Logged Measurements Report Request" is present.

The UE shall transmit a UE INFORMATION REPONSE message, without IE “Logged Meas Report” based on the message LOGGING MEASUREMENT CONFIGURATION in step 1.

SS transmits an RRC CONNECTION RELEASE message to the UE to disconnect the connection.

The UE transmits an RRC CONNECTION RELEASE COMPLETE message using unacknowledged mode.

Wait 10s to allow UE to activate logging.

The UE is switched off, or detaches from the network.

The UE is switched on, or attaches to the network.

The UE registered on the network.

Wait 10s

The UE transmits an RRC CONNECTION REQUEST message to SS.

SS transmits an RRC CONNECTION SETUP message to the UE.

The UE transmits an RRC CONNECTION SETUP COMPLETE message to SS, and without IE "Logged Meas Available"

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		LOGGING MEASUREMENT CONFIGURATION	Include IE “Logged Measurements Configuration Info”, with “Logging Interval” set as 2.56s and “Logging Duration” set as 10min.
2	←		RRC CONNECTION RELEASE	
3	→		RRC CONNECTION RELEASE COMPLETE	
4				Wait 10s to allow UE to activate logging.
5	→		RRC CONNECTION REQUEST	By outgoing call operation.
6	←		RRC CONNECTION SETUP	
7	→		RRC CONNECTION SETUP COMPLETE	
8	←		LOGGING MEASUREMENT CONFIGURATION	Include IE “Logged Measurements Configuration Info”, with “Logging Interval” set as 2.56s and “Logging Duration” set as 10min.
9	←		UE INFORMATION REQUEST	SS transmits a UE INFORMATION REQUEST message with IE "Logged Measurements Report Request" set to “true”.
10	→		UE INFORMATION RESPONSE	The UE shall send a UE INFORMATION RESPONSE message, without IE “Logged Meas Report”.
11	←		RRC CONNECTION RELEASE	The IE "RRC state indicator" is set to "URA_PCH".

Step	Direction		Message	Comment
	UE	SS		
12	→		RRC CONNECTION RELEASE COMPLETE	The UE sends this message before it completes state transition.
13				Wait 10s to allow UE to activate logging.
14	→		RRC CONNECTION REQUEST	By outgoing call operation.
15	←		RRC CONNECTION SETUP	
16	→		RRC CONNECTION SETUP COMPLETE	
17	←		UE INFORMATION REQUEST	SS transmits a UE INFORMATION REQUEST message with IE "Logged Measurements Report Request" set to “true”.
18	→		UE INFORMATION RESPONSE	The UE shall send a UE INFORMATION RESPONSE message, with IE “Logged Meas Report” present. And the IE “Logged Meas Report” does not include logged measurement reports based on the message LOGGING MEASUREMENT CONFIGURATION in step 1.
19	←		RRC CONNECTION RELEASE	
20	→		RRC CONNECTION RELEASE COMPLETE	
21				Wait 10s to allow UE to activate logging.
22				The UE is powered down or switched off and initiates a deattach.
23				The UE is powered up or switched on and initiates an attach.
24-36				Steps 1 to 13 of the generic test procedure in TS 34.108 subclause 7.2.2.2.3 are performed to complete the registration on the network.
37				Wait 10s to allow UE to activate logging.
38	→		RRC CONNECTION REQUEST	
39	←		RRC CONNECTION SETUP	
40	→		RRC CONNECTION SETUP COMPLETE	The UE shall transmit a RRC CONNECTION SETUP COMPLETE message, without IE “Logged Meas Available”.

Specific Message Contents

All messages have the same content as defined in 34.108 clause 9 with the following exceptions:

LOGGING MEASUREMENT CONFIGURATION (Step 1 and 8)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.

Logged ANR configuration Info	
- Absolute Time Info	Set to value corresponding to the absolute time when the message is sent
- Logging Duration	10 min
- Logging Interval	2.59
- Trace reference	
- PLMN Identity	Same as MIB
- Trace ID	'0EF'H
-Trace recording session	'1A'H
- TCE Id	'5'H
- CHOICE Area Configuration	Not present

UE INFORMATION REQUEST (Steps 9 and 17)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged Measurements Report Request	TRUE
Logged ANR Report Request	Not Present

UE INFORMATION RESPONSE (Step 10)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged Meas Report	Not present

UE INFORMATION RESPONSE (FDD) (Step 18)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged Meas Report	
- Absolute Time Info	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 8
- Trace reference	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 8
- Trace recording session	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 8
- TCE Id	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 8
- CHOICE mode	FDD
- List of measurements FDD	At least 1 entry where at least one entry complies to entry with index 'x' below.
- Logged Measurement Info-FDD[x]	
- Relative Time Stamp[x]	Not checked
- Logged Measurements Serving Cell[x]	
- Cell ID[x]	Cell 1

Information Element	Value/remark
- Primary CCPCH RSCP[x]	(0..91)
- CPICH Ec/N0	(0..49)
- Logged Measurements Intra Frequency list[x]	Only 1 intra Frequency cell
- Primary CPICH info	Set to the scrambling code for cell 2
- CPICH RSCP	(0..91)
- CPICH Ec/N0	(0..49)
- Logged Meas Available	Not checked

UE INFORMATION RESPONSE (TDD) (Step 18)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged Meas Report	
- Absolute Time Info	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 8
- Trace reference	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 8
- Trace recording session	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 8
- TCE Id	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 8
- CHOICE mode	TDD
- List of measurements TDD	At least 1 entry where at least one entry complies to entry with index 'x' below.
- Logged Measurement Info-TDD[x]	
- Relative Time Stamp[x]	Not checked
- Logged Measurements Serving Cell[x]	
- Cell ID	Cell 1
- Primary CCPCH RSCP	(0..91)
- Logged Measurements Intra Frequency list[x]	Only 1 intra Frequency cell
- Cell parameters Id	Cell parameter Id of Cell 2
- Primary CCPCH RSCP	(0..91)
- Logged Meas Available	Not checked

RRC CONNECTION SETUP COMPLETE (step 40)

Information Element	Value/remark
Message Type	
RRC transaction identifier	The value of this IE is checked to see that it matches the value of the same IE transmitted in the downlink RRC CONNECTION SETUP message.
Logged Meas Available	Not present

8.6.2.6.5 Test requirement

At step 10, the UE shall send a UE INFORMATION RESPONSE message, without IE "Logged Meas Report" (TP1).

At step18, the UE shall send a UE INFORMATION RESPONSE message, with IE "Logged Meas Report". And the IE "Logged Meas Report" does not include logged measurement reports based on the message LOGGING MEASUREMENT CONFIGURATION in step 1. (TP1).

At step 40, the UE shall transmit a RRC CONNECTION SETUP COMPLETE message, without IE "Logged Meas Available" (TP2).

8.6.2.7 Logged MDT / Maintaining logged measurement configuration / UE state transitions and mobility

8.6.2.7.1 Definition

8.6.2.7.2 Conformance requirement

[TS 25.304, clause 5.7 (TP1, TP2, TP3, TP4)]

The UE may be configured to perform logging of measurement results in idle mode, CELL_PCH and URA_PCH state with LOGGING MEASUREMENT CONFIGURATION message specified in TS 25.331 [4]. This configuration is valid while the logging duration timer is running.

If the configuration of logged measurements is valid, the UE shall perform logging of measurement results if all of the following conditions are met:

- the UE is in *camped normally* state in idle mode, CELL_PCH or URA_PCH state;
- RPLMN of the UE is the same as the RPLMN at the point of time of LOGGING MEASUREMENT CONFIGURATION message reception
- the UE is camped on a cell belonging to Area Configuration (see TS 25.331 [4]), if configured;
- the UE is camped on the RAT where the logged measurement configuration was received.

Otherwise, the logging of measurement results shall be suspended.

NOTE: Even if logging of measurement results is suspended, the logging duration timer and time stamp will continue, and the logged measurement configuration and corresponding log are kept.

[TS 25.331, clause 8.5.65.2 (TP2, TP3, TP4)]

While T326 is running, the UE shall:

1> perform this logging in accordance with the following:

2> perform the logging while camping normally on an UTRA cell and the RPLMN of the UE is the same as the PLMN Identity stored in LOGGED_MEAS_REPORT_VARIABLE and, if the IE "Area Configuration" is present in variable LOGGED_MEAS_CONFIG, that is part of the concerned area;

2> perform the logging at regular intervals, as defined by the IE "Logging Interval" in variable LOGGED_MEAS_CONFIG;

2> when adding a logged measurement entry in variable LOGGED_MEAS_REPORT_VARIABLE, include the fields in accordance with the following:

3> set the IE "Relative Time Stamp" to indicate time relative to the moment at which the logged measurement configuration was received;

3> if GNSS location information became available during the last logging interval:

4> if the UE has been able to calculate a 3-dimensional position:

5> set IE "Ellipsoid point with altitude" to include the location coordinates;

4>else:

5> set IE "Ellipsoid point" to include the location coordinates:

3> set the IE "Cell ID" to indicate cell identity of the cell the UE is camping on obtained from system information;

3> set the IE "CPICH Ec/N0" and "CPICH RSCP" to include measured quantities of the cell that the UE is camping on for UTRA FDD;

3> set the "P-CCPCH RSCP" to include measured quantities for the cell that the UE is camping on for UTRA 1.28 Mcps TDD;

3> set the IE "Logged Measurements Intra Frequency Neighbouring Cells list", "Logged Measurements Inter Frequency list", "Logged Measurements E-UTRA frequency list", in order of decreasing ranking quantity as used for cell re-selection in each frequency for at most the following number of neighbouring cells; 6 intra-frequency and 3 inter-frequency neighbours per frequency as well as 3 inter-RAT neighbours, per frequency per RAT;

3> set the IE "Logged Measurements GSM Neighbouring Cells list" in order of decreasing RXLEV.

NOTE: The UE includes, only once, the latest available results of the measurement performed for cell reselection, which are performed in accordance with the regular performance requirements as specified in [19].

2> when the memory reserved for the logging of measurements becomes full, stop timer T326 and performs the same actions as performed upon expiry of T326, as specified in 8.5.63.4.

[TS 25.331, clause 13.4.48 (TP2, TP3, TP4)]

This variable contains parameters related to Logged Measurements. This variable shall not be deleted upon transition to idle mode and when the UE moves to another RAT.

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Logged Measurements Configuration Info	MP		Logged Measurements Configuration Info 10.3.7.132		REL-10

[TS 25.331, clause 13.4.49 (TP2, TP3, TP4)]

This variable includes the logged measurements information. This variable shall not be deleted upon transition to Idle mode and when the UE moves to another RAT. The UE shall store the logged measurements during 48 hours after expiry of the timer T326.

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Trace reference	MP		Trace Reference 10.3.7.133	Parameter trace reference: See TS 32.422 [81]	REL-10
Trace recording session	MP		Trace Recording Session 10.3.7.134	Parameter trace recording session reference: See TS 32.422 [81]	REL-10
TCE Id	MP		TCE Id 10.3.7.135	Parameter TCE Id: See TS 32.422 [81]	REL-10
PLMN Identity	MP		PLMN identity 10.3.1.11		REL-10
Absolute Time Info	MP		Bit Sting (48)	Indicates the reference to network absolute time *absoluteTimeInfo* provided at the point of measurement logging configuration. Format is YY-MM-DD HH:MM:SS using BCD encoding	REL-10

CHOICE mode	MP				REL-10
>FDD					REL-10
>>List of measurements FDD		0..MaxLoggedMeas			REL-10
>>>Logged Measurement Info-FDD	MP		Logged Measurement Info-FDD 10.3.7.129		REL-10
>TDD					REL-10
>>List of measurements TDD		0..MaxLoggedMeas			REL-10
>>>Logged Measurement Info-TDD	MP		Logged Measurement Info-TDD 10.3.7.130		REL-10

Reference

TS25.304 clause 5.7 and TS 25.331 clauses 8.5.65.2, 13.4.48, 13.4.49

8.6.2.7.3 Test Purpose

1. Verify that UE is not indicating availability of Logged MDT measurements when UE has moved to a non MDT PLMN cell
2. Verify that logged measurement configurations and logs are maintained despite periods of interruptions due to UE transitions to CELL_FACH or CELL_DCH
3. Verify that logged measurement configurations and logs are maintained despite periods of interruptions due to UE change to a non MDT PLMN cell
4. Verify that logging is stopped (but duration timer is kept running) when UE changes from "camp normally" state to "any cell selection" or "camp on any cell" states and resumes logging when returning to "camp normally" state

8.6.2.7.4 Method of test

Initial Condition

System Simulator: 2 cells, Cell 1 and Cell 2.

UE: PS-DCCH+DTCH_DCH (state 6-10) in Cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.6.2.7 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Column marked "T0" denotes the initial condition. Subsequent configurations marked “T1”, “T2”, “T3”and “T4” are applied at the points indicated described in the texts in this clause.

Table 8.6.2.7

	Parameter	Unit	Cell 1	Cell 2	Cell 3
	UTRA RF Channel Number		Mid Range Test Frequency	Mid Range Test Frequency	Mid Range Test Frequency
	PLMN		PLMN 1	PLMN 2	PLMN 1
T0	CPICH Ec (FDD)	dBm/3.84MHz	-60	Off	Off
	P-CCPCH RSCP (TDD)	dBm	-60	Off	Off
T1	CPICH Ec (FDD)	dBm/3.84MHz	-69	-60	Off

	P-CCPCH RSCP (TDD)	dBm	-69	-60	Off
T2	CPICH Ec (FDD)	dBm/3.84MHz	Off	-69	-60
	P-CCPCH RSCP (TDD)	dBm	Off	-69	-60
T3	CPICH Ec (FDD)	dBm/3.84MHz	Off	Off	Off
	P-CCPCH RSCP (TDD)	dBm	Off	Off	Off
T4	CPICH Ec (FDD)	dBm/3.84MHz	Off	Off	-60
	P-CCPCH RSCP (TDD)	dBm	Off	Off	-60

The UE is in CELL_DCH state of cell 1. SS transmits a LOGGING MEASUREMENT CONFIGURATION message to the UE to configure logged measurements.

SS transmits an RRC CONNECTION RELEASE message to the UE to disconnect the connection.

The UE transmits an RRC CONNECTION RELEASE COMPLETE message using unacknowledged mode

Wait 10s to allow UE to activate logging.

SS configures its downlink transmission power settings according to columns "T1" in table 8.6.2.7.

When the UE detects the presence of cell 2, it moves to CELL_FACH state and transmits a CELL UPDATE message without IE "Logged Meas Available".

Upon reception of CELL_UPDATE message, SS replies with a CELL UPDATE CONFIRM message, the IE "RRC State Indicator" set to "CELL_PCH".

Wait 10s to allow UE to activate logging.

SS configures its downlink transmission power settings according to columns "T2" in table 8.6.2.7.

When the UE detects the presence of cell 3, it moves to CELL_FACH state and transmits a CELL UPDATE message with IE "Logged Meas Available".

Upon reception of CELL_UPDATE message, SS replies with a CELL UPDATE CONFIRM message.

SS transmits an RRC CONNECTION RELEASE message to the UE to disconnect the connection.

The UE transmits an RRC CONNECTION RELEASE COMPLETE message using unacknowledged mode.

Wait 10s to allow UE to activate logging.

The UE transmits an RRC CONNECTION REQUEST message to SS.

SS transmits an RRC CONNECTION SETUP message to the UE.

The UE transmits an RRC CONNECTION SETUP COMPLETE message to SS, and enters CELL_DCH state.

SS transmits a UE INFORMATION REQUEST message, and the IE "Logged Measurements Report Request" is present.

The UE shall transmit a UE INFORMATION REPONSE message, with IE "Logged Meas Report" including logged report of Cell 1 and Cell 3.

SS transmits an RRC CONNECTION RELEASE message to the UE to disconnect the connection.

The UE transmits an RRC CONNECTION RELEASE COMPLETE message using unacknowledged mode

Wait 10s to allow UE to activate logging.

SS configures its downlink transmission power settings according to columns "T3" in table 8.6.2.7.

Wait 30s.

SS configures its downlink transmission power settings according to columns "T4" in table 8.6.2.7.

Wait 10s to allow UE to activate logging.

The UE transmits an RRC CONNECTION REQUEST message to SS.

SS transmits an RRC CONNECTION SETUP message to the UE.

The UE transmits an RRC CONNECTION SETUP COMPLETE message to SS, and enters CELL_DCH state.

SS transmits a UE INFORMATION REQUEST message, and the IE "Logged Measurements Report Request" is present.

The UE shall transmit a UE INFORMATION REPONSE message, with IE “Logged Meas Report” of Cell 2.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		LOGGING MEASUREMENT CONFIGURATION	Include IE “Logged Measurements Configuration Info”, with “Logging Interval” set as 2.56s and “Logging Duration” set as 10min.
2	←		PHYSICAL CHANNEL RECONFIGURATION	The IE "RRC state indicator" is set to "CELL_PCH".
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE sends this message before it completes state transition.
4				Wait 10s to allow UE to activate logging.
5				SS configures its downlink transmission power settings according to columns "T1" in table 8.6.2.7.
6	→		CELL UPDATE	The UE moves to CELL_FACH state and transmits this message without the IE "Logged Meas Available" on Cell 2.
7	←		CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_PCH".
8				Wait 10s to allow UE to activate logging.
9				SS configures its downlink transmission power settings according to columns "T2" in table 8.6.2.7.
10	→		CELL UPDATE	The UE moves to CELL_FACH state and transmits this message with the IE "Logged Meas Available" on Cell 3.
11	←		CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_DCH".
12	←		RRC CONNECTION RELEASE	
13	→		RRC CONNECTION RELEASE COMPLETE	The UE sends this message before it completes state transition.
14				Wait 10s to allow UE to activate logging.

Step	Direction		Message	Comment
	UE	SS		
15	→		RRC CONNECTION REQUEST	By outgoing call operation.
16	←		RRC CONNECTION SETUP	
17	→		RRC CONNECTION SETUP COMPLETE	
18	←		UE INFORMATION REQUEST	SS transmits a UE INFORMATION REQUEST message with IE "Logged Measurements Report Request" set to “true”.
19	→		UE INFORMATION RESPONSE	The UE shall send a UE INFORMATION RESPONSE message, with IE “Logged Meas Report” including logged report of Cell1 and Cell 3.
20				Wait 10s to allow UE to activate logging.
21				SS configures its downlink transmission power settings according to columns "T3" in table 8.6.2.7.
22				Wait 30s to allow UE to activate logging.
23				SS configures its downlink transmission power settings according to columns "T4" in table 8.6.2.7.
24				Wait 10s to allow UE to activate logging.
25	→		RRC CONNECTION REQUEST	By outgoing call operation.
26	←		RRC CONNECTION SETUP	
27	→		RRC CONNECTION SETUP COMPLETE	
28	←		UE INFORMATION REQUEST	SS transmits a UE INFORMATION REQUEST message with IE "Logged Measurements Report Request" set to “true”.
29	→		UE INFORMATION RESPONSE	The UE shall send a UE INFORMATION RESPONSE message, with IE “Logged Meas Report” including logged report of Cell 3.

Specific Message Contents

All messages have the same content as defined in 34.108 clause 9 with the following exceptions:

LOGGING MEASUREMENT CONFIGURATION (Step 1)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.

Logged ANR configuration Info	
- Absolute Time Info	Set to value corresponding to the absolute time when the message is sent
- Logging Duration	10 min
- Logging Interval	2.59
- Trace reference	
- PLMN Identity	Same as MIB
- Trace ID	'0EF'H
-Trace recording session	'1A'H
- TCE Id	'5'H
- CHOICE Area Configuration	Not present

CELL UPDATE (Steps 6 and 10)

Use the message sub-type in default message content defined in 3GPP TS 34.108 [9] clause 9, with the following exceptions.

Information Element	Value/remark
Cell Update Cause	'Cell Re-selection'
Logged Meas Available	Not present

UE INFORMATION REQUEST (Step 18 and 28)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged Measurements Report Request	TRUE
Logged ANR Report Request	Not Present

UE INFORMATION RESPONSE (FDD) (Step 19)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged Meas Report	
- Absolute Time Info	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace reference	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace recording session	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- TCE Id	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- CHOICE mode	FDD
- List of measurements FDD	At least one entry complies to entry with index 'x' below for cell 1 and at least one entry complies to entry with index 'y' below for cell 3.
- Logged Measurement Info-FDD[x]	
- Relative Time Stamp[x]	Not checked
- Logged Measurements Serving Cell[x]	
- Cell ID	Cell 1
- Primary CCPCH RSCP	(0..91)
- CPICH Ec/N0	(0..49)

Information Element	Value/remark
- Logged Measurement Info-FDD[y]	
- Relative Time Stamp[y]	Not checked
- Logged Measurements Serving Cell[y]	
- Cell ID	Cell 3
- Primary CCPCH RSCP	(0..91)
- CPICH Ec/N0	(0..49)
- Logged Meas Available	Not checked

UE INFORMATION RESPONSE (TDD) (Step 19)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged Meas Report	
- Absolute Time Info	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace reference	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace recording session	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- TCE Id	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- CHOICE mode	TDD
- List of measurements TDD	At least one entry complies to entry with index ‘x’ below for cell 1 and at least one entry complies to entry with index ‘y’ below for cell 3.
- Logged Measurement Info-TDD[x]	
- Relative Time Stamp[x]	Not checked
- Logged Measurements Serving Cell[x]	
- Cell ID	Cell 1
- Primary CCPCH RSCP	(0..91)
- Logged Measurement Info-TDD[y]	
- Relative Time Stamp[y]	Not checked
- Logged Measurements Serving Cell[y]	
- Cell ID	Cell 3
- Primary CCPCH RSCP	(0..91)
- Logged Meas Available	Not checked

UE INFORMATION RESPONSE (FDD) (Step 29)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged Meas Report	
- Absolute Time Info	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace reference	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace recording session	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- TCE Id	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- CHOICE mode	FDD
- List of measurements FDD	At least one entry complies to entry with index ‘x’ below for cell 3 and the number of entries shall no more than 20/2.56.

Information Element	Value/remark
- Logged Measurement Info-FDD[x]	
- Relative Time Stamp[x]	Not checked
- Logged Measurements Serving Cell[x]	
- Cell ID	Cell 3
- Primary CCPCH RSCP	(0..91)
- CPICH Ec/N0	(0..49)
- Logged Meas Available	Not checked

UE INFORMATION RESPONSE (TDD) (Step 29)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC message sequence number	SS provides the value of this IE, from its internal counter.
Logged Meas Report	
- Absolute Time Info	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace reference	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- Trace recording session	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- TCE Id	Same value as sent by SS in LOGGING MEASUREMENT CONFIGURATION in step 1
- CHOICE mode	TDD
- List of measurements TDD	At least one entry complies to entry with index ‘x’ below for cell 3 and the number of entries shall no more than 20/2.56.
- Logged Measurement Info-TDD[x]	
- Relative Time Stamp[x]	Not checked
- Logged Measurements Serving Cell[x]	
- Cell ID	Cell 3
- Primary CCPCH RSCP	(0..91)
- Logged Meas Available	Not checked

8.6.2.7.5 Test requirement

At step 6, the UE shall transmit a CELL UPDATE message without the IE "Logged Meas Available" on Cell 2 (TP1).

At step 10, the UE shall transmit a CELL UPDATE message without the IE "Logged Meas Available" on Cell 3 (TP3).

At step 19, the UE shall transmit a UE INFORMATION RESPONSE message, with IE “Logged Meas Report” including logged report of Cell1 and Cell 3 (TP2).

At step 29, the UE shall transmit a UE INFORMATION RESPONSE message, with IE “Logged Meas Report” including logged report of Cell 3. And the number of entries in the List of measurements FDD or TDD shall be no more than the expected logged measurement result entries within 20 seconds of logging periods (TP4).

8.7 Automatic Neighbour Relation (ANR) for UTRAN

8.7.1 Intra-UTRAN

8.7.1.1 Intra-UTRA / Intra-frequency ANR measurement, logging and reporting in IDLE Mode / RSCP Absolute Threshold (FDD)

8.7.1.1.1 Definition and applicability

All UEs supporting UTRAN ANR measurements.

8.7.1.1.2 Conformance requirement

[TS 25.304, clause 5.8.1 (TP3)]

The UE may be configured to perform UTRAN ANR measurement and logging in IDLE mode, CELL_PCH and URA_PCH state with Logging Measurement Configuration message as specified in [4]. If configured, the UE will

- perform measurements and evaluation on the cells which are not included in the neighbour cell list in IDLE mode, CELL_PCH and URA_PCH state.
- log information of the detected cells meeting the logging rules as specified in [4].

[TS 25.304, clause 5.8.2.1 (TP4)]

If configured via the Logging Measurement Configuration message, the UE may perform intra-freq and inter-freq ANR measurements and logging only when:

- in IDLE mode, CELL_PCH and URA_PCH state.
- the UE is camping normally on a UTRAN cell belonging to the PLMN or the list of Equivalent PLMNs where the Logging Measurement Configuration is received.

During the intra-freq and inter-freq ANR process, the UE may measure on the frequencies associated with the cells listed in the neighbour cell list and log corresponding information of the detected set cells as specified in TS 25.331 [4].

[TS 25.306, clause 4.15 (TP1)]

Support of UTRAN ANR

Defines whether the UE supports measurement and logging in Idle mode, CELL_PCH and URA_PCH states for Automatic Neighbour Relation (ANR) in UTRAN.

[TS 25.331, clause 7.2.1 (TP4)]

The UE shall perform ANR measurements and logging as specified in [4], when logged ANR measurement is configured.

[TS 25.331, clause 8.1.3.6 (TP5)]

...

1> submit an RRC CONNECTION SETUP COMPLETE message to the lower layers on the uplink DCCH after successful state transition per subclause 8.6.3.3, with the contents set as specified below:

...

2> if an IE "Logged ANR Report Info" in variable LOG_ ANR_REPORT_VARIABLE is present and the registered PLMN is the same as one of the PLMNs in the IE "PLMN Identity" or IE "Equivalent PLMN Identity List" stored in variable LOG_ANR_REPORT_VARIABLE:

3> include IE "ANR Logging Results Available".

...

[TS 25.331, clause 8.5.63.3 (TP2)]

Upon receiving the LOGGING MEASUREMENT CONFIGURATION message the UE shall:

...

1> if IE "Logged ANR configuration Info" is present:

2> if variable LOG_ANR_CONFIG was already stored, discard the existing logged measurement configuration for ANR purpose as well as the associated logged measurement information as specified in 8.5.68;

2> store the received IEs in the IE "Logged ANR configuration Info" in variable LOG_ANR_CONFIG;

2> store the current Registered PLMN in the IE "PLMN Identity" in variable LOG_ANR_REPORT_VARIABLE;

2> store the list of Equivalent PLMNs in the IE "Equivalent PLMN Identity List" in variable LOG_ANR_REPORT_VARIABLE;

2> start timer T327 with the timer value set to the IE "Logging Duration" included in IE "Logged ANR configuration Info".

...

[TS 25.331, clause 8.5.64.3 (TP6)]

UE Shall:

...

1> if IE "Logged ANR Report Request" is present:

2> if Registered PLMN is the same as one of the PLMNs in the IE "PLMN Identity" or IE "Equivalent PLMN Identity List" stored in variable LOG_ANR_REPORT_VARIABLE:

3> if IE "Logged ANR Report Info" in variable LOG_ANR_REPORT_VARIABLE is present:

4> set IEs "Logged ANR Report Info" in the UE INFORMATION RESPONSE as follows:

5> include the IEs "Logged ANR Report Info List" and set it to include entries from LOG_ANR_REPORT_VARIABLE;

5> clear the logged measurement results included in the list of IEs "Logged ANR Report Info List" from the LOG_ANR_REPORT_VARIABLE;

5> clear the variable LOG_ANR_CONFIG and stop timer T327.

2> transmit a UE INFORMATION RESPONSE message on the uplink DCCH using AM RLC.

[TS 25.331, clause 8.5.67 (TP4)]

When in idle mode, CELL_PCH or URA_PCH state and Logged Measurements for ANR has been configured, the UE shall:

1> Store the available measurements according to the logged measurements configuration in variable LOG_ANR_CONFIG as specified in subclause 8.5.67.2.

[TS 25.331, clause 8.5.67.2 (TP3, TP4)]

While T327 is running, the UE shall:

1> perform the ANR measurements and evaluation on UTRAN, E-UTRAN or GERAN cells in accordance with the following:

2> if IE "Intra-UTRA ANR" is included in variable LOG_ANR_CONFIG:

3> if the UE camps normally on an UTRA cell (serving) that is part of the PLMN which is the same as one of the PLMNs in the IE "PLMN Identity" or IE "Equivalent PLMN Identity List" stored in variable LOG_ANR_REPORT_VARIABLE; and

3> if the serving cell and UTRA cell, not included in the neighbour cell list, together have not earlier been stored by UE in an entry of "Logged ANR Report Info" in the LOG_ANR_REPORT_VARIABLE; and

3> if the quality of the UTRA cell, not included in the neighbour cell list, exceeds the quality of the serving cell with more than the value of "Logging Relative Threshold", if this IE is present in the Logging Measurement Configuration message; and

3> if the quality of UTRA cell, not included in the neighbour cell list, is above the value of "Absolute Threshold"; and

3> if both the camping UTRAN cell and UTRA cell, not included in the neighbour cell list, are not CSG cells:

4> log the ANR information into the variable LOG_ANR_REPORT_VARIABLE as follows:

5> set the IEs "Serving PLMN Identity" and "Serving Cell" to indicate cell identity of the cell the UE is camping on;

5> try to acquire the corresponding system information of the UTRA cell and set to the variable LOG_ANR_REPORT_VARIABLE as follows:

6> set the IE "Cell Identity" to indicate cell identity of this UTRA cell;

6> set the IE "PLMN Identity" to indicate the Primary PLMN which this UTRA cell belongs to;

6> set the IE "UARFCN" and "Cell parameter ID" for a TDD cell or "Primary Scrambling Code" for a FDD cell.

...

[TS 25.331, clause 8.6.3.12 (TP1)]

If the IE "Capability Update Requirement" is included the UE shall:

1> if the IE "UE radio access FDD capability update requirement" has the value TRUE:

2> if the UE supports FDD mode:

3> store its UTRA FDD capabilities and its UTRA capabilities common to FDD and TDD in the IE "UE radio access capability" and the IE "UE radio access capability extension" in variable UE_CAPABILITY_REQUESTED as specified below:

…

1> if the IE "UE radio access 3.84 Mcps TDD capability update requirement" has the value TRUE:

2> if the UE supports 3.84 Mcps TDD mode:

3> store its UTRAN-specific 3.84 Mcps TDD capabilities and its UTRAN–specific capabilities common to FDD and TDD in the variable UE_CAPABILITY_REQUESTED.

1> if the IE "UE radio access 7.68 Mcps TDD capability update requirement" has the value TRUE:

2> if the UE supports 7.68 Mcps TDD mode:

3> store its UTRAN-specific 7.68 Mcps TDD capabilities and its UTRAN–specific capabilities common to FDD and TDD in the variable UE_CAPABILITY_REQUESTED.

1> if the IE "UE radio access 1.28 Mcps TDD capability update requirement" has the value TRUE:

2> if the UE supports 1.28 Mcps TDD mode:

3> store its UTRAN-specific 1.28 Mcps TDD capabilities and its UTRAN–specific capabilities common to FDD and TDD in the variable UE_CAPABILITY_REQUESTED;

…

Reference

3GPP TS 25.304 clauses 5.8.1, 5.8.2.1; 3GPP TS 25.306 clause 4.15; 3GPP TS 25.331 clauses 7.2.1, 8.1.3.6, 8.5.63.3, 8.5.64.3, 8.5.67, 8.5.67.2, 8.6.3.12

8.7.1.1.3 Test purpose

1. Verify that UE signals capability "Support of UTRAN ANR".
2. To verify that the UE correctly reads “Logged ANR configuration Info” in LOGGING MEASUREMENT CONFIGURATION message for Intra-UTRA ANR case when Absolute Threshold for RSCP is configured.
3. To verify that the UE trigger and performs ANR measurements on a cell not included in the neighbour cell list when RSCP is configured as Absolute Threshold and UE measured RSCP of the cell exceeds the Absolute Threshold.
4. To verify that the UE performs Intra-frequency ANR measurement in IDLE mode on a cell not listed in the broadcasted intra-frequency cell info list.
5. To verify that the UE includes IE “ANR Logging Results Available” in RRC CONNECTION SETUP message.
6. To verify UE reporting of ANR logged data for UTRA cell.

8.7.1.1.4 Method of test

Initial Condition

System Simulator: 3 FDD cells – cell 1, cell 2 and cell 3 are active.

SYSTEM INFORMATION BLOCK TYPE 11 of Cell 1: See specific message contents.

NOTE: Cell 2 is listed as intra-frequency neighbour cell. Cell 3 is not included in the intra-frequency or inter-frequency cell info lists.

SS sets the test parameter T_{wait} to the value of PIXIT ‘Px_AnrForUtranMeasLogWaitTime’.

UE: CELL_DCH (state 6-9) in cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.7.1.1-1

Parameter	Unit	Cell 1	Cell 2	Cell 3
UTRA RF Channel Number		Mid Range Test Frequency	Mid Range Test Frequency	Mid Range Test Frequency
CPICH Ec (FDD)	dBm/3.84MHz	-60	-70	-70
Note: Cell 2 and Cell 3 power levels are set to make UE measured RSCP to exceed the configured RSCP absolute threshold (-100 dBm).				

Table 8.7.1.2-1 illustrates the downlink power to be applied for the 3 cells.

The UE is initially brought to CELL_DCH state in Cell 1. The system information block 11 message transmitted in Cell 1 does not list Cell 3 in the intra- or inter-frequency cell info lists.

The SS transmits a UE CAPABILITY ENQUIRY message and checks that UE respond with a UE CAPABILITY INFORMATION message indicating that UE supports UTRAN ANR.

The SS configures UE to perform intra-UTRA ANR measurements triggered by RSCP absolute threshold by sending a LOGGING MEASUREMENT CONFIGURATION message to the UE.

The SS release the RRC connection and UE enters IDLE mode state. The SS waits T_{wait} seconds to allow UE to perform logging of ANR measurements of Cell 3.

The SS page the UE to establish an RRC connection. The SS checks that the UE includes the IE “ANR Logging Results Available” in the RRC CONNECTION SETUP COMPLETE message.

The SS transmits a UE INFORMATION REQUEST message to retrieve the ANR logging measurements from the UE. The UE respond by a UE INFORMATION RESPONSE message including logged ANR measurements, The SS checks the logged ANR report in the UE INFORMATION RESPONSE message includes an ANR measurement for Cell 3 (not in neighbour cell info list for Cell 1), but not for Cell 2 (in neighbour cell info list for Cell 1).

Expected Sequence

Specific Message Contents

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_DCH state in Cell 1
2	←		UE CAPABILITY ENQUIRY	
3	→		UE CAPABILITY INFORMATION	SS checks that IE “Support of UTRAN ANR” is indicated
4	←		UE CAPABILITY INFORMATION CONFIRM	
5	←		LOGGING MEASUREMENT CONFIGURATION	SS transmits this message in Cell 1 on downlink DCCH using AM RLC configuring the UE to perform Intra-frequency ANR measurements.
6	←		RRC CONNECTION RELEASE	
7	→		RRC CONNECTION RELEASE COMPLETE	UE moves to IDLE mode state in Cell 1.
8	SS			Waiting for T_{wait} seconds to allow UE to activate ANR logging in IDLE mode state.
9	←		PAGING TYPE1	
10	→		RRC CONNECTION REQUEST	
11	←		RRC CONNECTION SETUP	
12	→		RRC CONNECTION SETUP COMPLETE	SS checks that the IE “ANR Logging Results Available” is included
13	←		UE INFORMATION REQUEST	
14	→		UE INFORMATION RESPONSE	SS checks that the "Logged ANR Report Info List" includes an ANR measurement for Cell 3, but not for Cell 2

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 11

Use same message sub-clause 6.1 of TS 34.108, with the exception of that cell 2 is listed as intra-frequency neighbour cell and that cell 3 is not listed as intra-frequency neighbour cell for cell 1.

UE CAPABILITY INFORMATION (Step 3)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark
UE radio access capability	Check that IE “Support of UTRAN ANR” is present (TRUE).

LOGGING MEASUREMENT CONFIGURATION (Step 5)

Use the LOGGING MEASUREMENT CONFIGURATION message as defined in [9] (TS 34.108) Clause 9 for condition A1 (RSCP Absolute Threshold = -100dBm).

RRC CONNECTION SETUP COMPLETE (Step 12)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark
ANR Logging Results Available	Check that IE is set to TRUE.

UE INFORMATION REQUEST (Step 13)

Use the UE INFORMATION REQUEST message as defined in [9] (TS 34.108) Clause 9 for condition A1 (requesting Logged ANR Report).

UE INFORMATION RESPONSE (Step 14)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark	Version
Logged ANR Report Info		Rel-10
- Serving PLMN Identity	Checked to see that it is identical to the PLMN identity of Cell 1	
- Serving Cell	Checked to see that it is identical to the Cell ID of Cell 1	
- CHOICE *logged cell info*	UTRAN	
- PLMN Identity	Checked to see that it is identical to the PLMN identify of Cell 3	
- Cell Identity	Checked to see that it is identical to the Cell ID of Cell 3	
- UARFCN	Checked to see that it is identical to the UARFCN of Cell 3	
- Cell parameter ID	This IE is checked to be present	

8.7.1.1.5 Test requirement

At step 3 the UE shall transmit a UE CAPABILITY INFORMATION message with the IE “Support of UTRAN ANR” is set to TRUE (TP1).

At step 12 the UE shall transmit a RRC CONNECTION SETUP COMPLETE message on uplink DCCH including the IE “ANR Logging Results Available” (TP5).

At step 14 the UE shall transmit a UE INFORMATION RESPONSE message including an ANR measurement for Cell 3 and no ANR measurement for Cell 2 (TP2,TP3,TP4,TP6).

8.7.1.1a Intra-UTRA / Intra-frequency ANR measurement, logging and reporting in IDLE Mode / RSCP Absolute Threshold (TDD)

8.7.1.1a.1 Definition and applicability

All UEs supporting UTRAN ANR measurements.

8.7.1.1a.2 Conformance requirement

[TS 25.304, clause 5.8.1 (TP3)]

The UE may be configured to perform UTRAN ANR measurement and logging in IDLE mode, CELL_PCH and URA_PCH state with Logging Measurement Configuration message as specified in [4]. If configured, the UE will

- perform measurements and evaluation on the cells which are not included in the neighbour cell list in IDLE mode, CELL_PCH and URA_PCH state.

- log information of the detected cells meeting the logging rules as specified in [4].

[TS 25.304, clause 5.8.2.1 (TP4)]

If configured via the Logging Measurement Configuration message, the UE may perform intra-freq and inter-freq ANR measurements and logging only when:

- in IDLE mode, CELL_PCH and URA_PCH state.

- the UE is camping normally on a UTRAN cell belonging to the PLMN or the list of Equivalent PLMNs where the Logging Measurement Configuration is received.

During the intra-freq and inter-freq ANR process, the UE may measure on the frequencies associated with the cells listed in the neighbour cell list and log corresponding information of the detected set cells as specified in TS 25.331 [4].

[TS 25.306, clause 4.15 (TP1)]

Support of UTRAN ANR

Defines whether the UE supports measurement and logging in Idle mode, CELL_PCH and URA_PCH states for Automatic Neighbour Relation (ANR) in UTRAN.

[TS 25.331, clause 7.2.1 (TP4)]

The UE shall perform ANR measurements and logging as specified in [4], when logged ANR measurement is configured.

[TS 25.331, clause 8.1.3.6 (TP5)]

...

1> submit an RRC CONNECTION SETUP COMPLETE message to the lower layers on the uplink DCCH after successful state transition per subclause 8.6.3.3, with the contents set as specified below:

...

2> if an IE "Logged ANR Report Info" in variable LOG_ ANR_REPORT_VARIABLE is present and the registered PLMN is the same as one of the PLMNs in the IE "PLMN Identity" or IE "Equivalent PLMN Identity List" stored in variable LOG_ANR_REPORT_VARIABLE:

3> include IE "ANR Logging Results Available".

...

[TS 25.331, clause 8.5.63.3 (TP2)]

Upon receiving the LOGGING MEASUREMENT CONFIGURATION message the UE shall:

...

1> if IE "Logged ANR configuration Info" is present:

2> if variable LOG_ANR_CONFIG was already stored, discard the existing logged measurement configuration for ANR purpose as well as the associated logged measurement information as specified in 8.5.68;

2> store the received IEs in the IE "Logged ANR configuration Info" in variable LOG_ANR_CONFIG;

2> store the current Registered PLMN in the IE "PLMN Identity" in variable LOG_ANR_REPORT_VARIABLE;

2> store the list of Equivalent PLMNs in the IE "Equivalent PLMN Identity List" in variable LOG_ANR_REPORT_VARIABLE;

2> start timer T327 with the timer value set to the IE "Logging Duration" included in IE "Logged ANR configuration Info".

...

[TS 25.331, clause 8.5.64.3 (TP6)]

UE Shall:

...

1> if IE "Logged ANR Report Request" is present:

2> if Registered PLMN is the same as one of the PLMNs in the IE "PLMN Identity" or IE "Equivalent PLMN Identity List" stored in variable LOG_ANR_REPORT_VARIABLE:

3> if IE "Logged ANR Report Info" in variable LOG_ANR_REPORT_VARIABLE is present:

4> set IEs "Logged ANR Report Info" in the UE INFORMATION RESPONSE as follows:

5> include the IEs "Logged ANR Report Info List" and set it to include entries from LOG_ANR_REPORT_VARIABLE;

5> clear the logged measurement results included in the list of IEs "Logged ANR Report Info List" from the LOG_ANR_REPORT_VARIABLE;

5> clear the variable LOG_ANR_CONFIG and stop timer T327.

2> transmit a UE INFORMATION RESPONSE message on the uplink DCCH using AM RLC.

[TS 25.331, clause 8.5.67 (TP4)]

When in idle mode, CELL_PCH or URA_PCH state and Logged Measurements for ANR has been configured, the UE shall:

1> Store the available measurements according to the logged measurements configuration in variable LOG_ANR_CONFIG as specified in subclause 8.5.67.2.

[TS 25.331, clause 8.5.67.2 (TP3,TP4)]

While T327 is running, the UE shall:

1> perform the ANR measurements and evaluation on UTRAN, E-UTRAN or GERAN cells in accordance with the following:

2> if IE "Intra-UTRA ANR" is included in variable LOG_ANR_CONFIG:

3> if the UE camps normally on an UTRA cell (serving) that is part of the PLMN which is the same as one of the PLMNs in the IE "PLMN Identity" or IE "Equivalent PLMN Identity List" stored in variable LOG_ANR_REPORT_VARIABLE; and

3> if the serving cell and UTRA cell, not included in the neighbour cell list, together have not earlier been stored by UE in an entry of "Logged ANR Report Info" in the LOG_ANR_REPORT_VARIABLE; and

3> if the quality of the UTRA cell, not included in the neighbour cell list, exceeds the quality of the serving cell with more than the value of "Logging Relative Threshold", if this IE is present in the Logging Measurement Configuration message; and

3> if the quality of UTRA cell, not included in the neighbour cell list, is above the value of "Absolute Threshold"; and

3> if both the camping UTRAN cell and UTRA cell, not included in the neighbour cell list, are not CSG cells:

4> log the ANR information into the variable LOG_ANR_REPORT_VARIABLE as follows:

5> set the IEs "Serving PLMN Identity" and "Serving Cell" to indicate cell identity of the cell the UE is camping on;

5> try to acquire the corresponding system information of the UTRA cell and set to the variable LOG_ANR_REPORT_VARIABLE as follows:

6> set the IE "Cell Identity" to indicate cell identity of this UTRA cell;

6> set the IE "PLMN Identity" to indicate the Primary PLMN which this UTRA cell belongs to;

6> set the IE "UARFCN" and "Cell parameter ID" for a TDD cell or "Primary Scrambling Code" for a FDD cell.

...

[TS 25.331, clause 8.6.3.12 (TP1)]

If the IE "Capability Update Requirement" is included the UE shall:

1> if the IE "UE radio access FDD capability update requirement" has the value TRUE:

2> if the UE supports FDD mode:

3> store its UTRA FDD capabilities and its UTRA capabilities common to FDD and TDD in the IE "UE radio access capability" and the IE "UE radio access capability extension" in variable UE_CAPABILITY_REQUESTED as specified below:

…

1> if the IE "UE radio access 3.84 Mcps TDD capability update requirement" has the value TRUE:

2> if the UE supports 3.84 Mcps TDD mode:

3> store its UTRAN-specific 3.84 Mcps TDD capabilities and its UTRAN–specific capabilities common to FDD and TDD in the variable UE_CAPABILITY_REQUESTED.

1> if the IE "UE radio access 7.68 Mcps TDD capability update requirement" has the value TRUE:

2> if the UE supports 7.68 Mcps TDD mode:

3> store its UTRAN-specific 7.68 Mcps TDD capabilities and its UTRAN–specific capabilities common to FDD and TDD in the variable UE_CAPABILITY_REQUESTED.

1> if the IE "UE radio access 1.28 Mcps TDD capability update requirement" has the value TRUE:

2> if the UE supports 1.28 Mcps TDD mode:

3> store its UTRAN-specific 1.28 Mcps TDD capabilities and its UTRAN–specific capabilities common to FDD and TDD in the variable UE_CAPABILITY_REQUESTED;

…

Reference

3GPP TS 25.304 clauses 5.8.1, 5.8.2.1; 3GPP TS 25.306 clause 4.15; 3GPP TS 25.331 clauses 7.2.1, 8.1.3.6, 8.5.63.3, 8.5.64.3, 8.5.67, 8.5.67.2, 8.6.3.12

8.7.1.1a.3 Test purpose

1. Verify that UE signals capability "Support of UTRAN ANR".

2. To verify that the UE correctly reads “Logged ANR configuration Info” in LOGGING MEASUREMENT CONFIGURATION message for Intra-UTRA ANR case when Absolute Threshold for RSCP is configured.

3. To verify that the UE trigger and performs ANR measurements on a cell not included in the neighbour cell list when RSCP is configured as Absolute Threshold and UE measured RSCP of the cell exceeds the Absolute Threshold.

4. To verify that the UE performs Intra-frequency ANR measurement in IDLE mode on a cell not listed in the broadcasted intra-frequency cell info list.

5. To verify that the UE includes IE "ANR Logging Results Available" in RRC CONNECTION SETUP message.

6. To verify UE reporting of ANR logged data for UTRA cell.

8.7.1.1a.4 Method of test

Initial Condition

System Simulator: 3 TDD cells – cell 1, cell 2 and cell 3 are active.

SYSTEM INFORMATION BLOCK TYPE 11 of Cell 1: See specific message contents.

NOTE: Cell 2 is listed as intra-frequency neighbour cell. Cell 3 is not included in the intra-frequency or inter-frequency cell info lists.

SS sets the test parameter T_{wait} to the value of PIXIT 'Px_AnrForUtranMeasLogWaitTime'.

UE: CELL_DCH (state 6-9) in cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.7.1.1a-1

Parameter	Unit	Cell 1	Cell 2	Cell 3
UTRA RF Channel Number		Mid Range Test Frequency	Mid Range Test Frequency	Mid Range Test Frequency
PCCPCH_RSCP (TDD)	dBm	-60	-70	-70
Note: Cell 2 and Cell 3 power levels are set to make UE measured RSCP to exceed the configured RSCP absolute threshold (-100 dBm).				

Table 8.7.1.2-1 illustrates the downlink power to be applied for the 3 cells.

The UE is initially brought to CELL_DCH state in Cell 1. The system information block 11 message transmitted in Cell 1 does not list Cell 3 in the intra- or inter-frequency cell info lists.

The SS transmits a UE CAPABILITY ENQUIRY message and checks that UE respond with a UE CAPABILITY INFORMATION message indicating that UE supports UTRAN ANR.

The SS configures UE to perform intra-UTRA ANR measurements triggered by RSCP absolute threshold by sending a LOGGING MEASUREMENT CONFIGURATION message to the UE.

The SS release the RRC connection and UE enters IDLE mode state. The SS waits T_{wait} seconds to allow UE to perform logging of ANR measurements of Cell 3.

The SS page the UE to establish an RRC connection. The SS checks that the UE includes the IE "ANR Logging Results Available" in the RRC CONNECTION SETUP COMPLETE message.

The SS transmits a UE INFORMATION REQUEST message to retrieve the ANR logging measurements from the UE. The UE respond by a UE INFORMATION RESPONSE message including logged ANR measurements, The SS checks the logged ANR report in the UE INFORMATION RESPONSE message includes an ANR measurement for Cell 3 (not in neighbour cell info list for Cell 1), but not for Cell 2 (in neighbour cell info list for Cell 1).

Expected Sequence

Specific Message Contents

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_DCH state in Cell 1
2	←		UE CAPABILITY ENQUIRY	
3	→		UE CAPABILITY INFORMATION	SS checks that IE “Support of UTRAN ANR” is indicated
4	←		UE CAPABILITY INFORMATION CONFIRM	
5	←		LOGGING MEASUREMENT CONFIGURATION	SS transmits this message in Cell 1 on downlink DCCH using AM RLC configuring the UE to perform Intra-frequency ANR measurements.
6	←		RRC CONNECTION RELEASE	
7	→		RRC CONNECTION RELEASE COMPLETE	UE moves to IDLE mode state in Cell 1.
8	SS			Waiting for T_{wait} seconds to allow UE to activate ANR logging in IDLE mode state.
9	←		PAGING TYPE1	
10	→		RRC CONNECTION REQUEST	
11	←		RRC CONNECTION SETUP	
12	→		RRC CONNECTION SETUP COMPLETE	SS checks that the IE “ANR Logging Results Available” is included
13	←		UE INFORMATION REQUEST	
14	→		UE INFORMATION RESPONSE	SS checks that the "Logged ANR Report Info List" includes an ANR measurement for Cell 3, but not for Cell 2

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 11

Use same message sub-clause 6.1 of TS 34.108, with the exception of that cell 2 is listed as intra-frequency neighbour cell and cell 3 is not listed as intra-frequency neighbour cell.

UE CAPABILITY INFORMATION (Step 3)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark
UE radio access capability	Check that IE “Support of UTRAN ANR” is present (TRUE).

LOGGING MEASUREMENT CONFIGURATION (Step 5)

Use the LOGGING MEASUREMENT CONFIGURATION message as defined in [9] (TS 34.108) Clause 9 for condition A1 (RSCP Absolute Threshold = -100dBm).

RRC CONNECTION SETUP COMPLETE (Step 12)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark
ANR Logging Results Available	Check that IE is set to TRUE.

UE INFORMATION REQUEST (Step 13)

Use the UE INFORMATION REQUEST message as defined in [9] (TS 34.108) Clause 9 for condition A1 (requesting Logged ANR Report).

UE INFORMATION RESPONSE (Step 14)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark	Version
Logged ANR Report Info		Rel-10
- Serving PLMN Identity	Checked to see that it is identical to the PLMN identity of Cell 1	
- Serving Cell	Checked to see that it is identical to the Cell ID of Cell 1	
- CHOICE *logged cell info*	UTRAN	
- PLMN Identity	Checked to see that it is identical to the PLMN identify of Cell 3	
- Cell Identity	Checked to see that it is identical to the Cell ID of Cell 3	
- UARFCN	Checked to see that it is identical to the UARFCN of Cell 3	
- Primary Scrambling Code	This IE is checked to be present	

8.7.1.1a.5 Test requirement

At step 3 the UE shall transmit a UE CAPABILITY INFORMATION message with the IE “Support of UTRAN ANR” is set to TRUE (TP1).

At step 12 the UE shall transmit a RRC CONNECTION SETUP COMPLETE message on uplink DCCH including the IE “ANR Logging Results Available” (TP5).

At step 14 the UE shall transmit a UE INFORMATION RESPONSE message including an ANR measurement for Cell 3 and no ANR measurement for Cell 2 (TP2,TP3,TP4,TP6).

8.7.1.2 Intra-UTRA / Intra-frequency ANR measurement, logging and reporting in Cell_PCH / Ec/N0 Absolute Threshold (FDD)

8.7.1.2.1 Definition and applicability

All UEs supporting UTRAN ANR measurement.

8.7.1.2.2 Conformance requirement

[TS 25.304, clause 5.8.1 (TP2)]

The UE may be configured to perform UTRAN ANR measurement and logging in IDLE mode, CELL_PCH and URA_PCH state with Logging Measurement Configuration message as specified in [4]. If configured, the UE will

- perform measurements and evaluation on the cells which are not included in the neighbour cell list in IDLE mode, CELL_PCH and URA_PCH state.
- log information of the detected cells meeting the logging rules as specified in [4].

[TS 25.304, clause 5.8.2.1 (TP3)]

If configured via the Logging Measurement Configuration message, the UE may perform intra-freq and inter-freq ANR measurements and logging only when:

- in IDLE mode, CELL_PCH and URA_PCH state.
- the UE is camping normally on a UTRAN cell belonging to the PLMN or the list of Equivalent PLMNs where the Logging Measurement Configuration is received.

During the intra-freq and inter-freq ANR process, the UE may measure on the frequencies associated with the cells listed in the neighbour cell list and log corresponding information of the detected set cells as specified in TS 25.331

[TS 25.331, clause 7.2.1 (TP3)]

The UE shall perform ANR measurements and logging as specified in [4], when logged ANR measurement is configured.

[TS 25.331, clause 7.2.2.1 (TP3)]

In the URA_PCH or CELL_PCH state the UE shall perform the following actions:

…

1> if the UE is "in service area":

…

2> perform ANR measurements and logging as specified in [4], when logged ANR measurement is configured.

[TS 25.331, clause 8.3.1.3 (TP4)]

In case of cell update procedure the UE shall transmit a CELL UPDATE message.

…

The UE shall set the IEs in the CELL UPDATE message as follows:

…

1> if an IE "Logged ANR Report Info" in variable LOG_ ANR_REPORT_VARIABLE is present and the registered PLMN is the same as the IE "PLMN Identity" stored in variable LOG_ ANR_REPORT_VARIABLE:

2>include IE "ANR Logging Results Available".

[TS 25.331, clause 8.5.63.3 (TP1)]

Upon receiving the LOGGING MEASUREMENT CONFIGURATION message the UE shall:

…

1> if IE "Logged ANR configuration Info" is present:

2> if variable LOG_ANR_CONFIG was already stored, discard the existing logged measurement configuration for ANR purpose as well as the associated logged measurement information as specified in 8.5.66;

2> store the received IEs in the IE "Logged ANR configuration Info" in variable LOG_ANR_CONFIG;

2> store the current Registered PLMN in the IE "PLMN Identity" in variable LOG_ANR_REPORT_VARIABLE;

2> start timer T327 with the timer value set to the IE "Logging Duration" included in IE "Logged ANR configuration Info".

[TS 25.331, clause 8.5.67 (TP3)]

When in idle mode, CELL_PCH or URA_PCH state and Logged Measurements for ANR has been configured, the UE shall:

1> Store the available measurements according to the logged measurements configuration in variable LOG_ANR_CONFIG as specified in subclause 8.5.67.2.

[TS 25.331, clause 8.5.67.2 (TP2,TP3)]

While T327 is running, the UE shall:

1> perform the ANR measurements and evaluation on UTRAN, E-UTRAN or GERAN cells in accordance with the following:

2> if IE "Intra-UTRA ANR" is included in variable LOG_ANR_CONFIG:

3> if the UE camps normally on an UTRA cell (serving) that is part of the PLMN which is the same as one of the PLMNs in the IE "PLMN Identity" or IE "Equivalent PLMN Identity List" stored in variable LOG_ANR_REPORT_VARIABLE; and

3> if the serving cell and UTRA cell, not included in the neighbour cell list, together have not earlier been stored by UE in an entry of "Logged ANR Report Info" in the LOG_ANR_REPORT_VARIABLE; and

3> if the quality of the UTRA cell, not included in the neighbour cell list, exceeds the quality of the serving cell with more than the value of "Logging Relative Threshold", if this IE is present in the Logging Measurement Configuration message; and

3> if the quality of UTRA cell, not included in the neighbour cell list, is above the value of "Absolute Threshold"; and

3> if both the camping UTRAN cell and UTRA cell, not included in the neighbour cell list, are not CSG cells:

4> log the ANR information into the variable LOG_ANR_REPORT_VARIABLE as follows:

5> set the IEs "Serving PLMN Identity" and "Serving Cell" to indicate cell identity of the cell the UE is camping on;

5> try to acquire the corresponding system information of the UTRA cell and set to the variable LOG_ANR_REPORT_VARIABLE as follows:

6> set the IE "Cell Identity" to indicate cell identity of this UTRA cell;

6> set the IE "PLMN Identity" to indicate the Primary PLMN which this UTRA cell belongs to;

6> set the IE "UARFCN" and "Cell parameter ID" for a TDD cell or "Primary Scrambling Code" for a FDD cell.

Reference

3GPP TS 25.304 clauses 5.8.1, 5.8.2.1; TS 25.331 clauses 7.2.1, 7.2.2.1, 8.3.1.3, 8.5.63.3, 8.5.67, 8.5.67.2

8.7.1.2.3 Test purpose

1. To verify that the UE correctly reads “Logged ANR configuration Info” in LOGGING MEASUREMENT CONFIGURATION message for Intra-UTRA ANR when Absolute Threshold for Ec/N0 is configured.
2. To verify that the UE triggers and performs ANR measurements on a cell not in the intra-/inter-frequency cell in list when Ec/N0 is configured as Absolute Threshold and UE measured Ec/N0 of the cell exceeds the Absolute Threshold
3. To verify that the UE performs Intra-freq ANR measurement in CELL_PCH mode on a cell not listed in the broadcasted intra-frequency cell info list.
4. To verify that the UE includes IE “ANR Logging Results Available” in CELL UPDATE message.

8.7.1.2.4 Method of test

Initial Condition

System Simulator: 3 FDD cells – Cell 1, Cell 2 and Cell 3 are active.

SYSTEM INFORMATION BLOCK TYPE 11 of Cell 1: See specific message contents.

Note: Cell 2 is listed as intra-frequency neighbour cell. Cell 3 is not included in intra-frequency info list.

SS sets the test parameter T_{wait} to the value of PIXIT ‘Px_AnrForUtranMeasLogWaitTime’.

UE: CELL_DCH (state 6-9) in Cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.7.1.2-1

Parameter	Unit	Cell 1		Cell 2		Cell 3	
		T0	T1	T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec	dBm/3.84MHz	-60	-70	-70	-60	-57	-70
Note: Cell 3 power levels is set to make UE measured Ec/N0 to exceed the configured Ec/N0 absolute threshold (-10 dB) at time T0.							

Table 8.7.1.2-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while column marked “T1” is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

The UE is initially brought to CELL_DCH state in Cell 1. The system information block 11 message transmitted in Cell 1 does not list Cell 3 in the intra-frequency cell info list.

The SS configures UE to perform intra-UTRA ANR measurements triggered by Ec/N0 absolute threshold by sending a LOGGING MEASUREMENT CONFIGURATION message to the UE.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, which invokes the UE to transit from CELL_DCH to CELL_PCH in cell 1. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC and enters CELL_PCH state. The SS waits T_{wait} seconds to allow UE to perform logging of ANR measurements of Cell 3.

The SS configures its downlink transmission power settings according to columns "T1" in table 8.7.1. 2-1. The UE performs cell re-selection to Cell 2 and transmits a CELL UPDATE message including IE “ANR Logging Results Available” to the SS on the uplink CCCH of Cell 2 and set IE "Cell update cause" to "Cell Reselection".

The SS transmits a UE INFORMATION REQUEST message to retrieve the ANR logging measurements from the UE. The UE respond by a UE INFORMATION RESPONSE message including logged ANR measurements, The SS checks the logged ANR report in the UE INFORMATION RESPONSE message includes an ANR measurement for Cell 3 (not in neighbour cell info list for Cell 1), but not for Cell 2 (Ec/N0 absolute threshold not exceeded and Cell 2 in neighbour cell info list for Cell 1).

Expected Sequence

Specific Message Contents

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_DCH state in Cell 1
2	←		LOGGING MEASUREMENT CONFIGURATION	SS transmits this message in Cell 1 on downlink DCCH using AM RLC configuring the UE to perform Intra-frequency ANR measurements.
3	←		PHYSICAL CHANNEL RECONFIGURATION	IE "RRC State Indicator" set to "CELL_PCH"
4	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE moves to CELL_PCH state in Cell 1.
5	SS			Waiting for T_{wait} seconds to allow UE to activate ANR logging in CELL_PCH state.

6	SS		The SS switches its downlink transmission power settings to columns "T1" in table 8.7.1.2-1.
7	→	CELL UPDATE	The UE enters the CELL_FACH state and transmits this message with the IE “ANR Logging Results Available” and set IE “Cell update cause” to value “cell reselection”.
8	←	CELL UPDATE CONFIRM	
9	←	UE INFORMATION REQUEST	
10	→	UE INFORMATION RESPONSE	SS checks that the "Logged ANR Report Info List" includes an ANR measurement for Cell 3, but not for Cell 2

SYSTEM INFORMATION BLOCK TYPE 11 of Cell 1

Use same message sub-clause 6.1 of TS 34.108, with the exception of that cell 2 is listed as intra-frequency neighbour cell and that Cell 3 is not listed as intra-frequency neighbour cell.

LOGGING MEASUREMENT CONFIGURATION (Step 2)

Use same message sub-clause 9.1.1 of TS 34.108 for condition A2 (Ec/N0 Absolute Threshold = -10 dB).

PHYSICAL CHANNEL RECONFIGURATION (Step 3)

Use the same message sub-type titled "Packet to CELL_PCH from CELL_DCH in PS" in TS 34.108 clause 9.

CELL UPDATE (Step 7)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'Cell Re-selection'
ANR Logging Results Available	TRUE

UE INFORMATION REQUEST (Step 9)

Use the UE INFORMATION REQUEST message as defined in [9] (TS 34.108) Clause 9 for condition A1 (requesting Logged ANR Report).

UE INFORMATION RESPONSE (Step 10)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark	Version
Logged ANR Report Info		Rel-10
- Serving PLMN Identity	Checked to see that it is identical to the PLMN identity of Cell 1	
- Serving Cell	Checked to see that it is identical to the Cell ID of Cell 1	
- CHOICE *logged cell info*	UTRAN	
- PLMN Identity	Checked to see that it is identical to the PLMN identify of Cell 3	
- Cell Identity	Checked to see that it is identical to the Cell ID of Cell 3	
- UARFCN	Checked to see that it is identical to the UARFCN of Cell 3	
- Cell parameter ID	This IE is checked to be present	

8.7.1.2.5 Test requirement

At step 4, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message (TP3).

At step 7, the UE shall transmit a CELL UPDATE message on uplink CCCH with “ANR Logging Results Available” and set IE “Cell update cause” to value “cell reselection” (TP4).

At step 10 the UE shall transmit a UE INFORMATION RESPONSE message including an ANR measurement for Cell 3 and no ANR measurement for Cell 2 (TP1,TP2,TP3).

8.7.1.2a Intra-UTRA / Intra-frequency ANR measurement, logging and reporting in CELL_PCH (TDD)

8.7.1.2a.1 Definition and applicability

All UEs supporting UTRAN ANR measurement.

8.7.1.2a.2 Conformance requirement

[TS 25.304, clause 5.8.2.1 (TP1)]

If configured via the Logging Measurement Configuration message, the UE may perform intra-freq and inter-freq ANR measurements and logging only when:

- in IDLE mode, CELL_PCH and URA_PCH state.
- the UE is camping normally on a UTRAN cell belonging to the PLMN or the list of Equivalent PLMNs where the Logging Measurement Configuration is received.

During the intra-freq and inter-freq ANR process, the UE may measure on the frequencies associated with the cells listed in the neighbour cell list and log corresponding information of the detected set cells as specified in TS 25.331

[TS 25.331, clause 7.2.1 (TP1)]

The UE shall perform ANR measurements and logging as specified in [4], when logged ANR measurement is configured.

[TS 25.331, clause 7.2.2.1 (TP1)]

In the URA_PCH or CELL_PCH state the UE shall perform the following actions:

…

1> if the UE is "in service area":

…

2> perform ANR measurements and logging as specified in [4], when logged ANR measurement is configured.

[TS 25.331, clause 8.3.1.3 (TP2)]

In case of cell update procedure the UE shall transmit a CELL UPDATE message.

…

The UE shall set the IEs in the CELL UPDATE message as follows:

…

1> if an IE "Logged ANR Report Info" in variable LOG_ ANR_REPORT_VARIABLE is present and the registered PLMN is the same as the IE "PLMN Identity" stored in variable LOG_ ANR_REPORT_VARIABLE:

2>include IE "ANR Logging Results Available".

[TS 25.331, clause 8.5.67 (TP1)]

When in idle mode, CELL_PCH or URA_PCH state and Logged Measurements for ANR has been configured, the UE shall:

1> Store the available measurements according to the logged measurements configuration in variable LOG_ANR_CONFIG as specified in subclause 8.5.67.2.

[TS 25.331, clause 8.5.67.2 (TP1)]

While T327 is running, the UE shall:

1> perform the ANR measurements and evaluation on UTRAN, E-UTRAN or GERAN cells in accordance with the following:

2> if IE "Intra-UTRA ANR" is included in variable LOG_ANR_CONFIG:

3> if the UE camps normally on an UTRA cell (serving) that is part of the PLMN which is the same as one of the PLMNs in the IE "PLMN Identity" or IE "Equivalent PLMN Identity List" stored in variable LOG_ANR_REPORT_VARIABLE; and

3> if the serving cell and UTRA cell, not included in the neighbour cell list, together have not earlier been stored by UE in an entry of "Logged ANR Report Info" in the LOG_ANR_REPORT_VARIABLE; and

3> if the quality of the UTRA cell, not included in the neighbour cell list, exceeds the quality of the serving cell with more than the value of "Logging Relative Threshold", if this IE is present in the Logging Measurement Configuration message; and

3> if the quality of UTRA cell, not included in the neighbour cell list, is above the value of "Absolute Threshold"; and

3> if both the camping UTRAN cell and UTRA cell, not included in the neighbour cell list, are not CSG cells:

4> log the ANR information into the variable LOG_ANR_REPORT_VARIABLE as follows:

5> set the IEs "Serving PLMN Identity" and "Serving Cell" to indicate cell identity of the cell the UE is camping on;

5> try to acquire the corresponding system information of the UTRA cell and set to the variable LOG_ANR_REPORT_VARIABLE as follows:

6> set the IE "Cell Identity" to indicate cell identity of this UTRA cell;

6> set the IE "PLMN Identity" to indicate the Primary PLMN which this UTRA cell belongs to;

6> set the IE "UARFCN" and "Cell parameter ID" for a TDD cell or "Primary Scrambling Code" for a FDD cell.

Reference

3GPP TS 25.304 clauses 5.8.2.1; TS 25.331 clauses 7.2.1, 7.2.2.1, 8.5.63.3, 8.5.67, 8.5.67.2

8.7.1.2a.3 Test purpose

1. To verify that the UE performs Intra-freq ANR measurement in CELL_PCH mode on a cell not listed in the broadcasted intra-frequency cell info list.
2. To verify that the UE includes IE “ANR Logging Results Available” in CELL UPDATE message.

8.7.1.2a.4 Method of test

Initial Condition

System Simulator: 3 TDD cells – Cell 1, Cell 2 and Cell 3 are active.

SYSTEM INFORMATION BLOCK TYPE 11 of Cell 1: See specific message contents.

Note: Cell 2 is listed as intra-frequency neighbour cell. Cell 3 is not included in intra-frequency info list.

SS sets the test parameter T_{wait} to the value of PIXIT 'Px_AnrForUtranMeasLogWaitTime'.

UE: CELL_DCH (state 6-9) in Cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.7.1.2a-1

Parameter	Unit	Cell 1		Cell 2		Cell 3	
		T0	T1	T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency		Mid Range Test Frequency	
PCCPCH_RSCP (TDD)	dBm	-60	-70	-70	-60	-70	-70
Note: Cell 2 and Cell 3 power levels at T0 are set to make UE measured RSCP to exceed the configured RSCP absolute threshold (-100 dBm).							

Table 8.7.1.2a-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while column marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

The UE is initially brought to CELL_DCH state in Cell 1. The system information block 11 message transmitted in Cell 1 does not list Cell 3 in the intra-frequency cell info list.

The SS configures UE to perform intra-UTRA ANR measurements triggered by RSCP absolute threshold by sending a LOGGING MEASUREMENT CONFIGURATION message to the UE.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, which invokes the UE to transit from CELL_DCH to CELL_PCH in cell 1. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC and enters CELL_PCH state. The SS waits T_{wait} seconds to allow UE to perform logging of ANR measurements of Cell 3.

The SS configures its downlink transmission power settings according to columns "T1" in table 8.7.1. 2-1. The UE performs cell re-selection to Cell 2 and transmits a CELL UPDATE message including IE "ANR Logging Results Available" to the SS on the uplink CCCH of Cell 2 and set IE "Cell update cause" to "Cell Reselection".

The SS transmits a UE INFORMATION REQUEST message to retrieve the ANR logging measurements from the UE. The UE respond by a UE INFORMATION RESPONSE message including logged ANR measurements, The SS checks the logged ANR report in the UE INFORMATION RESPONSE message includes an ANR measurement for Cell 3 (not in neighbour cell info list for Cell 1), but not for Cell 2 (in neighbour cell info list for Cell 1).

Expected Sequence

Specific Message Contents

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_DCH state in Cell 1
2	←		LOGGING MEASUREMENT CONFIGURATION	SS transmits this message in Cell 1 on downlink DCCH using AM RLC configuring the UE to perform Intra-frequency ANR measurements.
3	←		PHYSICAL CHANNEL RECONFIGURATION	IE "RRC State Indicator" set to "CELL_PCH"
4	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE moves to CELL_PCH state in Cell 1.
5	SS			Waiting for T_{wait} seconds to allow UE to activate ANR logging in CELL_PCH state.
6	SS			The SS switches its downlink transmission power settings to columns "T1" in table 8.7.1.2a-1.
7	→		CELL UPDATE	The UE enters the CELL_FACH state and transmits this message with the IE “ANR Logging Results Available” and set IE “Cell update cause” to value “cell reselection”.
8	←		CELL UPDATE CONFIRM	
9	←		UE INFORMATION REQUEST	
10	→		UE INFORMATION RESPONSE	SS checks that the "Logged ANR Report Info List" includes an ANR measurement for Cell 3, but not for Cell 2

SYSTEM INFORMATION BLOCK TYPE 11 of Cell 1

Use same message sub-clause 6.1 of TS 34.108, with the exception of that cell 2 is listed as intra-frequency neighbour cell and Cell 3 is not listed as intra-frequency neighbour cell.

LOGGING MEASUREMENT CONFIGURATION (Step 2)

Use same message sub-clause 9.1.1 of TS 34.108 for condition A2 (RSCP Absolute Threshold = -100 dBm).

PHYSICAL CHANNEL RECONFIGURATION (Step 3)

Use the same message sub-type titled "Packet to CELL_PCH from CELL_DCH in PS" in TS 34.108 clause 9.

CELL UPDATE (Step 7)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'Cell Re-selection'
ANR Logging Results Available	TRUE

UE INFORMATION REQUEST (Step 9)

Use the UE INFORMATION REQUEST message as defined in [9] (TS 34.108) Clause 9 for condition A1 (requesting Logged ANR Report).

UE INFORMATION RESPONSE (Step 10)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark	Version
Logged ANR Report Info		Rel-10
- Serving PLMN Identity	Checked to see that it is identical to the PLMN identity of Cell 1	
- Serving Cell	Checked to see that it is identical to the Cell ID of Cell 1	
- CHOICE *logged cell info*	UTRAN	
- PLMN Identity	Checked to see that it is identical to the PLMN identify of Cell 3	
- Cell Identity	Checked to see that it is identical to the Cell ID of Cell 3	
- UARFCN	Checked to see that it is identical to the UARFCN of Cell 3	
- Primary Scrambling Code	This IE is checked to be present	

8.7.1.2a.5 Test requirement

At step 4, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message (TP1).

At step 7, the UE shall transmit a CELL UPDATE message on uplink CCCH with “ANR Logging Results Available” and set IE “Cell update cause” to value “cell reselection” (TP2).

At step 10 the UE shall transmit a UE INFORMATION RESPONSE message including an ANR measurement for Cell 3 and no ANR measurement for Cell 2 (TP1,TP2).

8.7.1.3 Intra-UTRA / Inter-frequency ANR measurement, logging and reporting in URA_PCH / RSCP Relative Threshold (FDD)

8.7.1.3.1 Definition and applicability

All UEs supporting UTRAN ANR measurement.

8.7.1.3.2 Conformance requirement

[TS 25.304, clause 5.8.1 (TP2)]

The UE may be configured to perform UTRAN ANR measurement and logging in IDLE mode, CELL_PCH and URA_PCH state with Logging Measurement Configuration message as specified in [4]. If configured, the UE will

- perform measurements and evaluation on the cells which are not included in the neighbour cell list in IDLE mode, CELL_PCH and URA_PCH state.
- log information of the detected cells meeting the logging rules as specified in [4].

[TS 25.304, clause 5.8.2.1 (TP3)]

If configured via the Logging Measurement Configuration message, the UE may perform intra-freq and inter-freq ANR measurements and logging only when:

- in IDLE mode, CELL_PCH and URA_PCH state.
- the UE is camping normally on a UTRAN cell belonging to the PLMN or the list of Equivalent PLMNs where the Logging Measurement Configuration is received.

During the intra-freq and inter-freq ANR process, the UE may measure on the frequencies associated with the cells listed in the neighbour cell list and log corresponding information of the detected set cells as specified in TS 25.331

[TS 25.331, clause 7.2.1 (TP3)]

The UE shall perform ANR measurements and logging as specified in [4], when logged ANR measurement is configured.

[TS 25.331, clause 7.2.2.1 (TP3)]

In the URA_PCH or CELL_PCH state the UE shall perform the following actions:

…

1> if the UE is "in service area":

…

2> perform ANR measurements and logging as specified in [4], when logged ANR measurement is configured.

[TS 25.331, clause 8.3.1.3 (TP4)]

In case of URA update procedure the UE shall transmit a URA UPDATE message.

…

The UE shall set the IEs in the URA UPDATE message as follows:

…

1> if IE "Logged ANR report" in variable LOG_ANR_REPORT_VARIABLE is present and registered PLMN is the same as the IE "PLMN Identity" stored in variable LOG_ ANR_REPORT_VARIABLE:

2> include IE "ANR Logging Results Available".

[TS 25.331, clause 8.5.63.3 (TP1)]

Upon receiving the LOGGING MEASUREMENT CONFIGURATION message the UE shall:

…

1> if IE "Logged ANR configuration Info" is present:

2> if variable LOG_ANR_CONFIG was already stored, discard the existing logged measurement configuration for ANR purpose as well as the associated logged measurement information as specified in 8.5.66;

2> store the received IEs in the IE "Logged ANR configuration Info" in variable LOG_ANR_CONFIG;

2> store the current Registered PLMN in the IE "PLMN Identity" in variable LOG_ANR_REPORT_VARIABLE;

2> start timer T327 with the timer value set to the IE "Logging Duration" included in IE "Logged ANR configuration Info".

[TS 25.331, clause 8.5.67 (TP3)]

When in idle mode, CELL_PCH or URA_PCH state and Logged Measurements for ANR has been configured, the UE shall:

1> Store the available measurements according to the logged measurements configuration in variable LOG_ANR_CONFIG as specified in subclause 8.5.67.2.

[TS 25.331, clause 8.5.67.2 (TP2,TP3)]

While T327 is running, the UE shall:

1> perform the ANR measurements and evaluation on UTRAN, E-UTRAN or GERAN cells in accordance with the following:

2> if IE "Intra-UTRA ANR" is included in variable LOG_ANR_CONFIG:

3> if the UE camps normally on an UTRA cell (serving) that is part of the PLMN which is the same as one of the PLMNs in the IE "PLMN Identity" or IE "Equivalent PLMN Identity List" stored in variable LOG_ANR_REPORT_VARIABLE; and

3> if the serving cell and UTRA cell, not included in the neighbour cell list, together have not earlier been stored by UE in an entry of "Logged ANR Report Info" in the LOG_ANR_REPORT_VARIABLE; and

3> if the quality of the UTRA cell, not included in the neighbour cell list, exceeds the quality of the serving cell with more than the value of "Logging Relative Threshold", if this IE is present in the Logging Measurement Configuration message; and

3> if the quality of UTRA cell, not included in the neighbour cell list, is above the value of "Absolute Threshold"; and

3> if both the camping UTRAN cell and UTRA cell, not included in the neighbour cell list, are not CSG cells:

4> log the ANR information into the variable LOG_ANR_REPORT_VARIABLE as follows:

5> set the IEs "Serving PLMN Identity" and "Serving Cell" to indicate cell identity of the cell the UE is camping on;

5> try to acquire the corresponding system information of the UTRA cell and set to the variable LOG_ANR_REPORT_VARIABLE as follows:

6> set the IE "Cell Identity" to indicate cell identity of this UTRA cell;

6> set the IE "PLMN Identity" to indicate the Primary PLMN which this UTRA cell belongs to;

6> set the IE "UARFCN" and "Cell parameter ID" for a TDD cell or "Primary Scrambling Code" for a FDD cell.

Reference

3GPP TS 25.304 clauses 5.8.1, 5.8.2.1; 3GPP TS 25.331 clauses 7.2.1, 7.2.2.1, 8.3.1.3, 8.5.63.3, 8.5.67, 8.5.67.2.

8.7.1.3.3 Test purpose

1. To verify that the UE correctly reads “Logged ANR configuration Info” in LOGGING MEASUREMENT CONFIGURATION message for Intra-UTRA ANR case when Logging Relative Threshold for RSCP is configured.
2. To verify that the UE triggers and performs ANR measurements on a cell not in the intra-/inter-frequency cell info list when RSCP Relative Threshold is configured and UE measured RSCP of the cell exceeds the Absolute and Relative Thresholds.
3. To verify that the UE correctly executes inter-freq ANR measurement in URA_PCH state on a cell not listed in the broadcasted inter-frequency cell info list.
4. To verify that the UE includes IE “ANR Logging Results Available” in URA UPDATE message.

8.7.1.3.4 Method of test

Initial Condition

System Simulator: 3 FDD cells – Cell 1, Cell 4and Cell 5 are active.

SYSTEM INFORMATION BLOCK TYPE 11 of Cell 1: See specific message contents.

NOTE: Cell 4 is listed as inter-frequency neighbour cell. Cell 5 is not included in the inter-frequency info list.

SS sets the test parameter T_{wait} to the value of PIXIT ‘Px_AnrForUtranMeasLogWaitTime’.

UE: CELL_DCH (state 6-9) in Cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.7.1.3-1

Parameter	Unit	Cell 1		Cell 4		Cell 5	
		T0	T1	T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-70	-70	-60	-60	-60
URA ID		URA-ID 1		URA-ID 2		URA-ID 1 and 2	
Note: Cell 5 power level is set to make UE measured RSCP to exceed the configured RSCP absolute threshold (-100 dBm) and RSCP relative threshold (-8dB).							

Table 8.7.1.3-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while column marked “T1” is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

The UE is initially brought to CELL_DCH state in Cell 1. The system information block 11 message has been transmitted in Cell 1 does not list Cell 5 in the inter-frequency cell info list.

The SS configures UE to perform intra-UTRA inter-frequency ANR measurements triggered by RSCP relative and absolute threshold by sending a LOGGING MEASUREMENT CONFIGURATION message to the UE.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message which invokes the UE to transit from CELL_DCH to URA_PCH in Cell 1. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC and enters URA_PCH state. The UE is assigned with only one URA identity in Cell 1: URA-ID 1. The SS waits T_{wait} seconds to allow UE to perform logging of ANR measurements of Cell 5.

SS configures its downlink transmission power settings according to columns "T1" in table 8.7.1.3-1. The UE shall find Cell 4 to be more suitable than Cell 1, and Cell 4 has a different URA ID from Cell 1. The UE shall transmit a URA UPDATE message including IE “ANR Logging Results Available” for Cell 5 to the SS on the uplink CCCH of Cell 4 and set IE "URA update cause" to "change of URA".

The SS transmits a UE INFORMATION REQUEST message to retrieve the ANR logging measurements from the UE. The UE respond by a UE INFORMATION RESPONSE message including logged ANR measurements, The SS checks the logged ANR report in the UE INFORMATION RESPONSE message includes an ANR measurement for Cell 5 (not in neighbour cell info list for Cell 1), but not for Cell 4 (in neighbour cell info list for Cell 1).

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_DCH state in Cell 1
2	←		LOGGING MEASUREMENT CONFIGURATION	SS transmits this message in Cell 1 on downlink DCCH using AM RLC configuring the to perform Intra-frequency ANR measurements.
3	←		PHYSICAL CHANNEL RECONFIGURATION	IE "RRC State Indicator" set to "URA_PCH"
4	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE moves to URA_PCH state in Cell 1.
5	SS			Waiting for T_{wait} seconds to allow UE to activate ANR logging in URA_PCH state.

6	SS		The SS switches its downlink transmission power settings to columns "T1" in table 8.7.1.3-1.
7	→	URA UPDATE	The UE transmits this message with the IE “ANR Logging Results Available” and set IE “URA update cause” to value “change of URA”.
8	←	URA UPDATE CONFIRM	
9	←	UE INFORMATION REQUEST	
10	→	UE INFORMATION RESPONSE	SS checks that the "Logged ANR Report Info List" includes an ANR measurement for Cell 5, but not for Cell 4

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 11 of Cell 1

Use same message sub-clause 6.1 of TS 34.108, with the exception that Cell 4 is listed as inter-frequency neighbour cell and that Cell 5 is not listed as inter-frequency neighbour cell.

LOGGING MEASUREMENT CONFIGURATION (Step 2)

Use same message sub-clause 9.1.1 of TS 34.108 for condition A1 (RSCP Absolute Threshold), with the exception of the following IEs:

Information Element	Value/remark
Logged Measurements Configuration Info	
Logged ANR configuration Info	
- Intra-UTRA ANR	
- CHOICE *Absolute Threshold*	RCSP for ANR
- RSCP	Not present (default -100 dBm)
- Logging Relative *Threshold*	-4 (-8dB)

PHYSICAL CHANNEL RECONFIGURATION (Step 3)

Use the same message sub-type titled "Packet to URA_PCH from CELL_DCH in PS" in TS 34.108 clause 9.

URA UPDATE (Step 7)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'change of URA'
ANR Logging Results Available	TRUE

UE INFORMATION REQUEST (Step 9)

Use the UE INFORMATION REQUEST message as defined in [9] (TS 34.108) Clause 9 for condition A1 (requesting Logged ANR Report).

UE INFORMATION RESPONSE (Step 10)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark	Version
Logged ANR Report Info		Rel-10
- Serving PLMN Identity	Checked to see that it is identical to the PLMN identity of Cell 1	
- Serving Cell	Checked to see that it is identical to the Cell ID of Cell 1	
- CHOICE *logged cell info*	UTRAN	
- PLMN Identity	Checked to see that it is identical to the PLMN identify of Cell 5	
- Cell Identity	Checked to see that it is identical to the Cell ID of Cell 5	
- UARFCN	Checked to see that it is identical to the UARFCN of Cell 5	
- Cell parameter ID	This IE is checked to be present	

8.7.1.3.5 Test requirement

At step 4, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message (TP3).

At step 7, the UE shall transmit a URA UPDATE message on uplink CCCH with “ANR Logging Results Available” and set IE “Cell update cause” to value “change of URA” (TP4).

At step 10 the UE shall transmit a UE INFORMATION RESPONSE message including an ANR measurement for Cell 5 and no ANR measurement for Cell 4 (TP1,TP2,TP3).

8.7.1.3a Intra-UTRA / Inter-frequency ANR measurement, logging and reporting in URA_PCH / RSCP Relative Threshold (TDD)

8.7.1.3a.1 Definition and applicability

All UEs supporting UTRAN ANR measurement.

8.7.1.3a.2 Conformance requirement

[TS 25.304, clause 5.8.1 (TP2)]

The UE may be configured to perform UTRAN ANR measurement and logging in IDLE mode, CELL_PCH and URA_PCH state with Logging Measurement Configuration message as specified in [4]. If configured, the UE will

- perform measurements and evaluation on the cells which are not included in the neighbour cell list in IDLE mode, CELL_PCH and URA_PCH state.
- log information of the detected cells meeting the logging rules as specified in [4].

[TS 25.304, clause 5.8.2.1 (TP3)]

If configured via the Logging Measurement Configuration message, the UE may perform intra-freq and inter-freq ANR measurements and logging only when:

- in IDLE mode, CELL_PCH and URA_PCH state.
- the UE is camping normally on a UTRAN cell belonging to the PLMN or the list of Equivalent PLMNs where the Logging Measurement Configuration is received.

During the intra-freq and inter-freq ANR process, the UE may measure on the frequencies associated with the cells listed in the neighbour cell list and log corresponding information of the detected set cells as specified in TS 25.331

[TS 25.331, clause 7.2.1 (TP3)]

The UE shall perform ANR measurements and logging as specified in [4], when logged ANR measurement is configured.

[TS 25.331, clause 7.2.2.1 (TP3)]

In the URA_PCH or CELL_PCH state the UE shall perform the following actions:

…

1> if the UE is "in service area":

…

2> perform ANR measurements and logging as specified in [4], when logged ANR measurement is configured.

[TS 25.331, clause 8.3.1.3 (TP4)]

In case of URA update procedure the UE shall transmit a URA UPDATE message.

…

The UE shall set the IEs in the URA UPDATE message as follows:

…

1> if IE "Logged ANR report" in variable LOG_ANR_REPORT_VARIABLE is present and registered PLMN is the same as the IE "PLMN Identity" stored in variable LOG_ ANR_REPORT_VARIABLE:

2> include IE "ANR Logging Results Available".

[TS 25.331, clause 8.5.63.3 (TP1)]

Upon receiving the LOGGING MEASUREMENT CONFIGURATION message the UE shall:

…

1> if IE "Logged ANR configuration Info" is present:

2> if variable LOG_ANR_CONFIG was already stored, discard the existing logged measurement configuration for ANR purpose as well as the associated logged measurement information as specified in 8.5.66;

2> store the received IEs in the IE "Logged ANR configuration Info" in variable LOG_ANR_CONFIG;

2> store the current Registered PLMN in the IE "PLMN Identity" in variable LOG_ANR_REPORT_VARIABLE;

2> start timer T327 with the timer value set to the IE "Logging Duration" included in IE "Logged ANR configuration Info".

[TS 25.331, clause 8.5.67 (TP3)]

When in idle mode, CELL_PCH or URA_PCH state and Logged Measurements for ANR has been configured, the UE shall:

1> Store the available measurements according to the logged measurements configuration in variable LOG_ANR_CONFIG as specified in subclause 8.5.67.2.

[TS 25.331, clause 8.5.67.2 (TP2,TP3)]

While T327 is running, the UE shall:

1> perform the ANR measurements and evaluation on UTRAN, E-UTRAN or GERAN cells in accordance with the following:

2> if IE "Intra-UTRA ANR" is included in variable LOG_ANR_CONFIG:

3> if the UE camps normally on an UTRA cell (serving) that is part of the PLMN which is the same as one of the PLMNs in the IE "PLMN Identity" or IE "Equivalent PLMN Identity List" stored in variable LOG_ANR_REPORT_VARIABLE; and

3> if the serving cell and UTRA cell, not included in the neighbour cell list, together have not earlier been stored by UE in an entry of "Logged ANR Report Info" in the LOG_ANR_REPORT_VARIABLE; and

3> if the quality of the UTRA cell, not included in the neighbour cell list, exceeds the quality of the serving cell with more than the value of "Logging Relative Threshold", if this IE is present in the Logging Measurement Configuration message; and

3> if the quality of UTRA cell, not included in the neighbour cell list, is above the value of "Absolute Threshold"; and

3> if both the camping UTRAN cell and UTRA cell, not included in the neighbour cell list, are not CSG cells:

4> log the ANR information into the variable LOG_ANR_REPORT_VARIABLE as follows:

5> set the IEs "Serving PLMN Identity" and "Serving Cell" to indicate cell identity of the cell the UE is camping on;

5> try to acquire the corresponding system information of the UTRA cell and set to the variable LOG_ANR_REPORT_VARIABLE as follows:

6> set the IE "Cell Identity" to indicate cell identity of this UTRA cell;

6> set the IE "PLMN Identity" to indicate the Primary PLMN which this UTRA cell belongs to;

6> set the IE "UARFCN" and "Cell parameter ID" for a TDD cell or "Primary Scrambling Code" for a FDD cell.

Reference

3GPP TS 25.304 clauses 5.8.1, 5.8.2.1; 3GPP TS 25.331 clauses 7.2.1, 7.2.2.1, 8.3.1.3, 8.5.63.3, 8.5.67, 8.5.67.2.

8.7.1.3a.3 Test purpose

1. To verify that the UE correctly reads “Logged ANR configuration Info” in LOGGING MEASUREMENT CONFIGURATION message for Intra-UTRA ANR case when Logging Relative Threshold for RSCP is configured.
2. To verify that the UE triggers and performs ANR measurements on a cell not in the intra-/inter-frequency cell info list when RSCP Relative Threshold is configured and UE measured RSCP of the cell exceeds the Absolute and Relative Thresholds.
3. To verify that the UE correctly executes inter-freq ANR measurement in URA_PCH state on a cell not listed in the broadcasted inter-frequency cell info list.
4. To verify that the UE includes IE “ANR Logging Results Available” in URA UPDATE message.

8.7.1.3a.4 Method of test

Initial Condition

System Simulator: 3 TDD cells – Cell 1, Cell 4 and Cell 5 are active.

SYSTEM INFORMATION BLOCK TYPE 11 of Cell 1: See specific message contents.

NOTE: Cell 4 is listed as inter-frequency neighbour cell. Cell 5 is not included in the inter-frequency info list.

SS sets the test parameter T_{wait} to the value of PIXIT ‘Px_AnrForUtranMeasLogWaitTime’.

UE: CELL_DCH (state 6-9) in Cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.7.1.3a-1

Parameter	Unit	Cell 1		Cell 4		Cell 5	
		T0	T1	T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency		Mid Range Test Frequency	
PCCPCH_RSCP (TDD)	dBm	-60	-70	-70	-60	-60	-60
URA ID		URA-ID 1		URA-ID 2		URA-ID 1 and 2	
Note: Cell 5 power level is set to make UE measured RSCP to exceed the configured RSCP absolute threshold (-100 dBm) and RSCP relative threshold (-8dB).							

Table 8.7.1.3a-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while column marked “T1” is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

The UE is initially brought to CELL_DCH state in Cell 1. The system information block 11 message has been transmitted in Cell 1 does not list Cell 4 in the inter-frequency cell info list.

The SS configures UE to perform intra-UTRA inter-frequency ANR measurements triggered by RSCP relative and absolute threshold by sending a LOGGING MEASUREMENT CONFIGURATION message to the UE.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message which invokes the UE to transit from CELL_DCH to URA_PCH in Cell 1. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC and enters URA_PCH state. The UE is assigned with only one URA identity in Cell 1: URA-ID 1. The SS waits T_{wait} seconds to allow UE to perform logging of ANR measurements of Cell 5.

SS configures its downlink transmission power settings according to columns "T1" in table 8.7.1.3a-1. The UE shall find Cell 4 to be more suitable than Cell 1, and Cell 4 has a different URA ID from Cell 1. The UE shall transmit a URA UPDATE message including IE “ANR Logging Results Available” for Cell 5 to the SS on the uplink CCCH of Cell 4 and set IE "URA update cause" to "change of URA".

The SS transmits a UE INFORMATION REQUEST message to retrieve the ANR logging measurements from the UE. The UE respond by a UE INFORMATION RESPONSE message including logged ANR measurements, The SS checks the logged ANR report in the UE INFORMATION RESPONSE message includes an ANR measurement for Cell 5 (not in neighbour cell info list for Cell 1), but not for Cell 4 (in neighbour cell info list for Cell 1).

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_DCH state in Cell 1
2	←		LOGGING MEASUREMENT CONFIGURATION	SS transmits this message in Cell 1 on downlink DCCH using AM RLC configuring the to perform Intra-frequency ANR measurements.
3	←		PHYSICAL CHANNEL RECONFIGURATION	IE "RRC State Indicator" set to "URA_PCH"
4	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE moves to URA_PCH state in Cell 1.
5	SS			Waiting for T_{wait} seconds to allow UE to activate ANR logging in URA_PCH state.

6	SS		The SS switches its downlink transmission power settings to columns "T1" in table 8.7.1.3a-1.
7	→	URA UPDATE	The UE transmits this message with the IE “ANR Logging Results Available” and set IE “URA update cause” to value “change of URA”.
8	←	URA UPDATE CONFIRM	
9	←	UE INFORMATION REQUEST	
10	→	UE INFORMATION RESPONSE	SS checks that the "Logged ANR Report Info List" includes an ANR measurement for Cell 5, but not for Cell 4

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 11 of Cell 1

Use same message sub-clause 6.1 of TS 34.108, with the exception that Cell 4 is listed as inter-frequency neighbour cell and that Cell 5 is not listed as inter-frequency neighbour cell.

LOGGING MEASUREMENT CONFIGURATION (Step 2)

Use same message sub-clause 9.1.1 of TS 34.108 for condition A1 (RSCP Absolute Threshold), with the exception of the following IEs:

Information Element	Value/remark
Logged Measurements Configuration Info	
Logged ANR configuration Info	
- Intra-UTRA ANR	
- CHOICE *Absolute Threshold*	RCSP for ANR
- RSCP	Not present (default -100 dBm)
- Logging Relative *Threshold*	-4 (-8dB)

PHYSICAL CHANNEL RECONFIGURATION (Step 3)

Use the same message sub-type titled "Packet to URA_PCH from CELL_DCH in PS" in TS 34.108 clause 9.

URA UPDATE (Step 7)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'change of URA'
ANR Logging Results Available	TRUE

UE INFORMATION REQUEST (Step 9)

Use the UE INFORMATION REQUEST message as defined in [9] (TS 34.108) Clause 9 for condition A1 (requesting Logged ANR Report).

UE INFORMATION RESPONSE (Step 10)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark	Version
Logged ANR Report Info		Rel-10
- Serving PLMN Identity	Checked to see that it is identical to the PLMN identity of Cell 1	
- Serving Cell	Checked to see that it is identical to the Cell ID of Cell 1	
- CHOICE *logged cell info*	UTRAN	
- PLMN Identity	Checked to see that it is identical to the PLMN identify of Cell 5	
- Cell Identity	Checked to see that it is identical to the Cell ID of Cell 5	
- UARFCN	Checked to see that it is identical to the UARFCN of Cell 5	
- Primary Scrambling Code	This IE is checked to be present	

8.7.1.3a.5 Test requirement

At step 4, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message (TP3).

At step 7, the UE shall transmit a URA UPDATE message on uplink CCCH with “ANR Logging Results Available” and set IE “Cell update cause” to value “change of URA” (TP4).

At step 10 the UE shall transmit a UE INFORMATION RESPONSE message including an ANR measurement for Cell 5 and no ANR measurement for Cell 4 (TP1,TP2,TP3).

8.7.1.4 Intra-UTRA / Inter-frequency and Intra-frequency ANR measurement, logging and reporting in IDLE Mode / Ec/N0 Relative Threshold / T327 Expiry / Max Number of ANR Logged Items (FDD)

8.7.1.4.1 Definition and applicability

All UEs supporting UTRAN ANR measurement.

8.7.1.4.2 Conformance requirement

[TS 25.304, 5.8.1 (TP4)]

The UE may be configured to perform UTRAN ANR measurement and logging in IDLE mode, CELL_PCH and URA_PCH state with Logging Measurement Configuration message as specified in [4]. If configured, the UE will

- perform measurements and evaluation on the cells which are not included in the neighbour cell list in IDLE mode, CELL_PCH and URA_PCH state.
- log information of the detected cells meeting the logging rules as specified in [4].

[TS 25.304, clause 5.8.2.1 (TP5)]

If configured via the Logging Measurement Configuration message, the UE may perform intra-freq and inter-freq ANR measurements and logging only when:

- in IDLE mode, CELL_PCH and URA_PCH state.
- the UE is camping normally on a UTRAN cell belonging to the PLMN or the list of Equivalent PLMNs where the Logging Measurement Configuration is received.

During the intra-freq and inter-freq ANR process, the UE may measure on the frequencies associated with the cells listed in the neighbour cell list and log corresponding information of the detected set cells as specified in TS 25.331

[TS 25.331, 7.2.1 (TP5)]

The UE shall perform ANR measurements and logging as specified in [4], when logged ANR measurement is configured.

[TS 25.331, 8.4.2.2 (TP6)]

For FDD and 1.28 Mcps TDD, the UE in CELL_PCH state shall:

…

2> if the measurement reporting is initiated according to subclause 8.5.40 or subclause 8.5.47 or subclause 8.5.56:

…

3> if IE "Logged ANR Report" in variable LOG_ANR_REPORT_VARIABLE is present and registered PLMN is the same as one of the PLMNs in the IE “PLMN Identity” or IE "Equivalent PLMN Identity List" stored in variable LOG_ ANR_REPORT_VARIABLE:

4> include IE "ANR Logging Results Available".

3> and then transmit the MEASUREMENT REPORT message on the uplink DCCH using AM RLC; when the MEASUREMENT REPORT message has been submitted to lower layers for transmission the procedure ends.

[TS 25.331, 8.5.63.3 (TP1,TP3)]

Upon receiving the LOGGING MEASUREMENT CONFIGURATION message the UE shall:

…

1> if IE "Logged ANR configuration Info" is present:

2> if variable LOG_ANR_CONFIG was already stored, discard the existing logged measurement configuration for ANR purpose as well as the associated logged measurement information as specified in 8.5.66;

2> store the received IEs in the IE "Logged ANR configuration Info" in variable LOG_ANR_CONFIG;

2> store the current Registered PLMN in the IE "PLMN Identity" in variable LOG_ANR_REPORT_VARIABLE;

2> start timer T327 with the timer value set to the IE "Logging Duration" included in IE "Logged ANR configuration Info".

[TS 25.331, 8.5.63.5 (TP2)]

When timer T327 expires, the UE shall:

1> stop perfoming ANR measurement and logging, release the variable LOG_ANR_CONFIG.

NOTE: The UE should not stop timer T327 upon transition to Idle mode, when it moves to another RAT or a PLMN not included in the IE "PLMN Identity" or IE "Equivalent PLMN Identity List" stored in variable LOG_ ANR_REPORT_VARIABLE. The UE is allowed to keep the stored logged ANR measurements, i.e. to store LOG_ANR_REPORT_VARIABLE 48 hours after T327 starts.

[TS 25.331, clause 8.5.67 (TP5)]

When in idle mode, CELL_PCH or URA_PCH state and Logged Measurements for ANR has been configured, the UE shall:

1> Store the available measurements according to the logged measurements configuration in variable LOG_ANR_CONFIG as specified in subclause 8.5.67.2.

[TS 25.331, 8.5.67.2 (TP4,TP5,TP7,TP8)]

While T327 is running, the UE shall:

1> perform the ANR measurements and evaluation on UTRAN, E-UTRAN or GERAN cells in accordance with the following:

2> if IE "Intra-UTRA ANR" is included in variable LOG_ANR_CONFIG:

3> if the UE camps normally on an UTRA cell (serving) that is part of the PLMN which is the same as one of the PLMNs in the IE "PLMN Identity" or IE "Equivalent PLMN Identity List" stored in variable LOG_ANR_REPORT_VARIABLE; and

3> if the serving cell and UTRA cell, not included in the neighbour cell list, together have not earlier been stored by UE in an entry of "Logged ANR Report Info" in the LOG_ANR_REPORT_VARIABLE; and

3> if the quality of the UTRA cell, not included in the neighbour cell list, exceeds the quality of the serving cell with more than the value of "Logging Relative Threshold", if this IE is present in the Logging Measurement Configuration message; and

3> if the quality of UTRA cell, not included in the neighbour cell list, is above the value of "Absolute Threshold"; and

3> if both the camping UTRAN cell and UTRA cell, not included in the neighbour cell list, are not CSG cells:

4> log the ANR information into the variable LOG_ANR_REPORT_VARIABLE as follows:

5> set the IEs "Serving PLMN Identity" and "Serving Cell" to indicate cell identity of the cell the UE is camping on;

5> try to acquire the corresponding system information of the UTRA cell and set to the variable LOG_ANR_REPORT_VARIABLE as follows:

6> set the IE "Cell Identity" to indicate cell identity of this UTRA cell;

6> set the IE "PLMN Identity" to indicate the Primary PLMN which this UTRA cell belongs to;

6> set the IE "UARFCN" and "Cell parameter ID" for a TDD cell or "Primary Scrambling Code" for a FDD cell.

…

2> when maximum number of entries for the ANR logging is reached, stop timer T327 and perform the same actions as upon expiry of T327, as specified in 8.5.63.5.

[TS 25.331, 10.3.10 (TP7,TP8)]

The following table includes constants that are either used as multi bounds (name starting with "max") or as high or low value in a type specification (name starting with "lo" or "hi"). Constants are specified only for values appearing more than once in the RRC specification. In case a constant is related to one or more other constants, an expression is included in the "value" column instead of the actual value.

Constant	Explanation	Value	Version
CN information			
maxCNdomains	Maximum number of CN domains	4	
…			
ANR information			REL-10
MaxNumANRLoggedItems	Maximum number of entries in Logged ANR Report info	4	REL-10

[TS 25.331, 13.1 (TP2)]

Timer	Start	Stop	At expiry
…			
T327	Upon receiving LOGGING MEASUREMENT CONFIGURATION including the Logged ANR Configuration Info	When reaching the maximum number of entries in the LOG_ ANR_REPORT_VARIABLE or the ANR logging info is reported to the network. When PLMN selection is triggered by NAS	See subclause 8.5.63.5

Reference

3GPP TS 25.304 clauses 5.8.1, 5.8.2.1; TS 25.331 clauses 7.2.1, 8.4.2.2, 8.5.63.3, 8.5.63.5, 8.5.67.2, 10.3.7.42a, 10.3.10, 13.1

8.7.1.4.3 Test purpose

1. To verify that the UE correctly reads Logging Duration in "Logged ANR configuration Info" in LOGGING MEASUREMENT CONFIGURATION message.
2. To verify the UE behaviour when T327 expires.
3. To verify UE that the correctly reads "Logged ANR configuration Info" in LOGGING MEASUREMENT CONFIGURATION message for Intra-UTRA ANR case when Logging Relative Threshold for Ec/NO is configured.
4. To verify that the UE trigger and performs ANR measurements on a cell not in the intra-/inter-frequency cell in list when Ec/N0 Relative Threshold is configured and UE measured Ec/N0 of the cell exceeds the Absolute and Relative Thresholds.
5. To verify that the UE performs Inter-frequency ANR measurement in IDLE mode on a cell not listed in the broadcasted intra-frequency cell info list.
6. To verify that the UE includes IE "ANR Logging Results Available" in MEASUREMENT REPORT message.
7. To verify that the UE is capable to log MaxNumANRLoggedItems.

8.7.1.4.4 Method of test

Initial Condition

System Simulator: 7 FDD cells – Cell 1, Cell 2, Cell 3, Cell 4, Cell 5, Cell 6, Cell 7. Cell 1 and Cell 2 are active. Cell 3, Cell 4, Cell 5, Cell 6 and Cell 7 are not active.

Note 1: Cell 2, Cell 3, Cell 5, Cell 6 and Cell 7 are only activated one at the time. Thus is the SS requirement for simultaneous cells for this test case limited to two cells.

SYSTEM INFORMATION BLOCK TYPE 11 of Cell 1: See specific message contents.

Note 2: Cell 4 is listed as inter-frequency neighbour cell. Cell 2, Cell 3, Cell 5, Cell 6 and Cell 7 are not included in intra- or inter-frequency cell info lists.

SS sets the test parameter T_{wait} to the value of PIXIT 'Px_AnrForUtranMeasLogWaitTime'.

UE: CELL_DCH (state 6-9) in Cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.7.1.4-1

Parameter	Unit	Cell 1	Cell 4	Cell 2, Cell 3, Cell 5, Cell 6 and Cell 7
UTRA RF Channel Number		Mid Range Test Frequency	Mid Range Test Frequency	Mid Range Test Frequency
CPICH Ec (FDD)	dBm/3.84MHz	-60	Not active	-57
Note: Cell 2, Cell 3, Cell 5, Cell 6 and Cell 7 power level is set to make UE measured Ec/N0 to exceed the configured Ec/N0 absolute threshold (-10 dB) and Ec/N0 relative threshold (-4 dB).				

Table 8.7.1.4-1 illustrates the downlink power to be applied for the different cells. Cell 2, Cell 3, Cell 5, Cell 6 andCell 7 are only activated one at a time as described below.

The UE is initially brought to CELL_DCH state in Cell 1. The system information block 11 message transmitted in Cell 1 does not list Cell 2, Cell 3, Cell 5, Cell 6 and Cell 7 in the intra- or inter-frequency cell info lists.

The SS configures UE to perform intra-UTRA ANR measurements triggered by Ec/N0 absolute and relative threshold by sending a LOGGING MEASUREMENT CONFIGURATION message to the UE.

The SS release the RRC connection and UE enters IDLE mode state. The SS waits T_{wait} seconds to allow UE to perform logging of ANR measurements of Cell 2.

The SS deactivates Cell 2 and reconfigure it as Cell 3. The SS waits T_{wait} seconds to allow UE to perform logging of ANR measurements of Cell 3.

The SS deactivates Cell 3 and reconfigure it as Cell 5. The SS waits T_{wait} seconds to allow UE to perform logging of ANR measurements of Cell 5.

The SS deactivates Cell 5 and reconfigure it as Cell 6. The SS waits T_{wait} seconds to allow UE to perform logging of ANR measurements of Cell 6. As maximum number of entries for the ANR logging is reached (4) by logging of Cell 2, Cell 3, Cell 5 and Cell 6 then shall UE stop timer T327 and stop performing ANR measurements and logging, and release the ANR logging configuration.

The SS deactivates Cell 6 and reconfigure it as Cell 7. The SS waits T_{wait} seconds to verify that UE does not perform ANR measurement and logging of Cell 7.

The SS page the UE to establish an RRC connection. The UE respond with a RRC CONNECTION SETUP COMPLETE message.

SS transmits a MEASUREMENT CONTROL message to UE. The UE shall perform periodical traffic volume measurement according to this message and then transmit MEASUREMENT REPORT message back to SS. The SS checks that the UE includes the IE “ANR Logging Results Available” in the MEASUREMENT REPORT message.

The SS transmits a UE INFORMATION REQUEST message to retrieve the ANR logging measurements from the UE. The UE respond by a UE INFORMATION RESPONSE message including logged ANR measurements, The SS checks the logged ANR report in the UE INFORMATION RESPONSE message includes an ANR measurement for Cell 2, Cell 3, Cell 5 and Cell 6, but not for Cell 4 or Cell 7.

Expected Sequence

Specific Message Contents

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_DCH state in Cell 1
2	←		LOGGING MEASUREMENT CONFIGURATION	SS transmits this message in Cell 1 on downlink DCCH using AM RLC configuring the UE to perform Intra-frequency ANR measurements.
4	←		RRC CONNECTION RELEASE	
5	→		RRC CONNECTION RELEASE COMPLETE	UE moves to IDLE mode state in Cell 1.
6	SS			SS waits T_{wait} seconds to allow UE to activate ANR logging in IDLE mode state.
7	SS			SS deactivates Cell 2 and reconfigure it as Cell 3. SS waits T_{wait} seconds to allow UE to activate ANR logging in IDLE mode state.
8	SS			SS deactivates Cell 3 and reconfigure it as Cell 5. SS waits T_{wait} seconds to allow UE to activate ANR logging in IDLE mode state.
9	SS			SS deactivates Cell 5 and reconfigure it as Cell 6. SS waits T_{wait} seconds to allow UE to activate ANR logging in IDLE mode state.
10	SS			SS deactivates Cell 6 and reconfigure it as Cell 7. SS waits T_{wait} seconds.
11	←		PAGING TYPE1	
12	→		RRC CONNECTION REQUEST	
13	←		RRC CONNECTION SETUP	
14	→		RRC CONNECTION SETUP COMPLETE	
15	←		MEASUREMENT CONTROL	SS requests UE to perform periodical traffic volume measurement.
16	→		MEASUREMENT REPORT	SS checks that the IE “ANR Logging Results Available” is included
17	←		UE INFORMATION REQUEST	
18	→		UE INFORMATION RESPONSE	SS checks that the "Logged ANR Report Info List" includes an ANR measurement for Cell 2, Cell 3, Cell 5 and Cell 6, but not for Cell 4 or Cell 7

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 11

Use same message sub-clause 6.1 of TS 34.108, with the exception of that cell 4 is listed as intra-frequency neighbour cell for cell 1; and that cell 2, cell 3, cell 5, cell 6 and cell 7 are not listed as intra- or inter-frequency neighbour cells for cell 1.

LOGGING MEASUREMENT CONFIGURATION (Step 2)

Use the LOGGING MEASUREMENT CONFIGURATION message as defined in [9] (TS 34.108) Clause 9 for condition A2 (Ec/N0 Absolute Threshold), with the exception of the following IEs:

Information Element	Value/remark
Logged Measurements Configuration Info	
Logged ANR configuration Info	
- Intra-UTRA ANR	
- CHOICE *Absolute Threshold*	Ec/N0 for ANR
- Ec/N0	Not present (default -10 dB)
- Logging Relative *Threshold*	0 (0 dB)

MEASUREMENT CONTROL (Step 15)

Use the MEASUREMENT CONTROL message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/Remark
Measurement Identity	1
Measurement Command	Setup
Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurement list	Not Present
CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	
- Uplink transport channel type	DCH
- UL Target Transport Channel ID	5
- Traffic volume measurement quantity	
- Measurement quantity	RLC Buffer Payload
- Time Interval to take an average or a variance	Not Present
- Traffic volume reporting quantity	
- RLC Buffer Payload for each RB	True
- Average of RLC Buffer Payload for each RB	False
- Variance of RLC Buffer Payload for each RB	False
- Measurement validity	
- UE state	All states
- CHOICE Reporting criteria	Periodical Reporting Criteria
- Amount of reporting	Infinity
- Reporting interval	8000
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 16)

Check to see if the same message type found in [9] TS 34.108 Clause 9 is received, with the following exceptions and the order in which the RBs are reported is not checked:

Information Element	Value/Remarks
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	Not checked
ANR Logging Results Available	Check that IE is set to TRUE.

UE INFORMATION REQUEST (Step 17)

Use the UE INFORMATION REQUEST message as defined in [9] (TS 34.108) Clause 9 for condition A1 (requesting Logged ANR Report).

UE INFORMATION RESPONSE (Step 18)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark	Version
Logged ANR Report Info		Rel-10
- Serving PLMN Identity	Checked to see that it is identical to the PLMN identity of Cell 1	
- Serving Cell	Checked to see that it is identical to the Cell ID of Cell 1	
- CHOICE *logged cell info*	UTRAN (1)	
- PLMN Identity	Checked to see that it is identical to the PLMN identify of Cell 2	
- Cell Identity	Checked to see that it is identical to the Cell ID of Cell 2	
- UARFCN	Checked to see that it is identical to the UARFCN of Cell 2	
- Cell parameter ID	This IE is checked to be present	
- CHOICE logged cell info	UTRAN (2)	
- PLMN Identity	Checked to see that it is identical to the PLMN identify of Cell 3	
- Cell Identity	Checked to see that it is identical to the Cell ID of Cell 3	
- UARFCN	Checked to see that it is identical to the UARFCN of Cell 3	
- Cell parameter ID	This IE is checked to be present	
- CHOICE logged cell info	UTRAN (3)	
- PLMN Identity	Checked to see that it is identical to the PLMN identify of Cell 5	
- Cell Identity	Checked to see that it is identical to the Cell ID of Cell 5	
- UARFCN	Checked to see that it is identical to the UARFCN of Cell 5	
- Cell parameter ID	This IE is checked to be present	
- CHOICE logged cell info	UTRAN (4)	
- PLMN Identity	Checked to see that it is identical to the PLMN identify of Cell 6	
- Cell Identity	Checked to see that it is identical to the Cell ID of Cell 6	
- UARFCN	Checked to see that it is identical to the UARFCN of Cell 6	
- Cell parameter ID	This IE is checked to be present	

8.7.1.4.5 Test requirement

At step 16 the UE shall transmit a RRC CONNECTION SETUP COMPLETE message on uplink DCCH including the IE “ANR Logging Results Available” (TP6).

At step 18 the UE shall transmit a UE INFORMATION RESPONSE message including an ANR measurements for cell 2, cell 3, cell 5 and cell 6 and no ANR measurements for cell 4 or cell 7 (TP1, TP2,TP3,TP4,TP5,TP7,TP8).

8.7.1.4a Intra-UTRA / Inter-frequency and Intra-frequency ANR measurement, logging and reporting in IDLE Mode / T327 Expiry / Max Number of ANR Logged Items (TDD)

8.7.1.4a.1 Definition and applicability

All UEs supporting UTRAN ANR measurement.

8.7.1.4a.2 Conformance requirement

[TS 25.304, clause 5.8.2.1 (TP3)]

If configured via the Logging Measurement Configuration message, the UE may perform intra-freq and inter-freq ANR measurements and logging only when:

- in IDLE mode, CELL_PCH and URA_PCH state.
- the UE is camping normally on a UTRAN cell belonging to the PLMN or the list of Equivalent PLMNs where the Logging Measurement Configuration is received.

During the intra-freq and inter-freq ANR process, the UE may measure on the frequencies associated with the cells listed in the neighbour cell list and log corresponding information of the detected set cells as specified in TS 25.331

[TS 25.331, 7.2.1 (TP3)]

The UE shall perform ANR measurements and logging as specified in [4], when logged ANR measurement is configured.

[TS 25.331, 8.4.2.2 (TP4)]

For FDD and 1.28 Mcps TDD, the UE in CELL_PCH state shall:

…

2> if the measurement reporting is initiated according to subclause 8.5.40 or subclause 8.5.47 or subclause 8.5.56:

…

3> if IE "Logged ANR Report" in variable LOG_ANR_REPORT_VARIABLE is present and registered PLMN is the same as one of the PLMNs in the IE “PLMN Identity” or IE "Equivalent PLMN Identity List" stored in variable LOG_ ANR_REPORT_VARIABLE:

4> include IE "ANR Logging Results Available".

3> and then transmit the MEASUREMENT REPORT message on the uplink DCCH using AM RLC; when the MEASUREMENT REPORT message has been submitted to lower layers for transmission the procedure ends.

[TS 25.331, 8.5.63.3 (TP1)]

Upon receiving the LOGGING MEASUREMENT CONFIGURATION message the UE shall:

…

1> if IE "Logged ANR configuration Info" is present:

2> if variable LOG_ANR_CONFIG was already stored, discard the existing logged measurement configuration for ANR purpose as well as the associated logged measurement information as specified in 8.5.66;

2> store the received IEs in the IE "Logged ANR configuration Info" in variable LOG_ANR_CONFIG;

2> store the current Registered PLMN in the IE "PLMN Identity" in variable LOG_ANR_REPORT_VARIABLE;

2> start timer T327 with the timer value set to the IE "Logging Duration" included in IE "Logged ANR configuration Info".

[TS 25.331, 8.5.63.5 (TP2)]

When timer T327 expires, the UE shall:

1> stop perfoming ANR measurement and logging, release the variable LOG_ANR_CONFIG.

NOTE: The UE should not stop timer T327 upon transition to Idle mode, when it moves to another RAT or a PLMN not included in the IE "PLMN Identity" or IE "Equivalent PLMN Identity List" stored in variable LOG_ ANR_REPORT_VARIABLE. The UE is allowed to keep the stored logged ANR measurements, i.e. to store LOG_ANR_REPORT_VARIABLE 48 hours after T327 starts.

[TS 25.331, clause 8.5.67 (TP3)]

When in idle mode, CELL_PCH or URA_PCH state and Logged Measurements for ANR has been configured, the UE shall:

1> Store the available measurements according to the logged measurements configuration in variable LOG_ANR_CONFIG as specified in subclause 8.5.67.2.

[TS 25.331, 8.5.67.2 (TP5,TP6)]

While T327 is running, the UE shall:

1> perform the ANR measurements and evaluation on UTRAN, E-UTRAN or GERAN cells in accordance with the following:

2> if IE "Intra-UTRA ANR" is included in variable LOG_ANR_CONFIG:

3> if the UE camps normally on an UTRA cell (serving) that is part of the PLMN which is the same as one of the PLMNs in the IE "PLMN Identity" or IE "Equivalent PLMN Identity List" stored in variable LOG_ANR_REPORT_VARIABLE; and

3> if the serving cell and UTRA cell, not included in the neighbour cell list, together have not earlier been stored by UE in an entry of "Logged ANR Report Info" in the LOG_ANR_REPORT_VARIABLE; and

3> if the quality of the UTRA cell, not included in the neighbour cell list, exceeds the quality of the serving cell with more than the value of "Logging Relative Threshold", if this IE is present in the Logging Measurement Configuration message; and

3> if the quality of UTRA cell, not included in the neighbour cell list, is above the value of "Absolute Threshold"; and

3> if both the camping UTRAN cell and UTRA cell, not included in the neighbour cell list, are not CSG cells:

4> log the ANR information into the variable LOG_ANR_REPORT_VARIABLE as follows:

5> set the IEs "Serving PLMN Identity" and "Serving Cell" to indicate cell identity of the cell the UE is camping on;

5> try to acquire the corresponding system information of the UTRA cell and set to the variable LOG_ANR_REPORT_VARIABLE as follows:

6> set the IE "Cell Identity" to indicate cell identity of this UTRA cell;

6> set the IE "PLMN Identity" to indicate the Primary PLMN which this UTRA cell belongs to;

6> set the IE "UARFCN" and "Cell parameter ID" for a TDD cell or "Primary Scrambling Code" for a FDD cell.

…

2> when maximum number of entries for the ANR logging is reached, stop timer T327 and perform the same actions as upon expiry of T327, as specified in 8.5.63.5.

[TS 25.331, 10.3.10 (TP5,TP6)]

The following table includes constants that are either used as multi bounds (name starting with "max") or as high or low value in a type specification (name starting with "lo" or "hi"). Constants are specified only for values appearing more than once in the RRC specification. In case a constant is related to one or more other constants, an expression is included in the "value" column instead of the actual value.

Constant	Explanation	Value	Version
CN information			
maxCNdomains	Maximum number of CN domains	4	
…			
ANR information			REL-10
MaxNumANRLoggedItems	Maximum number of entries in Logged ANR Report info	4	REL-10

[TS 25.331, 13.1 (TP2)]

Timer	Start	Stop	At expiry
…			
T327	Upon receiving LOGGING MEASUREMENT CONFIGURATION including the Logged ANR Configuration Info	When reaching the maximum number of entries in the LOG_ ANR_REPORT_VARIABLE or the ANR logging info is reported to the network. When PLMN selection is triggered by NAS	See subclause 8.5.63.5

Reference

3GPP TS 25.304 clauses 5.8.2.1; TS 25.331 clauses 7.2.1, 8.4.2.2, 8.5.63.3, 8.5.63.5, 8.5.67.2, 10.3.7.42a, 10.3.10, 13.1

8.7.1.4a.3 Test purpose

1. To verify that the UE correctly reads Logging Duration in "Logged ANR configuration Info" in LOGGING MEASUREMENT CONFIGURATION message.
2. To verify the UE behaviour when T327 expires.
3. To verify that the UE performs Inter-frequency ANR measurement in IDLE mode on a cell not listed in the broadcasted intra-frequency cell info list.
4. To verify that the UE includes IE "ANR Logging Results Available" in MEASUREMENT REPORT message.
5. To verify that the UE is capable to log MaxNumANRLoggedItems.

8.7.1.4a.4 Method of test

Initial Condition

System Simulator: 7 TDD cells – Cell 1, Cell 2, Cell 3, Cell 4, Cell 5, Cell 6, Cell 7. Cell 1 and Cell 2 are active. Cell 3, Cell 4, Cell 5, Cell 6 and Cell 7 are not active.

Note 1: Cell 2, Cell 3, Cell 5, Cell 6 and Cell 7 are only activated one at the time. Thus is the SS requirement for simultaneous cells for this test case limited to two cells.

SYSTEM INFORMATION BLOCK TYPE 11 of Cell 1: See specific message contents.

Note 2: Cell 4 is listed as inter-frequency neighbour cell. Cell 2, Cell 3, Cell 5, Cell 6 and Cell 7 are not included in intra- or inter-frequency cell info lists.

SS sets the test parameter T_{wait} to the value of PIXIT 'Px_AnrForUtranMeasLogWaitTime'.

UE: CELL_DCH (state 6-9) in Cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.7.1.4a-1

Parameter	Unit	Cell 1	Cell 4	Cell 2, Cell 3, Cell 5, Cell 6 and Cell 7
UTRA RF Channel Number		Mid Range Test Frequency	Mid Range Test Frequency	Mid Range Test Frequency
PCCPCH_RSCP (TDD)	dBm	-60	Not Active	-70
Note: Cell 2, Cell 3, Cell 5, Cell 6 and Cell 7 power level is set to make UE measured Ec/N0 to exceed the configured RSCP absolute threshold (-100 dBm).				

Table 8.7.1.4a-1 illustrates the downlink power to be applied for the different cells. Cell 2, Cell , Cell 5, Cell 6 and Cell 7 are only activated one at a time as described below.

The UE is initially brought to CELL_DCH state in Cell 1. The system information block 11 message transmitted in Cell 1 does not list Cell 2, Cell 3, Cell 5, Cell 6 and Cell 7 in the intra- or inter-frequency cell info lists.

The SS configures UE to perform intra-UTRA ANR measurements triggered by RSCP absolute threshold by sending a LOGGING MEASUREMENT CONFIGURATION message to the UE.

The SS release the RRC connection and UE enters IDLE mode state. The SS waits T_{wait} seconds to allow UE to perform logging of ANR measurements of Cell 2.

The SS deactivates Cell 2 and reconfigure it as Cell 3. The SS waits T_{wait} seconds to allow UE to perform logging of ANR measurements of Cell 3.

The SS deactivates Cell 3 and reconfigure it as Cell 5. The SS waits T_{wait} seconds to allow UE to perform logging of ANR measurements of Cell 5.

The SS deactivates Cell 5 and reconfigure it as Cell 6. The SS waits T_{wait} seconds to allow UE to perform logging of ANR measurements of Cell 6. As maximum number of entries for the ANR logging is reached (4) by logging of Cell 2, Cell 3, Cell 5 and Cell 6 then shall UE stop timer T327 and stop performing ANR measurements and logging, and release the ANR logging configuration.

The SS deactivates Cell 6 and reconfigure it as Cell 7. The SS waits T_{wait} seconds to verify that UE does not perform ANR measurement and logging of Cell 7.

The SS page the UE to establish an RRC connection. The UE respond with a RRC CONNECTION SETUP COMPLETE message.

SS transmits a MEASUREMENT CONTROL message to UE. The UE shall perform periodical traffic volume measurement according to this message and then transmit MEASUREMENT REPORT message back to SS. The SS checks that the UE includes the IE “ANR Logging Results Available” in the MEASUREMENT REPORT message.

The SS transmits a UE INFORMATION REQUEST message to retrieve the ANR logging measurements from the UE. The UE respond by a UE INFORMATION RESPONSE message including logged ANR measurements, The SS checks the logged ANR report in the UE INFORMATION RESPONSE message includes an ANR measurement for Cell 2, Cell 3, Cell 5 and Cell 6, but not for Cell 4 or Cell 7.

Expected Sequence

Specific Message Contents

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_DCH state in Cell 1
2	←		LOGGING MEASUREMENT CONFIGURATION	SS transmits this message in Cell 1 on downlink DCCH using AM RLC configuring the UE to perform Intra-frequency ANR measurements.
4	←		RRC CONNECTION RELEASE	
5	→		RRC CONNECTION RELEASE COMPLETE	UE moves to IDLE mode state in Cell 1.
6	SS			SS waits T_{wait} seconds to allow UE to activate ANR logging in IDLE mode state.
7	SS			SS deactivates Cell 2 and reconfigure it as Cell 3. SS waits T_{wait} seconds to allow UE to activate ANR logging in IDLE mode state.
8	SS			SS deactivates Cell 3 and reconfigure it as Cell 5. SS waits T_{wait} seconds to allow UE to activate ANR logging in IDLE mode state.
9	SS			SS deactivates Cell 5 and reconfigure it as Cell 6. SS waits T_{wait} seconds to allow UE to activate ANR logging in IDLE mode state.
10	SS			SS deactivates Cell 6 and reconfigure it as Cell 7. SS waits T_{wait} seconds.
11	←		PAGING TYPE1	
12	→		RRC CONNECTION REQUEST	
13	←		RRC CONNECTION SETUP	
14	→		RRC CONNECTION SETUP COMPLETE	
15	←		MEASUREMENT CONTROL	SS requests UE to perform periodical traffic volume measurement.
16	→		MEASUREMENT REPORT	SS checks that the IE “ANR Logging Results Available” is included
17	←		UE INFORMATION REQUEST	
18	→		UE INFORMATION RESPONSE	SS checks that the "Logged ANR Report Info List" includes an ANR measurement for Cell 2, Cell 3, Cell 5 and Cell 6, but not for Cell 4 or Cell 7

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 11

Use same message sub-clause 6.1 of TS 34.108, with the exception of that cell 4 is listed as intra-frequency neighbour cell for cell 1; and that cell 2, cell 3, cell 5, cell 6 and cell 7 are not listed as intra- or inter-frequency neighbour cells for cell 1.

LOGGING MEASUREMENT CONFIGURATION (Step 2)

Use the LOGGING MEASUREMENT CONFIGURATION message as defined in [9] (TS 34.108) Clause 9 for condition A1 (RSCP Absolute Threshold = -100dBm).

MEASUREMENT CONTROL (Step 15)

Use the MEASUREMENT CONTROL message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/Remark
Measurement Identity	1
Measurement Command	Setup
Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurement list	Not Present
CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	
- Uplink transport channel type	DCH
- UL Target Transport Channel ID	5
- Traffic volume measurement quantity	
- Measurement quantity	RLC Buffer Payload
- Time Interval to take an average or a variance	Not Present
- Traffic volume reporting quantity	
- RLC Buffer Payload for each RB	True
- Average of RLC Buffer Payload for each RB	False
- Variance of RLC Buffer Payload for each RB	False
- Measurement validity	
- UE state	All states
- CHOICE Reporting criteria	Periodical Reporting Criteria
- Amount of reporting	Infinity
- Reporting interval	8000
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 16)

Check to see if the same message type found in [9] TS 34.108 Clause 9 is received, with the following exceptions and the order in which the RBs are reported is not checked:

Information Element	Value/Remarks
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	Not checked
ANR Logging Results Available	Check that IE is set to TRUE.

UE INFORMATION REQUEST (Step 17)

Use the UE INFORMATION REQUEST message as defined in [9] (TS 34.108) Clause 9 for condition A1 (requesting Logged ANR Report).

UE INFORMATION RESPONSE (Step 18)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark	Version
Logged ANR Report Info		Rel-10
- Serving PLMN Identity	Checked to see that it is identical to the PLMN identity of Cell 1	
- Serving Cell	Checked to see that it is identical to the Cell ID of Cell 1	
- CHOICE *logged cell info*	UTRAN (1)	
- PLMN Identity	Checked to see that it is identical to the PLMN identify of Cell 2	
- Cell Identity	Checked to see that it is identical to the Cell ID of Cell 2	
- UARFCN	Checked to see that it is identical to the UARFCN of Cell 2	

Information Element	Value/remark	Version
- Primary Scrambling Code	This IE is checked to be present	
- CHOICE logged cell info	UTRAN (2)	
- PLMN Identity	Checked to see that it is identical to the PLMN identify of Cell 3	
- Cell Identity	Checked to see that it is identical to the Cell ID of Cell 3	
- UARFCN	Checked to see that it is identical to the UARFCN of Cell 3	
- Primary Scrambling Code	This IE is checked to be present	
- CHOICE logged cell info	UTRAN (3)	
- PLMN Identity	Checked to see that it is identical to the PLMN identify of Cell 5	
- Cell Identity	Checked to see that it is identical to the Cell ID of Cell 5	
- UARFCN	Checked to see that it is identical to the UARFCN of Cell 5	
- Primary Scrambling Code	This IE is checked to be present	
- CHOICE logged cell info	UTRAN (4)	
- PLMN Identity	Checked to see that it is identical to the PLMN identify of Cell 6	
- Cell Identity	Checked to see that it is identical to the Cell ID of Cell 6	
- UARFCN	Checked to see that it is identical to the UARFCN of Cell 6	
- Primary Scrambling Code	This IE is checked to be present	

8.7.1.4a.5 Test requirement

At step 16 the UE shall transmit a RRC CONNECTION SETUP COMPLETE message on uplink DCCH including the IE “ANR Logging Results Available” (TP4).

At step 18 the UE shall transmit a UE INFORMATION RESPONSE message including an ANR measurements for cell 2, cell 3, cell 5 and cell 6 and no ANR measurements for cell 4 or cell 7 (TP1, TP2, TP3,TP5,TP6).

8.7.1.5 Intra-UTRA / Re-configuration of ANR measurements (FDD)

8.7.1.5.1 Definition and applicability

All UEs supporting UTRAN ANR measurement.

8.7.1.5.2 Conformance requirement

[TS 25.331, 8.5.63.3 (TP1)]

Upon receiving the LOGGING MEASUREMENT CONFIGURATION message the UE shall:

…

1> if IE "Logged ANR configuration Info" is present:

2> if variable LOG_ANR_CONFIG was already stored, discard the existing logged measurement configuration for ANR purpose as well as the associated logged measurement information as specified in 8.5.66;

2> store the received IEs in the IE "Logged ANR configuration Info" in variable LOG_ANR_CONFIG;

2> store the current Registered PLMN in the IE "PLMN Identity" in variable LOG_ANR_REPORT_VARIABLE;

2> start timer T327 with the timer value set to the IE "Logging Duration" included in IE "Logged ANR configuration Info".

[TS 25.331, 8.5.64.3 (TP2)]

UE Shall:

...

1> if IE "Logged ANR Report Request" is present:

2> if Registered PLMN is the same as one of the PLMNs in the IE "PLMN Identity" or IE "Equivalent PLMN Identity List" stored in variable LOG_ANR_REPORT_VARIABLE:

3> if IE "Logged ANR Report Info" in variable LOG_ANR_REPORT_VARIABLE is present:

4> set IEs "Logged ANR Report Info" in the UE INFORMATION RESPONSE as follows:

5> include the IEs "Logged ANR Report Info List" and set it to include entries from LOG_ANR_REPORT_VARIABLE;

5> clear the logged measurement results included in the list of IEs "Logged ANR Report Info List" from the LOG_ANR_REPORT_VARIABLE;

5> clear the variable LOG_ANR_CONFIG and stop timer T327.

2> transmit a UE INFORMATION RESPONSE message on the uplink DCCH using AM RLC.

[TS 25.331, clause 8.5.68.2 (TP1)]

The UE initiates the procedure to release the existing logging measurements configuration upon receiving a new Logged ANR Configuration in UTRAN. The UE also shall initiate the procedure after sending UE INFORMATION RESPONSE message as well as upon switch off or detach.

The UE shall:

1> if stored, discard the existing logged measurement configuration as well as the logged measurement information, i.e. release the UE variables LOG_ANR_CONFIG and LOG_ANR_REPORT_VARIABLE and stop timer T327.

[TS 25.331, 13.1 (TP1,TP2)]

Timer	Start	Stop	At expiry
T327	Upon receiving LOGGING MEASUREMENT CONFIGURATION including the Logged ANR Configuration Info	When reaching the maximum number of entries in the LOG_ ANR_REPORT_VARIABLE or the ANR logging info is reported to the network. When PLMN selection is triggered by NAS	See subclause 8.5.63.5

Reference

3GPP TS 25.331 clauses 8.5.63.3, 8.5.64.3, 8.5.68.2, 13.1

8.7.1.5.3 Test purpose

1. Verify that UE, upon reception of new LOGGING MEASUREMENT CONFIGURATION message, clears the logged ANR configuration and stored logged measurement results, stops timer T327, stores the new logged ANR configuration and restarts the T327 timer.

2. To verify that the UE clear the logged ANR configuration and stored logged measurements results and stops timer T327 after UE INFORMATION RESPONSE message has been sent to the network.

8.7.1.5.4 Method of test

Initial Condition

System Simulator: 2 FDD cells – Cell 1 and Cell 2 are active.

SYSTEM INFORMATION BLOCK TYPE 11 of Cell 1: See specific message contents.

Note: Cell 2 is not included in intra- or inter-frequency info list.

UE: CELL_DCH (state 6-9) in Cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.7.1.5-1

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-60	-80	-60

Table 8.7.1.5-1 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while column marked “T1” is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

The UE is initially brought to CELL_DCH state in Cell 1. The system information block 11 message transmitted in Cell 1 does not list Cell 2 in the intra- or inter-frequency cell info lists.

The SS configures UE to perform intra-UTRA ANR measurements triggered by RSCP absolute threshold (-100 dBm) by sending a LOGGING MEASUREMENT CONFIGURATION message to the UE.

The SS release the RRC connection and UE enters IDLE mode state. The SS waits T_{wait} seconds to allow UE to perform logging of ANR measurements of Cell 2. See note 1.

The SS page the UE to establish an RRC connection. The SS checks that the UE includes the IE “ANR Logging Results Available” in the RRC CONNECTION SETUP COMPLETE message.

The SS reconfigures UE to perform intra-UTRA ANR measurements for a different RSCP absolute threshold (-70dBm) by sending a second LOGGING MEASUREMENT CONFIGURATION message to the UE. The new RSCP absolute threshold is not satisfied by the current power settings of Cell 2.

The SS release the RRC connection and UE enters IDLE mode state. The SS waits T_{wait} seconds to verify that UE does not perform logging of ANR measurements of Cell 2. See note 2.

The SS page the UE to establish an RRC connection. The SS checks that the UE does not include the IE “ANR Logging Results Available” in the RRC CONNECTION SETUP COMPLETE message.

The SS release the RRC connection and UE enters IDLE mode state.

SS configures its downlink transmission power settings according to columns "T1" in table 8.7.1.5-1 to satisfy the reconfigured RSCP absolute threshold.

The SS waits T_{wait} seconds to verify that UE performs logging of ANR measurements of Cell 2. See note 3.

The SS page the UE to establish an RRC connection. The SS checks that the UE includes the IE “ANR Logging Results Available” in the RRC CONNECTION SETUP COMPLETE message.

The SS transmits a UE INFORMATION REQUEST message to retrieve the ANR logging measurements from the UE. The UE respond by a UE INFORMATION RESPONSE message including logged ANR measurements, The SS checks the logged ANR report in the UE INFORMATION RESPONSE message includes an Intra-UTRA ANR measurement for Cell 2. The UE clear the logged ANR configuration and stored logged measurement results.

The SS release the RRC connection and UE enters IDLE mode state. The SS waits T_{wait} seconds to verify that UE does not perform logging of ANR measurements of Cell 2.

The SS page the UE to establish an RRC connection. The SS checks that the UE does not include the IE “ANR Logging Results Available” in the RRC CONNECTION SETUP COMPLETE message.

Note 1: CPICH Ec of Cell 3 is -80dBm/3.84 MHz, which exceeds the configured Absolute Threshold for RSCP of -100 dBm triggering the ANR logging of Cell 2.

Note 2: CPICH Ec of Cell 3 is -80dBm/3.84 MHz, which is less than the re-configured Absolute Threshold for RSCP of -70dBm. The UE shall not trigger any ANR logging of Cell 2.

Note 3: CPICH Ec of Cell 3 is -60dBm/3.84 MHz, which exceeds the configured Absolute Threshold for RSCP of -70 dBm triggering the ANR logging of Cell 2.

Expected Sequence

Specific Message Contents

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_DCH state in Cell 1
2	←		LOGGING MEASUREMENT CONFIGURATION	SS transmits this message in Cell 1 on downlink DCCH using AM RLC configuring the UE to perform Intra-frequency ANR measurements.
4	←		RRC CONNECTION RELEASE	
5	→		RRC CONNECTION RELEASE COMPLETE	UE moves to IDLE mode state in Cell 1.
6	SS			SS waits T_{wait} seconds to allow UE to activate ANR logging in IDLE mode state.

7	←	PAGING TYPE1	
8	→	RRC CONNECTION REQUEST	
9	←	RRC CONNECTION SETUP	
10	→	RRC CONNECTION SETUP COMPLETE	SS checks that the IE “ANR Logging Results Available” is included
11	←	LOGGING MEASUREMENT CONFIGURATION	SS transmits this message in Cell 1 on downlink DCCH using AM RLC configuring the UE to perform Intra-frequency ANR measurements.
12	←	RRC CONNECTION RELEASE	
13	→	RRC CONNECTION RELEASE COMPLETE	UE moves to IDLE mode state in Cell 1.
14	SS		SS waits T_{wait} seconds to verify that UE does not perform ANR measurement and logging of Cell 2.
15	→	RRC CONNECTION REQUEST	
16	←	RRC CONNECTION SETUP	
17	→	RRC CONNECTION SETUP COMPLETE	SS checks that the IE “ANR Logging Results Available” is not included
18	←	RRC CONNECTION RELEASE	
19	→	RRC CONNECTION RELEASE COMPLETE	UE moves to IDLE mode state in Cell 1.
20			The SS switches its downlink transmission power settings to columns "T1" in table 8.7.1.5-1.
21	SS		SS waits T_{wait} seconds to allow UE to activate ANR logging in IDLE mode state.
22	→	RRC CONNECTION REQUEST	
23	←	RRC CONNECTION SETUP	
24	→	RRC CONNECTION SETUP COMPLETE	SS checks that the IE “ANR Logging Results Available” is included
25	←	UE INFORMATION REQUEST	
26	→	UE INFORMATION RESPONSE	SS checks that the "Logged ANR Report Info List" includes an ANR measurement for Cell 2
27	←	RRC CONNECTION RELEASE	
28	→	RRC CONNECTION RELEASE COMPLETE	UE moves to IDLE mode state in Cell 1.
29	SS		SS waits [FFS] seconds to verify that UE does not perform ANR measurement and logging of Cell 2.
30	→	RRC CONNECTION REQUEST	
31	←	RRC CONNECTION SETUP	
32	→	RRC CONNECTION SETUP COMPLETE	SS checks that the IE “ANR Logging Results Available” is not included

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 11 for Cell 1

Use same message sub-clause 6.1 of TS 34.108, with the exception of that cell 2 is not listed as intra- or inter-frequency neighbour cell.

LOGGING MEASUREMENT CONFIGURATION (Step 2)

Use the LOGGING MEASUREMENT CONFIGURATION message as defined in [9] (TS 34.108) Clause 9 for condition A1 (RSCP Absolute Threshold = -100dBm).

RRC CONNECTION SETUP COMPLETE (Step 5)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark
ANR Logging Results Available	Check that IE is set to TRUE.

LOGGING MEASUREMENT CONFIGURATION (Step 11)

Use same message sub-clause 9.1.1 of TS 34.108 for condition A1 (RSCP Absolute Threshold), with the exception of the following IEs:

Information Element	Value/remark
Logged Measurements Configuration Info	
Logged ANR configuration Info	
- Intra-UTRA ANR	
- CHOICE *Absolute Threshold*	RCSP for ANR
- RSCP	-70dBm
- Logging Relative *Threshold*	Not present
…	

RRC CONNECTION SETUP COMPLETE (Step 17)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark
ANR Logging Results Available	Check that IE is absent

RRC CONNECTION SETUP COMPLETE (Step 24)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark
ANR Logging Results Available	Check that IE is set to TRUE.

UE INFORMATION REQUEST (Step 25)

Use the UE INFORMATION REQUEST message as defined in [9] (TS 34.108) Clause 9 for condition A1 (requesting Logged ANR Report).

UE INFORMATION RESPONSE (Step 26)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark	Version
Logged ANR Report Info		Rel-10
- Serving PLMN Identity	Checked to see that it is identical to the PLMN identity of Cell 1	
- Serving Cell	Checked to see that it is identical to the Cell ID of Cell 1	
- CHOICE *logged cell info*	UTRAN	
- PLMN Identity	Checked to see that it is identical to the PLMN identify of Cell 2	
- Cell Identity	Checked to see that it is identical to the Cell ID of Cell 2	
- UARFCN	Checked to see that it is identical to the UARFCN of Cell 2	
- Cell parameter ID	This IE is checked to be present	

RRC CONNECTION SETUP COMPLETE (Step 32)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark
ANR Logging Results Available	Check that IE is absent

8.7.1.5.5 Test requirement

At step 10 the UE shall transmit a RRC CONNECTION SETUP COMPLETE message on uplink DCCH including the IE “ANR Logging Results Available” (TP1).

At step 17 the UE shall transmit a RRC CONNECTION SETUP COMPLETE message on uplink DCCH not including the IE “ANR Logging Results Available” (TP1).

At step 24 the UE shall transmit a RRC CONNECTION SETUP COMPLETE message on uplink DCCH including the IE “ANR Logging Results Available” (TP1).

At step 26 the UE shall transmit a UE INFORMATION RESPONSE message including an ANR measurements for cell 2 (TP1,TP2).

At step 32 the UE shall transmit a RRC CONNECTION SETUP COMPLETE message on uplink DCCH including the IE “ANR Logging Results Available” (TP2).

8.7.1.5a Intra-UTRA / Re-configuration of ANR measurements (TDD)

8.7.1.5a.1 Definition and applicability

All UEs supporting UTRAN ANR measurement.

8.7.1.5a.2 Conformance requirement

[TS 25.331, 8.5.63.3 (TP1)]

Upon receiving the LOGGING MEASUREMENT CONFIGURATION message the UE shall:

…

1> if IE "Logged ANR configuration Info" is present:

2> if variable LOG_ANR_CONFIG was already stored, discard the existing logged measurement configuration for ANR purpose as well as the associated logged measurement information as specified in 8.5.66;

2> store the received IEs in the IE "Logged ANR configuration Info" in variable LOG_ANR_CONFIG;

2> store the current Registered PLMN in the IE "PLMN Identity" in variable LOG_ANR_REPORT_VARIABLE;

2> start timer T327 with the timer value set to the IE "Logging Duration" included in IE "Logged ANR configuration Info".

[TS 25.331, 8.5.64.3 (TP2)]

UE Shall:

...

1> if IE "Logged ANR Report Request" is present:

2> if Registered PLMN is the same as one of the PLMNs in the IE "PLMN Identity" or IE "Equivalent PLMN Identity List" stored in variable LOG_ANR_REPORT_VARIABLE:

3> if IE "Logged ANR Report Info" in variable LOG_ANR_REPORT_VARIABLE is present:

4> set IEs "Logged ANR Report Info" in the UE INFORMATION RESPONSE as follows:

5> include the IEs "Logged ANR Report Info List" and set it to include entries from LOG_ANR_REPORT_VARIABLE;

5> clear the logged measurement results included in the list of IEs "Logged ANR Report Info List" from the LOG_ANR_REPORT_VARIABLE;

5> clear the variable LOG_ANR_CONFIG and stop timer T327.

2> transmit a UE INFORMATION RESPONSE message on the uplink DCCH using AM RLC.

[TS 25.331, clause 8.5.68.2 (TP1)]

The UE initiates the procedure to release the existing logging measurements configuration upon receiving a new Logged ANR Configuration in UTRAN. The UE also shall initiate the procedure after sending UE INFORMATION RESPONSE message as well as upon switch off or detach.

The UE shall:

1> if stored, discard the existing logged measurement configuration as well as the logged measurement information, i.e. release the UE variables LOG_ANR_CONFIG and LOG_ANR_REPORT_VARIABLE and stop timer T327.

[TS 25.331, 13.1 (TP1,TP2)]

Timer	Start	Stop	At expiry
T327	Upon receiving LOGGING MEASUREMENT CONFIGURATION including the Logged ANR Configuration Info	When reaching the maximum number of entries in the LOG_ ANR_REPORT_VARIABLE or the ANR logging info is reported to the network. When PLMN selection is triggered by NAS	See subclause 8.5.63.5

Reference

3GPP TS 25.331 clauses 8.5.63.3, 8.5.64.3, 8.5.68.2, 13.1

8.7.1.5a.3 Test purpose

1. Verify that UE, upon reception of new LOGGING MEASUREMENT CONFIGURATION message, clears the logged ANR configuration and stored logged measurement results, stops timer T327, stores the new logged ANR configuration and restarts the T327 timer.

2. To verify that the UE clear the logged ANR configuration and stored logged measurements results and stops timer T327 after UE INFORMATION RESPONSE message has been sent to the network.

8.7.1.5a.4 Method of test

Initial Condition

System Simulator: 2 TDD cells – Cell 1 and Cell 2 are active.

SYSTEM INFORMATION BLOCK TYPE 11 of Cell 1: See specific message contents.

Note: Cell 2 is not included in intra- or inter-frequency info list.

UE: CELL_DCH (state 6-9) in Cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.7.1.5a-1

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Mid Range Test Frequency		Mid Range Test Frequency	
PCCPCH_RSCP (TDD)	dBm	-60	-60	-80	-60

Table 8.7.1.5a-1 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while column marked “T1” is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

The UE is initially brought to CELL_DCH state in Cell 1. The system information block 11 message transmitted in Cell 1 does not list Cell 2 in the intra- or inter-frequency cell info lists.

The SS configures UE to perform intra-UTRA ANR measurements triggered by RSCP absolute threshold (-100 dBm) by sending a LOGGING MEASUREMENT CONFIGURATION message to the UE.

The SS release the RRC connection and UE enters IDLE mode state. The SS waits T_{wait} seconds to allow UE to perform logging of ANR measurements of Cell 2. See note 1.

The SS page the UE to establish an RRC connection. The SS checks that the UE includes the IE “ANR Logging Results Available” in the RRC CONNECTION SETUP COMPLETE message.

The SS reconfigures UE to perform intra-UTRA ANR measurements for a different RSCP absolute threshold (-70 dBm) by sending a second LOGGING MEASUREMENT CONFIGURATION message to the UE. The new RSCP absolute threshold is not satisfied by the current power settings of Cell 2.

The SS release the RRC connection and UE enters IDLE mode state. The SS waits T_{wait} seconds to verify that UE does not perform logging of ANR measurements of Cell 2. See note 2.

The SS page the UE to establish an RRC connection. The SS checks that the UE does not include the IE “ANR Logging Results Available” in the RRC CONNECTION SETUP COMPLETE message.

The SS release the RRC connection and UE enters IDLE mode state.

SS configures its downlink transmission power settings according to columns "T1" in table 8.7.1.5a-1 to satisfy the reconfigured RSCP absolute threshold.

The SS waits T_{wait} seconds to verify that UE performs logging of ANR measurements of Cell 2. See note 3.

The SS page the UE to establish an RRC connection. The SS checks that the UE includes the IE “ANR Logging Results Available” in the RRC CONNECTION SETUP COMPLETE message.

The SS transmits a UE INFORMATION REQUEST message to retrieve the ANR logging measurements from the UE. The UE respond by a UE INFORMATION RESPONSE message including logged ANR measurements, The SS checks the logged ANR report in the UE INFORMATION RESPONSE message includes an Intra-UTRA ANR measurement for Cell 2. The UE clear the logged ANR configuration and stored logged measurement results.

The SS release the RRC connection and UE enters IDLE mode state. The SS waits T_{wait} seconds to verify that UE does not perform logging of ANR measurements of Cell 2.

The SS page the UE to establish an RRC connection. The SS checks that the UE does not include the IE “ANR Logging Results Available” in the RRC CONNECTION SETUP COMPLETE message.

Note 1: CPICH_RSCP of Cell 3 is -80dBm, which exceeds the configured Absolute Threshold for RSCP of -100 dBm triggering the ANR logging of Cell 2.

Note 2: CPICH_RSCP of Cell 3 is -80dBm, which is less than the re-configured Absolute Threshold for RSCP of -70dBm. The UE shall not trigger any ANR logging of Cell 2.

Note 3: CPICH_RSCP of Cell 3 is -60dBm, which exceeds the configured Absolute Threshold for RSCP of -70 dBm triggering the ANR logging of Cell 2.

Expected Sequence

Specific Message Contents

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_DCH state in Cell 1
2	←		LOGGING MEASUREMENT CONFIGURATION	SS transmits this message in Cell 1 on downlink DCCH using AM RLC configuring the UE to perform Intra-frequency ANR measurements.
4	←		RRC CONNECTION RELEASE	
5	→		RRC CONNECTION RELEASE COMPLETE	UE moves to IDLE mode state in Cell 1.
6	SS			SS waits T_{wait} seconds to allow UE to activate ANR logging in IDLE mode state.

7	←	PAGING TYPE1	
8	→	RRC CONNECTION REQUEST	
9	←	RRC CONNECTION SETUP	
10	→	RRC CONNECTION SETUP COMPLETE	SS checks that the IE “ANR Logging Results Available” is included.
11	←	LOGGING MEASUREMENT CONFIGURATION	SS transmits this message in Cell 1 on downlink DCCH using AM RLC configuring the UE to perform Intra-frequency ANR measurements.
12	←	RRC CONNECTION RELEASE	
13	→	RRC CONNECTION RELEASE COMPLETE	UE moves to IDLE mode state in Cell 1.
14	SS		SS waits T_{wait} seconds to verify that UE does not perform ANR measurement and logging of Cell 2.
15	→	RRC CONNECTION REQUEST	
16	←	RRC CONNECTION SETUP	
17	→	RRC CONNECTION SETUP COMPLETE	SS checks that the IE “ANR Logging Results Available” is not included.
18	←	RRC CONNECTION RELEASE	
19	→	RRC CONNECTION RELEASE COMPLETE	UE moves to IDLE mode state in Cell 1.
20			The SS switches its downlink transmission power settings to columns "T1" in table 8.7.1.5a-1.
21	SS		SS waits T_{wait} seconds to allow UE to activate ANR logging in IDLE mode state.
22	→	RRC CONNECTION REQUEST	
23	←	RRC CONNECTION SETUP	
24	→	RRC CONNECTION SETUP COMPLETE	SS checks that the IE “ANR Logging Results Available” is included.
25	←	UE INFORMATION REQUEST	
26	→	UE INFORMATION RESPONSE	SS checks that the "Logged ANR Report Info List" includes an ANR measurement for Cell 2.
27	←	RRC CONNECTION RELEASE	
28	→	RRC CONNECTION RELEASE COMPLETE	UE moves to IDLE mode state in Cell 1.
29	SS		SS waits T_{wait} seconds to verify that UE does not perform ANR measurement and logging of Cell 2.
30	→	RRC CONNECTION REQUEST	
31	←	RRC CONNECTION SETUP	
32	→	RRC CONNECTION SETUP COMPLETE	SS checks that the IE “ANR Logging Results Available” is not included

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 11 for Cell 1

Use same message sub-clause 6.1 of TS 34.108, with the exception of that cell 2 is not listed as intra- or inter-frequency neighbour cell.

LOGGING MEASUREMENT CONFIGURATION (Step 2)

Use the LOGGING MEASUREMENT CONFIGURATION message as defined in [9] (TS 34.108) Clause 9 for condition A1 (RSCP Absolute Threshold = -100 dBm).

RRC CONNECTION SETUP COMPLETE (Step 5)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark
ANR Logging Results Available	Check that IE is set to TRUE.

LOGGING MEASUREMENT CONFIGURATION (Step 11)

Use same message sub-clause 9.1.1 of TS 34.108 for condition A1 (RSCP Absolute Threshold), with the exception of the following IEs:

Information Element	Value/remark
Logged Measurements Configuration Info	
Logged ANR configuration Info	
- Intra-UTRA ANR	
- CHOICE *Absolute Threshold*	RCSP for ANR
- RSCP	-70dBm
- Logging Relative *Threshold*	Not present
…	

RRC CONNECTION SETUP COMPLETE (Step 17)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark
ANR Logging Results Available	Check that IE is absent

RRC CONNECTION SETUP COMPLETE (Step 24)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark
ANR Logging Results Available	Check that IE is set to TRUE.

UE INFORMATION REQUEST (Step 25)

Use the UE INFORMATION REQUEST message as defined in [9] (TS 34.108) Clause 9 for condition A1 (requesting Logged ANR Report).

UE INFORMATION RESPONSE (Step 26)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark	Version
Logged ANR Report Info		Rel-10
- Serving PLMN Identity	Checked to see that it is identical to the PLMN identity of Cell 1	
- Serving Cell	Checked to see that it is identical to the Cell ID of Cell 1	
- CHOICE *logged cell info*	UTRAN	
- PLMN Identity	Checked to see that it is identical to the PLMN identify of Cell 2	
- Cell Identity	Checked to see that it is identical to the Cell ID of Cell 2	
- UARFCN	Checked to see that it is identical to the UARFCN of Cell 2	
- Primary Scrambling Code	This IE is checked to be present	

RRC CONNECTION SETUP COMPLETE (Step 32)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark
ANR Logging Results Available	Check that IE is absent

8.7.1.5a.5 Test requirement

At step 10 the UE shall transmit a RRC CONNECTION SETUP COMPLETE message on uplink DCCH including the IE “ANR Logging Results Available” (TP1).

At step 17 the UE shall transmit a RRC CONNECTION SETUP COMPLETE message on uplink DCCH not including the IE “ANR Logging Results Available” (TP1).

At step 24 the UE shall transmit a RRC CONNECTION SETUP COMPLETE message on uplink DCCH including the IE “ANR Logging Results Available” (TP1).

At step 26 the UE shall transmit a UE INFORMATION RESPONSE message including an ANR measurements for cell 2 (TP1,TP2).

At step 32 the UE shall transmit a RRC CONNECTION SETUP COMPLETE message on uplink DCCH including the IE “ANR Logging Results Available” (TP2).

8.7.2 Inter-RAT

8.7.2.1 Inter-RAT/ ANR measurement, logging and reporting / GERAN cell (FDD)

8.7.2.1.1 Definition and applicability

All UEs supporting GERAN and UTRAN ANR measurements.

8.7.2.1.2 Conformance requirement

[TS 25.304, 5.8.2.2 (TP2)]

If configured to perform inter-RAT ANR via the Logging Measurement Configuration message, the UE may perform inter-RAT ANR logging only when:

- after inter-RAT cell reselection from E-UTRAN or GSM to a normal UTRAN cell belonging to the PLMN or the list of Equivalent PLMNs where the Logging Measurement Configuration is received.

During the inter-RAT ANR process, the UE may log the corresponding information of the previously camped E-UTRAN or GSM cell as specified in TS 25.331.

[TS 25.331, clause 7.2.1 (TP2)]

The UE shall perform ANR measurements and logging as specified in [4], when logged ANR measurement is configured.

[TS 25.331, clause 8.1.3.6 (TP3)]

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

…

If the values are identical, the UE shall:

…

1> submit an RRC CONNECTION SETUP COMPLETE message to the lower layers on the uplink DCCH after successful state transition per subclause 8.6.3.3, with the contents set as specified below:

2> if an IE "Logged ANR Report Info" in variable LOG_ ANR_REPORT_VARIABLE is present and the registered PLMN is the same as the IE "PLMN Identity" stored in variable LOG_ANR_REPORT_VARIABLE:

3> include IE "ANR Logging Results Available".

[TS 25.331, 8.5.63.3 (TP1)]

Upon receiving the LOGGING MEASUREMENT CONFIGURATION message the UE shall:

...

1> if IE "Logged ANR configuration Info" is present:

2> if variable LOG_ANR_CONFIG was already stored, discard the existing logged measurement configuration for ANR purpose as well as the associated logged measurement information as specified in 8.5.68;

2> store the received IEs in the IE "Logged ANR configuration Info" in variable LOG_ANR_CONFIG;

2> store the current Registered PLMN in the IE "PLMN Identity" in variable LOG_ANR_REPORT_VARIABLE;

2> store the list of Equivalent PLMNs in the IE "Equivalent PLMN Identity List" in variable LOG_ANR_REPORT_VARIABLE;

2> start timer T327 with the timer value set to the IE "Logging Duration" included in IE "Logged ANR configuration Info".

...

[TS 25.331, 8.5.64.3 (TP4)]

UE Shall:

...

1> if IE "Logged ANR Report Request" is present:

2> if Registered PLMN is the same as one of the PLMNs in the IE "PLMN Identity" or IE "Equivalent PLMN Identity List" stored in variable LOG_ANR_REPORT_VARIABLE:

3> if IE "Logged ANR Report Info" in variable LOG_ANR_REPORT_VARIABLE is present:

4> set IEs "Logged ANR Report Info" in the UE INFORMATION RESPONSE as follows:

5> include the IEs "Logged ANR Report Info List" and set it to include entries from LOG_ANR_REPORT_VARIABLE;

5> clear the logged measurement results included in the list of IEs "Logged ANR Report Info List" from the LOG_ANR_REPORT_VARIABLE;

5> clear the variable LOG_ANR_CONFIG and stop timer T327.

2> transmit a UE INFORMATION RESPONSE message on the uplink DCCH using AM RLC.

[TS 25.331, 8.5.67.2 (TP2,TP4)]

While T327 is running, the UE shall:

1> perform the ANR measurements and evaluation on UTRAN, E-UTRAN or GERAN cells in accordance with the following:…

...

2> if IE "Inter-RAT ANR for GSM Indicator" is included in variable LOG_ANR_CONFIG:

3> if the UE reselected from a GSM cell to an UTRA cell (serving cell) that is part of the PLMN which is the same as one of the PLMNs in the IE "PLMN Identity" or IE "Equivalent PLMN Identity List" stored in variable LOG_ANR_REPORT_VARIABLE; and

3> if the previously camped GSM cell is not included in the neighbour cell list in SIB11/11bis/12 of the serving cell; and

3> if the serving cell is not a CSG cell; and

3> if the serving cell and GSM cell, not included in the neighbour cell list, together have not earlier been stored by UE in an entry of "Logged ANR Report Info" in the LOG_ANR_REPORT_VARIABLE:

4> log the ANR informaton into the variable LOG_ANR_REPORT_VARIABLE, as follows:

5> set the IEs "Serving PLMN Identity" and "Serving Cell" to indicate cell identity of the serving cell;

5> set the IE "PLMN Identity", "Cell Identity" and "LAC" to indicate global cell identity of this previously camped GSM set cell;

5> set the IE "BSIC", "BCCH ARFCN" and "Band Indicator" of this previously camped GSM set cell.

Reference

3GPP TS 25.304 clauses 5.8.2.2; 3GPP TS 25.331 clauses 7.2.1, 8.1.3.6, 8.5.63.3, 8.5.64.3, 8.5.67.2

8.7.2.1.3 Test purpose

1. To verify that the UE correctly reads “Logged ANR configuration Info” in LOGGING MEASUREMENT CONFIGURATION message for Inter-RAT ANR case when GSM Indicator is configured.
2. To verify that the UE performs Inter-RAT ANR measurement for GERAN cell.
3. To verify that the UE includes IE “ANR Logging Results Available” in RRC CONNECTION SETUP message after returning from GERAN cell and UE has logged Inter-RAT ANR measurement for GERAN cell.
4. To verify that the UE reports ANR logged data for GSM cell.

8.7.2.1.4 Method of test

Initial Condition

System Simulator: 3 cells belonging to different location areas – cell 1, cell 2 and cell 9 are active. Cell 1 and 2 are UTRA FDD cells. Cell 9 is GSM cells. GPRS. 51.010 clauses 20.22 and 40.1.1 shall be referenced for the default parameters of cell 9. The PLMN of Cell 1 and Cell 2 are the same.

SYSTEM INFORMATION BLOCK TYPE 11 of Cell 1: See specific message contents (cell 9 is listed as inter-RAT neighbour cell).

SYSTEM INFORMATION BLOCK TYPE 11 of Cell 2: See specific message contents (cell 9 is not listed as inter-RAT neighbour cell).

UE: CELL_DCH (state 6-9) in cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.7.2.1-1

Parameter	Unit	Cell 1 (UTRA)			Cell 2 (UTRA)		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			Mid Range Test Frequency		
CPICH Ec	dBm/3.84MHz	-60	-80	-80	-80	-80	-60

Table 8.7.2.1-2

Parameter	Unit	Cell 9 (GSM)		
		T0	T1	T2
Test Channel		1		
RF Signal Level	dBm	-90	-48	-90
RXLEV_ACCESS_MIN	dBm	-100	-100	-100
FDD_Qmin	dB	-20	-20	-20
FDD_Qoffset	dBm	0	0	0

Table 8.7.2.1-1 and table 8.7.2.1-2 illustrate the downlink power to be applied for the 3 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while column marked “T1” and “T2” is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

The UE is initially brought to CELL_DCH state in Cell 1. The system information block 11 message transmitted in Cell 1 list Cell 9 in the inter-RAT cell info lists.

The SS configures UE to perform inter-RAT ANR measurements for GERAN by sending a LOGGING MEASUREMENT CONFIGURATION message to the UE.

The SS release the RRC connection and UE enters IDLE mode state.

The SS configures its downlink transmission power settings according to columns "T1" in tables 8.7.2.1-1 and 8.7.2.1-2. The UE performs cell re-selection to Cell 9 and performs location update.

The SS configures its downlink transmission power settings according to columns "T2" in tables 8.7.2.1-1 and 8.7.2.1-2. The UE performs cell re-selection to Cell 2 and performs location update.

The SS page the UE to establish an RRC connection. The SS checks that the UE includes the IE “ANR Logging Results Available” in the RRC CONNECTION SETUP COMPLETE message.

The SS transmits a UE INFORMATION REQUEST message to retrieve the ANR logging measurements from the UE. The UE respond by a UE INFORMATION RESPONSE message including logged ANR measurements, The SS checks the logged ANR report in the UE INFORMATION RESPONSE message includes an Inter-RAT ANR measurement for Cell 9.

Expected Sequence

Specific Message Contents

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_DCH state in Cell 1
2	←		LOGGING MEASUREMENT CONFIGURATION	SS transmits this message in Cell 1 on downlink DCCH using AM RLC configuring the UE to perform Inter-RAT ANR measurements for GERAN cell.
3	←		RRC CONNECTION RELEASE	
4	→		RRC CONNECTION RELEASE COMPLETE	UE moves to IDLE mode state in Cell 1.
5	SS			The SS switches its downlink transmission power settings to columns "T1" in tables 8.7.2.1-1 and 8.7.2.1-2.

6	→	CHANNEL REQUEST	The SS receives this burst on the RACH of cell 9(GSM cell). (triggered by UE location update procedure)
7	←	IMMEDIATE ASSIGNMENT	Sent on AGCH.
8	SS		The SS completes the Location Update procedure requested by the UE.
9	←	CHANNEL RELEASE	The SS transmits a channel release to return the UE to idle mode on Cell 9
10	SS		The SS switches its downlink transmission power settings to columns "T2" in tables 8.7.2.1-1 and 8.7.2.1-2.
11	→	RRC CONNECTION REQUEST	The SS waits for RRC CONNECTION REQUEST on CCCH from the UE on Cell 2 (triggered by UE location update procedure).
12	←	RRC CONNECTION SETUP	
13	→	RRC CONNECTION SETUP COMPLETE	Note 1
14	SS		The SS completes the Location Update procedure requested by the UE.
15	←	RRC CONNECTION RELEASE	
16	→	RRC CONNECTION RELEASE COMPLETE	UE moves to IDLE mode state in Cell 2.
17	←	PAGING TYPE1	Sent on Cell 2.
18	→	RRC CONNECTION REQUEST	
19	←	RRC CONNECTION SETUP	
20	→	RRC CONNECTION SETUP COMPLETE	SS checks that the IE “ANR Logging Results Available” is included. Note 1
21	←	UE INFORMATION REQUEST	
22	→	UE INFORMATION RESPONSE	SS checks that the "Logged ANR Report Info List" includes a GERAN Inter-RAT ANR measurement for Cell 9

Note 1: The SS checking that the IE “ANR Logging Results Available” is included in the RRC CONNECTION COMPLETE message is done in step 20 and not in step 13 as the UE may not log the GSM cell in the "Logged ANR Report Info List" until after the location update procedure has been completed.

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 11 Cell 1

Use same message sub-clause 6.1 of TS 34.108, with the exception of that cell 9 is listed as inter-RAT neighbour cell for cell 1.

SYSTEM INFORMATION BLOCK TYPE 11 Cell 2

Use same message sub-clause 6.1 of TS 34.108, with the exception of that cell 3 is not listed as inter-RAT neighbour cell for cell 2.

LOGGING MEASUREMENT CONFIGURATION (Step 2)

Use the LOGGING MEASUREMENT CONFIGURATION message as defined in [9] (TS 34.108) Clause 9 for condition A1 (RSCP Absolute Threshold), with the exception of the following IEs:

Information Element	Value/remark

Logged ANR configuration Info - Inter-RAT ANR for GSM Indicator	 TRUE

RRC CONNECTION SETUP COMPLETE (Step 20)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark
ANR Logging Results Available	Check that IE is set to TRUE.

UE INFORMATION REQUEST (Step 21)

Use the UE INFORMATION REQUEST message as defined in [9] (TS 34.108) Clause 9 for condition A1 (requesting Logged ANR Report).

UE INFORMATION RESPONSE (Step 22)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark	Version
Logged ANR Report Info		Rel-10
- Serving PLMN Identity	Checked to see that it is identical to the PLMN identity of Cell 1	
- Serving Cell	Checked to see that it is identical to the Cell ID of Cell 1	
- CHOICE *logged cell info*	GSM	
- PLMN Identity	Checked to see that it is identical to the PLMN identify of Cell 9	
- LAC	Checked to see that it is identical to the LAC of Cell 9	

8.7.2.1.5 Test requirement

At step 20 the UE shall transmit a RRC CONNECTION SETUP COMPLETE message on uplink DCCH including the IE “ANR Logging Results Available” (TP3).

At step 22 the UE shall transmit a UE INFORMATION RESPONSE message including an GERAN Inter-RAT ANR measurement for Cell 9 (TP1,TP2,TP4).

8.7.2.1a Inter-RAT/ ANR measurement, logging and reporting / GERAN cell (TDD)

8.7.2.1a.1 Definition and applicability

All UEs supporting GERAN and UTRAN ANR measurements.

8.7.2.1a.2 Conformance requirement

[TS 25.304, 5.8.2.2 (TP2)]

If configured to perform inter-RAT ANR via the Logging Measurement Configuration message, the UE may perform inter-RAT ANR logging only when:

- after inter-RAT cell reselection from E-UTRAN or GSM to a normal UTRAN cell belonging to the PLMN or the list of Equivalent PLMNs where the Logging Measurement Configuration is received.

During the inter-RAT ANR process, the UE may log the corresponding information of the previously camped E-UTRAN or GSM cell as specified in TS 25.331.

[TS 25.331, clause 7.2.1 (TP2)]

The UE shall perform ANR measurements and logging as specified in [4], when logged ANR measurement is configured.

[TS 25.331, clause 8.1.3.6 (TP3)]

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

…

If the values are identical, the UE shall:

…

1> submit an RRC CONNECTION SETUP COMPLETE message to the lower layers on the uplink DCCH after successful state transition per subclause 8.6.3.3, with the contents set as specified below:

2> if an IE "Logged ANR Report Info" in variable LOG_ ANR_REPORT_VARIABLE is present and the registered PLMN is the same as the IE "PLMN Identity" stored in variable LOG_ANR_REPORT_VARIABLE:

3> include IE "ANR Logging Results Available".

[TS 25.331, 8.5.63.3 (TP1)]

Upon receiving the LOGGING MEASUREMENT CONFIGURATION message the UE shall:

...

1> if IE "Logged ANR configuration Info" is present:

2> if variable LOG_ANR_CONFIG was already stored, discard the existing logged measurement configuration for ANR purpose as well as the associated logged measurement information as specified in 8.5.68;

2> store the received IEs in the IE "Logged ANR configuration Info" in variable LOG_ANR_CONFIG;

2> store the current Registered PLMN in the IE "PLMN Identity" in variable LOG_ANR_REPORT_VARIABLE;

2> store the list of Equivalent PLMNs in the IE "Equivalent PLMN Identity List" in variable LOG_ANR_REPORT_VARIABLE;

2> start timer T327 with the timer value set to the IE "Logging Duration" included in IE "Logged ANR configuration Info".

...

[TS 25.331, 8.5.64.3 (TP4)]

UE Shall:

...

1> if IE "Logged ANR Report Request" is present:

2> if Registered PLMN is the same as one of the PLMNs in the IE "PLMN Identity" or IE "Equivalent PLMN Identity List" stored in variable LOG_ANR_REPORT_VARIABLE:

3> if IE "Logged ANR Report Info" in variable LOG_ANR_REPORT_VARIABLE is present:

4> set IEs "Logged ANR Report Info" in the UE INFORMATION RESPONSE as follows:

5> include the IEs "Logged ANR Report Info List" and set it to include entries from LOG_ANR_REPORT_VARIABLE;

5> clear the logged measurement results included in the list of IEs "Logged ANR Report Info List" from the LOG_ANR_REPORT_VARIABLE;

5> clear the variable LOG_ANR_CONFIG and stop timer T327.

2> transmit a UE INFORMATION RESPONSE message on the uplink DCCH using AM RLC.

[TS 25.331, 8.5.67.2 (TP2,TP4)]

While T327 is running, the UE shall:

1> perform the ANR measurements and evaluation on UTRAN, E-UTRAN or GERAN cells in accordance with the following:…

...

2> if IE "Inter-RAT ANR for GSM Indicator" is included in variable LOG_ANR_CONFIG:

3> if the UE reselected from a GSM cell to an UTRA cell (serving cell) that is part of the PLMN which is the same as one of the PLMNs in the IE "PLMN Identity" or IE "Equivalent PLMN Identity List" stored in variable LOG_ANR_REPORT_VARIABLE; and

3> if the previously camped GSM cell is not included in the neighbour cell list in SIB11/11bis/12 of the serving cell; and

3> if the serving cell is not a CSG cell; and

3> if the serving cell and GSM cell, not included in the neighbour cell list, together have not earlier been stored by UE in an entry of "Logged ANR Report Info" in the LOG_ANR_REPORT_VARIABLE:

4> log the ANR informaton into the variable LOG_ANR_REPORT_VARIABLE, as follows:

5> set the IEs "Serving PLMN Identity" and "Serving Cell" to indicate cell identity of the serving cell;

5> set the IE "PLMN Identity", "Cell Identity" and "LAC" to indicate global cell identity of this previously camped GSM set cell;

5> set the IE "BSIC", "BCCH ARFCN" and "Band Indicator" of this previously camped GSM set cell.

Reference

3GPP TS 25.304 clauses 5.8.2.2; 3GPP TS 25.331 clauses 7.2.1, 8.1.3.6, 8.5.63.3, 8.5.64.3, 8.5.67.2

8.7.2.1a.3 Test purpose

1. To verify that the UE correctly reads “Logged ANR configuration Info” in LOGGING MEASUREMENT CONFIGURATION message for Inter-RAT ANR case when GSM Indicator is configured.
2. To verify that the UE performs Inter-RAT ANR measurement for GERAN cell.
3. To verify that the UE includes IE “ANR Logging Results Available” in RRC CONNECTION SETUP message after returning from GERAN cell and UE has logged Inter-RAT ANR measurement for GERAN cell.
4. To verify that the UE reports ANR logged data for GSM cell.

8.7.2.1a.4 Method of test

Initial Condition

System Simulator: 3 cells belonging to different location areas – cell 1, cell 2 and cell 9 are active. Cell 1 and cell 2 are TDD cells. Cell 9 is GSM cells. GPRS. 51.010 clauses 20.22 and 40.1.1 shall be referenced for the default parameters of cell 9. The PLMN of Cell 1 and Cell 2 are the same.

SYSTEM INFORMATION BLOCK TYPE 11 of Cell 1: See specific message contents (cell 9 is listed as inter-RAT neighbour cell).

SYSTEM INFORMATION BLOCK TYPE 11 of Cell 2: See specific message contents (cell 9 is not listed as inter-RAT neighbour cell).

UE: CELL_DCH (state 6-9) in cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.7.2.1a-1

Parameter	Unit	Cell 1 (UTRA)			Cell 2 (UTRA)		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Mid Range Test Frequency			Mid Range Test Frequency		
PCCPCH_RSCP (TDD)	dBm	-60	-80	-80	-80	-80	-60

Table 8.7.2.1a-2

Parameter	Unit	Cell 9 (GSM)		
		T0	T1	T2
Test Channel		1		
RF Signal Level	dBm	-90	-48	-90
RXLEV_ACCESS_MIN	dBm	-100	-100	-100
FDD_Qmin	dB	-20	-20	-20
FDD_Qoffset	dBm	0	0	0

Table 8.7.2.1a-1 and table 8.7.2.1a-2 illustrate the downlink power to be applied for the 3 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while column marked “T1” and “T2” is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

The UE is initially brought to CELL_DCH state in Cell 1. The system information block 11 message transmitted in Cell 1 list Cell 9 in the inter-RAT cell info lists.

The SS configures UE to perform inter-RAT ANR measurements for GERAN by sending a LOGGING MEASUREMENT CONFIGURATION message to the UE.

The SS release the RRC connection and UE enters IDLE mode state.

The SS configures its downlink transmission power settings according to columns "T1" in tables 8.7.2.1a-1 and 8.7.2.1a-2. The UE performs cell re-selection to Cell 9 and performs location update.

The SS configures its downlink transmission power settings according to columns "T2" in tables 8.7.2.1a-1 and 8.7.2.1a-2. The UE performs cell re-selection to Cell 2 and performs location update.

The SS page the UE to establish an RRC connection. The SS checks that the UE includes the IE “ANR Logging Results Available” in the RRC CONNECTION SETUP COMPLETE message.

The SS transmits a UE INFORMATION REQUEST message to retrieve the ANR logging measurements from the UE. The UE respond by a UE INFORMATION RESPONSE message including logged ANR measurements, The SS checks the logged ANR report in the UE INFORMATION RESPONSE message includes an Inter-RAT ANR measurement for Cell 9.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_DCH state in Cell 1
2	←		LOGGING MEASUREMENT CONFIGURATION	SS transmits this message in Cell 1 on downlink DCCH using AM RLC configuring the UE to perform Inter-RAT ANR measurements for GERAN cell.
3	←		RRC CONNECTION RELEASE	
4	→		RRC CONNECTION RELEASE COMPLETE	UE moves to IDLE mode state in Cell 1.
5	SS			The SS switches its downlink transmission power settings to columns "T1" in tables 8.7.2.1-1 and 8.7.2.1-2.
6	→		CHANNEL REQUEST	The SS receives this burst on the RACH of cell 9(GSM cell). (triggered by UE location update procedure)
7	←		IMMEDIATE ASSIGNMENT	Sent on AGCH.
8	SS			The SS completes the Location Update procedure requested by the UE.
9	←		CHANNEL RELEASE	The SS transmits a channel release to return the UE to idle mode on Cell 9
10	SS			The SS switches its downlink transmission power settings to columns "T2" in tables 8.7.2.1-1 and 8.7.2.1-2.
11	→		RRC CONNECTION REQUEST	The SS waits for RRC CONNECTION REQUEST on CCCH from the UE on Cell 2 (triggered by UE location update procedure).
12	←		RRC CONNECTION SETUP	
13	→		RRC CONNECTION SETUP COMPLETE	Note 1
14	SS			The SS completes the Location Update procedure requested by the UE.
15	←		RRC CONNECTION RELEASE	
16	→		RRC CONNECTION RELEASE COMPLETE	UE moves to IDLE mode state in Cell 2.
17	←		PAGING TYPE1	Sent on Cell 2.
18	→		RRC CONNECTION REQUEST	
19	←		RRC CONNECTION SETUP	
20	→		RRC CONNECTION SETUP COMPLETE	SS checks that the IE “ANR Logging Results Available” is included. Note 1
21	←		UE INFORMATION REQUEST	
22	→		UE INFORMATION RESPONSE	SS checks that the "Logged ANR Report Info List" includes a GERAN Inter-RAT ANR measurement for Cell 9

Note 1: The SS checking that the IE “ANR Logging Results Available” is included in the RRC CONNECTION COMPLETE message is done in step 20 and not in step 13 as the UE may not log the GSM cell in the "Logged ANR Report Info List" until after the location update procedure has been completed.

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 11 Cell 1

Use same message sub-clause 6.1 of TS 34.108, with the exception of that cell 9 is listed as inter-RAT neighbour cell for cell 1.

SYSTEM INFORMATION BLOCK TYPE 11 Cell 2

Use same message sub-clause 6.1 of TS 34.108, with the exception of that cell 3 is not listed as inter-RAT neighbour cell for cell 2.

LOGGING MEASUREMENT CONFIGURATION (Step 2)

Use the LOGGING MEASUREMENT CONFIGURATION message as defined in [9] (TS 34.108) Clause 9 for condition A1 (RSCP Absolute Threshold), with the exception of the following IEs:

Information Element	Value/remark
Logged ANR configuration Info	
- Inter-RAT ANR for GSM Indicator	TRUE

RRC CONNECTION SETUP COMPLETE (Step 20)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark
ANR Logging Results Available	Check that IE is set to TRUE.

UE INFORMATION REQUEST (Step 21)

Use the UE INFORMATION REQUEST message as defined in [9] (TS 34.108) Clause 9 for condition A1 (requesting Logged ANR Report).

UE INFORMATION RESPONSE (Step 22)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark	Version
Logged ANR Report Info		Rel-10
- Serving PLMN Identity	Checked to see that it is identical to the PLMN identity of Cell 1	
- Serving Cell	Checked to see that it is identical to the Cell ID of Cell 1	
- CHOICE *logged cell info*	GSM	
- PLMN Identity	Checked to see that it is identical to the PLMN identify of Cell 9	
- LAC	Checked to see that it is identical to the LAC of Cell 9	

8.7.2.1a.5 Test requirement

At step 20 the UE shall transmit a RRC CONNECTION SETUP COMPLETE message on uplink DCCH including the IE “ANR Logging Results Available” (TP3).

At step 22 the UE shall transmit a UE INFORMATION RESPONSE message including an GERAN Inter-RAT ANR measurement for Cell 9 (TP1,TP2,TP4).

9 Elementary procedures of mobility management

The tests are based on TS 24.008.

In this clause, when the expected sequence require that "a mobile originated CM connection is attempted", it shall be for a service other than emergency call.

In this clause, an initial CM message is either a SETUP message, a REGISTER message or a CP-DATA message (in that case the acknowledged mode of operation on SAPI 3 will be established and this message will be sent on SAPI 3).

All tests in this clause shall only be performed in Network Mode of Operation II, unless specifically specified otherwise in individual sub-clauses.

All test cases in this clause shall be performed either in CS mode or in CS and PS mode.

If the test cases are to be executed in CS and PS mode the System Simulator behaviour in PS mode should reflect the behaviour of a real network. This means that test cases which initially force the UE into the MM IDLE UPDATED state should force the UE in parallel to enter the GMM REGISTERED state. Test cases which initially reject a UE's attempt to get CS registered, should as well reject a UE's attempt to get PS registered.

The following consequences arise from supporting this type of behaviour:

1. GMM ATTACH REQUEST messages received in the preamble should be accepted and bring the UE into the GMM REGISTERED state
2. subsequent GMM ATTACH REQUEST messages received in the test body should be rejected with Cause value = 7 'GPRS services not allowed' (see NOTE).
3. within the test body GMM ROUTING AREA UPDATE REQUEST messages may be received and should be acknowledged resp. rejected the same way as the corresponding LOCATION AREA UPDATING REQUEST messages (see NOTE).
4. GMM DETACH REQUEST messages received within the test body should be acknowledged
5. if, at the beginning of a test case, a UE attempts to register in CS mode, and this attempt is rejected, the parallel attempt to register in PS mode should be rejected with the same cause as used to reject the CS registration

In PS mode the UE may attach automatically or not. This should be accounted for by the System Simulator. A manual Attach UE will not be triggered to perform PS registration for subsequent switch on of the UE, in the test body.

Any GMM signalling shown in the Expected Sequence Tables in the following sections is purely informative and shall not be considered to be part of the test purpose or test requirement.

NOTE: A Rel-8 UE supporting E-UTRA and CS voice emergency call may send 'signallingConnectionReleaseIndication' upon receipt of an ATTACH REJECT or a ROUTING AREA UPDATE REJECT message with one of the following causes: 'Illegal MS (cause #3)', 'GPRS service not allowed (cause #7)' or 'GPRS services and non-GPRS services not allowed (cause #8)'.

9.1 TMSI reallocation

The intention of the TMSI Reallocation procedure is to assign a new temporary identity for the UE. If the message is not understood by the UE, the network could not establish a link to the UE. As this is a common MM procedure, it can be initiated at any time.

9.1.1 Definition

9.1.2 Conformance requirement

1) A UE shall acknowledge a new TMSI when explicitly allocated during a location updating procedure or an incoming call.

2) The TMSI shall be updated on the USIM when the UE is correctly deactivated in accordance with the manufacturer's instructions.

3) A UE shall answer paging with this TMSI and includes it in the PAGING RESPONSE message.

Reference(s)

TS 24.008 clause 4.3.1.

9.1.3 Test purpose

To verify that the UE is able to receive and acknowledge a new TMSI by means of an explicit TMSI reallocation procedure.

To verify that the UE has stored the TMSI in a non-volatile memory.

The implicit reallocation procedure is tested in clause 9.4.1.

9.1.4 Method of test

Initial conditions

- System Simulator:
  - two cells A and B, belonging to different location areas a and b, default parameters.
  - The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to not allowing IMSI Attach/Detach in both the cells.
- User Equipment:
  - the UE has valid TMSI (= TMSI1), CKSN, CK, IK. It is "idle updated" on cell B.

Related ICS/IXIT statement(s)

Switch off button Yes/No.

Way to bring the UE into service.

Test Procedure

The UE is paged in cell B and the security mode is established. An explicit TMSI reallocation procedure is performed. The RRC CONNECTION is released. The UE is switched off and then its power supply is interrupted for 10 s. The power supply is resumed and then the UE is switched on and allowed sufficient time to guarantee that the UE is in service (listening to its paging subchannel). The system simulator then checks, by paging, whether the UE has stored the received TMSI.

The UE is made to select cell A. A normal location updating procedure is performed in cell A. An explicit TMSI reallocation procedure is performed and then the location updating procedure is accepted by the SS. The system simulator checks, by paging, whether the UE has stored the allocated TMSI.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
The following messages are sent and shall be received on cell B.				
1	←		Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 "Initial UE identity" = TMSI1. Establishment Cause: Terminating Conversation Call.
2	→		PAGING RESPONSE	"Mobile identity" =TMSI1
2a	←		AUTHENTICATION REQUEST	
2b	→		AUTHENTICATION RESPONSE	
3		SS		The SS starts integrity protection.
4			Void	
5	←		TMSI REALLOCATION COMMAND	"Mobile identity" = new TMSI (TMSI2) different from TMSI 1.
6	→		TMSI REALLOCATION COMPLETE	
7		SS		The SS releases the RRC connection.
8			Void	
9	UE			If possible (see ICS), the UE is switched off. A Detach Request can be received in PS mode.
9a	UE			The power supply is interrupted for 10 s.
10	UE			The UE is switched on. The subsequent GMM attach should be rejected if received in the PS mode.
11		SS		The SS waits for 5 seconds to guarantee that the UE is in service (listening to its paging subchannel).
12	←		Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 "Initial UE identity" = TMSI2. Establishment Cause: Terminating Conversation Call.
13	→		PAGING RESPONSE	"Mobile identity" =TMSI2.
14		SS		The SS releases the RRC connection. The following messages are sent and shall be received on cell A
15			Void	
16		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "non-suitable cell" (see note)
17		SS	RRC CONNECTION REQUEST	The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
18			Void	
19			Void	
20	→		LOCATION UPDATING REQUEST	location updating type = normal, "ciphering key sequence number" = CKSN, LAI = b, "mobile identity" = TMSI2.
20a	←		AUTHENTICATION REQUEST	
20b	→		AUTHENTICATION RESPONSE	
20c		SS		The SS starts integrity protection.
20d			Void	
21	←		TMSI REALLOCATION COMMAND	TMSI = TMSI1.
22	→		TMSI REALLOCATION COMPLETE	
23	←		LOCATION UPDATING ACCEPT	This message does not contain the optional Mobile Identity field.
24		SS		The SS releases the RRC connection.
25			Void	
25a				The SS waits for 5 seconds to allow the UE to become "idle updated" on cell A.
26	←		Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 "Initial UE identity" IE contains the new TMSI (= TMSI1). "Establishment cause": Terminating Conversational Call.
27	→		PAGING RESPONSE	"Mobile identity" IE contains the new TMSI (= TMSI1).
28		SS		The SS releases the RRC connection.
29			Void	

NOTE: The definitions for "Serving cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".

Specific message contents

None.

9.1.5 Test requirement

At step 5 the UE shall receive and acknowledge a new TMSI (TMSI2) and has stored that in the USIM, and the UE is switched off and on after step 9 and 10.

At step 13 the UE shall transmit a new TMSI2 and includes it in the PAGING RESPONSE message.

At step 27 the UE shall answer paging with this TMSI1 and includes it in the PAGING RESPONSE message.

9.2 Authentication

The purpose of this procedure is to verify the user identity. A correct response is essential to guarantee the establishment of the connection. If not, the connection will drop.

The SS shall be able to handle vectors of AUTN, RAND, CK, IK, AUTS and XRES in a similar way as the MSC/BSS entities. The SS and test USIM shall incorporate a test algorithm for generating RES and CK, IK from RAND, AUTN and IK which operates as described in TS 34.108 clause 8.1.2.

9.2.1 Authentication accepted

9.2.1.1 Definition

9.2.1.2 Conformance requirement

1) A UE shall correctly respond to an AUTHENTICATION REQUEST message by sending an AUTHENTICATION RESPONSE message with the RES information field set to the same value as the one produced by the authentication algorithm in the network.

2) A UE shall indicate in a PAGING RESPONSE message the ciphering key sequence number which was allocated to it through the authentication procedure.

Reference(s)

TS 24.008 clauses 4.3.2.2 and 4.3.2.4.

9.2.1.3 Test purpose

1) To check that a UE correctly responds to an AUTHENTICATION REQUEST message by sending an AUTHENTICATION RESPONSE message with the RES information field set to the same value as the one produced by the authentication algorithm in the network.

2) To check that a UE indicates in a PAGING RESPONSE message the ciphering key sequence number which was allocated to it through the authentication procedure.

9.2.1.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE has valid TMSI, CKSN (CKSN1), CK, IK. It is "idle updated" on the cell.

Related ICS/IXIT statement(s)

None.

Test Procedure

The UE is paged. After the UE has sent a PAGING RESPONSE message to the SS, the SS initiates an authentication procedure and checks the value RES sent by the UE in the AUTHENTICATION RESPONSE message. The RRC CONNECTION is released. The UE is paged and the SS checks the value of the ciphering key sequence number sent by the UE in the PAGING RESPONSE message.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 Establishment Cause: Terminating Conversational Call.
2	→		PAGING RESPONSE	CKSN = CKSN1
3	←		AUTHENTICATION REQUEST	The SS initiates authentication with CKSN2 different from CKSN1.
4	→		AUTHENTICATION RESPONSE	"Auth. parameter RES" IE shall be bit exact with the value as produced by the authentication algorithm.
5		SS		The SS releases the RRC connection.
6			Void	
6a				The SS waits for 5 seconds to guarantee that the UE is in service.
7			Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 Establishment Cause: Terminating Conversational Call.
8	→		PAGING RESPONSE	"Ciphering key sequence number" shall be the same as the value that was sent in the last AUTHENTICATION REQUEST message (= CKSN2).
9		SS		The SS releases the RRC connection.
10			Void	

Specific message contents

None.

9.2.1.5 Test requirement

1) At step 4 the UE shall send an AUTHENTICATION RESPONSE message with the RES information field set to the same value as the XRES calculated by the SS.

2) At step 8 the UE shall indicate in a PAGING RESPONSE message the ciphering key sequence number which was allocated to it through the authentication procedure.

9.2.2 Authentication rejected by the network

9.2.2.1 Definition

9.2.2.2 Conformance requirement

1) After reception of an AUTHENTICATION REJECT message the UE shall:

1.1 not perform normal location updating;

1.2 not perform periodic location updating;

1.3 not respond to paging with TMSI;

1.4 reject any request from CM entity for MM connection except for emergency call;

1.5 not perform IMSI detach if deactivated.

2) After reception of an AUTHENTICATION REJECT message the UE, if it supports emergency speech call, shall accept a request for an emergency call by sending a RRC CONNECTION REQUEST message with the establishment cause set to "emergency call" and include an IMEI as mobile identity in the CM SERVICE REQUEST message.

3) After reception of an AUTHENTICATION REJECT message the UE shall delete the stored LAI, CKSN and TMSI.

Reference(s)

TS 24.008 clause 4.3.2.5.

9.2.2.3 Test purpose

1) To check that ,after reception of an AUTHENTICATION REJECT message, the UE:

1.1 does not perform normal location updating;

1.2 does not perform periodic location updating;

1.3 does not respond to paging with TMSI;

1.4 rejects any request from CM entity for MM connection except for emergency call;

1.5 does not perform IMSI detach if deactivated.

2) To check that, after reception of an AUTHENTICATION REJECT message the UE, if it supports emergency speech call, accepts a request for an emergency call by sending a RRC CONNECTION REQUEST message with the establishment cause set to "emergency call" and includes an IMEI as mobile identity in the CM SERVICE REQUEST message.

3) To check that, after reception of an AUTHENTICATION REJECT message and after having been deactivated and reactivated, the UE performs location updating using its IMSI as mobile identity and indicates deleted LAI and CKSN.

9.2.2.4 Method of test

Initial conditions

- System Simulator:
  - two cells: A and B, belonging to different location areas a and b;
  - IMSI attach/detach is allowed in both cells;
  - the T3212 time-out value is 1/10 hour in both cells.
- User Equipment:
  - the UE has valid TMSI, CKSN, CK and IK. It is "idle updated" on cell B.

Related ICS/IXIT statement(s)

USIM removal possible while UE is powered Yes/No.

Switch off on button Yes/No.

Support of emergency speech call Yes/No.

Test procedure

The SS rejects an authentication. The RRC CONNECTION is released. The SS checks that the UE has entered the state MM IDLE substate NO IMSI, i.e. does not perform normal location updating, does not perform periodic updating, does not respond to paging, rejects any requests from CM entities except emergency calls and does not perform IMSI detach if USIM detachment is performed, switch off is performed, or the power is removed, depending on the UE (see ICS/IXIT).

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
The following messages are sent and shall be received on cell B				
1			Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 Establishment Cause: Terminating Conversational Call..
2	→		PAGING RESPONSE	"Ciphering key sequence number" shall be the same as the value that was sent in the last AUTHENTICATION REQUEST.
3	←		AUTHENTICATION REQUEST	CKSN in this AUTHENTICATION REQUEST should be different from that received in PAGING RESPONSE message.
4	→		AUTHENTICATION RESPONSE	
5	←		AUTHENTICATION REJECT	
6		SS		The SS releases the RRC connection.
7			Void	
8	←		PAGING TYPE 1	The UE is paged in cell B. "UE identity " IE contains TMSI. Paging Cause: Terminating Conversational Call.
9		UE		The UE shall ignore this message. This is verified during 3 s.
10		SS		The SS waits for at least for 15 s.
11		UE		A MO CM connection is attempted.
12		UE		The UE shall not initiate an RRC connection establishment on cell A or cell B. This is checked during 30 s.
13		UE		If the UE supports emergency speech call (see ICS), an emergency call is attempted.
14		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Emergency call".
15			Void	
16			Void	
17	→		CM SERVICE REQUEST	"CM service type": Emergency call establishment. "Mobile identity": type of identity is set to IMEI.
18	←		CM SERVICE ACCEPT	
19	→		EMERGENCY SETUP	
20	←		RELEASE COMPLETE	"Cause" = unassigned number.
21		SS		The SS releases the RRC connection.
22			Void	
The following messages are sent and shall be received on cell A.				
23		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "non-suitable cell". (see note)
24		UE		The UE performs cell reselection according to procedure as specified in (this however is not checked until step 29). The UE shall not initiate an RRC connection establishment on cell A or on cell B.
25		SS		The SS waits at least 7 minutes for a possible periodic updating.
26		UE		The UE shall not initiate an RRC connection establishment on cell A or on cell B.
27		UE		If possible (see ICS) USIM detachment is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
28		UE		The UE shall not initiate an RRC connection establishment on cell A or on cell B. This is checked during 3 s.
29		UE		Depending on what has been performed in step 27 the UE is brought back to operation. The subsequent GMM attach should be rejected if received in the PS mode.
30		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
31			Void	
32			Void	

Step	Direction		Message	Comments
	UE	SS		
33	→		LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = no key available, "Mobile Identity" = IMSI, "LAI" = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE).
34	←		AUTHENTICATION REQUEST	CKSN in this AUTHENTICATION REQUEST should be different from that received in LOCATION UPDATING REQUEST message.
35	→		AUTHENTICATION RESPONSE	
36	←		LOCATION UPDATING ACCEPT	"Mobile Identity" = TMSI.
37	→		TMSI REALLOCATION COMPLETE	
38		SS		The SS releases the RRC connection.
39			Void	
NOTE: The definitions for "Serving cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

9.2.2.5 Test requirement

1)

1.1 At step 24 the UE shall not send any RRC CONNECTION REQUEST on cell A or on cell B.

1.2 At step 26 the UE shall not send any RRC CONNECTION REQUEST on cell A or on cell B.

1.3 At step 9 the UE shall not respond to paging.

1.4 At step 12 the UE shall not send any RRC CONNECTION REQUEST on cell A or on cell B.

1.5 At step 28 the UE shall not send any RRC CONNECTION REQUEST on cell A or on cell B.

2) At step 14 the UE shall send a RRC CONNECTION REQUEST message with the establishment cause set to "emergency call"; and at step 17 the UE shall send a CM SERVICE REQUEST message with the "CM service type" set to "Emergency call establishment".

3) At step 33 the UE shall perform location updating using its IMSI as mobile identity and indicates deleted LAI and CKSN.

9.2.3 Authentication rejected by the UE (MAC code failure)

9.2.3.1 Definition

Following a UMTS authentication challenge, the UE may reject the core network, on the grounds of an incorrect AUTN parameter (see TS 33.102).

If the UE considers the MAC code (supplied by the core network in the AUTN parameter) to be invalid, it shall send an AUTHENTICATION FAILURE message to the network, with the reject cause 'MAC failure'.

9.2.3.2 Conformance requirement

1) The UE shall respond to an AUTHENTICATION REQUEST message, with a MAC code failure in the AUTN parameter, by sending an AUTHENTICATION FAILURE message with the reject cause 'MAC failure' and start timer T3214. When an AUTHENTICATION REQUEST message containing an invalid MAC has been received by the UE from the network, the UE shall stop any of the retransmission timers that are running (i.e. T3210, T3220 or T3230).

2) Upon receipt of an AUTHENTICATION FAILURE message from the UE, with reject cause 'MAC failure' the network may initiate the identification procedure. Upon reception of an IDENTITY REQUEST message, the UE

shall identify itself by sending an IDENTITY RESPONSE message including the IMSI to the network. The network may then check that the TMSI originally used in the authentication challenge corresponded to the correct IMSI.

3) If the TMSI/IMSI mapping in the network was incorrect, the network should respond by sending a new AUTHENTICATION REQUEST message to the UE. Upon receiving the second AUTHENTICATION REQUEST message from the network, the UE shall stop the timer T3214, if running, and then process the challenge information as normal. Upon successfully validating the network (an AUTHENTICATION REQUEST that contains a valid MAC in the AUTN parameter is received), the UE shall send the AUTHENTICATION RESPONSE message to the network and shall start any retransmission timers (e.g. T3210, T3220 or T3230) , if they were running and stopped when the UE received the first AUTHENTICATION REQUEST message containing an incorrect MAC.

Reference(s)

TS 24.008 clauses 4.3.2.5.1 and 4.3.2.6 (c)

9.2.3.3 Test purpose

1) To check that a UE shall correctly respond to an AUTHENTICATION REQUEST message, with a MAC code failure in the AUTN parameter, by sending an AUTHENTICATION FAILURE message with the reject cause 'MAC failure'.

2) To check that upon reception of an IDENTITY REQUEST message, requesting for IMSI, the UE identifies itself by sending an IDENTITY RESPONSE message including the IMSI to the network.

3) To check that upon receiving the second AUTHENTICATION REQUEST message from the network, the UE shall stop the timer T3214, if running, and then process the challenge information as normal. To check that upon successfully validating the network (an AUTHENTICATION REQUEST that contains a valid MAC is received), the UE sends the AUTHENTICATION RESPONSE message to the network.

9.2.3.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE has valid TMSI, CKSN (CKSN1), CK, IK. It is "idle updated" on the cell.

Related ICS/IXIT statement(s)

None.

Test procedure

The UE rejects an authentication. The AUTHENTICATION FAILURE is sent by UE. Upon receipt of the AUTHENTICATION FAILURE message the SS initiates identification procedure. The UE responds to the SS by sending IDENTITY RESPONSE message. The SS sends AUTHENTICATION REQUEST message with correct AUTN parameter.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 Establishment Cause: Terminating Conversational Call.
2	→		PAGING RESPONSE	CKSN = CKSN1
3	←		AUTHENTICATION REQUEST	With AUTN parameter having a MAC value different from what is calculated in 34.108 clause 8.1.2.1 step 4.
4	→		AUTHENTICATION FAILURE	With reject cause "MAC failure"
5	←		IDENTITY REQUEST	With identity type IMSI
6	→		IDENTITY RESPONSE	With IMSI in Mobile Identity IE
7	←		AUTHENTICATION REQUEST	With the AUTN parameter having a valid MAC code, see 34.108 clause 8.1.2.1 step 4.
8	→		AUTHENTICATION RESPONSE	Authentication Response Parameter IE (RES) shall be bit exact with the value as produced by the authentication algorithm.
9	←		RRC CONNECTION RELEASE	
10	→		RRC CONNECTION RELEASE COMPLETE	

Specific message contents

None.

9.2.3.5 Test requirement

1) At step 4 the UE shall send AUTHENTICATION FAILURE message with reject cause set to "MAC failure".

2) At step 6 the UE shall send an IDENTITY RESPONSE message including the IMSI.

3) At step 8 the UE shall send an AUTHENTICATION RESPONSE message.

9.2.4 Authentication rejected by the UE (SQN failure)

9.2.4.1 Definition

Following a UMTS authentication challenge, the UE may reject the core network, on the grounds of an incorrect AUTN parameter (see TS 33.102).

If the UE considers the SQN (supplied by the core network in the AUTN parameter) to be out of range, it shall send an AUTHENTICATION FAILURE message to the network, with the reject cause 'Synch failure' and a re-synchronisation token AUTS provided by the USIM (see TS 33.102).

9.2.4.2 Conformance requirement

1) The UE shall respond to an AUTHENTICATION REQUEST message, with an SQN failure in the AUTN parameter, by sending an AUTHENTICATION FAILURE message with the reject cause 'Synch failure' and start the timer T3216 and stop any of the retransmission timers that are running (i.e. T3210, T3220 or T3230). Upon receipt of an AUTHENTICATION FAILURE message from the UE with the reject cause 'synch failure,' the network shall use the returned AUTS parameter from the authentication failure parameter IE in the AUTHENTICATION FAILURE message, to re-synchronise.

2) Upon successfully validating the network (a second AUTHENTICATION REQUEST is received which contains a valid SQN in the AUTN parameter) while T3216 is running, the UE shall send the AUTHENTICATION RESPONSE message to the network and shall start any retransmission timers (e.g. T3210, T3220 or T3230), if they were running and stopped when the UE received the first AUTHENTICATION REQUEST message containing an invalid SQN.

Reference(s)

TS 24.008 clause 4.3.2.5.1, 4.3.2.6 (d)

9.2.4.3 Test purpose

1) To check that a UE shall correctly respond to an AUTHENTICATION REQUEST message, with an SQN failure in the AUTN parameter, by sending an AUTHENTICATION FAILURE message with the reject cause 'Synch failure'.

2) To check that upon successfully validating the network (a second AUTHENTICATION REQUEST is received which contains a valid SQN) while T3216 is running, the UE shall send the AUTHENTICATION RESPONSE message to the network.

9.2.4.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE has valid TMSI, CKSN (CKSN1), CK, IK. It is "idle updated" on the cell.

Related ICS/IXIT statement(s)

None.

Test procedure

The SS sends an AUTHENTICATION REQUEST having an invalid SQN code (i.e. uses the predefined $AMF_{RESYNCH}$ value to trigger the SQN re-synchronisation procedure, see TS 34.108 clause 8.1.2.2) to the UE. The SS verifies that the UE rejects the authentication.

The SS sends a second AUTHENTICATION REQUEST with a valid SQN code (i.e. uses an AMF value different from $AMF_{RESYNCH}$ value, see TS 34.108 clause 8.1.2.2). The SS checks that the UE accepts the authentication request.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 Establishment Cause: Terminating Conversational Call.
2	→		PAGING RESPONSE	CKSN = CKSN1
3	←		AUTHENTICATION REQUEST	with the AMF information field set to $AMF_{RESYNCH}$ value to trigger SQN re-synchronisation procedure in test USIM, see TS 34.108 clause 8.1.2.2.
4	→		AUTHENTICATION FAILURE	including the AUTS parameter and with the reject cause set to 'Synch failure'
5	←		AUTHENTICATION REQUEST	with the AMF information field set to value different from $AMF_{RESYNCH}$ value to cause test USIM to treat SQN value as valid, see TS 34.108 clause 8.1.2.2.
6	→		AUTHENTICATION RESPONSE	*"Auth. parameter RES" IE shall be bit exact with the value as produced by the authentication algorithm.*
7	←		RRC CONNECTION RELEASE	
8	→		RRC CONNECTION RELEASE COMPLETE	

Specific message contents

None.

9.2.4.5 Test requirement

1) At step 4 the UE shall reject an authentication and the AUTHENTICATION FAILURE is sent to SS with reject cause "Synch failure".

2) At step 6 the UE shall send an AUTHENTICATION RESPONSE message with the RES information field set to the same value as the XRES calculated by SS.

9.2.5 Authentication rejected by the UE / fraudulent network

9.2.5.1 Definition

9.2.5.2 Conformance requirement

R99 and REL-4:

1. It can be assumed that the source of the authentication challenge is not genuine (authentication not accepted by the UE) if any of the following occur:

   - After sending the AUTHENTICATION FAILURE message with the reject cause 'MAC failure' the timer T3214 expires;

   - Upon receipt of the second AUTHENTICATION REQUEST while T3214 is running and the MAC value cannot be resolved.

     When it has been deemed by the UE that the source of the authentication challenge is not genuine (i.e. authentication not accepted by the UE), the UE shall behave as described in 3GPP TS 24.008 clause 4.3.2.6.1.

2. In addition to the cases specified in 3GPP TS 24.008 subclause 4.3.2.6, the UE may deem that the network has failed the authentication check after any combination of three consecutive authentication failures, regardless whether ‘MAC failure’, ‘invalid SQN’, or ‘GSM authentication unacceptable’ was diagnosed. The authentication failures shall be considered as consecutive only, if the authentication challenges causing the second and third authentication failure are received by the UE, while the timer T3214 or T3216 started after the previous authentication failure is running.

   If the UE deems that the network has failed the authentication check, then it shall request RR or RRC to release the RR connection and the PS signalling connection, if any, and bar the active cell or cells (see 3GPP TS 25.331 and 3GPP TS 04.18).

Reference(s)

3GPP TS 24.008 clauses 4.3.2.6 (c) and 4.3.2.6.1.

REL-5 and later releases:

1. It can be assumed that the source of the authentication challenge is not genuine (authentication not accepted by the UE) if any of the following occur:

   - after sending the AUTHENTICATION FAILURE message with the reject cause "MAC failure" the timer T3214 expires;

   - the UE detects any combination of the authentication failures: "MAC failure", "invalid SQN", and "GSM authentication unacceptable", during three consecutive authentication challenges. The authentication challenges shall be considered as consecutive only, if the authentication challenges causing the second and third authentication failure are received by the UE, while the timer T3214 or T3216 started after the previous authentication failure is running.

     When it has been deemed by the UE that the source of the authentication challenge is not genuine (i.e. authentication not accepted by the UE), the UE shall behave as described in 3GPP TS 24.008 subclause 4.3.2.6.1.

2. If the UE deems that the network has failed the authentication check, then it shall request RR or RRC to release the RR connection and the PS signalling connection, if any, and bar the active cell or cells (see 3GPP TS 25.331 and 3GPP TS 44.018).

Reference(s)

3GPP TS 24.008 clauses 4.3.2.6 (c) and 4.3.2.6.1.

9.2.5.3 Test purpose

R99 and REL-4:

To test UE treating a cell as barred:

1. when the UE receives the second or third AUTHENTICATION REQUEST message with invalid MAC value during the T3214 is running.
2. when the timer T3214 has expired.

REL-5 and later releases:

To test UE treating a cell as barred:

1. when the UE receives the third AUTHENTICATION REQUEST message with invalid MAC value during the T3214 is running.
2. when the timer T3214 has expired.

9.2.5.4 Method of test

Initial conditions

- System Simulator:
  - two cells: A and B, belonging to different location areas a and b.
- User Equipment:
  - the UE has a valid TMSI. It is "idle updated" on cell A.

Related ICS/IXIT statement(s)

None.

Test procedure

A location updating procedure is initiated in cell B. The SS sends an AUTHENTICATION REQUEST message with invalid MAC value and the UE responds with an AUTHENTICATION FAILURE message. The SS resends an AUTHENTICATION REQUEST message with invalid MAC value.

For R99 and REL-4: The SS waits 30 seconds. If the UE sends an AUTHENTICATION FAILURE message during this time then the SS repeats the authentication procedure a third time and then waits 30 seconds. The UE moves into idle mode and do not make any access attempt on cell B.

For REL-5 and later release: The SS repeats a third time the authentication procedure, again with invalid MAC value in its AUTHENTICATION REQUEST message. The UE moves into idle mode and do not make any access attempt on cell B.

It is checked that the UE shall not attempt to access the network in cell B.

A location updating procedure is initiated in cell A. The SS sends an AUTHENTICATION REQUEST message with invalid MAC value and the UE responds with an AUTHENTICATION FAILURE message. The SS waits T3214 expiry.

It is checked that the UE shall not attempt to access the network in cell A.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages shall be sent and received on Cell B.
1		SS		Set the cell type of cell B to the “Serving cell”. Set the cell type of cell A to the “non-suitable cell”. (see note)
2		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to “Registration”. If PS mode: a routing area updating procedure should be performed.
3	→		LOCATION UPDATING REQUEST	
4	←		AUTHENTICATION REQUEST	with AUTN parameter having a MAC value different from what is calculated in 34.108 clause 8.1.2.1 step 4.
5	→		AUTHENTICATION FAILURE	with reject cause "MAC failure"
6	←		AUTHENTICATION REQUEST	with AUTN parameter having a MAC value different from what is calculated in 34.108 clause 8.1.2.1 step 4.
7	→		AUTHENTICATION FAILURE	with reject cause "MAC failure" R99 and REL-4: In case message is not received within 30s then the SS should continue from step 10.
8	←		AUTHENTICATION REQUEST	with AUTN parameter having a MAC value different from what is calculated in 34.108 clause 8.1.2.1 step 4. R99 and REL-4: Optional step
9		SS		The SS verifies that the UE does not attempt to access the network for 30s. R99 and REL-4: Optional step
				The following messages shall be sent and received on Cell A
10		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "non-suitable cell". (see note)
11		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to “Registration”. If PS mode: a routing area updating procedure should be performed.
12	→		LOCATION UPDATING REQUEST	
13	←		AUTHENTICATION REQUEST	with AUTN parameter having a MAC value different from what is calculated in 34.108 clause 8.1.2.1 step 4.
14	→		AUTHENTICATION FAILURE	with reject cause "MAC failure"
15		SS		The SS waits T3214 expiry.
16		SS		The SS verifies that the UE does not attempt to access the network for 30s.
NOTE: The definitions for "Serving cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

9.2.5.5 Test requirement

For R99 and REL-4 UE:

Alternative 1:

- After step 6, when the UE have received the second AUTHENTICATION REQUEST message with invalid MAC value, the UE shall not attempt to access the network in cell B.

Alternative 2:

- After step6, when the UE have received the second AUTHENTICATION REQUEST message with invalid MAC value while the timer T3214 is running, the UE shall send an AUTHENTICATION FAILURE message with reject cause "MAC failure" to the SS; and
- After step 8, when the UE have received the third AUTHENTICATION REQUEST message with invalid MAC value, the UE shall not attempt to access the network in cell B.

For REL-5 UE:

- After step 6, when the UE have received the second AUTHENTICATION REQUEST message with invalid MAC value while the timer T3214 is running, the UE shall send an AUTHENTICATION FAILURE message with reject cause "MAC failure" to the SS; and
- After step 8, when the UE have received the third AUTHENTICATION REQUEST message with invalid MAC value, the UE shall not attempt to access the network in cell B.

After step 15, when the timer T3214 has expired, the UE shall not attempt to access the network in cell A.

9.3 Identification

The purpose of this procedure is to check that the UE gives its identity as requested by the network. If this procedure does not work, it will not be possible for the network to rely on the identity claimed by the UE.

9.3.1 General Identification

9.3.1.1 Definition

9.3.1.2 Conformance requirement

1) When requested by the network the UE shall send its IMSI.
2) When requested by the network the UE shall send the TMSI which it was previously allocated.
3) When requested by the network the UE shall send its IMEI as stored in the UE.
4) When requested by the network the UE shall send its IMEISV as stored in the UE.

Reference(s)

TS 24.008 clause 4.3.3.

9.3.1.3 Test purpose

1) To verify that the UE sends identity information as requested by the system in the following cases: IMSI and TMSI are requested in non-security mode, IMEI is requested in security mode.
2) To verify that the UE sends its IMEI, when requested to do so, in non- security mode.
3) To verify that the UE sends its IMEISV, when requested to do so, in non- security mode.

9.3.1.4 Method of test

9.3.1.4.1 Identification

Initial conditions

- System Simulator:
  - 1 cell, default values.

- User Equipment:
  - the UE has a valid TMSI. It is "idle updated" on the cell.

Related ICS/IXIT statement(s)

IMEI of the UE.

IMEISV of the UE.

Test Procedure

The SS requests identity information from the UE:

- IMSI in non security mode;
- allocated TMSI in non security mode;
- IMEI in non security mode;
- IMEISV in non security mode;
- IMEI in security mode.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 Establishment Cause: Terminating Conversational Call.
2	→		PAGING RESPONSE	
3	←		IDENTITY REQUEST	"Identity type" IE is IMSI.
4	→		IDENTITY RESPONSE	"Mobile identity" IE specifies the IMSI of the UE.
5	←		IDENTITY REQUEST	"Identity type" IE is TMSI.
6	→		IDENTITY RESPONSE	"Mobile identity" IE specifies the allocated TMSI of the UE.
6a	←		IDENTITY REQUEST	"Identity type" IE is IMEI.
6b	→		IDENTITY RESPONSE	"Mobile identity" IE specifies the IMEI of the UE.
6c	←		IDENTITY REQUEST	"Identity type" IE is IMEISV.
6d	→		IDENTITY RESPONSE	"Mobile identity" IE specifies the IMEISV of the UE.
7		SS		The SS starts ciphering and integrity protection.
8			Void	
9	←		IDENTITY REQUEST	"Identity type" IE is IMEI.
10	→		IDENTITY RESPONSE	"Mobile identity" IE specifies the IMEI stored in the UE.
11		SS		The SS releases the RRC connection.
12			Void	

Specific message contents

None.

9.3.1.5 Test requirement

1) At step 4 the UE shall send its IMSI.
2) At step 6 the UE shall send the TMSI which it was previously allocated.
3) At step 6b and step 10 the UE shall send its IMEI as stored in the UE.
4) At step 6d the UE shall send its IMEISV as stored in the UE.

9.3.2 Handling of IMSI shorter than the maximum length

9.3.2.1 Definition

9.3.2.2 Conformance requirement

The UE shall be capable of handling an IMSI that is not of the maximum length.

Reference(s)

TS 24.008 clause 10.5.1.4.

9.3.2.3 Test purpose

To check that the UE behaves correctly when activated with an IMSI of length less than the maximum length.

In this condition, the UE shall:

- perform location updating;
- answer to paging with IMSI;
- give the correct IMSI when asked by an IDENTITY REQUEST;
- attempt CM connection establishment when requested to;
- attempt IMSI detach when needed;
- erase its TMSI when the IMSI is sent by the network in a LOCATION UPDATING ACCEPT or a TMSI REALLOCATION COMMAND message.

9.3.2.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default values;
  - IMSI attach/detach bit set to "1".
- User Equipment:
  - the UE has no valid TMSI;
  - it is "idle updated";
  - the IMSI has the value 001011234.

Related ICS/IXIT statement(s)

On/Off switch - Yes/No.

Foreseen final state of UE

The UE has no valid TMSI. It is in "idle, updated".

Test Procedure

The UE is paged with its IMSI. The UE shall answer to paging and include the correct IMSI in the PAGING RESPONSE message. During call establishment, the SS asks for the IMSI of the UE. The UE shall answer by an IDENTITY RESPONSE message including the correct IMSI. During the active phase of the call, the SS modifies the

scrambling code of DL DPCH. The UE performs call re-establishment. The TMSI REALLOCATION COMMAND including a TMSI is sent to the UE. The UE acknowledges this message. The call is released.

The UE is paged with its TMSI. The UE shall answer to paging and includes its TMSI in the PAGING RESPONSE message. During call establishment, the SS sends a TMSI REALLOCATION COMMAND including the IMSI to the UE. The UE shall acknowledge this message. The UE shall erase its TMSI. The call is released.

The UE is switched off or has its power source removed. The UE performs IMSI detach. The UE shall include the correct IMSI in the IMSI DETACH INDICATION message.

The UE is switched on or powered on. The UE performs IMSI attach. The UE shall include the correct IMSI in the LOCATION UPDATING REQUEST message. A TMSI is allocated to the UE.

The LAC of the cell is changed. The UE performs location updating. The SS includes the IMSI in the LOCATION UPDATING ACCEPT message.

A mobile originated CM connection is attempted. The UE shall include the correct IMSI in the CM SERVICE REQUEST message.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 "Initial UE identity" IE contains IMSI of UE. Establishment cause: Terminating Conversational Call.
2	→		PAGING RESPONSE	"mobile identity" contains the IMSI of the UE.
3	←		IDENTITY REQUEST	"identity type" IE is IMSI.
4	→		IDENTITY RESPONSE	"mobile identity" IE contains the IMSI of the UE.
5				The call is established using the sequence of the generic terminating call set-up procedure.
6				The SS modifies the scrambling code of DL DPCH for generating lower layer failure. Cell update procedure for radio link failure is performed
6a			Void	
6b			Void	
6c			Void	
7			Void	
8			Void	
9			Void	
10			Void	
10a	←		AUTHENTICATION REQUEST	
10b	→		AUTHENTICATION RESPONSE	
10c		SS		The SS starts integrity protection.
10d			Void	
11	←		TMSI REALLOCATION COMMAND	"mobile identity" contains a TMSI.
12	→		TMSI REALLOCATION COMPLETE	
13		SS		The SS releases the RRC connection.
14			Void	
15	←		Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 "Initial UE identity" IE contains TMSI of UE. Establishment cause: Terminating Conversational Call.
16	→		PAGING RESPONSE	"mobile identity" contains the TMSI of the UE.
17	←		AUTHENTICATION REQUEST	
18	→		AUTHENTICATION RESPONSE	
18a		SS		The SS starts integrity protection.
18b			Void	
19	←		TMSI REALLOCATION COMMAND	"mobile identity" contains a IMSI of UE.
20	→		TMSI REALLOCATION COMPLETE	
21		SS		The SS releases the RRC connection.
22			Void	
23		UE		If possible (see ICS) the UE is switched off, otherwise the UE has its power source removed. A Detach Request can be received in PS mode.
24		SS		If the UE was switched off it performs IMSI detach. The SS verifies that the IE "Establishment cause" in the received RRC Connection REQUEST message is set to "Detach".
25			Void	
26			Void	
27	→		IMSI DETACH INDICATION	"mobile identity" contains IMSI of UE.
28		SS		The SS releases the RRC connection.
29			Void	
30		UE		The UE is switched on or has power restored. The subsequent GMM attach should be rejected if received in the PS mode
31			Void	
32			Void	
33			Void	
34	→		LOCATION UPDATING REQUEST	"mobile identity" contains IMSI of UE.
35	←		LOCATION UPDATING ACCEPT	"mobile identity" contains a TMSI.

Step	Direction		Message	Comments
	UE	SS		
36	→		TMSI REALLOCATION COMPLETE	
37		SS		The SS releases the RRC connection.
38			Void	
39		SS		The SS changes the LAC of the cell.
40		SS		The SS verifies that the UE sends RRC Connection REQUEST message within 35s of the LAC being changed.
41			Void	
42			Void	
43	→		LOCATION UPDATING REQUEST	"mobile identity" contains TMSI of the UE.
44	←		LOCATION UPDATING ACCEPT	"mobile identity" contains IMSI of the UE.
45		SS		The SS releases the RRC connection.
46			Void	
47	UE			a mobile originated CM connection is attempted.
48			Void	
49			Void	
50			Void	
51	→		CM SERVICE REQUEST	"mobile identity" contains IMSI of the UE.
52		SS		The SS releases the RRC connection.
53			Void	

Specific message contents

None.

9.3.2.5 Test requirement

At step 2 the UE shall answer to paging with IMSI.

At step 4 the UE shall answer to the SS with the correct IMSI in an IDENTITY RESPONSE message.

At step 19 the IMSI is sent by the network in a TMSI REALLOCATION COMMAND message, at step 27 the UE shall attempt IMSI detach.

At step 34 the UE shall perform location updating.

At step 44 the IMSI is sent by the network in a LOCATION UPDATING ACCEPT message, at step 51 the UE shall attempt CM connection establishment and include the correct IMSI in the CM SERVICE REQUEST message.

9.4 Location updating

This procedure is used to register the UE in the network. If it is not performed correctly, no call can be established.

9.4.1 Location updating / accepted

9.4.1.1 Definition

9.4.1.2 Conformance requirement

1.

1.1 if the network accepts a location updating from the UE and reallocates a TMSI in the LOCATION UPDATING ACCEPT message the UE shall acknowledge the reception of the new TMSI;

1.2 the UE shall answer to paging with this TMSI and include it in a PAGING RESPONSE message.

2 If the network accepts a location updating from the UE and the LOCATION UPDATING ACCEPT message contains neither TMSI nor IMSI, the UE shall answer to paging when addressed with the last allocated TMSI and include it in the PAGING RESPONSE message.

3.

3.1 if the network accepts a location updating from the UE by use of a LOCATION UPDATING ACCEPT message containing the IMSI of the UE, the UE shall not answer paging with the last allocated TMSI;

3.2 the UE shall still answer paging with IMSI.

Reference(s)

TS 24.008 clause 4.4.4.6.

9.4.1.3 Test purpose

1) To test the behaviour of the UE if the network accepts the location updating of the UE.

For the network response three different cases are identified:

1.1) TMSI is allocated;

1.2) location updating accept contains neither TMSI nor IMSI;

1.3) location updating accept contains IMSI.

9.4.1.4 Method of test

Initial conditions:

- System Simulator:
  - two cells, A and B, belonging to different location areas with location area identification a and b of the same PLMN;
  - IMSI attach/detach is allowed in both cells;
  - the T3212 time-out value is 1/10 hour in both cells.
- User Equipment:
  - the UE has a valid TMSI (=TMSI1) and CKSN (=CKSN1). It is "idle updated" on cell A.

Related ICS/IXIT statement(s)

None.

Test Procedure

The UE is made to select cell B. A normal location updating with TMSI reallocation is performed in cell B. The RRC CONNECTION is released. The SS checks, by paging, that the UE has stored the newly allocated TMSI. The RRC CONNECTION is released. The UE is made to select cell A. A normal location updating is performed in cell A. The LOCATION UPDATING ACCEPT message contains neither IMSI nor TMSI. The SS checks, by paging, that the UE has kept the old TMSI. The RRC CONNECTION is released. The UE is made to select cell B. A normal location updating is performed in cell B. The LOCATION UPDATING ACCEPT message contains an IMSI. The SS checks, by paging, that the UE has deleted its TMSI and responds to paging with IMSI.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		

Step	Direction		Message	Comments
	UE	SS		
1		SS		Set the cell type of cell B to the "Serving cell". Set the cell type of cell A to the "non-suitable cell". (see note)
2		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to: Registration. If PS mode: a routing area updating procedure should be performed.
3			Void	
4			Void	
5	→		LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = CKSN1, "location area identification" = a, "mobile station classmark 1" as given by the ICS and "mobile identity" = TMSI1. The MM message is included in the RRC message INITIAL DIRECT TRANSFER with the CN domain identity set to CS domain.
5a		SS		The SS starts integrity protection.
5b			Void	
6	←		LOCATION UPDATING ACCEPT	"Mobile identity" = new TMSI (=TMSI2), LAI = b.
7	→		TMSI REALLOCATION COMPLETE	
8		SS		
9			Void	
9a				SS waits 5 seconds to guarantee that the UE is in service.
10	←		Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 "Initial UE identity" IE contains the new TMSI (= TMSI2) and the new LAI (=b). Establishment Cause: Terminating Conversational Call.
11	→		PAGING RESPONSE	"Mobile identity" IE contains the new TMSI (= TMSI2).
12		SS		The SS releases the RRC Connection.
13			Void	
14		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "non-suitable cell". (see note)
15		SS		The SS verifies that the IE "Establishment cause" in the received RRC Connection REQUEST message is set to "Registration". If PS mode: a routing area updating procedure should be performed.
16			Void	
17			Void	
18a	→		LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = CKSN1, "location area identification" = b, "mobile station classmark 1" as given by the ICS and "mobile identity" = TMSI2.
18b		SS		The SS starts integrity protection.
18c			Void	
19	←		LOCATION UPDATING ACCEPT	"Mobile identity" IE not included. LAI = a
20		SS		
21			Void	The SS releases the RRC connection and waits 5 s to guarantee that the UE is in service.
22	←		Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.12.2 "Initial UE identity" IE contains the TMSI (= TMSI2) and LAI (=a). Establishment Cause: Terminating Conversational Call.
23	→		PAGING RESPONSE	"Mobile identity" IE contains the TMSI (=TMSI2).
24		SS		The SS releases the RRC connection.
25			Void	
26		SS		Set the cell type of cell B to the "Serving cell". Set the cell type of cell A to the "non-suitable cell". (see note)

Step	Direction		Message	Comments
	UE	SS		
27		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST is set to "Registration". If PS mode: a routing area updating procedure should be performed.
28			Void	
29			Void	
30a	→		LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = CKSN1, "location area identification" = a, "mobile station classmark 1" as given by the ICS and "mobile identity" = TMSI2.
30b		SS		The SS starts integrity protection.
30c			Void	
31	←		LOCATION UPDATING ACCEPT	"Mobile identity" IE contains IMSI and LAI (=b).
32		SS		
33			Void	The SS waits 5 s to guarantee that the UE is in service.
34	←		PAGING TYPE 1	"UE identity" IE contains the old TMSI (= TMSI2). Paging Cause: Terminating Conversational Call.
35	UE			The UE shall ignore this message. This is checked during 5 s.
36	←		Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 The PagingType1 message sent from the SS should have the “Initial UE identity” IE containing the IMSI. Establishment Cause: Terminating Conversational Call.
37	→		PAGING RESPONSE	"Mobile identity" IE contains the IMSI.
38		SS		The SS releases the RRC connection.
39			Void	
NOTE: The definitions for "Serving cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

9.4.1.5 Test requirement

At step 7 the UE shall acknowledge the reception of the new TMSI (TMSI2).

At step 11 the UE shall answer to paging with this TMSI (TMSI2).

At step 23 the UE shall answer to paging with the last allocated TMSI (TMSI2).

At step 35 the UE shall not answer paging with the last allocated TMSI, but at step 37 the UE shall still answer paging with IMSI.

9.4.2 Location updating / rejected

9.4.2.1 Location updating / rejected / IMSI invalid

9.4.2.1.1 Definition

9.4.2.1.2 Conformance requirement

1) If the network rejects a location updating from the UE with the cause "IMSI unknown in HLR", "Illegal MS" or "Illegal ME" the UE shall:

   1.1 not perform normal location updating;

   1.2 not perform periodic location updating;

   1.3 not respond to paging with IMSI;

1.4 not respond to paging with TMSI;

1.5 reject any request from CM entity for MM connection other than for emergency call;

1.6 not perform IMSI detach if it is switched off or has its power source removed.

2) If the network rejects a location updating from the UE with the cause "IMSI unknown in HLR", "Illegal MS" or "Illegal ME" the UE, if it supports emergency speech call, shall accept a request for an emergency call by sending a RRC CONNECTION Request message with the establishment cause set to "emergency call" and include an IMEI as mobile identity in the CM SERVICE REQUEST message.

3) If the network rejects a location updating from the UE with the cause "IMSI unknown in HLR", "Illegal MS" or "Illegal ME" the UE shall delete the stored LAI, CKSN and TMSI.

Reference(s)

TS 24.008 clause 4.4.4.7.

9.4.2.1.3 Test purpose

To test the behaviour of the UE if the network rejects the location updating of the UE with the cause "IMSI unknown in HLR", "illegal MS" or "Illegal ME".

9.4.2.1.4 Method of test

Initial conditions

- System Simulator:
  - two cells: A and B, belonging to different location areas of the same PLMN;
  - IMSI attach/detach is allowed in both cells;
  - the T3212 time-out value is 1/10 hour in both cells.
- User Equipment:
  - the UE has valid TMSI(= TMSI1), CKSN and CK, IK. It is "idle updated" on cell A.

Related ICS/IXIT statement(s)

USIM removal possible while the UE is powered Yes/No.

Switch off on button Yes/No.

Support for emergency speech call Yes/No.

Test Procedure

The SS rejects a normal location updating with the cause value "IMSI unknown in HLR". The RRC CONNECTION is released. The SS checks that the UE has entered the state MM IDLE and the substate NO IMSI, i.e. does not perform normal location updating when a new cell of the same or another PLMN is entered, does not perform periodic updating, does not respond to paging, rejects any requests from CM entities except emergency calls, does not perform IMSI detach if it is switched off or has its power source removed and deletes the stored LAI, CKSN and TMSI.

The test is repeated with cause value "Illegal MS" and with cause value "Illegal ME".

Expected sequence

The sequence is executed for execution counter k = 1, 2, 3.

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell B.
1		SS		Set the cell type of cell B to the "Serving cell". Set the cell type of cell A to the "non-suitable cell". (see note)
2		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST is set to "Registration". If PS mode: a ROUTING AREA UPDATE REQUEST should be rejected with cause “GPRS services not allowed” when LOCATION UPDATING REJECT is sent with cause “IMSI unknown in HLR”.
3			Void	
4			Void	
5	→		LOCATION UPDATING REQUEST	"location updating type" = normal, "LAI" = a, "Mobile Identity" = TMSI1
6	←		LOCATION UPDATING REJECT	"Reject cause" IE is "IMSI unknown in HLR" for k = 1, "Illegal MS" for k = 2, "Illegal ME" for k = 3.
7		SS		The SS releases the RRC Connection.
8			Void	
				The following messages are sent and shall be received on cell A.
9		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "non-suitable cell". (see note)
10		UE		The UE performs cell reselection according to procedure as specified in (this however is not checked until step 23). The UE shall not initiate an RRC connection establishment on cell A or on cell B.
11		SS		The SS waits at least 7 minutes for a possible periodic updating.
12		UE		The UE shall not initiate an RRC connection establishment on cell A or on cell B.
13	←		PAGING TYPE 1	The UE is paged in cell A. "UE identity" IE contains IMSI. Paging Cause: Terminating Conversational Call.
14		UE		The UE shall ignore this message. This is verified during 3 s.
15	←		PAGING TYPE 1	The UE is paged in cell A. "UE identity" IE contains TMSI. Paging Cause: Terminating Conversational Call.
16		UE		The UE shall ignore this message. This is verified during 3 s.
17		UE		A MO CM connection is attempted.
18		UE		The UE shall not initiate an RRC connection establishment on cell A or on cell B. This is checked during 30 s.
19		UE		If the UE supports emergency speech call (see ICS), it is made to perform an emergency call.
20		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST is set to "Emergency call".
This message is sent in cell A.				
21			Void	
22			Void	
23	→		CM SERVICE REQUEST	"CM service type": Emergency call establishment. "Mobile identity": type of identity is set to IMEI.
24	←		CM SERVICE ACCEPT	
25	→		EMERGENCY SETUP	
26	←		RELEASE COMPLETE	"Cause" = unassigned number.
27		SS		The SS releases the RRC connection.
28			Void	

Step	Direction		Message	Comments
	UE	SS		
29	UE			If possible (see ICS) USIM detachment is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
30	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B. This is checked during 3 s.
31	UE			Depending on what has been performed in step 29 the UE is brought back to operation. The subsequent GMM attach should be rejected if received in the PS mode.
32	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST is set to "Registration".
33			Void	
34			Void	
35	→		LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = no key available, "mobile station classmark 1" as given by the ICS, "Mobile Identity" = IMSI, "LAI" = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE).
36	←		AUTHENTICATION REQUEST	Assign a CKSN
37	→		AUTHENTICATION RESPONSE	
37a	SS			The SS starts integrity protection.
38	←		LOCATION UPDATING ACCEPT	"Mobile Identity" = TMSI.
39	→		TMSI REALLOCATION COMPLETE	
40	SS			The SS releases the RRC connection.
41			Void	
NOTE: The definitions for "Serving cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

9.4.2.1.5 Test requirement

1) 1.1 At step 10 the UE shall not perform normal location updating.

   1.2 At step 12 the UE shall not perform periodic location updating.

   1.3 At step 14 the UE shall not respond to paging with IMSI.

   1.4 At step 16 the UE shall not respond to paging with TMSI.

   1.5 At step 18 the UE shall reject a MO CM connection.

   1.6 At step 30 the UE shall not initiate an RRC connection establishment on cell A or on cell B.

2) At step 20 the UE shall accept a request for an emergency call with the establishment cause set to "Emergency call".

3) At step 35 the UE shall send a LOCATION UPDATING REQUEST message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the LAI IE set to "deleted LAI" on cell A.

9.4.2.2 Location updating / rejected / PLMN not allowed

9.4.2.2.1 Definition

9.4.2.2.2 Conformance requirement

1) If the network reject a location updating from the UE with the cause "PLMN not allowed" the UE shall:

   1.1 not perform periodic updating;

   1.2 not perform IMSI detach when switched off;

   1.3 not perform IMSI attach when switched on in the same location area;

   1.4 not perform normal location updating when in the same PLMN and when that PLMN is not selected manually;

   1.5 reject any request from CM entity for MM connection other than for emergency call.

2) If the network rejects a location updating from the UE with the cause "PLMN not allowed" the UE shall:

   2.1 perform normal location updating when a new PLMN is entered;

   2.2 accept a request for an emergency call, if it supports emergency speech call h, by sending a RRC CONNECTION REQUEST message with the establishment cause set to "emergency call".

3) If the network rejects a location updating from the UE with the cause "PLMN not allowed" and if after that the PLMN from which this rejection was received, is manually selected, the UE shall perform a normal location updating procedure.

4) If the network rejects a location updating from the UE with the cause "PLMN not allowed" the UE shall delete the stored LAI, CKSN and TMSI.

Reference(s)

TS 24.008 clause 4.4.4.7.

9.4.2.2.3 Test purpose

To test the behaviour of the UE if the network rejects the location updating of the UE with the cause "PLMN not allowed".

9.4.2.2.4 Method of test

Proc 1: Test procedure 1: Location updating / rejected / PLMN not allowed / test 1

Initial conditions

- System Simulator:
  - one cell: C, belonging to PLMN1;
  - two cells: A and B, belonging to different location areas a and b and belonging to PLMN2. PLMN2 is different from HPLMN and from PLMN1;
  - IMSI attach/detach is allowed in cells A and B but not in cell C;
  - the T3212 time-out value is 1/10 hour in cells A and B.

  NB: i) Cell C will be mapped to Cell 1 as found in TS 34.108 clause 6.1.4.1.

  ii) Cell A and B will be mapped to Cell 4 and 5 respectively, as found in TS 34.108 clause 6.1.4.1.

- User Equipment:

- the UE has a valid TMSI(= TMSI1) and CKSN(= CKSN1). It is "idle updated" on cell C;
- the UE is in manual mode for PLMN selection.

Related ICS/IXIT statement(s)

USIM removal possible while the UE is powered Yes/No.

Switch off on button Yes/No.

Support for emergency speech call Yes/No.

Test Procedure

The SS rejects a normal location updating with the cause value "PLMN not allowed". The RRC CONNECTION is released. The SS checks that the UE does not perform periodic updating, does not perform IMSI detach, does not perform IMSI attach if activated in the same location area, rejects any request for CM connection establishment other than emergency call, accepts a request for an emergency call, performs normal location updating only when a new PLMN is entered and deletes the stored LAI, CKSN and TMSI.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell B.
1	UE			The UE is switched off (or power is removed). A Detach Request can be received in PS mode.
2	SS			Set the cell type of cell B to the "Serving cell". Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell C to the "non-suitable cell". (see note)
3	UE			The UE is switched on (or power is reapplied). The UE shall offer the new PLMN as available to the user. The PLMN is manually selected.
4	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration". The subsequent GMM attach should be rejected if received in the PS mode.
5			Void	
6			Void	
7	→		LOCATION UPDATING REQUEST	"location updating type" = normal
8	←		LOCATION UPDATING REJECT	"Reject cause" = PLMN not allowed.
9	SS			The SS releases the RRC connection.
10			Void	
11	SS			The SS waits for a possible periodic updating for 7 minutes.
12	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B.
13	UE			If possible (see ICS) USIM detachment is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
14	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B. This is checked during 3 s.
15	UE			Depending on what has been performed in step 13 the UE is brought back to operation. The UE is not made to select PLMN 2.
16	UE			The UE shall not initiate an RRC connection establishment. This is checked during 3 s.
				The following message are sent and shall be received on cell A.

Step	Direction		Message	Comments
	UE	SS		
17		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
18	UE			No access to the network shall be registered by the SS within one minute.
19	UE			If the UE supports emergency speech call (see ICS) it is made to perform an emergency.
20		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Emergency Call".
21			Void	
22			Void	
23	→		CM SERVICE REQUEST	"CM service type" = Emergency call establishment. "Mobile identity": type of identity is set to IMSI
24	←		CM SERVICE ACCEPT	
25	→		EMERGENCY SETUP	
26	←		RELEASE COMPLETE	Cause IE: "unassigned number".
27		SS		The SS releases the RRC connection.
28			Void	
29	UE			A MO CM connection is attempted.
30	UE			The UE shall not initiate an RRC connection establishment. This is checked during 30 s.
				The following messages are sent and shall be received on cell C.
31	UE			The UE is switched off.
32		SS		Set the cell type of cell C to the "Serving cell". Set the cell type of cell A to the "non-suitable cell". Set the cell type of cell B to the "non-suitable cell". (see note)
33	UE			The UE is switched on. If necessary the UE is placed into the automatic mode.
34		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST is set to "Registration".
35			Void	
36			Void	
37	→		LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = no key available, "LAI" = deleted LAI (the MCC and MNC hold the values of PLMN1, the LAC is coded FFFE) "mobile identity" = IMSI.
37a	←		AUTHENTICATION REQUEST	
37b	→		AUTHENTICATION RESPONSE	
37c		SS		The SS starts integrity protection.
38	←		LOCATION UPDATING ACCEPT	"Mobile identity" = TMSI.
39	→		TMSI REALLOCATION COMPLETE	
40		SS		The SS releases the RRC connection.
41			Void	
NOTE: The definitions for "Serving cell", "Suitable neighbour cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents:

None.

Proc 2: Test procedure 2: Location updating / rejected / PLMN not allowed / test 2

Initial conditions

- System Simulator:
  - one cell C, belonging to PLMN1;

- two cells A and B, belonging to different location areas a and b and belonging to PLMN2. PLMN2 is different from HPLMN;
- IMSI attach/detach is allowed in cells A and B but not in cell C;
- the T3212 time-out value is 1/10 hour in cells A and B.

- User Equipment:
  - the UE has a valid TMSI. It is "idle updated" on cell C.
  - the UE is in manual mode for PLMN selection.

NB: i) Cell C will be mapped to Cell 1 as found in TS 34.108 clause 6.1.4.1.

ii) Cell A and B will be mapped to Cell 4 and 5 respectively, as found in TS 34.108 clause 6.1.4.1.

Related ICS/IXIT statement(s)

USIM removal possible while UE is powered Yes/No.

Switch off on button Yes/No.

The UE is automatically in automatic mode after switch on Yes/No.

Test Procedure

The SS rejects a normal location updating with the cause value "PLMN not allowed". The RRC CONNECTION is released. Then the PLMN from which this rejection was received is manually selected and the SS checks that a normal location updating is performed.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell B.
1	UE			The UE is switched off (or power is removed). A Detach Request can be received in PS mode.
2	SS			Set the cell type of cell B to the "Serving cell". Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell C to the "non-suitable cell". (see note)
3	UE			The UE is switched on (or power is reapplied).
3a	UE			The UE shall offer the new PLMN as available to the user. The PLMN is manually selected.
4	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration". The subsequent GMM attach should be rejected if received in the PS mode.
5			Void	
6			Void	
7	→		LOCATION UPDATING REQUEST	
8	←		LOCATION UPDATING REJECT	"Reject cause" = PLMN not allowed.
9	SS		Void	The SS releases the RRC connection.
10			Void	
11	UE			The UE is made to search for PLMNs and the PLMN indicated by the SS is manually selected.
12	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
13			Void	
14			Void	
15	→		LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = no key available, "LAI" = deleted LAI (the MCC and MNC hold the values of PLMN1, the LAC is coded FFFE) "mobile identity" = IMSI.
15a	Void			
15b	←		LOCATION UPDATING REJECT	"Reject cause" = PLMN not allowed.
16	SS			The SS releases the RRC connection.
17			Void	
The following messages are sent and shall be received on cell C.				
18	UE			The UE is switched off.
19	SS			Set the cell type of cell C to the "Serving cell". Set the cell type of cell A to the "non-suitable cell". Set the cell type of cell B to the "non-suitable cell". (see note)
20	UE			The UE is switched on. If necessary, the UE is put into the automatic mode.
21	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
22			Void	
23			Void	
24	→		LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = no key available, "LAI" = deleted LAI (the MCC and MNC hold the values of PLMN1, the LAC is coded FFFE) "mobile identity" = IMSI.
24a	←		AUTHENTICATION REQUEST	

Step	Direction		Message	Comments
	UE	SS		
24b	→		AUTHENTICATION RESPONSE	
24c		SS		The SS starts integrity protection.
25	←		LOCATION UPDATING ACCEPT	"Mobile identity" = TMSI.
26	→		TMSI REALLOCATION COMPLETE	
27		SS		The SS releases the RRC connection.
28			Void	
NOTE: The definitions for "Serving cell", "Suitable neighbour cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

9.4.2.2.5 Test requirement

1) 1.1 At step 12 in test 1 the UE shall not perform periodic updating.

   1.2 At step 14 in test 1 the UE shall not initiate an RRC connection establishment (IMSI detach).

   1.3 At step 16 in test 1 the UE shall not initiate an RRC connection establishment (IMSI attach).

   1.4 At step 16 in test 1 the UE shall not perform normal location updating.

   1.5 At step 30 in test 1 the UE shall reject a MO CM connection.

2) 2.1 At step 37 in test 1 the UE shall perform normal location updating.

   2.2 At step 20 in test 1 the UE shall accept a request for an emergency call with the establishment cause set to "Emergency call".

3) At step 11 in test 2 the UE is made to search for PLMNs and the PLMN indicated by the SS is manually selected, and at step 15 the UE shall perform a normal location updating procedure.

4) At step 37 in test 1 the UE shall send a LOCATION UPDATING REQUEST message with Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and LAI IE set to "deleted LAI" on cell C.

9.4.2.3 Location updating / rejected / location area not allowed

9.4.2.3.1 Definition

9.4.2.3.2 Conformance requirement

1) If the network rejects a location updating from the UE with the cause "Location Area not allowed" the UE shall:

   1.1 not perform periodic updating;

   1.2 not respond to paging with TMSI;

   1.3 reject any request from CM entity for MM connection other than for emergency call;

   1.4 not perform IMSI detach.

   1.5 not delete the list of "equivalent PLMNs".

2) If the network rejects a location updating from the UE with the cause "Location Area not allowed" the UE shall:

   2.1 perform normal location updating when a new location area is entered;

   2.2 accept a request for an emergency call, if it supports emergency speech call h, by sending a RRC CONNECTION REQUEST message with the establishment cause set to "emergency call";

2.3 delete the list of forbidden LAs after switch off (power off).

3) If the network rejects a location updating from the UE with the cause "Location Area not allowed" the UE shall delete the stored LAI, CKSN and TMSI.

Reference(s)

TS 24.008 clause 4.4.4.7.

9.4.2.3.3 Test purpose

To test the behaviour of the UE if the network rejects the location updating of the UE with the cause "Location Area not allowed".

To test that the UE deletes the list of forbidden LAs after switch off (power off).

9.4.2.3.4 Method of test

Initial conditions

- System Simulator:
  - three cells: A, B and C, belonging to different location areas a, b and c. Cell A and B belongs to PLMN1. Cell C belongs to PLMN2.
  - IMSI attach/detach is allowed in both cells;
  - the T3212 time-out value is 1/10 hour in both cells;
  - Sintersearch values for cells A and B are 20 dB.

  NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.
- User Equipment:
  - the UE has a valid TMSI(= TMSI1) and CKSN(= CKSN1). It is "idle updated" on cell A.
  - the UE has a list of "equivalent PLMNs" containing PLMN1 and PLMN2.

Related ICS/IXIT statement(s)

Switch off on button Yes/No.

Support for emergency speech call Yes/No.

Method to clear the list of forbidden location areas periodically.

Test Procedure

The SS rejects a normal location updating with the cause value "Location Area not allowed". The RRC CONNECTION is released. The SS checks that the UE deletes the stored LAI, CKSN and TMSI, does not perform periodic updating, does not respond to paging with TMSI, rejects any requests from CM entities for MM-connections except emergency calls, does not perform IMSI detach, does not delete the list of "equivalent PLMNs", performs normal location updating when a new location area is entered, deletes the list of forbidden LAs when switched off.

Different types of UE may use different methods to periodically clear the list of forbidden location areas (e.g. every day at 12am). If the list is cleared while the test is being run, it may be necessary to re-run the test.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell B.
1		SS		Set the cell type of cell B to the "Serving cell". Set the cell type of cell A to the " Suitable neighbour cell ". Set the cell type of cell C to the " Suitable neighbour cell ". (see note).
2		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration". If PS mode: a ROUTING AREA UPDATE REQUEST should be rejected with the same cause as used in the LOCATION UPDATING REJECT.
3			Void	
4			Void	
5	→		LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = CKSN1, "LAI" = a, "Mobile Identity" = TMSI1
6	←		LOCATION UPDATING REJECT	"Reject cause" = "Location Area not allowed".
7		SS		After the sending of this message, the SS waits for the disconnection of the main signalling link. The SS releases the RRC connection.
8			Void	
9		SS		SS waits for a possible location updating for 7 minutes.
10		UE		The UE shall not initiate an RRC-connection establishment either on cell A, C or cell B.
11	←		PAGING TYPE 1	The UE is paged in cell B. "UE identity" = TMSI. Paging Cause: Terminating Conversational Call.
12		UE		The UE shall ignore this message. This is checked during 30 s.
13		UE		A MO CM connection is attempted.
14		UE		The UE shall not initiate an RRC connection establishment on cell A, C or cell B. This is checked during 30 s.
15		UE		If the UE supports emergency speech call (see ICS), it is made to perform an emergency call.
16		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Emergency call".
17			Void	
18			Void	
19	→		CM SERVICE REQUEST	"CM service type": Emergency call establishment.
20	←		CM SERVICE ACCEPT	
21	→		EMERGENCY SETUP	
22	←		RELEASE COMPLETE	Cause: "unassigned number".
23		SS		The SS releases the RRC connection.
24			Void	
25		UE		If possible (see ICS) switch off is performed. Otherwise the power is removed.
26		UE		The UE shall not initiate an RRC connection establishment on cell A, C or on cell B (check for IMSI detach) This is checked during 3 s.
27		UE		The SS sets the cell type of cells A and C to "non-suitable cell". Depending on what has been performed in step 25 the UE is brought back to operation. The subsequent GMM attach should be rejected if received in the PS mode with the same cause as used in the LOCATION UPDATING REJECT.
28		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
29			Void	
30			Void	

Step	Direction		Message	Comments
	UE	SS		
31	→		LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = no key available, "LAI" = deleted LAI, "mobile identity" = IMSI (This checks the deletion of the forbidden lists)
32	←		LOCATION UPDATING REJECT	"Reject cause" = "Location Area not allowed".
33		SS		The SS releases the RRC connection.
34			Void	
The following messages are sent and shall be received on cell C.				
35		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell C to the "Serving cell". Set the cell type of cell B to the " Suitable neighbour cell ". (see note).
36		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
37			Void	
38			Void	
39	→		LOCATION UPDATING REQUEST	
40	←		AUTHENTICATION REQUEST	
41	→		AUTHENTICATION RESPONSE	
41a		SS		The SS starts integrity protection.
42	←		LOCATION UPDATING ACCEPT	Mobile identity = TMSI.
43	→		TMSI REALLOCATION COMPLETE	
44		SS		The SS releases the RRC connection.
45			Void	
NOTE: The definitions for "Serving cell", "Suitable neighbour cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

9.4.2.3.5 Test requirement

1) 1.1 At step 10 the UE shall not perform periodic updating.

   1.2 At step 12 the UE shall not respond to paging with TMSI.

   1.3 At step 14 the UE shall not initiate an RRC connection establishment.

   1.4 At step 26 the UE shall not initiate an RRC connection establishment (IMSI detach).

   1.5 At step 39 the UE shall perform normal location updating on cell C.

2) 2.1 At step 39 the UE shall perform normal location updating.

   2.2 At step 16 the UE shall accept a request for an emergency call.

   2.3 At step 31 the UE shall send a LOCATION UPDATING REQUEST message on cell B.

3) At step 31 the UE shall send a LOCATION UPDATING REQUEST message with Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and LAI IE set to "deleted LAI" on cell B.

9.4.2.4 Location updating / rejected / roaming not allowed in this location area

9.4.2.4.1 Definition

9.4.2.4.2 Conformance requirement

1) If the network rejects a location updating from the UE with the cause "Roaming not allowed in this location area" the UE shall:

   1.1 not perform periodic updating;

   1.2 void;

   1.3 reject any request from CM entity for MM connection other than for emergency call;

   1.4 not perform IMSI detach.

2) If the network rejects a location updating from the UE with the cause "Roaming not allowed in this location area" the UE shall:

   2.1 perform normal location updating when a new location area is entered;

   2.2 accept a request for an emergency call, if it supports emergency speech call, by sending a RRC CONNECTION Request message with the establishment cause set to "emergency call";

   2.3 periodically search for its HPLMN.

3) The UE shall reset the list of "Forbidden location areas for roaming" when it is switched off or has its power source removed or when the USIM is removed.

4) The UE shall contain a list of "forbidden location areas for roaming". The location area identification received on the BCCH that triggered the location updating request shall be added to the suitable list whenever a LOCATION UPDATE REJECT message is received with the cause "Roaming not allowed in this location area". The lists shall accommodate each 10 or more location area identifications.

Reference(s)

TS 24.008 clause 4.4.4.7.

9.4.2.4.3 Test purposes

Test purpose 1

To test that on receipt of a rejection using the Roaming cause code, the UE ceases trying to update on that cell, that this situation continues for at least one periodic location interval period, and that the corresponding list is re-set by switching off the UE or removing its power source.

Test purpose 2

To test that if no cell is available, the UE rejects a request from CM entity other than for emergency calls.

Test purpose 3

To test that at least 6 entries can be held in the list of "forbidden location areas for roaming" (the requirement in is to store at least 10 entries. This is not fully tested by the third procedure).

Test purpose 4

To test that if a cell of the Home PLMN is available then the UE returns to it in preference to any other available cell.

Test purpose 5

To test that if the USIM is removed the list of "forbidden location areas for roaming" is cleared.

9.4.2.4.4 Method of test

Initial conditions

The initial conditions shall be met before each of the different procedures.

- System Simulator:
  - for procedures 1, 2, 3 and 5: Two cells A and B, belonging to different location areas of the same PLMN with LAI a and b. The MCC of that PLMN is the same as that of the HPLMN. The MNC of that PLMN is different from that of the HPLMN. For procedure 2, Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1 and Qqualmin values for cells A and B are -16 dB (FDD only);
  - for procedure 4: three cells A, B, C of the same PLMN which is not the HPLMN with 3 different location area codes. Cells should differ in signal strength by 10 dB with cell A being the strongest and cell C the weakest. There should be a 20 dB range between A and C. A should be set to a level of - 40 dBm;

  NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.
  - IMSI attach/detach is allowed in every cell;
  - the T3212 time-out value is 1/10 hour in every cell,
- User Equipment:
  - procedures 1, 2, 3 and 5: The UE has valid TMSI, CKSN and CK, IK. It is "idle updated" on cell B;
  - procedure 4: The UE has valid TMSI, CKSN and CK, IK. It is "idle updated" on cell A;
  - the list of "forbidden location areas for roaming" shall be empty (this may be achieved by either removing the USIM or switching the UE OFF then ON or removing the UE power source depending on ICS).

Related ICS/IXIT statement(s)

USIM removal possible while UE is powered Yes/No.

Switch off on button Yes/No.

Support of emergency speech call Yes/No.

Method to clear the list of location areas for roaming periodically.

The UE is automatically in automatic mode after switch on Yes/No.

9.4.2.4.4.1 Test Procedures

Proc 1: Test procedure 1

- The SS rejects a normal location updating with the cause value "Roaming not allowed in this location area". The RRC CONNECTION is released. The SS checks that the UE does not perform periodic location updating procedure. The UE is turned off and then on. The SS checks that the UE performs location updating on the cell on which its location update request had been rejected (this checks that the LA is not the forbidden list after switch on). This procedure is performed another time but the deletion of the list is checked while removing the USIM (instead of turning off the UE).

Proc 2: Test procedure 2

- The SS rejects a normal location updating with the cause value "Roaming not allowed in this location area". The RRC CONNECTION is released. The SS checks that the UE rejects a request from CM entity but supports an emergency call.

Proc 3: Test procedure 3

- The SS rejects a normal location updating with the cause value "Roaming not allowed in this location area". This is done for 6 different location areas. Then the SS checks that the UE does not attempt to begin a location updating procedure on the non-allowed location areas.

Proc 4: Test procedure 4

- The SS accepts a periodic location updating on a cell not belonging to the HPLMN. Then when the UE attempts to perform a periodic location updating to this cell, the SS rejects this location updating with the cause value "Roaming not allowed in this location area". Three cells are then available, one of them belonging to the HPLMN. It is checked that the UE returns to its HPLMN.

Proc 5: Test procedure 5

If USIM removal is possible while UE is powered:

- The SS rejects a normal location updating with the cause value "Roaming not allowed in this location area". The RRC CONNECTION is released. The SS checks that the UE does not perform periodic location updating procedure. The USIM is removed and inserted in the UE. The SS checks that the UE performs location updating on the cell on which its location update request had been rejected (this checks that the LA is not the forbidden list after switch on).

Different types of UE may use different methods to periodically clear the list of forbidden areas (e.g. every day at 12am) for roaming. If the list is cleared while the test is being run, it may be necessary to re-run the test.

Expected sequence

The following procedure is used during the test:

- change_LAI (x):
  - the purpose of this procedure is to change the value of Location Area Identifier of cell x;
  - the Location Area Identifier of cell x shall be changed. The code shall be chosen arbitrarily but shall be different from any previously used in this procedure. The code shall have the same MCC as the Home PLMN and shall not have the same MNC as the Home PLMN.

Procedure 1

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "non-suitable cell". (see note).
2		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration". If PS mode: a ROUTING AREA UPDATE REQUEST should be rejected with the same cause as used in the LOCATION UPDATING REJECT.
3			Void	
4			Void	
5	→		LOCATION UPDATING REQUEST	Location Updating Type = normal.
6	←		LOCATION UPDATING REJECT	"Reject cause" IE is "Roaming not allowed in this location area".
7		SS		The SS releases the RRC connection
8			Void	
9		SS		The SS waits at least 7 minutes for a possible location updating.
10		UE		The UE shall not initiate an RRC connection establishment on cell A or on cell B.
11		UE		If possible (see ICS) the UE is switched off. Otherwise if possible the power is removed.
12		UE		Depending on what has been performed in step 11 the UE is brought back to operation and placed in an automatic mode. The subsequent GMM attach should be rejected if received in the PS mode.
13		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
14			Void	
15			Void	
16	→		LOCATION UPDATING REQUEST	Location Updating Type = normal.
16a		SS		The SS starts integrity protection.
17	←		LOCATION UPDATING ACCEPT	"Mobile Identity" not IE included.
18		SS		The SS releases the RRC connection.
19			Void	

NOTE: The definitions for "Serving cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".

Procedure 2

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the “Suitable neighbour inter-frequency cell”. (see note).
2		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration". This message is sent on cell A. If PS mode: a ROUTING AREA UPDATE REQUEST should be rejected with the same cause as used in the LOCATION UPDATING REJECT.
3			Void	
4			Void	
5	→		LOCATION UPDATING REQUEST	
6	←		LOCATION UPDATING REJECT	"Reject cause" IE is "Roaming not allowed in this location area".
7		SS		The SS releases the RRC connection.
8		SS		Set the cell type of cell B to the "Serving cell". Set the cell type of cell A to the “Suitable neighbour inter-frequency cell”. (see note).
				The following messages are sent and shall be received on cell B.
9		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration". If PS mode: a ROUTING AREA UPDATE REQUEST should be rejected with the same cause as used in the LOCATION UPDATING REJECT.
10			Void	
11			Void	
12	→		LOCATION UPDATING REQUEST	
13	←		LOCATION UPDATING REJECT	"Reject cause" IE is "Roaming not allowed in this location area".
14		SS		The SS releases the RRC connection.
15			Void	
16		SS		The SS waits for a possible location updating procedure on both cells A and B for 2 minutes.
17		UE		The UE shall not initiate an RRC connection establishment on cell A or on cell B within 2 minutes after the end of step 15.
18			Void	
19			Void	
20		UE		A MO CM connection is attempted.
21		UE		The UE shall not initiate an RRC connection establishment on cell A or on cell B. This is checked during 30 s.
The following messages are sent and shall be received on cell B. Steps 22 to 31 are performed if the UE supports emergency speech call.				
22		UE		An emergency call is attempted.
23		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Emergency Call".
24			Void	
25			Void	
26	→		CM SERVICE REQUEST	"CM service type": Emergency call establishment.
27	←		CM SERVICE ACCEPT	
28	→		EMERGENCY SETUP	
29	←		RELEASE COMPLETE	"Cause" = unassigned number.
30		SS		The SS releases the RRC connection.

31		Void	
NOTE:	The definitions for "Serving cell" and “Suitable neighbour inter-frequency cell” are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".		

Procedure 3

Step	Direction		Message	Comments
	UE	SS		
The following messages are sent and shall be received on cell A				
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
2		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to “Registration”. If PS mode: a ROUTING AREA UPDATE REQUEST should be rejected with the same cause as used in the LOCATION UPDATING REJECT.
3			Void	
4			Void	
5	→		LOCATION UPDATING REQUEST	
6	←		LOCATION UPDATING REJECT	"Reject cause" IE is "Roaming not allowed in this location area".
7		SS		The SS releases the RRC connection
8			Void	
The following messages are sent and shall be received on cell B.				
9		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to “Registration”. If PS mode: a ROUTING AREA UPDATE REQUEST should be rejected with the same cause as used in the LOCATION UPDATING REJECT.
10			Void	
11			Void	
12	→		LOCATION UPDATING REQUEST	
13	←		LOCATION UPDATING REJECT	"Reject cause" IE is "Roaming not allowed in this location area".
14		SS		The SS releases the RRC connection
15			Void	
16		SS		Change_LAI (A) within 5 s after step 13.
The following messages are sent and shall be received on cell A.				
17		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST is set to “Registration”. If PS mode: a ROUTING AREA UPDATE REQUEST should be rejected with the same cause as used in the LOCATION UPDATING REJECT.
18			Void	
19			Void	
20	→		LOCATION UPDATING REQUEST	
21	←		LOCATION UPDATING REJECT	"Reject cause" IE is "Roaming not allowed in this location area".
22		SS		The SS releases the RRC connection
23			Void	
24		SS		Change_LAI (B) within 5 s after step 21.
The following messages are sent and shall be received on cell B.				
25		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to “Registration”. If PS mode: a ROUTING AREA UPDATE REQUEST should be rejected with the same cause as used in the LOCATION UPDATING REJECT.
26			Void	

Step	Direction		Message	Comments
	UE	SS		
27			Void	
28	→		LOCATION UPDATING REQUEST	
29	←		LOCATION UPDATING REJECT	"Reject cause" IE is "Roaming not allowed in this location area".
30		SS		The SS releases the RRC connection.
31			Void	
32		SS		Change_LAI (A) within 5 s after step 29.
The following messages are sent and shall be received on cell A.				
33		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to “Registration”. If PS mode: a ROUTING AREA UPDATE REQUEST should be rejected with the same cause as used in the LOCATION UPDATING REJECT.
34			Void	
35			Void	
36	→		LOCATION UPDATING REQUEST	
37	←		LOCATION UPDATING REJECT	"Reject cause" IE is "Roaming not allowed in this location area".
38		SS		The SS releases the RRC connection
39			Void	
40		SS		Change_LAI (B) within 5 s after step 37.
The following messages are sent and shall be received on cell B.				
41		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to “Registration”. If PS mode: a ROUTING AREA UPDATE REQUEST should be rejected with the same cause as used in the LOCATION UPDATING REJECT.
42			Void	
43			Void	
44	→		LOCATION UPDATING REQUEST	
45	←		LOCATION UPDATING REJECT	"Reject cause" IE is "Roaming not allowed in this location area".
46		SS		The SS releases the RRC connection
47			Void	
48		SS		The SS waits for a possible location updating procedure on both cells A and B for 7 minutes.
49		UE		The UE shall not initiate an RRC connection establishment on cell A or on cell B within 7 minutes after the end of step 47.
NOTE: The definitions for "Serving cell" and "Suitable neighbour cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Procedure 4

Step	Direction		Message	Comments
	UE	SS		
The following messages are sent and shall be received on cell A.				
1		SS		The SS waits for a periodic location updating procedure on cell A for T3212 minutes after the initial conditions have been established.
2		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to “Registration”.
3			Void	
4			Void	
5	→		LOCATION UPDATING REQUEST	Location Updating Type = periodic.
6	←		LOCATION UPDATING ACCEPT	"Mobile Identity" not IE included.
7		SS		The SS releases the RRC connection
8			Void	
9		SS		The location area identity of cell C shall be changed to that of a location area in the Home PLMN.
10		SS		The SS waits for a periodic location updating procedure on cell A for T3212 minutes.
11		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to “Registration”. This message is sent on cell A within T3212 minutes after the end of step 7.
12			Void	
13			Void	
14	→		LOCATION UPDATING REQUEST	"Location updating type" = periodic.
15	←		LOCATION UPDATING REJECT	"Reject cause" IE is "Roaming not allowed in this location area".
16		SS		The SS releases the RRC connection
17			Void	
The following messages are sent and shall be received on cell C.				
18		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to “Registration”. If PS mode: a ROUTING AREA UPDATE REQUEST should be accepted.
19			Void	
20			Void	
21	→		LOCATION UPDATING REQUEST	"Location updating type" = normal.
21a		SS		The SS starts integrity protection.
22	←		LOCATION UPDATING ACCEPT	"Mobile Identity" not IE included.
23		SS		The SS releases the RRC connection
24			Void	

Procedure 5

Step	Direction		Message	Comments
	UE	SS		
The following messages are sent and shall be received on cell A.				
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "non-suitable cell". (see note)
2		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration". If PS mode: a ROUTING AREA UPDATE REQUEST should be rejected with the same cause as used in the LOCATION UPDATING REJECT.
3			Void	
4			Void	
5	→		LOCATION UPDATING REQUEST	
6	←		LOCATION UPDATING REJECT	"Reject cause" IE is "Roaming not allowed in this location area".
7				The SS releases the RRC connection.
8			Void	
9		SS		The SS waits at least 7 minutes for a possible location updating.
10		UE		The UE shall not initiate an RRC connection establishment on cell A or on cell B.
11		UE		The USIM is removed.
12		UE		The USIM is inserted into the ME. The subsequent GMM attach should be rejected if received in the PS mode.
13		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
14			Void	
15			Void	
16	→		LOCATION UPDATING REQUEST	Location Updating Type = normal.
16a	←		AUTHENTICATION REQUEST	
16b	→		AUTHENTICATION RESPONSE	
16c		SS		The SS starts integrity protection.
17	←		LOCATION UPDATING ACCEPT	"Mobile Identity" not IE included.
18		SS		The SS releases the RRC connection.
19			Void	
NOTE: The definitions for "Serving cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

9.4.2.4.5 Test requirement

1) 1.1 At step 10 in Procedure 1 the UE shall not perform periodic updating.

   1.2 Void.

   1.3 At step 21 in procedure 2 the UE shall not initiate an RRC connection establishment.

   1.4 After step 13 in Procedure 5 the UE shall perform location updating (at step 16; not perform IMSI detach).

2) 2.1 After step 9 in Procedure 2 the UE perform normal location updating (at step 12).

   2.2 At step 23 in Procedure 2 the UE shall initiate a RRC CONNECTION REQUEST message with the establishment cause set to "Emergency call";

2.3 At step 14 in Procedure 4 the UE shall attempt to location updating with location updating type "periodic" (at step 21: UE returns to HPLMN in preference to any other available cell).

3) After step 12 in Procedure 5 the UE shall perform location updating (at step 16) when the USIM is inserted.

4) At step 49 in Procedure 3 the UE shall not attempt to begin a location updating procedure.

9.4.2.5 Location updating / rejected / No Suitable Cells In Location Area

9.4.2.5.1 Definition

9.4.2.5.2 Conformance requirement

1) If the network rejects a location updating from the UE with the cause " No Suitable Cells In Location Area " the UE shall:

1.1 perform normal location updating at a suitable cell in another location area in the same PLMN,

1.2 not delete the list of "equivalent PLMNs".

Reference(s)

TS 24.008 clause 4.4.4.7.

9.4.2.5.3 Test purpose

To test the behaviour of the UE if the network rejects the location updating of the UE with the cause "No Suitable Cells In Location Area".

9.4.2.5.4 Method of test

Initial conditions

- System Simulator:
  - two cells: A and B, belonging to different location areas a and b and belonging to PLMN1;
  - one cell: C, belonging to PLMN2;
  - one cell: D, belonging to PLMN3;
  - IMSI attach/detach is allowed in cells A, B, C and D;

  NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.2.

  ii) Cell D will be mapped to Cell 7 as found in TS 34.108 clause 6.1.4.2.
- User Equipment:
  - the UE has a valid TMSI(= TMSI1) and CKSN(= CKSN1). It is "idle updated" on cell A.
  - the UE has a list of "equivalent PLMNs" containing PLMN1 and PLMN2.

Related ICS/IXIT statement(s)

None.

Test Procedure

The SS rejects a normal location updating with the cause value "No Suitable Cells In Location Area". The RRC CONNECTION is released. The SS checks that the UE shall search for a suitable cell in a different location area on the equivalent PLMN, which is equal condition for the UE as same PLMN, and shall perform normal location updating procedure in that cell

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
The following messages are sent and shall be received on cell B.				
1		SS		Set the cell type of cell B to the "Serving cell". Set the cell type of cell A to the "non-suitable cell". Set the cell type of cell C to the "Suitable neighbour cell". Set the cell type of cell D to the "Suitable neighbour cell". (see note)
2		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration". If PS mode: a ROUTING AREA UPDATE REQUEST should be rejected with the same cause as used in the LOCATION UPDATING REJECT.
3			Void	
4			Void	
5	→		LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = CKSN1, "LAI" = a, "mobile station classmark 1" as given by the ICS and "Mobile Identity" = TMSI1.
6	←		LOCATION UPDATING REJECT	"Reject cause" = "No Suitable Cells In Location Area".
7		SS		The SS releases the RRC connection.
8			Void	
The following messages are sent and shall be received on cell C.				
9		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration". The subsequent GMM attach should be rejected if received in the PS mode.
10			Void	
11			Void	
12	→		LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = CKSN1, "LAI" = a, "mobile station classmark 1" as given by the ICS, "Mobile Identity" = TMSI1.
13			Void	
14			Void	
15		SS		The SS starts integrity protection.
16			Void	
17	←		LOCATION UPDATING ACCEPT	Mobile identity = TMSI, LAI = c.
18	→		TMSI REALLOCATION COMPLETE	
19		SS		The SS releases the RRC connection.
20			Void	
NOTE: The definitions for "Serving cell", "Suitable neighbour cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

9.4.2.5.5 Test requirement

At step 12 the UE shall perform normal location updating on cell C.

9.4.2.6 Location updating / rejected / Not authorized for this CSG

9.4.2.6.1 Definition

9.4.2.6.2 Conformance requirement

1) If the network rejects a location updating procedure from the User Equipment with the cause ' Not authorized for this CSG ' the User Equipment shall:

1.1 not delete the list of "equivalent PLMNs"

1.2 remove the CSG ID of the cell where the UE has sent the LOCATION UPDATING REQUEST message from the allowed CSG list stored in the UE.

1.3 perform normal location updating at a suitable cell in the same PLMN.

Reference

3GPP TS 24.008 clause 4.4.4.7.

9.4.2.6.3 Test purpose

To verify that the UE removes the CSG ID from the Allowed CSG list and searches for a suitable cell in the same PLMN If the network rejects the location updating of the UE with the cause ' Not authorized for this CSG '.

9.4.2.6.4 Method of test

Initial conditions

System Simulator:

- Three cells: A, B and C, belonging to different location areas a, b and c. Cell A, B and C belong to PLMN1.
- IMSI attach/detach is allowed in all cells;

NB: i) Cell A, B and C will be mapped to Cell 1, 2 and 3 respectively as found in TS 34.108 clause 6.1.4.1.

ii) Cell A shall also include a CSG ID as CSG 1 for PLMN 1.

iii) Cell C shall also include a CSG ID as CSG 2 for PLMN 1.

User Equipment:

The UE has a valid TMSI(= TMSI1), KSI and CK, IK. It is "idle updated" on cell B.

UE Allowed CSG List contains CSG1 and CSG2 for PLMN 1.

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	PLMN	CSG ID
EF_{ACSGL}	PLMN 1	CSG 1,CSG 2

UE is previously registered on PLMN1, before switched off.

Related ICS/IXIT statement(s)

Switch off on button Yes/No

Test procedure

The SS rejects a normal location updating with the cause value 'Not authorized for this CSG'. The RRC CONNECTION is released. The SS checks that the UE shall search for a suitable cell in the same PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "non-suitable cell". Set the cell type of cell C to the "Suitable neighbour cell". (see NOTE)
The following messages are sent and shall be received on cell A.				
2		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	→		LOCATION UPDATING REQUEST	"location updating type" = normal, "LAI" = b, "Mobile Identity" = TMSI1
4	←		LOCATION UPDATING REJECT	"Reject cause" = “Not authorized for this CSG ".
5		SS		The SS releases the RRC connection.
The following messages are sent and shall be received on cell C.				
6		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
7	→		LOCATION UPDATING REQUEST	"location updating type" = normal, "LAI" = b, "Mobile Identity" = TMSI1.
8		SS		The SS starts integrity protection.
9	←		LOCATION UPDATING ACCEPT	Mobile identity = TMSI, LAI =c.
10	→		TMSI REALLOCATION COMPLETE	
11		SS		The SS releases the RRC connection.
NOTE: The definitions for "Serving cell", "Suitable neighbour cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

9.4.2.6.5 Test requirements

At step 1, UE Allowed CSG List shall contain CSG 1 and CSG 2.

At step 4, when the UE receives LOCATION UPDATING REJECT, UE shall:

- delete the CSG1 from the Allowed CSG List.
- Allowed CSG List shall contain only CSG 2.

At step 7, the UE shall perform normal location updating on Cell C.

9.4.3 Location updating / abnormal cases

9.4.3.1 Void

9.4.3.2 Location updating / abnormal cases / attempt counter less or equal to 4, LAI different

9.4.3.2.1 Definition

9.4.3.2.2 Conformance requirement

1) When a failure such as cases d), f), g) and h) of clause 4.4.4.9 of TS 24.008 has occurred during a normal location updating procedure, if the attempt counter is smaller than 4 and after expiry of T3211, the UE shall resend its LOCATION UPDATING REQUEST message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating Type IE set to "normal location updating".

2) When a failure such as cases d), f), g) and h) of clause 4.4.4.9 of TS 24.008 has occurred during a normal location updating procedure the UE shall:

   2.1 not answer to paging with the previously allocated TMSI;

   2.2 not perform the IMSI detach procedure, when switched off.

3) When a failure such as case e) of clause 4.4.4.9 of TS 24.008 has occurred during a normal location updating procedure and when an emergency call establishment is requested by the user the UE, if it supports emergency speech call, shall send a CM SERVICE REQUEST message with CM Service Type IE set to "emergency call establishment", CKSN IE set to "no key available" and Mobile Identity IE set to its IMSI and after acceptance by the network it shall send an EMERGENCY SETUP message.

4) When a failure such as cases d), f), g) and h) of clause 4.4.4.9 of TS 24.008 has occurred during a normal location updating procedure the UE shall use a request from CM entity other than emergency call as a trigger for a normal location updating procedure and shall send a LOCATION UPDATING REQUEST message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating Type IE set to "normal location updating".

5) When a failure such as cases d), f), g) and h) of clause 4.4.4.9 of TS 24.008 has occurred during a normal location updating procedure the UE shall answer to paging with IMSI and shall send a PAGING RESPONSE message with CKSN IE set to "no key available" and Mobile Identity IE set to its IMSI.

6) When a failure such as cases d), f), g) and h) of clause 4.4.4.9 of TS 24.008 has occurred during a normal location updating procedure the UE shall perform a normal location updating procedure as soon as it enters a new cell.

References

TS 24.008 clauses 4.4.4.2, 4.4.4.9.

9.4.3.2.3 Test purpose

To verify that the UE performs normal location updating procedures when its attempt counter is smaller than 4.

To check that the UE does not perform the IMSI detach procedure when "idle not updated".

To verify that when "idle not updated" the UE can perform an emergency call.

To verify that when "idle not updated" the UE uses requests from CM layer other than emergency call as triggering of a normal location updating procedure.

To verify that the UE performs a normal location updating procedure if it enters a new cell while being "idle not updated".

9.4.3.2.4 Method of test

Initial conditions

- System Simulator:
  - two cells: A and B of the same PLMN, belonging to different location areas with LAI a and b;
  - ATT flag shall be set to IMSI attach/detach allowed.
- User Equipment:
  - the UE is "idle updated" on cell A. A valid CKSN value is stored in the USIM and is noted "initial CKSN". A TMSI is allocated.

Related ICS/IXIT statements

USIM removal possible while UE is powered Yes/No.

Switch off on button Yes/No.

Support for emergency speech call Yes/No.

Test Procedure

The UE is made to perform a normal location updating procedure. Five types of failure cases are triggered:

- sending of a Location Updating Reject with cause randomly chosen between all defined cause values except 2, 3, 6, 11, 12 and 13 (which trigger a different action) (case g of TS 24.008 clause 4.4.4.9);
- RRC connection failure (case d);
- sending of a RRC CONNECTION RELEASE message before the normal end of the procedure (case f);
- T3210 time-out (case e);
- RR connection establishment failure (case h).

As there is no stored LAI or the stored LAI is different from the broadcast LAI, and the attempt counter in the UE shall be lower than 4, the UE enters the state MM IDLE and substate ATTEMPTING TO UPDATE and waits for T3211 seconds before trying again a location updating procedure.

Then the behaviour of the UE in the MM IDLE state and ATTEMPTING TO UPDATE substate is checked, that is:

- not answer to paging with TMSI;
- not perform an IMSI detach procedure;
- support request for emergency call;
- use requests from CM layer other than emergency call as triggering of a normal location updating procedure;
- perform normal location updating procedure when a new cell is entered.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
The following messages are sent and shall be received on cell B.				
1		SS		Set the cell type of cell B to the "Serving cell". Set the cell type of cell A to the "non-suitable cell". (see note)
2	→		RRC CONNECTION REQUEST	Establishment cause: Registration. If PS mode: a ROUTING AREA UPDATE REQUEST should be rejected with the same cause as used in the LOCATION UPDATING REJECT.
3	←		RRC CONNECTION SETUP	
4	→		RRC CONNECTION SETUP COMPLETE	
5	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = initial value, LAI = a, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
6	←		LOCATION UPDATING REJECT	IE Reject cause is set to #X in table 10.5.95 of TS 24.008, causes #2, #3, #6, #11, #12, #13 and #15 being excluded.
7	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.
8	→		RRC CONNECTION RELEASE COMPLETE	
9		UE		The UE shall not initiate an RRC connection establishment on cell A or on cell B during T3211 seconds at least after the RRC connection is released.
8	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
9	←		RRC CONNECTION SETUP	
12	→		RRC CONNECTION SETUP COMPLETE	
13	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE), Mobile Identity = IMSI.
14		SS		The SS modifies the scrambling code of DL DPCH for generating lower layer failure.
15			(void)	
15a	→		CELL UPDATE	CCCH.
15b	←		RRC CONNECTION RELEASE	CCCH.
15c		SS		The SS re-modifies the scrambling code of DL DPCH to the original one.
15d		UE		The UE shall not initiate an RRC connection establishment on cell A or on cell B during T3211 seconds at least after the RRC connection is released.
16	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
17	←		RRC CONNECTION SETUP	
18	→		RRC CONNECTION SETUP COMPLETE	
19	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE), Mobile Identity = IMSI.
20	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.
21	→		RRC CONNECTION RELEASE COMPLETE	
22		UE		The UE shall not initiate an RRC connection establishment on cell A or on cell B during T3211 seconds at least after the RRC connection is released.
23	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
24	←		RRC CONNECTION SETUP	
25	→		RRC CONNECTION SETUP COMPLETE	

Step	Direction		Message	Comments
	UE	SS		
26	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE), Mobile Identity = IMSI.
27	←		AUTHENTICATION REQUEST	CKSN = initial CKSN.
28	→		AUTHENTICATION RESPONSE	
28a	←		SECURITY MODE COMMAND	
28b	→		SECURITY MODE COMPLETE	
29	←		LOCATION UPDATING ACCEPT	IE mobile Identity = new TMSI.
30	→		TMSI REALLOCATION COMPLETE	
31	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link. UE is now "idle updated" in cell B.
32	→		RRC CONNECTION RELEASE COMPLETE	
The following messages are sent and shall be received on cell A.				
33		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "non-suitable cell". (see note)
34	→		RRC CONNECTION REQUEST	Establishment cause: Registration. If PS mode: a ROUTING AREA UPDATE REQUEST should be rejected with the same cause as used in the LOCATION UPDATING REJECT.
35	←		RRC CONNECTION SETUP	
36	→		RRC CONNECTION SETUP COMPLETE	
37	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = initial value, LAI = b, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
38		SS		performs step 6 with reject cause #100 and step 7.
38a		UE		performs step8.
39	←		PAGING TYPE 1	UE identity = old TMSI of the UE. This message is sent continuously to the UE during 8 s. Paging Cause: Terminating Conversational Call.
40		SS		The SS checks that there is no answer from the UE during 12 s.
41		SS		If during steps 39 and 40 the UE attempts to perform a location updating procedure the SS will perform step 38 and then continue the procedure.
42		UE		If possible (see ICS) USIM detachment is performed. Otherwise if possible (see ICS) mobile switch off is performed. Otherwise the power is removed. A Detach Request can be received in PS mode.
43		UE		The UE shall not initiate an RRC connection establishment on cell A or on cell B during 30 s.
44		UE		Depending on what has been performed in step 42 the UE is brought back to operation. The subsequent GMM attach should be rejected if received in the PS mode.
45	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
46	←		RRC CONNECTION SETUP	
47	→		RRC CONNECTION SETUP COMPLETE	
48	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE), Mobile Identity = IMSI.
49	←		AUTHENTICATION REQUEST	CKSN = initial CKSN.
50	→		AUTHENTICATION RESPONSE	
50a	←		SECURITY MODE COMMAND	
50b	→		SECURITY MODE COMPLETE	
51	←		LOCATION UPDATING ACCEPT	IE mobile Identity = new TMSI.
52	→		TMSI REALLOCATION COMPLETE	

Step	Direction		Message	Comments
	UE	SS		
53	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link. UE is now "idle updated" in cell A.
54	→		RRC CONNECTION RELEASE COMPLETE	
The following messages are sent and shall be received on cell B.				
55	SS			Set the cell type of cell B to the "Serving cell". Set the cell type of cell A to the "non-suitable cell". (see note).
56	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
57	←		RRC CONNECTION SETUP	
58	→		RRC CONNECTION SETUP COMPLETE	
59	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = initial value, LAI = a, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
60	←		AUTHENTICATION REQUEST	
61	→		AUTHENTICATION RESPONSE	Steps 60 and 61 are performed N times. N shall be chosen in such a way that T3210 expires.
62	UE			The UE shall cease transmission and then shall not initiate an RRC connection establishment on cell A or on cell B during T3211 seconds at least after the expiry of T3210.
63	UE			If the UE supports emergency speech call it is made to perform an emergency call.
64	→		RRC CONNECTION REQUEST	Establishment cause: Emergency call.
65	←		RRC CONNECTION SETUP	
66	→		RRC CONNECTION SETUP COMPLETE	
67	→		CM SERVICE REQUEST	CM service type = Emergency call establishment; CKSN = no key available; Mobile Identity = IMSI.
68	←		CM SERVICE ACCEPT	
69	→		EMERGENCY SETUP	
70	←		RELEASE COMPLETE	Cause = unassigned number.
71	←		RRC CONNECTION RELEASE	
72	→		RRC CONNECTION RELEASE COMPLETE	
72a	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B during T3211 seconds at least after the RRC connection is released.
73	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
74	←		RRC CONNECTION SETUP	
75	→		RRC CONNECTION SETUP COMPLETE	
76	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE), Mobile Identity = IMSI.
77	←		AUTHENTICATION REQUEST	CKSN = initial CKSN.
78	→		AUTHENTICATION RESPONSE	
78a	←		SECURITY MODE COMMAND	
78b	→		SECURITY MODE COMPLETE	
79	←		LOCATION UPDATING ACCEPT	IE mobile Identity = new TMSI.
80	→		TMSI REALLOCATION COMPLETE	
81	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link. UE is now "idle updated" in cell B.
82	→		RRC CONNECTION RELEASE COMPLETE	
The following messages are sent and shall be received on cell A.				
83	SS			Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "non-suitable cell". (see note).
84	→		RRC CONNECTION REQUEST	Establishment cause: Registration.

Step	Direction		Message	Comments
	UE	SS		
85	←		RRC CONNECTION SETUP	
86	→		RRC CONNECTION SETUP COMPLETE	
87	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = initial value, LAI = b, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
88		SS		performs step 14.
88a			(void)	
88b	→		CELL UPDATE	CCCH.
88c	←		RRC CONNECTION RELEASE	CCCH.
88d		SS		performs step 15c.
89	UE			A MO CM connection is attempted before T3211 expiry.
90	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
91	←		RRC CONNECTION SETUP	
92	→		RRC CONNECTION SETUP COMPLETE	
93	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE), Mobile Identity = IMSI.
94	←		LOCATION UPDATING ACCEPT	IE mobile Identity = new TMSI. If the location updating type in the LOCATION UPDATING REQUEST contains 'FOR', then IE Follow-on Proceed is included in the ACCEPT and steps 96 to 100 will be omitted.
95	→		TMSI REALLOCATION COMPLETE	
96	←		RRC CONNECTION RELEASE	
97	→		RRC CONNECTION RELEASE COMPLETE	
97a		SS		
98	→		RRC CONNECTION REQUEST	Establishment cause: Not checked.
99	←		RRC CONNECTION SETUP	
100	→		RRC CONNECTION SETUP COMPLETE	
101	→		CM SERVICE REQUEST	CKSN = no key available, Mobile identity = TMSI.
102	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link. UE is now "idle updated" in cell A.
103	→		RRC CONNECTION RELEASE COMPLETE	
The following messages are sent and shall be received on cell B.				
104		SS		Set the cell type of cell B to the "Serving cell". Set the cell type of cell A to the "non-suitable cell". (see note).
105	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
106	←		RRC CONNECTION SETUP	
107	→		RRC CONNECTION SETUP COMPLETE	
108	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available LAI = a, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
109		SS		performs step 14.
109a			(void)	
109b	→		CELL UPDATE	CCCH.
109c	←		RRC CONNECTION RELEASE	CCCH.
109d		SS		performs step 15c.
The following messages are sent and shall be received on cell A.				
110		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "non-suitable cell". (see note).
110a	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
110b	←		RRC CONNECTION SETUP	
110c	→		RRC CONNECTION SETUP COMPLETE	

Step	Direction		Message	Comments
	UE	SS		
110d	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE), mobile station classmark 1 as given by the ICS and mobile identity = IMSI.
110e	SS			performs step 14.
110f	→		CELL UPDATE	CCCH.
110g	←		RRC CONNECTION RELEASE	CCCH.
110h	SS			performs step 15c.
111	←		Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 "Initial UE identity" = IMSI. Establishment Cause: Terminating Conversation Call.
112	→		PAGING RESPONSE	"Mobile identity" = IMSI, CKSN = no key available.
113	←		RRC CONNECTION RELEASE	
114	→		RRC CONNECTION RELEASE COMPLETE	
NOTE: The definitions for "Serving cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

9.4.3.2.5 Test requirement

1) At step 13 the UE shall send a LOCATION UPDATING REQUEST message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key available" and the Location Updating Type IE set to "normal location updating".

2)

2.1 At step 40 the UE shall not answer to paging with the previously allocated TMSI.

2.2 At step 43 the UE shall not perform the IMSI detach procedure.

3) At step 67 the UE shall send a CM SERVICE REQUEST message with CM Service Type IE set to "emergency call establishment", CKSN IE set to "no key available" and Mobile Identity IE set to its IMSI.

At step 69 the UE shall send an EMERGENCY SETUP message.

4) At step 93 the UE shall send a LOCATION UPDATING REQUEST message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating Type IE set to "normal location updating".

5) At step 112 the UE shall send a PAGING RESPONSE message with CKSN IE set to "no key available" and Mobile Identity IE set to its IMSI.

6) At step 110d the UE shall perform a normal location updating procedure.

9.4.3.3 Location updating / abnormal cases / attempt counter equal to 4

9.4.3.3.1 Definition

9.4.3.3.2 Conformance requirement

1) When four failures such as cases d) to h) of clause 4.4.4.9 of TS 24.008 have occurred during a normal location updating procedure the UE shall:

1.1 For Rel-6 and later, the UE shall:

Optionally enter the MM IDLE sub-state PLMN SEARCH (according to subclause 4.2.1.2).

1.2 Or according to subclause 4.2.2.2 the UE shall

1.2.1 perform location updating after T3212 expiry by sending a LOCATION UPATING REQUEST message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating Type set to "normal location updating";

1.2.2 if the T3212 initiated location updating was unsuccessful, then after T3211 expiry the UE shall send a LOCATION UPDATING REQUEST message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating Type IE set to "normal location updating".

2) When four failures such as cases d), f), g) and h) of clause 4.4.4.9 of TS 24.008 have occurred during a normal location updating procedure the UE shall not perform the IMSI detach procedure, when switched off.

3) When four failures such as cases d), f), g) and h) of clause 4.4.4.9 of TS 24.008 have occurred during a normal location updating procedure the UE, if it supports emergency speech call, shall be able to perform an emergency call i.e. the UE is able to send a CM SERVICE REQUEST message with the CM Service Type IE set to "emergency call establishment", CKSN IE set to "no key is available" and Mobile Identity IE set to its IMSI and then send an EMERGENCY SETUP message.

4) When four failures such as cases d), f), g) and h) of clause 4.4.4.9 of TS 24.008 have occurred during a normal location updating procedure:

4.1 the UE shall use a request from CM entity for MM connection for a service other than emergency call as a trigger for a normal location updating procedure and shall send a LOCATION UPDATING REQUEST message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating Type IE set to "normal location updating";

4.2 after a location updating triggered by a request from the CM layer which was .unsuccessful, after T3211 expiry the UE shall send a LOCATION UPDATING REQUEST message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating Type IE set to "normal location updating".

5) When four failures such as cases d), f), g) and h) of clause 4.4.4.9 of TS 24.008 have occurred during a normal location updating procedure:

5.1 the UE shall perform a normal location updating procedure if it enters a new cell;

5.2 if this location updating is unsuccessful, after T3211 expiry the UE shall send a LOCATION UPDATING REQUEST message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type IE set to "normal location updating".

References

TS 24.008 Clause 4.2.1.2, 4.2.2.2, 4.4.4.9.

9.4.3.3.3 Test purpose

To verify that the UE performs normal location updating procedures after T3212 expiry, when its attempt counter has reached value 4 and that the UE reset its attempt counter after a timer T3212 expiry.

To verify that the UE still follows the MM IDLE state and ATTEMPTING TO UPDATE substate requirements after its attempt counter has reached value 4. A Rel-6 or above UE may optionally enter the MM IDLE sub-state PLMN SEARCH (according to subclause 4.2.1.2) in order to perform a PLMN selection.

To verify that the attempt counter is reset in the cases where it has to be done.

9.4.3.3.4 Method of test

Initial conditions

- System Simulator:
  - two cells: A and B, belonging to different location areas a and b;

- IMSI attach/detach is allowed in both cells;
- T3212 is set to 6 minutes.

- User Equipment:
  - the UE is "Idle updated" on cell B with a valid CKSN and a TMSI.

Related ICS/IXIT statements

USIM removal possible while UE is powered Yes/No.

Switch off on button Yes/No.

Support of emergency speech call Yes/No.

Test Procedure

The UE is made to perform a normal location updating. The SS triggers a failure in this procedure by modifying scrambling code of DL DPCH. After T3211 expiry the UE will try again the location updating procedure. The SS triggers again a failure by modifying it. This is done again 2 times. At this point the attempt counter shall be equal to 4.

It is then checked that T3212 has been started and that at its expiry the UE will try a normal location updating procedure. It is verified that the UE has reset its attempt counter after timer T3212 expiry.

Then it is checked that, when the attempt counter has reached the value of 4, the UE is in the MM IDLE state and ATTEMPTING TO UPDATE substate, that is:

- not perform an IMSI detach procedure;
- support request for emergency call;
- use requests from CM layer other than emergency call as triggering of a normal location updating procedure;
- perform normal location updating procedure when a new cell is entered.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
The following messages are sent and shall be received on cell A.				
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "non-suitable cell". (see note).
2	→		RRC CONNECTION REQUEST	Establishment cause: Registration. If PS mode: a ROUTING AREA UPDATE REQUEST should be rejected with the cause “GPRS services not allowed.
3	←		RRC CONNECTION SETUP	
4	→		RRC CONNECTION SETUP COMPLETE	
5	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = initial value, LAI = b, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
6	←		LOCATION UPDATING REJECT	IE Reject cause is set to #22 in table 10.5.95 of TS 24.008, causes #2, #3, #6, #11, #12, #13 and #15 being excluded.
7	←		RRC CONNECTION RELEASE	The SS waits for the disconnection of the main signalling link.
8	→		RRC CONNECTION RELEASE COMPLETE	
9		UE		The UE shall not initiate an RRC connection establishment on cell A or on cell B during T3211 seconds at least after the RRC connection is released.
10	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
11	←		RRC CONNECTION SETUP	
12	→		RRC CONNECTION SETUP COMPLETE	
13	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE), Mobile Identity = IMSI.
14		SS		The SS modifies the scrambling code of DL DPCH for generating lower layer failure.
15			(void)	
15a	→		CELL UPDATE	CCCH.
15b	←		RRC CONNECTION RELEASE	CCCH.
15c		SS		The SS re-modifies the scrambling code of DL DPCH to the original one.
15d		UE		The UE shall not initiate an RRC connection establishment on cell A or on cell B during T3211 seconds at least after the RRC connection is released.
16	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
17	←		RRC CONNECTION SETUP	
18	→		RRC CONNECTION SETUP COMPLETE	
19	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE), Mobile Identity = IMSI.
20	←		AUTHENTICATION REQUEST	
21	→		AUTHENTICATION RESPONSE	Steps 20 and 21 are performed N times. N shall be chosen in such a way that the Authentication Request is not sent after (T3210 - applicable tolerance) is reached.
21a	→		SIGNALLING CONNECTION RELEASE INDICATION	The UE shall abort the RR connection. CN domain identity = CS domain
21b	←		RRC CONNECTION RELEASE	The SS waits for the disconnection of the main signalling link.
21c	→		RRC CONNECTION RELEASE COMPLETE	
22		UE		The UE shall cease transmission and then shall not initiate an RRC connection establishment on cell A or on cell B during T3211 seconds at least after the expiry of T3210.

Step	Direction		Message	Comments
	UE	SS		
23	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
24	←		RRC CONNECTION SETUP	
25	→		RRC CONNECTION SETUP COMPLETE	
26	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE), Mobile Identity = IMSI.
27	←		RRC CONNECTION RELEASE	The SS waits for the disconnection of the main signalling link.
28	→		RRC CONNECTION RELEASE COMPLETE	
29	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B during T3212 (tolerance -15s; 45s) at least after the RRC connection is released. Note: Rel-6 or later UE may optionally send RRC Connection Request immediately
30	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
31	←		RRC CONNECTION SETUP	
32	→		RRC CONNECTION SETUP COMPLETE	
33	→		LOCATION UPDATING REQUEST	location updating type: "normal location update" CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE) mobile station classmark 1 as given by the ICS and mobile identity = IMSI.
34	←		LOCATION UPDATING REJECT	IE Reject cause = #17 "network failure".
35	←		RRC CONNECTION RELEASE	The SS waits for the disconnection of the main signalling link.
36	→		RRC CONNECTION RELEASE COMPLETE	
37	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B during T3211 seconds at least after the RRC connection is released.
38	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
39	←		RRC CONNECTION SETUP	
40	→		RRC CONNECTION SETUP COMPLETE	
41	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE) mobile station classmark 1 as given by the ICS and mobile identity = IMSI.
42	←		AUTHENTICATION REQUEST	CKSN = initial CKSN.
43	→		AUTHENTICATION RESPONSE	
43a	←		SECURITY MODE COMMAND	
43b	→		SECURITY MODE COMPLETE	
44	←		LOCATION UPDATING ACCEPT	IE mobile Identity = new TMSI.
45	→		TMSI REALLOCATION COMPLETE	
46	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link. UE is now "idle, updated" in cell A.
47	→		RRC CONNECTION RELEASE COMPLETE	
The following messages are sent and shall be received on cell B.				
48	SS			Set the cell type of cell B to the "Serving cell". Set the cell type of cell A to the "non-suitable cell". (see note).
49	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
50	←		RRC CONNECTION SETUP	
51	→		RRC CONNECTION SETUP COMPLETE	

Step	Direction		Message	Comments
	UE	SS		
52	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = initial value, LAI = a, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
53	←		LOCATION UPDATING REJECT	IE Reject cause is set to #X in table 10.5.95 of TS 24.008, causes #2, #3, #6, #11, #12, #13 and #15 being excluded.
54	←		RRC CONNECTION RELEASE	The SS waits for the disconnection of the main signalling link.
55	→		RRC CONNECTION RELEASE COMPLETE	
56	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B during T3211 seconds at least after the RRC connection is released.
57	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
58	←		RRC CONNECTION SETUP	
59	→		RRC CONNECTION SETUP COMPLETE	
60	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE), Mobile Identity = IMSI.
61		SS		The SS modifies the scrambling code of DL DPCH for generating lower layer failure.
61a			(void)	
61b	→		CELL UPDATE	CCCH.
61c	←		RRC CONNECTION RELEASE	CCCH.
61d		SS		The SS re-modifies the scrambling code of DL DPCH to the original one.
61e	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B during T3211 seconds at least after the RRC connection is released.
62	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
63	←		RRC CONNECTION SETUP	
64	→		RRC CONNECTION SETUP COMPLETE	
65	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE), Mobile Identity = IMSI.
66	←		RRC CONNECTION RELEASE	The SS waits for the disconnection of the main signalling link.
67	→		RRC CONNECTION RELEASE COMPLETE	
68	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B during T3211 seconds at least after the RRC connection is released.
69	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
70	←		RRC CONNECTION SETUP	
71	→		RRC CONNECTION SETUP COMPLETE	
72	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE) mobile station classmark 1 as given by the ICS and mobile identity = IMSI.
73		SS		performs step 53 and 54.
74	UE			performs step 55. If the UE supports emergency speech call, it is made to perform an emergency call.
75	→		RRC CONNECTION REQUEST	Establishment cause: Emergency call.
76	←		RRC CONNECTION SETUP	
77	→		RRC CONNECTION SETUP COMPLETE	
78	→		CM SERVICE REQUEST	CM service type = Emergency call establishment; CKSN = no key available; Mobile Identity = IMSI.
79	←		CM SERVICE ACCEPT	

Step	Direction		Message	Comments
	UE	SS		
80	→		EMERGENCY SETUP	
81	←		RELEASE COMPLETE	Cause = unassigned number.
82	←		RRC CONNECTION RELEASE	The SS waits for the disconnection of the main signalling link.
83	→		RRC CONNECTION RELEASE COMPLETE	
84	UE			If possible (see ICS) USIM detachment is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
85	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B. This is checked during 30 s.
86	UE			Depending on what has been performed in step 84 the UE is brought back to operation. The subsequent GMM attach should be rejected if received in the PS mode.
87	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
88	←		RRC CONNECTION SETUP	
89	→		RRC CONNECTION SETUP COMPLETE	
90	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE), Mobile Identity = IMSI.
91	←		AUTHENTICATION REQUEST	CKSN = initial CKSN.
92	→		AUTHENTICATION RESPONSE	
92a	←		SECURITY MODE COMMAND	
92b	→		SECURITY MODE COMPLETE	
93	←		LOCATION UPDATING ACCEPT	IE mobile Identity = new TMSI.
94	→		TMSI REALLOCATION COMPLETE	
95	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link. UE is now "idle, updated" in cell B.
96	→		RRC CONNECTION RELEASE COMPLETE	
The following messages are sent and shall be received on cell A.				
97	SS			Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "non-suitable cell". (see note).
98	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
99	←		RRC CONNECTION SETUP	
100	→		RRC CONNECTION SETUP COMPLETE	
101	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = initial value, LAI = b, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
102	←		LOCATION UPDATING REJECT	IE Reject cause is set to #38 in table 10.5.95 of TS 24.008, causes #2, #3, #6, #11, #12, #13 and #15 being excluded.
103	←		RRC CONNECTION RELEASE	The SS waits for the disconnection of the main signalling link.
104	→		RRC CONNECTION RELEASE COMPLETE	
105	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B during T3211 seconds at least after the RRC connection is released.
106	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
107	←		RRC CONNECTION SETUP	
108	→		RRC CONNECTION SETUP COMPLETE	
109	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE), Mobile Identity = IMSI.

Step	Direction	Message	Comments
	UE | SS		
110	SS		The SS modifies the scrambling code of DL DPCH for generating lower layer failure.
111		(void)	
111a	→	CELL UPDATE	CCCH.
111b	←	RRC CONNECTION RELEASE	CCCH.
111c	SS		The SS re-modifies the scrambling code of DL DPCH to the original one.
111d	UE		The UE shall not initiate an RRC connection establishment on cell A or on cell B during T3211 seconds at least after the RRC connection is released.
112	→	RRC CONNECTION REQUEST	Establishment cause: Registration.
113	←	RRC CONNECTION SETUP	
114	→	RRC CONNECTION SETUP COMPLETE	
115	→	LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE), Mobile Identity = IMSI.
116	←	RRC CONNECTION RELEASE	The SS waits for the disconnection of the main signalling link.
117	→	RRC CONNECTION RELEASE COMPLETE	
118	UE		The UE shall not initiate an RRC connection establishment on cell A or on cell B during T3211 seconds at least after the RRC connection is released.
119	→	RRC CONNECTION REQUEST	Establishment cause: Registration.
120	←	RRC CONNECTION SETUP	
121	→	RRC CONNECTION SETUP COMPLETE	
122	→	LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE) mobile station classmark 1 as given by the ICS and mobile identity = IMSI.
123		(void)	
123a	SS		performs step 61.
123b	→	CELL UPDATE	CCCH.
123c	←	RRC CONNECTION RELEASE	CCCH.
123d	SS		performs step 61d.
124	UE		In case of Rel-6 or later UE go to step 131 A MO CM connection is attempted before T3212 expiry.
125	→	RRC CONNECTION REQUEST	Establishment cause: Registration.
126	←	RRC CONNECTION SETUP	
127	→	RRC CONNECTION SETUP COMPLETE	
128	→	LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE), Mobile Identity = IMSI.
129		(void)	
129a	SS		performs step 61.
129b	→	CELL UPDATE	CCCH.
129c	←	RRC CONNECTION RELEASE	CCCH.
129d	SS		performs step 61d.
130	UE		The UE shall not initiate an RRC connection establishment on cell A or on cell B during T3211 seconds at least after the RRC connection is released.
131	→	RRC CONNECTION REQUEST	Establishment cause: Registration. (In case of Rel-6 or later UE, this step may occur after step 123d or after T3212 expiry)
132	←	RRC CONNECTION SETUP	
133	→	RRC CONNECTION SETUP COMPLETE	

Step	Direction		Message	Comments
	UE	SS		
134	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE), Mobile Identity = IMSI.
135	←		AUTHENTICATION REQUEST	CKSN = initial CKSN.
136	→		AUTHENTICATION RESPONSE	
136a	←		SECURITY MODE COMMAND	
136b	→		SECURITY MODE COMPLETE	
137	←		LOCATION UPDATING ACCEPT	IE mobile Identity = new TMSI. If the location updating type in the LOCATION UPDATING REQUEST contains 'FOR', then IE Follow-on Proceed is included in the ACCEPT and steps 139 to 143 will be omitted.
138	→		TMSI REALLOCATION COMPLETE	
139	←		RRC CONNECTION RELEASE	
140	→		RRC CONNECTION RELEASE COMPLETE	UE is now "idle, updated" in cell A. The UE may or may not have memorised the request for CM connection. The steps 141 to 147 are therefore optional for the MS. The SS waits for 10 seconds to check if the UE attempts to make a CM service request, else it will directly go to step 148.
141	→		RRC CONNECTION REQUEST	
142	←		RRC CONNECTION SETUP	
143	→		RRC CONNECTION SETUP COMPLETE	
144	→		CM SERVICE REQUEST	CKSN = initial value, Mobile identity = TMSI.
145	←		CM SERVICE REJECT	cause #17 (network failure).
146	←		RRC CONNECTION RELEASE	The SS waits for the disconnection of the main signalling link.
147	→		RRC CONNECTION RELEASE COMPLETE	
The following messages are sent and shall be received on cell B.				
148	SS			Set the cell type of cell B to the "Serving cell". Set the cell type of cell A to the "non-suitable cell". (see note).
149	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
150	←		RRC CONNECTION SETUP	
151	→		RRC CONNECTION SETUP COMPLETE	
152	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = initial value, LAI = a, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
153	←		LOCATION UPDATING REJECT	IE Reject cause is set to #38 in table 10.5.95 of TS 24.008, causes #2, #3, #6, #11, #12, #13 and #15 being excluded.
154	←		RRC CONNECTION RELEASE	The SS waits for the disconnection of the main signalling link
155	→		RRC CONNECTION RELEASE COMPLETE	
156	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B during T3211 seconds at least after the RRC connection is released.
157	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
158	←		RRC CONNECTION SETUP	
159	→		RRC CONNECTION SETUP COMPLETE	
160	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE), Mobile Identity = IMSI.
161	SS			The SS modifies the scrambling code of DL DPCH for generating lower layer failure.
162			(void)	
162a	→		CELL UPDATE	CCCH.
162b	←		RRC CONNECTION RELEASE	CCCH.

Step	Direction		Message	Comments
	UE	SS		
162c		SS		The SS re-modifies the scrambling code of DL DPCH to the original one.
162d	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B during T3211 seconds at least after the RRC connection is released.
163	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
164	←		RRC CONNECTION SETUP	
165	→		RRC CONNECTION SETUP COMPLETE	
166	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE), Mobile Identity = IMSI.
167	←		RRC CONNECTION RELEASE	The SS waits for the disconnection of the main signalling link.
168	→		RRC CONNECTION RELEASE COMPLETE	
169	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B during T3211 seconds at least after the RRC connection is released.
170	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
171	←		RRC CONNECTION SETUP	
172	→		RRC CONNECTION SETUP COMPLETE	
173	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE) mobile station classmark 1 as given by the ICS and mobile identity = IMSI.
174	←		LOCATION UPDATING REJECT	IE Reject cause = "retry upon entry into a new cell".
174a	←		RRC CONNECTION RELEASE	The SS waits for the disconnection of the main signalling link.
174b	→		RRC CONNECTION RELEASE COMPLETE	
The following messages are sent and shall be received on cell A.				
175		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "non-suitable cell". (see note).
176	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
177	←		RRC CONNECTION SETUP	
178	→		RRC CONNECTION SETUP COMPLETE	
179	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available , LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE) mobile station classmark 1 as given by the ICS and mobile identity = IMSI.
180		SS		performs the step 61.
181			(void)	
181a	→		CELL UPDATE	CCCH.
181b	←		RRC CONNECTION RELEASE	CCCH.
181c		SS		The SS re-modifies the scrambling code of DL DPCH to the original one.
181d	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B during T3211 seconds at least after the RRC connection is released.
182	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
183	←		RRC CONNECTION SETUP	
184	→		RRC CONNECTION SETUP COMPLETE	
185	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE), Mobile Identity = IMSI.
186	←		AUTHENTICATION REQUEST	CKSN = initial CKSN.
187	→		AUTHENTICATION RESPONSE	

Step	Direction		Message	Comments
	UE	SS		
187a		←	SECURITY MODE COMMAND	
187b		→	SECURITY MODE COMPLETE	
188		←	LOCATION UPDATING ACCEPT	IE mobile Identity = new TMSI.
189		→	TMSI REALLOCATION COMPLETE	
190		←	RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link. UE is now "idle, updated" in cell A.
191		→	RRC CONNECTION RELEASE COMPLETE	
NOTE: The definitions for "Serving cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

9.4.3.3.5 Test requirement

1) 1.1 At step 33 the UE shall perform location updating procedure.

   1.2 At step 41 the UE shall send a LOCATION UPDATING REQUEST message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type IE set to "normal location updating".

2) At step78 the UE shall send a CM SERVICE REQUEST message with the CM Service Type IE set to "emergency call establishment", CKSN IE set to "no key is available" and Mobile Identity IE set to its IMSI.

   At step 80 the UE shall send an EMERGENCY SETUP message.

3) At step 85 the UE shall not perform the IMSI detach procedure.

4)

   4.1 At step128 the UE shall send a LOCATION UPDATING REQUEST message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type IE set to "normal location updating" (Applicable only for R5 or earlier UE);

   4.2 At step 134 the UE shall send a LOCATION UPDATING REQUEST message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type IE set to "normal location updating".

5)

   5.1 At step 179 the UE shall perform a normal location updating procedure if it enters a new cell;

   5.2 At step 185 the UE shall send a LOCATION UPDATING REQUEST message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type IE set to "normal location updating".

9.4.3.4 Location updating / abnormal cases / attempt counter less or equal to 4, stored LAI equal to broadcast LAI

9.4.3.4.1 Definition

9.4.3.4.2 Conformance requirement

1) When a failure such as cases d), f), g) and h) of clause 4.4.4.9 of TS 24.008 has occurred during a periodic location updating procedure (the broadcast LAI is equal to the stored LAI):

1.1 the UE shall be able to establish an MM connection i.e. send a RRC CONNECTION REQUEST message and then a CM SERVICE REQUEST message, CKSN and LAI set to those which have been allocated to the UE, Mobile Identity IE set to the TMSI which has been allocated to the UE;

1.2 then the UE shall not attempt a location updating procedure.

2) When a failure such as cases d), f), g) and h) of clause 4.4.4.9 of TS 24.008 has occurred during an IMSI attach procedure (the broadcast LAI is equal to the stored LAI):

2.1 the UE shall be able to establish an MM connection i.e. send a RRC CONNECTION REQUEST message and then a CM SERVICE REQUEST message, CKSN and LAI set to those which have been allocated to the UE, Mobile Identity IE set to the TMSI which has been allocated to the UE;

2.2 then the UE shall not attempt a location updating procedure.

3) When a failure such as cases d), f), g) and h) of clause 4.4.4.9 of TS 24.008 has occurred during a periodic location updating procedure and the attempt counter is smaller than 4 the UE shall send, after T3211 expiry, a LOCATION UPDATING REQUEST message with the Mobile Identity IE set to the TMSI which has been allocated to the UE, CKSN IE and LAI set to those which have been allocated to the UE and the Location Updating Type IE set to "periodic updating".

3.1 When the UE's attempt counter reaches the value 4 (four failures such as cases d), f), g) and h) of clause 4.4.4.9 of TS 24.008 have occurred during a periodic location updating procedure) after T3212 expiry it shall send a LOCATION UPDATING REQUEST message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating Type IE set to "normal".

4) When the UE's attempt counter reaches the value 4 (four failures such as cases d), f), g) and h) of clause 4.4.4.9 of TS 24.008 have occurred during a periodic location updating procedure) it shall use a request for a CM connection other than emergency call as a trigger for a location updating procedure.

5) When a failure such as cases d), f), g) and h) of clause 4.4.4.9 of TS 24.008 has occurred during an IMSI attach procedure and the attempt counter is smaller than 4 the UE shall send, after T3211 expiry, a LOCATION UPDATING REQUEST message with the Mobile Identity IE set to the TMSI which has been allocated to the UE, CKSN IE and LAI set to those which have been allocated to the UE and the Location Updating type set to "IMSI attach".

5.1 When the UE's attempt counter reaches the value 4 (four failures such as cases d), f), g) and h) of clause 4.4.4.9 of TS 24.008 have occurred during an IMSI attach procedure) after T3212 expiry it shall send a LOCATION UPDATING REQUEST message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type set to "normal".

6) When the UE's attempt counter reaches the value 4 (four failures such as cases d), f), g) and h) of clause 4.4.4.9 of TS 24.008 have occurred during an IMSI attach procedure) it shall use a request for a CM connection other than emergency call as a trigger for a location updating procedure.

References

TS 24.008 clause 4.4.4.9.

9.4.3.4.3 Test purpose

To verify that in the case when the attempt counter is smaller than 4 and the broadcast LAI is equal to the stored LAI, the UE is in the MM IDLE state and NORMAL SERVICE substate. To verify that timer T3211 is stopped after a MM connection establishment.

To verify that the UE uses the T3211 timer. and that it enters the MM IDLE state and NORMAL SERVICE substate when its attempt counter reaches value 4 even in the case where the stored LAI is equal to the broadcast LAI.

9.4.3.4.4 Method of test

Initial conditions

- System Simulator:
  - one cell: B, belonging to location area b;
  - IMSI attach/detach is allowed;
  - T3212 is set to 6 minutes.
- User Equipment:
  - the UE is "Idle updated" on cell B with a valid CKSN and a TMSI.

Related ICS/IXIT statements

USIM removal possible while UE is powered Yes/No.

Switch off on button Yes/No.

Test Procedure

A failure during the periodic location updating is triggered: as the broadcast LAI is equal to the stored LAI, the UE is still in the MM IDLE state and NORMAL SERVICE substate and timer T3211 is started. A CM connection other than for emergency call is attempted. It is checked that this is possible and that T3211 is stopped. Same test is performed with a failure during an IMSI attach procedure.

Then failures are triggered during the periodic location updating to let the attempt counter to reach the value of 4. The UE shall enter the MM IDLE state and ATTEMPTING TO UPDATE substate and delete any TMSI, stored LAI, ciphering key sequence number and ciphering key. When the attempt counter reaches the value of 4, timer T3212 shall be started. At timer T3212 expiry a location updating procedure is started. A request for CM connection other for than emergency call shall trigger a location updating procedure.

Same tests are performed when the failures are triggered during an IMSI attach procedure.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		The SS shall wait at most T3212 + 45 s.
2	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
3	←		RRC CONNECTION SETUP	
4	→		RRC CONNECTION SETUP COMPLETE	
5	→		LOCATION UPDATING REQUEST	location updating type = periodic, CKSN = initial value, LAI = b, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
6		SS		performs step 6, of 9.4.3.2 with cause #17 and step 7 of 9.4.3.2.
6a		UE		performs step 8 of 9.4.3.2.
7		UE		A MO CM connection is attempted before T3211 expiry.
8	→		RRC CONNECTION REQUEST	
9	←		RRC CONNECTION SETUP	
10	→		RRC CONNECTION SETUP COMPLETE	
11	→		CM SERVICE REQUEST	CKSN = initial CKSN, Mobile Identity = TMSI.
12	←		CM SERVICE ACCEPT	
13	→		An initial CM message	
14	←		RRC CONNECTION RELEASE	The SS waits for the disconnection of the main signalling link.
15	→		RRC CONNECTION RELEASE COMPLETE	

Step	Direction		Message	Comments
	UE	SS		
16		SS		The UE shall not initiate an RRC connection establishment. This is checked during T3211.
17	UE			If possible (see ICS) USIM detachment is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed. A Detach Request can be received in PS mode.
Steps 18 to 23 are optional.				
18	→		RRC CONNECTION REQUEST	Establishment Cause: Detach
19	←		RRC CONNECTION SETUP	
20	→		RRC CONNECTION SETUP COMPLETE	
21	→		IMSI DETACH INDICATION	
22	←		RRC CONNECTION RELEASE	
23	→		RRC CONNECTION RELEASE COMPLETE	
24	UE			Depending on what has been performed in step 17 the UE is brought back to operation. The subsequent GMM attach should be rejected if received in the PS mode.
25	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
26	←		RRC CONNECTION SETUP	
27	→		RRC CONNECTION SETUP COMPLETE	
28	→		LOCATION UPDATING REQUEST	location updating type = IMSI attach, CKSN = initial value, LAI = b, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
29		SS		performs step 14 of 9.4.3.2.
29a			(void)	
29b	→		CELL UPDATE	CCCH.
29c	←		RRC CONNECTION RELEASE	CCCH.
29d		SS		performs step 15c of 9.4.3.2.
30	UE			A MO CM connection is attempted before T3211 expiry.
31	→		RRC CONNECTION REQUEST	
32	←		RRC CONNECTION SETUP	
33	→		RRC CONNECTION SETUP COMPLETE	
34	→		CM SERVICE REQUEST	CKSN = initial CKSN, Mobile Identity = TMSI.
35	←		SECURITY MODE COMMAND	
36	→		SECURITY MODE COMPLETE	
37	→		An initial CM message	
38	←		RRC CONNECTION RELEASE	The SS waits for the disconnection of the main signalling link.
39	→		RRC CONNECTION RELEASE COMPLETE	
40		SS		The UE shall not initiate an RRC connection establishment. This is checked during T3211 UE is "idle, updated" in cell B.
40/1	UE			If possible (see ICS) USIM detachment is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
Steps 40/2 to 40/7 are optional.				
40/2	→		RRC CONNECTION REQUEST	Establishment Cause: Detach
40/3	←		RRC CONNECTION SETUP	
40/4	→		RRC CONNECTION SETUP COMPLETE	
40/5	→		IMSI DETACH INDICATION	
40/6	←		RRC CONNECTION RELEASE	
40/7	→		RRC CONNECTION RELEASE COMPLETE	
40/8	UE			Depending on what has been performed in step 40/1, the UE is brought back to operation.
40/9	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
40/10	←		RRC CONNECTION SETUP	
40/11	→		RRC CONNECTION SETUP COMPLETE	

Step	Direction		Message	Comments
	UE	SS		
40/12	→		LOCATION UPDATING REQUEST	location updating type = IMSI attach, CKSN = initial value, LAI = b, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
40/13	←		LOCATION UPDATING ACCEPT	without mobile identity
40/14	←		RRC CONNECTION RELEASE	
40/15	→		RRC CONNECTION RELEASE COMPLETE	
41		SS		The SS shall wait at most T3212 + 15 s.
42	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
43	←		RRC CONNECTION SETUP	
44	→		RRC CONNECTION SETUP COMPLETE	
45	→		LOCATION UPDATING REQUEST	location updating type = periodic, CKSN = initial value, LAI = b, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
46		SS		performs step 14 of 9.4.3.2.
46a			(void)	
46b	→		CELL UPDATE	CCCH.
46c	←		RRC CONNECTION RELEASE	CCCH.
46d		SS		performs step 15c of 9.4.3.2.
47	UE			The UE shall not initiate an RRC connection establishment during T3211 at least after the RRC connection is released.
48	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
49	←		RRC CONNECTION SETUP	
50	→		RRC CONNECTION SETUP COMPLETE	
51	→		LOCATION UPDATING REQUEST	location updating type = periodic, CKSN = initial value, LAI = b, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
52		SS		performs step 6 of 9.4.3.2 with cause #17 and step 7 of 9.4.3.2.
52a	UE			performs step 8 of 9.4.3.2.
53	UE			The UE shall not initiate an RRC connection establishment during T3211 at least after the RRC connection is released.
54	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
55	←		RRC CONNECTION SETUP	
56	→		RRC CONNECTION SETUP COMPLETE	
57	→		LOCATION UPDATING REQUEST	location updating type = periodic, CKSN = initial value, LAI = b, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
58		SS		performs step 14 of 9.4.3.2.
59			(void)	
59a	→		CELL UPDATE	CCCH.
59b	←		RRC CONNECTION RELEASE	CCCH.
59c		SS		The SS re-modifies the scrambling code of DL DPCH to the original one.
59d	UE			The UE shall not initiate an RRC connection establishment during T3211 at least after the RRC connection is released.
60	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
61	←		RRC CONNECTION SETUP	
62	→		RRC CONNECTION SETUP COMPLETE	
63	→		LOCATION UPDATING REQUEST	location updating type = periodic, CKSN = initial value, LAI = b, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
64		SS		performs step 14 of 9.4.3.2.
64a			(void)	
64b	→		CELL UPDATE	CCCH.
64c	←		RRC CONNECTION RELEASE	CCCH.
64d		SS		performs step 15c of 9.4.3.2.

Step	Direction		Message	Comments
	UE	SS		
65	UE			The UE shall not initiate an RRC connection establishment during T3212 seconds at least after the RRC connection is released.
66	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
67	←		RRC CONNECTION SETUP	
68	→		RRC CONNECTION SETUP COMPLETE	
69	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE) mobile station classmark 1 as given by the ICS and mobile identity = IMSI.
70	←		AUTHENTICATION REQUEST	CKSN = initial CKSN.
71	→		AUTHENTICATION RESPONSE	
71a	←		SECURITY MODE COMMAND	
71b	→		SECURITY MODE COMPLETE	
72			(void)	
72a	←		LOCATION UPDATING ACCEPT	IE mobile Identity = TMSI.
72b	→		TMSI REALLOCATION COMPLETE	
73	←		RRC CONNECTION RELEASE	The SS waits for the disconnection of the main signalling link.
74	→		RRC CONNECTION RELEASE COMPLETE	
75	UE			The UE shall not initiate an RRC connection establishment during than T3212 seconds at least after the RRC connection is released.
76	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
77	←		RRC CONNECTION SETUP	
78	→		RRC CONNECTION SETUP COMPLETE	
79	→		LOCATION UPDATING REQUEST	location updating type = periodic, CKSN = initial value, LAI = b, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
80	SS			performs step 6 of 9.4.3.2 with cause #17 and step 7 of 9.4.3.2.
80a	UE			performs step 8 of 9.4.3.2.
81	UE			The UE shall not initiate an RRC connection establishment during T3211 at least after the RRC connection is released.
82	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
83	←		RRC CONNECTION SETUP	
84	→		RRC CONNECTION SETUP COMPLETE	
85	→		LOCATION UPDATING REQUEST	location updating type = periodic, CKSN = initial value, LAI = b, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
86	SS			performs step 14 of 9.4.3.2.
87			(void)	
87a	→		CELL UPDATE	CCCH.
87b	←		RRC CONNECTION RELEASE	CCCH.
87c	SS			The SS re-modifies the scrambling code of DL DPCH to the original one.
87d	UE			The UE shall not initiate an RRC connection establishment during T3211 at least after the RRC connection is released.
88	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
89	←		RRC CONNECTION SETUP	
90	→		RRC CONNECTION SETUP COMPLETE	
91	→		LOCATION UPDATING REQUEST	location updating type = periodic, CKSN = initial value, LAI = b, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
92	SS			performs step 14 of 9.4.3.2.
92a			(void)	

Step	Direction		Message	Comments
	UE	SS		
92b	→		CELL UPDATE	CCCH.
92c	←		RRC CONNECTION RELEASE	CCCH.
92d		SS		performs step 15c of 9.4.3.2.
93		UE		The UE shall not initiate an RRC connection establishment during T3211 at least after the RRC connection is released.
94	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
95	←		RRC CONNECTION SETUP	
96	→		RRC CONNECTION SETUP COMPLETE	
97	→		LOCATION UPDATING REQUEST	location updating type = periodic, CKSN = initial value, LAI = b, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
98		SS		performs step 6 of 9.4.3.2 with cause #17 and step 7 of 9.4.3.2.
98a		UE		performs step 8 of 9.4.3.2.
99		UE		A MO CM connection is attempted before T3212 expiry.
100	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
101	←		RRC CONNECTION SETUP	
102	→		RRC CONNECTION SETUP COMPLETE	
103	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE) mobile station classmark 1 as given by the ICS and mobile identity = IMSI.
104	←		LOCATION UPDATING ACCEPT	IE mobile identity = TMSI. If the location updating type in the LOCATION UPDATING REQUEST contains 'FOR', then IE Follow-on Proceed is included in the ACCEPT and steps 106 to 110 will be omitted.
105	→		TMSI REALLOCATION COMPLETE	
106	←		RRC CONNECTION RELEASE	
107	→		RRC CONNECTION RELEASE COMPLETE	
108	→		RRC CONNECTION REQUEST	
109	←		RRC CONNECTION SETUP	
110	→		RRC CONNECTION SETUP COMPLETE	
111	→		CM SERVICE REQUEST	CKSN = no key available, Mobile identity = TMSI
112	←		CM SERVICE REJECT	cause #17 (network failure).
113	←		RRC CONNECTION RELEASE	
114	→		RRC CONNECTION RELEASE COMPLETE	
115		UE		If possible (see ICS) USIM detachment is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
Steps 116 to 121 are optional.				
116	→		RRC CONNECTION REQUEST	Establishment Cause: Detach
117	←		RRC CONNECTION SETUP	
118	→		RRC CONNECTION SETUP COMPLETE	
119	→		IMSI DETACH INDICATION	
120	←		RRC CONNECTION RELEASE	
121	→		RRC CONNECTION RELEASE COMPLETE	
122		UE		Depending on what has been performed in step 115 the UE is brought back to operation.
123	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
124	←		RRC CONNECTION SETUP	
125	→		RRC CONNECTION SETUP COMPLETE	
126	→		LOCATION UPDATING REQUEST	location updating type = IMSI attach, CKSN = no key available, LAI = b, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.

Step	Direction		Message	Comments
	UE	SS		
127		SS		performs step 14 of 9.4.3.2.
128			(void)	
128a	→		CELL UPDATE	CCCH.
128b	←		RRC CONNECTION RELEASE	CCCH.
128c		SS		The SS re-modifies the scrambling code of DL DPCH to the original one.
128d	UE			The UE shall not initiate an RRC connection establishment during T3211 at least after the RRC connection is released.
129	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
130	←		RRC CONNECTION SETUP	
131	→		RRC CONNECTION SETUP COMPLETE	
132	→		LOCATION UPDATING REQUEST	location updating type = IMSI attach, CKSN = no key available, LAI = b, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
133	←		RRC CONNECTION RELEASE	After the sending of the message the SS waits for the disconnection of the main signalling link.
134	→		RRC CONNECTION RELEASE COMPLETE	
135	UE			The UE shall not initiate an RRC connection establishment during T3211 at least after the RRC connection is released.
136	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
137	←		RRC CONNECTION SETUP	
138	→		RRC CONNECTION SETUP COMPLETE	
139	→		LOCATION UPDATING REQUEST	location updating type = IMSI attach, CKSN = no key available, LAI = b, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
140			(void)	
140a	←		LOCATION UPDATING REJECT	IE Reject cause is set to #X in table 10.5.95 of TS 24.008, causes #2, #3, #6, #11, #12, #13 and #15 being excluded.
140b	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.
141	→		RRC CONNECTION RELEASE COMPLETE	
142	UE			The UE shall not initiate an RRC connection establishment during T3211 at least after the RRC connection is released.
143	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
144	←		RRC CONNECTION SETUP	
145	→		RRC CONNECTION SETUP COMPLETE	
146	→		LOCATION UPDATING REQUEST	location updating type = IMSI attach, CKSN = no key available, LAI = b, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
147		SS		performs step 14 of 9.4.3.2.
147a			(void)	
147b	→		CELL UPDATE	CCCH.
147c	←		RRC CONNECTION RELEASE	CCCH.
147d		SS		performs step 15c of 9.4.3.2.
148	UE			The UE shall not initiate an RRC connection establishment during T3212 seconds at least after the RRC connection is released.
149	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
150	←		RRC CONNECTION SETUP	
151	→		RRC CONNECTION SETUP COMPLETE	
152	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE) mobile station classmark 1 as given by the ICS and mobile identity = IMSI.
153	←		AUTHENTICATION REQUEST	CKSN = initial CKSN.

Step	Direction		Message	Comments
	UE	SS		
154	→		AUTHENTICATION RESPONSE	
154a	←		SECURITY MODE COMMAND	
154b	→		SECURITY MODE COMPLETE	
155	←		LOCATION UPDATING ACCEPT	IE mobile Identity = TMSI.
156	→		TMSI REALLOCATION COMPLETE	
157	←		RRC CONNECTION RELEASE	
158	→		RRC CONNECTION RELEASE COMPLETE	
159	UE			If possible (see ICS) USIM detachment is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
Steps 160 to 165 are optional.				
160	→		RRC CONNECTION REQUEST	Establishment Cause: Detach
161	←		RRC CONNECTION SETUP	
162	→		RRC CONNECTION SETUP COMPLETE	
163	→		IMSI DETACH INDICATION	
164	←		RRC CONNECTION RELEASE	
165	→		RRC CONNECTION RELEASE COMPLETE	
166	UE			Depending on what has been performed in step 159 the UE is brought back to operation.
167	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
168	←		RRC CONNECTION SETUP	
169	→		RRC CONNECTION SETUP COMPLETE	
170	→		LOCATION UPDATING REQUEST	location updating type = IMSI attach, CKSN = initial value, LAI = b, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
171	SS			performs step 14 of 9.4.3.2.
171a			(void)	
171b	→		CELL UPDATE	CCCH.
171c	←		RRC CONNECTION RELEASE	CCCH.
171d	SS			performs step 15c of 9.4.3.2.
172	UE			The UE shall not initiate an RRC connection establishment during T3211 at least after the RRC connection is released.
173	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
174	←		RRC CONNECTION SETUP	
175	→		RRC CONNECTION SETUP COMPLETE	
176	→		LOCATION UPDATING REQUEST	location updating type = IMSI attach, CKSN = initial value, LAI = b, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
177	SS			performs step 6 of 9.4.3.2 with cause #17 and step 7 of 9.4.3.2.
177a	UE			performs step 8 of 9.4.3.2.
178	UE			The UE shall not initiate an RRC connection establishment during T3211 at least after the RRC connection is released.
179	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
180	←		RRC CONNECTION SETUP	
181	→		RRC CONNECTION SETUP COMPLETE	
182	→		LOCATION UPDATING REQUEST	location updating type = IMSI attach, CKSN = initial value, LAI = b, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
183	SS			performs step 14 of 9.4.3.2.
184			(void)	
184a	→		CELL UPDATE	CCCH.
184b	←		RRC CONNECTION RELEASE	CCCH.
184c	SS			The SS re-modifies the scrambling code of DL DPCH to the original one.

Step	Direction		Message	Comments
	UE	SS		
184d	UE			The UE shall not initiate an RRC connection establishment during T3211 at least after the RRC connection is released.
185	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
186	←		RRC CONNECTION SETUP	
187	→		RRC CONNECTION SETUP COMPLETE	
188	→		LOCATION UPDATING REQUEST	location updating type = IMSI attach, CKSN = initial value, LAI = b, mobile station classmark 1 as given by the ICS and mobile identity = TMSI.
189	SS			performs step 14 of 9.4.3.2.
189a			(void)	
189b	→		CELL UPDATE	CCCH.
189c	←		RRC CONNECTION RELEASE	CCCH.
189d	SS			performs step 15c of 9.4.3.2.
190	UE			A MO CM connection id attempted before T3212 expiry
191	→		RRC CONNECTION REQUEST	Establishment cause: Registration.
192	←		RRC CONNECTION SETUP	
193	→		RRC CONNECTION SETUP COMPLETE	
194	→		LOCATION UPDATING REQUEST	location updating type = normal, CKSN = no key available, LAI = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE) mobile station classmark 1 as given by the ICS and mobile identity = IMSI.
195	←		AUTHENTICATION REQUEST	CKSN = initial CKSN.
196	→		AUTHENTICATION RESPONSE	
196a	←		SECURITY MODE COMMAND	
196b	→		SECURITY MODE COMPLETE	
197	←		LOCATION UPDATING ACCEPT	IE mobile Identity = TMSI. If the location updating type in the LOCATION UPDATING REQUEST contains 'FOR', then IE Follow-on Proceed is included in the ACCEPT and steps 199 to 204 will be omitted.
198	→		TMSI REALLOCATION COMPLETE	
199	←		RRC CONNECTION RELEASE	
200	→		RRC CONNECTION RELEASE COMPLETE	
201			(void)	
202	→		RRC CONNECTION REQUEST	
203	←		RRC CONNECTION SETUP	
204	→		RRC CONNECTION SETUP COMPLETE	
205	→		CM SERVICE REQUEST	CKSN = initial value, Mobile identity = TMSI.
206	←		CM SERVICE REJECT	cause #17 (network failure).
207	←		RRC CONNECTION RELEASE	
208	→		RRC CONNECTION RELEASE COMPLETE	

Specific message contents

None.

9.4.3.4.5 Test requirement

1)

1.1 At step 8 the UE shall send a RRC CONNECTION REQUEST message and at step 11 the UE shall send a CM SERVICE REQUEST message, CKSN and LAI set to those which have been allocated to the UE, Mobile Identity IE set to the TMSI which has been allocated to the UE;

1.2 At step 11 the UE shall not attempt a location updating procedure.

2)

2.1 At step 31 the UE shall send a RRC CONNECTION REQUEST message and at step 34 the UE shall send a CM SERVICE REQUEST message, CKSN and LAI set to those which have been allocated to the UE, Mobile Identity IE set to the TMSI which has been allocated to the UE;

2.2 At step 39 the UE shall not attempt a location updating procedure.

3) At step 51 the UE shall send a LOCATION UPDATING REQUEST message with the Mobile Identity IE set to the TMSI which has been allocated to the UE, CKSN IE and LAI set to those which have been allocated to the UE and the Location Updating Type IE set to "periodic updating".

3.1 At step 69 the UE shall send a LOCATION UPDATING REQUEST message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating Type IE set to "normal".

4) At step 103 the UE shall send a LOCATION UPDATING REQUEST message.

5) At step 132 the UE shall send a LOCATION UPDATING REQUEST message with the Mobile Identity IE set to the TMSI which has been allocated to the UE, CKSN IE and LAI set to those which have been allocated to the UE and the Location Updating Type IE set to "IMSI attach".

5.1 At step 152 the UE shall send a LOCATION UPDATING REQUEST message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating Type IE set to "normal".

6) At step 194 the UE shall send a LOCATION UPDATING REQUEST message.

9.4.3.5 Location updating / abnormal cases / Failure due to non-integrity protection

9.4.3.5.1 Definition

9.4.3.5.2 Conformance requirement

Except the messages listed below, no layer 3 signalling messages shall be processed by the receiving MM and GMM entities or forwarded to the CM entities, unless the security mode control procedure is activated for that domain.

- MM messages:
  - AUTHENTICATION REQUEST
  - AUTHENTICATION REJECT
  - IDENTITY REQUEST
  - LOCATION UPDATING ACCEPT (at periodic location update with no change of location area or temporary identity)
  - LOCATION UPDATING REJECT
  - CM SERVICE ACCEPT, if the following two conditions apply:
    - no other MM connection is established; and
    - the CM SERVICE ACCEPT is the response to a CM SERVICE REQUEST with CM SERVICE TYPE IE set to 'emergency call establishment'
  - CM SERVICE REJECT
  - ABORT

References

TS 24.008 clauses 4.1.1.1.1

9.4.3.5.3 Test purpose

To verify that the UE ignores NAS signalling messages when the security mode procedure is not activated.

9.4.3.5.4 Method of test

Initial conditions

- System Simulator:
  - two cells: A and B, belonging to different location areas a and b.
- User Equipment:
  - the UE has a valid TMSI. It is "idle updated" on cell A.

Related ICS/IXIT statements

None.

Test Procedure

The location updating procedure is started. Upon reception of LOCATION UPDATING REQUEST message from the UE, the SS responds to LOCATION UPDATING ACCEPT message without the integrity protection. The UE shall ignore this message and restart the location updating procedure at expiry of timer T3211. This time the SS starts the authentication procedure and initiates the integrity protection. After receiving LOCATION UPDATING ACCEPT message, the UE shall respond to TMSI REALLOCATION COMPLETE message.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		Set the cell type of cell B to the "Serving cell". Set the cell type of cell A to the "non-suitable cell". (see note)
2		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration". If PS mode: a routing area updating procedure should be rejected with cause “GPRS services not allowed”.
3	→		LOCATION UPDATING REQUEST	
4	←		AUTHENTICATION REQUEST	
5	→		AUTHENTICATION RESPONSE	
6		SS		The SS does not initiate the security mode procedure.
7	←		LOCATION UPDATING ACCEPT	
8	UE			The UE ignores LOCATION UPDATING ACCEPT message.
9		SS		The SS waits T3210 expiry.
10	UE			The UE aborts the RR connection.
11		SS		The SS releases the RRC connection.
12		SS		The SS waits T3211 expiry.
13		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
14	→		LOCATION UPDATING REQUEST	
15	←		AUTHENTICATION REQUEST	
16	→		AUTHENTICATION RESPONSE	
17		SS		The SS starts the security mode procedure with the integrity protection.
18	←		LOCATION UPDATING ACCEPT	
19	→		TMSI REALLOCATION COMPLETE	
20		SS		The SS releases the RRC connection.
NOTE: The definitions for "Serving cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

9.4.3.5.5 Test requirement

At step 8 the UE shall ignore the first LOCATION UPDATING ACCEPT message.

At step 14 the UE shall send LOCATION UPDATING REQUEST message after expiry of timer T3211.

At step 16 the UE shall respond to TMSI REALLOCATION COMPLITE message after the UE receives the second LOCATION UPDATING ACCEPT message.

9.4.3.6 Location updating /abnormal cases / CS domain is changed from barred to unbarred because of domain specific access control

9.4.3.6.1 Definition

This test is applicable for Rel-5 UEs supporting DSAC and Rel-6 or later UEs.

9.4.3.6.2 Conformance requirement

TS 24.008 clause 4.1.1.2.2

If the PS or CS domain is barred because of domain specific access control, a GPRS MS operating in mode A or B in a network that operates in mode II or III shall use the MM specific procedures or GMM specific procedures, respectively, in the domain which is unbarred. If the MS detects that a domain changes from barred to unbarred, it shall behave as specified in subclauses 4.4.4.9, 4.5.1.2, 4.7.3.1.5, 4.7.5.1.5, and 4.7.13.5.

TS 24.008 clause 4.4.4.9

a) Access barred because of common access class control or CS domain specific access control

The location updating procedure is not started. The mobile station stays in the current serving cell and applies normal cell reselection process. The procedure is started as soon as possible and if still necessary (when the barred state is ended or because of a cell change).

Reference

3GPP TS 24.008 clause 4.1.1.2.2; 4.4.4.9

9.4.3.6.3 Test purpose

To test the behaviour of the UE if the CS domain is barred and if it is then changed from barred to unbarred because of domain specific access control in a network that operates mode II.

9.4.3.6.4 Method of test

Initial condition

An access class x (0-15) is arbitrarily chosen. The USIM is programmed with this access class x. The UE is informed that the CS domain specific access class x is barred in cell B.

System Simulator:

- two cells, A and B, belonging to different location areas with location area identification a and b of the same PLMN and operating in network operation mode II;
- IMSI attach/detach is allowed in both cells;
- the T3212 time-out value is 1/10 hour in both cells.

User Equipment:

The UE has a valid TMSI (=TMSI1) and CKSN (=CKSN1). It is "idle updated" on cell A.

Related ICS/IXIT statements

Support of DSAC Yes/No.

Test procedure

1) The UE is made to select cell B. The CS domain specific access class x is barred: the UE shall not initiate a location updating procedure in the CS domain.

2) The SS informs the UE by paging that the CS domain specific access class x is not barred: The UE shall initiate a location updating procedure. The SS checks, by paging, that the UE has stored the newly allocated TMSI. The RRC CONNECTION is released.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	SS			Set the cell type of cell B to the "Serving cell". Set the cell type of cell A to the "non-suitable cell". (see note)

Step	Direction		Message	Comments
	UE	SS		
2	UE			The UE shall not initiate a location updating procedure as CS domain specific access class x is barred . If PS mode: a routing area updating procedure should be performed.
3	SS			The SS informs the UE by paging that the CS domain specific access class x is not barred anymore.
4	UE			The UE shall initiate a location updating procedure.
5	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to: Registration.
6	→		LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = CKSN1, "location area identification" = a, "mobile station classmark 1" as given by the ICS and "mobile identity" = TMSI1. The MM message is included in the RRC message INITIAL DIRECT TRANSFER with the CN domain identity set to CS domain.
7	SS			The SS starts integrity protection.
8	←		LOCATION UPDATING ACCEPT	"Mobile identity" = new TMSI (=TMSI2), LAI = b.
9	→		TMSI REALLOCATION COMPLETE	
9a				The SS releases the RRC Connection.
10	SS			SS waits 5 seconds to guarantee that the UE is in service.
11	←		Mobile terminated establishment of RRC Connection	See TS 34.108 clause 7.1.2 "Initial UE identity" IE contains the new TMSI (= TMSI2) and the new LAI (=b). Establishment Cause: Terminating Conversational Call, or Supplementary Service Terminating High Priority Signalling, or SMS Terminating Low Priority Signalling.
12	→		PAGING RESPONSE	"Mobile identity" IE contains the new TMSI (= TMSI2).
13	SS			The SS releases the RRC Connection.
NOTE: The definitions for "Serving cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only". Only one operation is applicable at step 11 based on the type of CS call that is being made.				

Specific message contents

None.

9.4.3.6.1.5 Test requirements

At step 2, cell B is serving cell, the CS domain specific access class x is barred:

- the UE shall not use the specific MM location updating procedure.

At step 6, cell B is serving cell, the CS domain specific access class x is not barred anymore:

- the UE shall initiate a location updating procedure.

9.4.4 Location updating / release / expiry of T3240

9.4.4.1 Definition

9.4.4.2 Conformance requirement

The UE receiving a LOCATION UPDATING ACCEPT message shall start T3240: it shall abort the RR connection at the expiry of timer T3240.

References

TS 24.008 clauses 4.4.4.8 and 11.2.

9.4.4.3 Test purpose

To verify that the UE aborts the RR-connection at the expiry of timer T3240.

9.4.4.4 Method of test

Initial conditions

- System Simulator:
  - two cells: A and B, belonging to different location areas a and b.
- User Equipment:
  - the UE has a valid TMSI. It is "idle updated" on cell A.

Related ICS/IXIT statements

None.

Test Procedure

A normal location updating procedure is performed. The RR-connection is not released by the SS within the timer T3240. It is checked that the UE aborts the RR-connection.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		Set the cell type of cell B to the "Serving cell". Set the cell type of cell A to the "non-suitable cell". (see note 1)
2		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration". If PS mode: a routing area updating procedure should be rejected with cause value #7 “GPRS Services not allowed”.
3			Void	
4			Void	
5	→		LOCATION UPDATING REQUEST	
5a		SS		The SS starts integrity protection.
6	←		LOCATION UPDATING ACCEPT	
7		SS		The SS waits T3240 expiry.
8	→		SIGNALLING CONNECTION RELEASE INDICATION	The UE shall abort the RR connection. (see note 2) CN domain identity = CS domain
9		SS		The SS releases the RRC connection.
10			Void	

NOTE1: The definitions for "Serving cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".

NOTE2: At the expiration of T3240, as per TS 24.008, RR connection shall be aborted. In UMTS, UE cannot release RRC connection on its own. Instead, UE can abort the RR connection ("CS signalling connection") and send a Signalling Connection Release Indication to the UTRAN, in order to initiate the release of RRC connection.

Specific message contents

None.

9.4.4.5 Test requirement

At step 8 the UE shall abort the RR connection.

9.4.5 Location updating / periodic

9.4.5.1 Location updating / periodic spread

9.4.5.1.1 Definition

9.4.5.1.2 Conformance requirement

1) The UEs shall perform spreading of the time before performing a periodic location updating when the location updating timer value is reduced.

2) The UE shall reset timer T3212 when the UE is deactivated, and shall start with a value between zero and the broadcasted value when reactivated in the same cell, IMSI attach being forbidden.

3) When activated the UE shall start timer T3212 with a value randomly drawn in the allowed range.

NOTE: This conformance requirement is not covered by a test purpose. It is intended to be covered by a manufacturer declaration.

References

TS 24.008 clause 4.4.2.

9.4.5.1.3 Test purpose

1) To check that when the location updating timer is reduced, the timer running in the UE is started with a value depending on the current timer value and the new broadcasted T3212 value.

2) To verify that when the UE is reactivated in the same cell (as the one in which it was deactivated), IMSI attach being forbidden, the UE starts the timer T3212 with a value between zero and the broadcasted value.

NOTE: It is not tested that the value is random.

9.4.5.1.4 Method of test

Initial conditions

- System Simulator:
  - one cell, T3212 is set to 30 minutes;
  - IMSI attach is allowed in the cell;
- User Equipment:
  - the UE is deactivated. The stored MCC, MNC and LAC correspond to the broadcasted values. The stored update status is "updated".

Related ICS/IXIT statements

None.

Test procedure

The UE is activated. It performs IMSI attach. 3 minutes after the end of the IMSI attach procedure, the value of T3212 is set to 6 minutes. The UE shall perform periodic location updating 6 minutes after the end of the IMSI attach procedure.

Then, the IMSI attach/detach is forbidden. T3212 is still set to 6 minutes.

The UE is deactivated. The UE is reactivated. It is checked that the UE performs a periodic location updating during the 6 minutes following activation.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is activated.
2	→		RRC CONNECTION REQUEST	"Establishment cause": Registration.
3	←		RRC CONNECTION SETUP	
4	→		RRC CONNECTION SETUP COMPLETE	
5	→		LOCATION UPDATING REQUEST	"location updating type": IMSI attach.
6	←		LOCATION UPDATING ACCEPT	
7	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.
8	→		RRC CONNECTION RELEASE COMPLETE	
9	SS			3 minutes after step 8 the value of T3212 is set to 6 minutes.
10	→		RRC CONNECTION REQUEST	"Establishment cause": Registration. This message shall be sent by the UE between 5 minutes 45 s and 6 minutes 15 s after step 8.
11	←		RRC CONNECTION SETUP	
12	→		RRC CONNECTION SETUP COMPLETE	
13	→		LOCATION UPDATING REQUEST	"location updating type": periodic updating.
14	←		LOCATION UPDATING ACCEPT	
15	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.
16	→		RRC CONNECTION RELEASE COMPLETE	
17	SS			IMSI attach/detach is not allowed.
18	UE			The UE is deactivated.
19	UE			The UE is activated.
20	SS			The SS waits until the periodic location updating.
21	→		RRC CONNECTION REQUEST	"Establishment cause": Registration. This message shall arrive during the 6 minutes following the UE activation.
22	←		RRC CONNECTION SETUP	
23	→		RRC CONNECTION SETUP COMPLETE	
24	→		LOCATION UPDATING REQUEST	"Location updating type" = periodic.
25	←		LOCATION UPDATING ACCEPT	
26	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.
27	→		RRC CONNECTION RELEASE COMPLETE	

Specific message contents

None.

9.4.5.1.5 Test requirement

At step 10 the UE shall send an RRC CONNECTION REQUEST for a periodic location updating.

At step 21 the UE shall send an RRC CONNECTION REQUEST for a periodic location updating.

9.4.5.2 Location updating / periodic normal / test 1

9.4.5.2.1 Definition

9.4.5.2.2 Conformance requirement

1 The UE shall stop and reset the timer T3212 of the periodic location updating procedure when the first MM message is received or SECURITY mode setting is completed in the case of MM connection establishment.

2 The UE shall stop and reset the timer T3212 of the periodic location updating procedure when the UE has responded to paging and thereafter has received the first correct L3 message that is not an RRC message.

References

TS 24.008 clause 4.4.2.

9.4.5.2.3 Test purpose

To verify that the UE stops and resets the timer T3212 of the periodic location updating procedure when:

- the first MM-message is received in the case of MM-connection establishment, security mode being not set;
- the UE has responded to paging and the first correct L3 message that is not an RRC message is received.

NOTE: T3212 is stopped when the MM-idle state is left and restarted when the MM sublayer returns to that state, substate NORMAL SERVICE or ATTEMPTING TO UPDATE. As a consequence, the exact time when T3212 is reset between those two events cannot be tested.

9.4.5.2.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters;
  - IMSI attach/detach is allowed;
  - the T3212 time-out value is 2/10 hour.
- User Equipment:
  - the UE has a valid TMSI. It is "idle updated".

Related ICS/IXIT statements

None.

Test procedure

An UE originated MM connection is established and cleared. The RRC CONNECTION is released. It is checked that the UE performs a periodic location updating 12 minutes after the release of the RRC CONNECTION.

One minute after the periodic location updating, the UE is paged, it sends a RRC CONNECTION REQUEST message and the SS responds with an RRC CONNECTION SETUP message, a call is established and then cleared. It is checked that the UE performs a periodic location updating 12 minutes after the release of the link.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			A MO CM connection is attempted.
2			Void	
3			Void	
4			Void	
5	→		CM SERVICE REQUEST	
6	←		CM SERVICE REJECT	cause #17 (network failure).
7		SS		The SS releases the RRC connection.
8			Void	
9		SS		The SS waits until the periodic location updating.
10		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration". This message shall arrive between 11 minutes 45 s and 12 minutes 15 s after the last release of the RRC connection by the SS.
11			Void	
12			Void	
13	→		LOCATION UPDATING REQUEST	"Location updating type" = periodic.
14	←		LOCATION UPDATING ACCEPT	
15		SS		The SS releases the RRC connection.
16			Void	
17		SS		The SS waits 1 minute.
18	←		Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 "Mobile identity" = IMSI. "Establishment cause": Terminating Conversational Call.
19	→		PAGING RESPONSE	
20	←		AUTHENTICATION REQUEST	
21	→		AUTHENTICATION RESPONSE	
22		SS		The SS releases the RRC connection.
23			Void	
24		SS		The SS waits until the periodic location updating.
25		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration". This message shall arrive between 11 minutes 45 s and 12 minutes 15 s after the last release of the RRC connection by the SS.
26			Void	
27			Void	
28	→		LOCATION UPDATING REQUEST	"Location updating type" = periodic.
29	←		LOCATION UPDATING ACCEPT	
30		SS		The SS releases the RRC connection.
31			Void	

Specific message contents

None.

9.4.5.2.5 Test requirement

At step 10 the UE shall initiate an RRC CONNECTION REQUEST 12 minutes after the release of the RRC CONNECTION (at step 7).

At step 25 the UE shall initiate an RRC CONNECTION REQUEST 12 minutes after the release of the RRC CONNECTION (at step 22).

9.4.5.3 Location updating / periodic normal / test 2

9.4.5.3.1 Definition

9.4.5.3.2 Conformance requirement

When a LOCATION UPDATING ACCEPT or a LOCATION UPDATING REJECT message is received, the timer T3212 is stopped and reset and the UE shall perform a periodic location updating after T3212 expiry.

References

TS 24.008 clause 4.4.2.

9.4.5.3.3 Test purpose

To verify that the UE stops and resets the timer T3212 of the periodic location updating procedure when a LOCATION UPDATING ACCEPT message is received.

NOTE: T3212 is stopped when the MM-idle state is left and restarted when the MM sublayer returns to that state, substate NORMAL SERVICE or ATTEMPTING TO UPDATE. As a consequence, the exact time when T3212 is reset between those two events cannot be tested.

9.4.5.3.4 Method of test

Initial conditions

- System Simulator:
  - 2 cells, IMSI attach/detach is allowed in both cells;
  - T3212 is set to 6 minutes;
  - two cells: A and B of the same PLMN, belonging to different location areas with LAI a and b.
- User Equipment:
  - the UE has a valid TMSI. It is "idle updated" on cell A.

Related ICS/IXIT statements

USIM removal possible while UE is powered Yes/No.

Switch off on button yes/No.

Test procedure

A normal location updating is performed. The RRC CONNECTION is released. One minute later, the UE is deactivated, then reactivated in the same cell. It is checked that the UE performs an IMSI attach and a periodic location updating 6 minutes after the IMSI attach.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell B.
1		SS		Set the cell type of cell B to the "Serving cell". Set the cell type of cell A to the "non-suitable cell". (see note)
2		SS		The SS verifies that the IE "establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration". If PS mode: a routing area updating procedure should be performed.
3			Void	
4			Void	
5	→		LOCATION UPDATING REQUEST	"location updating type" = normal.
5a		SS		The SS starts integrity protection.
6	←		LOCATION UPDATING ACCEPT	
7		SS		The SS releases the RRC connection.
8			Void	
9		SS		The SS waits until the periodic location updating.
10		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration". This message shall arrive between 5 minutes 45s and 6 minutes 15 s after the last release of the RRC connection by the SS.
11			Void	
12			Void	
13	→		LOCATION UPDATING REQUEST	"Location updating type" = periodic.
14	←		LOCATION UPDATING ACCEPT	
15		SS		The SS releases the RRC connection.
16			Void	
17		UE		If possible (see ICS) USIM removal is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed. A Detach Request can be received in PS mode. In case USIM removal is performed then “Power Off” can be set to “Any value”. Steps 18 to 23 may be performed or not depending on the action made in step 17.
18		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Detach".
19			Void	
20			Void	
21	→		IMSI DETACH INDICATION	
22		SS		The SS releases the RRC connection.
23			Void	
24		UE		Depending on what has been performed in step 17 the UE is brought back to operation. The subsequent GMM attach should be rejected if received in the PS mode.
25		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
26			Void	
27			Void	
28	→		LOCATION UPDATING REQUEST	"Location updating type" = IMSI attach.
28a		SS		The SS starts integrity protection.
29	←		LOCATION UPDATING ACCEPT	
30		SS		The SS releases the RRC connection.
31			Void	
32		SS		The SS waits until the periodic location updating.

Step	Direction		Message	Comments
	UE	SS		
33		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration". This message shall arrive between 5 minutes 45 s and 6 minutes 15s after the last release of the RRC connection by the SS.
34			Void	
35			Void	
36	→		LOCATION UPDATING REQUEST	"Location updating type" = periodic.
37	←		LOCATION UPDATING ACCEPT	
38		SS		The SS releases the RRC connection.
39			Void	
NOTE: The definitions for "Serving cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

9.4.5.3.5 Test requirement

After step 28 the UE shall performs an IMSI attach.

After step 33 the UE shall performs periodic location updating 6 minutes after step 28.

9.4.5.4 Location updating / periodic search for HPLMN or higher priority PLMN when in VPLMN

9.4.5.4.1 Location updating / periodic search for HPLMN or higher priority PLMN / UE waits time T

9.4.5.4.1.1 Definition

9.4.5.4.1.2 Conformance requirement

1. In the case that the mobile has a stored "Equivalent PLMNs" list the mobile shall only select a PLMN if it is of a higher priority than those of the same country as the current serving PLMN which are stored in the "Equivalent PLMNs" list.

2. In steps i), ii) and iii) of the Automatic Network Selection Mode Procedure, the MS shall limit its attempts to access higher priority PLMNs to PLMNs of the same country as the current serving VPLMN;

3. If the MS is in idle mode in a VPLMN, the MS shall periodically attempt to obtain service on its HPLMN or higher priority PLMN listed in "user controlled PLMN selector" or "operator controlled PLMN selector". The MS shall make an attempt if the MS is on the VPLMN at time T after the last attempt.

References

TS 22.011 clause 3.2.2.5. and TS 23.122 4.4.3.3.

9.4.5.4.1.3 Test purpose

To verify that if a UE is camped on a VPLMN it will perform a search for higher priority networks (e.g. HPLMN) with a periodicity of T, which is the Search Period stored in the USIM.

This test will confirm that, if a cell from a new PLMN becomes available, within a time T the UE will perform a location updating on it only if the following requirements are met:

- The PLMN of this new cell if from the same country as the VPLMN, and
- This PLMN is the HPLMN stored in the USIM, or has a higher priority than the serving VPLMN or any PLMN from the country of the VPLMN that is stored in the equivalent PLMN list.

9.4.5.4.1.4 Method of test

Initial conditions

- System Simulator:
  - four cells A, B, C and D, belonging to different location areas with location identification a, b, c and d. Their country codes and mobile network codes are defined as follows:

Cell	Cell No.	MCC	MNC	Test channel
A	1	001	01	1
B	2	022	02	2
C	7	001	10	3
D	4	001	11	4
E	3	001	30	-

  - the test channels are defined in clause 6, table 6.3
  - initially Cells A, B and C shall not be broadcasting.
  - Cell E is not activated.
- User Equipment:
  - the UE is switched off. The HPLMN Search Period on the USIM shall be set to 6 minutes. The location area information on the USIM is "deleted".
  - The following USIM fields are configured:

USIM field	Priority	PLMN
$EF_{HPLMNwAcT}$	1st	A
$EF_{PLMNwAcT}$	1st	B
	2nd	E
$EF_{OPLMNwAcT}$	1st	C
	2nd	D

In the table PLMN X is the PLMN code from cell X (see above).

Related ICS/IXIT statements

Switch on/off button Yes/No.

Test Procedure

Only Cell D shall be broadcasting. The UE shall be switched on either by using the Power Switch or by applying power. A normal location updating is performed on Cell D. The SS shall include the PLMN E in the list of equivalent PLMNs that is sent in the Location Update Accept message. Cells B and C shall be made available after 7 minutes from switched on, thus ensuring the UE fails to find any higher priority PLMN during its first attempt. It is verified that the UE does not perform a location update request on Cell B or C (waiting for at least 7 minutes after broadcasting of Cells B and C).Then Cell A is also made available, and it is verified that the UE performs a location update request on Cell A within 7 minutes after broadcasting of Cell A. During the test, SIB18 is not broadcast in cell A, B, C, D.

Expected sequence

Step	Direction		Message	Contents
	UE	SS		
				The following messages shall be sent and received on Cell D.
1		SS		Set the cell type of Cell A to the "non-suitable cell". Set the cell type of Cell B to the "non-suitable cell". Set the cell type of Cell C to the "non-suitable cell". Set the cell type of Cell D to the "Suitable neighbour cell". (see note)
1a	UE			The UE is switched on by either using the Power Switch or by applying power. If PS Mode: The subsequent GMM attach should be accepted with "Equivalent PLMNs": PLMN E..
2		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3			Void	
4			Void	
5	→		LOCATION UPDATING REQUEST	"Location Update Type": Normal.
5a.1	←		AUTHENTICATION REQUEST	
5a.2	→		AUTHENTICATION RESPONSE	
5a		SS		The SS starts integrity protection.
6	←		LOCATION UPDATING ACCEPT	"Equivalent PLMNs": PLMN E
7		SS		The SS releases the RRC connection.
8			Void	
8a		SS		The SS waits a period of 7 minutes after the UE is switched on, this allowing the UE to make its first periodic search.
8b		SS		Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note)
8b.1			Void	
8b.2			Void	
8b.3			Void	
8b.4			Void	
8b.5			Void	
8b.6			Void	
8c		SS		The SS shall wait for 7 minutes during which no messages should be received.
9		SS		Set the cell type of cell A to the "Suitable neighbour cell". (see note) Within 7 minutes after step 9, the following messages shall be sent and received on Cell A. The lower boundary of time T shall not be checked in this test step.
10		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration". If PS mode: a routing area updating procedure should be performed.
11			Void	
12			Void	
13	→		LOCATION UPDATING REQUEST	"Location Update Type": normal.
13a		SS		The SS starts integrity protection.
14	←		LOCATION UPDATING ACCEPT	
15		SS		The SS releases the RRC connection.
16			Void	
NOTE: The definitions for "Suitable neighbour cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

9.4.5.4.1.5 Test requirement

1. At step 8c, the UE shall not send any LOCATION UPDATING REQUEST on cell C.
2. At step 8c, the UE shall not send any LOCATION UPDATING REQUEST on cell B.
3. At step 13 the UE shall send a LOCATION UPDATING REQUEST message on Cell A within 7mins.

9.4.5.4.2 Location updating / periodic search for HPLMN or higher priority PLMN / UE in manual mode

9.4.5.4.2.1 Definition

9.4.5.4.2.2 Conformance requirement

The periodic attempts shall only be performed if in automatic mode when the UE is in a VPLMN.

References

TS 22.011 clause 3.2.2.5. and TS 23.122 clause 4.4.3.3.

9.4.5.4.2.3 Test purpose

To verify that no Search for HPLMN or Higher Priority PLMN is performed when the UE is not in automatic mode.

9.4.5.4.2.4 Method of test

Initial conditions

- System Simulator:
  - two cells A and B, belonging to different location areas with location identification a and b. Cell A shall be a cell of the HPLMN and Cell B shall be a cell of the VPLMN with a Country Code the same as that of Cell A. Initially Cell A shall not be broadcasting. IMSI attach/detach is not allowed on either cell.

  NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.
- User Equipment:
  - the UE is switched off. The HPLMN Search Period on the USIM shall be set to 6 minutes. The location area information on the USIM is "deleted".

Related ICS/IXIT statements

Switch on/off button Yes/No.

Test Procedure

Only Cell B shall be broadcasting. The UE shall be switched on either by using the Power Switch or by applying power. A normal location updating is performed on Cell B. The UE is forced into manual selection mode. Cell A is made available. It is verified that the UE does not attempt to perform a location update on Cell A.

Expected sequence

Step	Direction		Message	Contents
	UE	SS		
				The following messages shall be sent and received on Cell B.
1		SS		Set the cell type of Cell A to the "non-suitable cell". Set the cell type of Cell B to the "Serving cell". (see note)
1a		UE		The UE is switched on by either using the Power Switch or by applying power.
2	→		RRC CONNECTION REQUEST	"Establishment cause": Registration.
3	←		RRC CONNECTION SETUP	
4	→		RRC CONNECTION SETUP COMPLETE	
5	→		LOCATION UPDATING REQUEST	"Location Update Type": Normal.
6	←		LOCATION UPDATING ACCEPT	
7	←		RRC CONNECTION RELEASE	After sending this message the SS waits for the disconnection of the main signalling link.
8	→		RRC CONNECTION RELEASE COMPLETE	
9		UE		The UE is forced into manual selection mode.
10		SS		Set the cell type of cell A to the "Suitable neighbour cell". (see note) If PS mode: a routing area updating procedure should be performed.
11		SS		The SS waits a period of 6 minutes. During this time no messages shall be received on Cell A.
NOTE: The definitions for "Serving cell", "Suitable neighbour cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

9.4.5.4.2.5 Test requirement

At step 11 the UE shall not attempt to perform a location update.

9.4.5.4.3 Location updating / periodic search for HPLMN or higher priority PLMN / UE waits at least two minutes and at most T minutes

9.4.5.4.3.1 Definition

9.4.5.4.3.2 Conformance requirement

After switch on, the UE waits at least 2 minutes and at most T minutes before the first Search for HPLMN or higher priority PLMN is attempted.

References

TS 22.011 clause 3.2.2.5. and TS 23.122 4.4.3.3.

9.4.5.4.3.3 Test purpose

To verify that the UE waits at least 2 minutes and at most T minutes before attempting its first Search for HPLMN or higher priority PLMN.

9.4.5.4.3.4 Method of test

Initial Conditions

- System Simulator:
  - two cells A and B, belonging to different location areas with location identification a and b. Cell A shall be a cell of the HPLMN and Cell B shall be a cell of the VPLMN with a Country Code the same as that of Cell A. Initially Cell A shall not be broadcasting. IMSI attach/detach is not allowed on either cell.

  NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

- User Equipment:
  - the UE is switched off. The HPLMN Search Period on the USIM shall be set to 6 minutes. The location area information on the USIM is "deleted".

Related ICS/IXIT statements

Switch on/off button Yes/No.

Test Procedure

Only Cell B shall be broadcasting. The UE shall be switched on either by using the Power Switch or by applying power. A normal location updating is performed on Cell B. Cell A is made available. It is verified that the UE attempts to perform a location update on Cell A, after at least 2 minutes have passed following power on and at most T minutes after successful registration.

Expected sequence

Step	Direction		Message	Contents
	UE	SS		
				The following messages shall be sent and received on Cell B.
1		SS		Set the cell type of Cell A to the "non-suitable cell". Set the cell type of Cell B to the "Serving cell". (see note)
1a		UE		The UE is switched on by either using the Power Switch or by applying power.
2	→		RRC CONNECTION REQUEST	"Establishment cause": Registration.
3	←		RRC CONNECTION SETUP	
4	→		RRC CONNECTION SETUP COMPLETE	
5	→		LOCATION UPDATING REQUEST	"Location Update Type": Normal.
6	←		LOCATION UPDATING ACCEPT	
7	←		RRC CONNECTION RELEASE	After sending this message the SS waits for the disconnection of the main signalling link.
8	→		RRC CONNECTION RELEASE COMPLETE	
9		SS		Set the cell type of cell A to the "Suitable neighbour cell". (see note) If PS mode: a routing area updating procedure should be performed.
10		SS		The SS waits a period of 2 minutes after the UE is switched on. During this time no messages shall be received on Cell A. The following messages shall be sent and received on cell A. Within 6 minutes after step 6 the following messages shall be sent and received on cell A.
11	→		RRC CONNECTION REQUEST	"Establishment cause": Registration. This message shall be sent between 2 and 6 minutes after step 1
12	←		RRC CONNECTION SETUP	
13	→		RRC CONNECTION SETUP COMPLETE	
14	→		LOCATION UPDATING REQUEST	"Location Update Type": normal.
15	←		LOCATION UPDATING ACCEPT	
16	←		RRC CONNECTION RELEASE	After sending this message the SS waits for the disconnection of the main signalling link.
17	→		RRC CONNECTION RELEASE COMPLETE	
NOTE: The definitions for "Serving cell", "Suitable neighbour cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

9.4.5.4.3.5 Test requirement

At step 11 the UE shall attempt to perform a location update.

9.4.5.4.4 Location updating/periodic search of the higher priority PLMN, VPLMN in a foreign country – higher priority/UE is in automatic mode.

9.4.5.4.4.1 Definition

9.4.5.4.4.2 Conformance requirement

A UE in Automatic Mode shall make periodic attempts to look for a higher priority PLMN of the same country as the currently received PLMN.

References

TS 22.011 clause 3.2.2.5

9.4.5.4.4.3 Test purpose

To verify that the UE selects the highest priority network if the HPLMN/higher priority PLMN Search is performed, when a UE is receiving foreign country's VPLMN and UE is in automatic mode.

9.4.5.4.4.4 Method of test

Initial conditions

- System Simulator:
- Three cells A, B and C, belonging to different location areas with location identification a, b and c. Cell A shall be a cell of the HPLMN, Cell B shall be a cell of the VPLMN with a different Mobile Country Codes that of Cell A and Cell C shall be a cell of a higher priority VPLMN but of the same Mobile Country Code as Cell B. Initially Cell A and Cell C shall not be broadcasting. IMSI attach/detach is not allowed on any cell.
- User Equipment:
    - the UE is switched off. The HPLMN Search Period on the USIM shall be set to 6 minutes. The location area information on the USIM is "deleted". The PLMN Selector on the USIM shall contain entries for both PLMNs of Cell B and Cell C, where PLMN C is of a higher priority than PLMN B.

Related ICS/IXIT statements

Switch on/off button Yes/No.

Test Procedure

Only Cell B shall be broadcasting. The UE shall be switched on either by using the Power Switch or by applying power. A normal location updating is performed on Cell B. The MS is in automatic selection mode. Cell A and Cell C are made available. It is verified that the MS does not attempt to perform a location update on Cell A. It is verified that the MS does perform a location update on Cell C.

Expected sequence

Step	Direction		Message	Contents
	UE	SS		
				The following messages shall be sent and received on Cell B.
1		SS		Set the cell type of Cell A to the "non-suitable cell". Set the cell type of Cell B to the "Serving cell". Set the cell type of Cell C to the "non-suitable cell". (see note)
1a		UE		The UE is switched on by either using the Power Switch or by applying power.
2		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	→		LOCATION UPDATING REQUEST	"Location Update Type": Normal.
4	←		AUTHENTICATION REQUEST	
5	→		AUTHENTICATION RESPONSE	
6		SS		The SS starts integrity protection.
7	←		LOCATION UPDATING ACCEPT	
8		SS		The SS releases the RRC connection.
9		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note)
10		SS		The SS waits a period of 6 minutes. During this time no messages shall be received on Cell A but the following messages are received on Cell C.
11	→		LOCATION UPDATING REQUEST	"Location Update Type": normal.
12		SS		The SS starts integrity protection.
13	←		LOCATION UPDATING ACCEPT	
14		SS		The SS releases the RRC connection.
NOTE: The definitions for "Serving cell", "Suitable neighbour cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

9.4.5.4.4.5 Test requirement

1. At step 10, the UE shall not send any LOCATION UPDATING REQUEST on Cell A.
2. At step 11, the UE shall send a LOCATION UPDATING REQUEST message on Cell C.

9.4.5.4.5 Location updating/periodic search of the higher priority PLMN, VPLMN in a foreign country – lower priority/UE is in automatic mode.

9.4.5.4.5.1 Definition

9.4.5.4.5.2 Conformance requirement

A UE in Automatic Mode shall make periodic attempts to look for a higher priority PLMN of the same country as the currently received PLMN. The MS shall not select a lower priority PLMN of the same country as the currently received PLMN.

References

TS 22.011 clause 3.2.2.5

9.4.5.4.5.3 Test purpose

To verify that the UE remains on the highest priority network if the HPLMN/higher priority PLMN Search is performed, when a UE is receiving foreign country's VPLMN and UE is in automatic mode.

9.4.5.4.5.4 Method of test

Initial conditions

- System Simulator:
- Three cells A, B and C, belonging to different location areas with location identification a, b and c. Cell A shall be a cell of the HPLMN, Cell B shall be a cell of the VPLMN with a different Mobile Country Codes that of Cell A and Cell C shall be a cell of a lower priority VPLMN but of the same Mobile Country Code as Cell B. Initially Cell A and Cell C shall not be broadcasting. IMSI attach/detach is not allowed on any cell.
- User Equipment:
  - the UE is switched off. The HPLMN Search Period on the USIM shall be set to 6 minutes. The location area information on the USIM is "deleted". The PLMN Selector on the USIM shall contain entries for both PLMNs of Cell B and Cell C, where PLMN B is of a higher priority than PLMN C.

Related ICS/IXIT statements

Switch on/off button Yes/No.

Test Procedure

Only Cell B shall be broadcasting. The UE shall be switched on either by using the Power Switch or by applying power. A normal location updating is performed on Cell B. The MS is in automatic selection mode. Cell A and Cell C are made available. It is verified that the MS does not attempt location update either on Cell A or Cell C.

Expected sequence

Step	Direction		Message	Contents
	UE	SS		
				The following messages shall be sent and received on Cell B.
1		SS		Set the cell type of Cell A to the "non-suitable cell". Set the cell type of Cell B to the "Serving cell". Set the cell type of Cell C to the "non-suitable cell". (see note)
1a	UE			The UE is switched on by either using the Power Switch or by applying power.
2		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	→		LOCATION UPDATING REQUEST	"Location Update Type": Normal.
4	←		AUTHENTICATION REQUEST	
5	→		AUTHENTICATION RESPONSE	
6		SS		The SS starts integrity protection.
7	←		LOCATION UPDATING ACCEPT	
8		SS		The SS releases the RRC connection.
9		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note)
10		SS		The SS waits a period of 6 minutes. During this time no messages shall be received on Cell A and Cell C.
NOTE: The definitions for "Serving cell", "Suitable neighbour cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

9.4.5.4.5.5 Test requirement

1. At step 10, the UE shall not send any LOCATION UPDATING REQUEST on Cell A or Cell C.

9.4.5.4.6 Location updating/periodic search of the higher priority PLMN, VPLMN in a foreign country – List of EPLMN contain HPLMN /UE is in automatic mode.

9.4.5.4.6.1 Definition

9.4.5.4.6.2 Conformance requirement

A UE in Automatic Mode shall make periodic attempts to look for a higher priority PLMN of the same country as the currently registered PLMN. For the ranking of PLMNs the UE shall use the order used in subclause 3.2.2.2. In the case that the MS has stored a list of equivalent PLMNs, the UE shall only select a PLMN if it has a higher priority than all the PLMNs, in the list of equivalent PLMNs, which are of the same country as the currently registered PLMN

The Mobile Equipment stores a list of "equivalent PLMNs". This list is replaced or deleted at the end of each location update procedure, routing area update procedure and GPRS attach procedure. The stored list consists of a list of equivalent PLMNs as downloaded by the network plus the PLMN code of the network that downloaded the list. All PLMNs in the stored list are regarded as equivalent to each other for PLMN selection, cell selection/re-selection and handover.

References

TS 22.011 clause 3.2.2.5
TS 23.122 clause 4.4.3

9.4.5.4.6.3 Test purpose

To verify that, in automatic mode, when registered on a VPLMN of a country different to it's HPLMN, the MS only selects the highest priority network available from upon those of the same country as the serving PLMN. It also verifies that the MS does not take into account PLMNs, including the HPLMN, which are included in the Equivalent PLMN list.

9.4.5.4.6.4 Method of test

Initial conditions

- System Simulator:
- Three cells; Cell A be mapped to Cell 1, Cell B mapped to Cell 4, Cell C mapped to Cell 7, as found in TS 34.108 clause 6.1.4.2.
- Three cells A, B and C, belonging to different location areas with location identification a, b and c. Cell A shall be a cell of the HPLMN, Cell B shall be a cell of the VPLMN with a different Mobile Country Codes that of Cell A and Cell C shall be a cell of a higher priority VPLMN but of the same Mobile Country Code as Cell B. Initially Cell A and Cell C shall not be broadcasting. IMSI attach/detach is not allowed on any cell.
- User Equipment:
  - the UE is switched off. The HPLMN Search Period on the USIM shall be set to 6 minutes. The location area information on the USIM is "deleted". The PLMN Selector on the USIM shall contain entries for both PLMNs of Cell B and Cell C, where PLMN C is of a higher priority than PLMN B.

Related ICS/IXIT statements

Switch on/off button Yes/No.

Test Procedure

Only Cell B shall be broadcasting. The UE shall be switched on either by using the Power Switch or by applying power. A normal location updating is performed on Cell B. During the location update procedure Cell B sends an equivalent PLMN list which includes the HPLMN (Cell A). The MS is in automatic selection mode. The MS receives and store the equivalent PLMN list. Cell A and Cell C are made available. It is verified that the MS does not attempt to perform a location update on Cell A. It is verified that the MS does perform a location update on Cell C.

Expected sequence

Step	Direction		Message	Contents
	UE	SS		
				The following messages shall be sent and received on Cell B.
1		SS		Set the cell type of Cell A to the "non-suitable cell". Set the cell type of Cell B to the "Serving cell". Set the cell type of Cell C to the "non-suitable cell". (see note)
1a	UE			The UE is switched on by either using the Power Switch or by applying power. Any subsequent GMM attach from the UE shall be accepted by the SS including the same EPLMN list as sent in the LAU accept in step 7.
2		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	→		LOCATION UPDATING REQUEST	"Location Update Type": Normal.
4	←		AUTHENTICATION REQUEST	
5	→		AUTHENTICATION RESPONSE	
6		SS		The SS starts integrity protection.
7	←		LOCATION UPDATING ACCEPT	EPLMN list containing HPLMN (Cell A)
8		SS		The SS releases the RRC connection.
9		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note)
10		SS		The SS waits a period of 6 minutes. During this time no messages shall be received on Cell A but the following messages are received on Cell C.
11	→		LOCATION UPDATING REQUEST	"Location Update Type": normal. Any ROUTING AREA UPDATE REQUEST from the UE shall be accepted by the SS.
12		SS		The SS starts integrity protection.
13	←		LOCATION UPDATING ACCEPT	
14		SS		The SS releases the RRC connection.
NOTE: The definitions for "Serving cell", "Suitable neighbour cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

Contents of System Information Block type 3 (Cell B)

The same content as in default message in TS 34.108 section 6.1.0b with the following exceptions:

Information Element	Value/remark	Version
- Sintersearch	Not present	

Contents of System Information Block type 4 (Cell B)

The same content as in default message in TS 34.108 section 6.1.0b with the following exceptions:

Information Element	Value/remark	Version
- Sintersearch	Not present	

9.4.5.4.6.5 Test requirement

1. At step 10, the UE shall not send any LOCATION UPDATING REQUEST on Cell A.
2. At step 11, the UE shall send a LOCATION UPDATING REQUEST message on Cell C.

9.4.6 Location updating / interworking of attach and periodic

9.4.6.1 Definition

9.4.6.2 Conformance requirement

1) If the UE is in service state NO CELL AVAILABLE, LIMITED SERVICE, PLMN SEARCH or PLMN SEARCH-NORMAL SERVICE when the timer T3212 expires the location updating procedure is delayed until this service state is left.
2) The T3212 time-out value shall not be changed in the NO CELL AVAILABLE, LIMITED SERVICE, PLMN SEARCH and PLMN SEARCH-NORMAL SERVICE states.
3) If the selected cell is in the location area where the UE is registered and IMSI ATTACH is not required and timer T3212 has not expired, then the state is NORMAL SERVICE.

References

1) TS 24.008 clause 4.4.2.
2) TS 24.008 clause 4.4.2.
3) TS 24.008 clause 4.2.1.1.

9.4.6.3 Test purpose

1) To check that if the PLU timer expires while the UE is out of coverage, the UE informs the network of its return to coverage.
2) To check that the PLU timer is not disturbed by cells of forbidden PLMNs.
3) To check that if the PLU timer does not expire while out of coverage and if the mobile returns to the LA where it is updated, the UE does not inform the network of its return to coverage.

9.4.6.4 Method of test

Initial conditions

- System Simulator:
  - two cells, a and b, of different PLMNs;
  - T3212 is set to 12 minutes on cell a;
  - T3212 is set to 6 minutes on cell b;
  - IMSI attach is allowed in both cells.

  NB: i) Cell b will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

- User Equipment:
  - the UE is deactivated. The PLMN of cell b is entered in the USIM's forbidden PLMN list.

Related ICS/IXIT statements

None.

Test procedure

The UE is activated and placed in automatic network selection mode. It performs IMSI attach. 1 minute after the end of the IMSI attach procedure, cell a is made unavailable. The UE shall not location update on cell b. 8 minutes after the end of the IMSI attach procedure, cell a is made available. The UE shall not location update on cell a before 11,75 minutes after the end of the IMSI attach procedure. The UE shall perform a periodic location update on cell a between 11,75 minutes and 12,25 minutes after the end of the IMSI attach procedure.

3 minutes after the end of the periodic location updating procedure, cell a is made unavailable. The UE shall not location update on cell b. 14 minutes after the end of the periodic location updating procedure, cell a is made available and cell b is made unavailable. The UE shall perform a location update on cell a before 17 minutes after the end of the periodic location updating procedure.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
1a	UE			The UE is activated in automatic network selection mode.
2	→		RRC CONNECTION REQUEST	"Establishment cause": Registration.
3	←		RRC CONNECTION SETUP	
4	→		RRC CONNECTION SETUP COMPLETE	
5	→		LOCATION UPDATING REQUEST	"location updating type": IMSI attach.
6	←		LOCATION UPDATING ACCEPT	
7	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.
8	→		RRC CONNECTION RELEASE COMPLETE	
9		SS		The SS waits 1 minute after step 8. Set the cell type of cell A to the "non-suitable cell". (see note)
10		SS		The SS waits 8 minutes after step 8. Set the cell type of cell A to the "Serving cell". (see note)
11	→		RRC CONNECTION REQUEST	This message shall be sent by the UE between 11 minutes 45s and 12 minutes 15s after step 8.
12	←		RRC CONNECTION SETUP	
13	→		RRC CONNECTION SETUP COMPLETE	
14	→		LOCATION UPDATING REQUEST	"location updating type": periodic.
15	←		LOCATION UPDATING ACCEPT	
16	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.
17	→		RRC CONNECTION RELEASE COMPLETE	
18		SS		The SS waits 3 minutes after step 17. Set the cell type of cell A to the "non-suitable cell". (see note)
19		SS		The SS waits 14 minutes after step 17. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "non-suitable cell". (see note)
20	→		RRC CONNECTION REQUEST	This message shall be sent by the UE before 17 minutes after step 17.
21	←		RRC CONNECTION SETUP	
22	→		RRC CONNECTION SETUP COMPLETE	
23	→		LOCATION UPDATING REQUEST	"Location updating type" = periodic.
24	←		LOCATION UPDATING ACCEPT	
25	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.
26	→		RRC CONNECTION RELEASE COMPLETE	
27	UE			The UE shall not initiate an RRC connection establishment. This is checked during 12 minutes.
NOTE: The definitions for "Serving cell", "Suitable neighbour cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

9.4.6.5 Test requirement

1) At step 20 the UE shall send an RRC CONNECTION REQUEST and at step 23 the UE shall attempt to perform a location update.

2) At step 11 the UE shall send an RRC CONNECTION REQUEST and at step 14 the UE shall attempt to perform a location update.

3) At step 27 the UE shall not initiate an RRC connection during 12minutes.

9.4.7 Location Updating / accept with replacement or deletion of Equivalent PLMN list

9.4.7.1 Definition

Test to verify that the UE replaces or deletes its stored Equivalent PLMN list when no Equivalent PLMN list is included in the LOCATION UPDATING ACCEPT message from the network during a Location Update.

9.4.7.2 Conformance requirement

1) The stored list in the mobile station shall be replaced on each occurrence of the LOCATION UPDATING ACCEPT message.

2) If no equivalent PLMN list is contained in the LOCATION UPDATING ACCEPT message, then the stored equivalent PLMN list in the mobile station shall be deleted.

References

TS 24.008 4.4.4.6

9.4.7.3 Test purpose

1) To verify that the UE replaces its stored equivalent PLMN list if the equivalent PLMN list is contained in the LOCATION UPDATING ACCEPT message received from the network during a location updating procedure.

2) To verify that the UE deletes its stored equivalent PLMN list if no equivalent PLMN list is contained in the LOCATION UPDATING ACCEPT message received from the network during a location updating procedure.

9.4.7.4 Method of test

Initial conditions:

- System Simulator:
  - two cells: A and B, with different PLMN Codes (PLMN 1 and PLMN 2 respectively);
  - Qqualmin values for cells A and B are -16 dB (FDD only)

  NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.
- User Equipment:
  - the UE is switched off. The HPLMN is PLMN 3 and no other information about PLMN priorities or forbidden PLMNs is stored in the USIM. The equivalent PLMN list in the mobile station is empty.
  - the UE is "Idle updated" on cell B.

Related ICS/IXIT statement(s)

Switch off on button Yes/No.

Test procedure

When the UE is initially switched on it will perform a normal location updating in Cell A, which is the only suitable cell available. The LOCATION UPDATING ACCEPT message sent by the SS on reception of the LOCATION UPDATING REQUEST message shall include PLMN 2 in the equivalent PLMN list. When Cell B is made available and its RF signal level is higher than that of Cell A the UE will perform a normal location updating in this cell. The LOCATION UPDATING ACCEPT message sent by the SS shall include PLMN 1 in the equivalent PLMN list. When Cell B is made unavailable the UE shall perform a normal location updating again in Cell A, but in this occasion the LOCATION UPDATING ACCEPT message shall contain an empty equivalent PLMN list. When Cell B is made available again and its RF signal level is higher than that of Cell A the UE shall not perform a normal location updating in this cell since it is not in the ePLMN list.

Expected Sequence

Step	Direction		Message	Contents
	UE	SS		
				The following messages shall be sent and received on Cell A
1		SS		Set the cell type of Cell A to the "Suitable neighbour cell". Set the cell type of Cell B to the "non-suitable cell". (see note)
2	UE			The UE is switched on by either using the Power Switch or by applying power.
3		SS	RRC CONNECTION REQUEST	The IE "Establishment cause" in the received RRC CONNECTION REQUEST message is not checked.
4			Void	
5			Void	
6	→		LOCATION UPDATING REQUEST	"Location Update Type": normal.
6a		SS		The SS starts integrity protection.
7	←		LOCATION UPDATING ACCEPT	Equivalent PLMNs: PLMN 2
8		SS		The SS releases the RRC connection.
9			Void	
				The following messages shall be sent and received on Cell B.
10		SS		Set the cell type of Cell B to the "Serving cell". (see note)
11		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
12			Void	
13			Void	
14	→		LOCATION UPDATING REQUEST	"Location Update Type": normal.
14a		SS		The SS starts integrity protection.
15	←		LOCATION UPDATING ACCEPT	Equivalent PLMNs : PLMN 1
16		SS		The SS releases the RRC connection.
17			Void	
				The following messages shall be sent and received on Cell A.
18		SS		Set the cell type of Cell B to the "non-suitable cell". (see note)
19		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
20			Void	
21			Void	
22	→		LOCATION UPDATING REQUEST	"Location Update Type": normal.
22a		SS		The SS starts integrity protection.
23	←		LOCATION UPDATING ACCEPT	Equivalent PLMNs : empty
24		SS		The SS releases the RRC connection.
25			Void	
26		SS		Set the cell type of Cell B to the "Serving cell". (see note)
27		SS		The SS shall wait for 7 minutes during which no messages should be received.

NOTE: The definitions for "Serving cell", "Suitable neighbour cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".

Specific message contents

None.

9.4.7.5 Test requirements

1) At step 14 the UE shall perform a normal location updating in Cell B.

2) At step 27 the UE shall not perform a normal location updating in Cell B.

9.4.8 Location Updating after UE power off

9.4.8.1 Definition

Test to verify that the UE stores the equivalent PLMN list at UE power off and uses the stored equivalent PLMN list after UE switch on.

9.4.8.2 Conformance requirement

The equivalent PLMN list shall be stored in the mobile station while switched off so that it can be used for PLMN selection after switch on.

References

TS 24.008 4.4.4.6

9.4.8.3 Test purpose

To verify that the UE stores the equivalent PLMN list at UE switch off and uses the stored equivalent PLMN list after UE switch on.

9.4.8.4 Method of test

Initial conditions

- System Simulator:
  - three cells: A, B and C. Cell A belongs to PLMN1 which is HPLMN. Cell B belongs to PLMN2. Cell C belongs to PLMN3.

  NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.2.

  ii) Cell C will be mapped to Cell 7 as found in TS 34.108 clause 6.1.4.2.
- User Equipment:
  - the UE has a valid TMSI(= TMSI1) and CKSN(= CKSN1). It is "idle updated" on cell B,
  - the UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN
$EF_{HPLMNwAcT}$	1st	PLMN 1
$EF_{PLMNwAcT}$	Empty	
$EF_{OPLMNwAcT}$	1st	PLMN 3
	2nd	PLMN 2

UE is previously registered on PLMN 2.

Related ICS/IXIT statement(s)

Switch off on button Yes/No.

Test procedure

The UE is switched on and is in idle-updated state on Cell B. Cell A and C are not available. Cell type of Cell A is then changed to make it available, cell types of Cell B are C are changed to make them unavailable. The UE will perform a normal location updating in Cell A, which is the only suitable cell available and belongs to the HPLMN. The LOCATION UPDATING ACCEPT message sent by the SS shall include PLMN2 in the equivalent PLMN list. The UE shall be switched-off. Cell A shall be made unavailable and Cells B and C shall be made available. When the UE is switched-on again, the UE shall perform a normal location updating in Cell B and not in Cell C because PLMN2 is stored in the UE equivalent PLMN list.

Expected Sequence

Step	Direction		Message	Contents
	UE	SS		
				The following messages shall be sent and received on Cell A
1		SS		Set the cell type of Cell A to the "Serving cell". Set the cell type of Cell B and Cell C to the "non-suitable cell". (see note)
2	UE			void
3		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration". If PS mode: a routing area updating procedure should be performed.
4			Void	
5			Void	
6	→		LOCATION UPDATING REQUEST	"Location Update Type": normal.
6a	←		AUTHENTICATION REQUEST	

6b	→	AUTHENTICATION RESPONSE	
6c	SS		The SS starts integrity protection.
7	←	LOCATION UPDATING ACCEPT	Equivalent PLMN List: PLMN 2
8	SS		The SS releases the RRC connection.
9	UE		If possible (see ICS) switch off is performed. Otherwise the power is removed. Steps 9a to 9c may be performed or not depending on the action made in step 9. A Detach Request can be received in PS mode.
9a	SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Detach".
9b	→	IMSI DETACH INDICATION	
9c	SS		The SS releases the RRC connection.
			The following messages shall be sent and received on Cell B.
10		Void	
11	SS		Set the cell type of Cell A to the "non-suitable cell". Set the cell type of Cell B to the "suitable neighbour cell". Set the cell type of Cell C to the "suitable neighbour cell". (see note)
12	UE		Depending on what has been performed in step 9 the UE is brought back to operation. The subsequent GMM attach should be rejected if received in the PS mode.
13	SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
14		Void	
15		Void	
16	→	LOCATION UPDATING REQUEST	"Location Update Type": normal.
16a			The SS starts integrity protection.
17	←	LOCATION UPDATING ACCEPT	
18	SS		The SS releases the RRC connection.
19		Void	
NOTE: The definitions for "Serving cell", "Suitable neighbour cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

9.4.8.5 Test requirements

At step 16 the UE shall perform a normal location updating in Cell B.

9.4.9 Location Updating / Accept, Interaction between Equivalent PLMNs and Forbidden PLMNs.

9.4.9.1 Definition

Test to verify that, before storing the 'equivalent PLMN list' received from the network during a Location Update, the UE removes any PLMN already included in the 'forbidden PLMN list'. Consequently the UE shall not select a PLMN Equivalent to the registered PLMN if it is included in the 'forbidden PLMN list' in the USIM.

9.4.9.2 Conformance requirement

The mobile station shall store the equivalent PLMNs list, as provided by the network, except that any PLMN code that is already in the "forbidden PLMN list" shall be removed from the "equivalent PLMNs" list before it is stored by the mobile station.

References

TS 24.008, 4.4.4.6

9.4.9.3 Test purpose

To verify that the UE shall not select a forbidden PLMN even though it is included in the equivalent PLMN list provided by the network because forbidden PLMNs shall not be stored in the mobile's equivalent PLMN list.

9.4.9.4 Method of test

Initial conditions

- System Simulator:
  - two cells: A, and B. Cell A belongs to PLMN1. Cell B belongs to PLMN2.

  NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.
- User Equipment:
  - the UE is switched off;
  - the UE is in automatic PLMN selection mode.
  - the UE is equipped with a USIM containing default values.
  - prior to performing the actual test procedure PLMN2 is set as forbidden PLMN, so that the USIM will contain the following information

USIM field	Priority	PLMN
EF_{FPLMN}	PLMN 2	

Related ICS/IXIT statement(s)

Switch off on button Yes/No.

Test procedure

Cells A and B are made available. When the UE is switched-on it will perform a normal location updating in Cell A, since Cell B belongs to a forbidden PLMN. The SS will respond sending a LOCATION UPDATING ACCEPT message that includes PLMN2 in the equivalent PLMN list. However the UE shall not store PLMN 2 in its equivalent PLMN list as it is a forbidden PLMN. Therefore, when Cell A is made unavailable the UE will not select the only remaining cell (Cell B), remaining in limited service state.

Expected Sequence

Step	Direction		Message	Contents
	UE	SS		
				The following messages shall be sent and received on Cell A
1		SS		Set the cell type of Cell A to the "Suitable neighbour cell". Set the cell type of Cell B to the "Suitable neighbour cell". (see note)
2	UE			The UE is switched on by either using the Power Switch or by applying power.
3		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4			Void	
5			Void	
6	→		LOCATION UPDATING REQUEST	"Location Update Type": normal.
6a		SS		The SS starts integrity protection.
7	←		LOCATION UPDATING ACCEPT	Equivalent PLMN List: PLMN 2
8		SS		The SS releases the RRC connection.
9			Void	
10		SS		Set the cell type of Cell A to the "non-suitable cell". (see note)
11		SS		The SS shall wait for 7 minutes during which no messages should be received.
NOTE: The definitions for "Suitable neighbour cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

9.4.9.5 Test requirements

At step 11 the UE shall not perform a normal location updating in Cell B.

9.5 MM connection

9.5.1 Introduction

[tbd]

9.5.2 MM connection / establishment in security mode

9.5.2.1 Definition

9.5.2.2 Conformance requirement

1) The UE shall be able to correctly set up an MM connection in a Mobile Originating CM connection attempt and send a CM SERVICE REQUEST message with CKSN information element as stored in the USIM and Mobile Identity information element set to the TMSI.

2) The UE shall be able to interpret security mode setting as acceptance of its CM service request i.e. send a CM message.

References

TS 24.008 clause 4.5.1.1.

9.5.2.3 Test purpose

To verify that the UE can correctly set up an MM connection in an origination and interpret security mode setting as acceptance of its CM service request.

9.5.2.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE has a valid TMSI. It is "idle updated".

Related ICS/IXIT statements

None.

Test Procedure

A mobile originating CM connection is initiated. After the UE has sent the CM SERVICE REQUEST message to the SS, an authentication procedure and a security mode setting procedure are performed. Then, the UE sends a CM message and the SS clears the call and releases the RRC CONNECTION.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			A MO CM connection is attempted.
2			Void	
3			Void	
4			Void	
5	→		CM SERVICE REQUEST	
6	←		AUTHENTICATION REQUEST	
7	→		AUTHENTICATION RESPONSE	
8	SS			The SS starts ciphering and integrity protection.
9			Void	
A10	→		SETUP	The SS expects a SETUP message from the UE, when a call is attempted
A11	←		RELEASE COMPLETE	"Cause" IE: "unassigned number".
B10	→		REGISTER	The SS expects a REGISTER message from the UE, when a Non call related Supplementary service is attempted
B11	←		RELEASE COMPLETE	
C10	→		CP-DATA	The SS expects a CP-DATA message from the UE, when SMS is attempted
C11	←		CP-ACK	
C12	←		CP-DATA	
C13	→		CP-ACK	
14	SS			The SS releases the RRC connection.
15			Void	
Note: Only one set of messages are applicable at step A10, B10 or C10 based on the type of CS call that is being made				

Specific message contents

None.

9.5.2.5 Test requirement

At step 5 the UE shall send the CM SERVICE REQUEST message to the SS.

At step A10 or B10 or C10 the UE shall send a CM message and the SS shall release the RRC connection (step 14).

9.5.3 Void

9.5.4 MM connection / establishment rejected

9.5.4.1 Definition

9.5.4.2 Conformance requirement

If a CM SERVICE REJECT message is received by the mobile station, timer T3230 shall be stopped, the requesting CM sublayer entity informed. Then the mobile station shall proceed as follows:

- If the cause value is not #4 or #6 the MM sublayer returns to the previous state (the state where the request was received). Other MM connections shall not be affected by the CM SERVICE REJECT message.

References

TS 24.008 clause 4.5.1.1.

9.5.4.3 Test purpose

To verify that the UE stops timer T3230, informs the requesting CM sublayer entity and returns to the previous state.

9.5.4.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE has a valid TMSI. It is "idle updated".

Related ICS/IXIT statements

None.

Test Procedure

A mobile originating CM connection is attempted. After the UE has sent the CM SERVICE REQUEST message to the SS, the SS responds with a CM SERVICE REJECT message with reject cause "requested service option not subscribed". It is checked that the UE does not send a layer 3 message via the rejected MM connection.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			A MO CM connection is attempted
2			Void	
3			Void	
4			Void	
5	→		CM SERVICE REQUEST	A mobile originating CM connection is attempted
6	←		CM SERVICE REJECT	"Reject cause" IE: "requested service option not subscribed".
7		SS		The UE shall not send a layer 3 message. This is checked during 5 s. Note: During this period, a new mobile originating CM connection should not be attempted, since then UE would send a new CM SERVICE REQUEST.
8		SS		SS releases the RRC connection.

Specific message contents

None.

9.5.4.5 Test requirement

The UE shall attempt MO CM connection (step 1).

At step 5 the UE shall send a CM SERVICE REQUEST.

After step 6 the UE shall not send a layer 3 message.

9.5.5 MM connection / establishment rejected cause 4

9.5.5.1 Definition

9.5.5.2 Conformance requirement

The CM SERVICE REQUEST message contains the:

- mobile identity according to clause 10.5.1.4;
- mobile station classmark 2;
- ciphering key sequence number; and
- CM service type identifying the requested type of transaction (e.g. mobile originating call establishment, emergency call establishment, short message service, supplementary service activation, location services)

…

If a CM SERVICE REJECT message is received by the mobile station, timer T3230 shall be stopped, the requesting CM sublayer entity informed. Then the mobile station shall proceed as follows:

…

- If cause value #4 is received, the mobile station aborts any MM connection, deletes any TMSI, LAI and ciphering key sequence number in the SIM, changes the update status to NOT UPDATED (and stores it in the SIM according to clause 4.1.2.2), and enters the MM sublayer state WAIT FOR NETWORK COMMAND. If subsequently the RR connection is released or aborted, this will force the mobile station to initiate a normal location updating). Whether the CM request shall be memorized during the location updating procedure, is a choice of implementation.

References

TS 24.008 clause 4.5.1.1.

9.5.5.3 Test purpose

To verify that the UE can correctly set up an MM connection in a Mobile Originating CM connection attempt and send a CM SERVICE REQUEST message with CKSN information element as stored in the USIM and Mobile Identity information element set to TMSI.

To verify that the UE, when receiving a CM SERVICE REJECT message with reject cause "IMSI unknown in VLR" shall wait for the network to release the RRC connection.

To verify that the UE shall then perform a normal location updating procedure.

9.5.5.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE has a valid TMSI. It is "idle updated".

Related ICS/IXIT statements

None.

Test Procedure

A mobile originating CM connection is attempted. After the UE has sent the CM SERVICE REQUEST message to the SS, the SS responds with a CM SERVICE REJECT message with reject cause "IMSI unknown in VLR". On receipt of this message, the UE shall delete any TMSI, LAI, cipher key and cipher key sequence number. The RRC CONNECTION is released. It is checked that the UE performs a normal location updating procedure.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			A MO CM connection is attempted.
2			Void	
3			Void	
4			Void	
5	→		CM SERVICE REQUEST	CKSN = initial value, Mobile identity = TMSI.
6	←		CM SERVICE REJECT	"Reject cause" = "IMSI unknown in VLR".
7	SS			SS releases the RRC connection.
8			Void	
9	SS			SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to: "Registration".
10			Void	
11			Void	
12	→		LOCATION UPDATING REQUEST	"Ciphering key sequence number" = "No key is available". "Mobile identity" = IMSI. "Location area identification" = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE).
13	←		AUTHENTICATION REQUEST	
14	→		AUTHENTICATION RESPONSE	
14a	←		SECURITY MODE COMMAND	
14b	→		SECURITY MODE COMPLETE	
15	←		LOCATION UPDATING ACCEPT	"Mobile identity" = new TMSI.
16	→		TMSI REALLOCATION COMPLETE	
17	SS			SS releases the RRC connection.
18			Void	

Specific message contents

None.

9.5.5.5 Test requirement

1) The UE shall attempt MO CM connection (at step 1) and at step 5 the UE shall send a CM SERVICE REQUEST message with CKSN information element as stored in the USIM and Mobile Identity information element set to the TMSI.

2) At step 6 the SS should send a CM SERVICE REJECT message with reject cause "IMSI unknown in VLR", and at step 9 the UE shall initiate RRC connection establishment with establishment cause set to "Registration".

3) At step 12 the UE send a LOCATION UPDATING REQUEST message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type set to "deleted LAI".

9.5.6 MM connection / expiry T3230

9.5.6.1 Definition

9.5.6.2 Conformance requirement

At T3230 expiry (i.e. no response is given but an RRC connection is available) the MM connection establishment shall be aborted.

References

TS 24.008 clauses 4.5.1.2 and 11.2.

9.5.6.3 Test purpose

To verify that at T3230 expiry, the UE aborts the MM-connection establishment.

9.5.6.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE has a valid TMSI. It is "idle updated".

Related ICS/IXIT statements

None.

Test Procedure

A mobile originating CM connection is attempted. After the UE has sent the CM SERVICE REQUEST message to the SS, the SS waits for expiry of timer T3230. It is checked that the UE send a MM STATUS message and waits for the release of the RRC-connection.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			A MO CM connection is attempted.
2	→		RRC CONNECTION REQUEST	
3	←		RRC CONNECTION SETUP	
4	→		RRC CONNECTION SETUP COMPLETE	
5	→		CM SERVICE REQUEST	
6	SS			The SS waits for expiry of timer T3230.
7	←		CM SERVICE ACCEPT	
8	→		MM STATUS	"Reject cause" IE is "message type not compatible with protocol state".
9	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.
10	→		RRC CONNECTION RELEASE COMPLETE	

Specific message contents

None.

9.5.6.5 Test requirement

The UE shall attempt MO CM connection (step 1).

At step 8 the UE shall send a MM STATUS message.

9.5.7 MM connection / abortion by the network

9.5.7.1 MM connection / abortion by the network / cause #6

9.5.7.1.1 Definition

9.5.7.1.2 Conformance requirement

At the receipt of the ABORT message the mobile station shall abort any MM connection establishment or call re-establishment procedure and release all MM connections (if any). If cause value #6 is received the mobile station shall delete any TMSI, LAI and ciphering key sequence number stored in the SIM, set the update status to ROAMING NOT ALLOWED (and store it in the SIM according to clause 4.1.2.2) and consider the SIM invalid until switch off or the SIM is removed. As a consequence the mobile station enters state MM IDLE, substate NO IMSI after the release of the RR connection.

The mobile station shall then wait for the network to release the RR connection - see clause 4.5.3.1.

Reference(s)

TS 24.008 clause 4.3.5.2.

9.5.7.1.3 Test purpose

To check that upon reception of an ABORT message with cause #6 during call establishment:

- the UE does not send any layer 3 message;
- after reception of an ABORT message and after having been deactivated and reactivated, the UE performs location updating using its IMSI as mobile identity and indicates deleted LAI and CKSN;
- the UE does not perform location updating, does not answer to paging with TMSI, rejects any request for mobile originating call except emergency call, does not perform IMSI detach;
- the UE accepts a request for emergency call.

9.5.7.1.4 Method of test

Initial Conditions

- System Simulator:
  - 2 cells, default parameters.
- User Equipment:
  - the UE has a valid TMSI, CKSN and CK, IK. It is "idle updated" on cell B.

Related ICS/IXIT Statement(s)

USIM removal possible while UE is powered Yes/No.

Switch off on button Yes/No.

Support of emergency speech call Yes/No.

Test procedure

A mobile originating CM connection is attempted. Upon reception of the AUTHENTICATION RESPONSE message, the SS sends an ABORT message with cause #6. The SS waits for 5 s. The UE shall not send any layer 3 message. The SS releases the RRC connection.

The SS checks that the UE has entered the state MM IDLE substate NO IMSI, i.e. does not perform normal location updating, does not perform periodic updating, does not respond to paging, rejects any requests from CM entities except emergency calls and does not perform IMSI detach if deactivated.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
The following messages are sent and shall be received on cell B				
1	UE			A mobile originating CM connection is attempted.
2			Void	
3			Void	
4			Void	
5	→		CM SERVICE REQUEST	CKSN = initial value, Mobile identity = TMSI
6	←		AUTHENTICATION REQUEST	
7	→		AUTHENTICATION RESPONSE	
8	←		ABORT	"reject cause" = #6.
9	SS			The SS waits for 5 s.
10	UE			The UE shall not send any layer 3 message during that time.
11	SS			SS releases the RRC connection.
12			Void	
The following messages are sent and shall be received on cell A.				
13	SS			Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "non-suitable cell". (see note) If PS mode: a routing area updating procedure should be rejected with cause “GPRS services not allowed”.
14	UE			The UE performs cell reselection according to procedure as specified in (this however is not checked until step 27). The UE shall not initiate an RRC connection establishment on cell A or on cell B.
15	SS			The SS waits at least 7 minutes for a possible periodic updating.
16	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B.
17	←		PAGING TYPE 1	"UE identity" IE contains TMSI. Paging Cause: Terminating Conversational Call.
18	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B. This is verified during 3 s.
19	UE			A MO CM connection is attempted.
20	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B. This is checked during 30 s.
21	UE			If the UE supports emergency speech call (see ICS), an emergency call is attempted.
22	SS			SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to: "Emergency call".
23			Void	
24			Void	
25	→		CM SERVICE REQUEST	"CM service type": Emergency call establishment. CKSN = No key is available, Mobile identity = IMEI
26	←		CM SERVICE ACCEPT	
27	→		EMERGENCY SETUP	
28	←		RELEASE COMPLETE	"Cause" = unassigned number.
29	SS			SS releases the RRC connection.
30			Void	
31	UE			If possible (see ICS) USIM detachment is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed. A Detach Request can be received in PS mode.

Step	Direction		Message	Comments
	UE	SS		
32	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B. This is checked during 3 s.
33	UE			Depending on what has been performed in step 31 the UE is brought back to operation. The subsequent GMM attach should be rejected if received in the PS mode.
34	SS			SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to: "Registration".
35			Void	
36			Void	
37	→		LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = no key available, "Mobile Identity" = IMSI, "LAI" = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE).
38	←		AUTHENTICATION REQUEST	"CKSN" = CKSN1.
39	→		AUTHENTICATION RESPONSE	
39a	SS			The SS starts integrity protection
40	←		LOCATION UPDATING ACCEPT	"Mobile Identity" = TMSI.
41	→		TMSI REALLOCATION COMPLETE	
42	SS			SS releases the RRC connection.
43			Void	
NOTE: The definitions for "Serving cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

9.5.7.1.5 Test requirement

1) At step 10 the UE shall not send any layer 3 message.

2)

2.1 At step 14 the UE shall not initiate an RRC connection establishment (not perform normal location updating).

2.2 At step 16 the UE shall not initiate an RRC connection establishment.(not perform periodic location updating).

2.3 At step 18 the UE shall not initiate an RRC connection establishment (not respond to paging with TMSI).

2.4 At step 20 the UE shall not initiate an RRC connection establishment (reject any request for Mobile Originating call establishment).

2.5 At step 32 the UE shall not initiate an RRC connection establishment.(not perform IMSI detach).

3) At step 22 the UE shall initiate RRC connection establishment with the establishment cause set to "emergency call".

4) At step 37 the UE send a LOCATION UPDATING REQUEST message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the Location Updating type set to "deleted LAI".

9.5.7.2 MM connection / abortion by the network / cause not equal to #6

9.5.7.2.1 Definition

9.5.7.2.2 Conformance requirement

At the receipt of the ABORT message the mobile station shall abort any MM connection establishment or call re-establishment procedure and release all MM connections (if any). If cause value #6 is received the mobile station shall delete any TMSI, LAI and ciphering key sequence number stored in the USIM, set the update status to ROAMING NOT ALLOWED (and store it in the USIM according to TS 24.008 clause 4.1.2.2) and consider the USIM invalid until switch off or the USIM is removed. As a consequence the mobile station enters state MM IDLE, substate NO IMSI after the release of the RR connection.

The mobile station shall then wait for the network to release the RR connection - see TS 24.008 clause 4.5.3.1.

Reference(s)

TS 24.008 clause 4.3.5.

9.5.7.2.3 Test purpose

To check that when multiple MM connections are established, the UE releases all MM connections upon reception of an ABORT message, in the case when the two MM connections are established for a mobile terminating call and a non call related supplementary service operation.

To check that the TMSI is not deleted from UE after reception of ABORT message with cause another than #6.

9.5.7.2.4 Method of test

Initial Conditions

- System Simulator:
  - 1 cell, default parameters.
  - T3212 is set to 6 minutes.
- User Equipment:
  - the UE is in state U10 of a mobile terminating call.

Related ICS/IXIT Statement(s)

The UE supports a non call related supplementary service operation during an active call Yes/No.

Test procedure

A non call related supplementary service operation is attempted at the UE. Upon reception of the REGISTER message, the SS sends an ABORT message with cause # 17. The SS waits for 5 s. The UE shall not send any layer 3 message. The SS releases the RRC connection. The UE shall perform periodic location updating 6 minutes after the SS releases the RRC connection. TMSI shall be used as Mobile Identity in LOCATION UPDATING REQUEST message.

Expected Sequence

This procedure is performed if the UE supports non call related supplementary service operation.

Step	Direction		Message	Comments
	UE	SS		
1	UE			A non call related supplementary service operation is attempted at the UE.
2			Void	
3			Void	
4			Void	
5	→		CM SERVICE REQUEST	The SS verifies that the IE " CM service type" in the received CM SERVICE REQUEST is set to "Supplementary service activation".
6	←		CM SERVICE ACCEPT	
7	→		REGISTER	
8	←		ABORT	"reject cause" = #17.
9	SS			The SS waits for 5 seconds. The UE shall not send any layer 3 message during that time.
9a			Void	
10			Void	
11	SS			The UE indicates the signalling connection release. The SS releases the RRC connection.
12			Void	
13	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST is set to "Registration". This message shall be sent by the UE between 5 minutes 45s and 6 minutes 15s after step 11.
14	→		LOCATION UPDATING REQUEST	"Location updating type" = periodic updating, "Mobile Identity" = TMSI
15	←		LOCATION UPDATING ACCEPT	"Mobile identity" = TMSI.
16	SS			The SS releases the RRC connection.

Specific message contents

None.

9.5.7.2.5 Test requirement

After step 8 the UE shall release all MM connections.

After step 12 the UE shall perform periodic location updating with TMSI used as Mobile Identity.

9.5.8 MM connection / follow-on request pending

9.5.8.1 MM connection / follow-on request pending / test 1

9.5.8.1.1 Definition

9.5.8.1.2 Conformance requirement

The UE shall not attempt to establish a new MM connection after location updating on the same RRC connection if not allowed by the network.

Reference(s)

TS 24.008 clause 4.4.4.6.

9.5.8.1.3 Test purpose

To check that when the network does not include the follow on proceed IE in a LOCATION UPDATING ACCEPT message, a UE that has a CM application request pending does not attempt to establish a new MM connection on that RRC connection.

9.5.8.1.4 Method of test

Initial Conditions

- System Simulator:
  - 1 cell, ATT flag is set to "MSs in the cell shall apply IMSI attach and detach procedure".
- User Equipment:
  - the UE has a valid TMSI and is deactivated.

Related ICS/IXIT Statement(s)

None.

Test procedure

The UE is activated and a CM connection is attempted during the location updating procedure. The SS does not include the follow on proceed information element in the LOCATION UPDATING ACCEPT message. The SS waits for at least 8 s. The UE shall not send any layer 3 message for 8 s.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is activated.
2	→		RRC CONNECTION REQUEST	"Establishment cause": Registration.
3	←		RRC CONNECTION SETUP	
4	→		RRC CONNECTION SETUP COMPLETE	
5	→		LOCATION UPDATING REQUEST	location updating type = IMSI attach. Then the SS waits for 15 s. During this delay a CM connection is attempted.
6	←		LOCATION UPDATING ACCEPT	follow on proceed IE not included.
7	SS			The SS wait for at least 8 s.
8	UE			The UE shall not send any layer 3 message for 8 s after reception of the LOCATION UPDATING ACCEPT message.
9	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.
10	→		RRC CONNECTION RELEASE COMPLETE	

Specific message contents

None.

9.5.8.1.5 Test requirement

After step 8 the UE shall not send any layer 3 messages.

9.5.8.2 MM connection / follow-on request pending / test 2

9.5.8.2.1 Definition

9.5.8.2.2 Conformance requirement

A UE supporting the follow-on request procedure and having a CM connection request pending shall correctly establish an MM connection following a location update when allowed by the network.

Reference(s)

TS 24.008 clause 4.4.4.6.

9.5.8.2.3 Test purpose

To check that when the network includes the follow on proceed IE in a LOCATION UPDATING ACCEPT message, a UE that supports the follow on request procedure and that has a CM application request pending establishes successfully a new MM connection on that RRC connection.

9.5.8.2.4 Method of test

Initial Conditions

- System Simulator:
  - 1 cell, ATT flag is set to "MSs in the cell shall apply IMSI attach and detach procedure".
- User Equipment:
  - the UE has a valid TMSI and is deactivated.

Related ICS/IXIT Statement(s)

UE supports the follow on request procedure Yes/No.

Test procedure

The UE is activated and a CM connection is attempted during the location updating procedure. The SS includes the follow on proceed information element in the LOCATION UPDATING ACCEPT message. The SS waits for at least 8 s.

If the UE supports the follow on request procedure:

- the UE shall send a CM SERVICE REQUEST. Upon reception of that message, the SS sends a CM SERVICE ACCEPT message. The UE shall send an initial CM message. Upon reception of that message, the SS releases the RRC connection.

If the UE does not support the follow on request procedure:

- the UE shall not send any layer 3 message for 8 s.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is activated.
2	→		RRC CONNECTION REQUEST	"Establishment cause": Registration.
3	←		RRC CONNECTION SETUP	
4	→		RRC CONNECTION SETUP COMPLETE	
5	→		LOCATION UPDATING REQUEST	Location updating type = IMSI attach. Then the SS waits for 15 s. During this delay a CM connection is attempted.
6	←		LOCATION UPDATING ACCEPT	follow on proceed IE included.
				If the UE supports the follow on request procedure (see ICS) steps A7 to A9 are performed, otherwise steps B7 to B8 are performed.
A7	→		CM SERVICE REQUEST	
A8	←		CM SERVICE ACCEPT	
A9	→		An initial CM message	
B7		SS		The SS wait for at least 8 s.
B8		UE		The UE shall not send any layer 3 message for 8 s after reception of the LOCATION UPDATING ACCEPT message.
10	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.
11	→		RRC CONNECTION RELEASE COMPLETE	

Specific message contents

None.

9.5.8.2.5 Test requirement

After step 6:

The UE shall send a CM SERVICE REQUEST if the UE supports the follow on request procedure.

The UE shall not send any layer 3 message if the UE does not support the follow on request procedure.

9.5.8.3 MM connection / follow-on request pending / test 3

9.5.8.3.1 Definition

9.5.8.3.2 Conformance requirement

1) The UE shall not set the follow on proceed IE in a LOCATION UPDATING REQUEST message if no MM connection request is pending.

2) When the network includes the follow on proceed IE in a LOCATION UPDATING ACCEPT message, a UE that has no CM application request pending shall not attempt to establish a new MM connection on that RRC connection.

3) The UE shall correctly handle a CM connection established by the network on the RRC connection that was used for the location updating procedure.

Reference(s)

TS 24.008 clause 4.4.4.6.

9.5.8.3.3 Test purpose

1) To check that a UE that has no CM application request pending sets the follow on proceed IE to No follow-on request pending in a LOCATION UPDATING REQUEST message.

2) To check that when the network includes the follow on proceed IE in a LOCATION UPDATING ACCEPT message, a UE that has no CM application request pending does not attempt to establish a new MM connection on that RRC connection.

3) To check that the UE accepts establishment by the network of a new MM connection on the existing RRC connection.

9.5.8.3.4 Method of test

Initial Conditions

- System Simulator:
  - 1 cell, ATT flag is set to "MSs in the cell shall apply IMSI attach and detach procedure".
- User Equipment:
  - the UE has a valid TMSI and is deactivated.

Related ICS/IXIT Statement(s)

Supported services on TCH.

Test procedure

The UE is activated. The UE performs location updating. The UE shall set the follow on proceed IE to No follow-on request pending in the LOCATION UPDATING REQUEST message. The SS includes the follow on proceed IE in the LOCATION UPDATING ACCEPT message. The SS waits for 5 s. The UE shall not send any layer 3 message for 5 s. The SS sends a SETUP message to the UE requesting a basic service supported by the UE. The UE shall send either a CALL CONFIRMED message if it supports a service on TCH or a RELEASE COMPLETE with cause #88.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is activated.
2	→		RRC CONNECTION REQUEST	"Establishment cause": Registration.
3	←		RRC CONNECTION SETUP	
4	→		RRC CONNECTION SETUP COMPLETE	
5	→		LOCATION UPDATING REQUEST	"Location updating type" = IMSI attach. The FOR bit is set to No follow-on request pending.
6	←		LOCATION UPDATING ACCEPT	follow on proceed IE is included.
7	SS			The SS wait for 5 s.
8	UE			The UE shall not send any layer 3 message for 5 s after reception of the LOCATION UPDATING ACCEPT message.
9	←		SETUP	
A10	→		CALL CONFIRMED	If the UE supports a basic service on TCH.
B10	→		RELEASE COMPLETE	If the UE does not support any basic service on TCH. cause #88.
11	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.
12	→		RRC CONNECTION RELEASE COMPLETE	

Specific message contents

None.

9.5.8.3.5 Test requirement

At step 8 the UE shall not send any layer 3 message.

After step 9:

The UE shall send CALL CONFIRMED message if the UE supports a basic service on TCH.

The UE shall send RELEASE COMPLETE message if the UE does not support a basic service on TCH.

9.5.9 MM connection / abnormal cases / CS domain barred because of domain specific access control

9.5.9.1 Definition

This test is applicable for Rel-5 UEs supporting DSAC and Rel-6 or later UEs.

9.5.9.2 Conformance requirement

TS 24.008 clause 4.1.1.2.2

> If the PS or CS domain is barred because of domain specific access control, a GPRS MS operating in mode A or B in a network that operates in mode II or III shall use the MM specific procedures or GMM specific procedures, respectively, in the domain which is unbarred. If the MS detects that a domain changes from barred to unbarred, it shall behave as specified in subclauses 4.4.4.9, 4.5.1.2, 4.7.3.1.5, 4.7.5.1.5, and 4.7.13.5.

TS 24.008 clause 4.5.1.2

e) Access barred because of CS domain specific access control

> The MM connection establishment shall not be initiated. The MS stays in the current serving cell and applies normal cell reselection process. The MM connection establishment may be initiated by CM layer if it is still necessary, i.e. when access is granted or because of a cell change.

Reference

3GPP TS 24.008 clause 4.1.1.2.2 , 4.5.1.2

9.5.9.3 Test purpose

To test the behaviour of the UE if the CS domain is changed from unbarred to barred because of domain specific access control in a network that operates mode II.

9.5.9.4 Method of test

Initial condition

An access class x (0-15) is arbitrarily chosen. The USIM is programmed with this access class x. The UE is informed that the CS domain specific access class x is barred.

System Simulator:

> One cell operating in network operation mode II.
> CS domain specific access class x is barred .

User Equipment:

> The UE has a valid TMSI and is in idle state .

Related ICS/IXIT statements

Support of DSAC Yes/No.

Test procedure

1) The CS domain specific access class x is barred: a Mobile Originating CM connection is attempted, but: the MM connection establishment shall not be initiated.

2) The SS informs the UE by paging that the CS domain specific access class x is not barred: a Mobile Originating CM connection is attempted and the MM connection establishment is initiated, the UE sends a CM SERVICE REQUEST message. Then the UE sends a CM message and the SS clears the call and releases the RRC connection.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			An MO CM connection is attempted.
2	UE			Check that no CM service request is sent as CS domain specific access class x is barred .
3	SS			The SS informs the UE by paging that the CS domain changes from barred to unbarred.
4	UE			An MO CM connection is attempted.
5	SS			The IE "Establishment cause" in the received RRC CONNECTION REQUEST is not checked.
6	→		CM SERVICE REQUEST	
7	←		AUTHENTICATION REQUEST	
8	→		AUTHENTICATION RESPONSE	
9	SS			The SS starts ciphering and integrity protection.
A10	→		SETUP	The SS expects a SETUP message from the UE, when a call is attempted
A11	←		RELEASE COMPLETE	"Cause" IE: "unassigned number".
B10	→		REGISTER	The SS expects a REGISTER message from the UE, when a Non call related Supplementary service is attempted
B11	←		RELEASE COMPLETE	
C10	→		CP-DATA	The SS expects a CP-DATA message from the UE, when SMS is attempted
C11	←		CP-ACK	
C12	←		CP-DATA	
C13	→		CP-ACK	
12	SS			The SS releases the RRC connection.
Note: Only one set of messages are applicable at step A10, B10 or C10 based on the type of CS call that is being made.				

Specific message contents

None.

9.5.9.5 Test requirements

At step 2, the CS domain specific access class x is barred , the UE shall:

- not send a CM SERVICE REQUEST message.

At step 6, the CS domain specific access class x is not barred, the UE shall:

- send a CM SERVICE REQUEST message.

10 Circuit Switched Call Control (CC)

10.1 Circuit switched Call Control (CC) state machine verification

10.1.1 General on CC state machine verification

The principle of checking the call control functions consists in the validation of each call control identified state.

State U0 as an initial state is not verified in the tests of 10.1.2 (establishment of an outgoing call).

State U0.1 is never verified.

The steps to be followed within each performed test are:

- bring the UE into the required state;
- trigger the tested event;
- check the UE response and new state.

In clauses 10.1.2 and 10.1.3 different tables are defined to bring the UE into the required initial state. The exact table to be chosen is specified individually in clause "Initial conditions" of "Method of test" for each test case.

For each test, unless otherwise specified, a circuit switched basic service among those supported by the UE but excluding the emergency call teleservice shall be chosen arbitrarily, and the test shall be performed according to that basic service. If the only circuit switched basic service supported by the mobile is emergency call, then the incoming call tests shall not be performed and the other call control tests shall be performed with the EMERGENCY SETUP message replacing the SETUP message.

The initial states are to be checked through STATUS ENQUIRY messages sent by the SS, when feasible. This is not explicitly stated in the tables of expected sequences of signalling messages. The checking of final states are explicitly included into the expected sequences of signalling messages.

The following postamble may be used by the SS to bring UE back to idle mode in those test cases, in which it is not already included into expected sequence of signalling messages:

Table 10.1.1/1: A postamble to bring the UE back to idle mode.

Step	Direction		Message	Comments
	UE	SS		
N	<--		RRC CONNECTION RELEASE	
n+1	-->		RRC CONNECTION RELEASE COMPLETE	
n+2	UE			the UE releases the RRC connection

The postamble has not been included into the all of the tests in order to leave an option to concatenate the procedures in the future by using a final state of a test case as an initial state to another one.

For the special case of U0, the state is checked by sending STATUS ENQUIRY message with all possible values of transaction identifier (seven values) as U0 is the only state in which for every TI the UE will answer with release complete with cause #81. If U0 is to be verified when no RRC connection exists, first a mobile terminating radio connection must be established.

The UE responses are either call management messages received by the SS or lower layers functions activated within the UE or MMI actions (e.g. the buzzing of an alerting tone).

A time-out within the UE is triggered by the SS when it does not answer back an UE expected response.

The test sequences may be split in 3 main groups:

- establishment and release of an outgoing call;
- establishment and release of an incoming call;
- in-call functions.

Some test cases use Basic Generic Procedures, "Mobile terminated establishment of Radio Resource Connection" and "Radio Bearer Setup Procedure" defined in TS34.108 clause 7.

General tolerance value on protocol timers defined in TS34.108 is used in some test cases if no specific tolerance on timer is defined in a test case.

Remark on verification of transient states

Some call control states of the user equipment may be transient, depending on implementation, configuration of the UE and previous messages.

If a test starts in a transient state, then the test is executed without verification of the starting state.

10.1.2 Establishment of an outgoing call

Initial conditions

As a minimum requirement the UE is updated and has been given a TMSI, a ciphering key and cipher key sequence number, and the layer 2, RRC and MM functionalities have been verified.

There are as many CM initial conditions as states to be checked.

The tables below describe message exchanges which bring the UE in the requested initial states.

A state may be taken as initial only when all the states which lead to this initial states have been validated. The order followed in the test procedure will be U0, U0.1, U1, U3, U4, U10, U12, U19, U11 as seen in the table underneath.

The UE is brought again in the initial state starting with U0 at each new test performed.

Table 10.1.2/1: Establishment of an outgoing call, procedure 1 (late assignment)

Step	Direction		Message	Comments
	UE	SS		
1			Mobile Originated establishment of Radio Resource Connection	Establishment cause: Originating Conversational Call
2			Void	
3			Void	
4	->		CM SERVICE REQUEST	U0.1
5	<-		AUTHENTICATION REQUEST	
6	->		AUTHENTICATION RESPONSE	
7	<-		SECURITY MODE COMMAND	
8	->		SECURITY MODE COMPLETE	
9	->		SETUP	U1
10	<-		CALL PROCEEDING	U3
11	<-		ALERTING	U4
12			Radio Bearer Setup Procedure	See TS 34.108 clause 7.1.3
13	<-		CONNECT	
14	->		CONNECT ACKNOWLEDGE	U10
A15	<-		DISCONNECT	U12 (note 1)
B15	<-		DISCONNECT	U12 (note 2)
B16	->		RELEASE	U19
C15				MMI action, terminate call
C16	->		DISCONNECT	U11
NOTE 1: The Progress Indicator IE with progress description #8 "in band information or appropriate pattern now available" is included.				
NOTE 2: The Progress Indicator IE is not included.				

Table 10.1.2/2: Void

Table 10.1.2/3: Establishment of an outgoing call, procedure 3

Step	Direction		Message	Comments
	UE	SS		
1			Mobile Originated establishment of Radio Resource ConnectionVoid	Establishment cause: Originating Conversational Call
2			Void	
3			Void	
4	->		CM SERVICE REQUEST	U0.1
4a	<-		AUTHENTICATION REQUEST	
4b	->		AUTHENTICATION RESPONSE	
5	<-		SECURITY MODE COMMAND	
6	->		SECURITY MODE COMPLETE	
7	->		SETUP	U1
8			Void	
9			Void	
10	<-		CALL PROCEEDING	U3
11			Radio Bearer Setup Procedure	See TS 34.108 clause 7.1.3
12	<-		ALERTING	U4
13	<-		CONNECT	
14	->		CONNECT ACKNOWLEDGE	U10
A15	<-		DISCONNECT	U12 (note 1)
B15	<-		DISCONNECT	U12 (note 2)
B16	->		RELEASE	U19
C15				MMI action, terminate call
C16	->		DISCONNECT	U11
NOTE 1: The Progress Indicator IE with progress description #8 "in band information or appropriate pattern now available" is included.				
NOTE 2: The Progress indicator IE is not included.				

Table 10.1.2/4: Establishment of an outgoing call, procedure 4

Step	Direction		Message	Comments
	UE	SS		
1			Mobile Originated establishment of Radio Resource Connection	Establishment cause: Originating Conversational Call
2			Void	
3			Void	
4	->		CM SERVICE REQUEST	U0.1
5	<-		IDENTITY REQUEST	
6	->		IDENTITY RESPONSE	
6a	<-		AUTHENTICATION REQUEST	
6b	->		AUTHENTICATION RESPONSE	
7	<-		SECURITY MODE COMMAND	
8	->		SECURITY MODE COMPLETE	
9	->		SETUP	U1
10			Radio Bearer Setup Procedure	See TS 34.108 clause 7.1.3 (note 1)
11	<-		CALL PROCEEDING	U3
12	<-		ALERTING	U4
13	<-		CONNECT	
14	->		CONNECT ACKNOWLEDGE	U10
A15	<-		DISCONNECT	U12 (note 2)
B15	<-		DISCONNECT	U12 (note 3)
B16	->		RELEASE	U19
C15				MMI action, terminate call
C16	->		DISCONNECT	U11
NOTE 1: Assigned channel is appropriate for the chosen bearer capability (see 10.1).				
NOTE 2: The Progress Indicator IE with progress description #8 "in band information or appropriate pattern now available" is included.				
NOTE 3: The Progress Indicator IE is not included.				

10.1.2.1 Outgoing call / U0 null state

10.1.2.1.1 Outgoing call / U0 null state / MM connection requested

10.1.2.1.1.1 Definition

The call control entity of the User Equipment requests the MM-sublayer to establish a mobile originating MM-connection.

10.1.2.1.1.2 Conformance requirement

If no RR connection exists, the MM sublayer requests the RR sublayer to establish an RR connection and enters MM sublayer state WAIT FOR RR CONNECTION (MM CONNECTION). This request contains an establishment cause and a CM SERVICE REQUEST message.

References

TS 24.008 clause 5.2.1.1 and clause 4.5.1.1

10.1.2.1.1.3 Test purpose

To verify that upon initiation of an outgoing basic call by user the UE initiates establishment of an MM connection, using as first MM message a CM SERVICE REQUEST message with CM service type "Mobile originating call establishment or packet mode connection establishment" or " Emergency call establishment ".

10.1.2.1.1.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. When the SS receives CM SERVICE REQUEST, the contents of it shall be checked.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	->			UE initiates outgoing call
2			Void	
3			Void	
4	->		CM SERVICE REQUEST	SS shall verify the CM service type requested by the UE
5	<-			The SS releases the RRC connection.

Specific message contents:

None.

10.1.2.1.1.5 Test requirements

After step 2 the UE shall initiate establishment of an MM connection, using as first MM message a CM SERVICE REQUEST message with CM service type "Mobile originating call establishment or packet mode connection establishment" or "Emergency call establishment".

10.1.2.2 Outgoing call / U0.1 MM connection pending

10.1.2.2.1 Outgoing call / U0.1 MM connection pending / CM service rejected

10.1.2.2.1.1 Definition

A request for MM connection is rejected by the SS.

10.1.2.2.1.2 Conformance requirement

If a CM SERVICE REJECT message is received by the UE, timer T3230 shall be stopped, the requesting CM sublayer entity informed. Then the UE shall proceed as follows:

- If the cause value is not #4 or #6 the MM sublayer returns to the previous state (the state where the request was received). Other MM connections shall not be affected by the CM SERVICE REJECT message.
- If cause value #4 is received, the UE aborts any MM connection, deletes any TMSI, LAI and ciphering key sequence number in the SIM, changes the update status to NOT UPDATED (and stores it in the SIM according to clause 4.1.2.2), and enters the MM sublayer state WAIT FOR NETWORK COMMAND. If subsequently the RR connection is released or aborted, this will force the UE to initiate a normal location updating). Whether the CM request shall be memorized during the location updating procedure, is a choice of implementation.
- If cause value #6 is received, the UE aborts any MM connection, deletes any TMSI, LAI and ciphering key sequence number in the SIM, changes the update status to ROAMING NOT ALLOWED (and stores it in the SIM according to clause 4.1.2.2), and enters the MM sublayer state WAIT FOR NETWORK COMMAND. The UE shall consider the SIM as invalid for non-GPRS services until switch-off or the SIM is removed.

References

TS 24.008, clause 4.5.1.1.

10.1.2.2.1.3 Test purpose

To verify that a CC entity of the UE in CC-state U0.1, "MM-connection pending", upon the UE receiving a CM SERVICE REJECT message, returns to CC state U0, "Null".

10.1.2.2.1.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U0.1 by using table 10.1.2/1.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. When the SS receives CM SERVICE REQUEST, the contents of it shall be checked. The SS rejects it by CM SERVICE REJECT. The SS performs authentication and starts integrity. Then the SS will check the state of the UE by using STATUS ENQUIRY with all the relevant transaction identifiers.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		CM SERVICE REJECT	
1a	<-		AUTHENTICATION REQUEST	
1b	->		AUTHENTICATION RESPONSE	
1c				SS starts integrity
2	<-		STATUS ENQUIRY	
3	->		RELEASE COMPLETE	cause shall be #81 (invalid TI value)
4	SS			repeat steps 2-3 to cover all the transaction identifiers from 000 ...110
5	<-			The SS releases the RRC connection.

Specific message contents:

None.

10.1.2.2.1.5 Test requirements

After step 2 CC entities relating to all mobile originating transaction identifiers shall send RELEASE COMPLETE messages with cause value #81 (invalid TI value).

10.1.2.2.2 Outgoing call / U0.1 MM connection pending / CM service accepted

10.1.2.2.2.1 Definition

A CM request is accepted for the MM-connection by the SS.

10.1.2.2.2.2 Conformance requirement

Having entered the "MM connection pending" state, upon MM connection establishment, the call control entity of the UE sends a setup message to its peer entity. This setup message is

- a SETUP message, if the call to be established is a basic call.

It then enters the "call initiated" state.

References

TS 24.008 clause 5.2.1.

10.1.2.2.2.3 Test purpose

To verify that a CC entity of the UE in CC-state U0.1, "MM connection pending", after completion of the security mode control procedure, sends a SETUP message specifying the Called party BCD number that was entered into the UE and then enters CC state U1, "Call initiated".

10.1.2.2.2.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U0.1 by using table 10.1.2/1.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. When the UE is requesting a MM-connection, the SS performs authentication and starts integrity. The UE shall respond with SETUP. Then the SS will check the state of the call control entity by STATUS ENQUIRY with the relevant transaction identifiers.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		<-	Void	
1a		<-	AUTHENTICATION REQUEST	
1b		->	AUTHENTICATION RESPONSE	
1c				SS starts integrity
2		->	SETUP	with called party BCD number.
3		<-	STATUS ENQUIRY	
4		->	STATUS	cause shall be #30 (response to enq.) and state U1 call initiated.

Specific message contents:

None.

10.1.2.2.2.5 Test requirements

After step 1 the UE shall send a SETUP message specifying the Called party BCD number that was entered into the UE and then enter CC state U1, "Call initiated".

10.1.2.2.3 Outgoing call / U0.1 MM connection pending / lower layer failure

10.1.2.2.3.1 Definition

The call control entity of the UE being in the state, U0.1, a lower layer failure is accomplished at the UE and consequently, communication at layer 3 level with the peer entity is terminated.

10.1.2.2.3.2 Conformance requirement

1. RR connection failure or IMSI deactivation

   If an RR connection failure occurs or the IMSI is deactivated during the establishment of an MM connection, the MM connection establishment is aborted, timers T3230 is stopped, and an indication is given to the CM entity

that requested the MM connection establishment. This shall be treated as a rejection for establishment of the new MM connection, and the MM sublayer shall release all active MM connections.

2. In CELL_DCH State, after receiving N313 consecutive "out of sync" indications from layer 1 for the established DPCCH physical channel in FDD, and the DPCH associated with mapped DCCHs in TDD, the UE shall:

   1> start timer T313;

   1> upon receiving N315 successive "in sync" indications from layer 1 and upon change of UE state:

      2> stop and reset timer T313.

   1> if T313 expires:

      2> consider it as a "Radio link failure".

   Periods in time where neither "in sync" nor "out of sync" is reported by layer 1 do not affect the evaluation of the number of consecutive (resp. successive) "in sync" or "out of sync" indications.

   When a radio link failure occurs, the UE shall:

   1> clear the dedicated physical channel configuration;

   1> perform actions as specified for the ongoing procedure;

   1> if no procedure is ongoing or no actions are specified for the ongoing procedure:

      2> perform a cell update procedure according to subclause 8.3.1 using the cause "radio link failure".

2. In addition, the cell update procedure also serves the following purposes:

   …

   - to act on a radio link failure in the CELL_DCH state;

References

TS 24.008, clause 4.5.1.2 a), TS 25.331 clause 8.5.6 and 8.3.1.1.

10.1.2.2.3.3 Test purpose

To verify that the UE with a CC entity in state U0.1, "MM connection pending", aborts MM connection establishment, stops timer T3230 and returns to idle mode in case an RR connection failure occurs.

10.1.2.2.3.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U0.1 by using table 10.1.2/1.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. When the UE has sent a CM SERVICE REQUEST message, the SS release the DPCH configuration to generate a lower layer failure at the UE. The SS waits long enough to enable the UE to perform cell update procedure. The SS sends RRC CONNECTION RELEASE message as a response to the CELL UPDATE message from the UE. The SS checks that the UE does not initiate RRC connection establishment during 60 s.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		SS release the DPCH configuration to generate lower layer failure (radio link failure)
2	->		CELL UPDATE	CCCH
3	<-		RRC CONNECTION RELEASE	CCCH
4		SS		For a period of 60 s the SS checks that the UE does not initiate RRC connection establishment (since it should not re-attempt MM connection establishment).

Specific message contents:

None.

10.1.2.2.3.5 Test requirements

After step 4 the UE shall not initiate RRC connection establishment during 60 s.

10.1.2.3 Outgoing call / U1 call initiated

10.1.2.3.1 Outgoing call / U1 call initiated / receiving CALL PROCEEDING

10.1.2.3.1.1 Definition

The call control entity of the UE being in the state, U1, a CALL PROCEEDING message is sent by the SS.

10.1.2.3.1.2 Conformance requirement

Having entered the "call initiated" state, when the call control entity of the UE receives a CALL PROCEEDING message, it shall enter the "mobile originating call proceeding" state.

References

TS 24.008, clauses 5.2.1.1, 5.2.1.2 and 5.2.1.3.

10.1.2.3.1.3 Test purpose

To verify that a CC entity of the UE in CC-state U1, "Call initiated", upon receipt of a CALL PROCEEDING message, enters CC state U3, "Mobile originating call proceeding".

10.1.2.3.1.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U1 by using table 10.1.2/1.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U1. The SS sends a CALL PROCEEDING message to the UE. The SS checks by using the status enquiry procedure that the CC entity has entered the state U3.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		<-	CALL PROCEEDING	tone generation not mandatory
2		<-	STATUS ENQUIRY	
3		->	STATUS	cause #30, state U3

Specific message contents:

None.

10.1.2.3.1.5 Test requirements

After step 1 the UE shall enter CC state U3, "Mobile originating call proceeding".

10.1.2.3.2 Outgoing call / U1 call initiated / rejecting with RELEASE COMPLETE

10.1.2.3.2.1 Definition

The call control entity of the UE being in the state, U1, the call is rejected by a RELEASE COMPLETE message sent by the SS.

10.1.2.3.2.2 Conformance requirement

A call control entity of the UE in any call control state shall, upon receipt of a RELEASE COMPLETE message from its peer entity in the network: stop all running call control timers ; release the MM connection; and return to the "null" state.

References

TS 24.008, clause 5.4.4.1.3.

10.1.2.3.2.3 Test purpose

1) To verify that a CC entity of the UE in CC-state U1, "Call initiated", upon receipt of a RELEASE COMPLETE message with valid cause value, enters CC state U0, "Null".

2) To verify that in returning to idle mode, the CC entities relating to the seven mobile originating transaction identifiers are in state U0, "Null".

10.1.2.3.2.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U1 by using table 10.1.2/1.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U1. The SS sends a RELEASE COMPLETE message to the UE. The SS checks by using the status enquiry procedure that the CC entity has entered the state U0 with all the relevant transaction identifiers.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		RELEASE COMPLETE	This test case does not require a specific cause value. E.g. value #47, resources unavailable, is a suitable value
2	<-		STATUS ENQUIRY	
3	->		RELEASE COMPLETE	cause #81 (invalid TI value)
4	SS			repeat steps 2-3 to cover all the transaction identifiers from 000...110
5	<-			The SS releases the RRC connection.

Specific message contents:

None.

10.1.2.3.2.5 Test requirements

After step 2 CC entities relating to all mobile originating transaction identifiers shall send RELEASE COMPLETE messages with cause value #81 (invalid TI value).

10.1.2.3.3 Outgoing call / U1 call initiated / T303 expiry

10.1.2.3.3.1 Definition

The call control entity of the UE being in the state, U1, if no response is then received from the SS, timer T303 expires at the UE side.

10.1.2.3.3.2 Conformance requirement

If timer T303 elapses in the "call initiated" state before any of the CALL PROCEEDING, ALERTING, CONNECT or RELEASE COMPLETE messages has been received, the clearing procedure described in TS 24.008 clause 5.4 is performed.

References

TS 24.008, clause 5.2.1.1 and clause 5.4.

10.1.2.3.3.3 Test purpose

1) To verify that a CC entity of the UE in CC-state U1, "Call initiated", upon expiry of T303 sends a DISCONNECT message to its peer entity and enters state U11, "Disconnect request".

10.1.2.3.3.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U1 by using table 10.1.2/1.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U1. When T303 expires at the UE, the UE shall send DISCONNECT. The SS checks by using the status enquiry procedure that the CC entity has entered the state U11, disconnect request.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		SS waits for T303 expiry.
2	->		DISCONNECT	Shall be transmitted 30 s after the CM SERVICE REQUEST, check the timer T303 accuracy, see TS34.108 clause 4.2.3.
3		<-	STATUS ENQUIRY	
4	->		STATUS	cause #30, status U11

Specific message contents:

None.

10.1.2.3.3.5 Test requirements

After step 1 upon expiry of timer T303 the UE shall send a DISCONNECT message and enter state U11, "Disconnect request".

10.1.2.3.4 Outgoing call / U1 call initiated / lower layer failure

10.1.2.3.4.1 Definition

The call control entity of the UE being in the state, U1, a lower layer failure is accomplished at the UE and consequently, communication at layer 3 level with the peer entity is terminated.

10.1.2.3.4.2 Conformance requirement

The MM sublayer shall indicate to all CM entities associated with active MM connections that the MM connection is interrupted, the subsequent action of the MM sublayer (call re-establishment, see TS 24.008 clause 4.5.1.6, or local release) will then depend on the decisions by the CM entities.

References

TS 24.008, clause 4.5.2.3 and 5.2.1.1, TS 25.331 clause 8.3.1 and clause 8.5.6.

10.1.2.3.4.3 Test purpose

To verify that after the UE with a CC entity in state U1 "Call initiated", has detected a lower layer failure and has returned to idle mode, the CC entity is in state U0, "Null".

10.1.2.3.4.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U1 by using table 10.1.2/4.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The UE is brought to the state U1. The SS modifies the scrambling code of downlink transmission (DL DPCH) to generate a lower layer failure at the UE. The SS waits long enough to enable the UE to perform cell update procedure. The SS sends RRC CONNECTION RELEASE message as a response to the CELL UPDATE message from the UE. The SS re-modifies the scrambling code of downlink transmission (DL DPCH) to the original one and waits 60 s. The SS will check that the UE will not send any message during 60 s.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		SS modifies the scrambling code of DPCH for generating lower layer failure
2	->		CELL UPDATE	CCCH
3	<-		RRC CONNECTION RELEASE	CCCH
4		SS		SS re-modifies the scrambling code of DPCH to the original one.
5		SS		SS waits 60 s. UE shall send no message on DCCH

Specific message contents:

None.

10.1.2.3.4.5 Test requirements

After step 4 the UE shall not send any message to the SS during 60 s.

10.1.2.3.5 Outgoing call / U1 call initiated / receiving ALERTING

10.1.2.3.5.1 Definition

The call control entity of the UE being in the state, U1, an ALERTING message is sent to the UE as an indication that a call is being alerted at a called end.

10.1.2.3.5.2 Conformance requirement

When the call control entity of the UE in the "call initiated" state or "mobile originating call proceeding" state receives an ALERTING message then, the call control entity of the UE shall stop timer T303 and T310 (if running) and shall enter the "call delivered" state.

References

TS 24.008, clause 5.2.1.1 and clause 5.2.1.5.

10.1.2.3.5.3 Test purpose

To verify that a CC entity of the UE in CC-state U1, "Call initiated", upon receipt of an ALERTING message, enters CC state U4, "Call delivered".

10.1.2.3.5.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U1 by using table 10.1.2/4.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U1. The SS sends an ALERTING message to the UE. The SS checks by using the status enquiry procedure that the CC entity has entered the state U4, call delivered.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		<-	ALERTING	
2		<-	STATUS ENQUIRY	
3		->	STATUS	cause #30, state U4

Specific message contents:

None.

10.1.2.3.5.5 Test requirements

After step 1 the UE shall enter CC state U4, "Call delivered".

10.1.2.3.6 Outgoing call / U1 call initiated / entering state U10

10.1.2.3.6.1 Definition

The call control entity of the UE being in the state, U1, a CONNECT message is received by the UE.

10.1.2.3.6.2 Conformance requirement

The call control entity of the UE in the "call initiated" state, in the "mobile originating call proceeding" state or in the "call delivered" state, shall, upon receipt of a CONNECT message:

- attach the user connection;
- return a CONNECT ACKNOWLEDGE message;
- stop any locally generated alerting indication (if applied);
- stop timer T303 and T310 (if running);
- enter the "active" state.

References

TS 24.008, clause 5.2.1.1 and clause 5.2.1.6.

10.1.2.3.6.3 Test purpose

To verify that a CC entity of the UE in CC-state U1, "Call initiated", upon receipt of a CONNECT message, sends a CONNECT ACKNOWLEDGE message to its peer entity and enters CC state U10, "Active".

10.1.2.3.6.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U1 by using table 10.1.2/4.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U1. The SS sends a CONNECT message to the UE. The UE shall respond by sending a CONNECT ACKNOWLEDGE message. The SS checks by using the status enquiry procedure that the CC entity has entered the state U10, active.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		<-	CONNECT	
2		->	CONNECT ACKNOWLEDGE	
3		<-	STATUS ENQUIRY	
4		->	STATUS	cause #30, state U10

Specific message contents:

None.

10.1.2.3.6.5 Test requirements

After step 1 the UE shall send a CONNECT ACKNOWLEDGE message and shall enter CC state U10, "Active".

10.1.2.3.7 Outgoing call / U1 call initiated / unknown message received

10.1.2.3.7.1 Definition

The call control entity of the UE being in the state, U1, an unknown message is received by the UE.

10.1.2.3.7.2 Conformance requirement

If a UE receives an RR, MM or CC message with message type not defined for the PD or not implemented by the receiver in acknowledged mode, it shall return a status message (STATUS, MM STATUS depending on the protocol discriminator) with cause # 97 "message type non-existent or not implemented".

References

TS 24.008 clause 8.4.

10.1.2.3.7.3 Test purpose

To verify that a CC entity of the UE in CC-state U1, "Call initiated", upon receipt of a message with message type not defined for the protocol discriminator from its peer entity returns a STATUS message.

10.1.2.3.7.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U1 by using table 10.1.2/1.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U1. The SS sends a message with message type not defined for the protocol discriminator to the UE. The UE shall respond with a STATUS message, and finally the SS checks by using the status enquiry procedure that the state of the CC entity has remained unchanged.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		unknown message	message type not defined for PD
2	->		STATUS	cause #97, state U1
3	<-		STATUS ENQUIRY	
4	->		STATUS	cause #30, state U1

Specific message contents:

None.

10.1.2.3.7.5 Test requirements

After step 1 and step 3 the UE shall return a STATUS message with "Call state" set to state U1, "Call initiated".

10.1.2.4 Outgoing call / U3 Mobile originating call proceeding

10.1.2.4.1 Outgoing call / U3 Mobile originating call proceeding / ALERTING received

10.1.2.4.1.1 Definition

The call control entity of the UE being in the state, U3, an ALERTING message is sent to the UE as an indication that a call is being alerted at a called end.

10.1.2.4.1.2 Conformance requirement

When the call control entity of the UE in the "call initiated" state or "mobile originating call proceeding" state receives an ALERTING message then, the call control entity of the UE shall stop timer T303 and T310 (if running) and shall enter the "call delivered" state.

References

TS 24.008 clause 5.2.1.5.

10.1.2.4.1.3 Test purpose

To verify that a CC-entity of the UE in CC-state U3, "Mobile Originating Call Proceeding", upon receipt of a ALERTING message enters CC-state U4, "Call Delivered".

10.1.2.4.1.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U3 by using table 10.1.2/3.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U3. The SS sends an ALERTING message to the UE. The SS checks by using the status enquiry procedure that the CC entity has entered the state U4, call delivered.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		<-	ALERTING	
2		<-	STATUS ENQUIRY	
3		->	STATUS	cause #30, state U4

Specific message contents:

None.

10.1.2.4.1.5 Test requirements

After step 1 the UE shall enter CC-state U4, "Call Delivered".

10.1.2.4.2 Outgoing call / U3 Mobile originating call proceeding / CONNECT received

10.1.2.4.2.1 Definition

The call control entity of the UE being in the state, U3, a CONNECT message is received by the UE.

10.1.2.4.2.2 Conformance requirement

The call control entity of the UE in the "call initiated" state, in the "mobile originating call proceeding" state or in the "call delivered" state, shall, upon receipt of a CONNECT message:

- attach the user connection;
- return a CONNECT ACKNOWLEDGE message;
- stop any locally generated alerting indication (if applied);
- stop timer T303 and T310 (if running);
- enter the "active" state.

References

TS 24.008 clause 5.2.1.6.

10.1.2.4.2.3 Test purpose

1) To verify that a CC-entity of the UE in CC-state U3, "Mobile Originating Call Proceeding", upon receipt of a CONNECT message returns a "CONNECT ACKNOWLEDGE" message to its peer entity and enters the CC state U10, "Active".

2) To verify that the UE stops locally generated alerting indication, if any.

10.1.2.4.2.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U3 by using table 10.1.2/3.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U3. The SS sends a RADIO BEARER SETUP for traffic channel to the UE. The UE shall respond with a RADIO BEARER SETUP COMPLETE message. The SS sends a CONNECT message to the UE. The UE shall respond by sending a CONNECT ACKNOWLEDGE message. The SS checks by using the status enquiry procedure that the CC entity has entered the state U10, active.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Radio Bearer Setup Procedure	See TS 34.108 clause 7.1.3
2	<-		CONNECT	the UE shall stop locally generated alerting indication, if any
3	->		CONNECT ACKNOWLEDGE	
4	<-		STATUS ENQUIRY	
5	->		STATUS	cause #30, state U10

Specific message contents:

None.

10.1.2.4.2.5 Test requirements

After step 1 the UE shall return a "CONNECT ACKNOWLEDGE" message and enter the CC state U10, "Active".

The UE shall stop locally generated alerting indication.

10.1.2.4.3 Outgoing call / U3 Mobile originating call proceeding / PROGRESS received without in band information

10.1.2.4.3.1 Definition

The call control entity of the UE being in the state, U3, a PROGRESS message is received by the UE. The PROGRESS message does not contain indication of in-band information availability.

10.1.2.4.3.2 Conformance requirement

1) In order to inform the UE that the call is progressing in the PLMN/ISDN environment the network may send a progress indicator information element to the calling UE either:

   a) in an appropriate call control message, if a state change is required (e.g., ALERTING or CONNECT); or

   b) in the PROGRESS message, if no state change is appropriate.

   This progress indicator information element shall contain progress description value #32 "Call is end-to-end ISDN/PLMN".

2) At any time during the establishment or release of a call and during an active call the network may send a PROGRESS message to the UE.

   On receipt of a PROGRESS message during the establishment or release of a call the UE shall stop all call control timers related to that call.

References

Conformance requirement 1: TS 24.008 clause 5.2.1.4.2

Conformance requirement 2: TS 24.008 clause 5.5.6

10.1.2.4.3.3 Test purpose

1) To verify that a CC-entity of the UE in CC-state U3, "Mobile Originating Call Proceeding", upon receipt of a PROGRESS message with valid cause values stays in CC-state U3.

2) To verify that after receipt of the PROGRESS message timer T310 is stopped.

10.1.2.4.3.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U3 by using table 10.1.2/3.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U3. The SS sends a PROGRESS message not containing indication of in-band information availability to the UE. The SS checks that the UE has stopped T310, i.e. at T310 time-out no DISCONNECT message is sent by the UE. Then the SS checks by using the status enquiry procedure that the state of the CC entity has remained unchanged.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		PROGRESS	(note)
2	<-		STATUS ENQUIRY	
3	->		STATUS	cause #30, state U3
4	SS			SS waits at least 45 s and checks no DISCONNECT is sent by the UE
5	<-		STATUS ENQUIRY	
6	->		STATUS	cause #30, state U3

NOTE: Tested with a valid Progress Indicator, Progress description value among:

- #32 call is end-to-end PLMN/ISDN.

Specific message contents:

None.

10.1.2.4.3.5 Test requirements

After step 1 the UE shall stay in CC-state U3.

After step 3 SS waits at least 45 s and checks no DISCONNECT is sent by the UE.

10.1.2.4.4 Outgoing call / U3 Mobile originating call proceeding / PROGRESS with in band information

10.1.2.4.4.1 Definition

The call control entity of the UE being in the state, U3, a PROGRESS message indicating availability of in band information is received by the UE.

10.1.2.4.4.2 Conformance requirement

1) When the network wants to make the UE attach the user connection (e.g. in order to provide in-band tones/announcement) before the UE has reached the "active" state of a call, the network may include a progress indicator IE indicating user attachment in a suitable CC message:

   - Either it includes the IE in a SETUP, CALL PROCEEDING, ALERTING, or CONNECT message that is send during call establishment

   - it sends a PROGRESS message containing the IE.

On reception of a SETUP, CALL PROCEEDING, ALERTING, CONNECT, or PROGRESS message the UE shall proceed as specified elsewhere in TS 24.008 clause 5; if the progress indicator IE indicated user attachment and a speech mode traffic channel is appropriate for the call the UE shall in addition: attach the user connection for speech as soon as an appropriate channel in speech mode is available.

2) At any time during the establishment or release of a call and during an active call the network may send a PROGRESS message to the UE.

   On receipt of a PROGRESS message during the establishment or release of a call the UE shall stop all call control timers related to that call.

References

Conformance requirement 1: TS 24.008 clause 5.5.1

Conformance requirement 2: TS 24.008 clause 5.5.6

10.1.2.4.4.3 Test purpose

1) To verify that a CC-entity of the UE in CC-state U3, "Mobile Originating Call Proceeding", upon receipt of a PROGRESS message indicating in-band announcement through-connects the traffic channel for speech, if DTCH is in speech mode. If DTCH is not in a speech mode, the UE does not through-connect the DTCH.

2) To verify that after receipt of the PROGRESS message, T310 is stopped.

10.1.2.4.4.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U3 by using table 10.1.2/3.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U3. The SS sends a RADIO BEARER SETUP for traffic channel to the UE. The UE shall respond with a RADIO BEARER SETUP COMPLETE message. The SS sends a PROGRESS message containing indication of in-band information availability to the UE. The SS checks that if channel mode is speech, the DTCH shall be through connected. If channel mode is not speech, the DTCH shall not be through connected. Also the SS checks that the UE has stopped T310, i.e. at T310 time-out no DISCONNECT message is sent by the UE. Then the SS checks by using the status enquiry procedure that the state of the CC entity has remained unchanged.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Radio Bearer Setup Procedure	See TS34.108 clause 7.1.3
2	<-		PROGRESS	(note) the UE shall stop all the CC timers , if channel mode is speech, the DTCH shall be through connected. If channel mode is not speech, the DTCH shall not be through connected.
3	<-		STATUS ENQUIRY	
4	->		STATUS	cause #30, state U3
5		SS		SS waits at least 45 s and checks no DISCONNECT is sent by the UE.
6	<-		STATUS ENQUIRY	
7	->		STATUS	cause #30, state U3
8		SS		If the channel mode is speech the SS will check that the user connection for speech is attached (both downlink and uplink).

Specific message contents:

NOTE: Tested with a valid Progress Indicator, Progress description value among:

- #1 call is not end to end PLMN/ISDN;
- #2 destination address is non PLMN/ISDN;
- #3 originating address is non PLMN/ISDN;
- #8 in band information or appropriate pattern now available.

10.1.2.4.4.5 Test requirements

After step 2 the UE shall through-connect the traffic channel for speech, if DTCH is in a speech mode. If DTCH is not in speech mode, the UE shall not through-connect the DTCH.

After step 4 the SS waits at least 45 s and checks no DISCONNECT is sent by the UE.

After step 7 the SS checks that the user connection for speech is attached (both downlink and uplink), if the channel mode is speech.

10.1.2.4.5 Outgoing call / U3 Mobile originating call proceeding / DISCONNECT with in band tones

10.1.2.4.5.1 Definition

The call control entity of the UE being in the state, U3, a DISCONNECT message indicating availability of in band information is received by the UE.

10.1.2.4.5.2 Conformance requirement

The call control entity of the UE in any state except the "null" state, the "disconnect indication" state, and the "release request" state, shall, upon receipt of a DISCONNECT message with progress indicator #8:

i) if an appropriate speech traffic channel is not connected, continue clearing as defined in TS24.008 clause 5.4.4.1.2.1 without connecting to the in-band tone/announcement;

ii) if an appropriate speech traffic channel is connected, attach the user connection for speech if it is not yet attached and enter the "disconnect indication" state. In that state, if upper layers request the clearing of the call, the call control entity of the UE shall proceed as defined in TS24.008 clause 5.4.4.1.2.1.

….

The call control entity of the MS in any state except the "null" state, the "disconnect indication" state, and the "release request" state, shall, upon receipt of a DISCONNECT message with progress indicator #8 and, either not containing an *Allowed Actions* IE or containing an *Allowed Actions* IE indicating "CCBS activation is not possible":

i) if an appropriate speech traffic channel is not connected,

- stop all running call control timers;
- send a RELEASE message;
- start timer T308; and
- enter the "release request" state.
- not connect to the in-band tone/announcement;

ii) if an appropriate speech traffic channel is connected, attach the user connection for speech if it is not yet attached and enter the "disconnect indication" state. In that state, if upper layers request the clearing of the call, the call control entity of the MS shall:

- stop all running call control timers;
- send a RELEASE message;
- start timer T308; and
- enter the "release request" state.

References

TS 24.008 and clause 5.4.4.1.1.1 and 5.4.4.2.1.1.

10.1.2.4.5.3 Test purpose

To verify that a CC-entity of the UE in CC-state U3, "Mobile Originating Call Proceeding", upon receipt of a DISCONNECT with progress indicator #8 through-connects the speech channel to make in-band announcements available, if traffic channel is in speech mode. If DTCH is not in speech mode, the UE sends a RELEASE message.

10.1.2.4.5.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U3 by using table 10.1.2/3.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U3. The SS sends a RADIO BEARER SETUP for traffic channel to the UE. The UE shall respond with a RADIO BEARER SETUP COMPLETE message. The SS sends a

DISCONNECT message containing indication of in-band information availability to the UE. The SS checks that if channel mode is speech, the DTCH shall be through connected and the UE enters state U12, disconnect indication. If channel mode is not speech, the DTCH shall not be through connected and the UE shall enter state U19, release request.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Radio Bearer Setup Procedure	See TS 34.108 clause 7.1.3
2	<-		DISCONNECT	(note)
A3	SS			DTCH in speech mode: the SS will check that the audio path for in band tones is attached.
A4	<-		STATUS ENQUIRY	
A5	->		STATUS	cause #30, state U12
				DTCH is not in speech mode:
B3	->		RELEASE	
B4	<-		STATUS ENQUIRY	
B5	->		STATUS	cause #30, state U19

Specific message contents:

NOTE: the Progress Indicator, Progress description value:

- #8 in band information or appropriate pattern now available.

10.1.2.4.5.5 Test requirements

After step 2 the UE shall through-connect the speech channel to make in-band announcements available, if traffic channel is in speech mode. If DTCH is not in speech mode, the UE shall send a RELEASE message.

10.1.2.4.6 Outgoing call / U3 Mobile originating call proceeding / DISCONNECT without in band tones

10.1.2.4.6.1 Definition

The call control entity of the UE being in the state, U3, a DISCONNECT message is received by the UE. The DISCONNECT message does not contain indication of in-band information availability.

10.1.2.4.6.2 Conformance requirement

The call control entity of the UE in any state except the "null" state, the "disconnect indication" state, and the "release request" state, shall, upon the receipt of a DISCONNECT message without progress indicator information element or with progress indicator different from #8:

- stop all running call control timers;
- send a RELEASE message;
- start timer T308; and
- enter the "release request" state.

…

The call control entity of the mobile station in any state except the "null" state, the "disconnect indication" state, and the "release request" state, shall, upon the receipt of a DISCONNECT message either without progress indicator information element or with progress indicator different from #8, and, either without the *Allowed Actions* IE or with the *Allowed Actions* IE indicating that "CCBS is not possible":

- stop all running call control timers;

- send a RELEASE message;
- start timer T308; and
- enter the "release request" state. References

TS 24.008 clause 5.4.4.1.2.1 and 5.4.4.2.3.1

10.1.2.4.6.3 Test purpose

To verify that a CC-entity of the UE in CC-state U3, "Mobile Originating Call Proceeding", upon receipt of a DISCONNECT without progress indicator returns a RELEASE message and enters the CC-state U19, "Release Request".

10.1.2.4.6.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U3 by using table 10.1.2/3.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U3. The SS sends a DISCONNECT message not containing indication of in-band information availability to the UE. The UE shall respond with a RELEASE message. The SS checks by using the status enquiry procedure that the CC entity of the UE has entered the state U19, release request.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		<-	DISCONNECT	without progress indicator
2		->	RELEASE	
3		<-	STATUS ENQUIRY	
4		->	STATUS	cause #30, state U19

Specific message contents:

None.

10.1.2.4.6.5 Test requirements

After step 1 the UE shall send a RELEASE message and enter the CC-state U19, "Release Request".

10.1.2.4.7 Outgoing call / U3 Mobile originating call proceeding / RELEASE received

10.1.2.4.7.1 Definition

The call control entity of the UE being in the state, U3, a RELEASE message is received by the UE.

10.1.2.4.7.2 Conformance requirement

The call control entity of the UE in any state except the "null" state and the "release request" state, shall, upon receipt of a RELEASE message: stop all running call control timers; send a RELEASE COMPLETE message; release the MM connection; and return to the "null" state.

References

TS 24.008 clause 5.4.3.3

10.1.2.4.7.3 Test purpose

1) To verify that a CC-entity of the UE in CC-state U3, "Mobile Originating Call Proceeding", upon receipt of a RELEASE will return a RELEASE COMPLETE and enter the CC-state U0, "Null".

2) To verify that the UE on returning to the idle mode releases the MM-connection and that the CC-entities relating to the seven mobile originating transaction identifiers are in CC-state U0, "Null".

10.1.2.4.7.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U3 by using table 10.1.2/3.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U3. The SS sends a RELEASE message to the UE. The UE shall respond with a RELEASE COMPLETE message. The SS checks by using the status enquiry procedure that the CC entity has entered the state U0 with all the relevant transaction identifiers.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		RELEASE	with cause "Normal, unspecified"
2	->		RELEASE COMPLETE	
3	<-		STATUS ENQUIRY	
4	->		RELEASE COMPLETE	cause #81 (invalid TI value)
5	SS			repeat steps 3-4 to cover all the transaction identifiers from 000...110
6	<-			The SS releases the RRC connection.

Specific message contents:

None.

10.1.2.4.7.5 Test requirements

After step 1 the UE shall send a RELEASE COMPLETE message.

After step 3 CC entities relating to all mobile originating transaction identifiers shall send RELEASE COMPLETE messages with cause value #81 (invalid TI value).

10.1.2.4.8 Outgoing call / U3 Mobile originating call proceeding / termination requested by the user

10.1.2.4.8.1 Definition

The call control entity of the UE being in the state, U3, the user requests to terminate the call.

10.1.2.4.8.2 Conformance requirement

Apart from the exceptions identified in TS 24.008 clause 5.4.2, the call control entity of the UE shall initiate clearing by: stopping all running call control timers, sending a DISCONNECT message; starting timer T305; and entering the "disconnect request" state.

References

TS 24.008 clause 5.4.3.1

10.1.2.4.8.3 Test purpose

To verify that a CC-entity of the UE in CC-state U3, "Mobile Originating Call Proceeding", upon request by the user to terminate will send a DISCONNECT message and enter the CC-state U11, "Disconnect Request".

10.1.2.4.8.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator: 1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U3 by using table 10.1.2/3.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U3. The user requests termination of the call. The UE shall send a DISCONNECT message. The SS checks by using the status enquiry procedure that the CC entity has entered the state U11, disconnect request.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1				MMI action, terminate call
2	->		DISCONNECT	
3	<-		STATUS ENQUIRY	
4	->		STATUS	cause #30, state U11

Specific message contents:

None.

10.1.2.4.8.5 Test requirements

After step 1 the UE shall send a DISCONNECT message and enter the CC-state U11, "Disconnect Request".

10.1.2.4.9 Outgoing call / U3 Mobile originating call proceeding / traffic channel allocation

10.1.2.4.9.1 Definition

The call control entity of the UE being in the state, U3, a radio bearer establishment procedure is performed.

10.1.2.4.9.2 Conformance requirement

It is a network dependent decision when to initiate the assignment of an appropriate traffic channel during the mobile originating call establishment phase. Initiation of a suitable RR procedure to assign an appropriate traffic channel does neither change the state of a call control entity nor affect any call control timer.

References

TS 24.008 clause 5.2.1.9.

10.1.2.4.9.3 Test purpose

To verify that a CC-entity of the UE in CC-state U3, "Mobile Originating Call Proceeding", when a traffic channel is allocated by the network performing the radio bearer establishment procedure, stays in CC-state U3.

10.1.2.4.9.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U3 by using table 10.1.2/3.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to

initiate a call. The CC entity of the UE is brought to the state U3. The SS sends a RADIO BEARER SETUP for traffic channel to the UE. The UE shall respond with a RADIO BEARER SETUP COMPLETE message. The SS checks by using the status enquiry procedure that the state of the CC entity has remained unchanged.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Radio Bearer Setup Procedure	See TS 34.108 clause 7.1.3
2	<-		STATUS ENQUIRY	
3	->		STATUS	cause #30, state U3

Specific message contents:

None.

10.1.2.4.9.5 Test requirements

After step 1 the CC state U3, "Mobile Originating Call Proceeding", shall remain unchanged.

10.1.2.4.10 Outgoing call / U3 Mobile originating call proceeding / timer T310 time-out

10.1.2.4.10.1 Definition

The call control entity of the UE being in the state, U3, if no response is then received from the SS, timer T310 expires at the UE side.

10.1.2.4.10.2 Conformance requirement

1) If timer T310 elapses before any of the ALERTING, CONNECT or DISCONNECT messages has been received, the UE shall perform the clearing procedure described in TS 24.008 clause 5.4.

2) Apart from the exceptions identified in TS 24.008 clause 5.4.2, the call control entity of the UE shall initiate clearing by: stopping all running call control timers, sending a DISCONNECT message; starting timer T305; and entering the "disconnect request" state.

References

Conformance requirement 1: TS 24.008 clause 5.2.1.3./Abnormal case

Conformance requirement 2: TS 24.008 clause 5.4.3.1.

10.1.2.4.10.3 Test purpose

To verify that a CC-entity of the UE in CC-state U3, "Mobile Originating Call Proceeding" will, upon expiry of timer T310, initiate call release by sending DISCONNECT and enter the CC-state U11, "Disconnect Request".

10.1.2.4.10.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U3 by using table 10.1.2/3.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U3. The T310 expires at the UE and the UE shall send DISCONNECT. The SS checks timer T310 accuracy and that the CC entity has entered the state U11, disconnect request.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		the SS waits for T310 time-out
2	->		DISCONNECT	check the timer T310 accuracy, see TS34.108 clause 4.2.3
3	<-		STATUS ENQUIRY	
4	->		STATUS	cause #30, state U11

Specific message contents:

None.

10.1.2.4.10.5 Test requirements

After step 1 upon expiry of timer T310 the UE shall initiate call release by sending a DISCONNECT message and enter the CC-state U11, "Disconnect Request".

10.1.2.4.11 Outgoing call / U3 Mobile originating call proceeding / lower layer failure

10.1.2.4.11.1 Definition

The call control entity of the UE being in the state, U3, a lower layer failure is accomplished at the UE and consequently, communication at layer 3 level with the peer entity is terminated.

10.1.2.4.11.2 Conformance requirement

The MM sublayer shall indicate to all CM entities associated with active MM connections that the MM connection is interrupted, the subsequent action of the MM sublayer (call re-establishment, see TS 24.008 clause 4.5.1.6, or local release) will then depend on the decisions by the CM entities.

….

The re-establishment procedure allows a MS to resume a connection in progress after a radio link failure, possibly in a new cell and possibly in a new location area. The conditions in which to attempt call re-establishment or not depend on the call control state, see clause 5.5.4 and, whether or not a cell allowing call re-establishment has been found (as described in GSM 05.08). MM connections are identified by their protocol discriminators and transaction identifiers: these shall not be changed during call re-establishment.

The re-establishment takes place when a lower layer failure occurs and at least one MM connection is active (i.e.. the mobile station's MM sublayer is either in state 6 "MM CONNECTION ACTIVE" or state 20 "WAIT FOR ADDITIONAL OUTGOING MM CONNECTION").

….

When a MM connection is active, an indication may be given by the MM sublayer to the call control entity to announce that the current MM connection has been interrupted but might be re-established on request of call control.

Depending whether call re-establishment is allowed or not and on its actual state, call control shall decide to either request re-establishment or to release the MM connection.

a) Re-establishment not required

If the call is in the call establishment or call clearing phase, i.e. any state other than the "active" state or the "mobile originating modify" state, call control shall release the MM connection

….

In CELL_DCH State, after receiving N313 consecutive "out of sync" indications from layer 1 for the established DPCCH physical channel in FDD, and the DPCH associated with mapped DCCHs in TDD, the UE shall:

1> start timer T313;

1> upon receiving N315 successive "in sync" indications from layer 1 and upon change of UE state:

2> stop and reset timer T313.

1> if T313 expires:

2> consider it as a "Radio link failure".

Periods in time where neither "in sync" nor "out of sync" is reported by layer 1 do not affect the evaluation of the number of consecutive (resp. successive) "in sync" or "out of sync" indications.

When a radio link failure occurs, the UE shall:

1> clear the dedicated physical channel configuration;

1> perform actions as specified for the ongoing procedure;

1> if no procedure is ongoing or no actions are specified for the ongoing procedure:

2> perform a cell update procedure according to subclause 8.3.1 using the cause "radio link failure".

In addition, the cell update procedure also serves the following purposes:

…

- to act on a radio link failure in the CELL_DCH state;

References

TS 24.008 clause 4.5.2.3, 4.5.1.6, and 5.5.4, TS 25.331 clause 8.5.6 and 8.3.1.1.

10.1.2.4.11.3 Test purpose

To verify that a CC-entity of the UE in CC-state U3, "Mobile Originating Call Proceeding" having detected a lower layer failure and having returned to idle mode, the CC entity is in state U0, "Null".

10.1.2.4.11.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U3 by using table 10.1.2/4.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The UE is brought to the state U3. The SS releases the DPCH configuration to generate a lower layer failure at the UE. The SS waits long enough to perform cell update procedure. The SS sends RRC CONNECTION RELEASE message as a response to the CELL UPDATE message from the UE.. The SS checks that the UE does not initiate RRC connection establishment during 60 s.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		SS releases the DPCH configuration to generate lower layer failure(radio link failure)
2	->		CELL UPDATE	CCCH
3	<-		RRC CONNECTION RELEASE	CCCH
4		SS		For a period of 60 s the SS checks that the UE does not initiate RRC connection establishment (since it should not re-attempt MM connection establishment)

Specific message contents:

None.

10.1.2.4.11.5 Test requirements

After step 4 the UE shall not initiate RRC Connection Establishment for 60 s.

10.1.2.4.12 Outgoing call / U3 Mobile originating call proceeding / unknown message received

10.1.2.4.12.1 Definition

The call control entity of the UE being in the state, U3, an unknown message is received by the UE.

10.1.2.4.12.2 Conformance requirement

If a UE receives an RR, MM or CC message with message type not defined for the PD or not implemented by the receiver in acknowledged mode, it shall return a status message (STATUS, MM STATUS depending on the protocol discriminator) with cause # 97 "message type non-existent or not implemented".

References

TS 24.008 clause 8.4.

10.1.2.4.12.3 Test purpose

To verify that a CC-entity of the UE in CC-state U3, "Mobile Originating Call Proceeding" having received an unknown message from its peer entity returns a STATUS message.

10.1.2.4.12.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U3 by using table 10.1.2/1.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U3. The SS sends a message with message type not defined for the protocol discriminator to the UE. The UE shall respond with a STATUS message, and finally the SS checks by using the status enquiry procedure that the state of the CC entity has remained unchanged.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		unknown message	message type not defined for PD
2	->		STATUS	cause #97, state U3
3	<-		STATUS ENQUIRY	
4	->		STATUS	cause #30, state U3

Specific message contents:

None.

10.1.2.4.12.5 Test requirements

After step 1 the UE shall return a STATUS message.

10.1.2.4.13 Outgoing call / U3 Mobile originating call proceeding / Internal alerting indication

10.1.2.4.13.1 Definition

The call control entity of the UE being in the state, U3, an ALERTING message is sent to the UE when the user connection is not attached to the radio path.

10.1.2.4.13.2 Conformance requirement

When the call control entity of the UE in the "call initiated" state or "mobile originating call proceeding" state receives an ALERTING message then, the call control entity of the UE shall stop timer T303 and T310 (if running) and shall enter the "call delivered" state. In this state, for speech calls:

- an alerting indication should be given to the user. If the UE has not attached the user connection then the UE shall internally generate an alerting indication. If the UE has attached the user connection then the network is responsible for generating the alerting indication and the UE need not generate one.

References

TS 24.008 clause 5.2.1.5.

10.1.2.4.13.3 Test purpose

When the call control entity of the UE in the "mobile originating call proceeding" state receives an ALERTING message then it enters "call delivered" state and, for speech calls, if the user connection is not attached to the radio path, the UE generates internally an alerting indication.

10.1.2.4.13.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.
- way to give internally generated alerting indication for outgoing calls.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U3 by using table 10.1.2/1.

Test procedure

The SS sends an ALERTING message to the UE. The SS checks by using the status enquiry procedure that the CC entity has entered the state U4, call delivered. Also it is checked that the UE generates internally alerting indication to the user in the way described in the ICS/IXIT statements.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		<-	ALERTING	the UE shall generate an alerting indication to the user in the way described in the ICS/IXIT statements
2		<-	STATUS ENQUIRY	
3		->	STATUS	cause #30, state U4

Specific message contents:

None.

10.1.2.4.13.5 Test requirements

After step 1 the UE shall enter "Call Delivered" state and, for speech calls, if the user connection is not attached to the radio path, the UE shall internally generate an alerting indication.

10.1.2.5 Outgoing call / U4 call delivered

10.1.2.5.1 Outgoing call / U4 call delivered / CONNECT received

10.1.2.5.1.1 Definition

The call control entity of the UE being in the state, U4, a CONNECT message is received by the UE.

10.1.2.5.1.2 Conformance requirement

The call control entity of the UE in the "call initiated" state, in the "mobile originating call proceeding" state or in the "call delivered" state, shall, upon receipt of a CONNECT message:

- attach the user connection;
- return a CONNECT ACKNOWLEDGE message;
- stop any locally generated alerting indication (if applied);
- stop timer T303 and T310 (if running);
- enter the "active" state.

References

TS 24.008 clause 5.2.1.6.

10.1.2.5.1.3 Test purpose

To verify that a CC-entity of the UE in CC-state U4, "Call Delivered", upon receipt of the CONNECT message returns a CONNECT ACKNOWLEDGE to its peer entity and enters the CC-state U10, "Active".

10.1.2.5.1.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U4 by using table 10.1.2/3.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U4. The SS sends a CONNECT message to the UE. The UE shall respond by sending a CONNECT ACKNOWLEDGE message. The SS checks by using the status enquiry procedure that the CC entity has entered the state U10, active.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		CONNECT	
2	->		CONNECT ACKNOWLEDGE	UE stops locally generated alerting indication, if applicable
3	<-		STATUS ENQUIRY	
4	->		STATUS	cause #30, state U10

Specific message contents:

None.

10.1.2.5.1.5 Test requirements

After step 1 the UE shall return a CONNECT ACKNOWLEDGE message and enter the CC state U10, "Active".

10.1.2.5.2 Outgoing call / U4 call delivered / termination requested by the user

10.1.2.5.2.1 Definition

The call control entity of the UE being in the state, U4, the user requests to terminate the call.

10.1.2.5.2.2 Conformance requirement

Apart from the exceptions identified in TS 24.008 clause 5.4.2, the call control entity of the UE shall initiate clearing by: stopping all running call control timers, sending a DISCONNECT message; starting timer T305; and entering the "disconnect request" state.

References

TS 24.008 clause 5.4.3.1

10.1.2.5.2.3 Test purpose

To verify that a CC-entity of the UE in CC-state U4, "Call Delivered", upon request by the user to terminate will send a DISCONNECT message and enter the CC-state U11, "Disconnect Request".

10.1.2.5.2.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U4 by using table 10.1.2/3.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U4. The user requests termination of the call. The UE shall send a DISCONNECT message. The SS checks by using the status enquiry procedure that the CC entity has entered the state U11, disconnect request.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1				MMI action, terminate call
2	->		DISCONNECT	
3	<-		STATUS ENQUIRY	
4	->		STATUS	cause #30, state U11

Specific message contents:

None.

10.1.2.5.2.5 Test requirements

After step 1 the UE shall send a DISCONNECT message and enter the CC state U11, "Disconnect Request".

10.1.2.5.3 Outgoing call / U4 call delivered / DISCONNECT with in band tones

10.1.2.5.3.1 Definition

The call control entity of the UE being in the state, U4, a DISCONNECT message indicating availability of in band information is received by the UE.

10.1.2.5.3.2 Conformance requirement

The call control entity of the UE in any state except the "null" state, the "disconnect indication" state, and the "release request" state, shall, upon receipt of a DISCONNECT message with progress indicator #8:

i) if an appropriate speech traffic channel is not connected, continue clearing as defined in TS 24.008 clause 5.4.4.1.2.1 without connecting to the in-band tone/announcement;

ii) if an appropriate speech traffic channel is connected, attach the user connection for speech if it is not yet attached and enter the "disconnect indication" state. In that state, if upper layers request the clearing of the call, the call control entity of the UE shall proceed as defined in TS 24.008 clause 5.4.4.1.2.1.

….

The call control entity of the MS in any state except the "null" state, the "disconnect indication" state, and the "release request" state, shall, upon receipt of a DISCONNECT message with progress indicator #8 and, either not containing an *Allowed Actions* IE or containing an *Allowed Actions* IE indicating "CCBS activation is not possible":

i) if an appropriate speech traffic channel is not connected,

- stop all running call control timers;
- send a RELEASE message;
- start timer T308; and
- enter the "release request" state.
- not connect to the in-band tone/announcement;

ii) if an appropriate speech traffic channel is connected, attach the user connection for speech if it is not yet attached and enter the "disconnect indication" state. In that state, if upper layers request the clearing of the call, the call control entity of the MS shall:

- stop all running call control timers;
- send a RELEASE message;
- start timer T308; and
- enter the "release request" state.

References

TS 24.008 clause 5.4.4.1.1.1 and 5.4.4.2.1.1.

10.1.2.5.3.3 Test purpose

To verify that a CC-entity of the UE in CC-state U4, "Call Delivered", upon receipt of a DISCONNECT with a progress indicator indicating in-band information, through-connects the speech channel to make in-band announcements available, if traffic channel is in speech mode. If DTCH is not in speech mode, the UE shall send a RELEASE message.

10.1.2.5.3.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U4 by using table10.1.2/3.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U4. The SS sends a DISCONNECT message containing indication of in-band information availability to the UE. The SS checks that if channel mode is MO telephony, the DTCH shall be through connected and the UE enters state U12, disconnect indication. If channel mode is not speech, the DTCH shall not be through connected and the UE shall enter state U19, release request.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		DISCONNECT	(note)
A2	SS			DTCH in speech mode: the SS will check that the audio path for in band tones is attached.
A3	<-		STATUS ENQUIRY	
A4	->		STATUS	cause #30, state U12
				DTCH is not in speech mode:
B2	->		RELEASE	
B3	<-		STATUS ENQUIRY	
B4	->		STATUS	cause #30, state U19

Specific message contents:

NOTE: the Progress Indicator, Progress Description value:

- #8 in band information or appropriate pattern now available.

10.1.2.5.3.5 Test requirements

After step 1 the UE shall through-connect the speech channel to make in-band announcements available, if traffic channel is in speech mode. If DTCH is not in speech mode, the UE shall send a RELEASE message.

10.1.2.5.4 Outgoing call / U4 call delivered / DISCONNECT without in band tones

10.1.2.5.4.1 Definition

The call control entity of the UE being in the state, U4, a DISCONNECT message is received by the UE. The DISCONNECT message does not contain indication of in-band information availability.

10.1.2.5.4.2 Conformance requirement

The call control entity of the UE in any state except the "null" state, the "disconnect indication" state, and the "release request" state, shall, upon the receipt of a DISCONNECT message without progress indicator information element or with progress indicator different from #8:

- stop all running call control timers;
- send a RELEASE message;
- start timer T308; and
- enter the "release request" state.

…..

The call control entity of the mobile station in any state except the "null" state, the "disconnect indication" state, and the "release request" state, shall, upon the receipt of a DISCONNECT message either without progress indicator information element or with progress indicator different from #8, and, either without the *Allowed Actions* IE or with the *Allowed Actions* IE indicating that "CCBS is not possible":

- stop all running call control timers;
- send a RELEASE message;
- start timer T308; and
- enter the "release request" state.

References

TS 24.008 clause 5.4.4.1.2.1 and 5.4.4.2.3.1.

10.1.2.5.4.3 Test purpose

To verify that a CC-entity of the UE in CC-state U4, "Call Delivered", upon receipt of a DISCONNECT without progress indicator, returns a RELEASE message and enters the CC-state U19, "Release Request".

10.1.2.5.4.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U4 by using table 10.1.2/3.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U4. The SS sends a DISCONNECT message not containing indication of in-band information availability to the UE. The UE shall respond with a RELEASE message. The SS checks by using the status enquiry procedure that the CC entity of the UE has entered the state U19, release request.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		<-	DISCONNECT	without progress indicator
2		->	RELEASE	
3		<-	STATUS ENQUIRY	
4		->	STATUS	cause #30, state U19

Specific message contents:

None.

10.1.2.5.4.5 Test requirements

After step 1 the UE shall return a RELEASE message and enter the CC-state U19, "Release Request".

10.1.2.5.5 Outgoing call / U4 call delivered / RELEASE received

10.1.2.5.5.1 Definition

The call control entity of the UE being in the state, U4, a RELEASE message is received by the UE.

10.1.2.5.5.2 Conformance requirement

The call control entity of the UE in any state except the "null" state and the "release request" state, shall, upon receipt of a RELEASE message: stop all running call control timers; send a RELEASE COMPLETE message; release the MM connection; and return to the "null" state.

References

TS 24.008 clause 5.4.3.3.

10.1.2.5.5.3 Test purpose

1) To verify that a CC-entity of the UE in CC-state U4, "Call Delivered", upon receipt of the RELEASE message will respond with the RELEASE COMPLETE message and enter the CC-state U0, "Null".

10.1.2.5.5.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U4 by using table10.1.2/3.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U4. The SS sends a RELEASE message to the UE. The UE shall respond with a RELEASE COMPLETE message.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		<-	RELEASE	with cause "Normal, unspecified"
2	->		RELEASE COMPLETE	
3		<-	STATUS ENQUIRY	
4	->		RELEASE COMPLETE	cause #81 (invalid TI value)
5			Void	
6		<-		The SS releases the RRC connection.

Specific message contents:

None.

10.1.2.5.5.5 Test requirements

After step 1 the UE shall respond with the RELEASE COMPLETE message.

10.1.2.5.6 Outgoing call / U4 call delivered / lower layer failure

10.1.2.5.6.1 Definition

The call control entity of the UE being in the state, U4, a lower layer failure is accomplished at the UE and consequently, communication at layer 3 level with the peer entity is terminated.

10.1.2.5.6.2 Conformance requirement

The MM sublayer shall indicate to all CM entities associated with active MM connections that the MM connection is interrupted, the subsequent action of the MM sublayer (call re-establishment, see TS 24.008 clause 4.5.1.6, or local release) will then depend on the decisions by the CM entities.

References

TS 24.008 clause 4.5.2.3 and clause 4.5.3, TS 25.331 clause 8.3.1 and clause 8.5.6.

10.1.2.5.6.3 Test purpose

To verify that a CC-entity of the UE in CC-state U4, "Call Delivered" having detected a lower layer failure and has returned to idle mode, the CC-entity is in CC-state U0, "Null".

10.1.2.5.6.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U4 by using table 10.1.2/3.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The UE is brought to the state U4. The SS modifies the scrambling code of downlink transmission (DL DPCH) to generate a lower layer failure at the UE. The SS waits long enough to perform cell update procedure. The SS sends RRC CONNECTION RELEASE message as a response to the CELL UPDATE message from the UE. The SS re-modifies the scrambling code of downlink transmission (DL DPCH) to the original one and waits 60 s. The SS will check that the UE will not send any message during 60 s.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		SS modifies the scrambling code of DPCH for generating lower layer failure
2	->		CELL UPDATE	CCCH
3	<-		RRC CONNECTION RELEASE	CCCH
4		SS		SS re-modifies the scrambling code of DPCH to the original one.
5		SS		SS waits 60 s. UE shall send no message on the DCCH

Specific message contents:

None.

10.1.2.5.6.5 Test requirements

After step 4 the UE shall not send any message to the SS during 60 s.

10.1.2.5.7 Outgoing call / U4 call delivered / traffic channel allocation

10.1.2.5.7.1 Definition

The call control entity of the UE being in the state, U4, a radio bearer establishment procedure is performed.

10.1.2.5.7.2 Conformance requirement

It is a network dependent decision when to initiate the assignment of an appropriate traffic channel during the mobile originating call establishment phase. Initiation of a suitable RR procedure to assign an appropriate traffic channel does neither change the state of a call control entity nor affect any call control timer.

References

TS 24.008 clause 5.2.1.9.

10.1.2.5.7.3 Test purpose

To verify that a CC-entity of the UE in CC-state U4, "Call Delivered", when a traffic channel is allocated by the network performing the radio bearer establishment procedure, stays in CC-state U4.

10.1.2.5.7.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U4 by using table 10.1.2/1.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U4. The SS sends a RADIO BEARER SETUP for traffic channel to the UE. The UE shall respond with a RADIO BEARER SETUP COMPLETE message. The SS checks by using the status enquiry procedure that the state of the CC entity has remained unchanged.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Radio Bearer Setup Procedure	See TS 34.108 clause 7.1.3
2	<-		STATUS ENQUIRY	
3	->		STATUS	cause #30, state U4

Specific message contents:

None.

10.1.2.5.7.5 Test requirements

After step 1 the CC state U4, "Call delivered", shall remain unchanged.

10.1.2.5.8 Outgoing call / U4 call delivered / unknown message received

10.1.2.5.8.1 Definition

The call control entity of the UE being in the state, U4, an unknown message is received by the UE.

10.1.2.5.8.2 Conformance requirement

If a UE receives an RR, MM or CC message with message type not defined for the PD or not implemented by the receiver in acknowledged mode, it shall return a status message (STATUS, MM STATUS depending on the protocol discriminator) with cause # 97 "message type non-existent or not implemented".

References

TS 24.008 clause 8.4.

10.1.2.5.8.3 Test purpose

To verify that a CC-entity of the UE in CC-state U4, "Call Delivered", having received an unknown message from its peer entity returns a STATUS message.

10.1.2.5.8.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U4 by using table 10.1.2/4.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U4. The SS sends a message with message type not defined for the protocol discriminator to the UE. The UE shall respond with a STATUS message, and finally the SS checks by using the status enquiry procedure that the state of the CC entity has remained unchanged.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		unknown message	message type not defined for PD
2	->		STATUS	cause #97, state U4
3	<-		STATUS ENQUIRY	
4	->		STATUS	cause #30, state U4

Specific message contents:

None.

10.1.2.5.8.5 Test requirements

After step 1 the UE shall return a STATUS message.

10.1.2.6 U10 active

10.1.2.6.1 U10 active / termination requested by the user

10.1.2.6.1.1 Definition

The call control entity of the UE being in the state, U10, the user requests to terminate the call.

10.1.2.6.1.2 Conformance requirement

Apart from the exceptions identified in TS 24.008 clause 5.4.2, the call control entity of the UE shall initiate clearing by: stopping all running call control timers, sending a DISCONNECT message; starting timer T305; and entering the "disconnect request" state.

References

TS 24.008 clause 5.4.3.1

10.1.2.6.1.3 Test purpose

To verify that the a CC-entity of the UE in CC-state U10, "Active", upon request by the user to terminate will send a DISCONNECT message and enter the CC-state U11, "Disconnect Request".

10.1.2.6.1.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U10 by using table 10.1.2/1.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U10. The user requests termination of the call. The UE shall send a DISCONNECT message. The SS checks by using the status enquiry procedure that the CC entity has entered the state U11, disconnect request.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1				MMI action, terminate call
2	->		DISCONNECT	
3	<-		STATUS ENQUIRY	
4	->		STATUS	cause #30, state U11

Specific message contents:

None.

10.1.2.6.1.5 Test requirements

After step 1 the UE shall send a DISCONNECT message and enter the CC state U11, "Disconnect Request".

10.1.2.6.2 U10 active / RELEASE received

10.1.2.6.2.1 Definition

The call control entity of the UE being in the state, U10, a RELEASE message is received by the UE.

10.1.2.6.2.2 Conformance requirement

The call control entity of the UE in any state except the "null" state and the "release request" state, shall, upon receipt of a RELEASE message: stop all running call control timers; send a RELEASE COMPLETE message; release the MM connection; and return to the "null" state.

References

TS 24.008 clause 5.4.3.3.

10.1.2.6.2.3 Test purpose

1) To verify that the a CC-entity of the UE in CC-state U10, "Active", upon receive of the RELEASE will respond with the RELEASE COMPLETE message and enter the CC-state U0, "Null"

10.1.2.6.2.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U10 by using table 10.1.2/1.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U10. The SS sends a RELEASE message to the UE. The UE shall respond with a RELEASE COMPLETE message.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		<-	RELEASE	with cause "Normal, unspecified"
2	->		RELEASE COMPLETE	the UE starts T3240
3		<-	STATUS ENQUIRY	
4	->		RELEASE COMPLETE	cause #81 (invalid TI value)
5			Void	
6		<-		The SS releases the RRC connection.

Specific message contents:

None.

10.1.2.6.2.5 Test requirements

After step 1 the UE shall return a RELEASE COMPLETE message.

10.1.2.6.3 U10 active / DISCONNECT with in band tones

10.1.2.6.3.1 Definition

The call control entity of the UE being in the state, U10, a DISCONNECT message indicating availability of in band information is received by the UE.

10.1.2.6.3.2 Conformance requirement

The call control entity of the UE in any state except the "null" state, the "disconnect indication" state, and the "release request" state, shall, upon receipt of a DISCONNECT message with progress indicator #8:

i) if an appropriate speech traffic channel is not connected, continue clearing as defined in TS 24.008 clause 5.4.4.1.2.1 without connecting to the in-band tone/announcement;

ii) if an appropriate speech traffic channel is connected, attach the user connection for speech if it is not yet attached and enter the "disconnect indication" state. In that state, if upper layers request the clearing of the call, the call control entity of the UE shall proceed as defined in TS 24.008 clause 5.4.4.1.2.1.

…

The call control entity of the MS in any state except the "null" state, the "disconnect indication" state, and the "release request" state, shall, upon receipt of a DISCONNECT message with progress indicator #8 and, either not containing an *Allowed Actions* IE or containing an *Allowed Actions* IE indicating "CCBS activation is not possible":

i) if an appropriate speech traffic channel is not connected,

- stop all running call control timers;
- send a RELEASE message;
- start timer T308; and
- enter the "release request" state.
- not connect to the in-band tone/announcement;

ii) if an appropriate speech traffic channel is connected, attach the user connection for speech if it is not yet attached and enter the "disconnect indication" state. In that state, if upper layers request the clearing of the call, the call control entity of the MS shall:

- stop all running call control timers;
- send a RELEASE message;
- start timer T308; and

- enter the "release request" state.

References

TS 24.008 clause 5.4.4.1.1.1 and clause 5.4.4.2.1.1

10.1.2.6.3.3 Test purpose

To verify that a CC-entity of the UE in CC-state U10, "Active", upon receipt of a DISCONNECT message with a Progress Indicator indicating in-band information, through-connects the speech channel to make in-band announcements available, if traffic channel is in speech mode. If DTCH is not in speech mode, the UE sends a RELEASE message.

10.1.2.6.3.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U10 by using table 10.1.2/1.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U10. The SS sends a DISCONNECT message containing indication of in-band information availability to the UE. The SS checks that if channel mode is speech, the DTCH shall be through connected and the UE enters state U12, disconnect indication. If channel mode is not speech, the DTCH shall not be through connected and the UE enters state U19, release request.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		<-	DISCONNECT	(note)
A2		SS		DTCH in speech mode: the SS will check that the audio path for in band tones is attached.
A3		<-	STATUS ENQUIRY	
A4		->	STATUS	cause #30, state U12
				DTCH is not in speech mode:
B2		->	RELEASE	
B3		<-	STATUS ENQUIRY	
B4		->	STATUS	cause #30, state U19

Specific message contents:

NOTE: the Progress Indicator, Progress Description value:

#8 in band information or appropriate pattern now available.

10.1.2.6.3.5 Test requirements

After step 1 the UE shall through-connect the speech channel to make in-band announcements available, if traffic channel is in speech mode. If DTCH is not in speech mode, the UE shall send a RELEASE message.

10.1.2.6.4 U10 active / DISCONNECT without in band tones

10.1.2.6.4.1 Definition

The call control entity of the UE being in the state, U10, a DISCONNECT message is received by the UE. The DISCONNECT message does not contain indication of in-band information availability.

10.1.2.6.4.2 Conformance requirement

The call control entity of the UE in any state except the "null" state, the "disconnect indication" state, and the "release request" state, shall, upon the receipt of a DISCONNECT message without progress indicator information element or with progress indicator different from #8:

- stop all running call control timers;
- send a RELEASE message;
- start timer T308; and
- enter the "release request" state.

….

The call control entity of the mobile station in any state except the "null" state, the "disconnect indication" state, and the "release request" state, shall, upon the receipt of a DISCONNECT message either without progress indicator information element or with progress indicator different from #8, and, either without the *Allowed Actions* IE or with the *Allowed Actions* IE indicating that "CCBS is not possible":

- stop all running call control timers;
- send a RELEASE message;
- start timer T308; and
- enter the "release request" state.

References

TS 24.008 clause 5.4.4.1.2.1 and 5.4.4.2.3.1.

10.1.2.6.4.3 Test purpose

To verify that the a CC-entity of the UE in CC-state U10, "Active", upon receipt of a DISCONNECT message without progress indicator, returns a RELEASE message and enters the CC-state U19, "Release Request".

10.1.2.6.4.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U10 by using table 10.1.2/1.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U10. The SS sends a DISCONNECT message not containing indication of in-band information availability to the UE. The UE shall respond with a RELEASE message. The SS checks by using the status enquiry procedure that the CC entity of the UE has entered the state U19, release request.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		<-	DISCONNECT	without progress indicator
2		->	RELEASE	
3		<-	STATUS ENQUIRY	
4		->	STATUS	cause #30, state U19

Specific message contents:

None.

10.1.2.6.4.5 Test requirements

After step 1 the UE shall return a RELEASE message and enter the CC-state U19, "Release Request".

10.1.2.6.5 U10 active / RELEASE COMPLETE received

10.1.2.6.5.1 Definition

The call control entity of the UE being in the state, U10, the call is cleared by a RELEASE COMPLETE message sent by the SS.

10.1.2.6.5.2 Conformance requirement

1) A call control entity shall accept an incoming RELEASE COMPLETE message used to initiate the call clearing even though the cause information element is not included.

2) A call control entity of the UE in any call control state shall, upon receipt of a RELEASE COMPLETE message from its peer entity in the network: stop all running call control timers ; release the MM connection; and return to the "null" state.

References

Conformance requirement 1: TS 24.008 clause 5.4.2.

Conformance requirement 2: TS 24.008 clause 5.4.4.1.3.

10.1.2.6.5.3 Test purpose

1) To verify that a CC entity of the UE in CC-state U10, "Active" upon receipt of a RELEASE COMPLETE message with valid cause value, enters CC state U0, "Null".

2) To verify that in returning to idle mode, the CC entities relating to the seven mobile originating transaction identifiers are in state U0, "Null".

10.1.2.6.5.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U10 by using table 10.1.2/1.

Test procedure

The SS sends a RELEASE COMPLETE message to the UE. The SS checks by using the status enquiry procedure that the CC entity has entered the state U0 with all the relevant transaction identifiers.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		RELEASE COMPLETE	note 1
2	<-		STATUS ENQUIRY	note 2
3	->		RELEASE COMPLETE	cause #81 (invalid TI value),
4	SS			repeat steps 2-3 to cover all the transaction identifiers from 000...110
5	<-			The SS releases the RRC connection.

Specific message contents:

NOTE 1: With the cause value chosen arbitrarily or cause value not included.

NOTE 2: TI flag has the value indicating the UE as an originator of the call.

10.1.2.6.5.5 Test requirements

After step 2 CC entities relating to all mobile originating transaction identifiers shall send RELEASE COMPLETE messages with cause value #81 (invalid TI value).

10.1.2.6.6 U10 active / SETUP received

10.1.2.6.6.1 Definition

If the UE does not react correctly when receiving a SETUP message on a new Transaction Identifier during an active call, the active call may be lost.

10.1.2.6.6.2 Conformance requirement

1) A busy UE which satisfies the compatibility requirements indicated in the SETUP message shall respond either with a CALL CONFIRMED message if the call setup is allowed to continue or a RELEASE COMPLETE message if the call setup is not allowed to continue, both with cause #17 "user busy".

References:

TS 24.008 clause 5.2.2.3.1.

10.1.2.6.6.3 Test purpose

1) To verify that a User Equipment that has a call established and receives a SETUP message answers either with a CALL CONFIRMED message with cause "user busy" if it supports call waiting, or with a RELEASE COMPLETE message with cause "user busy" otherwise.

2) To verify that after having sent this message, the UE is still in state U10 for the established call.

10.1.2.6.6.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

- support of call waiting Y/N.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is idle updated with valid TMSI and CKSN.

The UE is brought into the state U10 by using table 10.1.2/1.

Test Procedure

The UE has a mobile originated call in the U10 state. When UE sends a SETUP message and SS receives it in the first call establishment, SS sends a CALL PROCEEDING message without Network Call Control Capabilities IE.

The SS sends a SETUP message to the UE (with signal IE indicating "call waiting tone on" and without Network Call Control Capabilities IE).

If the UE does not support call waiting it shall answer by a RELEASE COMPLETE message.

If the UE supports call waiting it shall answer by a CALL CONFIRMED message followed by an ALERTING. The second transaction is then released by the SS with a RELEASE COMPLETE message.

In both cases the SS checks by using the status enquiry procedure that the CC entity of the UE is still in state U10, active call for the original call.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		<-	SETUP	this message establishes a second transaction The TI value shall be the same as the one that is in use for the MO call. The TI flag shall have the value specified for an MT call.
A2		->	RELEASE COMPLETE	if the UE does not support call waiting with cause "user busy" with the TI of the second transaction
B2		->	CALL CONFIRMED	if the UE supports call waiting with cause "user busy" with the TI of the second transaction
B3		->	ALERTING	with the TI of the second transaction
B4		<-	RELEASE COMPLETE	with the TI of the second transaction
5		<-	STATUS ENQUIRY	with the TI of the original transaction
6		->	STATUS	cause #30, state U10 with the TI of the original transaction

Specific message contents

SETUP message contains a Signal IE with value "call waiting tone on" (H'07).

10.1.2.6.6.5 Test requirements

After step 1 a UE that has a call established shall answer either with a CALL CONFIRMED message with cause "user busy" if it supports call waiting, or with a RELEASE COMPLETE message with cause "user busy" otherwise.

After step A2 or B4 the UE shall be in state U10 for the established call.

10.1.2.7 U11 disconnect request

10.1.2.7.1 U11 disconnect request / clear collision

10.1.2.7.1.1 Definition

The call control entity of the UE being in the state, U11, a DISCONNECT message is received by the UE.

10.1.2.7.1.2 Conformance requirement

The call control entity of the UE in any state except the "null" state, the "disconnect indication" state, and the "release request" state, shall, upon the receipt of a DISCONNECT message without progress indicator information element or with progress indicator different from #8:

- stop all running call control timers;
- send a RELEASE message;
- start timer T308; and
- enter the "release request" state.

….

The call control entity of the mobile station in any state except the "null" state, the "disconnect indication" state, and the "release request" state, shall, upon the receipt of a DISCONNECT message either without progress indicator information element or with progress indicator different from #8, and, either without the *Allowed Actions* IE or with the *Allowed Actions* IE indicating that "CCBS is not possible":

- stop all running call control timers;
- send a RELEASE message;
- start timer T308; and
- enter the "release request" state.

References

TS 24.008 clause 5.4.4.1.2.1 and 5.4.4.2.3.1.

10.1.2.7.1.3 Test purpose

To verify that the a CC-entity of the UE in CC-state U11, "Disconnect Request", upon receipt of a DISCONNECT message, returns to its peer entity the RELEASE message and enters the CC-state U19, "Release Request".

10.1.2.7.1.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U11 by using table 10.1.2/3.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U11. The SS sends a DISCONNECT message to the UE.

The UE shall respond with a RELEASE message. The SS checks by using the status enquiry procedure that the CC entity of the UE has entered the state U19, release request.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		<-	DISCONNECT	
2		->	RELEASE	
3		<-	STATUS ENQUIRY	
4		->	STATUS	cause #30, state U19

Specific message contents:

None.

10.1.2.7.1.5 Test requirements

After step 1 the UE shall return the RELEASE message.

After step 3 the UE shall return a STATUS message with "Call state" set to state U19, "Release Request".

10.1.2.7.2 U11 disconnect request / RELEASE received

10.1.2.7.2.1 Definition

The call control entity of the UE being in the state, U11, a RELEASE message is received by the UE.

10.1.2.7.2.2 Conformance requirement

The call control entity of the UE in any state except the "null" state and the "release request" state, shall, upon receipt of a RELEASE message: stop all running call control timers; send a RELEASE COMPLETE message; release the MM connection; and return to the "null" state.

References

TS 24.008 clause 5.4.3.3

10.1.2.7.2.3 Test purpose

1) To verify that the a CC-entity of the UE in CC-state U11, "Disconnect Request", upon receipt of the RELEASE message shall return RELEASE COMPLETE and enter the CC-state U0, "Null".

10.1.2.7.2.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U11 by using table 10.1.2/3.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U11. The SS sends a RELEASE message to the UE. The UE shall respond with a RELEASE COMPLETE message.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		<-	RELEASE	
2		->	RELEASE COMPLETE	
3		<-	STATUS ENQUIRY	
4		->	RELEASE COMPLETE	cause #81 (invalid TI value)
5			Void	
6				The SS releases the RRC connection.

Specific message contents:

None.

10.1.2.7.2.5 Test requirements

After step 1 the UE shall return the RELEASE COMPLETE.

10.1.2.7.3 U11 disconnect request / timer T305 time-out

10.1.2.7.3.1 Definition

The call control entity of the UE being in the state, U11, if no response is then received from the SS, timer T305 expires at the UE side.

10.1.2.7.3.2 Conformance requirement

The call control entity of the UE in the "disconnect request" state, shall upon expiry of timer T305: send a RELEASE message to the network with the cause number originally contained in the DISCONNECT message and optionally, a second cause information element with cause #102 "recovery on timer expiry", start timer T308, and enter the "release request" state.

References

TS 24.008 clause 5.4.3.5.

10.1.2.7.3.3 Test purpose

To verify that the CC-entity of the UE in CC-state U11, "Disconnect Request" shall on expiry of T305, proceed with the connection release procedure by sending the RELEASE message to its peer entity and enters the CC-state U19, "Release Request".

10.1.2.7.3.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U11 by using table 10.1.2/3.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U11. Then T305 expires at the UE and the UE shall send a RELEASE message. The SS checks timer T305 accuracy and that the CC entity has entered the state U19, release request.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		SS waits until T305 expires at the UE
2	->		RELEASE	SS checks the time between DISCONNECT and RELEASE (note), check the timer T305 accuracy, see TS34.108 clause 4.2.3
3	<-		STATUS ENQUIRY	
4	->		STATUS	cause #30, state U19

Specific message contents:

NOTE: With the same cause value as originally contained in the DISCONNECT message. An additional cause information element (#102 recovery on timer expiry) may be included.

10.1.2.7.3.5 Test requirements

After step 1 upon expiry of timer T305 the UE shall proceed with the connection release procedure by sending the RELEASE message and enter the CC-state U19, "Release Request".

10.1.2.7.4 U11 disconnect request / lower layer failure

10.1.2.7.4.1 Definition

The call control entity of the UE being in the state, U11, a lower layer failure is accomplished at the UE and consequently, communication at layer 3 level with the peer entity is terminated.

10.1.2.7.4.2 Conformance requirement

The MM sublayer shall indicate to all CM entities associated with active MM connections that the MM connection is interrupted, the subsequent action of the MM sublayer (call re-establishment, see TS 24.008 clause 4.5.1.6, or local release) will then depend on the decisions by the CM entities.

References

TS 24.008 clause 4.5.2.3 and 4.5.3, TS 25.331 clause 8.3.1 and clause 8.5.6.

10.1.2.7.4.3 Test purpose

To verify that the a CC-entity of the UE in CC-state U11, "Disconnect Request" having detected a lower layer failure returns to the idle mode. The CC entity is thus in state U0, "Null".

10.1.2.7.4.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U11 by using table 10.1.2/4.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The UE is brought to the state U11. The SS modifies the scrambling code of downlink transmission (DL DPCH) to generate a lower layer failure at the UE. The SS waits long enough to enable the UE to perform cell update procedure. The SS sends RRC CONNECTION RELEASE message as a response to the CELL UPDATE message from the UE. The SS re-modifies the scrambling code of downlink transmission (DL DPCH) to the original one and waits 60 s. The SS will check that the UE will not send any message during 60 s.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		SS modifies the scrambling code of DPCH for generating lower layer failure
2	->		CELL UPDATE	CCCH
3	<-		RRC CONNECTION RELEASE	CCCH
4		SS		SS re-modifies the scrambling code of DPCH to the original one.
5		SS		SS waits 60 s.

Specific message contents:

None.

10.1.2.7.4.5 Test requirements

After step 4 the UE shall not send any message to the SS during 60 s.

10.1.2.7.5 U11 disconnect request / unknown message received

10.1.2.7.5.1 Definition

The call control entity of the UE being in the state, U11, an unknown message is received by the UE.

10.1.2.7.5.2 Conformance requirement

If a UE receives an RR, MM or CC message with message type not defined for the PD or not implemented by the receiver in acknowledged mode, it shall return a status message (STATUS, MM STATUS depending on the protocol discriminator) with cause # 97 "message type non-existent or not implemented".

References

TS 24.008 clause 8.4.

10.1.2.7.5.3 Test purpose

To verify that a CC-entity of the UE in CC-state U11, "Disconnect Request", having received an unknown message from its peer entity returns a STATUS message.

10.1.2.7.5.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U11 by using table 10.1.2/4.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U11. The SS sends a message with message type not defined for the protocol discriminator to the UE. The UE shall respond with a STATUS message, and finally the SS checks by using the status enquiry procedure that the state of the CC entity has remained unchanged.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		unknown message	message type not defined for PD
2	->		STATUS	cause #97, state U11
3	<-		STATUS ENQUIRY	
4	->		STATUS	cause #30, state U11

Specific message contents:

None.

10.1.2.7.5.5 Test requirements

After step 1 the UE shall return a STATUS message.

10.1.2.8 U12 disconnect indication

10.1.2.8.1 U12 disconnect indication / call releasing requested by the user

10.1.2.8.1.1 Definition

The call control entity of the UE being in the state, U12, the user requests to terminate the call.

10.1.2.8.1.2 Conformance requirement

Response from the upper layers:

i) If the upper layers request the clearing of the call, the call control entity of the UE shall:

- stop all running call control timers;
- send a RELEASE message;
- start timer T308; and
- enter the "release request" state.

References

TS 24.008 clause 5.4.4.2.2.1

10.1.2.8.1.3 Test purpose

To verify that a CC-entity of the UE in CC-state U12, "Disconnect Indication" being in network initiated call release phase, shall, upon receiving a call release request from the user sends a RELEASE to its peer entity and enters CC-state U19, "Release Request"

10.1.2.8.1.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U12 by using Option A of table 10.1.2/1.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U12. The user requests termination of the call. The UE shall send a RELEASE message. The SS checks by using the status enquiry procedure that the CC entity has entered the state U19, release request.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1				MMI action, "on hook"
2	->		RELEASE	
3	<-		STATUS ENQUIRY	
4	->		STATUS	cause #30, state U19

Specific message contents:

None.

10.1.2.8.1.5 Test requirements

After step 1 the UE being in network initiated call release phase, shall send a RELEASE message and enter CC-state U19, "Release Request".

10.1.2.8.2 U12 disconnect indication / RELEASE received

10.1.2.8.2.1 Definition

The call control entity of the UE being in the state, U12, a RELEASE message is received by the UE.

10.1.2.8.2.2 Conformance requirement

The call control entity of the UE in any state except the "null" state and the "release request" state, shall, upon receipt of a RELEASE message: stop all running call control timers; send a RELEASE COMPLETE message; release the MM connection; and return to the "null" state.

References

TS 24.008 clause 5.4.3.3

10.1.2.8.2.3 Test purpose

1) To verify that a CC-entity of the UE in CC-state U12, "Disconnect Indication", upon receipt of a RELEASE message returns to its peer entity the RELEASE COMPLETE message and enters the CC-state U0, "Null".

2) To verify that the UE on returning to the idle mode releases the MM-connection and that the CC-entities relating to the seven mobile originating transaction identifiers are in CC-state U0, "Null".

10.1.2.8.2.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U12 by using Option A of table 10.1.2/1.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U12. The SS sends a RELEASE message to the UE. The UE shall respond with a RELEASE COMPLETE message. The SS checks by using the status enquiry procedure that the CC entity has entered the state U0 with all the relevant transaction identifiers.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		RELEASE	
2	->		RELEASE COMPLETE	
3	<-		STATUS ENQUIRY	
4	->		RELEASE COMPLETE	cause #81 (invalid TI value)
5	SS			repeat steps 3-4 to cover all the transaction identifiers from 000...110
6	<-			The SS releases the RRC connection

Specific message contents:

None.

10.1.2.8.2.5 Test requirements

After step 1 the UE shall return the RELEASE COMPLETE message.

After step 3 CC entities relating to all mobile originating transaction identifiers shall send RELEASE COMPLETE messages with cause value #81 (invalid TI value).

10.1.2.8.3 U12 disconnect indication / lower layer failure

10.1.2.8.3.1 Definition

The call control entity of the UE being in the state, U12, a lower layer failure is accomplished at the UE and consequently, communication at layer 3 level with the peer entity is terminated.

10.1.2.8.3.2 Conformance requirement

The MM sublayer shall indicate to all CM entities associated with active MM connections that the MM connection is interrupted, the subsequent action of the MM sublayer (call re-establishment, see TS 24.008 clause 4.5.1.6, or local release) will then depend on the decisions by the CM entities.

References

TS 24.008 clause 4.5.2.3 and clause 4.5.3, TS 25.331 clause 8.3.1 and clause 8.5.6.

10.1.2.8.3.3 Test purpose

To verify that a CC-entity of the UE in CC-state U12, "Disconnect Indication" having detected a lower layer failure returns to idle mode. The CC-entity is thus in state U0, "Null".

10.1.2.8.3.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U12 by using Option A of table 10.1.2/3.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The UE is brought to the state U12. The SS modifies the scrambling code of downlink transmission (DL DPCH) to generate a lower layer failure at the UE. The SS waits long enough to enable the UE to perform cell update procedure. The SS sends RRC CONNECTION RELEASE message as a response to the CELL UPDATE message from the UE. The SS re-modifies the scrambling code of downlink transmission (DL DPCH) to the original one and waits 60 s. The SS will check that the UE will not send any message during 60 s.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		SS modifies the scrambling code of DPCH for generating lower layer failure
2	->		CELL UPDATE	CCCH
3	<-		RRC CONNECTION RELEASE	CCCH
4		SS		SS re-modifies the scrambling code of DPCH to the original one.
5		SS		SS waits 60 s. UE shall send no message on the DCCH

Specific message contents:

None.

10.1.2.8.3.5 Test requirements

After step 4 the UE shall not send any message to the SS during 60 s.

10.1.2.8.4 U12 disconnect indication / unknown message received

10.1.2.8.4.1 Definition

The call control entity of the UE being in the state, U12, an unknown message is received by the UE.

10.1.2.8.4.2 Conformance requirement

If a UE receives an RR, MM or CC message with message type not defined for the PD or not implemented by the receiver in acknowledged mode, it shall return a status message (STATUS, MM STATUS depending on the protocol discriminator) with cause # 97 "message type non-existent or not implemented".

References

TS 24.008 clause 8.4.

10.1.2.8.4.3 Test purpose

To verify that a CC-entity of the UE in CC-state U12, "Disconnect Indication" having received an unknown message from its peer entity returns a STATUS message.

10.1.2.8.4.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U12 by using Option A of table 10.1.2/3.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U12. The SS sends a message with message type not defined for the protocol discriminator to the UE. The UE shall respond with a STATUS message, and finally the SS checks by using the status enquiry procedure that the state of the CC entity has remained unchanged.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		unknown message	message type not defined for PD
2	->		STATUS	cause #97, state U12
3	<-		STATUS ENQUIRY	
4	->		STATUS	cause #30, state U12

Specific message contents:

None.

10.1.2.8.4.5 Test requirements

After step 1 the UE shall return a STATUS message.

10.1.2.9 Outgoing call / U19 release request

10.1.2.9.1 Outgoing call / U19 release request / timer T308 time-out

10.1.2.9.1.1 Definition

The call control entity of the UE being in the state, U19, if no response is then received from the SS, timer T308 expires at the UE side.

10.1.2.9.1.2 Conformance requirement

The call control entity of the UE in the "release request" state shall at first expiry of timer T308 retransmit the RELEASE message and restart timer T308.

References

TS 24.008 clause 5.4.4.1.3.1.

10.1.2.9.1.3 Test purpose

To verify that a CC-entity of the UE in CC-state U19, "Release Request" will, upon the first expiry of timer T308 send the RELEASE message to its peer entity and remain in the CC-state U19.

10.1.2.9.1.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U19 by using table 10.1.2/4.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U19. When T308 expires at the UE, the UE shall send a RELEASE message. The SS checks timer T308 accuracy and that the state of the CC entity has remained unchanged.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		SS waits until T308 at the UE
2	->		RELEASE	SS checks the time between the two RELEASE messages check the timer T308 accuracy, see TS34.108 clause 4.2.3
3	<-		STATUS ENQUIRY	
4	->		STATUS	cause #30, state U19

Specific message contents:

None.

10.1.2.9.1.5 Test requirements

After step 1 upon the first expiry of timer T308 the UE shall send the RELEASE message and remain in the CC-state U19.

10.1.2.9.2 Outgoing call / U19 release request / 2nd timer T308 time-out

10.1.2.9.2.1 Definition

The call control entity of the UE being in the state, U19, if no response is then received after timer T308 has expired two times in success at the UE.

10.1.2.9.2.2 Conformance requirement

At second expiry of timer T308, the call control entity of the UE shall: release the MM connection; and return to the "null" state.

References

TS 24.008 clause 5.4.4.1.3.1.

10.1.2.9.2.3 Test purpose

1) To verify that a CC-entity of the UE in CC-state U19, "Release Request", upon the 2nd expiry of the timer T308, enters the CC-state U0, "Null".

2) To verify that subsequently the UE proceeds with releasing the MM-connection and enters the idle mode with the CC entities relating to the seven mobile originating transaction identifiers in state U0, "Null".

10.1.2.9.2.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U19 by using table 10.1.2/4.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U19. The SS allows T308 expiry at the UE, and the UE shall repeat sending the RELEASE message and start timer T308 again. The SS allows again T308 expiry at the UE. The UE shall abort the RRC connection. The SS waits long enough to enable the UE to return to idle state listening to paging, and then pages UE to create RRC connection. The SS performs authentication and starts integrity. Finally, the SS will check the state of the UE by using STATUS ENQUIRY with the relevant transaction identifiers.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		SS waits until T308 expiry at the UE
2	->		RELEASE	
3	<-		STATUS ENQUIRY	
4	->		STATUS	cause #30, state U19
5		SS		SS waits until the second T308 expiry at the UE
6		SS		SS waits T3240 expiry at the UE
7	UE			The SS releases the RRC connection
8		SS		SS waits 10 s for the UE to return to listening to paging
9			Mobile terminated establishment of Radio Resource Connection	See TS34.108
9a	->		PAGING RESPONSE	
9b	<-		AUTHENTICATION REQUEST	
9c	->		AUTHENTICATION RESPONSE	
9d				SS starts integrity
10	<-		STATUS ENQUIRY	
11	->		RELEASE COMPLETE	cause #81 (invalid TI value)
12		SS		repeat steps 10-11 to cover all the transaction identifiers from 000...110
13				The SS releases the RRC connection.

Specific message contents:

None.

10.1.2.9.2.5 Test requirements

After step 5 upon the 2nd expiry of the timer T308 the UE shall enter the CC-state U0, "Null".

After step 10 CC entities relating to all mobile originating transaction identifiers shall send RELEASE COMPLETE messages with cause value #81 (invalid TI value).

10.1.2.9.3 Outgoing call / U19 release request / RELEASE received

10.1.2.9.3.1 Definition

The call control entity of the UE being in the state, U19, a RELEASE message is received by the UE.

10.1.2.9.3.2 Conformance requirement

Clear collision can also occur when both sides simultaneously transfer RELEASE messages related to the same call. The entity receiving such a RELEASE message whilst within the "release request" state shall: stop timer T308; release the MM connection; and enter the "null" state (without sending a RELEASE COMPLETE message).

References

TS 24.008 clause 5.4.4.2.5.1

10.1.2.9.3.3 Test purpose

To verify that a CC-entity of the UE in CC-state U19, "Release Request", upon receipt of a RELEASE, shall release the MM-connection and enters the CC-state U0, "Null" with the CC entities relating to the seven mobile originating transaction identifiers in state U0, "Null".

10.1.2.9.3.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U19 by using table 10.1.2/4.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U19. The SS sends a RELEASE message to the UE. The UE shall release the MM-connection. The SS checks by using the status enquiry procedure that the CC entity has entered the state U0 with all the relevant transaction identifiers.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		RELEASE	
2	<-		STATUS ENQUIRY	
3	->		RELEASE COMPLETE	cause #81 (invalid TI value)
4	SS			repeat steps 2-3 to cover all the transaction identifiers from 000...110
5	<-			The SS releases the RRC connection

Specific message contents:

None.

10.1.2.9.3.5 Test requirements

After step 2 CC entities relating to all mobile originating transaction identifiers shall send RELEASE COMPLETE messages with cause value #81 (invalid TI value).

10.1.2.9.4 Outgoing call / U19 release request / RELEASE COMPLETE received

10.1.2.9.4.1 Definition

The call control entity of the UE being in the state, U19, a RELEASE COMPLETE message is received by the UE.

10.1.2.9.4.2 Conformance requirement

1) A call control entity shall accept an incoming RELEASE COMPLETE message used to initiate the call clearing even though the cause information element is not included.

2) A call control entity of the UE in any call control state shall, upon receipt of a RELEASE COMPLETE message from its peer entity in the network: stop all running call control timers ; release the MM connection; and return to the "null" state.

References

Conformance requirement 1: TS 24.008 clause 5.4.2

Conformance requirement 2: TS 24.008 clause 5.4.4.1.3

10.1.2.9.4.3 Test purpose

To verify that a CC-entity of the UE in CC-state U19, "Release Request", upon receipt of a RELEASE COMPLETE, shall release the MM-connection and enters the CC-state U0, "Null" with the CC entities relating to the seven mobile originating transaction identifiers in state U0, "Null".

10.1.2.9.4.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U19 by using table 10.1.2/1.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The CC entity of the UE is brought to the state U19. The SS sends a RELEASE COMPLETE message to the UE. The UE shall release the MM-connection. The SS checks by using the status enquiry procedure that the CC entity has entered the state U0 with all the relevant transaction identifiers.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		RELEASE COMPLETE	
2	<-		STATUS ENQUIRY	
3	->		RELEASE COMPLETE	cause #81 (invalid TI value)
4	SS			repeat steps 2-3 to cover all the transaction identifiers from 000...110
5	<-			The SS releases the RRC connection.

Specific message contents:

None.

10.1.2.9.4.5 Test requirements

After step 2 CC entities relating to all mobile originating transaction identifiers shall send RELEASE COMPLETE messages with cause value #81 (invalid TI value).

10.1.2.9.5 Outgoing call / U19 release request / lower layer failure

10.1.2.9.5.1 Definition

The call control entity of the UE being in the state, U19, a lower layer failure is accomplished at the UE and consequently, communication at layer 3 level with the peer entity is terminated.

10.1.2.9.5.2 Conformance requirement

The MM sublayer shall indicate to all CM entities associated with active MM connections that the MM connection is interrupted, the subsequent action of the MM sublayer (call re-establishment, see TS 24.008 clause 4.5.1.6, or local release) will then depend on the decisions by the CM entities.

References

TS 24.008 clause 4.5.2.3 and clause 4.5.3, TS 25.331 clause 8.3.1 and clause 8.5.6.

10.1.2.9.5.3 Test purpose

To verify that a CC-entity of the UE in CC-state U19, "Release Request", having detected a lower layer failure, returns to the idle mode, the CC entity is in state U0, "Null".

10.1.2.9.5.4 Method of test

Related ICS/IXIT statements

- supported MO circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U19 by using table 10.1.2/1.

Test procedure

An MO circuit switched basic service is selected that is supported by the UE; if the UE supports MO telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then, the UE is made to initiate a call. The UE is brought to the state U19. The SS modifies the scrambling code of downlink transmission (DL DPCH) to generate a lower layer failure at the UE. The SS waits long enough to enable the UE to perform cell update procedure. The SS sends RRC CONNECTION RELEASE message as a response to the CELL UPDATE message from the UE. The SS re-modifies the scrambling code of downlink transmission (DL DPCH) to the original one and waits 60 s. The SS will check that the UE will not send any message during 60 s.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		SS modifies the scrambling code of DPCH for generating lower layer failure
2	->		CELL UPDATE	CCCH
3	<-		RRC CONNECTION RELEASE	CCCH
4		SS		SS re-modifies the scrambling code of DPCH to the original one.
5		SS		SS waits 60 s. UE shall send no message on the DCCH

Specific message contents:

None.

10.1.2.9.5.5 Test requirements

After step 4 CC the UE shall not send any message to the SS during 60 s.

10.1.3 Establishment of an incoming call / Initial conditions

The tables below describe message exchanges which bring the UE in the requested initial states in case of an incoming call.

A state may be taken as initial only when all the states which lead to this initial states have been validated. The order will be U0, U6, U9, U7, U8, U10, U26 etc. as in the following tables.

Table 10.1.3/1: Establishment of an incoming call, procedure 1

Step	Direction		Message	Comments
	UE	SS		
1			Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 Establishment cause: Terminating Conversational Call.
2	->		PAGING RESPONSE	
3	<-		AUTHENTICATION REQUEST	
4	->		AUTHENTICATION RESPONSE	
5	<-		SECURITY MODE COMMAND	
6	->		SECURITY MODE COMPLETE	
7	<-		SETUP	U6, (note 1)
8	->		CALL CONFIRMED	U9
A9	->		CONNECT	U8, p = Y, (note 2)
B9	->		ALERTING	U7, p = N, (note 2)
B10	UE			(note 3)
B11	->		CONNECT	U8
12			Radio Bearer Setup Procedure	See TS 34.108 clause 7.1.3
13	<-		CONNECT ACKNOWLEDGE	U10
NOTE 1: With signal information included in the SETUP message. NOTE 2: The UE is supporting immediate connect (p = Y/N). See ICS/IXIT statement. NOTE 3: If necessary (see ICS/IXIT statement), the UE is made to accept the call in the way described in a ICS/IXIT statement.				

Table 10.1.3/2: Establishment of an incoming call, procedure 2

Step	Direction		Message	Comments
	UE	SS		
1			Mobile terminated establishment of Radio Resource Connection	See TS34.108 clause 7.1.2 Establishment cause: Terminating Conversational Call.
2	->		PAGING RESPONSE	
2a	<-		AUTHENTICATION REQUEST	
2b	->		AUTHENTICATION RESPONSE	
3	<-		SECURITY MODE COMMAND	
4	->		SECURITY MODE COMPLETE	
5	<-		SETUP	U6, (note 1)
6	->		CALL CONFIRMED	U9
A7	->		CONNECT	U8, p = Y, (note 2)
A8			Radio Bearer Setup Procedure	See TS34.108 clause 7.1.3
B7	->		ALERTING	U7, p = N, (note 2)
B8			Radio Bearer Setup Procedure	See TS34.108 clause 7.1.3
B9	UE			(note 3)
B10	->		CONNECT	U8
11			Void	
12			Void	
13	<-		CONNECT ACKNOWLEDGE	U10
NOTE 1: With signal information included in the SETUP message. NOTE 2: The UE is supporting immediate connect (p = Y/N). See ICS/IXIT statement. NOTE 3: If necessary (see ICS/IXIT statement), the UE is made to accept the call in the way described in a ICS/IXIT statement.				

Table 10.1.3/3: Void

Table 10.1.3/4: Establishment of an incoming call, procedure 4

Step	Direction		Message	Comments
	UE	SS		
1			Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 Establishment cause: Terminating Conversational Call.
2	->		PAGING RESPONSE	
2a	<-		AUTHENTICATION REQUEST	
2b	->		AUTHENTICATION RESPONSE	
3	<-		SECURITY MODE COMMAND	
4	->		SECURITY MODE COMPLETE	
5	<-		SETUP	U6, (note 1)
6	->		CALL CONFIRMED	U9
7			Radio Bearer Setup Procedure	See TS 34.108 clause 7.1.3
A8	->		CONNECT	U8, p = Y, (note 2)
B8	->		ALERTING	U7, p = N, (note 2)
B9	UE			(note 3)
B10	->		CONNECT	U8
11			Void	
12			Void	
13	<-		CONNECT ACKNOWLEDGE	U10

NOTE 1: The signal information element is not included in the SETUP message.
NOTE 2: The UE is supporting immediate connect (p = Y/N). See ICS/IXIT statement.
NOTE 3: If necessary (see ICS/IXIT statement), the UE is made to accept the call in the way described in a ICS/IXIT statement.

10.1.3.1 Incoming call / U0 null state

10.1.3.1.1 Incoming call / U0 null state / SETUP received with a non supported bearer capability

10.1.3.1.1.1 Definition

The call control entity of the UE being in the state, U0, a SETUP message is received with only one bearer capability and this bearer capability is not supported by the UE.

10.1.3.1.1.2 Conformance requirement

When the network is providing a basic service at the called side, the UE shall check that the basic service(s) offered by the network in the Bearer Capability information element(s) match(es) the basic services that the UE is able to support. If a mismatch is detected, then the UE shall proceed as follows:

- if the SETUP message contained two bearer capability information elements for only one of which a mismatch is detected, the UE shall either:
  - under the conditions specified in 3GPP TS 27.001 (e.g. TS 61 and TS 62), accept the SETUP message with a CALL CONFIRMED message containing the, possibly negotiated, bearer capability information element for which no mismatch is detected, or
  - reject the call using cause No. 88 "incompatible destination".
- otherwise the UE shall reject the offered call using a RELEASE COMPLETE message with cause No. 88 "incompatible destination".

References

TS 24.008 clause 5.2.2.2 and annex B.3.2

10.1.3.1.1.3 Test purpose

To verify that a CC entity of the UE, upon receipt of SETUP containing one bearer capability and this bearer capability is not supported, returns a RELEASE COMPLETE with correct cause value to its peer entity, and returns to the idle mode. To verify that the CC-entities relating to the seven mobile terminating transaction identifiers are then in the state U0, "Null".

10.1.3.1.1.4 Method of test

Related ICS/IXIT statements

- supported MT circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

Test procedure

A mobile terminated call is initiated. The UE receives a SETUP message that contains a bearer capability not supported by the UE. The UE returns a RELEASE COMPLETE message. The SS checks by using the status enquiry procedure that the CC entity is still in the state U0 with all the relevant transaction identifiers.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Mobile terminated establishment of Radio Resource Connection	SS sends paging, See TS34.108
2	->		PAGING RESPONSE	
3	<-		AUTHENTICATION REQUEST	
4	->		AUTHENTICATION RESPONSE	
5	<-			The SS starts integrity protection.
6			Void	
7	<-		SETUP	(note 1)
8	->		RELEASE COMPLETE	(note 2)
9	<-		STATUS ENQUIRY	
10	->		RELEASE COMPLETE	Cause #81 (invalid TI value).
11	SS			Repeat steps 9-10 to cover all the transaction identifiers from 000... 110.

Specific message contents:

NOTE 1: With one bearer capability and that bearer capability is not supported by the UE.

NOTE 2: With cause #88 incompatible destination.

10.1.3.1.1.5 Test requirements

After step 7 the UE shall return a RELEASE COMPLETE message with cause value #88 (incompatible destination) and return to the idle mode.

After step 9 CC entities relating to all mobile originating transaction identifiers shall send RELEASE COMPLETE messages with cause value #81 (invalid TI value).

10.1.3.2 Incoming call / U6 call present

10.1.3.2.1 Incoming call / U6 call present / automatic call rejection

10.1.3.2.1.1 Definition

Although the state U6 is transient, the ability to refuse a call (automatically) in this state is tested, if it is implemented at the UE.

10.1.3.2.1.2 Conformance requirement

If the mobile user wishes to refuse the call, a RELEASE COMPLETE message shall be sent with the cause #21 "call rejected".

References

TS 24.008 clause 5.2.2.3.1

10.1.3.2.1.3 Test purpose

To verify that a CC entity of the UE in CC-state U6, "Call Present", shall upon receipt of a rejection indication of the incoming call from the user, shall send RELEASE COMPLETE with the appropriate cause value to its peer entity and enter the CC-state U0, "Null". The CC entities relating to the seven mobile terminating transaction identifiers are then in state U0, "Null".

10.1.3.2.1.4 Method of test

Related ICS/IXIT statements

- supported teleservices;
- the UE supports an ability to refuse a call after receipt of a SETUP message.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U6 by using table 10.1.3/2.

Test procedure

A teleservice is selected that is supported by the UE; if the UE supports speech, the selected teleservice is speech. If necessary, the UE is configured for that teleservice. Then a mobile terminated call is initiated. The call control entire of the UE is brought to the state U6 (Note: The state U6 is not checked, since it is not stable). The UE is made to refuse the call (the refusal may require some preliminary preparations in order to achieve refusal at this point). The UE shall send a RELEASE COMPLETE message and enter a call control state U0. The SS checks by using the status enquiry procedure that the CC entity has entered the state U0 with all the relevant transaction identifiers.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1				the UE is made to refuse the call
2	->		RELEASE COMPLETE	(note)
3	<-		STATUS ENQUIRY	
4	->		RELEASE COMPLETE	cause #81 (invalid TI value)
5	SS			repeat steps 3-4 to cover all the transaction identifiers from 000...110
6	<-			The SS releases the RRC connection.

Specific message contents:

NOTE: With cause value #21 call rejected.

10.1.3.2.1.5 Test requirements

After step 1 the UE shall return a RELEASE COMPLETE message with cause value #21 (call rejected) and return to the idle mode.

After step 3 CC entities relating to all mobile originating transaction identifiers shall send RELEASE COMPLETE messages with cause value #81 (invalid TI value).

10.1.3.3 Incoming call / U9 mobile terminating call confirmed

10.1.3.3.1 Incoming call / U9 mobile terminating call confirmed / alerting or immediate connecting

10.1.3.3.1.1 Definition

The call control entity of the UE having entered the state, U9, with signal information received in the preceding SETUP message, the subsequent behaviour of the UE is tested.

10.1.3.3.1.2 Conformance requirement

1) The call control entity of the UE having entered the "mobile terminating call confirmed" state, if the call is accepted at the called user side, the UE proceeds as described in TS 24.008 clause 5.2.2.5. Otherwise, if the signal information element was present in the SETUP message user alerting is initiated at the UE side; if the signal information element was not present in the SETUP message, user alerting is initiated when an appropriate channel is available.

   Here, initiation of user alerting means:

   - the generation of an appropriate tone or indication at the UE; and
   - sending of an ALERTING message by the call control entity of the MS to its peer entity in the network and entering the "call received" state.

2) In the "mobile terminating call confirmed" state or the "call received" state, the call control entity in the UE indicates acceptance of a mobile terminating call by:

   - sending a CONNECT message to its peer entity in the network;
   - starting Timer T313; and
   - entering the "connect request" state.

References

Conformance requirement 1: TS 24.008 clause 5.2.2.3.2

Conformance requirement 2: TS 24.008 clause 5.2.2.5.

10.1.3.3.1.3 Test purpose

To verify that a CC entity in CC-state U9, "Mobile Terminating Call Confirmed", (if signalled by the network in previous SETUP message that it may alert) will either send a ALERTING message to its peer entity and enter state U7, or send a CONNECT message to its peer entity and enter U8.

10.1.3.3.1.4 Method of test

Related ICS/IXIT statements

- supported MT circuit switched basic services;
- MT circuit switched basic services for which immediate connect is not used.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U9 by using table 10.1.3/2.

Test procedure

An MT circuit switched basic service is selected that is supported by the UE; if the UE supports MT telephony, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then a mobile terminated call is initiated. The CC entity of the UE is brought to the state U9 by using a SETUP message containing signalling information element. (The state U9 is not a stable state in this case, and consequently it is not checked as an initial state.) If the UE supports immediate connect for the selected basic service (p = Y), it sends a CONNECT message and enters the state U8, connect request. Otherwise (p = N) the UE sends an ALERTING message and enters the state U7, call received. The SS checks by using the status enquiry procedure that the CC entity has entered its state as described.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
A1		->	CONNECT	p = Y
A2		<-	STATUS ENQUIRY	
A3		->	STATUS	cause #30, state U8
B1		->	ALERTING	p = N
B2		<-	STATUS ENQUIRY	
B3		->	STATUS	cause #30, state U7

Specific message contents:

None.

10.1.3.3.1.5 Test requirements

At step A1 the UE shall send a CONNECT message and enter U8 if the network has signalled in previous SETUP message that UE may not alert.

At step B1 the UE shall send an ALERTING message and enter state U7 if the network has signalled in previous SETUP message that UE may alert.

10.1.3.3.2 Incoming call / U9 mobile terminating call confirmed / DTCH assignment

10.1.3.3.2.1 Definition

The call control entity of the UE being in the state, U9, a radio bearer establishment procedure is performed for traffic channel.

10.1.3.3.2.2 Conformance requirement

1) It is a network dependent decision when to initiate the assignment of a traffic channel during the mobile terminating call establishment phase.

   Initiation of the assignment phase does not directly change the state of a CC entity nor affect any call control timer, but may have some secondary effects (see e.g. TS 24.008 clause 5.2.2.3.2).

2) The call control entity of the UE having entered the "mobile terminating call confirmed" state, if the call is accepted at the called user side, the UE proceeds as described in TS24.008 clause 5.2.2.5. Otherwise, if the signal information element was present in the SETUP message user alerting is initiated at the UE side; if the signal information element was not present in the SETUP message, user alerting is initiated when an appropriate channel is available.

   Here, initiation of user alerting means:

   - the generation of an appropriate tone or indication at the UE; and
   - sending of an ALERTING message by the call control entity of the MS to its peer entity in the network and entering the "call received" state.

References

Conformance requirement 1: TS 24.008 clause 5.2.2.7

Conformance requirement 2: TS 24.008 clause 5.2.2.3.2.

10.1.3.3.2.3 Test purpose

To verify that a CC-entity of the UE in CC-state U9, "Mobile Terminating Call Confirmed", when a traffic channel is allocated by the network performing the radio bearer establishment procedure, shall sends an ALERTING message and enters state U7.

10.1.3.3.2.4 Method of test

Related ICS/IXIT statements

- supported MT circuit switched basic services;
- MT circuit switched basic services for which immediate connect is not used.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U9 by using table 10.1.3/4.

Test procedure

An MT circuit switched basic service is selected that is supported by the UE and for which the UE does not use immediate connection; if the UE supports MT telephony without immediate connection, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then a mobile terminated call is initiated. The CC entity of the UE is brought to the state U9 (by using a SETUP message not containing the signal information element). The SS sends a RADIO BEARER SETUP for traffic channel to the UE. The UE shall respond with a RADIO BEARER SETUP COMPLETE message. The UE sends an ALERTING message and enters state U7, call received. The SS verifies by using the status enquiry procedure that the UE has entered the correct state.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Radio Bearer Setup Procedure	See TS 34.108 clause 7.1.3
2	->		ALERTING	
3	<-		STATUS ENQUIRY	
4	->		STATUS	cause #30, state U7

Specific message contents:

None.

10.1.3.3.2.5 Test requirements

After step 1 the UE shall send an ALERTING message and enter state U7.

10.1.3.3.3 Void

10.1.3.3.4 Incoming call / U9 mobile terminating call confirmed / DISCONNECT received

10.1.3.3.4.1 Definition

The call control entity of the UE being in the state, U9, a DISCONNECT message is received by the UE.

10.1.3.3.4.2 Conformance requirement

The call control entity of the UE in any state except the "null" state, the "disconnect indication" state, and the "release request" state, shall, upon the receipt of a DISCONNECT message without progress indicator information element or with progress indicator different from #8:

- stop all running call control timers;
- send a RELEASE message;
- start timer T308; and
- enter the "release request" state.

…

The call control entity of the mobile station in any state except the "null" state, the "disconnect indication" state, and the "release request" state, shall, upon the receipt of a DISCONNECT message either without progress indicator information element or with progress indicator different from #8, and, either without the *Allowed Actions* IE or with the *Allowed Actions* IE indicating that "CCBS is not possible":

- stop all running call control timers;
- send a RELEASE message;
- start timer T308; and

- enter the "release request" state.

References

TS 24.008 clause 5.4.4.1.2.1 and 5.4.4.2.3.1

10.1.3.3.4.3 Test purpose

To verify that a CC-entity of the UE in CC-state U9, "Mobile Terminating Call Confirmed", upon receipt of a DISCONNECT returns a RELEASE message and enters the CC-state U19, "Release Request".

10.1.3.3.4.4 Method of test

Related ICS/IXIT statements

- supported MT circuit switched basic services;
- MT circuit switched basic services for which immediate connect is not used.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U9 by using table 10.1.3/4.

Test procedure

An MT circuit switched basic service is selected that is supported by the UE and for which the UE does not use immediate connection; if the UE supports MT telephony without immediate connection, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then a mobile terminated call is initiated. The CC entity of the UE is brought to the state U9. The SS sends a DISCONNECT message to the UE. The UE responds by sending a RELEASE message and enters state U19, release request. The SS verifies by using the status enquiry procedure that the UE has entered the correct state.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		<-	DISCONNECT	
2		->	RELEASE	
3		<-	STATUS ENQUIRY	
4		->	STATUS	cause #30, state U19

Specific message contents:

None.

10.1.3.3.4.5 Test requirements

After step 1 the UE shall return a RELEASE message and enter the CC-state U19, "Release Request".

10.1.3.3.5 Incoming call / U9 mobile terminating call confirmed / RELEASE received

10.1.3.3.5.1 Definition

The call control entity of the UE being in the state, U9, a RELEASE message is received by the UE.

10.1.3.3.5.2 Conformance requirement

The call control entity of the UE in any state except the "null" state and the "release request" state, shall, upon receipt of a RELEASE message: stop all running call control timers; send a RELEASE COMPLETE message; release the MM connection; and return to the "null" state.

References

TS 24.008 clause 5.4.3.3

10.1.3.3.5.3 Test purpose

1) To verify that a CC-entity of the UE in CC-state U9, "Mobile Terminating Call Confirmed", upon receipt of a RELEASE will return a RELEASE COMPLETE and enter the CC-state U0, "Null".

2) To verify that the UE on returning to the idle mode releases the MM-connection and that the CC-entities relating to the seven mobile terminating transaction identifiers are in CC-state U0, "Null".

10.1.3.3.5.4 Method of test

Related ICS/IXIT statements

- supported MT circuit switched basic services;
- MT circuit switched basic services for which immediate connect is not used.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U9 by using table 10.1.3/4.

Test procedure

An MT circuit switched basic service is selected that is supported by the UE and for which the UE does not use immediate connection; if the UE supports MT telephony without immediate connection, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then a mobile terminated call is initiated. The CC entity of the UE is brought to the state U9. The SS sends a RELEASE message to the UE. The UE responds by sending a RELEASE COMPLETE message and enters state U0, null. The SS verifies by using the status enquiry procedure that the UE has entered the correct state with the relevant transaction identifiers.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		RELEASE	with cause "Normal, unspecified"
2	->		RELEASE COMPLETE	
3	<-		STATUS ENQUIRY	
4	->		RELEASE COMPLETE	cause #81 (invalid TI value)
5	SS			repeat steps 3-4 to cover all the transaction identifiers from 000...110
6	<-			The SS releases the RRC connection.

Specific message contents:

None.

10.1.3.3.5.5 Test requirements

After step 1 the UE shall return a RELEASE COMPLETE message.

After step 3 CC entities relating to all mobile originating transaction identifiers shall send RELEASE COMPLETE messages with cause value #81 (invalid TI value).

10.1.3.3.6 Incoming call / U9 mobile terminating call confirmed / lower layer failure

10.1.3.3.6.1 Definition

The call control entity of the UE being in the state, U9, a lower layer failure is accomplished at the UE and consequently, communication at layer 3 level with the peer entity is terminated.

10.1.3.3.6.2 Conformance requirement

The MM sublayer shall indicate to all CM entities associated with active MM connections that the MM connection is interrupted, the subsequent action of the MM sublayer (call re-establishment, see TS 24.008 clause 4.5.1.6, or local release) will then depend on the decisions by the CM entities.

References

TS 24.008 clause 4.5.2.3 and clause 4.5.3, TS 25.331 clause 8.3.1 and clause 8.5.6.

10.1.3.3.6.3 Test purpose

To verify that a CC entity of the UE in CC-state U9, "Mobile Terminating Call Confirmed", having detected a lower layer failure returns to idle mode, the CC entity is in state U0, "Null".

10.1.3.3.6.4 Method of test

Related ICS/IXIT statements

- supported MT circuit switched basic services;

- MT circuit switched basic services for which immediate connect is not used.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U9 by using table 10.1.3/4.

Test procedure

An MT circuit switched basic service is selected that is supported by the UE and for which the UE does not use immediate connection; if the UE supports MT telephony without immediate connection, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then a mobile terminated call is initiated. The UE is brought to the state U9. The SS modifies the scrambling code of downlink transmission (DL DPCH) to generate a lower layer failure at the UE. The SS waits long enough to enable the UE to perform cell update procedure. The SS sends RRC CONNECTION RELEASE message as a response to the CELL UPDATE message from the UE. The SS re-modifies the scrambling code of downlink transmission (DL DPCH) to the original one and waits 60 s. The SS will check that the UE will not send any message during 60 s.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		SS modifies the scrambling code of DPCH for generating lower layer failure
2	->		CELL UPDATE	CCCH
3	<-		RRC CONNECTION RELEASE	CCCH
4		SS		SS re-modifies the scrambling code of DPCH to the original one.
5		SS		SS waits 60 s. UE shall send no message on the DCCH

Specific message contents:

None.

10.1.3.3.6.5 Test requirements

After step 4 the UE shall not send any message to the SS during 60 s.

10.1.3.3.7 Incoming call / U9 mobile terminating call confirmed / unknown message received

10.1.3.3.7.1 Definition

The call control entity of the UE being in the state, U9, an unknown message is received by the UE.

10.1.3.3.7.2 Conformance requirement

If a UE receives an RR, MM or CC message with message type not defined for the PD or not implemented by the receiver in acknowledged mode, it shall return a status message (STATUS, MM STATUS depending on the protocol discriminator) with cause # 97 "message type non-existent or not implemented".

References

TS 24.008 clause 8.4.

10.1.3.3.7.3 Test purpose

To verify that a CC-entity of the UE in CC-state U9, "Mobile Terminating Call Confirmed" having received an unknown message from its peer entity returns a STATUS message.

10.1.3.3.7.4 Method of test

Related ICS/IXIT statements

- supported MT circuit switched basic services;
- MT circuit switched basic services for which immediate connect is not used.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U9 by using table 10.1.3/4.

Test procedure

A MT circuit switched basic service is selected that is supported by the UE and for which the UE does not use immediate connection; if the UE supports MT telephony without immediate connection, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then a mobile terminated call is initiated. The CC entity of the UE is brought to the state U9. The SS sends a message with message type not defined for the protocol discriminator to the UE. The UE shall respond with a STATUS message, and finally the SS checks by using the status enquiry procedure that the state of the CC entity has remained unchanged.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		<-	unknown message	message type not defined for PD
2		->	STATUS	cause #97, state U9
3		<-	STATUS ENQUIRY	
4		->	STATUS	cause #30, state U9

Specific message contents:

None.

10.1.3.3.7.5 Test requirements

After step 1 the UE shall return a STATUS message.

10.1.3.4 Incoming call / U7 call received

10.1.3.4.1 Incoming call / U7 call received / call accepted

10.1.3.4.1.1 Definition

The call control entity of the UE being in the state, U7, a user accepts the incoming call.

10.1.3.4.1.2 Conformance requirement

In the "mobile terminating call confirmed" state or the "call received" state, the call control entity in the UE indicates acceptance of a mobile terminating call by:

- sending a CONNECT message to its peer entity in the network;
- starting Timer T313; and
- entering the "connect request" state.

References

TS 24.008 clause 5.2.2.5.

10.1.3.4.1.3 Test purpose

To verify that a CC entity of a UE in CC-state U7, "Call Received", upon a user accepting the incoming call, shall send a CONNECT message to its peer entity and enter the CC-state U8, "Connect Request".

10.1.3.4.1.4 Method of test

Related ICS/IXIT statements

- supported MT circuit switched basic services;
- MT circuit switched basic services for which immediate connect is not used.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U7 by using table 10.1.3/1.

Test procedure

An MT circuit switched basic service is selected that is supported by the UE and for which the UE does not use immediate connection; if the UE supports MT telephony without immediate connection, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then a mobile terminated call is initiated. The CC entity of the UE is brought to the state U7. The user accepts the incoming call. The UE sends a CONNECT message. The SS checks by using the status enquiry procedure that the CC entity has entered state U8, connect request.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1				the UE is made to accept the call by the user
2	->		CONNECT	
3	<-		STATUS ENQUIRY	
4	->		STATUS	cause #30, state U8

Specific message contents:

None.

10.1.3.4.1.5 Test requirements

After step 1 a UE shall send a CONNECT message and enter the CC-state U8, "Connect Request".

10.1.3.4.2 Incoming call / U7 call received / termination requested by the user

10.1.3.4.2.1 Definition

The call control entity of the UE being in the state, U7, a user requests to terminate incoming call.

10.1.3.4.2.2 Conformance requirement

Apart from the exceptions identified in TS 24.008 clause 5.4.2, the call control entity of the UE shall initiate clearing by: stopping all running call control timers, sending a DISCONNECT message; starting timer T305; and entering the "disconnect request" state.

References

TS 24.008 clause 5.4.3.1

10.1.3.4.2.3 Test purpose

To verify that a CC entity of a UE in CC-state U7, "Call Received", upon request by the user to terminate will send a DISCONNECT message and enter the CC-state U11, "Disconnect Request".

10.1.3.4.2.4 Method of test

Related ICS/IXIT statements

- supported MT circuit switched basic services;
- MT circuit switched basic services for which immediate connect is not used.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U7 by using table 10.1.3/1.

Test procedure

An MT circuit switched basic service is selected that is supported by the UE and for which the UE does not use immediate connection; if the UE supports MT telephony without immediate connection, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then a mobile terminated call is initiated. The CC entity of the UE is brought to the state U7. The user initiates clearing the incoming call. The UE sends a DISCONNECT message. The SS checks by using the status enquiry procedure that the CC entity has entered state U11, disconnect request.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1				the UE is made to terminate/reject the call
2		->	DISCONNECT	
3		<-	STATUS ENQUIRY	
4		->	STATUS	cause #30, state U11

Specific message contents:

None.

10.1.3.4.2.5 Test requirements

After step 1 a UE shall send a DISCONNECT message and enter the CC-state U11, "Disconnect Request".

10.1.3.4.3 Incoming call / U7 call received / DISCONNECT received

10.1.3.4.3.1 Definition

The call control entity of the UE being in the state, U7, a DISCONNECT message is received by the UE.

10.1.3.4.3.2 Conformance requirement

The call control entity of the UE in any state except the "null" state, the "disconnect indication" state, and the "release request" state, shall, upon receipt of a DISCONNECT message with progress indicator #8:

i) if an appropriate speech traffic channel is not connected, continue clearing as defined in TS 24.008 clause 5.4.4.1.2.1 without connecting to the in-band tone/announcement;

ii) if an appropriate speech traffic channel is connected, attach the user connection for speech if it is not yet attached and enter the "disconnect indication" state. In that state, if upper layers request the clearing of the call, the call control entity of the UE shall proceed as defined in TS 24.008 clause 5.4.4.1.2.1.

….

The call control entity of the MS in any state except the "null" state, the "disconnect indication" state, and the "release request" state, shall, upon receipt of a DISCONNECT message with progress indicator #8 and, either not containing an *Allowed Actions* IE or containing an *Allowed Actions* IE indicating "CCBS activation is not possible":

i) if an appropriate speech traffic channel is not connected,

- stop all running call control timers;
- send a RELEASE message;
- start timer T308; and
- enter the "release request" state.
- not connect to the in-band tone/announcement;

ii) if an appropriate speech traffic channel is connected, attach the user connection for speech if it is not yet attached and enter the "disconnect indication" state. In that state, if upper layers request the clearing of the call, the call control entity of the MS shall:

- stop all running call control timers;
- send a RELEASE message;
- start timer T308; and
- enter the "release request" state.

References

TS 24.008 clause 5.4.4.1.1.1 and 5.4.4.2.1.1.

10.1.3.4.3.3 Test purpose

To verify that a CC entity of a UE in CC-state U7, "Call Received", upon receipt of a DISCONNECT with a progress indicator indicating in-band information from network, if a DTCH was not assigned, returns a RELEASE message and enters the CC-state U19, "Release Request".

10.1.3.4.3.4 Method of test

Related ICS/IXIT statements

- supported MT circuit switched basic services;
- MT circuit switched basic services for which immediate connect is not used.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U7 by using table 10.1.3/1.

Test procedure

An MT circuit switched basic service is selected that is supported by the UE and for which the UE does not use immediate connection; if the UE supports MT telephony without immediate connection, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then a mobile terminated call is initiated. The CC entity of the UE is brought to the state U7. The SS sends a DISCONNECT message. The UE responds with a RELEASE message. The SS checks by using the status enquiry procedure that the CC entity has entered state U19, release request.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		<-	DISCONNECT	(note)
2		->	RELEASE	
3		<-	STATUS ENQUIRY	
4		->	STATUS	cause #30, state U19

Specific message contents:

NOTE: The Progress Indicator, Progress Description value:
#8 in band information or appropriate pattern now available.

10.1.3.4.3.5 Test requirements

After step 1 a UE if a DTCH was not assigned, shall return a RELEASE message and enter the CC-state U19, "Release Request".

10.1.3.4.4 Incoming call / U7 call received / RELEASE received

10.1.3.4.4.1 Definition

The call control entity of the UE being in the state, U7, a RELEASE message is received by the UE.

10.1.3.4.4.2 Conformance requirement

The call control entity of the UE in any state except the "null" state and the "release request" state, shall, upon receipt of a RELEASE message: stop all running call control timers; send a RELEASE COMPLETE message; release the MM connection; and return to the "null" state.

References

TS 24.008 clause 5.4.3.3

10.1.3.4.4.3 Test purpose

1) To verify that a CC entity of a UE in CC-state U7, "Call Received", upon receipt of a RELEASE will return a RELEASE COMPLETE and enter the CC-state U0, "Null".

2) To verify that the UE on returning to the idle mode releases the MM-connection and that the CC-entities relating to the seven mobile terminating transaction identifiers are in CC-state U0, "Null".

10.1.3.4.4.4 Method of test

Related ICS/IXIT statements

- supported MT circuit switched basic services;
- MT circuit switched basic services for which immediate connect is not used.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U7 by using table 10.1.3/1.

Test procedure

An MT circuit switched basic service is selected that is supported by the UE and for which the UE does not use immediate connection; if the UE supports MT telephony without immediate connection, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then a mobile terminated call is initiated. The CC entity of the UE is brought to the state U7. The SS sends a RELEASE message. The UE responds with a RELEASE COMPLETE message. The SS checks by using the status enquiry procedure that the CC entity has entered state U0, null, with the relevant transaction identifiers.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		RELEASE	with cause "Normal, unspecified"
2	->		RELEASE COMPLETE	
3	<-		STATUS ENQUIRY	
4	->		RELEASE COMPLETE	cause #81 (invalid TI value)
5	SS			repeat steps 3-4 to cover all the transaction identifiers from 000...110
6	<-			The SS releases the RRC connection.

Specific message contents:

None.

10.1.3.4.4.5 Test requirements

After step 1 a UE shall return a RELEASE COMPLETE message.

After step 3 CC entities relating to all mobile originating transaction identifiers shall send RELEASE COMPLETE messages with cause value #81 (invalid TI value).

10.1.3.4.5 Incoming call / U7 call received / lower layer failure

10.1.3.4.5.1 Definition

The call control entity of the UE being in the state, U7, a lower layer failure is accomplished at the UE and consequently, communication at layer 3 level with the peer entity is terminated.

10.1.3.4.5.2 Conformance requirement

The MM sublayer shall indicate to all CM entities associated with active MM connections that the MM connection is interrupted, the subsequent action of the MM sublayer (call re-establishment, see TS 24.008 clause 4.5.1.6, or local release) will then depend on the decisions by the CM entities.

References

TS 24.008 clause 4.5.2.3 and clause 4.5.3, TS 25.331 clause 8.3.1, and clause 8.5.6.

10.1.3.4.5.3 Test purpose

To verify that a CC entity of a UE in CC-state U7, "Call Received", having detected a lower layer failure returns to idle mode, the CC entity is in state U0, "Null".

10.1.3.4.5.4 Method of test

Related ICS/IXIT statements

- supported MT circuit switched basic services;
- MT circuit switched basic services for which immediate connect is not used.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U7 by using table 10.1.3/2.

Test procedure

An MT circuit switched basic service is selected that is supported by the UE and for which the UE does not use immediate connection; if the UE supports MT telephony without immediate connection, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then a mobile terminated call is initiated. The UE is brought to the state U7. The SS modifies the scrambling code of downlink transmission(DL DPCH) to generate a lower layer failure at the UE. The SS waits long enough to enable the UE to perform cell update procedure. The SS sends RRC CONNECTION RELEASE message as a response to the CELL UPDATE message from the UE. The SS re-modifies the scrambling code of downlink transmission(DL DPCH) to the original one and waits 60 s. The SS will check that the UE will not send any message during 60 s.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		SS modifies the scrambling code of DPCH for generating lower layer failure
2	->		CELL UPDATE	CCCH
3	<-		RRC CONNECTION RELEASE	CCCH
4		SS		SS re-modifies the scrambling code of DPCH to the original one.
5		SS		SS waits 60 s. UE shall send no message on the DCCH

Specific message contents:

None.

10.1.3.4.5.5 Test requirements

After step 4 the UE shall not send any message to the SS during 60 s.

10.1.3.4.6 Incoming call / U7 call received / unknown message received

10.1.3.4.6.1 Definition

The call control entity of the UE being in the state, U7, an unknown message is received by the UE.

10.1.3.4.6.2 Conformance requirement

If a UE receives an RR, MM or CC message with message type not defined for the PD or not implemented by the receiver in acknowledged mode, it shall return a status message (STATUS, MM STATUS depending on the protocol discriminator) with cause # 97 "message type non-existent or not implemented".

References

TS 24.008 clause 8.4.

10.1.3.4.6.3 Test purpose

To verify that a CC entity of a UE in CC-state U7, "Call Received", having received an unknown message from its peer entity returns a STATUS message.

10.1.3.4.6.4 Method of test

Related ICS/IXIT statements

- supported MT circuit switched basic services;
- MT circuit switched basic services for which immediate connect is not used.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U7 by using table 10.1.3/1.

Test procedure

An MT circuit switched basic service is selected that is supported by the UE and for which the UE does not use immediate connection; if the UE supports MT telephony without immediate connection, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then a mobile terminated call is initiated. The CC entity of the UE is brought to the state U7. The SS sends a message with message type not defined for the protocol discriminator to the UE. The UE shall respond with a STATUS message, and finally the SS checks by using the status enquiry procedure that the state of the CC entity has remained unchanged.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		unknown message	message type not defined for PD
2	->		STATUS	cause #97, state U7
3	<-		STATUS ENQUIRY	
4	->		STATUS	cause #30, state U7

Specific message contents:

None.

10.1.3.4.6.5 Test requirements

After step 1 a UE shall return a STATUS message.

10.1.3.4.7 Incoming call / U7 call received / DTCH assignment

10.1.3.4.7.1 Definition

The call control entity of the UE being in the state, U7, a radio bearer establishment procedure is performed for traffic channel.

10.1.3.4.7.2 Conformance requirement

It is a network dependent decision when to initiate the assignment of a traffic channel during the mobile terminating call establishment phase.

Initiation of the assignment phase does not directly change the state of a CC entity nor affect any call control timer, but may have some secondary effects (see e.g. TS 24.008 clause 5.2.2.3.2).

References

TS 24.008 clause 5.2.2.7.

10.1.3.4.7.3 Test purpose

To verify that a CC entity of a UE in CC-state U7, "Call Received", when a traffic channel is allocated by the network performing the radio bearer establishment procedure, stays in CC-state U7.

10.1.3.4.7.4 Method of test

Related ICS/IXIT statements

- supported MT circuit switched basic services;
- MT circuit switched basic services for which immediate connect is not used.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U7 by using table 10.1.3/1.

Test procedure

An MT circuit switched basic service is selected that is supported by the UE and for which the UE does not use immediate connection; if the UE supports MT telephony without immediate connection, the selected basic service is telephony. If necessary, the UE is configured for that basic service. Then a mobile terminated call is initiated. The CC entity of the UE is brought to the state U7. The SS sends a RADIO BEARER SETUP for traffic channel to the UE. The UE shall respond with a RADIO BEARER SETUP COMPLETE message. The SS verifies by using the status enquiry procedure that the state of the CC entity has remained unchanged.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Radio Bearer Setup Procedure	See TS 34.108 clause 7.1.3
2	<-		STATUS ENQUIRY	
3	->		STATUS	cause #30, state U7

Specific message contents:

None.

10.1.3.4.7.5 Test requirements

After step 1 the CC state U7, "Call Received", shall remain unchanged.

10.1.3.4.8 Incoming call / U7 call received / RELEASE COMPLETE received

10.1.3.4.8.1 Definition

The call control entity of the UE being in the state, U7, the call is cleared by a RELEASE COMPLETE message sent by the SS.

10.1.3.4.8.2 Conformance requirement

1) A call control entity shall accept an incoming RELEASE COMPLETE message used to initiate the call clearing even though the cause information element is not included.

2) A call control entity of the UE in any call control state shall, upon receipt of a RELEASE COMPLETE message from its peer entity in the network: stop all running call control timers ; release the MM connection; and return to the "null" state.

References

Conformance requirement 1: TS 24.008 clause 5.4.2

Conformance requirement 2: TS 24.008 clause 5.4.4.1.3

10.1.3.4.8.3 Test purpose

1) To verify that a CC entity of the UE in CC-state U7, "Call received", upon receipt of a RELEASE COMPLETE message with valid cause value, enters CC state U0, "Null".

2) To verify that in returning to idle mode, the CC entities relating to the seven mobile terminating transaction identifiers are in state U0, "Null".

10.1.3.4.8.4 Method of test

Related ICS/IXIT statements

- supported MT circuit switched basic services;
- MT circuit switched basic services for which immediate connect is not used.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U7 by using table 10.1.3/1.

Test procedure

An MT circuit switched basic service is selected that is supported by the UE and for which the UE does not use immediate connection; if the UE supports MT telephony without immediate connection, the selected service is telephony. If necessary, the UE is configured for that basic service. The mobile terminated call is initiated. The CC entity of the UE is brought to U7. The SS sends a RELEASE COMPLETE message to the UE. The SS checks by using the status enquiry procedure that the CC entity has entered the state U0 with all the relevant transaction identifiers.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		RELEASE COMPLETE	note 1
2	<-		STATUS ENQUIRY	
3	->		RELEASE COMPLETE	cause #81 (invalid TI value), note 2
4	SS			repeat steps 2-3 to cover all the transaction identifiers from 000...110
5	<-			The SS releases the RRC connection.

Specific message contents:

NOTE 1: With the cause value chosen arbitrarily.

NOTE 2: TI flag has the value indicating the SS as an originator of the call.

10.1.3.4.8.5 Test requirements

After step 2 CC entities relating to all mobile originating transaction identifiers shall send RELEASE COMPLETE messages with cause value #81 (invalid TI value).

10.1.3.5 Incoming call / U8 connect request

10.1.3.5.1 Incoming call / U8 connect request / CONNECT acknowledged

10.1.3.5.1.1 Definition

The call control entity of the UE being in the state, U8, a CONNECT ACKNOWLEDGE message is received by the UE.

10.1.3.5.1.2 Conformance requirement

In the "connect request" state, the call control entity of the UE shall, upon receipt of a CONNECT ACKNOWLEDGE message: stop timer T313 and enter the "active" state.

References

TS 24.008 clause 5.2.2.6.

10.1.3.5.1.3 Test purpose

To verify that a CC entity of a UE in CC-state U8, "Connect Request", upon receipt of CONNECT ACKNOWLEDGE shall enter the CC-state U10, " Active".

10.1.3.5.1.4 Method of test

Related ICS/IXIT statements

- supported MT circuit switched basic services;
- MT circuit switched basic services for which immediate connect is not used.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U8 by using table 10.1.3/2.

Test procedure

An MT circuit switched basic service is selected that is supported by the UE; if the UE supports MT telephony, the selected basic service is telephony. If necessary the UE is configured for that basic service. Then a mobile terminated call is initiated. The CC entity of the UE is brought to the state U8 (if the UE uses immediate connection for the selected basic service then p = Y, otherwise p = N). The SS sends a CONNECT ACKNOWLEDGE message. The SS checks by using the status enquiry procedure that the CC entity of the UE has entered state U10, active.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
A1			Radio Bearer Setup Procedure	p = Y, See TS34.108
2	<-		CONNECT ACKNOWLEDGE	
3	<-		STATUS ENQUIRY	
4	->		STATUS	cause #30, state U10

Specific message contents:

None.

10.1.3.5.1.5 Test requirements

After step 2 a UE shall enter the CC-state U10, "Active".

10.1.3.5.2 Incoming call / U8 connect request / timer T313 time-out

10.1.3.5.2.1 Definition

The call control entity of the UE being in the state, U8, if no response is then received from the SS, timer T313 expires at the UE side.

10.1.3.5.2.2 Conformance requirement

1) When timer T313 expires prior to the receipt of a CONNECT ACKNOWLEDGE message, the UE shall initiate clearing in accordance with clause 5.4.3.

2) Apart from the exceptions identified in TS 24.008 clause 5.4.2, the call control entity of the UE shall initiate clearing by: stopping all running call control timers, sending a DISCONNECT message; starting timer T305; and entering the "disconnect request" state.

References

Conformance requirement 1: TS 24.008 clause 5.2.2.6

Conformance requirement 2: TS 24.008 clause 5.4.3.1

10.1.3.5.2.3 Test purpose

To verify that a CC entity of a UE in CC-state U8, "Connect Request", having waited for a reasonable length of time (e.g. expiry of timer T313) without receiving the appropriate protocol message to complete the incoming call, shall initiate the clearing of that incoming call by sending the CC message DISCONNECT and enter the CC-state U11, "Disconnect Request".

10.1.3.5.2.4 Method of test

Related ICS/IXIT statements

- supported MT circuit switched basic services;
- MT circuit switched basic services for which immediate connect is not used.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U8 by using table 10.1.3/2.

Test procedure

An MT circuit switched basic service is selected that is supported by the UE; if the UE supports MT telephony, the selected basic service is telephony. If necessary the UE is configured for that basic service. Then a mobile terminated call is initiated. The CC entity of the UE is brought to the state U8 (if the UE uses immediate connection for the selected basic service then p = Y, otherwise p = N). The T313 expires at the UE and the UE sends a DISCONNECT message and enters state U11, disconnect request. The SS checks by using the status enquiry procedure that the UE has entered the correct state.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
A1			Radio Bearer Setup Procedure	p = Y, See TS34.108
2	->		DISCONNECT	Shall not be sent before 15 s after entry into state U8. But, shall be sent before 1,1 * T313 after entry into state U8.
3	<-		STATUS ENQUIRY	
4	->		STATUS	cause #30, state U11

Specific message contents:

None.

10.1.3.5.2.5 Test requirements

After step A1 a UE shall initiate the clearing of that incoming call by sending a DISCONNECT message and enter the CC-state U11, "Disconnect Request".

10.1.3.5.3 Incoming call / U8 connect request / termination requested by the user

10.1.3.5.3.1 Definition

The call control entity of the UE being in the state, U8, the user requests for releasing of the call.

10.1.3.5.3.2 Conformance requirement

Apart from the exceptions identified in TS 24.008 clause 5.4.2, the call control entity of the UE shall initiate clearing by: stopping all running call control timers, sending a DISCONNECT message; starting timer T305; and entering the "disconnect request" state.

References

TS 24.008 clause 5.4.3.1

10.1.3.5.3.3 Test purpose

To verify that a CC entity of a UE in CC-state U8, "Connect Request", upon request by the user to terminate will send a DISCONNECT message and enter the CC-state U11, "Disconnect Request".

10.1.3.5.3.4 Method of test

Related ICS/IXIT statements

- supported MT circuit switched basic services;
- MT circuit switched basic services for which immediate connect is not used.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U8 by using table 10.1.3/2.

Test procedure

An MT circuit switched basic service is selected that is supported by the UE; if the UE supports MT telephony, the selected basic service is telephony. If necessary the UE is configured for that basic service. Then a mobile terminated call is initiated. The CC entity of the UE is brought to the state U8 (if the UE uses immediate connection for the selected basic service then p = Y, otherwise p = N). Then the user requests termination of the call. The UE sends a DISCONNECT message and enters state U11, disconnect request. The SS verifies by using the status enquiry procedure that the UE has entered the correct state.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
A1			Radio Bearer Setup Procedure	p = Y, See TS34.108
2				the user requests to clear the call
3	->		DISCONNECT	
4	<-		STATUS ENQUIRY	
5	->		STATUS	cause #30, state U11

Specific message contents:

None.

10.1.3.5.3.5 Test requirements

After step 2 a UE shall send a DISCONNECT message and enter the CC-state U11, "Disconnect Request".

10.1.3.5.4 Incoming call / U8 connect request / DISCONNECT received with in-band information

10.1.3.5.4.1 Definition

The call control entity of the UE being in the state, U8, a DISCONNECT message indicating availability of in band information is received by the UE.

10.1.3.5.4.2 Conformance requirement

The call control entity of the UE in any state except the "null" state, the "disconnect indication" state, and the "release request" state, shall, upon receipt of a DISCONNECT message with progress indicator #8:

i) if an appropriate speech traffic channel is not connected, continue clearing as defined in TS 24.008 clause 5.4.4.1.2.1 without connecting to the in-band tone/announcement;

ii) if an appropriate speech traffic channel is connected, attach the user connection for speech if it is not yet attached and enter the "disconnect indication" state. In that state, if upper layers request the clearing of the call, the call control entity of the UE shall proceed as defined in TS 24.008 clause 5.4.4.1.2.1.

….

The call control entity of the MS in any state except the "null" state, the "disconnect indication" state, and the "release request" state, shall, upon receipt of a DISCONNECT message with progress indicator #8 and, either not containing an *Allowed Actions* IE or containing an *Allowed Actions* IE indicating "CCBS activation is not possible":

i) if an appropriate speech traffic channel is not connected,

- stop all running call control timers;
- send a RELEASE message;
- start timer T308; and
- enter the "release request" state.
- not connect to the in-band tone/announcement;

ii) if an appropriate speech traffic channel is connected, attach the user connection for speech if it is not yet attached and enter the "disconnect indication" state. In that state, if upper layers request the clearing of the call, the call control entity of the MS shall:

- stop all running call control timers;
- send a RELEASE message;
- start timer T308; and
- enter the "release request" state.

References

TS 24.008 clause 5.4.4.1.1.1 and 5.4.4.2.1.1.

10.1.3.5.4.3 Test purpose

To verify that a CC entity of a UE in CC-state U8, "Connect Request", upon receipt of a DISCONNECT with progress indicator #8 enters CC-state U12, if the traffic channel is in speech mode, and that the UE sends a RELEASE message and enters CC-state U19 if the DTCH is not in speech mode.

10.1.3.5.4.4 Method of test

Related ICS/IXIT statements

- supported MT circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U8 by using table 10.1.3/4.

Test procedure

An MT circuit switched basic service is selected that is supported by the UE; if the UE supports MT telephony, the selected basic service is telephony. If necessary the UE is configured for that basic service. Then a mobile terminated call is initiated. The CC entity of the UE is brought to the state U8. The SS sends a DISCONNECT message containing indication of in-band information availability to the UE. If channel mode is speech, the UE enters state U12, disconnect indication. If channel mode is not speech, the UE sends a RELEASE message and enters state U19, release request.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		DISCONNECT	(note)
				DTCH in speech mode:
A2	<-		STATUS ENQUIRY	
A3	->		STATUS	cause #30, state U12
				DTCH is not in speech mode:
B2	->		RELEASE	
B3	<-		STATUS ENQUIRY	
B4	->		STATUS	cause #30, state U19

Specific message contents:

NOTE: The Progress Indicator, Progress description value:

#8 in band information or appropriate pattern now available.

10.1.3.5.4.5 Test requirements

After step 1 a UE shall enter CC-state U12, if the traffic channel is in speech mode. If the DTCH is not in speech mode, the UE shall send a RELEASE message and enter CC-state U19.

10.1.3.5.5 Incoming call / U8 connect request / DISCONNECT received without in-band information

10.1.3.5.5.1 Definition

The call control entity of the UE being in the state, U8, a DISCONNECT message is received by the UE. The DISCONNECT message does not contain indication of in-band information availability.

10.1.3.5.5.2 Conformance requirement

The call control entity of the UE in any state except the "null" state, the "disconnect indication" state, and the "release request" state, shall, upon the receipt of a DISCONNECT message without progress indicator information element or with progress indicator different from #8:

- stop all running call control timers;
- send a RELEASE message;
- start timer T308; and
- enter the "release request" state.

….

The call control entity of the mobile station in any state except the "null" state, the "disconnect indication" state, and the "release request" state, shall, upon the receipt of a DISCONNECT message either without progress indicator information element or with progress indicator different from #8, and, either without the *Allowed Actions* IE or with the *Allowed Actions* IE indicating that "CCBS is not possible":

- stop all running call control timers;

- send a RELEASE message;
- start timer T308; and
- enter the "release request" state.

References

TS 24.008 clause 5.4.4.1.2.1 and 5.4.4.2.3.1.

10.1.3.5.5.3 Test purpose

To verify that a CC entity of a UE in CC-state U8, "Connect Request", upon receipt of a DISCONNECT without progress indicator, returns a RELEASE message and enters the CC-state U19, "Release Request".

10.1.3.5.5.4 Method of test

Related ICS/IXIT statements

- supported MT circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U8 by using table 10.1.3/4.

Test procedure

An MT circuit switched basic service is selected that is supported by the UE; if the UE supports MT telephony, the selected basic service is telephony. If necessary the UE is configured for that basic service. Then a mobile terminated call is initiated. The CC entity of the UE is brought to the state U8. The SS sends a DISCONNECT message not containing indication of in-band information availability to the UE. The UE shall respond with a RELEASE message. The SS checks by using the status enquiry procedure that the CC entity of the UE has entered the state U19, release request.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		<-	DISCONNECT	without progress indicator
2		->	RELEASE	
3		<-	STATUS ENQUIRY	
4		->	STATUS	cause #30, state U19

Specific message contents:

None.

10.1.3.5.5.5 Test requirements

After step 1 a UE shall return a RELEASE message and enter the CC-state U19, "Release Request".

10.1.3.5.6 Incoming call / U8 connect request / RELEASE received

10.1.3.5.6.1 Definition

The call control entity of the UE being in the state, U8, a RELEASE message is received by the UE.

10.1.3.5.6.2 Conformance requirement

The call control entity of the UE in any state except the "null" state and the "release request" state, shall, upon receipt of a RELEASE message: stop all running call control timers; send a RELEASE COMPLETE message; release the MM connection; and return to the "null" state.

References

TS 24.008 clause 5.4.3.3

10.1.3.5.6.3 Test purpose

1) To verify that a CC entity of a UE in CC-state U8, "Connect Request", upon receipt of a RELEASE will return a RELEASE COMPLETE and enter the CC-state U0, "Null".

2) To verify that the UE on returning to the idle mode releases the MM-connection and that the CC-entities relating to the seven mobile terminating transaction identifiers are in CC-state U0, "Null".

10.1.3.5.6.4 Method of test

Related ICS/IXIT statements

- supported MT circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U8 by using table 10.1.3/1.

Test procedure

An MT circuit switched basic service is selected that is supported by the UE; if the UE supports MT telephony, the selected basic service is telephony. If necessary the UE is configured for that basic service. Then a mobile terminated call is initiated. The CC entity of the UE is brought to the state U8. The SS sends a RELEASE message. The UE responds with a RELEASE COMPLETE message. The SS checks by using the status enquiry procedure that the CC entity has entered state U0, null, with the relevant transaction identifiers.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		RELEASE	with cause "Normal, unspecified"
2	->		RELEASE COMPLETE	
3	<-		STATUS ENQUIRY	
4	->		RELEASE COMPLETE	cause #81 (invalid TI value)
5	SS			repeat steps 3-4 to cover all the transaction identifiers from 000...110
6	<-			The SS releases the RRC connection.

Specific message contents:

None.

10.1.3.5.6.5 Test requirements

After step 1 a UE shall return a RELEASE COMPLETE message.

After step 3 CC entities relating to all mobile originating transaction identifiers shall send RELEASE COMPLETE messages with cause value #81 (invalid TI value).

10.1.3.5.7 Incoming call / U8 connect request / lower layer failure

10.1.3.5.7.1 Definition

The call control entity of the UE being in the state, U8, a lower layer failure is accomplished at the UE and consequently, communication at layer 3 level with the peer entity is terminated.

10.1.3.5.7.2 Conformance requirement

The MM sublayer shall indicate to all CM entities associated with active MM connections that the MM connection is interrupted, the subsequent action of the MM sublayer (call re-establishment, see TS 24.008 clause 4.5.1.6, or local release) will then depend on the decisions by the CM entities.

References

TS 24.008 clause 4.5.2.3 and clause 4.5.3, TS 25.331 clause 8.3.1 and clause 8.5.6.

10.1.3.5.7.3 Test purpose

To verify that a CC entity of a UE in CC-state U8, "Connect Request", having detected a lower layer failure returns to idle mode, the CC entity is in state U0, "Null".

10.1.3.5.7.4 Method of test

Related ICS/IXIT statements

- supported MT circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U8 by using table 10.1.3/1.

Test procedure

An MT circuit switched basic service is selected that is supported by the UE; if the UE supports MT telephony, the selected basic service is telephony. If necessary the UE is configured for that basic service. Then a mobile terminated call is initiated. The UE is brought to the state U8. The SS modifies the scrambling code of downlink transmission (DL DPCH) to generate a lower layer failure at the UE. The SS waits long enough to enable the UE to perform cell update procedure. The SS sends RRC CONNECTION RELEASE message as a response to the CELL UPDATE message from the UE. The SS re-modifies the scrambling code of downlink transmission (DL DPCH) to the original one and waits 60 s. The SS will check that the UE will not send any message during 60 s.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		SS modifies the scrambling code of DPCH for generating lower layer failure
2	->		CELL UPDATE	CCCH
3	<-		RRC CONNECTION RELEASE	CCCH
4		SS		SS re-modifies the scrambling code of DPCH to the original one.
5		SS		SS waits 60 s. UE shall send no message on the DCCH

Specific message contents:

None.

10.1.3.5.7.5 Test requirements

After step 4 the UE shall not send any message to the SS during 60 s.

10.1.3.5.8 Incoming call / U8 connect request / DTCH assignment

10.1.3.5.8.1 Definition

The call control entity of the UE being in the state, U8, a radio bearer establishment procedure is performed for traffic channel.

10.1.3.5.8.2 Conformance requirement

It is a network dependent decision when to initiate the assignment of a traffic channel during the mobile terminating call establishment phase.

Initiation of the assignment phase does not directly change the state of a CC entity nor affect any call control timer, but may have some secondary effects (see e.g. TS 24.008 clause 5.2.2.3.2

References

TS 24.008 clause 5.2.2.7.

10.1.3.5.8.3 Test purpose

To verify that a CC entity of a UE in CC-state U8, "Connect Request", when a traffic channel is allocated by the network performing the radio bearer establishment procedure, stays in the CC-state U8.

10.1.3.5.8.4 Method of test

Related ICS/IXIT statements

- supported MT circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U8 by using table 10.1.3/1.

Test procedure

An MT circuit switched basic service is selected that is supported by the UE; if the UE supports MT telephony, the selected basic service is telephony. If necessary the UE is configured for that basic service. Then a mobile terminated call is initiated. The CC entity of the UE is brought to the state U8. The SS sends a RADIO BEARER SETUP for traffic channel to the UE. The UE shall respond with a RADIO BEARER SETUP COMPLETE message. The SS verifies by using the status enquiry procedure that the state of the CC entity has remained unchanged.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Radio Bearer Setup Procedure	See TS 34.108 clause 7.1.3
2	<-		STATUS ENQUIRY	
3	->		STATUS	cause #30, state U8

Specific message contents:

None.

10.1.3.5.8.5 Test requirements

After step 1 the CC-state U8, "Connect Request", shall remain unchanged.

10.1.3.5.9 Incoming call / U8 connect request / unknown message received

10.1.3.5.9.1 Definition

The call control entity of the UE being in the state, U8, an unknown message is received by the UE.

10.1.3.5.9.2 Conformance requirement

If a UE receives an RR, MM or CC message with message type not defined for the PD or not implemented by the receiver in acknowledged mode, it shall return a status message (STATUS, MM STATUS depending on the protocol discriminator) with cause # 97 "message type non-existent or not implemented".

References

TS 24.008 clause 8.4.

10.1.3.5.9.3 Test purpose

To verify that a CC entity of a UE in CC-state U8, "Connect Request", having received an unknown message from its peer entity returns a STATUS message.

10.1.3.5.9.4 Method of test

Related ICS/IXIT statements

- supported MT circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U8 by using table 10.1.3/1.

Test procedure

An MT circuit switched basic service is selected that is supported by the UE; if the UE supports MT telephony, the selected basic service is telephony. If necessary the UE is configured for that basic service. Then a mobile terminated call is initiated. The CC entity of the UE is brought to the state U8. The SS sends a message with message type not defined for the protocol discriminator to the UE. The UE shall respond with a STATUS message, and finally the SS checks by using the status enquiry procedure that the state of the CC entity has remained unchanged.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		unknown message	message type not defined for PD
2	->		STATUS	cause #97, state U8
3	<-		STATUS ENQUIRY	
4	->		STATUS	cause #30, state U8

Specific message contents:

None.

10.1.3.5.9.5 Test requirements

After step 1 a UE shall return a STATUS message.

10.1.4 In call functions

10.1.4.1 In-call functions / DTMF information transfer

10.1.4.1.1 In-call functions / DTMF information transfer / basic procedures

10.1.4.1.1.1 Definition

Dual Tone Multi Frequency (DTMF) is an inband one out of four plus one out of four signalling system primarily used from terminal instruments in telecommunication networks.

10.1.4.1.1.2 Conformance requirement

1) A user may cause a DTMF tone to be generated e.g. by depression of a key in the UE. The relevant action is interpreted by the UE as a requirement for a DTMF digit to be sent in a START DTMF message on an established FACCH. This message contains the value of the digit to be transmitted (0, 1, ..., 9, A, B, C, D, *, #).

   Only a single digit will be transferred in each START DTMF message.

2) Upon receiving the START DTMF message the network will reconvert the received digit back into a DTMF tone which is applied toward the remote user and returns a START DTMF ACKNOWLEDGE message to the UE. This acknowledgement may be used in the UE to generate an indication as a feedback for a successful transmission.

3) When the user indicates that the DTMF sending should cease e.g. by releasing the key the UE will send a STOP DTMF message to the network.

References

Conformance requirement 1: TS 24.008 clause 5.5.7.1

Conformance requirement 2 and 4: TS 24.008 clause 5.5.7.2

Conformance requirement 3: TS 24.008 clause 5.5.7.3

10.1.4.1.1.3 Test purpose

1) To verify that an UE supporting the Mobile originating DTMF protocol control procedure, having a CC entity for speech in state U10, "Active": when made to send a DTMF tone, sends a START DTMF message.

2) To verify that an UE supporting the Mobile originating DTMF protocol control procedure, having a CC entity for speech in state U10, "Active": when made to send a DTMF tone (the corresponding IA5 character being selected from among the ones supported), sends a START DTMF message specifying the correct IA5 character in the "keypad information" field of the keypad facility information element and to verify that acknowledgement send by the SS is used in the UE to generate a feedback indication for a successful transmission, if applicable.

3) To verify that the UE will send a STOP DTMF message to the network.

4) To verify that the state U10 of the UE CC entity has remained unchanged throughout the test procedure.

10.1.4.1.1.4 Method of test

Related ICS/IXIT statements

- supported teleservices;
- supported character set (e.g. 0-9, #, *, A, B, C, D);
- if and how DTMF tone is indicated to the user.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U10 "Active" by using table 10.1.2/1.

Test procedure

The UE being in the active state, a user causes a DTMF tone to be generated e.g. by depression of a key in the UE. A DTMF digit corresponding to the digit indicated by the user is sent in a START DTMF message by the UE. The SS will return a START DTMF ACKNOWLEDGE message to the UE. This acknowledgement may be used in the UE to generate an indication as a feedback for a successful transmission. Then the user indicates that the DTMF sending should cease e.g. by releasing the key. The UE will send a STOP DTMF message to the network which is acknowledged with STOP DTMF ACKNOWLEDGE by the SS.

The sequence described above is repeated for each of the applicable characters 0-9, #, *, A, B, C, and D.

Then a case of rejecting a DTMF tone is tested.

The state of the UE is verified throughout the test procedure.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		Request the user to cause a DTMF tone to be generated
	->		START DTMF	the SS will verify that the transmitted information corresponds to the digit pressed
2	<-		START DTMF ACKNOWLEDGE	possible indication of a DTMF tone depending the ICS/IXIT statements
3	<-		STATUS ENQUIRY	
4	->		STATUS	cause #30, state U10
5	->		STOP DTMF	
6	<-		STOP DTMF ACKNOWLEDGE	the DTMF tone indication shall be stopped
7				the steps 1-6 shall be repeated for each of the applicable characters 0-9, #, *, A, B, C, D.
8	<-		STATUS ENQUIRY	
9	->		STATUS	cause #30, state U10
10		SS		Request the user to cause a DTMF tone to be generated.
11	->		START DTMF	
12	<-		START DTMF REJECT	
13	<-		STATUS ENQUIRY	
14	->		STATUS	cause #30, state U10

Specific message contents:

None.

10.1.4.1.1.5 Test requirements

Upon a user making to send a DTMF tone the UE shall send a START DTMF message on the FACCH to SS.

The SS will verify that the transmitted information corresponds to the digit pressed in the UE.

After step s 2 and 7 (successful DTMF transmission) the CC-state U10, "Active", shall remain unchanged.

After step 12 (unsuccessful DTMF transmission) the CC-state U10, "Active", shall remain unchanged.

10.1.4.2 In-call functions / user notification

10.1.4.2.1 In-call functions / User notification / UE terminated

10.1.4.2.1.1 Definition

This is a case for testing user notification procedure terminated by the user equipment.

10.1.4.2.1.2 Conformance requirement

The mobile terminating user notification procedure allows the network to notify a mobile station of any appropriate call-related event during the "active" state of a call. The procedure consists in the network sending a NOTIFY message to the mobile station. No state change occurs at any of the interface sides following the sending or the receipt of this message (but an appropriate indication may optionally be generated in the mobile station).

References

TS 24.008 clause 5.3.1.

10.1.4.2.1.3 Test purpose

To verify that a CC entity of a UE in CC-state U10, "active", upon receiving of a NOTIFY message remains in the active state.

10.1.4.2.1.4 Method of test

Related ICS/IXIT statements

- supported circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U10 "Active" by using table 10.1.2/1.

Test procedure

The UE being in the active state, the SS will send a NOTIFY message to the UE. The state of the UE is checked after that.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		NOTIFY	
2	<-		STATUS ENQUIRY	
3	->		STATUS	cause #30, state U10

Specific message contents:

None.

10.1.4.2.1.5 Test requirements

After step 1 the CC-state U10, "active", shall remain unchanged.

10.1.4.3 In-call functions / channel changes

The two following test cases are for testing some elementary radio resource level procedures during an active state of a call to ensure call maintenance also during Hard handover.

10.1.4.3.1 In-call functions / channel changes / a successful channel change in active state/ Hard handover

10.1.4.3.1.1 Definition

This is a case to test a change of the frequency of a physical channel during active state of a call.

10.1.4.3.1.2 Conformance requirement

1) The UE being in the active state after having successful completed a physical channel reconfiguration, shall remain in the active state.

References

TS 24.008 clause 5.3.4.3.2, TS 25.331 clause 8.3.5.

10.1.4.3.1.3 Test purpose

To verify that the UE being in the active state after having successful completed a physical channel reconfiguration remains in the active state.

10.1.4.3.1.4 Method of test

Related ICS/IXIT statements

- supported circuit switched basic services;

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U10 "Active" by using table 10.1.2/1.

Test procedure

The UE being in the active state, the SS initiated physical channel reconfiguration procedure causing an intracell change of channel by sending a PHYSICAL CHANNEL RECONFIGURATION message to the UE. The UE performs physical channel reconfiguration procedure and after the main signalling link is successfully established, the UE returns a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC. The state of the UE is then checked.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		<-	PHYSICAL CHANNEL RECONFIGURATION	
2	->		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
3		<-	STATUS ENQUIRY	
4	->		STATUS	cause #30, state U10

Specific message contents:

None.

10.1.4.3.1.5 Test requirements

After step 2 the UE shall remain in the active state.

10.1.4.3.2 In-call functions / channel changes / an unsuccessful channel change in active mode/Hard handover

10.1.4.3.2.1 Definition

This is a case to test an unsuccessful change of the frequency of a physical channel during active state of a call.

10.1.4.3.2.2 Conformance requirement

1) The UE, when returning to the old channel after physical channel reconfiguration failure, shall remain in the active state.

References

TS 24.008 clause 5.3.4.3.

10.1.4.3.2.3 Test purpose

To verify that the UE, when returning to the old channel after physical channel reconfiguration failure, will remain in the active state.

10.1.4.3.2.4 Method of test

Related ICS/IXIT statements

- supported circuit switched basic services.

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in MM-state "idle, updated" with valid TMSI and CKSN.

The UE is brought into the state U10 "Active" by using table 10.1.2/1.

Test procedure

The SS sends a PHYSICAL CHANNEL RECONFIGURATION message, but does not activate the assigned physical channel. The UE shall attempt try to activate the new channel (this is not verified) and shall then reactivate the "old" channel. The UE shall send a PHYSICAL CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC and shall set the cause value in IE "failure cause" to "physical channel failure". The state of the UE is then checked.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		<-	PHYSICAL CHANNEL RECONFIGURATION	The UE attempts and fails to re-configure the physical channel.
2	->		PHYSICAL CHANNEL RECONFIGURATION FAILURE	NOTE
3		<-	STATUS ENQUIRY	
4	->		STATUS	cause #30, state U10

Specific message contents:

NOTE: With the cause value "physical channel failure".

10.1.4.3.2.5 Test requirements

After step 2 the UE shall remain in the active state.

10.1.4.4 In-call functions / UE terminated in-call modification

10.1.4.4.1 In-call functions / UE terminated in-call modification / modify when new mode is not supported

This test is not applicable for R99.

10.1.4.5 In-call functions / UE originated in-call modification

10.1.4.5.1 In-call functions / UE originated in-call modification / a successful case of modifying

This test is not applicable for R99.

10.1.4.5.2 In-call functions / UE originated in-call modification / modify rejected

This test is not applicable for R99.

10.1.4.5.3 In-call functions / UE originated in-call modification / an abnormal case of acceptance

This test is not applicable for R99.

10.1.4.5.4 In-call functions / UE originated in-call modification / an abnormal case of rejection

This test is not applicable for R99.

10.1.4.5.5 In-call functions / UE originated in-call modification / time-out of timer T323

This test is not applicable for R99.

10.1.4.5.6 In-call functions / UE originated in-call modification / a successful channel change in state mobile originating modify

This test is not applicable for R99.

10.1.4.5.7 In-call functions / UE originated in-call modification / an unsuccessful channel change in state mobile originating modify

This test is not applicable for R99.

10.1.4.5.8 In-call functions / UE originated in-call modification / unknown message received

This test is not applicable for R99.

10.1.4.5.9 In-call functions / UE originated in-call modification / a release complete received

This test is not applicable for R99.

10.2 Call Re-establishment

10.2.1 Void

10.3 User to user signalling

10.3.1 Definition

The "user to user" information element is used to convey information between the mobile user and a remote ISDN user.

NOTE: There is no test for an UE originating call including a "user-user" information element since it is not a mandatory UE feature.

10.3.2 Conformance requirement

The inclusion of the "user-user" information element in downlink call control messages shall cause no adverse effects on the operation of the UE.

References

TS 24.008 clauses 9.3.7, 9.3.23.1 and 10.5.4.25.

10.3.3 Purpose of the test

The purpose of this test is to verify that inclusion of the "user-user" information element in either of the down link messages, SETUP or DISCONNECT causes no adverse effects on the operation of the UE.

10.3.4 Method of test

Related ICS/IXIT statements

- Supported MT circuit switched basic services.
- Support of user-user information element, and details of suitable codings.

Initial conditions.

System Simulator:

The SS simulates 1 cell, with default parameters.

User Equipment:

The UE is in MM-state "idle updated", with a valid TMSI and CKSN.

Test procedure

The SS attempts to set up a mobile terminated call, with one of the supported circuit switched basic services which has been arbitrarily chosen, the generic call set up procedures for mobile terminating circuit switched calls,(either speech or data) as specified in TS 34.108 clause 7. The default SETUP message contents are modified to include the user-user Information Element. The UE shall not respond adversely to the inclusion of the user-user information element.

After 30 s the SS sends a DISCONNECT message, again the UE shall not respond adversely to the inclusion of the user-user information element, but shall continue to clear down the call normally.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1				Generic Call Setup procedure for mobile terminating circuit switched calls defined in TS 34.108, depending on choice of Bearer Capability. The SETUP message contains the user-user IE, see Specific message contents.
2				The SS waits 30 s.
3	<-		DISCONNECT	Message contains the user-user IE, see Specific message contents
4	->		RELEASE	
5	<-		RELEASE COMPLETE	
6	<-			The SS releases the RRC connection.

Specific message contents:

SETUP message contains user-user IE with the string coded in IA5 characters: for example "Call Setup".

DISCONNECT message contains user-user IE with the string coded in IA5 characters: for example "Call Disconnect". (The codings above are for example only. For the case of an UE which supports "user-user" signalling it may be necessary to add meaning to the data fields, see ICS/IXIT statements.)

NOTE: The codings above are for example only. For the case of an UE which supports "user-user" signalling it may be necessary to add meaning to the data fields, see ICS/IXIT statements.

10.3.5 Test requirements

After steps 1 and 3 the inclusion of the "user-user" information element in downlink call control messages shall cause no adverse effects on the operation of the UE.

11 Session Management Procedures

11.1 PDP context activation

11.1.1 Initiated by the UE

11.1.1.1 Attach initiated by context activation/QoS Offered by Network is the QoS Requested

11.1.1.1.1 Definition

11.1.1.1.2 Conformance requirement

SM procedures for identified access can only be performed if a GMM context has been established between the UE and the network. If no GMM context has been established, the MM sublayer has to initiate the establishment of a GMM context by use of the GMM procedures as described in chapter 4, 3GPP TS 24.008. After GMM context establishment, SM uses services offered by GMM (see 3GPP TS 24.007). Ongoing SM procedures are suspended during GMM procedure execution.

In UMTS only, integrity protected signalling (see 3GPP TS 24.008 clause 4.1.1.1.1 and in general, see 3GPP TS 33.102) is mandatory. In UMTS only, all protocols shall use integrity protected signalling. Integrity protection of all SM signalling messages is the responsibility of lower layers. It is the network which activates integrity protection. This is done using the security mode control procedure (TS 25.331).

In order to request a PDP context activation, the UE sends an ACTIVATE PDP CONTEXT REQUEST message to the network, enters the state PDP-ACTIVE-PENDING and starts timer T3380. The message contains the selected NSAPI, PDP type, requested QoS and, if the UE requests a static address, the PDP address.

Upon receipt of an ACTIVATE PDP CONTEXT REQUEST message, the network selects a radio priority level based on the QoS negotiated and may reply with an ACTIVATE PDP CONTEXT ACCEPT message. Upon receipt of the message ACTIVATE PDP CONTEXT ACCEPT the UE shall stop timer T3380, shall enter the state PDP-ACTIVE.

If the QoS offered by the network is the same as the QoS requested by the UE, the UE shall accept the negotiated QoS.

In UMTS, both the network and the UE shall store the LLC SAPI and the radio priority in the PDP context. If a UMTS to GSM system change is performed, the new SGSN shall initiate establishment of the logical link using the negotiated QoS profile, the negotiated LLC SAPI, and selected radio priority level stored in the PDP context as in a GSM to GSM Routing Area Update.

A UE, which is capable of operating in both GSM and UMTS, shall use a valid LLC SAPI, while a UE which is capable of operating only in UMTS shall indicate the LLC SAPI value as "LLC SAPI not assigned" in order to avoid unnecessary value range checking and any other possible confusion in the network.

NOTE 1: The radio priority level and the LLC SAPI parameters, though not used in UMTS, shall be included in the messages, in order to support handover between UMTS and GSM networks.

Reference

3GPP TS 24.008 clauses 6.1.1 and 6.1.3.1.1.

11.1.1.1.3 Test purpose

To check that the UE initiates a PS attach, if one is not already active, when PDP context activation is requested.

To test the behaviour of the UE when SS responds to the PDP context activation request with the requested QoS.

11.1.1.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- PS Supported yes/no
- Auto Attach supported yes / no
- Method of context activation

Test procedure

The UE is attached, then the Detach Request is originated from the UE indicating "GPRS detach without switching off". The SS responds with a Detach Accept after completing the security mode procedures. A PDP context activation is then requested by the user. The PS attach (ATTACH REQUEST) is then indirectly caused by a requested PDP context activation. The SS returns the ATTACH ACCEPT message to the UE. Now session management can proceed with PDP context activation.

On receipt of the ACTIVATE PDP CONTEXT REQUEST message an ACTIVATE PDP CONTEXT ACCEPT is returned by the SS with the same requested QoS. The contents of the ACTIVATE PDP CONTEXT REQUEST message shall then be checked. The SS then waits for T3380 seconds to ensure T3380 has been stopped and no more ACTIVATE PDP CONTEXT REQUEST messages are sent by the UE. The SS then sends a MODIFY PDP CONTEXT REQUEST message to which the UE shall reply with a MODIFY PDP CONTEXT ACCEPT message to ensure the context has been set up.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
0a	UE			Detach is performed by the UE using MMI or AT Commands
0	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Detach".
1	→		DETACH REQUEST	
1a	SS			The SS starts integrity protection.
2	←		DETACH ACCEPT	SS sends Detach Accept message.
2a	SS			The SS releases the RRC connection.
3	UE			Initiate a context activation
3a	SS			The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	→		ATTACH REQUEST	The UE requests attach
4a	SS			The SS starts integrity protection.
5	←		ATTACH ACCEPT	The SS accepts attach Negotiated Ready timer value IE should not be included Force to standby IE set to “Force to standby not indicated”
6	→		ACTIVATE PDP CONTEXT REQUEST	The UE requests a PDP context activation, enters the state PDP-ACTIVE-PENDING and starts timer T3380
6a	SS			The SS establishes the RAB.
7	←		ACTIVATE PDP CONTEXT ACCEPT	The SS accepts the PDP context activation and starts T3380
7a	UE			The UE stops T3380 and enters the state PDP-ACTIVE
8	SS			The SS waits for T3380 expiry to ensure no further activate request messages come from the UE
9	←		MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	The SS sends a modify request to UE for the activated context
10	→		MODIFY PDP CONTEXT ACCEPT (UE TO NETWORK DIRECTION)	The UE accepts the modification request from the SS. This re-confirms that step 6 was correctly executed in the UE.
11	SS			The SS releases the RRC connection due to inactivity (no user data transferred)

Specific message contents

None.

11.1.1.1.5 Test requirements

At step 0 the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step 3a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

When requesting a PDP context activation, the UE shall:

- initiate PS ATTACH;

- when the SS responds to a PDP context activation request, initiated by the UE, with the requested QoS, the UE shall complete the PDP context activation procedure. To check if the PDP context activation was successful, SS shall request PDP context modification and UE shall accept it.

11.1.1.1a Attach initiated by context activation/QoS Offered by Network is the QoS Requested/Correct handling of QoS extensions for rates above 8640 kbps

11.1.1.1a.1 Definition and applicability

UEs which support HS-PDSCH and supporting rates above 8640 kbps (UE Category 9 and/or UE Category 10).

11.1.1.1a.2 Conformance requirement

1. SM procedures for identified access can only be performed if a GMM context has been established between the UE and the network. If no GMM context has been established, the MM sublayer has to initiate the establishment of a GMM context by use of the GMM procedures as described in chapter 4. After GMM context establishment, SM uses services offered by GMM (see 3GPP TS 24.007). Ongoing SM procedures are suspended during GMM procedure execution. In UMTS only, integrity protected signalling (see 3GPP TS 24.008 clause 4.1.1.1.1 and in general, see 3GPP TS 33.102) is mandatory. In UMTS only, all protocols shall use integrity protected signalling. Integrity protection of all SM signalling messages is the responsibility of lower layers. It is the network which activates integrity protection. This is done using the security mode control procedure (TS 25.331).

2. In order to request a PDP context activation, the UE sends an ACTIVATE PDP CONTEXT REQUEST message to the network, enters the state PDP-ACTIVE-PENDING and starts timer T3380. The message contains the selected NSAPI, PDP type, requested QoS and, if the UE requests a static address, the PDP address. The UE shall ensure that the selected NSAPI is not currently being used by another Session Management entity in the MS.

   Upon receipt of an ACTIVATE PDP CONTEXT REQUEST message, the network selects a radio priority level based on the QoS negotiated and may reply with an ACTIVATE PDP CONTEXT ACCEPT message. Upon receipt of the message ACTIVATE PDP CONTEXT ACCEPT the UE shall stop timer T3380, shall enter the state PDP-ACTIVE. If the offered QoS parameters received from the network differ from the QoS requested by the MS, the MS shall either accept the negotiated QoS or initiate the PDP context deactivation procedure.

   ……

   In UMTS, both the network and the UE shall store the LLC SAPI and the radio priority in the PDP context. If a UMTS to GSM system change is performed, the new SGSN shall initiate establishment of the logical link using the negotiated QoS profile, the negotiated LLC SAPI, and selected radio priority level stored in the PDP context as in a GSM to GSM Routing Area Update.

   A UE, which is capable of operating in both GSM and UMTS, shall use a valid LLC SAPI, while a UE which is capable of operating only in UMTS shall indicate the LLC SAPI value as "LLC SAPI not assigned" in order to avoid unnecessary value range checking and any other possible confusion in the network.

NOTE 1: The radio priority level and the LLC SAPI parameters, though not used in UMTS, shall be included in the messages, in order to support handover between UMTS and GSM networks.

3. The *quality of service* is a type 4 information element with a minimum length of 14 octets and a maximum length of 16 octets. The QoS requested by the MS shall be encoded both in the QoS attributes specified in octets 3-5 and in the QoS attributes specified in octets 6-14.

   In the UE to network direction and in the network to UE direction the following applies:

- Octets 15 and 16 are optional. If octet 15 is included, then octet 16 shall also be included.

- A QoS IE received without octets 6-16, without octets 14-16, or without octets 15-16 shall be accepted by the receiving entity.

NOTE: This behaviour is required for interworking with entities supporting an earlier version of the protocol, or when the Maximum bit rate for downlink is negotiated to a value lower than 8700 kbps.

…….

8	7	6	5	4	3	2	1	
Quality of service IEI								octet 1
Length of quality of service IE								octet 2
0 0 spare		Delay class			Reliability class			octet 3
Peak throughput				0 spare	Precedence class			octet 4
0 0 0 spare			Mean throughput					octet 5
Traffic Class			Delivery order		Delivery of erroneous SDU			octet 6
Maximum SDU size								octet 7
Maximum bit rate for uplink								octet 8
Maximum bit rate for downlink								octet 9
Residual BER				SDU error ratio				octet 10
Transfer delay						Traffic Handling priority		octet 11
Guaranteed bit rate for uplink								octet 12
Guaranteed bit rate for downlink								octet 13
0 0 0 spare			Signal-ling Indicat-ion	Source Statistics Descriptor				octet 14
Maximum bit rate for downlink (extended)								octet 15
Guaranteed bit rate for downlink (extended)								octet 16

…..

Maximum bit rate for downlink, octet 9 (see 3GPP TS 23.107)

Coding is identical to that of Maximum bit rate for uplink.

If the sending entity wants to indicate a Maximum bit rate for downlink higher than 8640 kbps, it shall set octet 9 to ”11111110”, i.e. 8640 kbps, and shall encode the value for the Maximum bit rate in octet 15.

…..

Maximum bit rate for downlink (extended), octet 15
Bits
8 7 6 5 4 3 2 1
In MS to network direction and in network to MS direction:
0 0 0 0 0 0 0 0 Use the value indicated by the Maximum bit rate for downlink in octet 9.

0 0 0 0 0 0 0 1 Ignore the value indicated by the Maximum bit rate for downlink in octet 9. The maximum bit
rate is
0 1 0 0 1 0 1 0 8600 kbps + ((the binary coded value in 8 bits) * 100 kbps), giving a range of values from 8700 kbps to 16000 kbps in 100 kbps increments.

Reference

3GPP TS 24.008 clauses 6.1.1, 6.1.3.1.1 and 10.5.6.5.

11.1.1.1a.3 Test purpose

To check that the UE initiates a PS attach, if one is not already active, when PDP context activation is requested.

To check that the UE performs correct handling of QoS extensions for rates above 8640 kbps, and to check that the UE is, as well, capable of correct handling of QoS not requiring the extension information.

To check the UE successfully completes the PDP context activation when the SS responds to the PDP context activation request with the requested QoS.

11.1.1.1a.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- PS Supported yes/no
- Auto Attach supported yes / no
- Method of context activation
- Supported downlink rates above 8640 kbps yes/no

Test procedure

Table 11.1.1.1a.1 Test execution test parameters

Execution	Maximum bit rate for downlink
1	Value supported by the UE which is less than 8640 kbps
2	Value supported by the UE which is bigger than 8640 kbps, see Note 1

The UE is attached, then the Detach Request is originated from the UE indicating "GPRS detach without switching off". The SS responds with a Detach Accept after completing the security mode procedures. A PDP context activation is then requested. The IE “Maximum bit rate for downlink” is selected according to Table 11.1.1.1a.1 for execution=1. The PS attach (ATTACH REQUEST) is then indirectly caused by the requested PDP context activation. The SS returns the ATTACH ACCEPT message to the UE. Now session management can proceed with PDP context activation.

On receipt of the ACTIVATE PDP CONTEXT REQUEST message an ACTIVATE PDP CONTEXT ACCEPT is returned by the SS with the same requested QoS. The contents of the ACTIVATE PDP CONTEXT REQUEST

message shall then be checked. The SS then waits for T3380 seconds to ensure T3380 has been stopped and no more ACTIVATE PDP CONTEXT REQUEST messages are sent by the UE. The SS then sends a MODIFY PDP CONTEXT REQUEST message to which the UE shall reply with a MODIFY PDP CONTEXT ACCEPT message to ensure the context has been set up.

The test case is repeated with test parameters according to Table 11.1.1.1a.1 for execution=2.

Note 1: A Rel-7 or later UE supporting higher HSDPA categories, 13 or above, is executed as category 9 or 10 depending on UE capability.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
0a	UE			Detach is performed by the UE using MMI or AT Commands
0		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Detach".
1	→		DETACH REQUEST	
1a		SS		The SS starts integrity protection.
2	←		DETACH ACCEPT	The SS sends Detach Accept message.
2a		SS		The SS releases the RRC connection.
3	UE			The UE initiates a context activation with a requested “Maximum bit rate for downlink” according to Table 11.1.1.1a.1
3a		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	→		ATTACH REQUEST	The UE requests attach
4a		SS		The SS starts integrity protection.
5	←		ATTACH ACCEPT	The SS accepts attach Negotiated Ready timer value IE should not be included Force to standby IE set to “Force to standby not indicated”
6	→		ACTIVATE PDP CONTEXT REQUEST	The UE requests a PDP context activation, enters the state PDP-ACTIVE-PENDING and starts timer T3380
6a		SS		The SS establishes the RAB.
7	←		ACTIVATE PDP CONTEXT ACCEPT	The SS accepts the PDP context activation and starts T3380
7a	UE			The UE stops T3380 and enters the state PDP-ACTIVE
8		SS		The SS waits for T3380 seconds to ensure no further activate request messages come from the UE
9	←		MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	The SS sends a modify request to UE for the activated context
10	→		MODIFY PDP CONTEXT ACCEPT (UE TO NETWORK DIRECTION)	The UE accepts the modification request from the SS. This re-confirms that step 6 was correctly executed in the UE.
11		SS		The SS releases the RRC connection due to inactivity (no user data transferred)

The test sequence is repeated according to Table 11.1.1.1a.1.

Specific message contents

None.

11.1.1.1a.5 Test requirements

At step 0 the UE shall send RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach";

At step 3a the UE shall send RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration";

At step 4 the UE shall initiate PS ATTACH;

At step 6 the UE shall send ACTIVE PDP CONTEXT REQUEST message with the IE Requested QoS and Maximum bit rate for downlink set to value according to Table 11.1.1.1a.1;

At step 10 the UE shall send a MODIFY PDP CONTEXT ACCEPT message.

11.1.1.2 QoS offered by the network is a lower QoS

11.1.1.2.1 Void

11.1.1.2.2 Void

11.1.2 PDP context activation requested by the network, successful and unsuccessful

11.1.2.1 Definition

Void

11.1.2.2 Conformance requirement

1) Successful PDP context activation requested by the network

   In order to request a PDP context activation, the network sends a REQUEST PDP CONTEXT ACTIVATION message to the UE and starts timer T3385. The message contains an offered PDP address. If available, the APN shall be included in the REQUEST PDP CONTEXT ACTIVATION message.

   Upon receipt of a REQUEST PDP CONTEXT ACTIVATION message, the UE shall than either initiate the PDP context activation procedure as described in 3GPP TS 24.008 clause 6.1.3.1.1, or shall reject the activation request by sending a REQUEST PDP CONTEXT ACTIVATION REJECT message as described in 3GPP TS 24.008 clause 6.1.3.1.4. The value of the reject cause IE of the REQUEST PDP CONTEXT ACTIVATION REJECT message shall indicate the reason for rejection, e.g. "insufficient resources to activate another context".

   The ACTIVATE PDP CONTEXT REQUEST message sent by the UE in order to initiate the PDP context activation procedure shall contain the PDP address, PDP Type and APN requested by the network in the REQUEST PDP CONTEXT ACTIVATION message.

   Upon receipt of the ACTIVATE PDP CONTEXT REQUEST message, the network shall stop timer T3385.

The same procedures then apply as described for UE initiated PDP context activation (3GPP TS 24.008, clause 6.1.3.1.1.

2) Unsuccessful PDP context activation requested by the network

Upon receipt of the REQUEST PDP CONTEXT ACTIVATION message, the UE may reject the network requested PDP context activation by sending the REQUEST PDP CONTEXT ACTIVATION REJECT message to the network. The message contains the same TI as included in the REQUEST PDP CONTEXT ACTIVATION and an additional cause code that typically indicates one of the following causes:

#26: insufficient resources;

#31: activation rejected, unspecified;

#40: feature not supported; or

#95 – 111: protocol errors.

The network shall stop timer T3385 and enter state PDP-INACTIVE.

3) Whenever a REQUEST PDP CONTEXT ACTIVATION message is received by the UE specifying a transaction identifier relating to a PDP context not in state PDP-INACTIVE, the UE shall locally deactivate the old PDP context relating to the received transaction identifier. Furthermore, the UE shall continue with the activation procedure of a new PDP context as indicated in the received message.

Reference

3GPP TS 24.008 clauses 6.1.3.1.2, 6.1.3.1.4 and 8.3.2.f).

11.1.2.3 Test purpose

To test behaviour of the UE upon receipt of a PDP context activation request from the SS:

a) When UE supports PDP context activation requested by the network

b) When UE supporting PDP context activation requested by the network, receives REQUEST PDP CONTEXT ACTIVATION message with transaction identifier relating to an already active PDP context

c) When UE does not support PDP context activation requested by the network

11.1.2.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- PS Supported yes/no

Test procedure

A REQUEST PDP CONTEXT ACTIVATION message is sent by the SS. If UE does not accept PDP context activation, it shall send a REQUEST PDP CONTEXT ACTIVATION REJECT message (UE behaviour type B) , else UE will start PDP context activation procedure (UE behaviour type A).

On receipt of the ACTIVATE PDP CONTEXT REQUEST message from the UE, an ACTIVATE PDP CONTEXT ACCEPT message is returned by the SS. This is repeated until the maximum number of PDP contexts supported by the UE is activated (up to two).

When maximum number of PDP contexts is reached, UE shall reject next REQUEST PDP CONTEXT ACTIVATION message.

In response to the last activation request the UE shall return a REQUEST PDP CONTEXT ACTIVATION REJECT message with cause set to 'insufficient resources', 'activation rejected, unspecified', ‘feature not supported’ or 'protocol errors' using cause values #26, #31, #40 or #95-111.

REQUEST PDP CONTEXT ACTIVATION message is then sent by the SS using transaction identifier of the currently active PDP context. The UE shall activate this context to replace the previous context.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		REQUEST PDP CONTEXT ACTIVATION	SS sends Request a PDP context activation to UE and starts timer T3385. UE behaviour type B: test case continues from Step 6
A2	→		ACTIVATE PDP CONTEXT REQUEST	UE behaviour type A:UE replies with a PDP context activation request, Traffic class set to Streaming class or Interactive class or Background class
A2a		SS		The SS stops timer T3385 and establishes the Radio Access Bearer.
A3	←		ACTIVATE PDP CONTEXT ACCEPT	SS accepts the PDP context activation. If maximum number of PDP contexts of 2 (in future implementations this number might change) is reached, test execution continues from Step A5.
A4		SS		Steps 1, A2, A2a and A3 are repeated until maximum number of PDP contexts is reached, using various values for Traffic class IE. NOTE: In future implementations, if all 7 contexts are activated steps A5, 6 and 6a shall not be performed.
A5	←		REQUEST PDP CONTEXT ACTIVATION	SS requests a PDP context activation and starts timer T3385
6	→		REQUEST PDP CONTEXT ACTIVATION REJECT	The PDP context activation request is rejected with cause 'insufficient resources' or 'activation rejected, unspecified' or 'feature not supported' or 'protocol errors' using cause values #26, #31, #40 or #95-111.
6a		SS		The SS stops timer T3385. UE behaviour type B: test case ends.
A7	←		REQUEST PDP CONTEXT ACTIVATION	SS requests a PDP context activation for an existing PDP context with the same TI value as one of the active PDP contexts and starts timer T3385
A8		UE		UE locally deactivates the old PDP context with the same TI value
A9	→		ACTIVATE PDP CONTEXT REQUEST	UE continues with the activation of a new PDP context to replace locally deactivated PDP context
A9a		SS		The SS stops timer T3385 and releases Radio Access Bearer for old PDP context.
A9b		SS		The SS establishes the Radio Access Bearer for new PDP context.
A10	←		ACTIVATE PDP CONTEXT ACCEPT	SS accepts the PDP context activation

Specific message contents

Case 1

Step 6: REQUEST PDP CONTEXT ACTIVATION REJECT message contains the same TI as included in the REQUEST PDP CONTEXT ACTIVATION message in step 5.

Step 7: TI IE value is equal to the TI value of one of the active PDP contexts, Offered PDP address IE value and/or Access point name IE value are (is) different from the corresponding IE value(s) in the existing PDP context.

11.1.2.5 Test requirements

The UE that is configured to support one or more PDP contexts simultaneously shall:

- accept PDP context activation initiated by the SS if number of active contexts is lower than the maximum.
- locally deactivate the old PDP context when a REQUEST PDP CONTEXT ACTIVATION message is received, specifying a transaction identifier relating to an active PDP context and continue with the activation procedure of a new PDP context as indicated in the received message.

The UE that does not support PDP Context Activation (a number of active contexts supported by the UE is equal to maximum or UE does not support PDP context) shall reject PDP context activation initiated by the SS.

11.1.3 Abnormal Cases

11.1.3.1 T3380 Expiry

11.1.3.1.1 Definition

11.1.3.1.2 Conformance requirement

1) On the first expiry of the timer T3380, the UE shall re-send the PDP CONTEXT ACTIVATION REQUEST.
2) On the second expiry of the timer T3380, the UE shall re-send the PDP CONTEXT ACTIVATION REQUEST.
3) On the third expiry of the timer T3380, the UE shall re-send the PDP CONTEXT ACTIVATION REQUEST.
4) On the fourth expiry of the timer T3380, the UE shall re-send the PDP CONTEXT ACTIVATION REQUEST.
5) On the fifth expiry of the timer T3380, the UE shall release all resources possibly allocated for this invocation and shall abort the procedure; no automatic PDP context activation re-attempt shall be performed.

Reference

3GPP TS 24.008 clause 6.1.3.1.5 a).

11.1.3.1.3 Test purpose

To test the behaviour of the UE when the SS does not reply to PDP CONTEXT ACTIVATION REQUEST.

11.1.3.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- PS Supported yes/no
- Method of activating a context

Test procedure

A PDP context activation is requested by the user. The UE shall send the ACTIVATE PDP CONTEXT REQUEST message five times with T3380 seconds between each message. After this, no further ACTIVATE PDP CONTEXT REQUEST messages shall be sent by the UE.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a context activation
2	→		ACTIVATE PDP CONTEXT REQUEST	Request a PDP context activation
3		SS		T3380 seconds
4	→		ACTIVATE PDP CONTEXT REQUEST	Request a PDP context activation
5		SS		T3380 seconds
6	→		ACTIVATE PDP CONTEXT REQUEST	Request a PDP context activation
7		SS		T3380 seconds
8	→		ACTIVATE PDP CONTEXT REQUEST	Request a PDP context activation
9		SS		T3380 seconds
10	→		ACTIVATE PDP CONTEXT REQUEST	Request a PDP context activation
11		SS		Wait for T3380 seconds to ensure no further ACTIVATE PDP CONTEXT REQUEST messages are sent by the UE

Specific message contents

None.

11.1.3.1.5 Test requirements

UE shall re-send the ACTIVATE PDP CONTEXT REQUEST to SS five times in order to initiate PDP context, with expiry of timer T3380 between messages. After fifth try, UE shall send no more ACTIVATE PDP CONTEXT REQUEST to SS.

11.1.3.2 Collision of UE initiated and network requested PDP context activation

11.1.3.2.1 Definition

This test needs to take into account the number of PDP contexts supported by the UE, to be able to test the response when the network tries to initiate a new context.

11.1.3.2.2 Conformance requirement

A collision of a UE initiated and a network requested PDP context activation procedure is identified by the UE if a REQUEST PDP CONTEXT ACTIVATION message is received from the network after the UE has sent an

ACTIVATE PDP CONTEXT REQUEST message, and the UE has not yet received an ACTIVATE PDP CONTEXT ACCEPT or ACTIVATE PDP CONTEXT REJECT message.

NOTE: In general, the UE is unable to test if the PDP type, PDP address and APN in the REQUEST PDP CONTEXT ACTIVATION message are the same as those for the PDN to which it is attempting to activate a context. This is because the UE may have omitted one or more of the parameters in the ACTIVATE PDP CONTEXT REQUEST message, since it is relying on default values to be provided by the network.

In the case of such a collision, the UE initiated PDP context activation shall take precedence over the network requested PDP context activation. If the UE is able to compare the PDP type, PDP address and APN requested in the ACTIVATE PDP CONTEXT REQUEST message with those requested in the REQUEST PDP CONTEXT ACTIVATION message and these parameters are equal, then the UE shall discard the REQUEST PDP CONTEXT ACTIVATION message and shall wait for the network response to its ACTIVATE PDP CONTEXT REQUEST message. If the UE is not able to compare the PDP type, PDP address, and APN requested in the ACTIVATE PDP CONTEXT REQUEST message with those requested in the REQUEST PDP CONTEXT ACTIVATION message, then the UE shall send a REQUEST PDP CONTEXT ACTIVATION REJECT message with the cause 'insufficient resources' to the network, and wait for an ACTIVATE PDP CONTEXT ACCEPT message.

Reference

3GPP TS 24.008 clause 6.1.3.1.5 b), case: Static PDP address collision detected within the UE.

11.1.3.2.3 Test purpose

To test the behaviour of the UE when there is a collision between an UE initiated and network requested PDP context activation detected by the UE.

11.1.3.2.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- PS Supported yes/no
- Network requested PDP context activation supported yes/no
- Method of PDP context activation

Case 1

For an UE that supports PDP context activation requested by the network.

Test procedure

A PDP context activation is requested by the user with a static PDP address. After receipt of the ACTIVATE PDP CONTEXT REQUEST message the SS sends a REQUEST PDP CONTEXT ACTIVATION message followed by an ACTIVATE PDP CONTEXT ACCEPT message in a time less than T3380 (Use T3380/2). The UE shall send no messages within this time.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a context activation
2	→		ACTIVATE PDP CONTEXT REQUEST	Request a PDP context activation (with static PDP address)
3	←		REQUEST PDP CONTEXT ACTIVATION	Request a PDP context activation request
4	SS			Wait for T3380/2 seconds to ensure UE does not re-send ACTIVATE PDP CONTEXT REQUEST
5	←		ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context activation

Case 2

For a UE that does not support PDP context activation requested by the network.

Test procedure

A PDP context activation is requested by the user. After receipt of the ACTIVATE PDP CONTEXT REQUEST message the SS sends a REQUEST PDP CONTEXT ACTIVATION message. The UE shall send a REQUEST PDP CONTEXT ACTIVATION REJECT message with cause set to 'insufficient resources'. The SS then sends an ACTIVATE PDP CONTEXT ACCEPT.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a context activation
2	→		ACTIVATE PDP CONTEXT REQUEST	Request a PDP context activation
3	←		REQUEST PDP CONTEXT ACTIVATION	Request a PDP context activation
4	→		REQUEST PDP CONTEXT ACTIVATION REJECT	Cause set to 'insufficient resources'.
5	←		ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context activation

Specific message contents

For Case 1 and Case 2:

Step 2: ACTIVATE PDP CONTEXT REQUEST message contains PDP address and APN IEs.

Step 3: REQUEST PDPD CONTEXT ACTIVATION message contains the same PDP address and APN values as in Step 2.

11.1.3.2.5 Test requirements

In the case of such collision,

- UE that supports PDP context activation requested by the network shall discard the REQUEST PDP CONTEXT ACTIVATION message from SS and wait for an ACTIVATE PDP CONTEXT ACCEPT message.
- UE that does not support PDP context activation requested by the network shall reject PDP context activation initiated by the SS.

11.1.3.3 Network initiated PDP context activation request for an already activated PDP context (on the UE side)

11.1.3.3.1 Definition

11.1.3.3.2 Conformance requirement

If the UE receives a REQUEST PDP CONTEXT ACTIVATION message with the same combination of APN, PDP type and PDP address as an already activated PDP context, the UE shall deactivate the existing PDP context and, if any, all the linked PDP contexts (matching the combination of APN, PDP type and PDP address) locally without notification to the network and proceed with the requested PDP context activation.

Reference

3GPP TS 24.008 clause 6.1.3.1.5 d).

11.1.3.3.3 Test purpose

To test the behaviour of the UE when it detects a network initiated PDP context activation for the PDP context already activated on the UE side.

11.1.3.3.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

PS Supported yes/no

Method of PDP context activation

Test procedure

A PDP context activation is requested by the user. SS accepts PDP context activation. Secondary PDP context activation is requested by the user. SS accepts secondary PDP context activation. SS sends a REQUEST PDP CONTEXT ACTIVATION message with the same combination of APN, PDP type and PDP address as an already activated PDP context. The UE deactivates the existing PDP context and linked secondary PDP context (matching

the combination of APN, PDP type and PDP address) locally without notification to the SS and proceeds with the requested PDP context activation.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a context activation
2	→		ACTIVATE PDP CONTEXT REQUEST	UE requests a PDP context activation
3	←		ACTIVATE PDP CONTEXT ACCEPT	SS accepts the PDP context activation
4	→		ACTIVATE SECONDARY PDP CONTEXT REQUEST	UE requests a secondary PDP context activation
5	←		ACTIVATE SECONDARY PDP CONTEXT ACCEPT	SS accepts the secondary PDP context activation
6	←		REQUEST PDP CONTEXT ACTIVATION	SS requests a PDP context activation with the same combination of APN, PDP type and PDP address as the activated PDP context
7	UE			UE locally deactivates the activated PDP context and the secondary PDP context
9	→		ACTIVATE PDP CONTEXT REQUEST	UE replies with a Request PDP context activation
10	←		ACTIVATE PDP CONTEXT ACCEPT	SS accepts the PDP context activation

Specific message contents

None.

11.1.3.3.5 Test requirements

When inconsistency of PDP context between the UE and network is detected by the UE, then local synchronisation procedure shall be initiated in the UE. The PDP context and all (if any) linked contexts are implicitly deactivated and the new request shall be proceeded.

11.1.4 Secondary PDP context activation procedures

11.1.4.1 Successful Secondary PDP Context Activation Procedure Initiated by the UE

11.1.4.1.1 QoS Offered by Network is the QoS Requested

11.1.4.1.1.1 Definition

11.1.4.1.1.2 Conformance requirement

In order to request a PDP context activation with the same PDP address and APN as an already active PDP context, the UE shall send an ACTIVATE SECONDARY PDP CONTEXT REQUEST message to the network, enter the state PDP-ACTIVE-PENDING and start timer T3380. The message shall contain the selected NSAPI. The UE shall ensure that the selected NSAPI is not currently being used by another Session Management entity in the UE. The message shall also include a QoS profile, a requested LLC SAPI and the Linked TI. The QoS profile is the requested QoS. If present, the TFT shall be sent transparently through the SGSN to the GGSN to enable packet classification and policing for downlink data transfer.

Upon receipt of an ACTIVATE SECONDARY PDP CONTEXT REQUEST, the network shall validate the message by verifying the TI given in the Linked TI IE to be any of the active PDP context(s). The same GGSN address shall be used by the SGSN as for the already established PDP context(s) for that PDP address. The network shall select a radio priority level based on the QoS negotiated and shall reply with an ACTIVATE SECONDARY PDP CONTEXT ACCEPT message, if the request can be accepted.

NOTE 1: If the UE requested a value for a QoS parameter that is not within the range specified by 3GPP TS 23.107, the network should negotiate the parameter to a value that lies within the specified range.

Upon receipt of the message ACTIVATE SECONDARY PDP CONTEXT ACCEPT, the UE shall stop timer T3380 and enter the state PDP-ACTIVE. If the offered QoS parameters received from the network differ from the QoS requested by the UE, the UE shall either accept the negotiated QoS or initiate the PDP context deactivation procedure.

In UMTS, both SGSN and UE shall store the LLC SAPI and the radio priority in the PDP context. If a UMTS to GSM Routing Area Update is performed, the new SGSN shall initiate establishment of the logical link using the negotiated LLC SAPI, the negotiated QoS profile and selected radio priority level stored in the PDP context as in a GSM to GSM Routing Area Update.

An UE, which is capable of operating in both GSM and UMTS, shall use a valid LLC SAPI, while an UE which is capable of operating only in UMTS shall indicate the LLC SAPI value as "LLC SAPI not assigned" in order to avoid unnecessary value range checking and any other possible confusion in the network. When the UE uses a valid LLC SAPI, the network shall return a valid LLC SAPI. The network shall return the “LLC SAPI not assigned” value only when the UE uses the “LLC SAPI not assigned” value.

NOTE 2: The radio priority level and the LLC SAPI parameters, though not used in UMTS, shall be included in the messages, in order to support handover between UMTS and GSM networks.

Reference

3GPP TS 24.008 clauses 6.1.3.2 and 6.1.3.2.1.

11.1.4.1.1.3 Test purpose

To test the behaviour of the UE when SS responds to a Secondary PDP context activation request with the requested QoS.

11.1.4.1.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE and is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- PS Supported yes/no
- Method of context activation
- Secondary PDP context activation supported yes/no

Test procedure

A PDP context activation is requested by the user and accepted by the SS. Secondary PDP context activation is requested by the user. On receipt of the ACTIVATE SECONDARY PDP CONTEXT REQUEST message an ACTIVATE SECONDARY PDP CONTEXT ACCEPT is returned by the SS with the same requested QoS. The SS then waits for T3380 seconds to ensure T3380 has been stopped and no more ACTIVATE SECONDARY PDP CONREXT REQUEST messages are sent by the UE. The SS then sends a MODIFY PDP CONTEXT REQUEST message to which the UE shall reply with a MODIFY PDP CONTEXT ACCEPT message to ensure the context has been set up.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a PDP context activation
1a	SS			The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to either Originating Streaming Call, Originating Interactive Call or Originating Background Call or OriginatingSubscribedTrafficCall
1b	→		SERVICE REQUEST	Service type = "signalling"
1c	SS			The SS starts integrity protection.
2	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context
2a	SS			The SS establishes the RAB
3	←		ACTIVATE PDP CONTEXT ACCEPT	The SS accepts the PDP context with the requested QoS
4	UE			The UE initiates a secondary PDP context activation
5	→		ACTIVATE SECONDARY PDP CONTEXT REQUEST	The UE requests a Secondary PDP context activation, enters the state PDP-ACTIVE-PENDING and starts timer T3380. NSAPI IE value is different from the value in Step 2.
6	←		ACTIVATE SECONDARY PDP CONTEXT ACCEPT	The SS accepts the Secondary PDP context activation with the requested QoS
7	SS			The SS waits for T3380 seconds to ensure no further activate request messages come from the UE
8	←		MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	The SS sends a modify request to UE for secondary PDP context
9	→		MODIFY PDP CONTEXT ACCEPT (UE TO NETWORK DIRECTION)	The UE accepts the modification request from the SS. This re-confirms that step 5 was correctly executed in the UE.

Specific message contents

Step 2: TI flag (octet 1, Bit 8) in TI IE is set to ‘0’ and value of TIO (octet 1, Bits 765) is set in range 0-6.

Step 3: TI flag in TI IE is set to ‘1’ and value of TIO is the same as in Step 2. Step 5:

- The Linked TI information element in ACTIVATE SECONDARY PDP CONTEXT REQUEST message specifies the TI for the PDP context already activated. The SS can derive PDP address for the secondary PDP context from the Linked TI,
- TI flag in TI IE is set to ‘0’ and value of TIO is the same as in Step 2 and 3
- NSAPI IE value is different from NSAPI value in Step 2

Step 6 and 8: TI flag in TI IE is set to ‘1’ and value of TIO is the same as in Step 5.

Step 9: TI flag in TI IE is set to ‘0’ and value of TIO is the same as in Step 5.

11.1.4.1.1.5 Test requirements

To pass the test the UE shall:

- when the SS responds to Secondary PDP context activation request initiated by the UE, with the requested QoS, the UE shall complete the Secondary PDP context activation procedure. To check if the Secondary PDP context activation was successful, the SS shall request PDP context modification and UE shall accept it.

11.1.4.1.2 QoS Offered by Network is a lower QoS

11.1.4.1.2.1 Void

11.1.4.1.2.2 Void

11.1.4.1.2.3 LLC SAPI rejected by the UE

11.1.4.1.2.3.1 Definition

This test can only be performed if LLC SAPI can be set by the user.

11.1.4.1.2.3.2 Conformance Requirement

In order to request a PDP context activation with the same PDP address and APN as an already active PDP context, the UE shall send an ACTIVATE SECONDARY PDP CONTEXT REQUEST message to the network.

Upon receipt of an ACTIVATE SECONDARY PDP CONTEXT REQUEST, the network shall select a radio priority level based on the QoS negotiated and shall reply with an ACTIVATE SECONDARY PDP CONTEXT ACCEPT message, if the request can be accepted.

Upon receipt of the message ACTIVATE SECONDARY PDP CONTEXT ACCEPT, the UE shall stop timer T3380 and enter the state PDP-ACTIVE.

In GSM the UE shall initiate establishment of the logical link for the LLC SAPI indicated by the network if no logical link has been already established for that SAPI. If the LLC SAPI indicated by the network can not be supported by the UE, the UE shall initiate the PDP context deactivation procedure.

11.1.4.1.2.3.3 Test Purpose

To verify the behaviour of the UE when the network responds to the ACTIVATE SECONDARY PDP CONTEXT REQUEST message with a negotiated LLC SAPI which is not supported by the UE.

Reference

3GPP TS 24.008, clause 6.1.3.2.1.

11.1.4.1.2.3.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- PS Supported yes/no
- User setting of LLC SAPI supported yes/no
- Method of setting LLC SAPI
- Method of context activation
- Secondary PDP context activation supported yes/no

Test procedure

The requested LLC SAPI is set. This is the only LLC SAPI supported by the UE. A PDP context activation is requested by the user and accepted by the SS. A secondary PDP context activation is requested by the user. On receipt of the ACTIVATE SECONDARY PDP CONTEXT REQUEST message an ACTIVATE SECONDARY PDP CONTEXT ACCEPT message is returned by the SS with the LLC SAPI not supported by the UE. The UE shall then send a DEACTIVATE PDP CONTEXT REQUEST message for the secondary PDP context. A DEACTIVATE PDP CONTEXT ACCEPT message will be sent in return by the SS.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a PDP context activation
2	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context
3	←		ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context
4	UE			Initiate a secondary PDP context activation
5	→		ACTIVATE SECONDARY PDP CONTEXT REQUEST	Request a Secondary PDP context activation
6	←		ACTIVATE SECONDARY PDP CONTEXT ACCEPT	Accept the Secondary PDP context activation with LLC SAPI not supported by the UE
7	→		DEACTIVATE PDP CONTEXT REQUEST	Request deactivation of all PDP contexts
8	←		DEACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context deactivation

Specific message contents

In step 3 *Negotiated LLC SAPI* IE is equal to *Requested LLC SAPI* IE in step 2 and step 5.

In step 7 SM cause IE shall have value #25: LLC or SNDCP failure. Also, *Tear down indicator* IE shall be included in the DEACTIVATE PDP CONTEXT REQUEST message to deactivate all PDP contexts for this PDP address.

11.1.4.2 Unsuccessful Secondary PDP Context Activation Procedure Initiated by the UE

11.1.4.2.1 Definition

11.1.4.2.2 Conformance requirement

Upon receipt of an ACTIVATE SECONDARY PDP CONTEXT REQUEST message, the network may reject the UE initiated PDP context activation by sending an ACTIVATE SECONDARY PDP CONTEXT REJECT message to the UE. Upon receipt of an ACTIVATE SECONDARY PDP CONTEXT REJECT message, the UE shall stop timer T3380 and enter the state PDP-INACTIVE.

Reference

3GPP TS 24.008 clauses 6.1.3.2 and 6.1.3.2.2.

11.1.4.2.3 Test purpose

To test the behaviour of the UE when network rejects the UE initiated Secondary PDP context activation.

11.1.4.2.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE and is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- PS Supported yes/no
- Method of context activation
- Secondary PDP context activation supported yes/no

Test procedure

A PDP context activation is requested by the user and accepted by the SS. Secondary context activation is requested by the user. On receipt of the ACTIVATE SECONDARY PDP CONTEXT REQUEST message from the UE, an ACTIVATE SECONDARY PDP CONTEXT REJECT with cause #43 'unknown PDP context' is returned by the SS. SS shall wait for T3380 seconds to ensure that the UE sends no more ACTIVATE SECONDARY PDP CONTEXT REQUEST messages.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a PDP context activation
2	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context
3	←		ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context
4	UE			Initiate a secondary PDP context activation
5	→		ACTIVATE SECONDARY PDP CONTEXT REQUEST	Request a Secondary PDP context activation
6	←		ACTIVATE SECONDARY PDP CONTEXT REJECT	SS rejects the Secondary PDP context activation with cause '#43: unknown PDP context'
7	SS			Wait for T3380 seconds to ensure no further activate request messages come from the UE

Specific message contents

Step 5. The *Linked TI* information element specifies the TI which is different from the TI in the PDP context activated in steps 1-3.

11.1.4.2.5 Test requirements

After a secondary PDP context activation being rejected by the network, the UE shall not re-send the ACTIVATE SECONDARY PDP CONTEXT REQUEST message.

11.1.4.3 Abnormal cases

11.1.4.3.1 T3380 Expiry

11.1.4.3.1.1 Definition

11.1.4.3.1.2 Conformance requirement

1) On the first expiry of the timer T3380, the UE shall re-send the ACTIVATE SECONDARY PDP CONTEXT REQUEST.

2) On the second expiry of the timer T3380, the UE shall re-send the ACTIVATE SECONDARY PDP CONTEXT REQUEST.

3) On the third expiry of the timer T3380, the UE shall re-send the ACTIVATE SECONDARY PDP CONTEXT REQUEST.

4) On the fourth expiry of the timer T3380, the UE shall re-send the ACTIVATE SECONDARY PDP CONTEXT REQUEST.

5) On the fifth expiry of the timer T3380, the UE shall release all resources possibly allocated for this invocation and shall abort the procedure; no automatic secondary PDP context activation re-attempt shall be performed.

Reference

3GPP TS 24.008 clause 6.1.3.2.3 a).

11.1.4.3.1.3 Test purpose

To test the behaviour of the UE when the SS does not reply to ACTIVATE SECONDARY PDP CONTEXT REQUEST message.

11.1.4.3.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- PS Supported yes/no
- Method of activating a context
- Secondary PDP context activation supported yes/no

Test procedure

A PDP context is activated by the user and accepted by the SS. Secondary PDP context activation is requested by the user. The UE shall send ACTIVATE SECONDARY PDP CONTEXT REQUEST message five times with T3380 seconds between each message. After this, no further ACTIVATE SECONDARY PDP CONTEXT REQUEST messages shall be sent by the UE.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a PDP context activation
2	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context
3	←		ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context
4	UE			Initiate a secondary PDP context activation
5	→		ACTIVATE SECONDARY PDP CONTEXT REQUEST	Request a Secondary PDP context activation
6		SS		T3380 seconds
7	→		ACTIVATE SECONDARY PDP CONTEXT REQUEST	Request the Secondary PDP context activation
8		SS		T3380 seconds
9	→		ACTIVATE SECONDARY PDP CONTEXT REQUEST	Request the Secondary PDP context activation
10		SS		T3380 seconds
11	→		ACTIVATE SECONDARY PDP CONTEXT REQUEST	Request the Secondary PDP context activation
12		SS		T3380 seconds
13	→		ACTIVATE SECONDARY PDP CONTEXT REQUEST	Request the Secondary PDP context activation
14		SS		Wait for T3380 seconds to ensure no further ACTIVATE SECONDARY PDP CONTEXT REQUEST messages are sent by the UE

Specific message contents

None.

11.1.4.3.1.5 Test requirements

UE shall re-send the ACTIVATE SECONDARY PDP CONTEXT REQUEST to SS five times in order to initiate a Secondary PDP context, with expiry of timer T3380 between messages. After fifth try, UE shall send no more ACTIVATE SECONDARY PDP CONTEXT REQUEST messages to SS.

11.1.5 Secondary PDP context activation procedures initiated by network

11.1.5.1 Successful Secondary PDP Context Activation Procedure Initiated by the Network

11.1.5.1.1 Definition

11.1.5.1.2 Conformance requirement

In order to request a PDP context activation with the same PDP address and APN as an already active PDP context, the MS shall send an ACTIVATE SECONDARY PDP CONTEXT REQUEST message to the network, enter the state PDP-ACTIVE-PENDING and start timer T3380. The message shall contain the selected NSAPI. The MS shall ensure that the selected NSAPI is not currently being used by another Session Management entity in the MS. The message shall also include a QoS profile, a requested LLC SAPI and the Linked TI. The QoS profile is the requested QoS. If present, the TFT shall be sent transparently through the SGSN to the GGSN to enable packet classification and policing for downlink data transfer.

Upon receipt of an ACTIVATE SECONDARY PDP CONTEXT REQUEST, the network shall validate the message by verifying the TI given in the Linked TI IE to be any of the active PDP context(s). The same GGSN address shall be used by the SGSN as for the already established PDP context(s) for that PDP address. The network shall select a radio priority level based on the QoS negotiated and shall reply with an ACTIVATE SECONDARY PDP CONTEXT ACCEPT message, if the request can be accepted.

NOTE 1: If the MS requested a value for a QoS parameter that is not within the range specified by 3GPP TS 23.107 [81], the network should negotiate the parameter to a value that lies within the specified range.

Upon receipt of the message ACTIVATE SECONDARY PDP CONTEXT ACCEPT, the MS shall stop timer T3380 and enter the state PDP-ACTIVE. If the offered QoS parameters received from the network differ from the QoS requested by the MS, the MS shall either accept the negotiated QoS or initiate the PDP context deactivation procedure.

In A/Gb mode the MS shall initiate establishment of the logical link for the LLC SAPI indicated by the network with the offered QoS and selected radio priority level if no logical link has been already established for that SAPI. If the LLC SAPI indicated by the network can not be supported by the MS, the MS shall initiate the PDP context deactivation procedure.

In Iu mode, both SGSN and MS shall store the LLC SAPI and the radio priority in the PDP context. If an Iu mode to A/Gb mode Routing Area Update is performed, the new SGSN shall initiate establishment of the logical link using the negotiated LLC SAPI, the negotiated QoS profile and selected radio priority level stored in the PDP context as in an A/Gb mode to A/Gb mode Routing Area Update.

An MS, which is capable of operating in both A/Gb mode and Iu mode, shall use a valid LLC SAPI, while an MS which is capable of operating only in Iu mode shall indicate the LLC SAPI value as "LLC SAPI not assigned" in order to avoid unnecessary value range checking and any other possible confusion in the network. When the MS uses a valid LLC SAPI, the network shall return a valid LLC SAPI. The network shall return the “LLC SAPI not assigned” value only when the MS uses the “LLC SAPI not assigned” value.

NOTE 2: The radio priority level and the LLC SAPI parameters, though not used in Iu mode, shall be included in the messages, in order to support handover between Iu mode and A/Gb mode networks.

...

In order to request a PDP context activation with the same PDP address and APN as an already active PDP context, the network shall send a REQUEST SECONDARY PDP CONTEXT ACTIVATION message to the MS and start timer T3385. The message contains the required QoS, Linked TI, and optionally protocol configuration options and a TFT. If present, the TFT shall be sent transparently through the SGSN to the MS to enable packet classification and policing for uplink and downlink data transfer.

Upon receipt of a REQUEST SECONDARY PDP CONTEXT ACTIVATION message, the MS shall then either initiate the secondary PDP context activation procedure as described in the subclause 6.1.3.2.1 or shall reject the activation request by sending a REQUEST SECONDARY PDP CONTEXT ACTIVATION REJECT message as described in subclause 6.1.3.2.2a. The value of the reject cause IE of the REQUEST SECONDARY PDP CONTEXT ACTIVATION REJECT message shall indicate the reason for rejection, e.g. "insufficient resources to activate another context".

The ACTIVATE SECONDARY PDP CONTEXT REQUEST message sent by the MS in order to initiate the secondary PDP context activation procedure shall contain the QoS and Linked TI required in the REQUEST SECONDARY PDP CONTEXT ACTIVATION message. The MS shall also include a TFT with the downlink packet filters as specified in the REQUEST SECONDARY PDP CONTEXT ACTIVATION message.

Upon receipt of the ACTIVATE SECONDARY PDP CONTEXT REQUEST message, the network shall stop timer T3385.

The same procedures then apply as described for MS initiated secondary PDP context activation.

Reference

3GPP TS 24.008 clauses 6.1.3.2, 6.1.3.2.1 and 6.1.3.2.1a.

11.1.5.1.3 Test purpose

To test the behaviour of the UE when it detects a network initiated secondary PDP context activation request on the existing PDP context already activated on the UE side

11.1.5.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE and is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- Method of context activation

Test procedure

A PDP context activation is requested by the user and accepted by the SS.

If the UE set the PDP type to ‘IPv4’ or ‘IPv4v6’ in the ACTIVATE PDP CONTEXT then the SS allocates an IPv4 address to the UE.

Else if the UE set the PDP type to ‘IPv6’ in the ACTIVATE PDP CONTEXT REQUEST then the SS allocates an IPv6 address via stateless address auto configuration on the established primary PDP context.

A Secondary PDP context activation is requested by the SS by sending a REQUEST SECONDARY PDP CONTEXT ACTIVATION. The UE requests activation of the secondary PDP context. On receipt of the ACTIVATE SECONDARY PDP CONTEXT REQUEST message an ACTIVATE SECONDARY PDP CONTEXT ACCEPT is returned by the SS with the same requested QoS. The SS then waits for T3380 seconds to ensure T3380 has been stopped and no more ACTIVATE SECONDARY PDP CONREXT REQUEST messages are sent by the

UE. The SS then sends a MODIFY PDP CONTEXT REQUEST message to which the UE shall reply with a MODIFY PDP CONTEXT ACCEPT message to ensure the context has been set up.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to either Originating Streaming Call, Originating Interactive Call or Originating Background Call or OriginatingSubscribedTrafficCall
2	→		SERVICE REQUEST	Service type = "signalling"
3		SS		The SS starts integrity protection.
4	→		ACTIVATE PDP CONTEXT REQUEST	Activate the primary PDP context
4A		SS		IF the UE in step 4 set the PDP type to ' IPv4' or 'IPv4v6' in the ACTIVATE PDP CONTEXT REQUEST message then the SS allocates an IPv4 addess. ELSE IF the UE in step 4 set the PDP type to ' IPv6' in the ACTIVATE PDP CONTEXT REQUEST message then the SS allocates an IPv6 address.
5		SS		The SS establishes the RAB according to reference radio bearer combination 6.10.2.4.1.26 in [9] (1xPS RB 64kbps).
6	←		ACTIVATE PDP CONTEXT ACCEPT	The SS accepts the PDP context with the requested QoS EXCEPTION: If the "PDP type" in the ACTIVATE PDP CONTEXT REQUEST message was 'IPv6' then stateless address auto configuration occurs on the user plane bearer established with the ACTIVATE PDP CONTEXT REQUEST
7		SS		The SS initiates a secondary PDP context activation
8	←		REQUEST SECONDARY PDP CONTEXT ACTIVATION	The SS requests a Secondary PDP context activation and starts timer T3385.
9	→		ACTIVATE SECONDARY PDP CONTEXT REQUEST	The UE requests a Secondary PDP context activation, enters the state PDP-ACTIVE-PENDING and starts timer T3380. NSAPI IE value is different from the value in Step 4.
10		SS		The SS stops timer T3385. The SS reconfigures the RAB according to reference radio bearer combination 6.10.2.4.1.57 in [9] (2xPS RB 64kbps).
11	←		ACTIVATE SECONDARY PDP CONTEXT ACCEPT	The SS accepts the Secondary PDP context activation with the requested QoS
12		SS		The SS waits for T3380 seconds to ensure no further activate request messages come from the UE
13	←		MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	The SS sends a modify request to UE for secondary PDP context
14	→		MODIFY PDP CONTEXT ACCEPT (UE TO NETWORK DIRECTION)	The UE accepts the modification request from the SS. This re-confirms that step 9 was correctly executed in the UE.

Specific message contents

Step 4: TI flag (octet 1, Bit 8) in TI IE is set to '0' and value of TIO (octet 1, Bits 765) is set in range 0-6.

Step 6: TI flag in TI IE is set to '1' and value of TIO is the same as in Step 4.

Step 8:

- The Linked TI information element in REQUEST SECONDARY PDP CONTEXT ACTIVATION message specifies the TI for the primary PDP context already activated and is set according to Step 6. The request includes a TFT.
- TI flag in TI IE is set to '0' and value of TIO is different to Step 4.

Step 9:

- The Linked TI information element in ACTIVATE SECONDARY PDP CONTEXT REQUEST message specifies the TI for the PDP context already activated, as received in step 8
- TI flag in TI IE is set to '1' and value of TIO is the same as in Step 8
- NSAPI IE value is different from NSAPI value in Step 4

Step 11 and 13: TI flag in TI IE is set to '0' and value of TIO is the same as in Step 9.

Step 14: TI flag in TI IE is set to '1' and value of TIO is the same as in Step 9.

11.1.5.1.5 Test requirements

To pass the test the UE shall:

- at step 9 send a ACTIVATE SECONDARY PDP CONTEXT REQUEST message with a NSAPI value different from the value in Step 4.
- at step 14 send a MODIFY PDP CONTEXT ACCEPT message.

11.1.5.2 Successful Secondary PDP Context Activation, Deactivation and Re-activation Initiated by the Network

11.1.5.2.1 Definition

11.1.5.2.2 Conformance requirement

In order to request a PDP context activation with the same PDP address and APN as an already active PDP context, the MS shall send an ACTIVATE SECONDARY PDP CONTEXT REQUEST message to the network, enter the state PDP-ACTIVE-PENDING and start timer T3380. The message shall contain the selected NSAPI. The MS shall ensure that the selected NSAPI is not currently being used by another Session Management entity in the MS. The message shall also include a QoS profile, a requested LLC SAPI and the Linked TI. The QoS profile is the requested QoS. If present, the TFT shall be sent transparently through the SGSN to the GGSN to enable packet classification and policing for downlink data transfer.

Upon receipt of an ACTIVATE SECONDARY PDP CONTEXT REQUEST, the network shall validate the message by verifying the TI given in the Linked TI IE to be any of the active PDP context(s). The same GGSN address shall be used by the SGSN as for the already established PDP context(s) for that PDP address. The network shall select a radio priority level based on the QoS negotiated and shall reply with an ACTIVATE SECONDARY PDP CONTEXT ACCEPT message, if the request can be accepted.

NOTE 1: If the MS requested a value for a QoS parameter that is not within the range specified by 3GPP TS 23.107 [81], the network should negotiate the parameter to a value that lies within the specified range.

Upon receipt of the message ACTIVATE SECONDARY PDP CONTEXT ACCEPT, the MS shall stop timer T3380 and enter the state PDP-ACTIVE. If the offered QoS parameters received from the network differ from the QoS requested by the MS, the MS shall either accept the negotiated QoS or initiate the PDP context deactivation procedure.

In A/Gb mode the MS shall initiate establishment of the logical link for the LLC SAPI indicated by the network with the offered QoS and selected radio priority level if no logical link has been already established for that SAPI. If the LLC SAPI indicated by the network can not be supported by the MS, the MS shall initiate the PDP context deactivation procedure.

In Iu mode, both SGSN and MS shall store the LLC SAPI and the radio priority in the PDP context. If an Iu mode to A/Gb mode Routing Area Update is performed, the new SGSN shall initiate establishment of the logical link using the negotiated LLC SAPI, the negotiated QoS profile and selected radio priority level stored in the PDP context as in an A/Gb mode to A/Gb mode Routing Area Update.

An MS, which is capable of operating in both A/Gb mode and Iu mode, shall use a valid LLC SAPI, while an MS which is capable of operating only in Iu mode shall indicate the LLC SAPI value as "LLC SAPI not assigned" in order to avoid unnecessary value range checking and any other possible confusion in the network. When the MS uses a valid LLC SAPI, the network shall return a valid LLC SAPI. The network shall return the “LLC SAPI not assigned” value only when the MS uses the “LLC SAPI not assigned” value.

NOTE 2: The radio priority level and the LLC SAPI parameters, though not used in Iu mode, shall be included in the messages, in order to support handover between Iu mode and A/Gb mode networks.

…

In order to request a PDP context activation with the same PDP address and APN as an already active PDP context, the network shall send a REQUEST SECONDARY PDP CONTEXT ACTIVATION message to the MS and start timer T3385. The message contains the required QoS, Linked TI, and optionally protocol configuration options and a TFT. If present, the TFT shall be sent transparently through the SGSN to the MS to enable packet classification and policing for uplink and downlink data transfer.

Upon receipt of a REQUEST SECONDARY PDP CONTEXT ACTIVATION message, the MS shall then either initiate the secondary PDP context activation procedure as described in the subclause 6.1.3.2.1 or shall reject the activation request by sending a REQUEST SECONDARY PDP CONTEXT ACTIVATION REJECT message as described in subclause 6.1.3.2.2a. The value of the reject cause IE of the REQUEST SECONDARY PDP CONTEXT ACTIVATION REJECT message shall indicate the reason for rejection, e.g. "insufficient resources to activate another context".

The ACTIVATE SECONDARY PDP CONTEXT REQUEST message sent by the MS in order to initiate the secondary PDP context activation procedure shall contain the QoS and Linked TI required in the REQUEST SECONDARY PDP CONTEXT ACTIVATION message. The MS shall also include a TFT with the downlink packet filters as specified in the REQUEST SECONDARY PDP CONTEXT ACTIVATION message.

Upon receipt of the ACTIVATE SECONDARY PDP CONTEXT REQUEST message, the network shall stop timer T3385.

The same procedures then apply as described for MS initiated secondary PDP context activation.

…

In order to deactivate a PDP context, the network sends a DEACTIVATE PDP CONTEXT REQUEST message to the MS and starts timer T3395. The message contains the transaction identifier in use for the PDP context to be deactivated and a cause code that typically indicates one of the following causes:

8: Operator Determined Barring;

25: LLC or SNDCP failure (A/Gb mode only);

36: regular deactivation;

38: network failure; or

39: reactivation requested.

#112: APN restriction value incompatible with active PDP context.

The MS shall, upon receipt of this message, reply with a DEACTIVATE PDP CONTEXT ACCEPT message. Upon receipt of the DEACTIVATE PDP CONTEXT ACCEPT message, the network shall stop the timer T3395.

If a detach is requested by the HLR for an MS that has PDP contexts for emergency services, the SGSN shall send a DEACTIVATE PDP CONTEXT REQUEST message to the MS for all the PDP contexts that are not PDP contexts for emergency services.

In A/Gb mode, both the MS and the network shall initiate local release of the logical link if it is not used by another PDP context.

In Iu mode, the network shall initiate the release of Radio Access Bearer associated with this PDP context.

…

Each valid downlink- and uplink-packet filter contains a unique identifier within a given TFT, an evaluation precedence index that is unique among all packet filters for the same direction (downlink or uplink) for one PDP address and APN pair, and at least one of the following attributes:

- Remote Address and Subnet Mask.
- Protocol Number (IPv4) / Next Header (IPv6).
- Local Port Range.
- Remote Port Range.
- IPSec Security Parameter Index (SPI).
- Type of Service (TOS) (IPv4) / Traffic class (IPv6) and Mask.
- Flow Label (IPv6).

In the list of attributes above 'Remote' refers to the external network entity, and 'Local' to the MS.

Some of the above-listed attributes may coexist in a packet filter while others mutually exclude each other. In table 12 below, the possible combinations are shown. Only those attributes marked with an "X" may be specified for a single packet filter. All marked attributes may be specified, but at least one shall be specified.

If the parameters of the header of a received PDP PDU match all specified attribute values in a packet filter, then it is considered that a match is found for this packet filter. In this case, the evaluation procedure is aborted. Other packet filters in increasing order of their evaluation precedence index are evaluated until such match is found.

There may be potential conflicts if attribute values are combined in such a way that the defined filter can never achieve a match to a valid IP packet header. However, the determination of such conflicts is outside the scope of GPRS standardization.

Table 12: Valid Packet Filter Attribute Combinations

	Valid combination types		
Packet filter attribute	**I**	**II**	**III**
Remote Address and Subnet Mask	X	X	X
Protocol Number (IPv4) / Next Header (IPv6)	X	X	
Local Port Range	X		
Remote Port Range	X		
IPSec SPI		X	
TOS (IPv4) / Traffic Class (IPv6) and Mask	X	X	X
Flow Label (IPv6)			X

Reference

3GPP TS 24.008 clauses 6.1.3.2, 6.1.3.2.1, 6.1.3.2.1a and 6.1.3.4.2. 3GPP TS 23.060 clause 15.3.2.0.

11.1.5.2.3 Test purpose

1. To verify that the UE, after having deactivated a network initiated secondary PDP context successfully, can re-activate a new network requested secondary PDP context associated with the same primary PDP context.

2. To verify that the UE successfully performs data transfer on the radio bearer associated with the secondary PDP context packet filtering before and after the re-activation of the secondary PDP context.

11.1.5.2.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE and is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- Method of context activation

Test procedure

A PDP context activation is requested by the user and accepted by the SS.

If the UE set the PDP type to ‘IPv4’ or ‘IPv4v6’ in the ACTIVATE PDP CONTEXT REQUEST then the SS allocates an IPv4 address to the UE and set the test variable IP type to “IPv4”.

Else if the UE set the PDP type to ‘IPv6’ in the ACTIVATE PDP CONTEXT REQUEST then the SS allocates an IPv6 address via stateless address auto configuration on the established primary PDP context and set the test variable IP type to “IPv6”.

A Secondary PDP context activation is requested by the SS by sending a REQUEST SECONDARY PDP CONTEXT ACTIVATION including Packet Filter#1 in the UL TFT. The UE requests activation of the secondary PDP context. On receipt of the ACTIVATE SECONDARY PDP CONTEXT REQUEST message an ACTIVATE

SECONDARY PDP CONTEXT ACCEPT is returned by the SS with the same requested QoS. The SS then waits for T3380 seconds to ensure T3380 has been stopped and no more ACTIVATE SECONDARY PDP CONREXT REQUEST messages are sent by the UE.

The SS activates UE test loop mode 4 and transmits two IP Packets to the UE, IP packet#1 and IP packet#2. IP packet#1 does not match Packet Filter#1. IP packet#2 matches Packet Filter#1. The SS checks that IP packet#1 is returned by the UE on the radio bearer associated with the primary PDP context and IP packet#2 is returned by the UE on the radio bearer associated with the secondary PDP context. The SS deactivates UE test loop mode 4.

The SS then requests to deactivate the secondary PDP context by sending DEACTIVATE PDP CONTEXT message to the user. The SS starts the T3395 timer. The UE deactivates the secondary PDP context and issues the DEACTIVATE PDP CONTEXT ACCEPT message. On receipt of this message the SS stops the T3395 timer.

A re-activation of the secondary PDP context is requested by the SS by sending a REQUEST SECONDARY PDP CONTEXT ACTIVATION includes Packet Filter#2 (different from Packet Filter#1) in the UL TFT IE. The UE requests activation of the secondary PDP context. On receipt of the ACTIVATE SECONDARY PDP CONTEXT REQUEST message an ACTIVATE SECONDARY PDP CONTEXT ACCEPT is returned by the SS with the same requested QoS. The SS then waits for T3380 seconds to ensure T3380 has been stopped and no more ACTIVATE SECONDARY PDP CONREXT REQUEST messages are sent by the UE.

The SS activates UE test loop mode 4 and transmits two IP Packets to the UE, IP packet#3 and IP packet#4. IP packet#3 matches Packet Filter#1, but do not match Packet Filter#2. IP packet#4 matches Packet Filter#2. The SS checks that IP packet#3 is returned by the UE on the radio bearer associated with the primary PDP context (see Note) and IP packet#4 is returned by the UE on the radio bearer associated with the secondary PDP context. Note IP packet#3 is set to match Packet Filter#1 to verify that UE does not re-activate Packet Filter#1 when the secondary PDP context is reactivated. If Packet Filter#1 would still be active after the deactivation and re-activation of the secondary PDP context then would IP packet#3 have been returned on the radio bearer associated with the secondary PDP context instead of the primary PDP context.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to either Originating Streaming Call, Originating Interactive Call or Originating Background Call or OriginatingSubscribedTrafficCall
2		SS		The SS activates UE radio bearer test mode in accordance to [10] TS 34.109, clause 5.2.1.
3	→		SERVICE REQUEST	Service type = "signalling"
4		SS		The SS starts integrity protection.
5	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context
5A		SS		IF the UE in step 5 set the PDP type to ' IPv4' or 'IPv4v6' in the ACTIVATE PDP CONTEXT REQUEST message then the SS sets the test variable IPtype='IPv4' ELSE IF the UE in step 5 set the PDP type to ' IPv6' in the ACTIVATE PDP CONTEXT REQUEST message then the SS sets the test variable IPtype='IPv6'
6		SS		The SS establishes the RAB according to reference radio bearer combination 6.10.2.4.1.26 in [9] (1xPS RB 64kbps).
7	←		ACTIVATE PDP CONTEXT ACCEPT	The SS accepts the PDP context. EXCEPTION: If the test variable is set to 'IPv6' then stateless address auto configuration occurs on the user plane bearer established with the ACTIVATE PDP CONTEXT REQUEST message.
8		SS		The SS initiates a secondary PDP context activation
9	←		REQUEST SECONDARY PDP CONTEXT ACTIVATION	The SS requests a Secondary PDP context activation and starts timer T3385. A UL TFT filter (Packet Filter#1) is configured.
10	→		ACTIVATE SECONDARY PDP CONTEXT REQUEST	The UE requests a Secondary PDP context activation, enters the state PDP-ACTIVE-PENDING and starts timer T3380. NSAPI IE value is different from the value in Step 4.
11		SS		The SS stops timer T3385. The SS reconfigures the RAB according to reference radio bearer combination 6.10.2.4.1.57 in [9] (2xPS RB 64kbps).
12	←		ACTIVATE SECONDARY PDP CONTEXT ACCEPT	The SS accepts the Secondary PDP context activation with the requested QoS
13		SS		The SS waits for T3380 seconds to ensure no further activate request messages come from the UE
14		SS		The SS activates UE test loop mode 4 to establish UE loopback of IP PDUs. See [10] TS 34.109 clause 5.3.2.
15	←		IP PDU (IP packet#1)	The SS transmits IP packet#1 to the UE. IP packet#1 does not match Packet Filter#1.

16	→	IP PDU (IP packet#1)	The SS checks during 1 second that UE transmits IP packet#1 on the radio bearer associated with the primary PDP context.
17	←	IP DPU (IP packet#2)	The SS transmits IP packet#2 to the UE. IP packet#2 matches Packet Filter#1.
18	→	IP PDU (IP packet#2)	The SS checks during 1 second that UE transmits IP packet#2 on the radio bearer associated with the secondary PDP context.
19	SS		The SS deactivates UE test loop mode 4. See [10] TS 34.109 clause 5.3.3.
20	←	DEACTIVATE PDP CONTEXT	The SS starts timer T3395. Cause code set to #36 (regular deactivation)
21	→	DEACTIVATE PDP CONTEXT ACCEPT	The SS stops timer T3395. The SS reconfigures the RAB.
22	SS		The SS initiates a secondary PDP context activation
23	←	REQUEST SECONDARY PDP CONTEXT ACTIVATION	The SS requests a Secondary PDP context activation and starts timer T3385. The SS configures Packet Filter#2 in the UL TFT associated with the secondary PDP context.
24	→	ACTIVATE SECONDARY PDP CONTEXT REQUEST	The UE requests a Secondary PDP context activation, enters the state PDP-ACTIVE-PENDING and starts timer T3380. NSAPI IE value is different from the value in Step 4.
25	SS		The SS stops timer T3385. The SS reconfigures the RAB.
26	←	ACTIVATE SECONDARY PDP CONTEXT ACCEPT	The SS accepts the Secondary PDP context activation with the requested QoS
27	SS		The SS waits for T3380 seconds to ensure no further activate request messages come from the UE
28	SS		The SS activates UE test loop mode 4 to establish UE loopback of IP PDUs. See [10] TS 34.109 clause 5.3.2.
29	←	IP PDU (IP packet#3)	The SS transmits IP packet#3 to the UE. IP packet#3 do not match Packet Filter#2, but do match Packet Filter#1.
30	→	IP PDU (IP packet#3)	The SS checks during 1 second that UE transmits IP packet#3 on the radio bearer associated with the primary PDP context.
31	←	IP DPU (IP packet#4)	The SS transmits IP packet#4 to the UE. IP packet#4 matches Packet Filter#2.
32	→	IP PDU (IP packet#4)	The SS checks during 1 second that UE transmits IP packet#4 on the radio bearer associated with the secondary PDP context.

Specific message contents

Step 5: TI flag (octet 1, Bit 8) in TI IE is set to ‘0’ and value of TIO (octet 1, Bits 765) is set in range 0-6.

Step 7: TI flag in TI IE is set to ‘1’ and value of TIO is the same as in Step 5.

Step 9:

- The Linked TI information element in REQUEST SECONDARY PDP CONTEXT ACTIVATION message specifies the TI for the PDP context already activated and is set according to Step 7. The request includes an UL TFT filter, Packet Filter#1.

- TI flag in TI IE is set to ‘0’ and value of TIO is different to Step 5

- Packet Filter#1 is set according to table11.1.5.2.4-1.

Step 10:

- The Linked TI information element in ACTIVATE SECONDARY PDP CONTEXT REQUEST message specifies the TI for the PDP context already activated, as received in step 9
- TI flag in TI IE is set to '1' and value of TIO is the same as in Step 5 and 7
- NSAPI IE value is different from NSAPI value in Step 5

Step 12: TI flag in TI IE is set to '0' and value of TIO is the same as in Step 10.

Step 14: UE test loop mode IE is set to UE test loop mode 4 in the CLOSE UE TEST LOOP message, see [10] TS 34.109 clause 6.2.

Step 15: IP packet#1 is set according to table11.1.5.2.4-2.

Step 17: IP packet#2 is set according to table11.1.5.2.4-3

Step 20:

- TI flag in TI IE is set to '0' and value of TIO is the same as in Step 10
- The Cause Code IE is set to #36 (regular deactivation)

Step 23: The Linked TI information element in ACTIVATE SECONDARY PDP CONTEXT REQUEST message specifies the TI for the PDP context already activated, as received in step 9. The request includes an UL TFT filter, Packet Filter#2.

Packet Filter#2 is set according to table11.1.5.2.4-1.

Step 24:

- The Linked TI information element in ACTIVATE SECONDARY PDP CONTEXT REQUEST message specifies the TI for the PDP context already activated, as received in step 9
- TI flag in TI IE is set to '0' and value of TIO is the same as in Step 5 and 7
- NSAPI IE value is different from NSAPI value in Step 5

Step 28: UE test loop mode IE is set to UE test loop mode 4 in the CLOSE UE TEST LOOP message, see [10] TS 34.109 clause 6.2.

Step 29: IP packet#3 is set according to table11.1.5.2.4-4.

Step 31: IP packet#4 is set according to table11.1.5.2.4-2.

Table 11.1.5.2.4-1: Packet Filter Table

Packet filter ID	UL TFT	Packet filter evaluation precedence	Protocol Number (IPv4) / Next Header (IPv6)	Remote address and Subnet mask	Single Local Port (UE)	Local Port Range (UE)	Single Remote Port (NW)	Remote Port Range (NW)	IPSec SPI range	Type of Service (IPv4) / Traffic Class (IPv6) and Mask	Flow Label (IPv6)	Comments
1	Secondary PDP Context (step 9)	6	17 (UDP)	IPv4: 172.168.8.0 [255.255.255.0] IPv6: 2001:0ba0:: [ffff:ffff::]	60001	-	-	60350: 60450	-	10101000, Mask= 11111100	-	UDP application identified by remote address, type of service/traffic class and specific local port number and remote port number range. This is a valid Packet Filter Attribute Combination Type I according to TS 23.060, subclause 15.3.2.0.
2	Secondary PDP Context (step23)	5	17 (UDP)	IPv4: 172.168.8.0 [255.255.255.0] IPv6: 2001:0ba0:: [ffff:ffff::]	60001	-	-	60350: 60450	-	10100000, Mask= 11111100	-	Same as packet filter#1 except for “Type of Service(IPv4) / Traffic Class (IPv6)” packet filter component.

Table 11.1.5.2.4-2: IP packet#1 (step 15, does not match packet filter#1)

Derivation path: IETF RFC 791 section 3.1 (IPv4) or RFC 2460 section 3 (IPv6) and RFC 769 introduction			
Information Element	**Value/Remark**	**Comment**	**Condition**
Type of service (IPv4) / Traffic Class (IPv6)	10101001	Significant for packet filter 1. Value matches packet filter 1.	
Protocol	17	UDP Significant packet filters 1. Value matches packet filter 1.	
Source Address	192.168.0.1	Not significant for any packet filters	IPv4
	Fe80::1:1	Not significant for any packet filters	IPv6
Destination Address	172.168.9.1	Significant for packet filter 1. Value does not match packet filter 1.	IPv4
	2001:0bb0:0001:0001	Significant for packet filter 1 Value does not match packet filter 1.	IPv6
Source Port	60001	Significant for packet filter 1. Value matches packet filter 1.	
Destination Port	60350	Significant for packet filter 1. Value matches packet filter 1.	

Condition	Explanation
IPv4	This condition applies if test variable IP type is set to 'IPv4'.
IPv6	This condition applies if test variable IP type is set to 'IPv6'.

Table 11.1.5.2.4-3: IP packet#2 (step 17, matches packet filter#1)

Derivation path: IP packet#1, Table 11.1.5.2.4-2.			
Information Element	**Value/Remark**	**Comment**	**Condition**
Type of service (IPv4) / Traffic Class (IPv6)	10101001	Significant for packet filter 1. Value matches packet filter 1.	
Destination Address	172.168.8.1	Significant for packet filter 1. Value matches packet filter 1.	IPv4
	2001:0ba0:0001:0001	Significant for packet filter 1. Value matches packet filter 1.	IPv6

Condition	Explanation
IPv4	This condition applies if test variable IP type is set to 'IPv4'.
IPv6	This condition applies if test variable IP type is set to 'IPv6'.

Table 11.1.5.2.4-4: IP packet#3 (step 29, does not match packet filter#2, matches removed packet filter#1)

Derivation path: IP packet#1, Table 11.1.5.2.4-2.			
Information Element	**Value/Remark**	**Comment**	**Condition**
Type of service (IPv4) / Traffic Class (IPv6)	10101001	Significant for packet filter 2. Value does not match packet filter 2.	
Destination Address	172.168.8.1	Significant for packet filter 2. Value matches packet filter 2.	IPv4
	2001:0ba0:0001:0001	Significant for packet filter 1. Value matches packet filter 2.	IPv6

Condition	Explanation
IPv4	This condition applies if test variable IP type is set to 'IPv4'.
IPv6	This condition applies if test variable IP type is set to 'IPv6'.

Table 11.1.5.2.4-5: IP packet#4 (step 31, matches packet filter#2)

Derivation path: IP packet#1, Table 11.1.5.2.4-2.			
Information Element	**Value/Remark**	**Comment**	**Condition**
Type of service (IPv4) / Traffic Class (IPv6)	10100000	Significant for packet filter 2. Value matches packet filter 2.	
Destination Address	172.168.8.1	Significant for packet filter 2. Value matches packet filter 2.	IPv4
	2001:0ba0:0001:0001	Significant for packet filter 2. Value matches packet filter 2.	IPv6

11.1.5.2.5 Test requirements

To pass the test the UE shall:

- at step 16 transmit an IP PDU containing IP packet#1 on the radio bearer associated with the primary PDP context.
- at step 18 transmit an IP PDU containing IP packet#2 on the radio bearer associated with the secondary PDP context.
- at step 30 transmit an IP PDU containing IP packet#3 on the radio bearer associated with the primary PDP context.
- at step 32 transmit an IP PDU containing IP packet#4 on the radio bearer associated with the secondary PDP context.

11.2 PDP context modification procedure

11.2.1 Network initiated PDP context modification

11.2.1.1 Definition

11.2.1.2 Conformance requirement

In order to initiate the procedure, the network sends the MODIFY PDP CONTEXT REQUEST message to the UE and starts timer T3386. The message shall contain the new QoS and the radio priority level and LLC SAPI that shall be used by the UE in GSM at the lower layers for the transmission of data related to the PDP context.

Upon receipt of this message the UE shall reply with the MODIFY PDP CONTEXT ACCEPT message, if the UE accepts the new QoS and the indicated LLC SAPI.

If the UE does not accept the new QoS or the indicated LLC SAPI, the UE shall initiate the PDP context deactivation procedure for the PDP context - the reject cause IE value of the DEACTIVATE PDP CONTEXT REQUEST message shall indicate "QoS not accepted".

The network shall upon receipt of the MODIFY PDP CONTEXT ACCEPT message stop timer T3386.

In UMTS, the network shall establish, reconfigure or continue using the Radio Access Bearer with the new QoS indicated in the MODIFY PDP CONTEXT REQUEST message.

Reference

3GPP TS 24.008 clauses 6.1.3.3 and 6.1.3.3.1.

11.2.1.3 Test purpose

To test behaviour of the UE upon receipt of a MODIFY PDP CONTEXT REQUEST message from SS.

11.2.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- PS Supported yes/no
- Method of activating a PDP context
- Support of automatic PS attach procedure at switch on yes/no

Test procedure

The requested QoS is set. A PDP context is activated by the user and accepted by the SS. A MODIFY PDP CONTEXT REQUEST message is then sent to the UE with a new QoS . The UE shall either send a DEACTIVATE PDP CONTEXT REQUEST (UE behaviour A) or MODIFY PDP CONTEXT ACCEPT (UE behaviour B) message in return.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a PDP context activation
2	→		ACTIVATE PDP CONTEXT REQUEST	Activate the PDP context
2a	SS			SS establishes RAB
3	←		ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context
4	←		MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	Request the modification of a PDP context, with a new QoS and start timer T3386.
A5	→		DEACTIVATE PDP CONTEXT REQUEST	UE behaviour type A: Initiate the PDP context deactivation. Cause set to 'QoS not accepted'
A5a	←		DEACTIVATE PDP CONTEXT ACCEPT	UE behaviour type A: Accept the PDP context deactivation and stop timer T3386.
A5b	SS			The SS releases the RAB associated with this PDP Context.
A5c	→		DETACH REQUEST	UE behaviour type A: A non-auto attach UE may (optionally) send a Detach Request. The SS shall wait up to 'T3390' seconds for the Detach Request.
A5d	←		DETACH ACCEPT	If the UE transmitted a Detach Request message in step A5c then the SS responds with a Detach Accept message.
B5	→		MODIFY PDP CONTEXT ACCEPT (UE TO NETWORK DIRECTION)	UE behaviour type B: Accept the PDP context modification
B5a	SS			Stop timer T3386
6			Void	
7			Void	
8			Void	

Specific message contents

None.

11.2.1.5 Test requirements

The UE shall:

- Accept or reject PDP context modification with a new QoS initiated by the SS.

11.2.1a Network initiated PDP context modification / Adding and deleting filters to TFT of a secondary PDP context

11.2.1a.1 Definition

11.2.1a.2 Conformance requirement

In order to initiate the procedure, the network sends the MODIFY PDP CONTEXT REQUEST message to the MS and starts timer T3386. The message shall contain the new QoS and the radio priority level and LLC SAPI that shall be used by the MS in A/Gb mode at the lower layers for the transmission of data related to the PDP context. The MODIFY PDP CONTEXT REQUEST message may also contain modified packet filters in the TFT information element that shall be applied to that specific PDP context.

The network informs the MS about the Bearer Control Mode to be applied for all active PDP contexts sharing the same PDP Address and APN by including the selected Bearer Control Mode parameter in the protocol configuration options information element. This information is either explicitly given in the MODIFY PDP CONTEXT REQUEST message or implicitly given by not being present. The MS shall act according to the presence of the protocol configuration

options information element and the value of the selected Bearer Control Mode parameter in the MODIFY PDP CONTEXT REQUEST message:

- if the protocol configuration options information element is not present, the MS shall apply Bearer Control Mode 'MS only' for all active PDP contexts sharing the same PDP Address and APN.

- if the selected Bearer Control Mode parameter is not present in the protocol configuration options information element, the MS shall apply Bearer Control Mode 'MS only' for all active PDP contexts sharing the same PDP Address and APN.

- if the selected Bearer Control Mode parameter is present in the protocol configuration options information element, the MS shall apply Bearer Control Mode according to the value of this parameter for all active PDP contexts sharing the same PDP Address and APN.

Upon receipt of the MODIFY PDP CONTEXT REQUEST message the MS shall reply with the MODIFY PDP CONTEXT ACCEPT message, if the MS accepts the new QoS and the indicated LLC SAPI.

The network shall upon receipt of the MODIFY PDP CONTEXT ACCEPT message stop timer T3386.

In A/Gb mode, the network shall establish, reconfigure or continue using the logical link with the new QoS for the LLC SAPI indicated in the MODIFY PDP CONTEXT REQUEST message.

In Iu mode, if the Radio Access Bearer supporting the PDP context is active, then the network shall reconfigure and continue using the Radio Access Bearer with the new QoS indicated in the MODIFY PDP CONTEXT REQUEST message; if the PDP context is preserved, then the network may re-establish a Radio Access Bearer with the new QoS indicated in the MODIFY PDP CONTEXT REQUEST message.

…

Each valid downlink- and uplink-packet filter contains a unique identifier within a given TFT, an evaluation precedence index that is unique among all packet filters for the same direction (downlink or uplink) for one PDP address and APN pair, and at least one of the following attributes:

- Remote Address and Subnet Mask.

- Protocol Number (IPv4) / Next Header (IPv6).

- Local Port Range.

- Remote Port Range.

- IPSec Security Parameter Index (SPI).

- Type of Service (TOS) (IPv4) / Traffic class (IPv6) and Mask.

- Flow Label (IPv6).

In the list of attributes above 'Remote' refers to the external network entity, and 'Local' to the MS.

Some of the above-listed attributes may coexist in a packet filter while others mutually exclude each other. In table 12 below, the possible combinations are shown. Only those attributes marked with an "X" may be specified for a single packet filter. All marked attributes may be specified, but at least one shall be specified.

If the parameters of the header of a received PDP PDU match all specified attribute values in a packet filter, then it is considered that a match is found for this packet filter. In this case, the evaluation procedure is aborted. Other packet filters in increasing order of their evaluation precedence index are evaluated until such match is found.

There may be potential conflicts if attribute values are combined in such a way that the defined filter can never achieve a match to a valid IP packet header. However, the determination of such conflicts is outside the scope of GPRS standardization.

Table 12: Valid Packet Filter Attribute Combinations

	Valid combination types		
Packet filter attribute	**I**	**II**	**III**
Remote Address and Subnet Mask	X	X	X
Protocol Number (IPv4) / Next Header (IPv6)	X	X	
Local Port Range	X		
Remote Port Range	X		
IPSec SPI		X	
TOS (IPv4) / Traffic Class (IPv6) and Mask	X	X	X
Flow Label (IPv6)			X

Reference

3GPP TS 24.008 clauses 6.1.3.3 and 6.1.3.3.1. 3GPP TS 23.060 clause 15.3.2.0.

11.2.1a.3 Test purpose

1. To verify that the UE successfully performs network initiated PDP context modification procedures to add and delete filters to the TFT of an active secondary PDP context.

2. To verify that the UE successfully performs packet filtering before and after modification of filters.

11.2.1a.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- Method of activating a PDP context
- Support of automatic PS attach procedure at switch on yes/no

Test procedure

A PDP context activation is requested by the user and accepted by the SS.

If the UE set the PDP type to ‘IPv4’ or ‘IPv4v6’ in the ACTIVATE PDP CONTEXT REQUEST then the SS allocates a IPv4 address to the UE and set the test variable IP type to “IPv4”.

Else if the UE set the PDP type to ‘IPv6’ in the ACTIVATE PDP CONTEXT REQUEST then the SS allocates an IPv6 address via stateless address auto configuration on the established primary PDP context and set the test variable IP type to “IPv6”. A Secondary PDP context activation with a UL TFT filter (Packet Filter#1) is requested by the SS and the activation procedure is completed by the UE.

The SS activates UE test loop mode 4 and transmits two IP Packets to the UE, IP packet#1 and IP packet#2. IP packet#1 does not match Packet Filter#1. IP packet#2 matches Packet Filter#1. The SS checks that IP packet#1 is returned by the UE on the radio bearer associated with the primary PDP context and IP packet#2 is returned by the UE on the radio bearer associated with the secondary PDP context. The SS sends a MODIFY PDP CONTEXT REQUEST message to the UE requesting a new TFT filter to be added, Packet Filter#2. The UE sends a MODIFY PDP CONTEXT ACCEPT message in return.

The SS transmits three IP Packets to the UE, IP packet#3; IP packet#4 and IP packet#5. IP packet#3 does not match Packet Filter#1 nor Packet Filter#2. IP packet#4 matches Packet Filter#1, but not Packet Filter#2. IP packet#5 matches Packet Filter#2, but not Packet Filter#1. The SS checks that IP packet#3 is returned by the UE on the radio bearer associated with the primary PDP context. The SS checks that IP packet#4 and IP packet#5 are returned by the UE on the radio bearer associated with the secondary PDP context. The SS sends a MODIFY PDP CONTEXT REQUEST message to the UE requesting Packet Filter#1 to be removed from the TFT. The UE sends a MODIFY PDP CONTEXT ACCEPT message in return.

The SS transmits two IP Packets to the UE, IP packet#6 and IP packet#7. IP packet#6 matches Packet Filter#1, but not Packet Filter#2. IP packet#7 matches Packet Filter#2. The SS checks that IP packet#6 is returned by the UE on the radio bearer associated with the primary PDP context (see Note). The SS checks that IP packet#7 is returned by the UE on the radio bearer associated with the secondary PDP context. Note IP packet#6 is set to match Packet Filter#1, but not Packet Filkter#2 to verify that UE have successfully removed Packet Filter#1. If Packet Filter#1 would not have been removed by the UE then would IP packet#6 have been returned on the radio bearer associated with the secondary PDP context instead of the primary PDP context.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to either Originating Streaming Call, Originating Interactive Call or Originating Background Call or OriginatingSubscribedTrafficCall
2		SS		The SS activates UE radio bearer test mode in accordance to [10] TS 34.109, clause 5.2.1.
3	→		SERVICE REQUEST	Service type = "signalling"
4		SS		The SS starts integrity protection.
5	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context
5A		SS		IF the UE in step 5 set the PDP type to ' IPv4' or 'IPv4v6' in the ACTIVATE PDP CONTEXT REQUEST message then the SS sets the test variable IPtype='IPv4' ELSE IF the UE in step 5 set the PDP type to ' IPv6' in the ACTIVATE PDP CONTEXT REQUEST message then the SS sets the test variable IPtype='IPv6'
6		SS		The SS establishes the RAB according to reference radio bearer combination 6.10.2.4.1.26 in [9] (1xPS RB 64kbps).
7	←		ACTIVATE PDP CONTEXT ACCEPT	The SS accepts the PDP context. EXCEPTION: If the test variable is set to 'IPv6' then stateless address auto configuration occurs on the user plane bearer established with the ACTIVATE PDP CONTEXT REQUEST message.
8		SS		The SS initiates a secondary PDP context activation
9	←		REQUEST SECONDARY PDP CONTEXT ACTIVATION	The SS requests a Secondary PDP context activation and starts timer T3385. A UL TFT filter (Packet Filter#1) is configured.
10	→		ACTIVATE SECONDARY PDP CONTEXT REQUEST	The UE requests a Secondary PDP context activation, enters the state PDP-ACTIVE-PENDING and starts timer T3380. NSAPI IE value is different from the value in Step 4.
11		SS		The SS stops timer T3385. The SS reconfigures the RAB according to reference radio bearer combination 6.10.2.4.1.57 in [9] (2xPS RB 64kbps).
12	←		ACTIVATE SECONDARY PDP CONTEXT ACCEPT	The SS accepts the Secondary PDP context activation with the requested QoS
13		SS		The SS waits for T3380 seconds to ensure no further activate request messages come from the UE
14		SS		The SS activates UE test loop mode 4 to establish UE loopback of IP PDUs. See [10] TS 34.109 clause 5.3.2.
15	←		IP PDU (IP packet#1)	The SS transmits IP packet#1 to the UE. IP packet#1 does not match Packet Filter#1.
16	→		IP PDU (IP packet#1)	The SS checks during 1 second that UE transmits IP packet#1 on the radio bearer associated with the primary PDP context.
17	←		IP DPU (IP packet#2)	The SS transmits IP packet#2 to the UE. IP packet#2 matches Packet Filter#1.

18	→	IP PDU (IP packet#2)	The SS checks during 1 second that UE transmits IP packet#2 on the radio bearer associated with the secondary PDP context.
19	←	MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	The SS sends a modify request to UE to add a UL TFT filter (Packet Filter#2) to the secondary PDP context
20	→	MODIFY PDP CONTEXT ACCEPT (UE TO NETWORK DIRECTION)	The UE accepts the modification request from the SS.
21	←	IP PDU (IP packet#3)	The SS transmits IP packet#3 to the UE. IP packet#3 does not match Packet Filter#1 nor Packet Filter#2.
22	→	IP PDU (IP packet#3)	The SS checks during 1 second that UE transmits IP packet#3 on the radio bearer associated with the primary PDP context.
23	←	IP DPU (IP packet#4)	The SS transmits IP packet#4 to the UE. IP packet#4 matches Packet Filter#1, but not Packet Filter#2.
24	→	IP PDU (IP packet#4)	The SS checks during 1 second that UE transmits IP packet#4 on the radio bearer associated with the secondary PDP context.
25	←	IP DPU (IP packet#5)	The SS transmits IP packet#5 to the UE. IP packet#5 matches Packet Filter#2, but not Packet Filter#1.
26	→	IP PDU (IP packet#5)	The SS checks during 1 second that UE transmits IP packet#5 on the radio bearer associated with the secondary PDP context.
27	←	MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	The SS sends a modify request to UE to remove a UL TFT filter (Packet Filter#1) from the secondary PDP context
28	→	MODIFY PDP CONTEXT ACCEPT (UE TO NETWORK DIRECTION)	The UE accepts the modification request from the SS.
29	←	IP PDU (IP packet#6)	The SS transmits IP packet#6 to the UE. IP packet#6 matches Packet Filter#1, but not Packet Filter#2.
30	→	IP PDU (IP packet#6)	The SS checks during 1 second that UE transmits IP packet#6 on the radio bearer associated with the primary PDP context.
31	←	IP PDU (IP packet#7)	The SS transmits IP packet#7 to the UE. IP packet#7 matches Packet Filter#2.
32	→	IP PDU (IP packet#7)	The SS checks during 1 second that UE transmits IP packet#7 on the radio bearer associated with the secondary PDP context.

Specific message contents

Step 9: The Linked TI information element in REQUEST SECONDARY PDP CONTEXT ACTIVATION message specifies the TI for the PDP context already activated and is set to the TI value of step 7. The request includes an UL TFT filter, Packet Filter#1.

Packet Filter#1 is set according to table 11.2.1a.4-1

Step 14: UE test loop mode IE is set to UE test loop mode 4 in the CLOSE UE TEST LOOP message, see [10] TS 34.109 clause 6.2.

Step 15: IP packet#1 is set according to table 11.2.1a.4-2

Step 17: IP packet#2 is set according to table 11.2.1a.4-3

Step 19: Use TI to identify secondary PDP context. Add a packet filter (Packet Filter#2) to the UL TFT.

Packet Filter#2 is set according to table 11.2.1a.4-1

Step 21: IP packet#3 is set identical to IP Packet#1, according to table 11.2.1a.4-2, and does not match Packet Filter#1 nor Packet Filter#2.

Step 23: IP packet#4 is set identical to IP Packet#2, according to table 11.2.1a.4-3, and matches Packet Filter#1 but not Packet Filter#2.

Step 25: IP packet#5 is set according to table 11.2.1a.4-4

Step 27: Use TI to identify secondary PDP context. Remove the packet filter (Packet Filter#1) from the UL TFT.

Step 29: IP packet#6 is set identical to IP Packet#2, according to table 11.2.1a.4-3, and matches Packet Filter#1 but not Packet Filter#2.

Step 31: IP packet#7 is set identical to IP Packet#5, according to table 11.2.1a.4-4, and does not match Packet Filter#1 but matches Packet Filter#2.

Table 11.2.1a.4-1: Packet Filter Table

Packet filter ID	UL TFT	Packet filter evaluation precedence	Protocol Number (IPv4) / Next Header (IPv6)	Remote address and Subnet mask	Single Local Port (UE)	Local Port Range (UE)	Single Remote Port (NW)	Remote Port Range (NW)	IPSec SPI range	Type of Service (IPv4) / Traffic Class (IPv6) and Mask	Flow Label (IPv6)	Comments
1	Secondary PDP Context (Step 9)	6	17 (UDP)	IPv4: 172.168.8.0 [255.255.255.0] IPv6: 2001:0ba0:: [ffff:ffff::]	60001	-	-	60350: 60450	-	10101000, Mask= 11111100	-	UDP application identified by remote address, type of service/traffic class and specific local port number and remote port number range. This is a valid Packet Filter Attribute Combination Type I according to TS 23.060, subclause 15.3.2.0.
2	Secondary PDP Context (Step 19)	5	17 (UDP)	IPv4: 172.168.8.0 [255.255.255.0] IPv6: 2001:0ba0:: [ffff:ffff::]	60001	-	-	60350: 60450	-	10100000, Mask= 11111100	-	Same as packet filter#1 except for “Type of Service(IPv4) / Traffic Class (IPv6)” packet filter component.

Table 11.2.1a.4-2: IP packet#1 (Step 15, does not match Packet Filter#1)

Derivation path: IETF RFC 791 section 3.1 (IPv4) or RFC 2460 section 3 (IPv6) and RFC 769 introduction			
Information Element	**Value/Remark**	**Comment**	**Condition**
Type of service (IPv4) / Traffic Class (IPv6)	10101001	Significant for packet filters 1 and 2. Value matches packet filters 1 but not 2.	
Protocol	17	UDP Significant for packet filters 1 and 2. Value matches packet filters 1 and 2	
Source Address	192.168.0.1	Not significant for any packet filters	IPv4
	Fe80::1:1	Not significant for any packet filters	IPv6
Destination Address	172.168.9.1	Significant for packet filters 1 and 2. Value does not match packet filters 1 and 2.	IPv4
	2001:0bb0:0001:0001	Significant for packet filters 1 and 2. Value does not match packet filters 1 and 2.	IPv6
Source Port	60001	Significant for packet filter 1. Value matches packet filter 1.	
Destination Port	60350	Significant for packet filter 1. Value matches packet filter 1.	

Condition	Explanation
IPv4	This condition applies if test variable IP type is set to 'IPv4'.
IPv6	This condition applies if test variable IP type is set to 'IPv6'.

Table 11.2.1a.4-3: IP packet#2 (Step 17, matches Packet Filter#1)

Derivation path: IP packet#1, Table 11.2.1a.4-2			
Information Element	**Value/Remark**	**Comment**	**Condition**
Destination Address	172.168.8.1	Significant for packet filter 1 and 2. Value matches packet filters 1 and 2.	IPv4
	2001:0ba0:0001:0001	Significant for packet filter 1 and 2. Value matches packet filters 1 and 2.	IPv6

Condition	Explanation
IPv4	This condition applies if test variable IP type is set to 'IPv4'.
IPv6	This condition applies if test variable IP type is set to 'IPv6'.

Table 11.2.1a.4-4: IP packet#5 (Step 25, matches Packet Filter#2, but not Packet Filter#1)

Derivation path: IP packet#1, Table 11.2.1a.4-2			
Information Element	**Value/Remark**	**Comment**	**Condition**
Type of service (IPv4) / Traffic Class (IPv6)	10100000	Significant for packet filter 1 and 2. Value matches packet filter 2. Value does not match packet filter 1.	
Destination Address	172.168.8.1	Significant for packet filters 1 and 2. Value matches packet filters 1 and 2.	IPv4
	2001:0ba0:0001:0001	Significant for packet filters 1 and 2. Value matches packet filters 1 and 2.	IPv6

11.2.1a.5 Test requirements

To pass the test the UE shall:

- at step 16 transmit an IP PDU containing IP packet#1 on the radio bearer associated with the primary PDP context.
- at step 18 transmit an IP PDU containing IP packet#2 on the radio bearer associated with the secondary PDP context.
- at step 20 send a MODIFY PDP CONTEXT ACCEPT message.
- at step 22 transmit an IP PDU containing IP packet#3 on the radio bearer associated with the primary PDP context.
- at step 24 transmit an IP PDU containing IP packet#4 on the radio bearer associated with the secondary PDP context.
- at step 26 transmit an IP PDU containing IP packet#5 on the radio bearer associated with the secondary PDP context.
- at step 28 send a MODIFY PDP CONTEXT ACCEPT message.
- at step 30 transmit an IP PDU containing IP packet#6 on the radio bearer associated with the primary PDP context.
- at step 32 transmit an IP PDU containing IP packet#7 on the radio bearer associated with the secondary PDP context.

11.2.1b Network initiated PDP context modification / Adding filters to TFT of the Primary PDP context

11.2.1b.1 Definition

11.2.1b.2 Conformance requirement

In order to initiate the procedure, the network sends the MODIFY PDP CONTEXT REQUEST message to the MS and starts timer T3386. The message shall contain the new QoS and the radio priority level and LLC SAPI that shall be used by the MS in A/Gb mode at the lower layers for the transmission of data related to the PDP context. The MODIFY PDP CONTEXT REQUEST message may also contain modified packet filters in the TFT information element that shall be applied to that specific PDP context.

The network informs the MS about the Bearer Control Mode to be applied for all active PDP contexts sharing the same PDP Address and APN by including the selected Bearer Control Mode parameter in the protocol configuration options information element. This information is either explicitly given in the MODIFY PDP CONTEXT REQUEST message or implicitly given by not being present. The MS shall act according to the presence of the protocol configuration options information element and the value of the selected Bearer Control Mode parameter in the MODIFY PDP CONTEXT REQUEST message:

- if the protocol configuration options information element is not present, the MS shall apply Bearer Control Mode 'MS only' for all active PDP contexts sharing the same PDP Address and APN.
- if the selected Bearer Control Mode parameter is not present in the protocol configuration options information element, the MS shall apply Bearer Control Mode 'MS only' for all active PDP contexts sharing the same PDP Address and APN.
- if the selected Bearer Control Mode parameter is present in the protocol configuration options information element, the MS shall apply Bearer Control Mode according to the value of this parameter for all active PDP contexts sharing the same PDP Address and APN.

Upon receipt of the MODIFY PDP CONTEXT REQUEST message the MS shall reply with the MODIFY PDP CONTEXT ACCEPT message, if the MS accepts the new QoS and the indicated LLC SAPI.

The network shall upon receipt of the MODIFY PDP CONTEXT ACCEPT message stop timer T3386.

In A/Gb mode, the network shall establish, reconfigure or continue using the logical link with the new QoS for the LLC SAPI indicated in the MODIFY PDP CONTEXT REQUEST message.

In Iu mode, if the Radio Access Bearer supporting the PDP context is active, then the network shall reconfigure and continue using the Radio Access Bearer with the new QoS indicated in the MODIFY PDP CONTEXT REQUEST message; if the PDP context is preserved, then the network may re-establish a Radio Access Bearer with the new QoS indicated in the MODIFY PDP CONTEXT REQUEST message.

…

Each valid downlink- and uplink-packet filter contains a unique identifier within a given TFT, an evaluation precedence index that is unique among all packet filters for the same direction (downlink or uplink) for one PDP address and APN pair, and at least one of the following attributes:

- Remote Address and Subnet Mask.
- Protocol Number (IPv4) / Next Header (IPv6).
- Local Port Range.
- Remote Port Range.
- IPSec Security Parameter Index (SPI).
- Type of Service (TOS) (IPv4) / Traffic class (IPv6) and Mask.
- Flow Label (IPv6).

In the list of attributes above 'Remote' refers to the external network entity, and 'Local' to the MS.

Some of the above-listed attributes may coexist in a packet filter while others mutually exclude each other. In table 12 below, the possible combinations are shown. Only those attributes marked with an "X" may be specified for a single packet filter. All marked attributes may be specified, but at least one shall be specified.

If the parameters of the header of a received PDP PDU match all specified attribute values in a packet filter, then it is considered that a match is found for this packet filter. In this case, the evaluation procedure is aborted. Other packet filters in increasing order of their evaluation precedence index are evaluated until such match is found.

There may be potential conflicts if attribute values are combined in such a way that the defined filter can never achieve a match to a valid IP packet header. However, the determination of such conflicts is outside the scope of GPRS standardization.

Table 12: Valid Packet Filter Attribute Combinations

	Valid combination types		
Packet filter attribute	**I**	**II**	**III**
Remote Address and Subnet Mask	X	X	X
Protocol Number (IPv4) / Next Header (IPv6)	X	X	
Local Port Range	X		
Remote Port Range	X		
IPSec SPI		X	
TOS (IPv4) / Traffic Class (IPv6) and Mask	X	X	X
Flow Label (IPv6)			X

Reference

3GPP TS 24.008 clauses 6.1.3.3 and 6.1.3.3.1. 3GPP TS 23.060 clause 15.3.2.0.

11.2.1b.3 Test purpose

1. To verify that the UE, when having a secondary PDP context active, successfully performs network initiated PDP context modification procedure to add a filter to the TFT of the primary PDP context.
2. To verify that the UE successfully performs packet filtering before and after adding the filter to the primary PDP context.

11.2.1b.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- Method of activating a PDP context
- Support of automatic PS attach procedure at switch on yes/no

Test procedure

A PDP context activation is requested by the user and accepted by the SS.

If the UE set the PDP type to ‘IPv4’ or ‘IPv4v6’ in the ACTIVATE PDP CONTEXT REQUEST then the SS allocates a IPv4 address to the UE and set the test variable IP type to “IPv4”.

Else if the UE set the PDP type to ‘IPv6’ in the ACTIVATE PDP CONTEXT REQUEST then the SS allocates an IPv6 address via stateless address auto configuration on the established primary PDP contex and set the test variable IP type to “IPv6”. A secondary PDP context activation with a UL TFT filter (Packet Filter#1) is requested by the SS and the activation procedure is completed by the UE.

The SS activates UE test loop mode 4 and transmits two IP Packets to the UE, IP packet#1 and IP packet#2. IP packet#1 does not match Packet Filter#1. IP packet#2 matches Packet Filter#1. The SS checks that IP packet#1 is returned by the UE on the radio bearer associated with the primary PDP context and IP packet#2 is returned by the UE on the radio bearer associated with the secondary PDP context. The SS sends a MODIFY PDP CONTEXT REQUEST message to the UE requesting a new TFT filter to be added to the primary PDP context (Packet Filter#2, having a higher

evaluation precedence index than Packet Filter#1 and will be evaluated after Packet Filter#1). The UE sends a MODIFY PDP CONTEXT ACCEPT message in return.

The SS transmits four IP Packets to the UE, IP packet#3; IP packet#4; IP packet#5 and IP packet#6. IP packet#3 matches Packet Filter#2, but not Packet Filter#1. IP packet#4 matches Packet Filter#1, but not Packet Filter#2. IP packet#5 matches both Packet Filter#1 and Packet Filter#2. IP packet #6 does not match Packet Filter #1 or Packet Filter #2. The SS checks that IP packet#3 is returned by the UE on the radio bearer associated with the primary PDP context. The SS checks that IP packet#4 and IP packet#5 is returned by the UE on the radio bearer associated with the secondary PDP context (see Note). The SS checks that IP packet#6 is not returned by the UE. Note IP packet#5 is matching both Packet Filter#1 and Packet Filter#2. As the packet filter evaluation precedence index is lower for Packet Filter#1, and will be evaluated before Packet Filter#2 then shall IP packet#5 be returned by the UE on the radio bearer associated with Packet Filter#1 (secondary PDP context).

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to either Originating Streaming Call, Originating Interactive Call or Originating Background Call or OriginatingSubscribedTrafficCall
2		SS		The SS activates UE radio bearer test mode in accordance to [10] TS 34.109, clause 5.2.1.
3	→		SERVICE REQUEST	Service type = "signalling"
4		SS		The SS starts integrity protection.
5	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context
5A		SS		IF the UE in step 5 set the PDP type to ' IPv4' or 'IPv4v6' in the ACTIVATE PDP CONTEXT REQUEST message then the SS sets the test variable IPtype='IPv4' ELSE IF the UE in step 5 set the PDP type to ' IPv6' in the ACTIVATE PDP CONTEXT REQUEST message then the SS sets the test variable IPtype='IPv6'
6		SS		The SS establishes the RAB according to reference radio bearer combination 6.10.2.4.1.57 in [9] (1xPS RB 64kbps).
7	←		ACTIVATE PDP CONTEXT ACCEPT	The SS accepts the PDP context. EXCEPTION: If the test variable is set to 'IPv6' then stateless address auto configuration occurs on the user plane bearer established with the ACTIVATE PDP CONTEXT REQUEST message
8		SS		The SS initiates a secondary PDP context activation
9	←		REQUEST SECONDARY PDP CONTEXT ACTIVATION	The SS requests a Secondary PDP context activation and starts timer T3385.
10	→		ACTIVATE SECONDARY PDP CONTEXT REQUEST	The UE requests a Secondary PDP context activation, enters the state PDP-ACTIVE-PENDING and starts timer T3380. NSAPI IE value is different from the value in Step 4. A UL TFT filter (Packet Filter#1) is configured.
11		SS		The SS stops timer T3385. The SS reconfigures the RAB according to reference radio bearer combination 6.10.2.4.5.5a in [9] (2xPS RB 64kbps).
12	←		ACTIVATE SECONDARY PDP CONTEXT ACCEPT	The SS accepts the Secondary PDP context activation with the requested QoS
13		SS		The SS waits for T3380 seconds to ensure no further activate request messages come from the UE
14		SS		The SS activates UE test loop mode 4 to establish UE loopback of IP PDUs. See [10] TS 34.109 clause 5.3.2.
15	←		IP PDU (IP packet#1)	The SS transmits IP packet#1 to the UE. IP packet#1 does not match Packet Filter#1.
16	→		IP PDU (IP packet#1)	The SS checks during 1 second that UE transmits IP packet#1 on the radio bearer associated with the primary PDP context.
17	←		IP DPU (IP packet#2)	The SS transmits IP packet#2 to the UE. IP packet#2 matches Packet Filter#1.

18	→	IP PDU (IP packet#2)	The SS checks during 1 second that UE transmits IP packet#2 on the radio bearer associated with the secondary PDP context.
19	←	MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	The SS sends a modify request to UE to add a UL TFT filter (Packet Fileter#2) for primary PDP context
20	→	MODIFY PDP CONTEXT ACCEPT (UE TO NETWORK DIRECTION)	The UE accepts the modification request from the SS.
21	←	IP PDU (IP packet#3)	The SS transmits IP packet#3 to the UE. IP packet#3 matches Packet Filter#2, but not Packet Filter#1.
22	→	IP PDU (IP packet#3)	The SS checks during 1 second that UE transmits IP packet#1 on the radio bearer associated with the primary PDP context.
23	←	IP DPU (IP packet#4)	The SS transmits IP packet#4 to the UE. IP packet#4 matches Packet Filter#1, but not Packet Filter#2.
24	→	IP PDU (IP packet#4)	The SS checks during 1 second that UE transmits IP packet#4 on the radio bearer associated with the secondary PDP context.
25	←	IP DPU (IP packet#5)	The SS transmits IP packet#5 to the UE. IP packet#5 matches both Packet Filter#1 and Packet Filter#2.
26	→	IP PDU (IP packet#5)	The SS checks during 1 second that UE transmits IP packet#5 on the radio bearer associated with the secondary PDP context.
27	←	IP DPU (IP packet#6)	The SS transmits IP packet#6 to the UE. . IP packet #6 does not match Packet Filter #1 or Packet Filter #2.
28	SS		The SS checks during 1 second that UE do not transmit IP packet#6.

Specific message contents

Step 9: The Linked TI information element in REQUEST SECONDARY PDP CONTEXT ACTIVATION message specifies the TI for the PDP context already activated and is set to the TI value of step 7. The request includes an UL TFT filter, Packet Filter#1.

Packet Filter#1 is set according to table 11.2.1b.4-1

Step 14: UE test loop mode IE is set to UE test loop mode 4 in the CLOSE UE TEST LOOP message, see [10] TS 34.109 clause 6.2.

Step 15: IP packet#1 is set according to table 11.2.1b.4-2

Step 17: IP packet#2 is set according to table 11.2.1b.4-3

Step 19: Use TI to identify primary PDP context. Add a packet filter (Packet Filter#2) to the UL TFT.

Packet Filter#2 is set according to table 11.2.1b.4-1

Step 21: IP packet#3 is set according to table 11.2.1b.4-4

Step 23: IP packet#4 is set according to table 11.2.1b.4-5

Step 25: IP packet#5 is set identical to IP Packet#2, according to table 11.2.1b.4-3, and matches both Packet Filter#1 and Packet Filter#2

Step 27: IP packet#6 is set identical to IP Packet#1, according to table 11.2.1b.4-2, and does not match Packet Filter #1 or Packet Filter #2

Table 11.2.1b.4-1: Packet Filter Table

Packet filter ID	UL TFT	Packet filter evaluation precedence	Protocol Number (IPv4) / Next Header (IPv6)	Remote address and Subnet mask	Single Local Port (UE)	Local Port Range (UE)	Single Remote Port (NW)	Remote Port Range (NW)	IPSec SPI range	Type of Service (IPv4) / Traffic Class (IPv6) and Mask	Flow Label (IPv6)	Comments
1	Secondary PDP Context (Step 9)	1	17 (UDP)	IPv4: 172.168.8.0 [255.255.255.0] IPv6: 2001:0ba0:: [ffff:ffff::]	60001	-	-	60350: 60450	-	10101000, Mask= 11111100	-	UDP application identified by remote address, type of service/traffic class and specific local and remote port numbers. This is a valid Packet Filter Attribute Combination Type I according to TS 23.060, subclause 15.3.2.0.
2	Primary PDP Context (Step 19)	2	17 (UDP)	IPv4: 172.168.8.0 [255.255.255.0] IPv6: 2001:0ba0:: [ffff:ffff::]	-	60000: 60100	60350	-	-	10101000, Mask= 11111100	-	UDP application identified by remote address, type of service/traffic class and local port numbers and single remote port. This is a valid Packet Filter Attribute Combination Type I according to TS 23.060, subclause 15.3.2.0.

Table 11.2.1b.4-2: IP packet#1 (step 15, does not match Packet Filter#1)

Derivation path: IETF RFC 791 section 3.1 (IPv4) or RFC 2460 section 3 (IPv6) and RFC 769 introduction			
Information Element	**Value/Remark**	**Comment**	**Condition**
Type of service (IPv4) / Traffic Class (IPv6)	10101001	Significant for packet filters 1 and 2. Value matches packet filters 1 and 2.	
Protocol	17	UDP Significant packet filters 1. Value matches packet filters 1 and 2.	
Source Address	192.168.0.1	Not significant for any packet filters	IPv4
	Fe80::1:1	Not significant for any packet filters	IPv6
Destination Address	172.168.9.1	Significant for packet filters 1 and 2. Value does not match packet filters 1 and 2.	IPv4
	2001:0bb0:0001:0001	Significant for packet filters 1 and 2. Value does not match packet filters 1 and 2.	IPv6
Source Port	60001	Significant for packet filter 1. Value matches packet filters 1 and 2.	
Destination Port	60350	Significant for packet filter 1. . Value matches packet filters 1 and 2.	

Condition	Explanation
IPv4	This condition applies if test variable IP type is set to 'IPv4'.
IPv6	This condition applies if test variable IP type is set to 'IPv6'.

Table 11.2.1b.4-3: IP packet#2 (step 17, matches Packet Filter#1)

Derivation path: IP packet#1, Table 11.2.1b.4-2			
Information Element	**Value/Remark**	**Comment**	**Condition**
Destination Address	172.168.8.1	Significant for packet filter 1 and 2. Value matches packet filters 1 and 2.	IPv4
	2001:0ba0:0001:0001	Significant for packet filter 1 and 2. Value matches packet filters 1 and 2.	IPv6

Condition	Explanation
IPv4	This condition applies if test variable IP type is set to 'IPv4'.
IPv6	This condition applies if test variable IP type is set to 'IPv6'.

Table 11.2.1b.4-4: IP packet#3 (step 21, matches Packet Filter#2 but not Packet Filter#1)

Derivation path: IP packet#1, Table 11.2.1b.4-2			
Information Element	**Value/Remark**	**Comment**	**Condition**
Destination Address	172.168.8.1	Significant for packet filter 1 and 2. Value matches packet filters 1 and 2.	IPv4
	2001:0ba0:0001:0001	Significant for packet filter 1 and 2. Value matches packet filters 1 and 2.	IPv6
Source Port	60002	Significant for packet filter 1 and 2. Value matches packet filter 2. Value does not match packet filter 1	

Condition	Explanation
IPv4	This condition applies if test variable IP type is set to 'IPv4'.
IPv6	This condition applies if test variable IP type is set to 'IPv6'.

Table 11.2.1b.4-5: IP packet#4 (step 23, matches Packet Filter#1 but not Packet Filter#2)

Derivation path: IP packet#1, Table 11.2.1b.4-2			
Information Element	**Value/Remark**	**Comment**	**Condition**
Destination Address	172.168.8.1	Significant for packet filter 1 and 2. Value matches packet filters 1 and 2.	IPv4
	2001:0ba0:0001:0001	Significant for packet filter 1 and 2. Value matches packet filters 1 and 2.	IPv6
Destination Port	60351	Significant for packet filter 1 and 2. Value matches packet filter 1. Value does not match packet filter 2.	

Condition	Explanation
IPv4	This condition applies if test variable IP type is set to 'IPv4'.
IPv6	This condition applies if test variable IP type is set to 'IPv6'.

11.2.1b.5 Test requirements

To pass the test the UE shall:

- at step 16 transmit an IP PDU containing IP packet#1 on the radio bearer associated with the primary PDP context.
- at step 18 transmit an IP PDU containing IP packet#2 on the radio bearer associated with the secondary PDP context.

- at step 20 send a MODIFY PDP CONTEXT ACCEPT message.
- at step 22 transmit an IP PDU containing IP packet#3 on the radio bearer associated with the primary PDP context.
- at step 24 transmit an IP PDU containing IP packet#4 on the radio bearer associated with the secondary PDP context.
- at step 26 transmit an IP PDU containing IP packet#5 on the radio bearer associated with the secondary PDP context.
- at step 28 not transmit and IP PDU.

11.2.2 UE initiated PDP context modification

11.2.2.1 UE initiated PDP Context Modification accepted by network

11.2.2.1.1 Definition

This test can only be performed if minimum QoS can be set by the user.

11.2.2.1.2 Conformance requirement

In order to initiate the procedure, the UE sends the MODIFY PDP CONTEXT REQUEST message to the network, enters the state PDP-MODIFY-PENDING and starts timer T3381. The message may contain the requested new QoS and/or the TFT and the requested LLC SAPI (used in GSM).

Upon receipt of the MODIFY PDP CONTEXT REQUEST message, the network may reply with the MODIFY PDP CONTEXT ACCEPT message in order to accept the context modification. The reply message may contain the negotiated QoS and the radio priority level based on the new QoS profile and the negotiated LLC SAPI, that shall be used in GSM by the logical link.

Upon receipt of the MODIFY PDP CONTEXT ACCEPT message, the UE shall stop the timer T3381. If the offered QoS parameters received from the network differs from the QoS requested by the UE, the UE shall either accept the negotiated QoS or initiate the PDP context deactivation procedure.

Reference

3GPP TS 24.008 clauses 6.1.3.3 and 6.1.3.3.2.

11.2.2.1.3 Test purpose

To test the behaviour of the UE upon receipt of a MODIFY PDP CONTEXT ACCEPT message from the SS with

- Requested QoS;

11.2.2.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- PS Supported yes/no

- User setting of Minimum QoS supported yes/no
- Method of setting minimum QoS
- Method of activating a PDP context

Test procedure

The requested QoS and Minimum QoS are set. A PDP context is activated by the user and accepted by the SS. The UE initiates a PDP context modification by sending a MODIFY PDP CONTEXT REQUEST message with new QoS. The SS accepts the context modification and replies with the MODIFY PDP CONTEXT ACCEPT message with the QoS requested. The SS waits 'T3390' seconds to confirm that UE will not initiate a PDP context deactivation.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a PDP context activation
2	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context
3	←		ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context
4	→		MODIFY PDP CONTEXT REQUEST (UE TO NETWORK DIRECTION)	Request the modification of a PDP context, with new QoS
5	←		MODIFY PDP CONTEXT ACCEPT (NETWORK TO UE DIRECTION)	Accept the PDP context modification with QoS requested
6			SS	SS waits 'T3390' seconds to confirm UE does not initiate PDP context deactivation.
7			Void	
8			Void	
9			Void	
10			Void	
11			Void	

Specific message contents

None.

11.2.2.1.5 Test requirements

When requesting the PDP context modification, the UE shall:

- Modify the PDP context if SS replied with the requested QoS;

11.2.2.2 UE initiated PDP Context Modification not accepted by the network

11.2.2.2.1 Definition

11.2.2.2.2 Conformance requirement

In order to initiate the procedure, the UE sends the MODIFY PDP CONTEXT REQUEST message to the network, enters the state PDP-MODIFY-PENDING and starts timer T3381. The message may contain the requested new QoS and/or the TFT and the requested LLC SAPI (used in GSM).

Upon receipt of a MODIFY PDP CONTEXT REQUEST message, the network may reject the UE initiated PDP context modification request by sending a MODIFY PDP CONTEXT REJECT message to the UE. The message shall contain a cause code that typically indicates one of the following:

26: insufficient resources;

32: Service option not supported;

41: semantic error in the TFT operation;

42: syntactical error in the TFT operation;

44: semantic errors in packet filter(s);

45: syntactical errors in packet filter(s);

95 - 111: protocol errors.

Upon receipt of a MODIFY PDP CONTEXT REJECT message, the UE shall stop timer T3381 and enter the state PDP-ACTIVE.

Reference

3GPP TS 24.008 clauses 6.1.3.3, 6.1.3.3.2 and 6.1.3.3.3.

11.2.2.2.3 Test purpose

To test the behaviour of the UE upon receipt of a MODIFY PDP CONTEXT REJECT message from the System Simulator.

11.2.2.2.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- PS Supported yes/no
- Method of activating a PDP context

Test procedure

A PDP context is activated by the user and accepted by the SS. The UE initiates a PDP context modification by sending a MODIFY PDP CONTEXT REQUEST message. The SS rejects the context modification and replies with the MODIFY PDP CONTEXT REJECT with cause set to # 26: insufficient resources.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a PDP context activation
1a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to either Originating Streaming Call, Originating Interactive Call or Originating Background Call or OriginatingSubscribedTrafficCall
1b	→		SERVICE REQUEST	
1c	SS			The SS starts ciphering and integrity protection.
2	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context
2a	SS			The SS establishes the RAB
3	←		ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context
4	→		MODIFY PDP CONTEXT REQUEST (UE TO NETWORK DIRECTION)	The UE requests modification of the PDP context and starts timer T3381
5	←		MODIFYPDP CONTEXT REJECT	The SS rejects PDP context modification, SM cause= #26
5a				The SS starts T3381
6	SS			Wait for T3381 expiry to ensure no further MODIFY PDP CONTEXT REQUEST (UE TO NETWORK DIRECTION) messages are sent by the UE

Specific message contents

None.

11.2.2.2.5 Test requirements

After receiving MODIFY PDP CONTEXT REJECT message from the SS, the UE shall not resend PDP context modification request.

11.2.3 Abnormal cases

11.2.3.1 T3381 Expiry

11.2.3.1.1 Definition

11.2.3.1.2 Conformance requirement

On the first expiry of timer T3381, the UE shall re-send the MODIFY PDP CONTEXT REQUEST message, reset and restart timer T3381. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3381, the UE may continue to use the previously negotiated QoS or it may initiate the PDP context deactivation procedure.

Reference

3GPP TS 24.008 clause 6.1.3.3.4 a) case: In the UE.

11.2.3.1.3 Test purpose

To test the behaviour of the UE when SS does not reply to MODIFY PDP CONTEXT REQUEST message.

11.2.3.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- PS Supported yes/no
- Method of activating a PDP context

Test procedure

A PDP context activation is requested by the user and accepted by the SS. The UE shall send MODIFY PDP CONTEXT REQUEST (UE TO NETWORK DIRECTION) message five times with T3381 seconds between each message. After this no further MODIFY PDP CONTEXT REQUEST (UE TO NETWORK DIRECTION) messages shall be sent by the UE.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a PDP context activation
1a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to either Originating Streaming Call, Originating Interactive Call or Originating Background Call or OriginatingSubscribedTrafficCall
1b	→		SERVICE REQUEST	
1c	SS			The SS starts ciphering and integrity protection.
2	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context
2a	SS			The SS establishes the RAB
3	←		ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context activation
4	→		MODIFY PDP CONTEXT REQUEST (UE TO NETWORK DIRECTION)	Request modification of the PDP context, with new QoS
5	SS			T3381 seconds
6	→		MODIFY PDP CONTEXT REQUEST (UE TO NETWORK DIRECTION)	Request modification of the PDP context, with the same QoS as in step 4
7	SS			T3381 seconds
8	→		MODIFY PDP CONTEXT REQUEST (UE TO NETWORK DIRECTION)	Request modification of the PDP context, with the same QoS as in step 4
9	SS			T3381 seconds
10	→		MODIFY PDP CONTEXT REQUEST (UE TO NETWORK DIRECTION)	Request modification of the PDP context, with the same QoS as in step 4
11	SS			T3381 seconds
12	→		MODIFY PDP CONTEXT REQUEST (UE TO NETWORK DIRECTION)	Request modification of the PDP context, with the same QoS as in step 4
13	SS			Wait for T3381 seconds to ensure no further MODIFY PDP CONTEXT REQUEST (UE TO NETWORK DIRECTION) messages are sent by the UE

Specific message contents

None.

11.2.3.1.5 Test requirements

UE shall re-send the MODIFY PDP CONTEXT REQUEST (UE TO NETWORK DIRECTION) to SS five times in order to initiate the PDP context modification, with expiry of timer T3381 between messages. After fifth try, UE shall send no more MODIFY PDP CONTEXT REQUEST (UE TO NETWORK DIRECTION) messages to SS.

11.2.3.2 Collision of UE and network initiated PDP context modification procedures

11.2.3.2.1 Definition

11.2.3.2.2 Conformance requirement

A collision of a UE and network initiated PDP context modification procedures is identified by the UE if a MODIFY PDP CONTEXT REQUEST message is received from the network after the UE has sent a MODIFY PDP CONTEXT REQUEST message itself, and both messages contain the same TI and the UE has not yet received a MODIFY PDP CONTEXT ACCEPT message from the network.

In the case of such a collision, the network initiated PDP context modification shall take precedence over the UE initiated PDP context modification. The UE shall terminate internally the UE initiated PDP context modification procedure, enter the state PDP-ACTIVE and proceed with the network initiated PDP context modification procedure by sending a MODIFY PDP CONTEXT ACCEPT message.

Reference

3GPP TS 24.008 clause 6.1.3.3.4 b).

11.2.3.2.3 Test purpose

To test behaviour of the UE when it identifies collision of the UE and SS initiated PDP context modification with the same TI.

11.2.3.2.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- PS Supported yes/no
- Method of activating a PDP context

Test procedure

A PDP context is activated by the user and accepted by the SS. The UE initiates a PDP context modification by sending a MODIFY PDP CONTEXT REQUEST message. Then the SS initiates the PDP context modification by sending MODIFY PDP CONTEXT REQUEST message with the same TI. The UE shall reply to the SS initiated PDP context modification procedure by sending MODIFY PDP CONTEXT ACCEPT message with the same TI.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a PDP context activation
1a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to either Originating Conversational Call, Originating Streaming Call, Originating Interactive Call, Originating Background Call, Originating High Priority Signalling, or Originating Subscribed traffic call (Originating Subscribed traffic call is for Rel-6 or later UE.)
1b	→		SERVICE REQUEST	
1c	SS			The SS starts ciphering and integrity protection.
2	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context
2a	SS			The SS establishes the RAB.
3	←		ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context activation
4	→		MODIFY PDP CONTEXT REQUEST (UE TO NETWORK DIRECTION)	Request modification of the PDP context
5	←		MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	Request modification of the PDP context with the same TI
6	UE			UE identifies collision, terminates internally the UE initiated PDP context modification procedure
7	→		MODIFY PDP CONTEXT ACCEPT (UE TO NETWORK DIRECTION)	Accept SS initiated PDP context modification

Specific message contents

Steps 2, 4 and 7. TI flag (bit 8) in the TI IE is set to 0 (transaction initiated by the UE).

Steps 3 and 5. TI flag (bit 8) in the TI IE is set to 1.

Steps 2, 3, 4, 5 and 7. The value of the TIO (bits 5-7) in the TI IE is the same in these test steps.

11.2.3.2.5 Test requirements

In step 6, the UE shall terminate internally the UE initiated PDP context modification procedure and proceed with SS initiated PDP context modification.

11.3 PDP context deactivation procedures

11.3.1 PDP context deactivation initiated by the UE

11.3.1.1 Definition

11.3.1.2 Conformance requirement

In order to deactivate a PDP context, the UE sends a DEACTIVATE PDP CONTEXT REQUEST message to the network, enters the state PDP-INACTIVE-PENDING and starts timer T3390. The message contains the transaction identifier (TI) in use for the PDP context to be deactivated and a cause code that typically indicates one of the following causes:

- #26: insufficient resources;
- #36: regular PDP context deactivation; or
- #37: QoS not accepted.

The network shall reply with the DEACTIVATE PDP CONTEXT ACCEPT message. Upon receipt of the DEACTIVATE PDP CONTEXT ACCEPT message, the UE shall stop timer T3390. In UMTS, the network shall initiate the release of Radio Access Bearer associated with this PDP context.

Whenever any session management message except REQUEST PDP CONTEXT ACTIVATION or SM-STATUS is received by the UE specifying a transaction identifier which is not recognised as relating to an active context or to a context that is in the process of activation or deactivation, the UE shall send a SM-STATUS message with cause #81 "invalid transaction identifier value" using the received transaction identifier value including the extension octet and remain in the PDP-INACTIVE state.

Reference

3GPP TS 24.008 clauses 6.1.3.4.1 and 8.3.2 (b).

11.3.1.3 Test purpose

To test the behaviour of the UE upon receipt of a DEACTIVATE PDP CONTEXT ACCEPT message from the SS in PDP context deactivation procedure initiated by the UE.

To test the behaviour of the UE upon receipt of a session management message (except REQUEST PDP CONTEXT ACTIVATION or SM-STATUS) specifying a transaction identifier which is not recognised as relating to an active context or to a context that is in the process of activation or deactivation.

11.3.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- PS Supported yes/no
- Method of activating a PDP context
- Method of deactivating the PDP context
- Support of automatic PS attach procedure at switch on yes/no

Test procedure

A PDP context is activated by the user and accepted by the SS. PDP context deactivation is then requested by the user. The UE shall send a DEACTIVATE PDP CONTEXT REQUEST message to the SS. The SS shall then reply with a DEACTIVATE PDP CONTEXT ACCEPT message. The SS shall then wait for T3390 seconds to ensure T3390 has been stopped and that no further messages are sent from the UE. The UE in manual mode may perform a detach procedure. The SS shall then send a MODIFY PDP CONTEXT REQUEST for the deactivated context and if the UE has not started a detach procedure it shall reply with an SM STATUS message with cause #81 'transaction identifier not known'.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a context activation with traffic class “originatingStreamingCall”, "originatingInteractiveCall" or "originatingBackgroundCall".
1a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to either Originating Streaming Call, Originating Interactive Call or Originating Background Call or OriginatingSubscribedTrafficCall
1b	→		SERVICE REQUEST	
1c	SS			The SS starts ciphering and integrity protection.
2	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context
2a	SS			The SS establishes the RAB.
3	←		ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context
4	UE			Initiate a context deactivation
5	→		DEACTIVATE PDP CONTEXT REQUEST	Request a deactivation of a PDP context and starts waiting for 'T3390'. SM cause set to #36.
6	←		DEACTIVATE PDP CONTEXT ACCEPT	SS accepts the PDP context deactivation and timer ‘T3390’ is cancelled.
6a			Void	
7	→		DETACH REQUEST	The UE may (optionally) send a Detach Request (only Note 1). The SS shall wait up to 'T3390' seconds for the Detach Request. While waiting the SS releases the RAB associated with this PDP Context. If the SS receives a Detach Request the test execution continues from step A8, otherwise from step B8. SS shall check that no further deactivate request messages are sent during this time.
A8	←		MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	Send a modify request to UE for the deactivated context.
A9	SS			Start timer 'T3386' and wait until is expires to ensure that UE does not respond to Modify PDP Context Request(Net) after Detach Request has been sent from UE.
A10	←		DETACH ACCEPT	SS responds with DETACH ACCEPT message as a Detach Request was transmitted by the UE
B8	←		MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	Send a modify request to UE for the deactivated context. (Allowed for Note 1 and Note 2).
B9	→		SM STATUS	Cause set to #81
Note 1: Support of automatic PS attach procedure at switch on – no Note 2: Support of automatic PS attach procedure at switch on – yes				

Specific message contents

Steps 2 and 5: TI flag (bit 8) in TI IE is set to 0 (transaction initiated by the UE).

Steps 3, 6, A8 and B8: TI flag in TI IE is set to 1.

Steps 2, 3, 5, 6, A8 and B8: The value of TIO IE (bits 5-7) of the transaction identifier (TI) is the same in these test steps.

11.3.1.5 Test requirements

At step 1a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to one of the following causes:

- Originating Streaming Call;
- Originating Interactive Call or
- Originating Background Call
- OriginatingSubscribedTrafficCall

In PDP context deactivation procedure initiated by the UE, upon receipt of a DEACTIVATE PDP CONTEXT ACCEPT message from the SS, the UE shall deactivate PDP context associated with given PDP address and TI.

If the UE has not performed a detach procedure then, upon modification procedure initiated by the network, for deactivated PDP context, the UE shall reply with SM STATUS message with cause #81.

11.3.2 PDP context deactivation initiated by the network

11.3.2.1 Definition

11.3.2.2 Conformance requirement

In order to deactivate a PDP context, the network sends a DEACTIVATE PDP CONTEXT REQUEST message to the UE and starts timer T3395. The message contains the transaction identifier in use for the PDP context to be deactivated and a cause code that typically indicates one of the following causes:

36: regular PDP context deactivation;

38: network failure; or

39: reactivation requested.

The UE shall, upon receipt of this message, reply with a DEACTIVATE PDP CONTEXT ACCEPT message. Upon receipt of the DEACTIVATE PDP CONTEXT ACCEPT message, the network shall stop the timer T3395. In UMTS, the network shall initiate the release of Radio Access Bearer associated with this PDP context.

Reference

3GPP TS 24.008 clause 6.1.3.4.2.

11.3.2.3 Test purpose

To test the behaviour of the UE upon receipt of a DEACTIVATE PDP CONTEXT REQUEST message from the SS.

11.3.2.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- PS Supported yes/no
- Method of activating a PDP context
- Support of automatic PS attach procedure at switch on yes/no

Test procedure

A PDP context is activated by the user and accepted by the SS. A DEACTIVATE PDP CONTEXT REQUEST message is then sent by the SS. The UE shall reply with a DEACTIVATE PDP CONTEXT ACCEPT message. The SS shall then wait for T3395 seconds to ensure that no further messages are sent from the UE. The UE in manual mode may perform a detach procedure. The SS shall then send a MODIFY PDP CONTEXT REQUEST for the deactivated context and if the UE has not started a detach procedure it shall reply with an SM STATUS message with cause #81 'invalid transaction identifier value'.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a context activation with traffic class “originatingStreamingCall”, "originatingInteractiveCall" or "originatingBackgroundCall".
1a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to either Originating Streaming Call, Originating Interactive Call or Originating Background Call or OriginatingSubscribedTrafficCall
1b	→		SERVICE REQUEST	
1c		SS		The SS starts ciphering and integrity protection.
2	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context
2a		SS		The SS establishes the RAB.
3	←		ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context
4	←		DEACTIVATE PDP CONTEXT REQUEST	Request a deactivation of a PDP context and starts waiting for 'T3395'. SM cause set to #36.
5	→		DEACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context deactivation and timer ‘T3395’ is cancelled.
5a			Void	
5b	→		DETACH REQUEST	The UE may (optionally) send a Detach Request (only Note 1). The SS shall wait up to 'T3395' seconds for the Detach Request. While waiting the SS releases the RAB associated with this PDP Context. If the SS receives a Detach Request the test execution continues from step A6, otherwise from step B6. SS shall check that no further deactivate request messages are sent during this time.
A6	←		MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	Send a modify request to UE for the deactivated context.
A7		SS		Start timer 'T3386' and wait until is expires to ensure that UE does not respond to Modify PDP Context Request(Net) after Detach Request has been sent from UE.
A8	←		DETACH ACCEPT	SS responds with DETACH ACCEPT message as a Detach Request was transmitted by the UE
B6	←		MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	Send a modify request to UE for the deactivated context. (Allowed for Note 1 and Note 2).
B7	→		SM STATUS	Cause set to #81
Note 1: Support of automatic PS attach procedure at switch on – no Note 2: Support of automatic PS attach procedure at switch on – yes				

Specific message contents

Steps 2 and 5: TI flag (bit 8) in TI IE is set to 0 (transaction initiated by the UE).

Steps 3, 4, A6 and B6: TI flag in TI IE is set to 1.

Steps 2, 3, 4, 5, A6 and B6: The value of TIO IE (bits 5-7) of the transaction identifier (TI) is the same in these test steps.

11.3.2.5 Test requirements

At step 1a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to one of the following causes:

- Originating Streaming Call;
- Originating Interactive Call or
- Originating Background Call
- OriginatingSubscribedTrafficCall

Upon receipt of a request for deactivation of a PDP context from the SS, the UE shall deactivate PDP context.

If the UE has not performed a detach procedure then, upon modification procedure initiated by the network, for deactivated PDP context, UE shall reply with SM STATUS message with cause #81, as confirmation that previously SS requested PDP context deactivation was performed by the UE.

11.3.2a PDP context deactivation initiated by the network / secondary PDP context active / deactivation of primary PDP context

11.3.2a.1 Definition

11.3.2a.2 Conformance requirement

The purpose of this procedure is to deactivate an existing PDP context between the MS and the network. The PDP context deactivation may be initiated by the MS or by the network. The *tear down indicator* information element may be included in the DEACTIVATE PDP CONTEXT REQUEST message in order to indicate whether only the PDP context associated with this specific TI or all active PDP contexts sharing the same PDP address and APN as the PDP context associated with this specific TI shall be deactivated. If the tear down is requested, all other active PDP contexts sharing the same PDP address and APN as the PDP context associated with this specific TI shall be deactivated locally without peer-to-peer signalling. If the *tear down indicator* information element is not included in the DEACTIVATE PDP CONTEXT REQUEST message, only the PDP context associated with this specific TI shall be deactivated.

An MS supporting S1 mode shall always include the tear down indicator when deactivating the default PDP context. An MS not supporting S1 mode should apply the same behaviour (see 3GPP TS 23.060 [74]).

After successful PDP context deactivation, the associated NSAPI and TI values are released and can be reassigned to another PDP context.

If one or more MBMS contexts are linked to a PDP context that has been deactivated, the MS shall deactivate all those MBMS contexts locally (without peer to peer signalling between the MS and the network).

…

In order to deactivate a PDP context, the network sends a DEACTIVATE PDP CONTEXT REQUEST message to the MS and starts timer T3395. The message contains the transaction identifier in use for the PDP context to be deactivated and a cause code that typically indicates one of the following causes:

8: Operator Determined Barring;

25: LLC or SNDCP failure (A/Gb mode only);

36: regular deactivation;

38: network failure; or

39: reactivation requested.

#112: APN restriction value incompatible with active PDP context.

The MS shall, upon receipt of this message, reply with a DEACTIVATE PDP CONTEXT ACCEPT message. Upon receipt of the DEACTIVATE PDP CONTEXT ACCEPT message, the network shall stop the timer T3395.

If a detach is requested by the HLR for an MS that has PDP contexts for emergency services, the SGSN shall send a DEACTIVATE PDP CONTEXT REQUEST message to the MS for all the PDP contexts that are not PDP contexts for emergency services.

In A/Gb mode, both the MS and the network shall initiate local release of the logical link if it is not used by another PDP context.

In Iu mode, the network shall initiate the release of Radio Access Bearer associated with this PDP context.

Reference

3GPP TS 24.008 clause 6.1.3.4 and 6.1.3.4.2.

11.3.2a.3 Test purpose

To verify that the UE deactivates an active secondary PDP context when the network requests deactivation of a primary PDP context with the *tear down indicator* information element included.

11.3.2a.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- Method of activating a PDP context
- Support of automatic PS attach procedure at switch on yes/no

Test procedure

A PDP context activation is requested by the user and accepted by the SS.

If the UE set the PDP type to ‘IPv4’ or ‘IPv4v6’ in the ACTIVATE PDP CONTEXT then the SS allocates an IPv4 address to the UE.

Else if the UE set the PDP type to ‘IPv6’ in the ACTIVATE PDP CONTEXT REQUEST then the SS allocates an IPv6 address via stateless address auto configuration on the established primary PDP context.

A secondary PDP context activation is requested by the SS and the activation procedure is completed by the UE.

A DEACTIVATE PDP CONTEXT REQUEST message is then sent to the UE requesting the deactivation of the primary PDP context. The UE shall reply with a DEACTIVATE PDP CONTEXT ACCEPT message. The SS shall then wait for T3395 seconds to ensure that no further messages are sent from the UE. The UE in manual mode may perform a detach procedure. The SS shall then send a MODIFY PDP CONTEXT REQUEST for the deactivated secondary context and if the UE has not started a detach procedure it shall reply with an SM STATUS message with cause #81 'invalid transaction identifier value'.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to either Originating Streaming Call, Originating Interactive Call or Originating Background Call or OriginatingSubscribedTrafficCall
2	→		SERVICE REQUEST	Service type = "signalling"
3		SS		The SS starts integrity protection.
4	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context
4A		SS		IF the UE in step 4 set the PDP type to ' IPv4' or 'IPv4v6' in the ACTIVATE PDP CONTEXT REQUEST message then the SS allocates an IPv4 addess. ELSE IF the UE in step 4 set the PDP type to ' IPv6' in the ACTIVATE PDP CONTEXT REQUEST message then the SS allocates an IPv6 address.
5		SS		The SS establishes the RAB according to reference radio bearer combination 6.10.2.4.1.26 in [9] (1xPS RB 64kbps).
6	←		ACTIVATE PDP CONTEXT ACCEPT	The SS accepts the PDP context EXCEPTION: If the "PDP type" in the ACTIVATE PDP CONTEXT REQUEST message was 'IPv6' then stateless address auto configuration occurs on the user plane bearer established with the ACTIVATE PDP CONTEXT REQUEST
7		SS		The SS initiates a secondary PDP context activation
8	←		REQUEST SECONDARY PDP CONTEXT ACTIVATION	The SS requests a Secondary PDP context activation and starts timer T3385.
9	→		ACTIVATE SECONDARY PDP CONTEXT REQUEST	The UE requests a Secondary PDP context activation, enters the state PDP-ACTIVE-PENDING and starts timer T3380. NSAPI IE value is different from the value in Step 4.
10		SS		The SS stops timer T3385. The SS reconfigures the RAB according to reference radio bearer combination 6.10.2.4.1.57 in [9] (2xPS RB 64kbps).
11	←		ACTIVATE SECONDARY PDP CONTEXT ACCEPT	The SS accepts the Secondary PDP context activation with the requested QoS
12		SS		The SS waits for T3380 seconds to ensure no further activate request messages come from the UE
13	←		DEACTIVATE PDP CONTEXT REQUEST	Request a deactivation of the primary PDP context and starts waiting for 'T3395'. SM cause set to #36.
14	→		DEACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context deactivation and timer 'T3395' is cancelled.
14b	→		DETACH REQUEST	The UE may (optionally) send a Detach Request (only Note 1). The SS shall wait up to 'T3395' seconds for the Detach Request. While waiting the SS releases the RAB associated with this PDP Context. If the SS receives a Detach Request the test execution continues from step A15, otherwise from step B15. SS shall check that no further deactivate request messages are sent during this time.

A15	←	MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	Send a modify request to UE for the primary context.
A16	←	MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	Send a modify request to UE for the secondary context.
A17	SS		Start timer 'T3386' and wait until is expires to ensure that UE does not respond to Modify PDP Context Request(Net) after Detach Request has been sent from UE.
A18	←	DETACH ACCEPT	SS responds with DETACH ACCEPT message as a Detach Request was transmitted by the UE
B15	←	MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	Send a modify request to UE for the primary context. (Allowed for Note 1 and Note 2).
B16	←	MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	Send a modify request to UE for the secondary context. (Allowed for Note 1 and Note 2).
B17	→	SM STATUS	Cause set to #81
Note 1: Support of automatic PS attach procedure at switch on – no Note 2: Support of automatic PS attach procedure at switch on – yes			

Specific message contents

Steps 13:

- The TI shall indicate the primary PDP context
- The tear down indicator shall be set.

11.3.2a.5 Test requirements

Upon receipt of a request for deactivation of the primary PDP context, with the *tear down indicator* information element included, from the SS the UE shall deactivate the primary and secondary PDP contexts.

If the UE has not performed a detach procedure then, upon modification procedure initiated by the network, for deactivated PDP context, UE shall reply with SM STATUS message with cause #81, as confirmation that previously SS requested PDP context deactivation was performed by the UE.

11.3.3 Abnormal cases

11.3.3.1 T3390 Expiry

11.3.3.1.1 Definition

11.3.3.1.2 Conformance requirement

Expiry of timers

In the UE:

On the first expiry of timer T3390, the UE shall resent the message DEACTIVATE PDP CONTEXT REQUEST and shall reset and restart the timer T3390. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3390, the UE shall release all resources allocated and shall erase the PDP context related data.

Reference

3GPP TS 24.008 clause 6.1.3.4.3 a), case In the UE.

11.3.3.1.3 Test purpose

To test the behaviour of the UE when the SS does not reply to a DEACTIVATE PDP CONTEXT REQUEST message from the UE.

11.3.3.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- PS Supported yes/no
- Method of activating a PDP context
- Method of deactivating a PDP context

Test procedure

A PDP context is activated by the user and accepted by the SS. PDP context deactivation is then requested by the user. The UE shall send a DEACTIVATE PDP CONTEXT REQUEST message five times with T3390 seconds between each message. After that, the UE shall release the PDP context. T3390 seconds after the fifth message the SS shall send a MODIFY PDP CONTEXT REQUEST message for the deactivated context and the UE shall reply with SM STATUS with cause set to #81 'Transaction identifier not known'.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a context activation
1a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to either Originating Streaming Call, Originating Interactive Call or Originating Background Call or OriginatingSubscribedTrafficCall
1b	→		SERVICE REQUEST	
1c	SS			The SS starts ciphering and integrity protection.
2	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context
2a	SS			The SS establishes the RAB.
3	←		ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context
4	UE			Initiate a context deactivation
5	→		DEACTIVATE PDP CONTEXT REQUEST	Request a deactivation of a PDP context
6	SS			T3390 seconds
7	→		DEACTIVATE PDP CONTEXT REQUEST	Request a deactivation of a PDP context
8	SS			T3390 seconds
9	→		DEACTIVATE PDP CONTEXT REQUEST	Request a deactivation of a PDP context
10	SS			T3390 seconds
11	→		DEACTIVATE PDP CONTEXT REQUEST	Request a deactivation of a PDP context
12	SS			T3390 seconds
13	→		DEACTIVATE PDP CONTEXT REQUEST	Request a deactivation of a PDP context
14	SS			Wait T3390 seconds
14a	UE			The UE releases the PDP context and all allocated resources
15	←		MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	Try to modify the deactivated context.
16	→		SM STATUS	Cause set to #81

Specific message contents

Steps 2, 5, 7, 9, 11 and 13: TI flag (bit 8) in TI IE is set to 0 (transaction initiated by the UE).

Steps 3, and 15: TI flag in TI IE is set to 1.

Steps 2, 3, 5, 7, 9, 11, 13, and 15: The value of TIO IE (bits 5-7) of the transaction identifier (TI) is the same in these test steps.

11.3.3.1.5 Test requirements

If SS does not respond to the UE initiated PDP context deactivation procedure, the UE shall retransmit four more DEACTIVATE PDP CONTEXT Requests four times, with T3390 timer expiry between the successive messages, before releasing resources allocated to the PDP context and deleting PDP context related data.

11.3.3.2 Collision of UE and network initiated PDP context deactivation requests

11.3.3.2.1 Definition

11.3.3.2.2 Conformance requirement

If the UE and the network initiated PDP context deactivation requests collide, the UE and the network shall each reply with the message DEACTIVATE PDP CONTEXT ACCEPT and shall stop timer T3390 and T3395, respectively.

Reference

3GPP TS 24.008 clause 6.1.3.4.3 b).

11.3.3.2.3 Test purpose

To test the behaviour of the UE when there is a collision between an UE initiated and network initiated context deactivation.

11.3.3.2.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN

Related ICS/IXIT statements

- PS Supported yes/no
- Method of activating a PDP context
- Method of deactivating a PDP context

Test procedure

A PDP context is activated by the user and accepted by the SS. Context deactivation is then requested by the user. Upon receipt of the DEACTIVATE PDP CONTEXT REQUEST message the SS sends a DEACTIVATE PDP CONTEXT REQUEST message. The UE shall reply with only one DEACTIVATE PDP CONTEXT ACCEPT message. Upon receipt of this message the SS sends a DEACTIVATE PDP CONTEXT ACCEPT message.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a context activation
1a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to either Originating Streaming Call, Originating Interactive Call or Originating Background Call or OriginatingSubscribedTrafficCall
1b	→		SERVICE REQUEST	
1c	SS			The SS starts ciphering and integrity protection.
2	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context
2a	SS			SS establishes the RAB
3	←		ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context
4	UE			Initiate a context deactivation
5	→		DEACTIVATE PDP CONTEXT REQUEST	UE requests deactivation of a PDP context
6	←		DEACTIVATE PDP CONTEXT REQUEST	SS requests deactivation of a PDP context and starts T3390 and T3395
7	→		DEACTIVATE PDP CONTEXT ACCEPT	UE accepts the PDP context deactivation requested by the SS
7a	SS			SS stops T3395
8	←		DEACTIVATE PDP CONTEXT ACCEPT	SS accepts the PDP context deactivation requested by the UE
9	SS			SS releases the RAB
10	SS			SS waits for expiry of T3390 to ensure no further deactivate request messages are sent

Specific message contents

Steps 2 and 5. TI flag (bit 8) in TI IE is set to 0 (transaction initiated by the UE).

Steps 3, 6 and 8. TI flag in TI IE is set to 1.

Steps 2, 3, 5, 6, 7 and 8. The value of TIO IE (bits 5-7) of the transaction identifier (TI) is the same in these test steps.

11.3.3.2.5 Test requirements

When UE and SS initiated PDP context deactivation requests collide, the UE shall reply with DEACTIVATE PDP CONTEXT ACCEPT to the SS.

11.4 Unknown or Unforeseen Transaction Identifier/Non-semantical Mandatory Information Element Errors

11.4.1 Error cases

11.4.1.1 Definition

11.4.1.2 Conformance requirement

The mobile station shall ignore a session management message with TI EXT bit = 0. Otherwise, the following procedures shall apply:

- Whenever any session management message, except REQUEST PDP CONTEXT ACTIVATION or SM-STATUS, is received by the UE specifying a transaction identifier which is not recognized as relating to an

active context or to a context that is in the process of activation or deactivation, the UE shall send a SM-STATUS message with cause #81 "invalid transaction identifier value" using the received transaction identifier value including the extension octet and remain in the PDP-INACTIVE state.

- When REQUEST PDP CONTEXT ACTIVATION message is received with a transaction identifier flag set to "1", this message shall be ignored.

When on receipt of a message,

- an "imperative message part" error; or
- a "missing mandatory IE " error.

is diagnosed or when a message containing:

- a syntactically incorrect mandatory IE; or
- an IE unknown in the message, but encoded as "comprehension required"; or
- an out of sequence IE encoded as "comprehension required".

is received, the UE shall proceed as follows:

- If the message was a SM message, except DEACTIVATE PDP CONTEXT REQUEST and REQUEST PDP CONTEXT ACTIVATION, the SM-STATUS message with cause # 96 "invalid mandatory information" shall be returned.

  a) If the message is a DEACTIVATE PDP CONTEXT REQUEST, a DEACTIVATE PDP CONTEXT ACCEPT message shall be returned. All resources allocated for that context shall be released.

  b) If the message is a REQUEST PDP CONTEXT ACTIVATION, a REQUEST PDP CONTEXT REJECT message with cause # 96 "Invalid mandatory information" shall be returned.

- If a mobile station receives a GMM message or SM message with message type not defined for the PD or not implemented by the receiver, it shall return a status message (GMM STATUS or SM STATUS depending on the protocol discriminator) with cause #97 'message type non-existent or not implemented'.
- If the mobile station receives a message not compatible with the protocol state, the mobile station shall ignore the message except for the fact that, if an RR connection exists, it returns a status message (STATUS, MM STATUS depending on the protocol discriminator) with cause #98 "Message type not compatible with protocol state". When the message was a GMM message the GMM-STATUS message with cause #98 "Message type not compatible with protocol state" shall be returned. When the message was a SM message the SM-STATUS message with cause #98 'Message type not compatible with protocol state' shall be returned.

Other syntactic errors.

This clause applies to the analysis of the value part of an information element. It defines the following terminology:

- An IE is defined to be syntactically incorrect in a message if it contains at least one value defined as 'reserved', or if its value part violates syntactic rules given in the specification of the value part. However it is not a syntactical error that a type 4 standard IE specifies in its length indicator a greater length than possible according to the value part specification: extra bits are ignored.

Reference

3GPP TS 24.008 clauses 8.3.2, 8.4 and 8.5.

3GPP TS 24.007 clause 11.4.2.

11.4.1.3 Test purpose

To test the behaviour of the UE when messages with unknown or unforeseen transaction identifiers or non-semantical mandatory information element errors occur.

11.4.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- PS supported yes/no
- Method of context activation

Test procedure

A PDP context activation is requested by the SS with the transaction identifier set to '1'. The UE shall not respond to this request.

A PDP context is then activated from the UE. An invalid accept messages is sent by the SS. The UE replies with SM STATUS message. After T3380 seconds UE sends second auto generated ACTIVATE PDP CONTEXT REQUEST message. SS again replies with invalid ACTIVATE PDP CONTEXT ACCEPT and UE returns SM STATUS message. After further T3380 seconds UE sends third auto generated ACTIVATE PDP CONTEXT REQUEST message. SS replies with unknown message and UE returns SM STATUS with cause #97 'message type non-existent or not implemented'. After T3380 seconds the UE sends next auto generated ACTIVATE PDP CONTEXT REQUEST message, SS replies with MODIFY PDP CONTEXT REQUEST and UE returns SM STATUS with cause #98 'message type not compatible with protocol state'. After T3380 seconds the UE sends last auto generated ACTIVATE PDP CONTEXT REQUEST message. SS replies with valid accept message.

A deactivate message is then sent from the SS with a different transaction identifier to the one used in the activate request message sent by the UE. The UE shall reply with a SM STATUS message with cause #81 'invalid transaction identifier value'.

Two invalid modification messages are then sent to the UE in turn. The UE shall respond each time with a SM-STATUS message with cause # 96 "invalid mandatory information".

Last MODIFY PDP CONTEXT message sent from SS has TI EXT bit = 0. The UE does not respond to this message.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		REQUEST PDP CONTEXT ACTIVATION	Request the activation of a PDP context with the transaction identifier flag set to "1"
2		SS		Wait T3385 seconds to ensure UE does not request context activation
3	UE			Initiate a context request
4	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context from the UE
5	←		ACTIVATE PDP CONTEXT ACCEPT	Unknown IE encoded as 'comprehension required'
6	→		SM STATUS	Cause set to #96
7		SS		Wait T3380 seconds
8	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context from the UE (auto-generated)
9	←		ACTIVATE PDP CONTEXT ACCEPT	Out of sequence IE encoded as 'comprehension required'
10	→		SM STATUS	Cause set to #96
11		SS		Wait T3380 seconds
12	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context from the UE (auto-generated)
13	←		UNKNOWN MESSAGE	Message with unknown message type
14	→		SM STATUS	Cause set to #97
15		SS		Wait T3380 seconds
16	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context from the UE (auto-generated)
17	←		MODIFY PDP CONTEXT REQUEST	Request modification of PDP context
18	→		SM STATUS	Cause set to #98
19		SS		Wait T3380 seconds
20	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context from the UE (auto-generated)
21	←		ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context
22	←		DEACTIVATE PDP CONTEXT REQUEST	Try to deactivate the context with a different transaction identifier to that used to activate the context
23	→		SM STATUS	Cause set to # 81
24	←		MODIFY PDP CONTEXT REQUEST(NETWORK TO UE DIRECTION)	Request the modification of the PDP context ('New QoS' mandatory IE missing in the message)
25	→		SM STATUS	Cause set to # 96
26	←		MODIFY PDP CONTEXT REQUEST(NETWORK TO UE DIRECTION)	Request the modification of the PDP context (with 'Requested LLC SAPI' set to reserved value '1100')
27	→		SM STATUS	Cause set to # 96
28	←		MODIFY PDP CONTEXT REQUEST(NETWORK TO UE DIRECTION)	Request the modification of the PDP context (TI EXT bit = 0)
29		SS		Wait T3386 seconds to ensure UE does not respond

11.4.1.5 Test requirements

TBD.

11.5 MBMS Context Activation

11.5.1m MBMS Context Activation requested by the network, Successful and Unsuccessful procedure / MBMS Multicast Service

11.5.1m.1 Definition

This test is applicable for Rel-6 UEs supporting MBMS multicast services.

11.5.1m.2 Conformance requirement

The purpose of this procedure is to establish an MBMS context in the MS and in the network for a specific IP Multicast Address using a specific NSAPI for MBMS user plane transmission. The MS shall only initiate the MBMS context activation when requested by the network. However, the trigger for the activation request by the network is initiated by the MS at the application layer.

1) Successful MBMS context activation

   In order to request an MBMS context activation, the network sends a REQUEST MBMS CONTEXT ACTIVATION message to the MS, enters the state MBMS-ACTIVE-PENDING and starts timer T3385. The message shall contain the IP multicast address, the APN and the Linked NSAPI.

   Upon receipt of a REQUEST MBMS CONTEXT ACTIVATION message, the MS shall validate the message by verifying the NSAPI given in the Linked NSAPI IE to be one of the active PDP context(s), and send an ACTIVATE MBMS CONTEXT REQUEST, enter state MBMS-ACTIVE-PENDING and start timer T3380. The message shall contain an IP multicast address and an APN, which shall be the same as the IP multicast address and the APN requested by the network in the REQUEST MBMS CONTEXT ACTIVATION message. Furthermore, the MS shall include the Supported MBMS bearer capabilities, i.e. the maximum downlink bit rate the MS can handle.

   Upon receipt of the ACTIVATE MBMS CONTEXT REQUEST message, the network shall stop timer T3385. If the network accepts the request, it shall reply with an ACTIVATE MBMS CONTEXT ACCEPT message.

   Upon receipt of the message ACTIVATE MBMS CONTEXT ACCEPT the MS shall stop timer T3380 and shall enter the state MBMS-ACTIVE.

2) Whenever a REQUEST MBMS CONTEXT ACTIVATION message is received by the MS specifying a transaction identifier relating to a PDP context or MBMS context not in state PDP-INACTIVE, the MS shall locally deactivate the old PDP context or MBMS context relating to the received transaction identifier. Furthermore, the MS shall continue with the activation procedure of a new MBMS context as indicated in the received message.

3) Upon receipt of the REQUEST MBMS CONTEXT ACTIVATION message, the MS may reject the network requested MBMS context activation by sending the REQUEST MBMS CONTEXT ACTIVATION REJECT message to the network The sender of the message shall include the same TI as included in the REQUEST MBMS CONTEXT ACTIVATION and an additional cause code that typically indicates one of the following causes:

   ……

   # 40: feature not supported; or

   ……

   The network shall stop timer T3385 and enter in state PDP-INACTIVE.

Reference

3GPP TS 24.008 clauses 6.1.3.8 and 8.3.2 f.

11.5.1m.3 Test purpose

To test behaviour of the UE upon receipt of a MBMS context activation request from the SS:

a) When UE supports MBMS context activation requested by the network

b) When UE supporting MBMS context activation requested by the network, receives REQUEST MBMS CONTEXT ACTIVATION message with transaction identifier relating to an already active MBMS or PDP context

11.5.1m.4 Method of test

Initial condition

System Simulator:

1 MBMS cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

The UE has at least two PDP context activated. PDP one trans_id 0 and nsapi 5. PDP two trans_id 1 and nsapi 6.

Related ICS/IXIT statements

MBMS Multicast service application available on UE Yes/No

Test procedure

The UE joins a multicast service provided by the SS.

A REQUEST MBMS CONTEXT ACTIVATION message is sent by the SS. UE will start MBMS context activation procedure

On receipt of the ACTIVATE MBMS CONTEXT REQUEST message from the UE, an ACTIVATE MBMS CONTEXT ACCEPT message is returned by the SS.

REQUEST MBMS CONTEXT ACTIVATION message is then sent by the SS using transaction identifier of the currently active MBMS context. The UE shall activate this context to replace the previous context.

REQUEST MBMS CONTEXT ACTIVATION message is then sent by the SS using transaction identifier of the currently active PDP context. The UE shall activate this context to replace the previous context.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
0		SS	Join MBMS session	Join 1st MBMS session. See TS 34.108 clause 7.6.1
1	←		REQUEST MBMS CONTEXT ACTIVATION	SS sends Request a MBMS context activation to UE and starts timer T3385. The linked nsapi set to 5.
2	→		ACTIVATE MBMS CONTEXT REQUEST	UE supporting Multicast replies with a MBMS context activation request
3		SS		The SS stops timer T3385.
4	←		ACTIVATE MBMS CONTEXT ACCEPT	SS accepts the MBMS context activation.
5	←		REQUEST MBMS CONTEXT ACTIVATION	SS requests a MBMS context activation for an existing MBMS context with the same TI value as one of the active MBMS contexts and starts timer T3385
6	UE			UE locally deactivates the old MBMS context with the same TI value
7	→		ACTIVATE MBMS CONTEXT REQUEST	UE continues with the activation of a new MBMS context to replace locally deactivated MBMS context
8		SS		The SS stops timer T3385.
9	←		ACTIVATE MBMS CONTEXT ACCEPT	SS accepts the MBMS context activation
10	←		REQUEST MBMS CONTEXT ACTIVATION	requests MBMS context activation for an existing PDP context with linked NSAPI 5 and by setting TI value same as the TI value of other active PDP context (TI value set to 1); and starts timer T3385
11	UE			UE locally deactivates the PDP context with TI value 1 and NSAPI 6
12	→		ACTIVATE MBMS CONTEXT REQUEST	UE continues with the activation of a new MBMS context which is linked to NSAPI 5
13		SS		The SS stops timer T3385 and releases Radio Access Bearer for old PDP context.
14	←		ACTIVATE MBMS CONTEXT ACCEPT	SS accepts the MBMS context activation

Specific message contents

Step 5: TI IE value is equal to the TI value of one of the active MBMS contexts , Offered multicast address IE value and/or Access point name IE value are (is) different from the corresponding IE value(s) in the existing MBMS context.

Step 10: TI IE value is equal to the TI value of one of the active PDP contexts .

11.5.1m.5 Test requirements

At step 2, the UE shall accept MBMS context activation initiated by the SS.

At step 6, the UE shall locally deactivate the old MBMS context when a REQUEST MBMS CONTEXT ACTIVATION message is received, specifying a transaction identifier relating to an active MBMS context and continue with the activation procedure of a new MBMS context as indicated in the received message.

At step 11, the UE shall locally deactivate the old MBMS context when a REQUEST MBMS CONTEXT ACTIVATION message is received, specifying a transaction identifier relating to an active PDP context and continue with the activation procedure of a new MBMS context as indicated in the received message.

11.5.2m Abnormal Cases

11.5.2.1m T3380 Expiry / MBMS Multicast Service

11.5.2.1m.1 Definition

This test is applicable for Rel-6 UEs supporting MBMS multicast services.

11.5.2.1m.2 Conformance requirement

On the first expiry of the timer T3380, the UE shall resend the ACTIVATE MBMS CONTEXT REQUEST and shall reset and restart timer T3380. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3380, the UE shall release all resources possibly allocated for this invocation and shall abort the procedure; no automatic MBMS context activation re-attempt shall be performed.

Upon receipt of the REQUEST MBMS CONTEXT ACTIVATION message, the MS may reject the network requested MBMS context activation by sending the REQUEST MBMS CONTEXT ACTIVATION REJECT message to the network The sender of the message shall include the same TI as included in the REQUEST MBMS CONTEXT ACTIVATION and an additional cause code that typically indicates one of the following causes:

……

40: feature not supported; or

……

The network shall stop timer T3385 and enter in state PDP-INACTIVE.

Reference

3GPP TS 24.008 clause 6.1.3.8.4 a.

11.5.2.1.3m Test purpose

To test the behaviour of the UE when the SS does not reply to MBMS CONTEXT ACTIVATION REQUEST.

11.5.2.1.4m Method of test

Initial conditions

System Simulator:

1 MBMS cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

The UE has at least one PDP context activated. PDP one trans_id 0 and nsapi 5.

Related ICS/IXIT statements

MBMS Multicast service application available on UE Yes/No

Test procedure

The UE joins a multicast service provided by the SS.

A MBMS context activation is requested by the SS. The UE shall send the ACTIVATE MBMS CONTEXT REQUEST message five times with T3380 seconds between each message. After this, no further ACTIVATE MBMS CONTEXT REQUEST messages shall be sent by the UE.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
0		SS	Join MBMS session	Join 1st MBMS session. See TS 34.108 clause 7.6.1
1	←		REQUEST MBMS CONTEXT ACTIVATION	SS sends Request a MBMS context activation to UE and starts timer T3385. The linked nsapi set to 5.
2	→		ACTIVATE MBMS CONTEXT REQUEST	UE supporting Multicast replies with a MBMS context activation request
3		SS		The SS stops timer T3385.
4		SS		T3380 seconds
5	→		ACTIVATE MBMS CONTEXT REQUEST	Request a MBMS context activation
6		SS		T3380 seconds
7	→		ACTIVATE MBMS CONTEXT REQUEST	Request a MBMS context activation
8		SS		T3380 seconds
9	→		ACTIVATE MBMS CONTEXT REQUEST	Request a MBMS context activation
10		SS		T3380 seconds
11	→		ACTIVATE MBMS CONTEXT REQUEST	Request a MBMS context activation
12		SS		Wait for T3380 seconds to ensure no further ACTIVATE MBMS CONTEXT REQUEST messages are sent by the UE

Specific message contents

None.

11.5.2.1m.5 Test requirements

At step 5, the UE On the first expiry of the timer T3380, the UE shall re-send the MBMS CONTEXT ACTIVATION REQUEST.

At step 7, On the second expiry of the timer T3380, the UE shall re-send the MBMS CONTEXT ACTIVATION REQUEST.

At step 9, On the third expiry of the timer T3380, the UE shall re-send the MBMS CONTEXT ACTIVATION REQUEST.

At step 11, On the fourth expiry of the timer T3380, the UE shall re-send the MBMS CONTEXT ACTIVATION REQUEST.

At step 12, On the fifth expiry of the timer T3380, the UE shall release all resources possibly allocated for this invocation and shall abort the procedure; no automatic MBMS context activation re-attempt shall be performed.

11.5.2.2m Network initiated MBMS context activation request for an already activated context (on the UE side) / MBMS Multicast Service

11.5.2.2m.1 Definition

This test is applicable for Rel-6 UEs supporting MBMS multicast services.

11.5.2.2m.2 Conformance requirement

……..

MBMS context activation request for an already activated MBMS context (on the mobile station side): If the MS receives a REQUEST MBMS CONTEXT ACTIVATION message with the same combination of APN and IP

multicast address (i.e. PDP type and PDP address) as an already activated MBMS context, the MS shall deactivate the existing MBMS context locally without notification to the network and proceed with the requested MBMS context activation.

……..

Upon receipt of the REQUEST MBMS CONTEXT ACTIVATION message, the MS may reject the network requested MBMS context activation by sending the REQUEST MBMS CONTEXT ACTIVATION REJECT message to the network The sender of the message shall include the same TI as included in the REQUEST MBMS CONTEXT ACTIVATION and an additional cause code that typically indicates one of the following causes:

……

40: feature not supported; or

……

The network shall stop timer T3385 and enter in state PDP-INACTIVE.

Reference

3GPP TS 24.008 clause 6.1.3.8.4 c).

11.5.2.2m.3 Test purpose

To test the behaviour of the UE when it detects a network initiated MBMS context activation for the MBMS context already activated on the UE side.

11.5.2.2m.4 Method of test

Initial conditions

System Simulator:

1 MBMS cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

The UE has at least one PDP context activated. PDP one trans_id 0 and nsapi 5.

Related ICS/IXIT statements

MBMS Multicast service application available on UE Yes/No

Test procedure

The UE joins a multicast service provided by the SS.

A MBMS context activation is requested by the SS. UE accepts MBMS context activation and sends MBMS CONTEXT ACTIVATION REQUEST which SS responds with MBMS CONTEXT ACTIVATION ACCEPT. SS sends a REQUEST MBMS CONTEXT ACTIVATION message with the same combination of APN and multicast address as an already activated MBMS context. The UE deactivates the existing MBMS context locally without notification to the SS and proceeds with the requested MBMS context activation.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
0		SS	Join MBMS session	Join 1st MBMS session. See TS 34.108 clause 7.6.1
1	←		REQUEST MBMS CONTEXT ACTIVATION	SS sends Request a MBMS context activation to UE and starts timer T3385. The linked nsapi set to 5.
2	→		ACTIVATE MBMS CONTEXT REQUEST	UE supporting Multicast replies with a MBMS context activation request.
3		SS		The SS stops timer T3385.
4	←		ACTIVATE MBMS CONTEXT ACCEPT	SS accepts the MBMS context activation.
5	←		REQUEST MBMS CONTEXT ACTIVATION	SS requests a MBMS context activation for an existing MBMS context with the same APN and multicast address as the active MBMS context and starts timer T3385
6	UE			UE locally deactivates the old MBMS context with the same APN and multicast address
7	→		ACTIVATE MBMS CONTEXT REQUEST	UE continues with the activation of a new MBMS context to replace locally deactivated MBMS context
8		SS		The SS stops timer T3385.
9	←		ACTIVATE MBMS CONTEXT ACCEPT	SS accepts the MBMS context activation

Specific message contents

None.

11.5.2.2.5m Test requirements

At step 6, the UE shall locally deactivate old MBMS context.

At step 7, the UE shall continue with the activation of a new MBMS context.

11.6 MBMS Context deactivation

11.6.1m MBMS Context deactivation requested by the network, Successful / MBMS Multicast Service

11.6.1m.1 Definition

This test case is applicable for Rel-6 UEs that support MBMS multicast services.

11.6.1m.2 Conformance requirement

The purpose of the MBMS context deactivation procedure is to deactivate an existing MBMS context in the MS and the network. The MS shall only initiate the MBMS context deactivation when requested by the network, however the trigger for the deactivation request by the network may be initiated by the MS at application layer or by the network, see 3GPP TS 23.246.

After a successful MBMS context deactivation, the associated MBMS NSAPI and TI values shall be released in both the MS and the network and can be reassigned to another MBMS context.

The MBMS context deactivation procedure makes use of the messaging and signalling of the PDP context deactivation procedure as described in the subclause 6.2.3.2.1.

In order to request an MBMS context deactivation, the network sends a DEACTIVATE PDP CONTEXT REQUEST message to the MS, enters the state MBMS-INACTIVE-PENDING and starts timer T3395. The messages contains the transaction identifier (TI) in use for the MBMS context to be deactivated and a cause code that typically indicates one of the following causes:

36: regular deactivation;

38: network failure;

47: multicast group membership time-out.

The MS shall reply with a DEACTIVATE PDP CONTEXT ACCEPT message and enter the state PDP-INACTIVE. Upon receipt of the DEACTIVATE PDP CONTEXT ACCEPT message, the network shall stop the timer T3395 and enter the state PDP-INACTIVE.

….

Whenever any session management message except REQUEST PDP CONTEXT ACTIVATION, REQUEST MBMS CONTEXT ACTIVATION, or SM-STATUS is received by the MS specifying a transaction identifier which is not recognized as relating to an active context or to a context that is in the process of activation or deactivation, the MS shall send a SM-STATUS message with cause #81 "invalid transaction identifier value" using the received transaction identifier value including the extension octet and remain in the PDP-INACTIVE state.

….

The purpose of this procedure is to deactivate an existing PDP context between the MS and the network. The PDP context deactivation may be initiated by the MS or by the network. The *tear down indicator* information element may be included in the DEACTIVATE PDP CONTEXT REQUEST message in order to indicate whether only the PDP context associated with this specific TI or all active PDP contexts sharing the same PDP address and APN as the PDP context associated with this specific TI shall be deactivated. If the tear down is requested, all other active PDP contexts sharing the same PDP address and APN as the PDP context associated with this specific TI shall be deactivated locally without peer-to-peer signalling. If the *tear down indicator* information element is not included in the DEACTIVATE PDP CONTEXT REQUEST message, only the PDP context associated with this specific TI shall be deactivated.

After successful PDP context deactivation, the associated NSAPI and TI values are released and can be reassigned to another PDP context.

If one or more MBMS contexts are linked to a PDP context that has been deactivated, the MS shall deactivate all those MBMS contexts locally (without peer to peer signalling between the MS and the network).

Reference

3GPP TS 24.008 clauses 6.1.3.4, 6.1.3.9 and 8.3.2.

11.6.1m.3 Test purpose

To verify that the UE correctly handle a MBMS context deactivation procedure requested by the network, upon reception of a DEACTIVATE PDP CONTEXT REQUEST. To verify that the UE correctly handle a MBMS context deactivation procedure locally, when the linked PDP context is deactivated.

11.6.1m.4 Method of test

Initial condition

System Simulator:

1 MBMS cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

The UE has one PDP context activated (trans_id 0 and nsapi 5) and one MBMS context activated (trans_id 1 and mbms nsapi 128).

Related ICS/IXIT statements

MBMS Multicast service application available on UE Yes/No

Test procedure

The UE joins a multicast service provided by the SS.

During the 1st MBMS session the SS sends a DEACTIVATE PDP CONTEXT REQUEST message using transaction identifier of the currently active MBMS context. The SS sets T3395 timer to wait for the response from the UE.

The UE shall initiate a MBMS context deactivation procedure.

The UE shall send the DEACTIVATE PDP CONTEXT ACCEPT message within T3395 timer duration.

In order to check that the MBMS context has been deactivated, a DEACTIVATE PDP CONTEXT REQUEST message using transaction identifier of the deactivated MBMS context is sent by the SS.

The UE shall send the SM STATUS message using cause #81 "invalid transaction identifier value".

The UE joins a multicast service provided by the SS.

During the 2nd MBMS session the SS sends a DEACTIVATE PDP CONTEXT REQUEST message using the tear down indicator.

The UE shall deactivate the MBMS context locally.

In order to check that the MBMS context has been deactivated, a DEACTIVATE PDP CONTEXT REQUEST message using transaction identifier of the deactivated MBMS context is sent by the SS.

The UE shall send the SM STATUS message using cause #81 "invalid transaction identifier value".

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS	Join MBMS session	Join 1st MBMS session. See TS 34.108 clause 7.6.1
1a	←		REQUEST MBMS CONTEXT ACTIVATION	SS sends Request a MBMS context activation to UE. The linked nsapi set to 5.
1b	→		ACTIVATE MBMS CONTEXT REQUEST	UE supporting Multicast replies with a MBMS context activation request
1c	←		ACTIVATE MBMS CONTEXT ACCEPT	SS accepts the MBMS context activation.
2	←		DEACTIVATE PDP CONTEXT REQUEST	Request MBMS context deactivation Including trans_id 1 For MBMS context (Nsapi 128) SM cause: #36 regular deactivation. SS starts T3395.
3	→		DEACTIVATE PDP CONTEXT ACCEPT	After sending the message the UE enters in state PDP-INACTIVE.
4		SS		SS stop T3395
5	←		DEACTIVATE PDP CONTEXT REQUEST	Request MBMS context deactivation Including trans_id 1of previous MBMS context activated (Nsapi 128) SM cause: #36 regular deactivation.
6	→		SM STATUS	SM cause value to #81 “invalid transaction identifier value”.
7		SS	Join MBMS session	Join 2nd MBMS session. See TS 34.108 clause 7.6.1
7a	←		REQUEST MBMS CONTEXT ACTIVATION	SS sends Request a MBMS context activation to UE. The linked nsapi set to 5.
7b	→		ACTIVATE MBMS CONTEXT REQUEST	UE supporting Multicast replies with a MBMS context activation request
7c	←		ACTIVATE MBMS CONTEXT ACCEPT	SS accepts the MBMS context activation.
8	←		DEACTIVATE PDP CONTEXT REQUEST	Tear down requested
9		UE		The UE deactivates the MBMS contexts locally.
10		SS		The SS shall check that no messages are sent from the UE.
11	←		DEACTIVATE PDP CONTEXT REQUEST	Request MBMS context deactivation Including trans_id 1of previous MBMS context activated (Nsapi 128) SM cause: #36 regular deactivation.
12	→		SM STATUS	SM cause value to #81 “invalid transaction identifier value”.

Specific message contents

DEACTIVATE PDP CONTEXT REQUEST (step 2)

Information Element	Value/remark
Transaction identifier	TI value of the MBMS context in use : trans_id1
SM cause	#36 : regular deactivation

DEACTIVATE PDP CONTEXT ACCEPT (step 3)

Information Element	Value/remark
Transaction identifier	TI value of the MBMS context in use: trans_id1

DEACTIVATE PDP CONTEXT REQUEST (steps 5 and 11)

Information Element	Value/remark
Transaction identifier	TI value of the MBMS context which was requested to be deactivated at step 1: trans_id1
SM cause	#36 : regular deactivation

SM STATUS (steps 6 and 12)

Information Element	Value/remark
Transaction identifier	trans_id1
SM cause	#81 "invalid transaction identifier value"

DEACTIVATE PDP CONTEXT REQUEST (step 8)

Information Element	Value/remark
Tear down indicator	tear down requested

11.6.1m.5 Test requirements

In step 3, the UE shall send a DEACTIVATE PDP CONTEXT ACCEPT message containing the transaction identifier (TI) in use for the MBMS context.

In step 6, the UE shall send an SM STATUS message with cause #81 "invalid transaction identifier value" using the received transaction identifier value including the extension octet.

In step 9, the UE shall deactivate the MBMS contexts locally.

In step 12, the UE shall send an SM STATUS message with cause #81 "invalid transaction identifier value" using the received transaction identifier value including the extension octet.

11.6.2 Void

11.6.3 Void

11.7m Network Feature Support IE for MBMS / MBMS Multicast Service

11.7m.1 Definition and applicability

This test is applicable for Rel-6 UEs supporting MBMS multicast services.

11.7m.2 Conformance requirement

The network informs the MS about the support of specific features, such as LCS-MOLR or MBMS, in the "Network feature support" Information Element. The information is either explicitly given by sending the "Network feature support" IE or implicitly by not sending it. The handling in the network is described in subclause 9.4.2.9. The MS may use the indication to inform the user about the availability of the appropriate services and it shall not request services that have not been indicated as available. The indication for MBMS is defined in subclause "MBMS feature support indication" in 3GPP TS 23.246.

…

An SGSN that supports MBMS shall indicate MBMS feature support to the UE during Routing Area Update procedure in the Routing Area Update Accept message and during GPRS attach procedure in the Attach Accept message. The UE then knows it can use already activated MBMS bearers, or activate new MBMS bearers according to subclause 8.2 "MBMS Multicast Service Activation".

An SGSN that does not support MBMS will not indicate MBMS feature support to the UE. This indicates to the UE that MBMS bearers are no longer supported, which may allow the UE to use point-to-point bearers for MBMS data transfer. In this case, the UE shall deactivate all active MBMS UE Contexts locally.

Reference(s)

Clause 4.7.3 of TS 24.008

Clause 8.9a of TS 23.246

11.7m.3 Test purpose

To verify that the UE correctly reads the "Network feature support" IE received in ATTACH ACCEPT or ROUTING AREA UPDATE ACCEPT message and does not try to request MBMS services if those are not available in the network.

11.7m.4 Method of test

Initial conditions

System Simulator:

2 MBMS cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2).

Both cells are operating in network operation mode II.

User Equipment:

The UE is Idle updated on Cell A

Related ICS/IXIT statement(s)

- MBMS Multicast service application available on UE Yes/No

Test procedure

The UE initiates attach procedure for PS services. The SS responds with ATTACH ACCEPT message where "Network feature support" IE indicates that MBMS is supported in the network. The UE shall join the MBMS service. The SS adjusts the cell levels so that the UE starts the ROUTING AREA UPDATE procedure. The SS responds with ROUTING AREA UPDATE ACCEPT message where "Network feature support" IE indicates that MBMS is not supported in the network. The UE shall deactivate the active MBMS context locally. In order to check that the MBMS context has been deactivated, a DEACTIVATE PDP CONTEXT REQUEST message using transaction identifier of the deactivated MBMS context is sent by the SS. The UE shall send the SM STATUS message using cause #81 "invalid transaction identifier value". The UE initiates detach procedure.

The UE initiates attach procedure for PS services. The SS responds with ATTACH ACCEPT message where "Network feature support" IE is omitted and implicitly indicates that MBMS is not supported in the network. The UE shall not try to join the MBMS service. The SS adjusts the cell levels so that the UE starts the ROUTING AREA UPDATE procedure. The SS responds with ROUTING AREA UPDATE ACCEPT message where "Network feature support" IE indicates that MBMS is supported in the network. The UE shall join the MBMS service. The UE initiates detach procedure.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1				The SS sets the cell type of cell B to the "Suitable neighbour cell" and the cell type of cell A to the "Serving cell" (see NOTE). The following messages are sent and shall be received on cell A.
2	→		ATTACH REQUEST	
3	←		AUTHENTICATION AND CIPHERING REQUEST	
4	→		AUTHENTICATION AND CIPHERING RESPONSE	
5	←		ATTACH ACCEPT	Network feature support: MBMS supported
6	→		ATTACH COMPLETE	
7	SS		Join MBMS session	Join 1st MBMS session. See TS 34.108 clause 7.6.1
7a	→		PDP CONTEXT REQUEST	UE supporting Multicast replies with a PDP context activation request
7b	←		PDP CONTEXT ACCEPT	SS accepts the PDP context activation.
7c	←		REQUEST MBMS CONTEXT ACTIVATION	SS sends Request a MBMS context activation to UE. The linked nsapi set to 5.
7d	→		ACTIVATE MBMS CONTEXT REQUEST	UE supporting Multicast replies with a MBMS context activation request
7e	←		ACTIVATE MBMS CONTEXT ACCEPT	SS accepts the MBMS context activation.
8				The following messages are sent and shall be received on cell B.
9	SS			The SS sets the cell type of cell A to the "Suitable neighbour cell" and the cell type of cell B to the "Serving cell" (see NOTE).
10	→		ROUTING AREA UPDATE REQUEST	Update type: RA updating Old routing area identification: RAI-1 Old P-TMSI signature: P-TMSI-1 signature
11	SS			The SS starts integrity protection.
12	←		ROUTING AREA UPDATE ACCEPT	Update result: RA updated Routing area identification: RAI-2 P-TMSI signature: P-TMSI-2 signature Mobile identity: P-TMSI-2 Network feature support: MBMS not supported
12a	→		ROUTING AREA UPDATE COMPLETE	
13	UE			The UE deactivates the MBMS context locally
A14	UE			The UE may decide to deactivate the PDP Context. The UE may send a DETACH REQUEST. (NOTE 1).
A14a	→		DEACTIVATE PDP CONTEXT REQUEST	Request deactivation of the PDP context activated in steps 7a-7b
A14b	←		DEACTIVATE PDP CONTEXT REQUEST	Request MBMS context deactivation Including trans_id 1of previous MBMS context activated (Nsapi 128) SM cause: #36 regular deactivation.
A14c	→		SM STATUS	SM cause value to #81 “invalid transaction identifier value”.

A14d	←	DEACTIVATE PDP CONTEXT ACCEPT	Accept request to deactivate the PDP context established in steps 7a-7b
A14e	←→	DETACH REQUEST	Detach type: “normal detach, GPRS detach” Mobile identity = P-TMSI-2 If the UE does not transmit DETACH REQUEST, then SS should send the DETACH REQUEST.
A14f	←→	DETACH ACCEPT	
A14g	SS		The SS shall check that no messages are sent from the UE.
B14	←	DEACTIVATE PDP CONTEXT REQUEST	Request MBMS context deactivation Including trans_id 1of previous MBMS context activated (Nsapi 128) SM cause: #36 regular deactivation (NOTE 2).
B14a	→	SM STATUS	SM cause value to #81 “invalid transaction identifier value”.
B14b		Void	
B14c	←	DETACH REQUEST	Detach type: “re-attach not required”
B14d	→	DETACH ACCEPT	
15			The SS sets the cell type of cell B to the "Suitable neighbour cell" and the cell type of cell A to the "Serving cell" (see NOTE). The following messages are sent and shall be received on cell A.
16	→	ATTACH REQUEST	
17	←	AUTHENTICATION AND CIPHERING REQUEST	
18	→	AUTHENTICATION AND CIPHERING RESPONSE	
19	←	ATTACH ACCEPT	Network feature support IE not present
20	→	ATTACH COMPLETE	
21	SS		The SS verifies that the UE does not try to activate PDP context, which is needed prior to JOIN MBMS procedure.
22			The following messages are sent and shall be received on cell B.
23	SS		The SS sets the cell type of cell A to the "Suitable neighbour cell" and the cell type of cell B to the "Serving cell" (see NOTE).
24	→	ROUTING AREA UPDATE REQUEST	Update type: RA updating Old routing area identification: RAI-1 Old P-TMSI signature: P-TMSI-1 signature
25			The SS starts integrity protection.
26	←	ROUTING AREA UPDATE ACCEPT	Update result: RA updated Routing area identification: RAI-2 P-TMSI signature: P-TMSI-2 signature Mobile identity: P-TMSI-2 Network feature support: MBMS supported
27	→	ROUTING AREA UPDATE COMPLETE	
28	SS	Join MBMS session	Join 2nd MBMS session. See TS 34.108 clause 7.6.1
29			void

30	→	PDP CONTEXT REQUEST	UE supporting Multicast replies with a PDP context activation request
31	←	PDP CONTEXT ACCEPT	SS accepts the PDP context activation.
32	←	REQUEST MBMS CONTEXT ACTIVATION	SS sends Request a MBMS context activation to UE. The linked nsapi set to 5.
33	→	ACTIVATE MBMS CONTEXT REQUEST	UE supporting Multicast replies with a MBMS context activation request
34	←	ACTIVATE MBMS CONTEXT ACCEPT	SS accepts the MBMS context activation.
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1.5 “Reference Radio Conditions (FDD)” NOTE 1: Support of automatic PS attach procedure at switch on - no NOTE 2: Support of automatic PS attach procedure at switch on - yes			

Specific Message Contents

None

11.7m.5 Test requirements

In step 7 the UE shall join the MBMS session.

In step 13 the UE shall deactivate the MBMS contexts locally.

In step A14c or B14a the UE shall send an SM STATUS message with cause #81 "invalid transaction identifier value" using the received transaction identifier value including the extension octet.

In step 21 the UE shall not try to join the MBMS session.

In step 28 the UE shall join the MBMS session.

11.8 MBMS Service Request

11.8.1m MBMS Service request procedure not accepted by the network / MBMS Multicast Service

11.8.1m.1 Definition and applicability

This test is applicable for Rel-6 UEs supporting MBMS multicast services.

11.8.1m.2 Conformance requirement

If the Service request cannot be accepted, the network returns a SERVICE REJECT message to the mobile station. An MS that receives a SERVICE REJECT message stops timer T3317. The MS shall then take different actions depending on the received reject cause value:

…

40 (No PDP context activated)

- The MS shall deactivate locally all active PDP and MBMS contexts and the MS shall enter the state GMM-REGISTERED.NORMAL-SERVICE. The MS may also activate PDP context(s) to replace any previously active PDP contexts. The MS may also perform the procedures needed in order to activate any previously active multicast service(s).

NOTE: In some cases, user interaction may be required and then the MS cannot activate the PDP and MBMS context(s) automatically.

Reference(s)

Clause 4.7.13.4 of TS 24.008

11.8.1m.3 Test purpose

To verify that the UE correctly handles a SERVICE REJECT message with SM cause “#40 No PDP context activated” received from the network and deactivates the MBMS context locally.

11.8.1m.4 Method of test

Initial conditions

System Simulator:

1 MBMS cell, default parameters.

User Equipment:

The UE is in "PMM-IDLE” mode and has joined the multicast service provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statement(s)

- MBMS Multicast service application available on UE Yes/No

Test procedure

The UE receives an MBMS MODIFIED SERVICES INFORMATION message for an MBMS multicast service for which the UE has activated an MBMS context. The UE will try to establish a PS signalling connection and sends a SERVICE REQUEST message to the SS where the service type is set to "MBMS multicast service reception". The SS returns a SERVICE REJECT message to the UE with SM cause “#40 No PDP context activated”. The UE shall deactivate locally the active MBMS context and shall enter the state GMM-REGISTERED.NORMAL-SERVICE. In order to check that the MBMS context has been deactivated, a DEACTIVATE PDP CONTEXT REQUEST message using transaction identifier of the deactivated MBMS context is sent by the SS. The UE shall send the SM STATUS message using cause #81 "invalid transaction identifier value".

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		MBMS MODIFIED SERVICES INFORMATION	The SS informs the UE about a change for the MBMS service available in the cell
2	→		SERVICE REQUEST	Service type: MBMS Multicast Service Reception
3	←		SERVICE REJECT	GMM cause: # 40 No PDP context activated
4	UE			The UE deactivates the MBMS context locally
5	SS			The SS shall check that no messages are sent from the UE
6	←		DEACTIVATE PDP CONTEXT REQUEST	Request MBMS context deactivation Including the transaction Identifier of the previous activated MBMS context. SM cause: #36 regular deactivation.
7	→		SM STATUS	SM cause value to #81 “invalid transaction identifier value”.

Specific Message Contents

11.8.1m.5 Test requirements

In step 2 the UE shall send a SERVICE REQUEST message containing the service type IE MBMS Service Reception.

In step 4 the UE shall deactivate the MBMS contexts locally.

In step 7 the UE shall send an SM STATUS message with cause #81 "invalid transaction identifier value" using the received transaction identifier value including the extension octet.

11.8.2 MBMS Service Request procedure collision with Routing Area Update/ MBMS Selected Service

11.8.2.1 Definition and applicability

This test is applicable for Rel-6 UEs supporting MBMS broadcast services.

11.8.2.2 Conformance requirement

The following abnormal cases can be identified:

…

e) Routing area update procedure is triggered

If a cell change into a new routing area occurs and the necessity of routing area update procedure is determined before the security mode control procedure is completed, a SERVICE ACCEPT or SERVICE REJECT message has been received, the Service request procedure shall be aborted and the routing area updating procedure is started immediately. Follow-on request pending may be indicated in the ROUTING AREA UPDATE REQUEST for the service, which was the trigger of the aborted Service request procedure, to restart the pending service itself or the Service request procedure after the completion of the routing area updating procedure. If the Service type of the aborted SERVICE REQUEST was indicating "data", then the routing area update procedure may be followed by a re-initiated Service request procedure indicating "data", if it is still necessary. If the Service type was indicating "MBMS multicast service reception", or "MBMS broadcast service reception" the Service request procedure shall be aborted.

Reference(s)

Clause 4.7.13.5 of TS 24.008 (Rel-7 version)

11.8.2.3 Test purpose

To verify that the UE correctly aborts a SERVICE REQUEST procedure if a ROUTING AREA UPDATE procedure is initiated before the SERVICE REQUEST procedure has been completed.

11.8.2.4 Method of test

Initial conditions

System Simulator:

2 MBMS cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).

Both cells are operating in network operation mode II.

User Equipment:

The UE is in "PMM-IDLE” mode and is interested in the selected service provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statement(s)

- MBMS Broadcast service application available on UE Yes/No

Test procedure

The UE receives an MBMS MODIFIED SERVICES INFORMATION message for an MBMS selected service for which the UE has activated an MBMS context. The UE will try to establish a PS signalling connection and sends a SERVICE REQUEST message to the SS where the service type is set to "MBMS broadcast service reception ". The SS adjusts the cell levels so that the UE starts the ROUTING AREA UPDATE procedure and aborts the SERVICE REQUEST procedure. The ROUTING AREA UPDATE procedure is completed. The SS checks that the UE does not initiate further SERVICE REQUEST

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1				The SS sets the cell type of cell B to the "Suitable neighbour cell" and the cell type of cell A to the "Serving cell" (see NOTE). The following messages are sent and shall be received on cell A.
2	SS			SS initiates PTPRB setup procedure by sending MBMS Modified services Information with “MBMS required UE action” IE set to “Request PTP RB”.
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to “mbms_PTP_RB_Request”.
2b	UE			The UE after completing the RRC Connection Setup procedure shall initiate the MBMS MODIFICATION REQUEST procedure. This message may be received at any point after RRC CONNECTION SETUP COMPLETE.
3	→		SERVICE REQUEST	Service type: MBMS Broadcast Service Reception Timer T3317 shall be started.
4	←		AUTHENTICATION AND CIPHERING REQUEST	
5	→		AUTHENTICATION AND CIPHERING RESPONSE	
5a	SS			The SS releases the RRC connection.
6	SS			Within timer T3317 the SS sets the cell type of cell A to the "Suitable neighbour cell" and the cell type of cell B to the "Serving cell" (see NOTE).
7				The SS sets the cell type of cell A to the "Suitable neighbour cell" and the cell type of cell B to the "Serving cell" (see NOTE). The following messages are sent and shall be received on cell B.
8	UE			The SERVICE REQUEST procedure shall be aborted. Timer T3317 shall be stopped.
8a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to " registration ".
8b	UE			The UE after completing the RRC Connection Setup procedure shall initiate the MBMS MODIFICATION REQUEST procedure. This message may be received at any point after RRC CONNECTION SETUP COMPLETE.
9	→		ROUTING AREA UPDATE REQUEST	Update type: RA updating Old routing area identification: RAI-1 Old P-TMSI signature: P-TMSI-1signature

10	SS		The SS starts integrity protection.
11	←	ROUTING AREA UPDATE ACCEPT	Update result: RA updated Routing area identification: RAI-4 P-TMSI signature: P-TMSI-2 signature Mobile identity: P-TMSI-2
12	→	ROUTING AREA UPDATE COMPLETE	
13	SS		SS waits for 30 seconds to check that no further SERVICE REQUEST messages are sent by the UE.
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1.5 “Reference Radio Conditions (FDD)”.			

Specific Message Contents

In step 2, MBMS Modified services Information sent by SS with “MBMS required UE action” IE set to “Request PTP RB”.

11.8.2.5 Test requirements

In step 9 the UE shall send ROUTING AREA UPDATE REQUEST.

11.8.2m MBMS Service Request procedure collision with Routing Area Update / MBMS Multicast Service

11.8.2.1m Definition and applicability

This test is applicable for Rel-6 UEs supporting MBMS multicast services.

11.8.2.2m Conformance requirement

Same conformance requirement as in clause 11.8.2.2.

11.8.2.3m Test purpose

Same test purpose as in clause 11.8.2.3.

11.8.2.4m Method of test

Initial conditions

System Simulator:

2 MBMS cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).

Both cells are operating in network operation mode II.

User Equipment:

The UE is in "PMM-IDLE” mode and has joined the multicast service provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statement(s)

- MBMS Multicast service application available on UE Yes/No

Test procedure

Same test procedure as in clause 11.8.2.4m except that the UE receives an MBMS MODIFIED SERVICES INFORMATION message for an MBMS multicast service for which the UE has activated an MBMS context and the Service Type in SERVICE REQUEST message to the SS indicates ‘MBMS Multicast Service Reception’.

Expected sequence

Same expected sequence as in clause 11.8.2.4m except that the expected sequence steps 2b and 8b are not applicable and the Service Type in SERVICE REQUEST message in step 3 indicates ‘MBMS Multicast Service Reception’.

Specific Message Contents

Same as clause 11.8.2.4

11.8.2.5m Test requirements

Same test requirements as in clause 11.8.2.5

11.9 UE routing of uplink packets

11.9.1 UE routing of uplink packets

11.9.1.1 Definition

11.9.1.2 Conformance requirement

References: The conformance requirements covered in the present TC are specified in: TS 23.060, clause 15.3.2.0 and TS 24.008, clause 10.5.6.12.

[TS 23.060, clause 15.3.2.0]

Each valid downlink- and uplink-packet filter contains a unique identifier within a given TFT, an evaluation precedence index that is unique among all packet filters for the same direction (downlink or uplink) for one PDP address and APN pair, and at least one of the following attributes:

- Remote Address and Subnet Mask.
- Protocol Number (IPv4) / Next Header (IPv6).
- Local Port Range.
- Remote Port Range.
- IPSec Security Parameter Index (SPI).
- Type of Service (TOS) (IPv4) / Traffic class (IPv6) and Mask.
- Flow Label (IPv6).

In the list of attributes above 'Remote' refers to the external network entity, and 'Local' to the MS.

Some of the above-listed attributes may coexist in a packet filter while others mutually exclude each other. In table 12 below, the possible combinations are shown. Only those attributes marked with an "X" may be specified for a single packet filter. All marked attributes may be specified, but at least one shall be specified.

If the parameters of the header of a received PDP PDU match all specified attribute values in a packet filter, then it is considered that a match is found for this packet filter. In this case, the evaluation procedure is aborted. Other packet filters in increasing order of their evaluation precedence index are evaluated until such match is found.

There may be potential conflicts if attribute values are combined in such a way that the defined filter can never achieve a match to a valid IP packet header. However, the determination of such conflicts is outside the scope of GPRS standardization.

Table 12: Valid Packet Filter Attribute Combinations

	Valid combination types		
Packet filter attribute	**I**	**II**	**III**
Remote Address and Subnet Mask	X	X	X
Protocol Number (IPv4) / Next Header (IPv6)	X	X	
Local Port Range	X		
Remote Port Range	X		
IPSec SPI		X	
TOS (IPv4) / Traffic Class (IPv6) and Mask	X	X	X
Flow Label (IPv6)			X

[TS 24.008, clause 10.5.6.12]

The purpose of the *traffic flow template* information element is to specify the TFT parameters and operations for a PDP context. In addition, this information element may be used to transfer extra parameters to the network (e.g. the Authorization Token; see 3GPP TS 24.229 [95]). The TFT may contain packet filters for the downlink direction, the uplink direction or packet filters that apply for both directions. The packet filters determine the traffic mapping to PDP contexts. The downlink packet filters shall be applied by the network and the uplink packet filters shall be applied by the MS. A packet filter that applies for both directions shall be applied by the network as a downlink packet filter and by the MS as an uplink filter.

The *traffic flow template* is a type 4 information element with a minimum length of 3 octets. The maximum length for the IE is 257 octets.

NOTE 1: The IE length restriction is due to the maximum length that can be encoded in a single length octet.

NOTE 2: A maximum size IPv4 packet filter can be 32 bytes. Therefore, 7 maximum size IPv4 type packet filters, plus the last packet filter which can contain max 30 octets can fit into one TFT, i.e. if needed not all packet filter components can be defined into one message. A maximum size Ipv6 packet filter can be 60 bytes. Therefore, only 4 maximum size IPv6 packet filters can fit into one TFT. However, using "Add packet filters to existing TFT", it's possible to create a TFT including 16 maximum size Ipv4 or IPv6 filters.

The *traffic flow template* information element is coded as shown in figure 10.5.144/3GPP TS 24.008 and table 10.5.162/3GPP TS 24.008.

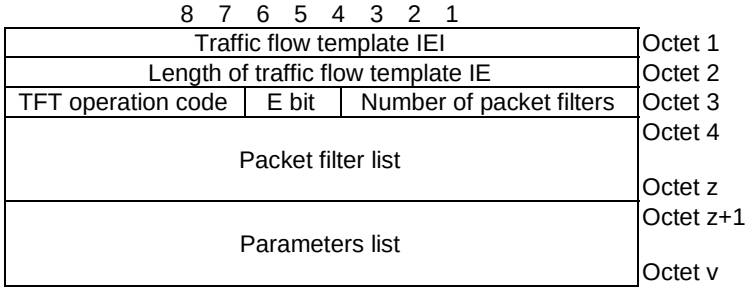


Figure 10.5.144/3GPP TS 24.008: *Traffic flow template* information element

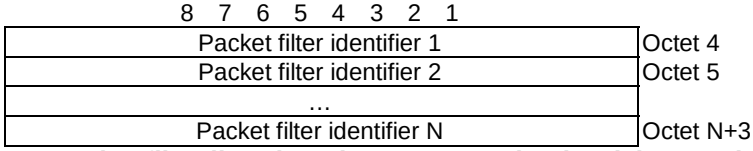


Figure 10.5.144a/3GPP TS 24.008: *Packet filter list* when the TFT operation is "delete packet filters from existing TFT" (z=N+3)

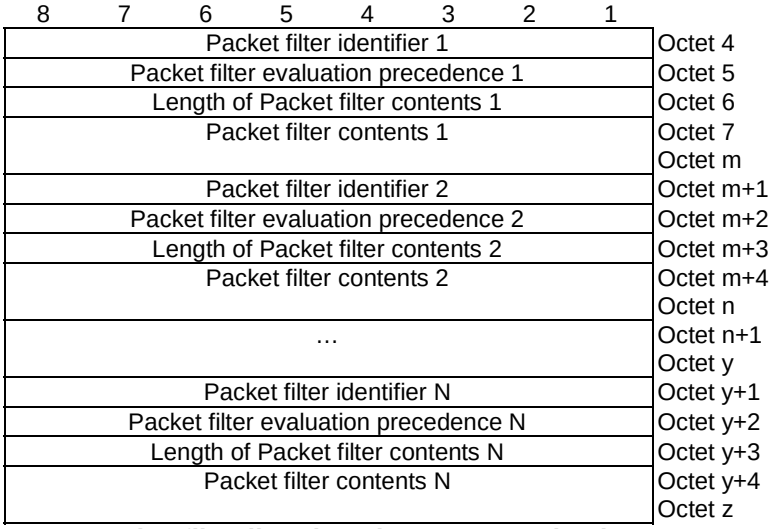


Figure 10.5.144b/3GPP TS 24.008: *Packet filter list* when the TFT operation is "create new TFT", or "add packet filters to existing TFT" or "replace packet filters in existing TFT"

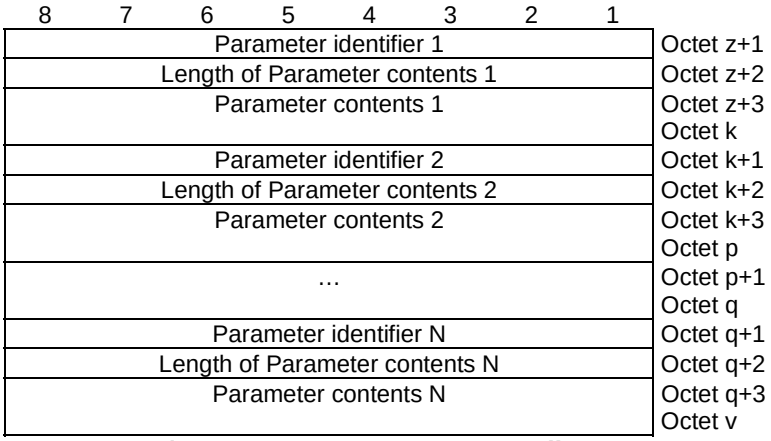


Figure 10.5.144c/3GPP TS 24.008: *Parameters list*

Table 10.5.162/3GPP TS 24.008: *Traffic flow template* information element

TFT operation code (octet 3)
Bits
8 7 6

0 0 0 Spare
0 0 1 Create new TFT

0 1 0 Delete existing TFT
0 1 1 Add packet filters to existing TFT

1 0 0 Replace packet filters in existing TFT

1 0 1 Delete packet filters from existing TFT
1 1 0 No TFT operation

1 1 1 Reserved

The TFT operation code "No TFT operation" shall be used if a *parameters list* is included but no *packet filter list* is included in the *traffic flow template* information element.

E bit (bit 5 of octet 3)

The *E bit* indicates if a *parameters list* is included in the TFT IE and it is encoded as follows:
0 *parameters list* is not included
1 *parameters list* is included

Number of packet filters (octet 3)

The *number of packet filters* contains the binary coding for the number of packet filters in the *packet filter list*. The *number of packet filters* field is encoded in bits 4 through 1 of octet 3 where bit 4 is the most significant and bit 1 is the least significant bit. For the "delete existing TFT" operation and for the "no TFT operation", the *number of packet filters* shall be coded as 0. For all other operations, the number of packet filters shall be greater than 0 and less than or equal to 16.

Packet filter list (octets 4 to z)

The *packet filter list* contains a variable number of packet filters. For the "delete existing TFT" operation and the "no TFT operation", the *packet filter list* shall be empty.

For the "delete packet filters from existing TFT" operation, the *packet filter list* shall contain a variable number of packet filter identifiers. This number shall be derived from the coding of the *number of packet filters* field in octet 3.

For the "create new TFT", "add packet filters to existing TFT" and "replace packet filters in existing TFT" operations, the *packet filter list* shall contain a variable number of packet filters. This number shall be derived from the coding of the *number of packet filters* field in octet 3.

Each packet filter is of variable length and consists of

- a packet filter identifier and direction (1 octet);
- a packet filter evaluation precedence (1 octet);
- the length of the packet filter contents (1 octet); and
- the packet filter contents itself (v octets).

The *packet filter identifier* field is used to identify each packet filter in a TFT. The least significant 4 bits are used.

The *packet filter direction* is used to indicate, in bits 5 and 6, for what traffic direction the filter applies:

00 - pre Rel-7 TFT filter
01 - downlink only
10 - uplink only
11 - bidirectional

Bits 8 through 7 are spare bits.

The *packet filter evaluation precedence* field is used to specify the precedence for the packet filter among all packet filters in all TFTs associated with this PDP address. Higher the value of the *packet filter evaluation precedence* field, lower the precedence of that packet filter is. The first bit in transmission order is the most significant bit.

The *length of the packet filter contents* field contains the binary coded representation of the length of the *packet filter contents* field of a packet filter. The first bit in transmission order is the most significant bit.

The *packet filter contents* field is of variable size and contains a variable number (at least one) of *packet filter components*. Each *packet filter component* shall be encoded as a sequence of a one octet *packet filter component type identifier* and a fixed length *packet filter component value* field. The *packet filter component type identifier* shall be transmitted first.

In each packet filter, there shall not be more than one occurrence of each packet filter component type. Among the "IPv4 remote address type" and "IPv6 remote address type" packet filter components, only one shall be present in one packet filter. Among the "single local port type" and "local port range type" packet filter components, only one shall be present in one packet filter. Among the "single remote port type" and "remote port range type" packet filter components, only one shall be present in one packet filter.

The term *local* refers to the MS and the term *remote* refers to an external network entity.

Packet filter component type identifier
Bits
8 7 6 5 4 3 2 1

0 0 0 1 0 0 0 0	IPv4 remote address type
0 0 1 0 0 0 0 0	IPv6 remote address type
0 0 1 1 0 0 0 0	Protocol identifier/Next header type
0 1 0 0 0 0 0 0	Single local port type
0 1 0 0 0 0 0 1	Local port range type
0 1 0 1 0 0 0 0	Single remote port type
0 1 0 1 0 0 0 1	Remote port range type
0 1 1 0 0 0 0 0	Security parameter index type
0 1 1 1 0 0 0 0	Type of service/Traffic class type
1 0 0 0 0 0 0 0	Flow label type

All other values are reserved.

For "IPv4 remote address type", the *packet filter component value* field shall be encoded as a sequence of a four octet *IPv4 address* field and a four octet *IPv4 address mask* field. The *IPv4 address* field shall be transmitted first.

For "IPv6 remote address type", the *packet filter component value* field shall be encoded as a sequence of a sixteen octet *IPv6 address* field and a sixteen octet *IPv6 address mask* field. The *IPv6 address* field shall be transmitted first.

For "Protocol identifier/Next header type", the *packet filter component value* field shall be encoded as one octet which specifies the IPv4 protocol identifier or IPv6 next header.

For "Single local port type" and "Single remote port type", the *packet filter component value* field shall be encoded as two octet which specifies a port number.

For "Local port range type" and "Remote port range type", the *packet filter component value* field shall be encoded as a sequence of a two octet *port range low limit* field and a two octet *port range high limit* field. The *port range low limit* field

shall be transmitted first.

For "Security parameter index", the *packet filter component value* field shall be encoded as four octet which specifies the IPSec security parameter index.

For "Type of service/Traffic class type", the *packet filter component value* field shall be encoded as a sequence of a one octet *Type-of-Service/Traffic Class* field and a one octet *Type-of-Service/Traffic Class mask* field. The *Type-of-Service/Traffic Class* field shall be transmitted first.

For "Flow label type", the *packet filter component value* field shall be encoded as three octet which specifies the IPv6 flow label. The bits 8 through 5 of the first octet shall be spare whereas the remaining 20 bits shall contain the IPv6 flow label.

Parameters list (octets z+1 to v)

The *parameters list* contains a variable number of parameters that may be transferred. If the *parameters list* is included, the *E bit* is set to 1; otherwise, the *E bit* is set to 0.

Each parameter included in the *parameters list* is of variable length and consists of:

- a parameter identifier (1 octet);
- the length of the parameter contents (1 octet); and
- the parameter contents itself (v octets).

The *parameter identifier* field is used to identify each parameter included in the *parameters list* and it contains the hexadecimal coding of the parameter identifier. Bit 8 of the *parameter identifier* field contains the most significant bit and bit 1 contains the least significant bit. In this version of the protocol, the following parameter identifiers are specified:

- 01H (Authorization Token);
- 02H (Flow Identifier) ; and
- 03H (Packet Filter Identifier).

If the *parameters list* contains a parameter identifier that is not supported by the receiving entity the corresponding parameter shall be discarded.

The *length of parameter contents* field contains the binary coded representation of the length of the *parameter contents* field. The first bit in transmission order is the most significant bit.

When the *parameter identifier* indicates Authorization Token, the *parameter contents* field contains an authorization token, as specified in 3GPP TS 29.207 [100]. The first octet is the most significant octet of the authorization token and the last octet is the least significant octet of the authorization token.

The *parameters list* shall be coded in a way that an Authorization Token (i.e. a parameter with identifier 01H) is always followed by one or more Flow Identifiers (i.e. one or more parameters with identifier 02H).

If the *parameters list* contains two or more consecutive Authorization Tokens without any Flow Identifiers in between, the receiver shall treat this as a semantical TFT error.

When the *parameter identifier* indicates Flow Identifier, the *parameter contents* field contains the binary representation of a flow identifier. The Flow Identifier consists of four octets. Octets 1 and 2 contains the Media Component number as specified in 3GPP TS 29.207 [100]. Bit 1 of octet 2 is the least significant bit, and bit 8 of octet 1 is the most significant bit. Octets 3 and 4 contains the IP flow number as specified in 3GPP TS 29.207 [100]. Bit 1 of octet 4 is the least significant bit, and bit 8 of octet 3 is the most significant bit.

When the parameter identifier indicates Packet Filter Identifier, the parameter contents field contains the binary representation of one or more packet filter identifiers. Each packet filter identifier is encoded in one octet, in the 4 least significant bits. This parameter is used by the MS to identify one or more packet filters in a TFT when modifying the QoS of a PDP context without modifying the packet filter itself.

11.9.1.3 Test purpose

1. To verify that the UE, when it has IP packets to transmit, evaluates the configured packet filters in the correct evaluation order and transmits IP packets in uplink on the bearer associated with the matched packet filter when having a primary and two secondary PDP contexts active

2. To verify that the UE, when it has IP packets to transmit and only packet filters defined for the secondary PDP contexts, transmits IP packets in uplink on the bearer associated with the primary PDP context, if the IP packet does not satisfy any of the configured packet filters for the secondary PDP contexts.

3. To verify that the UE, when it has IP packets to transmit, transmits IP packets in uplink on the bearer associated with the primary PDP context, if the IP packet only satisfies a packet filters defined for the primary PDP context.

4. To verify that the UE discards the IP packet if it does not satisfy any of the configured packet filters for the primary or secondary PDP contexts.

11.9.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- Method of activating a PDP context
- Support of automatic PS attach procedure at switch on yes/no

Test procedure

A PDP context activation is requested by the user and accepted by the SS.

If the UE set the PDP type to ‘IPv4’ in the ACTIVATE PDP CONTEXT REQUEST then the SS allocates an IPv4 address to the UE and set the test variable IP type to “IPv4”. The SS executes the test sequence once (sub test 1).

Else if the UE set the PDP type to ‘IPv6’ in the ACTIVATE PDP CONTEXT REQUEST then the SS allocates an IPv6 address via stateless address auto configuration on the established primary PDP context and set the test variable IP type to “IPv6”. The SS executes the test sequence once (sub test 2).

Else if the UE set the PDP type to ‘IPv4IPv6’ in the ACTIVATE PDP CONTEXT REQUEST then the SS executes the test sequence twice. For first execution (sub test 1) then the SS allocates an IPv4 address to the UE and set the test variable IP type to “IPv4”. For the second execution (sub test 2) the SS allocates an IPv6 address via stateless address auto configuration on the established primary PDP context and set the test variable IP type to “IPv6”.

A secondary PDP context activation with a UL TFT filter (Packet Filter#1) is requested by the SS and the activation procedure is completed by the UE. A third PDP context is activated by the SS using the secondary PDP context activation procedure. Packet Filter#2, Packet Filter#3and Packet Filter#4, depending on the IP type used, are activated.

The SS activates UE test loop mode 4 and transmits 17 or 19 IP packets depending on the IP type used. The SS checks that the IP packets are returned by the UE on the radio bearer corresponding to the matching filter, see Table 11.9.1.4-2.

The SS sends a MODIFY PDP CONTEXT REQUEST message to the UE requesting a new TFT filter to be added to the primary PDP context, Packet Filter#5. The UE sends a MODIFY PDP CONTEXT ACCEPT message in return.

The SS transmits IP packet#18 that matches Packet Filter#5. The SS checks that IP packet#18 is returned by the UE on the radio bearer associated with the primary PDP context. The SS transmits IP packet#19 that does not match any packet filter. The SS checks that no IP packet is returned by the UE on any radio bearer.

The test procedure is executed once for IPv4 case (sub test 1) and once for IPv6 case (sub test 2) dependending on UE capability as specified in Table 11.9.1.4.-1a.

Table 11.9.1.4-1a: Test executions and test parameters

Sub test	Applicability	IPtype
1	UE supporting IPv4	'IPv4'
2	UE supporting IPv6	'IPv6'
Note 1: For UEs supporting both IPv4 and IPv6 then both test execution 1 and 2 shall be performed.		

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to either Originating Streaming Call, Originating Interactive Call or Originating Background Call or OriginatingSubscribedTrafficCall
2		SS		The SS activates UE radio bearer test mode in accordance to [10] TS 34.109, clause 5.2.1.
3	→		SERVICE REQUEST	Service type = "signalling"
4		SS		The SS starts integrity protection.
5	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context
5A		SS		IF the UE in step 5 set the PDP type to ' IPv4' in the ACTIVATE PDP CONTEXT REQUEST message then the SS sets the test variable IPtype='IPv4' and executes the test sequence using the IPv4 packet filters components in Table 11.9.1.4-1. ELSE IF the UE in step 5 set the PDP type to ' IPv6' in the ACTIVATE PDP CONTEXT REQUEST message then the SS sets the test variable IPtype='IPv6' and executes the test sequence using the IPv6 packet filters components in Table 11.9.1.4-1. ELSE IF the UE in step 5 set the PDP type to ' IPv4IPv6' in the ACTIVATE PDP CONTEXT REQUEST message then the test secuence shall be executed twice according to table 11.9.1.4-1a. At the first execution the SS sets the test variable IPtype='IPv4' and executes the test sequence using the IPv4 packet filters components in Table 11.9.1.4-1. At the second execution then the SS sets the test variable IPtype='IPv6' and executes the test sequence using the IPv6 packet filters components in Table 11.9.1.4-1.
6		SS		The SS establishes the RAB according to reference radio bearer combination 6.10.2.4.1.26 in [9] (1xPS RB 64kbps).
7	←		ACTIVATE PDP CONTEXT ACCEPT	The SS accepts the PDP context If the test variable IPtype is set to 'IPv4' then the SS assigns an IPv4 adress in the ACTIVATE PDP CONTEXT ACCEPT message EXCEPTION: If the test variable IPtype is set to 'IPv6' then stateless address auto configuration occurs on the user plane bearer established in step 6. EXCEPTION: If the test variable IPtype is set to 'IPv6' then stateless address auto configuration occurs on the user plane bearer established in step 6.
8		SS		The SS initiates a secondary PDP context activation
9	←		REQUEST SECONDARY PDP CONTEXT ACTIVATION	The SS requests a Secondary PDP context activation and starts timer T3385.

10	→	ACTIVATE SECONDARY PDP CONTEXT REQUEST	The UE requests a Secondary PDP context activation, enters the state PDP-ACTIVE-PENDING and starts timer T3380. NSAPI IE value is different from the value in Step 5. A UL TFT filter is configured.
11	SS		The SS stops timer T3385. The SS reconfigures the RAB according to reference radio bearer combination 6.10.2.4.1.57 in [9] (2xPS RB 64kbps).
12	←	ACTIVATE SECONDARY PDP CONTEXT ACCEPT	The SS accepts the Secondary PDP context activation with the requested QoS
13	←	REQUEST SECONDARY PDP CONTEXT ACTIVATION	The SS requests a Secondary PDP context activation and starts timer T3385.
14	→	ACTIVATE SECONDARY PDP CONTEXT REQUEST	The UE requests a Secondary PDP context activation, enters the state PDP-ACTIVE-PENDING and starts timer T3380. NSAPI IE value is different from the value in Step 5. UL TFT filters are configured.
15	SS		The SS stops timer T3385. The SS reconfigures the RAB according to reference radio bearer combination 6.11.4l.1 in [9] (3xPS RB 64kbps).
16	←	ACTIVATE SECONDARY PDP CONTEXT ACCEPT	The SS accepts the Secondary PDP context activation with the requested QoS
17	SS		The SS waits for T3380 seconds to ensure no further activate request messages come from the UE
18	SS		The SS activates UE test loop mode 4 to establish UE loopback of IP PDUs. See [10] TS 34.109 clause 5.3.2. EXCEPTION: IF IPtype='IPv4' then test steps 19 to 20 are repeated for N= 1 to 14 IF IPtype='IPv6' then test steps 19 to 20 are repeated for N= 1 to 17
19	←	IP PDU (IP packet#N)	The SS transmits one IP Packet according to Table 11.9.1.4-2 for Sub-test index=N
20	→	IP PDU (IP packet#N)	Check: Does UE send the IP Packet on the PDP context as specified by Table 11.9.1.4-2 for Sub-test index=N?
21	←	MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	The SS sends a modify request to UE to add a UL TFT filter to the primary PDP context
22	→	MODIFY PDP CONTEXT ACCEPT (UE TO NETWORK DIRECTION)	The UE accepts the modification request from the SS.
23	←	IP PDU (IP packet#18)	The SS transmits one IP Packet according to Table 11.9.1.4-2 for Sub-test index=18
24	→	IP PDU (IP packet#18)	Check: Does UE send the IP Packet on the data radio bearer as specified by Table 11.9.1.4-2 for Sub-test index=18?
25	←	IP PDU (IP packet#19)	The SS transmits one IP Packet according to Table 11.9.1.4-2 for Sub-test index=19
26			Check: Does UE send an IP Packet on any of the PDP contexts? EXCEPTION: Steps 27 – 33 are executed if two executions apply and this is the first execution.
27	←	OPEN UE TEST LOOP	The SS transmits an OPEN UE TEST LOOP message to exit the UE test loop mode
28	→	OPEN UE TEST LOOP COMPLETE	The UE transmits an OPEN UE TEST LOOP COMPLETE message.
29	←	DEACTIVATE RB TEST MODE	The SS requests the UE to deactivate the UE radio bearer test mode by transmitting a DEACTIVATE RB TEST MODE message

30	→	DEACTIVATE RB TEST MODE COMPLETE	The UE deactivates the radio bearer test mode ans transmits the DEACTIVATE RB TEST MODE COMPLETE message
31	←	DETACH REQUEST	The SS initiates Detach procedure with the Detach Type IE "re-attach required"
32	→	DETACH ACCEPT	UE sends DETACH ACCEPT message
33			The SS releases the RRC connection.

Specific message contents

Step 10: The request includes an UL TFT filter, Packet Filter#1. Packet Filter#1 is set according to table 11.9.1.4-1

Step 14: The request includes UL TFT filters. If PDP type was set to “IPv4” in step 5 then Packet Filter#2 and Packet Filter#3, according to table 11.9.1.4-1, are included. If PDP type was set to “iIPv6 or “IPv4v6” in step 5 then Packet Filter#2, Packet Filter#3and Packet Filter#4, to table 11.9.1.4-1, are included.

Step 18: UE test loop mode IE is set to UE test loop mode 4 in the CLOSE UE TEST LOOP message, see [10] TS 34.109 clause 6.2.

Step 19: IP packet#N is set according to table 11.9.1.4-2

Step 21: The request includes an UL TFT filter Packet Filter#5 according to table 11.9.1.4-1.

Step 23: IP packet#18 is set according to table 11.9.1.4-5

Step 25: IP packet#19 is set according to table 11.9.1.4-5

Table 11.9.1.4-1: Packet Filter Table

		Packet filter components										
Packet filter ID	**UL TFT**	**Packet filter evaluation precedence**	**Protocol Number (IPv4) / Next Header (IPv6)**	**Remote address and Subnet mask**	**Single Local Port (UE)**	**Local Port Range (UE)**	**Single Remote Port** (NW)	**Remote Port Range (NW)**	**IPSec SPI range**	**Type of Service (IPv4) / Traffic Class (IPv6) and Mask**	**Flow Label (IPv6)**	**Comments**
1	Secondary PDP Context (Step 10)	6	17 (UDP)	IPv4: 172.168.8.0 [255.255.255.0] IPv6: 2001:0ba0:: [ffff:ffff::]	60001	-	-	60350: 60450	-	10101000, Mask= 11111100	-	UDP application identified by remote address, type of service/traffic class and specific local and remote port numbers This is a valid Packet Filter Attribute Combination Type I according to TS 23.060, subclause 15.3.2.0.
2	Secondary PDP Context (Step 14)	7	17 (UDP)	IPv4: 172.168.8.0 [255.255.255.0] IPv6: 2001:0ba0:: [ffff:ffff::]	-	60000: 60100	60350	-	-	10101000, Mask= 11111100	-	UDP application identified by remote address, type of service/traffic class and range of local and remote port numbers. This is a valid Packet Filter Attribute Combination Type I according to TS 23.060, subclause 15.3.2.0.
3	Secondary PDP Context (Step 14)	5	50 IPSec (ESP)	IPv4: 172.168.8.0 [255.255.255.0] IPv6: 2001:0ba0:: [ffff:ffff::]	-	-	-	-	0x0F80F000	10100000, Mask= 11111100	-	IPSec session. Example from TS 23.060 cl 15.3.3.3 This is a valid Packet Filter Attribute Combination Type II according to TS 23.060, subclause 15.3.2.0.
4	Secondary PDP Context (Step 14)	2	-	IPv6: 2001:0ba0:: [ffff:ffff::]	-	-	-	-	-	10110000, Mask= 11111100	5	IPv6 Flow Label filter This is a valid Packet Filter Attribute Combination Type III according to TS 23.060, subclause 15.3.2.0.
5	Primary PDP Context (Step 5)	255		IPv4: 172.168.8.0 [255.255.255.0] IPv6: 2001:0ba0:: [ffff:ffff::]-	-	-	-	-	-	-	-	Application identified by remote address and specific local port number. This is a valid Packet Filter Attribute Combination Type I according to TS 23.060, subclause 15.3.2.0.

Table 11.9.1.4-2: Sub-test test parameters and test requirements

Sub-test Index	Test data (IP packet) Note 1	Expected PDP context for the matching packet filter	Packet Filter Attribute Combination under test	Packet Filter Component under test	Comment
1	IP packet#1	Secondary PDP Context (Step 10)	Type I	All Type I packet filter components match	The IP packet is only matching Packet Filter 1 and 2 in Table 11.9.1.4-1. The IP packet is returned on Secondary PDP Context (Step 10) as Packet Filter 1 is evaluated before Packet Filter 2.
2	IP packet#2	Primary PDP Context (Step 5)	Type I	Remote Address does not match	No packet filter matches. The IP packet is returned on Primary PDP Context
3	IP packet#3	Primary PDP Context (Step 5)	Type I	Protocol identifier/Next header does not match	No packet filter matches. The IP packet is returned on Primary PDP Context
4	IP packet#4	Secondary PDP Context (Step 14)	Type I	Single local port does not match	The IP packet is only matching Packet Filter 2 in Table 11.9.1.4-1. The IP packet is returned on Secondary PDP Context (Step 14).
5	IP packet#5	Primary PDP Context (Step 5)	Type I	Local port range does not match	No packet filter matches. The IP packet is returned on Primary PDP Context
6	IP packet#6	Secondary PDP Context (Step 10)	Type I	Single remote port does not match	IP packet is only matching Packet Filter 1 in Table 11.9.1.4-1. The IP packet is returned on Secondary PDP Context (Step 10).
7	IP packet#7	Primary PDP Context (Step 5)	Type I	Remote port range does not match	No packet filter matches. The IP packet is returned on Primary PDP Context
8	IP packet#8	Primary PDP Context (Step 5)	Type I	Type of service/Traffic class does not match	No packet filter matches. The IP packet is returned on Primary PDP Context
9	IP packet#9	Secondary PDP Context (Step 14)	Type II	All Type II packet filter components match	The IP packet is only matching Packet Filter 3 in Table 11.9.1.4-1. The IP packet is returned on DRB3.
10	IP packet#10	Primary PDP Context (Step 5)	Type II	Remote Address does not match	No packet filter matches. The IP packet is returned on Primary PDP Context
11	IP packet#11	Primary PDP Context (Step 5)	Type II	Protocol identifier/Next header does not match	No packet filter matches. The IP packet is returned on Primary PDP Context
12	IP packet#12	Primary PDP Context (Step 5)	Type II	Security parameter index does not match	No packet filter matches. The IP packet is returned on Primary PDP Context
13	IP packet#13	Primary PDP Context (Step 5)	Type II	Type of service/Traffic class does not match	No packet filter matches. The IP packet is returned on Primary PDP Context
14	IP packet#14	Secondary PDP Context (Step 10)	Type III	All Type III packet filter components match	The IP packet is only matching Packet Filter 4 in Table 11.9.1.4-1. The IP packet is returned on Secondary PDP Context (Step 10).
15	IP packet#15	Primary PDP Context (Step 5)	Type III	Remote Address does not match	No packet filter matches. The IP packet is returned on Primary PDP Context
16	IP packet#16	Primary PDP Context (Step 5)	Type III	Type of service/Traffic class does not match	No packet filter matches. The IP packet is returned on Primary PDP Context
17	IP packet#17	Primary PDP Context (Step 5)	Type III	Flow Label does not match	No packet filter matches. The IP packet is returned on Primary PDP Context
18	IP packet#18	Primary PDP Context (Step 5)	Type I	Remote Address match	IP packet is only matching Packet Filter 5 in Table 11.9.1.4-1
19	IP packet#19	None	Type I	Remote Address does not match	IP packet does not match any Packet Filters

Note 1: IP Packet details are specified in Tables 11.9.1.4-3 to 11.9.1.4-21 Note 2: IP packets for sub-test index 1 to 17 are sent by the SS while no TFT is assigned to the Primary PDP Context. IP packets for sub-test index 18 and 19 are sent by the SS after adding a TFT to the Primary PDP Context.

Table 11.9.1.4-3: IP packet#1 (Table 11.9.1.4-2)

Derivation path: IETF RFC 791 section 3.1 (IPv4) or RFC 2460 section 3 (IPv6) and RFC 769 introduction			
Information Element	**Value/Remark**	**Comment**	**Condition**
Type of service (IPv4) / Traffic Class (IPv6)	10101001	Significant for packet filters 1, 2, 3, and 4. Value matches packet filters 1 and 2. Value does not match packet filters 3 or 4.	
Protocol	17	UDP Significant packet filters 1, 2 and 3. Value matches packet filters 1 and 2. Value does not match packet filter 3.	
Source Address	192.168.0.1	Not significant for any packet filters	IPv4
	fe80::1:1	Not significant for any packet filters	IPv6
Destination Address	172.168.8.1	Significant for packet filters 1, 2 and 3. Value matches packet filters 1, 2 and 3.	IPv4
	2001:0ba0::0001:0001	Significant for packet filters 1, 2, 3 and 4. Value matches packet filters 1, 2, 3 and 4.	IPv6
Source Port	60001	Significant for packet filters 1 and 2. Value matches packet filters 1 and 2.	
Destination Port	60350	Significant for packet filters 1 and 2. Value matches packet filters 1 and 2.	
Flow Label	10	Significant for packet filter 4. Value does not match packet filter 4.	IPv6

Condition	Explanation
IPv4	This condition applies if test variable IP type is set to 'IPv4'.
IPv6	This condition applies if test variable IP type is set to 'IPv6'.

Table 11.9.1.4-4: IP packet#2 (Table 11.9.1.4-2)

Derivation path: IP packet#1, Table 11.9.1.4-3			
Information Element	**Value/Remark**	**Comment**	**Condition**
Destination Address	172.168.9.1	Significant for packet filter 1, 2 and 3. Value does not match packet filters 1, 2 or 3.	IPv4
	2001:0bb0::0001:0001	Significant for packet filter 1, 2, 3 and 4. Value does not match packet filters 1, 2, 3 or 4.	IPv6

Condition	Explanation
IPv4	This condition applies if test variable IP type is set to 'IPv4'.
IPv6	This condition applies if test variable IP type is set to 'IPv6'.

Table 11.9.1.4-5: IP packet#3 (Table 11.9.1.4-2)

Derivation path: IP packet#1, Table 11.9.1.4-3			
Information Element	**Value/Remark**	**Comment**	**Condition**
Protocol	6	TCP Significant packet filters 1, 2 and 3. Value does not match packet filters 1, 2 or 3.	

Table 11.9.1.4-6: IP packet#4 (Table 11.9.1.4-2)

Derivation path: IP packet#1, Table 11.9.1.4-3			
Information Element	**Value/Remark**	**Comment**	**Condition**
Source Port	60002	Significant for packet filters 1 and 2. Value matches packet filter 2. Value does not match packet filter 1.	

Table 11.9.1.4-7: IP packet#5 (Table 11.9.1.4-2)

Derivation path: IP packet#1, Table 11.9.1.4-3			
Information Element	**Value/Remark**	**Comment**	**Condition**
Source Port	60101	Significant for packet filters 1 and 2. Value does not match packet filters 1 or 2.	

Table 11.9.1.4-8: IP packet#6 (Table 11.9.1.4-2)

Derivation path: IP packet#1, Table 11.9.1.4-3			
Information Element	**Value/Remark**	**Comment**	**Condition**
Destination Port	60351	Significant for packet filters 1 and 2. Value matches packet filter 1. Value does not match packet filter 2	

Table 11.9.1.4-9: IP packet#7 (Table 11.9.1.4-2)

Derivation path: IP packet#1, Table 11.9.1.4-3			
Information Element	**Value/Remark**	**Comment**	**Condition**
Destination Port	60451	Significant for packet filters 1 and 2. Value does not match packet filter 1 or 2.	

Table 11.9.1.4-10: IP packet#8 (Table 11.9.1.4-2)

Derivation path: IP packet#1, Table 11.9.1.4-3			
Information Element	**Value/Remark**	**Comment**	**Condition**
Type of service (IPv4) / Traffic Class (IPv6)	11101001	Significant for packet filters 1, 2, 3, and 4. Value does not match packet filters 1, 2, 3 or 4.	

Table 11.9.1.4-11: IP packet#9 (Table 11.9.1.4-2)

Derivation path: IETF RFC 791 section 3.1 (IPv4) or RFC 2460 section 3 (IPv6) and RFC 769 introduction			
Information Element	**Value/Remark**	**Comment**	**Condition**
Type of service (IPv4) / Traffic Class (IPv6)	10100010	Significant for packet filters 1, 2, 3, and 4. Value matches packet filter 3. Value does not match packet filters 1, 2 or 4.	
Protocol	50	IPSec (ESP) Significant packet filters 1, 2 and 3. Value matches packet filter 3. Value does not match packet filters 1 or 2.	
Source Address	192.168.0.1	Not significant for any packet filters	IPv4
	fe80::1:1	Not significant for any packet filters	IPv6
Destination Address	172.168.8.1	Significant for packet filters 1, 2 and 3. Value matches packet filters 1, 2 and 3.	IPv4
	2001:0ba0::0001:0001	Significant for packet filters 1, 2, 3 and 4. Value matches packet filters 1, 2, 3 and 4.	IPv6
Source Port	60101	Significant for packet filters 1 and 2. Value does not match packet filters 1 or 2.	
Destination Port	60451	Significant for packet filters 1 and 2. Value does not match packet filters 1 or 2.	
IP Sec SPI range	0x0F80F0000	Significant for packet filter 3. Value matches packet filter 3.	
Flow Label	10	Significant for packet filter 4. Value does not match packet filter 4.	IPv6

Condition	Explanation
IPv4	This condition applies if test variable IP type is set to 'IPv4'.
IPv6	This condition applies if test variable IP type is set to 'IPv6'.

Table 11.9.1.4-12: IP packet#10 (Table 11.9.1.4-2)

Derivation path: IP packet#9, Table 11.9.1.4-11			
Information Element	**Value/Remark**	**Comment**	**Condition**
Destination Address	172.168.9.1	Significant for packet filter 1, 2 and 3. Value does not match packet filters 1, 2 or 3.	IPv4
	2001:0bb0::0001:0001	Significant for packet filter 1, 2, 3 and 4. Value does not match packet filters 1, 2, 3 or 4.	IPv6

Condition	Explanation
IPv4	This condition applies if test variable IP type is set to 'IPv4'.
IPv6	This condition applies if test variable IP type is set to 'IPv6'.

Table 11.9.1.4-13: IP packet#11 (Table 11.9.1.4-2)

Derivation path: IP packet#9, Table 11.9.1.4-11			
Information Element	**Value/Remark**	**Comment**	**Condition**
Protocol	6	TCP Significant packet filters 1, 2 and 3. Value does not match packet filters 1, 2 or 3.	

Table 11.9.1.4-14: IP packet#12 (Table 11.9.1.4-2)

Derivation path: IP packet#9, Table 11.9.1.4-11			
Information Element	**Value/Remark**	**Comment**	**Condition**
IP Sec SPI range	0x0F90F0000	Significant for packet filter 3. Value does not match packet filter 3.	

Table 11.9.1.4-15: IP packet#13 (Table 11.9.1.4-2)

Derivation path: IP packet#9, Table 11.9.1.4-11			
Information Element	**Value/Remark**	**Comment**	**Condition**
Type of service (IPv4) / Traffic Class (IPv6)	11101001	Significant for packet filters 1, 2, 3 and 4. Value does not match packet filters 1, 2, 3 or 4.	

Table 11.9.1.4-16: IP packet#14 (Table 11.9.1.4-2)

Derivation path: RFC 2460 section 3 (IPv6) and RFC 769 introduction			
Information Element	**Value/Remark**	**Comment**	**Condition**
Type of service (IPv4) / Traffic Class (IPv6)	10110011	Significant for packet filters 1, 2, 3, and 4. Value matches packet filter 4. Value does not match packet filters 1, 2 or 3.	
Protocol	6	TCP Significant packet filters 1, 2 and 3. Value does not match packet filters 1, 2 or 3.	
Source Address	fe80::1:1	IPv6 Not significant for any packet filters	
Destination Address	2001:0ba0::0001:0001	IPv6 Significant for packet filters 1, 2, 3 and 4. Value matches packet filters 1, 2, 3 and 4.	
Source Port	60101	Significant for packet filters 1 and 2. Value does not match packet filters 1 or 2.	
Destination Port	60451	Significant for packet filters 1 and 2. Value does not match packet filters 1 or 2.	
Flow Label	5	IPv6 Significant for packet filter 4. Value matches packet filter 4.	

Table 11.9.1.4-17: IP packet#15 (Table 11.9.1.4-2)

Derivation path: IP packet#14, Table 11.9.1.4-16			
Information Element	**Value/Remark**	**Comment**	**Condition**
Destination Address	2001:0bb0::0001:0001	IPv6 Significant for packet filter 1, 2, 3 and 4. Value does not match packet filters 1, 2, 3 or 4.	

Table 11.9.1.4-18: IP packet#16 (Table 11.9.1.4-2)

Derivation path: IP packet#14, Table 11.9.1.4-16			
Information Element	**Value/Remark**	**Comment**	**Condition**
Type of service (IPv4) / Traffic Class (IPv6)	11101001	Significant for packet filters 1, 2, 3 and 4. Value does not match packet filters 1, 2, 3 or 4.	

Table 11.9.1.4-19: IP packet#17 (Table 11.9.1.4-2)

Derivation path: IP packet#14, Table 11.9.1.4-16			
Information Element	**Value/Remark**	**Comment**	**Condition**
Flow Label	10	IPv6 Significant for packet filter 4. Value does not match packet filter 4.	

Table 11.9.1.4-20: IP packet#18 (Table 11.9.1.4-2)

Derivation path: IETF RFC 791 section 3.1 (IPv4) or RFC 2460 section 3 (IPv6) and RFC 769 introduction			
Information Element	**Value/Remark**	**Comment**	**Condition**
Type of service (IPv4) / Traffic Class (IPv6)	10101010	Significant for packet filters 1, 2, 3, and 4. Value matches packet filter 1 and 2. Value does not match packet filters 3 or 4.	
Protocol	6	TCP Significant packet filters 1, 2 and 3 .Value does not match packet filters 1, 2 or 3.	
Source Address	192.168.0.1	Not significant for any packet filters	IPv4
	fe80::1:1	Not significant for any packet filters	IPv6
Destination Address	172.168.8.1	Significant for packet filters 1, 2, 3 and 5. Value matches packet filters 1, 2, 3 and 5.	IPv4
	2001:0ba0::0001:0001	Significant for packet filters 1, 2, 3, 4 and 5. Value matches packet filters 1, 2, 3, 4 and 5.	IPv6
Source Port	60101	Significant for packet filters 1 and 2. Value does not match packet filters 1 or 2.	
Destination Port	60451	Significant for packet filters 1 and 2. Value does not match packet filters 1 or 2.	
Flow Label	10	Significant for packet filter 4. Value does not match packet filter 4.	IPv6

Condition	Explanation
IPv4	This condition applies if test variable IP type is set to 'IPv4'.
IPv6	This condition applies if test variable IP type is set to 'IPv6'.

Table 11.9.1.4-21: IP packet#19 (Table 11.9.1.4-2)

Derivation path: IP packet#18, Table 11.9.1.4-20			
Information Element	**Value/Remark**	**Comment**	**Condition**
Destinaton Address	172.168.9.1	Significant for packet filters 1, 2, 3 and 5. Value does not match packet filters 1, 2, 3 and 5.	IPv4
	2001:0ba1::0001:0001	Significant for packet filters 1, 2, 3, 4 and 5. Value does not match packet filters 1, 2, 3, 4 and 5.	IPv6

11.9.1.5 Test requirements

To pass the test the UE shall:

- at step 20 transmit an IP PDU containing IP Packet#N on the radio bearer associated with the PDP context as specified by Table 11.9.1.4-2 for Sub-test index=N.
- at step 22 send a MODIFY PDP CONTEXT ACCEPT message.
- at step 24 transmit an IP PDU containing IP Packet#18 on the radio bearer associated with the PDP context as specified by Table 11.9.1.4-2 for Sub-test index=18.
- at step 26 not transmit any IP PDU

12 Elementary procedure for Packet Switched Mobility Management

12.1 Applicability, default conditions and default messages

All test cases for PS mobility management apply for all PS mobiles unless otherwise stated in a specific test. Within each test case, the ICS statement indicates whether the test shall be performed for mobiles that can only operate in mode - class A, only in mode - class C , or in both mode - class A and C. For some procedures, the mobile class is of no importance.

Note that only the layer 3 messages are described in the document. The mapping of the layer 3 messages to lower layers and the use of logical channels is not described in the present document.

The terms 'PS/CS mode of operation' and 'PS mode of operation' are not used in the present document with some exceptions. Instead the terms 'UE operation mode A' and 'UE operation mode C' are used.

If UE supports mode A and C; the operation mode change from C to A during the test and the resulting signalling caused by the mode change, are out of test scope and up to implementation.

The default conditions and default message contents not specified in this clause must be set as in "PS default conditions"

Below is a list of the RAI values and the corresponding RAC, LAC and MCC used in the test cases:

RAI-1: MCC1/MNC1/LAC1/RAC1 (Used if only one cell)

RAI-2: MCC2/MNC1/LAC1/RAC1

RAI-3: MCC1/MNC1/LAC2/RAC1

RAI-4: MCC1/MNC1/LAC1/RAC2

RAI-5: MCC1/MNC1/LAC1/RAC3

RAI-6: MCC2/MNC1/LAC2/RAC1

RAI-7: MCC2/MNC1/LAC1/RAC2

RAI-8: MCC1/MNC2/LAC1/RAC1

RAI-9: MCC1/MNC2/LAC2/RAC1

RAI10: MCC1/MNC2/LAC1/RAC2

RAI-11: MCC1/MNC3/LAC1/RAC1

RAI-12: MCC1/MNC1/LAC2/RAC2

If the User Equipment initial condition specifies that the mobile has a valid IMSI but the initial condition does not mention P-TMSI, than that shall be interpreted as that the mobile has no valid P-TMSI.

The tests are based on 3GPP TS 24.008.

NOTE: A Rel-8 UE supporting E-UTRA and CS voice emergency call may send 'signallingConnectionReleaseIndication' upon receipt of an ATTACH REJECT or a ROUTING AREA UPDATE REJECT message with one of the following causes: 'Illegal MS (cause #3)', 'GPRS service not allowed (cause #7)' or 'GPRS services and non-GPRS services not allowed (cause #8)'.

12.2 PS attach procedure

This procedure is used to indicate for the network that the IMSI is available for traffic by establishment of a GMM context.

12.2.1 Normal PS attach

The normal PS attach procedure is a GMM procedure used by PS UEs of UE operation mode A or C to IMSI attach for PS services only.

12.2.1.1 PS attach / accepted

12.2.1.1.1 Definition

12.2.1.1.2 Conformance requirement

1) If the network accepts the PS attach procedure (signalled by an IMSI) and allocates a P-TMSI, the UE shall acknowledge the P-TMSI and continue communication with the P-TMSI.

2) If the network accepts the PS attach procedure (signalled by P-TMSI) and reallocates a new P-TMSI, the UE shall acknowledge the new P-TMSI and continue communication with the new P-TMSI.

3) If the network accepts the PS attach procedure (signalled by a P-TMSI) from the UE without reallocation of the old P-TMSI, the UE shall continue communication with the old P-TMSI.

Reference

3GPP TS 24.008 clause 4.7.3.1

12.2.1.1.3 Test purpose

To test the behaviour of the UE if the network accepts the PS attach procedure.

The following cases are identified:

1) P-TMSI / P-TMSI signature is allocated;

2) P-TMSI / P-TMSI signature is reallocated;

3) Old P-TMSI / P-TMSI signature is not changed.

12.2.1.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A).

User Equipment:

The UE has a valid IMSI.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

1) The UE sends an ATTACH REQUEST message with identity IMSI. The SS allocates a P-TMSI and returns ATTACH ACCEPT message with a P-TMSI. The UE acknowledge the P-TMSI by sending ATTACH COMPLETE message. Further communication UE - SS is performed by the new P-TMSI.

2) The UE sends an ATTACH REQUEST message with identity P-TMSI. The SS reallocates a new P-TMSI and returns ATTACH ACCEPT message with the new P-TMSI. The UE acknowledge the P-TMSI by sending ATTACH COMPLETE message. Further communication UE - SS is performed by the new P-TMSI. The UE will not answer signalling addressed to the old P-TMSI.

3) The UE sends an ATTACH REQUEST message with identity P-TMSI. The SS accepts the P-TMSI and returns ATTACH ACCEPT message without any P-TMSI. Further communication UE - SS is performed by the old P-TMSI.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set to attach to the PS services only (see ICS). If this is not supported by the UE, goto step 26.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
6	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services. Paging cause: Terminating interactive call
6a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
7	->		SERVICE REQUEST	Service type = "paging response"
7a	SS			The SS starts integrity protection and releases the RRC connection.
8	UE			The UE is switched off or power is removed (see ICS).
8a	SS			SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to **"**Detach" (message not sent if power is removed).
9	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS detach'
9a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
10	UE			The UE is powered up or switched on and initiates an attach (see ICS).
10a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
11	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-2 Old Routing area identity = RAI-1
11a	<-		AUTHENTICATION AND CIPHERING REQUEST	
11b	->		AUTHENTICATION AND CIPHERING RESPONSE	
11c	SS			The SS starts integrity protection.
12	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
13	->		ATTACH COMPLETE	
14			Void	

Step	Direction		Message	Comments
	UE	SS		
14b			Void	
14c	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
14d		SS		SS verifies that the UE transmits an RRC CONNECTION REQUEST message. SS will reject this request. The IE "Establishment cause" is not checked.
15	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
16	UE			No response from the UE to the request. This is checked for 10 seconds.
17	UE			The UE is switched off or power is removed (see ICS).
17a		SS		SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach" (message not sent if power is removed).
18	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS detach'
18a		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
19	UE			The UE is powered up or switched on and initiates an attach (see ICS).
19a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
20	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
20a	<-		AUTHENTICATION AND CIPHERING REQUEST	
20b	->		AUTHENTICATION AND CIPHERING RESPONSE	
20c		SS		The SS starts integrity protection.
21	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = 'GPRS only attached'
22	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services. Paging cause: Terminating interactive call
22a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
22b			Void	
22c			Void	
23	->		SERVICE REQUEST	Service type = "paging response"
23aa		SS		The SS starts integrity protection and releases the RRC connection.
23a			Void	
23b			Void	
24	UE			The UE is switched off or power is removed (see ICS).
24a		SS		SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach" (message not sent if power is removed).
25	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS detach'

Step	Direction		Message	Comments
	UE	SS		
25a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
26	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 25a.

Specific message contents

None.

12.2.1.1.5 Test requirements

At step 2a, 10a and 19a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 6a and 22a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Terminating Interactive Call".

At step 8a, 17a and 24a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step3, 11 and 20, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

UE shall perform the following actions depending on the Mobile identity in the ATTACH REQUEST message and on the Mobile identity in the ATTACH ACCEPT message.

Case 1) The Mobile identity in the ATTACH REQUEST message is the IMSI and the Mobile identity in the ATTACH ACCEPT message is the P-TMSI.

At step5, UE shall:

- acknowledge the P-TMSI by sending the ATTACH COMPLETE message.

Case 2) The Mobile identity in the ATTACH REQUEST message is the P-TMSI and the Mobile identity in the ATTACH ACCEPT message is the new P-TMSI.

At step13, UE shall:

- acknowledge the new P-TMSI by sending the ATTACH COMPLETE message.

At step23, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.2.1.2 PS attach / rejected / IMSI invalid / illegal UE

12.2.1.2.1 Definition

12.2.1.2.2 Conformance requirement

1) If the network rejects a PS attach procedure from the User Equipment with the cause 'Illegal MS, the User Equipment shall consider USIM invalid for PS services until power is switched off or USIM is removed.

2) If the network rejects a PS attach procedure from the User Equipment with the cause 'Illegal MS the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

3) If the network rejects a PS attach procedure from the User Equipment with the cause 'Illegal MS, the User Equipment shall delete the LAI.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.2.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'illegal MS.

12.2.1.2.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A with MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in

MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2).

All three cells are operating in network operation mode II (in case of UE operation mode A).

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE in all cells.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Illegal MS'. The SS checks that the UE does not perform PS attach in the same or another PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS).
				The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE) in all cells.
2	SS			The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a			Void	
4	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
5	<-		ATTACH REJECT	GMM cause = 'Illegal MS'.
				The following messages are sent and shall be received on cell B.
6	SS			Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
9	UE			The UE initiates an attach by MMI or by AT command.
10	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
				The following messages are sent and shall be received on cell C.
11	SS			Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
12	UE			Cell C is preferred by the UE.
13	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
14	UE			The UE initiates an attach by MMI or by AT command.
15	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
16	UE			If possible (see ICS) switch off is performed. Otherwise the power is removed.
17	UE			The UE is powered up or switched on.
18	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. SS allocates Mobile identity = TMSI-1.
19	UE			The UE initiates an attach (see ICS).
20	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
20a	<-		AUTHENTICATION AND CIPHERING REQUEST	
20b	->		AUTHENTICATION AND CIPHERING RESPONSE	
20c	SS			The SS starts integrity protection.

21	<-	ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-2
22	->	ATTACH COMPLETE	
NOTE:	The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.		

Specific message contents

None.

12.2.1.2.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, 10, 13 and 15, UE shall:

- not send the ATTACH REQUEST message to SS, even if there is an instruction of attach request from MMI or from AT command.

At step20, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

12.2.1.3 PS attach / rejected / IMSI invalid / PS services not allowed

12.2.1.3.1 Definition

12.2.1.3.2 Conformance requirement

1) If the network rejects a PS attach procedure from the User Equipment with the cause 'GPRS services not allowed', the User Equipment shall consider USIM invalid for PS services until power is switched off or USIM is removed.

2) If the network rejects a PS attach procedure from the User Equipment with the cause 'GPRS services not allowed' the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.3.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'GPRS services not allowed' (no valid PS-subscription for the IMSI).

12.2.1.3.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (HPLMN, RAI-1) and cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2).
Both cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE) in both cells.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No

USIM removal possible without powering down Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a normal attach with the cause value 'GPRS services not allowed'. The SS checks that the UE does not perform PS attach in another PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 17.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
5	<-		ATTACH REJECT	GMM cause = 'GPRS services not allowed'
5a		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
7a	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
8	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
9	UE			If possible (see ICS) USIM removal is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
10	UE			The UE gets the USIM replaced, is powered up or switched on and initiates an attach (see ICS).
10a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
11	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
11a	<-		AUTHENTICATION AND CIPHERING REQUEST	
11b	->		AUTHENTICATION AND CIPHERING RESPONSE	
11c		SS		The SS starts integrity protection.
12	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-2
13	->		ATTACH COMPLETE	
14	UE			The UE is switched off or power is removed (see ICS).
15	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS detach'
15a		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .

16			Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
17	UE		The UE is set in UE operation mode A(see ICS) and the test is repeated from step 3 to step 15.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.			

Specific message contents

None.

12.2.1.3.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step8, UE shall:

- not perform a PS attach procedure.

At step11, after the UE is switched on or a USIM is replaced, UE shall:

- perform the PS attach procedure.

12.2.1.4 PS attach / rejected / PLMN not allowed

12.2.1.4.1 Definition

12.2.1.4.2 Conformance requirement

1) If the network rejects a PS attach procedure from the User Equipment with the cause 'PLMN not allowed' the User Equipment shall:

   1.1 not perform PS attach when switched on in the same routing area or location area (except for the HPLMN).

   1.2 not perform PS attach when in the same PLMN and when that PLMN is not selected manually.

   1.3 delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

   1.4 store the PLMN in the 'forbidden PLMN' list.

2) If the network rejects a PS attach procedure from the User Equipment with the cause 'PLMN not allowed' the User Equipment shall perform PS attach when a new PLMN is entered.

3) If the network rejects a PS attach procedure from the User Equipment with the cause 'PLMN not allowed' and if after that the PLMN from which this rejection was received, is manually selected, the User Equipment shall perform a PS attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.4.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'PLMN not allowed'.

12.2.1.4.4 Method of test

Proc 1: Test procedure 1

Initial condition

System Simulator:

Four cells (not simultaneously activated), cell A in MCC1/MNC2/LAC1/RAC1 (RAI-8), cell B in MCC1/MNC2/LAC1/RAC1 (RAI-8), cell C in MCC1/MNC2/LAC2/RAC1 (RAI-9) and cell D in MCC2/MNC1/LAC1/RAC1 (RAI-2).
All four cells are operating in network operation mode II (in case of UE operation mode A). The PLMN of the four cells should NOT be that of the UE Home PLMN.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE) in all cells.

NB: i) Cell D will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-8. UE is Idle Updated on cell A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'PLMN not allowed'. The SS checks that the UE does not perform PS attach if activated in the same routing area or location area and performs PS attach only when a new PLMN is entered.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
	SS			The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS).
2	SS			The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". Set the cell type of cell D to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a			Void	
4	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-8
5	<-		ATTACH REJECT	GMM cause = 'PLMN not allowed'
5a				The SS releases the RRC Connection.
6	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
				The following messages are sent and shall be received on cell B.
7	UE			The UE is switched off.
8	SS			Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
9	UE			The UE is powered up or switched on.
10	UE			Cell B is preferred by the UE.
11	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
				The following messages are sent and shall be received on cell C.
12	SS			Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
13	UE			Cell C is preferred by the UE.
14	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
				The following messages are sent and shall be received on cell D.
15	SS			Set the cell type of cell C to the "Non-Suitable cell". Set the cell type of cell D to the "Serving cell". (see note)
16	UE			Cell D is preferred by the UE.
17	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
18	UE			The UE initiates an attach automatically, by MMI or by AT command.
19	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
19a	<-		AUTHENTICATION AND CIPHERING REQUEST	
19b	->		AUTHENTICATION AND CIPHERING RESPONSE	
19c	SS			The SS starts integrity protection.

20	<-	ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-2
21	->	ATTACH COMPLETE	
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.			

Proc 2: Test procedure 2

Initial condition

System Simulator:

One cell operating in network operation mode II: MCC2/MNC1/LAC1/RAC1 (RAI-2). The PLMN of the cell should NOT be that of the Mobile Station Home PLMN.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE).

User Equipment:

The UE has a valid P-TMSI-1 and RAI-2. UE is Idle Updated on cell A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'PLMN not allowed'. The subscribers access rights is changed to allow PS attach. Then the PLMN from which this rejection was received is manually selected and the SS check that a PS attach is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode C or A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a			Void	
3	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-2
4	<-		ATTACH REJECT	GMM cause = 'PLMN not allowed'
4a				The SS releases the RRC Connection.
5	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds)
6	UE			The current PLMN is selected manually.
7			Void	
8	UE			The UE initiates a PS attach. If UE does not attach automatically, then UE initiates the attach procedure by MMI or AT command.
9	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
9a	<-		AUTHENTICATION AND CIPHERING REQUEST	
9b	->		AUTHENTICATION AND CIPHERING RESPONSE	
9c	SS			The SS starts integrity protection.
10	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-2
11	->		ATTACH COMPLETE	

Specific message contents

None.

12.2.1.4.5 Test requirements

Test requirements for test procedure 1

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, UE shall:

- not perform PS attach procedure.

UE shall perform the following actions depending on the PLMN or the routing area or the location area

Case 1) UE is in the same routing area or location area when the power is switched on,

At step11, UE shall:

- not perform PS attach procedure.

Case2) UE is in the same PLMN, and this PLMN is not selected manually

At step14, UE shall:

- not perform PS attach procedure.

Case3) UE is in a new PLMN.

At step19, UE shall:

- perform the PS attach procedure.

Test requirements for test procedure 2

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step5, UE shall:

- not perform PS attach procedure.

At step9, when the UE is in the new PLMN, and this PLMN is selected manually, UE shall

- perform the PS attach procedure.

12.2.1.5a PS attach / rejected / roaming not allowed in this location area

12.2.1.5a.1 Definition

12.2.1.5a.2 Conformance requirement

1) If the network rejects a PS attach procedure from the User Equipment with the cause 'roaming not allowed in this location area' the User Equipment shall:

   1.1 not perform PS attach when in the same location area.

   1.2 delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

   1.3 store the LA in the 'forbidden location areas for roaming' list.

   1.4 perform PS attach when a new location area is entered.

   1.5 Periodically search for its HPLMN.

2) The User Equipment shall reset the list of 'Forbidden location areas for roaming' when switched off or when the USIM is removed.

3) The UE shall be capable of storing at least 10 entries in the list of 'Forbidden location areas for roaming'.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.5a.3 Test purpose

Test purpose 1

To test that on receipt of a rejection using the 'roaming not allowed in this location area' cause code, the UE ceases trying to attach on that location area. Successful PS attach procedure is possible in other location areas.

Test purpose 2

To test that if the UE is switched off or the USIM is removed the list of 'forbidden location areas for roaming' is cleared.

Test purpose 3

To test that at least 6 entries can be held in the list of 'forbidden location areas for roaming' (the requirement in 3GPP TS 24.008 is to store at least 10 entries. This is not fully tested by the third procedure).

Test purpose 4

To test that if a cell of the Home PLMN is available then the UE returns to it in preference to any other available cell.

12.2.1.5a.4 Method of test

Proc 1: Test procedure 1

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN), cell B in

MCC2/MNC1/LAC2/RAC1 (RAI-6, Not HPLMN) and cell C in MCC2/MNC1/LAC1/RAC2 (RAI-7, Not HPLMN).

All three cells are operating in network operation mode II.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE) in all cells.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-2.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Roaming not allowed in this location area'. A new attempt for a PS attach is not possible. Successful PS attach / detach procedures are performed in another location area. A new attempt for a PS attach is performed in the 1st location area. This attempt shall not succeed, as the LA is on the forbidden list.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 19.
2		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a			Void	
3b		SS		SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Registration”.
4		->	ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-2
5		<-	ATTACH REJECT	GMM cause = 'Roaming not allowed in this location area'
6	UE			The SS releases the RRC connection.
6a		SS		No ATTACH REQUEST sent to SS (SS waits 30 seconds).
		SS		The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
8	UE			Cell B is preferred by the UE.
9	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. SS checks Mobile identity = IMSI SS allocates Mobile identity = TMSI-1.
10	UE			The UE initiates an attach automatically, by MMI or by AT command.
10a		SS		SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Registration”.
11		->	ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
11a		<-	AUTHENTICATION AND CIPHERING REQUEST	
11b		->	AUTHENTICATION AND CIPHERING RESPONSE	
11c		SS		The SS starts integrity protection.
12		<-	ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-6
13		->	ATTACH COMPLETE	
13a		SS		The SS releases the RRC connection.
14	UE			The UE initiates a PS detach (without power off) by MMI or by AT command .
14a		SS		SS checks that the IE “Establishment cause” in any received RRC CONNECTION REQUEST message is set to “Detach”.
15		->	DETACH REQUEST	Detach type = 'normal detach, GPRS detach'
16		<-	DETACH ACCEPT	
16a		SS		The SS releases the RRC connection.

17	SS		The following messages are sent and shall be received on cell C. Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
18	UE		Cell C is preferred by the UE.
19	UE		No ATTACH REQUEST sent to SS (SS waits 30 seconds). The UE is switched off or power is removed (see ICS)
20	UE		UE is switched off.
21	SS		Set the cell type of cell C to the "Non-Suitable cell". (see note)
22	UE		The UE is set in UE operation mode A if supported (see ICS) and the test is repeated from step 2 to step 20.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.			

Proc 2: Test procedure 2

Initial condition

System Simulator:

One cell in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN) operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE).

User Equipment:

The UE has a valid P-TMSI-1 and RAI-2.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach updating with the cause value 'Roaming not allowed in this location area'. The UE is switched off for 10 s and switched on again. The SS check that a PS attach is possible on the cell on which the PS attach had been rejected.

If USIM removal is possible without switching off: The SS rejects a PS attach with the cause value 'Roaming not allowed in this location area'. The USIM is removed and inserted in the UE. The SS check that a PS attach is possible on the cell on which the PS attach had been rejected.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			If UE operation mode C is supported, the UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, the UE is set in UE operation mode A.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a			Void	
2b	SS			SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Registration”.
3	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-2
4	<-		ATTACH REJECT	GMM cause = 'Roaming not allowed in this location area'
5	UE			The SS releases the RRC connection.
5a	SS			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
6	UE			If possible (see ICS) switch off is performed. Otherwise the power is removed.
7	UE			The UE is powered up or switched on and initiates an attach (see ICS).
8				
8a	SS			SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Registration”.
8b	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. SS allocates Mobile identity = TMSI-1.
9	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
9a	<-		AUTHENTICATION AND CIPHERING REQUEST	
9b	->		AUTHENTICATION AND CIPHERING RESPONSE	
9c	SS			The SS starts integrity protection.
10	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-2
11	->		ATTACH COMPLETE	
11a	SS			The SS releases the RRC connection.

Proc 3: Test procedure 3

Initial condition

System Simulator:

Six cells (not simultaneously activated), cell A in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN), cell B in MCC2/MNC1/LAC2/RAC1 (RAI-3, Not HPLMN), cell C in MCC2/MNC1/LAC3/RAC1 (Not HPLMN), cell D in MCC2/MNC1/LAC4/RAC1 (Not HPLMN), cell E in MCC2/MNC1/LAC5/RAC1 (Not HPLMN), cell F in MCC2/MNC1/LAC6/RAC1 (Not HPLMN).
All six cells are operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE) in all cells.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-2.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Roaming not allowed in this location area'. This is done for 6 different location areas. Then the SS checks that the UE does not attempt to perform an attach procedure on the non-allowed location areas.

Different types of UE may use different methods to periodically clear the list of forbidden areas (e.g. every day at 12am) for roaming. If the list is cleared while the test is being run, it may be necessary to re-run the test.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". Set the cell type of cell D to the "Non-Suitable cell". Set the cell type of cell E to the "Non-Suitable cell". Set the cell type of cell F to the "Non-Suitable cell". (see note)
2	UE			If UE operation mode C is supported, the UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, the UE is set in UE operation mode A.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a			Void	
3b		SS		SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Registration”.
4		->	ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-2
5		<-	ATTACH REJECT	GMM cause = 'Roaming not allowed in this location area'
6	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds)
6a		SS		The SS releases the RRC connection.
		SS		The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
8	UE			Cell B is preferred by the UE.
9	UE		Registration on CS	See TS 34.108 This is applied only in case of UE operation mode A. Parameter mobile identity is IMSI.
10	UE			The UE initiates an attach automatically, by MMI or by AT command.
10a		SS		SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Registration”.
11		->	ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
12		<-	ATTACH REJECT	GMM cause = 'Roaming not allowed in this location area'
13	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
13a		SS		The SS releases the RRC connection.
		SS		The following messages are sent and shall be received on cell C.
14		SS		Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
15	UE			Cell C is preferred by the UE.

Step	Direction		Message	Comments
	UE	SS		
16	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is IMSI.
17	UE			The UE initiates an attach automatically, by MMI or by AT command.
17a	SS			SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Registration”.
18	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
19	<-		ATTACH REJECT	GMM cause = 'Roaming not allowed in this location area'
20	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
				The following messages are sent and shall be received on cell D.
21a	SS			The SS releases the RRC connection.
21	SS			Set the cell type of cell C to the "Non-Suitable cell". Set the cell type of cell D to the "Serving cell". (see note)
22	UE			Cell D is preferred by the UE.
23	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is IMSI.
24	UE			The UE initiates an attach automatically, by MMI or by AT command.
24a	SS			SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Registration”.
25	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
26	<-		ATTACH REJECT	GMM cause = 'Roaming not allowed in this location area'
27	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
27a	SS			SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Registration”.
				The following messages are sent and shall be received on cell E.
28	SS			Set the cell type of cell D to the "Non-Suitable cell". Set the cell type of cell E to the "Serving cell". (see note)
29	UE			Cell E is preferred by the UE.
30	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is IMSI.
31	UE			The UE initiates an attach automatically, by MMI or by AT command.
31a	SS			SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Registration”.
32	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
33	<-		ATTACH REJECT	GMM cause = 'Roaming not allowed in this location area'
34	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
34a	SS			The SS releases the RRC connection.
				The following messages are sent and shall be received on cell F.

Step	Direction		Message	Comments
	UE	SS		
35		SS		Set the cell type of cell E to the "Non-Suitable cell". Set the cell type of cell F to the "Serving cell". (see note)
36	UE			Cell F is preferred by the UE.
37	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
38	UE			The UE initiates an attach automatically, by MMI or by AT command.
38a		SS		SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Registration”.
39	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
40	<-		ATTACH REJECT	GMM cause = 'Roaming not allowed in this location area'
41	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds)
41a		SS		The SS releases the RRC connection.
42		SS		The following messages are sent and shall be received on cell E. Set the cell type of cell E to the "Serving cell". Set the cell type of cell F to the "Non-Suitable cell". (see note)
43		SS		Cell E is preferred by the UE.
44	UE			The UE initiates an attach automatically, by MMI or by AT command.
45	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
46		SS		The following messages are sent and shall be received on cell C. Set the cell type of cell C to the "Serving cell". Set the cell type of cell E to the "Non-Suitable cell". (see note)
47		SS		Cell C is preferred by the UE.
48	UE			The UE initiates an attach automatically, by MMI or by AT command.
49	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
50		SS		The following messages are sent and shall be received on cell A. Set the cell type of cell A to the "Serving cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
51		SS		Cell A will be preferred by the UE.
52	UE			The UE initiates an attach automatically, by MMI or by AT command.
53	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Proc 4: Test procedure4

Initial condition

System Simulator:

Two cells, cell A in MCC2/MNC1/LAC1/RAC1 (not HPLMN, RAI-2) and cell B in MCC1/MNC1/LAC1/RAC1 (HPLMN, RAI-1).

Both cells are operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE) in both cells.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-2.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Roaming not allowed in this location area'. A second cell belonging to the HPLMN is activated. It is checked that the UE returns to its HPLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			If UE operation mode C is supported, the UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, the UE is set in UE operation mode A.
2		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a			Void	
3b		SS		SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Registration”.
4	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-2
5	<-		ATTACH REJECT	GMM cause = 'Roaming not allowed in this location area'
6	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
6a		SS		The SS releases the RRC connection.
		SS		The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
8	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is IMSI.
9	UE			The UE initiates an attach automatically, by MMI or by AT command.
9a		SS		SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Registration”.
10	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
10a	<-		AUTHENTICATION AND CIPHERING REQUEST	
10b	->		AUTHENTICATION AND CIPHERING RESPONSE	
10c		SS		The SS starts integrity protection.
11	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
12	->		ATTACH COMPLETE	
12a	->			The SS releases the RRC connection.
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.2.1.5a.5 Test requirements

Test requirements for Test procedure1

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, when the UE receives the ATTACH REJECT message with GMM cause = 'Roaming not allowed in this location area', UE shall:

- not perform the PS attach procedure.

At step11, when the new location area is entered, UE shall:

- perform the PS attach procedure

At step19, when the rejected location area is entered, UE shall

- not perform PS attach procedure.

Test requirements for Test procedure2

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step5, after the UE receives the ATTACH REJECT message with GMM cause = 'Roaming not allowed in this location area', UE shall:

- not perform PS attach procedure.

At step9, when the UE is switched on or USIM is replaced, UE shall:

- perform the PS attach procedure.

Test requirements for Test procedure3

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, 13, 20, 27, 34 and 41, after the UE receives the ATTACH REJECT message with GMM cause = 'Roaming not allowed in this location area', UE shall:

- not perform PS attach procedure.

At step11, 18, 25, 32 and 39 , UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step45, 49 and 53, UE shall:

- not perform PS attach procedure.

Test requirements for Test procedure4

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, when the UE receives the ATTACH REJECT message with GMM cause = 'Roaming not allowed in this location area', UE shall:

- not perform PS attach procedure.

At step10, when a new location area is entered, UE shall:

- perform the PS attach procedure.

12.2.1.5b PS attach / rejected / No Suitable Cells In Location Area

12.2.1.5b.1 Definition

12.2.1.5b.2 Conformance requirement

(1) If the network rejects a PS attach procedure from the User Equipment with the cause 'No Suitable Cells In Location Area', the User Equipment shall:

1.1 not perform PS attach when in the same location area.

1.2 delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

1.3 store the LA in the 'forbidden location areas for roaming' list.

1.4 not delete the list of "equivalent PLMNs".

1.5 perform PS attach when a new location area is entered.

Reference

3GPP TS 24.008 clauses 4.7.3.1.

12.2.1.5b.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'No Suitable Cells In Location Area'.

12.2.1.5b.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6)

All three cells are operating in network operation mode II.

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE) in all cells.

Sintrasearch and Sintersearch values for cells A, B and C are 20 dB.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service	Yes/No
UE operation mode A	Yes/No

Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall search for a suitable cell in a different location area on the equivalent PLMN and shall perform PS attach procedure in that cell.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode A (see ICS).
2		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-suitable cell". Set the cell type of cell C to the "Non-suitable cell". (see note)
3			Void	
3a		SS		SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Registration”.
4	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Routing area identity = RAI-1 Equivalent PLMNs = MCC2,MNC1
6	<-		DETACH REQUEST	Detach type = re-attach required
7	->		DETACH ACCEPT	
8		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note) The SS configures power level of each Cell as follows. Cell A > Cell B = Cell C
9			Void	
10	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
11	<-		ATTACH REJECT	GMM cause = 'No Suitable Cells In Location Area'
12		SS		The SS initiates the RRC connection release. The following message are sent and shall be received on cell C.
13	UE		Registration on CS	See TS 34.108
14	UE			The UE initiates an attach automatically, by MMI or by AT command.
14a				SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Registration”.
15	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
16	<-		AUTHENTICATION AND CIPHERING REQUEST	
17	->		AUTHENTICATION AND CIPHERING RESPONSE	
18		SS		The SS starts integrity protection.
19	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-6 Equivalent PLMNs = MCC1,MNC1
20	->		ATTACH COMPLETE	

20a	SS		The SS releases the RRC connection.
NOTE:	The definitions for "Suitable neighbour cell", "Non-suitable cell" and "Serving cell" are specified in TS 34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.		

Specific message contents

None.

12.2.1.5b.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step15, when the UE enters a suitable cell in a different location area on the equivalent PLMN, UE shall:

- perform the PS attach procedure.

12.2.1.5c PS attach / rejected / Location area not allowed

12.2.1.5c.1 Definition

12.2.1.5c.2 Conformance requirement

1) If the network rejects a PS attach procedure from the User Equipment with the cause 'Location area not allowed' the User Equipment shall:

   1.1 delete any RAI, P-TMSI, P-TMSI signature and PS ciphering key sequence number.

   1.2 set the PS update status to GU3 ROAMING NOT ALLOWED.

   1.3 reset the attach attempt counter.

   1.4 store the LAI in the list of "forbidden location areas for regional provision of service".

   1.1 perform a cell selection.

   1.2 not delete the list of "equivalent PLMNs".

2) If the network rejects a PS attach procedure from the User Equipment with the cause 'Location area not allowed' and if the User Equipment is IMSI attached via MM procedures the User Equipment shall:

   2.1 set the update status to U3 ROAMING NOT ALLOWED.

   2.2 delete any TMSI, LAI and ciphering key sequence number.

   2.3 reset the location update attempt counter.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.5c.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'Location area not allowed'.

12.2.1.5c.4 Method of test

Initial condition

System Simulator:

Three cells cell A with MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6).
All three cells are operating in network operation mode II (in case of UE operation mode A).

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

Sintrasearch and Sintersearch values for cells A, B and C are 20 dB.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1, RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Location area not allowed'. The SS checks that the UE does not perform MM IMSI attach while in the same location area and performs PS attach when a new equivalent PLMN is entered.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			If UE operation mode A is supported, If UE operation mode C is supported, the UE is set in UE operation mode A (see ICS). If UE operation mode A is not supported, the UE is set in UE operation mode C.
2		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the " Non-suitable cell ". Set the cell type of cell C to the " Non-suitable cell " (see note)
3	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
3a		SS		SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Registration”.
4	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1
4a	->		AUTHENTICATION AND CIPHERING REQUEST	
4b	<-		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection
5	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Routing area identity = RAI-1 Equivalent PLMNs = MCC2,MNC1
6	<-		DETACH REQUEST	Detach type = re-attach required
7	->		DETACH ACCEPT	
8		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the " Suitable neighbour cell ". Set the cell type of cell C to the " Suitable neighbour cell " (see note) The SS configures power level of each Cell as follows. Cell A > Cell B > Cell C
9			Void	
10	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1
11	<-		ATTACH REJECT	GMM cause = 'Location area not allowed'
11a		SS		The SS releases the RRC connection.
12		UE		The UE performs cell selection. The following messages are sent and shall be received on cell C.
12a		UE	Registration on CS	See TS 34.108. This is applied only for UE in UE operation mode A.
12b		UE		SS checks that the IE “Establishment cause” in any received RRC CONNECTION REQUEST message is set to “Registration”
13	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
14	<-		AUTHENTICATION AND CIPHERING REQUEST	
15	->		AUTHENTICATION AND CIPHERING RESPONSE	

16	SS		The SS starts integrity protection.
17	<-	ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-6 Equivalent PLMNs = MCC1,MNC1
18	->	ATTACH COMPLETE	
19	UE		No MM IMSI attach request sent to SS (SS waits 30 seconds).
19a	SS		The SS releases the RRC connection.
NOTE:	The definitions for "Suitable neighbour cell", "Non-suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.		

Specific message contents

None.

12.2.1.5c.5 Test requirements

At step4 and 10, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step12, UE shall:

- perform cell selection.

At step13, UE shall:

- perform PS attach procedure with Mobile identity = IMSI.

At step19, UE shall:

- not perform MM IMSI attach

12.2.1.5d PS attach / rejected / PS services not allowed in this PLMN

12.2.1.5d.1 Definition

12.2.1.5d.2 Conformance requirement

If the network rejects a PS attach procedure from the User Equipment with the cause 'GPRS services not allowed in this PLMN' the User Equipment shall:

The MS shall delete any RAI, P-TMSI, P-TMSI signature, and GPRS ciphering key sequence number stored, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to subclause 4.1.3.2) and shall change to state GMM-DEREGISTERED.

The MS shall store the PLMN identity in the "forbidden PLMNs for GPRS service" list. A GPRS MS operating in MS operation mode C shall perform a PLMN selection instead of a cell selection.

A GPRS MS operating in MS operation mode A or B in network operation mode II or III, is still IMSI attached for CS services in the network.

As an implementation option, a GPRS MS operating in operation mode A or B may perform the following additional action. If no RR connection exists the MS may perform the action immediately. If the MS is operating in MS operation mode A and an RR connection exists, the MS may only perform the action when the RR connection is subsequently released:

- The MS may perform a PLMN selection according to 3GPP TS 23.122 [14].

The MS shall not perform the optional PLMN selection in the case where the PLMN providing this reject cause is:

- On the "User Controlled PLMN Selector with Access Technology " list or,
- On the "Operator Controlled PLMN Selector with Access Technology " list or,
- A PLMN identified as equivalent to any PLMN, with the same MCC, contained in the lists above

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.5d.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'GPRS services not allowed in this PLMN'.

12.2.1.5d.4 Method of test

Initial condition

System Simulator:

Three cells cell A with MCC1/MNC2/LAC1/RAC1 (RAI-8, Not HPLMN), cell B in MCC1/MNC2/LAC1/RAC2 (RAI-10, Not HPLMN), cell C in MCC2/MNC1/LAC1/RAC2 (RAI-7). All three cells are operating in network operation mode II (in case of UE operation mode A).

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

Sintrasearch and Sintersearch values for cells A, B and C are 20 dB.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1, RAI-8.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
UE supports CS call establishment Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'GPRS services not allowed in this PLMN'. The SS checks that the UE performs PS attach with attach type = GPRS attach when a new equivalent PLMN is entered.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode A OR The UE is set in UE operation mode C (see ICS).
2		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the " Non-suitable cell ". Set the cell type of cell C to the " Non-suitable cell " (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Mobile identity = TMSI-1
5	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1
5a	<-		AUTHENTICATION AND CIPHERING REQUEST	
5b	->		AUTHENTICATION AND CIPHERING RESPONSE	
5c		SS		The SS starts integrity protection.
6	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 Routing area identity = RAI-8 Equivalent PLMNs = MCC2,MNC1
6a	->		ATTACH COMPLETE	
7	<-		DETACH REQUEST	Detach type = re-attach required
8	->		DETACH ACCEPT	
9		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the " Suitable neighbour cell ". Set the cell type of cell C to the " Non-suitable cell " (see note)
10	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1
11	<-		ATTACH REJECT	GMM cause = 'GPRS services not allowed in this PLMN'
A12	UE			If the UE is in UE Operation Mode C Set the cell type of cell A to the " Suitable neighbour cell ". Set the cell type of cell B to the " Suitable neighbour cell ". Set the cell type of cell C to the " Serving cell " The UE performs PLMN selection.
B12	UE			If the UE is in Operation Mode A The UE initiates an attach automatically, by MMI or by AT command.
B12a	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds). The following messages are sent and shall be received on cell A. This verifies that a UE in operation mode A is still IMSI attached for CS services in cell A
B12a.1	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services. Paging cause = "Terminating conversational call[UE supports CS call establishment] or

			Terminating Low Priority Signalling"
B12a.2	->	RRC CONNECTION REQUEST	
B12a.3	<-	RRC CONNECTION SETUP	
B12a.4	->	RRC CONNECTION SETUP COMPLETE	
B12a.5	->	PAGING RESPONSE	
B12a.6	SS		The SS releases the RRC connection
B12b	SS		The SS is set in network operation mode II. Set the cell type of cell A to the " Suitable neighbour cell ". Set the cell type of cell B to the " Suitable neighbour cell ". Set the cell type of cell C to the " Serving cell " (see note) The following messages are sent and shall be received on cell C.
B12c		Registration on CS	Only performed if UE is set to operation mode A.
13	->	ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
14	<-	AUTHENTICATION AND CIPHERING REQUEST	
15	->	AUTHENTICATION AND CIPHERING RESPONSE	
16	SS		The SS starts integrity protection.
17	<-	ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-7 Equivalent PLMNs = MCC1,MNC1
18	->	ATTACH COMPLETE	
19		Void	
NOTE: The definitions for "Suitable neighbour cell", "Non-suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.			

Specific message contents

None.

12.2.1.5d.5 Test requirements

At step5 and 10, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step A12, UE shall:

- perform PLMN selection, only if the UE is in UE Operation Mode C.

At step13, UE shall:

- in case of operation mode C, perform PS attach procedure with Mobile identity = IMSI to the equivalent cell.
- in case of operation mode A, perform PS attach procedure and CS registration procedure (at step B12c)

At step B12a.1 UE shall:

- respond the Paging for CS domain service on cell A.

12.2.1.5e PS attach / rejected / Not authorized for this CSG

12.2.1.5e.1 Definition

12.2.1.5e.2 Conformance requirement

(1) If the network rejects a PS attach procedure from the User Equipment with the cause ' Not authorized for this CSG ', the User Equipment shall:

1.1 not perform PS attach when no suitable cell is entered.

1.2 delete the CSG ID of the cell, where the UE has sent the ATTACH REQUEST message, from the allowed CSG ID list stored in the UE.

1.3 not delete the list of "equivalent PLMNs".

1.4 perform PS attach when a new suitable cell is entered.

Reference

3GPP TS 24.008 clause 4.7.3.1

12.2.1.5e.3 Test purpose

To verify UE to remove the CSG ID from the Allowed CSG list and search for a suitable cell in the same PLMN when #25 is received.

12.2.1.5e.4 Method of test

Initial conditions:

System Simulator:

Two cells cell A with MCC1/MNC1/LAC1/RAC1 (RAI-1)/CSG1, cell B in MCC1/MNC1/LAC1/RAC2 (RAI-2)/CSG2.

Both cells are operating in network operation mode II(in case of UE operation mode A).

Both Cell A and Cell B belong to PLMN 1.

User Equipment:

The UE has a valid P-TMSI-1, RAI-1.

The UE has been registered on the PLMN 1 in the CS domain.

UE Allowed CSG List contains CSG1and CSG2

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	PLMN	CSG ID
EFACSGL	PLMN 1	CSG 1,CSG 2

The UE is previously registered on PLMN1, before switched off.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value ' Not authorized for this CSG '. The SS checks that the UE shall search for a suitable cell on the same PLMN and shall perform PS attach procedure in that cell.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode A OR The UE is set in UE operation mode C (see ICS).
2	SS			Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-suitable cell". (See note)
2a	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
4	SS			SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Registration”.
5	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
6	<-		AUTHENTICATION AND CIPHERING REQUEST	
7	->		AUTHENTICATION AND CIPHERING RESPONSE	
8	SS			The SS starts integrity protection.
9	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Routing area identity = RAI-1
10	<-		DETACH REQUEST	Detach type = re-attach required
11	->		DETACH ACCEPT	
12	SS			Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". The SS configures power level of each Cell as follows. Cell A > Cell B
13	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
14	<-		ATTACH REJECT	GMM cause = ' Not authorized for this CSG '
15	SS			The SS initiates the RRC connection release. The following message are sent and shall be received on cell B.
16	UE		Registration on CS	See TS 34.108
17	UE			The UE initiates an attach automatically, by MMI or by AT command.
18				SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Registration”.
19	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
20	<-		AUTHENTICATION AND CIPHERING REQUEST	
21	->		AUTHENTICATION AND CIPHERING RESPONSE	
22	SS			The SS starts integrity protection.
23	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-2
24	->		ATTACH COMPLETE	
25	SS			The SS releases the RRC connection.

NOTE:	The definitions for "Suitable neighbour cell", "Non-suitable cell" and "Serving cell" are specified in TS 34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.

12.2.1.5e.5 Test requirements

At step5, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step14, after the UE receives ATTACH REJECT, UE shall:

- delete the CSG1 in the CSG List.
- UE Allowed CSG List shall contain only CSG2.

At step19, when the UE camps on a suitable cell in on the same PLMN, UE shall:

- perform the PS attach procedure.

At step23, after the UE receives ATTACH ACCEPT:

- UE Allowed CSG List shall contain only CSG2.

12.2.1.6 PS attach / abnormal cases / access barred due to access class control

12.2.1.6.1 Definition

12.2.1.6.2 Conformance requirement

1) The UE shall not perform PS attach procedure, but stays in the current serving cell and applies normal cell reselection process.
2) The User Equipment shall perform the PS attach procedure when:

   2.1 Access is granted.

   2.2 Cell is changed.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.6.3 Test purpose

Test purpose1

To test the behaviour of the UE in case of access class control (access is granted).

Test purpose2

To test the behaviour of the UE in case of access class control (Cell is changed).

12.2.1.6.4 Method of test

Proc 1: Test procedure1

Initial condition

An access class x (0-15) is arbitrarily chosen. The USIM is programmed with this access class x. Communication with User Equipments using access class x is initially indicated to be barred.

System Simulator:

One cell operating in network operation mode II.
Access class x barred.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE).

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS indicates access class x barred. A PS attach procedure is not performed.

The SS indicates that access class x is not barred. A PS attach procedure is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The USIM is programmed with access class x.
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 12.
3	UE			The UE is powered up or switched on and attempts to initiate an attach (see ICS).
4	UE			No ATTACH REQUEST sent to SS, as access class x is barred (SS waits 30 seconds).
5	SS			The access class x is not barred anymore.
6	UE			The UE initiates a PS attach either automatically or manually (see ICS).
7	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
7a	<-		AUTHENTICATION AND CIPHERING REQUEST	
7b	->		AUTHENTICATION AND CIPHERING RESPONSE	
7c	SS			The SS starts integrity protection.
8	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
9	->		ATTACH COMPLETE	
10	UE			The UE is switched off or power is removed (see ICS).
11	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS detach'
11a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
12	SS			The SS is set in network operation mode II.
13	UE			The UE is set in UE operation mode A(see ICS) and the test is repeated from step 3 to step 11.

Proc 2: Test procedure2

Initial condition

An access class x (0-15) is arbitrarily chosen. The USIM is programmed with this access class x. Communication with User Equipments using access class x is indicated to be barred on cell A.

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) has access class x barred, cell B in MCC1/MNC1/LAC1/RAC1 (RAI-1) has access class x not barred.
Both cells are operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE) in both cells.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS indicates access class x barred. A PS attach procedure is not performed.

A cell change is performed into a cell where access class x is not barred. A PS attach procedure is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The USIM is programmed with access class x.
		SS		The following messages are sent and shall be received on cell A.
2		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
3	UE			The UE is set in UE operation mode C (see ICS).
4	UE			The UE is powered up or switched on and attempts to initiate an attach (see ICS).
5	UE			No ATTACH REQUEST sent to SS, as access class x is barred (SS waits 30 seconds).
				The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			The UE initiates an attach either automatically or manually (see ICS).
8		->	ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
8a		<-	AUTHENTICATION AND CIPHERING REQUEST	
8b		->	AUTHENTICATION AND CIPHERING RESPONSE	
8c		SS		The SS starts integrity protection.
9		<-	ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
10		->	ATTACH COMPLETE	
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.2.1.6.5 Test requirements

Test requirements for Test procedure1

At step4, when the UE access class x is barred, UE shall:

- not perform a PS attach procedure.

At step7, when the UE access class x is granted, UE shall:

initiate the PS attach procedure.

Test requirements for Test procedure2

At step5, when the UE access class x is barred, UE shall:

- not perform a PS attach procedure.

At step8, when the serving cell is changed, UE shall:

- initiate the PS attach procedure.

12.2.1.7 PS attach / abnormal cases / change of routing area

12.2.1.7.1 Definition

12.2.1.7.2 Conformance requirement

If a cell change into a new routing area occurs before an ATTACH ACCEPT or ATTACH REJECT message has been received, the GPRS attach procedure shall be aborted and re-initiated immediately.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.7.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.2.1.7.4 Method of test

Initial condition

System Simulator:

One cell with MCC1/MNC1/LAC1/RAC1 (RAI-1)
The cell is operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE).

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure. The ATTACH ACCEPT message is delayed from the SS. The UE receive a new routing area code. The UE shall re-initiate a PS attach procedure in the new routing area.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS).
2		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
5		SS		No response to the ATTACH REQUEST message is given by the SS.
6			Void	
6a	<-		UTRAN MOBILITY INFORMATION	The SS conveys updated CN system information for the PS domain to the UE in connected mode, including a new routing area code. Note: SS transmits the updated system information with the new RAI information in SIB1
6b	->		UTRAN MOBILITY INFORMATION CONFIRM	
7	UE			The UE automatically re-initiates the attach.
8	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
8a	<-		AUTHENTICATION AND CIPHERING REQUEST	
8b	->		AUTHENTICATION AND CIPHERING RESPONSE	
8c		SS		The SS starts integrity protection.
9	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Attach result = 'GPRS only attached' Routing area identity = RAI-4
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

UTRAN MOBILITY INFORMATION (step 6a)

The contents of the UTRAN MOBILITY INFORMATION message in this test case is identical to the default message in TS 34.108, with the following exceptions.

Information Element	Value/remark
New U-RNTI	Not Present
New C-RNTI	Not Present
UE Timers and constants in connected mode	Not Present
CN information info	
- PLMN identity	Not Present
- CN common GSM-MAP NAS system information	Not Present
- CN domain related information	
- CN domain identity	CS domain
- CN domain specific GSM-MAP NAS system info	
- T3212	Infinity
- ATT	0
- CN domain specific DRX cycle length coefficient	7
- CN domain related information	
- CN domain identity	PS domain
- CN domain specific GSM-MAP NAS system info	
- RAC	RAC-2
- NMO	1 (Network Mode of Operation II)
- CN domain specific DRX cycle length coefficient	7

12.2.1.7.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected sequence.

At step8, as the UE has received a new RAI in the UTRAN MOBILITY INFORMATION message before the ATTACH ACCEPT message or the ATTACH REJECT message is received by the UE, the UE shall:

- abort the PS attach procedure and re-initiate the PS attach procedure immediately with new information elements.

12.2.1.8 PS attach / abnormal cases / power off

12.2.1.8.1 Definition

12.2.1.8.2 Conformance requirement

When power is switched off before ATTACH ACCEPT message is received by the UE, the UE shall abort the PS attach procedure and perform a PS detach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.

12.2.1.8.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.2.1.8.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE is switched off after initiating an attach procedure. A PS detach is automatically performed by the UE before power is switched off.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 7.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4	SS			No response to the ATTACH REQUEST message is given by the SS.
5	UE			The UE is powered off and initiates a PS detach (with power off) by
6	->		DETACH REQUEST	Detach type = 'power switched off, GPRS detach'
7	UE			The UE is set in UE operation mode A (see ICS) and the test is repeated from step 2 to step 6.

Specific message contents

None.

12.2.1.8.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, when power is switched off before ATTACH ACCEPT message is received, UE shall:

- abort the PS attach procedure and perform the PS detach procedure.

12.2.1.9 PS attach / abnormal cases / PS detach procedure collision

12.2.1.9.1 Definition

12.2.1.9.2 Conformance requirement

1) When a DETACH REQUEST message is received by the UE (any cause except re-attach) while waiting for an ATTACH ACCEPT message, the UE shall terminate the PS attach procedure and continue with the PS detach procedure.

2) When a DETACH REQUEST message is received by the UE (cause re-attach) while waiting for an ATTACH ACCEPT message, the UE shall ignore the PS detach procedure and continue with the PS attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.9.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.2.1.9.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE).

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure. The SS does not answer the PS attach procedure, but initiates a PS detach procedure (any cause except re-attach). The UE shall terminate the PS attach procedure and continue with the PS detach procedure**.**

The UE initiates a PS attach procedure. The SS does not answer the PS attach procedure, but initiates a PS detach procedure (cause re-attach). The UE shall ignore the PS detach procedure and continue with the PS attach.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode C (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4	SS			The SS ignores the ATTACH REQUEST message and initiates a detach procedure.
5	<-		DETACH REQUEST	Detach type = 're-attach not required'
6	->		DETACH ACCEPT	
7	UE			The UE initiates the attach procedure by MMI or AT command.
8	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
9	SS			The SS ignores the ATTACH REQUEST message and initiates a detach procedure.
10	<-		DETACH REQUEST	Detach type = 're-attach required'
11	UE			The UE ignores the DETACH REQUEST message and continue with the attach procedure.
12	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
13	->		ATTACH COMPLETE	

Specific message contents

None.

12.2.1.9.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

UE shall perform the following actions depending on the Detach type in the DETACH REQUEST message.

Case1) Detach type = 're-attach not required' GMM cause is not re-attach

At step6, when the DETACH REQUEST message is received by the UE while waiting for an ATTACH ACCEPT message, UE shall:

- terminate the PS attach procedure and continue with the PS detach procedure.

Case2) Detach type = 're-attach required'

At step11, when the DETACH REQUEST message is received by the UE while waiting for an ATTACH ACCEPT message, UE shall:

- ignore the PS detach procedure and continue with the PS attach procedure.

12.2.1.10 PS attach / abnormal cases / Failure due to non-integrity protection

12.2.1.10.1 Definition

12.2.1.10.2 Conformance requirement

Except the messages listed below, no layer 3 signalling messages shall be processed by the receiving MM and GMM entities or forwarded to the CM entities, unless the security mode control procedure is activated for that domain.

- GMM messages:
  - AUTHENTICATION & CIPHERING REQUEST
  - AUTHENTICATION & CIPHERING REJECT
  - IDENTITY REQUEST
  - ATTACH REJECT
  - ROUTING AREA UPDATE ACCEPT (at periodic routing area update with no change of routing area or temporary identity)
  - ROUTING AREA UPDATE REJECT
  - SERVICE REJECT
  - DETACH ACCEPT (for non power-off)

Reference(s):

3GPP TS 24.008 clause 4.1.1.1.1

12.2.1.10.3 Test purpose

To verify that the UE ignores NAS signalling messages when the security mode procedure is not activated.

12.2.1.10.4 Method of test

Initial Conditions

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE).

User Equipment:

The UE has a valid IMSI.

If the UE is in UE operation mode A, then the UE has been registered in the CS domain.

Related ICS Statements

Support of PS service	Yes/No
UE operation mode A	Yes/No
UE operation mode C	Yes/No
Switch off on button	Yes/No

Test procedure

The attach procedure is initiated. Upon reception of ATTACH REQUEST message from the UE, the SS responds with an ATTACH ACCEPT message without the integrity protection. The UE shall ignore this message and re-transmit ATTACH REQUEST message at expiry of timer T3310.

This time the SS starts the authentication procedure and initiates the integrity protection. After receiving ATTACH ACCEPT message, the UE shall respond to ATTACH COMPLETE message.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A or C (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach procedure (see ICS).
3	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
5	<-		AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Set PS-CKSN
6	->		AUTHENTICATION AND CIPHERING RESPONSE	RES
7	SS			The SS does not initiate the security mode procedure.
8	<-		ATTACH ACCEPT	
9	UE			The UE ignores ATTACH ACCEPT message.
10	SS			The SS waits until the UE sends a new ATTACH REQUEST message in step 11.
11	->		ATTACH REQUEST	The UE re-transmits the message. The SS verifies that this ATTACH REQUEST message is sent by the UE after the expiry of T3310 (15 sec). The period of time to check is either between the ATTACH REQUEST messages or between the RRC CONNECTION REQUEST message and the second ATTACH REQUEST message. Attach type = 'GPRS attach' Mobile identity = IMSI
12	<-		AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Set PS-CKSN
13	->		AUTHENTICATION AND CIPHERING RESPONSE	RES
14	SS			The SS starts integrity protection.
15	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI
16	->		ATTACH COMPLETE	

Specific Message Contents

None.

12.2.1.10.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step9, UE shall;

- ignore the first ATTACH ACCEPT message.

At step11, UE shall;

- re-transmit ATTACH REQUEST message after expiry of timer T3310.

At step16, UE shall;

- respond to ATTACH COMPLETE message after the UE receives the second ATTACH ACCEPT message.

12.2.1.11 PS attach / accepted / follow-on request pending indicator set

12.2.1.11.1 Definition and applicability

UE which supports follow-on request procedure.

12.2.1.11.2 Conformance requirement

1) In UMTS, if the MS wishes to prolong the established PS signalling connection after the GPRS attach procedure, it may set a follow-on request pending indicator on.

2) In UMTS, the network should prolong the PS signalling connection if the mobile station has indicated a follow-on request pending in ATTACH REQUEST. The network may also prolong the PS signalling connection without any indication from the mobile terminal.

Reference

3GPP TS 24.008 clause 4.7.3.1.1 and 4.7.3.1.3

12.2.1.11.3 Test purpose

To test the behaviour of the UE if the follow-on request pending indicator can be set on during the attach procedure.

The following cases are identified:

1) follow-on request pending indicator may be set to indicate further signalling messages from the UE

2) follow-on request pending indicator not set, no further signalling messages expected from the UE

12.2.1.11.4 Method of test

Initial condition

System Simulator:

1 cell, operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A).

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No

Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
Method of context activation

Support of Follow On Proceed Yes/No

Test procedure

1) The UE is attached, then the Detach Request is originated from the UE indicating "GPRS detach without switching off". The SS responds with a Detach Accept after completing the security mode procedures. A PDP context activation is then requested by the user. The PS attach (ATTACH REQUEST) is then indirectly caused by a requested PDP context activation. UE shall set the Follow-ON Request bit to 1 in the ATTACH REQUEST message. The SS returns the ATTACH ACCEPT message to the UE. Now session management can proceed with PDP context activation. On receipt of the ACTIVATE PDP CONTEXT REQUEST message an ACTIVATE PDP CONTEXT ACCEPT is returned by the SS with the same requested QoS to finish the PC call establishment. The SS releases the RRC connection and the UE is switched off.

2) The UE is switched on and initiates PS attach (ATTACH REQUEST). UE shall set the Follow-ON Request bit to 0 in the ATTACH REQUEST message. The SS returns the ATTACH ACCEPT message to the UE. The SS verifies UE does not sent any messages on the PS Signalling Connection for 10 seconds. SS releases the RRC connection..

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
0	UE			Detach is performed by the UE using MMI or AT Commands
1		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Detach".
2	→		DETACH REQUEST	
3		SS		The SS starts integrity protection.
4	←		DETACH ACCEPT	SS sends Detach Accept message.
5		SS		The SS releases the RRC connection.
6	UE			Initiate a context activation
7		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
8	→		ATTACH REQUEST	The UE requests attach. UE shall set the FOR bit to 1
9		SS		The SS starts integrity protection.
10	←		ATTACH ACCEPT	The SS accepts attach Negotiated Ready timer value IE should not be included Force to standby IE set to “Force to standby not indicated”
11	→		ACTIVATE PDP CONTEXT REQUEST	The UE requests a PDP context activation, enters the state PDP-ACTIVE-PENDING and starts timer T3380
12		SS		The SS establishes the RAB.
13	←		ACTIVATE PDP CONTEXT ACCEPT	The SS accepts the PDP context activation.
14		SS		The SS releases the RRC connection due to inactivity (no user data transferred)
15	UE			The UE is switched off or power is removed (see ICS).
16		SS		SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach" (message not sent if power is removed).
17	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS detach'
18		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
19	UE			The UE is powered up or switched on and initiates an attach (see ICS).
20		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
21	->		ATTACH REQUEST	The UE requests attach. The UE shall set the FOR bit to 0.
22			AUTHENTICATION AND CIPHERING REQUEST	
23			AUTHENTICATION AND CIPHERING RESPONSE	
24		SS		The SS starts integrity protection.
25	<-		ATTACH ACCEPT	The SS accepts attach Negotiated Ready timer value IE should not be included Force to standby IE set to “Force to standby not indicated”

26			The SS does not respond and waits for the time of 5 seconds. No further messages are expected from the UE on the current PS Signalling Connection.
27	SS		The SS releases the RRC connection

Specific message contents

None.

12.2.1.11.5 Test requirements

At step 8 the UE shall send an ATTACH REQUEST with FOR bit set to 1

At step 21 the UE shall send an ATTACH REQUEST with FOR bit set to 0.

12.2.1.12 PS attach / abnormal cases / access barred due to domain specific access restriction for PS domain

12.2.1.12.1 Definition

This test case is applicable for Rel-5 UEs supporting DSAC and Rel-6 or later UEs.

12.2.1.12.2 Conformance requirement

TS24.008 4.1.1.2.2

If the PS or CS domain is barred because of domain specific access control, a GPRS MS operating in mode A or B in a network that operates in mode II or III shall use the MM specific procedures or GMM specific procedures, respectively, in the domain which is unbarred. If the MS detects that a domain changes from barred to unbarred, it shall behave as specified in subclauses 4.4.4.9, 4.5.1.2, 4.7.3.1.5, 4.7.5.1.5, and 4.7.13.5.

TS24.008 4.7.3.1.5

a) Access barred because of common access class control or PS domain specific access control

The GPRS attach procedure shall not be started. The MS stays in the current serving cell and applies normal cell reselection process. The GPRS attach procedure is started as soon as possible, i.e. when access is granted or because of a cell change.

Reference

3GPP TS 24.008 clause 4.1.1.2.2, 4.7.3.1.5

12.2.1.12.3 Test purpose

Test purpose

To test the behaviour of the UE in case of domain specific access control for PS domain.

12.2.1.12.4 Method of test

Initial condition

An access class x (0-15) is arbitrarily chosen. The USIM is programmed with this access class x.
The SS informs the UE that the PS domain specific access class x is barred in the cell.

System Simulator:

One cell operating in network operation mode II.
PS domain specific access class x is barred.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE).

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No Support of DSAC Yes/No

Test procedure

The SS indicates that PS domain access class x is barred. A PS attach procedure is not performed.
The SS indicates that PS domain access class x is not barred. A PS attach procedure is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The USIM is programmed with access class x.
2	UE			The UE is set in UE operation mode A or C (see ICS).
3	UE			The UE is powered up or switched on and attempts to initiate an attach (see ICS).
4	UE			No ATTACH REQUEST sent to the SS as PS domain access class x is barred. The SS waits 30 seconds.
5	SS			PS domain access class x is not barred anymore.
6	UE			The UE initiates a PS attach. If UE does not attach automatically, then UE initiates the attach procedure by MMI or AT command."
7	SS			The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
8		->	ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
9		<-	AUTHENTICATION AND CIPHERING REQUEST	
10		->	AUTHENTICATION AND CIPHERING RESPONSE	
11	SS			The SS starts an integrity protection.
12		<-	ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
13		->	ATTACH COMPLETE	
14	SS			The SS releases the RRC connection.

Specific message contents

None.

12.2.1.12.5 Test requirements

At step4, when the SS indicates that PS domain specific access class x is barred, the UE shall:

- not perform a PS attach procedure.

At step7, when the SS indicates that PS domain specific access class x is not barred, the UE shall:

- initiate the PS attach procedure.

12.2.2 Combined PS attach

12.2.2.1 Combined PS attach / PS and non-PS attach accepted

12.2.2.1.1 Definition

12.2.2.1.2 Conformance requirement

1) If the network accepts the combined PS attach procedure (signalled by an IMSI) and allocates a P-TMSI, the UE shall acknowledge the P-TMSI and continue communication with the P-TMSI.

2) If the network accepts the combined PS attach procedure (signalled by P-TMSI) and reallocates a new P-TMSI, the UE shall acknowledge the new P-TMSI and continue communication with the new P-TMSI.

3) If the network accepts the combined PS attach procedure (signalled by a P-TMSI) from the UE without reallocation of the previously used P-TMSI, the UE shall continue communication with the previously used P-TMSI.

4) If the network accepts the combined PS attach procedure and determines that IMSI shall be used in CS operations, the UE shall continue communication with the IMSI for CS operations.

5) If the network accepts the combined PS attach procedure and determines that a TMSI shall be used in CS operations, the UE shall continue communication with the TMSI for CS operations.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.1.3 Test purpose

To test the behaviour of the UE if the network accepts the PS attach procedure.

The following cases are identified:

1) P-TMSI / P-TMSI signature is allocated;

2) P-TMSI / P-TMSI signature is reallocated;

3) Old P-TMSI / P-TMSI signature is not changed;

4) Mobile terminating CS call is allowed with IMSI;

5) Mobile terminating CS call is allowed with TMSI.

12.2.2.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I. ATT flag is set to 0.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
UE supports CS call establishment Yes/No

Test procedure

1) The UE sends an ATTACH REQUEST message with identity IMSI. The SS allocates a P-TMSI and returns ATTACH ACCEPT message with a P-TMSI. The UE acknowledge the P-TMSI by sending ATTACH COMPLETE message. Further communication UE - SS is performed by the new P-TMSI. For CS calls, the IMSI is used.

2) The UE is CS paged in order to verify that the IMSI is used for CS calls.

3) The UE is PS paged in order to verify that the new P-TMSI is used for PS services.

4) The UE sends an ATTACH REQUEST message with identity P-TMSI. The SS allocates a new P-TMSI and returns ATTACH ACCEPT message with the new P-TMSI and a new TMSI. The UE acknowledge the P-TMSI and the TMSI by sending ATTACH COMPLETE message. Further communication UE - SS is performed by the new P-TMSI. For CS calls, the new TMSI is used. The UE is CS paged in order to verify that the new TMSI is used for CS services.

5) The UE is PS paged in order to verify that the new P-TMSI is used for PS services. The UE will not answer signalling addressed to the old P-TMSI.

6) The UE sends an ATTACH REQUEST message with identity P-TMSI. The SS accepts the P-TMSI and returns ATTACH ACCEPT message without any P-TMSI. Further communication UE - SS is performed by the previously used P-TMSI.

7) The UE is PS paged in order to verify that the previously used P-TMSI is used for PS services.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS identity =IMSI Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection and waits 5s to allow the UE to read system information.
6	<-		PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services. Paging cause = "Terminating conversational call [UE supports CS call establishment] or Terminating Low Priority Signalling"
7	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating conversational call" or “Low priority signalling”.
8			Void	
9			Void	
10	->		PAGING RESPONSE	Mobile identity = IMSI
11	SS			The SS releases the RRC connection and waits 5s to allow the UE to read system information.
12			Void	
13	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging for PS services Paging cause = "Terminating interactive call"
13a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
13b			Void	
13c			Void	
14	->		SERVICE REQUEST	service type = "paging response"
14aa	SS			The SS starts integrity protection.
14a	SS			The SS releases the RRC connection.
14b			Void	
15	UE			The UE is switched off or power is removed (see ICS).
15a	SS			SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach".
16	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS / IMSI detach'
16a	SS			If the power was not removed, the SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .

Step	Direction		Message	Comments
	UE	SS		
17	UE			The UE is powered up or switched on and initiates an attach (see ICS).
17a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
18	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = P-TMSI-1 TMSI status = no valid TMSI available Old Routing area identity = RAI-1
18a	<-		AUTHENTICATION AND CIPHERING REQUEST	
18b	->		AUTHENTICATION AND CIPHERING RESPONSE	
18c		SS		The SS starts integrity protection.
19	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature MS identity = TMSI-1 Routing area identity = RAI-1
20	->		ATTACH COMPLETE	
21			Void	
21b			Void	
21c		SS		The SS releases the RRC connection and waits 5s to allow the UE to read system information.
22	<-		PAGING TYPE 1	Mobile identity = TMSI-1 Paging order is for CS services. Paging cause = "Terminating conversational call [UE supports CS call establishment] or Terminating Low Priority Signalling "
23		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating conversational call".
24			Void	
25			Void	
26	->		PAGING RESPONSE	Mobile identity = TMSI-1
27		SS		The SS releases the RRC connection and waits 5s to allow the UE to read system information.
28			Void	
29	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging for PS services Paging cause = "Terminating interactive call"
29a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
29b			Void	
29c			Void	
30	->		SERVICE REQUEST	service type = "paging response"
30aa			Void	
30a		SS		The SS releases the RRC connection and waits 5s to allow the UE to read system information.
30b			Void	
31	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging for PS services Paging cause = "Terminating interactive call"
32	UE			No response from the UE to the request. This is checked for 10 seconds.
33	UE			The UE is switched off or power is removed (see ICS).
33a		SS		SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach".
34	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS / IMSI detach'

Step	Direction		Message	Comments
	UE	SS		
34a		SS		If the power was not removed, the SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .
35	UE			The UE is powered up or switched on and initiates an attach (see ICS).
35a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
36	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = P-TMSI-2 Old Routing area identity = RAI-1 TMSI status = valid TMSI available or IE not present
36a	<-		AUTHENTICATION AND CIPHERING REQUEST	
36b	->		AUTHENTICATION AND CIPHERING RESPONSE	
36c		SS		The SS starts integrity protection.
37	<-		ATTACH ACCEPT	No new mobile identity assigned. TMSI and P-TMSI not included. Attach result = 'Combined GPRS/IMSI attached' P-TMSI-3 signature Routing area identity = RAI-1
37a		SS		The SS releases the RRC connection and waits 5s to allow the UE to read system information.
38	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging for PS services Paging cause = "Terminating interactive call"
38a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
38b			Void	
38c			Void	
39	->		SERVICE REQUEST	service type = "paging response"
39aa			Void	
39a		SS		The SS releases the RRC connection.
39b			Void	

Specific message contents

None.

12.2.2.1.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

Case 1) SS accept the combined PS attach procedure (signalled by an IMSI) and allocates a P-TMSI.

At step5, UE shall

- send the ATTACH COMPLETE message.

At step10, when the UE receives the paging message for CS domain with Mobile identity = IMSI, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step14, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-1, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

Case 2) SS accepts the combined PS attach procedure (signalled by P-TMSI) and reallocates a new P-TMSI and TMSI.

At step20, UE shall:

- send the ATTACH COMPLETE message.

At step26, when the UE receives the paging message for CS domain with Mobile identity = TMSI, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step30, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-2, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

Case 3) SS accepts the combined PS attach procedure (signalled by a P-TMSI) from the UE without reallocation of the previously used P-TMSI.

At step39, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-2, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.2.2.2 Combined PS attach / PS only attach accepted

12.2.2.2.1 Definition

12.2.2.2.2 Conformance requirement

1) If the network accepts the combined PS attach procedure, but GMM cause code 'IMSI unknown in HLR' is sent to the UE the User Equipment shall delete the stored TMSI, LAI and CKSN. The User Equipment shall consider USIM invalid for non-PS services until power is switched off or USIM is removed.

2) If the network accepts the combined PS attach procedure, but GMM cause code 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is sent to the UE, an UE operation mode A UE may perform an MM IMSI attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.2.3 Test purpose

Test purpose 1

To test the behaviour of the UE if the network accepts the PS attach procedure with indication PS only, GMM cause 'IMSI unknown in HLR'.

Test purpose 2

To test the behaviour of the UE which does not support an automatic MM IMSI attach if the network accepts the PS attach procedure with indication PS only, GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion'.

Test purpose 3

To test the behaviour of the UE which supports an automatic MM IMSI attach if the network accepts the PS attach procedure with indication PS only, GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion'.

12.2.2.2.4 Method of test

Proc 1: Test procedure 1

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE sends an ATTACH REQUEST message with identity IMSI. The SS allocates a P-TMSI and returns ATTACH ACCEPT message with a P-TMSI. GMM cause 'IMSI unknown in HLR' is indicated from SS. Further communication UE - SS is performed by the P-TMSI. CS services are not possible.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature GMM cause = 'IMSI unknown in HLR' Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	<-		PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services.
7	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.

Proc 2: Test procedure 2

Initial condition

System Simulator:

One cell operating in network operation mode I. T3212 and T3302 is set to 6 minutes.

User Equipment:

The UE has a valid TMSI, P-TMSI and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE sends an ATTACH REQUEST message. The SS allocates a P-TMSI and returns ATTACH ACCEPT message with a P-TMSI. GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is indicated from SS. The cause code is arbitrarily chosen. The UE sends a ROUTING AREA UPDATE REQUEST message. The SS returns a ROUTING AREA UPDATE ACCEPT message. GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is indicated from SS. The cause code is arbitrarily chosen. The ROUTING AREA UPDATE procedure is repeated four times. An UE operation mode A UE may then perform an MM IMSI attach procedure (according to the ICS statement). Further communication UE - SS is performed by the P-TMSI. The existence of a signalling channel is verified by a request for mobile identity.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A and no automatic MM IMSI attach procedure is indicated (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =P-TMSI-1 Old Routing area identity = RAI-1 TMSI status = valid TMSI available or IE is omitted
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
5	->		ATTACH COMPLETE	
7	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' Old P-TMSI signature =P-TMSI-2 signature Old Routing area identity = RAI-1
8	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-3 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
10	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' Old P-TMSI signature =P-TMSI-3 signature Old Routing area identity = RAI-1
11	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-4 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
12	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' Old P-TMSI signature =P-TMSI-4 signature Old Routing area identity = RAI-1
13	SS			The SS verifies that the time between the previous routing area update accept and routing area update request is T3311.
14	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-5 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)

Step	Direction		Message	Comments
	UE	SS		
16	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' Old P-TMSI signature =P-TMSI-5 signature Old Routing area identity = RAI-1
17	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-6 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
18-20			(void)	

Proc 3: Test procedure 3

Initial condition

System Simulator:

One cell operating in network operation mode I. T3212 and T3302 is set to 6 minutes.

User Equipment:

The UE has a valid TMSI, P-TMSI and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE sends an ATTACH REQUEST message. The SS allocates a P-TMSI and returns ATTACH ACCEPT message with a P-TMSI. GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is indicated from SS. The cause code is arbitrarily chosen. The UE sends a ROUTING AREA UPDATE REQUEST message. The SS returns a ROUTING AREA UPDATE ACCEPT message. GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is indicated from SS. The cause code is arbitrarily chosen. The ROUTING AREA UPDATE procedure is repeated four times. An UE operation mode A UE may then perform an MM IMSI attach procedure (according to the ICS statement). Further communication UE - SS is performed by the P-TMSI. The existence of a signalling channel is verified by a request for mobile identity.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Automatic MM IMSI attach procedure is indicated (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1 TMSI status = valid TMSI available or IE is omitted
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI not included. Attach result = 'GPRS only attached' P-TMSI-2 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
5	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' Old P-TMSI signature =P-TMSI-2 signature Old Routing area identity = RAI-1
6	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-3 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
7	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' Old P-TMSI signature =P-TMSI-3 signature Old Routing area identity = RAI-1
8	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-4 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' Old P-TMSI signature =P-TMSI-4 signature Old Routing area identity = RAI-1
10	SS			The SS verifies that the time between the previous routing area update accept and routing area update request is T3311.
11	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-5 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)

Step	Direction		Message	Comments
	UE	SS		
12	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' Old P-TMSI signature =P-TMSI-5 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
13	SS			The SS verifies that the time between the previous routing area update accept and routing area update request is T3311.
14	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-6 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
15	UE			An automatic MM IMSI attach procedure is initiated.
16	UE		Registration on CS	Optional step. See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is TMSI Steps 4917 - 5523 are only performed if the UE has performed the Registration Procedure in step 4116.
17	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
18	->		RRC CONNECTION REQUEST	
19	<-		RRC CONNECTION SETUP	
20	->		RRC CONNECTION SETUP COMPLETE	
21	->		PAGING RESPONSE	Mobile identity = TMSI-1
22	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
23	->		RRC CONNECTION RELEASE COMPLETE	

Specific message contents

None.

12.2.2.2.5 Test requirements

Test requirements for Test porpose1

At step3, when the UE is powered up or switched on, UE shall:

- initiate the Combined PS attach procedure with information elements specified in the above Expected Sequence.

At step7, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

Test requirements for Test porpose2

At step3, when the UE is powered up or switched on, UE shall:

- initiate the Combined PS attach procedure with information elements specified in the above Expected Sequence.

At step7, 10, 12 and 16, when the routing area updating attempt counter is less than 5 and the stored RAI is equal to the RAI of the current serving cell, UE shall:

- perform the combined routing area update procedure indicating "combined RA/LA updating with IMSI attach".

Test requirements for Test porpose3

At step3, when the UE is powered up or switched on, UE shall:

- initiate the Combined PS attach procedure with information elements specified in the above Expected Sequence.

At step5, 7, 9 and 11, when the routing area updating attempt counter is less than 5 and the stored RAI is equal to the RAI of the current serving cell, UE shall:

- perform the combined routing area update procedure indicating "combined RA/LA updating with IMSI attach".

At step16, UE shall:

- perform MM location updating procedure.

At step21, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

12.2.2.3 Combined PS attach / PS attach while IMSI attach

12.2.2.3.1 Definition

12.2.2.3.2 Conformance requirement

If the PS UE is already attached for non-PS services by the MM specific attach procedure, but wants to perform an attach for PS services, the combined PS attach procedure is performed.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.3.3 Test purpose

To test the behaviour of the UE if PS attach performed while IMSI attached.

12.2.2.3.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I. ATT flag is set.

User Equipment:

The UE has a valid TMSI-1, P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE is forced to register for CS services but not to PS services. The SS verifies that the UE does not respond to paging messages for PS domain. Then the UE is triggered to perform the PS attach procedure and the SS verifies that it responds to PS paging messages.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS) and configured not to perform an automatic PS attach at switch on.
2	UE			The UE is powered up or switched on. No PS attach is performed (see ICS).
3			Registration on CS	See TS 34.108 Location updating type = IMSI attach. The SS allocates TMSI-1
4	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
5	UE			No response from the UE to the request. This is checked for 10 seconds.
6	UE			The UE is triggered to perform a PS attach.
7	->		ATTACH REQUEST	Attach type = 'GPRS attach while IMSI attached' or 'Combined GPRS/IMSI attach' Mobile identity =P-TMSI-1 Old Routing area identity = RAI-1
7a	<-		AUTHENTICATION AND CIPHERING REQUEST	
7b	->		AUTHENTICATION AND CIPHERING RESPONSE	
7c	SS			The SS starts integrity protection.
8	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' No new mobile identity assigned. TMSI and P-TMSI not included P-TMSI-2 signature Routing area identity = RAI-1
9	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
10	->		RRC CONNECTION REQUEST	
11	<-		RRC CONNECTION SETUP	
12	->		RRC CONNECTION SETUP COMPLETE	
13	->		SERVICE REQUEST	service type = "paging response"
14	<-		RRC CONNECTION RELEASE	
15	->		RRC CONNECTION RELEASE COMPLETE	

Specific message contents

None.

12.2.2.3.5 Test requirements

UE is already attached for non-PS service with the MM specific attach procedure.

At step5, UE shall:

- not respond to the paging message for PS domain.

At step7, when the UE is requested to attach for PS services, UE shall:

- perform the combined PS attach procedure.

At step13, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.2.2.4 Combined PS attach / rejected / IMSI invalid / illegal ME

12.2.2.4.1 Definition

12.2.2.4.2 Conformance requirement

1) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'Illegal ME', the User Equipment shall consider USIM invalid for PS and non-PS services until power is switched off or USIM is removed.

2) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'Illegal ME', the User Equipment shall delete the stored TMSI, LAI, CSKN, RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Reference

3GPP TS 24.008 clause 4.7.3.2

12.2.2.4.3 Test purpose

To test the behaviour of the UE if the network rejects the combined PS attach procedure of the UE with the cause 'Illegal ME'.

12.2.2.4.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) and cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC1/RAC1(RAI-2).
All three cells are operating in network operation mode I.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid TMSI-1, P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Illegal ME'. The SS checks that the UE does not perform PS attach in the same or another PLMN. CS services are not possible as the USIM is blocked for CS services. PS services are not possible as the USIM is blocked for PS services.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		The following messages are sent and shall be received on cell A. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4		->	ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' or 'GPRS attach while IMSI attached' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1 TMSI status = valid TMSI available or IE is omitted
5		<-	ATTACH REJECT	GMM cause 'Illegal ME'.
6	UE		PAGING TYPE1	Mobile identity = TMSI-1Paging order is for CS services.
7	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
8		<-	PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services
9	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
10		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
11	UE			No response from the UE to the request. This is checked for 10 seconds.
12		SS		The following messages are sent and shall be received on cell B. Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
13	UE			Cell B is preferred by the UE.
14	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
15		<-	PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services
16	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
17		SS		The following messages are sent and shall be received on cell C. Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
18	UE			Cell C is preferred by the UE.
19	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
20		<-	PAGING TYPE1	Mobile identity = IMSI Paging order is for PS services
21	UE			No response from the UE to the request. This is checked for 10 seconds.
22	UE			If possible (see ICS) USIM removal is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
23	UE			The UE gets the USIM replaced, is powered up or switched on and initiates an attach (see ICS).

Step	Direction		Message	Comments
	UE	SS		
24	UE			Step 25 is only performed for non-auto attach UE. A location updating procedure is initiated.
25	UE		Registration on CS	See TS34.108 Parameter Mobile identity is IMSI.
26	UE			UE initiates an attach automatically (see ICS), by MMI or AT commands.
27	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' or 'GPRS attach while IMSI attached' Mobile identity = IMSI TMSI status = no valid TMSI available
27a	<-		AUTHENTICATION AND CIPHERING REQUEST	
27b	->		AUTHENTICATION AND CIPHERING RESPONSE	
27c	SS			The SS starts integrity protection.
28	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signatureMS identity = TMSI-1 Routing area identity = RAI-2
29	->		ATTACH COMPLETE	
30	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
31	->		RRC CONNECTION REQUEST	
32	<-		RRC CONNECTION SETUP	
33	->		RRC CONNECTION SETUP COMPLETE	
34	->		PAGING RESPONSE	Mobile identity = TMSI-2
35	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
36	->		RRC CONNECTION RELEASE COMPLETE	
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.2.2.4.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step7, 9 and 16, when the UE receives the paging message for CS domain, UE shall,

- not respond to the paging message for CS domain.

At step11 and 21, when the UE receives the paging message for PS domain, UE shall,

- not respond to the paging message for PS domain.

At step27, when the USIM is replaced, UE shall:

- perform the combined PS attach procedure.

At step34, when the UE receives the paging message for CS domain, UE shall,

- respond to the paging message for CS domain by sending the RAGING RESPONSE message.

12.2.2.5 Combined PS attach / rejected / PS services and non-PS services not allowed

12.2.2.5.1 Definition

12.2.2.5.2 Conformance requirement

1) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'GPRS services and non-GPRS services not allowed', the User Equipment shall consider USIM invalid for PS and non-PS services until power is switched off or USIM is removed.

2) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'GPRS services and non-GPRS services not allowed', the User Equipment shall delete the stored TMSI, LAI, CSKN, RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.5.3 Test purpose

To test the behaviour of the UE if the network rejects the combined PS attach procedure of the UE with the cause 'GPRS services and non-GPRS services not allowed'.

12.2.2.5.4 Method of test

Initial condition

System Simulator:

- Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) and cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2).
  Both cells are operating in network operation mode I.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

- The UE has a valid TMSI-1, P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

- Support of PS service Yes/No
  UE operation mode A Yes/No
  Switch off on button Yes/No
  Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'GPRS services and non-GPRS services not allowed'. The SS checks that the UE does not perform PS attach in the same or another PLMN. CS services are not possible as the USIM is blocked for CS services. PS services are not possible as the USIM is blocked for PS services.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' or 'GPRS attach while IMSI attached' Mobile identity =P-TMSI-1 Old Routing area identity = RAI-1
5	<-		ATTACH REJECT	GMM cause 'GPRS services and non-GPRS services not allowed'
6	UE			The SS verifies that the UE does not attempt to access the network. (SS waits 30 seconds).
7	<-		PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services.
8	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
9	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS Paging.
10	UE			No response from the UE to the request. This is checked for 10 seconds
11		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
12			(void)	
13	UE			The SS verifies that the UE does not attempt to access the network. (SS waits 30 seconds).
14	<-		PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services.
15	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
16	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
17	UE			No response from the UE to the request. This is checked for 10seconds.
18	UE			If possible (see ICS) switch off is performed. Otherwise the power is removed.
19	UE			The UE is powered up or switched.
20	UE		Registration on CS	See TS 34.108 This step is applied only for non-auto attach UE. Location Update Procedure initiated from the UE. Parameter mobile identity is IMSI.
21	UE			UE initiates an attach automatically (see ICS), by MMI or AT commands.
22	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' or 'GPRS attach while IMSI attached' Mobile identity = IMSI TMSI status = no valid TMSI available
22a	<-		AUTHENTICATION AND CIPHERING REQUEST	
22b	->		AUTHENTICATION AND CIPHERING RESPONSE	
22c		SS		The SS starts integrity protection.

Step	Direction		Message	Comments
	UE	SS		
23		<-	ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-1 P-TMSI-1 signature MS identity = TMSI-1 Routing area identity = RAI-2
24	->		ATTACH COMPLETE	
25		<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
26	->		RRC CONNECTION REQUEST	
27		<-	RRC CONNECTION SETUP	
28	->		RRC CONNECTION SETUP COMPLETE	
29	->		PAGING RESPONSE	Mobile identity = TMSI-1
30		<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
31	->		RRC CONNECTION RELEASE COMPLETE	
32		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging is for PS services.
33	->		RRC CONNECTION REQUEST	
34		<-	RRC CONNECTION SETUP	
35	->		RRC CONNECTION SETUP COMPLETE	
36	->		SERVICE REQUEST	Service type = "paging response"
37		<-	RRC CONNECTION RELEASE	
38	->		RRC CONNECTION RELEASE COMPLETE	
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.2.2.5.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step8 and 14, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

At step10 and 17, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step22, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure.

At step29, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step36, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.2.2.6 Combined PS attach / rejected / PS services not allowed

12.2.2.6.1 Definition

12.2.2.6.2 Conformance requirement

1) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'GPRS services not allowed', the User Equipment shall consider USIM invalid for PS services until power is switched off or USIM is removed.

2) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'GPRS services not allowed' the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

3) A PS class AUE shall perform an MM IMSI attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.2

12.2.2.6.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'GPRS services not allowed'.

12.2.2.6.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) and cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2).
Both cells are operating in network operation mode I.
ATT flag set to 1

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid TMSI, P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a normal attach with the cause value 'GPRS services not allowed'. The SS checks that the UE does not perform PS attach. PS services are not possible. An UE operation mode A UE shall perform an MM IMSI attach.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is powered up or switched on.
2a	UE		Registration on CS	See TS 34.108 This step is applied only for non-auto attach UE. Location Update Procedure initiated from the UE. Parameter mobile identity is TMSI-1.
2b	UE			UE initiates an attach automatically (see ICS), via MMI or AT commands.
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' or 'GPRS attach while IMSI attached' Mobile identity =P-TMSI-1 Old Routing area identity = RAI-1
4	<-		ATTACH REJECT	GMM cause 'GPRS services not allowed'
5	UE			An automatic MM IMSI attach procedure is initiated.
6	UE		Registration on CS	See TS 34.108 Location updating type = IMSI attach. The SS allocates TMSI-2.
7	<-		PAGING TYPE1	Mobile identity = TMSI-2 Paging order is for CS services.
8	->		RRC CONNECTION REQUEST	
9	<-		RRC CONNECTION SETUP	
10	->		RRC CONNECTION SETUP COMPLETE	
11	->		PAGING RESPONSE	Mobile identity = TMSI-2
12	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
13	->		RRC CONNECTION RELEASE COMPLETE	
				The following messages are sent and shall be received on cell B.
14		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
15	UE			Cell B is preferred by the UE.
16	UE			A location updating procedure is initiated.
17	UE		Registration on CS	See TS 34.108 Location updating type = normal. The SS allocates TMSI-1.
18	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
19	->		RRC CONNECTION REQUEST	
20	<-		RRC CONNECTION SETUP	
21	->		RRC CONNECTION SETUP COMPLETE	
22	->		PAGING RESPONSE	Mobile identity = TMSI-1
23	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
24	->		RRC CONNECTION RELEASE COMPLETE	
25	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging is for PS services
26	UE			No response from the UE to the request. This is checked for 10seconds.
27	UE			If possible (see ICS) switch off is performed. Otherwise the power is removed.

Step	Direction		Message	Comments
	UE	SS		
27a	UE			If switch off is performed then UE performs IMSI detach procedure.
28	UE			The UE is powered up or switched.
28a	UE		Registration on CS	See TS 34.108 This step is applied only for non-auto attach UE. Location Update Procedure initiated from the UE. Parameter mobile identity is TMSI-1.
28b	UE			UE initiates an attach automatically (see ICS), via MMI or AT commands.
29	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' or 'GPRS attach while IMSI attached' Mobile identity = IMSI
29a	<-		AUTHENTICATION AND CIPHERING REQUEST	
29b	->		AUTHENTICATION AND CIPHERING RESPONSE	
29c	SS			The SS starts integrity protection.
30	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS identity = TMSI-2 Routing area identity = RAI-2
31	->		ATTACH COMPLETE	
32	<-		PAGING TYPE1	Mobile identity = TMSI-2 Paging order is for CS services.
33	->		RRC CONNECTION REQUEST	
34	<-		RRC CONNECTION SETUP	
35	->		RRC CONNECTION SETUP COMPLETE	
36	->		PAGING RESPONSE	Mobile identity = TMSI-2
37	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
38	->		RRC CONNECTION RELEASE COMPLETE	
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.2.2.6.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step6, if the UE is PS class A, UE shall:

- perform the MM IMSI attach procedure.

At step11, 22 and 36, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step26, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step29, UE shall:

- perform the PS attach procedure.

12.2.2.7a Combined PS attach / rejected / location area not allowed

12.2.2.7a.1 Definition

12.2.2.7a.2 Conformance requirement

1) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'location area not allowed' the User Equipment shall:

   1.1 not perform combined PS attach when in the same location area.

   1.2 delete the stored LAI, CKSN, TMSI, RAI, PS-CKSN, P-TMSI and P-TMSI signature.

   1.3 store the LA in the 'forbidden location areas for regional provision of service'.

   1.4 not delete the list of "equivalent PLMNs".

   1.5 perform a cell selection.

2) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'location area not allowed' the User Equipment shall:

   2.1 perform combined PS attach when a new location area is entered.

   2.2 delete the list of forbidden LAs when power is switched off.

Reference

3GPP TS 24.008 clauses 4.7.3.2.

12.2.2.7a.3 Test purpose

To test the behaviour of the UE if the network rejects the combined PS attach procedure with the cause 'Location Area not allowed'.

To test that the UE deletes the list of forbidden LAs when power is switched off.

12.2.2.7a.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6).
All cells are operating in network operation mode I.

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid TMSI, P-TMSI and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
PS attach attempted automatically by outstanding request Yes/No

Test procedure

The SS rejects a combined PS attach with the cause value 'Location Area not allowed'. The SS checks that the UE does not perform combined PS attach while in the location area, performs PS attach when a new location area is entered and deletes the list of forbidden LAs when switched off. CS services are not possible unless an IMSI attach procedure is performed.

Different types of UE may use different methods to periodically clear the list of forbidden location areas (e.g. every day at 12am). If the list is cleared while the test is being run, it may be necessary to re-run the test.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a		->	ATTACH REQUEST	Attach type = 'Combined GPRS/ IMSI attach' or "GPRS Attach while IMSI attached" Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
3b		<-	ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS identity = TMSI-1 Routing area identity = RAI-1 Equivalent PLMNs = MCC2,MNC1
3c		<-	DETACH REQUEST	Detach type = re-attach required
3d		->	DETACH ACCEPT	
4		->	ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' or "GPRS Attach while IMSI attached" Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
5		<-	ATTACH REJECT	GMM cause 'Location Area not allowed'
6	UE			No LOCATION UPDATING REQ with type 'IMSI attach' is sent to the SS (SS waits 30 seconds).
7		<-	PAGING TYPE1	Mobile identity = TMSI Paging order is for CS services.
8	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
9		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
10		->		No response from the UE to the request. This is checked for 10 seconds
				The following messages are sent and shall be received on cell B.
11		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
11a	UE			The UE performs cell selection.
12	UE			Cell B is preferred by the UE.
13	UE			No ATTACH REQUEST or LOCATION UPDATING REQ is sent to SS (SS waits 60 seconds)
15		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
16	UE			No response from the UE to the request. This is checked for 10seconds.
17	UE			The UE initiates an attach by MMI or AT command.
18				No attach is performed by the UE. This is checked for 10 seconds.
				The following messages are sent and shall be received on cell C.

Step	Direction		Message	Comments
	UE	SS		
19		SS		Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
19a		UE		The UE performs cell selection
20		UE		Cell C is preferred by the UE. Step 20a and 20b are only performed by an UE which will not initiate a PS attach automatically (see ICS)
20a conditional		UE	Registration on CS	Parameter Mobile identity is IMSI. See TS 34.108
20b conditional		UE		UE initiates an attach via MMI or AT commands.
21	->		ATTACH REQUEST	Attach type = 'Combined GPRS/ IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
21a	<-		AUTHENTICATION AND CIPHERING REQUEST	
21b	->		AUTHENTICATION AND CIPHERING RESPONSE	
21c		SS		The SS starts integrity protection.
22	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI1 P-TMSI Signature = P-TMSI-1 signature MS identity = TMSI-1 Routing area identity = RAI-6 Equivalent PLMNs = MCC1,MNC1
23	->		ATTACH COMPLETE	
24	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
25	->		RRC CONNECTION REQUEST	
26	<-		RRC CONNECTION SETUP	
27	->		RRC CONNECTION SETUP COMPLETE	
28	->		PAGING RESPONSE	Mobile identity = TMSI-1
29	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
30	->		RRC CONNECTION RELEASE COMPLETE	
31	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
32	->		RRC CONNECTION REQUEST	
33	<-		RRC CONNECTION SETUP	
34	->		RRC CONNECTION SETUP COMPLETE	
35	->		SERVICE REQUEST	Service type = "paging response"
36	<-		RRC CONNECTION RELEASE	
37	->		RRC CONNECTION RELEASE COMPLETE	
38		UE		The UE is switched off or power is removed (see ICS).
39	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS / IMSI detach'
39a		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
				The following messages are sent and shall be received on cell B.

Step	Direction		Message	Comments
	UE	SS		
40	UE			Set the cell type of cell B to the "Serving cell". Set the cell type of cell C to the "Non-Suitable cell". (see note) Cell B is preferred by the UE.
41	UE			The UE is powered up or switched on and initiates an attach (see ICS).
42				Step 43 is only performed for non-auto attach UE.
43	UE		Registration on CS	See TS 34.108
44	UE			UE initiates an attach automatically (see ICS), by MMI or AT commands.
45	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' or "GPRS Attach while IMSI attached" Mobile identity = P-TMSI-1 Old Routing area identity = RAI-6
45a	<-		AUTHENTICATION AND CIPHERING REQUEST	
45b	->		AUTHENTICATION AND CIPHERING RESPONSE	
45c	SS			The SS starts integrity protection.
46	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature MS identity = TMSI-2 Routing area identity = RAI-4 Equivalent PLMNs = MCC2,MNC1
47	->		ATTACH COMPLETE	
48	<-		PAGING TYPE1	Mobile identity = TMSI-2 Paging order is for CS services.
49	->		RRC CONNECTION REQUEST	
50	<-		RRC CONNECTION SETUP	
51	->		RRC CONNECTION SETUP COMPLETE	
52	->		PAGING RESPONSE	Mobile identity = TMSI-2
53	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
54	->		RRC CONNECTION RELEASE COMPLETE	
55	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
56	->		RRC CONNECTION REQUEST	
57	<-		RRC CONNECTION SETUP	
58	->		RRC CONNECTION SETUP COMPLETE	
59	->		SERVICE REQUEST	service type = "paging response"
60	<-		RRC CONNECTION RELEASE	
61	->		RRC CONNECTION RELEASE COMPLETE	
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.2.2.7a.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence

At step6, when the UE receives the ATTACH REJECT message with GMM cause = 'Location Area not allowed', UE shall:

- not initiate MM location updating procedure.

At step8, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

At step10 and 16, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step13 and 18, when the UE is in the same location area, UE shall:

- not perform PS attach procedure.

At step21, when the UE enters a new location area, UE shall

- perform the combined PS attach procedure.

At step28 and 52, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step35 and 59, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step45, when the UE is powered up or switched on, UE shall:

- perform the combined PS attach procedure.

12.2.2.7b Combined PS attach / rejected / No Suitable Cells In Location Area

12.2.2.7b.1 Definition

12.2.2.7b.2 Conformance requirement

1) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'No Suitable Cells In Location Area', the User Equipment shall:

   1.1 not perform combined PS attach when in the same location area.

   1.2 delete the stored LAI, CKSN, TMSI, RAI, PS-CKSN, P-TMSI and P-TMSI signature.

   1.3 store the LA in the 'forbidden location areas for roaming'.

   1.4 not delete the list of "equivalent PLMNs".

2) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'No Suitable Cells In Location Area', the User Equipment shall:

   2.1 search for a suitable cell in a different location area on the same PLMN.

Reference

3GPP TS 24.008 clauses 4.7.3.2.

12.2.2.7b.3 Test purpose

To test the behaviour of the UE if the network rejects the combined PS attach procedure with the cause 'No Suitable Cells In Location Area'.

12.2.2.7b.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

Sintrasearch and Sintersearch values for cells A, B and C are 20 dB.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has valid TMSI, P-TMSI and RAI

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined PS attach with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall search for a suitable cell in a different location area on the same PLMN and shall perform combined PS attach procedure in that cell

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =P-TMSI-1 Old Routing area identity = RAI-1
5	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-2 signature MS identity = TMSI-1 Routing area identity = RAI-1 Equivalent PLMNs = MCC2,MNC1
6	<-		DETACH REQUEST	Detach type = re-attach required
7	->		DETACH ACCEPT	
8		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note) The SS configures power level of each Cell as follows. Cell A > Cell B = Cell C
9	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =P-TMSI-1 Old Routing area identity = RAI-1
10	<-		ATTACH REJECT	GMM cause = 'No Suitable Cells In Location Area'
11		SS		The SS initiates the RRC connection release. The following message are sent and shall be received on cell B.
12	UE			The UE initiates an attach automatically, by MMI or by AT command.
13	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
14	<-		AUTHENTICATION AND CIPHERING REQUEST	
15	->		AUTHENTICATION AND CIPHERING RESPONSE	
16		SS		The SS starts integrity protection.
17	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature MS identity = TMSI-2 Routing area identity = RAI-3 Equivalent PLMNs = MCC2,MNC1
18	->		ATTACH COMPLETE	
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions for signalling test cases only" subclauses.				

Specific message contents

None.

12.2.2.7b.5 Test requirements

At step4 and 9, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected sequence.

At step13, when the UE enters a suitable cell in a different location area on the same PLMN, UE shall:

- initiate the combined PS attach procedure.

12.2.2.7c Combined PS attach / rejected / Roaming not allowed in this location area

12.2.2.7c.1 Definition

12.2.2.7c.2 Conformance requirement

1) If the network rejects a PS attach procedure from the User Equipment with the cause 'Roaming not allowed in this location area' the User Equipment shall:

   1.1 delete any RAI, P-TMSI, P-TMSI signature and PS ciphering key sequence number.

   1.2 set the PS update status to GU3 ROAMING NOT ALLOWED.

   1.3 delete any TMSI, LAI and ciphering key sequence number.

   1.4 store the LAI in the list of "forbidden location areas for roaming".

   1.5 perform a PLMN selection.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.2.7c.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'Roaming not allowed in this location area'.

12.2.2.7c.4 Method of test

Initial condition

System Simulator:

Three cells cell A with MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4) , cell C in MCC1/MNC1/LAC2/RAC2 (RAI-12)
All three cells are operating in network operation mode I.

User Equipment:

The UE has valid TMSI, P-TMSI and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Roaming not allowed in this location area'. The SS checks that the UE performs PLMN selection.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4		->	ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' or "GPRS Attach while IMSI attached" Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
5		<-	ATTACH REJECT	GMM cause = 'Roaming not allowed in this location area'
6	UE			No LOCATION UPDATING REQ and ATTACH REQ with type 'IMSI attach' is sent to the SS (SS waits 30 seconds).
7		<-	PAGING TYPE1	Mobile identity = TMSI Paging order is for CS services.
8	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
9		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
10		->		No response from the UE to the request. This is checked for 10 seconds
11	UE			UE performs PLMN selection.
		SS		The following messages are sent and shall be received on cell B.
12		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
13	UE			Cell B is preferred by the UE.
14	UE			No LOCATION UPDATING REQ is sent to SS (SS waits 60 seconds)
15		->	ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
15a		<-	AUTHENTICATION AND CIPHERING REQUEST	
15b		->	AUTHENTICATION AND CIPHERING RESPONSE	
15c		SS		The SS starts integrity protection.
16		<-	ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-4
17		->	ATTACH COMPLETE	
		SS		The following messages are sent and shall be received on cell C.
18		SS		Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
19	UE			Cell C is preferred by the UE.
20	UE		Registration on CS	Parameter Mobile identity is IMSI. See TS 34.108
21	UE			UE initiates an attach automatically (see ICS) via MMI or AT commands.

Step	Direction		Message	Comments
	UE	SS		
22		<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
23		->	RRC CONNECTION REQUEST	
24		<-	RRC CONNECTION SETUP	
25		->	RRC CONNECTION SETUP COMPLETE	
26		->	PAGING RESPONSE	Mobile identity = TMSI-1
27		<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
28		->	RRC CONNECTION RELEASE COMPLETE	
29		<-	PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
30		->	RRC CONNECTION REQUEST	
31		<-	RRC CONNECTION SETUP	
32		->	RRC CONNECTION SETUP COMPLETE	
33		->	SERVICE REQUEST	Service type = "paging response"
34		<-	RRC CONNECTION RELEASE	
35		->	RRC CONNECTION RELEASE COMPLETE	
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.2.2.7c.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, UE shall:

- not perform MM IMSI attach and PS attach.

At step8, UE shall:

- not respond to paging for CS domain service.

At step10, UE shall:

- not respond to paging for PS domain service.

At step15, UE shall:

- perform PS attach procedure.

At step20, UE shall:

- perform MM IMSI attach procedure.

12.2.2.7d Combined PS attach / rejected / PS services not allowed in this PLMN

12.2.2.7d.1 Definition

12.2.2.7d.2 Conformance requirement

1) If the network rejects a PS attach procedure from the User Equipment with the cause 'GPRS services not allowed in this PLMN' the User Equipment shall:

1.1 delete any RAI, P-TMSI, P-TMSI signature and PS ciphering key sequence number.

1.2 set the PS update status to GU3 ROAMING NOT ALLOWED.

1.3 store the PLMN identity in the "forbidden PLMNs for PS service" list.

2) If the UE is in UE operation mode A the User Equipment shall:

2.1 perform IMSI attach for non-GPRS services by use of the MM IMSI attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.2.7d.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'GPRS services not allowed in this PLMN'.

12.2.2.7d.4 Method of test

Initial condition

System Simulator:

Two cells cell A with MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2). All two cells are operating in network operation mode I.

The PLMN contains Cell B is equivalent to the PLMN that contains Cell A.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1, RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'GPRS services not allowed in this PLMN'. The SS checks that the UE does not perform PS attach and performs an IMSI attach for non-PS services by use of the MM IMSI attach procedure when in the same cell.

After the cell is changed to equivalent PLMN, the UE shall perform PS attach procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode A (see ICS).
2		SS		The SS is set in network operation mode I. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the " Non-suitable cell ". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
5	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =P-TMSI-1 Old Routing area identity = RAI-1
6	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1 Equivalent PLMNs = MCC2,MNC1
7	<-		DETACH REQUEST	Detach type = re-attach required
8	->		DETACH ACCEPT	
9	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
10	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =P-TMSI-1 Old Routing area identity = RAI-1
11	<-		ATTACH REJECT	GMM cause = 'GPRS services not allowed in this PLMN'
12	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
13		SS		Set the cell type of cell A to the " Non-suitable cell ". Set the cell type of cell B to the " Serving cell". (see note) The following messages are sent and shall be received on cell B.
14	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
15	<-		AUTHENTICATION AND CIPHERING REQUEST	
16	->		AUTHENTICATION AND CIPHERING RESPONSE	
17		SS		The SS starts integrity protection.
18	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-2 Equivalent PLMNs = MCC1,MNC1
19	->		ATTACH COMPLETE	
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions for signalling test cases only" subclauses.				

Specific message contents

None.

12.2.2.7d.5 Test requirements

At step5 and 10, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step4 and 9, UE shall:

- perform MM IMSI attach.

At step12, UE shall:

- not perform PS attach procedure.

At step14, UE shall:

- perform PS attach procedure.

12.2.2.7e Combined PS attach / rejected / Not authorized for this CSG

12.2.2.7e.1 Definition

12.2.2.7e.2 Conformance requirement

(1) If the network rejects a combined PS attach procedure from the User Equipment with the cause ' Not authorized for this CSG ', the User Equipment shall:

1.1 not perform PS attach when no suitable cell is entered.

1.2 delete the CSG ID of the cell, where the UE has sent the ATTACH REQUEST message, from the allowed CSG ID list stored in the UE.

1.3 not delete the list of "equivalent PLMNs".

1.4 perform PS attach when a new suitable cell is entered.

Reference

3GPP TS 24.008 clause 4.7.3.2

12.2.2.7e.3 Test purpose

To verify UE to remove the CSG ID from the Allowed CSG list and search for a suitable cell in the same PLMN when #25 is received.

12.2.2.7e.4 Method of test

Initial conditions:

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1)/CSG 1, cell B in MCC1/MNC1/LAC1/RAC2 (RAI-2) /

CSG 2.

Both Cell A and Cell B belong to PLMN 1.

Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid P-TMSI-1, RAI-1.

UE Allowed CSG List contains CSG1 and CSG2.

UE is registered on PLMN 1.

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	PLMN	CSG ID
EFACSGL	PLMN 1	CSG 1,CSG 2

The UE is previously registered on PLMN1, before switched off.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined PS attach with the cause value ' Not authorized for this CSG '. The SS checks that the UE shall search for a suitable cell on the same PLMN and shall perform combined PS attach procedure in that cell.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode A (see ICS).
2		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-suitable cell". (See note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = ' Combined GPRS/IMSI attach ' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
5	<-		AUTHENTICATION AND CIPHERING REQUEST	
6	->		AUTHENTICATION AND CIPHERING RESPONSE	
7		SS		The SS starts integrity protection.
8	<-		ATTACH ACCEPT	Attach result ='Combined GPRS/IMSI attached' Routing area identity = RAI-1
9	<-		DETACH REQUEST	Detach type = re-attach required
10	->		DETACH ACCEPT	
11		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". The SS configures power level of each Cell as follows. Cell A > Cell B
12	->		ATTACH REQUEST	Attach type =' Combined GPRS/IMSI attach ' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
13	<-		ATTACH REJECT	GMM cause = ' Not authorized for this CSG '
14		SS		The SS initiates the RRC connection release. The following message are sent and shall be received on cell B.
15	UE			The UE initiates an attach automatically, by MMI or by AT command.
16	->		ATTACH REQUEST	Attach type =' Combined GPRS/IMSI attach ' Mobile identity = IMSI
17	<-		AUTHENTICATION AND CIPHERING REQUEST	
18	->		AUTHENTICATION AND CIPHERING RESPONSE	
19		SS		The SS starts integrity protection.
20	<-		ATTACH ACCEPT	Attach result ='Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-2
21	->		ATTACH COMPLETE	
22		SS		The SS releases the RRC connection.
NOTE: The definitions for "Suitable neighbour cell", "Non-suitable cell" and "Serving cell" are specified in TS 34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

12.2.2.7e.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step13, when the UE receives ATTACH REJECT, UE shall:

- delete the CSG1 in the CSG List..
- UE Allowed CSG List shall contain only CSG2.

At step16, when the UE camps on a suitable cell in on the same PLMN, UE shall:

- perform the PS attach procedure.

At step20, after the UE receives ATTACH ACCEPT:

- UE Allowed CSG List shall contain only CSG2.

12.2.2.8 Combined PS attach / abnormal cases / attempt counter check / miscellaneous reject causes

12.2.2.8.1 Definition

12.2.2.8.2 Conformance requirement

1) When a combined PS attach procedure is rejected with the attempt counter less than five, the User Equipment shall repeat the combined PS attach procedure after T3311 timeout.

2) When a combined PS attach procedure is rejected with the attempt counter five, the User Equipment shall delete the stored TMSI, LAI, CKSN, P-TMSI, P-TMSI signature, PS CKSN and RAI and start T3302.

3) When the T3302 expire, a new combined PS attach procedure shall be initiated.

GMM cause codes that can be selected are:
'IMSI unknown in HLR'
'MS identity cannot be derived by the network'
'Network failure'
'Congestion'
'retry upon entry into a new cell'
'Semantically incorrect message'
'Invalid mandatory information'
'Message type non-existent or not implemented'
'Message type not compatible with the protocol state'
'Information element non-existent or not implemented'
'Conditional IE error'
'Message not compatible with the protocol state'
'Protocol error, unspecified'

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.8.3 Test purpose

To test the behaviour of the UE with respect to the attempt counter.

12.2.2.8.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid TMSI, P-TMSI and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No Automatic PS attach procedure at switch on or power on Yes/No

Switch off on button Yes/No

Test procedure

The UE initiates a combined PS attach procedure (attempt counter zero).

The SS rejects the attach with an arbitrarily chosen cause code.

The UE initiates a new combined PS attach procedure (attempt counter one) after T3311 expires.

The SS rejects the attach with an arbitrarily chosen cause code.

The UE initiates a new combined PS attach procedure (attempt counter two) after T3311 expires.

The SS rejects the attach with an arbitrarily chosen cause code.

The UE initiates a new combined PS attach procedure (attempt counter three) after T3311 expires.

The SS rejects the attach with an arbitrarily chosen cause code.

The UE initiates a new combined PS attach procedure (attempt counter four) after T3311 expires.

The SS rejects the attach with an arbitrarily chosen cause code.

The UE shall not perform a new successful attach procedure after 15 seconds.

The UE initiates a combined PS attach procedure with attempt counter zero after T3302 expires without P-TMSI, P-TMSI signature, PS CKSN and RAI.

T3302; set to 10 minutes.

T3311; 15 seconds.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =P-TMSI-1 Old Routing area identity = RAI-1
4	<-		ATTACH REJECT	Arbitrary chosen GMM cause T3302 with value 10 min.
5	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
6	SS			The SS verifies that the time between the attach reject and attach request is T3311
7	<-		ATTACH REJECT	Arbitrarily chosen GMM cause T3302 with value 10 min.
8	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
9	SS			The SS verifies that the time between the attach reject and attach request is T3311
10	<-		ATTACH REJECT	Arbitrarily chosen GMM cause T3302 with value 10 min.
11	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
12	SS			The SS verifies that the time between the attach reject and attach request is T3311
13	<-		ATTACH REJECT	Arbitrarily chosen GMM cause T3302 with value 10 min.
14	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =P-TMSI-1 Old Routing area identity = RAI-1
15	SS			The SS verifies that the time between the attach reject and attach request is T3311
16	<-		ATTACH REJECT	Arbitrarily chosen GMM cause T3302 with value 10 min.
17 (optional step)	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Location Update Procedure may be initiated from the UE. Parameter mobile identity is IMSI.
20	<-		PAGING TYPE1	Paging order is for PS services. Mobile identity = P-TMSI-1
21	UE			No response from the UE to the request. This is checked for 10seconds.
21a			Void	
22	SS			The SS verifies that the UE does not attempt to attach for T3302 .
23	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' 'GPRS attach while IMSI attached' Mobile identity = IMSI TMSI status = no valid TMSI available
23a	<-		AUTHENTICATION AND CIPHERING REQUEST	
23b	->		AUTHENTICATION AND CIPHERING RESPONSE	
23c	SS			The SS starts integrity protection.
24	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Mobile identity P-TMSI-1 P-TMSI signature Mobile identity = TMSI-1 Routing area identity = RAI-1
25	->		ATTACH COMPLETE	

Step	Direction		Message	Comments
	UE	SS		
26		<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services..
27		->	RRC CONNECTION REQUEST	
28		<-	RRC CONNECTION SETUP	
29		->	RRC CONNECTION SETUP COMPLETE	
30		->	PAGING RESPONSE	Mobile identity = TMSI-1
31		<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
32		->	RRC CONNECTION RELEASE COMPLETE	
33		<-	PAGING TYPE1	Mobile identity = P-TMSI-1
33a		->	RRC CONNECTION REQUEST	
33b		<-	RRC CONNECTION SETUP	
33c		->	RRC CONNECTION SETUP COMPLETE	
34		->	SERVICE REQUEST	Service type = "paging response"
34a		<-	RRC CONNECTION RELEASE	
34b		->	RRC CONNECTION RELEASE COMPLETE	

Specific message contents

None.

12.2.2.8.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

UE shall perform the following actions depending on the conditions described below.

Case1) A combined PS attach procedure is rejected with the attempt counter less than five

At step 5, 8, 11 and 14, when the timer T3311 timeout has occurred, UE shall:

- repeat the combined PS attach procedure.

Case2) A combined PS attach procedure is rejected with the attempt counter five

At step21, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

Case3) The T3302 expires

At step23, UE shall:

- re-initiate the new combined PS attach procedure.

At step30, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step34, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.2.2.9 Combined PS attach / abnormal cases / PS detach procedure collision

12.2.2.9.1 Definition

12.2.2.9.2 Conformance requirement

1) When a DETACH REQUEST message is received by the UE (any cause except re-attach) while waiting for an ATTACH ACCEPT message or ATTACH REJECT message, the UE shall terminate the combined PS attach procedure and continue with the combined PS detach procedure.

2) When a DETACH REQUEST message is received by the UE (cause re-attach) while waiting for an ATTACH ACCEPT message or ATTACH REJECT message, the UE shall ignore the combined PS detach procedure and continue with the combined PS attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.9.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.2.2.9.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has valid TMSI, P-TMSI and RAI. UE is Idle Updated.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
Re-attach automatically when the network commands a detach with no cause value Yes/No

Test procedure

The UE initiates a combined PS attach procedure. The SS does not answer the combined PS attach procedure, but initiates a combined PS detach procedure (any cause except re-attach). The UE shall terminate the combined PS attach procedure and continue with the combined PS detach procedure.

The UE initiates a combined PS attach procedure. The SS does not answer the combined PS attach procedure, but initiates a combined PS detach procedure (cause re-attach). The UE shall ignore the combined PS detach procedure and continue with the combined PS attach. CS services are also possible.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4	SS			The SS ignores the ATTACH REQUEST message and initiates a detach procedure.
5	<-		DETACH REQUEST	Detach type = 're-attach not required'
6	->		DETACH ACCEPT	
7			(void)	
8			(void)	
9	UE			The UE is attached by MMI or AT command if the UE does not re-attach automatically upon receiving a network initiated detach with no cause value, (see IXIT).
10	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
11	SS			The SS ignores the ATTACH REQUEST message and initiates a detach procedure.
12	<-		DETACH REQUEST	Detach type = 're-attach required'
13	UE			The UE ignores the DETACH REQUEST message and continue with the attach procedure
14	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature MS identity = TMSI-2 Routing area identity = RAI-1
15	->		ATTACH COMPLETE	
16	<-		PAGING TYPE1	Mobile identity = TMSI-2 Paging order is for CS services.
17	->		RRC CONNECTION REQUEST	
18	<-		RRC CONNECTION SETUP	
19	->		RRC CONNECTION SETUP COMPLETE	
20	->		PAGING RESPONSE	Mobile identity = TMSI-2
21	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
22	->		RRC CONNECTION RELEASE COMPLETE	
23	<-		PAGING TYPE1	Paging order is for PS services. Mobile identity = P-TMSI-2
23a	->		RRC CONNECTION REQUEST	
23b	<-		RRC CONNECTION SETUP	
23c	->		RRC CONNECTION SETUP COMPLETE	
24	->		SERVICE REQUEST	Service type = "paging response"
24a	<-		RRC CONNECTION RELEASE	
24b	->		RRC CONNECTION RELEASE COMPLETE	

Specific message contents

None.

12.2.2.9.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

UE shall perform the following actions depending on the Detach type described below.

Case1) Detach type is not re-attach

At step6, UE shall:

- respond to DETACH REQUEST message by sending DETACH ACCEPT message.

Case2) Detach type is re-attach

At step13, UE shall:

- ignore the PS detach procedure.

At step15, UE shall:

- send the ATTACH COMPLETE message.

At step20, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step24, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.2.2.10 Combined PS attach / abnormal cases / access barred due to paging permission with access control

12.2.2.10.1 Definition

This test case is applicable for Rel-8 or later UEs.

12.2.2.10.2 Conformance requirement

TS 24.008 4.1.1.5

- For location updating and routing area updating the mobile station shall evaluate the control information for common access control (as specified in 3GPP TS 44.018 [84], 3GPP TS 44.060 [76], and 3GPP TS 25.331 [23c]), domain specific access control (as specified in 3GPP TS 25.331 [23c]), and the specific control information for location registration (as specified in 3GPP TS 25.331 [23c]; see "Paging Permission with Access Control").

TS 24.008 4.7.3.1.5

a) Access barred because of access class control

The GPRS attach procedure shall not be started. The MS stays in the current serving cell and applies normal cell reselection process. The GPRS attach procedure is started as soon as possible, i.e. when access is granted or because of a cell change.

Reference

3GPP TS 24.008 clause 4.1.1.5, 4.7.3.1.5

12.2.2.10.3 Test purpose

Test purpose

To test the behaviour of the UE in case of paging permission with access control.

The following cases are identified:

1) To verify that, when a combined attach procedure is triggered and SIB3 indicates that the “Location/Registration Restriction Indicator” is set to “All” and all access classes in “Location/Registration Access Class Barred List” are set to barred, the UE does not attempt to make any attach procedure.

2) To verify that, when a combined attach procedure is triggered and SIB3 indicates that “Location/Registration Restriction Indicator” is set to “All” and restriction status is set to "no restriction”, the UE performs a combined attach procedure.

12.2.2.10.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.
“Location/Registration Restriction Indicator ” IE in SIB3 is set to “All”.
All access classes in “Location/Registration Access Class Barred List ” IE in SIB3 are set to barred.

User Equipment:

The UE is equipped with a USIM programmed with access class x arbitrarily chosen (0-9).
The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE is switched on. The UE shall not perform any attach procedure as SS indicates in SIB3 that “Location/Registration Restriction Indicator” is set to “All” and all access classes in the “Location/Registration Access Class Barred List ” are set to barred.

The SS changes the restriction status in SIB3 to indicate no restriction. The UE is triggered to perform a combined attach procedure. The SS checks that UE performs a combined attach procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1			Void	
2	UE			The UE is powered up or switched on and attempts to initiate an attach (see ICS).
3	UE			The SS checks for 120 seconds that the UE does not transmit any ATTACH REQUEST
4	SS			The SS change the restriction status in SIB3 to no restriction
5	UE			The UE is triggered to perform a combined attach procedure either automatically or manually (see ICS).
6	SS			The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
7	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
8	<-		AUTHENTICATION AND CIPHERING REQUEST	
9	->		AUTHENTICATION AND CIPHERING RESPONSE	
10	SS			The SS starts an integrity protection.
11	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1 MS identity = TMSI-1
12	->		ATTACH COMPLETE	
13	SS			The SS releases the RRC connection.
Note 1: The UE shall not initiate any combined attach procedure as “Location/Registration Restriction Indicator” IE in SIB3 is set to “All” and all access classes in Location/Registration Access Class Barred List in SIB3 are set to barred.				

Specific message contents

None.

12.2.2.10.5 Test requirements

1) At step 3 the UE shall not transmit any ATTACH REQUEST message.

2) At step 7 the UE shall transmit an ATTACH REQUEST message.

12.3 PS detach procedure

12.3.1 UE initiated PS detach procedure

12.3.1.1 PS detach / power off / accepted

12.3.1.1.1 Definition

12.3.1.1.2 Conformance requirement

The UE detaches the IMSI for PS services if the UE is switched off.

Reference

3GPP TS 24.008 clause 4.7.4.1

12.3.1.1.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.1.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A).

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a PS attach procedure.

The UE sends a DETACH REQUEST message to the SS.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set o attach to the PS services only (see ICS). If that is not supported by the UE, goto step 8.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
6	UE			The UE is switched off (see ICS).
6a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Detach".
7	->		DETACH REQUEST	Detach type = 'power switched off, GPRS detach'
7a				The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
8	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 7a.

Specific message contents

None.

12.3.1.1.5 Test requirements

At step 2a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 6a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step7, when the UE is switched off, UE shall:

- send the DETACH REQUEST message to SS with the Detach type = 'power switched off, GPRS detach'.

12.3.1.2 PS detach / accepted

12.3.1.2.1 Definition

12.3.1.2.2 Conformance requirement

1) The GPRS detach procedure is initiated by the UE by sending a DETACH REQUEST message. The detach type information element may indicate "GPRS detach with switching off", "GPRS detach without switching off", "IMSI detach", "GPRS/IMSI detach with switching off" or "GPRS/IMSI detach without switching off".

   The UE shall include the P-TMSI in the DETACH REQUEST message. The UE shall also include a valid P-TMSI signature, if available.

2) Upon completion of the detach procedure, the used P-TMSI signature shall be deleted.

Reference

3GPP TS 24.008 clause 4.7.4.1.1

3GPP TS 24.008 clause 4.7.1.3

12.3.1.2.3 Test purpose

To test the behaviour of the UE for the detach procedure, including treatment of P-TMSI signature.

12.3.1.2.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A).

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
UE PS Release Yes/No

Test procedure

The UE performs a PS attach procedure.

The UE sends a DETACH REQUEST message to the SS.

The SS signal to the UE, but no response is received, as the signalling link is disconnected.

The UE performs a PS attach procedure.

The UE sends a DETACH REQUEST message to the SS.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set to attach to the PS services only (see ICS). If that is not supported by the UE, goto step 18.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts ciphering and integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
5			(void)	
6	UE			The UE initiates a PS detach (without power off) by MMI or AT command.
6a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Detach"
7	->		DETACH REQUEST	Detach type = 'normal detach, GPRS detach' Mobile identity = P-TMSI-1 P-TMSI-1 signature
7a	SS			The SS starts ciphering and integrity protection.
8	<-		DETACH ACCEPT	
8a	SS			The SS releases the RRC connection.
9	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
10	UE			No response from the UE to the request. This is checked for 10 seconds.
11	UE			The UE initiates an attach by MMI or AT commands
12	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
12a	SS			The SS starts ciphering and integrity protection.
13	<-		ATTACH ACCEPT	No new mobile identity assigned Attach result = 'GPRS only attached' Routing area identity = RAI-1
14	UE			The UE initiates a PS detach (without power off) by MMI or AT command.
15	->		DETACH REQUEST	Detach type = 'normal detach, GPRS detach' Mobile identity = P-TMSI-1
16	<-		DETACH ACCEPT	
17			(void)	
18	UE			The UE is set to attach to both PS and non-PS services (see ICS) and the test is repeated from step 2 to step 16.

Specific message contents

None.

12.3.1.2.5 Test requirements

At step 2a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 6a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step7, UE shall:

- send the DETACH REQUEST message (without power off) to SS with mobile identity P-TMSI-1 and P-TMSI-1 signature.

At step10, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step 12, UE shall

- initiate ATTACH REQUEST message without P-TMSI signature IE.

At step 15, UE shall:

- send the DETACH REQUEST message (without power off) to SS with mobile identity P-TMSI-1 and without P-TMSI-1 signature.

12.3.1.3 PS detach / abnormal cases / attempt counter check / procedure timeout

12.3.1.3.1 Definition

12.3.1.3.2 Conformance requirement

1) When a T3321 timeout has occurred during a PS detach procedure with the attempt counter less than five, the User Equipment shall repeat the PS detach procedure.

2) When a T3321 timeout has occurred during a PS detach procedure with the attempt counter five, the User Equipment shall not repeat the procedure.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.3.3 Test purpose

To test the behaviour of the UE with respect to the attempt counter.

12.3.1.3.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE).

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a PS attach procedure.

The UE initiates a PS detach procedure (attempt counter zero). The SS does not answer with DETACH ACCEPT message before T3321 timeout.

The UE initiates a new PS detach procedure (attempt counter one) after T3321 expires. The SS does not answer with DETACH ACCEPT message before T3321 timeout.

The UE initiates a new PS detach procedure (attempt counter two) after T3321expires. The SS does not answer with DETACH ACCEPT message before T3321 timeout.

The UE initiates a new PS detach procedure (attempt counter three) after T3321 expires. The SS does not answer with DETACH ACCEPT message before T3321 timeout.

The UE initiates a new PS detach procedure (attempt counter four) after T3321 expires. The SS does not answer with DETACH ACCEPT message before T3321 timeout.

The UE initiates a new PS detach procedure with attempt counter five (after T3321expires). The SS does not answer with DETACH ACCEPT message before T3321 timeout.

At T3321 timeout in the UE, the UE then deletes the logical link since the retransmissions have been repeated four times.

The UE performs a new PS attach procedure.

T3321; 15 seconds.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 25.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Attach result = 'GPRS only attached' Routing area identity = RAI-1
5	UE			The UE initiates a PS detach (without power off) by MMI or AT command.
6	->		DETACH REQUEST	Detach type = 'normal detach, GPRS detach'
7	SS			No response is given from the SS.
8	SS			The SS verifies that the time between the detach requests is 15 seconds
9	->		DETACH REQUEST	Detach type = 'normal detach, GPRS detach'
10	SS			No response is given from the SS.
11	SS			The SS verifies that the time between the detach requests is 15 seconds
12	->		DETACH REQUEST	Detach type = 'normal detach, GPRS detach'
13	SS			No response is given from the SS.
14	SS			The SS verifies that the time between the detach requests is 15 seconds
15	->		DETACH REQUEST	Detach type = 'normal detach, GPRS detach'
16	SS			No response is given from the SS.
17	SS			The SS verifies that the time between the detach requests is 15 seconds
18	->		DETACH REQUEST	Detach type = 'normal detach, GPRS detach'
19	SS			No response is given from the SS within 40 seconds and SS verifies that the UE will not send a DETACH REQUEST again.
20	UE			Initiate a PS attach
21	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
21a	<-		AUTHENTICATION AND CIPHERING REQUEST	
21b	->		AUTHENTICATION AND CIPHERING RESPONSE	
21c	SS			The SS starts integrity protection.
22	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Attach result = 'GPRS only attached' Routing area identity = RAI-1
23				UE is switched off or power is removed (see ICS)
24	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS detach'
24a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Step	Direction		Message	Comments
	UE	SS		
25	UE			The UE is set in UE operation mode A (see ICS) and the test is repeated from step 2 to step 24.

Specific message contents

None.

12.3.1.3.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attaché procedure with the information elements specified in the above Expected Sequence.

At step9, 12, 15 and 18, when a T3321 expires with the attempt counter less than five, UE shall:

- initiate the new PS detach procedure.

At step19, when the attempt counter is greater than or equal to five, UE shall:

- not repeat the PS detach procedure.

At step20, UE shall:

- initiate the PS attaché procedure.

12.3.1.4 PS detach / abnormal cases / GMM common procedure collision

12.3.1.4.1 Definition

12.3.1.4.2 Conformance requirement

When any of the GMM common messages P-TMSI REALLOCATION COMMAND, GMM STATUS or GMM INFORMATION is received by the UE while waiting for a DETACH ACCEPT message with detach cause different from "power off", the UE shall ignore the GMM common message.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.4.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.3.1.4.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE).

User Equipment:

The UE has a valid IMSI.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The following test procedure is repeated for sequence counter k = 1,2,3:

The UE performs a PS attach.

The UE initiates a PS detach. The SS initiates a P-TMSI REALLOCATION COMMAND message (k=1), a GMM STATUS message (k=2) and a GMM INFORMATION message (k=3). The UE shall ignore the GMM common messages and continue with the PS detach procedure. The sending of the P-TMSI REALLOCATION COMMAND message (k = 1), the GMM STATUS message (k = 2), the GMM INFORMATION message (k = 3) and the DETACH ACCEPT message shall be completed within Timer T3321 -10%.

The SS signal to the UE, but no response is received, as the signalling link is disconnected.

Expected Sequence

The test sequence is repeated for k = 1 … 3

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode C (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	UE			The UE initiates a detach (without power off) by MMI or AT command.
7	->		DETACH REQUEST	Detach type = 'normal detach, GPRS detach'
8A (k=1)	SS			The SS sends a P-TMSI REALLOCATION COMMAND message
9A (k=1)	<-		P-TMSI REALLOCATION COMMAND	
10A (k=1)	UE			The UE ignores the message. This is verified for 10 seconds.
8B (k=2)	SS			The SS sends a GMM STATUS message
9B (k=2)	<-		GMM STATUS	
10B (k=2)	UE			The UE ignores the message. This is verified for 10 seconds.
8C (k=3)	SS			The SS sends a GMM INFORMATION message
9C (k=3)	<-		GMM INFORMATION	
10C (k=3)	UE			The UE ignores the message which is verified for 10 seconds or if GMM INFORMATION message not implemented, sends a GMM STATUS with GMM Cause 'Message type non-existent or not implemented'.
11	<-		DETACH ACCEPT	The SS responds to the DETACH REQUEST
12	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
13	UE			No response from the UE to the request. This is checked for 10 seconds.

Note: Steps 8x, 9x, 10x and 11 shall be completed within Timer T3321 -10%.

Specific message contents

None.

12.3.1.4.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step 10A, 10B, 10C and 13, when any of the GMM common messages P-TMSI REALLOCATION COMMAND, GMM STATUS or GMM INFORMATION is received by the UE while waiting for a DETACH ACCEPT message with detach cause different from "power off, UE shall:

- ignore any of the GMM common message.

12.3.1.5 PS detach / power off / accepted / PS/IMSI detach

12.3.1.5.1 Definition

12.3.1.5.2 Conformance requirement

The UE detach the IMSI for PS and non-PS services.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.5.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.1.5.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The UE sends a DETACH REQUEST message to the SS. The UE then deletes the logical link.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set to attach to both the PS and non-PS services (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
6	UE			The UE is switched off (see ICS).
6a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Detach".
7	->		DETACH REQUEST	Detach type = 'power switched off, combined GPRS / IMSI detach'
7a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.3.1.5.5 Test requirements

At step 2a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 6a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step7, when the UE is switched off, UE shall:

- send the DETACH REQUEST message to SS with the Detach type = 'power switched off, combined GPRS/ IMSI detach'.

12.3.1.6 PS detach / accepted / PS/IMSI detach

12.3.1.6.1 Definition

12.3.1.6.2 Conformance requirement

The UE detach the IMSI for PS and non-PS services.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.6.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.1.6.4 Method of test

Initial condition

System Simulator:

- One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

- Support of PS service Yes/No
  UE operation mode A Yes/No
  Switch off on button Yes/No
  Automatic PS attach procedure at switch on or power on Yes/No
  User requested combined PS and non-PS detached without powering off Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The UE sends a DETACH REQUEST message to the SS. When the UE receives the DETACH ACCEPT, the UE then deletes the logical link.

The SS signal to the UE, but no response is received, as the signalling link is disconnected.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set to attach to both the PS and non-PS services (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS identity = TMSI-1 Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
6	UE			The UE initiates a detach (without power off) by MMI or AT command (see ICS).
6a	SS			The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Detach".
7	->		DETACH REQUEST	Detach type = 'normal detach, combined GPRS / IMSI detach'
8	<-		DETACH ACCEPT	
8a	SS			The SS releases the RRC connection.
9	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
10	UE			No response from the UE to the request. This is checked for 10 seconds.
11	<-		PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services.
12	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.

Specific message contents

None.

12.3.1.6.5 Test requirements

At step 2a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 6a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step10, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step12, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

12.3.1.7 PS detach / accepted / IMSI detach

12.3.1.7.1 Definition

12.3.1.7.2 Conformance requirement

The UE shall detach for CS services.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.7.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.1.7.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

- The UE has a valid IMSI.

Related ICS/IXIT statements

- Support of PS service Yes/No
  UE operation mode A Yes/No
  Switch off on button Yes/No
  Automatic PS attach procedure at switch on or power on Yes/No
  User requested non-PS detached Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The UE performs an PS detach (for non-PS services).

CS services are not possible.

The UE attach for non-PS services by a routing area update procedure and CS services are again possible.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS identity = TMSI-1 Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	UE			The UE initiates a detach for non-PS services (without power off) (see ICS).
7	->		DETACH REQUEST	Detach type = 'normal detach, IMSI detach'
8	<-		DETACH ACCEPT	
9	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
9a	->		RRC CONNECTION REQUEST	
9b	<-		RRC CONNECTION SETUP	
9c	->		RRC CONNECTION SETUP COMPLETE	
10	->		SERVICE REQUEST	service type = "paging response"
10a	<-		RRC CONNECTION RELEASE	
10b	->		RRC CONNECTION RELEASE COMPLETE	
11	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services. Paging order is for RRC connection.
12	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
13	UE			The UE initiates an attach for non-PS services by a RA update procedure (see ICS).
14	->		ROUTING AREA UPDATE REQUEST	Update type = "Combined RA/LA updating with IMSI attach" Old Routing area identity = RAI-1
15	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated" Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature MS identity = TMSI-1 Routing area identity = RAI-1
16	->		ROUTING AREA UPDATE COMPLETE	
17	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
18	->		RRC CONNECTION REQUEST	
19	<-		RRC CONNECTION SETUP	
20	->		RRC CONNECTION SETUP COMPLETE	
21	->		PAGING RESPONSE	Mobile identity = TMSI-1
22	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
23	->		RRC CONNECTION RELEASE COMPLETE	

Specific message contents

None.

12.3.1.7.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step10, after the detach procedure (Detach type = 'normal detach, IMSI detach') is completed, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step12, after the detach procedure (Detach type = 'normal detach, IMSI detach') is completed, UE shall:

- not respond to the paging message for CS.

At step21, after the routing area updating procedure (Update type = 'Combined RA/LA updating') is completed, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

12.3.1.8 PS detach / abnormal cases / change of cell into new routing area

12.3.1.8.1 Definition

12.3.1.8.2 Conformance requirement

When a change of cell into a new routing area is performed before DETACH ACCEPT message is received by the UE, the UE shall abort the PS detach procedure and re-initiate it after the routing area update procedure.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.8.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.3.1.8.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) and cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
User requested combined PS and non-PS detached without powering off Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

Sufficient time is given for the UE to identify the neighbour cell before the UE is triggered to initiate a PS detach procedure. The DETACH ACCEPT message is delayed from the SS.

The UE performs a cell reselection to a cell in a new routing area and performs a routing area update procedure.

The UE shall re-initiate a PS detach procedure when the routing area update procedure is finished.

The UE deletes the logical link.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS identity = TMSI-1 Routing area identity = RAI-1
6	->		ATTACH COMPLETE	
6a		SS		SS waits 30 sec.
7	UE			The UE initiates a PS detach (without power off) by MMI or AT command.
8	->		DETACH REQUEST	Detach type = 'normal detach, combined GPRS / IMSI detach'
9		SS		No response to the DETACH REQUEST message is given by the SS
				The following messages are sent and shall be received on cell B.
10		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note) Cell B is preferred by the UE.
11	UE			The UE performs a RA update in the new cell.
12	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-1 TMSI status = valid TMSI available or IE omitted
13	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-4
14	->		ROUTING AREA UPDATE COMPLETE	
15	->		DETACH REQUEST	The detach is automatically re-attempted. Detach type = 'normal detach, combined GPRS / IMSI detach'
16	<-		DETACH ACCEPT	

NOTE: The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.

Specific message contents

None.

12.3.1.8.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step12, when a change of cell into a new routing area is performed before DETACH ACCEPT message is received by the UE, UE shall:

- abort a PS detach procedure.
- perform routing area updating procedure.

At step15, when the UE completes a routing area updating procedure, UE shall:

- re-initiate the PS detach procedure.

12.3.1.9 PS detach / abnormal cases / PS detach procedure collision

12.3.1.9.1 Definition

12.3.1.9.2 Conformance requirement

When a DETACH REQUEST is received by the UE while waiting for a DETACH ACCEPT message, the UE shall answer the network initiated GPRS detach procedure.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.9.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.3.1.9.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
User requested combined PS and non-PS detached without powering off Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The UE initiates a PS detach. The SS does not answer the detach procedure, but initiates a detach procedure (cause re-attach not required). The UE shall continue with the network initiated detach procedure.

The UE deletes the logical link.

PS and CS services are not possible.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A(see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS identity = TMSI-1 Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	UE			The UE initiates a PS detach (without power off) by MMI or AT command.
7	->		DETACH REQUEST	Detach type = 'normal detach, combined GPRS / IMSI detach'
8	<-		DETACH REQUEST	Detach type = 're-attach not required'
9	->		DETACH ACCEPT	The UE answers the network initiated detach.
10	<-		DETACH ACCEPT	The SS answers the UE initiated detach.
11	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
12	UE			No response from the UE to the request. This is checked for 10 seconds.
13	<-		PAGING TYPE 1	Mobile identity = TMSI-1 Paging order is for CS services.
14	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.

Specific message contents

None.

12.3.1.9.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step9, when the UE receives DETACH REQUEST message from SS before UE initiated GPRS detach procedure has been completed, UE shall:

- send the DETACH ACCEPT message to SS.

At step12, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step14, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

12.3.1.10 UE initiated detach/abnormal case/ Not authorized for this CSG

12.3.1.10.1 Definition

12.3.1.10.2 Conformance requirement

The following abnormal cases can be identified:

a) CSG ID of the CSG cell is not in the Allowed CSG list of the MS which sends the detach request

If the MS initiates a detach procedure in a CSG cell the CSG ID of which is not in the MS's Allowed CSG list and the detach procedure is not due to "switch off", the network shall initiate the detach procedure. The network shall send a DETACH REQUEST message including the GMM cause value #25 "not authorized for this CSG", to indicate to the MS to remove the CSG ID of the cell, where the MS has sent the DETACH REQUEST message, from the allowed CSG list.

Reference

3GPP TS 24.008 clause 4.7.4.1.5

12.3.1.10.3 Test purpose

To test the behaviour of the MS if the MS initiates a detach procedure in a CSG cell the CSG ID of which is not in the MS's Allowed CSG list.

12.3.1.10.4 Method of test

Initial condition

System Simulator:

Two cells cell A with MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC1 (RAI-1)/CSG1.

Both cells are operating in network operation mode I.

Both Cell A and Cell B belong to PLMN 1.

The cell B shall also include:

-"CSG Indicator" in its Master Information Block

-"CSG Identity" and "CSG PSC Split Information" in its System Information Block type 3 with the following contents:

Start PSC: 144

Number of PSCs: alltheRest

On the SS side, CSG1 is not in the Allowed CSG List which is stored in the CSG subscription data.

User Equipment:

The UE has a valid IMSI.

The UE's Allowed CSG List contains CSG1

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	PLMN	CSG ID
EF_{ACSGL}	PLMN 1	CSG1

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off/on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
User requested combined PS and non-PS detached without powering off Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services) on Cell A.

The UE initiates a PS detach. The SS does not answer the detach procedure, but initiates a detach procedure (cause not authorized for this CSG). The UE shall continue with the network initiated detach procedure.

The UE shall not camp again on Cell B whose CSG ID is not in its Allowed CSG list and it camps on a suitable Cell A. The UE performs the combined PS attach procedure on Cell A.

Expected Sequence

Step	Direction UE | SS	Message	Comments
			The following messages are sent and shall be received on cell A.
1	SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-suitable cell". (See note)
2	UE		The UE is set in UE operation mode A (see ICS). The UE is powered up or switched on and initiates an attach (see ICS).
3	->	ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
4	<-	AUTHENTICATION AND CIPHERING REQUEST	
5	->	AUTHENTICATION AND CIPHERING RESPONSE	
6	SS		The SS starts integrity protection.
7	<-	ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS identity = TMSI-1 Routing area identity = RAI-1
8	->	ATTACH COMPLETE	
			The following messages are sent and shall be received on cell B.
9	SS		Set the cell type of cell B to the "Serving cell". Set the cell type of cell A to the "Suitable neighbour cell". The SS configures power level of each Cell as follows. Cell B > Cell A
10	UE		UE reselects to Cell B
11	UE		The UE initiates a PS detach (without power off) by MMI or AT command.
12	->	DETACH REQUEST	Detach type = 'normal detach, combined GPRS / IMSI detach'
13	<-	DETACH REQUEST	Detach type = ' not authorized for this CSG '
14	->	DETACH ACCEPT	The UE answers the network initiated detach.
15	SS		The SS initiates the RRC connection release. The following message are sent and shall be received on cell A
16	->	ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
17	<-	AUTHENTICATION AND CIPHERING REQUEST	
18	->	AUTHENTICATION AND CIPHERING RESPONSE	
19	SS		The SS starts integrity protection.
20	<-	ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS identity = TMSI-1 Routing area identity = RAI-1
21	->	ATTACH COMPLETE	

NOTE: The definitions for "Suitable neighbour cell", "Non-suitable cell" and "Serving cell" are specified in TS 34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.

Specific message contents

None.

12.3.1.10.5 Test requirements

At step 1-12, UE Allowed CSG List shall contain only CSG 1
At step 13, when the UE receives DETACH REQUEST, UE shall:

- delete the CSG1 from the Allowed CSG List.
- Allowed CSG List shall not contain CSG 1.

At step 14, the UE shall continue the network initiated detach procedure.

At step 16, when the UE camps on a suitable cell in on the same PLMN, UE shall:

- perform the Combined PS attach procedure.

12.3.2 Network initiated PS detach procedure

12.3.2.1 PS detach / re-attach not required / accepted

12.3.2.1.1 Definition

12.3.2.1.2 Conformance requirement

The UE detach the IMSI for PS services.

Reference

3GPP TS 24.008 clause 4.7.4.2.

12.3.2.1.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.2.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II (in case of UE operation mode A).

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A).

User Equipment:

The UE has a valid IMSI.

The UE has been registered in the CS domain (in case of UE operation mode A).

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a PS attach procedure.

The SS sends a DETACH REQUEST message to the UE. The UE then deletes the logical link.

The SS signal to the UE, but no response is received, as the signalling link is disconnected.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		The SS is set in network operation mode II.
2	UE			The UE is set to either attach to PS only or both the PS and non-PS services (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3a		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
6	->		ATTACH COMPLETE	
7		SS		The SS initiates a PS detach.
8	<-		DETACH REQUEST	Detach type = 're-attach not required' GMM cause = ‘GPRS services not allowed’
9	->		DETACH ACCEPT	
9a		SS		The SS releases the RRC connection.
10	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
11	UE			No response from the UE to the request. This is checked for 10 seconds.

Specific message contents

None.

12.3.2.1.5 Test requirements

At step 3a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step9, when the UE receives the DETACH REQUEST message from SS and the detach type IE indicates 're-attach not required', the UE shall:

- send DETACH ACCEPT message to SS.

At step11, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

12.3.2.2 PS detach / rejected / IMSI invalid / PS services not allowed

12.3.2.2.1 Definition

12.3.2.2.2 Conformance requirement

1) If the network performs a PS detach procedure with the cause 'GPRS services not allowed', the User Equipment shall consider USIM invalid for PS services until power is switched off or USIM is removed.

2) If the network performs a PS detach procedure with the cause 'GPRS services not allowed' the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Reference

3GPP TS 24.008 clause 4.7.4.2.

12.3.2.2.3 Test purpose

To test the behaviour of the UE if the network orders a PS detach procedure with the cause 'GPRS services not allowed' (no valid PS-subscription for the IMSI).

12.3.2.2.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (HPLMN, RAI-1) and cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2).
Both cells are operating in network operation mode II.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS performs a detach with the cause value 'GPRS services not allowed'. The SS checks that the UE does not perform PS attach in another PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 22.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
4		->	ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a		<-	AUTHENTICATION AND CIPHERING REQUEST	
4b		->	AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5		<-	ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
6		->	ATTACH COMPLETE	
7		<-	DETACH REQUEST	Detach type = 're-attach not required' Cause = 'GPRS services not allowed'
8		->	DETACH ACCEPT	
				The following messages are sent and shall be received on cell B.
9		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
10	UE			Cell B is preferred by the UE. Step 11 is only performed for UE Operation Mode A.
11	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is IMSI.
12				The UE initiates an attach automatically (see ICS), by MMI or AT commands.
13	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
14	UE			If possible (see ICS) USIM removal is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
15	UE			The UE gets the USIM replaced, is powered up or switched on and initiates an attach (see ICS).
15a	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
16		->	ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
16a		<-	AUTHENTICATION AND CIPHERING REQUEST	
16b		->	AUTHENTICATION AND CIPHERING RESPONSE	
16c		SS		The SS starts integrity protection.

17	<-	ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-2
18	->	ATTACH COMPLETE	
19	UE		The UE is switched off or power is removed (see ICS).
20	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS detach'
20a	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
21			Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
22	UE		The UE is set in UE operation mode A (see ICS) and the test is repeated from step 3 to step 18.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.			

Specific message contents

None.

12.3.2.2.5 Test requirements

At step4 and 15, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, when the UE receives the DETACH REQUEST message (Detach type = 're-attach not required', Cause = 'GPRS services not allowed') from SS, UE shall:

- send DETACH ACCEPT message.

At step13, UE shall:

- not perform PS attach procedure.

12.3.2.3 PS detach / IMSI detach / accepted

12.3.2.3.1 Definition

12.3.2.3.2 Conformance requirement

The UE detach the IMSI for PS services.

Reference

3GPP TS 24.008 clause 4.7.4.2.

12.3.2.3.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.2.3.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The SS sends a DETACH REQUEST message to the UE. The UE then performs an IMSI detach (detach for non-PS services).

The SS signal to the UE, but no response is received, as the signalling link is disconnected.

The UE attach for non-PS services by a routing area update procedure. Both PS and CS services are possible.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS identity = IMSI Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	SS			The SS initiates a detach for non-PS services.
7	<-		DETACH REQUEST	Detach type = 'IMSI detach'
8	->		DETACH ACCEPT	
9	UE			The UE initiates an attach for non-PS services (see ICS).
10	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
11	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature MS identity = TMSI-1 Routing area identity = RAI-1
12	->		ROUTING AREA UPDATE COMPLETE	
13	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
14	->		RRC CONNECTION REQUEST	
15	<-		RRC CONNECTION SETUP	
16	->		RRC CONNECTION SETUP COMPLETE	
17	->		PAGING RESPONSE	Mobile identity = TMSI-1
18	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
19	->		RRC CONNECTION RELEASE COMPLETE	

Specific message contents

None.

12.3.2.3.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, when the UE receives the DETACH REQUEST message with Detach type = 'IMSI detach', UE shall;

- send the DETACH ACCEPT message to SS.

At step10, after the completion of the detach procedure, UE shall;

- perform combined routing area updating procedure.

At step17, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

12.3.2.4 PS detach / re-attach requested / accepted

12.3.2.4.1 Definition

12.3.2.4.2 Conformance requirement

When receiving the DETACH REQUEST message and the detach type IE indicates "re-attach required", the UE shall deactivate the PDP contexts and deactivate the logical link(s), if any. The UE shall then send a DETACH ACCEPT message to the network and shall change state to GMM-DEREGISTERED. The UE shall, after the completion of the GPRS detach procedure, initiate a GPRS attach procedure. The UE should also activate PDP context(s) to replace any previously active PDP contexts.

A GPRS UE operating in UE operation mode A or B in network operation mode I, which receives an DETACH REQUEST message with detach type indicating "re-attach required" or "re-attach not required" and no cause code, is only detached for GPRS services in the network.

Reference

3GPP TS 24.008 clause 4.7.4.2.2.

12.3.2.4.3 Test purpose

To test the behaviour of the UE for the detach procedure in case automatic re-attach.

12.3.2.4.4 Method of test

Initial condition

System Simulator:

One cell in operating in network operation mode I.

User Equipment:

The UE has a valid TMSI, P-TMSI and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The SS sends a DETACH REQUEST message to the UE with cause re-attach. The UE then detaches for PS services. The UE automatically performs a new combined PS attach procedure with Attach Type “GPRS attach while IMSI attached” (for PS services) and PS and CS services are again possible.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Mobile identity = TMSI-1 Routing area identity = RAI-1 No new P-TMSI and P-TMSI signature assigned
5	->		ATTACH COMPLETE	
6	SS			The SS initiates a detach with re-attach.
7	<-		DETACH REQUEST	Detach type = 're-attach required', GMM cause omitted
8	->		DETACH ACCEPT	
9	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
10	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Mobile identity = TMSI-1 Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
11	->		ATTACH COMPLETE	
12	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
12a	->		RRC CONNECTION REQUEST	
12b	<-		RRC CONNECTION SETUP	
12c	->		RRC CONNECTION SETUP COMPLETE	
13	->		SERVICE REQUEST	service type = "paging response"
13a	<-		RRC CONNECTION RELEASE	
13b	->		RRC CONNECTION RELEASE COMPLETE	
14	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
15	->		RRC CONNECTION REQUEST	
16	<-		RRC CONNECTION SETUP	
17	->		RRC CONNECTION SETUP COMPLETE	
18	->		PAGING RESPONSE	Mobile identity = TMSI-1
19	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
20	->		RRC CONNECTION RELEASE COMPLETE	

Specific message contents

None.

12.3.2.4.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, when the UE receives DETACH REQUEST message with Detach type = 're-attach required', UE shall;

- send DETACH ACCEPT message to SS.

At step9, after UE completed PS detach procedure with Detach type = 're-attach required', UE shall:

- initiate the combined PS attach procedure with an Attach Type of either 'Combined GPRS/IMSI attach' or ‘GPRS attach while IMSI attached’.

At step13, when the UE receives the paging message for PS domain, UE shall;

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step18, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

12.3.2.5 PS detach / rejected / location area not allowed

12.3.2.5.1 Definition

12.3.2.5.2 Conformance requirement

1) If the network performs a PS detach procedure with the cause 'location area not allowed' the User Equipment shall:

   1.1 not perform combined PS attach when in the same location area.

   1.2 delete any RAI or LAI, P-TMSI, P-TMSI signature and PS ciphering key sequence number
   .

   1.3 store the LAI in the list of the 'forbidden location areas for regional provision of service'.

   1.4 delete any TMSI, LAI and ciphering key sequence number if the UE is IMSI attached and if no RRC connection exists or if the UE is operating in UE operation mode A and an RRC connection exists when the RRC connection is subsequently released.

2) If the network performs a PS detach procedure with the cause 'location area not allowed' the User Equipment shall:

   2.1 perform combined PS attach when a new location area is entered.

   2.2 delete the list of forbidden LAs when power is switched off.

Reference

3GPP TS 24.008 clauses 4.7.4.2.

12.3.2.5.3 Test purpose

To test the behaviour of the UE if the network orders the PS detach procedure with the cause 'Location Area not allowed'.

To test that the UE deletes the list of forbidden LAs when power is switched off.

12.3.2.5.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC2/MNC1/LAC1/RAC2 (RAI-2, Not HPLMN), cell B in MCC2/MNC1/LAC1/RAC2 (RAI-7, Not HPLMN), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6, Not HPLMN).
All cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
PS attach attempted automatically by outstanding request Yes/No

Test procedure

The SS orders a PS detach with the cause value 'Location Area not allowed'. The SS checks that the UE does not perform combined PS attach while in the location area, performs PS attach when a new location area is entered and deletes the list of forbidden LAs when switched off. CS services are not possible unless an IMSI attach procedure is performed.

Different types of UE may use different methods to periodically clear the list of forbidden location areas (e.g. every day at 12am). If the list is cleared while the test is being run, it may be necessary to re-run the test.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell ". Set the cell type of cell C to the "Non-Suitable cell ". (see note)
2	UE			The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS identity = TMSI-1 Routing area identity = RAI-2
6	->		ATTACH COMPLETE	
7	<-		DETACH REQUEST	Detach type = 're-attach not required' Cause 'Location Area not allowed'
8	->		DETACH ACCEPT	
9	UE			No LOCATION UPDATING REQ with type 'IMSI attach' is sent to the SS (SS waits 30 seconds).
10	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
11	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
12	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
13	UE			No response from the UE to the request. This is checked for 10 seconds
		SS		The following messages are sent and shall be received on cell B.
14		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
15	UE			Cell B is preferred by the UE.
16	UE			The UE initiates an attach automatically, by MMI or by AT command.
17	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds)
18	UE			No LOCATION UPDATING REQ with type 'IMSI attach' is sent to the SS (SS waits 30 seconds).
19	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
20	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
21	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
22				No response from the UE to the request. This is checked for 10 seconds

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell C.
23		SS		Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
24	UE			Cell C is preferred by the UE. Step 25 and 26 are only performed by an UE which will not initiate a PS attach automatically (see ICS)
25 conditional	UE		Registration on CS	See TS34.108 Parameter mobile identity is IMSI.
26 conditional	UE			The UE initiates an attach by MMI or AT command.
27	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
28	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI1 P-TMSI Signature = P-TMSI-1 signature MS identity = TMSI-1 Routing area identity = RAI-6
29	->		ATTACH COMPLETE	
30	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
31	->		RRC CONNECTION REQUEST	
32	<-		RRC CONNECTION SETUP	
33	->		RRC CONNECTION SETUP COMPLETE	
34	->		PAGING RESPONSE	Mobile identity = TMSI-1
35	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
36	->		RRC CONNECTION RELEASE COMPLETE	
37	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
38	->		RRC CONNECTION REQUEST	
39	<-		RRC CONNECTION SETUP	
40	->		RRC CONNECTION SETUP COMPLETE	
41	->		SERVICE REQUEST	service type = "paging response"
42	<-		RRC CONNECTION RELEASE	
43	->		RRC CONNECTION RELEASE COMPLETE	
44	UE			The UE is switched off or power is removed (see ICS).
45	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS / IMSI detach'
45a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
				The following messages are sent and shall be received on cell B.
46	UE			Set the cell type of cell B to the "Serving cell". Set the cell type of cell C to the "Non-Suitable cell". (see note) Cell B is preferred by the UE.
47	UE			The UE is powered up or switched on and initiates an attach (see ICS).

Step	Direction		Message	Comments
	UE	SS		
				Step 48 is only performed for non-auto attach UE.
48	UE		Registration on CS	See TS34.108 Parameter mobile identity is TMSI-1
49	UE			UE initiates an attach automatically (see ICS), by MMI or AT commands.
50	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-6 TMSI status = valid TMSI available or IE not present
51	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature MS identity = TMSI-2 Routing area identity = RAI-7
52	->		ATTACH COMPLETE	
53	<-		PAGING TYPE1	Mobile identity = TMSI-2 Paging order is for CS services.
54	->		RRC CONNECTION REQUEST	
55	<-		RRC CONNECTION SETUP	
56	->		RRC CONNECTION SETUP COMPLETE	
57	->		PAGING RESPONSE	Mobile identity = TMSI-2
58	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
59	->		RRC CONNECTION RELEASE COMPLETE	
60	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
61	->		RRC CONNECTION REQUEST	
62	<-		RRC CONNECTION SETUP	
63	->		RRC CONNECTION SETUP COMPLETE	
64	->		SERVICE REQUEST	service type = "paging response"
65	<-		RRC CONNECTION RELEASE	
66	->		RRC CONNECTION RELEASE COMPLETE	
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.3.2.5.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, when the UE receive the DETACH REQUEST message (Detach type = 're-attach not required', Cause = 'Location Area not allowed') from SS, UE shall:

- send the DETACH ACCEPT message.

UE shall perform the following action depending on UE location.

1) UE is in the same location area.

At step9 and 18, UE shall:

- not perform location updating procedure.

At step11 and 20, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for PS domain.

At step13 and 22, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step17, UE shall;

- not perform PS attach procedure.

2) UE is in the new location area.

At step27, UE shall;

- perform the combined PS attach procedure.

At step34, when the UE receives the paging message for CS domain with Mobile identity = IMSI, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step41, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-1, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step50, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence

At step57, when the UE receives the paging message for CS domain with Mobile identity = IMSI, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step64, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-1, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.3.2.6 PS detach / rejected / No Suitable Cells In Location Area

12.3.2.6.1 Definition

12.3.2.6.2 Conformance requirement

1. If the network performs a PS detach procedure with the cause 'No Suitable Cells In Location Area', the User Equipment shall:

   1.1 delete the stored LAI, CKSN, TMSI, RAI, PS-CKSN, P-TMSI and P-TMSI signature.

   1.2 store the LA in the 'forbidden location areas for roaming'.

Reference

3GPP TS 24.008 clauses 4.7.4.2.

12.3.2.6.3 Test purpose

To test the behaviour of the UE if the network sends the DETACH REQUEST message with the cause 'No Suitable Cells In Location Area'.

12.3.2.6.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

All three cells are operating in network operation mode I.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE) in all cells.

Sintrasearch and Sintersearch values for cells A, B and C are 20 dB.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS sends a DETACH REQUEST message with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall not perform combined PS attach while in the same location area on the same PLMN. The SS checks that the UE shall perform PS attach when the UE enters a suitable cell in a different location area on the same PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note) The SS configures power level of each Cell as follows. Cell A > Cell B = Cell C
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS identity = TMSI-1 Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	<-		DETACH REQUEST	Detach type = 're-attach not required' Cause 'No Suitable Cells In Location Area'
7	->		DETACH ACCEPT	
				The following message are sent and shall be received on cell B.
8	UE			The UE initiates an attach automatically, by MMI or by AT command.
9	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
10	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature MS identity = TMSI-2 Routing area identity = RAI-□
11	->		ATTACH COMPLETE	
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.3.2.6.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step9, when the UE enters a suitable cell in a different location area on the same PLMN, UE shall:

- perform the PS attach procedure.

12.3.2.7 PS detach / rejected / Roaming not allowed in this location area

12.3.2.7.1 Definition

12.3.2.7.2 Conformance requirement

1) If the network performs a PS detach procedure with the cause 'Roaming not allowed in this location area' the User Equipment shall:

   1.1 delete any RAI, P-TMSI, P-TMSI signature and PS ciphering key sequence number.

   1.2 set the GPRS update status to GU3 ROAMING NOT ALLOWED.

   1.3 reset the attach attempt counter.

   1.4 store the LAI in the list of "forbidden location areas for roaming".

   1.5 perform a PLMN selection.

2) If the UE is IMSI attached via MM procedures, the UE shall in addition:

   2.1 delete any TMSI, LAI and ciphering key sequence number.

   2.2 reset the location update attempt counter.

Reference

3GPP TS 24.008 clauses 4.7.4.2.

12.3.2.7.3 Test purpose

To test the behaviour of the UE if the network orders the PS detach procedure with the cause ' Roaming not allowed in this location area '.

12.3.2.7.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN), cell B in MCC2/MNC1/LAC1/RAC2 (RAI-7, Not HPLMN), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6, Not HPLMN).
All cells are operating in network operation mode I.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
UE supports CS call establishment Yes/No

Test procedure

The SS orders a PS detach with the cause value ' Roaming not allowed in this location area '. The SS checks that the UE does not perform combined PS attach while in the location area, performs PS attach when a new location area is entered

and deletes the list of forbidden LAs when switched off. CS services are not possible unless an IMSI attach procedure is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4		->	ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
4a		<-	AUTHENTICATION AND CIPHERING REQUEST	
4b		->	AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5		<-	ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS identity = TMSI-1 Routing area identity = RAI-2
6		->	ATTACH COMPLETE	
7		<-	DETACH REQUEST	Detach type = 're-attach not required' Cause 'Roaming not allowed in this location area '
8		->	DETACH ACCEPT	
9	UE			No LOCATION UPDATING REQ with type 'IMSI attach' is sent to the SS (SS waits 30 seconds).
10		<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services. Paging cause = "Terminating conversational call [UE supports CS call establishment] or Terminating Low Priority Signalling"
11	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
12		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
13	UE			No response from the UE to the request. This is checked for 10 seconds
		SS		The following messages are sent and shall be received on cell B.
14		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
15	UE			Cell B is preferred by the UE.
16	UE			The UE initiates an attach automatically, by MMI or by AT command.
17	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds)
18	UE			No LOCATION UPDATING REQ with type 'IMSI attach' is sent to the SS (SS waits 30 seconds).
19		<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services. Paging cause = "Terminating conversational call [UE supports CS call establishment] or Terminating Low Priority Signalling"

Step	Direction		Message	Comments
	UE	SS		
20	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
21	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
22				No response from the UE to the request. This is checked for 10 seconds
23		SS		The following messages are sent and shall be received on cell C. Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
24	UE			Cell C is preferred by the UE.
25	UE		Registration on CS	See TS34.108. Step 25 is only Optionally performed for non-auto attach UE A non auto attach UE may perform CS only registration
26	UE			The UE initiates an attach automatically (See ICS), by MMI or AT command.
27	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
27a	←		AUTHENTICATION AND CIPHERING REQUEST	
27b	→		AUTHENTICATION AND CIPHERING RESPONSE	
27c	SS			The SS starts integrity protection.
28	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI1 P-TMSI Signature = P-TMSI-1 signature MS identity = TMSI-1 Routing area identity = RAI-6
29	->		ATTACH COMPLETE	
30	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services. Paging cause = "Terminating conversational call [UE supports CS call establishment] or Terminating Low Priority Signalling"
31	->		RRC CONNECTION REQUEST	
32	<-		RRC CONNECTION SETUP	
33	->		RRC CONNECTION SETUP COMPLETE	
34	->		PAGING RESPONSE	Mobile identity = TMSI-1
35	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
36	->		RRC CONNECTION RELEASE COMPLETE	
37	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
38	->		RRC CONNECTION REQUEST	
39	<-		RRC CONNECTION SETUP	
40	->		RRC CONNECTION SETUP COMPLETE	
41	->		SERVICE REQUEST	service type = "paging response"
42	<-		RRC CONNECTION RELEASE	
43	->		RRC CONNECTION RELEASE COMPLETE	
44	UE			The UE is switched off or power is removed (see ICS).
45	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS / IMSI detach'
45a		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell B.
46	UE			Set the cell type of cell B to the "Serving cell". Set the cell type of cell C to the "Non-Suitable cell". (see note) Cell B is preferred by the UE.
47	UE			The UE is powered up or switched on and initiates an attach (see ICS). Step 48 is only performed for non-auto attach UE.
48	UE		Registration on CS	See TS34.108 SS allocates Mobile identity = TMSI-1.
49	UE			UE initiates an attach automatically (see ICS), by MMI or AT commands.
50	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-6 TMSI status = valid TMSI available or IE not present
51	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature MS identity = TMSI-2 Routing area identity = RAI-7
52	->		ATTACH COMPLETE	
53	<-		PAGING TYPE1	Mobile identity = TMSI-2 Paging order is for CS services. Paging cause = "Terminating conversational call [UE supports CS call establishment] or Terminating Low Priority Signalling"
54	->		RRC CONNECTION REQUEST	
55	<-		RRC CONNECTION SETUP	
56	->		RRC CONNECTION SETUP COMPLETE	
57	->		PAGING RESPONSE	Mobile identity = TMSI-2
58	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
59	->		RRC CONNECTION RELEASE COMPLETE	
60	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
61	->		RRC CONNECTION REQUEST	
62	<-		RRC CONNECTION SETUP	
63	->		RRC CONNECTION SETUP COMPLETE	
64	->		SERVICE REQUEST	service type = "paging response"
65	<-		RRC CONNECTION RELEASE	
66	->		RRC CONNECTION RELEASE COMPLETE	
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.3.2.7.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, when the UE receive the DETACH REQUEST message (Detach type = 're-attach not required', Cause = ' Roaming not allowed in this location area') from SS, UE shall:

- send the DETACH ACCEPT message.

UE shall perform the following action depending on UE location.

1) UE is in the same location area.

At step9 and 18, UE shall:

- not perform location updating procedure.

At step11 and 20, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for PS domain.

At step13 and 22, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step17, UE shall;

- not perform PS attach procedure.

2) UE is in the new location area.

At step27, UE shall;

- perform the combined PS attach procedure.

At step34, when the UE receives the paging message for CS domain with Mobile identity = TMSI-1, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step41, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-1, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step50, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence

At step57, when the UE receives the paging message for CS domain with Mobile identity = TMSI-2, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step64, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-2, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.3.2.8 PS detach / rejected / PS services not allowed in this PLMN

12.3.2.8.1 Definition

12.3.2.8.2 Conformance requirement

If the network performs a PS detach procedure with the cause ' GPRS services not allowed in this PLMN ', the UE:

1. shall delete any RAI, P-TMSI, P-TMSI signature, and PS ciphering key sequence number stored, shall set the PS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall change to state GMM-DEREGISTERED.
2. shall store the PLMN identity in the "forbidden PLMNs for PS service" list.

If the network performs a PS detach procedure with the cause ' GPRS services not allowed in this PLMN ', the UE operating in UE operation mode A in network operation mode I:

1. shall set the timer T3212 to its initial value and restart it, if it is not already running.
2. is still IMSI attached for CS services in the network.

Reference(s):

3GPP TS 24.008 subclause 4.7.4.2.2

12.3.2.8.3 Test purpose

Test purpose for Test procedure1

To test the behaviour of the UE if the network initiates a PS detach procedure with the cause "GPRS services not allowed in this PLMN" (for Conformance requirement1, 2).

Test purpose for Test procedure2

To test the behaviour of the UE operating in UE operation mode A in network operation mode I if the network initiates a PS detach procedure with the cause "GPRS services not allowed in this PLMN" (for Conformance requirement3, 4).

12.3.2.8.4 Method of test

Proc 1: Test procedure 1

Initial conditions

System Simulator:

Two cells cellA in MCC2/MNC1/LAC1/RAC1(RAI-2, Not HPLMN), cellB in MCC1/MNC2/LAC2/RAC1.
Both cells are operating in network operation mode II.
The PLMN contains Cell B is equivalent to the PLMN that contains Cell A.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE) in both cells.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid TMSI-1, P-TMSI-1 and RAI-2.

The UE has been registered in the CS domain.

Related ICS/IXIT statement(s)

- Support of PS service Yes/No.
- UE operation mode A Yes/No
- UE operation mode C Yes/No (only if mode A not supported)..
- Switch off on button Yes/No.
- Automatic PS attach procedure at switch on or power on Yes/No.

Test procedure

Two cells are configured.

Cell A transmits with higher power so that the UE attempts an attach procedure to cell A.

Cell B is configured as “non-Suitable Cell”.

The UE initiates a PS attach procedure.

The SS sends a PS detach with the cause "GPRS services not allowed in this PLMN".

The SS verifies that the UE does not perform a periodic ROUTING AREA UPDATE procedure in this PLMN after the timer T3312 is expired and does not respond a paging for PS services.

Cell B transmits with high power so that the UE attempts an attach procedure to cell B.

The UE initiates a PS attach procedure.

The SS verifies that the UE performs a periodic ROUTING AREA UPDATE procedure.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
	SS			The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode A or C (see ICS).
2	SS			Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the " non-Suitable cell "
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-2
5	<-		AUTHENTICATION AND CIPHERING REQUEST	
6	->		AUTHENTICATION AND CIPHERING RESPONSE	
7	SS			The SS starts integrity protection.
8	<-		ATTACH ACCEPT	Attach result = ' GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-2 Equivalent PLMNs = MCC1,MNC2 Periodic RA Update Timer (T3312) = 6minutes
9	->		ATTACH COMPLETE	
10	<-		DETACH REQUEST	Detach Type = 're-attach not required' Cause = 'GPRS services not allowed in this PLMN'
11	->		DETACH ACCEPT	
12	SS			The SS releases the RRC connection.
13	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
14	UE			No response from the UE to the request. This is checked for 10 seconds.
15	UE			The SS verifies that the UE does not attempt to access the network for T3312.
				The following messages are sent and shall be received on cell B.

16	SS			If UE is set in UE operation mode C then
				Set the cell type of cell A to the "Suitable neighbour cell ".
				If UE is set in UE operation mode A then
				Set the cell type of cell A to the "Non Suitable neighbour cell ".
				Set the cell type of cell B to the "Serving cell " (see note)

17				Cell B is preferred by the UE.
18			Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
19				The UE initiates an attach automatically (See ICS), by MMI or AT command.
20	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
21	<-		AUTHENTICATION AND CIPHERING REQUEST	
22	->		AUTHENTICATION AND CIPHERING RESPONSE	
23	SS			The SS starts integrity protection.

24	<-	ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-9 Equivalent PLMNs = MCC2,MNC1 Periodic RA Update Timer (T3312) = 6minutes
25	->	ATTACH COMPLETE	
25a	SS		The SS releases the RRC connection.
25b	SS		The SS verifies that the UE does not attempt to access the network for T3312.
26	SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
27	->	ROUTING AREA UPDATING REQUEST	Update type = 'Periodic updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-9
28	<-	ROUTING AREA UPDATING ACCEPT	No new mobile identity assigned. P-TMSI and TMSI not included. Update result = 'RA updated' Equivalent PLMNs = MCC2,MNC1
NOTE:	The definitions for "Suitable neighbour cell", "Non-suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.		

Specific message contents

None.

Proc 2: Test procedure 2

Initial conditions

System Simulator:

One cell is operating in network operation mode I: MCC2/MNC1/LAC1/RAC1(RAI-2, Not HPLMN).

User Equipment:

The UE has a valid TMSI-1, P-TMSI-1 and RAI-2.

Related ICS/IXIT statement(s)

- Support of PS service Yes/No.
- UE operation mode A Yes/No
- Switch off on button Yes/No.
- Automatic PS attach procedure at switch on or power on Yes/No.

Test procedure

One cell is configured.

The UE initiates a combined attach procedure.

The SS sends a PS detach with the cause "GPRS services not allowed in this PLMN".

The SS verifies that the UE performs a periodic location area updating procedure after the timer T3212 is expired.

The SS verifies that the UE responds a paging for CS services.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-2
4	<-		AUTHENTICATION AND CIPHERING REQUEST	
5	->		AUTHENTICATION AND CIPHERING RESPONSE	
6	SS			The SS starts integrity protection.
7	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-2
8	->		ATTACH COMPLETE	
9	<-		DETACH REQUEST	Detach Type = 're-attach not required' Cause = 'GPRS services not allowed in this PLMN'
10	->		DETACH ACCEPT	
11				The SS releases the RRC connection
12	SS			The SS waits for the UE to expiry the timer T3212.
13	UE		Registration on CS	The UE performs a location update procedure. See TS 34.108 Mobile identity = IMSI
14	<-		PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services. Paging cause = "Terminating conversational call"
15	SS			The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
16	->		PAGING RESPONSE	Mobile identity = IMSI
17				The SS releases the RRC connection

Specific message contents

None.

12.3.2.8.5 Test Requirement

Test Requirement for Test procedure1

At step4, when the UE is powered up or switched on, the UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step11, when the UE receives DETACH REQUEST message with the cause "GPRS services not allowed in this PLMN", the UE shall:

- send DETACH ACCEPT message.

At step13, when the UE receives the paging for PS services with "Mobile identity = P-TMSI-2", the UE shall;

- not respond to the paging for PS services.

At step14, when the time T3312 is expired, the UE shall:

- not attempt to access the network.

At step20, when the UE enters the different cell with the equivalent PLMN, the UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step27, when the time T3312 is expired, the UE shall:

- initiate the periodic routing area updating procedure with the information elements specified in the above Expected Sequence.

Test Requirement for Test procedure2

At step3, when the UE is powered up or switched on, the UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step10, when the UE receives DETACH REQUEST message with cause "GPRS services not allowed in this PLMN ", the UE shall:

- send DETACH ACCEPT message.

At step12, while the SS wait for the timer T3312 to expire, the UE shall:

- not perform the periodic location area updating procedure.

At step13, when the T3212 timer is expired, the UE shall:

- initiate the periodic location area updating procedure.

At step16, when the UE receives the paging for CS services with "Mobile identity = IMSI", the UE shall;

- respond to the paging for CS services by sending the PAGING RESPONSE message.

12.4 Routing area updating procedure

This procedure is used to update the actual routing area of an UE in the network.

12.4.1 Normal routing area updating

The routing area updating procedure is a GMM procedure used by PS UEs of UE operation mode A or C that are IMSI attached for PS services only.

12.4.1.1a Routing area updating / accepted

12.4.1.1a.1 Definition

12.4.1.1a.2 Conformance requirement

1) If the network accepts the routing area updating procedure and reallocates a P-TMSI, the UE shall acknowledge the new P-TMSI and continue communication with the new P-TMSI.

2) If the network accepts the routing area updating procedure from the UE without reallocation of the old P-TMSI, the UE shall continue communication with the old P-TMSI.

3) The routing area updating procedure shall also be used by a UE which is attached for PS services if a new PLMN is entered.

Reference

3GPP TS 24.008 clause 4.7.5, 4.7.5.1.

12.4.1.1a.3 Test purpose

To test the behaviour of the UE if the network accepts the routing area updating procedure.

The following cases are identified:

1) P-TMSI / P-TMSI signature is reallocated.

2) Old P-TMSI / P-TMSI signature is not changed.

To test the behaviour of the UE if the UE enters the new PLMN.

12.4.1.1a.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC1/RAC2 (RAI-7).
All three cells are operating in network operation mode II.
The PLMN contains cell C is equivalent to the PLMN that contains cell A.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A) in all cells.

Sintrasearch and Sintersearch values for cells A, B and C are 20 dB.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid IMSI.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

1) The UE sends a ROUTING AREA UPDATE REQUEST message. The SS reallocates the P-TMSI and returns ROUTING AREA UPDATE ACCEPT message with a new P-TMSI. The UE acknowledge the new P-TMSI by sending ROUTING AREA UPDATE COMPLETE message. Further communication UE - SS is performed by the new P-TMSI. The UE will not answer signalling addressed to the old P-TMSI.

2) The UE sends a ROUTING AREA UPDATE REQUEST message. The SS accepts the P-TMSI and returns ROUTING AREA UPDATE ACCEPT message without any P-TMSI. Further communication UE - SS is performed by the P-TMSI.

3) The UE sends a ROUTING AREA UPDATE REQUEST message. The SS reallocates the P-TMSI and returns ROUTING AREA UPDATE ACCEPT message with a new P-TMSI. The UE acknowledge the new P-TMSI by sending ROUTING AREA UPDATE COMPLETE message.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note)
2		UE		The UE is set to attach to PS services only (see ICS). If that is not supported by the UE, goto step 32.
3		UE		The UE is powered up or switched on and initiates an attach (see ICS).
3a		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 Equivalent PLMN: MCC = 2, MNC = 1
6	->		ATTACH COMPLETE	
6a		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7a		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signatureOld P-TMSI signature= Routing area identOld ity = RAI-1
8a		SS		The SS starts integrity protection.
9	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-4 Equivalent PLMNs = MCC2,MNC1
10	->		ROUTING AREA UPDATE COMPLETE	
11			Void	
11b			Void	
11c		SS		The SS releases the RRC connection.
11d	<-		PAGING TYPE1	Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = Paging order is for PS services.
11e		SS		SS verifies that the UE transmits an RRC CONNECTION REQUEST message. SS will reject this request. The IE "Establishment cause" is not checked.
12	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
13		UE		No response from the UE to the request. This is checked for 10 seconds.

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
14		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
15	UE			Cell A is preferred by the UE.
15a		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
16	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-4
16a		SS		The SS starts integrity protection.
17	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-1 signature Routing area identity = RAI-1 Equivalent PLMN: MCC = 2, MNC = 1
17a		SS		The SS releases the RRC connection.
18	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services. Paging cause = "Terminating interactive call".
18a		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call"
18b			Void	
18c			Void	
19	->		SERVICE REQUEST	service type = "paging response"
19aa		SS		The SS starts integrity protection.
19a		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell C.
20		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell C to the "Serving cell". (see note)
21	UE			Cell C is preferred by the UE.
21a	UE		Registration on CS	See TS 34.108 This is applicable only for UE in UE operation mode A.
22		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
23	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-1
24		SS		The SS starts integrity protection.
25	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-3 P-TMSI Signature = P-TMSI-3 signature Routing area identity = RAI-7 Equivalent PLMNs = MCC1,MNC1
26	->		ROUTING AREA UPDATE COMPLETE	
27		SS		The SS releases the RRC connection.
28	UE			The UE is switched off or power is removed (see ICS).
29		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Detach".

Step	Direction		Message	Comments
	UE	SS		
30	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS detach'
31	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
32	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 3 to step 31.
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.4.1.1a.5 Test requirements

At step 3a, 7a, 15a and 22 the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 18a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Terminating Interactive Call".

At step 29 the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

At step13, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-2, UE shall:

- not respond to the paging message for PS domain.

At step16, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

At step19, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-1, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step23, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

12.4.1.1b Routing area updating / accepted / Signalling connection re-establishment

12.4.1.1b.1 Definition

12.4.1.1b.2 Conformance requirement

When the UE receives an indication from the lower layers that the RRC connection has been released with cause "Directed signalling connection re-establishment", then the UE shall enter PMM-IDLE mode and initiate immediately a normal routing area update procedure (the use of normal or combined procedure depends on the network operation mode in the current serving cell) regardless whether the routing area has been changed since the last update or not.

Reference

3GPP TS 24.008 clause 4.7.2.5, 4.7.5.1

12.4.1.1b.3 Test purpose

To test the behaviour of the UE if the UE receives a RRC CONNECTION RELEASE message with cause = "Directed signalling connection re-establishment".

12.4.1.1b.4 Method of test

Initial condition

System Simulator:

One cell(Cell A) in MCC1/MNC1/LAC1/RAC1 (RAI-1) operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A) in all cells.

User Equipment:

The UE has a valid TMSI, P-TMSI-1 and RAI-1

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

a) The UE initiates a Service request procedure in order to establish the PS signalling connection for the upper layer signalling.

b) After the Service request procedure is complete, the SS sends the RRC CONNECTION RELEASE message with cause = "Directed signalling connection re-establishment" to the UE.

c) After the UE release the RRC connection, the UE initiate immediately a normal routing area update procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode C (see ICS). If that is not supported by the UE, goto step 19.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI1
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = ' GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
7	->		SERVICE REQUEST	Service type = "signalling",
8	<-		AUTHENTICATION AND CIPHERING REQUEST	
9	->		AUTHENTICATION AND CIPHERING RESPONSE	
10	SS			The SS starts integrity protection.
10a	SS			After reception of Activate PDP Context request SS sends Activate PDP context Reject (with cause 31) so that timer T3380 is stopped in the UE.
10b	SS			A non auto attach UE may optionally send Detach Request. After receiving Detach Request Message, SS does not respond to this and moves to step 11.
11	SS			The SS releases the RRC connection, using Release cause=Directed Signalling Connection Re-establishment
12			Void	
13	SS			SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Call re-establishment".
14			Void	
15			Void	
16	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' (FOR bit not checked) Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-1
16a				The SS starts integrity protection.
17	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
18	->		ROUTING AREA UPDATE COMPLETE	
18a	SS			If UE transmits Detach Request Message at step 10b, expect to receive the message again at this step.
19				The UE is set in UE Operation mode A (see ICS). And the test is repeated from step 2 to step 18.

Specific message contents

None.

12.4.1.1b.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step16, UE shall;

- initiate the routing area updating procedure whether the routing area has been changed since the last update or not.

12.4.1.1c Void

12.4.1.1dm Handling of MBMS context status information in ROUTING AREA UPDATE procedure/ MBMS Multicast Service

12.4.1.1dm.1 Definition

This Test is applicable for all Rel-6 UEs supporting MBMS multicast services.

12.4.1.1dm.2 Conformance requirement

If the MBMS context status information element is included in the ROUTING AREA UPDATE ACCEPT message, then the MS shall deactivate all those MBMS contexts locally (without peer to peer signalling between the MS and network) which are not in SM state PDP-INACTIVE in the MS, but are indicated by the network as being in state PDP-INACTIVE. If no MBMS context status information element is included, then the MS shall deactivate all those MBMS contexts locally which are not in SM state PDP-INACTIVE in the MS.

Reference

3GPP TS 24.008 [4] clause 4.7.5.1.3.

12.4.1.1dm.3 Test purpose

1. To verify that the UE includes correctly the MBMS context status information in the ROUTING AREA UPDATE REQUEST message.

2. To verify that if the MBMS context status information element is included in the ROUTING AREA UPDATE ACCEPT message, then the UE deactivates all those MBMS contexts locally (without peer to peer signalling between the UE and network) which are not in SM state PDP-INACTIVE in the UE, but are indicated by the network as being in state PDP-INACTIVE.

3. To verify that if no MBMS context status information element is included, then the UE deactivates all MBMS contexts locally which are not in SM state PDP-INACTIVE in the MS.

12.4.1.1dm.4 Method of test

Initial condition

System Simulator:

Three MBMS cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC1/RAC2 (RAI-7).
All three cells are operating in network operation mode II.
The PLMN contains cell C is equivalent to the PLMN that contains cell A.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A) in all cells.

Sintrasearch and Sintersearch values for cells A, B and C are set to 20 dB.

Note: Cell A is mapped to Cell 21, Cell B is mapped to Cell 22 and Cell C is mapped to Cell 24 as found in TS 34.108 [9] clause 6.1.4.3.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN in cell A.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

The UE has one PDP context activated, three MBMS contexts activated in SM state MBMS-ACTIVE.

PDP1: trans_id 0 and nsapi 5

MBMS-1 (MBMS-ACTIVE): trans_id 1 and nsapi 128

MBMS-2 (MBMS-ACTIVE): trans_id 2 and nsapi 129

MBMS-3 (MBMS-ACTIVE): trans_id 3 and nsapi 130

Related ICS/IXIT statements

MBMS Multicast service application available on UE Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

1) The UE sends a ROUTING AREA UPDATE REQUEST message. The SS verifies the MBMS context status IE and returns a ROUTING AREA UPDATE ACCEPT message with a different MBMS context status IE.

2) The UE sends a ROUTING AREA UPDATE REQUEST message. The SS verifies the MBMS context status IE and returns a ROUTING AREA UPDATE ACCEPT message without an MBMS context status IE.

3) The UE sends a ROUTING AREA UPDATE REQUEST message. The SS verifies the MBMS context status IE is not contained in the message and returns a ROUTING AREA UPDATE ACCEPT message without an MBMS context status IE.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
2				The following messages are sent and shall be received on cell B.
3		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	→		ROUTING AREA UPDATE REQUEST	UE sets nsapi 128 and 129 and 130 as 1 in MBMS context Status IE and all other as 0.
5		SS		The SS starts integrity protection.
6	←		ROUTING AREA UPDATE ACCEPT	SS sets nsapi 128 as 1 and nsapi 129 and 130 as 0 in MBMS Context Status IE. UE locally deactivates MBMS context with nsapi 129 and nsapi 130.
7	→		ROUTING AREA UPDATE COMPLETE	
8		SS		The SS releases the RRC connection.
9		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
10				The following messages are sent and shall be received on cell A.
11	UE			Cell A is preferred by the UE.
12		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
13	→		ROUTING AREA UPDATE REQUEST	UE sets nsapi 128 as 1 in MBMS context Status IE and all other as 0. SS verifies UE deactivated nsapi 129 and 130.
14		SS		The SS starts integrity protection.
15	←		ROUTING AREA UPDATE ACCEPT	SS does not include PDP context status and MBMS Context Status IE. The UE locally deactivates all MBMS contexts and PDP contexts.
16	→		ROUTING AREA UPDATE COMPLETE	
17		SS		The SS releases the RRC connection.
18		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell C to the "Serving cell". (see note)
19				The following messages are sent and shall be received on cell C.
20	UE			Cell C is preferred by the UE.
21		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
22	→		ROUTING AREA UPDATE REQUEST	UE does not include PDP context status IE and MBMS Context Status IE. SS verifies UE deactivated nsapi 128 and UE does not include MBMS and PDP context status IEs when no PDP and MBMS context exists.
23				The SS starts integrity protection.
24	←		ROUTING AREA UPDATE ACCEPT	SS does not include PDP and MBMS Context Status IEs.
25	→		ROUTING AREA UPDATE COMPLETE	

NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 [9] clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.

Specific message contents

ROUTING AREA UPDATE REQUEST (step 4)

Information Element	Value/remark
MBMS context status	
MBMS context status IEI	35
Length of MBMS context status contents	1
	07 (NSAPI 128 =1, NSAPI 129 = 1, NSAPI 130 = 1)

ROUTING AREA UPDATE ACCEPT (step 6)

Information Element	Value/remark
PDP context status	
PDP context status IEI	32
Length of PDP context status contents	1
	2x (NSAPI(5)=1)
MBMS context status	
MBMS context status IEI	35
Length of MBMS context status contents	1
	01 (NSAPI 128 =1, NSAPI 129 = 0, NSAPI 130 = 0)

ROUTING AREA UPDATE REQUEST (step 13)

Information Element	Value/remark
MBMS context status	
MBMS context status IEI	35
Length of MBMS context status contents	1
	01 (NSAPI 128 =1, NSAPI 129 = 0, NSAPI 130 = 0)

Step 15: The SS does not include PDP Context status IE and MBMS Context Status IE.

Note: Allocate P-TMSI in all ROUTING AREA UPDATE ACCEPT.

12.4.1.1dm.5 Test requirements

At step 4, the UE shall set nsapi 128, 129 and 130 as 1 in the MBMS context Status IE and all others as 0.

At step 13, the UE shall set nsapi 128 as 1 in the MBMS context Status IE and all others as 0.

At step 22, the UE shall not include the PDP context status IE and the MBMS Context Status IE.

12.4.1.2 Routing area updating / rejected / IMSI invalid / illegal ME

12.4.1.2.1 Definition

12.4.1.2.2 Conformance requirement

1) If the network rejects a routing area updating procedure from the User Equipment with the cause 'Illegal ME', the User Equipment shall consider USIM invalid for PS services until power is switched off or USIM is removed.

2) If the network rejects a routing area updating procedure from the User Equipment with the cause 'Illegal ME', the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.2.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure of the UE with the cause 'Illegal ME'.

12.4.1.2.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2).
All three cells are operating in network operation mode II (in case of UE operation mode A)
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE) in all cells.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a routing area updating with the cause value 'Illegal ME'. The SS checks that the UE does not perform PS attach in the same or another PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS).
2	SS			The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a			Void	
4		->	ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a		<-	AUTHENTICATION AND CIPHERING REQUEST	
4b		->	AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts integrity protection.
5		<-	ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Attach result = 'GPRS only attached' Routing area identity = RAI-1
				The following messages are sent and shall be received on cell B.
6	SS			Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8		->	ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old Routing area identity = RAI-1
9		<-	ROUTING AREA UPDATE REJECT	GMM cause = 'Illegal ME'
10		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 PAGING TYPE1 (used for NW-mode II). Paging order is for PS services.
11	UE			No response from the UE to the request. This is checked for 10 seconds.
				The following messages are sent and shall be received on cell C.
12	SS			Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell A to the “Non-Suitable cell”. Set the cell type of cell C to the "Serving cell". (see note)
13	UE			Cell C is preferred by the UE.
14	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
15	UE			If possible (see ICS) USIM removal is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
16	UE			The UE gets the USIM replaced, is powered up or switched on and initiates an attach (see ICS).
16a				Step 16b is only performed by UE in operation mode A

16b	UE	Registration on CS	See TS 34.108 SS allocates Mobile identity = TMSI-1.
17	->	ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
17a	<-	AUTHENTICATION AND CIPHERING REQUEST	
17b	->	AUTHENTICATION AND CIPHERING RESPONSE	
17c	SS		The SS starts integrity protection.
18	<-	ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-2
19	->	ATTACH COMPLETE	

NOTE: The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.

Specific message contents

None.

12.4.1.2.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

At step11, after the routing area updating procedure is rejected with GMM cause = 'Illegal ME', UE shall;

- not respond to the paging message for PS domain.

At step14, UE shall,

- not initiate PS attach procedure.

At step17, after the UE is powered up or USIM is replaced, UE shall;

- initiate the PS attach procedure.

12.4.1.3 Routing area updating / rejected / UE identity cannot be derived by the network

12.4.1.3.1 Definition

12.4.1.3.2 Conformance requirement

If the network rejects a routing area updating procedure from the User Equipment with the cause 'MS identity cannot be derived by the network', the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Depending on the manufacturer the UE may or may not perform a PS attach procedure.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.3.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure of the UE with the cause 'MS identity cannot be derived by the network'.

12.4.1.3.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells are operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE) in both cells.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Automatic attach procedure when UE identity cannot be derived by the network Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a normal routing area updating with the cause value 'MS identity cannot be derived by the network'. The UE detach locally. A new PS attach may be performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode C (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity =P-TMSI-1 Old Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
6	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the " Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
8	UE			Cell B is preferred by the UE.
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
10	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'MS identity cannot be derived by the network'
11	UE			If an automatic attach procedure by the UE is not possible when the UE identity cannot be derived by the network (see ICS) goto step 19.
12			Void	
12a		SS		SS shall wait for 1 second to receive the Attach Request in step 13 on the existing RRC Connection. In case ATTACH REQUEST is not received within 1 second then existing RRC Connection is released.
13	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
13a	<-		AUTHENTICATION AND CIPHERING REQUEST	
13b	->		AUTHENTICATION AND CIPHERING RESPONSE	
13c		SS		The SS starts integrity protection.
14	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4
15	->		ATTACH COMPLETE	
16	UE			The UE is switched off or power is removed (see ICS).
17	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS detach'

Step	Direction		Message	Comments
	UE	SS		
18		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
19	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 PAGING TYPE1 (used for NW-mode II). Paging order is for PS services.
20	UE			No response from the UE to the request, as the UE has detached locally. This is checked for 10 seconds.
NOTE: The definitions for "Non-Suitable cell", Suitable neighbour cell and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.4.1.3.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step9, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

UE shall perform the following actions depending on the implementation of the UE.

Case 1) UE supports an Automatic PS attach procedure.

At step13, UE shall;

- initiate the PS attach procedure.

Case 2) UE does not support an Automatic PS attach procedure.

At step20, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

12.4.1.4a Routing area updating / rejected / location area not allowed

12.4.1.4a.1 Definition

12.4.1.4a.2 Conformance requirement

1) If the network rejects a routing area updating procedure from the User Equipment with the cause 'location area not allowed' the User Equipment shall:

   1.1 not perform PS attach when in the same location area.

   1.2 delete the stored RAI, PS-CKSN, P-TMSI, P-TMSI signature and TMSI, LAI and ciphering key sequence number.

   1.3 store the LA in the 'forbidden location areas for regional provision of service'.

   1.4 not delete the list of "equivalent PLMNs".

1.5 perform a cell selection.

2) If the network rejects a routing area updating procedure from the User Equipment with the cause 'location area not allowed' the User Equipment:

2.1 may perform routing area update when a new location area is entered.

2.2 shall delete the list of forbidden LAs after switch off (power off).

Reference

3GPP TS 24.008 clauses 4.7.5.1.

12.4.1.4a.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure of the UE with the cause 'Location Area not allowed'.

To test that the UE deletes the list of forbidden LAs when power is switched off.

12.4.1.4a.4 Method of test

Initial condition

System Simulator:

Four cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) , cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell D in MCC2/MNC1/LAC2/RAC1(RAI-6).
All four cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE) in all cells.

The PLMN contains Cell D is equivalent to the PLMN that contains Cell C.

NB: i) Cell D will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid IMSI.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a routing area updating with the cause value 'Location Area not allowed'. The SS checks that the UE does not perform PS attach while in the location area, performs PS attach when a new location area is entered and deletes the list of forbidden LAs when switched off.

Different types of UE may use different methods to periodically clear the list of forbidden location areas (e.g. every day at 12am). If the list is cleared while the test is being run, it may be necessary to re-run the test.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
	SS			The following messages are sent and shall be received on cell C.
1	SS			Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". Set the cell type of cell D to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 33.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell C is preferred by the UE.
3a			Void	
4	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-3 Equivalent PLMNs = MCC2,MNC1
6	->		ATTACH COMPLETE	
6a	SS			The SS releases the RRC connection.
				The following messages are sent and shall be received on cell B.
7	SS			Set the cell type of cell B to the "Serving cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
8	SS			Cell B is preferred by the UE.
8a				The following step is only performed for UE Operation Mode A.
8b	UE		Registration on CS	See TS34.108 Parameter mobile identity is IMSI, Equivalent PLMNs = MCC2,MNC1
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-1 signatureOld P-TMSI signature= Routing area identOld ity = RAI-3
10	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Location Area not allowed'
10a	SS			The SS releases the RRC connection.
11	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 PAGING TYPE1 (used for NW-mode II). Paging order is for PS services.
12	UE			No response from the UE to the request. This is checked for 10 seconds.
				The following messages are sent and shall be received on cell A.
13	SS			Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
13a	UE			The UE performs cell selection.
14	UE			Cell A is preferred by the UE.

Step	Direction		Message	Comments
	UE	SS		
15	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds)
16	SS			Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell D to the "Serving cell". (see note)
16a	UE			The UE performs cell selection.
17	UE			Cell D is preferred by the UE.
				The following messages are sent and shall be received on cell D.
17a				The following step is only performed for UE Operation Mode A.
17b	UE		Registration on CS	See TS34.108 Parameter mobile identity is IMSI
	UE			The UE initiates a PS attach. If UE does not attach automatically, then UE initiates the attach procedure by MMI or AT command.
18	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
18a	<-		AUTHENTICATION AND CIPHERING REQUEST	
18b	->		AUTHENTICATION AND CIPHERING RESPONSE	
18c	SS			The SS starts integrity protection.
19	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-6 Equivalent PLMNs = MCC1,MNC1
20	->		ATTACH COMPLETE	
20a	SS			The SS releases the RRC connection.
21	UE			If possible (see ICS) USIM removal is performed, go to Step 21a, 21b. Otherwise if possible (see ICS) switch off is performed, go to Step22. Otherwise the power is removed, go to Step22.
21a	->		DETACH REQUEST	Type of detach" = “GPRS detach”, "Power off" = Any value
21b	<-		DETACH ACCEPT	Message not sent if power off detach is performed in step 21a. Go to Step23
22	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS detach'
22a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
23	UE			The UE gets the USIM replaced, is powered up or switched on and initiates an attach (see ICS).
24	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-2 Old Routing area identity = RAI-6
24a	<-		AUTHENTICATION AND CIPHERING REQUEST	
24b	->		AUTHENTICATION AND CIPHERING RESPONSE	
24c	SS			The SS starts integrity protection.
25	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-6 Equivalent PLMNs = MCC1,MNC1
26	->		ATTACH COMPLETE	
26a	SS			The SS releases the RRC connection.

Step	Direction		Message	Comments
	UE	SS		
	SS			The following messages are sent and shall be received on cell A.
27				Set the cell type of cell A to the "Serving cell". Set the cell type of cell D to the "Non-Suitable cell". (see note)
28				Cell A is preferred by the UE.
28a				The following step is only performed for UE Operation Mode A.
28b	UE		Registration on CS	See TS34.108 Parameter mobile identity is IMSI Equivalent PLMNs = MCC2,MNC1
29	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-6
29a	SS			The SS starts integrity protection.
30	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Update result = 'RA updated' Routing area identity = RAI-1 Equivalent PLMNs = MCC2,MNC1
30a	SS			The SS releases the RRC connection.
31	UE			The UE is switched off or power is removed (see ICS).
32	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS detach'
32a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
33	SS			The SS is set in network operation mode II.
34	UE			The UE is set in UE operation mode A (see ICS), cell A is switched off and the test is repeated from step 3 to step 32.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.4.1.4a.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step9, UE shall:

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

At step12, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step12 and 15, when in the same location area, UE shall

- not perform PS attach procedure.

At step18, when a new location area is entered, UE shall

- perform the PS attach procedure.

At step24, when the USIM is replaced , UE shall;

- perform the PS attach procedure.

At step29, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

12.4.1.4b Routing area updating / rejected / No Suitable Cells In Location Area

12.4.1.4b.1 Definition

12.4.1.4b.2 Conformance requirement

1) If the network rejects a routing area updating procedure from the User Equipment with the cause 'No Suitable Cells In Location Area', the User Equipment shall:

1.1 store the LA identity in the 'forbidden location areas for roaming'.

1.2 search for a suitable cell in a different location area on the same PLMN.

1.3 not delete equivalent PLMNs list.

1.4 not delete the MM and GMM contexts

Reference

3GPP TS 24.008 clauses 4.7.5.1.

12.4.1.4b.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure with the cause 'No Suitable Cells In Location Area'.

12.4.1.4b.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC1/MNC1/LAC1/RAC2 (RAI-4),

Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.2.

Cell C will be mapped to Cell 7 as found in TS 34.108 clause 6.1.4.2.

Qqualmin value for cells A and C is -16

All three cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE) in all cells.

User Equipment:

The UE has valid IMSI.

If the UE is in UE operation mode A, then the UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a routing area updating with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall perform Routing Area Update procedure when the UE enters a suitable cell in a different location area on the same PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The UE is set in UE operation mode A or C (see ICS). The following messages are sent and shall be received on cell C.
1		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell C is preferred by the UE.
3	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4
5	->		ATTACH COMPLETE	
6		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note) Cell A is preferred by the UE.
7	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-4 Mobile identity = P-TMSI-1
8	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'No Suitable Cells In Location Area' The following message are sent and shall be received on cell B.
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-4 Mobile identity = P-TMSI-1 The UE shall initiate a location area updating procedure between steps 8 and 12.
10	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-3
11	->		ROUTING AREA UPDATE COMPLETE	
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.4.1.4b.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step7, UE shall;

- initiate the routing area updating procedure.

At step9, when the UE enters a suitable cell in a different location area on the same PLMN, UE shall:

- perform the routing area updating procedure.

12.4.1.4c Routing area updating / rejected / PS services not allowed in this PLMN

12.4.1.4c.1 Definition

12.4.1.4c.2 Conformance requirement

If the network rejects a routing area updating procedure from the User Equipment with the cause 'GPRS services not allowed in this PLMN', the User Equipment shall:

- delete any RAI, P-TMSI, P-TMSI signature, and PS ciphering key sequence number stored.
- shall set the PS update status to GU3 ROAMING NOT ALLOWED.
- store the PLMN identity in the "forbidden PLMNs for GPRS service" list.
- not delete the equivalent PLMN list.

UE shall perform the following actions depending on the update type, UE operation mode and network operation mode.

1) UE is in UE operation mode C

   UE shall perform a PLMN selection instead of a cell selection.

2) UE is in UE operation mode A, update type = periodic updating and Network is in network operation mode I

   UE shall set the timer T3212 to its initial value and restart it, if it is not already running.

3) UE is in UE operation mode A and Network is in network operation mode II.

   UE shall be still IMSI attached for CS services in the network.

Reference

3GPP TS 24.008 clause 4.7.5.1.4 #14

12.4.1.4c.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure of the UE with the cause 'GPRS services not allowed in this PLMN'.

12.4.1.4c.4 Method of test

Proc 1: Test procedure 1

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC2/LAC1/RAC1 (RAI-8, Not HPLMN), cell B in MCC1/MNC2/LAC1/RAC2 (RAI-10, Not HPLMN), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2).
All three cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE) in all cells.

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1, RAI-8.

If the UE is in UE operation mode A, then the UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure: The SS rejects a routing area updating with the cause value 'GPRS services not allowed in this PLMN'. The SS checks that the UE performs PLMN selection.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 20.
2	SS			The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-8
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Attach result = 'GPRS only attached' Routing area identity = RAI-8 Equivalent PLMNs = MCC2,MNC1
				The following messages are sent and shall be received on cell B.
6	SS			Set the cell type of cell A to the " Suitable neighbour cell ". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old Routing area identity = RAI-8
9	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'GPRS services not allowed in this PLMN'
10	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 PAGING TYPE1 (used for NW-mode II). Paging order is for PS services.
11	UE			No response from the UE to the request. This is checked for 10 seconds.
12	SS			Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell A to the "Serving cell". (see note)
12a				The following step 13 is only performed for UE operation mode C.

13	UE		The UE performs PLMN selection.
14	UE		No ATTACH REQUEST or LOCATION UPDATE REQUEST sent to the SS (SS waits 30 seconds).
15	SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
16			The following step is only performed for UE operation mode A.
16a	UE	Registration on CS	See TS34.108 Parameter mobile identity is IMSI
17	->	ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
17a	<-	AUTHENTICATION AND CIPHERING REQUEST	
17b	->	AUTHENTICATION AND CIPHERING RESPONSE	
17c	SS		The SS starts integrity protection.
18	<-	ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-2 Equivalent PLMNs = MCC1,MNC2
19	->	ATTACH COMPLETE	
20			The UE is set in UE operation mode A (see ICS) and the test is repeated from step 2 to step 19.
NOTE: The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions " subclauses.			

Specific message contents

None.

Proc 2: Test procedure2

Initial condition

System Simulator:

One cells, cell A in MCC1/MNC2/LAC1/RAC1 (RAI-8, Not HPLMN) operating in network operation mode I.

T3212 is set to 6 minutes.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-8.

The UE is in UE operation mode A or C.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure with identity P-TMSI. The SS reallocates the P-TMSI and returns ATTACH ACCEPT message with a new P-TMSI and timer T3312. The UE acknowledge the new P-TMSI by sending ATTACH

COMPLETE message. A routing area updating procedure is performed at T3312 timeout. The SS rejects a routing area updating with the cause value 'GPRS services not allowed in this PLMN'. The UE sets the timer T3212 to its initial value and restart it, if it is not already running.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A or C (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' (UE operation mode A) or 'GPRS attach' (UE operation mode C) Mobile identity = P-TMSI-1 Old Routing area identity = RAI-8
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' (UE operation mode A) or 'GPRS attach' (UE operation mode C) Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-8 Periodic RA Update Timer (T3312) = 6 minutes
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
5b	SS			The SS verifies that the time between the attach and the periodic RA updating is T3312
6	->		ROUTING AREA UPDATE REQUEST	Update type = 'Periodic updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-8
7	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'GPRS services not allowed in this PLMN'
8	UE		Registration on CS	This step is only performed for UE in operation mode A. See TS 34.108 Location Update Procedure is initiated from the UE when T3212 is expired.
9	->		void	
10	<-		void	
NOTE: The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions " subclauses.				

Specific message contents

None.

12.4.1.4c.5 Test requirements

Test requirement for Test procedure1

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

At step11, after the routing area updating procedure is rejected with GMM cause = 'GPRS services not allowed in this PLMN', UE shall;

- not respond to the paging message for PS domain.

At step13, UE shall,

- initiate PLMN selection.

At step14, UE shall,

- not start registration procedure on CS or PS domain.

At step17, UE shall;

- initiate the PS attach procedure.

Test requirement for Test procedure 2

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step6, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

At step7, after the routing area updating procedure is rejected with GMM cause = 'GPRS services not allowed in this PLMN', UE shall;

- set the timer T3212 to its initial value and restart it.

At step8, UE shall,

- initiate the periodic location area updating procedure when the timer T3212 is expired.

12.4.1.4d Routing area updating / rejected / Roaming not allowed in this location area

12.4.1.4d.1 Definition

12.4.1.4d.2 Conformance requirement

1) If the network rejects a routing area updating procedure from the User Equipment with the cause 'roaming not allowed in this location area' the User Equipment:

   1.1 shall not perform PS attach when in the same location area.

   1.2 shall store the LA in the 'forbidden location areas for roaming'.

   1.3 shall perform a routing area updating when entering into a new location area if the LAI or the PLMN identity is not contained in any of the lists "forbidden LAs for roaming", "forbidden LAs for regional provision of service", "forbidden PLMNs for GPRS service" or "forbidden PLMNs" and the current status is different from "IDLE NO IMSI".

2) The User Equipment shall erase the list of 'Forbidden location areas for roaming' when switched off or when the USIM is removed.

References

3GPP TS 24.008 clause 4.7.5.1.4.

3GPP TS 23.122 clause 4.5.2.

3GPP TS 24.008 clause 4.4.1.

12.4.1.4d.3 Test purpose

Test purpose 1

To test that on receipt of a rejection using the 'Roaming not allowed in this location area' cause code, the UE ceases trying a routing area updating procedure on that location area. Successful routing area updating procedure is possible in other location areas.

Test purpose 2

To test that if the UE is switched off or the USIM is removed the list of 'forbidden location areas for roaming' is cleared.

12.4.1.4d.4 Method of test

Proc 1: Test procedure 1

Initial condition

System Simulator:

Two cells, cell A in MCC2/MNC1/LAC1/RAC1 (RAI-2), cell B in MCC2/MNC1/LAC2/RAC1 (RAI-6). Both cells are operating in network operation mode II.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
UE supports CS call establishment Yes/No

Test procedure

The SS rejects a routing area updating with the cause value 'Roaming not allowed in this location area'. A new attempt for a PS attach is not possible. Successful PS attach procedure is performed in another location area. The UE is moved back to the 1st location area. A routing area updating shall not be performed, as the LA is on the forbidden list.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The UE is set in UE operation mode A or C (see ICS). The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non Suitable cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	UE		Registration on CS	This step is only performed for UE in operation mode A. See TS34.108 SS allocates Mobile identity = TMSI-1.
4	->		ATTACH REQUEST	Attach type = 'GPRS attach Mobile identity =IMSI
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-2
6	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the " Non-suitable cell ". Set the cell type of cell B to the "Serving cell". (see note)
8	UE			Cell B is preferred by the UE.
8a	UE		Registration on CS	This step is only performed for UE in operation mode A. See TS 34.108 Location Update Procedure initiated from the UE.
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-2
10	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Roaming not allowed in this location area'
10a				The SS releases the RRC connection.
11	UE			The UE initiates an attach by MMI or by AT command.
12	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
13	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
14	UE			No response from the UE to the request. This is checked for 10 seconds.
15	<-		PAGING TYPE1	Steps 15 to 16 are only performed for UE in operation mode A. Mobile identity = TMSI-1 Paging order is for CS services. Paging cause = "Terminating conversational call [UE supports CS call establishment] or Terminating Low Priority Signalling"
16	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
				The following messages are sent and shall be received on cell A.

Step	Direction		Message	Comments
	UE	SS		
17		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
18	UE			Cell A is preferred by the UE.
19	UE		Registration on CS	This step is only performed for UE in operation mode A. See TS 34.108 Location Update Procedure initiated from the UE. SS allocates Mobile identity = TMSI-1.
20			Void	
21	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Mobile identity = P-TMSI-2
21a	<-		AUTHENTICATION AND CIPHERING REQUEST	
21b	->		AUTHENTICATION AND CIPHERING RESPONSE	
21c		SS		The SS starts integrity protection.
22	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-2
23	->		ROUTING AREA UPDATE COMPLETE	
24	<-		PAGING TYPE1	Steps 24 to 29 are only performed for UE in operation mode A. Mobile identity = TMSI-1 Paging order is for CS services. Paging cause = "Terminating conversational call [UE supports CS call establishment] or Terminating Low Priority Signalling"
25			Void	
26			Void	
27			Void	
28	->		PAGING RESPONSE	Mobile identity = TMSI-1
29		SS		The SS releases the RRC connection.
30			Void	
31	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
32			Void	
33			Void	
34			Void	
35	->		SERVICE REQUEST	service type = "paging response"
36		SS		The SS releases the RRC connection.
37			Void	
				The following messages are sent and shall be received on cell B.
38		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
39	UE			No ROUTING AREA UPDATE REQUEST sent to SS (SS waits 30 seconds).
40	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
41	UE			No response from the UE to the request. This is checked for 10 seconds.
NOTE: The definitions for “Non Suitable cell”, "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Proc 2: Test procedure 2

Initial condition

System Simulator:

Two cells, cell A in MCC2/MNC1/LAC1/RAC1 (RAI-2), cell B in MCC2/MNC1/LAC2/RAC1 (RAI-6). Both cells are operating in network operation mode II.

User Equipment:

The UE has a valid IMSI. UE is Idle Updated on cell A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
UE supports CS call establishment Yes/No

Test procedure

The SS rejects a routing area updating with the cause value 'Roaming not allowed in this location area'. The UE is switched off for 10 seconds and switched on again. The SS checks that a PS attach is possible on the cell on which the previous routing area updating had been rejected.

If USIM removal is possible without switching off:
The SS rejects a routing area updating with the cause value 'Roaming not allowed in this location area'. The USIM is removed and inserted in the UE. The SS checks that a PS attach procedure and routing area updating procedure is possible on the cell on which the routing area updating had previously been rejected.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The UE is set in UE operation mode A or C (see ICS). The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS.
3	UE		Registration on CS	This step is only performed for UE in operation mode A. See TS34.108 SS allocates Mobile identity = TMSI-1.
4	->		ATTACH REQUEST	Attach type = 'GPRS attach Mobile identity =IMSI
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-2
6	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Non-suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
8	UE			Cell B is preferred by the UE.
8a	UE		Registration on CS	This step is only performed for UE in operation mode A. See TS 34.108 Location Update Procedure initiated from the UE. SS allocates Mobile identity = TMSI-2
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-2
10	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Roaming not allowed in this location area'
10a				The SS releases the RRC connection.
11	UE			The UE initiates an attach by MMI or by AT command.
12	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
13	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
14	UE			No response from the UE to the request. This is checked for 10 seconds.
15	<-		PAGING TYPE1	Steps 15 to 16 are only performed for UE in operation mode A. Mobile identity = TMSI-2 Paging order is for CS services. Paging cause = "Terminating conversational call [UE supports CS call establishment] or Terminating Low Priority Signalling"
16	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.

Step	Direction		Message	Comments
	UE	SS		
17	UE			If possible (see ICS) USIM removal is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
18	UE			The UE gets the USIM replaced, is powered up or switched on.
19	UE		Registration on CS	This step is only performed for UE in operation mode A. See TS 34.108 Location Update Procedure initiated from the UE. SS allocates Mobile identity = TMSI-1
20	UE			The UE initiates an attach automatically (see ICS) by MMI or AT command.
21	->		ATTACH REQUEST	Attach type = 'GPRS attach ' Mobile identity =P-TMSI-2
22a	<-		AUTHENTICATION AND CIPHERING REQUEST	
22b	->		AUTHENTICATION AND CIPHERING RESPONSE	
22c	SS			The SS starts integrity protection.
22	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-6
23	->		ATTACH COMPLETE	
24	<-		PAGING TYPE1	Steps 24 to 29 are only performed for UE in operation mode A. Mobile identity = TMSI-1 Paging order is for CS services. Paging cause = "Terminating conversational call [UE supports CS call establishment] or Terminating Low Priority Signalling"
25			Void	
26			Void	
27			Void	
28	->		PAGING RESPONSE	Mobile identity = TMSI-1
29	SS			The SS releases the RRC connection.
30			Void	
31	<-		PAGING TYPE1	Mobile identity = P-TMSI-1
32			Void	
33			Void	
34			Void	
35	->		SERVICE REQUEST	service type = "paging response"
36	SS			The SS releases the RRC connection.
37			Void	
NOTE: The definitions for “Non-Suitable cell”, "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.4.1.4d.5 Test requirements

Test requirements for Test procedure 1

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step9, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the routing area update procedure with the information elements specified above Expected Sequence

At step12, when the SS rejects the routing area update procedure with GMM cause = 'Roaming not allowed in this location area', UE shall:

- not initiate a PS attach procedure.

At step14, when the UE receives the paging message for PS domain, UE shall;

- not respond to the paging message for PS domain.

At step16, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

At step21, UE shall:

- initiate the routing area update procedure.

At step28, when the UE receives the paging message for CS domain, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step35, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step41, when the UE receives the paging message for PS domain, UE shall;

- not respond to the paging message for PS domain.

Test requirements for Test procedure 2

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step9, UE shall:

- initiate the routing area update procedure with the information elements specified above Expected Sequence.

At step14, when the UE receives the paging message for PS domain, UE shall;

- not respond to the paging message for PS domain.

At step16, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

At step21, UE shall:

- initiate the PS attach procedure.

At step28, when the UE receives the paging message for CS domain, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step35, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.4.1.4e Routing area updating / rejected / Not authorized for this CSG

12.4.1.4e.1 Definition

12.4.1.4e.2 Conformance requirement

(1) If the network rejects a routing area updating procedure from the User Equipment with the cause ' Not authorized for this CSG ' the User Equipment shall:

1.1 delete the CSG ID of the cell, where the UE has sent the TRACKING AREA UPDATE REQUEST message, from the allowed CSG ID list stored in the UE.

1.2 not delete the list of "equivalent PLMNs".

1.3 search for a suitable cell in the same PLMN.

Reference

3GPP TS 24.008 clause 4.7.5

12.4.1.4e.3 Test purpose

To verify UE to remove the CSG ID from the Allowed CSG list and search for a suitable cell in the same PLMN when #25 is received.

12.4.1.4e.4 Method of test

Initial conditions:

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1)/CSG1, cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3)/CSG2, cell C in MCC1/MNC1/LAC1/RAC2 (RAI-4),

Cell A, Cell B and Cell C belong to PLMN1.

All three cells are operating in network operation mode II(in case of UE operation mode A).

User Equipment:

The UE has a valid P-TMSI-1, RAI-1.

UE Allowed CSG List contains CSG1 and CSG2.

UE is registered on PLMN1.

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	PLMN	CSG ID
EFACSGL	PLMN 1	CSG 1,CSG 2

The UE is previously registered on PLMN1, before switched off.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No(only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a routing area updating with the cause value ' Not authorized for this CSG '. The SS checks that the UE shall perform Routing Area Update procedure when the UE enters a suitable cell in a different location area on the same PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following message are sent and shall be received on cell C.
1		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell C is preferred by the UE.
2a	UE		Registration on CS	See TS34.108 SS allocates Mobile identity = TMSI-1.
3	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4	<-		AUTHENTICATION AND CIPHERING REQUEST	
5	->		AUTHENTICATION AND CIPHERING RESPONSE	
6		SS		The SS starts integrity protection.
7	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4
8	->		ATTACH COMPLETE	
9		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note) Cell A is preferred by the UE.
10	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-4 Mobile identity = P-TMSI-1
11	<-		ROUTING AREA UPDATE REJECT	GMM cause = ' Not authorized for this CSG '
				The following message are sent and shall be received on cell B.
11a	UE		Registration on CS	See TS 34.108 Location Update Procedure initiated from the UE.
12	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-4 Mobile identity = P-TMSI-1
13	<-		AUTHENTICATION AND CIPHERING REQUEST	
14	->		AUTHENTICATION AND CIPHERING RESPONSE	
15	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-3
16	->		ROUTING AREA UPDATE COMPLETE	
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions " subclauses.				

12.4.1.4e.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step10, UE shall;

- initiate the routing area updating procedure.

At step11, UE shall;

- delete the CSG1 in the Allowed CSG List;
- UE Allowed CSG List shall contain only CSG2.

At step12, when the UE camps on a suitable cell in a different location area on the same PLMN, UE shall:

- perform the routing area updating procedure.

12.4.1.5 Routing area updating / abnormal cases / attempt counter check / miscellaneous reject causes

12.4.1.5.1 Definition

12.4.1.5.2 Conformance requirement

When a routing area updating procedure is rejected with the attempt counter less than five, the UE shall repeat the routing area updating procedure after T3311 timeout.

When a T3311 timeout has occurred during a routing area updating procedure with the attempt counter five, the UE shall start timer T3302.

When the T3302 expire, a new routing area updating procedure shall be initiated.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.5.3 Test purpose

To test the behaviour of the UE with respect to the attempt counter.

12.4.1.5.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). The ATT-flag shall indicate that the MS should use IMSI attach/detach procedures.
Both cells are operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service	Yes/No
UE operation mode C	Yes/No
UE operation mode A	Yes/No (only if mode C not supported)

Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure (attempt counter zero).

The SS rejects the routing area updating procedure with a GMM cause 'congestion' code.

The UE initiates a new routing area updating procedure (attempt counter one) after T3311 expires.

The SS rejects the routing area updating procedure with a GMM cause 'congestion' code.

The UE initiates a new routing area updating procedure (attempt counter two) after T3311 expires.

The SS rejects the routing area updating procedure with a GMM cause 'congestion' code.

The UE initiates a new routing area updating procedure (attempt counter three) after T3311 expires.

The SS rejects the routing area updating procedure with a GMM cause 'congestion' code.

The UE initiates a new routing area updating procedure (attempt counter four) after T3311 expires.

The SS rejects the routing area updating procedure with a GMM cause 'congestion' code.

The UE initiates a new routing area updating procedure with attempt counter five (after T3311 expires).

The SS rejects the routing area updating procedure with a GMM cause 'congestion' code.

The UE shall not perform a new successful routing area updating procedure after T3311 seconds.

The UE initiates a routing area updating procedure with attempt counter zero after T3302 expires with the stored P-TMSI, P-TMSI signature, PS CKSN and RAI.

T3302; set to 12 minutes.

T3311; set to 15 seconds.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS).
2		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2a			Void	
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a	UE		Registration on CS	See TS 34.108 This step is applied only for UE in UE operation mode A. Parameter mobile identity is TMSI.
4	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI not included. Attach result = 'GPRS only attached' P-TMSI-2 signature Routing area identity = RAI-1
				The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7		SS		Cell B is preferred by the UE.
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
9	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Congestion'
10		SS		The SS verifies that the time between the routing area updating requests is 15 seconds
11	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
12	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Congestion'
13		SS		The SS verifies that the time between the routing area updating requests is 15 seconds
14	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
15	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Congestion'
16		SS		The SS verifies that the time between the routing area updating requests is 15 seconds
17	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1

Step	Direction		Message	Comments
	UE	SS		
18	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Congestion'
19	SS			The SS verifies that the time between the routing area updating requests is 15 seconds
20	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
21	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Congestion'
22	SS			The SS verifies that the UE does not attempt to attach for 12 minutes .
23	SS			The SS shall release the PS signalling connection.
23a			Void	
24	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
24a				The SS starts integrity protection.
25	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-3 signature Routing area identity = RAI-4
26	->		ROUTING AREA UPDATE COMPLETE	
NOTE: The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.4.1.5.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, UE shall:

- perform the routing area updating procedure.

UE shall perform the following actions depending on the conditions described below.

Case 1) At step11, 14, 17 and 20, a routing area updating procedure is rejected from SS with the attempt counter less than five,

UE shall:

- repeat the routing area updating procedure after T3311 timeout

Case2) At step22 a routing area updating procedure is rejected from SS with the attempt counter five

At step22, UE shall:

- not initiate a routing area updating procedure.

Case3) At step24, the T3302 expires

UE shall:

- initiate the new routing area updating procedure

12.4.1.6 Routing area updating / abnormal cases / change of cell into new routing area

12.4.1.6.1 Definition

12.4.1.6.2 Conformance requirement

When a change of cell into a new routing area is performed before the routing area updating procedure is finished, the UE shall abort the routing area updating procedure and re-initiate it in the new routing area.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.6.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.1.6.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4) and cell C In MCC1/MNC1/LAC1/RAC3 (RAI-5).
All cells are operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE) in all cells.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The ROUTING AREA UPDATE ACCEPT message is delayed from the SS. The UE performs a cell update into a new routing area. The UE shall re-initiate a routing area updating procedure in the new routing area.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 18.
2		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4		->	ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a		<-	AUTHENTICATION AND CIPHERING REQUEST	
4b		->	AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5		<-	ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
6		->	ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
8		SS		Cell B is preferred by the UE.
9		->	ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
10		SS		No response to the ROUTING AREA UPDATE REQUEST message is given by the SS
				The following messages are sent and shall be received on cell C.
11		SS		Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Serving cell". (see note)
12		SS		Cell C is preferred by the UE.
13		->	ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
14		<-	ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-3 signature Routing area identity = RAI-5
15		->	ROUTING AREA UPDATE COMPLETE	
16	UE			The UE is switched off or power is removed (see ICS).
17		->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS detach'

17a	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
18 19	SS UE		The SS is set in network operation mode II. The UE is set in UE operation mode A (see ICS). Set the cell type of cell C to the "Non-Suitable cell". The test is repeated from step 2 to step 17.
NOTE:	The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions " subclauses.		

Specific message contents

None.

12.4.1.6.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step9, UE shall:

- initiate the routing area update procedure.

At step13, when change of cell into a new routing area is performed before the routing area updating procedure is finished, UE shall:

- abort the routing area updating procedure.
- re-initiate new routing area updating procedure in the new routing area.

12.4.1.7 Void

12.4.1.8 Routing area updating / abnormal cases / P-TMSI reallocation procedure collision

12.4.1.8.1 Definition

12.4.1.8.2 Conformance requirement

When a P-TMSI REALLOCATION COMMAND message is received by the UE while waiting for a ROUTING AREA UPDATE ACCEPT message, the UE shall ignore the P-TMSI reallocation procedure and continue with the routing area updating procedure.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.8.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.1.8.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) and cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells are operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE) in both cells.

User Equipment:

The UE has a valid IMSI.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The SS does not answer the routing area updating procedure, but initiates a P-TMSI reallocation procedure. The UE shall ignore the P-TMSI reallocation procedure and continue with the routing area updating procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS).
2		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach result = 'GPRS only attached' Mobile identity = IMSI
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
6	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
8		SS		Cell B is preferred by the UE.
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-1
10	<-		P-TMSI REALLOCATION COMMAND	Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
11	UE			The UE ignores the P-TMSI reallocation command.
12	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-4
13	->		ROUTING AREA UPDATE COMPLETE	
NOTE: The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.4.1.8.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step9, UE shall:

- initiate the routing area updating procedure.

At step11, when a P-TMSI REALLOCATION COMMAND message is received from SS while waiting for a ROUTING AREA UPDATE ACCEPT message, UE shall:

- ignore the P-TMSI reallocation procedure.
- continue with the routing area updating procedure.

12.4.2 Combined routing area updating

The combined routing area updating procedure is a GMM procedure used by PS UEs of UE operation mode A that are IMSI attached for PS and non-PS services. In order to use the combined routing area updating procedure, the network must operate in network operation mode I.

12.4.2.1 Combined routing area updating / combined RA/LA accepted

12.4.2.1.1 Definition

12.4.2.1.2 Conformance requirement

1) If the network accepts the combined routing area updating procedure and reallocates a P-TMSI, the UE shall acknowledge the new P-TMSI and continue communication with the new P-TMSI.

2) If the network accepts the combined routing area updating procedure from the UE without reallocation of the old P-TMSI, the UE shall continue communication with the old P-TMSI.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.1.3 Test purpose

To test the behaviour of the UE if the network accepts the combined routing area updating procedure.

The following cases are identified:

1) P-TMSI / P-TMSI signature is reallocated.

2) Old P-TMSI / P-TMSI signature is not changed.

3) Mobile terminating CS call is allowed with IMSI.

4) Mobile terminating CS call is allowed with TMSI.

12.4.2.1.4 Method of test

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Both cells operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service	Yes/No
UE operation mode A	Yes/No
Switch off on button	Yes/No

Automatic PS attach procedure at switch on or power on Yes/No
UE supports CS call establishment Yes/No

Test procedure

1) A combined PS attach procedure is performed. The UE sends a ROUTING AREA UPDATE REQUEST message. The SS reallocates the P-TMSI, unassigns the TMSI and returns ROUTING AREA UPDATE ACCEPT message with a new P-TMSI and IMSI. The UE acknowledge the new P-TMSI by sending ROUTING AREA UPDATE COMPLETE message. Further communication UE - SS is performed by the new P-TMSI. For CS calls, the IMSI is used

2) The UE is CS paged in order to verify that the IMSI is used for CS calls.

3) A combined PS attach procedure is performed. The UE sends an ROUTING AREA UPDATE REQUEST message. The SS accepts the P-TMSI signature and returns ROUTING AREA UPDATE ACCEPT message without any P-TMSI and with a new TMSI. The UE acknowledge the new TMSI by sending ROUTING AREA UPDATE COMPLETE message. Further communication UE-SS is performed by the old P-TMSI. For CS calls, the new TMSI is used.

4) The UE is CS paged in order to verify that the TMSI is used for CS calls.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
1a		UE		The UE is set in UE operation mode A (see ICS).
2		UE		The UE is powered up or switched on and initiates an attach (see ICS).
2a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
6a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
7	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available

Step	Direction		Message	Comments
	UE	SS		
7a		SS		The SS starts integrity protection.
8	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS identity = IMSI Routing area identity = RAI-4
9	->		ROUTING AREA UPDATE COMPLETE	
9a		SS		The SS releases the RRC connection and waits 5s to allow the UE to read system information.
10	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services. Paging cause = "Terminating interactive call".
10a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
10b			Void	
10c			Void	
11	->		SERVICE REQUEST	service type = "paging response"
11aa		SS		The SS starts integrity protection.
11a		SS		The SS releases the RRC connection and waits 5s to allow the UE to read system information.
11b			Void	
12	<-		PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services. Paging cause = "Terminating conversational call" [UE supports CS call establishment] or Terminating Low Priority Signalling
13		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating conversational call".
14			Void	
15			Void	
16	->		PAGING RESPONSE	Mobile identity = IMSI
17		SS		The SS releases the RRC connection.
18			Void	
				The following messages are sent and shall be received on cell A.
19		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
19a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
20	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-4 TMSI status = no valid TMSI available
20a		SS		The SS starts integrity protection.
21	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' No P-TMSI P-TMSI-2 signature Mobile identity = TMSI-1 Routing area identity = RAI-1
22	->		ROUTING AREA UPDATE COMPLETE	
23	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services. Paging cause = "Terminating interactive call".
23a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".

Step	Direction		Message	Comments
	UE	SS		
23b			Void	
23c			Void	
24	->		SERVICE REQUEST	service type = "paging response"
24aa		SS		The SS starts integrity protection.
24a		SS		The SS releases the RRC connection and waits 5s to allow the UE to read system information.
24b			Void	
25	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services. Paging cause = "Terminating conversational call [UE supports CS call establishment] or Terminating Low Priority Signalling "
26		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating conversational call".
27			Void	
28			Void	
29	->		PAGING RESPONSE	Mobile identity = TMSI-1
30		SS		The SS releases the RRC connection.
31			Void	
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.4.2.1.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step7, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the combined routing area update procedure(Update type = 'Combined RA/LA updating') with the information elements specified above Expected Sequence.

At step9, UE shall:

- acknowledge the new P-TMSI by sending the ROUTING AREA UPDATE COMPLETE message.

At step11, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step16, when the UE receives the paging message for CS domain, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step20, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the combined routing area update procedure(Update type = 'Combined RA/LA updating') with the information elements specified above Expected Sequence.

At step22, UE shall:

- acknowledge the new TMSI by sending the ROUTING AREA UPDATE COMPLETE message.

At step24, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step29, when the UE receives the paging message for CS domain, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

12.4.2.2 Combined routing area updating / UE in CS operation at change of RA

12.4.2.2.1 Definition

12.4.2.2.2 Conformance requirement

PS UE in UE operation mode A that is in an ongoing CS transaction at change of routing area shall initiate the normal routing area updating procedure.

Reference

3GPP TS 24.008 clause 4.7.5.2.1

12.4.2.2.3 Test purpose

To test the behaviour of the UE if the routing area is changed during an ongoing circuit switched transmission.

12.4.2.2.4 Method of test

Initial condition

System Simulator:

One cell, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) is operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A combined PS attach procedure is performed. SS Initiates a CS call with UE in UE Operation Mode A. The routing area change. The UE will perform the normal routing area updating procedure during the ongoing circuit-switched transaction.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1				Set the cell type of cell A to the "Serving cell". (see note)
1a	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
6	SS			A CS call is initiated.
7			Void	
8			Void	
8a	<-		UTRAN MOBILITY INFORMATION	The SS conveys updated CN system information for the PS domain to the UE in connected mode, including a new routing area code.
8b	->		UTRAN MOBILITY INFORMATION CONFIRM	
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
9a	SS			The SS starts integrity protection.
10	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4
11	->		ROUTING AREA UPDATE COMPLETE	
11a	SS			The SS releases the PS signalling connection, but keeps the RRC connection.
12	<-		PAGING TYPE2	Mobile identity = P-TMSI-1 Paging order is for PS services.
13	->		SERVICE REQUEST	service type = "paging response"
13a	SS			The SS starts integrity protection.
13b	SS			The SS releases the CS call.
14	SS			The SS initiates the RRC connection release.
14a	->		ROUTING AREA UPDATE REQUEST	Update type = “combined RA/LA updating” or "combined RA/LA updating with IMSI Attach", Old P-TMSI signature=P-TMSI-1 signature, Old Routing area identity = RAI-4, TMSI status = no valid TMSI available
14b	SS			The SS starts integrity protection.
14c	<-		ROUTING AREA UPDATE ACCEPT	Update result = "combined RA/LA updated", No P-TMSI, P-TMSI-3 signature, Routing area identity = RAI-1

NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.

Specific message contents

UTRAN MOBILITY INFORMATION (step 8a)

The contents of the UTRAN MOBILITY INFORMATION message in this test case is identical to the default message in TS 34.108, with the following exceptions.

Information Element	Value/remark
New U-RNTI	Not Present
New C-RNTI	Not Present
UE Timers and constants in connected mode	Not Present
CN information info	
- PLMN identity	Not Present
- CN common GSM-MAP NAS system information	Not Present
- CN domain related information	
- CN domain identity	CS domain
- CN domain specific GSM-MAP NAS system info	
- T3212	30
- ATT	1
- CN domain specific DRX cycle length coefficient	7
- CN domain related information	
- CN domain identity	PS domain
- CN domain specific GSM-MAP NAS system info	
- RAC	RAC-2
- NMO	0 (Network Mode of Operation I)
- CN domain specific DRX cycle length coefficient	7

12.4.2.2.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step9, when the UE has received the new RAI from the SS in the UTRAN MOBILITY INFORMATION message, the UE shall:

- initiate the normal routing area updating procedure.

12.4.2.3 Combined routing area updating / RA only accepted

12.4.2.3.1 Definition

12.4.2.3.2 Conformance requirement

1) If the network accepts the combined PS attach procedure, but GMM cause code 'IMSI unknown in HLR' is sent to the UE the User Equipment shall delete the stored TMSI, LAI and CKSN. The User Equipment shall consider USIM invalid for non-PS services until power is switched off or USIM is removed.

2) If the network accepts the combined PS attach procedure, but GMM cause code 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is sent to the UE, an UE operation mode A UE may perform an MM IMSI attach procedure.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.3.3 Test purpose

Test purpose 1

To test the behaviour of the UE if the network accepts the routing area updating procedure with indication RA only, GMM cause 'IMSI unknown in HLR'.

Test purpose 2

To test the behaviour of the UE if the network accepts the routing area updating procedure with indication RA only, GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion'.

12.4.2.3.4 Method of test

Proc 1: Test Procedure 1

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
UE supports CS call establishment Yes/No

Test procedure

After attach, the UE sends an ROUTING AREA UPDATE REQUEST message. The SS allocates a P-TMSI and returns ROUTING AREA UPDATE ACCEPT message with a P-TMSI. GMM cause 'IMSI unknown in HLR' is indicated from SS. Further communication UE - SS is performed by the P-TMSI. CS services are not possible.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
1a	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
8	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4 GMM cause = 'IMSI unknown in HLR'
9	->		ROUTING AREA UPDATE COMPLETE	
10	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
10a	->		RRC CONNECTION REQUEST	
10b	<-		RRC CONNECTION SETUP	
10c	->		RRC CONNECTION SETUP COMPLETE	
11	->		SERVICE REQUEST	service type = "paging response"
11a	<-		RRC CONNECTION RELEASE	
11b	->		RRC CONNECTION RELEASE COMPLETE	
12	<-		PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services. Paging cause = "Terminating conversational call [UE supports CS call establishment] or Terminating Low Priority Signalling"
13	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
NOTE: The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Proc 2: Test Procedure 2

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells operating in network operation mode I. T3212 is set to 6 minutes.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Automatic MM IMSI attach procedure for UE operation mode A UE Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
UE supports CS call establishment Yes/No

Test procedure

After attach, the UE sends an ROUTING AREA UPDATE REQUEST message . The SS allocates a new P-TMSI signature and returns ROUTING AREA UPDATE ACCEPT message. GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is indicated from SS. The cause code is arbitrarily chosen. This procedure is repeated until the routing area updating attempt counter is equal to five. An UE operation mode A UE may perform an MM IMSI attach procedure (according to the ICS statement). Further communication UE - SS is performed by the P-TMSI. The existence of a signalling channel is verified by a request for mobile identity. It is further verified that the UE after a successful IMSI attach procedure can perform CS services.

Expected Sequence

Dependent whether the option 'Automatic MM IMSI attach procedure for UE operation mode A UE' is not supported or not, the steps 1-13 or 14-35 apply depending on manufacturer (see ICS).

Step	Direction		Message	Comments
	UE	SS		
1		SS		The following messages are sent and shall be received on cell A Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
1a		UE		The UE is set in UE operation mode A and no automatic MM IMSI attach procedure is indicated (see ICS).
2		UE		The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' or 'GPRS attach while IMSI attached' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1

Step	Direction		Message	Comments
	UE	SS		
5	->		ATTACH COMPLETE	
6	SS			The following messages are sent and shall be received on cell B. Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
8	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-1P-TMSI-1 signature Routing area identity = RAI-4 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
9	->		ROUTING AREA UPDATE COMPLETE	
10				The routing area updating attempt counter =1. The combined routing area updating procedure is reinitialised at the expiry of T3311
11	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-4 TMSI status = no valid TMSI available
12	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
13	->		ROUTING AREA UPDATE COMPLETE	
14				The routing area updating attempt counter =2. The combined routing area updating procedure is reinitialised at the expiry of T3311
15	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-4 TMSI status = no valid TMSI available
16	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
17	->		ROUTING AREA UPDATE COMPLETE	
18				The routing area updating attempt counter =3. The combined routing area updating procedure is reinitialised at the expiry of T3311
19	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-4 TMSI status = no valid TMSI available

Step	Direction		Message	Comments
	UE	SS		
20	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
21	->		ROUTING AREA UPDATE COMPLETE	
22				The routing area updating attempt counter =4. The combined routing area updating procedure is reinitialised at the expiry of T3311
23	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-4 TMSI status = no valid TMSI available
24	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
25	->		ROUTING AREA UPDATE COMPLETE	
26				The routing area updating attempt counter =5. The combined routing area updating procedure is reinitialised at the expiry of T3311
27	UE			The UE is switched off or power is removed (see ICS).
28	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS detach' Stop the sequence.
28a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
				The following messages are sent and shall be received on cell B
29	UE			The UE is set in UE operation mode A and automatic MM IMSI attach procedure is indicated (see ICS).
30	UE			The UE is powered up or switched on and initiates an attach (see ICS).
31	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' or 'GPRS attach while IMSI attached' Mobile identity = IMSI TMSI status = no valid TMSI available
31a	<-		AUTHENTICATION AND CIPHERING REQUEST	
31b	->		AUTHENTICATION AND CIPHERING RESPONSE	
31c	SS			The SS starts integrity protection.
32	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-4
33	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell A.

Step	Direction		Message	Comments
	UE	SS		
34		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell ". (see note)
35	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-4 TMSI status = no valid TMSI available
36	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
37	->		ROUTING AREA UPDATE COMPLETE	
38				The routing area updating attempt counter =1. The combined routing area updating procedure is reinitialised at the expiry of T3311
39	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
40	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
41	->		ROUTING AREA UPDATE COMPLETE	
42				The routing area updating attempt counter =2. The combined routing area updating procedure is reinitialised at the expiry of T3311
43	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
44	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
45	->		ROUTING AREA UPDATE COMPLETE	
46				The routing area updating attempt counter =3. The combined routing area updating procedure is reinitialised at the expiry of T3311
47	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
48	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)

Step	Direction		Message	Comments
	UE	SS		
49	->		ROUTING AREA UPDATE COMPLETE	
50				The routing area updating attempt counter =4. The combined routing area updating procedure is reinitialised at the expiry of T3311
51	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
52	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
53	->		ROUTING AREA UPDATE COMPLETE	
54				The routing area updating attempt counter =5.
55	UE		Registration on CS	Optional step. See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is TMSI-1. Steps 56 - 62 are only performed if the UE has performed the Registration Procedure in step 55.
56	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services. Paging cause = "Terminating conversational call [UE supports CS call establishment] or Terminating Low Priority Signalling"
57	->		RRC CONNECTION REQUEST	
58	<-		RRC CONNECTION SETUP	
59	->		RRC CONNECTION SETUP COMPLETE	
60	->		PAGING RESPONSE	Mobile identity = TMSI-1
61	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
62	->		RRC CONNECTION RELEASE COMPLETE	
NOTE: The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.4.2.3.5 Test requirements

Test requirements for Test Procedure 1

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step7, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the combined routing area updating procedure.

At step9, UE shall:

- acknowledge the new P-TMSI by sending the ROUTING AREA UPDATE COMPLETE message.

At step11, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step13, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

Test requirements for Test Procedure 2

At step3 and 31, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step6 and 35, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the combined routing area updating procedure.

At step11, 15, 19 and 23, UE shall:

- re-initiate the combined routing area updating procedure.

At step39, 43, 47 and 51, UE shall:

- re-initiate the combined routing area updating procedure.

At step55, UE shall:

- perform MM location updating procedure.

At step60, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

12.4.2.3a Void

12.4.2.4 Combined routing area updating / rejected / PLMN not allowed

12.4.2.4.1 Definition

12.4.2.4.2 Conformance requirement

1) If the network rejects a combined routing area updating procedure from the User Equipment with the cause 'PLMN not allowed' the User Equipment shall:

   1.1 not perform combined GPRS attach when switched on in the same location area or PLMN, except when the PLMN identity is equal to the HPLMN.

   1.2 delete the stored RAI, PS-CKSN, P-TMSI, P-TMSI signature, TMSI CKSN and LAI.

   1.3 store the PLMN in the 'forbidden PLMN list', except when the PLMN identity is equal to the HPLMN.

2) An MS that receives a ROUTING AREA UPDATE REJECT message stops timer T3330, enters state MM IDLE and for all causes except #12, #14 and #15 deletes the list of "equivalent PLMNs".

Reference

3GPP TS 24.008 clause 4.7.5.2.

3GPP TS 23.122 clause 3.1.

12.4.2.4.3 Test purpose

To test the behaviour of the UE if the network rejects the combined routing area updating procedure of the UE with the cause 'PLMN not allowed'.

12.4.2.4.4 Method of test

Initial condition

System Simulator:

Four cells (not simultaneously activated), cell A in MCC1/MNC2/LAC1/RAC1 (RAI-8), cell B in MCC1/MNC2/LAC1/RAC2 (RAI-10), cell D in MCC2/MNC1/LAC1/RAC1 (RAI-2) and cell E in MCC1/MNC3/LAC1/RAC1 (RAI-11).

The PLMN containing Cell E is equivalent to the PLMN that contains Cell A.
All four cells are operating in network operation mode I

The HPLMN is different from MCC1/MNC2.

Sintrasearch and Sintersearch values for cells A, B, D and E are 20 dB.

NB: i) Cell D will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.2.

ii) Cell E will be mapped to Cell 7 as found in TS 34.108 clause 6.1.4.2.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
PS attach attempted automatically by outstanding request Yes/No
UE supports CS call establishment Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'PLMN not allowed'. The SS checks that the UE does not perform PS attach if activated in the same PLMN. The SS checks that the UE does not perform IMSI attach if activated in the same PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell D to the "Non-Suitable cell". Set the cell type of cell E to the "Non-Suitable cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS.
2a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-8 P-TMSI Signature = P-TMSI-8 signature Routing area identity = RAI-8 MS identity = TMSI-1 Equivalent PLMN: MCC = 1, MNC=3
5	->		ATTACH COMPLETE	
5a		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell B and cell E.
7		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". Set the cell type of cell E to the "Suitable neighbour cell". (see note)
8	UE			Cell B is preferred by the UE.
8a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating 'Old P-TMSI Signature= P-TMSI-8 signature Old Routing area identity = RAI-8. TMSI status = valid TMSI available or IE not present Mobile identity = P-TMSI-8
10	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'PLMN not allowed'
10a		SS		The SS releases the RRC connection.
10b				Cell E is preferred by the UE Step 11 and 11a are only performed by an UE which will not initiate a PS attach automatically (see ICS)
11 conditional	UE		Registration on CS	See TS 34.108 Location Update Procedure is initiated from the UE.
11a conditional				The UE initiates an attach by MMI or by AT command.

Step	Direction		Message	Comments
	UE	SS		
12		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
12a	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' or 'GPRS attach while IMSI attached' Mobile identity =IMSI TMSI status = no valid TMSI available
13	<-		AUTHENTICATION AND CIPHERING REQUEST	
14	->		AUTHENTICATION AND CIPHERING RESPONSE	
14a		SS		The SS starts integrity protection.
15	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-11 P-TMSI Signature = P-TMSI-11 signature Routing area identity = RAI-11 MS identity = TMSI-2 Equivalent PLMN: MCC = 1, MNC=2
16	->		ATTACH COMPLETE	
17		SS		The SS releases the RRC connection.
18	<-		PAGING TYPE1	Paging is sent on cell A. Mobile identity= P-TMSI-11 Paging order for PS services
18a				The UE shall not initiate an RRC connection. This is checked during 3 seconds.
19	<-		PAGING TYPE1	Paging is sent on cell B. Mobile identity = TMSI-2 Paging order is for CS services. Paging cause = "Terminating conversational call [UE supports CS call establishment] or Terminating Low Priority Signalling"
20	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
21			Void	
22			Void	
23			Void	
24			Void	
25			Void	
26			Void	
				The following messages are sent and shall be received on cell D.
27		SS		Set the cell type of cell B and E to the "Non-Suitable cell". Set the cell type of cell D to the "Serving cell". (see note)
28	UE			Cell D is preferred by the UE.
28a			Void	
29			Void	
29a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
30	->		ROUTING AREA UPDATE REQUEST	Update type = 'combined RA/LA updating' or 'Combined RA/LA updating with IMSI attach'. Old P-TMSI Signature= P-TMSI-11 signature Old Routing area identity = RAI-11 TMSI status = valid TMSI available or IE not present
30a		SS		The SS starts integrity protection.

Step	Direction		Message	Comments
	UE	SS		
31	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'combined RA/LA updated ' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-2
32	->		ROUTING AREA UPDATE COMPLETE	
NOTE:	The definitions for "Non-Suitable cell", "Serving cell" and "Suitable neighbour cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.			

Specific message contents

None.

12.4.2.4.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step9, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- -initiate the combined routing area update procedure(Update type = 'Combined RA/LA updating') with the information elements specified above Expected Sequence.

At step 10, the UE shall delete the equivalent PLMN list (MCC=1, MNC=3).

At step 12, the UE shall initiate a PS attach procedure to cell E.

At step18, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step19, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

At step30, UE shall:

- perform the combined routing area update procedure.

12.4.2.5a Combined routing area updating / rejected / roaming not allowed in this location area

12.4.2.5a.1 Definition

12.4.2.5a.2 Conformance requirement

1) If the network rejects a combined routing area updating procedure from the User Equipment with the cause 'roaming not allowed in this location area' the User Equipment:

   1.1 shall not perform combined PS attach when in the same location area.

   1.2 shall store the LA in the 'forbidden location areas for roaming'.

   1.3 shall perform a routing area update when entering in a new location area if the LAI or the PLMN identity is not contained in any of the lists "forbidden LAs for roaming", "forbidden LAs for regional provision of service", "forbidden PLMNs for GPRS service" or "forbidden PLMNs" and the current update status is different from "IDLE NO IMSI".

2) The User Equipment shall reset the list of 'Forbidden location areas for roaming' when switched off or when the USIM is removed.

Reference

3GPP TS 24.008 clause 4.7.5.2.

3GPP TS 23.122 clause 4.5.2.

12.4.2.5a.3 Test purpose

Test purpose 1

To test that on receipt of a rejection using the 'Roaming not allowed in this location area' cause code, the UE ceases trying a routing area updating procedure on that location area. Successful combined routing area updating procedure is possible in other location areas.

Test purpose 2

To test that if the UE is switched off or the USIM is removed the list of 'forbidden location areas for roaming' is cleared.

12.4.2.5a.4 Method of test

Proc 1: Test procedure 1

Initial condition

System Simulator:

Two cells, cell A in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN), cell B in MCC2/MNC1/LAC2/RAC1 (RAI-6, Not HPLMN).
Both cells are operating in network operation mode I.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
UE supports CS call establishment Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'Roaming not allowed in this location area'. A new attempt for a combined PS attach is not possible. Successful combined routing area updating procedure is performed in another location area. The UE is moved back to the 1st location area. A combined routing area updating shall not be performed, as the LA is on the forbidden list.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the Non-"Suitable cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS.
2a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-2 MS identity = TMSI-1
5	->		ATTACH COMPLETE	
5a		SS		The SS releases the RRC connection.
		SS		The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Non-suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
8	UE			Cell B is preferred by the UE.
8a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-2 Mobile identity = P-TMSI-2
9a		SS		SS starts integrity protection
10	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Roaming not allowed in this location area'
10a		SS		The SS releases the RRC connection.
11			Void	
12			Void	
13	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
14	UE			No response from the UE to the request. This is checked for 10 seconds.
15	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services. Paging cause = "Terminating conversational call [UE supports CS call establishment] or Terminating Low Priority Signalling"
16	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
		SS		The following messages are sent and shall be received on cell A.
17		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
18	UE			Cell A is preferred by the UE.

Step	Direction		Message	Comments
	UE	SS		
18a			Void	
19			Void	
19a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
20	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' or 'Combined RA/LA updating with IMSI attach' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-2 Mobile identity = P-TMSI-2
20a		SS		The SS starts integrity protection.
21	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-2 MS identity = TMSI-1
22	->		ROUTING AREA UPDATE COMPLETE	
22a		SS		The SS releases the RRC connection.
23	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services. Paging cause = "Terminating conversational call [UE supports CS call establishment] or Terminating Low Priority Signalling
24		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating conversational call".
25			Void	
26			Void	
27	->		PAGING RESPONSE	Mobile identity = TMSI-1
27a		SS		The SS starts integrity protection.
28		SS		The SS releases the RRC connection
29			Void	
30	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services. Paging cause = "Terminating background call"
30a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating background call".
30b			Void	
30c			Void	
31	->		SERVICE REQUEST	service type = "paging response"
31o		SS		The SS starts integrity protection.
31a		SS		The SS releases the RRC connection.
31b			Void	
				The following messages are sent and shall be received on cell B.
32		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
33		UE		No ROUTING AREA UPDATE REQUEST sent to SS (SS waits 30 seconds).
34	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
35		UE		No response from the UE to the request. This is checked for 10 seconds.

NOTE: The definitions for "Suitable neighbour cell", "Non-suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.

Proc 2: Test procedure 2

Initial condition

System Simulator:

Two cells, cell A in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN), cell B in MCC2/MNC1/LAC2/RAC1 (RAI-6, Not HPLMN).
Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI. UE is Idle Updated on cell A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
UE supports CS call establishment Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'Roaming not allowed in this location area'. The UE is switched off for 10 seconds and switched on again. The SS checks that a combined PS attach is possible on the cell on which the previous combined routing area updating had been rejected.

If USIM removal is possible without switching off:
The SS rejects a routing area updating with the cause value 'Roaming not allowed in this location area'. The USIM is removed and inserted in the UE. The SS checks that a PS attach procedure and routing area updating procedure is possible on the cell on which the routing area updating had previously been rejected.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS.
2a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-2 MS identity = TMSI-1
5	->		ATTACH COMPLETE	
5a		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
8	UE			Cell B is preferred by the UE.
8a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-2 Mobile identity = P-TMSI-2
9a		SS		The SS starts integrity protection
10	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Roaming not allowed in this location area'
10a		SS		The SS releases the RRC connection.
11			Void	
12			Void	
13	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
14	UE			No response from the UE to the request. This is checked for 10 seconds.
15	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services. Paging cause = "Terminating conversational call [UE supports CS call establishment] or Terminating Low Priority Signalling"
16	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
17	UE			If possible (see ICS) USIM removal is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.

Step	Direction		Message	Comments
	UE	SS		
17a		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
18	UE			The UE gets the USIM replaced, is powered up or switched on.
18a	UE		Registration on CS	See TS 34.108 This step is applied only for non-auto attach UE. Location Update Procedure initiated from the UE.
19	UE			The UE initiates an attach (see ICS) by MMI or AT command.
19a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
20	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =P-TMSI_2 TMSI status = valid TMSI available or IE not present
20a	<-		AUTHENTICATION AND CIPHERING REQUEST	
20b	->		AUTHENTICATION AND CIPHERING RESPONSE	
20c		SS		The SS starts integrity protection.
21	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-6 MS identity = TMSI-1
22	->		ATTACH COMPLETE	
22a		SS		The SS releases the RRC connection.
23	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services. Paging cause = "Terminating conversational call [UE supports CS call establishment] or Terminating Low Priority Signalling "
24		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating conversational call".
25			Void	
26			Void	
27	->		PAGING RESPONSE	Mobile identity = TMSI-1
27a		SS		The SS starts integrity protection.
28		SS		The SS releases the RRC connection.
29			Void	
30	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging cause = "Terminating background call"
30a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating background call".
30b			Void	
30c			Void	
31	->		SERVICE REQUEST	service type = "paging response"
31o		SS		The SS starts integrity protection.
31a		SS		The SS releases the RRC connection.
31b			Void	
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.4.2.5a.5 Test requirements

Test requirements for Test procedure1

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step9, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the combined routing area update procedure(Update type = 'Combined RA/LA updating') with the information elements specified above Expected Sequence

At step12, when the SS rejects the combined routing area update procedure with GMM cause = 'Roaming not allowed in this location area', UE shall:

- not initiate a PS attach procedure.

At step14, when the UE receives the paging message for PS domain, UE shall;

- not respond to the paging message for PS domain.

At step16, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

At step20, UE shall:

- initiate the combined RA/LA updating procedure.

At step27, when the UE receives the paging message for CS domain, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step31, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step35, when the UE receives the paging message for PS domain, UE shall;

- not respond to the paging message for PS domain.

Test requirements for Test procedure2

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step9, UE shall:

- initiate the combined routing area update procedure(Update type = 'Combined RA/LA updating') with the information elements specified above Expected Sequence.

At step14, when the UE receives the paging message for PS domain, UE shall;

- not respond to the paging message for PS domain.

At step16, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

At step20, UE shall:

- initiate the combined PS attach procedure.

At step27, when the UE receives the paging message for CS domain, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step31, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.4.2.5b Combined routing area updating / rejected / No Suitable Cells In Location Area

12.4.2.5b.1 Definition

12.4.2.5b.2 Conformance requirement

1) If the network rejects a combined routing area updating procedure from the User Equipment with the cause 'No Suitable Cells In Location Area', the User Equipment shall:

   1.1 store the LA or the PLMN identity in the 'forbidden location areas for roaming'.

   1.2 search for a suitable cell in a different location area on the same PLMN.

2) An MS that receives a ROUTING AREA UPDATE REJECT message stops timer T3330, enters state MM IDLE and for all causes except #12, #14 and #15 deletes the list of "equivalent PLMNs".

Reference

3GPP TS 24.008 clauses 4.7.5.2.4

12.4.2.5b.3 Test purpose

To test the behaviour of the UE if the network rejects a combined routing area updating procedure of the UE with the cause 'No Suitable Cells In Location Area'.

To test that the UE deletes the list of forbidden LAs when power is switched off'.

12.4.2.5b.4 Method of test

Initial condition

System Simulator:

Five cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2), cell D in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell E in MCC1/MNC2/LAC1/RAC1 (RAI-5).

All five cells are operating in network operation mode I.

The PLMN contains Cell A, B and D is equivalent to the PLMN that contains Cell E.

Sintrasearch and Sintersearch values for cells A, B, D and E are 20 dB.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.2.

ii) Cell D will be mapped to Cell 3 as found in TS 34.108 clause 6.1.4.2.

iii) Cell E will be mapped to Cell 7 as found in TS 34.108 clause 6.1.4.2.

User Equipment:

The UE has valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall perform a combined routing area update procedure when the UE enters a suitable cell in a different location area on the same PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following message are sent and shall be received on cell D.
1		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". Set the cell type of cell D to the "Serving cell". Set the cell type of cell E to the "Non-Suitable cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell D is preferred by the UE.
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4 MS identity = IMSI Equivalent PLMN: MCC = 1, MNC=2
5	->		ATTACH COMPLETE	
5a		SS		The SS releases the RRC connection.
6		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". Set the cell type of cell D to the "Non-Suitable cell". (see note) The SS configures power level of each Cell as follows. Cell A > Cell B = Cell C Cell A is preferred by the UE.
7	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-4
8	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'No Suitable Cells In Location Area'
8a		SS		The SS releases the RRC connection. The following message are sent and shall be received on cell B.
9	->		ROUTING AREA UPDATE REQUEST	Attach type = 'Combined RA/LA updating with IMSI attach' Mobile identity = P-TMSI-1
10	<-		ROUTING AREA UPDATE ACCEPT	Attach result = 'Combined RA/LA updating with IMSI attach' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-3 Equivalent PLMN: MCC = 1, MNC=2
11	->		ROUTING AREA UPDATE COMPLETE	
11a		SS		The SS releases the RRC connection.

12	SS		Set the cell type of cell D to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell E to the "Suitable neighbour cell". (note) The SS deactivates Cell B and activates Cell D and Cell E The SS configures power level of each Cell as follows. Cell D > Cell E
13			Cell D is preferred by the UE.
14	->	ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-4
15	<-	ROUTING AREA UPDATE REJECT	GMM cause = 'No Suitable Cells In Location Area'
15a	SS		The SS releases the RRC connection.
16			The following message are sent and shall be received on cell E.
17	->	ROUTING AREA UPDATE REQUEST	Attach type = 'Combined RA/LA updating with IMSI attach' Mobile identity = IMSI
18	<-	ROUTING AREA UPDATE ACCEPT	Attach result = 'Combined RA/LA updated' Allocated P-TMSI = P-TMSI-3 P-TMSI Signature = P-TMSI-3 signature Routing area identity = RAI-5 Equivalent PLMN: MCC=1. MNC=2
19	->	ROUTING AREA UPDATE COMPLETE	
NOTE:	The definitions for "Suitable neighbour cell", "Serving cell" and "Non-Suitable cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.		

Specific message contents

None.

12.4.2.5b.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the Combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step7, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the combined routing area update procedure.

At step 8, the UE shall maintain the equivalent PLMN list (MCC=1, MNC=2).

At step9, when the UE enters a suitable cell in a different location area on the same PLMN, UE shall:

- perform the combined routing area update procedure.

At step 15, the UE shall maintain the equivalent PLMN list (MCC=1, MNC=2).

At step 17, when the UE enters a suitable cell in a different but equivalent PLMN (MCC=1, MNC=2), UE shall:

- perform the combined routing area update procedure.

12.4.2.5c Combined routing area updating / rejected / Location area not allowed

12.4.2.5c.1 Definition

12.4.2.5c.2 Conformance requirement

If the network rejects a combined routing area updating procedure from the User Equipment with the cause 'Location area not allowed', the User Equipment shall:

- delete any RAI, P-TMSI, P-TMSI signature, and PS ciphering key sequence number stored.
- set the PS update status to GU3 ROAMING NOT ALLOWED.
- delete any TMSI, LAI and ciphering key sequence number.
- store the LAI in the list of "forbidden location areas for regional provision of service"
- not delete the list of "equivalent PLMNs".
- perform a cell selection.

Reference

3GPP TS 24.008 clauses 4.7.5.2.4

12.4.2.5c.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure of the UE with the cause 'GPRS services not allowed in this PLMN'.

12.4.2.5c.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6).
All three cells are operating in network operation mode I (in case of UE operation mode A).

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid IMSI.

The UE is in UE operation mode A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'Location area not allowed'. The SS checks that the UE performs combined PS attach when the UE enters a equivalent PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode A (see ICS).
2	SS			The SS is set in network operation mode I. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-2 MS identity = TMSI-1 Equivalent PLMNs = MCC2,MNC1
5a	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
6	SS			Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-2
9	<-		ROUTING AREA UPDATE REJECT	GMM cause = Location area not allowed '
10	UE			The UE initiates an attach by MMI or by AT command.
12	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
13	SS			Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the " Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
14	UE			The UE performs cell selection.
				The following messages are sent and shall be received on cell C.
15	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
16	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-6 MS identity = TMSI-2 Equivalent PLMNs = MCC1,MNC1
17	->		ATTACH COMPLETE	

NOTE:	The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.

Specific message contents

None.

12.4.2.5c.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the Combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, UE shall:

- initiate the combined routing area update procedure.

At step 12, the UE shall:

- not initiate combined PS attach procure.

At step 14, the UE shall:

- perform combined PS attach procedure with Mobile identity = IMSI and Attach result = 'Combined GPRS/IMSI attached' to the equivalent cell.

12.4.2.5d Combined routing area updating / rejected / PS services not allowed in this PLMN

12.4.2.5d.1 Definition

12.4.2.5d.2 Conformance requirement

If the network rejects a combined routing area updating procedure from the User Equipment with the cause 'GPRS services not allowed in this PLMN', the User Equipment shall:

- delete any RAI, P-TMSI, P-TMSI signature, and PS ciphering key sequence number stored.
- set the PS update status to GU3 ROAMING NOT ALLOWED.
- store the PLMN identity in the "forbidden PLMNs for GPRS service" list.
- not delete the list of "equivalent PLMNs".

Reference

3GPP TS 24.008 clauses 4.7.5.2.4

12.4.2.5d.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure of the UE with the cause 'GPRS services not allowed in this PLMN'.

12.4.2.5d.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC2/LAC1/RAC1 (RAI-8), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6).
All three cells are operating in network operation mode I (in case of UE operation mode A).

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.2.

ii) Cell C will be mapped to Cell 7 as found in TS 34.108 clause 6.1.4.2.

User Equipment:

The UE has a valid IMSI.

The UE is in UE operation mode A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'GPRS services not allowed in this PLMN'. The SS checks that the UE performs combined PS attach when the UE enters a equivalent PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode A (see ICS).
2	SS			The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 MS identity = TMSI-1 Equivalent PLMNs = MCC2,MNC1
5	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
6	SS			Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-8
9	<-		ROUTING AREA UPDATE REJECT	GMM cause ='GPRS services not allowed in this PLMN'
10	UE			The UE initiates an attach by MMI or by AT command.
12	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
13	SS			Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the " Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
				The following messages are sent and shall be received on cell C.
14	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
15	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-6 MS identity = TMSI-2 Equivalent PLMNs = MCC1,MNC1
16	->		ATTACH COMPLETE	

NOTE:	The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.

Specific message contents

None.

12.4.2.5d.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the Combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, UE shall:

- initiate the combined routing area update procedure.

At step 12, the UE shall:

- not initiate combined PS attach procure.

At step 14, the UE shall:

- perform combined PS attach procedure with Mobile identity = IMSI and Attach result = 'Combined GPRS/IMSI attached' to the equivalent cell.

12.4.2.5e Combined routing area updating / rejected / Not authorized for this CSG

12.4.2.5e.1 Definition

12.4.2.5e.2 Conformance requirement

If the network rejects a combined routing area updating procedure from the User Equipment with the cause 'Not authorized for this CSG ' the User Equipment shall:

1.1 delete the CSG ID of the cell, where the UE has sent the ROUTING AREA UPDATE REQUEST message, from the Allowed CSG List stored in the UE.

1.2 not delete the list of "equivalent PLMNs".

1.3 search for a suitable cell in the same PLMN.

Reference

3GPP TS 24.008 clause 4.7.5.2

12.4.2.5e.3 Test purpose

To verify that the UE removes the CSG ID from the Allowed CSG list and searches for a suitable cell in the same PLMN if the network rejects the combined routing area updating procedure of the UE with the cause 'Not authorized for this CSG'.

12.4.2.5e.4 Method of test

Initial conditions:

System Simulator:

Three cells: cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1)/CSG1, cell B in MCC1/MNC1/LAC1/RAC2 (RAI-

3)/CSG2, cell C in MCC1/MNC1/LAC2/RAC2 (RAI-6),

All three cells are operating in network operation mode I (in case of UE operation mode A).

NB: i) Cell A, B and C will be mapped to Cell 1, 2 and 3 respectively as found in TS 34.108 clause 6.1.4.1.

ii) Cell A shall also include a CSG ID as CSG 1 for PLMN 1.

iii) Cell B shall also include a CSG ID as CSG 2 for PLMN 1.

User Equipment:

The UE has a valid IMSI.

UE Allowed CSG List contains CSG1 and CSG2 for PLMN 1.

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	PLMN	CSG ID
EF_{ACSGL}	PLMN 1	CSG 1,CSG 2

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value ' Not authorized for this CSG '. The SS checks that the UE shall perform a combined routing area update procedure when the UE enters a suitable cell in the same PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode A (see ICS).
2	SS			The SS is set in network operation mode I. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see NOTE)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	→		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
5	←		AUTHENTICATION AND CIPHERING REQUEST	
6	→		AUTHENTICATION AND CIPHERING RESPONSE	
7	SS			The SS starts integrity protection.
8	←		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1 MS identity = TMSI-1
9	→		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
10	SS			Set the cell type of cell A to the "Non-Suitable cell ". Set the cell type of cell B to the "Serving cell". (see NOTE)
11	UE			Cell B is preferred by the UE.
12	→		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-1
13	←		ROUTING AREA UPDATE REJECT	GMM cause =' Not authorized for this CSG'
14	UE			The UE initiates an attach by MMI or by AT command.
15	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
16	SS			Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the " Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see NOTE)
17	UE			The UE performs cell selection.
				The following messages are sent and shall be received on cell C.
18	→		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
19	←		AUTHENTICATION AND CIPHERING REQUEST	
20	→		AUTHENTICATION AND CIPHERING RESPONSE	
21	SS			The SS starts integrity protection.

22	←	ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-6 MS identity = TMSI-2
23	→	ATTACH COMPLETE	
NOTE:	The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.		

12.4.2.5e.5 Test requirements

At step 4, when the UE is powered up or switched on, UE shall:

- initiate the Combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step 12, UE shall:

- initiate the combined routing area update procedure.

At step 13, UE shall:

- delete the CSG2 in the Allowed CSG List;
- UE Allowed CSG List shall contain only CSG1.

At step 15, UE shall:

- not initiate combined PS attach procedure.

At step 18, when the UE camps on a suitable cell in the same PLMN, UE shall:

- perform the combined routing area update procedure.

12.4.2.6 Combined routing area updating / abnormal cases / access barred due to access class control

12.4.2.6.1 Definition

12.4.2.6.2 Conformance requirement

1) The UE shall not perform combined routing area updating procedure, but stays in the current serving cell and applies normal cell reselection process.
2) The User Equipment shall perform the combined routing area updating procedure when:
   2.1 Access is granted.
   2.2 Cell is changed.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.6.3 Test purpose

Test purpose 1

To test the behaviour of the UE in case of access class control (access is granted).

Test purpose 2

To test the behaviour of the UE in case of access class control (cell is changed).

12.4.2.6.4 Method of test

Proc 1: Test procedure 1

Initial condition

An access class x (0-15) is arbitrarily chosen. The USIM is programmed with this access class x. Communication with User Equipments using access class x is initially indicated to be barred on Cell B.

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) has Access Class x not barred, cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4) has Access Class x barred.
Both cells are operating in network operation mode I.

User Equipment:

The UE has valid IMSI. UE is Idle Updated on cell A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach procedure is performed. The routing area is changed. The SS indicates access class x barred. A routing area updating procedure is not performed.

The SS indicates that access class x is not barred. A routing area updating procedure is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 MS identity = IMSI
5	->		ATTACH COMPLETE	
		SS		The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8	UE			No ROUTING AREA UPDATE REQUEST sent to SS, as access class x is barred (SS waits 30 seconds).
9		SS		The access class x is not barred anymore.
10	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
10a				SS starts integrity protection
11	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS identity = TMSI-1 Routing area identity = RAI-4
12	->		ROUTING AREA UPDATE COMPLETE	
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

Proc 2: Test procedure 2

Initial condition

An access class x (0-15) is arbitrarily chosen. The USIM is programmed with this access class x. Communication with User Equipments using access class x is indicated to be barred on cell B.

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) has access class x not barred, cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4) has access class x barred, cell C in MCC1/MNC1/LAC1/RAC2 (RAI-4) has access class x not barred.
All three cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach procedure is performed. The routing area is changed. The SS indicates access class x barred. A routing area updating procedure is not performed.

A cell change is performed into a cell where access class x is not barred. A routing area updating procedure is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 MS identity = IMSI
5	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the " Suitable neighbour cell ". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8	UE			No ROUTING AREA UPDATE REQUEST sent to SS, as access class x is barred (SS waits 30 seconds).
				The following messages are sent and shall be received on cell C.
9		SS		Set the cell type of cell B to the "Suitable neighbour cell ". Set the cell type of cell C to the "Serving cell". (see note)
10	UE			Cell C is preferred by the UE.
11	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
11a				SS starts integrity protection
12	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS identity = TMSI-1 Routing area identity = RAI-4
13	->		ROUTING AREA UPDATE COMPLETE	
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.4.2.6.5 Test requirements

Test requirements for Test procedure 1

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step8, when the access class x is barred , UE shall:

- not perform the combined routing area updating procedure.

At step10, when the access class x is not barred, UE shall:

- perform the combined routing area updating procedure.

Test requirements for Test procedure 2

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step8, when the access class x is barred UE shall:

- not perform the combined routing area updating procedure.

At step11, when the serving cell is changed, UE shall:

- perform the combined routing area updating procedure.

12.4.2.7 Combined routing area updating / abnormal cases / attempt counter check / procedure timeout

12.4.2.7.1 Definition

12.4.2.7.2 Conformance requirement

1) When a T3330 timeout has occurred during a routing area updating procedure, the UE shall repeat the routing area updating procedure after T3330 timeout until the procedure is repeated five times.

2) When a routing area updating procedure is repeated five times, the routing area updating attempt counter is incremented and five more routing area updating procedures are performed. This procedure is repeated until the routing area updating attempt counter is five, the UE shall then start timer T3302.

3) When the T3302 expire, a new routing area updating procedure shall be initiated.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.7.3 Test purpose

To test the behaviour of the UE with respect to the attempt counter.

12.4.2.7.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI. UE is Idle Updated on cell A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure (routing area updating attempt counter zero). The SS does not answer with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. The UE restarts the routing area updating procedure four times. The SS never answers with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. After five consecutive routing area update procedures, the routing area updating attempt counter is incremented and T3311 is started.

The UE initiates a new routing area updating procedure (routing area updating attempt counter one) after T3311 expires. The SS does not answer with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. The UE restarts the routing area updating procedure four times. The SS never answers with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. After five consecutive routing area update procedures, the routing area updating attempt counter is incremented and T3311 is started.

The UE initiates a new routing area updating procedure (routing area updating attempt counter two) after T3311 expires. The SS does not answer with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. The UE restarts the routing area updating procedure four times. The SS never answers with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. After five consecutive routing area update procedures, the routing area updating attempt counter is incremented and T3311 is started.

The UE initiates a new routing area updating procedure (routing area updating attempt counter three) after T3311 expires. The SS does not answer with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. The UE restarts the routing area updating procedure four times. The SS never answers with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. After five consecutive routing area update procedures, the routing area updating attempt counter is incremented and T3311 is started.

The UE initiates a new routing area updating procedure (routing area updating attempt counter four) after T3311 expires. The SS does not answer with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. The UE restarts the routing area updating procedure four times. The SS never answers with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. After five consecutive routing area update procedures, the routing area updating attempt counter is incremented and as the routing area updating attempt counter is five. T3302 is started.

The UE may perform a Location Update procedure.

The UE initiates a routing area updating procedure with routing area updating attempt counter zero after T3302 expires with the stored P-TMSI, P-TMSI signature, PS CKSN and RAI.

T3302; set to 12 minutes.

T3311; 15 seconds.

T3330; 15 seconds.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 MS identity = IMSI
5	->		ATTACH COMPLETE	
		SS		The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE. K = 1.
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available Routing area updating attempt counter = k (k is not visible. It is only used for clarifying the sequence.) Retransmission counter = 0
9	SS			No response is given from the SS.
10	SS			The SS verifies that the time between the RA update requests is T3330seconds
11	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available Routing area updating attempt counter = k Retransmission counter = 1
12	SS			No response is given from the SS.
13	SS			The SS verifies that the time between the RA update requests is T3330seconds
14	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available Routing area updating attempt counter = k Retransmission counter = 2
15	SS			No response is given from the SS.
16	SS			The SS verifies that the time between the RA update requests is T3330seconds

Step	Direction		Message	Comments
	UE	SS		
17	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available Routing area updating attempt counter = k Retransmission counter = 3
18	SS			No response is given from the SS.
19	SS			The SS verifies that the time between the RA update requests is T3330seconds
20	->		ROUTING AREA UPDATING REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available Routing area updating attempt counter = k Retransmission counter = 4
21	SS			No response is given from the SS.
22	SS			The SS verifies that the time between the RA update requests is T3311 + T3330 seconds.
23	SS			Step 8 – 22 is repeated four times with k = 2, k = 3, k = 4 and k = 5
23a optional	UE		Registration on CS	The UE may perform a normal location updating procedure. See TS 34.108
24	SS			The SS verifies that the time between the RA update requests is T3302 + T3330 seconds
25	->		ROUTING AREA UPDATE REQUEST	Update type = - 'combined RA/LA updating with IMSI attach' (If Step23a is performed) - 'combined RA/LA updating' (If Step23a is not performed) Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
26	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS identity = IMSI Routing area identity = RAI-4
27	->		ROUTING AREA UPDATE COMPLETE	
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.4.2.7.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step8, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the combined routing area updating procedure with information elements specified in the above Expected Sequence.

UE shall perform the following actions depending on the conditions described below.

Case 1) A timer T3330 timeout has occurred during a combined routing area updating procedure with the Routing area attempt counter less than five and the Retransmission counter less than five

At step11, 14, 17 and 20, UE shall:

- repeat the combined routing area updating procedure after the timer T3330 timeout

Case2) A timer T3330 timeout has occurred during a combined routing area updating procedure with the Routing area attempt counter less than five and the Retransmission counter five

At step 22, UE shall:

- not repeat the combined routing area updating procedure.

Case 3) A timer T3311 timeout has occurred and the Routing area attempt counter is less than five,

At step23, UE shall:

- repeat the combined routing area updating procedure

Case 4) A timer T3330 timeout has occurred during a combined routing area updating procedure with the Routing area attempt counter five and the Retransmission counter five.

At step24, UE shall:

- not initiate a routing area updating procedure.

Case5) The timer T3302 expires

At step25, UE shall:

- initiate the new routing area updating procedure

12.4.2.8 Combined routing area updating / abnormal cases / change of cell into new routing area

12.4.2.8.1 Definition

12.4.2.8.2 Conformance requirement

When a change of cell into a new routing area is performed before the routing area updating procedure is finished, the UE shall abort the routing area updating procedure and re-initiate it in the new routing area.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.8.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.2.8.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC1/MNC1/LAC1/RAC3 (RAI-5).
All three cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No

Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The ROUTING AREA UPDATE ACCEPT message is delayed from the SS. The UE performs a cell update into a new routing area. The UE shall re-initiate a routing area updating procedure in the new routing area. The UE shall not increment the attempt counter.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS.
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 MS identity = IMSI
5	->		ATTACH COMPLETE	
		SS		The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
9		SS		No response id given from the SS.
		SS		The following messages are sent and shall be received on cell C.
10		SS		Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Serving cell". (see note)
11	UE			The RF level of cell B is lowered, and the RF level of cell C is increased, until cell C is preferred by the UE.
12	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
13	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS identity = IMSI Routing area identity = RAI-5
14	->		ROUTING AREA UPDATE COMPLETE	
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.4.2.8.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the routing area update procedure.

At step12, when change of cell into new routing area is performed before the routing area updating procedure is finished, UE shall:

- abort the routing area updating procedure.
- re-initiate new routing area updating procedure in the new routing area.

12.4.2.9 Void

12.4.2.10 Combined routing area updating / abnormal cases / PS detach procedure collision

12.4.2.10.1 Definition

12.4.2.10.2 Conformance requirement

1) When a detach request is received with cause 'GPRS detach' or 'combined GPRS/IMSI detach' by the UE while waiting for a ROUTING AREA UPDATE ACCEPT message, the UE shall terminate the routing area updating procedure and continue with the PS detach procedure.
2) When a detach request is received with cause 'IMSI detach' by the UE while waiting for a ROUTING AREA UPDATE ACCEPT message, the UE shall ignore the detach request and continue with the routing area updating procedure.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.10.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.2.10.4 Method of test

Proc 1: Test procedure 1

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The SS does not answer the routing area updating procedure, but initiates a PS detach procedure with cause 'GPRS detach' or 'combined GPRS/IMSI detach'. The UE shall terminate the routing area updating procedure and continue with the PS detach procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
	SS			The following messages are sent and shall be received on cell A.
1	SS			Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS.
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 MS identity = IMSI
5	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
6	SS			Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
9	SS			The SS ignores the ROUTING AREA UPDATE REQUEST message and initiates a detach procedure.
10	<-		DETACH REQUEST	Detach type = 're-attach not required'
11	->		DETACH ACCEPT	
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

Proc 2: Test procedure 2

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid P-TMSI and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The SS does not answer the routing area updating procedure, but initiates a PS detach procedure with cause 'IMSI detach'. The UE shall ignore the detach procedure and continue with the routing area updating procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS.
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 MS identity = IMSI
5	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
9		SS		The SS ignores the ROUTING AREA UPDATE REQUEST message and initiates a detach procedure.
10	<-		DETACH REQUEST	Detach type = 'IMSI detach'
11	UE			The UE ignores the DETACH REQUEST message and continue the routing area updating procedure.
12	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS identity = IMSI Routing area identity = RAI-4
13	->		ROUTING AREA UPDATE COMPLETE	
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.4.2.10.5 Test requirements

Test requirements for Test procedure 1

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate routing area update procedure.

At step11, when the UE receives a DETACH REQUEST message with cause 'GPRS detach' or 'combined GPRS/IMSI detach' from SS while waiting for a ROUTING AREA UPDATE ACCEPT message, UE shall:

- terminate the routing area updating procedure
- continue with the PS detach procedure.

Test requirements for Test procedure 2

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate routing area update procedure.

At step11, the UE receives a DETACH REQUEST message with cause 'IMSI detach' from SS while waiting for a ROUTING AREA UPDATE ACCEPT message, UE shall:

- ignore the detach request procedure.
- continue with the routing area updating procedure.

12.4.2.11 Combined routing area updating / abnormal cases / access barred due to domain specific access restriction for CS domain

12.4.2.11.1 Definition

This test case is applicable for Rel-5 UEs supporting DSAC and Rel-6 or later UEs.

12.4.2.11.2 Conformance requirement

If the PS or CS domain is barred because of domain specific access control, a GPRS MS operating in mode A or B in a network that operates in mode I shall act as if in network operation mode II or III (depending on whether a PCCCH is present in Gb-mode) and access to the barred domain shall be stopped entirely. If the MS detects that a domain is barred, this shall not trigger any MM or GMM specific procedure.

...

Additionally the MS shall treat the expiry of T3312 when the PS domain changes from barred to unbarred, analogous to the descriptions for the cases when the timer expires out of coverage or in a cell that does not support GPRS (see subclause 4.7.2.2).

If timer T3312 expires and both the PS and CS domain are barred, then a GPRS MS operating in mode A or B in a network that operates in mode I shall treat the expiry of T3312 when the GPRS MS detects that the PS or CS domain becomes unbarred, analogous to the descriptions for the cases when the timer expires out of coverage (see subclause 4.7.2.2).

If the PS domain is barred and timer T3312 expires during an ongoing CS connection, then a GPRS MS operating in mode A or B in a network that operates in mode I shall treat the expiry of T3312 when the MM state MM-IDLE is entered, analogous to the descriptions for the cases when the timer expires out of coverage or in a cell that does not support GPRS (see subclause 4.7.2.2), or in a cell where the PS domain is barred.

A GPRS MS operating in mode A or B in a network that operates in mode I shall perform a combined routing area update procedure indicating "combined RA/LA updating with IMSI attach" (in order to establish the Gs association in the MSC/VLR) when the following conditions are fulfilled:

- the GPRS MS detects that CS or PS domain or both change from barred to unbarred;
- as a result of the change of the domain specific barring status, both domains are unbarred; and
- for the last attempt to update the registration of the location area an MM specific procedure was performed (see subclause 4.7.5.2.1) or for the last attempt to update the registration of the routing area a normal routing area update was performed.

Reference

3GPP TS 24.008 clause 4.1.1.2.1

12.4.2.11.3 Test purpose

To test the behaviour of the UE in case of domain specific access control for CS domain.

12.4.2.11.4 Method of test

Initial condition

An access class x (0-15) is arbitrarily chosen. The USIM is programmed with this access class x.
The SS informs the UE that the CS domain specific access class x is barred in the cell B.

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) has CS domain specific access class x is not barred, cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3) has CS domain specific access class x is barred.
Both cells are operating in network operation mode I.

User Equipment:

The UE has valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
Support of DSAC Yes/No

Test procedure

A combined PS attach procedure is performed. The routing area is changed. The SS indicates that CS domain access class x is barred. A combined routing area updating procedure is not performed but a routing area updating procedure with RA updating is performed.

The SS indicates that CS domain specific access class x is not barred. A combined routing area updating procedure with IMSI attach is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The USIM is programmed with access class x.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS).
4		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
5	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
6	<-		AUTHENTICATION AND CIPHERING REQUEST	
7	->		AUTHENTICATION AND CIPHERING RESPONSE	
8		SS		The SS starts an integrity protection.
9	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 MS identity = TMSI-2
10	->		ATTACH COMPLETE	
11		SS		The SS releases the RRC connection.
		SS		The following messages are sent and shall be received on cell B.
12		SS		Set the cell type of cell A to the "Non-Suitable cell ". Set the cell type of cell B to the "Serving cell". (see note)
13	UE			Cell B, CS domain specific access class x is barred, is preferred by the UE.
14		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
15	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
16				The SS starts an integrity protection
17	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-3 Periodic RA update timer(T3312) = 6 minutes
18	->		ROUTING AREA UPDATE COMPLETE	
19		SS		The SS releases the RRC connection.
20		SS		The access class x is not barred anymore.
21			Void	
22		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
23	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA//LA updating with IMSI attach' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-3
24				The SS starts an integrity protection

25	<-	ROUTING AREA UPDATE ACCEPT	Update result = ' combined RA/LA updated ' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS identity = TMSI-1 Routing area identity = RAI-3
26	->	ROUTING AREA UPDATE COMPLETE	
27	SS		The SS releases the RRC connection.
NOTE:	The definitions for "Serving cell" and "Non-Suitable cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.		

Specific message contents

None.

12.4.2.11.5 Test requirements

At step15, when the SS indicates that PS domain specific access class x is barred, the UE shall:

- perform the normal (non combined) routing area updating procedure.

At step23, when the SS indicates that PS domain specific access class x is not barred, the UE shall:

- perform the combined routing area updating procedure with IMSI attach.

12.4.2.12 Combined routing area updating / abnormal cases / access barred due to domain specific access restriction for PS domain

12.4.2.12.1 Definition

This test case is applicable for Rel-5 UEs supporting DSAC and Rel-6 or later UEs.

12.4.2.12.2 Conformance requirement

TS24.008 clause 4.1.1.2.1

If the PS or CS domain is barred because of domain specific access control, a GPRS MS operating in mode A or B in a network that operates in mode I shall act as if in network operation mode II or III (depending on whether a PCCCH is present in Gb-mode) and access to the barred domain shall be stopped entirely. If the MS detects that a domain is barred, this shall not trigger any MM or GMM specific procedure.

A GPRS MS operating in mode A or B in a network that operates in mode I shall perform a normal location updating procedure (in order to remove the Gs association in the MSC/VLR) when the following conditions are fulfilled:

- the GPRS MS has camped on a cell where the PS domain is barred and the CS domain is unbarred; and
- T3312, T3311, T3302, or T3330 expires; and
- for the last attempt to update the registration of the location area a combined GMM procedure was performed.

Additionally the MS shall treat the expiry of T3312 when the PS domain changes from barred to unbarred, analogous to the descriptions for the cases when the timer expires out of coverage or in a cell that does not support GPRS (see subclause 4.7.2.2).

If timer T3312 expires and both the PS and CS domain are barred, then a GPRS MS operating in mode A or B in a network that operates in mode I shall treat the expiry of T3312 when the GPRS MS detects that the PS or CS domain becomes unbarred, analogous to the descriptions for the cases when the timer expires out of coverage (see subclause 4.7.2.2).

If the PS domain is barred and timer T3312 expires during an ongoing CS connection, then a GPRS MS operating in mode A or B in a network that operates in mode I shall treat the expiry of T3312 when the MM state MM-IDLE is entered, analogous to the descriptions for the cases when the timer expires out of coverage or in a cell that does not support GPRS (see subclause 4.7.2.2), or in a cell where the PS domain is barred.

A GPRS MS operating in mode A or B in a network that operates in mode I shall perform a combined routing area update procedure indicating "combined RA/LA updating with IMSI attach" (in order to establish the Gs association in the MSC/VLR) when the following conditions are fulfilled:

- the GPRS MS detects that CS or PS domain or both change from barred to unbarred;
- as a result of the change of the domain specific barring status, both domains are unbarred; and
- for the last attempt to update the registration of the location area an MM specific procedure was performed (see subclause 4.7.5.2.1) or for the last attempt to update the registration of the routing area a normal routing area update was performed.

Reference

3GPP TS 24.008 clause 4.1.1.2.1

12.4.2.12.3 Test purpose

To test the behaviour of the UE in case of domain specific access class control for PS domain.

12.4.2.12.4 Method of test

Initial condition

An access class x (0-15) is arbitrarily chosen. The USIM is programmed with this access class x.
The SS informs the UE that that the PS domain specific access class x is barred in the cell B.

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) has PS domain specific access class x is not barred, cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3) has PS domain specific access class x is barred.
Both cells are operating in network operation mode I.
T3212 is set to 6 minutes.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
Support of DSAC Yes/No

Test procedure

A combined PS attach procedure is performed. The routing area is changed. The SS indicates PS domain specific access class x is barred. A routing area updating procedure is not performed but a normal location area updating procedure is performed.

The SS indicates that PS domain specific access class x is not barred. A combined routing area updating procedure with IMSI attach is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2		UE		The USIM is programmed with access class x.
3		UE		The UE is powered up or switched on and initiates an attach (see ICS).
4		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
5	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
6	<-		AUTHENTICATION AND CIPHERING REQUEST	
7	->		AUTHENTICATION AND CIPHERING RESPONSE	
8		SS		The SS starts an integrity protection.
9	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 MS identity = TMSI-2
10	->		ATTACH COMPLETE	
11		SS		The SS releases the RRC connection.
		SS		The following messages are sent and shall be received on cell B.
12		SS		Set the cell type of cell A to the “Non-Suitable cell”. Set the cell type of cell B to the "Serving cell". (see note)
13		UE		Cell B, PS domain specific access class x is barred, is preferred by the UE.
14			Registration on CS	See TS 34.108
15		SS		The access class x is not barred anymore.
16			Void	
17			Void	
18		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
19	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
20				The SS starts an integrity protection
21	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS identity = TMSI-1 Routing area identity = RAI-3
22	->		ROUTING AREA UPDATE COMPLETE	
23		SS		The SS releases the RRC connection.
NOTE: The definitions for "Serving cell" and "Non-Suitable cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.4.2.12.5 Test requirements

At step14, when the SS indicates PS domain specific access class x is barred, the UE shall:

- perform the normal location area updating procedure.

At step19, when the SS indicates PS domain specific access class x is not barred, the UE shall:

- perform the combined routing area updating procedure with IMSI attach.

12.4.3 Periodic routing area updating

12.4.3.1 Periodic routing area updating / accepted

12.4.3.1.1 Definition

12.4.3.1.2 Conformance requirement

The User Equipment shall perform a periodic routing area update procedure after a T3312 timeout.

Reference

3GPP TS 24.008 clauses 4.7.2.2 and 4.7.5.1.

12.4.3.1.3 Test purpose

To test the behaviour of the UE with respect to the periodic routing area updating procedure.

12.4.3.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE).

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure with identity P-TMSI. The SS reallocates the P-TMSI and returns ATTACH ACCEPT message with a new P-TMSI and timer T3312. The UE acknowledge the new P-TMSI by sending ATTACH COMPLETE message. A routing area updating procedure is performed at T3312 timeout.

T3312; set to 6 minutes.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 11.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 T3312 = 6 minutes
5	->		ATTACH COMPLETE	
5a		SS		The SS releases the RRC connection.
5b		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
6	->		ROUTING AREA UPDATE REQUEST	Update type = 'Periodic updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
7		SS		The SS verifies that the time between the attach and the periodic RA updating is T3312
7a		SS		The SS starts integrity protection.
8	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-3 signature Routing area identity = RAI-1
8a		SS		The SS releases the RRC connection.
9			Void	
9a			Void	
10			Void	
10a			Void	
11				The SS is set in network operation mode II.
12	UE			The UE is set in UE operation mode A(see ICS) and the test is repeated from step 3 to step 10.

Specific message contents

None.

12.4.3.1.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step6, when the timer T3312 is expired, UE shall:

- initiate the routing area updating procedure with Update type = 'Periodic updating'.

12.4.3.2 Periodic routing area updating / accepted / T3312 default value

12.4.3.2.1 Definition

12.4.3.2.2 Conformance requirement

The User Equipment shall perform a periodic routing area update procedure after a T3312 timeout.

Reference

3GPP TS 24.008 clauses 4.7.2.2 and 4.7.5.2.

12.4.3.2.3 Test purpose

To test the behaviour of the UE with respect to the periodic routing area updating procedure.

12.4.3.2.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a combined PS attach procedure. The SS reallocates the P-TMSI and returns ATTACH ACCEPT message with a new P-TMSI and timer T3312. The UE acknowledge the new P-TMSI by sending ATTACH COMPLETE message. After 54 minutes, a periodic routing area updating procedure is initiated by the UE.

T3312; default value 54 minutes.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
2a	<-		AUTHENTICATION AND CIPHERING REQUEST	
2b	->		AUTHENTICATION AND CIPHERING RESPONSE	
2c	SS			The SS starts integrity protection.
3	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Mobile identity = TMSI-1 Routing area identity = RAI-1 T3312 = 54 min
4	->		ATTACH COMPLETE	
5	->		ROUTING AREA UPDATE REQUEST	Update type = 'Periodic updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = valid TMSI available or IE not present.
6	SS			The SS verifies that the time between the attach request and the periodic RA updating is T3312
7	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI and TMSI not included. Update result = 'RA updated' P-TMSI-3 signature Routing area identity = RAI-1

Specific message contents

None.

12.4.3.2.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step5, when the timer T3312 is expired, UE shall:

- initiate the routing area updating procedure with Update type = 'Periodic updating'.

12.4.3.3 Periodic routing area updating / no cell available / network mode I

12.4.3.3.1 Definition

12.4.3.3.2 Conformance requirement

If the UE is both IMSI attached for PS and non-PS services, and if the UE lost coverage of the registered PLMN and timer T3312 expires; if the UE returns to coverage in a cell that supports PS and the network is in network operation mode I, then the UE shall perform a combined routing area update procedure indicating 'combined RA/LA updating with IMSI attach'.

Reference

3GPP TS 24.008 clauses 4.7.2.2 and 4.7.5.1.

12.4.3.3.3 Test purpose

To test the behaviour of the UE with respect to the periodic routing area updating procedure.

12.4.3.3.4 Method of test

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Cell A is operating in network operation mode II and cell B is in network operation mode I.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure. The SS reallocates the P-TMSI and returns ATTACH ACCEPT message with a new P-TMSI and timer T3312. The UE acknowledge the new P-TMSI by sending ATTACH COMPLETE message. PS radio contact is distorted before T3312 timeout. PS radio contact is established again (after T3312 timeout), and a routing area updating procedure is performed immediately.

T3312; set to 6 minutes.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2		SS		The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS).
4	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 T3312 = 6 minutes
6	->		ATTACH COMPLETE	
7		SS		After 5 minutes, the signal strength is lowered until the UE has lost contact with the SS. Set the cell type of cell A to the "non-suitable cell".(see note)
8		SS		Wait 2 minutes.
				The following messages are sent and shall be received on cell B.
9		SS		Set the cell type of cell B to the "Serving cell". (see note)
10	UE			Cell B is preferred by the UE.
11	UE			The UE immediately starts a combined RA updating procedure
12	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = valid TMSI available or IE is omitted.
13	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' Allocated P-TMSI = P-TMSI-3 P-TMSI Signature = P-TMSI-3 signature MS identity = TMSI-2 Routing area identity = RAI-4
14	->		ROUTING AREA UPDATE COMPLETE	
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.4.3.3.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step12, when the UE is both IMSI attached for PS and non-PS service , and if the UE lost coverage of the reiterated PLMN and the timer T3312 expires, if the UE returns to coverage in a cell that supports PS and the network is in network oration mode I, UE shall:

- perform the combined routing area update procedure indicating "combined RA/LA updating with IMSI attach".

12.4.3.4 Periodic routing area updating / no cell available

12.4.3.4.1 Definition

12.4.3.4.2 Conformance requirement

If the UE is both IMSI attached for PS and non-PS services, and if the UE lost coverage of the registered PLMN and timer T3312 expires; if the UE returns to coverage in a cell that supports PS and the network is in network operation mode II, then the UE shall perform a periodic routing area update procedure and a periodic location update procedure.

Reference

3GPP TS 24.008 clauses 4.7.2.2 and 4.7.5.2.

12.4.3.4.3 Test purpose

To test the behaviour of the UE with respect to the periodic routing area updating procedure.

12.4.3.4.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A) in all cells.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

If the UE is in UE operation mode A, then the UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure. The SS reallocates the P-TMSI and returns ATTACH ACCEPT message with a new P-TMSI and timer T3312. The UE acknowledge the new P-TMSI by sending ATTACH COMPLETE message. PS radio contact is distorted before T3312 timeout. PS radio contact is established again (after T3312 timeout), and a periodic routing area updating procedure is performed immediately (no periodic location update procedure is performed as T3212=infinity).

T3312; set to 6 minutes.

Expected Sequence

Step	Direction	Message	Comments
	UE	SS	
1	UE		The UE is set in UE operation mode A or C (see ICS). The UE is powered up or switched on and initiates an attach (see ICS).
1a	UE	Registration on CS	This step is only performed for UE in operation mode A. See TS 34.108 This is applicable only for UE in UE operation mode A.
2	->	ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
2a	<-	AUTHENTICATION AND CIPHERING REQUEST	
2b	->	AUTHENTICATION AND CIPHERING RESPONSE	
2c	SS		The SS starts integrity protection.
3	<-	ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 T3312 = 6 minutes
4	->	ATTACH COMPLETE	
5-12		(void)	
13	SS		After 5 minutes, the signal strength is lowered until the UE have lost contact with the SS.
14	SS		After 2 minutes, the signal strength is increased until the UE have got contact with the SS.
15	UE		The UE immediately start the periodic RA updating procedure
16	->	ROUTING AREA UPDATE REQUEST	Update type = 'Periodic updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
17	<-	ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-3 signature Routing area identity = RAI-1

Specific message contents

RRC System information block type 1

Information element	Comment Value
T3212 (Periodical Location updating)	Infinity

12.4.3.4.5 Test requirements

At step2, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step16, when the UE is both IMSI attached for PS and non-PS service, and if the UE lost coverage of the reiterated PLMN and the timer T3312 expires, if the UE returns to coverage in a cell in the same RA that supports PS and that indicates that the network is in network operation mode II, UE shall:

- perform the periodic routing area updating procedure indicating "Periodic updating".

12.5 P-TMSI reallocation

12.5.1 Definition

12.5.2 Conformance requirement

1) A User Equipment shall acknowledge a new P-TMSI when explicitly allocated.

2) The P-TMSI shall be updated on the USIM when the User Equipment is correctly deactivated in accordance with the manufacturer's instructions.

3) A User Equipment shall use the given P-TMSI in further communication with the network.

Reference

3GPP TS 24.008 clause 4.7.6.

12.5.3 Test purpose

To verify that the UE is able to receive and acknowledge a new P-TMSI by means of an explicit P-TMSI reallocation procedure.

To verify that the UE has stored the P-TMSI in a non-volatile memory.

The implicit reallocation procedure is tested in the attach procedure.

12.5.4 Method of test

Initial condition

System Simulator:

- One cell operating in network operation mode II.
- The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE).

User Equipment:

The UE has a valid IMSI.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No (only if mode A not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

An explicit P-TMSI reallocation procedure is performed (P-TMSI reallocation command sent from the SS and acknowledged from the UE by P-TMSI reallocation complete). The UE is PS detached and switched off. Its power supply is interrupted for 10 seconds. The power supply is resumed and then the UE is switched on. A PS attach procedure is performed with the given P-TMSI as identity.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS). If UE operation mode A not supported set the UE in operation mode C.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	<-		P-TMSI REALLOCATION COMMAND	Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
7	->		P-TMSI REALLOCATION COMPLETE	
8	UE			The UE is switched off or power is removed (see ICS).
8a	SS			SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach".
9	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRSdetach'
9a	SS			If the power was not removed, the SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .
10	UE			Ensure the power is removed from the UE for at least 10 seconds
11	UE			The UE is powered up or switched on and initiates an attach (see ICS).
11a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
12	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-2 Old Routing area identity = RAI-1
12a	<-		AUTHENTICATION AND CIPHERING REQUEST	
12b	->		AUTHENTICATION AND CIPHERING RESPONSE	
12c	SS			The SS starts integrity protection.
13	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI not included. Attach result = 'GPRS only attached' P-TMSI-3 signature Routing area identity = RAI-1
13a	SS			The SS releases the RRC connection and waits 5s to allow the UE to read system information.
14	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services. Paging cause = "Terminating interactive call".

15	SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
16		Void	
17		Void	
18	->	SERVICE REQUEST	service type = "paging response"
18a	SS		The SS starts integrity protection.
19	SS		The SS releases the RRC connection.
20		Void	

Specific message contents

None.

12.5.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step7, when the UE receives P-TMSI REALLOCATION COMMAND message from SS, UE shall:

- acknowledge the new P-TMSI by sending P-TMSI REALLOCATION COMPLETE message.

At step12, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step18, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-2, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.6 PS authentication

12.6.1 Test of authentication

The purpose of this procedure is to verify the user identity. A correct response is essential to guarantee the establishment of the connection. If not, the connection will drop.

12.6.1.1 Authentication accepted

12.6.1.1.1 Definition

12.6.1.1.2 Conformance requirement

A User Equipment shall correctly respond in an authentication and ciphering procedure by sending a response with the RES information field set to the same value as the one produced by the authentication and ciphering algorithm in the network.

Reference

3GPP TS 24.008 clause 4.7.7.

12.6.1.1.3 Test purpose

To test the behaviour of the UE if the network accepts the authentication and ciphering procedure.

12.6.1.1.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells are operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A) in both cells.

User Equipment:

The UE has a valid IMSI.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach is performed, and the SS initiates an authentication and ciphering procedure.

The SS checks the value RES sent by the UE in the AUTHENTICATION AND CIPHERING RESPONSE message.

The UE initiates a routing area updating procedure and the SS checks the value of the PS Ciphering Key Sequence Number sent by the UE in the ROUTING AREA REQUEST message.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 17.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
5	<-		AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Set PS-CKSN-1
6	->		AUTHENTICATION AND CIPHERING RESPONSE	RES
7		SS		The SS checks the RES value and starts integrity protection.
8	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
9	->		ATTACH COMPLETE	
9a		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell B.
10		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
10a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
11	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 PS-CKSN-1
12		SS		The value of PS-CKSN is checked. Integrity protection is started.
13	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4
14	->		ROUTING AREA UPDATE COMPLETE	
15	UE			The UE is switched off or power is removed (see ICS).
16	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRSdetach'
16a		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
17		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)

18	UE		The UE is set in UE operation mode A (see ICS) and the test is repeated from step 3 to step 16a.
NOTE:	The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.		

Specific message contents

None.

12.6.1.1.5 Test requirements

At steps 3a and 10a the UE shall transmit an RRC CONNECTION REQUEST message with the IE "Establishment cause" set to "Registration".

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, when the UE receives the AUTHENTICATION AND CIPHERING REQUEST message form SS, UE shall:

- send the AUTHENTICATION AND CIPHERING RESPONSE message with the RES information field set to the same value as the one produced by the authentication and ciphering algorithm in the network.

At step11, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- perform routing area updating procedure.

12.6.1.2 Authentication rejected by the network

12.6.1.2.1 Definition

12.6.1.2.2 Conformance requirement

Upon receipt of an AUTHENTICATION AND CIPHERING REJECT message, the UE shall set the PS update status to GU3 ROAMING NOT ALLOWED and shall delete the P-TMSI, P-TMSI signature, RAI and PS ciphering key sequence number stored.

The USIM shall be considered as invalid until switching off or the USIM is removed.

If the AUTHENTICATION AND CIPHERING REJECT message is received, the UE shall abort any GMM procedure, shall stop the timers T3310 and T3330 (if running) and shall enter state GMM-DEREGISTERED.

Reference

3GPP TS 24.008 clauses 4.7.7.5.

12.6.1.2.3 Test purpose

To test the behaviour of the UE if the network rejects the authentication and ciphering procedure.

12.6.1.2.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE) in both cells.

User Equipment:

The UE has a valid IMSI.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The test sequence is repeated for K = 1, 2.

A complete PS attach procedure is performed. The SS rejects the following authentication and ciphering procedure. The UE is paged with its IMSI and shall not respond.
The Cell is changed into a new Routing Area.

The SS checks that the UE does not perform normal routing area updating.

The SS then checks that the UE does not perform a PS detach.

The SS checks that the UE does not perform a PS Attach procedure.

Expected Sequence

The test sequence is repeated for k = 1, 2

For k =1, the UE is set in UE operation mode C. If MS operation mode C not supported then k = 2.

For k = 2 the UE is set in UE operation mode A.

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a			Void	
2b		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3		->	ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
4			Void	
5			Void	
6		<-	AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Set PS-CKSN-1
7		->	AUTHENTICATION AND CIPHERING RESPONSE	RES
8		<-	AUTHENTICATION AND CIPHERING REJECT	
8a		SS		The SS releases the RRC connection and waits 5s to allow the UE to read system information.
9		<-	PAGING TYPE1	Mobile identity = IMSI Paging order is for PS services.
10	UE			No response from the UE to the request. This is checked for 10 seconds.
				The following messages are sent and shall be received on cell B.
11		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
12	UE			Cell B is preferred by the MS.
13	UE			No ROUTING AREA UPDATE REQUEST sent to the SS (SS waits 30 seconds).
14	UE			The UE initiates an attach by MMI or by AT command.
15	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
16	UE			The UE is switched off (see ICS).
17	SS			No DETACH REQUEST sent to the SS (SS waits 30 seconds).
18				The UE is powered up or switched on and initiates an attach (see ICS). Step 19 is only performed for k =2
19	UE		Registration on CS	See TS 34.108 SS checks Mobile identity = IMSI. SS allocates Mobile identity = TMSI-1.
19a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
20		->	ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
20a		<-	AUTHENTICATION AND CIPHERING REQUEST	
20b		->	AUTHENTICATION AND CIPHERING RESPONSE	
20c		SS		The SS starts integrity protection.
21		<-	ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4

22	->	ATTACH COMPLETE	
22a	SS		The SS releases the RRC connection.
23	UE		The UE is switched off or power is removed. (see ICS)
23a	SS		SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach".
24	->	DETACH REQUEST	Message not sent if power is removed.
24a	SS		If the power was not removed, the SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .
25	UE		If k=1 then the test is repeated for k=2.
NOTE: The definitions for "Non-Suitable celll" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.			

Specific message contents

None.

12.6.1.2.5 Test requirements

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step9, when the UE receives the AUTHENTICATION AND CIPHERING REJECT message, UE shall:

- not respond paging message for PS domain.

At step13, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- not perform normal routing area updating.

At step17, when the UE is switched off, UE shall:

- not perform PS detach procedure.

12.6.1.3 Authentication rejected by the UE

12.6.1.3.1 GMM cause 'MAC failure'

12.6.1.3.1.1 Definition

12.6.1.3.1.2 Conformance requirement

If the UE considers the MAC code (supplied by the core network in the AUTN parameter) to be invalid, the UE shall send AUTHENTICATION AND CIPHERING FAILURE message with the reject cause 'MAC failure' to the System Simulator.

Reference

3GPP TS 24.008 clause 4.7.7.

12.6.1.3.1.3 Test purpose

To test the behaviours of the UE, when the UE considers the MAC code (supplied by the core network in the AUTN parameter) to be invalid.

12.6.1.3.1.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE) in both cells.

The MAC (Message Authentication Code) code, which is included in AUTHENTICATION AND CIPHERING REQUEST, is invalid value.

User Equipment:

The UE has a valid IMSI.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach is performed, and the SS initiates an authentication and ciphering procedure.

The UE sends AUTHENTICATION AND CIPHERING FAILURE message with reject cause 'MAC failure' to the SS.

The SS initiates an identification procedure, upon receipt of a failure message with reject cause 'MAC failure'.

After the identification procedure is complete, the SS re-initiates an authentication and ciphering procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note 1)
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, goto step 25.
3	UE			
4				The following messages are sent and shall be received on cell A.
5	UE			The UE is powered up or switched on and initiates an attach (see ICS).
5a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
6	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobility identity = IMSI
7	<-		AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Invalid Message Authentication Code (MAC).
9	->		AUTHENTICATION AND CIPHERING FAILURE	GMM cause='MAC failure'
9a	<-		IDENTITY REQUEST	Identity type = IMSI
9b	->		IDENTITY RESPONSE	Mobile identity = IMSI
10	<-		AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Including PS-CSKN-1
11	->		AUTHENTICATION AND CIPHERING RESPONSE	RES
12		SS		The SS checks the RES value and starts integrity protection.
13			Void	
14			Void	
15			Void	
16	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
17	->		ATTACH COMPLETE	
17a		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell B.
18		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note 1)
18a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
19	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 PS-CKSN-1
20		SS		The SS checks the value of PS-CKSN and starts integrity protection.
21	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4
22	->		ROUTING AREA UPDATE COMPLETE	
23	UE			The UE is switched off or power is removed (see ICS).

24	->	DETACH REQUEST	Message is not sent if power is removed. Detach type = 'power switched off, GPRSdetach'
24a	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
25	UE		The UE is set in UE operation mode A (see ICS) and the test is repeated from step 1 to step 24.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.			

Specific message contents

None.

12.6.1.3.1.5 Test requirements

At step6, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information element specified in the above Expected Sequence.

At step9, when the UE receives the AUTHENTICATION AND CIPHERING REQUEST with Invalid Message Authentication Code, UE shall:

- send the AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS

At step11, when the UE receives the second AUTHENTICATION AND CIPHERING REQUEST message (containing a valid MAC) from SS, UE shall:

- send the AUTHENTICATION AND CIPHERING RESPONSE message to SS.

At step9b, when the UE receives the IDENTITY REQUEST message with Identity type = IMSI from SS, UE shall:

- send the IDENTITY RESPONSE message with Mobile identity = IMSI to SS.

12.6.1.3.2 GMM cause 'Synch failure'

12.6.1.3.2.1 Definition

12.6.1.3.2.2 Conformance requirement

If the UE considers the SQN (supplied by the core network in the AUTN parameter) to be out of range, the UE shall send AUTHENTICATION AND CIPHERING FAILURE message with the reject cause 'Synch failure' to the System Simulator.

Reference

3GPP TS 24.008 clause 4.7.7.

12.6.1.3.2.3 Test purpose

To test the behaviours of the UE, when the UE considers the SQN (supplied by the core network in the AUTN parameter) to be out of range.

12.6.1.3.2.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE) in both cells.

User Equipment:

The UE has a valid IMSI.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach is performed, and the SS initiates an authentication and ciphering procedure.

UE sends AUTHENTICATION AND CIPHERING FAILURE message with reject cause 'synch failure' to the SS.

SS re-initiates an authentication and ciphering procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		The following messages are sent and shall be received on cell A. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note 1)
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, goto step 21.
3	UE			The following messages are sent and shall be received on cell A. The UE is powered up or switched on and initiates an attach (see ICS).
3a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobility identity = IMSI
5	<-		AUTHENTICATION AND CIPHERING REQUEST	Request authentication. SQN is out of range.
6			Void	
7	->		AUTHENTICATION AND CIPHERING FAILURE	GMM cause = 'Synch failure' AUTS parameter
8		SS		set new authentication vectors. (re-synchronisation)
9	<-		AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Including PS-CKSN-1
10	->		AUTHENTICATION AND CIPHERING RESPONSE	RES
11		SS		The SS checks the RES value and starts integrity protection.

Step	Direction		Message	Comments
	UE	SS		
12	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
13	->		ATTACH COMPLETE	
13a	SS			The SS releases the RRC connection.
14	SS			The following messages are sent and shall be received on cell B. Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note 1)
14a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
15	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 PS-CKSN-1
16	SS			The SS checks the value of PS-CKSN and starts integrity protection
17	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4
18	->		ROUTING AREA UPDATE COMPLETE	
19	UE			The UE is switched off or power is removed (see ICS).
20	->		DETACH REQUEST	Message is not sent if power is removed. Detach type = 'power switched off, GPRSdetach'
20a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
21	UE			The UE is set in UE operation mode A (see ICS) and the test is repeated from step 1 to step 20.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.6.1.3.2.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information element specified in the above Expected Sequence.

At step7, when the UE receives the AUTHENTICATION AND CIPHERING REQUEST message(SQN is out of range.), UE shall:

- send the AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'synch failure' to the SS

At step9, when the UE receives the second AUTHENTICATION AND CIPHERING REQUEST message from SS, UE shall:

- send the AUTHENTICATION AND CIPHERING RESPONSE message to SS.

At step15, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- perform routing area updating procedure.

12.6.1.3.3 Authentication rejected by the UE / fraudulent network

12.6.1.3.3.1 Definition

12.6.1.3.3.2 Conformance requirement

R99 and REL-4:

1. It can be assumed that the source of the authentication challenge is not genuine (authentication not accepted by the UE) if any of the following occur:

   - After sending the AUTHENTICATION & CIPHERING FAILURE message with GMM cause 'MAC failure' the timer T3318 expires;

   - Upon receipt of the second AUTHENTICATION & CIPHERING REQUEST message from the network while the T3318 is running and the MAC value cannot be resolved.

   When it has been deemed by the MS that the source of the authentication challenge is not genuine (authentication not accepted by the MS), the MS shall behave as described in 3GPP 24.008 clause 4.7.7.6.1.

2. In addition to the cases specified in subclause 4.7.7.6, the UE may deem that the network has failed the authentication check after any combination of three consecutive authentication failures, regardless whether 'MAC failure', 'invalid SQN', or 'GSM authentication unacceptable' was diagnosed. The authentication failures shall be considered as consecutive only, if the authentication challenges causing the second and third authentication failure are received by the UE, while the timer T3318 or T3320 started after the previous authentication failure is running.

   If the UE deems that the network has failed the authentication check, then it shall request RR or RRC to release the RR connection and the PS signalling connection, if any, and bar the active cell or cells (see 3GPP TS 25.331 and 3GPP TS 04.18).

Reference

3GPP TS 24.008 clause 4.7.7.6 (f) and 4.7.7.6.1.

REL-5 and later releases:

1. It can be assumed that the source of the authentication challenge is not genuine (authentication not accepted by the UE) if any of the following occurs:

   - after sending the AUTHENTICATION & CIPHERING FAILURE message with GMM cause 'MAC failure' the timer T3318 expires;

   - the MS detects any combination of the authentication failures: "MAC failure", "invalid SQN", and "GSM authentication unacceptable", during three consecutive authentication challenges. The authentication challenges shall be considered as consecutive only, if the authentication challenges causing the second and third authentication failure are received by the MS, while the timer T3318 or T3320 started after the previous authentication failure is running.

   When it has been deemed by the MS that the source of the authentication challenge is not genuine (authentication not accepted by the MS), the MS shall behave as described in 3GPP TS 24.008 subclause 4.7.7.6.1.

2. If the UE deems that the network has failed the authentication check, then it shall request RR or RRC to release the RR connection and the PS signalling connection, if any, and bar the active cell or cells (see 3GPP TS 25.331 and 3GPP TS 44.018).

Reference

3GPP TS 24.008 clause 4.7.7.6 (f) and 4.7.7.6.1.

12.6.1.3.3.3 Test purpose

R99 and REL-4

To test UE treating a cell as barred:

1. when the network sends the second or third AUTHENTICATION & CIPHERING REQUEST message with invalid MAC code during the timer T3318 is running.

2. when the timer T3318 has expired.

REL-5 or later release:

To test UE treating a cell as barred:

1. when the network sends the third AUTHENTICATION & CIPHERING REQUEST message with invalid MAC code during the timer T3318 is running.

2. when the timer T3318 has expired.

12.6.1.3.3.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1(RAI-1), cell B in MCC1/MNC1/LAC1/RAC2(RAI-2).
Both cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE) in both cells.

User Equipment:

The UE has a valid IMSI.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

Two cells are configured. Cell A transmits with higher power so that the UE attempts an attach procedure to cell A.

During the attach procedure, the SS initiates an authentication and ciphering procedure but it sends an incorrect Message Authentication Code (MAC) value in its AUTHENTICATION AND CIPHERING REQUEST message.

The UE sends AUTHENTICATION AND CIPHERING FAILURE message to the SS indicating authentication failure.

The SS repeats a second time the authentication procedure, again with an incorrect Message Authentication Code (MAC) value in its AUTHENTICATION AND CIPHERING REQUEST message.

For R99 and REL-4: SS waits 30 seconds. If the UE sends an AUTHENTICATION AND CIPHERING FAILURE message during this time then the SS repeats the authentication procedure a third time and then waits 30 seconds. The UE moves into idle mode and do not make any access attempt on Cell A.

For REL-5 or later release: The SS repeats a third time the authentication procedure, again with an incorrect Message Authentication Code (MAC) value in its AUTHENTICATION AND CIPHERING REQUEST message. The UE moves into idle mode and do not make any access attempt on Cell A.

The UE shall attempt to attach to cell B. The SS initiates an authentication and ciphering procedure but it sends an incorrect Message Authentication Code (MAC) value in its AUTHENTICATION AND CIPHERING REQUEST message. The UE sends AUTHENTICATION AND CIPHERING FAILURE message to the SS indicating authentication failure.

The SS waits for T3318 to expire.

The UE shall treat now both cells as barred and shall not attempt to access the network, even if the user triggers the UE to perform an attach procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
				The following messages are sent and shall be received on cell A.
2	UE			The UE is powered up or switched on and initiates an attach procedure.
3	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobility identity = IMSI
4	<-		AUTHENTICATION AND CIPHERING REQUEST	Request for authentication. Invalid Message Authentication Code (MAC).
5	->		AUTHENTICATION AND CIPHERING FAILURE	GMM cause='MAC failure'
6	<-		AUTHENTICATION AND CIPHERING REQUEST	Request for authentication. Invalid Message Authentication Code (MAC).
7	->		AUTHENTICATION AND CIPHERING FAILURE	GMM cause='MAC failure' R99 and REL-4: In case message is not received within 30s then SS should continue from step 9.
7a	<-		AUTHENTICATION AND CIPHERING REQUEST	Request for authentication. Invalid Message Authentication Code (MAC). R99 and REL-4: Optional step
7b			Void	
8		SS		SS verifies that the UE does not attempt to access the network for 30s. R99 and REL-4: Optional step
9		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
				UE shall attempt an attach on cell B.
				The following messages are sent and shall be received on cell B.
10	UE			The UE initiates a PS attach. If UE does not attach automatically, then UE initiates the attach procedure by MMI or AT command.
11	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobility identity = IMSI
12	<-		AUTHENTICATION AND CIPHERING REQUEST	Request for authentication. Invalid Message Authentication Code (MAC).
13	->		AUTHENTICATION AND CIPHERING FAILURE	GMM cause='MAC failure'
14	SS			SS waits T3318 (20s)
15	SS			SS verifies that the UE does not attempt to access the network for 30s.
16	UE			The UE initiates an attach by MMI or AT command.
17	SS			SS verifies that the UE does not attempt to access the network for 30s.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.6.1.3.3.5 Test requirements

At step3, when the UE is powered on or switched on, the UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

After step4, when the UE have received the first AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC), the UE shall:

- send the AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS.

For R99 and REL-4 UE:

Alternative 1:

- After step 6, when the UE have received the second AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC), the UE shall not attempt to access the network.

Alternative 2:

- After step6, when the UE have received the second AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC) while the timer T3318 is running, the UE shall send an AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS; and

- After step 7a , when the UE have received the third AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC), the UE shall not attempt to access the network.

For REL-5 UE:

- After step 6, when the UE receives the second AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC) from the network while the timer T3318 is running, the UE shall send an AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS; and

- After step 7a, when the UE have received the third AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC), the UE shall not attempt to access the network.

At step 11, when the activated cell is changed from cell A to cell B, the UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

After step 12, when the UE have received the AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC), the UE shall:

- send an AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS.

At step 17, when the timer T3318 have expired, the UE shall:

- not attempt to access the network.

12.6.2 Void

12.7 Identification procedure

The purpose of this procedure is to check that the UE gives its identity as requested by the network. If this procedure does not work, it will not be possible for the network to rely on the identity claimed by the UE.

12.7.1 General Identification

12.7.1.1 Definition

12.7.1.2 Conformance requirement

1) When requested by the network the User Equipment shall send its IMSI.

2) When requested by the network the User Equipment shall send its IMEI as stored in the Mobile Equipment.

3) When requested by the network the User Equipment shall send its IMEISV as stored in the Mobile Equipment.

Reference

3GPP TS 24.008 clauses 4.7.8

12.7.1.3 Test purpose

To verify that the UE sends identity information as requested by the system. The following identities can be requested: IMSI, IMEI and IMEISV.

12.7.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A).

User Equipment:

The UE has a valid IMSI.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS requests identity information from the UE:

- IMSI
- IMEI
- IMEISV

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		The UE is set to attach to PS services only (see ICS). If that is not supported by the UE, goto step 14.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
4			Void	
5	<-		AUTHENTICATION AND CIPHERING REQUEST	
5a	->		AUTHENTICATION AND CIPHERING RESPONSE	
5b		SS		The SS starts ciphering and integrity protection.
6	<-		IDENTITY REQUEST	Identity type = IMSI
7	->		IDENTITY RESPONSE	Mobile identity = IMSI
8	<-		IDENTITY REQUEST	Identity type = IMEI
9	->		IDENTITY RESPONSE	Mobile identity = IMEI
10	<-		IDENTITY REQUEST	Identity type = IMEISV
11	->		IDENTITY RESPONSE	Mobile identity = IMEISV
11a	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
11b	->		ATTACH COMPLETE	
11c		SS		The SS releases the RRC connection.
12	UE			The UE is switched off or power is removed (see ICS).
12a		SS		SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach" (message not received if power is removed).
13	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRSdetach'
13a		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
14	UE			The UE is set to attach to both PS and non-PS services (see ICS) and the test is repeated from step 2 to step 13a.

Specific message contents

None.

12.7.1.5 Test requirements

At step 2a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 12a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step7, when the SS requests an IMSI with the IDENTITY REQUEST message, UE shall:

- send the IDENTITY RESPONSE message with the Mobile identity = IMSI.

At step9, when the SS requests an IMEI with the IDENTITY REQUEST message, UE shall:

- send the IDENTITY RESPONSE message with the Mobile identity = IMEI.

At step11, when the SS requests an IMEISV with the IDENTITY REQUEST message, UE shall:

- send the IDENTITY RESPONSE message with the Mobile identity = IMEISV.

12.8 GMM READY timer handling

12.8.1 Definition

12.8.2 Conformance requirement

If a READY timer value is received by an UE capable of both UMTS and GSM in the ATTACH ACCEPT or the ROUTING AREA UPDATE ACCEPT messages, then the received value shall be stored by the UE in order to be used at an intersystem change from UMTS to GSM.

Reference

3GPP TS 24.008 clause 4.7.2.1

12.8.3 Test purpose

To verify that READY timer value received in UTRA can be used in GSM.

12.8.4 Method of test

12.8.4.1 Test procedure

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A (UTRAN) in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B (GSM) in MCC1/MNC1/LAC1/RAC2 (RAI-4).

Parameter	Unit	Cell B (GSM)
Qsearch_I (TDD)	dBm	15 (never)

Cell B is in neighbour cell list of cell A.
Both cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE) in cell A (UTRAN).
The value of ATT flag in SIB3 IE “Control Channel Description” is set to value “0” in cell B (GSM).

In SIB3 and SIB4 the IE “$S_{searchRAT}$”, is set to value “20dB” in cell A (UTRAN).

User Equipment:

The UE has a valid IMSI.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

UE supports both GSM/GPRS and UTRAN Radio Access Technologies Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

An attach is performed.

T3314; set to 60 seconds

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Cell B is switched off. (see note)
2	UE			The UE is set in UE operation mode A (see ICS). If UE operation mode A not supported set the UE in operation mode C. The UE is powered up or switched on and initiates an attach (see ICS).
2a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 T3314 = 60 seconds T3312=6 minutes
5	->		ATTACH COMPLETE	
5a		SS		The SS releases the RRC connection.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell".
7	UE			UE establish cell reselection to GSM system The following messages are received on Cell B (GERAN)
8a	UE		Registration on CS	Optional step. See TS 34.108 Location Update Procedure may be initiated from the UE.
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
9	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4
10	->		ROUTING AREA UPDATE COMPLETE	
11		SS		The SS verifies that the time between the end of Step 10 and the periodic RA updating is Ready Timer Period (T3314) + Periodic Routing Area Updating timer (T3312) (+/- 10%)
12	->		ROUTING AREA UPDATE REQUEST	Update type = 'Periodic updating' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-4
13	<-		ROUTING AREA UPDATE ACCEPT	Update type = 'RA updated'
14	UE			UE is switched off or power is removed (see ICS)
15	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS detach'

NOTE:	The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.

Specific message contents

None.

12.8.5 Test requirements

At step4, when the UE receives the ATTACH ACCEPT or the ROUTING AREA UPDATE ACCEPT messages, UE shall:

- store the received READY timer value.

At step12, UE shall establish periodic Routing Area Update after Timer Period (T3314) + Periodic Routing Area Updating timer (T3312) (+/- 10%).

12.9 Service Request procedure (UMTS Only)

12.9.1 Service Request Initiated by UE Procedure

12.9.1.1 Definition

12.9.1.2 Conformance requirement

UE shall send the Service Request message to the network in order to establish the PS signalling connection for the upper layer signalling or for the resource reservation for active PDP context(s).

Reference

TS 24.008 clauses 4.7.13

TS 23.060 clauses 6.12.1

12.9.1.3 Test purpose

To test the behaviour of the UE if the UE initiates the CM layer service (e.g. SM or SMS) procedure.

12.9.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A).

User Equipment:

The UE has a valid IMSI

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE in PMM-IDLE state sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) After the SS receives the SERVICE REQUEST message, the SS sends a SERVICE REJECT message.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set to attach to PS services only (see ICS). If that is not supported by the UE, goto step 12.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts ciphering and integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
6	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
6a	SS			The IE "Establishment cause" in the received RRC CONNECTION REQUEST message is not checked.
7	->		SERVICE REQUEST	Service type = "signalling",
8	<-		SERVICE REJECT	Reject cause = "GPRS services not allowed"
9	->		Void	
9a	SS			The SS releases the RRC connection.
10	UE			The UE is switched off or power is removed (see ICS).
10a			Void	
11			Void	
11a			Void	
12	UE			The UE is set to attach to both PS and non-PS services (see ICS) and the test is repeated from step 2 to step 11a.

Specific message contents

None.

12.9.1.5 Test requirements

At step 2a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 10a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step7, when the UE has any signalling message (e.g. for SM or SMS) that requires security protection, the UE shall:

- send the SERVICE REQUEST message with service type indicated "signalling".

12.9.2 Service Request Initiated by Network Procedure

12.9.2.1 Definition

12.9.2.2 Conformance requirement

When the UE receives a paging request for PS domain from the network in PMM-IDLE mode, the UE shall send the SERVICE REQUEST message to the network.

Reference

TS 24.008 clauses 4.7.13

TS 23.060 clauses 6.12.2

12.9.2.3 Test purpose

To test the behaviour of the UE if the UE receives the paging request for PS domain service from the network.

12.9.2.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A).

User Equipment:

The UE has a valid IMSI

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE is in PMM-IDLE state. The SS pages the UE by sending a Paging message to the UE.

b) The UE sends a SERVICE REQUEST message to the SS. Service Type specifies Paging Response. The Service Request is carried over the radio in an RRC Direct Transfer message.

c) After the SS receives the SERVICE REQUEST message from the UE, SS initiates an authentication procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set to attach to PS services only (see ICS). If that is not supported by the UE, goto step 12.
2	UE			The UE is powered up or switched in and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts ciphering and integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
6	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services. Paging cause = "Terminating interactive call"
6a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
7	->		SERVICE REQUEST	Service type = "Paging response"
8	<-		AUTHENTICATION AND CIPHERING REQUEST	
9	->		AUTHENTICATION AND CIPHERING RESPONSE	
9a	SS			SS starts integrity protection and releases the RRC connection.
10	UE			The UE is switched off or power is removed (see ICS).
10a	SS			SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach" (message not sent if power is removed).
11	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRSdetach'
11a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
12	UE			The UE is set to attach to both PS and non-PS services (see ICS) and the test is repeated from step 2 to step 11a.

Specific message contents

None.

12.9.2.5 Test requirements

At step 2a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 6a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Terminating interactive Call".

At step 10a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step 7, when the UE receives a paging request for PS domain from the network in PMM-IDLE mode, the UE shall:

- send the SERVICE REQUEST message with service type indicated "paging response".

12.9.3 Service Request / rejected / Illegal MS

12.9.3.1 Definition

12.9.3.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "Illegal MS", the UE shall:

1) set the GPRS update status to GU3 ROAMING NOT ALLOWED and enter state GMM DEREGISTRATED. A UE operating in MS operation A shall in addition to set the update status to U3 ROAMING NOT ALLOWED.
2) delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. A UE operating in MS operation A shall in addition delete any TMSI, LAI and ciphering key sequence number.
3) consider the USIM as invalid for PS service until switched off or the USIM is removed.

Reference

TS 24.008 clauses 4.7.13.4

12.9.3.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "Illegal MS".

12.9.3.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE).

User Equipment:

The UE has a valid P-TMSI-1, RAI-1 and IMSI.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

USIM removal possible without powering down Yes/No

Switch off on button Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #3(Illegal MS).

c) After the UE receives the SERVICE REJECT message with the cause value #3(Illegal MS), the UE deletes any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.

d) The SS checks that the UE does not initiate an upper-layer signalling until the power of the UE is switched off.

e) The SS checks that the UE does not initiate an upper-layer signalling until the USIM is removed from the UE.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 38.
2	SS			The SS is set in network operation mode II and activates cell A.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = 'GPRS only attached'
6	SS			UE is moved to PMM idle. (The SS releases the RRC connection)
7	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "signalling"
9	<-		SERVICE REJECT	Reject cause = "Illegal MS"
9a	SS			The SS releases the RRC connection
10	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
11	SS			The SS verifies that the UE does not attempt to access the network. (SS waits 30 seconds)
12	UE			The UE is switched off.
13			Void	
14	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
14a	UE		Registration on CS	See TS 34.108 This is applicable only for UE in UE operation mode A.
14b	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
15	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
15a	<-		AUTHENTICATION AND CIPHERING REQUEST	
15b	->		AUTHENTICATION AND CIPHERING RESPONSE	
15c	SS			The SS starts ciphering and integrity protection.
16	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
17	->		ATTACH COMPLETE	
17a	SS			UE is moved to PMM idle. (The SS releases the RRC connection)

Step	Direction		Message	Comments
	UE	SS		
18	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
19	->		SERVICE REQUEST	Service type = "signalling"
20	<-		SERVICE REJECT	Reject cause = "Illegal MS"
20a	SS			The SS releases the RRC connection
21	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
22	SS			The SS verifies that the UE does not attempt to access the network. (SS waits 30 seconds)
23	UE			If possible (see ICS) USIM replacement is performed. Otherwise if possible (see ICS) switch / power off is performed. The UE is then powered up or switched on (see ICS).
24	UE		Registration on CS	See TS 34.108 This is applicable only for UE in UE operation mode A.
25	UE			The UE initiates a PS attach, by MMI or by AT command.
25a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
26	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
26a	<-		AUTHENTICATION AND CIPHERING REQUEST	
26b	->		AUTHENTICATION AND CIPHERING RESPONSE	
26c	SS			The SS starts ciphering and integrity protection.
27	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
28	->		ATTACH COMPLETE	
28a	SS			UE is moved to PMM idle. (The SS releases the RRC connection)
29	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
30	->		SERVICE REQUEST	Service type = "signalling"
31	<-		SERVICE REJECT	Reject cause = "Illegal MS"
32			VOID	
33			VOID	
34	SS			The SS releases RRC connection.
35	UE			The UE is switched off or power is removed (see ICS).
36			Void	
37			Void	
38	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 37.

Specific message contents

None.

12.9.3.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step11, when the UE receives the SERVICE REJECT message with cause "Illegal MS" UE shall:

- not attempt to access the network.

At step15, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step22, when the UE receives the SERVICE REJECT message with cause "Illegal MS" UE shall:

- not attempt to access the network.

At step26, when the UE gets the USIM replaced, is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step30, UE shall:

- initiate the service request procedure.

12.9.4 Service Request / rejected / PS services not allowed

12.9.41 Definition

12.9.4.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "GPRS services not allowed", the UE shall:

1) set the GPRS update state to GU3 ROAMING NOT ALLOWED.
2) delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.
3) consider the USIM as invalid for PS service until the UE is switched off or until the USIM is removed.

Reference

TS 24.008 clauses 4.7.13.4

12.9.4.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "GPRS services not allowed in this PLMN".

12.9.4.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE).

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #7(GPRS services not allowed).

c) After the UE receives the SERVICE REJECT message with the cause value #7(GPRS services not allowed), the UE deletes any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.

d) The SS checks that the UE does not initiate an upper-layer signalling until the UE is switched off.

e) The SS checks that the UE does not initiate an upper-layer signalling until the USIM is removed from the UE.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 38.
2	SS			The SS is set in network operation mode II and activates cell A.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = 'GPRS only attached'
6	SS			UE is moved to PMM idle. (The SS releases the RRC connection)
7	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "signalling"
9	<-		SERVICE REJECT	Reject cause = "GPRS services not allowed"
9a	SS			The SS releases the RRC connection
10	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
11	SS			The SS verifies that the UE does not attempt to access the network. (SS wait 30seconds)
12	UE			The UE is switched off.
13			Void	
14	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
14a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
15	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
15a	<-		AUTHENTICATION AND CIPHERING REQUEST	
15b	->		AUTHENTICATION AND CIPHERING RESPONSE	
15c	SS			The SS starts ciphering and integrity protection.
16	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
17	->		ATTACH COMPLETE	
17a	SS			UE is moved to PMM idle. (The SS releases the RRC connection)
18	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.

Step	Direction		Message	Comments
	UE	SS		
19	->		SERVICE REQUEST	Service type = "signalling"
20	<-		SERVICE REJECT	Reject cause = "GPRS services not allowed"
20a		SS		The SS releases the RRC connection
21	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
22		SS		The SS verifies that the UE does not attempt to access the network. (SS wait 30seconds)
23	UE			The UE gets the USIM replaced, is powered up or switched on.
24			Void	
25	UE			The UE initiates a PS attach, by MMI or by AT command.
25a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
26	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
26a	<-		AUTHENTICATION AND CIPHERING REQUEST	
26b	->		AUTHENTICATION AND CIPHERING RESPONSE	
26c		SS		The SS starts ciphering and integrity protection.
27	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
28	->		ATTACH COMPLETE	
28a		SS		UE is moved to PMM idle. (The SS releases the RRC connection)
29	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
30	->		SERVICE REQUEST	Service type = "signalling"
31	<-		SERVICE REJECT	Reject cause = "GPRS services not allowed"
32			VOID	
33			VOID	
34		SS		The SS releases RRC connection.
35	UE			The UE is switched off or power is removed (see ICS).
36			Void	
37			Void	
38	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 37.

Specific message contents

12.9.4.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step11, when the UE receives the SERVICE REJECT message with cause "GPRS services not allowed" UE shall:

- not attempt to access the network.

At step15, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step22, when the UE receives the SERVICE REJECT message with cause "GPRS services not allowed" UE shall:

- not attempt to access the network.

At step26, when the UE gets the USIM replaced, is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step30, UE shall:

- initiate the service request procedure.

12.9.5 Service Request / rejected / MS identity cannot be derived by the network

12.9.5.1 Definition

12.9.5.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "MS identity cannot be derived by the network", the UE shall:

1) set the GPRS update states to GU2 NOT UPDATED.
2) delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.
3) initiate the PS attach procedure automatically.

Reference

TS 24.008 clauses 4.7.13.4

12.9.5.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "MS identity cannot be derived by the network".

12.9.5.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE).

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #9 (MS identity cannot be derived by the network).

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 23.
2	SS			The SS is set in network operation mode II and activates cell A.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = 'GPRS only attached'
6	SS			UE is moved to PMM idle. (The SS releases the RRC connection)
7	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "signalling"
9	<-		SERVICE REJECT	Reject cause = "MS identity cannot be derived by the network"
9a	SS			The SS releases the RRC connection
10	UE			The UE automatically initiates the PS attach procedure.
10a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
11	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI
11a	<-		AUTHENTICATION AND CIPHERING REQUEST	
11b	->		AUTHENTICATION AND CIPHERING RESPONSE	
11c	SS			The SS starts ciphering and integrity protection.
12	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature
13	->		ATTACH COMPLETE	
13a	SS			UE is moved to PMM idle. (The SS releases the RRC connection)
14	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
15	->		SERVICE REQUEST	Service type = "signalling"
16	<-		SERVICE REJECT	Reject cause = “GPRS services not allowed”
17			VOID	
18			VOID	.
19	SS			The SS releases RRC connection.
20	UE			The UE is switched off or power is removed (see ICS).
21			Void	

22		Void	
23	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 22.

Specific message contents

None.

12.9.5.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step11, when the UE receives the SERVICE REJECT message with cause "MS identity cannot be derived by the network" UE shall:

- initiate PS attach procedure automatically.

12.9.6 Service Request / rejected / PLMN not allowed

12.9.6.1 Definition

12.9.6.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "PLMN not allowed", the UE shall:

1) delete any RAI, P-TMSI, P-TMSI signature and GPRS ciphering key sequence number.
2) set the GPRS update status to GU3 ROAMING NOT ALLOWED.
3) store the PLMN identity in the appropriate forbidden list.

Reference

TS 24.008 clauses 4.7.13.4

12.9.6.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "PLMN not allowed".

12.9.6.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC2/LAC1/RAC1 (RAI-8, Not HPLMN), cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN).
All two cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE) in both cells.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-8.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #11 (PLMN not allowed).

c) The SS checks that the UE does not initiate an upper-layer signalling until the UE is switched off.

d) The SS checks that the UE does not answer a Page from the SS until the power of the UE is switched off.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 24.
2	SS			The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-8
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-8 Attach result = 'GPRS only attached'
6	SS			UE is moved to PMM idle. (The SS releases the RRC connection)
7	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "signalling"
9	<-		SERVICE REJECT	Reject cause = "PLMN not allowed"
9a	SS			The SS releases the RRC connection
10	UE			The UE stores the PLMN identity in the "forbidden PLMN list".
11	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
12	SS			The SS verifies that the UE does not attempt to access the network. (SS wait 30second)
13	<-		PAGING TYPE1	Paging order is for PS service
14	UE			No response from the UE to the request. This is checked for 10 seconds.
				The following messages shall be sent and shall be received on cell B.
15	SS			Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
16	UE			Cell B is preferred by the UE.
16a	UE		Registration on CS	See TS 34.108 This is applicable only for UE in UE operation mode A.
17	UE			The UE initiates an attach automatically, by MMI or by AT command.
17a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
18	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = IMSI

18a	<-	AUTHENTICATION CIPHERING REQUEST	AND	
18b	->	AUTHENTICATION CIPHERING RESPONSE	AND	
18c	SS			The SS starts ciphering and integrity protection.
19	<-	ATTACH ACCEPT		Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-2 Attach result = 'GPRS only attached'
20	->	ATTACH COMPLETE		
21	UE			The UE is switched off or power is removed (see ICS).
22	->	DETACH REQUEST		Message not sent if power is removed. Detach type = 'power switched off, GPRSdetach'
23	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
24	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 23.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

None.

12.9.6.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step9, when the UE receives the SERVICE REJECT message with cause "PLMN not allowed", UE shall:

- not perform a PS attach procedure in the same PLMN.

At step13, when the UE receives the paging message for PS domain UE shall:

- not respond to the paging message for PS domain.

At step18, UE shall:

- perform PS attach procedure.

12.9.7a Service Request / rejected / No PDP context activated

12.9.7a.1 Definition

12.9.7a.2 Conformance requirement

If the network rejects a service request procedure with the cause "No PDP context activated":

- The UE shall deactivate locally all active PDP contexts and the UE shall enter the state GMM-REGISTERED.NORMAL-SERVICE. The UE may also activate PDP context(s) to replace any previously active PDP contexts.

NOTE: In some cases, user interaction may be required and then the UE cannot activate the PDP context(s) automatically.

Reference

TS 24.008 clauses 4.7.13.4

12.9.7a.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "No PDP context activated".

12.9.7a.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE).

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Method of context activation

Support of automatic PS attach procedure at switch on Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #40 (No PDP context activated).

c) After the UE receives the SERVICE REJECT message, the UE shall deactivate locally all active PDP contexts. The UE may optionally activate PDP context(s) to replace any previously active PDP contexts or the UE in manual mode may perform a detach procedure.

d) If the UE not automatically activates the PDP context (to replace the previously active PDP context) then a PS call is initiated by MMI or by AT command. The UE shall send a SERVICE REQUEST with Service type = "signalling".

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1				The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 26.
2				The SS is set in network operation mode II and activates cell A.
3				The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	
6	->		ATTACH COMPLETE	
6a	SS			UE is moved to PMM idle. (The SS releases the RRC connection)
7	UE			The UE initiates a PS call, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "signalling"
9	<-		AUTHENTICATION AND CIPHERING REQUEST	
10	->		AUTHENTICATION AND CIPHERING RESPONSE	
11	SS			The SS initiates a security mode control procedure.
12	UE			After a PS call is established, the UE suspends transmission of the user data.
13	SS			The SS initiates a Radio Bearer release procedure.
14	UE			The UE resumes the transmission of the user data.
15	->		SERVICE REQUEST	Service type = "data"
16	<-		SERVICE REJECT	Reject cause = "No PDP context activated"
17	UE			The UE shall deactivate locally all active PDP contexts. The UE may optionally activate PDP context(s) to replace any previously active PDP contexts or the UE in manual mode may perform a detach procedure.
AA17	->		ACTIVATE PDP CONTEXT REQUEST	
AA18	->		ACTIVATE PDP CONTEXT REJECT	SS can reject the activation of PDP context with cause value “#31 activation rejected, unspecified”. The UE in manual mode may perform a detach procedure, in this case step A17 will be followed else step 17a.
A17	→		DETACH REQUEST	This step is performed only when UE is in manual attach mode: The UE may (optionally) send a Detach Request (only Note 1).
A18	←		DETACH ACCEPT	This step is performed only when UE is in manual attach mode: SS responds with DETACH ACCEPT message as a Detach Request was transmitted by the UE.
17a	SS			UE is moved to PMM idle. (The SS releases the RRC connection)

A17a			This step is performed only when UE is in manual attach mode: The UE initiates the attach procedure by MMI or AT command (only Note 1). The attach procedure is performed only if steps A17 and A18 have been performed.
18	UE		The UE initiates a PS call, automatically, by MMI or by AT command.
19	->	SERVICE REQUEST	Service type = "signalling"
20	<-	AUTHENTICATION AND CIPHERING REQUEST	
21	->	AUTHENTICATION AND CIPHERING RESPONSE	
22	SS		SS initiates a security procedure by sending SECURITY MODE COMMAND message.
23	UE		The UE is switched off or power is removed (see ICS).
24	UE		The UE initiates Detach request, by MMI or by AT command.
25	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRSdetach'
26	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
27	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 25.
Note 1: Support of automatic PS attach procedure at switch on – no			

Specific message contents

None.

12.9.7a.5 Test requirements

At step4, when the UE is powered on or switched on, the UE shall initiate the PS attach procedure.

At step15, the UE shall initiates a Service request procedure by sending a SERVICE REQUEST message with Service type = "data".

At step19, the UE shall initiates a Service request procedure by sending a SERVICE REQUEST message with Service type = "signalling".

12.9.7b Service Request / rejected / No Suitable Cells In Location Area

12.9.7b.1 Definition

12.9.7b.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "No Suitable Cells In Location Area", the UE shall:

1) set the GPRS update status to GU3 ROAMING NOT ALLOWED and shall change to state GMM-REGISTERED.LIMITED-SERVICE.

2) store the LAI in the list of 'forbidden location areas for roaming'.

If no RRC connection exists, the UE shall perform the following additional actions immediately. If the UE is operating in operation mode A and an RRC connection exists, the UE shall perform these actions when the RRC connection is subsequently released:

1) if the UE is IMSI attached, the UE shall set the update status to U3 ROAMING NOT ALLOWED and shall reset the location update attempt counter. The new MM state is MM IDLE.

2) search for a suitable cell in a different location area on the same PLMN.

Reference

TS 24.008 clauses 4.7.13.4

12.9.7b.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "No Suitable Cells In Location Area".

12.9.7b.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

All three cells are operating in network operation mode II.

NB: i) Cell B will be mapped to Cell 4 & Cell C will be mapped to Cell 7 as found in TS 34.108 clause 6.1.4.1a.

User Equipment:

The UE has valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a Service request with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall perform routing area updating procedure when the UE enters a suitable cell in a different location area on the same PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the Non-"Suitable cell". Set the cell type of cell C to the Non-"Suitable cell". (see note) The SS configures power level of each Cell as follows. Cell A > Cell B = Cell C
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, goto step 15.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
2a	UE		Registration on CS	See TS 34.108 This is applicable only for UE in UE operation mode A.
2b	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = "GPRS attach" Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts ciphering and integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS identity = TMSI-1 Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	SS			The SS initiates the RRC connection release.
7	UE			The UE initiates a PS call, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = 'signalling'
9	<-		SERVICE REJECT	Reject cause = 'No Suitable Cells In Location Area'
9a	SS			The SS releases the RRC connection
9aa	SS			Set the cell type of cell B to the "Serving cell". Set the cell type of cell C to the "Serving cell". Set the cell type of cell A to the "Suitable neighbour cell". The following message are sent and shall be received on cell B.
9b	UE		Registration on CS	See TS 34.108 This is applicable only for UE in UE operation mode A.
9c	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
10	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-1 signature Mobile identity = P-TMSI-1 Old routing area identity = RAI-1 Follow-on request pending = 0 or 1
10a	<-		AUTHENTICATION AND CIPHERING REQUEST	
10b	->		AUTHENTICATION AND CIPHERING RESPONSE	
10c	SS			The SS starts ciphering and integrity protection.

11	<-	ROUTING AREA UPDATE ACCEPT	Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-3 Update result = 'RA updated'
12	->	ROUTING AREA UPDATE COMPLETE	
12a	->	ACTIVATE PDP CONTEXT REQUEST	In case Follow-on request pending is set 1 in step 10, the UE sends an Activate PDP context request.
12b	SS		If the UE transmitted an Activate PDP context request message in step 12a then the SS establishes the RAB.
12c	<-	ACTIVATE PDP CONTEXT ACCEPT	If the UE transmitted an Activate PDP context request message in step 12a then the SS responds with an Activate PDP context accept message
13	UE		The UE is switched off or power is removed (see ICS).
13a		IMSI DETACH INDICATION	Message not sent if power is removed This is applicable only for UE in UE operation mode A.
14	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRSdetach'
14a	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
15	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 14.
NOTE: The definitions for “Non-Suitable cell”, "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.			

Specific message contents

None.

12.9.7b.5 Test requirements

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step10, when the UE enters a suitable cell in a different location area on the same PLMN, UE shall:

- perform the routing area updating procedure.

12.9.7c Service Request / rejected / Roaming not allowed in this location area

12.9.7c.1 Definition

12.9.7c.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "Roaming not allowed in this location area", the UE shall:

1) set the PS update status to GU3 ROAMING NOT ALLOWED
2) store the LAI in the list of "forbidden location areas for roaming".

3) perform a PLMN selection.

Reference

TS 24.008 clauses 4.7.13.4

12.9.7c.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "Roaming not allowed in this location area".

12.9.7c.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

All three cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE) in all cells.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a Service request with the cause value 'Roaming not allowed in this location area'. The SS checks that the UE shall not perform PS attach procedure when the UE enters a different location area.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
	SS			The following messages are sent and shall be received on cell A.
1	SS			Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 19.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4		->	ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a		<-	AUTHENTICATION AND CIPHERING REQUEST	
4b		->	AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5		<-	ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Attach result = 'GPRS only attached' Routing area identity = RAI-1
6	SS			The SS initiates the RRC connection release.
7	UE			The UE initiates a PS call, by MMI or by AT command.
8		->	SERVICE REQUEST	Service type = "signalling"
9		<-	SERVICE REJECT	Reject cause = "roaming not allowed in this location area"
9a	SS			The SS releases the RRC connection.
10	UE			The UE performs PLMN selection.
11	SS			Set the cell type of cell A to the " Non-Suitable cell". Set the cell type of cell B to the " Serving cell". (see note)
12	SS			The SS verifies that the UE does not attempt to access the network. (SS waits 30 seconds).
13	SS			Set the cell type of cell B to the " Non-Suitable cell". Set the cell type of cell C to the " Serving cell". (see note) The following messages are sent and shall be received on cell C.
13a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
13a.1	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
14		->	ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Mobile identity = P-TMSI-1 Old routing area identity = RAI-1
14a		<-	AUTHENTICATION AND CIPHERING REQUEST	
14b		->	AUTHENTICATION AND CIPHERING RESPONSE	
14c	SS			The SS starts integrity protection.

15	<-	ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature MS identity = TMSI-2 Routing area identity = RAI-2
16	->	ROUTING AREA UPDATE COMPLETE	
17	UE		The UE is switched off or power is removed (see ICS).
18	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS Detach'
18a	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
19	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 3 to step 18.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.			

Specific message contents

None.

12.9.7c.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step12, when the UE enters a same location area, UE shall:

- not initiate the PS attach procedure.

At step14, when the UE enters a different location area, UE shall:

- initiate the routing area updating procedure with information elements specified in the above Expected Sequence.

12.9.7d Service Request / rejected / Not authorized for this CSG

12.9.7d.1 Definition

12.9.7d.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause " Not authorized for this CSG ":

- The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it) and shall change to state GMM-REGISTERED.LIMITED-SERVICE.
- The MS shall remove from the list of allowed CSG IDs stored in the MS, the CSG ID of the cell where the MS sent the SERVICE REQUEST message.
- The MS shall start timer T3340.
- The MS shall search for a suitable cell in the same PLMN.
- If S1 mode is supported in the MS, the MS shall handle the EMM parameters EMM state and EPS update status for the case when the service request procedure is rejected with this cause value.

Reference

3GPP TS 24.008 clause 4.7.13

12.9.7d.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause " Not authorized for this CSG ".

12.9.7d.4 Method of test

Initial conditions:

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1)/CSG 1, cell B in MCC1/MNC1/LAC1/RAC2 (RAI-2)/

CSG 2.

Both Cell A and Cell B belong to PLMN1.

Both cells are operating in network operation mode II. (in case of UE operation mode A).

User Equipment:

The UE has a valid P-TMSI-1, RAI-1.

UE Allowed CSG List contains CSG1 and CSG2.

UE is registered on PLMN1.

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	PLMN	CSG ID
EFACSGL	PLMN 1	CSG 1,CSG 2

The UE is previously registered on PLMN1, before switched off.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No

UE operation mode C Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a service request with the cause value ' Not authorized for this CSG '. The SS checks that the UE shall perform Routing Area Update procedure when the UE enters a suitable cell in a different location area on the same PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C OR The UE is set in UE operation mode A(see ICS). If UE operation mode C is not supported, goto step 27.
2	SS			Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-suitable cell". (See NOTE)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
5	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
6	->		ATTACH REQUEST	Attach type = ' GPRS only attached ' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
7	<-		AUTHENTICATION AND CIPHERING REQUEST	
8	->		AUTHENTICATION AND CIPHERING RESPONSE	
9	SS			The SS starts integrity protection.
10	<-		ATTACH ACCEPT	Attach result ='Combined GPRS/IMSI attached' Routing area identity = RAI-1
11	SS			The SS initiates the RRC connection release.
12	UE			The UE initiates a PS call, by MMI or by AT command.
13	->		SERVICE REQUEST	Service type = 'signalling'
14	<-		SERVICE REJECT	Reject cause = ' Not authorized for this CSG '
15	SS			The SS releases the RRC connection
16	SS			Set the cell type of cell A to the " Non-suitable cell ". Set the cell type of cell B to the " Serving cell ".
				The following message are sent and shall be received on cell B.
17	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
18	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-1 signature Mobile identity = P-TMSI-1 Old routing area identity = RAI-1
19	<-		AUTHENTICATION AND CIPHERING REQUEST	
20	->		AUTHENTICATION AND JCIPHERING RESPONSE	
21	SS			The SS starts ciphering and integrity protection.
22	<-		ROUTING AREA UPDATE ACCEPT	Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-2 Update result = 'RA updated'
23	->		ROUTING AREA UPDATE COMPLETE	
24	UE			The UE is switched off.(see ICS).
25	UE			The UE initiates Detach request, by MMI or by

26	->	DETACH REQUEST	AT command. Message not sent if power is removed. Detach type = 'power switched off, GPRSdetach'
27	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
28	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 25.
NOTE: The definitions for "Non-suitable cell" and "Serving cell" are specified in TS 34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.			

12.9.7d.5 Test requirements

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step14, when the UE receives SERVICE REJECT, UE shall:

- delete the CSG1 in the CSG List..
- UE Allowed CSG List shall contain only CSG2.

At step18, when the UE camps on a suitable cell in a different location area on the same PLMN, UE shall:

- perform the routing area updating procedure.

12.9.8 Service Request / Abnormal cases / Access barred due to access class control

12.9.8.1 Definition

12.9.8.2 Conformance requirement

If the UE access class X is barred, the UE shall:

1) not start Service Request procedure.
2) stay in the current serving cell.
3) apply normal cell reselection process.

If the UE access class X is granted or serving cell is changed, the UE may:

1) start Service Request procedure.

Reference

TS 24.008 clauses 4.7.13.5.

12.9.8.3 Test purpose

To test the behaviour of the UE in case of access class control (access is granted).

12.9.8.4 Method of test

Initial condition

A random access class X (0-15) is selected. The USIM is programmed with this access class X.

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE).

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS initiates access class X barred. A service request procedure is not performed.

The SS initiates that access class X is not barred. A service request procedure is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 15.
1a	UE			The UE is powered up or switched on and attempt to initiate an ATTACH. (see ICS)
2			Void	
3			Void	
4			Void	
4a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
5	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
5a	<-		AUTHENTICATION AND CIPHERING REQUEST	
5b	->		AUTHENTICATION AND CIPHERING RESPONSE	
5c		SS		The SS starts ciphering and integrity protection.
6	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
7	->		ATTACH COMPLETE	
7a		SS		UE is moved to PMM idle. (The SS releases the RRC connection)

7b	SS		The access class x is barred in cell A
8	UE		The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
8a	UE		No SERVICE REQUEST sent to SS, as access class x is barred. SS waits 30 seconds
8b	SS		The access class x is not barred any more
8c	UE		In manual attach mode UE may send a Detach Request (Note 1). If the SS receives a Detach Request the test execution continues from step 14.
8d	UE		The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
9	->	SERVICE REQUEST	Service Type = "signalling".
10	<-	SERVICE REJECT	GMM cause = 'GPRS services not allowed'
11		VOID	
11a	SS		The SS releases the RRC connection.
12	UE		The UE is switched off or power is removed (see ICS).
13		Void	
14		Void	
15	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 1a to step 12.
Note 1: Support of automatic PS attach procedure at switch on - no			

Specific message contents

None.

12.9.8.5 Test requirements

At step 8a, when the UE access class x is barred, UE shall:

- not perform Service Request procedure.

At step9, UE shall:

- perform Service Request procedure.

12.9.9 Service Request / Abnormal cases / Routing area update procedure is triggered

12.9.9.1 Definition

12.9.9.2 Conformance requirement

If a cell change into a new routing area occurs and the necessity of routing area update procedure is determined before the security mode control procedure is completed, the UE shall:

- abort Service request procedure.
- start routing area update procedure immediately.

Reference

TS 24.008 clause 4.7.13.5

12.9.9.3 Test purpose

To test the behaviour of the UE in case of collision between Routing area update procedure and Service request procedure.

12.9.9.4 Method of test

Initial condition

System Simulator:

One cell with MCC1/MNC1/LAC1/RAC1 (RAI-1)
The cell is operating in network operation mode II .

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE).

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling in cell A.

b) The SS conveys change of routing area code to the UE..

c) The UE aborts Service request procedure and performs Routing area updating procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 22.
2	SS			The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = 'GPRS only attached'
5a			Void	
6	SS			UE is moved to PMM Idle. The SS releases the RRC connection.
6a	UE			The UE initiates upper-layer signalling, e.g., Activate PDP Context request, by MMI or by AT command.
7	->		SERVICE REQUEST	Service type = "signalling"
8	<-		UTRAN MOBILITY INFORMATION	The SS conveys updated CN system information for the PS domain to the UE in connected mode, including a new routing area code. Note: SS transmits the updated system information with the new RAI information in SIB1
8a	->		UTRAN MOBILITY INFORMATION CONFIRM	
9	UE			The UE aborts Service request procedure.
10	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating'
10a	←		AUTHENTICATION AND CIPHERING REQUEST	
10b	→		AUTHENTICATION AND CIPHERING RESPONSE	
10c	SS			The SS starts ciphering and integrity protection.
11	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4
12	->		ROUTING AREA UPDATE COMPLETE	
12a				If the UE initiates a PDP Context, this is rejected and if the UE is in manual GPRS Attach Mode, the UE may perform a detach procedure at this point. If the UE initiates a Service Request, this is rejected with reject cause of 07 – “GPRS Services not Allowed”.
13			Void	
14			Void	
15			Void	

16		Void	
17		Void	
18		Void	
19	UE		The UE is switched off or power is removed (see ICS).
20	->	DETACH REQUEST	Message not sent if power is removed or if the UE in manual GPRS Attach Mode has already detached. Detach type = 'power switched off, GPRSdetach'
21	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message has been received within 1 second then the SS shall consider the UE as switched off.
22	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 21.
NOTE: The definitions for "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.			

Specific message contents

UTRAN MOBILITY INFORMATION (step 8)

The contents of the UTRAN MOBILITY INFORMATION message in this test case is identical to the default message in TS 34.108, with the following exceptions.

Information Element	Value/remark
New U-RNTI	Not Present
New C-RNTI	Not Present
UE Timers and constants in connected mode	Not Present
CN information info	
- PLMN identity	Not Present
- CN common GSM-MAP NAS system information	Not Present
- CN domain related information	
- CN domain identity	CS domain
- CN domain specific GSM-MAP NAS system info	
- T3212	Infinity
- ATT	0
- CN domain specific DRX cycle length coefficient	7
- CN domain related information	
- CN domain identity	PS domain
- CN domain specific GSM-MAP NAS system info	
- RAC	RAC-2
- NMO	1 (Network Mode of Operation II)
- CN domain specific DRX cycle length coefficient	7

12.9.9.5 Test requirements

At step 4, the UE shall send an ATTACH REQUEST message

At step 7, the UE shall send a SERVICE REQUEST message with Service type = "signalling".

At step 8, as the UE has received a new RAI in the UTRAN MOBILITY INFORMATION message before the SERVICE ACCEPT message or the SERVICE REJECT message is received, the UE shall abort service request procedure.

At step 10, the UE shall send a ROUTING AREA UPDATE REQUEST message.

12.9.10 Service Request / Abnormal cases / Power off

12.9.10.1 Definition

12.9.10.2 Conformance requirement

When the UE in GMM-SERVICE-REQUEST-INITIATED state is switched off, UE shall:

- perform PS detach procedure.

Reference

TS 24.008 clauses 4.7.13.5

12.9.10.3 Test purpose

To test the behaviour of the UE in case of collision between Service request procedure and "powered off".

12.9.10.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE).

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

The UE is switched off after initiating a Service request procedure. A PS detach is automatically performed by the UE before power is switched off.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 11.
2	SS			The SS is set in network operation mode II and activates cell A.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = 'GPRS only attached'
6	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
7	->		SERVICE REQUEST	Service type = "signalling"
8	UE			The UE is powered off and initiates a PS detach (with power off) by MMI or by AT command.
9	->		DETACH REQUEST	Detach type = 'power switched off, GPRSdetach'
10	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
11	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 10.

Specific message contents

None.

12.9.10.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step7, UE shall:

- perform the service request procedure

At step9, when the UE is switched off during the Service Request procedure, UE shall;

- abort the Service request procedure.
- perform the PS detach procedure.

12.9.11 Service Request / Abnormal cases / Service request procedure collision

12.9.11.1 Definition

12.9.11.2 Conformance requirement

Abnormal cases in the MS

The following abnormal cases can be identified:

- Procedure collision

  If the MS receives a DETACH REQUEST message from the network in state GMM-SERVICE-REQUEST-INITIATED, the GPRS detach procedure shall be progressed and the Service request procedure shall be aborted. If the cause IE, in the DETACH REQUEST message, indicated a "reattach request", the GPRS attach procedure shall be performed.

Reference

TS 24.008 clauses 4.7.13.5

12.9.11.3 Test purpose

To test the behaviour of the UE in case of collision between Service request procedure and PS detach procedure.

12.9.11.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE).

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) The SS does not respond to the SERVICE REQUEST for data. Instead it sends a DETACH REQUEST message to the UE, with the Detach type IE set to value "re-attach required".

c) After the UE receives the DETACH REQUEST message, the repeats the attach procedure.

d) The UE is switched off or power is removed. If the UE is switched off it sends a DETACH REQUEST.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 17.
2	SS			The SS is set in network operation mode II and activates cell A.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = 'GPRS only attached'
6	SS			UE is moved to PMM idle. (The SS releases the RRC connection)
7a	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
7b	->		SERVICE REQUEST	Service type ="signalling"
7c	SS			The SS starts ciphering and integrity protection.
7d	SS			The SS initiates a Radio Bearer release procedure.
7e	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "data"
9	SS			The SS does not respond to SERVICE REQUEST message.
10	<-		DETACH REQUEST	Detach type = "re-attach required"
10a	->		DETACH ACCEPT	
11	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
11a	<-		AUTHENTICATION AND CIPHERING REQUEST	
11b	->		AUTHENTICATION AND CIPHERING RESPONSE	
11c	SS			The SS starts ciphering and integrity protection.
12	<-		ATTACH ACCEPT	Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 Attach result = 'GPRS only attached'
13	->		ATTACH COMPLETE	
14	UE			The UE is switched off or power is removed (see ICS).
15	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRSdetach'

16	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
17	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 16.

Specific message contents

None.

12.9.11.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step11, when the UE receives a DETACH REQUEST message from the network before the Service request procedure completes, UE shall;

- repeat the attach procedure.
- retry the Service request procedure

At step 19 if the UE is switched off, UE shall:

- perform the PS detach procedure.

12.9.12 Service Request / RAB re-establishment / UE initiated / Single PDP context

12.9.12.1 Definition

12.9.12.2 Conformance requirement

The following procedures shall be performed in the MS when radio coverage is lost:

- For a PDP context using background or interactive traffic class, the PDP context is preserved even if RRC re-establishment procedures have failed.
- For a PDP context using streaming or conversational traffic class, the PDP context is preserved, but the maximum bit rate is downgraded to 0 kbit/s (for both uplink and downlink) when the RRC re-establishment procedure has failed. After coverage is regained and if the MS did not deactivate the PDP Context locally the MS should start MS-initiated PDP Context Modification procedure or the PDP Context Deactivation procedure. The MS shall use the PDP Context Modification procedure to re-activate the PDP context and re-establish the RAB.

The following procedures shall be performed in the MS when the RRC layer indicate to higher layer that a RAB has been released and the RAB release was not initiated due to a PDP Context Deactivation Procedure:

- For a PDP context using background or interactive traffic class, the PDP context is be preserved with no modifications.
- For a PDP context using streaming or conversational traffic class, the PDP context is preserved, but the maximum bit rate is downgraded to 0 kbit/s (for both uplink and downlink).

At this point or at a later stage, the MS may start a PDP Context Deactivation procedure or PDP Context Modification procedure. The MS shall use the PDP Context Modification procedure to re-activate the PDP context and re-establish the RAB.

The procedure for re-establishment of RABs allows the SGSN to re-establish RABs for active PDP contexts that don't have an associated RAB.

The MS initiates the re-establishment of RABs by using the Service Request (Service Type = Data) message.

The criteria to invoke the Service request procedure are when;

b) the MS, either in PMM-IDLE or PMM-CONNECTED mode, has pending user data to be sent and no radio access bearer is established for the corresponding PDP context. The procedure is initiated by an indication from the lower layers (see 3GPP TS 24.007). In this case, the service type shall be set to "data".

After completion of a Service request procedure, the pending service is resumed and uses then the connection established by the procedure. If the service type is indicating "data", then the radio access bearers for all activated PDP contexts are re-established by the network, except for those activated PDP contexts having maximum bit rate value set to 0 kbit/s for both uplink and downlink. The re-establishment of radio access bearers for those PDP contexts is specified in subclause 6.1.3.3 of 3GPP TS 24.008.

Reference

TS 23.060 clause 9.2.3.4-5, 9.2.5.2

TS 24.008 clause 4.7.13

12.9.12.3 Test purpose

To verify that the UE initiates a Service request procedure due to uplink data transmission with one preserved PDP context with traffic class "Background class" after normal RRC connection release as well as when radio coverage is lost.

To verify that the radio access bearer can be re-established for the preserved PDP context, initiated by the UE.

12.9.12.4 Method of test

Initial condition

System Simulator:

One cell, default parameters.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE).

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

Support of PS service Yes/No

Test procedure

a) A PDP context with traffic class "Background class" is activated including the radio access bearer.

b) The SS releases the RRC connection, but keeps the PDP context.

c) Due to transmission of uplink data, the UE initiates an RRC connection establishment and sends a SERVICE REQUEST.

d) The SS performs security mode control procedure and establishes the RAB for the active PDP context using a Radio bearer establishment procedure and the same QoS as previously, without the need for PDP context modification.

e) The SS configured the cell as a non-suitable "Off" cell for 4 minutes, making the UE to release the RAB and enter idle mode due to that radio coverage is lost.

f) The SS configures the cell as a serving cell.

g) Due to transmission of uplink data, the UE initiates an RRC connection establishment and sends a SERVICE REQUEST.

h) The SS performs security mode control procedure and establishes the RAB for the active PDP context using a Radio bearer establishment procedure and the same QoS as previously, without the need for PDP context modification.

Expected Sequence

Step	Direction UE | SS	Message	Comments
1	UE		Initiate a PDP context activation
2	→	ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context with traffic class "Background class"
3	SS		The SS starts ciphering and integrity protection and establishes the radio access bearer.
4	←	ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context
5	SS		The SS releases the RRC connection
6	UE		The UE initiates transmission of uplink data, by MMI or by AT command.
7	SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Originating Background Call".
8	→	SERVICE REQUEST	Service type = "data"
9	SS		The SS starts ciphering and integrity protection.
10	SS		The SS establishes the radio access bearer for the active PDP context, using the same QoS that was used at activation.
11	SS		The SS configures the cell as a non-suitable "Off" cell and waits for 4 minutes, making the UE to release the RAB and enter idle mode.
12	SS		The SS configures the cell as a serving cell.
13	UE		The UE initiates transmission of uplink data, by MMI or by AT command.
14	SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Originating Background Call".
15	→	SERVICE REQUEST	Service type = "data"
16	SS		The SS starts ciphering and integrity protection.
17	SS		The SS establishes the radio access bearer for the active PDP context, using the same QoS that was used at activation.

Specific message contents

None.

12.9.12.5 Test requirements

After steps 7 and 14, UE shall:

- transmit a SERVICE REQUEST message with service type "data"

12.9.13 Service Request / RAB re-establishment / UE initiated / multiple PDP contexts

12.9.13.1 Definition

12.9.13.2 Conformance requirement

The following procedures shall be performed in the MS when the RRC layer indicate to higher layer that a RAB has been released and the RAB release was not initiated due to a PDP Context Deactivation Procedure:

- For a PDP context using background or interactive traffic class, the PDP context is be preserved with no modifications.

- For a PDP context using streaming or conversational traffic class, the PDP context is preserved, but the maximum bit rate is downgraded to 0 kbit/s (for both uplink and downlink).

At this point or at a later stage, the MS may start a PDP Context Deactivation procedure or PDP Context Modification procedure. The MS shall use the PDP Context Modification procedure to re-activate the PDP context and re-establish the RAB.

The procedure for re-establishment of RABs allows the SGSN to re-establish RABs for active PDP contexts that don't have an associated RAB.

The MS initiates the re-establishment of RABs by using the Service Request (Service Type = Data) message.

The criteria to invoke the Service request procedure are when;

b) the MS, either in PMM-IDLE or PMM-CONNECTED mode, has pending user data to be sent and no radio access bearer is established for the corresponding PDP context. The procedure is initiated by an indication from the lower layers (see 3GPP TS 24.007). In this case, the service type shall be set to "data".

After completion of a Service request procedure, the pending service is resumed and uses then the connection established by the procedure. If the service type is indicating "data", then the radio access bearers for all activated PDP contexts are re-established by the network, except for those activated PDP contexts having maximum bit rate value set to 0 kbit/s for both uplink and downlink. The re-establishment of radio access bearers for those PDP contexts is specified in subclause 6.1.3.3 of 3GPP TS 24.008.

Reference

TS 23.060 clause 9.2.3.4-5, 9.2.5.2

TS 24.008 clause 4.7.13

12.9.13.3 Test purpose

To verify that the UE initiates a Service request procedure due to uplink data transmission with two PDP contexts with different traffic classes are activated, when one is of traffic class "background class" and the other is of traffic class "interactive class", after normal RRC connection release.

To verify that the radio access bearers can be re-established with a single radio bearer establishment procedure for the preserved PDP contexts, when initiated by the UE.

12.9.13.4 Method of test

Initial condition

System Simulator:

One cell, default parameters.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE).

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

Support of PS service	Yes/No
Secondary PDP context activation procedure	Yes/no

Test procedure

a) Two PDP contexts with different Traffic Classes are activated including the radio access bearers.

b) The SS releases the RRC connection, but keeps the two PDP contexts.

c) Due to transmission of uplink data, the UE initiates an RRC connection establishment and sends a SERVICE REQUEST.

d) The SS performs security mode control procedure and establishes the RABs for the two active PDP contexts using a single Radio bearer establishment procedure and the same QoS as previously, without the need for PDP context modification.

Expected Sequence

Step	Direction UE | SS	Message	Comments
1	UE		Initiate a PDP context activation
2	→	ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context with traffic class "Background class"
3	SS		The SS establishes the radio access bearer.
4	←	ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context
5	UE		Initiate a secondary PDP context activation
6	→	ACTIVATE SECONDARY PDP CONTEXT REQUEST	Request a Secondary PDP context activation with traffic class "Interactive class"
7	SS		The SS establishes the radio access bearer.
8	←	ACTIVATE SECONDARY PDP CONTEXT ACCEPT	Accept the Secondary PDP context activation
9	SS		The SS releases the RRC connection.
10	UE		The UE initiates transmission of uplink data, by MMI or by AT command.
11	SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Originating Interactive Call", which is the most demanding traffic class among the active PDP contexts.
12	→	SERVICE REQUEST	Service type = "data"
13	SS		The SS starts ciphering and integrity protection.
14	SS		The SS establishes the radio access bearers simultaneously for the two active PDP contexts, using the same QoS that was used at activation.

Specific message contents

None.

12.9.13.5 Test requirements

After step 11, UE shall:

- transmit a SERVICE REQUEST message with service type "data".

12.9.14 Service Request / RAB re-establishment / Network initiated / single PDP context

12.9.14.1 Definition

12.9.14.2 Conformance requirement

The following procedures shall be performed in the MS when the RRC layer indicate to higher layer that a RAB has been released and the RAB release was not initiated due to a PDP Context Deactivation Procedure:

- For a PDP context using background or interactive traffic class, the PDP context is be preserved with no modifications.

- For a PDP context using streaming or conversational traffic class, the PDP context is preserved, but the maximum bit rate is downgraded to 0 kbit/s (for both uplink and downlink).

At this point or at a later stage, the MS may start a PDP Context Deactivation procedure or PDP Context Modification procedure. The MS shall use the PDP Context Modification procedure to re-activate the PDP context and re-establish the RAB.

The procedure for re-establishment of RABs allows the SGSN to re-establish RABs for active PDP contexts that don't have an associated RAB.

When RABs for an MS that has no RRC connection needs to be re-established, the CN must first page the MS.

The criteria to invoke the Service request procedure are when;

c) the MS receives a paging request for PS domain from the network in PMM-IDLE mode. In this case, the service type shall be set to "paging response".

After completion of a Service request procedure, the pending service is resumed and uses then the connection established by the procedure. If the service type is indicating "data", then the radio access bearers for all activated PDP contexts are re-established by the network, except for those activated PDP contexts having maximum bit rate value set to 0 kbit/s for both uplink and downlink. The re-establishment of radio access bearers for those PDP contexts is specified in subclause 6.1.3.3 of 3GPP TS 24.008.

Reference

TS 23.060 clause 9.2.3.4-5, 9.2.5.2

TS 24.008 clause 4.7.13

12.9.14.3 Test purpose

To verify that the radio access bearers can be re-established for the preserved PDP context with traffic class "Background class", when initiated from the network, after normal RRC connection release.

12.9.14.4 Method of test

System Simulator:

One cell, default parameters.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE).

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

Support of PS service Yes/No

Test procedure

a) A PDP context with traffic class "Background class" is activated including the radio access bearer.

b) The SS releases the RRC connection, but keeps the PDP context.

c) The SS initiates paging of the UE.

d) As response to the paging, the UE initiates an RRC connection establishment and sends a SERVICE REQUEST.

e) The SS performs security mode control procedure and establishes the RAB for the active PDP context using the same QoS as previously, without the need for PDP context modification.

Expected Sequence

Step	Direction UE | SS	Message	Comments
1	UE		Initiate a PDP context activation
2	→	ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context with traffic class "Background class"
3	SS		The SS starts ciphering and integrity protection and establishes the radio access bearer.
4	←	ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context
5	SS		The SS releases the RRC connection.
6	SS		The SS waits for 5 s to ensure the UE is in service.
7	←	PAGING TYPE 1	The SS initiates paging of the UE using the paging cause "Terminating Background Call"'
8	SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to the same value as the paging cause.
9	→	SERVICE REQUEST	Service type = "Paging response"
10	SS		The SS starts ciphering and integrity protection.
11	SS		The SS establishes the radio access bearer for the active PDP context, using the same QoS that was used at activation.

Specific message contents

None.

12.9.14.5 Test requirements

After step 8, UE shall:

- transmit a SERVICE REQUEST with service type "Paging response"

12.9.15 Service Request / abnormal cases / access barred due to domain specific access restriction for PS domain

12.9.15.1 Definition

This test case is applicable for Rel-5 UEs supporting DSAC and Rel-6 or later UEs.

12.9.15.2 Conformance requirement

TS24.008 4.1.1.2.2

> If the PS or CS domain is barred because of domain specific access control, a GPRS MS operating in mode A or B in a network that operates in mode II or III shall use the MM specific procedures or GMM specific procedures, respectively, in the domain which is unbarred. If the MS detects that a domain changes from barred to unbarred, it shall behave as specified in subclauses 4.4.4.9, 4.5.1.2, 4.7.3.1.5, 4.7.5.1.5, and 4.7.13.5.

TS24.008 4.7.13.5

a) Access barred because of common access class control or PS domain specific access control

> The Service request procedure shall not be started. The MS stays in the current serving cell and applies normal cell reselection process. The Service request procedure may be started by CM layer if it is still necessary, i.e. when access is granted or because of a cell change.

Reference

TS 24.008 clauses 4.1.1.2.2, 4.7.13.5.

12.9.15.3 Test purpose

To test the behaviour of the UE in case of domain specific access control for PS domain.

12.9.15.4 Method of test

Initial condition

A PS domain specific access class X (0-15) is arbitrary selected. The USIM is programmed with this access class X.

System Simulator:

> One cell operating in network operation mode II.
>
> The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (T3212 value is set to 0 and ATT flag is set to FALSE).

User Equipment:

> The UE has a valid P-TMSI-1 and RAI-1.
>
> The UE has been registered in the CS domain.

Related ICS/IXIT statements

> Support of PS service Yes/No
> UE operation mode C Yes/No
> UE operation mode A Yes/No
> UE supports CS call establishment Yes/No
>
> Switch off on button Yes/No
> Automatic PS attach procedure at switch on or power on Yes/No
> Support of DSAC Yes/No

Test procedure

The PS attach procedure is performed.

The SS initiates PS domain specific access class X is barred. A service request procedure is not performed.

The SS initiates PS domain specific access class X is not barred. A service request procedure is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The USIM is programmed with access class x.
2	UE			The UE is set in UE operation mode A or C (see ICS). (The UE is set in UE operation mode A in case of the UE supporting both UE operation mode A and C.)
3	UE			The UE is powered up or switched on and attempt to initiate an ATTACH. (see ICS)
4	SS			The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
5	->		ATTACH REQUEST	Attach type = 'GPRS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
6	<-		AUTHENTICATION AND CIPHERING REQUEST	
7	->		AUTHENTICATION AND CIPHERING RESPONSE	
8	SS			The SS starts an integrity protection.
9	<-		ATTACH ACCEPT	Attach result = 'GPRS only attached' Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
10	->		ATTACH COMPLETE	
11	SS			The SS releases the RRC connection
12	SS			PS domain specific access class X is barred in cell
13	UE			The UE initiates an upper-layer signalling for PS domain, e.g., Active PDP Context request, by MMI or by AT command.
14	UE			No SERVICE REQUEST sent to the SS as PS domain access class x is barred. The SS waits 30 seconds
15	UE			Step15, 16 and 17 are applied only for UE in UE operation mode A and supports CS call establishment (see ICS). The UE initiates an upper-layer signalling for CS domain, e.g., CM service request, by MMI or by AT command.
16	UE			A CS call is initiated by the UE.
17				UE sends CM Service Request with CM Service Type= ‘Mobile originating call establishment’ SS send CM Service Reject with Reject Cause=’Congestion’ The SS releases the RRC Connection.
18	SS			The access class x is not barred any more
18a	UE			If UE automatically initiates a Service request goto step 20. If UE does not initiate a Service Request, go to Step 19.
19	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
20	SS			The IE "Establishment cause" in the received RRC CONNECTION REQUEST message is not checked.
21	->		SERVICE REQUEST	Service Type = "signalling".
22	<-		SERVICE REJECT	GMM cause = 'GPRS services not allowed'
23	SS			The SS releases the RRC connection.

Specific message contents

None.

12.9.15.5 Test requirements

At step14, when the SS indicates that PS domain specific access class X is barred, the UE shall:

- not perform Service Request procedure.

At step21, when the SS indicates that PS domain specific access class X is not barred, the UE shall:

- perform Service Request procedure.

12.9.16 MBMS SERVICE REQUEST / counting / MBMS Selected Service

12.9.16.1 Definition

This Test is applicable for all Rel-6 UEs supporting MBMS broadcast services.

12.9.16.2 Conformance requirement

The purpose of this procedure is to transfer the PMM mode from PMM-IDLE to PMM-CONNECTED mode, and/or to assign radio access bearer in case of PDP contexts are activated without radio access bearer assigned. In latter case, the PMM mode may be PMM-IDLE mode or may alternatively be the PMM-CONNECTED mode if the MS requires radio access bearer re-establishment. This procedure is used for;

……

- counting the number of mobile stations in a cell which are interested in a specific MBMS service.

.....

For counting the number of mobile stations in PMM-IDLE mode interested in a specific MBMS service, the trigger is given from the network by the MBMS notification procedure [8].

Service type can take either of the following values; ....., "MBMS multicast service reception" or "MBMS broadcast service reception". Each of the values shall be selected according to the criteria to initiate the Service request procedure.

If the UE is triggered to send a Service Request message for both MBMS multicast service and MBMS broadcast service simultaneously, the UE shall include a Service Type indicating "MBMS multicast service reception".

…….

The criteria to invoke the Service request procedure are when;

…….

d) the MS is in PMM-IDLE or PMM_CONNECTED mode, receives an MBMS notification for an MBMS multicast service for which the MS has activated an MBMS context or for an MBMS broadcast service which has been selected for reception locally by upper layers in the MS, and is prompted by the contents of the notification to establish a PS signalling connection. In this case, the service type shall be set to "MBMS multicast service reception" or "MBMS broadcast service reception", respectively.

…….

If one of the above criteria to invoke the Service request procedure is fulfilled, then the Service request procedure may only be initiated by the MS when the following conditions are fulfilled:

- its GPRS update status is GU1 UPDATED; and

- no GMM specific procedure is ongoing

Reference

3GPP TS 24.008 clauses 4.7.13

3GPP TS 25.331 clauses 8.6.9.6

3GPP TS 23.246 clauses 8.16

12.9.16.3 Test purpose

To test the behaviour of the UE that, when MBMS Modified services Information is sent with “MBMS required UE action” IE set to “Acquire counting info”, then UE initiates a Service Request procedure.

12.9.16.4 Method of test

Initial condition

System Simulator:

One MBMS cell operating in network operation mode I.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

The UE is interested in the selected service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

UE operation mode A Yes/No
Switch off on button Yes/No

MBMS Broadcast service application available on UE Yes/No

Test procedure

a) The UE in PMM IDLE mode sends a SERVICE REQUEST to the SS, in response to the ‘modified services information’ indicating ‘counting’ to enable MBMS reception

b) After the SS receives the SERVICE REQUEST message, the SS sends a SERVICE REJECT message.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		SS initiates counting procedure by sending MBMS Modified services Information with "MBMS required UE action" IE set to "Acquire counting info"
1a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "mbms_Reception".
1b	UE			The UE after completing the RRC Connection Setup procedure shall initiate the MBMS MODIFICATION REQUEST procedure. This message may be received at any point after RRC CONNECTION SETUP COMPLETE and before step 4.
2	->		SERVICE REQUEST	Service Type indicating 'MBMS Broadcast Service Reception''.
3	<-		SERVICE REJECT	The SS does not start security procedures, but rejects the Service request with reject cause value other than #3, #6, #7, #9, #10, #11, #12, #13, #15, and #40.
4		SS		The SS releases the RRC Connection. The UE is switched off or power is removed (see ICS)

Specific message contents

In step 1, MBMS Modified services Information sent by SS with "MBMS required UE action" IE set to "Acquire counting info".

12.9.16.5 Test requirements

1. At step 2, the UE initiates a service request procedure with the 'Service type' set to 'MBMS Broadcast Service Reception'.

12.9.16m MBMS SERVICE REQUEST / counting / MBMS Multicast Service

12.9.16m.1 Definition

This test is applicable for all UEs that support MBMS multicast services.

12.9.16m.2 Conformance requirement

Same conformance requirement as in clause 12.9.16.2

12.9.16m.3 Test purpose

Same test purpose as in clause 12.9.16.3.

12.9.16m.4 Method of test

Initial condition

System Simulator:

Same as in clause 12.9.16.4.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

UE operation mode A Yes/No
Switch off on button Yes/No

MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 12.9.16.4.

Expected Sequence

Same expected sequence as in clause 12.9.16.4 except that expected sequence step 1b is not applicable and the Service Type in SERVICE REQUEST message in step 2 indicates ‘MBMS Multicast Service Reception’.

Specific message contents

Same specific messages contents as in clause 12.9.16.4

12.9.16m.5 Test requirements

1. At step 2, the UE initiates a service request procedure with the ‘Service type’ set to ‘MBMS Multicast Service Reception’ and ‘MBMS Context Status’ set appropriately.

12.9.17 MBMS SERVICE REQUEST / point to point RBs / MBMS Selected Service

12.9.17.1 Definition

This Test is applicable for all Rel-6 UEs supporting MBMS broadcast services.

12.9.17.2 Conformance requirement

The purpose of this procedure is to transfer the PMM mode from PMM-IDLE to PMM-CONNECTED mode, and/or to assign radio access bearer in case of PDP contexts are activated without radio access bearer assigned. In latter case, the PMM mode may be PMM-IDLE mode or may alternatively be the PMM-CONNECTED mode if the MS requires radio access bearer re-establishment. This procedure is used for;

…….

- requesting the establishment of a point-to-point Radio Bearer for receiving a MBMS service.

……

For establishing a point-to-point radio bearer to allow MBMS service, the trigger is given from the RRC determining this need from the MBMS control parameters broadcasted by the network [8].

Service type can take either of the following values; ..... "MBMS multicast service reception" or "MBMS broadcast service reception". Each of the values shall be selected according to the criteria to initiate the Service request procedure.

If the UE is triggered to send a Service Request message for both MBMS multicast service and MBMS broadcast service simultaneously, the UE shall include a Service Type indicating "MBMS multicast service reception".

The criteria to invoke the Service request procedure are when;

……..

e) the MS in PMM-IDLE or PMM_CONNECTED mode, determines from the broadcast MBMS control parameters that there is a need to establish a point-to-point Radio Bearer to enable MBMS reception. In this case, the service type shall be set to "MBMS multicast service reception" or "MBMS broadcast service reception", respectively.

If one of the above criteria to invoke the Service request procedure is fulfilled, then the Service request procedure may only be initiated by the MS when the following conditions are fulfilled:

- its GPRS update status is GU1 UPDATED; and
- no GMM specific procedure is ongoing.

Reference

3GPP TS 24.008 clauses 4.7.13

3GPP TS 25.331 clauses 8.6.9.6

3GPP TS 23.246 clauses 8.16

12.9.17.3 Test purpose

To test the behaviour of the UE that, when MBMS Modified services Information is sent with “MBMS required UE action” IE set to “Request PTP RB”, then UE initiates a Service Request procedure.

12.9.17.4 Method of test

Initial condition

System Simulator:

One MBMS cell operating in network operation mode I.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

The UE is interested in the selected service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

UE operation mode A Yes/No
Switch off on button Yes/No

MBMS Broadcast service application available on UE Yes/No

Test procedure

a) The UE in PMM IDLE mode sends a SERVICE REQUEST to the SS, in response to the ‘modified services information’ indicating ‘Request PTP RB’ to enable MBMS reception

b) RABs are established after Security procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		SS initiates PTPRB setup procedure by sending MBMS Modified services Information with "MBMS required UE action" IE set to "Request PTP RB"
1a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Request PTP RB" .
1b	UE			The UE after completing the RRC Connection Setup procedure shall initiate the MBMS MODIFICATION REQUEST procedure. This message may be received at any point after RRC CONNECTION SETUP COMPLETE and before step 3.
2	->		SERVICE REQUEST	Service Type = 'MBMS Broadcast Service Reception'.
3		SS		The SS start security procedures. After completion of Security procedure SS establishes the RAB

Specific message contents

In step 1, MBMS Modified services Information sent by SS with "MBMS required UE action" IE set to "Request PTP RB".

12.9.17.5 Test requirements

1. At step 2, the UE initiates a service request procedure with the 'Service type' set to 'MBMS Broadcast Service Reception'.

12.9.17m MBMS SERVICE REQUEST / point to point RBs / MBMS Multicast Service

12.9.17m.1 Definition

This Test is applicable for all Rel-6 UEs supporting MBMS multicast services.

12.9.17m.2 Conformance requirement

Same conformance requirement as in clause 12.9.17.2

12.9.17m.3 Test purpose

Same test purpose as in clause 12.9.17.3.

12.9.17m.4 Method of test

Initial condition

System Simulator:

Same as in clause 12.9.17.4.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

UE operation mode A Yes/No
Switch off on button Yes/No

MBMS Multicast service application available on UE Yes/No.

Test procedure

Same test procedure as in clause 12.9.17.4 except that expected sequence step 1b is not applicable and the Service Type in SERVICE REQUEST message in step 2 indicates 'MBMS Multicast Service Reception'.

Specific message contents

Same specific messages contents as in clause 12.9.17.4

12.9.17m.5 Test requirements

1. At step 2, the UE initiates a service request procedure with the 'Service type' set to 'MBMS Multicast Service Reception' and 'MBMS Context Status' set appropriately.

12.9.18m Handling of MBMS context status information in SERVICE REQUEST and SERVICE ACCEPT messages / MBMS Multicast Service

12.9.18m.1 Definition

This Test is applicable for all Rel-6 UEs supporting MBMS multicast services.

12.9.18m.2 Conformance requirement

…….

If the MBMS context status information element is included in the SERVICE ACCEPT message, then the MS shall deactivate all those MBMS contexts locally (without peer to peer signalling between the MS and network) which are not in SM state PDP-INACTIVE in the UE, but are indicated by the network as being in state PDP-INACTIVE. If no MBMS context status information element is included, then the MS shall deactivate all those MBMS contexts locally which are not in SM state PDP-INACTIVE in the MS.

Reference

3GPP TS 24.008 clauses 4.7.13.

12.9.18m.3 Test purpose

1. To verify that the UE includes correct MBMS context status information in SERVICE REQUEST message
2. To verify that if the MBMS context status information element is included in the SERVICE ACCEPT message, then the UE deactivates all those MBMS contexts locally (without peer to peer signalling between the UE and network) which are not in SM state PDP-INACTIVE in the UE, but are indicated by the network as being in state PDP-INACTIVE.
3. To verify that if no MBMS context status information element is included, then the UE deactivates all MBMS contexts locally which are not in SM state PDP-INACTIVE in the UE.

12.9.18m.4 Method of test

Initial condition

System Simulator:

1 MBMS cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

The UE has PDP context activated and two MBMS contexts activated.

PDP one trans_id 0 and nsapi 5

MBMS one trans_id 1 and nsapi 128 and

MBMS two trans_id 2 and nsapi 129.

For Both the MBMS associated PDP is with nsapi 5

Related ICS/IXIT statements

MBMS Multicast service application available on UE Yes/No

Test procedure

a) The UE initiates RAB Reestablishment for Dormant PDP which in turn triggers a Service request procedure in order to move to state PMM_CONNECTED for the RAB reestablishment.

b) Service procedure completes at completion of security procedure.

c) SS shall not release RRC connection and SS shall not establish the RAB.

d) UE initiates Service Request Procedure which completes with Service Accept this time.

Expected Sequence

	UE SS		
1	UE		The UE initiates transmission of uplink data, by MMI or by AT command.
2	->	SERVICE REQUEST	Service type = "data", UE sets nsapi 128 and 129 as 1 in MBMS context Status IE and all other as 0.
3	<-	AUTHENTICATION AND CIPHERING REQUEST	
4	->	AUTHENTICATION AND CIPHERING RESPONSE	
5	SS		The SS starts integrity protection.
6	SS		SS shall not release RRC connection and SS shall not establish the RAB

7	UE		The UE initiates transmission of uplink data, by MMI or by AT command.
8	->	SERVICE REQUEST	Service type = "data", UE sets nsapi 128 and 129 as 1 in MBMS context Status IE and all other as 0.
9	<-	SERVICE ACCEPT	SS sets nsapi 129 as 0 in MBMS Context Status IE. UE locally deactivates MBMS context with extended_nsapi 129
10	SS		SS shall not release RRC connection and SS shall not establish the RAB
11	UE		The UE initiates transmission of uplink data, by MMI or by AT command, after time T3319.
12	->	SERVICE REQUEST	Service type = "data", UE sets nsapi 128 1 in MBMS context Status IE and all other as 0.This verifies UE deactivated MBMS Context with nsapi 129
13	<-	SERVICE ACCEPT	SS does not include MBMS Context Status IE. UE locally deactivates all MBMS contexts.
14			UE may deactivate associated PDP with MBMS contexts as all the associated MBMS contexts are deactivated.
15	SS		SS shall not release RRC connection and SS shall not establish the RAB
16	UE		The UE initiates transmission of uplink data, by MMI or by AT command, after time T3319.
17	->	SERVICE REQUEST	UE does not include MBMS Context Status IE. This verifies UE deactivated nsapi 128 and UE does not include MBMS context status IE when no MBMS context exists.
18	<-	SERVICE ACCEPT	

Specific message contents

Step 9: SS sets nsapi 129 as 0 in MBMS Context Status IE.

Step 13: SS does not include MBMS Context Status IE.

12.9.18m.5 Test requirements

At step 8, UE sets nsapi 128 and 129 as 1 in MBMS context Status IE and all other as 0 in the service request message.

At step 12, UE sets nsapi 128 as 1 in MBMS context Status IE and all other as 0 in the service request message.

At step 17, UE does not include MBMS Context Status IE in the service request message.

13 General Tests

13.1 Emergency call / general

In this clause, the emergency call service is tested for user equipment that support Emergency speech call in the following cases:

- emergency call initiated in the MM idle state with authentication and with security mode procedure applied;
- emergency call initiated in the MM idle, no IMSI state (hence without authentication and without security mode procedure applied), the network accepting the call;
- emergency call initiated in the MM idle, no IMSI state (hence without authentication and without security mode procedure applied), the network rejecting the call.

13.2 Emergency call

Emergency call establishment can be initiated by an UE whether location updating has been successful or not and whether a USIM is inserted into the UE or not; but only if the UE is equipped for speech.

If the procedures tested in this clause are not correctly implemented in the UE, establishment, maintenance and clearing of connections might fail in the essential case of emergency calls.

13.2.1 Emergency call / with USIM

13.2.1.1 Emergency call / with USIM / accept case

13.2.1.1.1 Definition

When a USIM is present, subscriber specific emergency call set-up MMI shall be provided. The operator shall specify preferred emergency call MMI(s) (e.g. 911 for US citizens or 110, 118 and 119 for Japanese citizens) for use in any (i.e. home or visited) PLMN. This shall be stored in the USIM and the UE shall read this and use any entry of these digits to set up an emergency call. It shall be possible to store more than one instance of this field.

When a USIM containing stored emergency numbers is present, only those numbers are identified as emergency numbers, i.e. default emergency numbers stored in the UE are ignored.

13.2.1.1.2 Conformance requirement

1) A MM connection for an emergency call may be established in all states of the mobility management sublayer which allow MM connection establishment for a normal originating call.

   When a user requests an emergency call establishment the UE will send a CM SERVICE REQUEST message to the network with a CM service type information element indicating emergency call establishment..

2) Having entered the "MM connection pending" state, upon MM connection establishment, the call control entity of the UE sends a setup message to its peer entity. This setup message is

   - a SETUP message, if the call to be established is a basic call; and

   - an EMERGENCY SETUP message, if the call to be established is an emergency call.

3) Upon receiving an indication that the call has been accepted, the call control entity of the network shall: through connect the traffic channel (including the connection of an interworking function, if required) and send a CONNECT message to its peer entity at the calling UE; start timer T313 and enter the "connect indication" state.

   This message indicates to the call control entity of the calling UE that a connection has been established through the network.

4) The call control entity of the network shall initiate clearing by: sending a DISCONNECT message; and entering the "disconnect indication" state.

Reference(s):

- For conformance requirement 1: TS 24.008 clause 4.5.1.5, TS 22.101 clause 8.

- For conformance requirement 2: TS 24.008, clause 5.2.1.

- For conformance requirement 3: TS 24.008, clause 5.2.1.6.

- For conformance requirement 4: TS 24.008, clause 5.4.4.

13.2.1.1.3 Test purpose

1) To verify that an UE supporting speech in the state "MM idle", when made to call the emergency call number, sends a CM SERVICE REQUEST message specifying the correct CKSN and TMSI, with CM service type IE "emergency call establishment".

2) To verify that after security mode setting by the SS, the UE sends an EMERGENCY SETUP message.

3) To verify that, the SS having sent a CALL PROCEEDING message and then an ALERTING message the correct performance of a connect procedure and that the UE has through connected the DTCH in both directions.

4) To verify that the call is cleared correctly.

13.2.1.1.4 Method of test

Initial Conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE is in state "MM idle" with valid TMSI and CKSN.

Related ICS/IXIT Statement(s)

- Emergency speech call yes/no

Test procedure

The UE is made to initiate an emergency call. Having reached the active state, the call is cleared by the SS.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The "emergency number" is entered. Number shall be one programmed in test USIM EF_{ECC} (Emergency Call Codes), ref. 34.108 clause 8.3.2.21.
2	-->			UE establishes RRC procedure for emergency call. Establishment cause: Emergency Call
3			Void	
4			Void	
5	-->		CM SERVICE REQUEST	The CM service type IE indicates "emergency call establishment".
6	<--		AUTHENTICATION REQUEST	IE Authentication Parameter AUTN shall be present in the message.
7	-->		AUTHENTICATION RESPONSE	SRES specifies correct value.
8				SS starts security procedure.
9			Void	
10			Void	
11	-->		EMERGENCY SETUP	If the Bearer capability IE is not included the default UMTS AMR speech version shall be assumed.
12	<--		CALL PROCEEDING	
13	<--		ALERTING	
14	<--			SS sets up the radio bearer with the rate indicated by the EMERGENCY SETUP message.
15			Void	
16	<--		CONNECT	
17	-->		CONNECT ACKNOWLEDGE	
18	UE			The DTCH is through connected in both directions.
19	<--		DISCONNECT	SS disconnects the call and associated radio bearer.

Specific Message Contents

None.

13.2.1.1.5 Test requirements

In step 2 of the Expected Sequence the UE shall establish RRC procedure with establishment cause Emergency Call.

In step 5 of the Expected Sequence the UE shall send a CM SERVICE REQUEST message with CM service type emergency call establishment.

In step 11 of the Expected Sequence the UE shall send an EMERGENCY SETUP message.

In step 18 of the Expected Sequence the UE has through connected the DTCH in both directions.

In step 19 of the Expected Sequence the call is cleared correctly.

13.2.2 Emergency call / without USIM

13.2.2.1 Emergency call / without USIM / accept case

13.2.2.1.1 Definition

The following emergency numbers shall be stored in the UE for use without USIM: 000, 08, 112, 110, 118, 119, 911 and 999.

13.2.2.1.2 Conformance requirement

1) A MM connection for an emergency call may be established in all states of the mobility management sublayer which allow MM connection establishment for a normal originating call.

   When a user requests an emergency call establishment the UE will send a CM SERVICE REQUEST message to the network with a CM service type information element indicating emergency call establishment.

   Normally, the UE will be identified by an IMSI or a TMSI. However, if none of these identifiers is available in the UE, then the UE shall use the IMEI for identification purposes.

2) As a serving network option, emergency calls may be established without the network having to apply the security mode procedure as defined in TS 24.008.

   The following are the only cases where the "security procedure not applied" option may be used:

   a) Authentication is impossible because the USIM is absent.

3) Having entered the "MM connection pending" state, upon MM connection establishment, the call control entity of the UE sends a setup message to its peer entity. This setup message is:

   - a SETUP message, if the call to be established is a basic call; and
   - an EMERGENCY SETUP message, if the call to be established is an emergency call.

4) Upon receiving an indication that the call has been accepted, the call control entity of the network shall: through connect the traffic channel (including the connection of an interworking function, if required) and send a CONNECT message to its peer entity at the calling UE; start timer T313 and enter the "connect indication" state.

   This message indicates to the call control entity of the calling UE that a connection has been established through the network.

5) The call control entity of the network shall initiate clearing by: sending a DISCONNECT message; and entering the "disconnect indication" state.

Reference(s):

- For conformance requirement 1: TS 24.008 clause 4.5.1.5, TS 22.101 clause 8.

- For conformance requirement 2: TS 33.102, clause 6.4.9.2.
- For conformance requirements 3: TS 24.008, clause 5.2.1.
- For conformance requirement 4: TS 24.008, clause 5.2.1.6.
- For conformance requirement 5: TS 24.008, clause 5.4.4.

13.2.2.1.3 Test purpose

1) To verify that the UE in the "MM idle, no IMSI" state (no USIM inserted) when made to call the emergency call number, sends a CM SERVICE REQUEST message in which the ciphering key sequence number IE indicates "no key is available", the CM service type IE indicates "emergency call establishment" and the mobile identity IE specifies the IMEI of the UE.
2) To verify that after receipt of a CM SERVICE ACCEPT message without security mode procedure applied from the SS, the UE sends an EMERGENCY SETUP message.
3) To verify that the SS having sent a CALL PROCEEDING message and then an ALERTING message the correct performance of a connect procedure and that the UE has through connected the DTCH in both directions.
4) To verify that the call is cleared correctly.

13.2.2.1.4 Method of test

Initial Conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE is in MM-state "MM idle, no IMSI", no USIM inserted.

Related ICS/IXIT Statement(s)

- Emergency speech call yes/no

Test procedure

The UE is made to initiate an emergency call. The call is established without authentication and security. Having reached the active state, the call is cleared by the SS.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The "emergency number" is entered. One of the following emergency numbers shall be used: 000, 08, 112, 110, 118, 119, 911 or 999.
2	-->			UE establishes RRC procedure for emergency call. Establishment cause: Emergency Call
3			Void	
4			Void	
5	-->		CM SERVICE REQUEST	The CM service type IE indicates "emergency call establishment". The mobile identity IE specifies the IMEI of the UE. The cipher key sequence number IE indicates "no key is available".
6	<--		CM SERVICE ACCEPT	
7	-->		EMERGENCY SETUP	If the Bearer capability IE is not included the default UMTS AMR speech version shall be assumed.
8	<--		CALL PROCEEDING	
9	<--		ALERTING	
10	<--			SS sets up the radio bearer with the rate indicated by the EMERGENCY SETUP message.
11			Void	
12	<--		CONNECT	
13	-->		CONNECT ACKNOWLEDGE	
14	UE			The DTCH is through connected in both directions.
15	<--		DISCONNECT	SS disconnects the call and associated radio bearer.

Specific Message Contents

None.

13.2.2.1.5 Test requirements

In step 2 of the Expected Sequence the UE shall establish RRC procedure with establishment cause Emergency Call.

In step 5 of the Expected Sequence the UE shall send a CM SERVICE REQUEST message with CM service type emergency call establishment, mobile identity IMEI and cipher key sequence number no key is available.

In step 7 of the Expected Sequence the UE shall send an EMERGENCY SETUP message.

In step 14 of the Expected Sequence the UE has through connected the DTCH in both directions.

In step 15 of the Expected Sequence the call is cleared correctly.

13.2.2.2 Emergency call / without USIM / reject case

13.2.2.2.1 Definition

The following emergency numbers shall be stored in the UE for use without USIM: 000, 08, 112, 110, 118, 119, 911 and 999.

13.2.2.2.2 Conformance requirement

1) A MM connection for an emergency call may be established in all states of the mobility management sublayer which allow MM connection establishment for a normal originating call.

   When a user requests an emergency call establishment the UE will send a CM SERVICE REQUEST message to the network with a CM service type information element indicating emergency call establishment.

Normally, the UE will be identified by an IMSI or a TMSI. However, if none of these identifiers is available in the UE, then the UE shall use the IMEI for identification purposes.

2) If the network does not accept the emergency call request, e.g., because IMEI was used as identification and this capability is not supported by the network, the network will reject the request by returning a CM SERVICE REJECT message to the UE.

Reference(s):

- For conformance requirement 1: TS 24.008 clause 4.5.1.5, TS 22.101 clause 8.
- For conformance requirement 2: TS 24.008 clause 4.5.1.5.

13.2.2.2.3 Test purpose

1) To verify that the UE in the "MM idle, no IMSI" state (no USIM inserted) when made to call the emergency call number, sends a CM SERVICE REQUEST message in which the ciphering key sequence number IE indicates "no key is available", the CM service type IE indicates "emergency call establishment", and the mobile identity IE specifies the IMEI of the UE.

2) To verify that after receipt of a CM SERVICE REJECT message from the SS, the UE abandons the emergency call establishment.

13.2.2.2.4 Method of test

Initial Conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE is in state "MM idle, no IMSI", no USIM inserted.

Related ICS/IXIT Statement(s)

- Emergency speech call yes/no

Test procedure

The UE is made to initiate an emergency call. The call is established without authentication, and security. The SS responds to the CM SERVICE REQUEST from the UE with a CM SERVICE REJECT message specifying in the reject cause IE the reject cause value "IMEI not accepted". The SS then verifies for during 5 seconds that the UE does not send a layer 3 message. Then the call is cleared by the SS. The SS verifies during 20 seconds after disconnection of the main signalling link that the UE does not initiate a RRC connection establishment.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The "emergency number" is entered. One of the following emergency numbers shall be used: 000, 08, 112, 110, 118, 119, 911 or 999.
2	-->			UE establishes RRC procedure for emergency call. Establishment cause: Emergency Call
3			Void	
4			Void	
5	-->		CM SERVICE REQUEST	The CM service type IE indicates "emergency call establishment". The mobile identity IE specifies the IMEI of the UE. The cipher key sequence number IE indicates "no key is available".
6	<--		CM SERVICE REJECT	The reject cause IE specifies reject cause value #5, "IMEI not accepted".
7	SS			During 5 seconds, the SS verifies that the UE does not send L3 messages.
8			Void	
9			Void	
10	SS			During 20 seconds, the SS verifies that the UE does not initiate a RRC connection establishment

Specific Message Contents:

None.

13.2.2.2.5 Test requirements

In step 2 of the Expected Sequence the UE shall establish RRC procedure with establishment cause Emergency Call.

In step 5 of the Expected Sequence the UE shall send a CM SERVICE REQUEST message with CM service type emergency call establishment, mobile identity IMEI and cipher key sequence number no key is available.

In step 6 of the Expected Sequence the UE shall abandon the emergency call establishment.

13.3 eCall Emergency Call Procedures

Conformance testing of eCall modem shall be performed per 3GPP TS 26.269 and is used for conformance testing of eCall modem core requirements. The test cases in clause 13.3 are for conformance testing of the eCall non-modem procedures.

13.3.1 eCall / with USIM

Two types of USIMs are used in performing the tests described below:

a) Type 1 USIM is one which has only subscription for eCall only service. UEs that contain this type of USIM are identified below as eCall Only capable UE.

b) Type 2 USIM is one which has subscription for eCall and other services. UEs that contain this type of USIM are identified below as eCall Capable UE.

13.3.1.1 Void

13.3.1.2 Test eCall using eCall capable UE with eCall only subscription

13.3.1.2.1 Definition and applicability

Applicable for all UEs supporting eCall with eCall only subscription and capable of triggering a Test eCall.

13.3.1.2.2 Conformance Requirement

The eCall inactivity procedure is applicable only to an eCall only mobile station (as determined by information configured in USIM).

[..]

While in eCALL INACTIVE state, the mobile station maintains awareness of a potential serving cell in a potential serving network but initiates no MM signalling with the network and ignores any paging requests.

The mobile station shall leave eCALL INACTIVE state only when one of the following events occur:

[..]

- if there is a CM request for a call to an HPLMN designated non-emergency MSISDN for the purpose of accessing test and terminal reconfiguration services: the mobile station attempts normal location updating. Once this is complete, further MM and CM procedures are used to establish the non-emergency call.

Reference(s)

TS24.008 clause 4.4.7

13.3.1.2.3 Test purpose

1. Verify that the eCall capable UE with an ‘eCall only’ enabled USIM is capable of making a test eCall.

13.3.1.2.4 Method of test

Initial conditions

The eCall capable UE is equipped with ‘eCall only’ enabled USIM

UE is powered on and in MM IDLE eCALL INACTIVE state. In this state the UE with an ‘eCall only’ subscription shall not be registered on a network but may perform a background scan to identify available PLMNs.

System Simulator

1 cell, default parameters

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Value/Remark
EF_{UST}	Service n°2 Service Dialling Numbers (FDN) and Service n°89 eCall Data available
EF_{FDN}	Display two FDNs, eCall Test Number (123456) and eCall reconfiguration number (345678)
EF_{EST}	Enabled Services Table

Related ICS/IXIT statement(s)

UE supporting ‘eCall only’ support on the USIM yes/no

UE providing a means to trigger a Test eCall yes/no

Test Procedure

a) The UE is made to initiate a test eCall in accordance with manufacturer's instructions. Upon successful completion of the test eCall, the call is cleared by the SS. (steps 1 – 27).

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE contains test USIM with data specified under initial conditions.
2	→			A test eCall is initiated using the number located in the EF_{FDN} portion of the test USIM. Establishment cause: registration UE performs RRC procedure for network registration, LOCATION UPDATING
3	→		LOCATION UPDATING REQUEST	"Location Updating Type" = Normal Location Updating
4	←		AUTHENTICATION REQUEST	IE Authentication Parameter AUTN shall be present in the message.
5	→		AUTHENTICATION RESPONSE	SRES specifies correct value.
6				SS starts security procedure.
7	←		LOCATION UPDATING ACCEPT	
8	→		TMSI REALLOCATION COMPLETE	
9				SS releases the RRC Connection.
10				UE establishes RRC procedure for conversational call. Establishment cause: originating conversational call.
11	→		CM SERVICE REQUEST	The CM service type IE indicates "originating conversational call".
12	←		AUTHENTICATION REQUEST	IE Authentication Parameter AUTN shall be present in the message.
13	→		AUTHENTICATION RESPONSE	SRES specifies correct value.
14				SS starts security procedure.
15	→		SETUP	If the Bearer capability IE is not included the default UMTS AMR speech version shall be assumed. SS verifies that the test number is sent in the SETUP message.
16	←		CALL PROCEEDING	
17	←		ALERTING	
18	←			SS sets up the radio bearer with the rate indicated by the SETUP message.
19	←		CONNECT	
20	→		CONNECT ACKNOWLEDGE	
21	UE			The DTCH is through connected in both directions. Traffic channel is kept active for at least 5 seconds.
22			Void	
23	←		DISCONNECT	
24	→		RELEASE	
25	←		RELEASE COMPLETE	
26	SS			The SS releases the RRC connection
27	←→		CALL C.1	If the test result of C.1 indicates that UE is in idle Mode state, the test passes, otherwise it fails.

Specific Message Contents

13.3.1.2.5 Test requirements

a) In step 2 UE shall make a test eCall to a number stored in the EF_{FDN} portion of the test USIM. UE shall establish RRC procedure with establishment cause “Registration”.

b) In step 3 UE shall send a LOCATION UPDATING message

c) In step 15 UE shall send an SETUP message.

d) In step 21 UE has through connected the DTCH in both directions.

e) In step 23, eCall UE is disconnected.

f) In step 27 UE returns to Idle Mode.

13.3.1.3 Manually initiated eCall using eCall capable UE with “eCall only” subscription on USIM

13.3.1.3.1 Definition and applicability

Applicable for all UEs supporting eCall and support eCall only subscription and capable of initiating manual eCall.

13.3.1.3.2 Conformance Requirement

[..]

If eCall only calls are supported, then EF_{FDN} shall only contain two entries. The first entry shall contain the eCall test number and the second entry shall contain the eCall reconfiguration number. A terminal in eCall only mode performs the FDN related procedures.

[…]

Reference(s)

TS31.102 clause 5.3.40.1

13.3.1.3.3 Test purpose

1 Verify that the eCall capable UE is able to make Emergency Call - USIM has capability for eCall only subscriptions

13.3.1.3.4 Method of test

Initial conditions

The eCall capable UE is equipped with ‘eCall only’ enabled USIM. If an eCall is to be established using emergency short codes, as specified in 24.008, then EFecc shall contain emergency short codes and associated Emergency Service Category bit 6 (MIeC) and bit 7 (AIeC) set to 1. Alternatively, AT+CECALL, as specified in TS27.007, commands may be used for eCall initiation.

UE is Switched OFF.

System Simulator

1 cell, default parameters

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Value/Remark
EF_{UST}	Service n°2 Fixed Dialling Numbers (FDN) and Service n°89 eCall Data available
EF_{FDN}	Display two FDNs, eCall Test Number (123456) and eCall reconfiguration number (345678)
EF_{EST}	Enabled Services Table

Related ICS/IXIT statement(s)

UE supporting 'eCall only' support on the USIM yes/no

UE providing a means to trigger a manual eCall yes/no

Test procedure

a) The UE is made to initiate an eCall in accordance with manufacturer's instructions. Upon successful completion of the eCall, the call is cleared by the SS. (steps 1 – 29)

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE contains test USIM with data specified under initial conditions. UE is Switched ON.
2	SS			The SS verifies that the UE does not send RRC CONNECTION REQUEST message with the IE "Establishment cause" set to "Registration" for a period of 60 seconds.
3	UE			UE is made to initiate a manual eCall in accordance with manufacturer's instructions
4	→			UE performs RRC procedure for network registration and LOCATION UPDATING
5	→		LOCATION UPDATING REQUEST	"Location Updating Type" = Normal Location Updating
6	←		AUTHENTICATION REQUEST	IE Authentication Parameter AUTN shall be present in the message.
7	→		AUTHENTICATION RESPONSE	SRES specifies correct value.
8				SS starts security procedure.
9	←		LOCATION UPDATING ACCEPT	
10	→		TMSI REALLOCATION COMPLETE	
11				SS releases the RRC Connection.
12				UE establishes RRC procedure for emergency call. Establishment cause: emergency call.
13	→		CM SERVICE REQUEST	The CM service type IE indicates "emergency call".
14	←		AUTHENTICATION REQUEST	IE Authentication Parameter AUTN shall be present in the message.
15	→		AUTHENTICATION RESPONSE	SRES specifies correct value.
16				SS starts security procedure.
17	→		EMERGENCY SETUP	Emergency category set to Manually Initiated eCall.

			If the Bearer capability IE is not included the default UMTS AMR speech version shall be assumed. SS verifies that the Emergency Service Category IE bit 6 is set to 1 and all other bits are set to 0.
18	←	CALL PROCEEDING	
19	←	ALERTING	
20	←		SS sets up the radio bearer with the rate indicated by the EMERGENCY SETUP message.
21	←	CONNECT	
22	→	CONNECT ACKNOWLEDGE	
23	UE		The DTCH is through connected in both directions. Traffic channel is kept alive for at least 5 seconds.
24		Void	
25	←	DISCONNECT	
26	→	RELEASE	
27	←	RELEASE COMPLETE	
28	SS		The SS releases the RRC connection
29	<-	CALL C.1	If the test result of C.1 indicates that UE is in MM IDLE state, the test passes, otherwise it fails.

Specific Message Contents

EMERGENCY SETUP (Step 9)

Information Element	Value/remark
Emergency Category	Bit 1 Police Bit 2 Ambulance Bit 3 Fire Brigade Bit 4 Marine Guard Bit 5 Mountain Rescue Bit 6 manually initiated eCall Bit 7 automatically initiated eCall Bit 8 Spare and set to "0" Manually initiated eCall: Bit 6 = 1, Bit 7 = 0 Automatically initiated eCall: Bit 6 = 0, Bit 7 = 1

13.3.1.3.5 Test requirements

a. In step 1 eCall UE is powered on

b. In step 2 the 'eCall only' UE shall remain in the eCALL INACTIVE state and shall not perform RRC procedures for network registration until an eCall is initiated.

c. In step 4 eCall UE shall perform RRC procedures for network registration and Location Updating.

d. In step 5 eCall UE shall send a LOCATION UPDATING REQUEST message.

e. In step 17 eCall UE shall send an EMERGENCY SETUP message with the Service Category IE bit 6 = 1.

f. In step 23 eCall UE has through connected the DTCH in both directions.

g. In step 26, eCall UE shall release the connection

h. In step 29, eCall UE returns to Idle Mode.

13.3.1.4 Reconfiguration eCall using eCall capable UE with an ‘eCall only’ subscription on USIM

13.3.1.4.1 Definition and applicability

Applicable for all UEs supporting eCall and support ‘eCall only’ subscription and capable of triggering a reconfiguration eCall.

13.3.1.4.2 Conformance Requirement

The eCall inactivity procedure is applicable only to an eCall only mobile station (as determined by information configured in USIM).

[..]

While in eCALL INACTIVE state, the mobile station maintains awareness of a potential serving cell in a potential serving network but initiates no MM signalling with the network and ignores any paging requests.

The mobile station shall leave eCALL INACTIVE state only when one of the following events occur:

[..]

- if there is a CM request for a call to an HPLMN designated non-emergency MSISDN for the purpose of accessing test and terminal reconfiguration services: the mobile station attempts normal location updating. Once this is complete, further MM and CM procedures are used to establish the non-emergency call.

Reference(s)

TS24.008 clause 4.4.7

13.3.1.4.3 Test purpose

1. Verify that the eCall capable UE with an ‘eCall only’ subscription is capable of making a reconfiguration eCall, to facilitate removal of the ‘eCall only’ restrictions on the USIM and permit access to additional subscription services.

13.3.1.4.4 Method of test

Initial conditions

The eCall capable UE is equipped with ‘eCall only’ USIM

UE is powered on and in MM IDLE eCALL INACTIVE state. In this state the UE with an 'eCall only’ subscription shall not be registered on a network but may perform a background scan to identify available PLMNs.

System Simulator

1 cell, default parameters,

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Value/Remark
EF_{UST}	Service n°2 Service Dialling Numbers (FDN) and Service n°89 eCall Data available
EF_{FDN}	Display two FDNs, eCall Test Number (123456) and eCall reconfiguration number (345678)
EF_{EST}	Enabled Services Table

Related ICS/IXIT statement(s)

UE supporting ‘eCall only’ support on the USIM yes/no

UE providing a means to trigger a reconfiguration eCall yes/no

Test Procedure

a) The UE is made to initiate a reconfiguration eCall in accordance with manufacturer’s instructions. Upon successful completion of the reconfiguration eCall, the call is cleared by the SS. (steps 1 – 20)

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE contains test USIM with data specified under initial conditions.
2	→			UE establishes RRC procedures for network registration and a reconfiguration eCall using number located in the EF_{FDN} portion of the test USIM. Establishment cause: registration
3	→		LOCATION UPDATING REQUEST	"Location Updating Type" = Normal Location Updating
4	←		AUTHENTICATION REQUEST	IE Authentication Parameter AUTN shall be present in the message.
5	→		AUTHENTICATION RESPONSE	SRES specifies correct value.
6				SS starts security procedure.
7	←		LOCATION UPDATING ACCEPT	
8	→		TMSI REALLOCATION COMPLETE	
9				SS releases the RRC Connection.
10				UE establishes RRC procedure for conversational call. Establishment cause: originating conversational call.
11	→		CM SERVICE REQUEST	The CM service type IE indicates "originating conversational call".
12	←		AUTHENTICATION REQUEST	IE Authentication Parameter AUTN shall be present in the message.
13	→		AUTHENTICATION RESPONSE	SRES specifies correct value.
14				SS starts security procedure.
15	→		SETUP	If the Bearer capability IE is not included the default UMTS AMR speech version shall be assumed. SS verifies that the reconfiguration number is sent in the SETUP message.
16	←		CALL PROCEEDING	
17	←		ALERTING	
18	←			SS sets up the radio bearer with the rate indicated by the SETUP message.
19	←		CONNECT	
20	→		CONNECT ACKNOWLEDGE	
21	UE			The DTCH is through connected in both directions. Traffic channel is kept alive for at least 5 seconds.
22	Void			
23	←		DISCONNECT	
24	→		RELEASE	
25	←		RELEASE COMPLETE	
26	SS			The SS releases the RRC connection

Specific Message Contents

None.

13.3.1.4.5 Test requirements

a) In step 2 UE shall make a reconfiguration eCall to a number stored in the EF_{FDN} portion of the test USIM. The UE shall establish RRC procedures for network registration and with establishment cause "Registration".

b) In step 3 UE shall send a LOCATION UPDATING REQUEST message.

c) In step 15 UE shall send an SETUP message.

d) In step 21 UE has through connected the DTCH in both directions.

e) In step 24, eCall UE shall release the connection.

13.3.1.5 Manually initiated eCall using eCall capable UE with eCall and non eCall subscriptions on USIM

13.3.1.5.1 Definition and applicability

Applicable for all UEs supporting eCall and support emergency speech call and eCall subscription and capable of initiating manual eCall..

13.3.1.5.2 Conformance Requirement

[..]

If eCall and normal calls are supported, then the last two entries of EF_{SDN} shall contain the eCall test number and the eCall reconfiguration number respectively. A terminal in eCall and normal mode performs the SDN related procedures.

Reference(s)

TS31.102 clause 5.3.40.2

13.3.1.5.3 Test purpose

1. Verify that the eCall capable UE with both eCall and non eCall subscriptions on the USIM is able to make a manually initiated eCall.

13.3.1.5.4 Method of test

Initial conditions

The eCall capable UE is equipped with eCall Capable USIM that permits access to eCall and non-eCall subscription services. If an eCall is to be established using emergency short codes, as specified in 24.008, then EFecc shall contain emergency short codes and associated Emergency Service Category bit 6 (MIeC) and bit 7 (AIeC) set to 1. Alternatively, AT+CECALL, as specified in TS27.007, commands may be used for eCall initiation.

UE is switched on, is registered on a PLMN and is in MM IDLE state.

System Simulator

1 cell, default parameters

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Value/Remark
EF_{UST}	Service n°4 Service Dialling Numbers (SDN) and Service n°89 eCall Data available
EF_{SDN}	Last two entries of SDNs, eCall Test Number (123456) and eCall reconfiguration number (345678)
EF_{EST}	Enabled Services Table

Related ICS/IXIT statement(s)

UE supporting eCall Capable support on the USIM yes/no

UE providing a means to trigger a manual eCall yes/no

Test Procedure

a) The UE is made to initiate an eCall in accordance with manufacturer's instructions. Upon successful completion of the eCall, the call is cleared by the SS. (steps 1 – 20).

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE contains test USIM with data specified under initial conditions. UE is made to initiate a manual eCall in accordance with manufacturer's instructions.
2	→			UE performs RRC procedure with cause "Emergency call".
3	→		CM SERVICE REQUEST	The CM service type IE indicates "emergency call establishment".
4	←		AUTHENTICATION REQUEST	IE Authentication Parameter AUTN shall be present in the message.
5	→		AUTHENTICATION RESPONSE	SRES specifies correct value.
6				SS starts security procedure.
7			Void	
8			Void	
9	→		EMERGENCY SETUP	Emergency category set to Manually Initiated eCall. If the Bearer capability IE is not included the default UMTS AMR speech version shall be assumed. SS verifies that the Emergency Service Category IE bit 6 is set to 1 and all other bits are set to 0.
10	←		CALL PROCEEDING	
11	←		ALERTING	
12	←			SS sets up the radio bearer with the rate indicated by the EMERGENCY SETUP message.
13	←		CONNECT	
14	→		CONNECT ACKNOWLEDGE	
15	UE			The DTCH is through connected in both directions. Traffic channel is kept active for at least 5 seconds.
16			Void	
17	←		DISCONNECT	
18	→		RELEASE	
19	←		RELEASE COMPLETE	
20	SS			The SS releases the RRC connection

Specific Message Contents

EMERGENCY SETUP (Step 9)

Information Element	Value/remark
Emergency Category	Bit 1 Police Bit 2 Ambulance Bit 3 Fire Brigade Bit 4 Marine Guard Bit 5 Mountain Rescue Bit 6 manually initiated eCall Bit 7 automatically initiated eCall Bit 8 Spare and set to "0" Manually initiated eCall: Bit 6 = 1, Bit 7 = 0 Automatically initiated eCall: Bit 6 = 0, Bit 7 = 1

13.3.1.5.5 Test requirements

a. In step 1 eCall UE shall initiate a manual eCall in accordance with manufacturer's instructions

b. In step 2 eCall UE shall perform RRC procedure for Emergency Call.

c. In step 3 eCall UE shall send a CM SERVICE REQUEST message.

d. In step 9 eCall UE shall send an EMERGENCY SETUP message.

e. In step 15 eCall UE has through connected the DTCH in both directions.

f. In step 18, eCall UE shall release the connection.

13.3.1.6 eCall Inactivity State after T3242 expires

13.3.1.6.1 Definition and applicability

Applicable for all UEs supporting eCall and 'eCall only' subscription and capable of initiating manual eCall.

13.3.1.6.2 Conformance Requirement

[..]

The eCall inactivity procedure is applicable only to an 'eCall only' mobile station (as determined by information configured in USIM). The procedure shall be started when timer T3242 or timer T3243 expires or is found to have already expired in any MM Idle state except NO IMSI, NO CELL AVAILABLE or PLMN SEARCH. The mobile station shall then stop other running timers (e.g. T3211, T3212, T3213) and shall perform the IMSI detach procedure if required by the serving network and if the update state is U1. The mobile station then enters MM Idle eCALL INACTIVE state and the mobile station shall delete any LAI, TMSI, ciphering key sequence number stored in the SIM/USIM and set the update state to U4 Updating Disabled.

While in eCALL INACTIVE state, the mobile station maintains awareness of a potential serving cell in a potential serving network but initiates no MM signalling with the network and ignores any paging requests.

The mobile station shall leave eCALL INACTIVE state only when one of the following events occur:

- if the SIM or USIM is removed, the mobile station enters the NO IMSI state;
- if coverage is lost, the mobile station enters PLMN SEARCH state;

- if the mobile station is deactivated (e.g. powered off) by the user: the mobile station enters the NULL state;
- if there is a CM request for an emergency services call: the MS uses the MM and CM procedures to establish the emergency call; or
- if there is a CM request for a call to an HPLMN designated non-emergency MSISDN for the purpose of accessing test and terminal reconfiguration services: the mobile station attempts normal location updating. Once this is complete, further MM and CM procedures are used to establish the non-emergency call.

Reference(s)

TS24.008 clause 4.4.7

13.3.1.6.3 Test purpose

1 Verify that 'eCall only' capable UE enters eCall inactivity state after T3242 expires and leaves this state only when specified events occur.

13.3.1.6.4 Method of test

Initial conditions

The 'eCall only' capable UE is equipped with 'eCall only' enabled USIM. If an eCall is to be established using emergency short codes, as specified in 24.008, then EFecc shall contain emergency short codes and associated Emergency Service Category bit 6 (MIeC) and bit 7 (AIeC) set to 1. Alternatively, AT+CECALL, as specified in TS27.007, commands may be used for eCall initiation.

UE is in eCall inactive eCALL INACTIVE state

System Simulator

- 1 cell, default parameters,
- the T3212 time-out value is 252 minutes.

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Value/Remark
EF_{UST}	Service n°2 Service Dialling Numbers (FDN) and Service n°89 eCall Data available
EF_{FDN}	Last two entries of FDNs, eCall Test Number (123456) and eCall reconfiguration number (345678)
EF_{EST}	Enabled Services Table

Related ICS/IXIT statement(s)

UE supporting 'eCall only' enabled USIM yes/no

UE providing a means to trigger a manual eCall yes/no

Test Procedure

a) The UE is made to initiate an eCall in accordance with manufacturer's instructions. Upon successful completion of the eCall, the call is cleared by the SS. (steps 1 – 48).

Expected sequence

Step	Direction		Message	Comments
	UE	SS		

1	UE		The UE contains test USIM with data specified under initial conditions. UE is made to initiate a manual eCall in accordance with manufacturer's instructions.
2	→		UE performs RRC procedures for network registration and Location Updating.
3	→	LOCATION UPDATING REQUEST	"LOCATION UPDATING TYPE"= Normal Location Updating
4	←	AUTHENTICATION REQUEST	IE Authentication Parameter AUTN shall be present in the message.
5	→	AUTHENTICATION RESPONSE	SRES specifies correct value.
6			SS starts security procedure.
7	←	LOCATION UPDATING ACCEPT	
8	→	TMSI REALLOCATION COMPLETE	
9			SS releases the RRC Connection.
10			UE establishes RRC procedure for emergency call. Establishment cause: emergency call.
11	→	CM SERVICE REQUEST	The CM service type IE indicates " emergency call".
12	←	AUTHENTICATION REQUEST	IE Authentication Parameter AUTN shall be present in the message.
13	→	AUTHENTICATION RESPONSE	SRES specifies correct value.
14			SS starts security procedure.
15	→	EMERGENCY SETUP	Emergency category set to Manually Initiated eCall. If the Bearer capability IE is not included the default UMTS AMR speech version shall be assumed. SS verifies that the Emergency Service Category IE bit 6 is set to 1 and all other bits are set to 0.
16	←	CALL PROCEEDING	
17	←	ALERTING	
18	←		SS sets up the radio bearer with the rate indicated by the EMERGENCY SETUP message.
19	←	CONNECT	
20	→	CONNECT ACKNOWLEDGE	
21	UE		The DTCH is connected in both directions. Traffic channel is kept active for at least 5 seconds.
22	Void		
23	←	DISCONNECT	
24	→	RELEASE	
25	←	RELEASE COMPLETE	
26	SS		The SS releases the RRC Connection
27	SS		For next 12 hours SS verifies that UE sends Location Update Request periodically every 252 minutes and remains registered until T3242 expires
27A	→	IMSI DETACH INDICATION	The UE performs IMSI Detach after timer T3242 expires
28	SS		The SS releases the RRC connection
29	UE		UE is made to initiate a manual eCall in accordance with

			manufacturer's instructions.
30	→		UE performs RRC procedure for Location Updating.
31	→	LOCATION UPDATING REQUEST	"LOCATION UPDATING TYPE"= Normal Location Updating
32	←	AUTHENTICATION REQUEST	IE Authentication Parameter AUTN shall be present in the message.
33	→	AUTHENTICATION RESPONSE	SRES specifies correct value.
34			SS starts security procedure.
35	←	LOCATION UPDATING ACCEPT	
36	→	TMSI REALLOCATION COMPLETE	
37	→	EMERGENCY SETUP	Emergency category set to Manually Initiated eCall.
38	←	CALL PROCEEDING	
39	←	ALERTING	
40	←		SS sets up the radio bearer with the rate indicated by the EMERGENCY SETUP message.
41	←	CONNECT	
42	→	CONNECT ACKNOWLEDGE	
43	UE		The DTCH is connected in both directions. Traffic channel is kept active for at least 5 seconds.
44	Void		
45	←	DISCONNECT	
46	→	RELEASE	
47	←	RELEASE COMPLETE	
48	SS		The SS releases the RRC Connection

Specific Message Contents

EMERGENCY SETUP (Steps 7 and 37)

Information Element	Value/remark
Emergency Category	Bit 1 Police Bit 2 Ambulance Bit 3 Fire Brigade Bit 4 Marine Guard Bit 5 Mountain Rescue Bit 6 manually initiated eCall Bit 7 automatically initiated eCall Bit 8 Spare and set to "0" Manually initiated eCall: Bit 6 = 1, Bit 7 = 0 Automatically initiated eCall: Bit 6 = 0, Bit 7 = 1

13.3.1.6.5 Test requirements

a. In step 1 eCall UE shall initiate an Emergency eCall.

b. In step 2 eCall UE shall perform RRC procedure for registration.

c. In step 3 eCall UE shall send a LOCATION UPDATING REQUEST.

d. In step 15 eCall UE shall send an EMERGENCY SETUP message with Emergency category set to Manually Initiated eCall..

e. In step 21 eCall UE has through connected the DTCH in both directions.

f. In step 26, eCall UE shall disconnect.

g. In steps 27,eCall UE shall remain registered on the network for a duration of T3242 following completion of eCall. eCall UE shall detach from network upon expiry of T3242.

h. In step 29 eCall UE is made to initiate a manually initiated eCall in accordance with manufacturer's instructions.

i. In step 31 eCall UE shall send a LOCATION UPDATING REQUEST message with "Location Updating Type" = Normal Location Updating.

j. In step 37 eCall UE shall send an EMERGENCY SETUP message with Emergency category set to Manually Initiated eCall..

k. In step 43 eCall UE has through connected the DTCH in both directions.

l. In step 45, eCall UE shall disconnect.

13.3.1.7 Automatically initiated eCall

13.3.1.7.1 Definition and applicability

Applicable for all UEs supporting eCall and support emergency speech and eCall only subscription and capable of initiating automatic eCall..

13.3.1.7.2 Conformance Requirement

[..]

If eCall only calls are supported, then EF_{FDN} shall only contain two entries. The first entry shall contain the eCall test number and the second entry shall contain the eCall reconfiguration number. A terminal in eCall only mode performs the FDN related procedures

Reference(s)

TS31.102 clause 5.3.40.2

13.3.1.7.3 Test purpose

Verify that while making eCall automatically, eCall capable UE provides appropriate Service Category information to the network.(Bit 7 should be set).

13.3.1.7.4 Method of test

Initial conditions

The eCall capable UE is equipped with an eCall only enabled USIM. If an eCall is to be established using emergency short codes, as specified in 24.008, then EFecc shall contain emergency short codes and associated Emergency Service Category bit 6 (MIeC) and bit 7 (AIeC) set to 1. Alternatively, AT+CECALL, as specified in TS27.007, commands may be used for eCall initiation.

UE is in eCall Inactive State.

System Simulator

1 cell, default parameters.

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Value/Remark
EF_{UST}	Service n°4 Service Dialling Numbers (FDN) and Service n°89 eCall Data available
EF_{FDN}	Last two entries of FDNs, eCall Test Number (123456) and eCall reconfiguration number (345678)
EF_{EST}	Enabled Services Table

Related ICS/IXIT statement(s)

UE supporting eCall Only Capable support on the USIM yes/no

UE providing a means to trigger an automatic eCall yes/no

Test Procedure

a) The UE is made to initiate an eCall in accordance with manufacturer's instructions. Upon successful completion of the eCall, the call is cleared by the SS. (steps 1 – 26)

Expected sequence

Step	Direction		Message	Comments
	UE	SS		

1	UE		The UE contains test USIM with data specified under initial conditions. UE is made to initiate an automatic eCall in accordance with manufacturer's instructions.
2	→		UE performs RRC procedure for Location Updating
3	→	LOCATION UPDATING REQUEST	"Location Updating Type" = Normal Location Updating
4	←	AUTHENTICATION REQUEST	IE Authentication Parameter AUTN shall be present in the message.
5	→	AUTHENTICATION RESPONSE	SRES specifies correct value.
6			SS starts security procedure.
7	←	LOCATION UPDATING ACCEPT	
8	→	TMSI REALLOCATION COMPLETE	
9			SS releases the RRC Connection.
10			UE establishes RRC procedure for emergency call. Establishment cause: emergency call.
11	→	CM SERVICE REQUEST	The CM service type IE indicates " emergency call".
12	←	AUTHENTICATION REQUEST	IE Authentication Parameter AUTN shall be present in the message.
13	→	AUTHENTICATION RESPONSE	SRES specifies correct value.
14			SS starts security procedure.
15	→	EMERGENCY SETUP	Emergency category set to Automatic Initiated eCall. If the Bearer capability IE is not included the default UMTS AMR speech version shall be assumed. SS verifies that the Emergency Service Category IE bit 7 is set to 1 and all other bits are set to 0.
16	←	CALL PROCEEDING	
17	←	ALERTING	
18	←		SS sets up the radio bearer with the rate indicated by the EMERGENCY SETUP message.
19	←	CONNECT	
20	→	CONNECT ACKNOWLEDGE	
21	UE		The DTCH is through connected in both directions. Traffic channel is kept active for at least 5 seconds.
22		Void	
23	←	DISCONNECT	
24	→	RELEASE	
25	←	RELEASE COMPLETE	
26	SS		The SS releases the RRC connection

Specific Message Contents

EMERGENCY SETUP (Step 15)

Information Element	Value/remark
Emergency Category	Bit 1 Police Bit 2 Ambulance Bit 3 Fire Brigade Bit 4 Marine Guard Bit 5 Mountain Rescue Bit 6 manually initiated eCall Bit 7 automatically initiated eCall Bit 8 Spare and set to "0" Manually initiated eCall: Bit 6 = 1, Bit 7 = 0 Automatically initiated eCall: Bit 6 = 0, Bit 7 = 1

13.3.1.7.5 Test requirements

a) In step 1 eCall UE shall make an automatically initiated Emergency eCall.

b) In step 2 eCall UE shall perform RRC procedure for network registration and Location Updating.

c) In step 3 eCall UE shall send a LOCATION UPDATING REQUEST message.

d) In step 15 eCall UE shall send an EMERGENCY SETUP message with Automatically Initiated eCall..

e) In step 21 eCall UE has through connected the DTCH in both directions.

f) In step 24, eCall UE shall release the connection.

13.3.1.8 Void

13.3.1.9 Void

13.3.1.10 eCall Inactivity State after T3243 expires

13.3.1.10.1 Definition and applicability

Applicable for all UEs supporting eCall and ‘eCall only’ subscription and capable of triggering a Test eCall.

13.3.1.10.2 Conformance Requirement

[..]

The eCall inactivity procedure is applicable only to an ‘eCall only’ mobile station (as determined by information configured in USIM). The procedure shall be started when timer T3242 or timer T3243 expires or is found to have already expired in any MM Idle state except NO IMSI, NO CELL AVAILABLE or PLMN SEARCH.

[..]

While in eCALL INACTIVE state, the mobile station maintains awareness of a potential serving cell in a potential serving network but initiates no MM signalling with the network and ignores any paging requests.

The mobile station shall leave eCALL INACTIVE state only when one of the following events occur:

[..]

-- if there is a CM request for a call to an HPLMN designated non-emergency MSISDN for the purpose of accessing test and terminal reconfiguration services: the mobile station attempts normal location updating. Once this is complete, further MM and CM procedures are used to establish the non-emergency call.

Reference(s)

3GPP TS 24.008 clause 4.4.7

13.3.1.10.3 Test purpose

1 Verify that 'eCall only' capable UE enters eCall inactivity state after T3243 expires and leaves this state only when specified events occur.

13.3.1.10.4 Method of test

Initial conditions

The 'eCall only' capable UE is equipped with 'eCall only' enabled USIM. If an eCall is to be established using emergency short codes, as specified in 24.008, then EFecc shall contain emergency short codes and associated Emergency Service Category bit 6 (MIeC) and bit 7 (AIeC) set to 1. Alternatively, AT+CECALL, as specified in TS27.007, commands may be used for test eCall initiation.

UE is in eCALL INACTIVE state

System Simulator

- 1 cell, default parameters,
- the T3212 time-out value is 252 minutes.

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Value/Remark
EF_{UST}	Service n°2 Service Dialing Numbers (FDN) and Service n°89 eCall Data available
EF_{FDN}	Last two entries of FDNs, eCall Test Number (123456) and eCall reconfiguration number (345678)
EF_{EST}	Enabled Services Table

Related ICS/IXIT statement(s)

UE supporting 'eCall only' support on the USIM yes/no

UE providing a means to trigger a test eCall yes/no

Test Procedure

a) The UE is powered on. SS monitors to verify that UE does not attempt to register for a period of 120 seconds.

b) The UE is made to initiate a test eCall in accordance with manufacturer's instructions. SS checks that UE performs registration before starting test eCall.

c) The UE, having reached the ACTIVE state, call is cleared by the SS. SS monitors to verify that UE remains registered for the duration of T3243 (12 Hours) and sends periodic LAU messages as T3212 timer is set to 252 minutes.

d) Upon expiry of timer T3243, the UE shall perform IMSI detach.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE contains test USIM with data specified under initial

			conditions. The UE is switched on.
2	SS		The SS verifies for 120 sec that the UE does not send RACH or any other message.
3	UE		UE is made to initiate a test eCall in accordance with manufacturer's instructions.
4	→		UE performs RRC procedures for network registration and Location Updating.
5	→	LOCATION UPDATING REQUEST	"LOCATION UPDATING TYPE"= Normal Location Updating
6	←	AUTHENTICATION REQUEST	IE Authentication Parameter AUTN shall be present in the message.
7	→	AUTHENTICATION RESPONSE	SRES specifies correct value.
8			SS starts security procedure.
9	←	LOCATION UPDATING ACCEPT	
10	→	TMSI REALLOCATION COMPLETE	
11			SS releases the RRC Connection.
12			UE establishes RRC procedure for conversational call. Establishment cause: originating conversational call.
13	→	CM SERVICE REQUEST	The CM service type IE indicates " originating conversational call".
14	←	AUTHENTICATION REQUEST	IE Authentication Parameter AUTN shall be present in the message.
15	→	AUTHENTICATION RESPONSE	SRES specifies correct value.
16			SS starts security procedure.
17	→	SETUP	If the Bearer capability IE is not included the default UMTS AMR speech version shall be assumed. SS verifies that the test number is sent in the SETUP message.
18	←	CALL PROCEEDING	
19	←	ALERTING	
20	←		SS sets up the radio bearer with the rate indicated by the SETUP message.
21	←	CONNECT	
22	→	CONNECT ACKNOWLEDGE	
23	UE		The DTCH is connected in both directions. Traffic channel is kept active for at least 5 seconds.
24	←	DISCONNECT	
25	→	RELEASE	
26	←	RELEASE COMPLETE	
27	SS		The SS releases the RRC Connection
28	SS		For next 12 hours SS verifies that UE sends Location Update Request periodically every 252 minutes and remains registered until T3243 expires UE performs IMSI Detach after timer T3243 expires
29	→	IMSI DETACH INDICATION	"mobile identity" contains IMSI of UE.
30	SS		The SS releases the RRC connection

13.3.1.10.5 Test requirements

a. In step 3, eCall UE shall initiate a test eCall.

b. In step 4, eCall UE shall perform RRC procedure for registration.

c. In step 5, eCall UE shall send a LOCATION UPDATING REQUEST.

d. In step 17, eCall UE shall send an SETUP message.

e. In step 23, eCall UE has through connected the DTCH in both directions.

f. In step 24, eCall UE shall disconnect.

g. In steps 28,eCall UE shall remain registered on the network for a duration of T3243 following completion of test eCall. eCall UE shall detach from network upon expiry of T3243.

h. In step 29, eCall UE shall send IMSI DETACH INDICATION

13.4 Emergency calls over IMS

13.4.1 Emergency bearer services over IMS / NORMAL-SERVICE / Success

13.4.1.1 Definition

13.4.1.2 Conformance requirement

1) The MS initiates the Service request procedure by sending a SERVICE REQUEST message. The timer T3317 shall be started after the SERVICE REQUEST message has been sent and state GMM-SERVICE-REQUEST-INITIATED is entered. The message SERVICE REQUEST shall contain the P-TMSI and the Service type shall indicate either "data", "signalling", "paging response", "MBMS multicast service reception" or "MBMS broadcast service reception". The MS shall not issue another Service request when the MS is in state GMM-SERVICE-REQUEST-INITIATED.

2) In order to request a PDP context activation, the MS sends an ACTIVATE PDP CONTEXT REQUEST message to the network, enters the state PDP-ACTIVE-PENDING and starts timer T3380. The message contains the selected NSAPI, PDP type, requested QoS and, if the MS requests a static address, the PDP address. The MS shall ensure that the selected NSAPI is not currently being used by another Session Management entity in the MS. The MS may indicate the support of Network Requested Bearer Control procedures in the protocol configuration options information element. The MS supporting S1 mode shall include interactive or background traffic class in the QoS requested. The MS not supporting S1 mode should include interactive or background traffic class in the QoS requested. If there is a subscribed QoS profile available for the MS, the network may ignore the requested QoS and apply the subscribed QoS profile (see 3GPP TS 23.060 [74]).

   The MS shall set the request type to "initial request" when the MS is establishing connectivity to an additional PDN for the first time, i.e. when it is an initial attach to that PDN. The MS shall set the request type to "handover" when the connectivity to a PDN is established upon handover from a non-3GPP access network and the MS was connected to that PDN before the handover to the 3GPP access network. If the MS is establishing connectivity for emergency bearer services it shall set the request type to "emergency" and not include an APN in the ACTIVATE PDP CONTEXT REQUEST message.

3) In order to deactivate a PDP context, the MS sends a DEACTIVATE PDP CONTEXT REQUEST message to the network enters the state PDP-INACTIVE-PENDING and starts timer T3390. The message contains the transaction identifier (TI) in use for the PDP context to be deactivated and a cause code that typically indicates one of the following causes:

   # 25: LLC or SNDCP failure (A/Gb mode only);

   # 26: insufficient resources;

   # 36: regular deactivation; or

37: QoS not accepted.

Reference

3GPP TS 24.008 clause 4.7.13, 6.1.3.1 and 6.1.3.4

13.4.1.3 Test purpose

To test the behaviour of the UE When a user requests an emergency call establishment the mobile station.

13.4.1.4 Method of test

Initial condition

System Simulator:

1 cell, default parameters.

User Equipment:

- the UE is in MM-state "GMM-REGISTERED.NORMAL-SERVICE",
- the emergency number list was send to UE with ATTACH ACCEPT message during the UE register in the cell.

Related ICS/IXIT statements

- PS Supported yes/no
- Auto Attach supported yes / no
- Method of context activation

Test procedure

1) Call the generic test procedure in TS 34.108 subclause 7.2.5.1.3 are performed to complete Generic IMS Emergency call set up procedure.
2) The UE sends a DEACTIVATE PDP CONTEXT REQUEST message to the network, The SS shall then reply with a DEACTIVATE PDP CONTEXT ACCEPT message.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1-21	-			Steps 1 to 21 of the generic test procedure in TS 34.108 subclause 7.2.5.1.3 are performed to complete Generic IMS Emergency call set up procedure.
22	UE			After the Emergency bearers service completed,the UE Initiate a context deactivation
23	→		DEACTIVATE PDP CONTEXT REQUEST	Request deactivation of the emergency PDP context.
24	←		DEACTIVATE PDP CONTEXT ACCEPT	SS accepts the emergency PDP context deactivation.

Specific message contents

None.

13.4.1.5 Test requirements

At Step 9, the UE shall transmit an ACTIVATE PDP CONTEXT REQUEST with Request type set to “emergency”.

13.4.2 Emergency bearer services over IMS / LIMITTED-SERVICE / Success

13.4.2.1 Definition

13.4.2.2 Conformance requirement

1) In state GMM-DEREGISTERED, the MS initiates the GPRS attach procedure by sending an ATTACH REQUEST message to the network, starts timer T3310 and enters state GMM-REGISTERED-INITIATED.

   If the MS is configured for "AttachWithIMSI" as specified in 3GPP TS 24.368 [135] and the selected PLMN is neither the registered PLMN nor in the list of equivalent PLMNs, the MS shall include the IMSI in the Mobile identity IE in the ATTACH REQUEST message.

   …

   If the MS is attaching for emergency bearer services and does not hold a valid GUTI, Mobile identity as described above, the IMEI shall be included in the Mobile identity IE.

   The MS shall also indicate within the DRX parameters whether it supports the split pg cycle option on CCCH. The optional support of the split pg cycle on CCCH by the network is indicated in SI13 or PSI1. Split pg cycle on CCCH is applied by both the network and the MS when the split pg cycle option is supported by both (see 3GPP TS 45.002 [32]).

   In Iu mode, if the MS wishes to prolong the established PS signalling connection after the GPRS attach procedure (for example, the MS has any CM application request pending), it may set a follow-on request pending indicator on (see subclause 4.7.13).

   An MS attaching for emergency bearer services shall set the follow-on request pending indicator.

2) During an attach for emergency bearer services, if not restricted by local regulations, the network shall not check for mobility and access restrictions, regional restrictions, subscription restrictions, or perform CSG access control when processing the ATTACH REQUEST message. The network shall not apply APN based congestion control during an attach procedure for emergency bearer services.

3) In order to request a PDP context activation, the MS sends an ACTIVATE PDP CONTEXT REQUEST message to the network, enters the state PDP-ACTIVE-PENDING and starts timer T3380. The message contains the selected NSAPI, PDP type, requested QoS and, if the MS requests a static address, the PDP address. The MS shall ensure that the selected NSAPI is not currently being used by another Session Management entity in the MS. The MS may indicate the support of Network Requested Bearer Control procedures in the protocol configuration options information element. The MS supporting S1 mode shall include interactive or background traffic class in the QoS requested. The MS not supporting S1 mode should include interactive or background traffic class in the QoS requested. If there is a subscribed QoS profile available for the MS, the network may ignore the requested QoS and apply the subscribed QoS profile (see 3GPP TS 23.060 [74]).

   The MS shall set the request type to "initial request" when the MS is establishing connectivity to an additional PDN for the first time, i.e. when it is an initial attach to that PDN. The MS shall set the request type to "handover" when the connectivity to a PDN is established upon handover from a non-3GPP access network and the MS was connected to that PDN before the handover to the 3GPP access network. If the MS is establishing connectivity for emergency bearer services it shall set the request type to "emergency" and not include an APN in the ACTIVATE PDP CONTEXT REQUEST message.

4) In order to deactivate a PDP context, the MS sends a DEACTIVATE PDP CONTEXT REQUEST message to the network enters the state PDP-INACTIVE-PENDING and starts timer T3390. The message contains the transaction identifier (TI) in use for the PDP context to be deactivated and a cause code that typically indicates one of the following causes:

   # 25: LLC or SNDCP failure (A/Gb mode only);

26: insufficient resources;

36: regular deactivation; or

37: QoS not accepted.

5) The GPRS detach procedure is used:

- to detach the IMSI for GPRS services only. Independent of the network operation mode, this procedure is used by all kind of GPRS MSs;
- as a combined GPRS detach procedure used by GPRS MSs operating in MS operation mode A or B to detach the IMSI for GPRS and non-GPRS services or for non-GPRS services only, if the network operates in network operation mode I and no circuit-switched transaction is ongoing;
- in the case of a network failure condition to indicate to the MS that a re-attach with successive activation of previously active PDP contexts shall be performed. In this case, the MS may also perform the procedures needed in order to activate any previously active multicast service(s); or
- to detach the IMSI or IMEI for emergency bearer services.

Reference

3GPP TS 24.008 clause 4.5.1.1, 4.7.3.1, 4.7.4, 6.1.3.1 and 6.1.3.4.

13.4.2.3 Test purpose

To test the behaviour of the UE When a user requests an emergency call establishment the mobile station.

13.4.2.4 Method of test

Initial condition

System Simulator:

1 cell, default parameters.

User Equipment:

- the UE is in MM-state "GMM-DEREGISTERED.LIMITED-SERVICE",

Related ICS/IXIT statements

- PS Supported yes/no
- Method of context activation

Test procedure

1) The UE is made to initiate a emergency call, and call generic procedure in TS 34.108 subclause 7.2.5.2.3 are performed to complete Generic IMS Emergency call set up procedure.
2) The UE sends a DEACTIVATE PDP CONTEXT REQUEST message to the network, The SS shall then reply with a DEACTIVATE PDP CONTEXT ACCEPT message.
3) The UE sends a DETACH REQUEST message to the SS.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1-23				Steps 1 to 23 of the generic test procedure in TS 34.108 subclause 7.2.5.2.3 are performed to complete Generic IMS Emergency call set up procedure .
24	UE			After the emergency bearers service, the UE Initiate a context deactivation
25	→		DEACTIVATE PDP CONTEXT REQUEST	Request a deactivation of a PDP context.
26	←		DEACTIVATE PDP CONTEXT ACCEPT	SS accepts the PDP context deactivation.
27	→		DETACH REQUEST	The UE send a Detach Request.
28	←		DETACH ACCEPT	SS responds with DETACH ACCEPT message as a Detach Request was transmitted by the UE.

Specific message contents

None.

13.4.2.5 Test requirements

At Step 5, the UE shall transmit an ATTACH REQUEST with Request type set to “emergency”

At Step 12, the UE shall transmit an ACTIVATE PDP CONTEXT REQUEST with Request type set to “emergency” to SS.

13.4.3 Emergency bearer services over IMS / NO-IMSI / Success

13.4.3.1 Definition

13.4.3.2 Conformance requirement

1) In state GMM-DEREGISTERED, the MS initiates the GPRS attach procedure by sending an ATTACH REQUEST message to the network, starts timer T3310 and enters state GMM-REGISTERED-INITIATED.

   If the MS is configured for "AttachWithIMSI" as specified in 3GPP TS 24.368 [135] and the selected PLMN is neither the registered PLMN nor in the list of equivalent PLMNs, the MS shall include the IMSI in the Mobile identity IE in the ATTACH REQUEST message.

   …

   If the MS is attaching for emergency bearer services and does not hold a valid GUTI, Mobile identity as described above, the IMEI shall be included in the Mobile identity IE.

   The MS shall also indicate within the DRX parameters whether it supports the split pg cycle option on CCCH. The optional support of the split pg cycle on CCCH by the network is indicated in SI13 or PSI1. Split pg cycle on CCCH is applied by both the network and the MS when the split pg cycle option is supported by both (see 3GPP TS 45.002 [32]).

   In Iu mode, if the MS wishes to prolong the established PS signalling connection after the GPRS attach procedure (for example, the MS has any CM application request pending), it may set a follow-on request pending indicator on (see subclause 4.7.13).

An MS attaching for emergency bearer services shall set the follow-on request pending indicator.

2) During an attach for emergency bearer services, if not restricted by local regulations, the network shall not check for mobility and access restrictions, regional restrictions, subscription restrictions, or perform CSG access control when processing the ATTACH REQUEST message. The network shall not apply APN based congestion control during an attach procedure for emergency bearer services.

3) In order to request a PDP context activation, the MS sends an ACTIVATE PDP CONTEXT REQUEST message to the network, enters the state PDP-ACTIVE-PENDING and starts timer T3380. The message contains the selected NSAPI, PDP type, requested QoS and, if the MS requests a static address, the PDP address. The MS shall ensure that the selected NSAPI is not currently being used by another Session Management entity in the MS. The MS may indicate the support of Network Requested Bearer Control procedures in the protocol configuration options information element. The MS supporting S1 mode shall include interactive or background traffic class in the QoS requested. The MS not supporting S1 mode should include interactive or background traffic class in the QoS requested. If there is a subscribed QoS profile available for the MS, the network may ignore the requested QoS and apply the subscribed QoS profile (see 3GPP TS 23.060 [74]).

   The MS shall set the request type to "initial request" when the MS is establishing connectivity to an additional PDN for the first time, i.e. when it is an initial attach to that PDN. The MS shall set the request type to "handover" when the connectivity to a PDN is established upon handover from a non-3GPP access network and the MS was connected to that PDN before the handover to the 3GPP access network. If the MS is establishing connectivity for emergency bearer services it shall set the request type to "emergency" and not include an APN in the ACTIVATE PDP CONTEXT REQUEST message.

4) In order to deactivate a PDP context, the MS sends a DEACTIVATE PDP CONTEXT REQUEST message to the network enters the state PDP-INACTIVE-PENDING and starts timer T3390. The message contains the transaction identifier (TI) in use for the PDP context to be deactivated and a cause code that typically indicates one of the following causes:

   # 25: LLC or SNDCP failure (A/Gb mode only);

   # 26: insufficient resources;

   # 36: regular deactivation; or

   # 37: QoS not accepted.

5) The GPRS detach procedure is used:

   - to detach the IMSI for GPRS services only. Independent of the network operation mode, this procedure is used by all kind of GPRS MSs;

   - as a combined GPRS detach procedure used by GPRS MSs operating in MS operation mode A or B to detach the IMSI for GPRS and non-GPRS services or for non-GPRS services only, if the network operates in network operation mode I and no circuit-switched transaction is ongoing;

   - in the case of a network failure condition to indicate to the MS that a re-attach with successive activation of previously active PDP contexts shall be performed. In this case, the MS may also perform the procedures needed in order to activate any previously active multicast service(s); or

   - to detach the IMSI or IMEI for emergency bearer services.

Reference

3GPP TS 24.008 clause 4.5.1.1, 4.7.3.1, 4.7.4, 6.1.3.1 and 6.1.3.4

13.4.3.3 Test purpose

To test the behaviour of the UE When a user requests an emergency call establishment the mobile station.

13.4.3.4 Method of test

Initial condition

System Simulator:

1 cell, default parameters.

User Equipment:

- the UE is in MM-state "GMM-DEREGISTERED.NO-IMSI",

Related ICS/IXIT statements

- PS Supported yes/no
- Method of context activation

Test procedure

1. The UE is made to initiate a emergency call. And call the generic test procedure in TS 34.108 subclause 7.2.5.2.3 are performed to complete Generic IMS Emergency call set up procedure .

2) The UE sends a DEACTIVATE PDP CONTEXT REQUEST message to the network, The SS shall then reply with a DEACTIVATE PDP CONTEXT ACCEPT message.

3) The UE sends a DETACH REQUEST message to the SS.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1-23				Steps 1 to 23 of the generic test procedure in TS 34.108 subclause 7.2.5.2.3 are performed to complete Generic IMS Emergency call set up procedure .
24	UE			After the emergency bearers service, the UE Initiate a context deactivation
25	→		DEACTIVATE PDP CONTEXT REQUEST	Request a deactivation of a PDP context.
26	←		DEACTIVATE PDP CONTEXT ACCEPT	SS accepts the PDP context deactivation.
27	→		DETACH REQUEST	The UE send a Detach Request.
28	←		DETACH ACCEPT	SS responds with DETACH ACCEPT message as a Detach Request was transmitted by the UE.

Specific message contents

None.

13.4.3.5 Test requirements

At Step 5, the UE shall transmit an ATTACH REQUEST with Request type set to “emergency” and Mobile identity IE is set to IMEI.

At Step 12, the UE shall transmit an ACTIVATE PDP CONTEXT REQUEST with Request type set to “emergency” to SS.

13.4.4 Emergency bearer services over IMS / NORMAL-SERVICE / Authentication not accepted by the UE and Timer 3318 expires

13.4.4.1 Definition

13.4.4.2 Conformance requirement

(f) Authentication failure (GMM cause #18 "MAC failure" or #21 "GSM authentication unacceptable")

The MS shall send an AUTHENTICATION & CIPHERING FAILURE message, with GMM cause ‘MAC failure’ or ‘GSM authentication unacceptable’ according to subclause 4.7.7.5.1, to the network and start timer T3318. Furthermore, the MS shall stop any of the retransmission timers that are running (e.g. T3310, T3321, T3330 or T3317). Upon the first receipt of an AUTHENTICATION & CIPHERING FAILURE message from the MS with GMM cause ‘MAC failure’ or ‘GSM authentication unacceptable’ the network may initiate the identification procedure described in subclause 4.7.8. This is to allow the network to obtain the IMSI from the MS. The network may then check that the P-TMSI originally used in the authentication challenge corresponded to the correct IMSI. Upon receipt of the IDENTITY REQUEST message from the network, the MS shall send the IDENTITY RESPONSE message.

…

If an MS has a PDN connection for emergency bearer services established or is establishing such a PDN connection when timer T3318 or T3320 expires, the MS shall not deem that the network has failed the authentication check and not behave as described in subclause 4.7.7.6.1. Instead the MS shall continue using the current security context, if any. The MS shall deactivate all non-emergency PDP contexts, if any, by initiating a PDP context deactivation procedure. If there is an ongoing session management procedure, the MS shall deactivate all non-emergency PDP contexts upon completion of the session management procedure. The MS shall consider itself to be attached for emergency bearer services only.

Reference

3GPP TS 24.008 clause 4.7.7.6

13.4.4.3 Test purpose

To test the behaviour of the UE When a user requests an emergency call establishment the mobile station and the authentication procedure fails due to MAC failure.

13.4.4.4 Method of test

Initial condition

System Simulator:

1 cell, default parameters.

User Equipment:

- the UE is in MM-state "PDP-ACTIVE" state,
- the emergency number list was send to UE with ATTACH ACCEPT message during the UE register in the cell.

Related ICS/IXIT statements

- PS Supported yes/no
- Auto Attach supported yes / no
- Method of context activation

Test procedure

1) The UE initiates an IMS emergency call, and call the generic test procedure in TS 34.108 subclause 7.2.5.1.3 are performed to complete Generic IMS Emergency call set up procedure.

2) The Emergency bearers service completed.

3) The network send AUTHENTICATION REQUEST with AUTN having an incorrect MAC value

4) The UE sends and AUTHENTICATION FAILURE

5) Wait until timer T3318 expires.

6) After T3318 expires the UE sends a DEACTIVATE PDP CONTEXT REQUEST message to the network.

7) The SS shall then reply with a DEACTIVATE PDP CONTEXT ACCEPT message.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1-21				Steps 1 to 21 of the generic test procedure in TS 34.108 subclause 7.2.5.1.3 are performed to complete Generic IMS Emergency call set up procedure..
22	UE			The Emergency bearers service completed.
23	←		AUTHENTICATION REQUEST	With AUTN parameter having a MAC value different from what is calculated in 34.108 clause 8.1.2.1 step 4.
24	→		AUTHENTICATION FAILURE	With reject cause "MAC failure". UE starts T3318.
25				Wait until T3318 expires than the UE initiates a context deactivation.
26	→		DEACTIVATE PDP CONTEXT REQUEST	Request deactivation of the emergency PDP context.
27	←		DEACTIVATE PDP CONTEXT ACCEPT	SS accepts the emergency PDP context deactivation.

Specific message contents

None.

13.4.4.5 Test requirements

At Step 26, the UE shall transmit a DEACTIVATE PDP CONTEXT REQUEST.

13.4.5 Authentication not accepted by the UE / Synch failure / Authentication not accepted by the UE and Timer 3320 expires

13.4.5.1 Definition

13.4.5.2 Conformance requirement

(g) Authentication failure (GMM cause #19 "Synch failure"):

The MS shall send an AUTHENTICATION & CIPHERING FAILURE message, with the GMM cause "Synch failure", to the network and start the timer T3320. Furthermore, the MS shall stop any of the retransmission timers that are running (e.g. T3310, T3321, T3330 or T3317). Upon the first receipt of an AUTHENTICATION

& CIPHERING message from the MS with the GMM cause "synch failure", the network shall use the returned AUTS parameter from the authentication & ciphering failure parameter IE in the AUTHENTICATION & CIPHERING FAILURE message, to re-synchronise. The re-synchronisation procedure requires the SGSN to delete all unused authentication vectors for that IMSI and obtain new vectors from the HLR. When re-synchronisation is complete, the network shall initiate the authentication & ciphering procedure. Upon receipt of the AUTHENTICATION & CIPHERING REQUEST message, the MS shall stop timer T3320, if running.

…

If an MS has a PDN connection for emergency bearer services established or is establishing such a PDN connection when timer T3318 or T3320 expires, the MS shall not deem that the network has failed the authentication check and not behave as described in subclause 4.7.7.6.1. Instead the MS shall continue using the current security context, if any. The MS shall deactivate all non-emergency PDP contexts, if any, by initiating a PDP context deactivation procedure. If there is an ongoing session management procedure, the MS shall deactivate all non-emergency PDP contexts upon completion of the session management procedure. The MS shall consider itself to be attached for emergency bearer services only.

Reference

3GPP TS 24.008 clause 4.7.7.6

13.4.5.3 Test purpose

To test the behaviour of the UE When a user requests an emergency call establishment the mobile station and the authentication procedure fails due to SQN failure.

13.4.5.4 Method of test

Initial condition

System Simulator:

1 cell, default parameters.

User Equipment:

- the UE is in MM-state "PDP-ACTIVE" state,
- the emergency number list was send to UE with ATTACH ACCEPT message during the UE register in the cell.

Related ICS/IXIT statements

- PS Supported yes/no
- Auto Attach supported yes / no
- Method of context activation

Test procedure

1) The UE initiates an IMS emergency call, and call the generic test procedure in TS 34.108 subclause 7.2.5.1.3 are performed to complete Generic IMS Emergency call set up procedure.

2) The Emergency bearers service completed.

3) The network send AUTHENTICATION REQUEST with AUTN having an incorrect SQN value

4) The UE sends and AUTHENTICATION FAILURE

5) Wait until timer T3320 expires.

6) After T3320 expires the UE sends a DEACTIVATE PDP CONTEXT REQUEST message to the network.

7) The SS shall then reply with a DEACTIVATE PDP CONTEXT ACCEPT message.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1-21				Steps 1 to 21 of the generic test procedure in TS 34.108 subclause 7.2.5.1.3 are performed to complete Generic IMS Emergency call set up procedure .
22	UE			The Emergency bearers service completed.
23	←		AUTHENTICATION REQUEST	with the AMF information field set to AMFRESYNCH value to trigger SQN re-synchronisation procedure in test USIM, see TS 34.108 clause 8.1.2.2.
24	→		AUTHENTICATION FAILURE	including the AUTS parameter and with the reject cause set to 'Synch failure'. UE starts T3320.
25				Wait until T3320 expires than the UE initiates a context deactivation.
26	→		DEACTIVATE PDP CONTEXT REQUEST	Request deactivation of the emergency PDP context.
27	←		DEACTIVATE PDP CONTEXT ACCEPT	SS accepts the emergency PDP context deactivation.

Specific message contents

None.

13.4.5.5 Test requirements

At Step 26, the UE shall transmit a DEACTIVATE PDP CONTEXT REQUEST.

13.4.6 Handling of Local Emergency Numbers List provided during Attach procedure

13.4.6.1 Definition

13.4.6.2 Conformance requirement

1) If the GPRS attach procedure is accepted by the network, an ATTACH ACCEPT message is sent to the MS. With this message the network may send a list of local emergency numbers, by including the Emergency Number List IE. The mobile equipment shall store the list, as provided by the network, except that any emergency number that is already stored in the SIM/USIM shall be removed from the list before it is stored by the mobile equipment. If there are no emergency numbers stored on the SIM/USIM, then before storing the received list the mobile equipment shall remove from it any emergency number stored permanently in the ME for use in this case (see 3GPP TS 22.101 [8]). The list stored in the mobile equipment shall be replaced on each receipt of a new Emergency Number List IE

2) The emergency number(s) received in the Emergency Number List IE are valid only in networks with the same MCC as in the cell on which this IE is received. If no list is contained in the ACCEPT message, then the stored list in the mobile equipment shall be kept, except if the mobile equipment has successfully registered to a PLMN with an MCC different from that of the last registered PLMN.

3) The list of emergency numbers shall be deleted at switch off and removal of the SIM/USIM. The mobile equipment shall be able to store up to ten local emergency numbers received from the network.

Reference

3GPP TS 24.008 clauses 4.7.3.1.3.

13.4.6.3 Test purpose

To verify the core requirements in the scope of the present test case:

1) Verify that with UE having Emergency numbers stored in the USIM and a Local Emergency Numbers List which were provided during the initial Attach procedure when the UE attaches again and the new network provides a new Local Emergency Numbers List then the UE replaces the old Local Emergency Numbers List with the new one.

2) Verify that when the UE needs to attach again to a network with the same MCC which does not provide Local Emergency Numbers List then the UE does not delete the old Local Emergency Numbers List.

3) Verify that when the UE needs to attach again to a network this time with a different MCC which does not provide a new Local Emergency Numbers List then the UE considers the old Local Emergency Numbers List as invalid.

13.4.6.4 Method of test

Initial condition

System Simulator:

Three cells, one from them with different MCC: cell A MCC1, cell B in MCC1, cell C in MCC2.

User Equipment:

The UE has a valid IMSI.

- USIM contains at least 1 Emergency Number (see TS 22.101 clause 10.1.1).

The UE has performed a successful attach on Cell A and then has been switched off; during the attach the SS has provided a Local Emergency Numbers List with 3 numbers EN1, EN2 and EN3 different to the number(s) on the USIM (see TS 22.101 clause 10.1.1).

Related ICS/IXIT statements

Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

1) Cell A is shut down, Cell B is powered up. The UE is switched on. The UE attaches to cell B - during the attachment the SS provides a Local Emergency Numbers List with 10 numbers different to the numbers EN1, EN2 and EN3 provided during the initial attach in the preamble. The UE is checked that it can start emergency call when any of the 10 numbers is chosen by the user, and, start a normal call if the user dials any of the numbers EN1, EN2 or EN3.

2) The UE is switched-off. Cell B is shut down, Cell A is powered up (same MCC as cell B). The UE is switched on. The UE attaches to cell A - during the attachment the SS does not provide a Local Emergency Numbers List. The UE is checked that it can start emergency call when any of the 10 numbers provided during the attachment on cell B is chosen by the user.

3) The UE is switched-off. Cell A is shut down, Cell C is powered up (different MCC in comparison to cell A). The UE is switched on. The UE attaches to cell C - during the attachment the SS does not provide a Local Emergency Numbers List. The UE is checked that it starts a normal call when any of the 10 numbers provided during the attachment on cell B is chosen by the user.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell B.
1	SS			Set the cell type of cell B to the "Serving cell". Set the cell type of cell A to the "non-suitable "Off" cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	
4	<-		AUTHENTICATION AND CIPHERING REQUEST	
5	->		AUTHENTICATION AND CIPHERING RESPONSE	
6	SS			The SS starts integrity protection.
7	<-		ATTACH ACCEPT	SS provides a Local Emergency Numbers List with 10 numbers different to the numbers EN1, EN2 and EN3 provided during the initial attach in the preamble
8	->		ATTACH COMPLETE	
9	SS			The SS releases the RRC connection.
				Steps 10 to 14 are repeated 10 times - each time with a different call number (in step 10)
10	UE			The UE is made to initiate a call using a number from the last sent by the SS local emergency list.
11	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to “emergency call".
12	->		SERVICE REQUEST	
13	<-		SERVICE REJECT	
14	SS			The SS releases the RRC connection.
				Steps 15 to 18 are repeated 3 times - each time with a different call number (in step 15)
15	UE			The UE is made to initiate a call using a number from the local emergency list sent in the ATTACH ACCEPT message in the preamble.
16	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is NOT set to “emergency call".
16	->		SERVICE REQUEST	
17	<-		SERVICE REJECT	
18	SS			The SS releases the RRC connection.
19	UE			The UE is switched off or power is removed (see ICS).

Step	Direction		Message	Comments
	UE	SS		
20	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS detach'
21	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
				The following messages are sent and shall be received on cell A.
22	SS			Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "non-suitable "Off" cell". (see note)
23-35				Steps 2 to 14 are repeated with 1 difference: - the ATTACH ACCEPT message in step 7 does not provide Local Emergency Numbers List. The UE is expected to have retained the Local Emergency Numbers provided when it attached on cell B
				The following messages are sent and shall be received on cell C.
36	SS			Set the cell type of cell C to the "Serving cell". Set the cell type of cell A to the "non-suitable "Off" cell". (see note)
37-49				Steps 2 to 14 are repeated with 2 difference: - the ATTACH ACCEPT message in step 7 does not provide Local Emergency Numbers List. - in step 11 the SS verifies that the IE "Establishment cause" is NOT set to “emergency call" - the UE is expected to have deleted the Local Emergency Numbers List.
NOTE: The definitions for "non-suitable "Off" cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

ATTACH ACCEPT (in the preamble)

Information Element	Value/remark
Emergency number list	3 numbers (TS 24.008, 10.5.3.13) The numbers shall be different than any of those indicated in TS 22.101 clause 10.1.1 AND the numbers stored in the USIM
Network feature support information element	Emergency bearer services supported in Iu mode, but not supported in A/Gb mode

ATTACH ACCEPT (Step 7)

Information Element	Value/remark
Emergency number list	10 numbers (TS 24.008, 10.5.3.13) The numbers shall be different than any of those indicated in TS 22.101 clause 10.1.1 AND the numbers stored in the USIM
Network feature support information element	Emergency bearer services supported in Iu mode, but not supported in A/Gb mode

ATTACH ACCEPT (Steps 28 and 42)

Information Element	Value/remark
Emergency number list	Not present
Network feature support information element	Emergency bearer services supported in Iu mode, but not supported in A/Gb mode

SERVICE REJECT (all steps)

Information Element	Value/remark
GMM cause	'00010110'B - Congestion

13.4.6.5 Test requirements

At step 11 the UE shall send the IE "Establishment cause" in the RRC CONNECTION REQUEST message set to "emergency call".

At step 16 the UE shall send the IE "Establishment cause" in the RRC CONNECTION REQUEST message set NOT to "emergency call".

At step 32 the UE shall send the IE "Establishment cause" in the RRC CONNECTION REQUEST message set to "emergency call".

At step 46 the UE shall send the IE "Establishment cause" in the RRC CONNECTION REQUEST message set NOT to "emergency call".

13.4.7 UE has PDN connection only for emergency bearer services / Normal routing area update / Accepted / Handling of the equivalent PLMNs list when PLMN is member of the "forbidden PLMN" list

13.4.7.1 Definition

13.4.7.2 Conformance requirement

1) If the network sends a list of "equivalent PLMNs" in the ROUTING AREA UPDATE ACCEPT message when there is a PDN connection for emergency bearer services established, the MS shall not remove from the list of "equivalent PLMNs" any PLMN code that is already in the "forbidden PLMN" list and even such. PLMNs shall be regarded as equivalent to the others for PLMN selection, cell selection/re-selection and handover.

2) If the network sends a list of "equivalent PLMNs" in the ROUTING AREA UPDATE ACCEPT message when there is a PDN connection for emergency bearer services established, the MS shall remove from the list of "equivalent PLMNs" any PLMN code present in the "forbidden PLMN" list when the PDN connection for emergency bearer services is released.

Reference

3GPP TS 24.008 clause 4.7.5.1.3.

13.4.7.3 Test purpose

To verify the core requirements in the scope of the present test case:

1) Verify that with UE having established a PDN connection for emergency bearer services when the UE moves to another routing area and receives a list of equivalent PLMNs in the ROUTING AREA UPDATE ACCEPT message which includes a PLMN which is on the UE list with forbidden PLMNs then the UE stores the received list of equivalent PLMNs not removing from the list the forbidden PLMN and being capable to move to this PLMN if it becomes the strongest (or the only one available

2) Verify that after the PDN connection for the emergency bearer services is released then the UE removes from the list of equivalent PLMNs any PLMN code present in the list of forbidden PLMNs.

13.4.7.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC1/RAC2 (RAI-7).
The PLMN of cell C is equivalent to the PLMN of cell A and cell B.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid IMSI.

- USIM contains at least 1 Emergency Number (see TS 22.101 clause 10.1.1).
- PLMN of cell C is in the UE's list with forbidden PLMNs

The UE has PDN connection only for emergency bearer services.

Related ICS/IXIT statements

-

Test procedure

1) The UE moves to cell B and sends a ROUTING AREA UPDATE REQUEST message. The SS returns ROUTING AREA UPDATE ACCEPT message with a list with equivalent PLMNs which contains the cell C PLMN - this PLMN being set as forbidden PLMN in the UE's list with forbidden PLMNs. The UE stores the new list without altering it.

2) Cell C is made as the only suitable cell. Although the cell C PLMN is in the list of forbidden PLMNs the UE moves to cell C and does RAU.

3) Cell A is made available as a "Suitable cell", cell C is not changed. The UE is requested to disconnection (release) from the emergency PDN. The UE is expected to camp on cell A although cell C is stronger - this proving that after the release the PLMN of cell C was removed from the list with equivalent PLMNs.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell B.
1		SS		Set the cell type of cell B to the "Serving cell". Set the cell type of cell A to the "non-suitable "Off" cell". (see note)
2	->		ROUTING AREA UPDATE REQUEST	
3	<-		ROUTING AREA UPDATE ACCEPT	Equivalent PLMNs = MCC2, MNC1
4	->		ROUTING AREA UPDATE COMPLETE	
5		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell C.
6		SS		Set the cell type of cell C to the "Serving cell". Set the cell type of cell B to the "non-suitable "Off" cell". (see note)
7	->		ROUTING AREA UPDATE REQUEST	
8	<-		ROUTING AREA UPDATE ACCEPT	
9		SS		The SS releases the RRC connection.
10		SS		Set the cell type of cell A to the "Suitable neighbour cell". Keep the cell type of cell C to the "Serving cell". (see note)
11	UE			Cause the UE to request disconnection from the emergency PDN
12	->		DEACTIVATE PDP CONTEXT REQUEST	
13	<-		DEACTIVATE PDP CONTEXT ACCEPT	
				The following messages are sent and shall be received on cell A.
				The UE needs time to realise that the Emergency PDN was deactivated, to remove the PLMN code of the PLMN on Cell C from its equivalent PLMNs list and look for another PLMN although the Cell C has the better signal
14				Verify that the result from generic procedure C.1 shows that UE has camped on cell A
NOTE: The definitions for "Suitable neighbour cell", "non-suitable "Off" cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Specific message contents

ROUTING AREA UPDATE ACCEPT (step 3)

Information Element	Value/remark
Equivalent PLMNs	Includes MCC1 and MNC1 digits for the cell C PLMN

13.4.7.5 Test requirements

At step 7 the UE shall send the ROUTING AREA UPDATE REQUEST on cell C.

At step 14 the UE shall camp on cell A.

13.4.8 Handling of Local Emergency Numbers List provided during normal Routing area update procedure

13.4.8.1 Definition

13.4.8.2 Conformance requirement

1) If the GPRS normal Routing area update procedure is accepted by the network, a ROUTING AREA ACCEPT message is sent to the MS. With this message the network may send a list of local emergency numbers, by including the Emergency Number List IE. The mobile equipment shall store the list, as provided by the network, except that any emergency number that is already stored in the SIM/USIM shall be removed from the list before it is stored by the mobile equipment. If there are no emergency numbers stored on the SIM/USIM, then before storing the received list the mobile equipment shall remove from it any emergency number stored permanently in the ME for use in this case (see 3GPP TS 22.101 [8]). The list stored in the mobile equipment shall be replaced on each receipt of a new Emergency Number List IE

2) The emergency number(s) received in the Emergency Number List IE are valid only in networks with the same MCC as in the cell on which this IE is received. If no list is contained in the ROUTING AREA ACCEPT message, then the stored list in the mobile equipment shall be kept, except if the mobile equipment has successfully registered to a PLMN with an MCC different from that of the last registered PLMN.

3) The list of emergency numbers shall be deleted at switch off and removal of the SIM/USIM. The mobile equipment shall be able to store up to ten local emergency numbers received from the network.

Reference

3GPP TS 24.008 clauses 4.7.5.1.3.

13.4.8.3 Test purpose

To verify the core requirements in the scope of the present test case:

1) Verify that with UE having Emergency numbers stored in the USIM and a Local Emergency Numbers List which were provided during the initial Attach procedure when the UE performs a normal RAU and the new network provides a new Local Emergency Numbers List then the UE replaces the old Local Emergency Numbers List with the new one.

2) Verify that when the UE performs a normal RAU to a network with the same MCC which does not provide Local Emergency Numbers List then the UE does not delete the old Local Emergency Numbers List.

3) Verify that when the UE performs a normal RAU to a network this time with a different MCC which does not provide a new Local Emergency Numbers List then the UE considers the old Local Emergency Numbers List as invalid.

13.4.8.4 Method of test

Initial condition

System Simulator:

Three cells with different RAI, one from them with different MCC: cell A in MCC1/RAC1 (RAI-1), cell B in MCC1/RAC2 (RAI-4), cell C in MCC2/RAC2 (RAI-7).

- NMO I

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid IMSI.

- USIM contains at least 1 Emergency Number (see TS 22.101 clause 10.1.1).

The UE has performed a successful attach on Cell A and then has been switched off; during the attach the SS has provided a Local Emergency Numbers List with 3 numbers EN1, EN2 and EN3 different to the number(s) on the USIM (see TS 22.101 clause 10.1.1).

Related ICS/IXIT statements

-

Test procedure

1) Cell B is set to "Serving cell", Cell A is set to "non-suitable "Off" cell". The UE performs normal RAU to cell B - during the LAU the SS provides a Local Emergency Numbers List with 10 numbers different to the numbers EN1, EN2 and EN3 provided during the initial attach in the preamble. The UE is checked that it can start emergency call when any of the 10 numbers is chosen by the user, and, start a normal call if the user dials any of the numbers EN1, EN2 or EN3.

2) Cell A is set to "Serving cell", Cell B is set to "non-suitable "Off" cell". The UE performs normal RAU to cell B - during the LAU the SS does not provide a Local Emergency Numbers List. The UE is checked that it can start emergency call when any of the 10 numbers provided during the attachment on cell B is chosen by the user.

3) Cell C is set to "Serving cell", Cell A is set to "non-suitable "Off" cell". The UE performs normal RAU to cell C - during the LAU the SS does not provide a Local Emergency Numbers List. The UE is checked that it starts a normal call when any of the 10 numbers provided during the attachment on cell B is chosen by the user.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell B.
1		SS		Set the cell type of cell B to the "Serving cell". Set the cell type of cell A to the "non-suitable "Off" cell". (see note)
2	->		ROUTING AREA UPDATE REQUEST	
3		SS		The SS starts integrity protection.
4	<-		ROUTING AREA UPDATE ACCEPT	SS provides a Local Emergency Numbers List with 10 numbers different to the numbers EN1, EN2 and EN3 provided during the initial attach in the preamble
5		SS		The SS releases the RRC connection.
				Steps 6 to 10 are repeated 10 times - each time with a different call number (in step 6)
6	UE			The UE is made to initiate a call using a number from the local emergency list sent in the ROUTING AREA UPDATE ACCEPT message in step 4.
7		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to “emergency call".
8	->		SERVICE REQUEST	
9	<-		SERVICE REJECT	
10		SS		The SS releases the RRC connection.
				Steps 11 to 15 are repeated 3 times - each time with a different call number (in step 11)
11	UE			The UE is made to initiate a call using a number from the local emergency list sent in the ATTACH ACCEPT message in the preamble.
12		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is NOT set to “emergency call".
13	->		SERVICE REQUEST	
14	<-		SERVICE REJECT	
15		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell A.
16		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "non-suitable "Off" cell". (see note)

Step	Direction		Message	Comments
	UE	SS		
17-25				Steps 2 to 10 are repeated with 1 difference: - the ROUTING AREA UPDATE ACCEPT message in step 4 does not provide Local Emergency Numbers List. The UE is expected to have retained the Local Emergency Numbers provided when it attached on cell B
				The following messages are sent and shall be received on cell C.
26	SS			Set the cell type of cell C to the "Serving cell". Set the cell type of cell A to the "non-suitable "Off" cell". (see note)
27-35				Steps 2 to 10 are repeated with 2 differences: - the ROUTING AREA UPDATE ACCEPT message in step 4 does not provide Local Emergency Numbers List. - in step 7 the SS verifies that the IE "Establishment cause" is NOT set to “emergency call" - the UE is expected to have deleted the Local Emergency Numbers List.
NOTE: The definitions for "non-suitable "Off" cell" and "Serving cell" are specified in TS34.108 clause 6.1 in the relevant to the RAT of the cells "Reference Radio Conditions" subclauses.				

Note: The present TC's expected sequence is very similar to the expected sequence of TC 13.4.6 with the difference being that the ATTACH procedure in TC13.4.6 is replaced in the present TC with normal RAU procedure.

Specific message contents

ATTACH ACCEPT (in the preamble)

Information Element	Value/remark
Emergency number list	3 numbers (TS 24.008, 10.5.3.13) The numbers shall be different than any of those indicated in TS 22.101 clause 10.1.1 AND the numbers stored in the USIM
Network feature support information element	Emergency bearer services supported in Iu mode, but not supported in A/Gb mode

the ROUTING AREA UPDATE ACCEPT (Step 4)

Information Element	Value/remark
Emergency number list	10 numbers (TS 24.008, 10.5.3.13) The numbers shall be different than any of those indicated in TS 22.101 clause 10.1.1 AND the numbers stored in the USIM

the ROUTING AREA UPDATE ACCEPT (Steps 19 and 29)

Information Element	Value/remark
Emergency number list	Not present
Network feature support information element	Emergency bearer services supported in Iu mode, but not supported in A/Gb mode

SERVICE REJECT (all steps)

Information Element	Value/remark
GMM cause	'00010110'B - Congestion

13.4.8.5 Test requirements

At step 7 the UE shall send the IE "Establishment cause" in the RRC CONNECTION REQUEST message set to "emergency call".

At step 12 the UE shall send the IE "Establishment cause" in the RRC CONNECTION REQUEST message set NOT to "emergency call".

At step 22 the UE shall send the IE "Establishment cause" in the RRC CONNECTION REQUEST message set to "emergency call".

At step 32 the UE shall send the IE "Establishment cause" in the RRC CONNECTION REQUEST message set NOT to "emergency call".

13.4.9 Attach for emergency bearer services / Rejected / No suitable cells in location area / Emergency call using the CS domain

13.4.9.1 Definition

This test case is applicable to Rel-9 or later UEs that support IMS emergency services and establishing the emergency call using the CS domain in case the attach request for emergency bearer services cannot be accepted by the network.

13.4.9.2 Conformance requirement

If the attach request for emergency bearer services cannot be accepted by the network, an ATTACH REJECT message is transferred to the MS. The ATTACH REJECT message includes GMM cause #5 "IMEI not accepted" or one of the GMM cause values as described in subclause 4.7.3.1.4.

Upon receiving the ATTACH REJECT message including GMM cause #5, the MS shall enter the state GMM-DEREGISTERED.NO-IMSI.

Upon receiving the ATTACH REJECT message including one of the other GMM cause values, the MS shall perform the actions as described in subclause 4.7.3.1.4 with the following addition: upon request from upper layers a CS voice capable MS may establish the emergency call using the CS domain.

Reference

TS 24.008 clause 4.7.3.1.4a

13.4.9.3 Test purpose

To verify that the UE will establish the emergency call using the CS domain after its attach request for emergency bearer services was rejected with GMM cause “No Suitable Cells in Location Area".

13.4.9.4 Method of test

Initial condition

System Simulator:

- 1 cell, default parameters.

User Equipment:

- The UE is in state “MM idle” with valid TMSI and CKSN.

- The UE is not attached for emergency bearer services.

Related ICS/IXIT statements

- UE supports IMS emergency services yes/no
- UE supports establishing the emergency call using the CS domain if the attach request for emergency bearer services cannot be accepted by the network yes/no

Test Procedure

a) The UE is caused to originate a call to send user data related to emergency call.

b) The UE transmits an ATTACH REQUEST message for emergency bearer services.

c) The attach request for emergency bearer services is rejected by the SS with cause #15 “No Suitable Cells In Location Area”.

d) The RRC Connection is released.

e) If the UE supports establishing the emergency call using the CS domain upon receiving the ATTACH REJECT message with cause #15, the UE initiates a CS emergency call.

f) The CS emergency call is set up.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is caused to originate a call to send user data related to Emergency call.
2	-->		ATTACH REQUEST	The UE transmits an ATTACH REQUEST message to attach for emergency bearer services.
3	<--		ATTACH REJECT	The SS transmits an ATTACH REJECT message, EMM cause = “No Suitable Cells In Location Area”.
4	<--		RRC CONNECTION RELEASE	
5	-->		RRC CONNECTION RELEASE COMPLETE	
6	-->		RRC CONNECTION REQUEST	Within [60] sec of Step 5, the UE transmits an RRC CONNECTION REQUEST message with Establishment cause: Emergency Call.
7	<--		RRC CONNECTION SETUP	
8	-->		RRC CONNECTION SETUP COMPLETE	
9	-->		CM SERVICE REQUEST	The UE transmits a CM SERVICE REQUEST with CM service type IE indicating “Emergency call establishment”,
10	<--		AUTHENTICATION REQUEST	
11	-->		AUTHENTICATION RESPONSE	
12	-->		EMERGENCY SETUP	
13-17	-		-	Steps 11 to 15 of the generic test procedure in TS 34.108 subclause 7.2.3.2.3 are performed to complete the CS call setup.

Specific Message Contents

None.

13.4.9.5 Test requirements

Within [60] sec of Step 5, the UE shall transmit an RRC CONNECTION REQUEST with Establishment cause: Emergency Call.

At Step 9, the UE shall transmit a CM SERVICE REQUEST with CM service type IE indicating “Emergency call establishment”.

At Step 12, the UE shall transmit an EMERGENCY SETUP message.

13.4.10 Emergency bearer services / CSG cell / LIMITED-SERVICE / Attach / Security mode control procedure without prior authentication / PDN connect / Service request / PDN disconnect / Detach upon UE switched off / Temporary storage of GMM information

13.4.10.1 Definition

This test case is applicable to Rel-9 or later UEs that support IMS emergency services.

13.4.10.2 Conformance requirement

When the GPRS capability in an activated MS has been enabled, the selection of the GMM-DEREGISTERED substate depends on the MM state and the GPRS update status.

The substate chosen after PLMN-SEARCH, in case of power on or after enabling of the GPRS capability is:

- if the cell is not supporting GPRS, the substate shall be NO-CELL-AVAILABLE;
- if no SIM/USIM is present the substate shall be NO-IMSI;
- if a suitable cell supporting GPRS has been found and the PLMN or LA is not in the forbidden list, then the substate shall be NORMAL-SERVICE;
- if the selected cell supporting GPRS is in a forbidden PLMN, is in a forbidden LA, or is a CSG cell with a CSG ID that is not in Allowed CSG list or in the Operator CSG list stored in the MS , then the MS shall enter the substate LIMITED-SERVICE;
- if the MS is in manual network selection mode and no cell supporting GPRS of the selected PLMN has been found, the MS shall enter the substate NO-CELL-AVAILABLE.

...

The MS:

- shall initiate GPRS attach when a cell is entered which may provide normal service (e.g. location area is not in one of the forbidden lists); and
- may initiate GPRS attach for emergency bearer services (UTRAN Iu mode only).

...

After the completion of application for which the emergency services were invoked, in order to regain normal services, an MS attached for emergency bearer services may perform a detach procedure, followed by a subsequent re-attach, if the MS moves to a new cell that provides normal service.

In A/Gb mode, if the GPRS detach procedure is performed, the PDP contexts and the MBMS contexts, if any, are deactivated locally without peer to peer signalling between the SM and LLC entities in the MS and the network.

In Iu mode, if the GPRS detach procedure is performed, the PDP contexts and the MBMS contexts, if any, are deactivated locally without peer to peer signalling between the SM entities in the MS and the network.

...

If the SERVICE REQUEST message was sent in PMM-CONNECTED mode, then the reception of the SERVICE ACCEPT message shall be treated as a successful completion of the procedure. The timer T3317 shall be stopped and the MS remains in PMM-CONNECTED mode.

If the SERVICE REQUEST message was sent in a CSG cell and the CSG subscription has expired or was removed for a MS, but the MS has a PDN connection for emergency bearer services established, the network shall accept the SERVICE REQUEST message and deactivate all non-emergency PDP contexts by initiating PDP context deactivation procedure. The PDP contexts for emergency services shall not be deactivated.

...

The last GPRS attach or routing area updating attempt was correctly performed, but the answer from the network was negative (because of roaming or subscription restrictions).

In this case, the SIM/USIM may contain the RAI of the routing area (RA) to which the subscriber was attached, and possibly also a valid P-TMSI, GPRS GSM ciphering key, GPRS UMTS ciphering key, GPRS UMTS integrity key or GPRS ciphering key sequence number. For compatibility reasons, all these fields shall be set to the value "deleted" if the RAI is deleted. However, the presence of other values shall not be considered an error by the MS. Furthermore, if the ME supports any GEA ciphering algorithm that requires a 128-bit ciphering key and a USIM is in use, then the ME shall delete the GPRS GSM Kc_{128} stored if the RAI is deleted.

If the MS is attached for emergency bearer services, the MS shall not store the GMM parameters described in this subclause on the SIM/USIM or in non-volatile memory. Instead the MS shall temporarily store these parameters locally in the ME and the MS shall delete these parameters when the MS is detached.

...

For emergency call establishment and re-establishment the mobile station shall select the mobile identity type with the following priority:

1- TMSI: The TMSI shall be used if it is available and if the location update status is UPDATED, and the stored LAI is equal to the one received on the BCCH from the current serving cell.

2- IMSI: The IMSI shall be used in cases where no TMSI is available or TMSI is available but either the update status is different from UPDATED, or the stored LAI is different from the one received on the BCCH from the current serving cell.

3- IMEI: The IMEI shall be used in cases where no SIM/USIM is available or the SIM/USIM is considered as not valid by the mobile station or no IMSI or TMSI is available.

...

If an MS has a PDN connection for emergency bearer services established or is establishing such a PDN connection when timer T3318 or T3320 expires, the MS shall not deem that the network has failed the authentication check and not behave as described in subclause 4.7.7.6.1. Instead the MS shall continue using the current security context, if any. The MS shall deactivate all non-emergency PDP contexts, if any, by initiating a PDP context deactivation procedure. If there is an ongoing session management procedure, the MS shall deactivate all non-emergency PDP contexts upon completion of the session management procedure. The MS shall consider itself to be attached for emergency bearer services only.

Reference

TS 24.008 clauses 4.2.4.1.1, 4.2.4.2.3, 4.7.4, 4.7.13.3, 4.1.3.2, 10.5.1.4, 10.5.1.4

13.4.10.3 Test purpose

To verify that when the user originates a call to send user data related to Emergency call:

1) the UE performs an Attach for emergency bearer on non-Allowed CSG cell if only suitable cell is non-allowed CSG cell,

2) the UE transmits a SERVICE REQUEST on the non-allowed CSG cell.

3) Upon detach, the UE deletes the GMM parameters stored temporarily while attached for emergency bearer services.

13.4.10.4 Method of test

Initial condition

System Simulator:

- Cell 1, Serving non CSG cell, default parameters
- Cell 2, CSG cell

User Equipment:

- The UE is in state “MM idle” with valid TMSI and CKSN.
- The UE is not attached for emergency bearer services.
- If pc_CSG, then UE has Allowed CSG list empty.

Related ICS/IXIT statements

- UE supports IMS emergency services yes/no

Test Procedure

a) The serving cell Cell 1 is switched off and Cell 2 is set as Serving cell.

a) After [2] min the UE is caused to originate a call to send user data related to emergency call on the CSG cell.

c) The UE transmits an ATTACH REQUEST message for emergency bearer services.

d) The attach request procedure for emergency bearer services is completed.

e) The RRC Connection is released.

f) The UE transmits a SERVICE REQUEST.

g) The UE transmits an ACTIVATE PDP CONTEXT REQUEST with Request type set to “emergency”.

h) Radio Access Bearer is set up.

i) The SS transmits an ACTIVATE PDP CONTEXT ACCEPT.

j) The UE is switched off.

k) The UE transmits a DETACH REQUEST

l) Cell 2 is switched off and Cell 1 is set as Serving cell.

m) The UE is switched on.

n) The UE transmits an ATTACH REQUEST message.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	SS			Set the cell type of Cell 1 to the "Non-suitable off cell". Set the cell type of Cell 2 to the "Serving cell".
2	SS			SS waits for [2] min to ensure the UE is in limited service on Cell 2.
3	UE			The UE is caused to originate a call to send user data related to Emergency call.
4	-->		ATTACH REQUEST	The UE transmits an ATTACH REQUEST message to attach for emergency bearer services.
5	<--		ATTACH ACCEPT	
6	-->		ATTACH COMPLETE	
7	SS			The SS releases the RRC connection.
8	-->		SERVICE REQUEST	
9	-->		ACTIVATE PDP CONTEXT REQUEST	The UE transmits an ACTIVATE PDP CONTEXT REQUEST message with Request type set to “emergency”
10	SS			Radio Access Bearer is set up.
11	<--		ACTIVATE PDP CONTEXT ACCEPT	
12	UE			The UE is switched off or power is removed
13	-->		DETACH REQUEST	The UE transmits a DETACH REQUEST containing cause "power off".
14	SS			Set the cell type of cell 1 to the "Serving cell". Set the cell type of cell 2 to the "Non-suitable off cell".
15	UE			The UE is switched on.
16	-->		ATTACH REQUEST	The UE transmits an ATTACH REQUEST message

Specific Message Contents

None.

13.4.10.5 Test requirements

At Step 4, the UE shall transmit an ATTACH REQUEST with Request type set to “emergency” on Cell 2.

At Step 8, the UE shall transmit a SERVICE REQUEST on Cell 2.

At Step 9, the UE shall transmit an ACTIVATE PDP CONTEXT REQUEST with Request type set to “emergency” on Cell 2.

At Step 16, the UE shall transmit an ATTACH REQUEST on Cell 1 with GMM parameters not reflecting previous ATTACH on cell 2.

14 Interoperability Radio Bearer Tests

14.1 General information for interoperability radio bearer tests

The purpose of the interoperability radio bearer test cases are to ensure interoperability of UE's in different regions and networks. For this purpose representative radio bearer configurations that will be used in real network implementations have been defined in TS 34.108 [9], clause 6.10.

The applicability of radio bearer tests is dependent on the UE uplink and downlink radio access capabilities and UE support tele- and bearer-services. See TS 34.123-2, annex B for applicability of the specific test cases.

For radio bearer combinations which are representative to multiple traffic classes, such as “Interactive or Background”, “Streaming or Interactive or Background” etc, then it is only required to execute the radio bearer test procedure once using one of the applicable traffic class for the UE under test.

NOTE: As the purpose of the radio bearer test cases is to functionally verify that the UE is able to establish the radio bearer combination, and to verify correct data transfer using the different transport formats, then the necessary test coverage is achieved by perfoming the radio bearer test procedure once for one of the applicable traffic classes.

14.1.1 Generic radio bearer test procedure for single RB configurations

This procedure is used to test single radio bearer configurations and speech only radio bearers. For testing of multiple radio bearer combinations as well as for testing simultaneous transmission and reception of user data and signalling data then the procedure as specified in 14.1.2 should be used.

Initial conditions

UE in idle mode

Test procedure

- a) The SS establish setup the reference radio bearer configuration as specified in TS 34.108, clause 6.10 for the actual radio bearer test.
- b) The SS limits the UE allowed uplink transport format combinations according to the "Restricted UL TFCIs", as specified for the sub-test of the actual radio bearer test, using the RRC transport format combination control procedure. See note 1.
- c) The SS closes the test loop using UE test loop mode 1 and setting the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test. See note 2.
- d) The SS transmits, for all radio bearers under test, one or more RLC SDUs having the size equal to the "Test data size" as specified for the sub-test of the actual radio bearer test. See note 3.
- e) The SS checks that, for all radio bearers under test, the content of the received RLC SDU has the correct content and is received having the correct transport format. See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loopback of RLC SDUs.
- f) The SS opens the UE test loop.
- g) Steps b) to f) are repeated for all sub-tests
- h) The SS may optionally release the radio bearer.
- i) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The restricted set of TFCIs shall contain all possible TFCI that could happen in a sub-test. The actual TTI of the different radio bearers and signalling radio bearers as well as the possible UE processing delays shall be taken into consideration. The restricted set of TFCIs must comply with the minimum set of TFCIs as specified in TS 25.331, clause 8.6.5.2. This message is transmitted only for cell DCH state.

NOTE 2: Selection of UL RLC SDU size parameter:
For the case when the reference radio bearer configuration under test uses RLC transparent mode in downlink and is not configured for segmented operation then the radio bearer test case shall set the UL RLC SDU size equal to the UL RLC PDU size. See [7] TS 25.322 for details regarding UE operation in RLC transparent mode. In case the reference radio bearer configuration under test does not use RLC transparent mode then the UL RLC SDU size parameter shall be selected to achieve loop back of all test data received in the DL RLC SDU, i.e. the UL RLC SDU size is set to the nearest multiple of the payload size of the UL TF under test minus the size of the length indicator and expansion bit which is equal or bigger than the test data size. For some reference radio bearer configurations this may cause the UE to return the UL RLC SDU in more than one TTI, i.e. in case no UL TF is available to cover the UL RLC SDU size. However, as the test procedure only send downlink test data once there is no risk for the UE transmission buffer to become full even if the returned RLC SDUs need to be transmitted in more than one TTI.

NOTE 3: Selection of test data size:
For the case when the reference radio bearer configuration under test uses RLC transparent mode in downlink and is not configured for segmented operation then the radio bearer test case shall use a DL RLC SDU size (defined by the "Test data size" parameter) equal to the DL RLC PDU size. See [7] TS 25.322 for details regarding UE operation in RLC transparent mode. In case the reference radio bearer configuration under test does not use RLC transparent mode in downlink, the DL RLC SDU size/ test data size shall be set equal to the payload size of the DL TF under test minus the size of the length indicator and the expansion bit.

Expected sequence

CS paging procedure

Step	Direction		Message	Comments
	UE	SS		
1	**<--**		SYSTEM INFORMATION (BCCH)	Broadcast
2	**<--**		PAGING TYPE 1 (PCCH)	Paging (CS domain, TMSI)
3	**-->**		RRC CONNECTION REQUEST (CCCH)	RRC
4	**<--**		RRC CONNECTION SETUP (CCCH)	RRC
5	**-->**		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6	**-->**		PAGING RESPONSE (DCCH)	RR
6a	**<--**		AUTHENTICATION REQUEST	
6b	**-->**		AUTHENTICATION RESPONSE	
6c	**<--**		SECURITY MODE COMMAND	
6d	**-->**		SECURITY MODE COMPLETE	

PS paging procedure

Step	Direction		Message	Comments
	UE	SS		

Step	Direction		Message	Comments
	UE	SS		
1	**<--**		SYSTEM INFORMATION (BCCH)	Broadcast
2	**<--**		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	**-->**		RRC CONNECTION REQUEST (CCCH)	RRC
4	**<--**		RRC CONNECTION SETUP (CCCH)	RRC
5	**-->**		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6a	**-->**		SERVICE REQUEST (DCCH)	GMM
6b	**<--**		SECURITY MODE COMMAND	RRC see note 1
6c	**-->**		SECURITY MODE COMPLETE	RRC see note 1

NOTE 1: In addition to activate integrity protection Step 6b and Step 6c are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.

Step	Direction		Message	Comments
	UE	SS		
1..6	**<--** **-->**		Paging	Use the CS paging procedure for testing of CS and combined CS/PS reference radio bearer configurations. Use the PS paging procedure for testing of PS reference radio bearer configurations.
7	**<--**		ACTIVATE RB TEST MODE (DCCH)	TC
8	**-->**		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
9	**<--**		RADIO BEARER SETUP (DCCH)	RRC. Channelization code must be set to SF – 1 for the DL DPCH configured. Channelization code must be set to SF – 1 for the DL DPCH configured. Secondary Scrambling Code IE must be omitted. For the PS radio bearer the 'pdcp info' IE must be omitted.
10	**-->**		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
11	**<--**		TRANSPORT FORMAT COMBINATION CONTROL (DCCH)	RRC Transport format combinations is limited to "Restricted UL TFCIs", as specified for the sub-test See Note 1
12	**<--**		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
13	**-->**		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
14	**<--**		DOWNLINK RLC SDU	Send test data using the downlink transport format combination under test
15	**-->**		UPLINK RLC SDU	
16	**<--**		OPEN UE TEST LOOP (DCCH)	TC
17	**-->**		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
18			Repeat steps 11 to 17 for every sub-test.	
19			RB RELEASE	RRC Optional step
20	**<--**		DEACTIVATE RB TEST MODE	TC Optional step
21	**-->**		DEACTIVATE RB TEST MODE COMPLETE	TC Optional step
Note 1: TRANSPORT FORMAT COMBINATION CONTROL message is transmitted only for cell DCH state.				

14.1.1a Generic radio bearer test procedure for standalone AMR RB configurations using SRB#5 for TFC control

This procedure is used to test single AMR radio bearer configurations that use SRB#5 for TFC control.

Initial conditions

UE in idle mode

Test procedure

- a) The SS establish the AMR reference radio bearer configuration as specified in TS 34.108, clause 6.10 for the actual radio bearer test. As part of the RADIO BEARER SETUP the TFC subsets as defined for the actual radio bearer configuration is setup.
- b) The SS signals the “TFC subset identity” in the TRANSPORT FORMAT COMBINATION CONTROL message on SRB#5 as specified for the sub-test of the actual AMR radio bearer test. See note 1.
- c) The SS closes the test loop using UE test loop mode 1 and setting the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test. See note 2.
- d) The SS transmits, for all radio bearers under test, one or more RLC SDUs having the size equal to the "Test data size" as specified for the sub-test of the actual radio bearer test. See note 3.
- e) The SS checks that, for all radio bearers under test, the content of the received RLC SDU has the correct content and is received having the correct transport format. See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loopback of RLC SDUs.
- f) The SS opens the UE test loop.
- g) Steps b) to f) are repeated for all sub-tests
- h) The SS may optionally release the radio bearer.
- i) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The TFC subset associated with the signalled “TFC subset identity” in the TRANSPORT FORMAT COMBINATION CONTROL message is defined by the actual AMR reference radio bearer under test.

NOTE 2: Selection of UL RLC SDU size parameter:
The UL RLC SDU size parameter is set equal to the UL RLC PDU size.

NOTE 3: Selection of test data size:
The test data size is set equal to the DL RLC PDU size.

Expected sequence

CS paging procedure

Step	Direction		Message	Comments
	UE	SS		

Step	Direction		Message	Comments
	UE	SS		
1	**<--**		SYSTEM INFORMATION (BCCH)	Broadcast
2	**<--**		PAGING TYPE 1 (PCCH)	Paging (CS domain, TMSI)
3	**-->**		RRC CONNECTION REQUEST (CCCH)	RRC
4	**<--**		RRC CONNECTION SETUP (CCCH)	RRC
5	**-->**		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6	**-->**		PAGING RESPONSE (DCCH)	RR
6a	**<--**		AUTHENTICATION REQUEST	
6b	**-->**		AUTHENTICATION RESPONSE	
6c	**<--**		SECURITY MODE COMMAND	
6d	**-->**		SECURITY MODE COMPLETE	
7	**<--**		ACTIVATE RB TEST MODE (DCCH)	TC
8	**-->**		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
9	**<--**		RADIO BEARER SETUP (DCCH)	RRC. TRANSPORT FORMAT COMBINATION CONTROL message on SRB#5 are setup as part of the RADIO BEARER SETUP message.
10	**-->**		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
11	**<--**		TRANSPORT FORMAT COMBINATION CONTROL message	SRB#5, includes the TFS subset identity IE
12	**<--**		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
13	**-->**		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
14	**<--**		DOWNLINK RLC SDU	Send test data using the downlink transport format combination under test
15	**-->**		UPLINK RLC SDU	
16	**<--**		OPEN UE TEST LOOP (DCCH)	TC
17	**-->**		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
18			Repeat steps 11 to 17 for every sub-test.	
19			RB RELEASE	RRC Optional step
20	**<--**		DEACTIVATE RB TEST MODE	TC Optional step
21	**-->**		DEACTIVATE RB TEST MODE COMPLETE	TC Optional step

14.1.2 Generic test procedure for testing multi-RB combinations and simultaneous signalling

This procedure is used to test multiple radio bearer combinations. This procedure is also used to verify simultaneous transmission and reception of user data and signalling data.

Initial conditions

UE in idle mode

Test procedure

- a) The SS establish the reference radio bearer configuration as specified in TS 34.108, clause 6.10 for the actual radio bearer test. For the case when the reference radio bearer configuration includes radio bearers for both CS and PS domain then the radio bearer setup procedure has to be performed once per domain. The first radio bearer setup procedure shall perform configuration of the physical channel for the radio bearer combination under test as well as the transport channels for the CS radio bearer(s),also the transport format combination set for only CS radio bearers has

to provided. The second radio bearer procedure shall perform the configuration for the transport channel for the PS radio bearers . The Physical channel configuration shall be done for both CS and PS radio bearers combined. Here the transport format combination set for both CS and PS radio bearers shall be provided.

- b) The SS limits the UE allowed uplink transport format combinations according to the "Restricted UL TFCIs", as specified for the sub-test of the actual radio bearer test, using the RRC transport format combination control procedure. See note 1.
- c) The SS closes the test loop using UE test loop mode 1 and setting the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test. See note 2.
- d) The SS starts transmitting continuous test data for all radio bearers under test. The number of RLC SDUs to transmit every TTI and the size "Test data size" is specified for each sub-test of the actual radio bearer test. See note 3.
- e) The SS waits to receive an UL RLC SDU on each RB. The SS waits a maximum time of T1 for this to occur, where T1 is equal to 12 times the largest TTI. See note 4
- f) SS transmits a MEASUREMENT CONTROL message requesting periodic reporting with a period of T2.
- g) SS waits the time equal to 4 times T2
- h) During step e) to g) the SS checks that, for all radio bearers under test, the content of the received RLC SDUs have the correct content and is received having the correct transport format. See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loopback of RLC SDUs.
- i) The SS opens the UE test loop.
- j) Steps b) to i) are repeated for all sub-tests
- h) The SS may optionally release the radio bearer.
- i) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The restricted set of TFCIs shall contain all possible TFCI that could happen in a sub-test. The actual TTI of the different radio bearers and signalling radio bearers as well as the possible UE processing delays shall be taken into consideration. The restricted set of TFCIs must comply with the minimum set of TFCIs as specified in TS 25.331, clause 8.6.5.2.

NOTE 2: Selection of UL RLC SDU size parameter:
For the case when the reference radio bearer configuration under test uses RLC transparent mode in downlink and is not configured for segmented operation then the radio bearer test case shall set the UL RLC SDU size equal to the UL RLC PDU size. See [7] TS 25.322 for details regarding UE operation in RLC transparent mode. In case the reference radio bearer configuration under test does not use RLC transparent mode then, as the test procedure is based on continuous downlink transmission of test data in sub-sequent TTIs, the UL RLC SDU size parameter shall be selected to adopt to the uplink data rate and to the uplink/downlink TTI ratio. Selection of UL RLC SDU size for the different radio bearers under test should be such that the UE returns data in sub-sequent TTIs without causing the UE transmission buffer to become full. To achieve this the UL RLC SDU size shall be set to UL TF payload size under test, divided by the ratio between downlink and uplink TTI , minus the size of length indicator and expansion bit, . E.g. for a AM radio bearer having the uplink RLC payload size equal to 320, the downlink TTI equal to 10 ms, and the uplink TTI equal to 20 ms, then for the transport format 4x336 (TF payload size = 4x320=1280 bits) the UL RLC SDU size parameter should be set to 632 bits (=(1280bits/(20ms/10ms))- 8 bits).

NOTE 3: Selection of test data size:
For the case when the reference radio bearer configuration under test uses RLC transparent mode in downlink and is not configured for segmented operation then the radio bearer test case shall use a DL RLC SDU size (defined by the "Test data size" parameter) equal to the DL RLC PDU size. See [7] TS 25.322 for details regarding UE operation in RLC transparent mode. In case the reference radio bearer configuration under test does not use RLC transparent mode in downlink, the DL RLC SDU size/ test data size shall be set equal to the payload size of the DL TF under test minus the size of the length indicator and the expansion bit.

NOTE 4: [10] TS 34.109 clause 5.3.2.9 defines the loopback delay requirement for UE test loop mode 1 to be max 10 times actual TTI of a radio bearer when RLC and MAC is operated in transparent mode. As RLC/MAC may be operated in non-transparent modes depending on the actual reference radio bearer configuration to be tested an additional 2 TTI have been added to secure that UE starts transmitting data in uplink before SS transmit the MEASUREMENT CONTROL message.

Expected sequence

CS paging procedure

Step	Direction		Message	Comments
	UE	SS		
1	**<--**		SYSTEM INFORMATION (BCCH)	Broadcast
2	**<--**		PAGING TYPE 1 (PCCH)	Paging (CS domain, TMSI)
3	**-->**		RRC CONNECTION REQUEST (CCCH)	RRC
4	**<--**		RRC CONNECTION SETUP (CCCH)	RRC
5	**-->**		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6	**-->**		PAGING RESPONSE (DCCH)	RR
6a	**<--**		AUTHENTICATION REQUEST	
6b	**-->**		AUTHENTICATION RESPONSE	
6c	**<--**		SECURITY MODE COMMAND	
6d	**-->**		SECURITY MODE COMPLETE	

PS paging procedure

Step	Direction		Message	Comments
	UE	SS		

Step	Direction		Message	Comments
	UE	SS		
1	**<--**		SYSTEM INFORMATION (BCCH)	Broadcast
2	**<--**		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	**-->**		RRC CONNECTION REQUEST (CCCH)	RRC
4	**<--**		RRC CONNECTION SETUP (CCCH)	RRC
5	**-->**		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6a	**-->**		SERVICE REQUEST (DCCH)	GMM
6b	**<--**		SECURITY MODE COMMAND	RRC see note 1
6c	**-->**		SECURITY MODE COMPLETE	RRC see note 1

NOTE 1: In addition to activate integrity protection Step 6b and Step 6c are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.

Step	Direction		Message	Comments
	UE	SS		

Step	Direction		Message	Comments
	UE	SS		
1..6	**<--** **-->**		Paging	Use the CS paging procedure for testing of CS and combined CS/PS reference radio bearer configurations. Use the PS paging procedure for testing of PS reference radio bearer configurations.
Case A: CS or PS radio bearers only				
A7	**<--**		ACTIVATE RB TEST MODE (DCCH)	TC
A8	**-->**		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
A9	**<--**		RADIO BEARER SETUP (DCCH)	RRC Channelization code must be set to SF – 1 for the DL DPCH configured. PS radio bearer(s) are configured. For the PS radio bearer(s) the 'pdcp info' IE must be omitted. Secondary Scrambling Code IE must be omitted
A10	**-->**		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
Case B: CS + PS radio bearers				
B7	**<--**		PAGING TYPE 2 (DCCH)	TMSI (GSM-MAP)/ P-TMSI
B7a	**-->**		SERVICE REQUEST (DCCH)	GMM
B7b	**<--**		SECURITY MODE COMMAND	RRC See note
B7c	**-->**		SECURITY MODE COMPLETE	RRC See note
B8	**<--**		ACTIVATE RB TEST MODE (DCCH)	TC
B8a	**-->**		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
B9	**<--**		RADIO BEARER SETUP (DCCH)	RRC CS radio bearer(s) are configured
B10	**-->**		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
B10a			Void	
B10b			Void	
B10c	**<--**		RADIO BEARER SETUP (DCCH)	RRC Channelization code must be set to SF – 1 for the DL DPCH configured. Secondary Scrambling Code IE must be omitted PS radio bearer(s) are configured. For the PS radio bearer the poll-SDU value must be set to 4 and the 'pdcp info' IE must be omitted.
B10d	**-->**		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
11	**<--**		TRANSPORT FORMAT COMBINATION CONTROL (DCCH)	RRC Transport format combinations is limited to "Restricted UL TFCIs", as specified for the sub-test
12	**<--**		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
13	**-->**		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
14a	**<--** **-->**		Test data	SS sends continuous test data in every TTI using the downlink transport format combination under test. The number of RLC SDUs and their sizes are specified in the actual test case. SS checks returned data
14b			Wait T1	SS continues to send data every TTI and check the returned data for a maximum time of T1 for the first UL RLC SDU to be received on each RB. T1 = 12 times the max TTI in the actual radio bearer combination under test

Step	Direction		Message	Comments
	UE	SS		
15a	**<--** **-->** **<--**		Test data (DTCH) + MEASUREMENT CONTROL (DCCH)	SS continues sending test data in every TTI. SS sends a MEASUREMENT CONTROL message simultaneously to the test data requesting periodic reporting at interval T2
15b	**<--** **-->** **-->**		Test data (DTCH) + MEASUREMENT REPORT (DCCH)	SS continues to send data in every TTI and check the returned data for time 4xT2 SS checks that at least one MEASUREMENT REPORT message is received
16	**<--**		OPEN UE TEST LOOP (DCCH)	TC
17	**-->**		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
18			Repeat steps 11 to 17 for every sub-test.	
19			RB RELEASE (DCCH)	RRC Optional step
20	**<--**		DEACTIVATE RB TEST MODE (DCCH)	TC Optional step
21	**-->**		DEACTIVATE RB TEST MODE COMPLETE (DCCH)	TC Optional step
Note: For case B (CS+PS radio bearers) the second security mode procedure is needed to enable testing of ciphering on the PS radio bearers. For the CS domain the security mode procedure is performed as part of the CS paging procedure.				

14.1.2a Generic test procedure for testing multi-RB combinations and simultaneous signalling in case of DSCH

This procedure is used to test multiple radio bearer combinations where PS data goes on the DSCH. This procedure is also used to verify simultaneous transmission and reception of user data and signalling data.

Initial conditions

UE in idle mode

Test procedure

- a) The SS establish the reference radio bearer configuration as specified in TS 34.108, clause 6.10 for the actual radio bearer test. For the case when the reference radio bearer configuration includes radio bearers for both CS and PS domain then the radio bearer setup procedure has to be performed once per domain. The first radio bearer setup procedure shall perform configuration of the physical channel for the radio bearer combination under test as well as the transport channels for the CS radio bearer(s), also the transport format combination set for only CS radio bearers has to be provided. The second radio bearer procedure shall perform the configuration for the transport channel for the PS radio bearers.

- b) The SS limits the UE allowed uplink transport format combinations according to the "Restricted UL TFCIs", as specified for the sub-test of the actual radio bearer test, using the RRC transport format combination control procedure. Here first time only the TFCs for the data on CS RAB and the data on PS RAB are restricted.

- c) The SS closes the test loop using UE test loop mode 1 and setting the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test. See note 1.

- d) The SS transmits test data on all radio bearers under test. The number of RLC SDUs to transmit every TTI and the size "Test data size" is specified for each sub-test of the actual radio bearer test. See note 2.

- e) The SS checks that UE has looped back the data on the CS and PS Radio bearer.

- f) The SS opens the UE test loop.
- g) SS uses the RRC transport format combination control procedure. And now restricts the TFCs for the data on CS RAB and the data on PS RAB and also on SRB.
- h) The SS closes the test loop using UE test loop mode 1 and setting the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test. See note 2.
- i) SS transmit data on the CS RAB a MEASUREMENT CONTROL message requesting periodic reporting with a period of T2.
- j) SS transmits the data on PS RAB.
- k) SS waits the time equal to 4 times T2
- l) SS checks that, for all radio bearers under test, the content of the received RLC SDUs have the correct content and is received having the correct transport format. See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loop back of RLC SDUs.
- m) The SS opens the UE test loop.
- n) (Void)
- o) Steps b) to m) are repeated for all sub-tests
- p) The SS may optionally release the radio bearer.
- q) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: Selection of UL RLC SDU size parameter:
For the case when the reference radio bearer configuration under test uses RLC transparent mode in downlink and is not configured for segmented operation then the radio bearer test case shall set the UL RLC SDU size equal to the UL RLC PDU size. See [7] TS 25.322 for details regarding UE operation in RLC transparent mode. Selection of UL RLC SDU size for the different radio bearers under test should be such that the UE returns data in sub-sequent TTIs without causing the UE transmission buffer to become full. To achieve this the UL RLC SDU size shall be set to UL TF payload size under test, minus the size of length indicator and expansion bit, and divided by the ratio between downlink and uplink TTI. E.g. for a AM radio bearer having the uplink RLC payload size equal to 320, the downlink TTI equal to 10 ms, and the uplink TTI equal to 20 ms, then for the transport format 4x336 (TF payload size = 4x320=1280 bits) the UL RLC SDU size parameter should be set to 632 bits (=1280bits/(20ms/10ms)- 8 bits).

NOTE 2: Selection of test data size:
For the case when the reference radio bearer configuration under test uses RLC transparent mode in downlink and is not configured for segmented operation then the radio bearer test case shall use a DL RLC SDU size (defined by the "Test data size" parameter) equal to the DL RLC PDU size. See [7] TS 25.322 for details regarding UE operation in RLC transparent mode. In case the reference radio bearer configuration under test does not use RLC transparent mode in downlink, the DL RLC SDU size/ test data size shall be set equal to the payload size of the DL TF under test minus the size of the length indicator and the expansion bit.

NOTE 3: The restricted set of TFCIs shall contain all possible TFCI that could happen in a sub-test. The actual TTI of the different radio bearers and signalling radio bearers as well as the possible UE processing delays shall be taken into consideration. The restricted set of TFCIs must comply with the minimum set of TFCIs as specified in TS 25.331, clause 8.6.5.2.

Expected sequence

CS paging procedure

Step	Direction	Message	Comments

	UE	SS		
1	**<--**		SYSTEM INFORMATION (BCCH)	Broadcast
2	**<--**		PAGING TYPE 1 (PCCH)	Paging (CS domain, TMSI)
3	**-->**		RRC CONNECTION REQUEST (CCCH)	RRC
4	**<--**		RRC CONNECTION SETUP (CCCH)	RRC
5	**-->**		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6	**-->**		PAGING RESPONSE (DCCH)	RR
6a	**<--**		AUTHENTICATION REQUEST	
6b	**-->**		AUTHENTICATION RESPONSE	
6c	**<--**		SECURITY MODE COMMAND	
6d	**-->**		SECURITY MODE COMPLETE	

PS paging procedure

Step	Direction		Message	Comments
	UE	SS		
1	**<--**		SYSTEM INFORMATION (BCCH)	Broadcast
2	**<--**		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	**-->**		RRC CONNECTION REQUEST (CCCH)	RRC
4	**<--**		RRC CONNECTION SETUP (CCCH)	RRC
5	**-->**		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6a	**-->**		SERVICE REQUEST (DCCH)	GMM
6b	**<--**		SECURITY MODE COMMAND	RRC see note 1
6c	**-->**		SECURITY MODE COMPLETE	RRC see note 1

NOTE 1 In addition to activate integrity protection Step 6b and Step 6c are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.

Expected sequence for DSCH multi RAB test cases.

Step	Direction		Message	Comments
	UE	SS		

Step	Direction		Message	Comments
	UE	SS		
1..6	**<--** **-->**		Paging	Use the CS paging procedure for testing of CS and combined CS/PS reference radio bearer configurations. Use the PS paging procedure for testing of PS reference radio bearer configurations.
Case A: CS or PS radio bearers only				
A7	**<--**		ACTIVATE RB TEST MODE (DCCH)	TC
A8	**-->**		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
A9	←		RADIO BEARER SETUP (DCCH)	RRC
A9	←		RADIO BEARER SETUP (DCCH)	RRC
A10	→		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
Case B: CS + PS radio bearers				
B7	**<--**		PAGING TYPE 2 (DCCH)	TMSI (GSM-MAP)/ P-TMSI
B7a	**-->**		SERVICE REQUEST (DCCH)	GMM
B7b	**<--**		SECURITY MODE COMMAND	RRC See note
B7c	**-->**		SECURITY MODE COMPLETE	RRC See note
B8	**<--**		ACTIVATE RB TEST MODE (DCCH)	TC
B8a	**-->**		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
B9	←		RADIO BEARER SETUP (DCCH)	RRC CS radio bearer(s) are configured
B10	→		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
B10 a	←		SECURITY MODE COMMAND	See Note
B10 b	→		SECURITY MODE COMPLETE	RRC
B10 c	←		RADIO BEARER SETUP (DCCH)	RRC PS radio bearer(s) are configured
B10 c	→		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
11	**<--**		TRANSPORT FORMAT COMBINATION CONTROL (DCCH)	RRC Transport format combinations is limited to "Restricted UL TFCIs", as specified for the sub-testHere the UL TFS are restricted to test the simultaneous data on CS and PS RAB.
12	**<--**		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
13	**-->**		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
14a	**<--**		Test data (DTCH 1) and Test data on DTCH 2	SS Sends the data on the CS RAB (DPCH).SS Sends the data on the PS RAB .(PDSCH) (Note 1)
14b	→		Test data (DTCH 1) + Test Data (DTCH 2)	SS Receives the data on CS RAB, PS RAB
14c	**<--**		OPEN UE TEST LOOP (DCCH)	TC
14d	**-->**		OPEN UE TEST LOOP COMPLETE (DCCH)	TC

Step	Direction		Message	Comments
	UE	SS		
15a	**<--**		TRANSPORT FORMAT COMBINATION CONTROL (DCCH)	RRC Transport format combinations is limited to "Restricted UL TFCIs", as specified for the sub-test Here the UL TFS are restricted to test the simultaneous data on CS and PS RAB and SRB
15b	**<--**		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
15c	**-->**		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
15d	**<--**		Test data (DTCH 1) and Test data on DTCH 2	SS Sends the data on the CS RAB (DPCH). SS Sends the data on the PS RAB. (PDSCH) (Note 1)
15e	←		MEASUREMENT CONTROL (DCCH)	SS sends a MEASUREMENT CONTROL message simultaneously to the test data requesting periodic reporting at interval T2 (Note 1)
15f	**-->** **-->**		Test data (DTCH 1) + Test Data (DTCH 2) MEASUREMENT REPORT (DCCH)	SS Receives the data on CS RAB, PS RAB and the Measurement Control Report. SS Shall get at least on measurement Control report message (Note 1)
16	**<--**		OPEN UE TEST LOOP (DCCH)	TC
17	**-->**		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
18			Repeat steps 11 to 17 for every sub-test.	
19			RB RELEASE (DCCH)	RRC Optional step
20	**<--**		DEACTIVATE RB TEST MODE (DCCH)	TC Optional step
21	**-->**		DEACTIVATE RB TEST MODE COMPLETE (DCCH)	TC Optional step
Note: For case B (CS+PS radio bearers) the second security mode procedure is needed to enable testing of ciphering on the PS radio bearers. For the CS domain the security mode procedure is performed as part of the CS paging procedure.				

NOTE 1: Here using the test steps 11 to 14d, the simultaneous data on the CS and PS RAB can be tested.

And using the steps 15a to 15f, the simultaneous data on CS RAB, PS RAB and SRB can be tested.

For testing the simultaneous data on CS RAB, PS RAB and SRB, following procedure is used.

First data on the CS RAB is sent. Then in the next step Measurement Control message is sent.

In the Downlink the restricted transport format combination will be (1 1), that SS MAC has to send the data on CS RAB and the measurement control message on SRB simultaneously.

Here it is assumed that, since the transport format combination (1, 0) (that is send only data) will not be available in the DL, the MAC has to wait until it get something to transmit on the SRB.

Then data on the PS RAB is sent.

With this on the UE UL Side, the data will be available on both CS and PS RAB and also on the SRB. With this the transport format combination (1,1, 1) that is simultaneous data on RAB and SRB can be tested in the uplink.

Specific message contents

RADIO BEARER SETUP message: AM or UM (Packet to CELL_DCH from CELL_DCH in PS))

Information Element	Value/remark	Version

Information Element	Value/remark	Version
New DSCH-RNTI	0000 0000 0000 0010B	
RRC State indicator	CELL_DCH	
RAB information for setup		
- RB mapping info		
- Information for each multiplexing option	1 RBMuxOptions	
- RLC logical channel mapping indicator	Not Present	
- Number of uplink RLC logical channels	1	
- Uplink transport channel type	DCH	
- UL Transport channel identity	1	
- Logical channel identity	Not Present	
- CHOICE RLC size list	Configured	
- MAC logical channel priority	8	
- Downlink RLC logical channel info		
- Number of downlink RLC logical channels	1	
- Downlink transport channel type	DSCH	
- DL DCH Transport channel identity	Not Present	
- DL DSCH Transport channel identity	19	
- Logical channel identity	1	
Added or Reconfigured TrCH information list	1 DCH added, 1 DCH reconfigured	
DL Transport channel information common for all transport channel		
- SCCPCH TFCS	Not Present	
- CHOICE mode	FDD	
- CHOICE DL parameters	Explicit	
- DL DCH TFCS		
- CHOICE TFCI signalling	Split	
- Split Type	Hard	
- Length of TFCI(field2)	5	
- TFCI Field 1 information		
- CHOICE TFCS representation	Complete reconfiguration	
- TFCS complete reconfigure		
- CHOICE CTFC Size		
- CTFC information	This IE is repeated for TFC numbers and reference to TS34.108 clause 6.10.2.4	
- CTFC	Reference to TS34.108 clause 6.10.2.4 Parameter Set	
- Power offset information	Not present	
- TFCI Field 2 information		
- CHOICE *Signalling method*	Explicit	
- TFCS explicit configuration		
- CHOICE TFCS representation	Complete reconfiguration	
- CTFC information	This IE is repeated for TFC numbers and reference to TS34.108 clause 6.10.2.4	
- CTFC	Reference to TS34.108 clause 6.10.2.4 Parameter Set	
- Power offset information	Not present	
Deleted TrCH information list	Not Present	
Added or Reconfigured TrCH information list		
- Added or Reconfigured DL TrCH information		
- Downlink transport channel type	DSCH	
- DL Transport channel identity	19	
- CHOICE DL parameters	Explicit	
- TFS		
- CHOICE Transport channel type	Dedicated transport channels	
- Dynamic Transport format information		
- RLC Size	Reference to TS34.108 clause 6.10 Parameter Set	
- Number of TBs and TTI List	(This IE is repeated for TFI number.)	
- Transmission Time Interval	Not Present	
- Number of Transport blocks	Reference to TS34.108 clause 6.10 Parameter Set	
- Semi-static Transport Format information		
- Transmission time interval	Reference to TS34.108 clause 6.10 Parameter Set	
- Type of channel coding	Reference to TS34.108 clause 6.10 Parameter Set	
- Coding Rate	Reference to TS34.108 clause 6.10	

Information Element	Value/remark	Version
	Parameter Set	
- Rate matching attribute	Reference to TS34.108 clause 6.10 Parameter Set	
- CRC size	Reference to TS34.108 clause 6.10 Parameter Set	
- DCH quality target	Not Present	
- Downlink transport channel type	DCH	
- DL Transport channel identity	10	
- CHOICE DL parameters	Same as UL	
- Uplink transport channel type	DCH	
- UL TrCH identity	5	
- DCH quality target		
- BLER Quality value	-2.0	
CHOICE channel requirement	Uplink DPCH info	
- Uplink DPCH power control info		
- DPCCH power offset	-80dB	
- PC Preamble	1 frame	
- SRB delay	7 frames	
- Power Control Algorithm	Algorithm1	
- TPC step size	1dB	
- Scrambling code type	Long	
- Scrambling code number	0 (0 to 16777215)	
- Number of DPDCH	Not Present(1)	
- spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- Number of FBI bit	Reference to TS34.108 clause 6.10 Parameter Set	
- Puncturing Limit	Reference to TS34.108 clause 6.10 Parameter Set	
CHOICE Mode	FDD	
- Downlink PDSCH information		
- PDSCH with SHO DCH Info	Not Present	
- PDSCH code mapping		
- DL Scrambling Code	Primary scrambling code	
- Choice *signalling method*	Explicit	
- PDSCH code info	This IE is repeated for TFC numbers and reference to TS34.108 clause 6.10.2.4	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Code number	Reference to TS34.108 clause 6.10 Parameter Set	
- multi-code info	1	
Downlink information common for all radio links		
- Downlink DPCH info common for all RL		
- Timing indicator	Maintain	
- CFN-targetSFN frame offset	Not Present	
- Downlink DPCH power control information		
- DPC mode	0 (single)	
- CHOICE mode	FDD	
- Power offset $P_{Pilot-DPDCH}$	0	
- DL rate matching restriction information	Not Present	
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set	
- Fixed or Flexible Position	Reference to TS34.108 clause 6.10 Parameter Set	
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set	
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set	
- DPCH compressed mode info	Not Present	
- TX Diversity mode	None	
- SSDT information	Not Present	R99 and Rel-4 only
- Default DPCH Offset Value	Not Present	
Downlink information for each radio link list		

Information Element	Value/remark	Version
- Downlink information for each radio link - Choice mode - Primary CPICH info - Primary scrambling code - PDSCH with SHO DCH info - PDSCH code mapping - DL Scrambling Code - Choice *signalling method* - PDSCH code info - Spreading factor - Code number - multi-code info - Downlink DPCH info for each RL - Primary CPICH usage for channel estimation - DPCH frame offset - Secondary CPICH info - DL channelisation code - Secondary scrambling code - Spreading factor - Code number - Scrambling code change - TPC combination index - SSDT Cell Identity - Closed loop timing adjustment mode - SCCPCH information for FACH	FDD Reference to clause 6.1 "Default settings (FDD)" Not Present Primary scrambling code Explicit This IE is repeated for TFC numbers and reference to TS34.108 clause 6.10.2.4 Reference to TS34.108 clause 6.10 Parameter Set Reference to TS34.108 clause 6.10 Parameter Set 1 Primary CPICH may be used Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400 Not Present 1 Reference to TS34.108 clause 6.10 Parameter Set 0 No change 0 Not Present Not Present Not Present	R99 and Rel-4 only

14.1.3 General information interoperability radio bearer tests for HS-DSCH

14.1.3.1 HS-DSCH radio bearer test parameters

In the radio bearer tests on radio bearers mapped on HS-DSCH, the following UE specific parameters should be used.

Table 14.1.3.1.1: FDD HS-DSCH physical layer parameters for FDD HS-DSCH physical layer categories

HS-DSCH category	Maximum number of HS-DSCH codes received	Minimum inter-TTI interval	Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI NOTE 1	Total number of soft channel bits	Supported modula-tions without MIMO operation or dual cell operation	Supported modula-tions with MIMO operation and without dual cell operation	Supported modula-tions with dual cell operation	Supported modula-tions with simulta-neous dual cell and MIMO operation
Category 1	**5**	**3**	**7298**	**19200**	**QPSK, 16QAM**	**Not applicable (MIMO not supported)**	**Not applicable (dual cell operation not**	**Not applicable (simultaneous dual cell and**
Category 2	**5**	**3**	**7298**	**28800**				
Category 3	**5**	**2**	**7298**	**28800**				
Category 4	**5**	**2**	**7298**	**38400**				
Category 5	**5**	**1**	**7298**	**57600**				

HS-DSCH category	Maximum number of HS-DSCH codes received	Minimum inter-TTI interval	Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI NOTE 1	Total number of soft channel bits	Supported modula-tions without MIMO operation or dual cell operation	Supported modula-tions with MIMO operation and without dual cell operation	Supported modula-tions with dual cell operation	Supported modula-tions with simulta-neous dual cell and MIMO operation
Category 6	**5**	**1**	**7298**	**67200**			**supported)**	**MIMO operation not supported)**
Category 7	**10**	**1**	**14411**	**115200**				
Category 8	**10**	**1**	**14411**	**134400**				
Category 9	**15**	**1**	**20251**	**172800**				
Category 10	**15**	**1**	**27952**	**172800**				
Category 11	**5**	**2**	**3630**	**14400**	**QPSK**			
Category 12	**5**	**1**	**3630**	**28800**				
Category 13	**15**	**1**	**35280**	**259200**	**QPSK, 16QAM, 64QAM**			
Category 14	**15**	**1**	**42192**	**259200**				
Category 15	**15**	**1**	**23370**	**345600**	**QPSK, 16QAM**			
Category 16	**15**	**1**	**27952**	**345600**				
Category 17 NOTE 2	**15**	**1**	**35280**	**259200**	**QPSK, 16QAM, 64QAM**	**–**		
			23370	**345600**	**–**	**QPSK, 16QAM**		
Category 18 NOTE 3	**15**	**1**	**42192**	**259200**	**QPSK, 16QAM, 64QAM**	**–**		
			27952	**345600**	**–**	**QPSK, 16QAM**		
Category 19	**15**	**1**	**35280**	**518400**	**QPSK, 16QAM, 64QAM**			
Category 20	**15**	**1**	**42192**	**518400**				
Category 21	**15**	**1**	**23370**	**345600**	**-**	**-**	**QPSK, 16QAM**	
Category 22	**15**	**1**	**27952**	**345600**				
Category 23	**15**	**1**	**35280**	**518400**			**QPSK, 16QAM, 64QAM**	
Category 24	**15**	**1**	**42192**	**518400**				
Category 25	**15**	**1**	**23370**	**691200**	**-**	**-**	**-**	**QPSK, 16QAM**
Category 26	**15**	**1**	**27952**	**691200**				
Category 27	**15**	**1**	**35280**	**1036800**	**-**	**-**	**-**	**QPSK, 16QAM, 64QAM**
Category 28	**15**	**1**	**42192**	**1036800**				

NOTE 1: Depending on the HS-DSCH configuration, the indicated maximum number of bits of an HS-DSCH transport block does not have to correspond exactly to an entry in the transport block size table to be applied [9].

NOTE 2: A UE of category 17 supports the physical capabilities of categories 13 and 15, but not simultaneously. The first row of category 17 in table 5.1a specifies the capabilities when MIMO is not configured and the capabilities of category 13 apply, the second row specifies the capabilities when MIMO is configured and the capabilities of category 15 apply.

NOTE 3: A UE of category 18 supports the physical capabilities of categories 14 and 16, but not simultaneously. The first row of category 18 in table 5.1a specifies the capabilities when MIMO is not configured and the capabilities of category 14 apply, the second row specifies the capabilities when MIMO is configured and the capabilities of category 16 apply.

14.1.3.2 Selecting TFRC test points

14.1.3.2.1 Principle for non-enhanced Layer 2

The transport format and resource combination (TFRC) is identified by the UE by the type of modulation, number of channalisation codes and the transport format and resource identifier (TFRI) signalled on the HS-SCCH.

For the HSDPA radio bearer test cases the principle for selecting typical test points for TFRC is:

- 1. Select one TFRC per modulation scheme and number of MAC-d PDUs.
- 2. For each number of MAC-d PDUs select the TFRC minimizing padding.
- 3. Any TFRC that would cause turbo coder irregularities should be avoided.

The problem with turbo coder regularities appears at certain coding rates. The coding rate for a certain TFCR is:

- $Coding\_rate = (TB_{size} + N_{CRC})/(N_{codes} \cdot N_{phy\_bits})$, where
  - TB_{size} is the selected transport block,
  - N_{CRC} is the number of CRC bits,
  - N_{codes} is the number of channelistion codes, and
  - N_{phy_bits} is the number physical bits per code (960 for QPSK, 1920 for 16QAM and 2880 for 64 QAM).

Table 14.1.3.2.1 lists the coding rates that cause turbo coder irregularities. In case a candidate TFRC value is causing turbo coder irregularities then the closest higher TFRI value, which do not cause any turbo coder irregularities, is selected.

Table 14.1.3.2.1: Coding rates causing degradation due to turbo coder irregularities

Coding rate	Comment
0.77-0.79	Cause loss up to 3.5 dB
0.835-0.84	Cause loss up to 1.5 dB
0.871-0.878	Cause loss up to 2 dB
0.91-0.914	Cause loss up to 2 dB

NOTEThe coding rates in Table 14.2.3.2.1 is based on the simulations as described in RAN WG1 document R1-030444 (Turbo-coding and puncturing interactions on HS-DSCH in R5 HSDPA)

The selection algorithm for the TFRC test points for a certain UE category and MAC-d PDU size is:

- 1. Set the number of MAC-d PDUs, N_PDU, to 1

- 2. Calculate the minimum transport block size to fit the number of MAC-d PDUs.
- 3. If the transport block size is less or equal to the UE capability for "Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI" in Table 14.1.3.1.1 then continue with step 4 else there is no more testing points.
- 4. Select the QPSK test point:
  If it, for the actual UE category and for the selected transport block size, exists a TFRI for QPSK then select the TFRI that maximises the number of codes.
- 5. Select the 16QAM test point:
  If it, for the actual UE category and for the selected transport block size, exists a TFRI for 16QAM then select the TFRI that maximises the number of codes.
- 6. Check that the coding rate for the selected TFRC does not cause turbo coder irregularities, see Table 14.1.3.2.1. If the coding rate is ok then accept the testing point and continue with step 8 else continue with step 7.
- 7. If the coding rate is not ok then select the next higher TFRI value that corresponds to an acceptable coding rate. Calculate the transport block size correspondent to the modified TFRI values and if it is less or equal to the UE capability for "Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI" in Table 14.1.3.1.1 then accept the testing point else skip it.
- 8. Increment N_PDUs. If N_PDU is less or equal to 70 then repeat from step 2 else there is no more testing points.

14.1.3.2.1a Principle for enhanced Layer 2

For the combination of MAC-ehs and Fixed RLC then the same principle to select test points as for the non-enhanced Layer 2 case as described in sub-clause 14.1.3.2.1 is used (MAC-d PDU size 336 and 656 bits).

For the combination of MAC-ehs and Flexible RLC then the same TFRI test points as for the fixed MAC-d PDU size=656 bits case are used.

14.1.3.3 TFRC test points for MAC-d PDU size=336

Table 14.1.3.3.1: TFRC test points for UE category 1 to UE category 6 for MAC-d PDU size=336

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
1	**365**	**QPSK**	**1**	**19**	
2	**699**	**QPSK**	**2**	**8**	
2	**699**	**16QAM**	**1**	**8**	
3	**1036**	**QPSK**	**3**	**7**	
3	**1036**	**16QAM**	**1**	**30**	
4	**1380**	**QPSK**	**4**	**7**	
4	**1380**	**16QAM**	**2**	**7**	
5	**1711**	**QPSK**	**5**	**6**	
5	**1711**	**16QAM**	**2**	**19**	
6	**2046**	**QPSK**	**5**	**16**	
6	**2046**	**16QAM**	**3**	**6**	
7	**2404**	**QPSK**	**5**	**25**	
7	**2404**	**16QAM**	**3**	**15**	
8	**2726**	**QPSK**	**5**	**32**	
8	**2726**	**16QAM**	**4**	**6**	
9	**3090**	**QPSK**	**5**	**39**	
9	**3090**	**16QAM**	**5**	**0**	
10	**3440**	**QPSK**	**5**	**45**	
10	**3440**	**16QAM**	**5**	**6**	
11	**3830**	**QPSK**	**5**	**51**	TFRI = 50 would have minimised padding but is not acceptable as the coding rate (0.78875) would have given 3.5 dB due to turbo coder irregularities. TFRI=51 is selected.
11	**3762**	**16QAM**	**5**	**11**	
12	**4115**	**QPSK**	**5**	**55**	
12	**4115**	**16QAM**	**5**	**16**	
13	**4420**	**QPSK**	**5**	**59**	
13	**4420**	**16QAM**	**5**	**20**	
14	**4748**	**16QAM**	**5**	**24**	
15	**5101**	**16QAM**	**5**	**28**	
16	**5480**	**16QAM**	**5**	**32**	
17	**5782**	**16QAM**	**5**	**35**	
18	**6101**	**16QAM**	**5**	**38**	
19	**6438**	**16QAM**	**5**	**41**	
20	**6793**	**16QAM**	**5**	**44**	
21	**7168**	**16QAM**	**5**	**47**	

Table 14.1.3.3.2: TFRC test points for UE category 7 and UE category 8 for MAC-d PDU size=336

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
1	**365**	**QPSK**	**1**	**19**	
2	**699**	**QPSK**	**2**	**8**	
2	**699**	**16QAM**	**1**	**8**	
3	**1036**	**QPSK**	**3**	**7**	
3	**1036**	**16QAM**	**1**	**30**	
4	**1380**	**QPSK**	**4**	**7**	
4	**1380**	**16QAM**	**2**	**7**	
5	**1711**	**QPSK**	**5**	**6**	
5	**1711**	**16QAM**	**2**	**19**	
6	**2046**	**QPSK**	**6**	**6**	
6	**2046**	**16QAM**	**3**	**6**	
7	**2404**	**QPSK**	**7**	**6**	
7	**2404**	**16QAM**	**3**	**15**	
8	**2726**	**QPSK**	**8**	**6**	
8	**2726**	**16QAM**	**4**	**6**	
9	**3090**	**QPSK**	**10**	**0**	
9	**3090**	**16QAM**	**5**	**0**	
10	**3440**	**QPSK**	**10**	**6**	
10	**3440**	**16QAM**	**5**	**6**	
11	**3762**	**QPSK**	**10**	**11**	
11	**3762**	**16QAM**	**6**	**1**	
12	**4115**	**QPSK**	**10**	**16**	
12	**4115**	**16QAM**	**6**	**6**	
13	**4420**	**QPSK**	**10**	**20**	
13	**4420**	**16QAM**	**7**	**1**	
14	**4748**	**QPSK**	**10**	**24**	
14	**4748**	**16QAM**	**7**	**5**	
15	**5101**	**QPSK**	**10**	**28**	
15	**5101**	**16QAM**	**8**	**2**	
16	**5480**	**QPSK**	**10**	**32**	
16	**5480**	**16QAM**	**8**	**6**	
17	**5782**	**QPSK**	**10**	**35**	
17	**5782**	**16QAM**	**9**	**2**	
18	**6101**	**QPSK**	**10**	**38**	
18	**6101**	**16QAM**	**10**	**0**	
19	**6438**	**QPSK**	**10**	**41**	
19	**6438**	**16QAM**	**10**	**3**	
20	**6793**	**QPSK**	**10**	**44**	
20	**6793**	**16QAM**	**10**	**6**	
21	**7168**	**QPSK**	**10**	**47**	
21	**7168**	**16QAM**	**10**	**9**	
22	**7564**	**QPSK**	**10**	**50**	**TFRI = 49 would have minimised padding but is not acceptable as the coding rate (0.7765) would have given 3.5 dB due to turbo coder irregularities. TFRI=50 is selected.**
22	**7430**	**16QAM**	**10**	**11**	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
23	**7981**	**QPSK**	**10**	**52**	
23	**7840**	**16QAM**	**10**	**14**	
24	**8125**	**QPSK**	**10**	**54**	
24	**8125**	**16QAM**	**10**	**16**	
25	**8422**	**QPSK**	**10**	**56**	
25	**8422**	**16QAM**	**10**	**18**	
26	**8886**	**QPSK**	**10**	**59**	
26	**8886**	**16QAM**	**10**	**21**	
27	**9210**	**QPSK**	**10**	**61**	
27	**9210**	**16QAM**	**10**	**23**	
28	**9546**	**16QAM**	**10**	**25**	
29	**9894**	**16QAM**	**10**	**27**	
30	**10255**	**16QAM**	**10**	**29**	
31	**10440**	**16QAM**	**10**	**30**	
32	**10821**	**16QAM**	**10**	**32**	
33	**11216**	**16QAM**	**10**	**34**	
34	**11625**	**16QAM**	**10**	**36**	
35	**11835**	**16QAM**	**10**	**37**	
36	**12266**	**16QAM**	**10**	**39**	
37	**12488**	**16QAM**	**10**	**40**	
38	**12943**	**16QAM**	**10**	**42**	
39	**13177**	**16QAM**	**10**	**43**	
40	**13657**	**16QAM**	**10**	**45**	
41	**13904**	**16QAM**	**10**	**46**	
42	**14155**	**16QAM**	**10**	**47**	

Table 14.1.3.3.3: TFRC test points for UE category 9 for MAC-d PDU size=336

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
1	**365**	**QPSK**	**1**	**19**	
2	**699**	**QPSK**	**2**	**8**	
2	**699**	**16QAM**	**1**	**8**	
3	**1036**	**QPSK**	**3**	**7**	
3	**1036**	**16QAM**	**1**	**30**	
4	**1380**	**QPSK**	**4**	**7**	
4	**1380**	**16QAM**	**2**	**7**	
5	**1711**	**QPSK**	**5**	**6**	
5	**1711**	**16QAM**	**2**	**19**	
6	**2046**	**QPSK**	**6**	**6**	
6	**2046**	**16QAM**	**3**	**6**	
7	**2404**	**QPSK**	**7**	**6**	
7	**2404**	**16QAM**	**3**	**15**	
8	**2726**	**QPSK**	**8**	**6**	
8	**2726**	**16QAM**	**4**	**6**	
9	**3090**	**QPSK**	**10**	**0**	
9	**3090**	**16QAM**	**5**	**0**	
10	**3440**	**QPSK**	**11**	**1**	
10	**3440**	**16QAM**	**5**	**6**	
11	**3762**	**QPSK**	**12**	**1**	
11	**3762**	**16QAM**	**6**	**1**	
12	**4115**	**QPSK**	**13**	**2**	
12	**4115**	**16QAM**	**6**	**6**	
13	**4420**	**QPSK**	**14**	**1**	
13	**4420**	**16QAM**	**7**	**1**	
14	**4748**	**QPSK**	**15**	**2**	
14	**4748**	**16QAM**	**7**	**5**	
15	**5101**	**QPSK**	**15**	**6**	
15	**5101**	**16QAM**	**8**	**2**	
16	**5480**	**QPSK**	**15**	**10**	
16	**5480**	**16QAM**	**8**	**6**	
17	**5782**	**QPSK**	**15**	**13**	
17	**5782**	**16QAM**	**9**	**2**	
18	**6101**	**QPSK**	**15**	**16**	
18	**6101**	**16QAM**	**10**	**0**	
19	**6438**	**QPSK**	**15**	**19**	
19	**6438**	**16QAM**	**10**	**3**	
20	**6793**	**QPSK**	**15**	**22**	
20	**6793**	**16QAM**	**11**	**0**	
21	**7168**	**QPSK**	**15**	**25**	
21	**7168**	**16QAM**	**11**	**3**	
22	**7430**	**QPSK**	**15**	**27**	
22	**7430**	**16QAM**	**12**	**0**	
23	**7840**	**QPSK**	**15**	**30**	
23	**7840**	**16QAM**	**12**	**3**	
24	**8125**	**QPSK**	**15**	**32**	
24	**8125**	**16QAM**	**13**	**1**	
25	**8422**	**QPSK**	**15**	**34**	
25	**8422**	**16QAM**	**13**	**3**	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
26	**8886**	**QPSK**	**15**	**37**	
26	**8886**	**16QAM**	**14**	**2**	
27	**9210**	**QPSK**	**15**	**39**	
27	**9210**	**16QAM**	**15**	**0**	
28	**9546**	**QPSK**	**15**	**41**	
28	**9546**	**16QAM**	**15**	**2**	
29	**9894**	**QPSK**	**15**	**43**	
29	**9894**	**16QAM**	**15**	**4**	
30	**10255**	**QPSK**	**15**	**45**	
30	**10255**	**16QAM**	**15**	**6**	
31	**10440**	**QPSK**	**15**	**46**	
31	**10440**	**16QAM**	**15**	**7**	
32	**10821**	**QPSK**	**15**	**48**	
32	**10821**	**16QAM**	**15**	**9**	
33	**11418**	**QPSK**	**15**	**51**	TFRI = 50 would have minimised padding but is not acceptable as the coding rate (0.78056) would have given 3.5 dB due to turbo coder irregularities. TFRI=51 is selected.
33	**11216**	**16QAM**	**15**	**11**	
34	**11625**	**QPSK**	**15**	**52**	
34	**11625**	**16QAM**	**15**	**13**	
35	**11835**	**QPSK**	**15**	**53**	
35	**11835**	**16QAM**	**15**	**14**	
36	**12266**	**QPSK**	**15**	**55**	
36	**12266**	**16QAM**	**15**	**16**	
37	**12488**	**QPSK**	**15**	**56**	
37	**12488**	**16QAM**	**15**	**17**	
38	**12943**	**QPSK**	**15**	**58**	
38	**12943**	**16QAM**	**15**	**19**	
39	**13177**	**QPSK**	**15**	**59**	
39	**13177**	**16QAM**	**15**	**20**	
40	**13657**	**QPSK**	**15**	**61**	
40	**13657**	**16QAM**	**15**	**22**	
41	**13904**	**QPSK**	**15**	**62**	
41	**13904**	**16QAM**	**15**	**23**	
42	**14155**	**16QAM**	**15**	**24**	
43	**14671**	**16QAM**	**15**	**26**	
44	**14936**	**16QAM**	**15**	**27**	
45	**15206**	**16QAM**	**15**	**28**	
46	**15481**	**16QAM**	**15**	**29**	
47	**16045**	**16QAM**	**15**	**31**	
48	**16335**	**16QAM**	**15**	**32**	
49	**16630**	**16QAM**	**15**	**33**	
50	**16931**	**16QAM**	**15**	**34**	
51	**17237**	**16QAM**	**15**	**35**	
52	**17548**	**16QAM**	**15**	**36**	
53	**17865**	**16QAM**	**15**	**37**	
54	**18188**	**16QAM**	**15**	**38**	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
55	**18517**	**16QAM**	**15**	**39**	
56	**18851**	**16QAM**	**15**	**40**	
57	**19192**	**16QAM**	**15**	**41**	
58	**19538**	**16QAM**	**15**	**42**	
59	**19891**	**16QAM**	**15**	**43**	
60	**20251**	**16QAM**	**15**	**44**	

Table 14.1.3.3.4: TFRC test points for UE category 10 for MAC-d PDU size=336

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
1	**365**	**QPSK**	**1**	**19**	
2	**699**	**QPSK**	**2**	**8**	
2	**699**	**16QAM**	**1**	**8**	
3	**1036**	**QPSK**	**3**	**7**	
3	**1036**	**16QAM**	**1**	**30**	
4	**1380**	**QPSK**	**4**	**7**	
4	**1380**	**16QAM**	**2**	**7**	
5	**1711**	**QPSK**	**5**	**6**	
5	**1711**	**16QAM**	**2**	**19**	
6	**2046**	**QPSK**	**6**	**6**	
6	**2046**	**16QAM**	**3**	**6**	
7	**2404**	**QPSK**	**7**	**6**	
7	**2404**	**16QAM**	**3**	**15**	
8	**2726**	**QPSK**	**8**	**6**	
8	**2726**	**16QAM**	**4**	**6**	
9	**3090**	**QPSK**	**10**	**0**	
9	**3090**	**16QAM**	**5**	**0**	
10	**3440**	**QPSK**	**11**	**1**	
10	**3440**	**16QAM**	**5**	**6**	
11	**3762**	**QPSK**	**12**	**1**	
11	**3762**	**16QAM**	**6**	**1**	
12	**4115**	**QPSK**	**13**	**2**	
12	**4115**	**16QAM**	**6**	**6**	
13	**4420**	**QPSK**	**14**	**1**	
13	**4420**	**16QAM**	**7**	**1**	
14	**4748**	**QPSK**	**15**	**2**	
14	**4748**	**16QAM**	**7**	**5**	
15	**5101**	**QPSK**	**15**	**6**	
15	**5101**	**16QAM**	**8**	**2**	
16	**5480**	**QPSK**	**15**	**10**	
16	**5480**	**16QAM**	**8**	**6**	
17	**5782**	**QPSK**	**15**	**13**	
17	**5782**	**16QAM**	**9**	**2**	
18	**6101**	**QPSK**	**15**	**16**	
18	**6101**	**16QAM**	**10**	**0**	
19	**6438**	**QPSK**	**15**	**19**	
19	**6438**	**16QAM**	**10**	**3**	
20	**6793**	**QPSK**	**15**	**22**	
20	**6793**	**16QAM**	**11**	**0**	
21	**7168**	**QPSK**	**15**	**25**	
21	**7168**	**16QAM**	**11**	**3**	
22	**7430**	**QPSK**	**15**	**27**	
22	**7430**	**16QAM**	**12**	**0**	
23	**7840**	**QPSK**	**15**	**30**	
23	**7840**	**16QAM**	**12**	**3**	
24	**8125**	**QPSK**	**15**	**32**	
24	**8125**	**16QAM**	**13**	**1**	
25	**8422**	**QPSK**	**15**	**34**	
25	**8422**	**16QAM**	**13**	**3**	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
26	**8886**	**QPSK**	**15**	**37**	
26	**8886**	**16QAM**	**14**	**2**	
27	**9210**	**QPSK**	**15**	**39**	
27	**9210**	**16QAM**	**15**	**0**	
28	**9546**	**QPSK**	**15**	**41**	
28	**9546**	**16QAM**	**15**	**2**	
29	**9894**	**QPSK**	**15**	**43**	
29	**9894**	**16QAM**	**15**	**4**	
30	**10255**	**QPSK**	**15**	**45**	
30	**10255**	**16QAM**	**15**	**6**	
31	**10440**	**QPSK**	**15**	**46**	
31	**10440**	**16QAM**	**15**	**7**	
32	**10821**	**QPSK**	**15**	**48**	
32	**10821**	**16QAM**	**15**	**9**	
33	**11418**	**QPSK**	**15**	**51**	TFRI = 50 would have minimised padding but is not acceptable as the coding rate (0.78056) would have given 3.5 dB due to turbo coder irregularities. TFRI=51 is selected.
33	**11216**	**16QAM**	**15**	**11**	
34	**11625**	**QPSK**	**15**	**52**	
34	**11625**	**16QAM**	**15**	**13**	
35	**11835**	**QPSK**	**15**	**53**	
35	**11835**	**16QAM**	**15**	**14**	
36	**12266**	**QPSK**	**15**	**55**	
36	**12266**	**16QAM**	**15**	**16**	
37	**12488**	**QPSK**	**15**	**56**	
37	**12488**	**16QAM**	**15**	**17**	
38	**12943**	**QPSK**	**15**	**58**	
38	**12943**	**16QAM**	**15**	**19**	
39	**13177**	**QPSK**	**15**	**59**	
39	**13177**	**16QAM**	**15**	**20**	
40	**13657**	**QPSK**	**15**	**61**	
40	**13657**	**16QAM**	**15**	**22**	
41	**13904**	**QPSK**	**15**	**62**	
41	**13904**	**16QAM**	**15**	**23**	
42	**14155**	**16QAM**	**15**	**24**	
43	**14671**	**16QAM**	**15**	**26**	
44	**14936**	**16QAM**	**15**	**27**	
45	**15206**	**16QAM**	**15**	**28**	
46	**15481**	**16QAM**	**15**	**29**	
47	**16045**	**16QAM**	**15**	**31**	
48	**16335**	**16QAM**	**15**	**32**	
49	**16630**	**16QAM**	**15**	**33**	
50	**16931**	**16QAM**	**15**	**34**	
51	**17237**	**16QAM**	**15**	**35**	
52	**17548**	**16QAM**	**15**	**36**	
53	**17865**	**16QAM**	**15**	**37**	
54	**18188**	**16QAM**	**15**	**38**	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
55	**18517**	**16QAM**	**15**	**39**	
56	**18851**	**16QAM**	**15**	**40**	
57	**19192**	**16QAM**	**15**	**41**	
58	**19538**	**16QAM**	**15**	**42**	
59	**19891**	**16QAM**	**15**	**43**	
60	**20251**	**16QAM**	**15**	**44**	
61	**20617**	**16QAM**	**15**	**45**	
62	**20989**	**16QAM**	**15**	**46**	
63	**21368**	**16QAM**	**15**	**47**	
64	**21754**	**16QAM**	**15**	**48**	
65	**22147**	**16QAM**	**15**	**49**	
66	**22955**	**16QAM**	**15**	**51**	TFRI = 50 would have minimised padding but is not acceptable as the coding rate (0.78375) would have given 3.5 dB due to turbo coder irregularities. TFRI=51 is selected.
67	**22955**	**16QAM**	**15**	**51**	TFRI = 50 would have minimised padding but is not acceptable as the coding rate (0.78375) would have given 3.5 dB due to turbo coder irregularities. TFRI=51 is selected.
68	**22955**	**16QAM**	**15**	**51**	
69	**23370**	**16QAM**	**15**	**52**	
70	**23792**	**16QAM**	**15**	**53**	

Table 14.1.3.3.5: TFRC test points for UE category 11 and UE category 12 for MAC-d PDU size=336

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
1	**365**	**QPSK**	**1**	**19**	
2	**699**	**QPSK**	**2**	**8**	
3	**1036**	**QPSK**	**3**	**7**	
4	**1380**	**QPSK**	**4**	**7**	
5	**1711**	**QPSK**	**5**	**6**	
6	**2046**	**QPSK**	**5**	**16**	
7	**2404**	**QPSK**	**5**	**25**	
8	**2726**	**QPSK**	**5**	**32**	
9	**3090**	**QPSK**	**5**	**39**	
10	**3440**	**QPSK**	**5**	**45**	

14.1.3.4 TFRC test points for MAC-d PDU size=656

Table 14.1.3.4.1: TFRC test points for UE category 1 to UE category 6 for MAC-d PDU size=656

Number of MAC-d	Selected transport block size	Modulation scheme	Number of codes	TFRI	Comments

PDUs	[bits]				
1	**686**	**QPSK**	**2**	**7**	
1	**686**	**16QAM**	**1**	**7**	
2	**1356**	**QPSK**	**4**	**6**	
2	**1356**	**16QAM**	**2**	**6**	
3	**2010**	**QPSK**	**5**	**15**	
3	**2010**	**16QAM**	**3**	**5**	
4	**2677**	**QPSK**	**5**	**31**	
4	**2677**	**16QAM**	**4**	**5**	
5	**3319**	**QPSK**	**5**	**43**	
5	**3319**	**16QAM**	**5**	**4**	
6	**3970**	**QPSK**	**5**	**53**	
6	**3970**	**16QAM**	**5**	**14**	
7	**4664**	**QPSK**	**5**	**62**	
7	**4664**	**16QAM**	**5**	**23**	
8	**5287**	**16QAM**	**5**	**30**	
9	**5993**	**16QAM**	**5**	**37**	
10	**6673**	**16QAM**	**5**	**43**	
11	**7298**	**16QAM**	**5**	**48**	

Table 14.1.3.4.2: TFRC test points for UE category 7 and UE category 8 for MAC-d PDU size=656

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
1	**686**	**QPSK**	**2**	**7**	
1	**686**	**16QAM**	**1**	**7**	
2	**1356**	**QPSK**	**4**	**6**	
2	**1356**	**16QAM**	**2**	**6**	
3	**2010**	**QPSK**	**6**	**5**	
3	**2010**	**16QAM**	**3**	**5**	
4	**2677**	**QPSK**	**8**	**5**	
4	**2677**	**16QAM**	**4**	**5**	
5	**3319**	**QPSK**	**10**	**4**	
5	**3319**	**16QAM**	**5**	**4**	
6	**3970**	**QPSK**	**10**	**14**	
6	**3970**	**16QAM**	**6**	**4**	
7	**4664**	**QPSK**	**10**	**23**	
7	**4664**	**16QAM**	**7**	**4**	
8	**5287**	**QPSK**	**10**	**30**	
8	**5287**	**16QAM**	**8**	**4**	
9	**5993**	**QPSK**	**10**	**37**	
9	**5993**	**16QAM**	**9**	**4**	
10	**6673**	**QPSK**	**10**	**43**	
10	**6673**	**16QAM**	**10**	**5**	
11	**7298**	**QPSK**	**10**	**48**	
11	**7298**	**16QAM**	**10**	**10**	
12	**7981**	**QPSK**	**10**	**53**	
12	**7981**	**16QAM**	**10**	**15**	
13	**8574**	**QPSK**	**10**	**57**	
13	**8574**	**16QAM**	**10**	**19**	
14	**9210**	**QPSK**	**10**	**61**	
14	**9210**	**16QAM**	**10**	**23**	
15	**9894**	**16QAM**	**10**	**27**	
16	**10629**	**16QAM**	**10**	**31**	
17	**11216**	**16QAM**	**10**	**34**	
18	**11835**	**16QAM**	**10**	**37**	
19	**12488**	**16QAM**	**10**	**40**	
20	**13177**	**16QAM**	**10**	**43**	
21	**13904**	**16QAM**	**10**	**46**	

Table 14.1.3.4.3: TFRC test points for UE category 9 for MAC-d PDU size=656

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
1	**686**	**QPSK**	**2**	**7**	
1	**686**	**16QAM**	**1**	**7**	
2	**1356**	**QPSK**	**4**	**6**	
2	**1356**	**16QAM**	**2**	**6**	
3	**2010**	**QPSK**	**6**	**5**	
3	**2010**	**16QAM**	**3**	**5**	
4	**2677**	**QPSK**	**8**	**5**	
4	**2677**	**16QAM**	**4**	**5**	
5	**3319**	**QPSK**	**10**	**4**	
5	**3319**	**16QAM**	**5**	**4**	
6	**3970**	**QPSK**	**13**	**0**	
6	**3970**	**16QAM**	**6**	**4**	
7	**4664**	**QPSK**	**15**	**1**	
7	**4664**	**16QAM**	**7**	**4**	
8	**5287**	**QPSK**	**15**	**8**	
8	**5287**	**16QAM**	**8**	**4**	
9	**5993**	**QPSK**	**15**	**15**	
9	**5993**	**16QAM**	**9**	**4**	
10	**6673**	**QPSK**	**15**	**21**	
10	**6673**	**16QAM**	**10**	**5**	
11	**7298**	**QPSK**	**15**	**26**	
11	**7298**	**16QAM**	**11**	**4**	
12	**7981**	**QPSK**	**15**	**31**	
12	**7981**	**16QAM**	**13**	**0**	
13	**8574**	**QPSK**	**15**	**35**	
13	**8574**	**16QAM**	**14**	**0**	
14	**9210**	**QPSK**	**15**	**39**	
14	**9210**	**16QAM**	**15**	**0**	
15	**9894**	**QPSK**	**15**	**43**	
15	**9894**	**16QAM**	**15**	**4**	
16	**10629**	**QPSK**	**15**	**47**	
16	**10629**	**16QAM**	**15**	**8**	
17	**11418**	**QPSK**	**15**	**51**	TFRI = 50 would have minimised padding but is not acceptable as the coding rate (0.7806) would have given 3.5 dB due to turbo coder irregularities TFRI=51 is selected.
17	**11216**	**16QAM**	**15**	**11**	
18	**11835**	**QPSK**	**15**	**53**	
18	**11835**	**16QAM**	**15**	**14**	
19	**12488**	**QPSK**	**15**	**56**	
19	**12488**	**16QAM**	**15**	**17**	
20	**13177**	**QPSK**	**15**	**59**	
20	**13177**	**16QAM**	**15**	**20**	
21	**13904**	**QPSK**	**15**	**62**	
21	**13904**	**16QAM**	**15**	**23**	
22	**14671**	**16QAM**	**15**	**26**	
23	**15206**	**16QAM**	**15**	**28**	
24	**16045**	**16QAM**	**15**	**31**	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
25	**16630**	**16QAM**	**15**	**33**	
26	**17237**	**16QAM**	**15**	**35**	
27	**17865**	**16QAM**	**15**	**37**	
28	**18517**	**16QAM**	**15**	**39**	
29	**19192**	**16QAM**	**15**	**41**	
30	**19891**	**16QAM**	**15**	**43**	

Table 14.1.3.4.4: TFRC test points for UE category 10 for MAC-d PDU size=656

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments

1	**686**	**QPSK**	**2**	**7**	
1	**686**	**16QAM**	**1**	**7**	
2	**1356**	**QPSK**	**4**	**6**	
2	**1356**	**16QAM**	**2**	**6**	
3	**2010**	**QPSK**	**6**	**5**	
3	**2010**	**16QAM**	**3**	**5**	
4	**2677**	**QPSK**	**8**	**5**	
4	**2677**	**16QAM**	**4**	**5**	
5	**3319**	**QPSK**	**10**	**4**	
5	**3319**	**16QAM**	**5**	**4**	
6	**3970**	**QPSK**	**13**	**0**	
6	**3970**	**16QAM**	**6**	**4**	
7	**4664**	**QPSK**	**15**	**1**	
7	**4664**	**16QAM**	**7**	**4**	
8	**5287**	**QPSK**	**15**	**8**	
8	**5287**	**16QAM**	**8**	**4**	
9	**5993**	**QPSK**	**15**	**15**	
9	**5993**	**16QAM**	**9**	**4**	
10	**6673**	**QPSK**	**15**	**21**	
10	**6673**	**16QAM**	**10**	**5**	
11	**7298**	**QPSK**	**15**	**26**	
11	**7298**	**16QAM**	**11**	**4**	
12	**7981**	**QPSK**	**15**	**31**	
12	**7981**	**16QAM**	**13**	**0**	
13	**8574**	**QPSK**	**15**	**35**	
13	**8574**	**16QAM**	**14**	**0**	
14	**9210**	**QPSK**	**15**	**39**	
14	**9210**	**16QAM**	**15**	**0**	
15	**9894**	**QPSK**	**15**	**43**	
15	**9894**	**16QAM**	**15**	**4**	
16	**10629**	**QPSK**	**15**	**47**	
16	**10629**	**16QAM**	**15**	**8**	
17	**11418**	**QPSK**	**15**	**51**	TFRI = 50 would have minimised padding but is not acceptable as the coding rate (0.7806) would have given 3.5 dB due to turbo coder irregularities TFRI=51 is selected.
17	**11216**	**16QAM**	**15**	**11**	
18	**11835**	**QPSK**	**15**	**53**	
18	**11835**	**16QAM**	**15**	**14**	
19	**12488**	**QPSK**	**15**	**56**	
19	**12488**	**16QAM**	**15**	**17**	
20	**13177**	**QPSK**	**15**	**59**	
20	**13177**	**16QAM**	**15**	**20**	
21	**13904**	**QPSK**	**15**	**62**	
21	**13904**	**16QAM**	**15**	**23**	
22	**14671**	**16QAM**	**15**	**26**	
23	**15206**	**16QAM**	**15**	**28**	
24	**16045**	**16QAM**	**15**	**31**	
25	**16630**	**16QAM**	**15**	**33**	
26	**17237**	**16QAM**	**15**	**35**	
27	**17865**	**16QAM**	**15**	**37**	
28	**18517**	**16QAM**	**15**	**39**	
29	**19192**	**16QAM**	**15**	**41**	

30	**19891**	**16QAM**	**15**	**43**	
31	**20617**	**16QAM**	**15**	**45**	
32	**21368**	**16QAM**	**15**	**47**	
33	**21754**	**16QAM**	**15**	**48**	
34	**22955**	**16QAM**	**15**	**51**	TFRI = 50 would have minimised padding but is not acceptable as the coding rate (0.78375) would have given 3.5 dB due to turbo coder irregularities TFRI=51 is selected.
35	**23370**	**16QAM**	**15**	**52**	
36	**23792**	**16QAM**	**15**	**53**	
37	**24659**	**16QAM**	**15**	**55**	
38	**25558**	**16QAM**	**15**	**57**	TFRI = 56 would have minimised padding but is not acceptable as the coding rate (0.8725) would have given 2 dB due to turbo coder irregularities TFRI=57 is selected.
39	**26020**	**16QAM**	**15**	**58**	
40	**26490**	**16QAM**	**15**	**59**	
41	**26969**	**16QAM**	**15**	**60**	
42	**27952**	**16QAM**	**15**	**62**	

Table 14.1.3.4.5: TFRC test points for UE category 11 and UE category 12 for MAC-d PDU size=656

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
1	**686**	**QPSK**	**2**	**7**	
2	**1356**	**QPSK**	**4**	**6**	
3	**2010**	**QPSK**	**5**	**15**	
4	**2677**	**QPSK**	**5**	**31**	
5	**3319**	**QPSK**	**5**	**43**	

14.1.3.4b TB test points for enhanced Layer 2

14.1.3.4b.1 TFRC test points for MAC-ehs and QPSK with fixed MAC-d PDU size=336

NOTE 1 For M= QPSK then table 14.1.3.4b.1.1 is used. For M= 16QAM then table 14.1.3.4b.1.2 is used. For M= 64QAM then table 14.1.3.4b.1.3 is used.

NOTE 2 Column "Applicable Physical HS-DSCH UE categories" defines the applicability of test points vs. Physical HS-DSCH UE categories.

Table 14.1.3.4b.1.1: Test points for QPSK and fixed MAC-d PDU size=336

# MAC-d PDUs	Selected TBS	Modulation scheme	Number of codes	TFRI	Applicable Physical HS-DSCH UE categories	Comments

1	**360**	**QPSK**	**1**	**30**	**1 to 20**	
2	**712**	**QPSK**	**2**	**9**	**1 to 20**	
3	**1072**	**QPSK**	**3**	**9**	**1 to 20**	
4	**1432**	**QPSK**	**4**	**9**	**1 to 20**	
5	**1776**	**QPSK**	**5**	**9**	**1 to 20**	
6	**2128**	**QPSK**	**5**	**19**	**1 to 6,11 and 12**	
6	**2128**	**QPSK**	**7**	**0**	**7 to 10 and 13 to 20**	
7	**2496**	**QPSK**	**5**	**28**	**1 to 6,11 and 12**	
7	**2496**	**QPSK**	**8**	**1**	**7 to 10 and 13 to 20**	
8	**2832**	**QPSK**	**5**	**35**	**1 to 6,11 and 12**	
8	**2832**	**QPSK**	**9**	**2**	**7 to 10 and 13 to 20**	
9	**3208**	**QPSK**	**5**	**42**	**1 to 6,11 and 12**	
9	**3208**	**QPSK**	**10**	**3**	**7 to 10 and 13 to 20**	
10	**3576**	**QPSK**	**5**	**48**	**1 to 6,11 and 12**	
10	**3576**	**QPSK**	**10**	**9**	**7 and 8**	
10	**3576**	**QPSK**	**11**	**4**	**9 to 10 and 13 to 20**	
11	**3912**	**QPSK**	**5**	**53**	**1 to 6**	
11	**3912**	**QPSK**	**10**	**14**	**7 and 8**	
11	**3912**	**QPSK**	**12**	**4**	**9 to 10 and 13 to 20**	
12	**4272**	**QPSK**	**5**	**58**	**1 to 6**	
12	**4272**	**QPSK**	**10**	**19**	**7 and 8**	
12	**4272**	**QPSK**	**14**	**0**	**9 to 10 and 13 to 20**	
13	**4592**	**QPSK**	**5**	**62**	**1 to 6**	
13	**4592**	**QPSK**	**10**	**23**	**7 and 8**	
13	**4592**	**QPSK**	**15**	**0**	**9 to 10 and 13 to 20**	
14	**4936**	**QPSK**	**10**	**27**	**7 and 8**	
14	**4936**	**QPSK**	**15**	**4**	**9 to 10 and 13 to 20**	
15	**5296**	**QPSK**	**10**	**31**	**7 and 8**	
15	**5296**	**QPSK**	**15**	**8**	**9 to 10 and 13 to 20**	
16	**5688**	**QPSK**	**10**	**35**	**7 and 8**	
16	**5688**	**QPSK**	**15**	**12**	**9 to 10 and 13 to 20**	
17	**6008**	**QPSK**	**10**	**38**	**7 and 8**	
17	**6008**	**QPSK**	**15**	**15**	**9 to 10 and 13 to 20**	
18	**6448**	**QPSK**	**10**	**42**	**7 and 8**	
18	**6448**	**QPSK**	**15**	**19**	**9 to 10 and 13 to 20**	
19	**6808**	**QPSK**	**10**	**45**	**7 and 8**	
19	**6808**	**QPSK**	**15**	**22**	**9 to 10 and 13 to 20**	
20	**7056**	**QPSK**	**10**	**47**	**7 and 8**	
20	**7056**	**QPSK**	**15**	**24**	**9 to 10 and 13 to 20**	
21	**7576**	**QPSK**	**10**	**51**	**7 and 8**	TFRI = 50 would have minimised padding but is not acceptable as the coding rate (0.777) would have given 3.5 dB due to turbo coder irregularities. TFRI=51 is selected.
21	**7440**	**QPSK**	**15**	**27**	**9 to 10 and 13 to 20**	
22	**7856**	**QPSK**	**10**	**53**	**7 and 8**	
22	**7856**	**QPSK**	**15**	**30**	**9 to 10 and 13 to 20**	
23	**8136**	**QPSK**	**10**	**55**	**7 and 8**	
23	**8136**	**QPSK**	**15**	**32**	**9 to 10 and 13 to 20**	
24	**8592**	**QPSK**	**10**	**58**	**7 and 8**	

24	**8592**	**QPSK**	**15**	**35**	**9 to 10 and 13 to 20**	
25	**8904**	**QPSK**	**10**	**60**	**7 and 8**	
25	**8904**	**QPSK**	**15**	**37**	**9 to 10 and 13 to 20**	
26	**9224**	**QPSK**	**10**	**62**	**7 and 8**	
26	**9224**	**QPSK**	**15**	**39**	**9 to 10 and 13 to 20**	

Table 14.1.3.4b.1.2: Test points for 16QAM and fixed MAC-d PDU size=336

# MAC-d PDUs	Selected TBS	Modulation scheme	Number of codes	TFRI	Applicable Physical HS-DSCH UE categories	Comments

2	712	16QAM	1	9	1 to 10 and 13 to 20	
3	1072	16QAM	1	32	1 to 10 and 13 to 20	
4	1432	16QAM	2	9	1 to 10 and 13 to 20	
5	1776	16QAM	2	21	1 to 10 and 13 to 20	
6	2128	16QAM	3	9	1 to 10 and 13 to 20	
7	2496	16QAM	4	1	1 to 10 and 13 to 20	
8	2832	16QAM	4	8	1 to 10 and 13 to 20	
9	3208	16QAM	5	3	1 to 10 and 13 to 20	
10	3576	16QAM	5	9	1 to 10 and 13 to 20	
11	3912	16QAM	5	14	1 to 6	
11	3912	16QAM	6	4	7 to 10 and 13 to 20	
12	4272	16QAM	5	19	1 to 6	
12	4272	16QAM	7	0	7 to 10 and 13 to 20	
13	4592	16QAM	5	23	1 to 6	
13	4592	16QAM	7	4	7 to 10 and 13 to 20	
14	4936	16QAM	5	27	1 to 6	
14	4936	16QAM	8	1	7 to 10 and 13 to 20	
15	5296	16QAM	5	31	1 to 6	
15	5296	16QAM	8	5	7 to 10 and 13 to 20	
16	5688	16QAM	5	35	1 to 6	
16	5688	16QAM	9	2	7 to 10 and 13 to 20	
17	6008	16QAM	5	38	1 to 6	
17	6008	16QAM	9	5	7 to 10 and 13 to 20	
18	6448	16QAM	5	42	1 to 6	
18	6448	16QAM	10	3	7 to 10 and 13 to 20	
19	6808	16QAM	5	45	1 to 6	
19	6808	16QAM	10	6	7 and 8	
19	6808	16QAM	11	1	9 to 10 and 13 to 20	
20	7056	16QAM	5	47	1 to 6	
20	7056	16QAM	10	8	7 and 8	
20	7056	16QAM	11	3	9 to 10 and 13 to 20	
21	7440	16QAM	10	11	7 and 8	
21	7440	16QAM	12	1	9 to 10 and 13 to 20	
22	7856	16QAM	10	14	7 and 8	
22	7856	16QAM	13	0	9 to 10 and 13 to 20	
23	8136	16QAM	10	16	7 and 8	
23	8136	16QAM	13	2	9 to 10 and 13 to 20	
24	8592	16QAM	10	19	7 and 8	
24	8592	16QAM	14	0	9 to 10 and 13 to 20	
25	8904	16QAM	10	21	7 and 8	
25	8904	16QAM	14	2	9 to 10 and 13 to 20	
26	9224	16QAM	10	23	7 and 8	
26	9224	16QAM	15	1	9 to 10 and 13 to 20	

Table 14.1.3.4b.1.3: Test points for 64QAM and fixed MAC-d PDU size=336

# MAC-d PDUs	Selected TBS	Modulation scheme	Number of codes	TFRI	Applicable Physical HS-DSCH UE categories	Comments

3	1072	64QAM	1	9	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20	
4	1432	64QAM	1	25	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20	
5	1776	64QAM	1	37	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20	
6	2128	64QAM	2	9	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20	
7	2496	64QAM	2	18	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20	
8	2832	64QAM	3	2	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20	
9	3208	64QAM	3	9	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20	
10	3576	64QAM	3	15	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20	
11	3912	64QAM	4	4	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20	
12	4272	64QAM	4	9	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20	
13	4592	64QAM	5	0	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20	
14	4936	64QAM	5	4	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20	
15	5296	64QAM	5	8	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20	
16	5688	64QAM	6	2	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20	
17	6008	64QAM	6	5	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20	
18	6448	64QAM	7	0	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20	
19	6808	64QAM	7	3	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20	
20	7056	64QAM	7	5	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20	
21	7440	64QAM	8	1	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20	
22	7856	64QAM	8	4	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20	
23	8136	64QAM	8	6	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20	
24	8592	64QAM	9	2	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20	
25	8904	64QAM	9	4	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20	
26	9224	64QAM	10	1	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20	

14.1.3.4b.2 TFRC test points for MAC-ehs and fixed MAC-d PDU size=656 or flexible MAC-d PDU size; or for radio bearer combinations with mix of fixed and flexible MAC-d PDU sizes

NOTE 1 For M= QPSK then table 14.1.3.4b.2.1 is used. For M= 16QAM then table 14.1.3.4b.2.2 is used. For M= 64QAM then table 14.1.3.4b.2.3 is used. For the case of Dual Cell or MIMO and mix of QPSK and 16QAM for MIMO data flow#1 and MIMO data flow#2 then table 14.1.3.4b.2.4 is used.

NOTE 2 Column "Applicable Physical HS-DSCH UE categories" defines the applicability of test points vs. Physical HS-DSCH UE categories.

NOTE 3 For the case a configuration with flexible MAC-d PDU size is under test then the parameter as denoted N_{PDUs} is only used to index the test points. For the case of configuration with fixed MAC-d PDU size=656 then this parameter also indicates the number of MAC-d PDUs the SS use when transmitting the test data in downlink.

Table 14.1.3.4b.2.1: Test points for QPSK, fixed MAC-d PDU size=656 or flexible MAC-d PDU size; or for radio bearer combinations with mix of fixed and flexible MAC-d PDU sizes

# MAC-d PDUs # MAC-d PDUs for the fixed RLC case	Selected TBS	Modulation scheme	Number of codes	TFRI	Applicable Physical HS-DSCH UE categories	Comments

1	**688**	**QPSK**	**2**	**7**	**1 to 24**	
2	**1360**	**QPSK**	**4**	**6**	**1 to 24**	
3	**2048**	**QPSK**	**5**	**17**	**1 to 6,11 and 12**	
3	**2048**	**QPSK**	**6**	**7**	**7 to 10 and 13 to 24**	
4	**2736**	**QPSK**	**5**	**33**	**1 to 6,11 and 12**	
4	**2736**	**QPSK**	**9**	**0**	**7 to 10 and 13 to 24**	
5	**3384**	**QPSK**	**5**	**45**	**1 to 6,11 and 12**	
5	**3384**	**QPSK**	**10**	**6**	**7 and 8**	
5	**3384**	**QPSK**	**11**	**1**	**9 to 10 and 13 to 24**	
6	**4048**	**QPSK**	**5**	**55**	**1 to 6**	
6	**4048**	**QPSK**	**10**	**16**	**7 and 8**	
6	**4048**	**QPSK**	**13**	**1**	**9 to 10 and 13 to 24**	
7	**4760**	**QPSK**	**10**	**25**	**7 and 8**	
7	**4760**	**QPSK**	**15**	**2**	**9 to 10 and 13 to 24**	
8	**5392**	**QPSK**	**10**	**32**	**7 and 8**	
8	**5392**	**QPSK**	**15**	**9**	**9 to 10 and 13 to 24**	
9	**6112**	**QPSK**	**10**	**39**	**7 and 8**	
9	**6112**	**QPSK**	**15**	**16**	**9 to 10 and 13 to 24**	
10	**6808**	**QPSK**	**10**	**45**	**7 and 8**	
10	**6808**	**QPSK**	**15**	**22**	**9 to 10 and 13 to 24**	
11	**7576**	**QPSK**	**10**	**51**	**7 and 8**	TFRI = 50 would have minimised padding but is not acceptable as the coding rate (0.777) would have given 3.5 dB due to turbo coder irregularities. TFRI=51 is selected.
11	**7440**	**QPSK**	**15**	**27**	**9 to 10 and 13 to 24**	
12	**8136**	**QPSK**	**10**	**55**	**7 and 8**	
12	**8136**	**QPSK**	**15**	**32**	**9 to 10 and 13 to 24**	
13	**8904**	**QPSK**	**10**	**60**	**7 and 8**	TFRI = 59 would have minimised padding but is not acceptable as the coding rate (0.913) would have given 2 dB due to turbo coder irregularities. TFRI=60 is selected.
13	**8744**	**QPSK**	**15**	**36**	**9 to 10 and 13 to 24**	
14	**9560**	**QPSK**	**15**	**41**	**9 to 10 and 13 to 24**	
15	**10088**	**QPSK**	**15**	**44**	**9 to 10 and 13 to 24**	
16	**10840**	**QPSK**	**15**	**48**	**9 to 10 and 13 to 24**	
17	**11432**	**QPSK**	**15**	**51**	**9 to 10 and 13 to 24**	
18	**12280**	**QPSK**	**15**	**55**	**9 to 10 and 13 to 24**	
19	**12960**	**QPSK**	**15**	**58**	**9 to 10 and 13 to 24**	
20	**13672**	**QPSK**	**15**	**61**	**9 to 10 and 13 to 24**	

Table 14.1.3.4b.2.2: Test points for 16QAM, fixed MAC-d PDU size=656 or flexible MAC-d PDU size; or for radio bearer combinations with mix of fixed and flexible MAC-d PDU sizes

# MAC-d PDUs# MAC	Selected TBS	Modulation scheme	Number of codes	TFRI	Applicable Physical HS-DSCH UE	Comments

-d PDUs for the fixed RLC case					categories	

1	688	16QAM	1	7	1 to 10 and 13 to 28	
2	1360	16QAM	2	6	1 to 10 and 13 to 28	
3	2048	16QAM	3	7	1 to 10 and 13 to 28	
4	2736	16QAM	4	6	1 to 10 and 13 to 28	
5	3384	16QAM	5	6	1 to 10 and 13 to 28	
6	4048	16QAM	5	16	1 to 6	
6	4048	16QAM	6	6	7 to 10 and 13 to 28	
7	4760	16QAM	5	25	1 to 6	
7	4760	16QAM	7	6	7 to 10 and 13 to 28	
8	5392	16QAM	5	32	1 to 6	
8	5392	16QAM	8	6	7 to 10 and 13 to 28	
9	6112	16QAM	5	39	1 to 6	
9	6112	16QAM	10	0	7 to 10 and 13 to 28	
10	6808	16QAM	5	45	1 to 6	
10	6808	16QAM	10	6	7 and 8	
10	6808	16QAM	11	1	9 to 10 and 13 to 28	
11	7440	16QAM	10	11	7 and 8	
11	7440	16QAM	12	1	9 to 10 and 13 to 28	
12	8136	16QAM	10	16	7 and 8	
12	8136	16QAM	13	2	9 to 10 and 13 to 28	
13	8744	16QAM	10	20	7 and 8	
13	8744	16QAM	14	1	9 to 10 and 13 to 28	
14	9560	16QAM	10	25	7 and 8	
14	9560	16QAM	15	3	9 to 10 and 13 to 28	
15	10088	16QAM	10	28	7 and 8	
15	10088	16QAM	15	6	9 to 10 and 13 to 28	
16	10840	16QAM	10	32	7 and 8	
16	10840	16QAM	15	10	9 to 10 and 13 to 28	
17	11432	16QAM	10	35	7 and 8	
17	11432	16QAM	15	13	9 to 10 and 13 to 28	
18	12280	16QAM	10	39	7 and 8	
18	12280	16QAM	15	17	9 to 10 and 13 to 28	
19	12960	16QAM	10	42	7 and 8	
19	12960	16QAM	15	20	9 to 10 and 13 to 28	
20	13672	16QAM	10	45	7 and 8	
20	13672	16QAM	15	23	9 to 10 and 13 to 28	

21	**14168**	**16QAM**	**10**	**47**	**7 and 8**	
21	**14168**	**16QAM**	**15**	**25**	**9 to 10 and 13 to 28**	
22	**14952**	**16QAM**	**15**	**28**	**9 to 10 and 13 to 28**	
23	**15496**	**16QAM**	**15**	**30**	**9 to 10 and 13 to 28**	
24	**16352**	**16QAM**	**15**	**33**	**9 to 10 and 13 to 28**	
25	**16944**	**16QAM**	**15**	**35**	**9 to 10 and 13 to 28**	
26	**17568**	**16QAM**	**15**	**37**	**9 to 10 and 13 to 28**	
(27)	**17880**	**16QAM**	**15**	**38**	**9 to 10 and 13 to 28**	See Note 1
(28)	**18536**	**16QAM**	**15**	**40**	**9 to 10 and 13 to 28**	See Note 1
(29)	**19208**	**16QAM**	**15**	**42**	**9 to 10 and 13 to 28**	See Note 1
(30)	**19904**	**16QAM**	**15**	**44**	**9 to 10 and 13 to 28**	See Note 1
(31)	**20632**	**16QAM**	**15**	**46**	**10 and 13 to 28**	See Note 1
(32)	**21384**	**16QAM**	**15**	**48**	**10 and 13 to 28**	See Note 1
(33)	**21768**	**16QAM**	**15**	**49**	**10 and 13 to 28**	See Note 1
(34)	**22968**	**16QAM**	**15**	**52**	**10 and 13 to 28**	See Note 1 TFRI = 51 would have minimised padding but is not acceptable as the coding rate (0.784) would have given 3.5 dB due to turbo coder irregularities TFRI=52 is selected.
(35)	**23384**	**16QAM**	**15**	**53**	**10, 13, 14,16, 17 non-MIMO, 20, 24 and 28**	See Note 1
(36)	**23808**	**16QAM**	**15**	**54**	**10, 13, 14,16, 17 non-MIMO, 20, 24 and 28**	See Note 1
(37)	**24672**	**16QAM**	**15**	**56**	**10, 13, 14,16, 17 non-MIMO, 20, 24 and 28**	See Note 1
(38)	**25568**	**16QAM**	**15**	**58**	**10, 13, 14,16, 17 non-MIMO, 20, 24 and 28**	See Note 1 TFRI = 57 would have minimised padding but is not acceptable as the coding rate (0.873) would have given 2 dB due to turbo coder irregularities TFRI=58 is selected.
(39)	**26032**	**16QAM**	**15**	**59**	**10, 13, 14,16, 17 non-MIMO, 20, 24 and 28**	See Note 1
(40)	**26504**	**16QAM**	**15**	**60**	**10, 13, 14,16, 17 non-MIMO, 20, 24 and 28**	See Note 1
(41)	**26976**	**16QAM**	**15**	**61**	**10, 13, 14,16, 17 non-MIMO, 20, 24 and 28**	See Note 1

Note 1: This test point is not applicable for the fixed RLC case as the number of MAC-d PDUs would have exceeded the maximum limit of 26 as specified by TS 25.321 clause 9.1.4. When flexible MAC-d PDU size is under test then the parameter as denoted (x) is only used to index the test points

Table 14.1.3.4b.2.3: Test points for 64QAM, fixed MAC-d PDU size=656 or flexible MAC-d PDU size; or for radio bearer combinations with mix of fixed and flexible MAC-d PDU sizes

# MAC-d PDUs# MAC-d PDUs for the fixed RLC case	Selected TBS	Modulation scheme	Number of codes	TFRI	Applicable Physical HS-DSCH UE categories	Comments

2	1360	64QAM	1	22	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28	
3	2048	64QAM	2	7	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28	
4	2736	64QAM	3	0	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28	
5	3384	64QAM	3	12	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28	
6	4048	64QAM	4	6	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28	
7	4760	64QAM	5	2	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28	
8	5392	64QAM	5	9	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28	
9	6112	64QAM	6	6	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28	
10	6808	64QAM	7	3	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28	
11	7440	64QAM	8	1	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28	
12	8136	64QAM	8	6	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28	
13	8744	64QAM	9	3	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28	
14	9560	64QAM	10	3	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28	
15	10088	64QAM	11	0	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28	
16	10840	64QAM	11	4	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28	
17	11432	64QAM	12	2	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28	
18	12280	64QAM	13	2	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28	
19	12960	64QAM	14	1	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28	
20	13672	64QAM	14	4	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28	
21	14168	64QAM	15	1	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28	
22	14952	64QAM	15	4	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28	
23	15496	64QAM	15	6	13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28	

24	**16352**	**64QAM**	**15**	**9**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	
25	**16944**	**64QAM**	**15**	**11**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	
26	**17568**	**64QAM**	**15**	**13**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	
(27)	**17880**	**64QAM**	**15**	**14**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1
(28)	**18536**	**64QAM**	**15**	**16**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1
(29)	**19208**	**64QAM**	**15**	**18**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1
(30)	**19904**	**64QAM**	**15**	**20**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1
(31)	**20632**	**64QAM**	**15**	**22**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1
(32)	**21384**	**64QAM**	**15**	**24**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1
(33)	**21768**	**64QAM**	**15**	**25**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1
(34)	**22560**	**64QAM**	**15**	**27**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1
(35)	**23384**	**64QAM**	**15**	**29**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1
(36)	**23808**	**64QAM**	**15**	**30**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1
(37)	**24672**	**64QAM**	**15**	**32**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1
(38)	**25120**	**64QAM**	**15**	**33**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1
(39)	**26032**	**64QAM**	**15**	**35**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1
(40)	**26504**	**64QAM**	**15**	**36**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1
(41)	**26976**	**64QAM**	**15**	**37**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1
(42)	**27960**	**64QAM**	**15**	**39**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1
(43)	**28464**	**64QAM**	**15**	**40**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1
(44)	**28976**	**64QAM**	**15**	**41**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1
(45)	**30032**	**64QAM**	**15**	**43**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1

(46)	**30576**	**64QAM**	**15**	**44**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1
(47)	**31128**	**64QAM**	**15**	**45**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1
(48)	**31688**	**64QAM**	**15**	**46**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1
(49)	**32264**	**64QAM**	**15**	**47**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1
(50)	**32848**	**64QAM**	**15**	**48**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1
(51)	**Void**					
(52)	**34656**	**64QAM**	**15**	**51**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1
(53)	**35280**	**64QAM**	**15**	**52**	**13, 14, 17 non-MIMO, 18 non-MIMO, 19, 20, 23, 24, 27, 28**	See Note 1
(54)	**35920**	**64QAM**	**15**	**53**	**14 and 18 non-MIMO, 20, 24, 28**	See Note 1
(55)	**36568**	**64QAM**	**15**	**54**	**14 and 18 non-MIMO, 20, 24, 28**	See Note 1
(56)	**37224**	**64QAM**	**15**	**55**	**14 and 18 non-MIMO, 20, 24, 28**	See Note 1
(57)	**Void**					
(58)	**38576**	**64QAM**	**15**	**57**	**14 and 18 non-MIMO, 20, 24, 28**	See Note 1
(59)	**39272**	**64QAM**	**15**	**58**	**14 and 18 non-MIMO, 20, 24, 28**	See Note 1
(60)	**39984**	**64QAM**	**15**	**59**	**14 and 18 non-MIMO, 20, 24, 28**	See Note 1
(61)	**40704**	**64QAM**	**15**	**60**	**14 and 18 non-MIMO, 20, 24, 28**	See Note 1
(62)	**Void**					
(63)	**Void**					
(64)	**42192**	**64QAM**	**15**	**62**	**14 and 18 non-MIMO, 20, 24, 28**	See Note 1
Note 1: This test point is not applicable for the fixed RLC case as the number of MAC-d PDUs would have exceeded the maximum limit of 26 as specified by TS 25.321 clause 9.1.4. When flexible MAC-d PDU size is under test then the parameter as denoted (x) is only used to index the test points						

Table 14.1.3.4b.2.4: Test points for Dual Cell or MIMO and mix of 16QAM and QPSK for Dual Cell or MIMO data flow#1 and Dual Cell or MIMO data flow#2, fixed MAC-d PDU size=656 or flexible MAC-d PDU size; or for radio bearer combinations with mix of fixed and flexible MAC-d PDU sizes

Test point Index See note 1	Number of codes	Dual Cell or MIMO Flow#1				Dual Cell or MIMO Flow#2				Applicable Physical HS-DSCH UE categories	Comments
		# MAC-d PDUs# MAC-d PDUs for the fixed RLC case	Selected TBS (TBS1)	Modulation scheme (M1)	TFRI1	# MAC-d PDUs # MAC-d PDUs for the fixed RLC case	Selected TBS (TBS2)	Modulation scheme (M2)	TFRI2		

1	**2**	**2**	**1360**	**16QAM**	**6**	**1**	**688**	**QPSK**	**7**	**15 to 24**	
2	**4**	**4**	**2736**	**16QAM**	**6**	**2**	**1360**	**QPSK**	**6**	**15 to 24**	
3											Void
4	**6**	**6**	**4048**	**16QAM**	**6**	**3**	**2048**	**QPSK**	**7**	**15 to 24**	
5											Void
6	**9**	**8**	**6112**	**16QAM**	**6**	**4**	**2736**	**QPSK**	**0**	**15 to 24**	
7											Void
8											Void
9	**11**	**10**	**6608**	**16QAM**	**1**	**5**	**3384**	**QPSK**	**1**	**15 to 24**	
10											Void
11											Void
12	**13**	**12**	**8136**	**16QAM**	**2**	**6**	**4048**	**QPSK**	**1**	**15 to 24**	
13											Void
14	**15**	**14**	**9560**	**16QAM**	**3**	**7**	**4760**	**QPSK**	**2**	**15 to 24**	
15											Void
16	**15**	**15**	**10088**	**16QAM**	**6**	**8**	**5392**	**QPSK**	**9**	**15 to 24**	
17											Void
18	**15**	**16**	**10840**	**16QAM**	**10**	**9**	**6112**	**QPSK**	**16**	**15 to 24**	
19											Void
20	**15**	**17**	**11432**	**16QAM**	**13**	**10**	**6808**	**QPSK**	**22**	**15 to 24**	
21											Void
22	**15**	**18**	**12280**	**16QAM**	**17**	**11**	**7440**	**QPSK**	**27**	**15 to 24**	
23											Void
24	**15**	**19**	**12960**	**16QAM**	**20**	**12**	**8136**	**QPSK**	**32**	**15 to 24**	
25											Void
26	**15**	**20**	**13672**	**16QAM**	**23**	**13**	**8744**	**QPSK**	**36**	**15 to 24**	
27	**Void**										
28	**15**	**21**	**14168**	**16QAM**	**25**	**14**	**9560**	**QPSK**	**41**	**15 to 24**	
29	**15**	**22**	**14952**	**16QAM**	**28**	**15**	**10088**	**QPSK**	**44**	**15 to 24**	
30	**15**	**23**	**15496**	**16QAM**	**30**	**16**	**10840**	**QPSK**	**48**	**15 to 24**	
31	**15**	**24**	**16352**	**16QAM**	**33**	**17**	**11432**	**QPSK**	**51**	**15 to 24**	
32	**15**	**25**	**16944**	**16QAM**	**35**	**18**	**12280**	**QPSK**	**55**	**15 to 24**	

33	**15**	**26**	**17568**	**16QAM**	**37**	**19**	**12960**	**QPSK**	**58**	**15 to 24**	
34	**15**	**n/a (27)**	**17880**	**16QAM**	**38**	**20**	**13672**	**QPSK**	**61**	**15 to 24**	See note 2
35											Void

Note 1: The test point index is included to provide a unique reference to the different test points for the Dual Cell or MIMO mixed modulation case.
Note 2: This test point is not applicable for the fixed RLC case as the number of MAC-d PDUs would have exceeded the maximum limit of 26 as specified by TS 25.321 clause 9.1.4.

Table 14.1.3.4b.2.5: Test points for Dual Cell or MIMO and mix of 64QAM and QPSK for Dual Cell or MIMO data flow#1 and Dual Cell or MIMO data flow#2, fixed MAC-d PDU size=656 or flexible MAC-d PDU size; or for radio bearer combinations with mix of fixed and flexible MAC-d PDU sizes

Test point Index See note 1	Number of codes	Dual Cell or MIMO Flow#1				Dual Cell or MIMO Flow#2				Applicable Physical HS-DSCH UE categories	Comments
		# MAC-d PDUs # MAC-d PDUs for the fixed RLC case	Selected TBS (TBS1)	Modulation scheme (M1)	TFRI1	# MAC-d PDUs # MAC-d PDUs for the fixed RLC case	Selected TBS (TBS2)	Modulation scheme (M2)	TFRI2		

1	**2**	**3**	**2048**	**64QAM**	**7**	**1**	**688**	**QPSK**	**7**	**19, 20, 23, 24**	
2	**4**	**6**	**4048**	**64QAM**	**6**	**2**	**1360**	**QPSK**	**6**	**19, 20, 23, 24**	
3											Void
4	**6**	**9**	**6112**	**64QAM**	**6**	**3**	**2048**	**QPSK**	**7**	**19, 20, 23, 24**	
5											Void
6	**9**	**13**	**8744**	**64QAM**	**3**	**4**	**2736**	**QPSK**	**0**	**19, 20, 23, 24**	
7											Void
8											Void
9	**11**	**16**	**10840**	**64QAM**	**4**	**5**	**3384**	**QPSK**	**1**	**19, 20, 23, 24**	
10											Void
11											Void
12	**13**	**18**	**12280**	**64QAM**	**2**	**6**	**4048**	**QPSK**	**1**	**19, 20, 23, 24**	
13											Void
14	**15**	**21**	**14168**	**64QAM**	**1**	**7**	**4760**	**QPSK**	**2**	**19, 20, 23, 24**	
15											Void
16	**15**	**22**	**14952**	**64QAM**	**4**	**8**	**5392**	**QPSK**	**9**	**19, 20, 23, 24**	
17											Void
18	**15**	**23**	**15496**	**64QAM**	**6**	**9**	**6112**	**QPSK**	**16**	**19, 20, 23, 24**	
19											Void
20	**15**	**24**	**16352**	**64QAM**	**9**	**10**	**6808**	**QPSK**	**22**	**19, 20, 23, 24**	
21											Void
22	**15**	**25**	**16944**	**64QAM**	**11**	**11**	**7440**	**QPSK**	**27**	**19, 20, 23, 24**	
23											Void
24	**15**	**26**	**17568**	**64QAM**	**13**	**12**	**8136**	**QPSK**	**32**	**19, 20, 23, 24**	
25											Void
26	**15**	**(27)**	**17880**	**64QAM**	**14**	**13**	**8744**	**QPSK**	**36**	**19, 20, 23, 24**	See note 2
27											Void
28	**15**	**(32)**	**21384**	**64QAM**	**24**	**14**	**9560**	**QPSK**	**41**	**19, 20, 23,**	See note 2

										24	
29	**15**	**(37)**	**24672**	**64QAM**	**32**	**15**	**10088**	**QPSK**	**44**	**19, 20, 23, 24**	See note 2
30	**15**	**(42)**	**27960**	**64QAM**	**39**	**16**	**10840**	**QPSK**	**48**	**19, 20, 23, 24**	See note 2
31	**15**	**(46)**	**30576**	**64QAM**	**44**	**17**	**11432**	**QPSK**	**51**	**19, 20, 23, 24**	See note 2
32	**15**	**(50)**	**32848**	**64QAM**	**48**	**18**	**12280**	**QPSK**	**55**	**19, 20, 23, 24**	See note 2
33	**15**	**(56)**	**37224**	**64QAM**	**55**	**19**	**12960**	**QPSK**	**58**	**20, 24**	See note 2
34	**15**	**(59)**	**39272**	**64QAM**	**58**	**20**	**13672**	**QPSK**	**61**	**20, 24**	See note 2
35											Void

Note 1: The test point index is included to provide a unique reference to the different test points for the Dual-Cell or MIMO mixed modulation case.
Note 2: This test point is not applicable for the fixed RLC case as the number of MAC-d PDUs would have exceeded the maximum limit of 26 as specified by TS 25.321 clause 9.1.4.

Table 14.1.3.4b.2.6: Test points for Dual-Cell or MIMO and mix of 64QAM and 16QAM for Dual-Cell or MIMO data flow#1 and Dual-Cell or MIMO data flow#2, fixed MAC-d PDU size=656 or flexible MAC-d PDU size; or for radio bearer combinations with mix of fixed and flexible MAC-d PDU sizes

Test point Index See note 1	Number of codes	Dual-Cell or MIMO Flow#1				Dual-Cell or MIMO Flow#2				Applicable Physical HS-DSCH UE categories	Comments
		# MAC-d PDUs # MAC-d PDUs for the fixed RLC case	Selected TBS (TBS1)	Modulation scheme (M1)	TFRI1	# MAC-d PDUs # MAC-d PDUs for the fixed RLC case	Selected TBS (TBS2)	Modulation scheme (M2)	TFRI2		

1	**2**	**3**	**2048**	**64QAM**	**7**	**2**	**1360**	**16QAM**	**6**	**19, 20, 23, 24, 27, 28**	
2	**4**	**6**	**4048**	**64QAM**	**6**	**4**	**2736**	**16QAM**	**6**	**19, 20, 23, 24, 27, 28**	
3	**5**	**8**	**5392**	**64QAM**	**9**	**5**	**3384**	**16QAM**	**6**	**19, 20, 23, 24, 27, 28**	
4	**6**	**9**	**6112**	**64QAM**	**6**	**6**	**4048**	**16QAM**	**6**	**19, 20, 23, 24, 27, 28**	
5	**7**	**10**	**6808**	**64QAM**	**3**	**7**	**4760**	**16QAM**	**6**	**19, 20, 23, 24, 27, 28**	
6	**8**	**12**	**8136**	**64QAM**	**6**	**8**	**5392**	**16QAM**	**6**	**19, 20, 23, 24, 27, 28**	
7	**10**	**14**	**9560**	**64QAM**	**3**	**9**	**6112**	**16QAM**	**0**	**19, 20, 23, 24, 27, 28**	
8											Void
9	**11**	**16**	**10840**	**64QAM**	**4**	**10**	**6808**	**16QAM**	**1**	**19, 20, 23, 24, 27, 28**	
10											Void
11	**12**	**17**	**11432**	**64QAM**	**2**	**11**	**7440**	**16QAM**	**1**	**19, 20, 23, 24, 27, 28**	
12	**13**	**18**	**12280**	**64QAM**	**2**	**12**	**8136**	**16QAM**	**2**	**19, 20, 23, 24, 27, 28**	
13	**14**	**20**	**13672**	**64QAM**	**4**	**13**	**8744**	**16QAM**	**1**	**19, 20, 23, 24, 27, 28**	
14	**15**	**21**	**14168**	**64QAM**	**1**	**14**	**9560**	**16QAM**	**3**	**19, 20, 23, 24, 27, 28**	
15											Void
16	**15**	**22**	**14952**	**64QAM**	**4**	**15**	**10088**	**16QAM**	**6**	**19, 20, 23, 24, 27, 28**	
17											Void
18	**15**	**23**	**15496**	**64QAM**	**6**	**16**	**10840**	**16QAM**	**10**	**19, 20, 23, 24, 27, 28**	
19											Void
20	**15**	**24**	**16352**	**64QAM**	**9**	**17**	**11432**	**16QAM**	**13**	**19, 20, 23, 24, 27, 28**	
21											Void
22	**15**	**25**	**16944**	**64QAM**	**11**	**18**	**12280**	**16QAM**	**17**	**19, 20, 23, 24, 27, 28**	
23											Void
24	**15**	**26**	**17568**	**64QAM**	**13**	**19**	**12960**	**16QAM**	**20**	**19, 20, 23, 24, 27, 28**	
25											Void
26	**15**	**(27)**	**17880**	**64QAM**	**14**	**20**	**13672**	**16QAM**	**23**	**19, 20, 23,**	See note 2

										24, 27, 28	
27						**-**	**-**	**-**	**-**	**-**	Void
28	**15**	**(32)**	**21384**	**64QAM**	**24**	**21**	**14168**	**16QAM**	**25**	**19, 20, 23, 24, 27, 28**	See note 2
29	**15**	**(37)**	**24672**	**64QAM**	**32**	**22**	**14952**	**16QAM**	**28**	**19, 20, 23, 24, 27, 28**	See note 2
30	**15**	**(42)**	**27960**	**64QAM**	**39**	**23**	**15496**	**16QAM**	**30**	**19, 20, 23, 24, 27, 28**	See note 2
31	**15**	**(46)**	**30576**	**64QAM**	**44**	**24**	**16352**	**16QAM**	**33**	**19, 20, 23, 24, 27, 28**	See note 2
32	**15**	**(50)**	**32848**	**64QAM**	**48**	**25**	**16944**	**16QAM**	**35**	**19, 20, 23, 24, 27, 28**	See note 2
33	**15**	**(56)**	**37224**	**64QAM**	**55**	**26**	**17568**	**16QAM**	**37**	**20, 24, 28**	See note 2
34	**15**	**(59)**	**39272**	**64QAM**	**58**	**(27)**	**17880**	**16QAM**	**38**	**20, 24, 28**	See note 2
35	**15**	**(64)**	**42192**	**64QAM**	**62**	**(28)**	**18536**	**16QAM**	**40**	**20, 24, 28**	See note 2
Note 1: The test point index is included to provide a unique reference to the different test points for the Dual-Cell or MIMO mixed modulation case. Note 2: This test point is not applicable for the fixed RLC case as the number of MAC-d PDUs would have exceeded the maximum limit of 26 as specified by TS 25.321 clause 9.1.4.											

14.1.3.5 Generic test procedure for HS-DSCH radio bearer combinations with non-enhanced Layer 2

This procedure is used to test HS-DSCH radio bearer combinations with non-enhanced layer 2. The procedure is run once for each sub-test of the actual HS-DSCH radio bearer test case.

Definition of test variables:

$N_{\underline{codes}}$	Number of HS-DSCH codes (1..15, maximum number dependent on UE category)
M	Type of modulation scheme (QPSK, 16QAM, 64QAM)
TB_{size}	Transport Block size
N_{PDUs}	Number of MAC-d PDUs
$H_{\underline{ID}}$	HARQ process identifier (0..7)

Initial conditions

UE in idle mode

Test procedure

- a) The SS establish the reference radio bearer configuration as specified in TS 34.108, clause 6.10 for the actual radio bearer test. For the case when the reference radio bearer configuration includes radio bearers for both CS and PS domain then the radio bearer setup procedure has to be performed once per domain. The first radio bearer setup procedure shall perform configuration of the physical channel for the radio bearer combination under test as well as the transport channels for the CS radio bearer(s). The second radio bearer procedure shall perform the configuration for the transport channel for the PS radio bearers . The Physical channel configuration shall be done for both CS and PS radio bearers combined. Here the transport format combination set for both CS and PS radio bearers shall be provided. See note 1 and note 3.

- b) The SS limits the UE allowed uplink transport format combinations according to the "Restricted UL TFCIs", as specified for the sub-test of the actual radio bearer test, using the RRC transport format combination control procedure. See note 2.

- c) The SS closes the test loop using UE test loop mode 1 and setting the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test.

- d) The SS selects the first TFRC test point (N_{PDUs} , M, $N_{\underline{codes}}$ and TFRI) according to the applicable table in sub-clauses 14.1.3.3 (MAC-d PDU size=336) or 14.1.3.4 (MAC-d PDU size=656).

- e) The SS sets $H_{\underline{ID}} = 0$.

- f) The SS creates 4 DL RLC SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). See note 4.

- g) The SS transmits, for each DTCH mapped to HS-DSCH, 4 DL RLC SDUs concatenated into a MAC-hs PDU using the selected TFRC and $H_{\underline{ID}}$. If the radio bearer combination under test includes downlink DTCHs mapped to DCH then the SS transmits, for all DTCHs mapped to DCH, one or more RLC SDUs having the size equal to the "Test data size" as specified for the sub-test of the actual radio bearer test case.

- h) The SS checks that the content of the UE returned RLC SDUs have the correct content and are received having the correct transport format. See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loopback of RLC SDUs.

- i) The SS sets $H_{\underline{ID}} = (H_{\underline{ID}} + 1)$ modulo $Max\_H_{\underline{ID}}$, where $Max\_H_{\underline{ID}}$ equals the number of HARQ processes to be verified by the actual sub-test
- j) The SS repeats steps f) to i) for the remaining TFRC test point (N_{PDUs} , M, $N_{\underline{codes}}$ and TFRI) according to the applicable table in sub-clauses 14.1.3.3 (MAC-d PDU size=336) or 14.1.3.4 (MAC-d PDU size=656) for the UE category and MAC-d PDU size under test.
- k) The SS opens the UE test loop.
- l) The SS release the radio bearer. See note 5.
- m) Steps a) to l) are repeated for all sub-tests. See note 6.
- n) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The SS configures the physical channel parameters according to the actual UE category under test. The number of soft channel bits per HARQ process is split equally among the number of HARQ processes configured for the actual sub-test - i.e. "Total number of soft channel bits" for the UE category according to table 14.1.3.1.1 divided by the number of HARQ processes under test. The number of reordering queues are 1 for single HS-DSCH radio bearer configurations. The MAC-hs window size, RLC Transmission window size and RLC Receiving window size shall be configured as specified for the actual sub-test.

NOTE 2: The restricted set of uplink TFCIs shall contain all possible TFCI that could happen in a sub-test. The actual TTI of the different radio bearers and signalling radio bearers as well as the possible UE processing delays shall be taken into consideration. The restricted set of TFCIs must comply with the minimum set of TFCIs as specified in TS 25.331, clause 8.6.5.2.

NOTE 3: The MAC-hs window size and RLC Receiver and transmitter window sizes need to be chosen such that the UE capability for "Minimum total RLC AM and MAC-hs buffer size" is not exceeded for the UE category under test.

NOTE 4: The test data for DTCHs mapped on HS-DSCH is divided into 4 RLC SDUs to keep the maximum SDU size below or equal to 1500 octets (1500 octets is the limit of QoS parameter "Max SDU size" in SM).

NOTE 5: The Secondary scrambling code in the RADIO BEARER RELEASE message is set to the same value used in the RADIO BEARER SETUP MESSAGE.

NOTE 6: CS radio bearer is setup once during the first sub-test.

Expected sequence (repeated for each sub-test, see note 3)

Step	Direction		Message	Comments
	UE	SS		

Step	Direction		Message	Comments
	UE	SS		
Case A: PS radio bearers only				
A1	**<--**		SYSTEM INFORMATION (BCCH)	Broadcast
A2	**<--**		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
A3	**-->**		RRC CONNECTION REQUEST (CCCH)	RRC
A4	**<--**		RRC CONNECTION SETUP (CCCH)	RRC
A5	**-->**		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
A6	**-->**		SERVICE REQUEST (DCCH)	GMM
A7	**<--**		SECURITY MODE COMMAND	RRC see note 1
A8	**-->**		SECURITY MODE COMPLETE	RRC see note 1
A9	**<--**		ACTIVATE RB TEST MODE (DCCH)	TC
A10	**-->**		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
A11	**<--**		RADIO BEARER SETUP (DCCH)	RRC PS radio bearer(s) are configured. For the PS radio bearer(s) the 'pdcp info' IE shall be omitted.
A12	**-->**		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
End of branch for Case A				
Case B: CS + PS radio bearers				
B1	**<--**		SYSTEM INFORMATION (BCCH)	Broadcast
B2	**<--**		PAGING TYPE 1 (PCCH)	Paging (CS domain, TMSI)
B3	**-->**		RRC CONNECTION REQUEST (CCCH)	RRC
B4	**<--**		RRC CONNECTION SETUP (CCCH)	RRC
B5	**-->**		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
B6	**-->**		PAGING RESPONSE (DCCH)	RR
B6a	**<--**		AUTHENTICATION REQUEST	
B6b	**-->**		AUTHENTICATION RESPONSE	
B7	**<--**		SECURITY MODE COMMAND	
B8	**-->**		SECURITY MODE COMPLETE	
B9	**<--**		PAGING TYPE 2 (DCCH)	TMSI (GSM-MAP)/ P-TMSI
B9a	**-->**		SERVICE REQUEST (DCCH)	GMM
B9b	**<--**		SECURITY MODE COMMAND	RRC See note 2
B9c	**-->**		SECURITY MODE COMPLETE	RRC
B10	**<--**		ACTIVATE RB TEST MODE (DCCH)	TC
B10a	**-->**		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
B11	**<--**		RADIO BEARER SETUP (DCCH)	RRC CS radio bearer(s) are configured
B12	**-->**		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
B12a	**<--**		RADIO BEARER SETUP (DCCH)	RRC PS radio bearer(s) are configured. For the PS radio bearer the 'pdcp info' IE shall be omitted.
B12b	**-->**		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
End of branch for Case B				
13	**<--**		TRANSPORT FORMAT COMBINATION CONTROL (DCCH)	RRC Transport format combinations is limited to "Restricted UL TFCIs", as specified for the sub-test
14	**<--**		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
15	**-->**		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
16	**SS**			For each DTCHs mapped on HS-DSCH the SS creates test data for the first TFRC . The test data shall be dived into 4 RLC SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 - 8 bits. The SS sets *H*ID = 0.

Step	Direction		Message	Comments
	UE	SS		
17	**<--**		DOWNLINK MAC-hs PDU (HS-DSCH#1) … DOWNLINK MAC-hs PDU (HS-DSCH#N) DL RLC SDU (DL DCH#1) … DL RLC SDU (DL DCH#M)	For each DTCH mapped on HS-DSCH the SS sends test data divided into 4 RLC SDUs for HARQ processed *H*ID. For each DTCH mapped on DCH the SS sends test data using the downlink transport format combination under test.
18	**-->**		UPLINK RLC SDUs	The SS checks, for each DTCH, that the content and transport format of the received UL RLC SDUs are correct.
19	**SS**			The SS sets *H*ID = (*H*ID + 1) modulo *Max_H*ID. The SS creates test data for the next TFRC and repeat steps 17 to 18 until all TFRCs have been tested.
20	**<--**		OPEN UE TEST LOOP (DCCH)	TC
21	**-->**		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
22			RB RELEASE	RRC
23	**<--**		DEACTIVATE RB TEST MODE	TC Optional step
24	**-->**		DEACTIVATE RB TEST MODE COMPLETE	TC Optional step

NOTE 1: In addition to activate integrity protection Step 6 and Step 7 are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.

NOTE 2: For case B (CS+PS radio bearers) the second security mode procedure is needed to enable testing of ciphering on the PS radio bearers.

NOTE 3: For case A (PS radio bearers) steps A1 to A10 will be executed once during first sub-test. For case B (CS+PS radio bearers) steps B1 to B12 will be executed once during first sub-test.

14.1.3.5a Generic test procedure for HS-DSCH radio bearer combinations with enhanced Layer 2

This procedure is used to test HS-DSCH radio bearer combinations with enhanced Layer 2. The procedure is run once for each sub-test of the actual HS-DSCH radio bearer test case.

Definition of test variables common for both the flexible and fixed RLC cases:

$N_{\underline{codes}}$	Number of HS-DSCH codes (1..15, maximum number dependent on UE category)
M	Type of modulation scheme (QPSK, 16QAM, 64QAM)
M1	Type of modulation scheme for MIMO or Dual-Cell data flow#1 for the case different modulations schemes are used for the different data flows (QPSK, 16QAM, 64QAM)
M2	Type of modulation scheme for MIMO or Dual-Cell data flow#2 for the case different modulations schemes are used for the different data flows (QPSK, 16QAM, 64QAM)
M3	Type of modulation scheme for MIMO or Dual-Cell data flow#3 for the case different modulations schemes are used for the different data flows (QPSK, 16QAM, 64QAM)
M4	Type of modulation scheme for MIMO or Dual-Cell data flow#4 for the case different modulations schemes are used for the different data flows (QPSK, 16QAM, 64QAM)
TB_{size}	Transport Block size
TB_{size1}	Transport Block size for M1 modulation scheme. Applicable for Mimo or Dual Cell or combination of Dual Cell with MIMO
TB_{size2}	Transport Block size for M2 modulation scheme. Applicable for Mimo or Dual Cell or combination of Dual Cell with MIMO
TB_{size3}	Transport Block size for M3 modulation scheme. Applicable for combination of Dual Cell with MIMO

TB_{size4}	Transport Block size for M4 modulation scheme. Applicable for combination of Dual Cell with MIMO
H_{ID}	HARQ process identifier (0..7 when MIMO is not supported or when Dual-Cell is supported 0..15 when MIMO is supported)
H_{CONF}	Configured number of HARQ processes for the subtest

Definition of additional test variables for the fixed RLC case:

N_{PDUs}	Number of MAC-d PDUs.

Initial conditions

UE in idle mode

Test procedure

NOTEThe test case should specify if the test procedure is to be executed for the MIMO case, Dual-Cell case or the combination Dual-Cell with MIMO case. If nothing is stated in the test case then the test procedure is to be executed for the non-MIMO or non-Dual-Cell case. The test case should also specify which modulation scheme M the testing is intended for, i.e. if more than one modulation schemes are to be tested then the test case need to specify multiple test executions, one for each modulation scheme. If nothing is specified in the test case then M=QPSK shall be assumed.

- a) The SS establish the reference radio bearer configuration as specified in TS 34.108, clause 6.10 for the actual radio bearer test. For the case when the reference radio bearer configuration includes radio bearers for both CS and PS domain then the radio bearer setup procedure has to be performed once per domain. The first radio bearer setup procedure shall perform configuration of the physical channel for the radio bearer combination under test as well as the transport channels for the CS radio bearer(s). The second radio bearer procedure shall perform the configuration for the transport channel for the PS radio bearers . The Physical channel configuration shall be done for both CS and PS radio bearers combined. Here the transport format combination set for both CS and PS radio bearers shall be provided. See note 1 and note 3.

- b) The SS limits the UE allowed uplink transport format combinations according to the "Restricted UL TFCIs", as specified for the sub-test of the actual radio bearer test, using the RRC transport format combination control procedure. See note 2.

- c) The SS closes the test loop using UE test loop mode 1 and setting the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test.

- d) For the non-MIMO or non-Dual-Cell case: The SS selects the first TFRC test point (N_{PDUs} , M, N_{codes} and TFRI) according to the applicable table in sub-clauses 14.1.3.4b.1 (MAC-d PDU size=336) or 14.1.3.4b.2 (MAC-d PDU size=656 or Flexible MAC-d PDU size).

  - For the MIMO or the Dual-Cell case and M1=M2=QPSK: The SS selects the first TFRC test point (N_{PDUs} , M, N_{codes} and TFRI) according to table 14.1.3.4b.2.1. Same TFRC test point is used for both data flows and $TB_{size1=}$ TB_{size2}.

  - For the MIMO or the Dual-Cell case and M1=M2=16QAM: The SS selects the first TFRC test point (N_{PDUs} , M, N_{codes} and TFRI) according to table 14.1.3.4b.2.2. Same TFRC test point is used for both data flows and $TB_{size1=}$ TB_{size2}.

  - For the MIMO or the Dual-Cell case and M1=M2=64QAM: The SS selects the first TFRC test point (N_{PDUs} , M, N_{codes} and TFRI) according to table 14.1.3.4b.2.3. Same TFRC test point is used for both data flows and $TB_{size1=}$ TB_{size2}.

- For the MIMO or the Dual-Cell case and M1=16QAM and M2=QPSK: The SS selects the first TFRC test points for data flows#1 (N_{PDUs1} , *M1*, $N_{\underline{codes}}$, TB_{size1} and TFRI1) and data flows#2 (N_{PDUs2} , *M2*, $N_{\underline{codes}}$, TB_{size2} and TFRI2) according to table 14.1.3.4b.2.4.

- For the MIMO or the Dual-Cell case and M1=64QAM and M2=QPSK: The SS selects the first TFRC test points for data flows#1 (N_{PDUs1} , *M1*, $N_{\underline{codes}}$, TB_{size1} and TFRI1) and data flows#2 (N_{PDUs2} , *M2*, $N_{\underline{codes}}$, TB_{size2} and TFRI2) according to table 14.1.3.4b.2.5.

- For the MIMO or the Dual-Cell case and M1=64QAM and M2=16QAM: The SS selects the first TFRC test points for data flows#1 (N_{PDUs1} , *M1*, $N_{\underline{codes}}$, TB_{size1} and TFRI1) and data flows#2 (N_{PDUs2} , *M2*, $N_{\underline{codes}}$, TB_{size2} and TFRI2) according to table 14.1.3.4b.2.6.

- For the MIMO and Dual-Cell case and M1=M2=M3=M4=16QAM: The SS selects the first TFRC test point (N_{PDUs} , $N_{\underline{code, s}}$,TB_{size1} and TFRI) according to table 14.1.3.4b.2.2. The Same TFRC test point is used for all four data flows.

- For the MIMO and Dual-Cell case and M1=M3=64QAM and M2=M4=16QAM: The SS selects the first TFRC test point for data flow#1 and data flow#3 in accordance to first 64QAM test point (N_{PDUs} , $N_{\underline{codes}}$, TB_{size} and TFRI) in table 14.1.3.4b.2.6. The SS selects the first TFRC test point for data flow#2 and data flow#4 in accordance to first 16QAM test point (N_{PDUs} , $N_{\underline{codes}}$, TB_{size} and TFRI) in table 14.1.3.4b.2.6.

- For the MIMO and Dual-Cell case and M1=M2=M3=M4=64QAM: The SS selects the first TFRC test point (N_{PDUs} , *M*, $N_{\underline{codes}}$ and TFRI) according to table 14.1.3.4b.2.3. The Same TFRC test point is used for all four data flows.

- e) The SS sets $H_{\underline{ID}} = 0$.

- f) For the fixed MAC-d PDU size case when neither MIMO nor Dual Cell is used: The SS creates 4 DL RLC SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). See note 4.

  - For the fixed MAC-d PDU size case when MIMO or Dual-Cell is used: The SS creates 8 DL RLC SDUs of size ($N_{PDUs1} + N_{PDUs2}$)* MAC-d PDU payload size) / 8 minus 8 bits (size of 7 bit length indicator and expansion bit). See note 4.

  - For the fixed MAC-d PDU size case when MIMO combined with Dual-Cell is used: The SS creates 16 DL RLC SDUs of size ($N_{PDUs1} + N_{PDUs2} + N_{PDUs3} + N_{PDUs4}$)* MAC-d PDU payload size) / 16 minus 8 bits (size of 7 bit length indicator and expansion bit). See note 4.

- For the flexible MAC-d PDU size case when neither MIMO nor Dual Cell is used: If the transport block size TB_{size} is >12032 bits the SS creates 4 DL RLC SDUs of size 8*FLOOR ((TB_{size} – 136 bit)/32). If the transport block size TB_{size} is ≤ 12032 bits the SS creates 1 DL RLC SDUs of size 8*FLOOR((TB_{size} – 40 bit)/8). The SS creates a DL RLC PDU for each DL RLC SDU using the special value of HE field ('10') in the RLC PDU header. See note 4 and note 7.

- For the flexible MAC-d PDU size case when MIMO or Dual-Cell is used and M1=M2: If the transport block size (TB_{size1+} TB_{size2}) is >12032 bits the SS creates 8 DL RLC SDUs of size 8*FLOOR (((TB_{size1} + TB_{size2})– 272 bit)/64). If the transport block size (TB_{size1+} TB_{size2}) is ≤ 12032 bits the SS creates 2 DL RLC SDUs of size 8*FLOOR(((TB_{size1} + TB_{size2})– 80 bit)/16). The SS creates a DL RLC PDU for each DL RLC SDU using the special value of HE field ('10') in the RLC PDU header. See note 4 and note 7.

- For the flexible MAC-d PDU size case when MIMO or Dual-Cell is used and M1 is different from M2: If the transport block size (TB_{size1+} TB_{size2}) is >12032 bits the SS creates 8 DL RLC SDUs of size 8*FLOOR (((TB_{size1} + TB_{size2})– 288 bit)/64). If the transport block size (TB_{size1+} TB_{size2}) is ≤ 12032 bits the SS creates 2 DL RLC SDUs of size 8*FLOOR(((TB_{size1} + TB_{size2})– 96 bit)/16). The SS creates a DL RLC PDU for each DL RLC SDU using the special value of HE field ('10') in the RLC PDU header. See note 4 and note 7.

- For the flexible MAC-d PDU size case when MIMO combined with Dual-Cell is used and M1=M2 and M3=M4: For Cell 1: If the transport block size (TB_{size1+} TB_{size2}) is >12032 bits the SS creates 8 DL RLC SDUs of size 8*FLOOR (((TB_{size1} + TB_{size2})– 272 bit)/64). If the transport block size TB_{size} is ≤ 12032 bits the SS creates 2 DL RLC SDUs of size 8*FLOOR(((TB_{size1} + TB_{size2})– 80 bit)/16). For Cell 2: If the transport block size (TB_{size3+} TB_{size4}) is >12032 bits the SS creates 8 DL RLC SDUs of size 8*FLOOR (((TB_{size3} + TB_{size4})– 272 bit)/64). If the transport block size (TB_{size3+} TB_{size4}) is ≤ 12032 bits the SS creates 2 DL RLC SDUs of size

8*FLOOR(((TB$_{size3}$ + TB$_{size4}$)– 80 bit)/16). The SS creates a DL RLC PDU for each DL RLC SDU using the special value of HE field ('10') in the RLC PDU header. See note 4.

- For the flexible MAC-d PDU size case when MIMO combined with Dual-Cell is used and M1 is different from M2 and M3 is different from M4: For Cell 1: If the transport block size (TB$_{size1+}$ TB$_{size2}$) is >12032 bits the SS creates 8 DL RLC SDUs of size 8*FLOOR (((TB$_{size1}$ + TB$_{size2}$)– 288 bit)/64). If the transport block size (TB$_{size1+}$ TB$_{size2}$) is ≤ 12032 bits the SS creates 2 DL RLC SDUs of size 8*FLOOR(((TB$_{size1}$ + TB$_{size2}$)– 96 bit)/16). For Cell 2: If the transport block size (TB$_{size3+}$ TB$_{size4}$) is >12032 bits the SS creates 8 DL RLC SDUs of size 8*FLOOR (((TB$_{size3}$ + TB$_{size4}$)– 288 bit)/64). If the transport block size (TB$_{size3+}$ TB$_{size4}$) is ≤ 12032 bits the SS creates 2 DL RLC SDUs of size 8*FLOOR(((TB$_{size3}$ + TB$_{size4}$)– 96 bit)/16). The SS creates a DL RLC PDU for each DL RLC SDU using the special value of HE field ('10') in the RLC PDU header. See note 4.

    - g) If neither MIMO nor Dual-Cell is used, then the SS transmits in one TTI, for each DTCH mapped to HS-DSCH, all the DL RLC PDUs generated in step f) concatenated into a MAC-ehs PDU using the selected TFRC and $H_{\underline{ID}}$.

        - If Dual-Cell is used then the SS transmits in one TTI, for each DTCH mapped to HS-DSCH, all the DL RLC PDUs generated in step f) concatenated into two MAC-ehs PDU using the selected TFRC and $H_{\underline{ID}}$.

        - If the radio bearer combination under test includes downlink DTCHs mapped to DCH then the SS transmits, for all DTCHs mapped to DCH, one or more RLC SDUs having the size equal to the "Test data size" as specified for the sub-test of the actual radio bearer test case. Goto step i).

    - h) If MIMO for non Dual-Cell case is used then the SS transmits in one TTI, for each DTCH mapped to HS-DSCH, the DL RLC PDUs generated in step f) concatenated into two MAC-ehs PDUs using the selected TFRC and the HARQ processes $H_{\underline{ID}}$ and $(H_{\underline{ID}} + H_{\underline{CONF}}/2) \bmod H_{\underline{CONF}}$ respectively.

        - If MIMO combined with Dual Cell is used then the SS transmits in one TTI, for each DTCH mapped to HS-DSCH, the DL RLC PDUs generated in step f) concatenated into two MAC-ehs PDUs per cell using the selected TFRC and the HARQ processes $H_{\underline{ID}}$, $(H_{\underline{ID}} + H_{\underline{CONF}}/4) \bmod H_{\underline{CONF}}$, $(H_{\underline{ID}} + H_{\underline{CONF}}/2) \bmod H_{\underline{CONF}}$ and $(H_{\underline{ID}} + 3*H_{\underline{CONF}}/4) \bmod H_{\underline{CONF}}$ respectively.

        - If the radio bearer combination under test includes downlink DTCHs mapped to DCH then the SS transmits, for all DTCHs mapped to DCH, one or more RLC SDUs having the size equal to the "Test data size" as specified for the sub-test of the actual radio bearer test case.

    - i) The SS checks that the content of the UE returned RLC SDUs have the correct content and are received having the correct transport format. See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loopback of RLC SDUs.

    - j) The SS sets $H_{\underline{ID}} = (H_{\underline{ID}} + 1)$ modulo $H_{\underline{CONF}}$ where $H_{\underline{CONF}}$ is the configured number of processes and equals the number of HARQ processes to be verified by the actual sub-test

    - k) The SS repeats steps e) to j) for the remaining TFRC test points according to the applicable table in sub-clause 14.1.3.2.1a (principle for Enhanced Layer 2)

    - l) The SS repeats steps e) to j) for the remaining TFRC test point ($N_{\underline{PDUs}}$, M, $N_{\underline{codes}}$ and TFRI) according to the applicable table in sub-clauses 14.1.3.4b.1 (MAC-d PDU size=336) or 14.1.3.4b.2 (MAC-d PDU size=656 or Flexible MAC-d PDU size). m) The SS opens the UE test loop.

    - n) The SS release the radio bearer. See note 5.

    - o) Steps a) to n) are repeated for all sub-tests. See note 6.

    - p) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The SS configures the physical channel parameters according to the actual UE category under test. The number of soft channel bits per HARQ process is split equally among the number of HARQ processes configured for the actual sub-test - i.e. "Total number of soft channel bits" for the UE category according to table 14.1.3.1.1 divided by the number of HARQ processes under test. The number of reordering queues are 1 for single HS-DSCH radio bearer configurations. The MAC-hs window size, RLC Transmission window size and RLC Receiving window size shall be configured as specified for the actual sub-test.

NOTE 2: The restricted set of uplink TFCIs shall contain all possible TFCI that could happen in a sub-test. The actual TTI of the different radio bearers and signalling radio bearers as well as the possible UE processing delays shall be taken into consideration. The restricted set of TFCIs must comply with the minimum set of TFCIs as specified in TS 25.331, clause 8.6.5.2. Not applicable for Cell-FACH state.

NOTE 3: The MAC-hs window size and RLC Receiver and transmitter window sizes need to be chosen such that the UE capability for "Minimum total RLC AM and MAC-hs buffer size" is not exceeded for the UE category under test.

NOTE 4: The test data for DTCHs mapped on HS-DSCH is divided into multiple RLC SDUs to keep the maximum SDU size below or equal to 1500 octets (1500 octets is the limit of QoS parameter "Max SDU size" in SM). To allow for testing of the smallest TB sizes a single RLC PDU is used when the TB size is equal or below 12032 bits to reduce the L2 header overhead. 12032 bits corresponds to maximum RLC SDU size of 1500 octets (12000 bits) plus MAC-ehs header size of 24 bits and minimum possible RLC PDU header (8 bits for UM RLC). The actual maximum RLC SDU size to be used will depend of the RLC configuration for the radio bearer under test. For UM radio bearer the maximum RLC SDU will be 1500 octets for the case UMD PDU header of 8 bits. For AM radio bearers the maximum RLC SDU size will be 1499 octets for AMD PDU header of 16 bits.

NOTE 5: The Secondary scrambling code in the RADIO BEARER RELEASE message is set to the same value used in the RADIO BEARER SETUP MESSAGE.

NOTE 6: CS radio bearer is setup once during the first sub-test.

NOTE 7: The formulas for calculating the largest possible RLC SDU sizes take into account the required MAC-ehs headers and maximum RLC PDU AM headers to concatenate the RLC PDUs into MAC-ehs PDU(s). For the case when two MAC-ehs PDUs are used (MIMO or Dual-Cell) and the transport block sizes for the two data streams are different then additional space is reserved for the MAC-ehs header due to the MAC-ehs SDU segmentation between the two MAC-ehs PDUs (additional 16 bit LCH-ID+L+F MAC-ehs header). In the test procedure this will happen when the different data streams use different modulation schemes (M1 and M2 not equal).

Expected sequence (repeated for each sub-test, see note 3)

Step	Direction		Message	Comments
	UE	SS		

Step	Direction		Message	Comments
	UE	SS		
Case A: PS radio bearers only				
A1	**<--**		SYSTEM INFORMATION (BCCH)	Broadcast
A2	**<--**		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
A3	**-->**		RRC CONNECTION REQUEST (CCCH)	RRC
A4	**<--**		RRC CONNECTION SETUP (CCCH)	RRC
A5	**-->**		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
A6	**-->**		SERVICE REQUEST (DCCH)	GMM
A7	**<--**		SECURITY MODE COMMAND	RRC see note 1
A8	**-->**		SECURITY MODE COMPLETE	RRC see note 1
A9	**<--**		ACTIVATE RB TEST MODE (DCCH)	TC
A10	**-->**		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
A11	**<--**		RADIO BEARER SETUP (DCCH)	RRC PS radio bearer(s) are configured. For the PS radio bearer(s) the 'pdcp info' IE shall be omitted.
A12	**-->**		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
End of branch for Case A				
Case B: CS + PS radio bearers				
B1	**<--**		SYSTEM INFORMATION (BCCH)	Broadcast
B2	**<--**		PAGING TYPE 1 (PCCH)	Paging (CS domain, TMSI)
B3	**-->**		RRC CONNECTION REQUEST (CCCH)	RRC
B4	**<--**		RRC CONNECTION SETUP (CCCH)	RRC
B5	**-->**		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
B6	**-->**		PAGING RESPONSE (DCCH)	RR
B6a	**<--**		AUTHENTICATION REQUEST	
B6b	**-->**		AUTHENTICATION RESPONSE	
B7	**<--**		SECURITY MODE COMMAND	
B8	**-->**		SECURITY MODE COMPLETE	
B9	**<--**		PAGING TYPE 2 (DCCH)	TMSI (GSM-MAP)/ P-TMSI
B9a	**-->**		SERVICE REQUEST (DCCH)	GMM
B9b	**<--**		SECURITY MODE COMMAND	RRC See note 2
B9c	**-->**		SECURITY MODE COMPLETE	RRC
B10	**<--**		ACTIVATE RB TEST MODE (DCCH)	TC
B10a	**-->**		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
B11	**<--**		RADIO BEARER SETUP (DCCH)	RRC CS radio bearer(s) are configured
B12	**-->**		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
B12a	**<--**		RADIO BEARER SETUP (DCCH)	RRC PS radio bearer(s) are configured. For the PS radio bearer the 'pdcp info' IE shall be omitted.
B12b	**-->**		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
End of branch for Case B				
13	**<--**		TRANSPORT FORMAT COMBINATION CONTROL (DCCH)	RRC Transport format combinations is limited to "Restricted UL TFCIs", as specified for the sub-test Not applicable for Cell-FACH state
14	**<--**		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
15	**-->**		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
16	**SS**			For each DTCHs mapped on HS-DSCH the SS creates test data for the first test point.

Step	Direction		Message	Comments
	UE	SS		
17	**<--**		DOWNLINK MAC-ehs PDU (HS-DSCH#1) … DOWNLINK MAC-ehs PDU (HS-DSCH#N) DL RLC SDU (DL DCH#1) … DL RLC SDU (DL DCH#M)	For each DTCH mapped on HS-DSCH the SS sends test for HARQ processed *H*ID. For each DTCH mapped on DCH the SS sends test data using the downlink transport format combination under test.
18	**-->**		UPLINK RLC SDUs	The SS checks, for each DTCH, that the content and transport format of the received UL RLC SDUs are correct.
19	**SS**			The SS sets *H*ID = (*H*ID + 1) modulo H_{CONF}. The SS creates test data for the next TFRC and repeat steps 17 to 18 until all TFRCs have been tested.
20	**<--**		OPEN UE TEST LOOP (DCCH)	TC
21	**-->**		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
22			RB RELEASE	RRC
23	**<--**		DEACTIVATE RB TEST MODE	TC Optional step
24	**-->**		DEACTIVATE RB TEST MODE COMPLETE	TC Optional step

NOTE 1: In addition to activate integrity protection Step 6 and Step 7 are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.

NOTE 2: For case B (CS+PS radio bearers) the second security mode procedure is needed to enable testing of ciphering on the PS radio bearers.

NOTE 3: For case A (PS radio bearers) steps A1 to A10 will be executed once during first sub-test. For case B (CS+PS radio bearers) steps B1 to B12 will be executed once during first sub-test.

Specific Message Content:

Use the same RADIO BEARER SETUP message as specified in 34.108 with the following exceptions for step A11, B12a :

Information Element	Value/remark	Version
HS-DSCH TB size table	**octet aligned**	**Rel-7**

14.1.3.6 Generic test procedure for HS-DSCH radio bearer combinations with AMR RB configurations using SRB#5 for TFC control

This procedure is used to test AMR radio bearer using SRB#5 for TFC control in combination with HS-DSCH radio bearers. The procedure is run once for each sub-test of the actual HS-DSCH radio bearer test case.

Definition of test variables:

N_{codes}	Number of HS-DSCH codes (1..15, maximum number dependent on UE category)
M	Type of modulation scheme (QPSK, 16QAM)
TB_{size}	Transport Block size
N_{PDUs}	Number of MAC-d PDUs
H_{ID}	HARQ process identifier (0..7)

Initial conditions

UE in idle mode

Test procedure

- a) The SS establish the reference radio bearer configuration as specified in TS 34.108, clause 6.10 for the actual radio bearer test. As part of the RADIO BEARER SETUP the TFC subsets as defined for the actual radio bearer configuration is setup. The radio bearer setup procedure has to be performed once per domain. The first radio bearer setup procedure shall perform configuration of the physical channel for the radio bearer combination under test as well as the transport channels for the CS radio bearer(s). The second radio bearer procedure shall perform the configuration for the transport channel for the PS radio bearers . The Physical channel configuration shall be done for both CS and PS radio bearers combined. Here the transport format combination set for both CS and PS radio bearers shall be provided. See note 1 and note 3.

- b) The SS signals the "TFC subset identity" in the TRANSPORT FORMAT COMBINATION CONTROL message on SRB#5 as specified for the sub-test of the actual AMR radio bearer test. See note 6.

- c) The SS closes the test loop using UE test loop mode 1 and setting the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test.

- d) The SS selects the first TFRC test point (N_{PDUs} , M, $N_{\underline{codes}}$ and TFRI) according to the applicable table in sub-clauses 14.1.3.3 (MAC-d PDU size=336) or 14.1.3.4 (MAC-d PDU size=656).

- e) The SS sets $H_{\underline{ID}} = 0$.

- f) The SS creates 4 DL RLC SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). See note 4.

- g) The SS transmits, for each DTCH mapped to HS-DSCH, 4 DL RLC SDUs concatenated into a MAC-hs PDU using the selected TFRC and $H_{\underline{ID}}$. If the radio bearer combination under test includes downlink DTCHs mapped to DCH then the SS transmits, for all DTCHs mapped to DCH, one or more RLC SDUs having the size equal to the "Test data size" as specified for the sub-test of the actual radio bearer test case.

- h) The SS checks that the content of the UE returned RLC SDUs have the correct content and are received having the correct transport format. See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loopback of RLC SDUs.

- i) The SS sets $H_{\underline{ID}} = (H_{\underline{ID}} + 1)$ modulo $Max\_H_{\underline{ID}}$, where $Max\_H_{\underline{ID}}$ equals the number of HARQ processes to be verified by the actual sub-test

- j) The SS repeats steps f) to i) for the remaining TFRC test point (N_{PDUs} , M, $N_{\underline{codes}}$ and TFRI) according to the applicable table in sub-clauses 14.1.3.3 (MAC-d PDU size=336) or 14.1.3.4 (MAC-d PDU size=656) for the UE category and MAC-d PDU size under test.

- k) The SS opens the UE test loop.

- l) The SS release the radio bearer. See note 5.

- m) Steps a) to l) are repeated for all sub-tests. See note 7.

- n) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The SS configures the physical channel parameters according to the actual UE category under test. The number of soft channel bits per HARQ process is split equally among the number of HARQ processes configured for the actual sub-test - i.e. "Total number of soft channel bits" for the UE category according to table 14.1.3.1.1 divided by the number of HARQ processes under test. The number of reordering queues are 1 for single HS-DSCH radio bearer configurations. The MAC-hs window size, RLC Transmission window size and RLC Receiving window size shall be configured as specified for the actual sub-test.

NOTE 2: Void

NOTE 3: The MAC-hs window size and RLC Receiver and transmitter window sizes need to be chosen such that the UE capability for "Minimum total RLC AM and MAC-hs buffer size" is not exceeded for the UE category under test.

NOTE 4: The test data for DTCHs mapped on HS-DSCH is divided into 4 RLC SDUs to keep the maximum SDU size below or equal to 1500 octets (1500 octets is the limit of QoS parameter "Max SDU size" in SM).

NOTE 5: The Secondary scrambling code in the RADIO BEARER RELEASE message is set to the same value used in the RADIO BEARER SETUP MESSAGE.

NOTE 6: The TFC subset associated with the signalled "TFC subset identity" in the TRANSPORT FORMAT COMBINATION CONTROL message is defined by the actual AMR reference radio bearer under test.

NOTE 7: CS radio bearer is setup once during the first sub-test.

Expected sequence (repeated for each sub-test, see note 3)

Step	Direction		Message	Comments
	UE	SS		

Step	Direction		Message	Comments
	UE	SS		
1	**<--**		SYSTEM INFORMATION (BCCH)	Broadcast
2	**<--**		PAGING TYPE 1 (PCCH)	Paging (CS domain, TMSI)
3	**-->**		RRC CONNECTION REQUEST (CCCH)	RRC
4	**<--**		RRC CONNECTION SETUP (CCCH)	RRC
5	**-->**		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6	**-->**		PAGING RESPONSE (DCCH)	RR
6a	**<--**		AUTHENTICATION REQUEST	
6b	**-->**		AUTHENTICATION RESPONSE	
7	**<--**		SECURITY MODE COMMAND	
8	**-->**		SECURITY MODE COMPLETE	
9	**<--**		PAGING TYPE 2 (DCCH)	TMSI (GSM-MAP)/ P-TMSI
9a	**-->**		SERVICE REQUEST (DCCH)	GMM
9b	**<--**		SECURITY MODE COMMAND	RRC See note 2
9c	**-->**		SECURITY MODE COMPLETE	RRC
10	**<--**		ACTIVATE RB TEST MODE (DCCH)	TC
10a	**-->**		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
11	**<--**		RADIO BEARER SETUP (DCCH)	RRC CS radio bearer(s) are configured The TFC subsets associated with the signalling of the TFC subset identity in the TRANSPORT FORMAT COMBINATION CONTROL message on SRB#5 are setup as part of the RADIO BEARER SETUP message.
12	**-->**		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
12a	**<--**		RADIO BEARER SETUP (DCCH)	RRC PS radio bearer(s) are configured. For the PS radio bearer the 'pdcp info' IE shall be omitted.
12b	**-->**		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
12c	**<--**		TRANSPORT FORMAT COMBINATION CONTROL message	SRB#5, includes the TFS subset identity IE
13			Void	
14	**<--**		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
15	**-->**		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
16	**SS**			For each DTCHs mapped on HS-DSCH the SS creates test data for the first TFRC . The test data shall be dived into 4 RLC SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 - 8 bits. The SS sets *H*ID = 0.
17	**<--**		DOWNLINK MAC-hs PDU (HS-DSCH#1) … DOWNLINK MAC-hs PDU (HS-DSCH#N) DL RLC SDU (DL DCH#1) … DL RLC SDU (DL DCH#M)	For each DTCH mapped on HS-DSCH the SS sends test data divided into 4 RLC SDUs for HARQ processed *H*ID. For each DTCH mapped on DCH the SS sends test data using the downlink transport format combination under test.
18	**-->**		UPLINK RLC SDUs	The SS checks, for each DTCH, that the content and transport format of the received UL RLC SDUs are correct.
19	**SS**			The SS sets *H*ID = (*H*ID + 1) modulo *Max_H*ID. The SS creates test data for the next TFRC and repeat steps 17 to 18 until all TFRCs have been tested.
20	**<--**		OPEN UE TEST LOOP (DCCH)	TC
21	**-->**		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
22			RB RELEASE	RRC

Step	Direction		Message	Comments
	UE	SS		
23	**<--**		DEACTIVATE RB TEST MODE	TC Optional step
24	**-->**		DEACTIVATE RB TEST MODE COMPLETE	TC Optional step

NOTE 1: In addition to activate integrity protection Step 6 and Step 7 are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.

NOTE 2: The second security mode procedure is needed to enable testing of ciphering on the PS radio bearers.

NOTE 3: Steps 1 to 12 will be executed once during first sub-test.

14.1.4 General information interoperability radio bearer tests for E-DCH and HS-DSCH combinations

14.1.4.1 Generic test procedure for HS-DSCH and E-DCH radio bearer combinations

This procedure is used to test E-DCH radio bearer combinations. The procedure is run once for each sub-test of the actual E-DCH radio bearer test case.

NOTE: This test procedure is based on the generic test procedure for radio bearer combinations on HS-DSCH and DCH in section 14.1.3.5. As the testing of DTCH mapped to HS-DSCH is considered well covered by the radio bearer test cases for radio bearer combinations on HS-DSCH and DCH then the focus in this test procedure is on the uplink DTCH mapped to E-DCH. The main difference compared to the generic test procedure in 14.1.3.5 is that for DTCH mapped to HS-DSCH only one TFRC test point and one HARQ process alternative is tested.

Definition of test variables:

$N_{\underline{codes}}$	The number of HS-DSCH codes (1..15, maximum number dependent on UE category) as specified by the sub-test.
M	The type of modulation scheme (QPSK, 16QAM) as specified by the sub-test.
N_{PDUs}	The number of MAC-d PDUs for the DTCH(s) mapped on HS-DSCH as specified by the sub-test.
$H_{\underline{ID}}$	The HARQ process identifier (0..7) as specified by the sub-test.

Initial conditions

UE in idle mode

Test procedure

- a) The SS establish the reference radio bearer configuration as specified in TS 34.108, clause 6.10 for the actual radio bearer test. For the case when the reference radio bearer configuration includes radio bearers for both CS and PS domain then the radio bearer setup procedure has to be performed once per domain. The first radio bearer setup procedure shall perform configuration of the physical channel for the radio bearer combination under test as well as the transport channels for the CS radio bearer(s). The second radio bearer procedure shall perform the configuration for the transport channel for the PS radio bearers . The Physical channel configuration shall be done for both CS and PS radio bearers combined. Here the transport format combination set for both CS and PS radio bearers shall be provided. See note 1 and note 3.

- b) For DTCH mapped to DCH in uplink the SS limits the UE allowed uplink transport format combinations according to the "Restricted UL TFCIs", as specified for the sub-test of the actual radio bearer test, using the RRC transport format combination control procedure. See note 2.
- c) The SS closes the test loop using UE test loop mode 1 and set the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test.
- d) The SS issues an absolute grant that allows the UE to send at maximum bit rate (index 31).
- e) The SS sets the HS-DSCH TFRC test point as specified for the sub-test using table 9.2.3.1 in [6] (N_{PDUs} , M, $N_{\underline{codes}}$ and $TFRI$).

- f) The SS sets $H_{\underline{ID}}$ to the number of HARQ processes specified for the sub-test.
- h) The SS transmits, for each DTCH mapped to HS-DSCH, a DL RLC SDUs having the size equal the to the “Test data size” as specified for the sub-test concatenated into a MAC-hs PDU using the selected TFRC and $H_{\underline{ID}}$. If the radio bearer combination under test includes downlink DTCHs mapped to DCH then the SS transmits, for all DTCHs mapped to DCH, one or more RLC SDUs having the size equal to the "Test data size" as specified for the sub-test.
- i) The SS checks that the content of the UE returned RLC SDUs have the correct content and are received having the correct transport format. See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loopback of RLC SDUs.
- j) The SS opens the UE test loop.
- l) The SS release the radio bearer. See note 4.
- m) Steps a) to l) are repeated for all sub-tests. See note 5.
- n) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The SS configures the physical channel parameters according to the actual UE category under test. The number of soft channel bits per HARQ process is split equally among the number of HARQ processes configured for the actual sub-test - i.e. “Total number of soft channel bits” for the UE category according to table 14.1.3.1.1 divided by the number of HARQ processes under test. The number of reordering queues are 1 for single HS-DSCH radio bearer configurations. The MAC-hs window size, RLC Transmission window size and RLC Receiving window size shall be configured as specified for the actual sub-test.

NOTE 2: The restricted set of uplink TFCIs shall contain all possible TFCI that could happen in a sub-test. The actual TTI of the different radio bearers and signalling radio bearers as well as the possible UE processing delays shall be taken into consideration. The restricted set of TFCIs must comply with the minimum set of TFCIs as specified in TS 25.331, clause 8.6.5.2.

NOTE 3: The MAC-hs window size and RLC Receiver and transmitter window sizes need to be chosen such that the UE capability for “Minimum total RLC AM and MAC-hs buffer size” is not exceeded for the UE category under test.

NOTE 4: The Secondary scrambling code in the RADIO BEARER RELEASE message is set to the same value used in the RADIO BEARER SETUP MESSAGE.

NOTE 5: CS radio bearer is setup once during the first sub-test.

Expected sequence (repeated for each sub-test, see note 3)

Step	Direction		Message	Comments
	UE	SS		

Step	Direction		Message	Comments
	UE	SS		
Case A: PS radio bearers only				
A1	**<--**		SYSTEM INFORMATION (BCCH)	Broadcast
A2	**<--**		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
A3	**-->**		RRC CONNECTION REQUEST (CCCH)	RRC
A4	**<--**		RRC CONNECTION SETUP (CCCH)	RRC
A5	**-->**		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
A6	**-->**		SERVICE REQUEST (DCCH)	GMM
A7	**<--**		SECURITY MODE COMMAND	RRC see note 1
A8	**-->**		SECURITY MODE COMPLETE	RRC see note 1
A9	**<--**		ACTIVATE RB TEST MODE (DCCH)	TC
A10	**-->**		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
A11	**<--**		RADIO BEARER SETUP (DCCH)	RRC . PS radio bearer(s) are configured. For the PS radio bearer(s) the 'pdcp info' IE shall be omitted.
A12	**-->**		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
End of branch for Case A				
Case B: CS + PS radio bearers				
B1	**<--**		SYSTEM INFORMATION (BCCH)	Broadcast
B2	**<--**		PAGING TYPE 1 (PCCH)	Paging (CS domain, TMSI)
B3	**-->**		RRC CONNECTION REQUEST (CCCH)	RRC
B4	**<--**		RRC CONNECTION SETUP (CCCH)	RRC
B5	**-->**		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
B6	**-->**		PAGING RESPONSE (DCCH)	RR
B6a	**<--**		AUTHENTICATION REQUEST	
B6b	**-->**		AUTHENTICATION RESPONSE	
B7	**<--**		SECURITY MODE COMMAND	
B8	**-->**		SECURITY MODE COMPLETE	
B9	**<--**		PAGING TYPE 2 (DCCH)	TMSI (GSM-MAP)/ P-TMSI
B9a	**-->**		SERVICE REQUEST (DCCH)	GMM
B9b	**<--**		SECURITY MODE COMMAND	RRC See note 2
B9c	**-->**		SECURITY MODE COMPLETE	RRC
B10	**<--**		ACTIVATE RB TEST MODE (DCCH)	TC
B10a	**-->**		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
B11	**<--**		RADIO BEARER SETUP (DCCH)	RRC CS radio bearer(s) are configured
B12	**-->**		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
B12a	**<--**		RADIO BEARER SETUP (DCCH)	RRC PS radio bearer(s) are configured. For the PS radio bearer the 'pdcp info' IE shall be omitted.
B12b	**-->**		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
B12c	**<--**		TRANSPORT FORMAT COMBINATION CONTROL (DCCH)	RRC Transport format combinations is limited to "Restricted UL TFCIs", as specified for the sub-test
End of branch for Case B				
Case C: CS radio bearers only				
C1	**<--**		SYSTEM INFORMATION (BCCH)	Broadcast
C2	**<--**		PAGING TYPE 1 (PCCH)	Paging (CS domain, TMSI)
C3	**-->**		RRC CONNECTION REQUEST (CCCH)	RRC
C4	**<--**		RRC CONNECTION SETUP (CCCH)	RRC
C5	**-->**		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
C6	**-->**		PAGING RESPONSE (DCCH)	RR
C7	**<--**		AUTHENTICATION REQUEST	
C8	**-->**		AUTHENTICATION RESPONSE	
C9	**<--**		SECURITY MODE COMMAND	
C10	**-->**		SECURITY MODE COMPLETE	
C11	**<--**		ACTIVATE RB TEST MODE (DCCH)	TC
C12	**-->**		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC

Step	Direction		Message	Comments
	UE	SS		
C13	**<--**		RADIO BEARER SETUP (DCCH)	RRC CS radio bearer(s) are configured
C14	**-->**		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
End of branch for Case C				
13			Void	
14	**<--**		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
15	**-->**		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
16	**SS**			The SS sets the HS-DSCH TFRC test point (N_{PDUs} , *M*, *N*codes and TFRI). and the number of HARQ processes as specified for the sub-test.
17	**<--**		DOWNLINK MAC-hs PDU (HS-DSCH#1) … DOWNLINK MAC-hs PDU (HS-DSCH#N) DL RLC SDU (DL DCH#1) … DL RLC SDU (DL DCH#M)	For each DTCH mapped on HS-DSCH the SS sends test data. For each DTCH mapped on DCH the SS sends test data using the downlink transport format combination under test.
18	**-->**		UPLINK RLC SDUs	The SS checks, for each DTCH, that the content and transport format of the received UL RLC SDUs are correct.
19	**<--**		OPEN UE TEST LOOP (DCCH)	TC
20	**-->**		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
21			RB RELEASE	RRC
22	**<--**		DEACTIVATE RB TEST MODE	TC Optional step
23	**-->**		DEACTIVATE RB TEST MODE COMPLETE	TC Optional step

NOTE 1: In addition to activate integrity protection Step 6 and Step 7 are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.

NOTE 2: For case B (CS+PS radio bearers) the second security mode procedure is needed to enable testing of ciphering on the PS radio bearers.

NOTE 3: For case A (PS radio bearers) steps A1 to A10 will be executed once during first sub-test. For case B (CS+PS radio bearers) steps B1 to B12 will be executed once during first sub-test.

14.1.4.1a Generic test procedure for HS-DSCH and E-DCH radio bearer combinations with downlink enhanced Layer 2

This procedure is used to test HS-DSCH and E-DCH radio bearer combinations for the case of downlink enhanced Layer 2 is used. The procedure is run once for each sub-test of the actual HS-DSCH and E-DCH radio bearer test case.

This procedure is the same as the procedure in 14.1.4.1 with the exception that MAC-ehs is used in step h) instead of MAC-hs and table 9.2.3.2 in [6] is used for TFRC calculation in step e instead of table 9.2.3.1.

Specific Message Content:

Use the same RADIO BEARER SETUP message as specified in 34.108 with the following exceptions for step A11, B12a :

Information Element	Value/remark	Version

HS-DSCH TB size table	**octet aligned**	**Rel-7**

14.1.4.1b Generic test procedure for HS-DSCH and E-DCH radio bearer combinations with downlink and uplink enhanced Layer 2

This procedure is used to test HS-DSCH and E-DCH radio bearer combinations for the case of downlink and uplink enhanced Layer 2 is used. The procedure is run once for each sub-test of the actual HS-DSCH and E-DCH radio bearer test case.

This procedure is the same as the procedure in 14.1.4.1 with the exception that MAC-ehs and MAC-i/is are used in step h) instead of MAC-hs and MAC-e/es; and that table 9.2.3.2 in [6] is used for TFRC calculation in step e) instead of table 9.2.3.1.

Specific Message Content:

Use the same RADIO BEARER SETUP message as specified in 34.108 with the following exceptions for step A11, B12a :

Information Element	Value/remark	Version
HS-DSCH TB size table	**octet aligned**	**Rel-7**

14.1.4.1c Generic test procedure for Dual-Cell HS-DSCH and Dual-Cell E-DCH radio bearer combinations

This procedure is used to test Dual-Cell HS-DSCH and E-DCH radio bearer combinations. The procedure is run once for each sub-test of the actual radio bearer test case.

NOTE: This test procedure is based on the generic test procedure for radio bearer combinations on HS-DSCH and DCH in section 14.1.3.5. As the testing of DTCH mapped to HS-DSCH is considered well covered by the radio bearer test cases for radio bearer combinations on HS-DSCH and DCH then the focus in this test procedure is on the uplink DTCH mapped to E-DCH. The main difference compared to the generic test procedure in 14.1.3.5 is that for DTCH mapped to HS-DSCH only one TFRC test point and one HARQ process alternative is tested. For testing of radio bearer combinations for DC-HSDPA and DC-HSUPA then the test procedure is only specified for the DL 16QAM modulation case as other radio bearer test cases for DC-HSDPA in clause 14.6 provide test coverage of other modulation schemes in downlink.

Definition of test variables:

$N_{\underline{codes}}$	The number of HS-DSCH codes (1..15, maximum number dependent on UE category) as specified by the sub-test.
M	The type of modulation scheme (QPSK, 16QAM) as specified by the sub-test.
N_{PDUs}	The number of MAC-d PDUs for the DTCH(s) mapped on HS-DSCH as specified by the sub-test.
$H_{\underline{ID}}$	The HARQ process identifier (0..7) as specified by the sub-test.

Initial conditions

UE in idle mode

Test procedure

- a) The SS establish the reference radio bearer configuration as specified in TS 34.108, clause 6.10 for the actual radio bearer test. See note 1 and note 2.

- b) The SS closes the test loop using UE test loop mode 1 and set the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test.
- c) I = 1 (first iteration)
- d) If I= 1 then the SS issues an absolute grant for the cell on the primary uplink frequency that allows the UE to send at maximum bit rate (index 31); and no grant is issued for the secondary uplink frequency.
  - Else if I = 2 then the SS issues an absolute grant for the cell on the secondary uplink frequency that allows the UE to send at maximum bit rate (index 31); and no grant is issued for the primary uplink frequency.
- e) The SS selects the HS-DSCH TFRC test point as specified for the sub-test using table 9.2.3.2 in [6] (N_{PDUs} , *16QAM*, N_{codes} and *TFRI*). Same TFRC test point is used for both data flows.

- f) The SS sets H_{ID} to the number of HARQ processes specified for the sub-test.
  - h) The SS transmits, for each DTCH on the Serving and Secondary Serving HS.DSCH cells mapped to HS-DSCH, a DL RLC SDUs having the size equal the to the “Test data size” as specified for the sub-test concatenated into a MAC-ehs PDU using the selected TFRC and H_{ID}.
  - i) If I=1 then the SS checks that the content of the UE returned RLC SDUs are received on the primary uplink frequency cell and have the correct content and are received having the correct transport format.
    - Else If I=2 then the SS checks that the content of the UE returned RLC SDUs are received on the secondary uplink frequency cell and have the correct content and are received having the correct transport format.
      - See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loopback of RLC SDUs.
  - j) I = 2 (second iteration)
  - k) The SS repeats steps d) to i).
  - l) The SS opens the UE test loop.
  - m) The SS release the radio bearer. See note 3.
  - n) Steps a) to l) are repeated for all sub-tests. See note 4.
  - o) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The SS configures the physical channel parameters according to the actual UE category under test. The number of soft channel bits per HARQ process is split equally among the number of HARQ processes configured for the actual sub-test - i.e. "Total number of soft channel bits" for the UE category according to table 14.1.3.1.1 divided by the number of HARQ processes under test. The number of reordering queues is 1 for single HS-DSCH radio bearer configurations. The MAC-ehs window size, RLC Transmission window size and RLC Receiving window size shall be configured as specified for the actual sub-test.

NOTE 2: The MAC-ehs window size and RLC Receiver and transmitter window sizes need to be chosen such that the UE capability for "Minimum total RLC AM and MAC-hs buffer size" is not exceeded for the UE category under test.

NOTE 3: The Secondary scrambling code in the RADIO BEARER RELEASE message is set to the same value used in the RADIO BEARER SETUP MESSAGE.

NOTE 4: CS radio bearer is setup once during the first sub-test.

Expected sequence (repeated for each sub-test, see note 3)

Step	Direction		Message	Comments
	UE	SS		

Step	Direction		Message	Comments
	UE	SS		
1	**<--**		SYSTEM INFORMATION (BCCH)	Broadcast
2	**<--**		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	**-->**		RRC CONNECTION REQUEST (CCCH)	RRC
4	**<--**		RRC CONNECTION SETUP (CCCH)	RRC
5	**-->**		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6	**-->**		SERVICE REQUEST (DCCH)	GMM
7	**<--**		SECURITY MODE COMMAND	RRC see note 1
8	**-->**		SECURITY MODE COMPLETE	RRC see note 1
9	**<--**		ACTIVATE RB TEST MODE (DCCH)	TC
10	**-->**		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
11	**<--**		RADIO BEARER SETUP (DCCH)	RRC . PS radio bearer(s) are configured. For the PS radio bearer(s) the 'pdcp info' IE shall be omitted.
12	**-->**		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
13			Void	
14	**<--**		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
15	**-->**		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
16	**SS**			The SS sets the HS-DSCH TFRC test point (N_{PDUs}, *16QAM*, *N*codes and TFRI) and the number of HARQ processes as specified for the sub-test. If I=1 then the SS issues an absolute grant of 31 on the primary uplink frequency and no grant on the secondary uplink frequency. Else If I=2 then the SS issues an absolute grant of 31 on the secondary uplink frequency and no grant for the primary uplink frequency.
18	**-->**		UPLINK RLC SDUs	If I=1 then the SS checks that the UL RLC SDUs are received on the primary frequency cell. Else If I=2 then the SS checks that the UL RLC SDUs are received on the secondary frequency cell.
19	**<--**		OPEN UE TEST LOOP (DCCH)	TC
20	**-->**		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
21			RB RELEASE	RRC
22	**<--**		DEACTIVATE RB TEST MODE	TC Optional step
23	**-->**		DEACTIVATE RB TEST MODE COMPLETE	TC Optional step

NOTE 1: In addition to activate integrity protection Step 7 and Step 8 are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.

14.1.4.2 Generic test procedure for HS-DSCH and E-DCH radio bearer combinations with AMR RB configurations using SRB#5 for TFC control

This procedure is used to test AMR radio bearer using SRB#5 for TFC control in combination with HS-DSCH/E-DCH radio bearers. The procedure is run once for each sub-test of the actual E-DCH radio bearer test case.

Definition of test variables:

$N_{\underline{codes}}$	The number of HS-DSCH codes (1..15, maximum number dependent on UE category) as specified by the sub-test.
M	The type of modulation scheme (QPSK, 16QAM) as specified by the sub-test.
N_{PDUs}	The number of MAC-d PDUs for the DTCH(s) mapped on HS-DSCH as specified by the sub-test.
$H_{\underline{ID}}$	The HARQ process identifier (0..7) as specified by the sub-test.

Initial conditions

UE in idle mode

Test procedure

- a) The SS establish the reference radio bearer configuration as specified in TS 34.108, clause 6.10 for the actual radio bearer test. The radio bearer setup procedure has to be performed once per domain. The first radio bearer setup procedure shall perform configuration of the physical channel for the radio bearer combination under test as well as the transport channels for the CS radio bearer(s). The second radio bearer procedure shall perform the configuration for the transport channel for the PS radio bearers . The Physical channel configuration shall be done for both CS and PS radio bearers combined. Here the transport format combination set for both CS and PS radio bearers shall be provided. See note 1 and note 2.

- b) The SS signals the “TFC subset identity” in the TRANSPORT FORMAT COMBINATION CONTROL message on SRB#5 as specified for the sub-test of the actual AMR radio bearer test. See note 4.

- c) The SS closes the test loop using UE test loop mode 1 and set the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test.

- d) The SS issues an absolute grant that allows the UE to send at maximum bit rate (signalling value 29).

- e) The SS sets the HS-DSCH TFRC test point as specified for the sub-test (N_{PDUs} , M, $N_{\underline{codes}}$ and *TFRI*).

- f) The SS sets $H_{\underline{ID}}$ to the number of HARQ processes specified for the sub-test.

- h) The SS transmits, for each DTCH mapped to HS-DSCH, a DL RLC SDUs having the size equal the to the “Test data size” as specified for the sub-test concatenated into a MAC-hs PDU using the selected TFRC and $H_{\underline{ID}}$. If the radio bearer combination under test includes downlink DTCHs mapped to DCH then the SS transmits, for all DTCHs mapped to DCH, one or more RLC SDUs having the size equal to the "Test data size" as specified for the sub-test.

- i) The SS checks that the content of the UE returned RLC SDUs have the correct content and are received having the correct transport format. See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loopback of RLC SDUs.

- j) The SS opens the UE test loop.

- l) The SS release the radio bearer. See note 3.

- m) Steps a) to l) are repeated for all sub-tests. See note 5.

- n) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The SS configures the physical channel parameters according to the actual UE category under test. The number of soft channel bits per HARQ process is split equally among the number of HARQ processes configured for the actual sub-test - i.e. "Total number of soft channel bits" for the UE category according to table 14.1.3.1.1 divided by the number of HARQ processes under test. The number of reordering queues are 1 for single HS-DSCH radio bearer configurations. The MAC-hs window size, RLC Transmission window size and RLC Receiving window size shall be configured as specified for the actual sub-test.

NOTE 2: The MAC-hs window size and RLC Receiver and transmitter window sizes need to be chosen such that the UE capability for "Minimum total RLC AM and MAC-hs buffer size" is not exceeded for the UE category under test.

NOTE 3: The Secondary scrambling code in the RADIO BEARER RELEASE message is set to the same value used in the RADIO BEARER SETUP MESSAGE.

NOTE 4: The TFC subset associated with the signalled "TFC subset identity" in the TRANSPORT FORMAT COMBINATION CONTROL message is defined by the actual AMR reference radio bearer under test.

NOTE 5: CS radio bearer is setup once during the first sub-test.

Expected sequence (repeated for each sub-test, see note 3)

Step	Direction		Message	Comments
	UE	SS		

Step	Direction		Message	Comments
	UE	SS		
1	**<--**		SYSTEM INFORMATION (BCCH)	Broadcast
2	**<--**		PAGING TYPE 1 (PCCH)	Paging (CS domain, TMSI)
3	**-->**		RRC CONNECTION REQUEST (CCCH)	RRC
4	**<--**		RRC CONNECTION SETUP (CCCH)	RRC
5	**-->**		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6	**-->**		PAGING RESPONSE (DCCH)	RR
7	**<--**		AUTHENTICATION REQUEST	
8	**-->**		AUTHENTICATION RESPONSE	
9	**<--**		SECURITY MODE COMMAND	
10	**-->**		SECURITY MODE COMPLETE	
11	**<--**		PAGING TYPE 2 (DCCH)	TMSI (GSM-MAP)/P-TMSI
12	**-->**		SERVICE REQUEST (DCCH)	GMM
13	**<--**		SECURITY MODE COMMAND	RRC See note 2
14	**-->**		SECURITY MODE COMPLETE	RRC
15	**<--**		ACTIVATE RB TEST MODE (DCCH)	TC
16	**-->**		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
17	**<--**		RADIO BEARER SETUP (DCCH)	RRC CS radio bearer(s) are configured
18	**-->**		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
19	**<--**		RADIO BEARER SETUP (DCCH)	RRC PS radio bearer(s) are configured. For the PS radio bearer the 'pdcp info' IE shall be omitted.
20	**-->**		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
21	**<--**		TRANSPORT FORMAT COMBINATION CONTROL message	SRB#5, includes the TFS subset identity IE
22	**<--**		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
23	**-->**		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
24	**SS**			The SS sets the HS-DSCH TFRC test point (N_{PDUs} , *M*, *N*codes and TFRI). and the number of HARQ processes as specified for the sub-test.
25	**<--**		DOWNLINK MAC-hs PDU (HS-DSCH#1) … DOWNLINK MAC-hs PDU (HS-DSCH#N) DL RLC SDU (DL DCH#1) … DL RLC SDU (DL DCH#M)	For each DTCH mapped on HS-DSCH the SS sends test data. For each DTCH mapped on DCH the SS sends test data using the downlink transport format combination under test.
26	**-->**		UPLINK RLC SDUs	The SS checks, for each DTCH, that the content and transport format of the received UL RLC SDUs are correct.
27	**<--**		OPEN UE TEST LOOP (DCCH)	TC
28	**-->**		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
29			RB RELEASE	RRC
30	**<--**		DEACTIVATE RB TEST MODE	TC Optional step
31	**-->**		DEACTIVATE RB TEST MODE COMPLETE	TC Optional step

NOTE 1: In addition to activate integrity protection Step 6 and Step 7 are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.

NOTE 2: The second security mode procedure is needed to enable testing of ciphering on the PS radio bearers.

NOTE 3: Steps 1 to 18 will be executed once during first sub-test.

14.1.4.3 Generic test procedure for HS-DSCH and E-DCH radio bearer combinations for enhanced uplink in CELL_FACH

This procedure is used to test Enhanced UL and DL in CELL_FACH radio bearer combinations. The procedure is run once for each sub-test of the actual E-DCH radio bearer test case.

NOTE: This test procedure is based on the generic test procedure for radio bearer combinations on HS-DSCH and DCH in section 14.1.4.1. As the testing of DTCH mapped to HS-DSCH is considered well covered by the radio bearer test cases for radio bearer combinations on HS-DSCH and DCH then the focus in this test procedure is on the uplink DTCH mapped to E-DCH in CELL_FACH. The main difference compared to the generic test procedure in 14.1.4.1 is that for DTCH mapped to HS-DSCH only one TFRC test point and one HARQ process alternative is tested.

Definition of test variables:

$N_{\underline{codes}}$	The number of HS-DSCH codes (1..15, maximum number dependent on UE category) as specified by the sub-test.
M	The type of modulation scheme (QPSK, 16QAM) as specified by the sub-test.
N_{PDUs}	The number of MAC-d PDUs for the DTCH(s) mapped on HS-DSCH as specified by the sub-test.
$H_{\underline{ID}}$	The HARQ process identifier (0..7) as specified by the sub-test.

Initial conditions

UE in idle mode

System Information Block type 5 (FDD)

Use the default parameter values for the system information block 5 with the same type specified in clause

6.1.1 of TS 34.108 for common E-DCH and HS-DSCH reception in CELL_FACH, with the following exceptions:

Information Element	Value/remark
Common E-DCH system info - Initial Serving grant value	37

Test procedure

- a) The SS establish the reference radio bearer configuration as specified in TS 34.108, clause 6.10 for the actual radio bearer test. For the case when the reference radio bearer configuration includes radio bearers for both CS and PS domain then the radio bearer setup procedure has to be performed once per domain. The first radio bearer setup procedure shall perform configuration of the physical channel for the radio bearer combination under test as well as the transport channels for the CS radio bearer(s). The second radio bearer procedure shall perform the configuration for the transport channel for the PS radio bearers . The Physical channel configuration shall be done for both CS and PS radio bearers combined. Here the transport format combination set for both CS and PS radio bearers shall be provided. See note 1 and note 3.

- b) The SS closes the test loop using UE test loop mode 1 and set the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test.

- c) The SS sets the HS-DSCH TFRC test point as specified for the sub-test using table 9.2.3.1 in [6] (N_{PDUs} , M, $N_{\underline{codes}}$ and $TFRI$).

- d) The SS sets $H_{\underline{ID}}$ to the number of HARQ processes specified for the sub-test.

- e) If HS-DSCH DRX is not configured, the SS transmits, for each DTCH mapped to HS-DSCH, a DL RLC SDUs having the size equal the to the “Test data size” as specified for the sub-test concatenated into a MAC-ehs PDU using the selected TFRC and $H_{\underline{ID}}$.

- If HS-DSCH DRX is configured in SIB5 the SS transmits, for each DTCH mapped to HS-DSCH, DL RLC SDUs having the size equal the to the “Test data size” as specified for the sub-test concatenated into a MAC-ehs PDU using the selected TFRC and $H_{\underline{ID}}$ at SFN value fulfilling the following inequality, refer to 25.331 [8]:

- (SFN – H-RNTI) mod DRX_cycle < Rx_burst

- f) The SS checks that the content of the UE returned RLC SDUs have the correct content. See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loopback of RLC SDUs.

- g) The SS opens the UE test loop.

- h) The SS release the radio bearer. See note 4.

- i) Steps a) to i) are repeated for all sub-tests.

- j) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The SS configures the physical channel parameters according to the actual UE category under test. The number of soft channel bits per HARQ process is split equally among the number of HARQ processes configured for the actual sub-test - i.e. “Total number of soft channel bits” for the UE category according to table 14.1.3.1.1 divided by the number of HARQ processes under test. The number of reordering queues are 1 for single HS-DSCH radio bearer configurations. The MAC-hs window size, RLC Transmission window size and RLC Receiving window size shall be configured as specified for the actual sub-test.

NOTE 2: The MAC-ehs window size and RLC Receiver and transmitter window sizes need to be chosen such that the UE capability for “Minimum total RLC AM and MAC-ehs buffer size” is not exceeded for the UE category under test.

NOTE 3: The Secondary scrambling code in the RADIO BEARER RELEASE message is set to the same value used in the RADIO BEARER SETUP MESSAGE.

Expected sequence (repeated for each sub-test)

Step	Direction		Message	Comments
	UE	SS		

Step	Direction		Message	Comments
	UE	SS		
PS radio bearers only				
1	**<--**		SYSTEM INFORMATION TYPE 5 (BCCH)	Use default configuration for common E-DCH and HS-DSCH reception in CELL_FACH unless explicitly in the test case
2	**<--**		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	**-->**		RRC CONNECTION REQUEST (CCCH)	Sent on CCCH using E-DCH resource
4	**<--**		RRC CONNECTION SETUP (CCCH)	Using default message from in TS34.108 clause 9 with condition A6 “SRB mapped onto common E-DCH (MAC-i/is) and HS-DSCH (MAC-ehs) in Enhanced CELL_FACH”.
5	**-->**		RRC CONNECTION SETUP COMPLETE (DCCH)	Using DCCH transmission on common E-DCH resources
6	**-->**		SERVICE REQUEST (DCCH)	GMM
7	**<--**		SECURITY MODE COMMAND	RRC see note 1.
8	**-->**		SECURITY MODE COMPLETE	RRC see note 1
9	**<--**		ACTIVATE RB TEST MODE (DCCH)	TC
10	**-->**		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
11	**<--**		RADIO BEARER SETUP (DCCH)	RRC Using default message from in TS34.108 clause 9 with condition A29 AM Packet to Enhanced CELL_FACH from Enhanced CELL_FACH in PS with SRBs mapped on common E-DCH/HS-DSCH" unless explicitly stated otherwise. PS radio bearer(s) are configured. For the PS radio bearer(s) the ‘pdcp info’ IE shall be omitted.
12	**-->**		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
13	**<--**		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
14	**-->**		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
15	**SS**			The SS sets the HS-DSCH TFRC test point (N_{PDUs} , *M*, *N*codes and TFRI). and the number of HARQ processes as specified for the sub-test.
16	**<--**		DOWNLINK MAC-ehs PDU (HS-DSCH#1) … DOWNLINK MAC-ehs PDU (HS-DSCH#N)	For each DTCH mapped on HS-DSCH the SS sends test data.
17	**-->**		UPLINK RLC SDUs	The SS checks, for each DTCH mapped on common E-DCH, that the content and transport format of the received UL RLC SDUs are correct.
18	**<--**		OPEN UE TEST LOOP (DCCH)	TC
19	**-->**		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
20			RB RELEASE	RRC
21	**<--**		DEACTIVATE RB TEST MODE	TC Optional step
22	**-->**		DEACTIVATE RB TEST MODE COMPLETE	TC Optional step

NOTE 1: In addition to activate integrity protection Step 7 and Step 8 are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.

14.1.5 Generic test procedure for radio bearers on MTCH

Initial conditions

System Simulator: 1 MBMS cell

The UE is in CELL_FACH state as specified in clause 7.6 of TS 34.108.

The UE has selected the broadcast service or joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Test procedure

- a) The UE is in the CELL_FACH state. The SS notifies on MICH and MCCH about the start of an MBMS session and waits for the UE to activate MTCH reception.
- b) The SS closes the test loop using UE test loop mode 3.
- c) The SS broadcast 10 RLC SDUs on the MTCH configured on the concerned MBMS radio bearer. The MBMS data is broadcasted using RLC SDU size and transport format as specified for sub-test 1.
- d) The SS retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The SS checks that the UE has received at least one RLC SDU and records the reported value.
- e) Repeat steps f) and g) for the remaining sub-tests.
- f) The SS broadcast 10 RLC SDUs on the MTCH configured on the concerned MBMS radio bearer. The MBMS data is broadcasted using RLC SDU size and transport format as specified for the sub-test under test.
- g) The SS retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The SS checks that the UE has received at least one RLC SDU of the MBMS data sent in step f). The SS records the reported value. See note 1.
- h) The SS deactivates the UE test loop mode 3.

NOTE 1: For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. To enable the SS to measure the number of received RLC SDUs for the different sub-tests then the SS needs to record the reported values for each sub-test and make the checking of the reported value relative to the previously reported value.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		

1	←	ACTIVATE RB TEST MODE	
2	→	ACTIVATE RB TEST MODE COMPLETE	
3	←	MBMS MODIFIED SERVICES INFORMATION	MBMS session start. The SS also sets the Notification Indicator on MICH. The SS waits for the UE to establish the MTCH according to the activation time.
4	←	CLOSE UE TEST LOOP	
5	→	CLOSE UE TEST LOOP COMPLETE	Loop back mode 3 on MTCH is activated.
6	**SS**		The SS transmits 10 RLC SDUs on the MTCH. The MBMS data is broadcasted using RLC SDU size and transport format as specified for sub-test 1.
7	←	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
8	→	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC PDUs is greater than zero and records the value.
9	**SS**		The SS repeats steps 10 to 12 for the remaining sub-tests (sub-test 2 etc.).
10	**SS**		The SS transmits 10 RLC SDUs on the MTCH. The MBMS data is broadcasted using RLC SDU size and transport format as specified for the current sub-test under test.
11	←	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
12	→	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC PDUs is greater than the recorded value from the previous sub-test. The SS records the reported value.
13	←	OPEN UE TEST LOOP	
14	→	OPEN UE TEST LOOP COMPLETE	
15	←	DEACTIVATE RB TEST MODE	
16	→	DEACTIVATE RB TEST MODE COMPLETE	

Specific Message Contents

MBMS MODIFIED SERVICES INFORMATION (Step 3)

Information Element	Value/remark
Message type Modified service list - MBMS Transmission identity - MBMS Service ID - MBMS Session ID - MBMS required UE action MBMS p-t-m activation time	 1 1 Acquire PTM RB info SS shall choose a value which is sufficient far ahead for the UE to establish the MTCH

UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE (Steps 8)

Information Element	Value/remark
RLC SDU Counter Value	Check that the number is greater than zero

UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE (Steps 12)

Information Element	Value/remark
RLC SDU Counter Value	Check that the number is greater than the value reported at the previous sub-test.

14.1.5m Generic test procedure for radio bearers on MTCH in MBSFN Mode

Initial conditions

System Simulator:

- - MBSFN carrier: 1 cell, Cell 31 (PLMN1). In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 and Default1 MCCH scheduling (No ongoing session) according to subclause 11.2 of TS 34.108.
- - Unicast carrier: 1 cell, Cell 1 with default parameters.

User Equipment:

- - On the unicast carrier cell the UE is in registered Idle Mode on PS (state 3) if the UE only supports PS domain or registered Idle Mode on CS/PS (state 7) if the UE supports both CS and PS domains, as specified in clause 7.2.2 of TS 34.108.
- - The UE is in MBSFN Idle mode with one activated service as specified in clause 7.6.4 of TS 34.108. The UE has selected (i.e. it is included in MBMS_ACTIVATED_SERVICES variable) a national service for which a session will start on MBSFN Cell 31 (see TS 34.108 clause 11.2.4) during the test.

Test procedure

- a) The UE is camping on Cell 1 and Cell 31. In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 (no session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.
- b) The SS sends ACTIVATE RB TEST MODE on the unicast carrier and the UE responds with ACTIVATE RB TEST MODE COMPLETE.
- c) The SS sends CLOSE UE TEST LOOP to activate RLC SDU counting on Cell 31 MTCH (Transmission identity indicating the MBMS activated service).
- d) The SS notifies on MCCH about the start of an MBMS session for one modification period. MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C4 (one PTM session starting) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108.
- e) From the first SFN of the next modification period the SS transmits MCCH messages on Cell 31 using MBMS configuration C2 (one PTM session ongoing) and Default1 MCCH scheduling according to clause 11.2 of TS 34.108; and the SS broadcasts 10 RLC SDUs on the MTCH configured on the MBMS p-t-m radio bearer for the activated service.
- f) The UE establishes the p-t-m radio bearer for the activated service according to the specified service activation time (i.e. the first SFN of the modification period following the notification (step d). The UE closes the test loop and starts counting successfully received RLC PDUs on the MTCH. The UE will send CLOSE UE TEST LOOP COMPLETE.
- g) The SS broadcast 10 RLC SDUs on the MTCH configured on the concerned MBMS radio bearer. The MBMS data is broadcasted using RLC SDU size and transport format as specified for sub-test 1.

- h) The SS retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The SS checks that the UE has received at least one RLC SDU and records the reported value.
- i) Repeat steps f) and g) for the remaining sub-tests.
- j) The SS broadcast 10 RLC SDUs on the MTCH configured on the concerned MBMS radio bearer. The MBMS data is broadcasted using RLC SDU size and transport format as specified for the sub-test under test.
- k) The SS retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The SS checks that the UE has received at least one RLC SDU of the MBMS data sent in step f). The SS records the reported value. See note 1.
- l) The Test Loop is opened and RB Test Mode is deactivated.

NOTE 1: For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. To enable the SS to measure the number of received RLC SDUs for the different sub-tests then the SS needs to record the reported values for each sub-test and make the checking of the reported value relative to the previously reported value.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			

1	←	U	ACTIVATE RB TEST MODE	
2	→	U	ACTIVATE RB TEST MODE COMPLETE	
3	←	U	CLOSE UE TEST LOOP	Loop back mode 3 is activated on Cell 31 for the selected national service on MTCH.
4	←	M	MBMS MCCH Message Configuration C4	Includes the national service activated at UE in the modified services list for one modification period. Activation time is the start of the next modification period.
5	←	M	MBMS MCCH Message Configuration C2	No modified services. One ongoing service corresponding to that activated at the UE a PS RAB
6	→	U	CLOSE UE TEST LOOP COMPLETE	The UE shall establish the indicated p-t-m radio bearer and close the test loop.
7	**SS**			The SS transmits 10 RLC SDUs on the MTCH. The MBMS data is broadcasted using RLC SDU size and transport format as specified for sub-test 1.
8	←	M	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
9	→	M	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC PDUs is greater than zero and records the value.
10	**SS**			The SS repeats steps 10 to 12 for the remaining sub-tests (sub-test 2 etc.).
11	**SS**			The SS transmits 10 RLC SDUs on the MTCH. The MBMS data is broadcasted using RLC SDU size and transport format as specified for the current sub-test under test.
12	←	M	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
13	→	M	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC PDUs is greater than the recorded value from the previous sub-test. The SS records the reported value.
14	←	**U**	OPEN UE TEST LOOP	
15	→	**U**	OPEN UE TEST LOOP COMPLETE	
16	←	**U**	DEACTIVATE RB TEST MODE	
17	→	**U**	DEACTIVATE RB TEST MODE COMPLETE	

Specific Message Contents

UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE (Step 9)

Information Element	Value/remark
RLC SDU Counter Value	Check that the number is greater than zero

UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE (Step 13)

Information Element	Value/remark
RLC SDU Counter Value	Check that the number is greater than the value reported at the previous sub-test.

14.1.6 Generic test procedure for MBMS PTP radio bearers for HS-DSCH combinations

This procedure is used to test MBMS PTP radio bearer combinations for HS-DSCH. The procedure is run once for each sub-test of the actual MBMS PTP radio bearer test case. The generic test procedure has two branches: one for the MBMS Selective Service case and one for the MBMS Multicast Service case. The branch to use is specified in the specific test cases.

NOTE The testing of MBMS PTP radio bearer combinations on DPCH and HS-PDSCH is focusing on verifying that the UE is capable to establish the radio bearer combination and to verify correct data transfer using all the possible uplink TFS for transport channels mapped on DCH. This test procedure is based on the generic test procedure for radio bearer combinations on HS-DSCH and DCH in section 14.1.3.5. The main difference compared to the generic test procedure in 14.1.3.5 is that for DTCH mapped to HS-DSCH only one TFRC test point and one HARQ process alternative is tested.

Initial conditions

System Simulator: 1 MBMS cell

The UE is in idle mode state as specified in clause 7.6 of TS 34.108.

The UE has selected the broadcast service or joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Test procedure

- a) The UE is in the idle mode state.
- b) The UE shall detect the available MBMS services by acquiring the MBMS MODIFIED SERVICES INFORMATION (including IE “MBMS required UE action” set to “Request PTP RB”) and the MBMS GENERAL INFORMATION.
- c) The UE shall request a p-t-p RB establishment.
- d) The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of a radio access bearer. The UE shall establish this radio bearer. Then the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. See note 1 and note 3.
- e) The SS limits the UE allowed uplink transport format combinations according to the "Restricted UL TFCIs", as specified for the sub-test of the actual radio bearer test, using the RRC transport format combination control procedure. See note 2.
- f) The SS closes the test loop using UE test loop mode 1 and setting the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test.
- g) The SS selects the first TFRC test point (N_{PDUs} , M, $N_{\underline{codes}}$ and TFRI) according to the applicable table in sub-clauses 14.1.3.3 (MAC-d PDU size=336) or 14.1.3.4 (MAC-d PDU size=656).
- h) The SS sets $H_{\underline{ID}} = 0$.
- i) (void)
- j) The SS transmits, for each DTCH mapped to HS-DSCH, a DL RLC SDU having the size equal the to the “Test data size” as specified for the sub-test concatenated into a MAC-hs PDU using the selected TFRC and $H_{\underline{ID}}$. If the radio bearer combination under test includes downlink DTCHs mapped to DCH then the SS transmits, for all DTCHs mapped to DCH, one or more RLC SDUs having the size equal to the "Test data size" as specified for the sub-test of the actual radio bearer test case.

- k) The SS checks that the content of the UE returned RLC SDUs have the correct content and are received having the correct transport format. See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loopback of RLC SDUs.
- l) The SS opens the UE test loop.
- m) Steps e) to l) are repeated for all sub-tests.
- n) The SS release the radio bearer. See note 5.
- o) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The SS configures the physical channel parameters according to the actual UE category under test. The number of soft channel bits per HARQ process is split equally among the number of HARQ processes configured for the actual sub-test - i.e. "Total number of soft channel bits" for the UE category according to table 14.1.3.1.1 divided by the number of HARQ processes under test. The number of reordering queues are 1 for single HS-DSCH radio bearer configurations. The MAC-hs window size, RLC Transmission window size and RLC Receiving window size shall be configured as specified for the actual sub-test.

NOTE 2: The restricted set of uplink TFCIs shall contain all possible TFCI that could happen in a sub-test. The actual TTI of the different radio bearers and signalling radio bearers as well as the possible UE processing delays shall be taken into consideration. The restricted set of TFCIs must comply with the minimum set of TFCIs as specified in TS 25.331, clause 8.6.5.2.

NOTE 3: The MAC-hs window size and RLC Receiver and transmitter window sizes need to be chosen such that the UE capability for "Minimum total RLC AM and MAC-hs buffer size" is not exceeded for the UE category under test.

NOTE 4: (void)

NOTE 5: The Secondary scrambling code in the RADIO BEARER RELEASE message is set to the same value used in the RADIO BEARER SETUP MESSAGE.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		

1	←	Void	
2	→	Void	
3	←	MBMS MODIFIED SERVICES INFORMATION	"MBMS required UE action" set to Request PTP RB.
4			The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information in the same modification period.
5	←	MBMS GENERAL INFORMATION	
6	→	RRC CONNECTION REQUEST	The UE transmits the message with Establishment cause set to “MBMS ptp RB request” and with the “MBMS Selected Services Short” IE referring to the concerned MBMS Selected service and the corresponding Modification period identity.
7	←	RRC CONNECTION SETUP	RRC state indicator set to Cell_DCH
8	→	RRC CONNECTION SETUP COMPLETE	
9	→	MBMS MODIFICATION REQUEST	Only for the MBMS broadcast case: The UE completing the RRC Connection Setup procedure shall initiate the MBMS MODIFICATION REQUEST procedure. This message may be received at any point after step 8 and before step 24.
10	**SS**		The SS verifies that the IE "Service type" in the received SERVICE REQUEST message is set to “MBMS Broadcast Service Reception” or “MBMS service used by the test case” respectively depending on the MBMS service used by the test case.
11	←	SECURITY MODE COMMAND	
12	→	SECURITY MODE COMPLETE	
12a	←	ACTIVATE RB TEST MODE	
12b	→	ACTIVATE RB TEST MODE COMPLETE	
13	←	RADIO BEARER SETUP	
14	→	RADIO BEARER SETUP COMPLETE	
15		Void	
16		Void	
17	**<--**	TRANSPORT FORMAT COMBINATION CONTROL (DCCH)	RRC Transport format combinations is limited to "Restricted UL TFCIs", as specified for the sub-test
18	**<--**	CLOSE UE TEST LOOP (DCCH)	The SS sets the HS-DSCH TFRC test point and the number of HARQ processes as specified for the sub-test.
19	**-->**	CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
20	**SS**		For each DTCHs mapped on HS-DSCH the SS creates test data for the first TFRC . The test data shall be dived into 4 RLC SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 - 8 bits. The SS sets H_{ID} = 0.
21	**<--**	DOWNLINK MAC-hs PDU (HS-DSCH#1) … DOWNLINK MAC-hs PDU (HS-DSCH#N) DL RLC SDU (DL DCH#1) … DL RLC SDU (DL DCH#M)	For each DTCH mapped on HS-DSCH the SS sends test data. For each DTCH mapped on DCH the SS sends test data using the downlink transport format combination under test.
22	**-->**	UPLINK RLC SDUs	The SS checks, for each DTCH, that the content and transport format of the received UL RLC SDUs are correct.
23	**<--**	OPEN UE TEST LOOP (DCCH)	TC
24	**-->**	OPEN UE TEST LOOP COMPLETE (DCCH)	TC

25	**SS**		The SS repeats steps 15 to 24 for each sub-test
26		RB RELEASE	RRC
27	**<--**	DEACTIVATE RB TEST MODE	TC Optional step
28	**-->**	DEACTIVATE RB TEST MODE COMPLETE	TC Optional step

Specific Message Contents

MBMS MODIFIED SERVICES INFORMATION (Step 3)

Information Element	Value/remark
Modified services list - MBMS Transmission identity - MBMS required UE action	Only 1 entry MBMS Transmission identity request PTP RB

RRC CONNECTION REQUEST for the MBMS broadcast case (Step 6)

Information Element	Value/remark
Message type Initial UE identity Establishment Cause Domain indicator MBMS Selected Services - MBMS Selected Services - MBMS Selected Service ID - Modification period identity	Same as the registered TMSI or P-TMSI MBMS ptp RB request PS domain Only 1 entry MBMS short transmission identity referring to the service the UE has selected Indicates the modification period the MBMS short transmission identities refer to

RRC CONNECTION REQUEST for the MBMS muticast case (Step 6)

Information Element	Value/remark
Message type Initial UE identity Establishment Cause Domain indicator	Same as the registered TMSI or P-TMSI MBMS ptp RB request PS domain

RRC CONNECTION SETUP (Step 7)

Information Element	Value/remark
Message type Initial UE identity RRC State Indicator	Set to same value as received in Step 7 Cell_DCH

14.2 Combinations on DPCH

14.2.1 Stand-alone UL:1.7 DL:1.7 kbps SRBs for DCCH

Test to verify establishment and signalling of stand-alone signalling reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.1.

The test case is performed by running test case 9.4.1 (Location updating / accepted) using the stand-alone signalling reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.1.

14.2.2 Stand-alone UL:3.4 DL:3.4 kbps SRBs for DCCH

Test to verify establishment and signalling of stand-alone signalling reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.2.

The test case is performed by running test case 9.4.1 (Location updating / accepted) using the stand-alone signalling reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.2.

14.2.3 Stand-alone UL:13.6 DL:13.6 kbps SRBs for DCCH

Implicitly tested.

NOTEThe stand-alone UL:13.6 DL:13.6 kbps SRBs for DCCH in TS 34.108, clause 6.10.2.4.1.3 is the default signalling radio bearer used in the generic setup procedure as specified in TS 34.108 clause 7.

14.2.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.4.1 Conformance requirement

The UE shall be able to establish the UTRAN requested radio bearers within the UE's signalled radio access capabilities.

The UE shall correctly transfer user data from peer to peer RLC entities according to the requested radio bearer configuration.

Reference(s)

3GPP TS 25.331, clause 8.2.1

3GPP TS 25.2xx series (Physical Layer)

3GPP TS 25.321 (MAC)

3GPP TS 25.322 (RLC)

14.2.4.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.4.

14.2.4.3 Method of test

See 14.1.1 for test procedure. However, in this test the RM attribute values used shall be derived separately in the UL and DL as the mid-values of the RM attribute value ranges as specified by the reference radio bearer configuration

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 103 bits RB7: 60 bits	RB5: 39 bits RB6: No data RB7: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 81 bits RB6: 103 bits RB7: 60 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.4.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x39).

- for sub-test 2: RB5/TF2 (1x81); RB6/TF1 (1x103); and RB7/TF1 (1x60).

    - 3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 or RB7.

- for sub-test 2: an RLC SDU on each of RB5, RB6 and RB7 having the same content as sent by SS

14.2.4a Conversational / speech / UL:(12.2 7.95 5.9 4.75) DL:(12.2 7.95 5.9 4.75) kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.4a.1 Conformance requirement

See clause 14.2.4.1.

14.2.4a.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.4a.

14.2.4a.3 Method of test

See 14.1.1 for test procedure. However, in this test the RM attribute values used shall be derived separately in the UL and DL as the mid-values of the RM attribute value ranges as specified by the reference radio bearer configuration.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x148
	TF1, bits	1x39	1x53	1x60	1x148
	TF2, bits	1x42	1x63	N/A	N/A
	TF3, bits	1x55	1x84	N/A	N/A
	TF4, bits	1x75	1x103	N/A	N/A
	TF5, bits	1x81	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7,DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0, TF0)
UL_TFC3	(TF3, TF2, TF0, TF0)
UL_TFC4	(TF4, TF3, TF0, TF0)
UL_TFC5	(TF5, TF4, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF0, TF1)
UL_TFC8	(TF2, TF1, TF0, TF1)
UL_TFC9	(TF3, TF2, TF0, TF1)
UL_TFC10	(TF4, TF3, TF0, TF1)
UL_TFC11	(TF5, TF4, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x148
	TF1, bits	1x39	1x53	1x60	1x148
	TF2, bits	1x42	1x63	N/A	N/A
	TF3, bits	1x55	1x84	N/A	N/A
	TF4, bits	1x75	1x103	N/A	N/A
	TF5, bits	1x81	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0, TF0)
DL_TFC3	(TF3, TF2, TF0, TF0)
DL_TFC4	(TF4, TF3, TF0, TF0)
DL_TFC5	(TF5, TF4, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF1)
DL_TFC7	(TF1, TF0, TF0, TF1)
DL_TFC8	(TF2, TF1, TF0, TF1)
DL_TFC9	(TF3, TF2, TF0, TF1)
DL_TFC10	(TF4, TF3, TF0, TF1)
DL_TFC11	(TF5, TF4, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)

1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 39 bits RB6: 103 bits RB7: 60 bits	RB5: 39 bits RB6: No data RB7: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC8	RB5: 42 bits RB6: 53 bits RB7: 60 bits	RB5: 42 bits RB6: 53 bits RB7: No data
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC9	RB5: 55 bits RB6: 63 bits RB7: 60 bits	RB5: 55 bits RB6: 63 bits RB7: No data
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC10	RB5: 75 bits RB6: 84 bits RB7: 60 bits	RB5: 75 bits RB6: 84 bits RB7: No data
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 81 bits RB6: 103 bits RB7: 60 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5 and UL_TFC6 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 14.1.1 for test procedure.

14.2.4a.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x39).
- for sub-test 2: RB5/TF2 (1x42) and RB6/TF1 (1x53)
- for sub-test 3: RB5/TF3 (1x55) and RB6/TF2 (1x63)
- for sub-test 4: RB5/TF4 (1x75) and RB6/TF3 (1x84)
- for sub-test 5: RB5/TF5 (1x81), RB6/TF4 (1x103) and RB7/TF1 (1x60)

- 3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 or RB7.

- for sub-test 2,3 and 4: an RLC SDU on RB5 and RB6 having the same content as sent by SS; and no data shall be received on RB7.

- for sub-test 5: an RLC SDU on each of RB5, RB6 and RB7 having the same content as sent by SS.

14.2.4b Conversational / speech / UL:(12.2 7.4 5.9 4.75) DL:(12.2 7.4 5.9 4.75) kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH + DL:0.15 kbps SRB#5 for DCCH

14.2.4b.1 Conformance requirement

See clause 14.2.4.1.

14.2.4b.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.4b.

14.2.4b.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x148
	TF1, bits	1x39	1x53	1x60	1x148
	TF2, bits	1x42	1x63	N/A	N/A
	TF3, bits	1x55	1x87	N/A	N/A
	TF4, bits	1x61	1x103	N/A	N/A
	TF5, bits	1x81	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7,DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0, TF0)
UL_TFC3	(TF3, TF2, TF0, TF0)
UL_TFC4	(TF4, TF3, TF0, TF0)
UL_TFC5	(TF5, TF4, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF0, TF1)
UL_TFC8	(TF2, TF1, TF0, TF1)
UL_TFC9	(TF3, TF2, TF0, TF1)
UL_TFC10	(TF4, TF3, TF0, TF1)
UL_TFC11	(TF5, TF4, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH1	DCCH2 (SRB#5)
TFS	TF0, bits	1x0	0x103	0x60	0x148	0x3
	TF1, bits	1x39	1x53	1x60	1x148	1x3
	TF2, bits	1x42	1x63	N/A	N/A	N/A
	TF3, bits	1x55	1x87	N/A	N/A	N/A
	TF4, bits	1x61	1x103	N/A	N/A	N/A
	TF5, bits	1x81	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH1, DCCH2)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0, TF0, TF0)
DL_TFC3	(TF3, TF2, TF0, TF0, TF0)
DL_TFC4	(TF4, TF3, TF0, TF0, TF0)
DL_TFC5	(TF5, TF4, TF1, TF0, TF0)
DL_TFC6	(TF0, TF0, TF0, TF1, TF0)
DL_TFC7	(TF1, TF0, TF0, TF1, TF0)
DL_TFC8	(TF2, TF1, TF0, TF1, TF0)
DL_TFC9	(TF3, TF2, TF0, TF1, TF0)
DL_TFC10	(TF4, TF3, TF0, TF1, TF0)
DL_TFC11	(TF5, TF4, TF1, TF1, TF0)
DL_TFC12	(TF0, TF0, TF0, TF0, TF1)
DL_TFC13	(TF1, TF0, TF0, TF0, TF1)
DL_TFC14	(TF2, TF1, TF0, TF0, TF1)
DL_TFC15	(TF3, TF2, TF0, TF0, TF1)
DL_TFC16	(TF4, TF3, TF0, TF0, TF1)
DL_TFC17	(TF5, TF4, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF0, TF1, TF1)
DL_TFC21	(TF3, TF2, TF0, TF1, TF1)
DL_TFC22	(TF4, TF3, TF0, TF1, TF1)
DL_TFC23	(TF5, TF4, TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	TFC subset identity (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)

1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, DL_TFC7, DL_TFC12, UL_TFC0, UL_TFC6	0	RB5: 39 bits RB6: 103 bits RB7: 60 bits	RB5: 39 bits RB6: No data RB7: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, DL_TFC8, DL_TFC12, UL_TFC0, UL_TFC6	0	RB5: 42 bits RB6: 53 bits RB7: 60 bits	RB5: 42 bits RB6: 53 bits RB7: No data
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, DL_TFC9, DL_TFC12, UL_TFC0, UL_TFC6	1	RB5: 55 bits RB6: 63 bits RB7: 60 bits	RB5: 55 bits RB6: 63 bits RB7: No data
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, DL_TFC10, DL_TFC12, UL_TFC0, UL_TFC6	2	RB5: 61 bits RB6: 87 bits RB7: 60 bits	RB5: 61 bits RB6: 87 bits RB7: No data
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC6, DL_TFC11, DL_TFC12, UL_TFC0, UL_TFC6	3	RB5: 81 bits RB6: 103 bits RB7: 60 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits
NOTE 1: TFC subset identity shall be signalled by the SS on the downlink SRB#5, see generic test procedure in clause 14.1.1a. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 14.1.1a for test procedure.

14.2.4b.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x39).
- for sub-test 2: RB5/TF2 (1x42) and RB6/TF1 (1x53)
- for sub-test 3: RB5/TF3 (1x55) and RB6/TF2 (1x63)
- for sub-test 4: RB5/TF4 (1x61) and RB6/TF3 (1x87)
- for sub-test 5: RB5/TF5 (1x81), RB6/TF4 (1x103) and RB7/TF1 (1x60)

- 3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 or RB7.
- for sub-test 2,3 and 4: an RLC SDU on RB5 and RB6 having the same content as sent by SS; and no data shall be received on RB7.
- for sub-test 5: an RLC SDU on each of RB5, RB6 and RB7 having the same content as sent by SS.

14.2.5 Conversational / speech / UL:10.2 DL:10.2 kbps / CS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

14.2.5.1 Conformance requirement

See clause 14.2.4.1.

14.2.5.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.5.

14.2.5.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x65	0x99	0x40	0x148
	TF1, bits	1x39	1x99	1x40	1x148
	TF2, bits	1x65	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7,DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x99	0x40	0x148
	TF1, bits	1x39	1x99	1x40	1x148
	TF2, bits	1x65	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note2)	Test data size (note2)

1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 99 bits RB7: 40 bits	RB5: 39 bits RB6: No data RB7: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 65 bits RB6: 99 bits RB7: 40 bits	RB5: 65 bits RB6: 99 bits RB7: 40 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 14.1.1 for test procedure.

14.2.5.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x39).
- for sub-test 2: RB5/TF2 (1x65); RB6/TF1 (1x99); and RB7/TF1 (1x40).

- 3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 or RB7.
- for sub-test 2: an RLC SDU on each of RB5, RB6 and RB7 having the same content as sent by SS.

14.2.5a Conversational / speech / UL:(10.2, 6.7, 5.9, 4.75) DL:(10.2, 6.7, 5.9, 4.75) kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.5a.1 Conformance requirement

See clause 14.2.4.1.

14.2.5a.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.5a.

14.2.5a.3 Method of test

See 14.1.1 for test procedure. However, in this test the RM attribute values used shall be derived separately in the UL and DL as the mid-values of the RM attribute value ranges as specified by the reference radio bearer configuration.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x65	0x99	0x40	0x148
	TF1, bits	1x39	1x53	1x40	1x148
	TF2, bits	1x42	1x63	N/A	N/A
	TF3, bits	1x55	1x76	N/A	N/A
	TF4, bits	1x58	1x99	N/A	N/A
	TF5, bits	1x65	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7,DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0, TF0)
UL_TFC3	(TF3, TF2, TF0, TF0)
UL_TFC4	(TF4, TF3, TF0, TF0)
UL_TFC5	(TF5, TF4, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF0, TF1)
UL_TFC8	(TF2, TF1, TF0, TF1)
UL_TFC9	(TF3, TF2, TF0, TF1)
UL_TFC10	(TF4, TF3, TF0, TF1)
UL_TFC11	(TF5, TF4, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x99	0x40	0x148
	TF1, bits	1x39	1x53	1x40	1x148
	TF2, bits	1x42	1x63	N/A	N/A
	TF3, bits	1x55	1x76	N/A	N/A
	TF4, bits	1x58	1x99	N/A	N/A
	TF5, bits	1x65	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0, TF0)
DL_TFC3	(TF3, TF2, TF0, TF0)
DL_TFC4	(TF4, TF3, TF0, TF0)
DL_TFC5	(TF5, TF4, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF1)
DL_TFC7	(TF1, TF0, TF0, TF1)
DL_TFC8	(TF2, TF1, TF0, TF1)
DL_TFC9	(TF3, TF2, TF0, TF1)
DL_TFC10	(TF4, TF3, TF0, TF1)
DL_TFC11	(TF5, TF4, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)

1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 39 bits RB6: 99 bits RB7: 40 bits	RB5: 39 bits RB6: No data RB7: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC8	RB5: 42 bits RB6: 53 bits RB7: 40 bits	RB5: 42 bits RB6: 53 bits RB7: No data
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC9	RB5: 55 bits RB6: 63 bits RB7: 40 bits	RB5: 55 bits RB6: 63 bits RB7: No data
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC10	RB5: 58 bits RB6: 76 bits RB7: 40 bits	RB5: 58 bits RB6: 76 bits RB7: No data
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 65 bits RB6: 99 bits RB7: 40 bits	RB5: 65 bits RB6: 99 bits RB7: 40 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5 and UL_TFC6 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 14.1.1 for test procedure.

14.2.5a.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x39).
- for sub-test 2: RB5/TF2 (1x42) and RB6/TF1 (1x53)
- for sub-test 3: RB5/TF3 (1x55) and RB6/TF2 (1x63)
- for sub-test 4: RB5/TF4 (1x58) and RB6/TF3 (1x76)
- for sub-test 5: RB5/TF5 (1x65), RB6/TF4 (1x99) and RB7/TF1 (1x40)

- 3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by the SS; and no data shall be received on RB6 or RB7.

- for sub-test 2, 3 and 4: an RLC SDU on RB5 and RB6 having the same content as sent by the SS; and no data shall be received on RB7.

- for sub-test 5: an RLC SDU on each of RB5, RB6 and RB7 having the same content as sent by the SS.

14.2.6 Conversational / speech / UL:7.95 DL:7.95 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.6.1 Conformance requirement

See clause 14.2.4.1.

14.2.6.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.6.

14.2.6.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x75	0x84	0X60	0x148
	TF1, bits	1x39	1x84	N/A	1x148
	TF2, bits	1x75	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF0, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x84	0X60	0x148
	TF1, bits	1x39	1x84	N/A	1x148
	TF2, bits	1x75	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)

DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF0, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (note2)	Test data size (note2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 84 bits RB7: 60 bits	RB5: 39 bits RB6: No data RB7: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 75 bits RB6: 84 bits RB7: 60 bits	RB5: 75 bits RB6: 84 bits RB7: No data
NOTE1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 14.1.1 for test procedure.

14.2.6.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x39).
- for sub-test 2: RB5/TF2 (1x75) and RB6/TF1 (1x84).

- 3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS; and no data shall be received on RB7.

14.2.7 Conversational / speech / UL:7.4 DL:7.4 kbps / CS RAB+ UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.7.1 Conformance requirement

See clause 14.2.4.1.

14.2.7.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.7.

14.2.7.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x61	0x87	0x60	0x148
	TF1, bits	1x39	1x87	N/A	1x148
	TF2, bits	1x61	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF0, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x87	0x60	0x148
	TF1, bits	1x39	1x87	N/A	1x148
	TF2, bits	1x61	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF0, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (note2)	Test data size (note2)

1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 87 bits RB7: 60 bits	RB5: 39 bits RB6: No data RB7: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 61 bits RB6: 87 bits RB7: 60 bits	RB5: 61 bits RB6: 87 bits RB7: No data
NOTE1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 14.1.1 for test procedure.

14.2.7.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x39).
- for sub-test 2: RB5/TF2 (1x61) and RB6/TF1 (1x87).

- 3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS; and no data shall be received on RB7.

14.2.7a Conversational / speech / UL:(7.4, 6.7, 5.9, 4.75) DL:(7.4, 6.7, 5.9, 4.75) kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.7a.1 Conformance requirement

See clause 14.2.4.1.

14.2.7a.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.7a.

14.2.7a.3 Method of test

See 14.1.1 for test procedure. However, in this test the RM attribute values used shall be derived separately in the UL and DL as the mid-values of the RM attribute value ranges as specified by the reference radio bearer configuration.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x61	0x87	0x148
	TF1, bits	1x39	1x53	1x148
	TF2, bits	1x42	1x63	N/A
	TF3, bits	1x55	1x76	N/A
	TF4, bits	1x58	1x87	N/A
	TF5, bits	1x61	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7,DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0)
UL_TFC3	(TF3, TF2, TF0)
UL_TFC4	(TF4, TF3, TF0)
UL_TFC5	(TF5, TF4, TF0)
UL_TFC6	(TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF1)
UL_TFC8	(TF2, TF1, TF1)
UL_TFC9	(TF3, TF2, TF1)
UL_TFC10	(TF4, TF3, TF1)
UL_TFC11	(TF5, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	1x0	0x87	0x148
	TF1, bits	1x39	1x53	1x148
	TF2, bits	1x42	1x63	N/A
	TF3, bits	1x55	1x76	N/A
	TF4, bits	1x58	1x87	N/A
	TF5, bits	1x61	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0)
DL_TFC3	(TF3, TF2, TF0)
DL_TFC4	(TF4, TF3, TF0)
DL_TFC5	(TF5, TF4, TF0)
DL_TFC6	(TF0, TF0, TF1)
DL_TFC7	(TF1, TF0, TF1)
DL_TFC8	(TF2, TF1, TF1)
DL_TFC9	(TF3, TF2, TF1)
DL_TFC10	(TF4, TF3, TF1)
DL_TFC11	(TF5, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 39 bits RB6: 87 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC8	RB5: 42 bits RB6: 53 bits	RB5: 42 bits RB6: 53 bits
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC9	RB5: 55 bits RB6: 63 bits	RB5: 55 bits RB6: 63 bits
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC10	RB5: 58 bits RB6: 76 bits	RB5: 58 bits RB6: 76 bits
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 61 bits RB6: 87 bits	RB5: 61 bits RB6: 87 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5 and UL_TFC6 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 14.1.1 for test procedure.

14.2.7a.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x39).
- for sub-test 2: RB5/TF2 (1x42) and RB6/TF1 (1x53)
- for sub-test 3: RB5/TF3 (1x55) and RB6/TF2 (1x63)

- for sub-test 4: RB5/TF4 (1x58) and RB6/TF3 (1x76)
- for sub-test 5: RB5/TF5 (1x61) and RB6/TF4 (1x87)

    - 3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by the SS; and no data shall be received on RB6.
- for sub-test 2 to 5: an RLC SDU on RB5 and RB6 having the same content as sent by the SS.

14.2.8 Conversational / speech / UL:6.7 DL:6.7 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.8.1 Conformance requirement

See clause 14.2.4.1.

14.2.8.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.8.

14.2.8.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x58	0x76	0x60	0x148
	TF1, bits	1x39	1x76	N/A	1x148
	TF2, bits	1x58	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF0, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x76	0x60	0x148
	TF1, bits	1x39	1x76	N/A	1x148
	TF2, bits	1x58	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)

DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF0, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (note2)	Test data size (note2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 76 bits RB7: 60 bits	RB5: 39 bits RB6: No data RB7: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 58 bits RB6: 76 bits RB7: 60 bits	RB5: 58 bits RB6: 76 bits RB7: No data
NOTE1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 14.1.1 for test procedure.

14.2.8.4 Test requirements

See clause 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x39).
- for sub-test 2: RB5/TF2 (1x58) and RB6/TF1 (1x76).

- 3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS ; and no data shall be received on RB7

14.2.9 Conversational / speech / UL:5.9 DL:5.9 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.9.1 Conformance requirement

See clause 14.2.4.1.

14.2.9.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.9.

14.2.9.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x55	0x63	0x60	0x148
	TF1, bits	1x39	1x63	N/A	1x148
	TF2, bits	1x55	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF0, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x63	0x60	0x148
	TF1, bits	1x39	1x63	N/A	1x148
	TF2, bits	1x55	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF0, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (note2)	Test data size (note2)

1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 63 bits RB7: 60 bits	RB5: 39 bits RB6: No data RB7: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 55 bits RB6: 63 bits RB7: 60 bits	RB5: 55 bits RB6: 63 bits RB7: No data
NOTE1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 14.1.1 for test procedure.

14.2.9.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x39).
- for sub-test 2: RB5/TF2 (1x55) and RB6/TF1 (1x63).

- 3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS; and no data shall be received on RB7

14.2.10 Conversational / speech / UL:5.15 DL:5.15 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.10.1 Conformance requirement

See clause 14.2.4.1.

14.2.10.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.10.

14.2.10.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x49	0x54	0x60	0x148
	TF1, bits	1x39	1x54	N/A	1x148
	TF2, bits	1x49	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF0, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x54	0x60	0x148
	TF1, bits	1x39	1x54	N/A	1x148
	TF2, bits	1x49	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF0, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (note2)	Test data size (note2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 54 bits RB7: 60 bits	RB5: 39 bits RB6: No data RB7: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 49 bits RB6: 54 bits RB7: 60 bits	RB5: 49 bits RB6: 54 bits RB7: No data
NOTE1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 14.1.1 for test procedure.

14.2.10.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x39).

- for sub-test 2: RB5/TF2 (1x49) and RB6/TF1 (1x54).

    - 3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS; and no data shall be received on RB7.

14.2.11 Conversational / speech / UL:4.75 DL:4.75 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.11.1 Conformance requirement

See clause 14.2.4.1.

14.2.11.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.11.

14.2.11.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x49	0x53	0x60	0x148
	TF1, bits	1x39	1x53	N/A	1x148
	TF2, bits	1x42	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF0, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x53	0x60	0x148
	TF1, bits	1x39	1x53	N/A	1x148
	TF2, bits	1x42	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)

DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF0, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (note2)	Test data size (note2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 53 bits RB7: 60 bits	RB5: 39 bits RB6: No data RB7: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 42 bits RB6: 53 bits RB7: 60 bits	RB5: 42 bits RB6: 53 bits RB7: No data
NOTE1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 14.1.1 for test procedure.

14.2.11.4 Test requirements

See clause 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x39).
- for sub-test 2: RB5/TF2 (1x42) and RB6/TF1 (1x53).

- 3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

14.2.12 Conversational / unknown / UL:28.8 DL:28.8 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.12.1 Conformance requirement

See 14.2.4.1.

14.2.12.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.12.

14.2.12.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE SDU Discard Mode Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: 'Timer based discard without explicit signalling' is configured in uplink to secure that the UE will be able to return data in uplink for the case when the UE test loop function, due to processing delays, will not deliver the SDUs in one and the same TTI, but instead in two subsequent TTIs.	

Uplink TFS:

	TFI	RB5 (28.8 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148
	TF2, bits	2x576	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

		RB5 (28.8 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148
	TF2, bits	2x576	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)
DL_TFC5	(TF2, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 576	RB5: 576
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 576	RB5: 2x576
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 14.1.1 for test procedure.

14.2.12.4 Test requirements

See clause 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x576).
- for sub-test 2: RB5/TF2 (2x576) or RB5/TF1 (1x576).

- 3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS.
- for sub-test 2: two RLC SDUs on RB5 having the same content as sent by SS.

14.2.13 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.13.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI

14.2.13.1.1 Conformance requirement

See clause 14.2.4.1.

14.2.13.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.13 for the 20 ms TTI case.

14.2.13.1.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE SDU Discard Mode Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	2x640	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	2x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 640	RB5: 2x640
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 14.1.1 for test procedure.

14.2.13.1.4 Test requirements

See clause 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (2x640).

- 3. At step 15 the UE shall return

- for sub-test 1: two RLC SDUs on RB5 having the same content as sent by SS.

14.2.13.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI

14.2.13.2.1 Conformance requirement

See clause 14.2.4.1.

14.2.13.2.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.13 for the 40 ms TTI case.

14.2.13.2.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE SDU Discard Mode Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	4x640	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	4x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 640	RB5: 4x640
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.13.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (4x640).

- 3. At step 15 the UE shall return

- for sub-test 1: four RLC SDUs on RB5 having the same content as sent by SS.

14.2.14 Conversational / unknown / UL:32 DL:32 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.14.1 Conversational / unknown / UL:32 DL:32 kbps / CS RAB / 20 ms TTI

14.2.14.1.1 Conformance requirement

See 14.2.4.1.

14.2.14.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.14 for the 20 ms TTI case.

14.2.14.1.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC TM RLC Segmentation indication	FALSE
Downlink RLC TM RLC Segmentation indication	FALSE

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	1x640	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	1x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)

DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 640	RB5: 640
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.14.1.4 Test requirements

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x640).

- 3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS.

14.2.14.2 Conversational / unknown / UL:32 DL:32 kbps / CS RAB / 40 ms TTI

14.2.14.2.1 Conformance requirement

See 14.2.4.1.

14.2.14.2.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.14 for the 40 ms TTI case.

14.2.14.2.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE SDU Discard Mode Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	2x640	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	2x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 640	RB5: 2x640
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.14.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (2x640).

- 3. At step 15 the UE shall return

- for sub-test 1: two RLC SDUs on RB5 having the same content as sent by SS.

14.2.15 Streaming / unknown / UL:14.4/DL:14.4 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.15.1 Conformance requirement

See 14.2.4.1.

14.2.15.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.15.

14.2.15.3 Method of test

Uplink TFS:

	TFI	RB5 (14.4 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (14.4 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 576	RB5: 576
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.15.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x576).

- 3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS.

14.2.16 Streaming / unknown / UL:28.8/DL:28.8 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.16.1 Conformance requirement

See 14.2.4.1.

14.2.16.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.16.

14.2.16.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE SDU Discard Mode Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

Uplink TFS:

	TFI	RB5 (28.8 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148
	TF2, bits	2x576	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

		RB5 (28.8 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148
	TF2, bits	2x576	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)
DL_TFC5	(TF2, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 576	RB5: 576
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 576	RB5: 2x576
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.16.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x576).
- for sub-test 2: RB5/TF2 (2x576) or RB5/TF1 (1x576).

- 3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS.
- for sub-test 2: two RLC SDU on RB5 having the same content as sent by SS.

14.2.17 Streaming / unknown / UL:57.6/DL:57.6 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.17.1 Conformance requirement

See 14.2.4.1.

14.2.17.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.17.

14.2.17.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE SDU Discard Mode Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

Uplink TFS:

	TFI	RB5 (57.6 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148
	TF2, bits	2x576	N/A
	TF3, bits	3x576	N/A
	TF4, bits	4x576	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (57.6 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148
	TF2, bits	2x576	N/A
	TF3, bits	3x576	N/A
	TF4, bits	4x576	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)

DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5,	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 576	RB5: 576
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 576	RB5: 2x576
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 576	RB5: 3x576
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 576	RB5: 4x576
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.17.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x576).
- for sub-test 2: RB5/TF2 (2x576) or RB5/TF1 (1x576).
- for sub-test 3: RB5/TF3 (3x576) or RB5/TF1 (1x576).
- for sub-test 4: RB5/TF4 (4x576) or RB5/TF1 (1x576).

- 3. At step 15 the UE shall return

- for sub-test 1: one RLC SDU on RB5 having the same content as sent by SS.
- for sub-test 2: two RLC SDU on RB5 having the same content as sent by SS.

- for sub-test 3: three RLC SDU on RB5 having the same content as sent by SS.
- for sub-test 4: four RLC SDU on RB5 having the same content as sent by SS.

14.2.18 Void

14.2.19 Void

14.2.20 Void

14.2.21 Void

14.2.22 Void

14.2.23 Interactive or background / UL:32 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.23.1 Interactive or background / UL:32 DL:8 kbps / PS RAB / (TC,10 ms TTI)

14.2.23.1.1 Conformance requirement

See 14.2.4.1.

14.2.23.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.23 for the turbo channel coding and uplink 10 ms TTI case.

14.2.23.1.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (8 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 312	RB5: 312
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.23.1.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).

- 3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.23.2 Interactive or background / UL:32 DL:8 kbps / PS RAB / (TC, 20 ms TTI)

14.2.23.2.1 Conformance requirement

See 14.2.4.1.

14.2.23.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.23 for the turbo channel coding and uplink 20 ms TTI case.

14.2.23.2.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

	TFI	RB5 (8 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 312	RB5: 312
2	DL_TFC1	UL_TFC2	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632	RB5: 632
NOTE1: : UL_TFC0, UL_TFC1 and UL_TFC3 are part of minimum set of TFCIs. NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.23.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336).

- 3. At step 15 the UE shall return

- for sub-test 1 and 2: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.23.3 Interactive or background / UL:32 DL:8 kbps / PS RAB / (CC, 10 ms TTI)

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.23 for the convolutional channel coding and uplink 10 ms TTI case.

See test case 14.2.23.1 for test procedure and test requirement.

14.2.23.4 Interactive or background / UL:32 DL:8 kbps / PS RAB / (CC, 20 ms TTI)

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.23 for the convolutional channel coding and uplink 20 ms TTI case.

See test case 14.2.23.2 for test procedure and test requirement.

14.2.23a Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.23a.1 Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / CC

14.2.23a.1.1 Conformance requirement

See 14.2.4.1.

14.2.23a.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.23a, for a convolutional coding case.

14.2.23a.1.3 Method of test

See 14.1.1 for test procedure.

Uplink TFS:

	TFI	RB5 (8 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148

Uplink TFCS:

TFCI	(8 kbps RAB, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

		RB5 (8 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148

Downlink TFCS:

TFCI	(8 kbps RAB, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2,	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 312	RB5: 312
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).						

14.2.23a.1.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).

- 3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.23a.2 Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / TC

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.23a, for a turbo coding case.

See test case 14.2.23a.1 for test procedure and test requirement.

14.2.23b Interactive or background / UL:16 DL:16 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.23b.1 Conformance requirement

See clause 14.2.4.1.

14.2.23b.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.23b.

14.2.23b.3 Method of test

Uplink TFS:

	TFI	RB5 (16 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)
DL_TFC5	(TF2, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)

1	DL_TFC1	UL_TFC1	DL_TFC0, UL_TFC0 DL_TFC3,UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, UL_TFC0 DL_TFC3 ,UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632	RB5: 632
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).						

See 14.1.1 for test procedure.

14.2.23b.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send a RADIO BEARER SETUP COMPLETE message.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336) or RB5/TF1 (1x336).

- 3. At step 15 the UE shall return

- for sub-test 1 and 2: an RLC SDU on RB5 having the same content as sent by the SS.

14.2.23c Interactive or background / UL:32 DL:32 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.23c.

14.2.23c.1 Conformance requirement

See 14.2.4.1.

14.2.23c.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.23c.

14.2.23c.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)

1	DL_TFC1	UL_TFC1	DL_TFC0, UL_TFC0 DL_TFC5,UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, UL_TFC0 DL_TFC5 ,UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, UL_TFC0 DL_TFC5 ,UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952	RB5: 952
4	DL_TFC4	UL_TFC4	DL_TFC0, UL_TFC0 DL_TFC5 ,UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272	RB5: 1272
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. For RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).						

See 14.1.1 for test procedure.

14.2.23c.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send a RADIO BEARER SETUP COMPLETE message.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336) or RB5/TF1 (1x336).
- for sub-test 3: RB5/TF3 (3x336) or RB5/TF1 (1x336).
- for sub-test 4: RB5/TF4 (4x336) or RB5/TF1 (1x336).

- 3. At step 15 the UE shall return

- for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.23d Interactive or background / UL:32 DL:32 kbps / PS RAB (20 ms TTI) + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.23d.1 Conformance requirement

See 14.2.4.1.

14.2.23d.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.23d.

14.2.23d.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)
DL_TFC5	(TF2, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
1	DL_TFC1	UL_TFC1	DL_TFC0, UL_TFC0 DL_TFC3,UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, UL_TFC0 DL_TFC3 ,UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632	RB5: 632
NOTE1: UL_TFC0, UL_TFC1 and UL_TFC3 are part of minimum set of TFCIs. NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. For RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).						

See 14.1.1 for test procedure.

14.2.23d.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send a RADIO BEARER SETUP COMPLETE message.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336).

- 3. At step 15 the UE shall return

- for sub-test 1 to 2: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.24 Void

14.2.25 Interactive or background / UL:32 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.25.1 Interactive or background / UL:32 DL: 64 kbps / PS RAB / (TC, 10 ms TTI)

14.2.25.1.1 Conformance requirement

See 14.2.4.1.

14.2.25.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.25 for the uplink turbo channel coding and 10 ms TTI case.

14.2.25.1.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 952	RB5: 952
4	DL_TFC4	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 1272	RB5: 1272
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC2 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.25.1.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1 to 4: RB5/TF1 (1x336).

- 3. At step 15 the UE shall return

- for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.25.2 Interactive or background / UL:32 DL: 64 kbps / PS RAB / (TC, 20 ms TTI)

14.2.25.2.1 Conformance requirement

See 14.2.4.1.

14.2.25.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.25 for the uplink turbo channel coding and 20 ms TTI case.

14.2.25.2.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 952	RB5: 952
4	DL_TFC4	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 1272	RB5: 1272
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.25.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336).
- for sub-test 3: RB5/TF1 (1x336).
- for sub-test 4: RB5/TF2 (2x336).

- 3. At step 15 the UE shall return

- for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.25.3 Interactive or background / UL:32 DL:64 kbps / PS RAB / (CC, 10 ms TTI)

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.25 for the uplink convolutional channel coding and 10 ms TTI case.

See test case 14.2.25.1 for test procedure and test requirement.

14.2.25.4 Interactive or background / UL:32 DL:64 kbps / PS RAB / (CC, 20 ms TTI)

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.25 for the uplink convolutional channel coding and 20 ms TTI case.

See test case 14.2.25.2 for test procedure and test requirement.

14.2.26 Interactive or background / UL:64 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.26.1 Conformance requirement

See 14.2.4.1.

14.2.26.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.26.

14.2.26.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952	RB5: 952
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272	RB5: 1272
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.						

See 14.1.1 for test procedure.

14.2.26.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336) or RB5/TF1 (1x336).
- for sub-test 3: RB5/TF3 (3x336) or RB5/TF1 (1x336).
- for sub-test 4: RB5/TF4 (4x336) or RB5/TF1 (1x336).

- 3. At step 15 the UE shall return

- for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.27 Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.27.1 Conformance requirement

See 14.2.4.1.

14.2.27.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.27.

14.2.27.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.						

See 14.1.1 for test procedure.

14.2.27.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336) or RB5/TF1 (1x336).
- for sub-test 3: RB5/TF3 (3x336) or RB5/TF1 (1x336).
- for sub-test 4: RB5/TF4 (4x336) or RB5/TF1 (1x336).

- 3. At step 15 the UE shall return

- for sub-test 1, 2 and 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

- for sub-test 3: an RLC SDU on RB5 having the first 1272 bits equal to the content of the test data sent by the SS in downlink.

14.2.28 Interactive or background / UL:128 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.28.1 Conformance requirement

See 14.2.4.1.

14.2.28.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.28.

14.2.28.3 Method of test

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1272	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
NOTE1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs. NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.28.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336).
- for sub-test 3: RB5/TF3 (4x336).
- for sub-test 4: RB5/TF4 (8x336).

- 3. At step 15 the UE shall return

- for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.29 Interactive or background / UL:64 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

14.2.29.1 Conformance requirement

See 14.2.4.1.

14.2.29.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.29.

14.2.29.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (144 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	9x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 2872	RB5: 2872

NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 14.1.1 for test procedure.

14.2.29.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).

- for sub-test 2: RB5/TF2 (2x336) or RB5/TF1 (1x336).
- for sub-test 3: RB5/TF3 (3x336) or RB5/TF1 (1x336).
- for sub-test 4: RB5/TF4 (4x336) or RB5/TF1 (1x336).
- for sub-test 5: RB5/TF3 (3x336) or RB5/TF1 (1x336).

    - 3. At step 15 the UE shall return

- for sub-test 1, 2, 4 and 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
- for sub-test 3: an RLC SDU on RB5 having the first 1272 bits equal to the content of the test data sent by the SS in downlink.

14.2.30 Interactive or background / UL:144 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

14.2.30.1 Conformance requirement

See 14.2.4.1.

14.2.30.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.30.

14.2.30.3 Method of test

Uplink TFS:

	TFI	RB5 (144 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	9x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF0, TF1)
UL_TFC7	(TF1, TF1)
UL_TFC8	(TF2, TF1)
UL_TFC9	(TF3, TF1)
UL_TFC10	(TF4, TF1)
UL_TFC11	(TF5, TF1)

Downlink TFS:

	TFI	RB5 (144 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	9x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 1272	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 2872	RB5: 2872
NOTE1: UL_TFC0, UL_TFC1 and UL_TFC6 are part of minimum set of TFCIs. NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.						

See 14.1.1 for test procedure.

14.2.30.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336).
- for sub-test 3: RB5/TF3 (4x336).
- for sub-test 4: RB5/TF4 (8x336).
- for sub-test 5: RB5/TF5 (9x336).

- 3. At step 15 the UE shall return

- for sub-test 1 to 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.31 Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

14.2.31.1 Interactive or background / UL:64 DL:256 kbps / PS RAB / 10 ms TTI

14.2.31.1.1 Conformance requirement

See 14.2.4.1.

14.2.31.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.31 for the downlink 10 ms TTI case.

14.2.31.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (256 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.						

See 14.1.1 for test procedure.

14.2.31.1.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336) or RB5/TF1 (1x336).
- for sub-test 3: RB5/TF3 (3x336) or RB5/TF1 (1x336).
- for sub-test 4: RB5/TF4 (4x336) or RB5/TF1 (1x336).

- 3. At step 15 the UE shall return

- for sub-test 1, 2 and 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
- for sub-test 3: an RLC SDU on RB5 having the first 1272 bits equal to the content of the test data sent by the SS in downlink.

14.2.31.2 Interactive or background / UL:64 DL:256 kbps / PS RAB / 20 ms TTI

14.2.31.2.1 Conformance requirement

See 14.2.4.1.

14.2.31.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.31 for the downlink 20 ms TTI case.

14.2.31.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (256 kbps, 20ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF0, TF1)
DL_TFC8	(TF1, TF1)
DL_TFC9	(TF2, TF1)
DL_TFC10	(TF3, TF1)
DL_TFC11	(TF4, TF1)
DL_TFC12	(TF5, TF1)
DL_TFC13	(TF6, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 3832	RB5: 3832
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
NOTE1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs. NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.						

See 14.1.1 for test procedure.

14.2.31.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336).
- for sub-test 3: RB5/TF3 (3x336).
- for sub-test 4 to 6: RB5/TF4 (4x336).

- 3. At step 15 the UE shall return

- for sub-tests 1, 2, 4, 5 and 6: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
- for sub-test 3: an RLC SDU on RB5 having the first 1272 bits equal to the content of the test data sent by the SS in downlink.

14.2.32 Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

14.2.32.1 Interactive or background / UL:64 DL:384 kbps / PS RAB / 10 ms TTI

14.2.32.1.1 Conformance requirement

See 14.2.4.1.

14.2.32.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.32 for the 10 ms TTI case.

14.2.32.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (384 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 1)	Test data size (bits) (note 1)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 3832	RB5: 3832
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.						

See 14.1.1 for test procedure.

14.2.32.1.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).

- for sub-test 2: RB5/TF2 (2x336) or RB5/TF1 (1x336).
- for sub-test 3: RB5/TF3 (3x336) or RB5/TF1 (1x336).
- for sub-test 4 and 5: RB5/TF4 (4x336) or RB5/TF1 (1x336).

    - 3. At step 15 the UE shall return

- for sub-test 1, 2, 4 and 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
- for sub-test 3: an RLC SDU on RB5 having the first 1272 bits equal to the content of the test data sent by the SS in downlink.

14.2.32.2 Interactive or background / UL:64 DL:384 kbps / PS RAB / 20 ms TTI

14.2.32.2.1 Conformance requirement

See 14.2.4.1.

14.2.32.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.32 for the 20 ms TTI case.

14.2.32.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (384 kbps, 20ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A
	TF7, bits	20x336	N/A
	TF8, bits	24x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF0, TF1)
DL_TFC10	(TF1, TF1)
DL_TFC11	(TF2, TF1)
DL_TFC12	(TF3, TF1)
DL_TFC13	(TF4, TF1)
DL_TFC14	(TF5, TF1)
DL_TFC15	(TF6, TF1)
DL_TFC16	(TF7, TF1)
DL_TFC17	(TF8, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 3832	RB5: 3832
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC9, , UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 6392	RB5: 6392
8	DL_TFC8	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 7672	RB5: 7672
NOTE1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs. NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.						

See 14.1.1 for test procedure.

14.2.32.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336).
- for sub-test 3: RB5/TF3 (3x336).

- for sub-test 4 to 8: RB5/TF4 (4x336).

    - 3. At step 15 the UE shall return

- for sub-tests 1, 2, and 4 to 8: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

- for sub-test 3: an RLC SDU on RB5 having the first 1272 bits equal to the content of the test data sent by the SS in downlink.

14.2.33 Interactive or background / UL:128 DL:384 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

14.2.33.1 Interactive or background / UL:128 DL:384 kbps / PS RAB / 10 ms TTI

14.2.33.1.1 Conformance requirement

See 14.2.4.1.

14.2.33.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.33 for the 10 ms TTI case.

14.2.33.1.3 Method of test

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (384 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1272	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 3832	RB5: 3832
NOTE1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs. NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 14.1.1 for test procedure.

14.2.33.1.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336).
- for sub-test 3: RB5/TF3 (4x336).

- for sub-test 4 and 5: RB5/TF4 (8x336).

    - 3. At step 15 the UE shall return

- for sub-test 1 to 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.33.2 Interactive or background / UL:128 DL:384 kbps / PS RAB / 20 ms TTI

14.2.33.2.1 Conformance requirement

See 14.2.4.1.

14.2.33.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.33 for the 20 ms TTI case.

14.2.33.2.3 Method of test

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (384 kbps, 20ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A
	TF7, bits	20x336	N/A
	TF8, bits	24x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF0, TF1)
DL_TFC10	(TF1, TF1)
DL_TFC11	(TF2, TF1)
DL_TFC12	(TF3, TF1)
DL_TFC13	(TF4, TF1)
DL_TFC14	(TF5, TF1)
DL_TFC15	(TF6, TF1)
DL_TFC16	(TF7, TF1)
DL_TFC17	(TF8, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1272	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC3	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5,	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 3832	RB5: 3832
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
7	DL_TFC7	UL_TFC3	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 6392	RB5: 6392
8	DL_TFC8	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4 UL_TFC5, UL_TFC9	RB5: 7672	RB5: 7672
NOTE1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs. NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 14.1.1 for test procedure.

14.2.33.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336).
- for sub-test 3: RB5/TF3 (4x336).
- for sub-test 4 to 8: RB5/TF4 (8x336).

- 3. At step 15 the UE shall return
  - - for sub-test 1 to 8: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.34 Interactive or background / UL:384 DL:384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.34.1 Interactive or background / UL:384 DL:384 kbps / PS RAB / 10 ms TTI

14.2.34.1.1 Conformance requirement

See 14.2.4.1.

14.2.34.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.34 for the 10 ms TTI case.

14.2.34.1.3 Method of test

Uplink TFS:

	TFI	RB5 (384 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF0, TF1)
UL_TFC7	(TF1, TF1)
UL_TFC8	(TF2, TF1)
UL_TFC9	(TF3, TF1)
UL_TFC10	(TF4, TF1)
UL_TFC11	(TF5, TF1)

Downlink TFS:

	TFI	RB5 (384 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 1272	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 3832	RB5: 3832
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC6 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.34.1.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336).
- for sub-test 3: RB5/TF3 (4x336).

- for sub-test 4: RB5/TF4 (8x336).
- for sub-test 5: RB5/TF4 (12x336).

    - 3. At step 15 the UE shall return

- for sub-test 1 to 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.34.2 Interactive or background / UL:384 DL:384 kbps / PS RAB / 20 ms TTI

14.2.34.2.1 Conformance requirement

See 14.2.4.1.

14.2.34.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.34. for the 20 ms TTI case

14.2.34.2.3 Method of test

Uplink TFS:

	TFI	RB5 (384 kbps, 20ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A
	TF7, bits	20x336	N/A
	TF8, bits	24x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF6, TF0)
UL_TFC7	(TF7, TF0)
UL_TFC8	(TF8, TF0)
UL_TFC9	(TF0, TF1)
UL_TFC10	(TF1, TF1)
UL_TFC11	(TF2, TF1)
UL_TFC12	(TF3, TF1)
UL_TFC13	(TF4, TF1)
UL_TFC14	(TF5, TF1)
UL_TFC15	(TF6, TF1)
UL_TFC16	(TF7, TF1)
UL_TFC17	(TF8, TF1)

Downlink TFS:

	TFI	RB5 (384 kbps, 20ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A
	TF7, bits	20x336	N/A
	TF8, bits	24x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF0, TF1)
DL_TFC10	(TF1, TF1)
DL_TFC11	(TF2, TF1)
DL_TFC12	(TF3, TF1)
DL_TFC13	(TF4, TF1)
DL_TFC14	(TF5, TF1)
DL_TFC15	(TF6, TF1)
DL_TFC16	(TF7, TF1)
DL_TFC17	(TF8, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC10	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC9, UL_TFC11	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC9, UL_TFC12	RB5: 1272	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC9, UL_TFC13	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC9, UL_TFC14	RB5: 3832	RB5: 3832
6	DL_TFC6	UL_TFC6	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC9, UL_TFC15	RB5: 5112	RB5: 5112
7	DL_TFC7	UL_TFC7	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC7, UL_TFC9, UL_TFC16	RB5: 6392	RB5: 6392
8	DL_TFC8	UL_TFC8	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC8, UL_TFC9, UL_TFC17	RB5: 7672	RB5: 7672
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC9 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 14.1.1 for test procedure.

14.2.34.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336).
- for sub-test 3: RB5/TF3 (4x336).
- for sub-test 4: RB5/TF4 (8x336).

- for sub-test 5: RB5/TF5 (12x336).
- for sub-test 6: RB5/TF6 (16x336).
- for sub-test 7: RB5/TF7 (20x336).
- for sub-test 8: RB5/TF8 (24x336).

- 3. At step 15 the UE shall return
  - - for sub-test 1 to 8: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.35 Interactive or background / UL:64 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.35.1 Interactive or background / UL:64 DL:2048 kbps / PS RAB / 10 ms TTI

14.2.35.1.1 Conformance requirement

See 14.2.4.1.

14.2.35.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.35 for the 10 ms TTI case.

14.2.35.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (2048 kbps, 10ms)	DCCH
TFS	TF0, bits	0x656	0x148
	TF1, bits	1x656	1x148
	TF2, bits	2x656	N/A
	TF3, bits	4x656	N/A
	TF4, bits	8x656	N/A
	TF5, bits	12x656	N/A
	TF6, bits	16x656	N/A
	TF7, bits	20x656	N/A
	TF8, bits	24x656	N/A
	TF9, bits	28x656	N/A
	TF10, bits	32x656	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF9, TF0)
DL_TFC10	(TF10, TF0)
DL_TFC11	(TF0, TF1)
DL_TFC12	(TF1, TF1)
DL_TFC13	(TF2, TF1)
DL_TFC14	(TF3, TF1)
DL_TFC15	(TF4, TF1)
DL_TFC16	(TF5, TF1)
DL_TFC17	(TF6, TF1)
DL_TFC18	(TF7, TF1)
DL_TFC19	(TF8, TF1)
DL_TFC20	(TF9, TF1)
DL_TFC21	(TF10, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 632	RB5: 632
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 1272	RB5: 1272
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 2872	RB5: 2552
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 7672	RB5: 7672
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 10232	RB5: 10232
7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 12792	RB5: 12792
8	DL_TFC8	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 15352	RB5: 15352
9	DL_TFC9	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 17912	RB5: 17912
10	DL_TFC10	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 20472	RB5: 20472
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals. RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size						

See 14.1.1 for test procedure.

14.2.35.1.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336).
- for sub-test 3: RB5/TF3 (3x336).
- for sub-test 4 to 10: RB5/TF4 (4x336).

- 3. At step 15 the UE shall return
  - - for sub-tests 1, 2 and 4 to 10: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
  - - for sub-test 3: an RLC SDU on RB5 having the first 2552 bits equal to the content of the test data sent by the SS in downlink.

14.2.35.2 Interactive or background / UL:64 DL:2048 kbps / PS RAB / 20 ms TTI

14.2.35.2.1 Conformance requirement

See 14.2.4.1.

14.2.35.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.35 for the 20 ms TTI case.

14.2.35.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (2048 kbps, 10ms)	DCCH
TFS	TF0, bits	0x656	0x148
	TF1, bits	1x656	1x148
	TF2, bits	2x656	N/A
	TF3, bits	4x656	N/A
	TF4, bits	8x656	N/A
	TF5, bits	12x656	N/A
	TF6, bits	16x656	N/A
	TF7, bits	20x656	N/A
	TF8, bits	24x656	N/A
	TF9, bits	28x656	N/A
	TF10, bits	32x656	N/A
	TF11, bits	36x656	N/A
	TF12, bits	40x656	N/A
	TF13, bits	44x656	N/A
	TF14, bits	48x656	N/A
	TF15, bits	52x656	N/A
	TF16, bits	56x656	N/A
	TF17, bits	60x656	N/A
	TF18, bits	64x656	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF9, TF0)
DL_TFC10	(TF10, TF0)
DL_TFC11	(TF11, TF0)
DL_TFC12	(TF12, TF0)
DL_TFC13	(TF13, TF0)
DL_TFC14	(TF14, TF0)
DL_TFC15	(TF15, TF0)
DL_TFC16	(TF16, TF0)
DL_TFC17	(TF17, TF0)
DL_TFC18	(TF18, TF0)
DL_TFC19	(TF0, TF1)
DL_TFC20	(TF1, TF1)
DL_TFC21	(TF2, TF1)
DL_TFC22	(TF3, TF1)
DL_TFC23	(TF4, TF1)
DL_TFC24	(TF5, TF1)
DL_TFC25	(TF6, TF1)
DL_TFC26	(TF7, TF1)
DL_TFC27	(TF8, TF1)
DL_TFC28	(TF9, TF1)
DL_TFC29	(TF10, TF1)
DL_TFC30	(TF11, TF1)
DL_TFC31	(TF12, TF1)
DL_TFC32	(TF13, TF1)
DL_TFC33	(TF14, TF1)
DL_TFC34	(TF15, TF1)
DL_TFC35	(TF16, TF1)
DL_TFC36	(TF17, TF1)
DL_TFC37	(TF18, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 632	RB5: 632
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 1272	RB5: 1272
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 2872	RB5: 2552
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 7672	RB5: 7672
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 10232	RB5: 10232
7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 12792	RB5: 12792
8	DL_TFC8	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 15352	RB5: 15352
9	DL_TFC9	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 17912	RB5: 17912
10	DL_TFC10	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 20472	RB5: 20472
11	DL_TFC11	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 23032	RB5: 23032
12	DL_TFC12	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 25592	RB5: 25592

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
13	DL_TFC13	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4 UL_TFC5, UL_TFC9	RB5: 28152	RB5: 28152
14	DL_TFC14	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 30712	RB5: 30712
15	DL_TFC15	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 33272	RB5: 33272
16	DL_TFC16	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 35832	RB5: 35832
17	DL_TFC17	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4 UL_TFC5, UL_TFC9	RB5: 38392	RB5: 38392
18	DL_TFC18	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 40952	RB5: 40952
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals. RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.						

See 14.1.1 for test procedure.

14.2.35.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336).
- for sub-test 3: RB5/TF3 (3x336).
- for sub-test 4 to 18: RB5/TF4 (4x336).

- 3. At step 15 the UE shall return
  - - for sub-tests 1, 2 and 4 to 18: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

- - for sub-test 3: an RLC SDU on RB5 having the first 2552 bits equal to the content of the test data sent by the SS in downlink.

14.2.36 Void

14.2.37 Void

14.2.38 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.38.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:8 kbps / PS RAB / (TC, 20 ms TTI)

14.2.38.1.1 Conformance requirement

See 14.2.4.1.

14.2.38.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.38 for the turbo channel coding and 20 ms TTI case.

14.2.38.1.3 Method of test

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (32 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF0, TF1)
UL_TFC10	(TF1, TF0, TF0, TF0, TF1)
UL_TFC11	(TF2, TF1, TF1, TF0, TF1)
UL_TFC12	(TF0, TF0, TF0, TF1, TF1)
UL_TFC13	(TF1, TF0, TF0, TF1, TF1)
UL_TFC14	(TF2, TF1, TF1, TF1, TF1)
UL_TFC15	(TF0, TF0, TF0, TF2, TF1)
UL_TFC16	(TF1, TF0, TF0, TF2, TF1)
UL_TFC17	(TF2, TF1, TF1, TF2, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (8 kbps)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF0, TF1)
DL_TFC7	(TF1, TF0, TF0, TF0, TF1)
DL_TFC8	(TF2, TF1, TF1, TF0, TF1)
DL_TFC9	(TF0, TF0, TF0, TF1, TF1)
DL_TFC10	(TF1, TF0, TF0, TF1, TF1)
DL_TFC11	(TF2, TF1, TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1 DL_TFC7	UL_TFC1 UL_TFC10	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2 DL_TFC8	UL_TFC2 UL_TFC11	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3 DL_TFC9	UL_TFC3 UL_TFC12	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC12	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4 DL_TFC10	UL_TFC4 UL_TFC13	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC9, UL_TFC10, UL_TFC12, UL_TFC13	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5 DL_TFC11	UL_TFC5 UL_TFC14	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC9, UL_TFC11, UL_TFC12, UL_TFC14	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC3 DL_TFC9	UL_TFC6 UL_TFC15	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC9, UL_TFC15	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 312
7	DL_TFC4 DL_TFC10	UL_TFC7 UL_TFC16	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 312
8	DL_TFC5 DL_TFC11	UL_TFC8 UL_TFC17	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 312

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC9 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the uplink TTI for RB8 is 20 ms while the downlink TTI is 40 ms then, to achieve continuous data transmission in uplink the size of the uplink RLC SDU has been set such that it will be transmitted over two subsequent TTIs, i.e. UL RLC SDU SIZE has been set to two times the uplink TFS size minus 8 (the size of a 7 bit length indicator and expansion bit).						

14.2.38.1.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub test.
- 3. At step 15 the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 3 and 6: RLC SDUs on RB8 having the first 312 bits equal to the content sent by the SS in the downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4 and 7: RLC SDUs on RB5 having the same content as sent by SS and on RB8 having the first 312 bits equal to the content sent by the SS in the downlink; and no data shall be received on RB6 and RB7.
- for sub-test 5 and 8: RLC SDUs on RB5, RB6, RB7 having the same content as sent by SS and on RB8 having the first 312 bits equal to the content sent by the SS in the downlink.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.38.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:8 kbps / PS RAB / (TC, 10 ms TTI)

14.2.38.2.1 Conformance requirement

See 14.2.4.1.

14.2.38.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.38 for the turbo channel coding and 10 ms TTI case.

14.2.38.2.3 Method of test

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (32 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF0, TF0, TF1)
UL_TFC8	(TF2, TF1, TF1, TF0, TF1)
UL_TFC9	(TF0, TF0, TF0, TF1, TF1)
UL_TFC10	(TF1, TF0, TF0, TF1, TF1)
UL_TFC11	(TF2, TF1, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (8 kbps)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF0, TF1)
DL_TFC7	(TF1, TF0, TF0, TF0, TF1)
DL_TFC8	(TF2, TF1, TF1, TF0, TF1)
DL_TFC9	(TF0, TF0, TF0, TF1, TF1)
DL_TFC10	(TF1, TF0, TF0, TF1, TF1)
DL_TFC11	(TF2, TF1, TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1 DL_TFC7	UL_TFC1 UL_TFC7	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC7	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2 DL_TFC8	UL_TFC2 UL_TFC8	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3 DL_TFC9	UL_TFC3 UL_TFC9	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4 DL_TFC10	UL_TFC4 UL_TFC10	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5 DL_TFC11	UL_TFC5 UL_TFC11	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 312

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC6 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the uplink TTI for RB8 is 10 ms while the downlink TTI is 40 ms then, to achieve continuous data transmission in uplink the size of the uplink RLC SDU has been set such that it will be transmitted over four subsequent TTIs, i.e. UL RLC SDU SIZE has been set to four times the uplink TFS size minus 8 (the size of a 7 bit length indicator and expansion bit).

14.2.38.2.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub test.
- 3. At step 15 the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.

- for sub-test 3: RLC SDUs on RB8 having the first 312 bits equal to the content sent by the SS in the downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4: RLC SDUs on RB5 having the same content as sent by SS and on RB8 having the first 312 bits equal to the content sent by the SS in the downlink; and no data shall be received on RB6 and RB7.
- for sub-test 5: RLC SDUs on RB5, RB6, RB7 having the same content as sent by SS and on RB8 having the first 312 bits equal to the content sent by the SS in the downlink.

• 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.38.3 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:8 kbps / PS RAB / (CC, 20 ms TTI)

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.38 for the convolutional channel coding and 20 ms TTI case.

See test case 14.2.38.1 for test procedure and test requirement.

14.2.38.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:8 kbps / PS RAB / (CC, 10 ms TTI)

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.38 for the convolutional channel coding and 10 ms TTI case.

See test case 14.2.38.2 for test procedure and test requirement.

14.2.38a Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:0 DL:0 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.38a.1 Conformance requirement

See 14.2.4.1.

14.2.38a.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.38a.

14.2.38a.3 Method of test

See 14.1.2 for test procedure. However, in this test the RM attribute values used shall be derived separately in the UL and DL as the mid-values of the RM attribute value ranges as specified by the reference radio bearer configuration.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (0 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	N/A	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF0, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (0 kbps)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	N/A	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF0, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1 DL_TFC4	UL_TFC1 UL_TFC4	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3,	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 RB6: 103 RB7: 60 RB8: 0	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2 DL_TFC5	UL_TFC2 UL_TFC5	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3,	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 0	RB5: 81 RB6: 103 RB7: 60 RB8: No data
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

14.2.38a.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15a and step 15b the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.38b Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.38b.1 Conformance requirement

See 14.2.4.1.

14.2.38b.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.38b.

14.2.38b.3 Method of test

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (8 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF0, TF0, TF1)
UL_TFC8	(TF2, TF1, TF1, TF0, TF1)
UL_TFC9	(TF0, TF0, TF0, TF1, TF1)
UL_TFC10	(TF1, TF0, TF0, TF1, TF1)
UL_TFC11	(TF2, TF1, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (8 kbps)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF0, TF1)
DL_TFC7	(TF1, TF0, TF0, TF0, TF1)
DL_TFC8	(TF2, TF1, TF1, TF0, TF1)
DL_TFC9	(TF0, TF0, TF0, TF1, TF1)
DL_TFC10	(TF1, TF0, TF0, TF1, TF1)
DL_TFC11	(TF2, TF1, TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1 DL_TFC7	UL_TFC1 UL_TFC7	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC7	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2 DL_TFC8	UL_TFC2 UL_TFC8	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3 DL_TFC9	UL_TFC3 UL_TFC9	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4 DL_TFC10	UL_TFC4 UL_TFC10	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5 DL_TFC11	UL_TFC5 UL_TFC11	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC6 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).

14.2.38b.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15a and step 15b the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 3: RLC SDUs on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4: RLC SDUs on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 5: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.38c Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:32 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.38c.1 Conformance requirement

See 14.2.4.1.

14.2.38c.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.38c.

14.2.38c.3 Method of test

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (32 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (32 kbps)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF2, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1, DL_TFC16	UL_TFC1, UL_TFC16	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC17	UL_TFC2, UL_TFC17	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC18	UL_TFC3, UL_TFC18	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC18	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4, DL_TFC19	UL_TFC4, UL_TFC19	DL_TFC0, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5, DL_TFC20	UL_TFC5, UL_TFC20	DL_TFC0, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC17, UL_TFC18, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC6, DL_TFC21	UL_TFC6, UL_TFC21	DL_TFC0, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC15, UL_TFC21	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 632
7	DL_TFC7, DL_TFC22	UL_TFC7, UL_TFC22	DL_TFC0, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC4, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 632

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
8	DL_TFC8, DL_TFC23	UL_TFC8, UL_TFC23	DL_TFC0, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC5, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC15, UL_TFC17, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632
9	DL_TFC9, DL_TFC24	UL_TFC9, UL_TFC24	DL_TFC0, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC15, UL_TFC24	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: No data RB6: No data RB7: No data RB8: 952
10	DL_TFC10, DL_TFC25	UL_TFC10, UL_TFC25	DL_TFC0, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC4, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16, UL_TFC24, UL_TFC25	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: 39 RB6: No data RB7: No data RB8: 952
11	DL_TFC11, DL_TFC26	UL_TFC11, UL_TFC26	DL_TFC0, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC5, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17, UL_TFC24, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: 81 RB6: 103 RB7: 60 RB8: 952
12	DL_TFC12, DL_TFC27	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 1272
13	DL_TFC13, DL_TFC28	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC4, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 1272

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
14	DL_TFC14, DL_TFC29	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC5, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 1272
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, , UL_TFC3 and UL_TFC15 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).						

14.2.38c.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15a and step 15b the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 3, 6, 9 and 12: RLC SDUs on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4, 7, 10 and 13: RLC SDUs on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 5, 8, 11 and 14: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.38d Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.38d.1 Conformance requirement

See 14.2.4.1.

14.2.38d.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.38d.

14.2.38d.3 Method of test

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 + RB9 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x340	0x148
	TF1, bits	1x39	1x103	1x60	1x340	1x148
	TF2, bits	1x81	N/A	N/A	2x340	N/A
	TF3, bits	N/A	N/A	N/A	3x340	N/A
	TF4, bits	N/A	N/A	N/A	4x340	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8+RB9, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 + RB9 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x340	0x148
	TF1, bits	1x39	1x103	1x60	1x340	1x148
	TF2, bits	1x81	N/A	N/A	2x340	N/A
	TF3, bits	N/A	N/A	N/A	3x340	N/A
	TF4, bits	N/A	N/A	N/A	4x340	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8+RB9, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF2, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) Note 2	Test data size (bits) Note 2
1	DL_TFC1, DL_TFC16	UL_TFC1, UL_TFC16	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312	RB5: 39 RB6: No data RB7: No data RB8: No data RB9: No data
2	DL_TFC2, DL_TFC17	UL_TFC2, UL_TFC17	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data RB9: No data
3	DL_TFC3, DL_TFC18	UL_TFC3, UL_TFC18	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC18	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312	RB5: No data RB6: No data RB7: No data RB8: 312 RB9: No data
4	DL_TFC4, DL_TFC19	UL_TFC4, UL_TFC19	DL_TFC0, DL_TFC15, DUL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312	RB5: 39 RB6: No data RB7: No data RB8: 312 RB9: No data
5	DL_TFC5, DL_TFC20	UL_TFC5, UL_TFC20	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC17, UL_TFC18, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: No data
6	DL_TFC6, DL_TFC21	UL_TFC6, UL_TFC21	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC15, UL_TFC21	RB5: 39 RB6: 103 RB7: 60 RB8: 632 RB9: 632	RB5: No data RB6: No data RB7: No data RB8: 632 RB9: No data
7	DL_TFC7, DL_TFC22	UL_TFC7, UL_TFC22	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC7, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 632 RB9: 632	RB5: 39 RB6: No data RB7: No data RB8: 632 RB9: No data
8	DL_TFC8, DL_TFC23	UL_TFC8, UL_TFC23	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8, UL_TFC15, UL_TFC17, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632 RB9: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632 RB9: No data

9	DL_TFC9, DL_TFC24	UL_TFC9, UL_TFC24	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC15, UL_TFC24	RB5: 39 RB6: 103 RB7: 60 RB8: 952 RB9: 952	RB5: No data RB6: No data RB7: No data RB8: 952 RB9: No data
10	DL_TFC10, DL_TFC25	UL_TFC10, UL_TFC25	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16, UL_TFC24, UL_TFC25	RB5: 39 RB6: 103 RB7: 60 RB8: 952 RB9: 952	RB5: 39 RB6: No data RB7: No data RB8: 952 RB9: No data
11	DL_TFC11, DL_TFC26	UL_TFC11, UL_TFC26	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17, UL_TFC24, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 952 RB9: 952	RB5: 81 RB6: 103 RB7: 60 RB8: 952 RB9: No data
12	DL_TFC12, DL_TFC27	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272 RB9: 1272	RB5: No data RB6: No data RB7: No data RB8: 1272 RB9: No data
13	DL_TFC13, DL_TFC28	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272 RB9: 1272	RB5: 39 RB6: No data RB7: No data RB8: 1272 RB9: No data
14	DL_TFC14, DL_TFC29	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272 RB9: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 1272 RB9: No data
15	DL_TFC14, DL_TFC29	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272 RB9: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: No data RB9: 1272

NOTE1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC15 are part of minimum set of TFCIs
NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8 and RB9: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).

14.2.38d.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15a and step 15b the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7, RB8 or RB9.
- for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8 or RB9.
- for sub-test 3, 6, 9 and 12: RLC SDUs on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6, RB7 or RB9.
- for sub-test 4, 7, 10 and 13: RLC SDUs on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6, RB7 or RB9.
- for sub-test 5, 8, 11 and 14: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by SS. No data shall be received on RB9.
- for sub-test 15: RLC SDUs on RB5, RB6, RB7 and RB9 having the same content as sent by SS; and no data shall be received on RB8.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.38e Conversational / speech / UL:(12.2 7.95 5.9 4.75) DL:(12.2 7.95 5.9 4.75) kbps / CS RAB + Interactive or background / UL:0 DL:0 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.38e.1 Conformance requirement

See 14.2.4.1.

14.2.38e.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.38e.

14.2.38e.3 Method of test

See 14.1.2 for test procedure. However, in this test the RM attribute values used shall be derived separately in the UL and DL as the mid-values of the RM attribute value ranges as specified by the reference radio bearer configuration.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (0 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x53	1x60	N/A	1x148

	TF2, bits	1x42	1x63	N/A	N/A	N/A
	TF3, bits	1x55	1x84	N/A	N/A	N/A
	TF4, bits	1x75	1x103	N/A	N/A	N/A
	TF5, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0, TF0, TF0)
UL_TFC3	(TF3, TF2, TF0, TF0, TF0)
UL_TFC4	(TF4, TF3, TF0, TF0, TF0)
UL_TFC5	(TF5, TF4, TF1, TF0, TF0)
UL_TFC6	(TF0, TF0, TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF0, TF0, TF1)
UL_TFC8	(TF2, TF1, TF0, TF0, TF1)
UL_TFC9	(TF3, TF2, TF0, TF0, TF1)
UL_TFC10	(TF4, TF3, TF0, TF0, TF1)
UL_TFC11	(TF5, TF4, TF1, TF0, TF1)

Downlink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (0 kbps)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x53	1x60	N/A	1x148
	TF2, bits	1x42	1x63	N/A	N/A	N/A
	TF3, bits	1x55	1x84	N/A	N/A	N/A
	TF4, bits	1x75	1x103	N/A	N/A	N/A
	TF5, bits	1x81	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0, TF0, TF0)
DL_TFC3	(TF3, TF2, TF0, TF0, TF0)
DL_TFC4	(TF4, TF3, TF0, TF0, TF0)
DL_TFC5	(TF5, TF4, TF1, TF0, TF0)
DL_TFC6	(TF0, TF0, TF0, TF0, TF1)
DL_TFC7	(TF1, TF0, TF0, TF0, TF1)
DL_TFC8	(TF2, TF1, TF0, TF0, TF1)
DL_TFC9	(TF3, TF2, TF0, TF0, TF1)
DL_TFC10	(TF4, TF3, TF0, TF0, TF1)
DL_TFC11	(TF5, TF4, TF1, TF0, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC7	UL_TFC1, UL_TFC7	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 39 bits RB6: 103 bits RB7: 60 bits RB8: 0 bits	RB5: 39 bits RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC8	UL_TFC2, UL_TFC8	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC8	RB5: 42 bits RB6: 53 bits RB7: 60 bits RB8: 0 bits	RB5: 42 bits RB6: 53 bits RB7: No data RB8: No data
3	DL_TFC3, DL_TFC9	UL_TFC3, UL_TFC9	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC9	RB5: 55 bits RB6: 63 bits RB7: 60 bits RB8: 0 bits	RB5: 55 bits RB6: 63 bits RB7: No data RB8: No data
4	DL_TFC4, DL_TFC10	UL_TFC4, UL_TFC10	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC10	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 0 bits	RB5: 75 bits RB6: 84 bits RB7: No data RB8: No data
5	DL_TFC5, DL_TFC11	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 0 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: No data
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5 and UL_TFC6 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

14.2.38e.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15a and step 15b the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by the SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2,3 and 4: RLC SDUs on RB5 and RB6 having the same content as sent by the SS; and no data shall be received on RB7 and RB8.
- for sub-test 5: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by the SS; and no data shall be received on RB8.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.38f Conversational / speech / UL:(12.2 7.95 5.9 4.75) DL:(12.2 7.95 5.9 4.75) kbps / CS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.38f.1 Conformance requirement

See clause 14.2.4.1.

14.2.38f.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.38f.

14.2.38f.3 Method of test

See clause 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (8 kbps, 40 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x53	1x60	1x336	1x148
	TF2, bits	1x42	1x63	N/A	N/A	N/A
	TF3, bits	1x55	1x84	N/A	N/A	N/A
	TF4, bits	1x75	1x103	N/A	N/A	N/A
	TF5, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7,RB8,DCCH)
UL_TFC0	(TF0,TF0,TF0,TF0,TF0)
UL_TFC1	(TF1,TF0,TF0,TF0,TF0)
UL_TFC2	(TF2,TF1,TF0,TF0,TF0)
UL_TFC3	(TF3,TF2,TF0,TF0,TF0)
UL_TFC4	(TF4,TF3,TF0,TF0,TF0)
UL_TFC5	(TF5,TF4,TF1,TF0,TF0)
UL_TFC6	(TF0,TF0,TF0,TF1,TF0)
UL_TFC7	(TF1,TF0,TF0,TF1,TF0)
UL_TFC8	(TF2,TF1,TF0,TF1,TF0)
UL_TFC9	(TF3,TF2,TF0,TF1,TF0)
UL_TFC10	(TF4,TF3,TF0,TF1,TF0)
UL_TFC11	(TF5,TF4,TF1,TF1,TF0)
UL_TFC12	(TF0,TF0,TF0,TF0,TF1)
UL_TFC13	(TF1,TF0,TF0,TF0,TF1)
UL_TFC14	(TF2,TF1,TF0,TF0,TF1)
UL_TFC15	(TF3,TF2,TF0,TF0,TF1)
UL_TFC16	(TF4,TF3,TF0,TF0,TF1)
UL_TFC17	(TF5,TF4,TF1,TF0,TF1)
UL_TFC18	(TF0,TF0,TF0,TF1,TF1)
UL_TFC19	(TF1,TF0,TF0,TF1,TF1)
UL_TFC20	(TF2,TF1,TF0,TF1,TF1)
UL_TFC21	(TF3,TF2,TF0,TF1,TF1)
UL_TFC22	(TF4,TF3,TF0,TF1,TF1)
UL_TFC23	(TF5,TF4,TF1,TF1,TF1)

Downlink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (8 kbps, 40 ms TTI)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x53	1x60	1x336	1x148
	TF2, bits	1x42	1x63	N/A	N/A	N/A
	TF3, bits	1x55	1x84	N/A	N/A	N/A
	TF4, bits	1x75	1x103	N/A	N/A	N/A
	TF5, bits	1x81	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0,TF0,TF0,TF0,TF0)
DL_TFC1	(TF1,TF0,TF0,TF0,TF0)
DL_TFC2	(TF2,TF1,TF0,TF0,TF0)
DL_TFC3	(TF3,TF2,TF0,TF0,TF0)
DL_TFC4	(TF4,TF3,TF0,TF0,TF0)
DL_TFC5	(TF5,TF4,TF1,TF0,TF0)
DL_TFC6	(TF0,TF0,TF0,TF1,TF0)
DL_TFC7	(TF1,TF0,TF0,TF1,TF0)
DL_TFC8	(TF2,TF1,TF0,TF1,TF0)
DL_TFC9	(TF3,TF2,TF0,TF1,TF0)
DL_TFC10	(TF4,TF3,TF0,TF1,TF0)
DL_TFC11	(TF5,TF4,TF1,TF1,TF0)
DL_TFC12	(TF0,TF0,TF0,TF0,TF1)
DL_TFC13	(TF1,TF0,TF0,TF0,TF1)
DL_TFC14	(TF2,TF1,TF0,TF0,TF1)
DL_TFC15	(TF3,TF2,TF0,TF0,TF1)
DL_TFC16	(TF4,TF3,TF0,TF0,TF1)
DL_TFC17	(TF5,TF4,TF1,TF0,TF1)
DL_TFC18	(TF0,TF0,TF0,TF1,TF1)
DL_TFC19	(TF1,TF0,TF0,TF1,TF1)
DL_TFC20	(TF2,TF1,TF0,TF1,TF1)
DL_TFC21	(TF3,TF2,TF0,TF1,TF1)
DL_TFC22	(TF4,TF3,TF0,TF1,TF1)
DL_TFC23	(TF5,TF4,TF1,TF1,TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1, DL_TFC13	UL_TFC1, UL_TFC13	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC13	RB5: 39 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits	RB5: 39 bits RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC14	UL_TFC2, UL_TFC14	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC14	RB5: 42 bits RB6: 53 bits RB7: 60 bits RB8: 312 bits	RB5: 42 bits RB6: 53 bits RB7: No data RB8: No data
3	DL_TFC3, DL_TFC15	UL_TFC3, UL_TFC15	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC15	RB5: 55 bits RB6: 63 bits RB7: 60 bits RB8: 312 bits	RB5: 55 bits RB6: 63 bits RB7: No data RB8: No data
4	DL_TFC4, DL_TFC16	UL_TFC4, UL_TFC16	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC16	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 312 bits	RB5: 75 bits RB6: 84 bits RB7: No data RB8: No data
5	DL_TFC5, DL_TFC17	UL_TFC5, UL_TFC17	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC17	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: No data
6	DL_TFC6, DL_TFC18	UL_TFC6, UL_TFC18	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC18	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits	RB5: No data RB6: No data RB7: No data RB8: 312 bits

7	DL_TFC7, DL_TFC19	UL_TFC7, UL_TFC19	DL_TFC0, DL_TFC6, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7, UL_TFC12, UL_TFC13, UL_TFC18, UL_TFC19	RB5: 39 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits	RB5: 39 bits RB6: No data RB7: No data RB8: 312 bits
8	DL_TFC8, DL_TFC20	UL_TFC8, UL_TFC20	DL_TFC0, DL_TFC6, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC12, UL_TFC14, UL_TFC18, UL_TFC20	RB5: 42 bits RB6: 53 bits RB7: 60 bits RB8: 312 bits	RB5: 42 bits RB6: 53 bits RB7: No data RB8: 312 bits
9	DL_TFC9, DL_TFC21	UL_TFC9, UL_TFC21	DL_TFC0, DL_TFC6, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC9, UL_TFC12, UL_TFC15, UL_TFC18, UL_TFC21	RB5: 55 bits RB6: 63 bits RB7: 60 bits RB8: 312 bits	RB5: 55 bits RB6: 63 bits RB7: No data RB8: 312 bits
10	DL_TFC10, DL_TFC22	UL_TFC10, UL_TFC22	DL_TFC0, DL_TFC6, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC10, UL_TFC12, UL_TFC16, UL_TFC18, UL_TFC22	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 312 bits	RB5: 75 bits RB6: 84 bits RB7: No data RB8: 312 bits
11	DL_TFC11, DL_TFC23	UL_TFC11, UL_TFC23	DL_TFC0, DL_TFC6, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC11, UL_TFC12, UL_TFC17, UL_TFC18, UL_TFC23	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6 and UL_TFC12 are part of minimum set of TFCIs.

NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.

RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).

14.2.38f.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15 the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by the SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2,3 and 4: RLC SDUs on RB5 and RB6 having the same content as sent by the SS; and no data shall be received on RB7 and RB8.
- for sub-test 5: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by the SS; and no data shall be received on RB8.
- for sub-test 6: RLC SDUs on RB8 having the same content as sent by the SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 7: RLC SDUs on RB5 and RB8 having the same content as sent by the SS; and no data shall be received on RB6 and RB7.
- for sub-test 8,9 and 10: RLC SDUs on RB5, RB6 and RB8 having the same content as sent by the SS; and no data shall be received on RB7.
- for sub-test 11: RLC SDUs on RB5, RB6 , RB7 and RB8 having the same content as sent by the SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.38g Conversational / speech / UL:(12.2 7.95 5.9 4.75) DL:(12.2 7.95 5.9 4.75) kbps / CS RAB + Interactive or background / UL:16 DL:16 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.38g.1 Conformance requirement

See clause 14.2.4.1.

14.2.38g.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.38g.

14.2.38g.3 Method of test

See clause 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (16 kbps, 40 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x53	1x60	1x336	1x148
	TF2, bits	1x42	1x63	N/A	2x336	N/A
	TF3, bits	1x55	1x84	N/A	N/A	N/A
	TF4, bits	1x75	1x103	N/A	N/A	N/A
	TF5, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7,RB8,DCCH)
UL_TFC0	(TF0,TF0,TF0,TF0,TF0)
UL_TFC1	(TF1,TF0,TF0,TF0,TF0)
UL_TFC2	(TF2,TF1,TF0,TF0,TF0)
UL_TFC3	(TF3,TF2,TF0,TF0,TF0)
UL_TFC4	(TF4,TF3,TF0,TF0,TF0)
UL_TFC5	(TF5,TF4,TF1,TF0,TF0)
UL_TFC6	(TF0,TF0,TF0,TF1,TF0)
UL_TFC7	(TF1,TF0,TF0,TF1,TF0)
UL_TFC8	(TF3,TF2,TF0,TF1,TF0)
UL_TFC9	(TF4,TF3,TF0,TF1,TF0)
UL_TFC10	(TF5,TF4,TF1,TF1,TF0)
UL_TFC11	(TF0,TF0,TF0,TF2,TF0)
UL_TFC12	(TF1,TF0,TF0,TF2,TF0)
UL_TFC13	(TF3,TF2,TF0,TF2,TF0)
UL_TFC14	(TF4,TF3,TF0,TF2,TF0)
UL_TFC15	(TF5,TF4,TF1,TF2,TF0)
UL_TFC16	(TF0,TF0,TF0,TF0,TF1)
UL_TFC17	(TF1,TF0,TF0,TF0,TF1)
UL_TFC18	(TF2,TF1,TF0,TF0,TF1)
UL_TFC19	(TF3,TF2,TF0,TF0,TF1)
UL_TFC20	(TF4,TF3,TF0,TF0,TF1)
UL_TFC21	(TF5,TF4,TF1,TF0,TF1)
UL_TFC22	(TF0,TF0,TF0,TF1,TF1)
UL_TFC23	(TF1,TF0,TF0,TF1,TF1)
UL_TFC24	(TF3,TF2,TF0,TF1,TF1)
UL_TFC25	(TF4,TF3,TF0,TF1,TF1)
UL_TFC26	(TF5,TF4,TF1,TF1,TF1)
UL_TFC27	(TF0,TF0,TF0,TF2,TF1)
UL_TFC28	(TF1,TF0,TF0,TF2,TF1)
UL_TFC29	(TF3,TF2,TF0,TF2,TF1)
UL_TFC30	(TF4,TF3,TF0,TF2,TF1)
UL_TFC31	(TF5,TF4,TF1,TF2,TF1)

Downlink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (16 kbps, 40 ms TTI)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x53	1x60	1x336	1x148
	TF2, bits	1x42	1x63	N/A	2x336	N/A
	TF3, bits	1x55	1x84	N/A	N/A	N/A
	TF4, bits	1x75	1x103	N/A	N/A	N/A
	TF5, bits	1x81	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0,TF0,TF0,TF0,TF0)
DL_TFC1	(TF1,TF0,TF0,TF0,TF0)
DL_TFC2	(TF2,TF1,TF0,TF0,TF0)
DL_TFC3	(TF3,TF2,TF0,TF0,TF0)
DL_TFC4	(TF4,TF3,TF0,TF0,TF0)
DL_TFC5	(TF5,TF4,TF1,TF0,TF0)
DL_TFC6	(TF0,TF0,TF0,TF1,TF0)
DL_TFC7	(TF1,TF0,TF0,TF1,TF0)
DL_TFC8	(TF2,TF1,TF0,TF1,TF0)
DL_TFC9	(TF3,TF2,TF0,TF1,TF0)
DL_TFC10	(TF4,TF3,TF0,TF1,TF0)
DL_TFC11	(TF5,TF4,TF1,TF1,TF0)
DL_TFC12	(TF0,TF0,TF0,TF2,TF0)
DL_TFC13	(TF1,TF0,TF0,TF2,TF0)
DL_TFC14	(TF2,TF1,TF0,TF2,TF0)
DL_TFC15	(TF3,TF2,TF0,TF2,TF0)
DL_TFC16	(TF4,TF3,TF0,TF2,TF0)
DL_TFC17	(TF5,TF4,TF1,TF2,TF0)
DL_TFC18	(TF0,TF0,TF0,TF0,TF1)
DL_TFC19	(TF1,TF0,TF0,TF0,TF1)
DL_TFC20	(TF2,TF1,TF0,TF0,TF1)
DL_TFC21	(TF3,TF2,TF0,TF0,TF1)
DL_TFC22	(TF4,TF3,TF0,TF0,TF1)
DL_TFC23	(TF5,TF4,TF1,TF0,TF1)
DL_TFC24	(TF0,TF0,TF0,TF1,TF1)
DL_TFC25	(TF1,TF0,TF0,TF1,TF1)
DL_TFC26	(TF2,TF1,TF0,TF1,TF1)
DL_TFC27	(TF3,TF2,TF0,TF1,TF1)
DL_TFC28	(TF4,TF3,TF0,TF1,TF1)
DL_TFC29	(TF5,TF4,TF1,TF1,TF1)
DL_TFC30	(TF0,TF0,TF0,TF2,TF1)
DL_TFC31	(TF1,TF0,TF0,TF2,TF1)
DL_TFC32	(TF2,TF1,TF0,TF2,TF1)
DL_TFC33	(TF3,TF2,TF0,TF2,TF1)
DL_TFC34	(TF4,TF3,TF0,TF2,TF1)
DL_TFC35	(TF5,TF4,TF1,TF2,TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1, DL_TFC19	UL_TFC1, UL_TFC17	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC16, UL_TFC17	RB5: 39 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits	RB5: 39 bits RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC20	UL_TFC2, UL_TFC18	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC16, UL_TFC18	RB5: 42 bits RB6: 53 bits RB7: 60 bits RB8: 312 bits	RB5: 42 bits RB6: 53 bits RB7: No data RB8: No data
3	DL_TFC3, DL_TFC21	UL_TFC3, UL_TFC19	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC16, UL_TFC19	RB5: 55 bits RB6: 63 bits RB7: 60 bits RB8: 312 bits	RB5: 55 bits RB6: 63 bits RB7: No data RB8: No data
4	DL_TFC4, DL_TFC22	UL_TFC4, UL_TFC20	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC16, UL_TFC20	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 312 bits	RB5: 75 bits RB6: 84 bits RB7: No data RB8: No data
5	DL_TFC5, DL_TFC23	UL_TFC5, UL_TFC21	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC16, UL_TFC21	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: No data
6	DL_TFC6, DL_TFC24	UL_TFC6, UL_TFC22	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC16, UL_TFC22	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits	RB5: No data RB6: No data RB7: No data RB8: 312 bits

7	DL_TFC7, DL_TFC25	UL_TFC7, UL_TFC23	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7, UL_TFC16, UL_TFC17, UL_TFC22, UL_TFC23	RB5: 39 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits	RB5: 39 bits RB6: No data RB7: No data RB8: 312 bits
8	DL_TFC8, DL_TFC26	UL_TFC8, UL_TFC24	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC16, UL_TFC19, UL_TFC22, UL_TFC24	RB5: 55 bits RB6: 63 bits RB7: 60 bits RB8: 312 bits	RB5: 42 bits RB6: 53 bits RB7: No data RB8: 312 bits
9	DL_TFC9, DL_TFC27	UL_TFC8, UL_TFC24	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC16, UL_TFC19, UL_TFC22, UL_TFC24	RB5: 55 bits RB6: 63 bits RB7: 60 bits RB8: 312 bits	RB5: 55 bits RB6: 63 bits RB7: No data RB8: 312 bits
10	DL_TFC10, DL_TFC28	UL_TFC9, UL_TFC25	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC9, UL_TFC16, UL_TFC20, UL_TFC22, UL_TFC25	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 312 bits	RB5: 75 bits RB6: 84 bits RB7: No data RB8: 312 bits
11	DL_TFC11, DL_TFC29	UL_TFC10, UL_TFC26	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC10, UL_TFC16, UL_TFC21, UL_TFC22, UL_TFC26	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits

12	DL_TFC12, DL_TFC30	UL_TFC11, UL_TFC27	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC11, UL_TFC16, UL_TFC27	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 632 bits	RB5: No data RB6: No data RB7: No data RB8: 632 bits
13	DL_TFC13, DL_TFC31	UL_TFC12, UL_TFC28	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC11, UL_TFC12, UL_TFC16, UL_TFC17, UL_TFC27, UL_TFC28	RB5: 39 bits RB6: 103 bits RB7: 60 bits RB8: 632 bits	RB5: 39 bits RB6: No data RB7: No data RB8: 632 bits
14	DL_TFC14, DL_TFC32	UL_TFC13, UL_TFC29	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC11, UL_TFC13, UL_TFC16, UL_TFC19, UL_TFC27, UL_TFC29	RB5: 55 bits RB6: 63 bits RB7: 60 bits RB8: 632 bits	RB5: 42 bits RB6: 53 bits RB7: No data RB8: 632 bits
15	DL_TFC15, DL_TFC33	UL_TFC13, UL_TFC29	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC11, UL_TFC13, UL_TFC16, UL_TFC19, UL_TFC27, UL_TFC29	RB5: 55 bits RB6: 63 bits RB7: 60 bits RB8: 632 bits	RB5: 55 bits RB6: 63 bits RB7: No data RB8: 632 bits
16	DL_TFC16, DL_TFC34	UL_TFC14, UL_TFC30	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC11, UL_TFC14, UL_TFC16, UL_TFC20, UL_TFC27, UL_TFC30	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 632 bits	RB5: 75 bits RB6: 84 bits RB7: No data RB8: 632 bits

17	DL_TFC17, DL_TFC35	UL_TFC15, UL_TFC31	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC11, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC27, UL_TFC31	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 632 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 632 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6 and UL_TFC16 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).						

14.2.38g.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15 the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by the SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2,3 and 4: RLC SDUs on RB5 and RB6 having the same content as sent by the SS; and no data shall be received on RB7 and RB8.
- for sub-test 5: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by the SS; and no data shall be received on RB8.
- for sub-test 6: RLC SDUs on RB8 having the same content as sent by the SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 7: RLC SDUs on RB5 and RB8 having the same content as sent by the SS; and no data shall be received on RB6 and RB7.
- for sub-test 8: RLC SDUs on RB5 having the first 42 bits equal to the content of the test data sent by the SS in downlink ; RLC SDUs on RB6 having the first 53 bits equal to the content of the test data sent by the SS in downlink ; RLC SDUs on RB8 having the same content as sent by the SS; and no data shall be received on RB7.
- for sub-test 9 and 10: RLC SDUs on RB5, RB6 and RB8 having the same content as sent by the SS; and no data shall be received on RB7.
- for sub-test 11: RLC SDUs on RB5, RB6 , RB7 and RB8 having the same content as sent by the SS.

- for sub-test 12: RLC SDUs on RB8 having the same content as sent by the SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 13: RLC SDUs on RB5 and RB8 having the same content as sent by the SS; and no data shall be received on RB6 and RB7.
- for sub-test 14: RLC SDUs on RB5 having the first 42 bits equal to the content of the test data sent by the SS in downlink ; RLC SDUs on RB6 having the first 53 bits equal to the content of the test data sent by the SS in downlink ; RLC SDUs on RB8 having the same content as sent by the SS; and no data shall be received on RB7.
- for sub-test 15 and 16: RLC SDUs on RB5, RB6 and RB8 having the same content as sent by the SS; and no data shall be received on RB7.
- for sub-test 17: RLC SDUs on RB5, RB6 , RB7 and RB8 having the same content as sent by the SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.38h Conversational / speech / UL:(12.2 7.95 5.9 4.75) DL:(12.2 7.95 5.9 4.75) kbps / CS RAB + Interactive or background / UL:32 DL:32 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.38h.1 Conformance requirement

See clause 14.2.4.1.

14.2.38h.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.38h.

14.2.38h.3 Method of test

See clause 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (32 kbps, 40 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x53	1x60	1x336	1x148
	TF2, bits	1x42	1x63	N/A	2x336	N/A
	TF3, bits	1x55	1x84	N/A	3x336	N/A
	TF4, bits	1x75	1x103	N/A	4x336	N/A
	TF5, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7,RB8,DCCH)
UL_TFC0	(TF0,TF0,TF0,TF0,TF0)
UL_TFC1	(TF0,TF0,TF0,TF1,TF0)
UL_TFC2	(TF0,TF0,TF0,TF2,TF0)
UL_TFC3	(TF0,TF0,TF0,TF4,TF0)
UL_TFC4	(TF5,TF4,TF1,TF0,TF0)
UL_TFC5	(TF5,TF4,TF1,TF1,TF0)
UL_TFC6	(TF5,TF4,TF1,TF2,TF0)
UL_TFC7	(TF5,TF4,TF1,TF4,TF0)
UL_TFC8	(TF4,TF3,TF0,TF0,TF0)
UL_TFC9	(TF4,TF3,TF0,TF1,TF0)
UL_TFC10	(TF3,TF2,TF0,TF0,TF0)
UL_TFC11	(TF2,TF1,TF0,TF0,TF0)
UL_TFC12	(TF1,TF0,TF0,TF0,TF0)
UL_TFC13	(TF1,TF0,TF0,TF1,TF0)
UL_TFC14	(TF1,TF0,TF0,TF2,TF0)
UL_TFC15	(TF1,TF0,TF0,TF4,TF0)
UL_TFC16	(TF0,TF0,TF0,TF0,TF1)
UL_TFC17	(TF0,TF0,TF0,TF1,TF1)
UL_TFC18	(TF0,TF0,TF0,TF2,TF1)
UL_TFC19	(TF0,TF0,TF0,TF4,TF1)
UL_TFC20	(TF5,TF4,TF1,TF0,TF1)
UL_TFC21	(TF5,TF4,TF1,TF1,TF1)
UL_TFC22	(TF5,TF4,TF1,TF2,TF1)
UL_TFC23	(TF5,TF4,TF1,TF4,TF1)
UL_TFC24	(TF4,TF3,TF0,TF0,TF1)
UL_TFC25	(TF4,TF3,TF0,TF1,TF1)
UL_TFC26	(TF3,TF2,TF0,TF0,TF1)
UL_TFC27	(TF2,TF1,TF0,TF0,TF1)
UL_TFC28	(TF1,TF0,TF0,TF0,TF1)
UL_TFC29	(TF1,TF0,TF0,TF1,TF1)
UL_TFC30	(TF1,TF0,TF0,TF2,TF1)
UL_TFC31	(TF1,TF0,TF0,TF4,TF1)

Downlink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (32 kbps, 40 ms TTI)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x53	1x60	1x336	1x148
	TF2, bits	1x42	1x63	N/A	2x336	N/A
	TF3, bits	1x55	1x84	N/A	3x336	N/A
	TF4, bits	1x75	1x103	N/A	4x336	N/A
	TF5, bits	1x81	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0,TF0,TF0,TF0,TF0)
DL_TFC1	(TF0,TF0,TF0,TF1,TF0)
DL_TFC2	(TF0,TF0,TF0,TF2,TF0)
DL_TFC3	(TF0,TF0,TF0,TF4,TF0)
DL_TFC4	(TF5,TF4,TF1,TF0,TF0)
DL_TFC5	(TF5,TF4,TF1,TF1,TF0)
DL_TFC6	(TF5,TF4,TF1,TF2,TF0)
DL_TFC7	(TF5,TF4,TF1,TF4,TF0)
DL_TFC8	(TF4,TF3,TF0,TF0,TF0)
DL_TFC9	(TF4,TF3,TF0,TF1,TF0)
DL_TFC10	(TF4,TF3,TF0,TF2,TF0)
DL_TFC11	(TF4,TF3,TF0,TF4,TF0)
DL_TFC12	(TF3,TF2,TF0,TF0,TF0)
DL_TFC13	(TF3,TF2,TF0,TF1,TF0)
DL_TFC14	(TF3,TF2,TF0,TF2,TF0)
DL_TFC15	(TF3,TF2,TF0,TF4,TF0)
DL_TFC16	(TF2,TF1,TF0,TF0,TF0)
DL_TFC17	(TF2,TF1,TF0,TF1,TF0)
DL_TFC18	(TF2,TF1,TF0,TF2,TF0)
DL_TFC19	(TF2,TF1,TF0,TF4,TF0)
DL_TFC20	(TF1,TF0,TF0,TF0,TF0)
DL_TFC21	(TF1,TF0,TF0,TF1,TF0)
DL_TFC22	(TF1,TF0,TF0,TF2,TF0)
DL_TFC23	(TF1,TF0,TF0,TF4,TF0)
DL_TFC24	(TF0,TF0,TF0,TF0,TF1)
DL_TFC25	(TF0,TF0,TF0,TF1,TF1)
DL_TFC26	(TF0,TF0,TF0,TF2,TF1)
DL_TFC27	(TF0,TF0,TF0,TF4,TF1)
DL_TFC28	(TF5,TF4,TF1,TF0,TF1)
DL_TFC29	(TF5,TF4,TF1,TF1,TF1)
DL_TFC30	(TF5,TF4,TF1,TF2,TF1)
DL_TFC31	(TF5,TF4,TF1,TF4,TF1)
DL_TFC32	(TF4,TF3,TF0,TF0,TF1)
DL_TFC33	(TF4,TF3,TF0,TF1,TF1)
DL_TFC34	(TF4,TF3,TF0,TF2,TF1)
DL_TFC35	(TF4,TF3,TF0,TF4,TF1)
DL_TFC36	(TF3,TF2,TF0,TF0,TF1)
DL_TFC37	(TF3,TF2,TF0,TF1,TF1)
DL_TFC38	(TF3,TF2,TF0,TF2,TF1)
DL_TFC39	(TF3,TF2,TF0,TF4,TF1)
DL_TFC40	(TF2,TF1,TF0,TF0,TF1)
DL_TFC41	(TF2,TF1,TF0,TF1,TF1)
DL_TFC42	(TF2,TF1,TF0,TF2,TF1)
DL_TFC43	(TF2,TF1,TF0,TF4,TF1)
DL_TFC44	(TF1,TF0,TF0,TF0,TF1)
DL_TFC45	(TF1,TF0,TF0,TF1,TF1)
DL_TFC46	(TF1,TF0,TF0,TF2,TF1)
DL_TFC47	(TF1,TF0,TF0,TF4,TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1, DL_TFC25	UL_TFC1, UL_TFC17	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC10, UL_TFC11, UL_TFC12, UL_TFC16, UL_TFC17	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits	RB5: No data RB6: No data RB7: No data RB8: 312
2	DL_TFC2, DL_TFC26	UL_TFC2, UL_TFC18	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC8, UL_TFC10, UL_TFC11, UL_TFC12, UL_TFC16, UL_TFC18	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 632 bits	RB5: No data RB6: No data RB7: No data RB8: 632
3	DL_TFC3, DL_TFC27	UL_TFC3, UL_TFC19	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC8, UL_TFC10, UL_TFC11, UL_TFC12, UL_TFC16, UL_TFC19	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 1272 bits	RB5: No data RB6: No data RB7: No data RB8: 1272
4	DL_TFC4, DL_TFC28	UL_TFC4, UL_TFC20	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC10, UL_TFC11, UL_TFC12, UL_TFC16, UL_TFC20	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: No data
5	DL_TFC5, DL_TFC29	UL_TFC5, UL_TFC21	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC8, UL_TFC10, UL_TFC11, UL_TFC12, UL_TFC16, UL_TFC17, UL_TFC20, UL_TFC21	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits
6	DL_TFC6, DL_TFC30	UL_TFC6, UL_TFC22	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC6, UL_TFC8, UL_TFC10, UL_TFC11, UL_TFC12, UL_TFC16, UL_TFC18, UL_TFC20, UL_TFC22	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 632 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 632 bits

7	DL_TFC7, DL_TFC31	UL_TFC7, UL_TFC23	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC7, UL_TFC8, UL_TFC10, UL_TFC11, UL_TFC12, UL_TFC16, UL_TFC19, UL_TFC20, UL_TFC23	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 1272 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 1272 bits
8	DL_TFC8, DL_TFC32	UL_TFC8, UL_TFC24	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC10, UL_TFC11, UL_TFC12, UL_TFC16, UL_TFC24	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 312 bits	RB5: 75 bits RB6: 84 bits RB7: No data RB8: No data
9	DL_TFC9, DL_TFC33	UL_TFC9, UL_TFC25	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC9, UL_TFC10, UL_TFC11, UL_TFC12, UL_TFC16, UL_TFC17, UL_TFC24, UL_TFC25	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 312 bits	RB5: 75 bits RB6: 84 bits RB7: No data RB8: 312 bits
10	DL_TFC10, DL_TFC34	UL_TFC9, UL_TFC25	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC9, UL_TFC10, UL_TFC11, UL_TFC12, UL_TFC16, UL_TFC17, UL_TFC24, UL_TFC25	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 312 bits	RB5: 75 bits RB6: 84 bits RB7: No data RB8: 632 bits
11	DL_TFC11, DL_TFC35	UL_TFC9, UL_TFC25	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC9, UL_TFC10, UL_TFC11, UL_TFC12, UL_TFC16, UL_TFC17, UL_TFC24, UL_TFC25	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 312 bits	RB5: 75 bits RB6: 84 bits RB7: No data RB8: 1272 bits
12	DL_TFC12, DL_TFC36	UL_TFC10, UL_TFC26	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC10, UL_TFC11, UL_TFC12, UL_TFC10, UL_TFC16, UL_TFC26	RB5: 55 bits RB6: 63 bits RB7: 60 bits RB8: 312 bits	RB5: 55 bits RB6: 63 bits RB7: No data RB8: No data

13	DL_TFC13, DL_TFC37	UL_TFC9, UL_TFC25	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC9, UL_TFC10, UL_TFC11, UL_TFC12, UL_TFC16, UL_TFC17, UL_TFC24, UL_TFC25	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 312 bits	RB5: 55 bits RB6: 63 bits RB7: No data RB8: 312 bits
14	DL_TFC14, DL_TFC38	UL_TFC9, UL_TFC25	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC9, UL_TFC10, UL_TFC11, UL_TFC12, UL_TFC16, UL_TFC17, UL_TFC24, UL_TFC25	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 312 bits	RB5: 55 bits RB6: 63 bits RB7: No data RB8: 632 bits
15	DL_TFC15, DL_TFC39	UL_TFC9, UL_TFC25	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC9, UL_TFC10, UL_TFC11, UL_TFC12, UL_TFC16, UL_TFC17, UL_TFC24, UL_TFC25	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 312 bits	RB5: 55 bits RB6: 63 bits RB7: No data RB8: 1272 bits
16	DL_TFC16, DL_TFC40	UL_TFC11, UL_TFC27	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC10, UL_TFC11, UL_TFC12, UL_TFC16, UL_TFC27	RB5: 42 bits RB6: 53 bits RB7: 60 bits RB8: 312 bits	RB5: 42 bits RB6: 53 bits RB7: No data RB8: No data
17	DL_TFC17, DL_TFC41	UL_TFC9, UL_TFC25	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC9, UL_TFC10, UL_TFC11, UL_TFC12, UL_TFC16, UL_TFC17, UL_TFC24, UL_TFC25	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 312 bits	RB5: 42 bits RB6: 53 bits RB7: No data RB8: 312 bits

18	DL_TFC18, DL_TFC42	UL_TFC9, UL_TFC25	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC9, UL_TFC10, UL_TFC11, UL_TFC12, UL_TFC16, UL_TFC17, UL_TFC24, UL_TFC25	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 312 bits	RB5: 42 bits RB6: 53 bits RB7: No data RB8: 632 bits
19	DL_TFC19, DL_TFC43	UL_TFC9, UL_TFC25	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC9, UL_TFC10, UL_TFC11, UL_TFC12, UL_TFC16, UL_TFC17, UL_TFC24, UL_TFC25	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 312 bits	RB5: 42 bits RB6: 53 bits RB7: No data RB8: 1272 bits
20	DL_TFC20, DL_TFC44	UL_TFC12, UL_TFC28	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC10, UL_TFC11, UL_TFC12, UL_TFC16, UL_TFC28	RB5: 39 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits	RB5: 39 bits RB6: No data RB7: No data RB8: No data
21	DL_TFC21, DL_TFC45	UL_TFC13, UL_TFC29	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC10, UL_TFC11, UL_TFC12, UL_TFC13, UL_TFC16, UL_TFC17, UL_TFC28, UL_TFC29	RB5: 39 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits	RB5: 39 bits RB6: No data RB7: No data RB8: 312 bits
22	DL_TFC22, DL_TFC46	UL_TFC14, UL_TFC30	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC8, UL_TFC10, UL_TFC11, UL_TFC12, UL_TFC14, UL_TFC16, UL_TFC18, UL_TFC28, UL_TFC30	RB5: 39 bits RB6: 103 bits RB7: 60 bits RB8: 632 bits	RB5: 39 bits RB6: No data RB7: No data RB8: 632 bits

23	DL_TFC23, DL_TFC47	UL_TFC15, UL_TFC31	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC8, UL_TFC10, UL_TFC11, UL_TFC12, UL_TFC15, UL_TFC16, UL_TFC19, UL_TFC28, UL_TFC31	RB5: 39 bits RB6: 103 bits RB7: 60 bits RB8: 1272 bits	RB5: 39 bits RB6: No data RB7: No data RB8: 1272 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC10, UL_TFC11, UL_TFC12 and UL_TFC16 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).						

14.2. 38h.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15 the UE shall return

- for sub-test 1,2 and 3: RLC SDUs on RB8 having the same content as sent by the SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by the SS; and no data shall be received on RB8.
- for sub-test 5, 6 and 7: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by the SS.
- for sub-test 8: RLC SDUs on RB5 and RB6 having the same content as sent by the SS; and no data shall be received on RB7 and RB8.
- for sub-test 9: RLC SDUs on RB5, RB6 and RB8 having the same content as sent by the SS; and no data shall be received on RB7.
- for sub-test 10 and 11: RLC SDUs on RB5 and RB6 having the same content as sent by the SS; RLC SDUs on RB8 having the same content as the first 312 bits of the test data sent by the SS in downlink; and no data shall be received on RB7.

- for sub-test 12: RLC SDUs on RB5 and RB6 having the same content as sent by the SS; and no data shall be received on RB7 and RB8.

- for sub-test 13: RLC SDUs on RB5 having the first 55 bits equal to the content of the test data sent by the SS in downlink; RLC SDUs on RB6 having the first 63 bits equal to the content of the test data sent by the SS in downlink; RLC SDUs on RB8 having the same content as sent by the SS; and no data shall be received on RB7.

- for sub-test 14 and 15: RLC SDUs on RB5 having the first 55 bits equal to the content of the test data sent by the SS in downlink; RLC SDUs on RB6 having the first 63 bits equal to the content of the test data sent by the SS in downlink; RLC SDUs on RB8 having the same content as the first 312 bits of the test data sent by the SS in downlink; and no data shall be received on RB7.

- for sub-test 16: RLC SDUs on RB5 and RB6 having the same content as sent by the SS; and no data shall be received on RB7 and RB8.

- for sub-test 17: RLC SDUs on RB5 having the first 42 bits equal to the content of the test data sent by the SS in downlink; RLC SDUs on RB6 having the first 53 bits equal to the content of the test data sent by the SS in downlink; RLC SDUs on RB8 having the same content as sent by the SS; and no data shall be received on RB7.

- for sub-test 18 and 19: RLC SDUs on RB5 having the first 42 bits equal to the content of the test data sent by the SS in downlink; RLC SDUs on RB6 having the first 53 bits equal to the content of the test data sent by the SS in downlink; RLC SDUs on RB8 having the same content as the first 312 bits of the test data sent by the SS in downlink; and no data shall be received on RB7.

- for sub-test 20: RLC SDUs on RB5 having the same content as sent by the SS; and no data shall be received on RB6, RB7 and RB8.

- for sub-test 21, 22 and 23: RLC SDUs on RB5 and RB8 having the same content as sent by the SS; and no data shall be received on RB6 and RB7.

    - 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.38i Conversational / speech / UL:(12.2 7.95 5.9 4.75) DL:(12.2 7.95 5.9 4.75) kbps / CS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.38i.1 Conformance requirement

See clause 14.2.4.1.

14.2.38i.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.38i.

14.2.38i.3 Method of test

See clause 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x53	1x60	1x336	1x148
	TF2, bits	1x42	1x63	N/A	2x336	N/A
	TF3, bits	1x55	1x84	N/A	3x336	N/A
	TF4, bits	1x75	1x103	N/A	4x336	N/A
	TF5, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7,RB8,DCCH)
UL_TFC0	(TF0,TF0,TF0,TF0,TF0)
UL_TFC1	(TF1,TF0,TF0,TF0,TF0)
UL_TFC2	(TF2,TF1,TF0,TF0,TF0)
UL_TFC3	(TF3,TF2,TF0,TF0,TF0)
UL_TFC4	(TF4,TF3,TF0,TF0,TF0)
UL_TFC5	(TF5,TF4,TF1,TF0,TF0)
UL_TFC6	(TF0,TF0,TF0,TF1,TF0)
UL_TFC7	(TF1,TF0,TF0,TF1,TF0)
UL_TFC8	(TF2,TF1,TF0,TF1,TF0)
UL_TFC9	(TF3,TF2,TF0,TF1,TF0)
UL_TFC10	(TF4,TF3,TF0,TF1,TF0)
UL_TFC11	(TF5,TF4,TF1,TF1,TF0)
UL_TFC12	(TF0,TF0,TF0,TF2,TF0)
UL_TFC13	(TF1,TF0,TF0,TF2,TF0)
UL_TFC14	(TF2,TF1,TF0,TF2,TF0)
UL_TFC15	(TF3,TF2,TF0,TF2,TF0)
UL_TFC16	(TF4,TF3,TF0,TF2,TF0)
UL_TFC17	(TF5,TF4,TF1,TF2,TF0)
UL_TFC18	(TF0,TF0,TF0,TF4,TF0)
UL_TFC19	(TF1,TF0,TF0,TF4,TF0)
UL_TFC20	(TF2,TF1,TF0,TF4,TF0)
UL_TFC21	(TF3,TF2,TF0,TF4,TF0)
UL_TFC22	(TF4,TF3,TF0,TF4,TF0)
UL_TFC23	(TF5,TF4,TF1,TF4,TF0)
UL_TFC24	(TF0,TF0,TF0,TF0,TF1)
UL_TFC25	(TF1,TF0,TF0,TF0,TF1)
UL_TFC26	(TF2,TF1,TF0,TF0,TF1)
UL_TFC27	(TF3,TF2,TF0,TF0,TF1)
UL_TFC28	(TF4,TF3,TF0,TF0,TF1)
UL_TFC29	(TF5,TF4,TF1,TF0,TF1)
UL_TFC30	(TF0,TF0,TF0,TF1,TF1)
UL_TFC31	(TF1,TF0,TF0,TF1,TF1)
UL_TFC32	(TF2,TF1,TF0,TF1,TF1)
UL_TFC33	(TF3,TF2,TF0,TF1,TF1)
UL_TFC34	(TF4,TF3,TF0,TF1,TF1)
UL_TFC35	(TF5,TF4,TF1,TF1,TF1)
UL_TFC36	(TF0,TF0,TF0,TF2,TF1)
UL_TFC37	(TF1,TF0,TF0,TF2,TF1)
UL_TFC38	(TF2,TF1,TF0,TF2,TF1)
UL_TFC39	(TF3,TF2,TF0,TF2,TF1)
UL_TFC40	(TF4,TF3,TF0,TF2,TF1)
UL_TFC41	(TF5,TF4,TF1,TF2,TF1)
UL_TFC42	(TF0,TF0,TF0,TF4,TF1)
UL_TFC43	(TF1,TF0,TF0,TF4,TF1)
UL_TFC44	(TF2,TF1,TF0,TF4,TF1)
UL_TFC45	(TF3,TF2,TF0,TF4,TF1)
UL_TFC46	(TF4,TF3,TF0,TF4,TF1)
UL_TFC47	(TF5,TF4,TF1,TF4,TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x53	1x60	1x336	1x148
	TF2, bits	1x42	1x63	N/A	2x336	N/A
	TF3, bits	1x55	1x84	N/A	3x336	N/A
	TF4, bits	1x75	1x103	N/A	4x336	N/A
	TF5, bits	1x81	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0,TF0,TF0,TF0,TF0)
DL_TFC1	(TF1,TF0,TF0,TF0,TF0)
DL_TFC2	(TF2,TF1,TF0,TF0,TF0)
DL_TFC3	(TF3,TF2,TF0,TF0,TF0)
DL_TFC4	(TF4,TF3,TF0,TF0,TF0)
DL_TFC5	(TF5,TF4,TF1,TF0,TF0)
DL_TFC6	(TF0,TF0,TF0,TF1,TF0)
DL_TFC7	(TF1,TF0,TF0,TF1,TF0)
DL_TFC8	(TF2,TF1,TF0,TF1,TF0)
DL_TFC9	(TF3,TF2,TF0,TF1,TF0)
DL_TFC10	(TF4,TF3,TF0,TF1,TF0)
DL_TFC11	(TF5,TF4,TF1,TF1,TF0)
DL_TFC12	(TF0,TF0,TF0,TF2,TF0)
DL_TFC13	(TF1,TF0,TF0,TF2,TF0)
DL_TFC14	(TF2,TF1,TF0,TF2,TF0)
DL_TFC15	(TF3,TF2,TF0,TF2,TF0)
DL_TFC16	(TF4,TF3,TF0,TF2,TF0)
DL_TFC17	(TF5,TF4,TF1,TF2,TF0)
DL_TFC18	(TF0,TF0,TF0,TF3,TF0)
DL_TFC19	(TF1,TF0,TF0,TF3,TF0)
DL_TFC20	(TF2,TF1,TF0,TF3,TF0)
DL_TFC21	(TF3,TF2,TF0,TF3,TF0)
DL_TFC22	(TF4,TF3,TF0,TF3,TF0)
DL_TFC23	(TF5,TF4,TF1,TF3,TF0)
DL_TFC24	(TF0,TF0,TF0,TF4,TF0)
DL_TFC25	(TF1,TF0,TF0,TF4,TF0)
DL_TFC26	(TF2,TF1,TF0,TF4,TF0)
DL_TFC27	(TF3,TF2,TF0,TF4,TF0)
DL_TFC28	(TF4,TF3,TF0,TF4,TF0)
DL_TFC29	(TF5,TF4,TF1,TF4,TF0)
DL_TFC30	(TF0,TF0,TF0,TF0,TF1)
DL_TFC31	(TF1,TF0,TF0,TF0,TF1)
DL_TFC32	(TF2,TF1,TF0,TF0,TF1)
DL_TFC33	(TF3,TF2,TF0,TF0,TF1)
DL_TFC34	(TF4,TF3,TF0,TF0,TF1)
DL_TFC35	(TF5,TF4,TF1,TF0,TF1)
DL_TFC36	(TF0,TF0,TF0,TF1,TF1)
DL_TFC37	(TF1,TF0,TF0,TF1,TF1)
DL_TFC38	(TF2,TF1,TF0,TF1,TF1)
DL_TFC39	(TF3,TF2,TF0,TF1,TF1)
DL_TFC40	(TF4,TF3,TF0,TF1,TF1)
DL_TFC41	(TF5,TF4,TF1,TF1,TF1)
DL_TFC42	(TF0,TF0,TF0,TF2,TF1)
DL_TFC43	(TF1,TF0,TF0,TF2,TF1)
DL_TFC44	(TF2,TF1,TF0,TF2,TF1)
DL_TFC45	(TF3,TF2,TF0,TF2,TF1)
DL_TFC46	(TF4,TF3,TF0,TF2,TF1)
DL_TFC47	(TF5,TF4,TF1,TF2,TF1)
DL_TFC48	(TF0,TF0,TF0,TF3,TF1)
DL_TFC49	(TF1,TF0,TF0,TF3,TF1)
DL_TFC50	(TF2,TF1,TF0,TF3,TF1)
DL_TFC51	(TF3,TF2,TF0,TF3,TF1)
DL_TFC52	(TF4,TF3,TF0,TF3,TF1)
DL_TFC53	(TF5,TF4,TF1,TF3,TF1)
DL_TFC54	(TF0,TF0,TF0,TF4,TF1)
DL_TFC55	(TF1,TF0,TF0,TF4,TF1)
DL_TFC56	(TF2,TF1,TF0,TF4,TF1)
DL_TFC57	(TF3,TF2,TF0,TF4,TF1)
DL_TFC58	(TF4,TF3,TF0,TF4,TF1)
DL_TFC59	(TF5,TF4,TF1,TF4,TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1, DL_TFC31	UL_TFC1, UL_TFC25	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC24, UL_TFC25	RB5: 39 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits	RB5: 39 bits RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC32	UL_TFC2, UL_TFC26	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC24, UL_TFC26	RB5: 42 bits RB6: 53 bits RB7: 60 bits RB8: 312 bits	RB5: 42 bits RB6: 53 bits RB7: No data RB8: No data
3	DL_TFC3, DL_TFC33	UL_TFC3, UL_TFC27	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC24, UL_TFC27	RB5: 55 bits RB6: 63 bits RB7: 60 bits RB8: 312 bits	RB5: 55 bits RB6: 63 bits RB7: No data RB8: No data
4	DL_TFC4, DL_TFC34	UL_TFC4, UL_TFC28	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC24, UL_TFC28	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 312 bits	RB5: 75 bits RB6: 84 bits RB7: No data RB8: No data
5	DL_TFC5, DL_TFC35	UL_TFC5, UL_TFC29	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC24, UL_TFC29	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: No data
6	DL_TFC6, DL_TFC36	UL_TFC6, UL_TFC30	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC24, UL_TFC30	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits	RB5: No data RB6: No data RB7: No data RB8: 312 bits

7	DL_TFC7, DL_TFC37	UL_TFC7, UL_TFC31	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7, UL_TFC24, UL_TFC25, UL_TFC30, UL_TFC31	RB5: 39 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits	RB5: 39 bits RB6: No data RB7: No data RB8: 312 bits
8	DL_TFC8, DL_TFC38	UL_TFC8, UL_TFC32	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC24, UL_TFC26, UL_TFC30, UL_TFC32	RB5: 42 bits RB6: 53 bits RB7: 60 bits RB8: 312 bits	RB5: 42 bits RB6: 53 bits RB7: No data RB8: 312 bits
9	DL_TFC9, DL_TFC39	UL_TFC9, UL_TFC33	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC9, UL_TFC24, UL_TFC27, UL_TFC30, UL_TFC33	RB5: 55 bits RB6: 63 bits RB7: 60 bits RB8: 312 bits	RB5: 55 bits RB6: 63 bits RB7: No data RB8: 312 bits
10	DL_TFC10, DL_TFC40	UL_TFC10, UL_TFC34	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC10, UL_TFC24, UL_TFC28, UL_TFC30, UL_TFC34	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 312 bits	RB5: 75 bits RB6: 84 bits RB7: No data RB8: 312 bits
11	DL_TFC11, DL_TFC41	UL_TFC11, UL_TFC35	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC11, UL_TFC24, UL_TFC29, UL_TFC30, UL_TFC35	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits

12	DL_TFC12, DL_TFC42	UL_TFC12, UL_TFC36	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC24, UL_TFC36	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 632 bits	RB5: No data RB6: No data RB7: No data RB8: 632 bits
13	DL_TFC13, DL_TFC43	UL_TFC13, UL_TFC37	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC13, UL_TFC24, UL_TFC25, UL_TFC36, UL_TFC37	RB5: 39 bits RB6: 103 bits RB7: 60 bits RB8: 632 bits	RB5: 39 bits RB6: No data RB7: No data RB8: 632 bits
14	DL_TFC14, DL_TFC44	UL_TFC14, UL_TFC38	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC14, UL_TFC24, UL_TFC26, UL_TFC36, UL_TFC38	RB5: 42 bits RB6: 53 bits RB7: 60 bits RB8: 632 bits	RB5: 42 bits RB6: 53 bits RB7: No data RB8: 632 bits
15	DL_TFC15, DL_TFC45	UL_TFC15, UL_TFC39	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC15, UL_TFC24, UL_TFC27, UL_TFC36, UL_TFC39	RB5: 55 bits RB6: 63 bits RB7: 60 bits RB8: 632 bits	RB5: 55 bits RB6: 63 bits RB7: No data RB8: 632 bits
16	DL_TFC16, DL_TFC46	UL_TFC16, UL_TFC40	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC16, UL_TFC24, UL_TFC28, UL_TFC36, UL_TFC40	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 632 bits	RB5: 75 bits RB6: 84 bits RB7: No data RB8: 632 bits

17	DL_TFC17, DL_TFC47	UL_TFC17, UL_TFC41	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC17, UL_TFC24, UL_TFC29, UL_TFC36, UL_TFC41	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 632 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 632 bits
18	DL_TFC18, DL_TFC48	UL_TFC18, UL_TFC42	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC18, UL_TFC24, UL_TFC42	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 1272 bits	RB5: No data RB6: No data RB7: No data RB8: 952 bits
19	DL_TFC19, DL_TFC49	UL_TFC19, UL_TFC43	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC18, UL_TFC19, UL_TFC24, UL_TFC25, UL_TFC42, UL_TFC43	RB5: 39 bits RB6: 103 bits RB7: 60 bits RB8: 1272 bits	RB5: 39 bits RB6: No data RB7: No data RB8: 952 bits
20	DL_TFC20, DL_TFC50	UL_TFC20, UL_TFC44	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC18, UL_TFC20, UL_TFC24, UL_TFC26, UL_TFC42, UL_TFC44	RB5: 42 bits RB6: 53 bits RB7: 60 bits RB8: 1272 bits	RB5: 42 bits RB6: 53 bits RB7: No data RB8: 952 bits
21	DL_TFC21, DL_TFC51	UL_TFC21, UL_TFC45	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC18, UL_TFC21, UL_TFC24, UL_TFC27, UL_TFC42, UL_TFC45	RB5: 55 bits RB6: 63 bits RB7: 60 bits RB8: 1272 bits	RB5: 55 bits RB6: 63 bits RB7: No data RB8: 952 bits

22	DL_TFC22, DL_TFC52	UL_TFC22, UL_TFC46	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC18, UL_TFC22, UL_TFC24, UL_TFC28, UL_TFC42, UL_TFC46	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 1272 bits	RB5: 75 bits RB6: 84 bits RB7: No data RB8: 952 bits
23	DL_TFC23, DL_TFC53	UL_TFC23, UL_TFC47	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC18, UL_TFC23, UL_TFC24, UL_TFC29, UL_TFC42, UL_TFC47	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 1272 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 952 bits
24	DL_TFC24, DL_TFC54	UL_TFC18, UL_TFC42	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC18, UL_TFC24, UL_TFC42	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 1272 bits	RB5: No data RB6: No data RB7: No data RB8: 1272 bits
25	DL_TFC25, DL_TFC55	UL_TFC19, UL_TFC43	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC18, UL_TFC19, UL_TFC24, UL_TFC25, UL_TFC42, UL_TFC43	RB5: 39 bits RB6: 103 bits RB7: 60 bits RB8: 1272 bits	RB5: 39 bits RB6: No data RB7: No data RB8: 1272 bits
26	DL_TFC26, DL_TFC56	UL_TFC20, UL_TFC44	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC18, UL_TFC20, UL_TFC24, UL_TFC26, UL_TFC42, UL_TFC44	RB5: 42 bits RB6: 53 bits RB7: 60 bits RB8: 1272 bits	RB5: 42 bits RB6: 53 bits RB7: No data RB8: 1272 bits

27	DL_TFC27, DL_TFC57	UL_TFC21, UL_TFC45	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC18, UL_TFC21, UL_TFC24, UL_TFC27, UL_TFC42, UL_TFC45	RB5: 55 bits RB6: 63 bits RB7: 60 bits RB8: 1272 bits	RB5: 55 bits RB6: 63 bits RB7: No data RB8: 1272 bits
28	DL_TFC28, DL_TFC58	UL_TFC22, UL_TFC46	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC18, UL_TFC22, UL_TFC24, UL_TFC28, UL_TFC42, UL_TFC46	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 1272 bits	RB5: 75 bits RB6: 84 bits RB7: No data RB8: 1272 bits
29	DL_TFC29, DL_TFC59	UL_TFC23, UL_TFC47	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC18, UL_TFC23, UL_TFC24, UL_TFC29, UL_TFC42, UL_TFC47	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 1272 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 1272 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6 and UL_TFC24 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).						

14.2.38i.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15 the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by the SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2,3 and 4: RLC SDUs on RB5 and RB6 having the same content as sent by the SS; and no data shall be received on RB7 and RB8.
- for sub-test 5: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by the SS; and no data shall be received on RB8.

- for sub-test 6: RLC SDUs on RB8 having the same content as sent by the SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 7: RLC SDUs on RB5 and RB8 having the same content as sent by the SS; and no data shall be received on RB6 and RB7.
- for sub-test 8,9 and 10: RLC SDUs on RB5, RB6 and RB8 having the same content as sent by the SS; and no data shall be received on RB7.
- for sub-test 11: RLC SDUs on RB5, RB6 , RB7 and RB8 having the same content as sent by the SS.
- for sub-test 12: RLC SDUs on RB8 having the same content as sent by the SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 13: RLC SDUs on RB5 and RB8 having the same content as sent by the SS; and no data shall be received on RB6 and RB7.
- for sub-test 14,15 and 16: RLC SDUs on RB5, RB6 and RB8 having the same content as sent by the SS; and no data shall be received on RB7.
- for sub-test 17: RLC SDUs on RB5, RB6 , RB7 and RB8 having the same content as sent by the SS.
- for sub-test 18: RLC SDUs on RB8 having the first 952 bits equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 19: RLC SDUs on RB5 having the same content as sent by the SS; RLC SDUs on RB8 having the first 952 bits equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB6 and RB7.
- for sub-test 20,21 and 22: RLC SDUs on RB5 and RB6 having the same content as sent by the SS; RLC SDUs on RB8 having the first 952 bits equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB7.
- for sub-test 23: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by the SS; and RLC SDUs on RB8 having the first 952 bits equal to the content of the test data sent by the SS in downlink.
- for sub-test 24: RLC SDUs on RB8 having the same content as sent by the SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 25: RLC SDUs on RB5 and RB8 having the same content as sent by the SS; and no data shall be received on RB6 and RB7.
- for sub-test 26,27 and 28: RLC SDUs on RB5, RB6 and RB8 having the same content as sent by the SS; and no data shall be received on RB7.
- for sub-test 29: RLC SDUs on RB5, RB6 , RB7 and RB8 having the same content as sent by the SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.38j Conversational / speech / UL:(12.2 7.95 5.9 4.75) DL:(12.2 7.95 5.9 4.75) kbps / CS RAB + Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.38j.1 Conformance requirement

See clause 14.2.4.1.

14.2.38j.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.38j.

14.2.38j.3 Method of test

See clause 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x53	1x60	1x336	1x148
	TF2, bits	1x42	1x63	N/A	2x336	N/A
	TF3, bits	1x55	1x84	N/A	3x336	N/A
	TF4, bits	1x75	1x103	N/A	4x336	N/A
	TF5, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7,RB8,DCCH)
UL_TFC0	(TF0,TF0,TF0,TF0,TF0)
UL_TFC1	(TF1,TF0,TF0,TF0,TF0)
UL_TFC2	(TF2,TF1,TF0,TF0,TF0)
UL_TFC3	(TF3,TF2,TF0,TF0,TF0)
UL_TFC4	(TF4,TF3,TF0,TF0,TF0)
UL_TFC5	(TF5,TF4,TF1,TF0,TF0)
UL_TFC6	(TF0,TF0,TF0,TF1,TF0)
UL_TFC7	(TF1,TF0,TF0,TF1,TF0)
UL_TFC8	(TF2,TF1,TF0,TF1,TF0)
UL_TFC9	(TF3,TF2,TF0,TF1,TF0)
UL_TFC10	(TF4,TF3,TF0,TF1,TF0)
UL_TFC11	(TF5,TF4,TF1,TF1,TF0)
UL_TFC12	(TF0,TF0,TF0,TF2,TF0)
UL_TFC13	(TF1,TF0,TF0,TF2,TF0)
UL_TFC14	(TF2,TF1,TF0,TF2,TF0)
UL_TFC15	(TF3,TF2,TF0,TF2,TF0)
UL_TFC16	(TF4,TF3,TF0,TF2,TF0)
UL_TFC17	(TF5,TF4,TF1,TF2,TF0)
UL_TFC18	(TF0,TF0,TF0,TF4,TF0)
UL_TFC19	(TF1,TF0,TF0,TF4,TF0)
UL_TFC20	(TF2,TF1,TF0,TF4,TF0)
UL_TFC21	(TF3,TF2,TF0,TF4,TF0)
UL_TFC22	(TF4,TF3,TF0,TF4,TF0)
UL_TFC23	(TF5,TF4,TF1,TF4,TF0)
UL_TFC24	(TF0,TF0,TF0,TF0,TF1)
UL_TFC25	(TF1,TF0,TF0,TF0,TF1)
UL_TFC26	(TF2,TF1,TF0,TF0,TF1)
UL_TFC27	(TF3,TF2,TF0,TF0,TF1)
UL_TFC28	(TF4,TF3,TF0,TF0,TF1)
UL_TFC29	(TF5,TF4,TF1,TF0,TF1)
UL_TFC30	(TF0,TF0,TF0,TF1,TF1)
UL_TFC31	(TF1,TF0,TF0,TF1,TF1)
UL_TFC32	(TF2,TF1,TF0,TF1,TF1)
UL_TFC33	(TF3,TF2,TF0,TF1,TF1)
UL_TFC34	(TF4,TF3,TF0,TF1,TF1)
UL_TFC35	(TF5,TF4,TF1,TF1,TF1)
UL_TFC36	(TF0,TF0,TF0,TF2,TF1)
UL_TFC37	(TF1,TF0,TF0,TF2,TF1)
UL_TFC38	(TF2,TF1,TF0,TF2,TF1)
UL_TFC39	(TF3,TF2,TF0,TF2,TF1)
UL_TFC40	(TF4,TF3,TF0,TF2,TF1)
UL_TFC41	(TF5,TF4,TF1,TF2,TF1)
UL_TFC42	(TF0,TF0,TF0,TF4,TF1)
UL_TFC43	(TF1,TF0,TF0,TF4,TF1)
UL_TFC44	(TF2,TF1,TF0,TF4,TF1)
UL_TFC45	(TF3,TF2,TF0,TF4,TF1)
UL_TFC46	(TF4,TF3,TF0,TF4,TF1)
UL_TFC47	(TF5,TF4,TF1,TF4,TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (128 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x53	1x60	1x336	1x148
	TF2, bits	1x42	1x63	N/A	2x336	N/A
	TF3, bits	1x55	1x84	N/A	4x336	N/A
	TF4, bits	1x75	1x103	N/A	8x336	N/A
	TF5, bits	1x81	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0,TF0,TF0,TF0,TF0)
DL_TFC1	(TF1,TF0,TF0,TF0,TF0)
DL_TFC2	(TF2,TF1,TF0,TF0,TF0)
DL_TFC3	(TF3,TF2,TF0,TF0,TF0)
DL_TFC4	(TF4,TF3,TF0,TF0,TF0)
DL_TFC5	(TF5,TF4,TF1,TF0,TF0)
DL_TFC6	(TF0,TF0,TF0,TF1,TF0)
DL_TFC7	(TF1,TF0,TF0,TF1,TF0)
DL_TFC8	(TF2,TF1,TF0,TF1,TF0)
DL_TFC9	(TF3,TF2,TF0,TF1,TF0)
DL_TFC10	(TF4,TF3,TF0,TF1,TF0)
DL_TFC11	(TF5,TF4,TF1,TF1,TF0)
DL_TFC12	(TF0,TF0,TF0,TF2,TF0)
DL_TFC13	(TF1,TF0,TF0,TF2,TF0)
DL_TFC14	(TF2,TF1,TF0,TF2,TF0)
DL_TFC15	(TF3,TF2,TF0,TF2,TF0)
DL_TFC16	(TF4,TF3,TF0,TF2,TF0)
DL_TFC17	(TF5,TF4,TF1,TF2,TF0)
DL_TFC18	(TF0,TF0,TF0,TF3,TF0)
DL_TFC19	(TF1,TF0,TF0,TF3,TF0)
DL_TFC20	(TF2,TF1,TF0,TF3,TF0)
DL_TFC21	(TF3,TF2,TF0,TF3,TF0)
DL_TFC22	(TF4,TF3,TF0,TF3,TF0)
DL_TFC23	(TF5,TF4,TF1,TF3,TF0)
DL_TFC24	(TF0,TF0,TF0,TF4,TF0)
DL_TFC25	(TF1,TF0,TF0,TF4,TF0)
DL_TFC26	(TF2,TF1,TF0,TF4,TF0)
DL_TFC27	(TF3,TF2,TF0,TF4,TF0)
DL_TFC28	(TF4,TF3,TF0,TF4,TF0)
DL_TFC29	(TF5,TF4,TF1,TF4,TF0)
DL_TFC30	(TF0,TF0,TF0,TF0,TF1)
DL_TFC31	(TF1,TF0,TF0,TF0,TF1)
DL_TFC32	(TF2,TF1,TF0,TF0,TF1)
DL_TFC33	(TF3,TF2,TF0,TF0,TF1)
DL_TFC34	(TF4,TF3,TF0,TF0,TF1)
DL_TFC35	(TF5,TF4,TF1,TF0,TF1)
DL_TFC36	(TF0,TF0,TF0,TF1,TF1)
DL_TFC37	(TF1,TF0,TF0,TF1,TF1)
DL_TFC38	(TF2,TF1,TF0,TF1,TF1)
DL_TFC39	(TF3,TF2,TF0,TF1,TF1)
DL_TFC40	(TF4,TF3,TF0,TF1,TF1)
DL_TFC41	(TF5,TF4,TF1,TF1,TF1)
DL_TFC42	(TF0,TF0,TF0,TF2,TF1)
DL_TFC43	(TF1,TF0,TF0,TF2,TF1)
DL_TFC44	(TF2,TF1,TF0,TF2,TF1)
DL_TFC45	(TF3,TF2,TF0,TF2,TF1)
DL_TFC46	(TF4,TF3,TF0,TF2,TF1)
DL_TFC47	(TF5,TF4,TF1,TF2,TF1)
DL_TFC48	(TF0,TF0,TF0,TF3,TF1)
DL_TFC49	(TF1,TF0,TF0,TF3,TF1)
DL_TFC50	(TF2,TF1,TF0,TF3,TF1)
DL_TFC51	(TF3,TF2,TF0,TF3,TF1)
DL_TFC52	(TF4,TF3,TF0,TF3,TF1)
DL_TFC53	(TF5,TF4,TF1,TF3,TF1)
DL_TFC54	(TF0,TF0,TF0,TF4,TF1)
DL_TFC55	(TF1,TF0,TF0,TF4,TF1)
DL_TFC56	(TF2,TF1,TF0,TF4,TF1)
DL_TFC57	(TF3,TF2,TF0,TF4,TF1)
DL_TFC58	(TF4,TF3,TF0,TF4,TF1)
DL_TFC59	(TF5,TF4,TF1,TF4,TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1, DL_TFC31	UL_TFC1, UL_TFC25	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC24, UL_TFC25	RB5: 39 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits	RB5: 39 bits RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC32	UL_TFC2, UL_TFC26	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC24, UL_TFC26	RB5: 42 bits RB6: 53 bits RB7: 60 bits RB8: 312 bits	RB5: 42 bits RB6: 53 bits RB7: No data RB8: No data
3	DL_TFC3, DL_TFC33	UL_TFC3, UL_TFC27	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC24, UL_TFC27	RB5: 55 bits RB6: 63 bits RB7: 60 bits RB8: 312 bits	RB5: 55 bits RB6: 63 bits RB7: No data RB8: No data
4	DL_TFC4, DL_TFC34	UL_TFC4, UL_TFC28	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC24, UL_TFC28	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 312 bits	RB5: 75 bits RB6: 84 bits RB7: No data RB8: No data
5	DL_TFC5, DL_TFC35	UL_TFC5, UL_TFC29	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC24, UL_TFC29	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: No data
6	DL_TFC6, DL_TFC36	UL_TFC6, UL_TFC30	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC24, UL_TFC30	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits	RB5: No data RB6: No data RB7: No data RB8: 312 bits

7	DL_TFC7, DL_TFC37	UL_TFC7, UL_TFC31	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7, UL_TFC24, UL_TFC25, UL_TFC30, UL_TFC31	RB5: 39 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits	RB5: 39 bits RB6: No data RB7: No data RB8: 312 bits
8	DL_TFC8, DL_TFC38	UL_TFC8, UL_TFC32	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC24, UL_TFC26, UL_TFC30, UL_TFC32	RB5: 42 bits RB6: 53 bits RB7: 60 bits RB8: 312 bits	RB5: 42 bits RB6: 53 bits RB7: No data RB8: 312 bits
9	DL_TFC9, DL_TFC39	UL_TFC9, UL_TFC33	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC9, UL_TFC24, UL_TFC27, UL_TFC30, UL_TFC33	RB5: 55 bits RB6: 63 bits RB7: 60 bits RB8: 312 bits	RB5: 55 bits RB6: 63 bits RB7: No data RB8: 312 bits
10	DL_TFC10, DL_TFC40	UL_TFC10, UL_TFC34	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC10, UL_TFC24, UL_TFC28, UL_TFC30, UL_TFC34	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 312 bits	RB5: 75 bits RB6: 84 bits RB7: No data RB8: 312 bits
11	DL_TFC11, DL_TFC41	UL_TFC11, UL_TFC35	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC11, UL_TFC24, UL_TFC29, UL_TFC30, UL_TFC35	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 312 bits

12	DL_TFC12, DL_TFC42	UL_TFC12, UL_TFC36	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC24, UL_TFC36	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 632 bits	RB5: No data RB6: No data RB7: No data RB8: 632 bits
13	DL_TFC13, DL_TFC43	UL_TFC13, UL_TFC37	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC13, UL_TFC24, UL_TFC25, UL_TFC36, UL_TFC37	RB5: 39 bits RB6: 103 bits RB7: 60 bits RB8: 632 bits	RB5: 39 bits RB6: No data RB7: No data RB8: 632 bits
14	DL_TFC14, DL_TFC44	UL_TFC14, UL_TFC38	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC14, UL_TFC24, UL_TFC26, UL_TFC36, UL_TFC38	RB5: 42 bits RB6: 53 bits RB7: 60 bits RB8: 632 bits	RB5: 42 bits RB6: 53 bits RB7: No data RB8: 632 bits
15	DL_TFC15, DL_TFC45	UL_TFC15, UL_TFC39	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC15, UL_TFC24, UL_TFC27, UL_TFC36, UL_TFC39	RB5: 55 bits RB6: 63 bits RB7: 60 bits RB8: 632 bits	RB5: 55 bits RB6: 63 bits RB7: No data RB8: 632 bits
16	DL_TFC16, DL_TFC46	UL_TFC16, UL_TFC40	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC16, UL_TFC24, UL_TFC28, UL_TFC36, UL_TFC40	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 632 bits	RB5: 75 bits RB6: 84 bits RB7: No data RB8: 632 bits

17	DL_TFC17, DL_TFC47	UL_TFC17, UL_TFC41	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC17, UL_TFC24, UL_TFC29, UL_TFC36, UL_TFC41	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 632 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 632 bits
18	DL_TFC18, DL_TFC48	UL_TFC18, UL_TFC42	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC18, UL_TFC24, UL_TFC42	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 1272 bits	RB5: No data RB6: No data RB7: No data RB8: 1272 bits
19	DL_TFC19, DL_TFC49	UL_TFC19, UL_TFC43	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC18, UL_TFC19, UL_TFC24, UL_TFC25, UL_TFC42, UL_TFC43	RB5: 39 bits RB6: 103 bits RB7: 60 bits RB8: 1272 bits	RB5: 39 bits RB6: No data RB7: No data RB8: 1272 bits
20	DL_TFC20, DL_TFC50	UL_TFC20, UL_TFC44	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC18, UL_TFC20, UL_TFC24, UL_TFC26, UL_TFC42, UL_TFC44	RB5: 42 bits RB6: 53 bits RB7: 60 bits RB8: 1272 bits	RB5: 42 bits RB6: 53 bits RB7: No data RB8: 1272 bits
21	DL_TFC21, DL_TFC51	UL_TFC21, UL_TFC45	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC18, UL_TFC21, UL_TFC24, UL_TFC27, UL_TFC42, UL_TFC45	RB5: 55 bits RB6: 63 bits RB7: 60 bits RB8: 1272 bits	RB5: 55 bits RB6: 63 bits RB7: No data RB8: 1272 bits

22	DL_TFC22, DL_TFC52	UL_TFC22, UL_TFC46	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC18, UL_TFC22, UL_TFC24, UL_TFC28, UL_TFC42, UL_TFC46	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 1272 bits	RB5: 75 bits RB6: 84 bits RB7: No data RB8: 1272 bits
23	DL_TFC23, DL_TFC53	UL_TFC23, UL_TFC47	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC18, UL_TFC23, UL_TFC24, UL_TFC29, UL_TFC42, UL_TFC47	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 1272 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 1272 bits
24	DL_TFC24, DL_TFC54	UL_TFC18, UL_TFC42	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC18, UL_TFC24, UL_TFC42	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 1272 bits	RB5: No data RB6: No data RB7: No data RB8: 2552 bits
25	DL_TFC25, DL_TFC55	UL_TFC19, UL_TFC43	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC18, UL_TFC19, UL_TFC24, UL_TFC25, UL_TFC42, UL_TFC43	RB5: 39 bits RB6: 103 bits RB7: 60 bits RB8: 1272 bits	RB5: 39 bits RB6: No data RB7: No data RB8: 2552 bits
26	DL_TFC26, DL_TFC56	UL_TFC20, UL_TFC44	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC18, UL_TFC20, UL_TFC24, UL_TFC26, UL_TFC42, UL_TFC44	RB5: 42 bits RB6: 53 bits RB7: 60 bits RB8: 1272 bits	RB5: 42 bits RB6: 53 bits RB7: No data RB8: 2552 bits

27	DL_TFC27, DL_TFC57	UL_TFC21, UL_TFC45	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC18, UL_TFC21, UL_TFC24, UL_TFC27, UL_TFC42, UL_TFC45	RB5: 55 bits RB6: 63 bits RB7: 60 bits RB8: 1272 bits	RB5: 55 bits RB6: 63 bits RB7: No data RB8: 2552 bits
28	DL_TFC28, DL_TFC58	UL_TFC22, UL_TFC46	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC18, UL_TFC22, UL_TFC24, UL_TFC28, UL_TFC42, UL_TFC46	RB5: 75 bits RB6: 84 bits RB7: 60 bits RB8: 1272 bits	RB5: 75 bits RB6: 84 bits RB7: No data RB8: 2552 bits
29	DL_TFC29, DL_TFC59	UL_TFC23, UL_TFC47	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC18, UL_TFC23, UL_TFC24, UL_TFC29, UL_TFC42, UL_TFC47	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 1272 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits RB8: 2552 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6 and UL_TFC24 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).						

14.2.38j.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15 the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by the SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2,3 and 4: RLC SDUs on RB5 and RB6 having the same content as sent by the SS; and no data shall be received on RB7 and RB8.
- for sub-test 5: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by the SS; and no data shall be received on RB8.

- for sub-test 6: RLC SDUs on RB8 having the same content as sent by the SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 7: RLC SDUs on RB5 and RB8 having the same content as sent by the SS; and no data shall be received on RB6 and RB7.
- for sub-test 8,9 and 10: RLC SDUs on RB5, RB6 and RB8 having the same content as sent by the SS; and no data shall be received on RB7.
- for sub-test 11: RLC SDUs on RB5, RB6 , RB7 and RB8 having the same content as sent by the SS.
- for sub-test 12: RLC SDUs on RB8 having the same content as sent by the SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 13: RLC SDUs on RB5 and RB8 having the same content as sent by the SS; and no data shall be received on RB6 and RB7.
- for sub-test 14,15 and 16: RLC SDUs on RB5, RB6 and RB8 having the same content as sent by the SS; and no data shall be received on RB7.
- for sub-test 17: RLC SDUs on RB5, RB6 , RB7 and RB8 having the same content as sent by the SS.
- for sub-test 18: RLC SDUs on RB8 having the same content as sent by the SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 19: RLC SDUs on RB5 and RB8 having the same content as sent by the SS; and no data shall be received on RB6 and RB7.
- for sub-test 20,21 and 22: RLC SDUs on RB5, RB6 and RB8 having the same content as sent by the SS; and no data shall be received on RB7.
- for sub-test 23: RLC SDUs on RB5, RB6 , RB7 and RB8 having the same content as sent by the SS.
- for sub-test 24: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 25: RLC SDUs on RB5 having the same content as sent by the SS; RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB6 and RB7.
- for sub-test 26,27 and 28: RLC SDUs on RB5 and RB6 having the same content as sent by the SS; RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB7.
- for sub-test 29: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by the SS; and RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink.

    - 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.39 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:64 kbps / PS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH

14.2.39.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:64 kbps / PS RAB / (TC, 10 ms TTI)

14.2.39.1.1 Conformance requirement

See 14.2.4.1.

14.2.39.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.39 for the uplink turbo channel coding and 10 ms TTI case.

14.2.39.1.3 Method of test

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (32 kbps, 10 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF0, TF0, TF1)
UL_TFC8	(TF2, TF1, TF1, TF0, TF1)
UL_TFC9	(TF0, TF0, TF0, TF1, TF1)
UL_TFC10	(TF1, TF0, TF0, TF1, TF1)
UL_TFC11	(TF2, TF1, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF2, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
1	DL_TFC1, DL_TFC16	UL_TFC1 UL_TFC7	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC7	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC17	UL_TFC2, UL_TFC8	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC18	UL_TFC3, UL_TFC9	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4, DL_TFC19	UL_TFC4, UL_TFC10	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5, DL_TFC20	UL_TFC5 UL_TFC11	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC6, DL_TFC21	UL_TFC3, UL_TFC9	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 632
7	DL_TFC7, DL_TFC22	UL_TFC4, UL_TFC10	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 632
8	DL_TFC8, DL_TFC23	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
9	DL_TFC9, DL_TFC24	UL_TFC3, UL_TFC9	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 952
10	DL_TFC10, DL_TFC25	UL_TFC4, UL_TFC10	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 952
11	DL_TFC11, DL_TFC26	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 952
12	DL_TFC12, DL_TFC27	UL_TFC3, UL_TFC9	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 1272
13	DL_TFC13, DL_TFC28	UL_TFC4, UL_TFC10	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 1272
14	DL_TFC14, DL_TFC29	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 1272

NOTE1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC6 are part of minimum set of TFCIs

NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.

RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the uplink TTI for RB8 is 10 ms while the downlink TTI is 20 ms then, to achieve continuous data transmission in uplink the size of the uplink RLC SDU has been set such that it will be transmitted over two subsequent TTIs, i.e. UL RLC SDU SIZE has been set to two times the uplink TFS size minus 8 bits (size of 7 bit length indicator and expansion bit).

14.2.39.1.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15a and step 15b the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 3: RLC SDUs on RB8 having the first 312 bits equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4: RLC SDUs on RB8 having the first 312 bits equal to the content of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 5: RLC SDUs on RB8 having the first 312 bits equal to the content of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 6: RLC SDUs on RB8 having the content equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 7: RLC SDUs on RB8 having the content equal to the content of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 8: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by SS.
- for sub-test 9: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 10: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 11: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 12: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 13: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 14: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.39.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:64 kbps / PS RAB / (TC, 20 ms TTI)

14.2.39.2.1 Conformance requirement

See 14.2.4.1.

14.2.39.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.39 for the uplink turbo channel coding and 20 ms TTI case.

14.2.39.2.3 Method of test

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (32 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF0, TF1)
UL_TFC10	(TF1, TF0, TF0, TF0, TF1)
UL_TFC11	(TF2, TF1, TF1, TF0, TF1)
UL_TFC12	(TF0, TF0, TF0, TF1, TF1)
UL_TFC13	(TF1, TF0, TF0, TF1, TF1)
UL_TFC14	(TF2, TF1, TF1, TF1, TF1)
UL_TFC15	(TF0, TF0, TF0, TF2, TF1)
UL_TFC16	(TF1, TF0, TF0, TF2, TF1)
UL_TFC17	(TF2, TF1, TF1, TF2, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF2, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
1	DL_TFC1, DL_TFC16	UL_TFC1, UL_TFC10	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC17	UL_TFC2, UL_TFC11	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC18	UL_TFC3, UL_TFC12	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC12	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4, DL_TFC19	UL_TFC4, UL_TFC13	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC9, UL_TFC10, UL_TFC12, UL_TFC13	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5, DL_TFC20	UL_TFC5, UL_TFC14	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC9, UL_TFC11, UL_TFC12, UL_TFC14	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC6, DL_TFC21	UL_TFC6, UL_TFC15	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC9, UL_TFC15	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 632
7	DL_TFC7, DL_TFC22	UL_TFC7, UL_TFC16	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 632

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
8	DL_TFC8, DL_TFC23	UL_TFC8, UL_TFC17	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632
9	DL_TFC9, DL_TFC24	UL_TFC6, UL_TFC15	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC9, UL_TFC15	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 952
10	DL_TFC10, DL_TFC25	UL_TFC7, UL_TFC16	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 952
11	DL_TFC11, DL_TFC26	UL_TFC8, UL_TFC17	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 952
12	DL_TFC12, DL_TFC27	UL_TFC6, UL_TFC15	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC9, UL_TFC15	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 1272
13	DL_TFC13, DL_TFC28	UL_TFC7, UL_TFC16	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 1272
14	DL_TFC14, DL_TFC29	UL_TFC8, UL_TFC17	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 1272

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC9 are part of minimum set of TFCIs NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).						

14.2.39.2.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15a and step 15b the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 3: RLC SDUs on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4: RLC SDUs on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 5: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by SS.
- for sub-test 6: RLC SDUs on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 7: RLC SDUs on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 8: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by SS.
- for sub-test 9: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 10: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 11: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 12: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 13: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 14: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.39.3 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:64 kbps / PS RAB / (CC, 10 ms TTI)

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.39 for the uplink convolutional channel coding and 10 ms TTI case.

See test case 14.2.39.1 for test procedure and test requirement.

14.2.39.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:64 kbps / PS RAB / (CC, 20 ms TTI)

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.39 for the uplink convolutional channel coding and 20 ms TTI case.

See test case 14.2.39.2 for test procedure and test requirement.

14.2.40 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH

14.2.40.1 Conformance requirement

See 14.2.4.1.

14.2.40.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.40.

14.2.40.3 Method of test

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF2, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1, DL_TFC16	UL_TFC1, UL_TFC16	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC17	UL_TFC2, UL_TFC17	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC18	UL_TFC3, UL_TFC18	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC18	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4, DL_TFC19	UL_TFC4, UL_TFC19	DL_TFC0, DL_TFC1, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5, DL_TFC20	UL_TFC5, UL_TFC20	DL_TFC0, DL_TFC2, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC17, UL_TFC18, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC6, DL_TFC21	UL_TFC6, UL_TFC21	DL_TFC0, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC15, UL_TFC21	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 632
7	DL_TFC7, DL_TFC22	UL_TFC7, UL_TFC22	DL_TFC0, DL_TFC1, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC7, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 632

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
8	DL_TFC8, DL_TFC23	UL_TFC8, UL_TFC23	DL_TFC0, DL_TFC2, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8, UL_TFC15, UL_TFC17, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632
9	DL_TFC9, DL_TFC24	UL_TFC9, UL_TFC24	DL_TFC0, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC15, UL_TFC24	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: No data RB6: No data RB7: No data RB8: 952
10	DL_TFC10, DL_TFC25	UL_TFC10, UL_TFC25	DL_TFC0, DL_TFC1, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16, UL_TFC24, UL_TFC25	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: 39 RB6: No data RB7: No data RB8: 952
11	DL_TFC11, DL_TFC26	UL_TFC11, UL_TFC26	DL_TFC0, DL_TFC2, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC2, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17, UL_TFC24, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: 81 RB6: 103 RB7: 60 RB8: 952
12	DL_TFC12, DL_TFC27	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 1272
13	DL_TFC13, DL_TFC28	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC1, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 1272
14	DL_TFC14, DL_TFC29	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC2, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 1272

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC15 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit).						

14.2.40.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15a and step 15b the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 3, 6, 9 and 12: RLC SDUs on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4, 7, 10 and 13: RLC SDUs on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 5, 8, 11 and 14: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.41 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.41.1 Conformance requirement

See 14.2.4.1.

14.2.41.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.41.

14.2.41.3 Method of test

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (128 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF2, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1, DL_TFC16	UL_TFC1, UL_TFC16	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC17	UL_TFC2, UL_TFC17	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC18	UL_TFC3, UL_TFC18	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC18	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4, DL_TFC19	UL_TFC4, UL_TFC19	DL_TFC0, DL_TFC1, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 UL_TFC4, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5, DL_TFC20	UL_TFC5, UL_TFC20	DL_TFC0, DL_TFC2, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC17, UL_TCF18, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC6, DL_TFC21	UL_TFC6, UL_TFC21	DL_TFC0, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC15, UL_TFC21	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 632
7	DL_TFC7, DL_TFC22	UL_TFC7, UL_TFC22	DL_TFC0, DL_TFC1, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC7, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 632

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
8	DL_TFC8, DL_TFC23	UL_TFC8, UL_TFC23	DL_TFC0, DL_TFC2, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8, UL_TFC15, UL_TFC17, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632
9	DL_TFC9, DL_TFC24	UL_TFC9, UL_TFC24	DL_TFC0, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC15, UL_TFC24	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: No data RB6: No data RB7: No data RB8: 1272
10	DL_TFC10, DL_TFC25	UL_TFC10, UL_TFC25	DL_TFC0, DL_TFC1, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16, UL_TFC24, UL_TFC25	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: 39 RB6: No data RB7: No data RB8: 1272
11	DL_TFC11, DL_TFC26	UL_TFC11, UL_TFC26	DL_TFC0, DL_TFC2, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17, UL_TFC24, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: 81 RB6: 103 RB7: 60 RB8: 1272
12	DL_TFC12, DL_TFC27	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 2552
13	DL_TFC13, DL_TFC28	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC1, DL_TFC3, DL_TFC15, , UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 2552
14	DL_TFC14, DL_TFC29	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC2, DL_TFC3, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 2552

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC15 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit).						

14.2.41.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15a and step 15b the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 3: RLC SDUs on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4: RLC SDUs on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 5: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by SS.
- for sub-test 6: RLC SDUs on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 7: RLC SDUs on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 8: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by SS.
- for sub-test 9: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 10: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 11: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 12: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 13: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 14: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.42 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.42.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:256 kbps / PS RAB / 10 ms TTI

14.2.42.1.1 Conformance requirement

See 14.2.4.1.

14.2.42.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.42 for the downlink 10 ms TTI case.

14.2.42.1.3 Method of test

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (256 kbps)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF2, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
1	DL_TFC1, DL_TFC16	UL_TFC1, DL_TFC16	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC17	UL_TFC2, DL_TFC17	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC18	UL_TFC3, DL_TFC18	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC18	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4, DL_TFC19	UL_TFC4, DL_TFC19	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5, DL_TFC20	UL_TFC5, DL_TFC20	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC17, UL_TFC18, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC6, DL_TFC21	UL_TFC6, DL_TFC21	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC15, UL_TFC21	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 632
7	DL_TFC7, DL_TFC22	UL_TFC7, DL_TFC22	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC7, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 632

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
8	DL_TFC8, DL_TFC23	UL_TFC8, DL_TFC23	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8, UL_TFC15, UL_TFC17, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632
9	DL_TFC9, DL_TFC24	UL_TFC9, DL_TFC24	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC15, UL_TFC24	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: No data RB6: No data RB7: No data RB8: 1272
10	DL_TFC10, DL_TFC25	UL_TFC10, DL_TFC25	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16, UL_TFC24, UL_TFC25	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: 39 RB6: No data RB7: No data RB8: 1272
11	DL_TFC11, DL_TFC26	UL_TFC11, DL_TFC26	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17, UL_TFC24, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: 81 RB6: 103 RB7: 60 RB8: 1272
12	DL_TFC12, DL_TFC27	UL_TFC12, DL_TFC27	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 2552
13	DL_TFC13, DL_TFC28	UL_TFC13, DL_TFC28	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 2552
14	DL_TFC14, DL_TFC29	UL_TFC14, DL_TFC29	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 2552

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
NOTE1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC15 are part of minimum set of TFCIs NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the uplink TTI for RB8 is 20 ms while the downlink TTI is 10 ms then, to achieve continuous data transmission in uplink the size of the uplink RLC SDU has been set such that it will be transmitted over each TTIs, i.e. UL RLC SDU SIZE has been set to the uplink TFS size under test minus 8 (the size of a 7 bit length indicator and expansion bit).						

14.2.42.1.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15 the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 3: RLC SDUs on RB8 having the first 312 bits equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4: RLC SDUs on RB8 having the first 312 bits equal to the content of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 5: RLC SDUs on RB8 having the first 312 bits equal to the content of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 6: RLC SDUs on RB8 having the content equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 7: RLC SDUs on RB8 having the content equal to the content of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 8: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by SS.
- for sub-test 9: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 10: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 11: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 12: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 13: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 14: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

    - 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.42.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:256 kbps / PS RAB / 20 ms TTI

14.2.42.2.1 Conformance requirement

See 14.2.4.1.

14.2.42.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.42 for the downlink 20 ms TTI case.

14.2.42.2.3 Method of test

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (256 kbps, 20 ms)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A
	TF5, bits	N/A	N/A	N/A	12x336	N/A
	TF6, bits	N/A	N/A	N/A	16x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF5, TF0)
DL_TFC16	(TF1, TF0, TF0, TF5, TF0)
DL_TFC17	(TF2, TF1, TF1, TF5, TF0)
DL_TFC18	(TF0, TF0, TF0, TF6, TF0)
DL_TFC19	(TF1, TF0, TF0, TF6, TF0)
DL_TFC20	(TF2, TF1, TF1, TF6, TF0)
DL_TFC21	(TF0, TF0, TF0, TF0, TF1)
DL_TFC22	(TF1, TF0, TF0, TF0, TF1)
DL_TFC23	(TF2, TF1, TF1, TF0, TF1)
DL_TFC24	(TF0, TF0, TF0, TF1, TF1)
DL_TFC25	(TF1, TF0, TF0, TF1, TF1)
DL_TFC26	(TF2, TF1, TF1, TF1, TF1)
DL_TFC27	(TF0, TF0, TF0, TF2, TF1)
DL_TFC28	(TF1, TF0, TF0, TF2, TF1)
DL_TFC29	(TF2, TF1, TF1, TF2, TF1)
DL_TFC30	(TF0, TF0, TF0, TF3, TF1)
DL_TFC31	(TF1, TF0, TF0, TF3, TF1)
DL_TFC32	(TF2, TF1, TF1, TF3, TF1)
DL_TFC33	(TF0, TF0, TF0, TF4, TF1)
DL_TFC34	(TF1, TF0, TF0, TF4, TF1)
DL_TFC35	(TF2, TF1, TF1, TF4, TF1)
DL_TFC36	(TF0, TF0, TF0, TF5, TF1)
DL_TFC37	(TF1, TF0, TF0, TF5, TF1)
DL_TFC38	(TF2, TF1, TF1, TF5, TF1)
DL_TFC39	(TF0, TF0, TF0, TF6, TF1)
DL_TFC40	(TF1, TF0, TF0, TF6, TF1)
DL_TFC41	(TF2, TF1, TF1, TF6, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
1	DL_TFC1, DL_TFC22	UL_TFC1, UL_TFC16	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC23	UL_TFC2, UL_TFC17	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC24	UL_TFC3, UL_TFC18	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC18	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4, DL_TFC25	UL_TFC4, UL_TFC19	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5, DL_TFC26	UL_TFC5, UL_TFC20	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC17, UL_TFC18, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC6, DL_TFC27	UL_TFC6, UL_TFC21	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC15, UL_TFC21	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 632
7	DL_TFC7, DL_TFC28	UL_TFC7, UL_TFC22	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC7, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 632

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
8	DL_TFC8, DL_TFC29	UL_TFC8, UL_TFC23	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8, UL_TFC15, UL_TFC17, UL_TFC21 UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632
9	DL_TFC9, DL_TFC30	UL_TFC9, UL_TFC24	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC15, UL_TFC24	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: No data RB6: No data RB7: No data RB8: 1272
10	DL_TFC10, DL_TFC31	UL_TFC10, UL_TFC25	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16, UL_TFC24, UL_TFC25	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: 39 RB6: No data RB7: No data RB8: 1272
11	DL_TFC11, DL_TFC32	UL_TFC11, UL_TFC26	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17, UL_TFC24, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: 81 RB6: 103 RB7: 60 RB8: 1272
12	DL_TFC12, DL_TFC33	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 2552
13	DL_TFC13, DL_TFC34	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27 UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 2552
14	DL_TFC14, DL_TFC35	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 2552

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
15	DL_TFC15, DL_TFC36	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 3832
16	DL_TFC16, DL_TFC37	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27 UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 3832
17	DL_TFC17, DL_TFC38	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 3832
18	DL_TFC18, DL_TFC39	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 5112
19	DL_TFC19, DL_TFC40	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 5112
20	DL_TFC20, DL_TFC41	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 5112

NOTE1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC15 are part of minimum set of TFCIs

NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.

RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).

14.2.42.2.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15 the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 3: RLC SDUs on RB8 having the content equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4: RLC SDUs on RB5 and RB8 having the content equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB6 and RB7.
- for sub-test 5: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by SS.
- for sub-test 6: RLC SDUs on RB8 having the content equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 7: RLC SDUs on RB5 and RB8 having the content equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB6 and RB7.
- for sub-test 8: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by SS.
- for sub-test 9: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 10: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 11: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 12: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 13: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 14: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 15: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 16: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 17: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 18: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 19: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 20: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

    - 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.43 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.43.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:384 kbps / PS RAB / 10 ms TTI

14.2.43.1.1 Conformance requirement

See 14.2.4.1.

14.2.43.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.43 for the downlink 10 ms TTI case.

14.2.43.1.3 Method of test

See 14.1.2 for test procedure.

For the PS DL:384/UL:64 kbps radio bearer the downlink TTI is 10ms while the uplink TTI is 20ms. As the SS will send one DL SDU every 10 ms then the UE test loop function will return 2 UL SDUs per uplink TTI. To not cause uplink transmission buffer overflow then the UL RLC SDU size should be chosen such that the UE will transmit 2 RLC SDUs per uplink TTI. For the case when the transport format under test does not allow for 2 SDUs to fit into the transport format size without requiring concatenation then the UL RLC SDU size shall be chosen such that one SDU is returned per uplink TTI.

The following RLC parameter value is used in the RADIO BEARER SETUP message used to setup the PS DL:384/UL:64 kbps radio bearer:

Uplink RLC Transmission window size	512

Downlink RLC Receiving window size	512

NOTEThe transmission and receiving window size values have been chosen to avoid that UE transmission and reception buffers become full during the test.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (384 kbps, 10 ms)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A
	TF5, bits	N/A	N/A	N/A	12x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF5, TF0)
DL_TFC16	(TF1, TF0, TF0, TF5, TF0)
DL_TFC17	(TF2, TF1, TF1, TF5, TF0)
DL_TFC18	(TF0, TF0, TF0, TF0, TF1)
DL_TFC19	(TF1, TF0, TF0, TF0, TF1)
DL_TFC20	(TF2, TF1, TF1, TF0, TF1)
DL_TFC21	(TF0, TF0, TF0, TF1, TF1)
DL_TFC22	(TF1, TF0, TF0, TF1, TF1)
DL_TFC23	(TF2, TF1, TF1, TF1, TF1)
DL_TFC24	(TF0, TF0, TF0, TF2, TF1)
DL_TFC25	(TF1, TF0, TF0, TF2, TF1)
DL_TFC26	(TF2, TF1, TF1, TF2, TF1)
DL_TFC27	(TF0, TF0, TF0, TF3, TF1)
DL_TFC28	(TF1, TF0, TF0, TF3, TF1)
DL_TFC29	(TF2, TF1, TF1, TF3, TF1)
DL_TFC30	(TF0, TF0, TF0, TF4, TF1)
DL_TFC31	(TF1, TF0, TF0, TF4, TF1)
DL_TFC32	(TF2, TF1, TF1, TF4, TF1)
DL_TFC33	(TF0, TF0, TF0, TF5, TF1)
DL_TFC34	(TF1, TF0, TF0, TF5, TF1)
DL_TFC35	(TF2, TF1, TF1, TF5, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 4)	UL RLC SDU size (bits) (note 1)	Test data size (bits) (note 1)
1	DL_TFC1, DL_TFC19	UL_TFC1, UL_TFC16	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC20	UL_TFC2, UL_TFC17	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC21	UL_TFC3, UL_TFC18	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC18	RB5: 39 RB6: 103 RB7: 60 RB8: 312 (note 2)	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4, DL_TFC22	UL_TFC4, UL_TFC19	DL_TFC0, DL_TFC1, DL_TFC3, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312 (note 2)	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5, DL_TFC23	UL_TFC5, UL_TFC20	DL_TFC0, DL_TFC2, DL_TFC3, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC17, UL_TFC18, UL_TFC15, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 312 (note 2)	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC6, DL_TFC24	UL_TFC6, UL_TFC21	DL_TFC0, DL_TFC3, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC15, UL_TFC21	RB5: 39 RB6: 103 RB7: 60 RB8: 312 (note 3)	RB5: No data RB6: No data RB7: No data RB8: 632
7	DL_TFC7, DL_TFC25	UL_TFC7, UL_TFC22	DL_TFC0, DL_TFC1, DL_TFC3, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC7, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 312 (note 3)	RB5: 39 RB6: No data RB7: No data RB8: 632

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 4)	UL RLC SDU size (bits) (note 1)	Test data size (bits) (note 1)
8	DL_TFC8, DL_TFC26	UL_TFC8, UL_TFC23	DL_TFC0, DL_TFC2, DL_TFC3, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8, UL_TFC15, UL_TFC17, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 312 (note 3)	RB5: 81 RB6: 103 RB7: 60 RB8: 632
9	DL_TFC9, DL_TFC27	UL_TFC9, UL_TFC24	DL_TFC0, DL_TFC18, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC15, UL_TFC24	RB5: 39 RB6: 103 RB7: 60 RB8: 1272 (note 2)	RB5: No data RB6: No data RB7: No data RB8: 1272
10	DL_TFC10, DL_TFC28	UL_TFC10, UL_TFC25	DL_TFC0, DL_TFC1, DL_TFC3, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16, UL_TFC24, UL_TFC25	RB5: 39 RB6: 103 RB7: 60 RB8: 1272 (note 2)	RB5: 39 RB6: No data RB7: No data RB8: 1272
11	DL_TFC11, DL_TFC29	UL_TFC11, UL_TFC26	DL_TFC0, DL_TFC2, DL_TFC3, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17, UL_TFC24, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 1272 (note 2)	RB5: 81 RB6: 103 RB7: 60 RB8: 1272
12	DL_TFC12, DL_TFC30	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC3, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 632 (note 3)	RB5: No data RB6: No data RB7: No data RB8: 2552
13	DL_TFC13, DL_TFC31	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC1, DL_TFC3, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 632 (note 3)	RB5: 39 RB6: No data RB7: No data RB8: 2552
14	DL_TFC14, DL_TFC32	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC2, DL_TFC3, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 632 (note 3)	RB5: 81 RB6: 103 RB7: 60 RB8: 2552

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 4)	UL RLC SDU size (bits) (note 1)	Test data size (bits) (note 1)
15	DL_TFC15, DL_TFC33	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC3, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 632 (note 3)	RB5: No data RB6: No data RB7: No data RB8: 3832
16	DL_TFC16, DL_TFC34	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC1, DL_TFC3, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 632 (note 3)	RB5: 39 RB6: No data RB7: No data RB8: 3832
17	DL_TFC17, DL_TFC35	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC2, DL_TFC3, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 632 (note 3)	RB5: 81 RB6: 103 RB7: 60 RB8: 3832

NOTE 1: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit).

NOTE 2: RB8 (TF1/TF3): For sub-tests where uplink transport format TF1 (1x336) or TF3 (3x336) are used then no adaptation to the difference in downlink TTI (10 ms) and uplink TTI (20ms) is possible as this would require the UE to concatenate 2 SDUs into one PDU for TF1; or into three PDUs for TF3. For these sub-tests the UL RLC SDU size is set equal to the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).

NOTE 3: RB8 (TF2/TF4): For sub-tests where uplink transport formats TF2 (2x336) or TF4 (4x336) is used then to adopt to the difference in downlink TTI (10 ms) and uplink TTI (20ms) the UL RLC SDU size has been chosen such that 2 SDUs will be returned per uplink TTI. I.e. the UL RLC SDU size is set equal to half the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).

NOTE 4: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC15 are part of minimum set of TFCIs.

NOTE 5: DL_TFC1 for subtests 4, 7, 10, 13 and 16 and DL_TFC2 for subtests 5, 8, 11, 14 and 17 are necessary to cope with the effect of the acknowlegde PDUs in AM mode.

14.2.43.1.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15a and step 15b the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by the SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by the SS; and no data shall be received on RB8.
- for sub-test 3: RLC SDUs on RB8 having the same content as sent by the SS; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 4: RLC SDUs on RB5 and RB8 having the same content as sent by the SS; and no data shall be received on RB6 and RB7.
- for sub-test 5: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by the SS.
- for sub-test 6: RLC SDUs on RB8 having the content equal to the first 312 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 7: RLC SDUs on RB5 having the same content as sent by the SS; RLC SDUs on RB8 having the content equal to the first 312 bits of the test data sent by the SS in downlink; and no data shall be received on RB6 and RB7.
- for sub-test 8: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by the SS; and RLC SDUs on RB8 having the content equal to the first 312 bits of the test data sent by the SS in downlink.
- for sub-test 9: RLC SDUs on RB8 having the same content as sent by the SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 10: RLC SDUs on RB5 and RB8 having the same content as sent by the SS; and no data shall be received on RB6 and RB7.
- for sub-test 11: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by the SS.
- for sub-test 12: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 13: RLC SDUs on RB5 having the same content as sent by the SS; RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; and no data shall be received on RB6 and RB7.
- for sub-test 14: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by the SS; and RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink.
- for sub-test 15: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 16: RLC SDUs on RB5 having the same content as sent by the SS; RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; and no data shall be received on RB6 and RB7.
- for sub-test 17: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by the SS; and RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink.

    - 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.43.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:384 kbps / PS RAB / 20 ms TTI

14.2.43.2.1 Conformance requirement

See 14.2.4.1.

14.2.43.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.43 for the downlink 20 ms TTI case.

The following RLC parameter value is used in the RADIO BEARER SETUP message used to setup the PS DL:384/UL:64 kbps radio bearer:

Uplink RLC Transmission window size	512

Downlink RLC Receiving window size	512

NOTE: The transmission and receiving window size values have been chosen to avoid that UE transmission and reception buffers become full during the test.

14.2.43.2.3 Method of test

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (384 kbps, 20 ms)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A
	TF5, bits	N/A	N/A	N/A	12x336	N/A
	TF6, bits	N/A	N/A	N/A	16x336	N/A
	TF7, bits	N/A	N/A	N/A	20x336	N/A
	TF8, bits	N/A	N/A	N/A	24x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF5, TF0)
DL_TFC16	(TF1, TF0, TF0, TF5, TF0)
DL_TFC17	(TF2, TF1, TF1, TF5, TF0)
DL_TFC18	(TF0, TF0, TF0, TF6, TF0)
DL_TFC19	(TF1, TF0, TF0, TF6, TF0)
DL_TFC20	(TF2, TF1, TF1, TF6, TF0)
DL_TFC21	(TF0, TF0, TF0, TF7, TF0)
DL_TFC22	(TF1, TF0, TF0, TF7, TF0)
DL_TFC23	(TF2, TF1, TF1, TF7, TF0)
DL_TFC24	(TF0, TF0, TF0, TF8, TF0)
DL_TFC25	(TF1, TF0, TF0, TF8, TF0)
DL_TFC26	(TF2, TF1, TF1, TF8, TF0)
DL_TFC27	(TF0, TF0, TF0, TF0, TF1)
DL_TFC28	(TF1, TF0, TF0, TF0, TF1)
DL_TFC29	(TF2, TF1, TF1, TF0, TF1)
DL_TFC30	(TF0, TF0, TF0, TF1, TF1)
DL_TFC31	(TF1, TF0, TF0, TF1, TF1)
DL_TFC32	(TF2, TF1, TF1, TF1, TF1)
DL_TFC33	(TF0, TF0, TF0, TF2, TF1)
DL_TFC34	(TF1, TF0, TF0, TF2, TF1)
DL_TFC35	(TF2, TF1, TF1, TF2, TF1)
DL_TFC36	(TF0, TF0, TF0, TF3, TF1)
DL_TFC37	(TF1, TF0, TF0, TF3, TF1)
DL_TFC38	(TF2, TF1, TF1, TF3, TF1)
DL_TFC39	(TF0, TF0, TF0, TF4, TF1)
DL_TFC40	(TF1, TF0, TF0, TF4, TF1)
DL_TFC41	(TF2, TF1, TF1, TF4, TF1)
DL_TFC42	(TF0, TF0, TF0, TF5, TF1)
DL_TFC43	(TF1, TF0, TF0, TF5, TF1)
DL_TFC44	(TF2, TF1, TF1, TF5, TF1)
DL_TFC45	(TF0, TF0, TF0, TF6, TF1)
DL_TFC46	(TF1, TF0, TF0, TF6, TF1)
DL_TFC47	(TF2, TF1, TF1, TF6, TF1)
DL_TFC48	(TF0, TF0, TF0, TF7, TF1)
DL_TFC49	(TF1, TF0, TF0, TF7, TF1)
DL_TFC50	(TF2, TF1, TF1, TF7, TF1)
DL_TFC51	(TF0, TF0, TF0, TF8, TF1)
DL_TFC52	(TF1, TF0, TF0, TF8, TF1)
DL_TFC53	(TF2, TF1, TF1, TF8, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
1	DL_TFC1, DL_TFC28	UL_TFC1,UL_TFC16	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC29	UL_TFC2,UL_TFC17	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC30	UL_TFC3,UL_TFC19	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC18	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4, DL_TFC31	UL_TFC4,UL_TFC19	DL_TFC0, DL_TFC1, DL_TFC3, DL_TFC27, UL_TFC0, UL_TFC15,	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5, DL_TFC32	UL_TFC5,UL_TFC20	DL_TFC0, DL_TFC2, DL_TFC3, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC17, UL_TFC18 UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC6, DL_TFC33	UL_TFC6,UL_TFC21	DL_TFC0, DL_TFC3, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC15, UL_TFC21	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 632
7	DL_TFC7, DL_TFC34	UL_TFC7,UL_TFC22	DL_TFC0, DL_TFC1, DL_TFC3, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC7, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 632

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
8	DL_TFC8, DL_TFC35	UL_TFC8,UL_TFC23	DL_TFC0, DL_TFC2, DL_TFC3, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8, UL_TFC15, UL_TFC17, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632
9	DL_TFC9, DL_TFC36	UL_TFC9,UL_TFC24	DL_TFC0, DL_TFC3, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC15, UL_TFC24	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: No data RB6: No data RB7: No data RB8: 1272
10	DL_TFC10, DL_TFC37	UL_TFC10, UL_TFC25	DL_TFC0, DL_TFC1, DL_TFC3, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16, UL_TFC24 UL_TFC25	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: 39 RB6: No data RB7: No data RB8: 1272
11	DL_TFC11, DL_TFC38	UL_TFC11, UL_TFC26	DL_TFC0, DL_TFC2, DL_TFC3, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17, UL_TFC24, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: 81 RB6: 103 RB7: 60 RB8: 1272
12	DL_TFC12, DL_TFC39	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC3, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 2552
13	DL_TFC13, DL_TFC40	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC1, DL_TFC3, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 2552
14	DL_TFC14, DL_TFC41	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC2, DL_TFC3, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 2552

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
15	DL_TFC15, DL_TFC42	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC3, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 3832
16	DL_TFC16, DL_TFC43	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC1, DL_TFC3, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 3832
17	DL_TFC17, DL_TFC44	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC2, DL_TFC3, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 3832
18	DL_TFC18, DL_TFC45	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC3, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 5112
19	DL_TFC19, DL_TFC46	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC1, DL_TFC3, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 5112
20	DL_TFC20, DL_TFC47	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC2, DL_TFC3, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 5112
21	DL_TFC21, DL_TFC48	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC3, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 6392

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
22	DL_TFC22, DL_TFC49	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC1, DL_TFC3, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 6392
23	DL_TFC23, DL_TFC50	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC2, DL_TFC3, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 6392
24	DL_TFC24, DL_TFC51	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC3, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 7672
25	DL_TFC25, DL_TFC52	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC1, DL_TFC3, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 7672
26	DL_TFC26, DL_TFC53	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC2, DL_TFC3, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 7672
NOTE1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC15 are part of minimum set of TFCIs NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). NOTE 3: DL_TFC1 for subtests 4, 7, 10, 13, 16, 18, 21 and 24 and DL_TFC2 for subtests and 5, 8, 11, 14, 17, 20, 23 and 26 are necessary to cope with the effect of the acknowlegde PDUs in AM mode.						

14.2.43.2.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

- 2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15 the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 3: RLC SDUs on RB8 having the content equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4: RLC SDUs on RB5 and RB8 having the content equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB6 and RB7.
- for sub-test 5: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by SS.
- for sub-test 6: RLC SDUs on RB8 having the content equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 7: RLC SDUs on RB5 and RB8 having the content equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB6 and RB7.
- for sub-test 8: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by SS.
- for sub-test 9: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 10: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 11: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 12: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 13: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 14: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 15: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 16: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 17: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 18: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 19: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 20: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 21: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 22: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 23: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 24: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 25: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 26: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.44 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:128 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.44.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:128 DL:2048 kbps / PS RAB / 10 ms TTI

14.2.44.1.1 Conformance requirement

See 14.2.4.1.

14.2.44.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.44 for the downlink 10 ms TTI case.

14.2.44.1.3 Method of test

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (128 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (2048 kbps)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x656	0x148
	TF1, bits	1x39	1x103	1x60	1x656	1x148
	TF2, bits	1x81	N/A	N/A	2x656	N/A
	TF3, bits	N/A	N/A	N/A	4x656	N/A
	TF4, bits	N/A	N/A	N/A	8x656	N/A
	TF5, bits	N/A	N/A	N/A	12x656	N/A
	TF6, bits	N/A	N/A	N/A	16x656	N/A
	TF7, bits	N/A	N/A	N/A	20x656	N/A
	TF8, bits	N/A	N/A	N/A	24x656	N/A
	TF9, bits	N/A	N/A	N/A	28x656	N/A
	TF10, bits	N/A	N/A	N/A	32x656	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF5, TF0)
DL_TFC16	(TF1, TF0, TF0, TF5, TF0)
DL_TFC17	(TF2, TF1, TF1, TF5, TF0)
DL_TFC18	(TF0, TF0, TF0, TF6, TF0)
DL_TFC19	(TF1, TF0, TF0, TF6, TF0)
DL_TFC20	(TF2, TF1, TF1, TF6, TF0)
DL_TFC21	(TF0, TF0, TF0, TF7, TF0)
DL_TFC22	(TF1, TF0, TF0, TF7, TF0)
DL_TFC23	(TF2, TF1, TF1, TF7, TF0)
DL_TFC24	(TF0, TF0, TF0, TF8, TF0)
DL_TFC25	(TF1, TF0, TF0, TF8, TF0)
DL_TFC26	(TF2, TF1, TF1, TF8, TF0)
DL_TFC27	(TF0, TF0, TF0, TF9, TF0)
DL_TFC28	(TF1, TF0, TF0, TF9, TF0)
DL_TFC29	(TF2, TF1, TF1, TF9, TF0)
DL_TFC30	(TF0, TF0, TF0, TF10, TF0)
DL_TFC31	(TF1, TF0, TF0, TF10, TF0)
DL_TFC32	(TF2, TF1, TF1, TF10, TF0)
DL_TFC33	(TF0, TF0, TF0, TF0, TF1)
DL_TFC34	(TF1, TF0, TF0, TF0, TF1)
DL_TFC35	(TF2, TF1, TF1, TF0, TF1)
DL_TFC36	(TF0, TF0, TF0, TF1, TF1)
DL_TFC37	(TF1, TF0, TF0, TF1, TF1)
DL_TFC38	(TF2, TF1, TF1, TF1, TF1)
DL_TFC39	(TF0, TF0, TF0, TF2, TF1)
DL_TFC40	(TF1, TF0, TF0, TF2, TF1)
DL_TFC41	(TF2, TF1, TF1, TF2, TF1)
DL_TFC42	(TF0, TF0, TF0, TF3, TF1)
DL_TFC43	(TF1, TF0, TF0, TF3, TF1)
DL_TFC44	(TF2, TF1, TF1, TF3, TF1)
DL_TFC45	(TF0, TF0, TF0, TF4, TF1)
DL_TFC46	(TF1, TF0, TF0, TF4, TF1)
DL_TFC47	(TF2, TF1, TF1, TF4, TF1)
DL_TFC48	(TF0, TF0, TF0, TF5, TF1)
DL_TFC49	(TF1, TF0, TF0, TF5, TF1)
DL_TFC50	(TF2, TF1, TF1, TF5, TF1)
DL_TFC51	(TF0, TF0, TF0, TF6, TF1)
DL_TFC52	(TF1, TF0, TF0, TF6, TF1)
DL_TFC53	(TF2, TF1, TF1, TF6, TF1)
DL_TFC54	(TF0, TF0, TF0, TF7, TF1)
DL_TFC55	(TF1, TF0, TF0, TF7, TF1)
DL_TFC56	(TF2, TF1, TF1, TF7, TF1)
DL_TFC57	(TF0, TF0, TF0, TF8, TF1)
DL_TFC58	(TF1, TF0, TF0, TF8, TF1)
DL_TFC59	(TF2, TF1, TF1, TF8, TF1)
DL_TFC60	(TF0, TF0, TF0, TF9, TF1)
DL_TFC61	(TF1, TF0, TF0, TF9, TF1)
DL_TFC62	(TF2, TF1, TF1, TF9, TF1)

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC63	(TF0, TF0, TF0, TF10, TF1)
DL_TFC64	(TF1, TF0, TF0, TF10, TF1)
DL_TFC65	(TF2, TF1, TF1, TF10, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1, DL_TFC34	UL_TFC1, UL_TFC16	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC35	UL_TFC2, UL_TFC17	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC36	UL_TFC3, UL_TFC18	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC18	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 632
4	DL_TFC4, DL_TFC37	UL_TFC4, UL_TFC19	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 632
5	DL_TFC5, DL_TFC38	UL_TFC5, UL_TFC20	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC17, UL_TFC18, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632
6	DL_TFC6, DL_TFC39	UL_TFC6, UL_TFC21	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC15, UL_TFC21	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 1272
7	DL_TFC7, DL_TFC40	UL_TFC7, UL_TFC22	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC7, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 1272

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
8	DL_TFC8, DL_TFC41	UL_TFC8, UL_TFC23	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8, UL_TFC15, UL_TFC17, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 1272
9	DL_TFC9, DL_TFC42	UL_TFC9, UL_TFC24	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC15, UL_TFC24	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 2552
10	DL_TFC10, DL_TFC43	UL_TFC10, UL_TFC25	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16, UL_TFC24, UL_TFC25	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 2552
11	DL_TFC11, DL_TFC44	UL_TFC11, UL_TFC26	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17, UL_TFC24, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 2552
12	DL_TFC12, DL_TFC45	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 5112
13	DL_TFC13, DL_TFC46	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 5112

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
14	DL_TFC14, DL_TFC47	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27 UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 5112
15	DL_TFC15, DL_TFC48	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 7672
16	DL_TFC16, DL_TFC49	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 7672
17	DL_TFC17, DL_TFC50	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 7672
18	DL_TFC18, DL_TFC51	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 10232
19	DL_TFC19, DL_TFC52	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 10232

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
20	DL_TFC20, DL_TFC53	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 10232
21	DL_TFC21, DL_TFC54	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 12792
22	DL_TFC22, DL_TFC55	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 12792
23	DL_TFC23, DL_TFC56	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 12792
24	DL_TFC24, DL_TFC57	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 15352
25	DL_TFC25, DL_TFC58	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 15352

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
26	DL_TFC26, DL_TFC59	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 15352
27	DL_TFC27, DL_TFC60	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 17912
28	DL_TFC28, DL_TFC61	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 17912
29	DL_TFC29, DL_TFC62	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27 UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 17912
30	DL_TFC30, DL_TFC63	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 20472
31	DL_TFC31, DL_TFC64	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 20472

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
32	DL_TFC32, DL_TFC65	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27 UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 20472
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC15 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the uplink TTI for RB8 is 20 ms while the downlink TTI is 10 ms then, to achieve continuous data transmission in uplink the size of the uplink RLC SDU has been set such that it will be transmitted over each TTI, i.e. the uplink TFS size minus 8 bits (size of 7 bit length indicator and expansion bit).						

14.2.44.1.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

- 3. At step 15 the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.

- for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.

- for sub-test 3: RLC SDUs on RB8 having the content equal to the first 312 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 4: RLC SDUs on RB8 having the content equal to the first 312 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 5: RLC SDUs on RB8 having the content equal to the first 312 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 6: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 7: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 8: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 9: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 10: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 11: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 12: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 13: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 14: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 15: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 16: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 17: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 18: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 19: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 20: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 21: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 22: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 23: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 24: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 25: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 26: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 27: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 28: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 29: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 30: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 31: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 32: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.44.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:128 DL:2048 kbps / PS RAB / 20 ms TTI

14.2.44.2.1 Conformance requirement

See 14.2.4.1.

14.2.44.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.44 for the downlink 20 ms TTI case.

14.2.44.2.3 Method of test

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (128 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (2048 kbps)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x656	0x148
	TF1, bits	1x39	1x103	1x60	1x656	1x148
	TF2, bits	1x81	N/A	N/A	2x656	N/A
	TF3, bits	N/A	N/A	N/A	4x656	N/A
	TF4, bits	N/A	N/A	N/A	8x656	N/A
	TF5, bits	N/A	N/A	N/A	12x656	N/A
	TF6, bits	N/A	N/A	N/A	16x656	N/A
	TF7, bits	N/A	N/A	N/A	20x656	N/A
	TF8, bits	N/A	N/A	N/A	24x656	N/A
	TF9, bits	N/A	N/A	N/A	28x656	N/A
	TF10, bits	N/A	N/A	N/A	32x656	N/A
	TF11, bits	N/A	N/A	N/A	36x656	N/A
	TF12, bits	N/A	N/A	N/A	40x656	N/A
	TF13, bits	N/A	N/A	N/A	44x656	N/A
	TF14, bits	N/A	N/A	N/A	48x656	N/A
	TF15, bits	N/A	N/A	N/A	52x656	N/A
	TF16, bits	N/A	N/A	N/A	56x656	N/A
	TF17, bits	N/A	N/A	N/A	60x656	N/A
	TF18, bits	N/A	N/A	N/A	64x656	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF5, TF0)
DL_TFC16	(TF1, TF0, TF0, TF5, TF0)
DL_TFC17	(TF2, TF1, TF1, TF5, TF0)
DL_TFC18	(TF0, TF0, TF0, TF6, TF0)
DL_TFC19	(TF1, TF0, TF0, TF6, TF0)
DL_TFC20	(TF2, TF1, TF1, TF6, TF0)
DL_TFC21	(TF0, TF0, TF0, TF7, TF0)
DL_TFC22	(TF1, TF0, TF0, TF7, TF0)
DL_TFC23	(TF2, TF1, TF1, TF7, TF0)
DL_TFC24	(TF0, TF0, TF0, TF8, TF0)
DL_TFC25	(TF1, TF0, TF0, TF8, TF0)
DL_TFC26	(TF2, TF1, TF1, TF8, TF0)
DL_TFC27	(TF0, TF0, TF0, TF9, TF0)
DL_TFC28	(TF1, TF0, TF0, TF9, TF0)
DL_TFC29	(TF2, TF1, TF1, TF9, TF0)
DL_TFC30	(TF0, TF0, TF0, TF10, TF0)
DL_TFC31	(TF1, TF0, TF0, TF10, TF0)
DL_TFC32	(TF2, TF1, TF1, TF10, TF0)
DL_TFC33	(TF0, TF0, TF0, TF11, TF0)
DL_TFC34	(TF1, TF0, TF0, TF11, TF0)
DL_TFC35	(TF2, TF1, TF1, TF11, TF0)
DL_TFC36	(TF0, TF0, TF0, TF12, TF0)
DL_TFC37	(TF1, TF0, TF0, TF12, TF0)
DL_TFC38	(TF2, TF1, TF1, TF12, TF0)
DL_TFC39	(TF0, TF0, TF0, TF13, TF0)
DL_TFC40	(TF1, TF0, TF0, TF13, TF0)
DL_TFC41	(TF2, TF1, TF1, TF13, TF0)
DL_TFC42	(TF0, TF0, TF0, TF14, TF0)
DL_TFC43	(TF1, TF0, TF0, TF14, TF0)
DL_TFC44	(TF2, TF1, TF1, TF14, TF0)
DL_TFC45	(TF0, TF0, TF0, TF15, TF0)
DL_TFC46	(TF1, TF0, TF0, TF15, TF0)
DL_TFC47	(TF2, TF1, TF1, TF15, TF0)
DL_TFC48	(TF0, TF0, TF0, TF16, TF0)
DL_TFC49	(TF1, TF0, TF0, TF16, TF0)
DL_TFC50	(TF2, TF1, TF1, TF16, TF0)
DL_TFC51	(TF0, TF0, TF0, TF17, TF0)
DL_TFC52	(TF1, TF0, TF0, TF17, TF0)
DL_TFC53	(TF2, TF1, TF1, TF17, TF0)
DL_TFC54	(TF0, TF0, TF0, TF18, TF0)
DL_TFC55	(TF1, TF0, TF0, TF18, TF0)
DL_TFC56	(TF2, TF1, TF1, TF18, TF0)
DL_TFC57	(TF0, TF0, TF0, TF0, TF1)
DL_TFC58	(TF1, TF0, TF0, TF0, TF1)
DL_TFC59	(TF2, TF1, TF1, TF0, TF1)
DL_TFC60	(TF0, TF0, TF0, TF1, TF1)

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC61	(TF1, TF0, TF0, TF1, TF1)
DL_TFC61	(TF2, TF1, TF1, TF1, TF1)
DL_TFC63	(TF0, TF0, TF0, TF2, TF1)
DL_TFC64	(TF1, TF0, TF0, TF2, TF1)
DL_TFC65	(TF2, TF1, TF1, TF2, TF1)
DL_TFC66	(TF0, TF0, TF0, TF3, TF1)
DL_TFC67	(TF1, TF0, TF0, TF3, TF1)
DL_TFC68	(TF2, TF1, TF1, TF3, TF1)
DL_TFC69	(TF0, TF0, TF0, TF4, TF1)
DL_TFC70	(TF1, TF0, TF0, TF4, TF1)
DL_TFC71	(TF2, TF1, TF1, TF4, TF1)
DL_TFC72	(TF0, TF0, TF0, TF5, TF1)
DL_TFC73	(TF1, TF0, TF0, TF5, TF1)
DL_TFC74	(TF2, TF1, TF1, TF5, TF1)
DL_TFC75	(TF0, TF0, TF0, TF6, TF1)
DL_TFC76	(TF1, TF0, TF0, TF6, TF1)
DL_TFC77	(TF2, TF1, TF1, TF6, TF1)
DL_TFC78	(TF0, TF0, TF0, TF7, TF1)
DL_TFC79	(TF1, TF0, TF0, TF7, TF1)
DL_TFC80	(TF2, TF1, TF1, TF7, TF1)
DL_TFC81	(TF0, TF0, TF0, TF8, TF1)
DL_TFC82	(TF1, TF0, TF0, TF8, TF1)
DL_TFC83	(TF2, TF1, TF1, TF8, TF1)
DL_TFC84	(TF0, TF0, TF0, TF9, TF1)
DL_TFC85	(TF1, TF0, TF0, TF9, TF1)
DL_TFC86	(TF2, TF1, TF1, TF9, TF1)
DL_TFC87	(TF0, TF0, TF0, TF10, TF1)
DL_TFC88	(TF1, TF0, TF0, TF10, TF1)
DL_TFC89	(TF2, TF1, TF1, TF10, TF1)
DL_TFC90	(TF0, TF0, TF0, TF11, TF1)
DL_TFC91	(TF1, TF0, TF0, TF11, TF1)
DL_TFC92	(TF2, TF1, TF1, TF11, TF1)
DL_TFC93	(TF0, TF0, TF0, TF12, TF1)
DL_TFC94	(TF1, TF0, TF0, TF12, TF1)
DL_TFC95	(TF2, TF1, TF1, TF12, TF1)
DL_TFC96	(TF0, TF0, TF0, TF13, TF1)
DL_TFC97	(TF1, TF0, TF0, TF13, TF1)
DL_TFC98	(TF2, TF1, TF1, TF13, TF1)
DL_TFC99	(TF0, TF0, TF0, TF14, TF1)
DL_TFC100	(TF1, TF0, TF0, TF14, TF1)
DL_TFC101	(TF2, TF1, TF1, TF14, TF1)
DL_TFC102	(TF0, TF0, TF0, TF15, TF1)
DL_TFC103	(TF1, TF0, TF0, TF15, TF1)
DL_TFC104	(TF2, TF1, TF1, TF15, TF1)
DL_TFC105	(TF0, TF0, TF0, TF16, TF1)
DL_TFC106	(TF1, TF0, TF0, TF16, TF1)
DL_TFC107	(TF2, TF1, TF1, TF16, TF1)
DL_TFC108	(TF0, TF0, TF0, TF17, TF1)
DL_TFC109	(TF1, TF0, TF0, TF17, TF1)
DL_TFC110	(TF2, TF1, TF1, TF17, TF1)
DL_TFC111	(TF0, TF0, TF0, TF18, TF1)
DL_TFC112	(TF1, TF0, TF0, TF18, TF1)
DL_TFC113	(TF2, TF1, TF1, TF18, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1, DL_TFC58	UL_TFC1, UL_TFC16	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC59	UL_TFC2, UL_TFC17	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC60	UL_TFC3, UL_TFC18	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC18	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 632
4	DL_TFC4, DL_TFC61	UL_TFC4, UL_TFC19	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC16, UL_TFC18 UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 632
5	DL_TFC5, DL_TFC62	UL_TFC5, UL_TFC20	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC17, UL_TFC18, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 632
6	DL_TFC6, DL_TFC63	UL_TFC6, UL_TFC21	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC15, UL_TFC21	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 1272
7	DL_TFC7, DL_TFC64	UL_TFC7, UL_TFC22	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC7, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 1272

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
8	DL_TFC8, DL_TFC65	UL_TFC8, UL_TFC23	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8, UL_TFC15, UL_TFC17, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 1272
9	DL_TFC9, DL_TFC66	UL_TFC9, UL_TFC24	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC15, UL_TFC24	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 2552
10	DL_TFC10, DL_TFC67	UL_TFC10, UL_TFC25	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16, UL_TFC24, UL_TFC25	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 2552
11	DL_TFC11, DL_TFC68	UL_TFC11, UL_TFC26	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9 UL_TFC11, UL_TFC15, UL_TFC17, UL_TFC24, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 2552
12	DL_TFC12, DL_TFC69	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 5112
13	DL_TFC13, DL_TFC70	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 5112
14	DL_TFC14, DL_TFC71	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 5112

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
15	DL_TFC15, DL_TFC72	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 7672
16	DL_TFC16, DL_TFC73	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 7672
17	DL_TFC17, DL_TFC74	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27 UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 7672
18	DL_TFC18, DL_TFC75	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 10232
19	DL_TFC19, DL_TFC76	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 10232
20	DL_TFC20, DL_TFC77	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 10232
21	DL_TFC21, DL_TFC78	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 12792

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
22	DL_TFC22, DL_TFC79	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 12792
23	DL_TFC23, DL_TFC80	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 12792
24	DL_TFC24, DL_TFC81	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 15352
25	DL_TFC25, DL_TFC82	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 15352
26	DL_TFC26, DL_TFC83	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 15352
27	DL_TFC27, DL_TFC84	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 17912
28	DL_TFC28, DL_TFC85	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 17912

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
29	DL_TFC29, DL_TFC86	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 17912
30	DL_TFC30, DL_TFC87	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 20472
31	DL_TFC31, DL_TFC88	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 20472
32	DL_TFC32, DL_TFC89	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 20472
33	DL_TFC33, DL_TFC90	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 23032
34	DL_TFC34, DL_TFC91	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 23032
35	DL_TFC35, DL_TFC92	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 23032

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
36	DL_TFC36, DL_TFC93	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 25592
37	DL_TFC37, DL_TFC94	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 25592
38	DL_TFC38, DL_TFC95	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 25592
39	DL_TFC39, DL_TFC96	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 28152
40	DL_TFC40, DL_TFC97	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 28152
41	DL_TFC41, DL_TFC98	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 28152
42	DL_TFC42, DL_TFC99	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 30712

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
43	DL_TFC43, DL_TFC100	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 30712
44	DL_TFC44, DL_TFC101	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 30712
45	DL_TFC45, DL_TFC102	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 33272
46	DL_TFC46, DL_TFC103	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 33272
47	DL_TFC47, DL_TFC104	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 33272
48	DL_TFC48, DL_TFC105	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 35832
49	DL_TFC49, DL_TFC106	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 35832

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
50	DL_TFC50, DL_TFC107	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 35832
51	DL_TFC51, DL_TFC108	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 38392
52	DL_TFC52, DL_TFC109	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 38392
53	DL_TFC53, DL_TFC110	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 38392
54	DL_TFC54, DL_TFC111	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 40952
55	DL_TFC55, DL_TFC112	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 40952
56	DL_TFC56, DL_TFC113	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 40952

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC15 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).						

14.2.44.2.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15 the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 3: RLC SDUs on RB8 having the content equal to the first 312 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4: RLC SDUs on RB8 having the content equal to the first 312 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 5: RLC SDUs on RB8 having the content equal to the first 312 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 6: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 7: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 8: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 9: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 10: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 11: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 12: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 13: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 14: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 15: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 16: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 17: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 18: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 19: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 20: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 21: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 22: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 23: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 24: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 25: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 26: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 27: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 28: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 29: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 30: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 31: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 32: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 33: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 34: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 35: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 36: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 37: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 38: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 39: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 40: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 41: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 42: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 43: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 44: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 45: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 46: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 47: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 48: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 49: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 50: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 51: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 52: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 53: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 54: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 55: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 56: RLC SDUs on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.45 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / unknown / UL:57.6 DL:57.6 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.45.1 Conformance requirement

See 14.2.4.1.

14.2.45.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.45.

14.2.45.3 Method of test

See 14.1.2 for test procedure.

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Streaming / unknown / UL:57.6 DL:57.6 kbps / CS RAB (RB8):

Uplink RLC TM RLC Transmission RLC discard CHOICE SDU Discard Mode Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (57.6 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x576	0x148
	TF1, bits	1x39	1x103	1x60	1x576	1x148
	TF2, bits	1x81	N/A	N/A	2x576	N/A
	TF3, bits	N/A	N/A	N/A	3x576	N/A
	TF4, bits	N/A	N/A	N/A	4x576	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (57.6 kbps)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x576	0x148
	TF1, bits	1x39	1x103	1x60	1x576	1x148
	TF2, bits	1x81	N/A	N/A	2x576	N/A
	TF3, bits	N/A	N/A	N/A	3x576	N/A
	TF4, bits	N/A	N/A	N/A	4x576	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF2, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1, DL_TFC16	UL_TFC1, DL_TFC16	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 576	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC17	UL_TFC2, DL_TFC17	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 576	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC18	UL_TFC3,UL_TFC18	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC18	RB5: 39 RB6: 103 RB7: 60 RB8: 576	RB5: No data RB6: No data RB7: No data RB8: 576
4	DL_TFC4, DL_TFC19	UL_TFC4, DL_TFC19	DL_TFC0, DL_TFC15, , UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 UL_TFC4, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 576	RB5: 39 RB6: No data RB7: No data RB8: 576
5	DL_TFC5, DL_TFC20	UL_TFC5, DL_TFC20	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC17, UL_TFC18, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 576	RB5: 81 RB6: 103 RB7: 60 RB8: 576
6	DL_TFC6, DL_TFC21	UL_TFC6, DL_TFC21	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC15, UL_TFC21	RB5: 39 RB6: 103 RB7: 60 RB8: 576	RB5: No data RB6: No data RB7: No data RB8: 1152
7	DL_TFC7, DL_TFC22	UL_TFC7, DL_TFC22	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC7, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 576	RB5: 39 RB6: No data RB7: No data RB8: 2x576

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
8	DL_TFC8, DL_TFC23	UL_TFC8, DL_TFC23	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8, UL_TFC15, UL_TFC17, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 576	RB5: 81 RB6: 103 RB7: 60 RB8: 2x576
9	DL_TFC9, DL_TFC24	UL_TFC9, DL_TFC24	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC15, UL_TFC24	RB5: 39 RB6: 103 RB7: 60 RB8: 576	RB5: No data RB6: No data RB7: No data RB8: 3x576
10	DL_TFC10, DL_TFC25	UL_TFC10, UL_TFC25	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16, UL_TFC24, UL_TFC25	RB5: 39 RB6: 103 RB7: 60 RB8: 576	RB5: 39 RB6: No data RB7: No data RB8: 3x576
11	DL_TFC11, DL_TFC26	UL_TFC11, DL_TFC26	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17, UL_TFC24, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 576	RB5: 81 RB6: 103 RB7: 60 RB8: 3x576
12	DL_TFC12, DL_TFC27	UL_TFC12, DL_TFC27	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC26	RB5: 39 RB6: 103 RB7: 60 RB8: 576	RB5: No data RB6: No data RB7: No data RB8: 4x576
13	DL_TFC13, DL_TFC28	UL_TFC13, DL_TFC28	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 576	RB5: 39 RB6: No data RB7: No data RB8: 4x576
14	DL_TFC14, DL_TFC29	UL_TFC14, DL_TFC29	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 576	RB5: 81 RB6: 103 RB7: 60 RB8: 4x576

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC15 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

14.2.45.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified in the actual sub test.
- 3. At step 15 the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 3, 6, 9 and 12: RLC SDUs on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4, 7, 10 and 13: RLC SDUs on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 5, 8, 11 and 14: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.46 Void

14.2.47 Void

14.2.48 Void

14.2.49 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.49.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI

14.2.49.1.1 Conformance requirement

See 14.2.4.1.

14.2.49.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.49 for the 20 ms TTI case.

14.2.49.1.3 Method of test

See 14.1.2 for test procedure. However, in this test the RM attribute values used shall be derived separately in the UL and DL as the mid-values of the RM attribute value ranges as specified by the reference radio bearer configuration.

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB8):

Uplink RLC TM RLC Transmission RLC discard CHOICE SDU Discard Mode Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x640	0x148
	TF1, bits	1x39	1x103	1x60	2x640	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF0, TF0, TF1)
UL_TFC8	(TF2, TF1, TF1, TF0, TF1)
UL_TFC9	(TF0, TF0, TF0, TF1, TF1)
UL_TFC10	(TF1, TF0, TF0, TF1, TF1)
UL_TFC11	(TF2, TF1, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x640	0x148
	TF1, bits	1x39	1x103	1x60	2x640	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF0, TF1)
DL_TFC7	(TF1, TF0, TF0, TF0, TF1)
DL_TFC8	(TF2, TF1, TF1, TF0, TF1)
DL_TFC9	(TF0, TF0, TF0, TF1, TF1)
DL_TFC10	(TF1, TF0, TF0, TF1, TF1)
DL_TFC11	(TF2, TF1, TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1, DL_TFC7	UL_TFC1, DL_TFC7	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC7	RB5: 39 RB6: 103 RB7: 60 RB8: 640	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC8	UL_TFC2, DL_TFC8	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 81 RB6: 103 RB7: 60 RB8: 640	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC9	UL_TFC3, DL_TFC9	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: 640	RB5: No data RB6: No data RB7: No data RB8: 2x640
4	DL_TFC4, DL_TFC10	UL_TFC4, UL_TFC10	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 640	RB5: 39 RB6: No data RB7: No data RB8: 2x640
5	DL_TFC5, DL_TFC11	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 640	RB5: 81 RB6: 103 RB7: 60 RB8: 2x640
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC6 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

14.2.49.1.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15a and step 15b the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by the SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by the SS; and no data shall be received on RB8.
- for sub-test 3: RLC SDUs on RB8 having the same content as sent by the SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4: RLC SDUs on RB5 and RB8 having the same content as sent by the SS; and no data shall be received on RB6 and RB7.
- for sub-test 5: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by the SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.49.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI

14.2.49.2.1 Conformance requirement

See 14.2.4.1.

14.2.49.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.49 for the 40 ms TTI case.

14.2.49.2.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB8):

Uplink RLC TM RLC Segmentation indication Transmission RLC discard CHOICE SDU Discard Mode Timer based no explicit Timer_discard	 FALSE 100ms
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x640	0x148
	TF1, bits	1x39	1x103	1x60	4x640	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF0, TF0, TF1)
UL_TFC8	(TF2, TF1, TF1, TF0, TF1)
UL_TFC9	(TF0, TF0, TF0, TF1, TF1)
UL_TFC10	(TF1, TF0, TF0, TF1, TF1)
UL_TFC11	(TF2, TF1, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x640	0x148
	TF1, bits	1x39	1x103	1x60	4x640	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF0, TF1)
DL_TFC7	(TF1, TF0, TF0, TF0, TF1)
DL_TFC8	(TF2, TF1, TF1, TF0, TF1)
DL_TFC9	(TF0, TF0, TF0, TF1, TF1)
DL_TFC10	(TF1, TF0, TF0, TF1, TF1)
DL_TFC11	(TF2, TF1, TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
1	DL_TFC1, DL_TFC7	UL_TFC1, DL_TFC7	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC7	RB5: 39 RB6: 103 RB7: 60 RB8: 640	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC8	UL_TFC2, DL_TFC8	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 81 RB6: 103 RB7: 60 RB8: 640	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC9	UL_TFC3, DL_TFC9	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: 640	RB5: No data RB6: No data RB7: No data RB8: 4x640
4	DL_TFC4, DL_TFC10	UL_TFC4, DL_TFC10	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 640	RB5: 39 RB6: No data RB7: No data RB8: 4x640
5	DL_TFC5, DL_TFC11	UL_TFC5, DL_TFC11	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 640	RB5: 81 RB6: 103 RB7: 60 RB8: 4x640
NOTE1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC6 are part of minimum set of TFCIs. NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TB size.						

14.2.49.2.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual subtest.
- 3. At step 15 the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 3: four RLC SDUs on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 4: RLC SDUs on RB5 and four RLC SDUs on RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 5: RLC SDUs on RB5, RB6 and RB7; and four RLC SDUs on RB8 having the same content as sent by SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.49a Conversational / speech / UL:(12.2 7.95 5.9 4.75) DL(12.2 7.95 5.9 4.75) kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH (20ms TTI)

14.2.49a.1 Conformance requirement

See 14.2.4.1.

14.2.49a.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.49a for 20ms TTI case.

14.2.49a.3 Method of test

See 14.1.2 for test procedure.

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB8):

Uplink RLC TM RLC Segmentation indication Transmission RLC discard CHOICE SDU Discard Mode Timer based no explicit Timer_discard	 FALSE 100ms
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x640	0x148
	TF1, bits	1x39	1x53	1x60	2x640	1x148
	TF2, bits	1x42	1x63	N/A	N/A	N/A
	TF3, bits	1x55	1x84	N/A	N/A	N/A
	TF4, bits	1x75	1x103	N/A	N/A	N/A
	TF5, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, 64 kbps RAB, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0, TF0, TF0)
UL_TFC3	(TF3, TF2, TF0, TF0, TF0)
UL_TFC4	(TF4, TF3, TF0, TF0, TF0)
UL_TFC5	(TF5, TF4, TF1, TF0, TF0)
UL_TFC6	(TF0, TF0, TF0, TF1, TF0)
UL_TFC7	(TF1, TF0, TF0, TF1, TF0)
UL_TFC8	(TF2, TF1, TF0, TF1, TF0)
UL_TFC9	(TF3, TF2, TF0, TF1, TF0)
UL_TFC10	(TF4, TF3, TF0, TF1, TF0)
UL_TFC11	(TF5, TF4, TF1, TF1, TF0)
UL_TFC12	(TF0, TF0, TF0, TF0, TF1)
UL_TFC13	(TF1, TF0, TF0, TF0, TF1)
UL_TFC14	(TF2, TF1, TF0, TF0, TF1)
UL_TFC15	(TF3, TF2, TF0, TF0, TF1)
UL_TFC16	(TF4, TF3, TF0, TF0, TF1)
UL_TFC17	(TF5, TF4, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF0, TF1, TF1)
UL_TFC21	(TF3, TF2, TF0, TF1, TF1)
UL_TFC22	(TF4, TF3, TF0, TF1, TF1)
UL_TFC23	(TF5, TF4, TF1, TF1, TF1)

Downlink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x640	0x148
	TF1, bits	1x39	1x53	1x60	2x640	1x148
	TF2, bits	1x42	1x63	N/A	N/A	N/A
	TF3, bits	1x55	1x84	N/A	N/A	N/A
	TF4, bits	1x75	1x103	N/A	N/A	N/A
	TF5, bits	1x81	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB2, RB3, RB4, 64 kbps RAB, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0, TF0, TF0)
DL_TFC3	(TF3, TF2, TF0, TF0, TF0)
DL_TFC4	(TF4, TF3, TF0, TF0, TF0)
DL_TFC5	(TF5, TF4, TF1, TF0, TF0)
DL_TFC6	(TF0, TF0, TF0, TF1, TF0)
DL_TFC7	(TF1, TF0, TF0, TF1, TF0)
DL_TFC8	(TF2, TF1, TF0, TF1, TF0)
DL_TFC9	(TF3, TF2, TF0, TF1, TF0)
DL_TFC10	(TF4, TF3, TF0, TF1, TF0)
DL_TFC11	(TF5, TF4, TF1, TF1, TF0)
DL_TFC12	(TF0, TF0, TF0, TF0, TF1)
DL_TFC13	(TF1, TF0, TF0, TF0, TF1)
DL_TFC14	(TF2, TF1, TF0, TF0, TF1)
DL_TFC15	(TF3, TF2, TF0, TF0, TF1)
DL_TFC16	(TF4, TF3, TF0, TF0, TF1)
DL_TFC17	(TF5, TF4, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF0, TF1, TF1)
DL_TFC21	(TF3, TF2, TF0, TF1, TF1)
DL_TFC22	(TF4, TF3, TF0, TF1, TF1)
DL_TFC23	(TF5, TF4, TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
1	DL_TFC1, DL_TFC13	UL_TFC1, UL_TFC13	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC13	RB5: 39 RB6: 103 RB7: 60 RB8: 640	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC14	UL_TFC2, UL_TFC14	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC14	RB5: 42 RB6: 53 RB7: 60 RB8: 640	RB5: 42 RB6: 53 RB7: No data RB8: No data
3	DL_TFC3, DL_TFC15	UL_TFC3, UL_TFC15	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC15	RB5: 55 RB6: 63 RB7: 60 RB8: 640	RB5: 55 RB6: 63 RB7: No data RB8: No data
4	DL_TFC4, DL_TFC16	UL_TFC4, UL_TFC16	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC16	RB5: 75 RB6: 84 RB7: 60 RB8: 640	RB5: 75 RB6: 84 RB7: No data RB8: No data
5	DL_TFC5, DL_TFC17	UL_TFC5, UL_TFC17	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 640	RB5: 81 RB6: 103 RB7: 60 RB8: No data
6	DL_TFC6, DL_TFC18	UL_TFC6, UL_TFC18	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC18	RB5:81 RB6:103 RB7: 60 RB8: 1280	RB5: No data RB6: No data RB7: No data RB8: 1280

7	DL_TFC7, DL_TFC19	UL_TFC7, UL_TFC19	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7, UL_TFC12, UL_TFC13, UL_TFC18, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 1280	RB5: 39 RB6: No data RB7: No data RB8: 1280
8	DL_TFC8, DL_TFC20	UL_TFC8, UL_TFC20	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC12, UL_TFC14, UL_TFC18, UL_TFC20	RB5: 42 RB6: 53 RB7: 60 RB8: 1280	RB5: 42 RB6: 53 RB7: No data RB8: 1280
9	DL_TFC9, DL_TFC21	UL_TFC9, UL_TFC21	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC9, UL_TFC12, UL_TFC15, UL_TFC18, UL_TFC21	RB5: 55 RB6: 63 RB7: 60 RB8: 1280	RB5: 55 RB6: 63 RB7: No data RB8: 1280
10	DL_TFC10, DL_TFC22	UL_TFC10, UL_TFC22	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC10, UL_TFC12, UL_TFC16, UL_TFC18, UL_TFC22	RB5: 75 RB6: 84 RB7: 60 RB8: 1280	RB5: 75 RB6: 84 RB7: No data RB8: 1280
11	DL_TFC11, DL_TFC23	UL_TFC11, UL_TFC23	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC11, UL_TFC12, UL_TFC17, UL_TFC18, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 1280	RB5: 81 RB6: 103 RB7: 60 RB8: 1280

NOTE1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6 and UL_TFC12 are part of minimum set of TFCIs.

NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TB size.

14.2.49a.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15a and step 15b the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2, 3, 4: RLC SDUs on RB5, RB6 having the same content as sent by SS; and no data shall be received on RB7 and RB8.
- for sub-test 5: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 6: RLC SDUs on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 7: RLC SDUs on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6, RB7.
- for sub-test 8, 9, 10: RLC SDUs on RB5, RB6 and RB8 having the same content as sent by SS; and no data shall be received on RB7.
- for sub-test 11: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.49a.1 Conversational / speech / UL:(12.2 7.95 5.9 4.75) DL(12.2 7.95 5.9 4.75) kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH (40ms TTI)

14.2.49a.1.1 Conformance requirement

See 14.2.4.1.

14.2.49a.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.49a for 40 ms TTI case .

14.2.49a.1.3 Method of test

See 14.1.2 for test procedure.

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB8):

Uplink RLC TM RLC Segmentation indication Transmission RLC discard CHOICE SDU Discard Mode Timer based no explicit Timer_discard	 FALSE 100ms
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps)	DCCH
TFS	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x640	0x148
	TF1, bits	1x39	1x53	1x60	4x640	1x148
	TF2, bits	1x42	1x63	N/A	N/A	N/A
	TF3, bits	1x55	1x84	N/A	N/A	N/A
	TF4, bits	1x75	1x103	N/A	N/A	N/A
	TF5, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, 64 kbps RAB, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0, TF0, TF0)
UL_TFC3	(TF3, TF2, TF0, TF0, TF0)
UL_TFC4	(TF4, TF3, TF0, TF0, TF0)
UL_TFC5	(TF5, TF4, TF1, TF0, TF0)
UL_TFC6	(TF0, TF0, TF0, TF1, TF0)
UL_TFC7	(TF1, TF0, TF0, TF1, TF0)
UL_TFC8	(TF2, TF1, TF0, TF1, TF0)
UL_TFC9	(TF3, TF2, TF0, TF1, TF0)
UL_TFC10	(TF4, TF3, TF0, TF1, TF0)
UL_TFC11	(TF5, TF4, TF1, TF1, TF0)
UL_TFC12	(TF0, TF0, TF0, TF0, TF1)
UL_TFC13	(TF1, TF0, TF0, TF0, TF1)
UL_TFC14	(TF2, TF1, TF0, TF0, TF1)
UL_TFC15	(TF3, TF2, TF0, TF0, TF1)
UL_TFC16	(TF4, TF3, TF0, TF0, TF1)
UL_TFC17	(TF5, TF4, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF0, TF1, TF1)
UL_TFC21	(TF3, TF2, TF0, TF1, TF1)
UL_TFC22	(TF4, TF3, TF0, TF1, TF1)
UL_TFC23	(TF5, TF4, TF1, TF1, TF1)

Downlink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps)	DCCH
TFS	TF0, bits	0x81 (alt. 1x0)	0x103	0x60	0x640	0x148
	TF1, bits	1x39	1x53	1x60	4x640	1x148
	TF2, bits	1x42	1x63	N/A	N/A	N/A
	TF3, bits	1x55	1x84	N/A	N/A	N/A
	TF4, bits	1x75	1x103	N/A	N/A	N/A
	TF5, bits	1x81	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB2, RB3, RB4, 64 kbps RAB, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0, TF0, TF0)
DL_TFC3	(TF3, TF2, TF0, TF0, TF0)
DL_TFC4	(TF4, TF3, TF0, TF0, TF0)
DL_TFC5	(TF5, TF4, TF1, TF0, TF0)
DL_TFC6	(TF0, TF0, TF0, TF1, TF0)
DL_TFC7	(TF1, TF0, TF0, TF1, TF0)
DL_TFC8	(TF2, TF1, TF0, TF1, TF0)
DL_TFC9	(TF3, TF2, TF0, TF1, TF0)
DL_TFC10	(TF4, TF3, TF0, TF1, TF0)
DL_TFC11	(TF5, TF4, TF1, TF1, TF0)
DL_TFC12	(TF0, TF0, TF0, TF0, TF1)
DL_TFC13	(TF1, TF0, TF0, TF0, TF1)
DL_TFC14	(TF2, TF1, TF0, TF0, TF1)
DL_TFC15	(TF3, TF2, TF0, TF0, TF1)
DL_TFC16	(TF4, TF3, TF0, TF0, TF1)
DL_TFC17	(TF5, TF4, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF0, TF1, TF1)
DL_TFC21	(TF3, TF2, TF0, TF1, TF1)
DL_TFC22	(TF4, TF3, TF0, TF1, TF1)
DL_TFC23	(TF5, TF4, TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
1	DL_TFC1, DL_TFC13	UL_TFC1, UL_TFC13	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC13	RB5: 39 RB6: 103 RB7: 60 RB8: 640	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC14	UL_TFC2, UL_TFC14	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC14	RB5: 42 RB6: 53 RB7: 60 RB8: 640	RB5: 42 RB6: 53 RB7: No data RB8: No data
3	DL_TFC3, DL_TFC15	UL_TFC3, UL_TFC15	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC15	RB5: 55 RB6: 63 RB7: 60 RB8: 640	RB5: 55 RB6: 63 RB7: No data RB8: No data
4	DL_TFC4, DL_TFC16	UL_TFC4, UL_TFC16	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC16	RB5: 75 RB6: 84 RB7: 60 RB8: 640	RB5: 75 RB6: 84 RB7: No data RB8: No data
5	DL_TFC5, DL_TFC17	UL_TFC5, UL_TFC17	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 640	RB5: 81 RB6: 103 RB7: 60 RB8: No data
6	DL_TFC6, DL_TFC18	UL_TFC6, UL_TFC18	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC12, UL_TFC18	RB5: 81 RB6: 103 RB7: 60 RB8: 2560	RB5: No data RB6: No data RB7: No data RB8: 2560

7	DL_TFC7, DL_TFC19	UL_TFC7, UL_TFC19	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7, UL_TFC12, UL_TFC13, UL_TFC18, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 2560	RB5: 39 RB6: No data RB7: No data RB8: 2560
8	DL_TFC8, DL_TFC20	UL_TFC8, UL_TFC20	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC12, UL_TFC14, UL_TFC18, UL_TFC20	RB5: 42 RB6: 53 RB7: 60 RB8: 2560	RB5: 42 RB6: 53 RB7: No data RB8: 2560
9	DL_TFC9, DL_TFC21	UL_TFC9, UL_TFC21	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC9, UL_TFC12, UL_TFC15, UL_TFC18, UL_TFC21	RB5: 55 RB6: 63 RB7: 60 RB8: 2560	RB5: 55 RB6: 63 RB7: No data RB8: 2560
10	DL_TFC10, DL_TFC22	UL_TFC10, UL_TFC22	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC10, UL_TFC12, UL_TFC16, UL_TFC18, UL_TFC22	RB5: 75 RB6: 84 RB7: 60 RB8: 2560	RB5: 75 RB6: 84 RB7: No data RB8: 2560
11	DL_TFC11, DL_TFC23	UL_TFC11, UL_TFC23	DL_TFC0, DL_TFC12, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC11, UL_TFC12, UL_TFC17, UL_TFC18, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 2560	RB5: 81 RB6: 103 RB7: 60 RB8: 2560

NOTE1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6 and UL_TFC12 are part of minimum set of TFCIs

NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TB size.

14.2.49a.1.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15a and step 15b the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2, 3, 4: RLC SDUs on RB5, RB6 having the same content as sent by SS; and no data shall be received on RB7 and RB8.
- for sub-test 5: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 6: RLC SDUs on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 7: RLC SDUs on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6, RB7.
- for sub-test 8, 9, 10: RLC SDUs on RB5, RB6 and RB8 having the same content as sent by SS; and no data shall be received on RB7.
- for sub-test 11: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.50 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.50.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 20 ms TTI

14.2.50.1.1 Conformance requirement

See 14.2.4.1.

14.2.50.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.50 for the 20 ms TTI case.

14.2.50.1.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5 and RB6):

	RB5 (64 kbps)	RB6 (64 kbps)
Uplink RLC TM RLC Segmentation indication Transmission RLC discard CHOICE SDU Discard Mode Timer based no explicit Timer_discard	 FALSE 100ms	 FALSE 100ms
Downlink RLC TM RLC Segmentation indication	 FALSE	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .		

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (64 kbps)	RB6 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x640	0x148
	TF1, bits	2x640	2x640	1x148
	TF2, bits	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF0, TF1, TF0)
UL_TFC3	(TF1, TF1, TF0)
UL_TFC4	(TF0, TF0, TF1)
UL_TFC5	(TF1, TF0, TF1)
UL_TFC6	(TF0, TF1, TF1)
UL_TFC7	(TF1, TF1, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps)	RB6 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x640	0x148
	TF1, bits	2x640	2x640	1x148
	TF2, bits	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF0, TF1, TF0)
DL_TFC3	(TF1, TF1, TF0)
DL_TFC4	(TF0, TF0, TF1)
DL_TFC5	(TF1, TF0, TF1)
DL_TFC6	(TF0, TF1, TF1)
DL_TFC7	(TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
1	DL_TFC1, DL_TFC5	UL_TFC1, DL_TFC5	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5	RB5: 640 RB6: 640	RB5: 2x640 RB6: No data
2	DL_TFC2, DL_TFC6	UL_TFC2, DL_TFC6	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC6	RB5: 640 RB6: 640	RB5: No data RB6: 2x640
3	DL_TFC3, DL_TFC7	UL_TFC3, DL_TFC7	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 640 RB6: 640	RB5: 2x640 RB6: 2x640
NOTE1: UL_TFC0, UL_TFC1, UL_TFC2, UL_and UL_TFC4 are part of minimum set of TFCIs NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. As the TTI for RB5 and RB6 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TB size.						

14.2.50.1.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual subtest.
- 3. At step 15 the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6.
- for sub-test 2: RLC SDUs on RB6 having the same content as sent by SS; and no data shall be received on RB5.
- for sub-test 3: RLC SDUs on RB5 and RB6 having the same content as sent by SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.50.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 40 ms TTI

14.2.50.2.1 Conformance requirement

See 14.2.4.1.

14.2.50.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.50 for the 40 ms TTI case.

14.2.50.2.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5 and RB6):

	RB5 (64 kbps)	RB6 (64 kbps)
Uplink RLC TM RLC Segmentation indication Transmission RLC discard CHOICE SDU Discard Mode Timer based no explicit Timer_discard	 FALSE 100ms	 FALSE 100ms
Downlink RLC TM RLC Segmentation indication	 FALSE	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .		

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (64 kbps)	RB6 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x640	0x148
	TF1, bits	4x640	4x640	1x148
	TF2, bits	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF0, TF1, TF0)
UL_TFC3	(TF1, TF1, TF0)
UL_TFC4	(TF0, TF0, TF1)
UL_TFC5	(TF1, TF0, TF1)
UL_TFC6	(TF0, TF1, TF1)
UL_TFC7	(TF1, TF1, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps)	RB6 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x640	0x148
	TF1, bits	4x640	4x640	1x148
	TF2, bits	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF0, TF1, TF0)
DL_TFC3	(TF1, TF1, TF0)
DL_TFC4	(TF0, TF0, TF1)
DL_TFC5	(TF1, TF0, TF1)
DL_TFC6	(TF0, TF1, TF1)
DL_TFC7	(TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
1	DL_TFC1, DL_TFC5	UL_TFC1, DL_TFC5	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5	RB5: 640 RB6: 640	RB5: 4x640 RB6: No data
2	DL_TFC2, DL_TFC6	UL_TFC2, DL_TFC6	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC6	RB5: 640 RB6: 640	RB5: No data RB6: 4x640
3	DL_TFC3, DL_TFC7	UL_TFC3, DL_TFC7	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 640 RB6: 640	RB5: 4x640 RB6: 4x640
NOTE1: UL_TFC0, UL_TFC1, UL_TFC2, UL_and UL_TFC4 are part of minimum set of TFCIs NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. As the TTI for RB5 and RB6 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TB size.						

14.2.50.2.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual subtest.
- 3. At step 15 the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6.
- for sub-test 2: RLC SDUs on RB6 having the same content as sent by SS; and no data shall be received on RB5.

- for sub-test 3: RLC SDUs on RB5 and RB6 having the same content as sent by SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.51 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.51.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI + Interactive or background / UL:64 DL:64 kbps / PS RAB

14.2.51.1.1 Conformance requirement

See 14.2.4.1.

14.2.51.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.51 for the 20 ms TTI case.

14.2.51.1.3 Method of test

See 14.1.2 for test procedure.

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv. 64 kbps)
Uplink RLC TM RLC Segmentation indication Transmission RLC discard CHOICE SDU Discard Mode Timer based no explicit Timer_discard	 FALSE 100ms
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps, 20 ms TTI)	RB6 (I/B 64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF0, TF2, TF0)
UL_TFC3	(TF0, TF3, TF0)
UL_TFC4	(TF0, TF4, TF0)
UL_TFC5	(TF1, TF0, TF0)
UL_TFC6	(TF1, TF1, TF0)
UL_TFC7	(TF1, TF2, TF0)
UL_TFC8	(TF1, TF3, TF0)
UL_TFC9	(TF1, TF4, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF0, TF1, TF1)
UL_TFC12	(TF0, TF2, TF1)
UL_TFC13	(TF0, TF3, TF1)
UL_TFC14	(TF0, TF4, TF1)
UL_TFC15	(TF1, TF0, TF1)
UL_TFC16	(TF1, TF1, TF1)
UL_TFC17	(TF1, TF2, TF1)
UL_TFC18	(TF1, TF3, TF1)
UL_TFC19	(TF1, TF4, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps, 20 ms TTI)	RB6 (I/B 64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF0, TF2, TF0)
DL_TFC3	(TF0, TF3, TF0)
DL_TFC4	(TF0, TF4, TF0)
DL_TFC5	(TF1, TF0, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF1, TF2, TF0)
DL_TFC8	(TF1, TF3, TF0)
DL_TFC9	(TF1, TF4, TF0)
DL_TFC10	(TF0, TF0, TF1)
DL_TFC11	(TF0, TF1, TF1)
DL_TFC12	(TF0, TF2, TF1)
DL_TFC13	(TF0, TF3, TF1)
DL_TFC14	(TF0, TF4, TF1)
DL_TFC15	(TF1, TF0, TF1)
DL_TFC16	(TF1, TF1, TF1)
DL_TFC17	(TF1, TF2, TF1)
DL_TFC18	(TF1, TF3, TF1)
DL_TFC19	(TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC11	UL_TFC1, UL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10, UL_TFC11	RB5: 640 RB6: 312	RB5: No data RB6: 312
2	DL_TFC2, DL_TFC12	UL_TFC2, UL_TFC12	DL_TFC0, DL_TFC1, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC10, UL_TFC12	RB5: 640 RB6: 632	RB5: No data RB6: 632
3	DL_TFC3, DL_TFC13	UL_TFC3, UL_TFC13	DL_TFC0, DL_TFC1, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC10, UL_TFC13	RB5: 640 RB6: 952	RB5: No data RB6: 952
4	DL_TFC4, DL_TFC14	UL_TFC4, UL_TFC14	DL_TFC0, DL_TFC1, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC10, UL_TFC14	RB5: 640 RB6: 1272	RB5: No data RB6: 1272
5	DL_TFC5, DL_TFC15	UL_TFC5, UL_TFC15	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10, UL_TFC15	RB5: 640 RB6: 312	RB5: 2x640 RB6: No data
6	DL_TFC6, DL_TFC16	UL_TFC6, UL_TFC16	DL_TFC0, DL_TFC1, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC10, UL_TFC11, UL_TFC15, UL_TFC16	RB5: 640 RB6: 312	RB5: 2x640 RB6: 312
7	DL_TFC7, DL_TFC17	UL_TFC7, UL_TFC17	DL_TFC0, DL_TFC1, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7, UL_TFC10, UL_TFC12, UL_TFC15, UL_TFC17	RB5: 640 RB6: 632	RB5: 2x640 RB6: 632
8	DL_TFC8, DL_TFC18	UL_TFC8, UL_TFC18	DL_TFC0, DL_TFC1, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8, UL_TFC10, UL_TFC13, UL_TFC15, UL_TFC18	RB5: 640 RB6: 952	RB5: 2x640 RB6: 952

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
9	DL_TFC9, DL_TFC19	UL_TFC9, UL_TFC19	DL_TFC0, DL_TFC1, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9, UL_TFC10, UL_TFC14, UL_TFC15, UL_TFC19	RB5: 640 RB6: 1272	RB5: 2x640 RB6: 1272
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5 and UL_TFC10 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB6: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).						

14.2.51.1.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15a and step 15b the UE shall return

- for sub-test 1, 2, 3, 4: RLC SDUs on RB6 having the same content as sent by the SS; and no data shall be received on RB5.
- for sub-test 5: RLC SDUs on RB5 having the same content as sent by the SS; and no data shall be received on RB6.
- for sub-test 6, 7, 8 and 9: RLC SDUs on RB5 and RB6 having the same content as sent by the SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.51.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI + Interactive or background / UL:64 DL:64 kbps / PS RAB

14.2.51.2.1 Conformance requirement

See 14.2.4.1.

14.2.51.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.51 for the 40 ms TTI case.

14.2.51.2.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv. 64 kbps)
Uplink RLC TM RLC Segmentation indication Transmission RLC discard CHOICE SDU Discard Mode Timer based no explicit Timer_discard	 FALSE 100ms
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 64 kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF0, TF2, TF0)
UL_TFC3	(TF0, TF3, TF0)
UL_TFC4	(TF0, TF4, TF0)
UL_TFC5	(TF1, TF0, TF0)
UL_TFC6	(TF1, TF1, TF0)
UL_TFC7	(TF1, TF2, TF0)
UL_TFC8	(TF1, TF3, TF0)
UL_TFC9	(TF1, TF4, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF0, TF1, TF1)
UL_TFC12	(TF0, TF2, TF1)
UL_TFC13	(TF0, TF3, TF1)
UL_TFC14	(TF0, TF4, TF1)
UL_TFC15	(TF1, TF0, TF1)
UL_TFC16	(TF1, TF1, TF1)
UL_TFC17	(TF1, TF2, TF1)
UL_TFC18	(TF1, TF3, TF1)
UL_TFC19	(TF1, TF4, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 64 kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF0, TF2, TF0)
DL_TFC3	(TF0, TF3, TF0)
DL_TFC4	(TF0, TF4, TF0)
DL_TFC5	(TF1, TF0, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF1, TF2, TF0)
DL_TFC8	(TF1, TF3, TF0)
DL_TFC9	(TF1, TF4, TF0)
DL_TFC10	(TF0, TF0, TF1)
DL_TFC11	(TF0, TF1, TF1)
DL_TFC12	(TF0, TF2, TF1)
DL_TFC13	(TF0, TF3, TF1)
DL_TFC14	(TF0, TF4, TF1)
DL_TFC15	(TF1, TF0, TF1)
DL_TFC16	(TF1, TF1, TF1)
DL_TFC17	(TF1, TF2, TF1)
DL_TFC18	(TF1, TF3, TF1)
DL_TFC19	(TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
1	DL_TFC1, DL_TFC11	UL_TFC1, DL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10, UL_TFC11	RB5: 640 RB6: 312	RB5: No data RB6: 312
2	DL_TFC2, DL_TFC12	UL_TFC2, DL_TFC12	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC10, UL_TFC12	RB5: 640 RB6: 632	RB5: No data RB6: 632
3	DL_TFC3, DL_TFC13	UL_TFC3, DL_TFC13	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC10, UL_TFC13	RB5: 640 RB6: 952	RB5: No data RB6: 952
4	DL_TFC4, DL_TFC14	UL_TFC4, DL_TFC14	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC10, UL_TFC14	RB5: 640 RB6: 1272	RB5: No data RB6: 1272
5	DL_TFC5, DL_TFC15	UL_TFC5, DL_TFC15	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10, UL_TFC11, UL_TFC15, UL_TFC15	RB5: 640 RB6: 312	RB5: 4x640 RB6: No data
6	DL_TFC6, DL_TFC16	UL_TFC6, DL_TFC16	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC10, UL_TFC16	RB5: 640 RB6: 312	RB5: 4x640 RB6: 312
7	DL_TFC7, DL_TFC17	UL_TFC7, DL_TFC17	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7, UL_TFC10, UL_TFC12, UL_TFC15, UL_TFC17	RB5: 640 RB6: 632	RB5: 4x640 RB6: 632
8	DL_TFC8, DL_TFC18	UL_TFC8, DL_TFC18	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8, UL_TFC10, UL_TFC13, UL_TFC15, UL_TFC18	RB5: 640 RB6: 952	RB5: 4x640 RB6: 952

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
9	DL_TFC9, DL_TFC19	UL_TFC9, DL_TFC19	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9, UL_TFC10, UL_TFC14, UL_TFC15, UL_TFC19	RB5: 640 RB6: 1272	RB5: 4x640 RB6: 1272
NOTE1: UL_TFC0, UL_TFC1, UL_TFC5, UL_and UL_TFC10 are part of minimum set of TFCIs NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB6: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB5 and RB6 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size for RB6 has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).and .the UL RLC SDU size for RB5 has been set equal to the uplink TB size .						

14.2.51.2.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual subtest.
- 3. At step 15 the UE shall return

- for sub-test 1, 2, 3, 4: RLC SDUs on RB6 having the same content as sent by SS; and no data shall be received on RB5.
- for sub-test 5: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6.
- for sub-test 6, 7, 8 and 9: RLC SDUs on RB5 and RLC SDUs on RB6 having the same content as sent by SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.51a Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or Background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.51a.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI + Interactive or background / UL:8 DL:8 kbps / PS RAB

14.2.51a.1.1 Conformance requirement

See 14.2.4.1.

14.2.51a.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.51a for the 20 ms TTI case.

14.2.51a.1.3 Method of test

Initial Conditions

The following RLC Info parameter values for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE SDU Discard Mode Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: 'Timer based discard without explicit signalling' is configured in uplink to secure that the UE will be able to return data in uplink for the case when the UE test loop function, due to processing delays, will not deliver the SDUs in one and the same TTI, but instead in two subsequent TTIs.	

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 8 kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF0, TF1, TF0)
UL_TFC3	(TF1, TF1, TF0)
UL_TFC4	(TF0, TF0, TF1)
UL_TFC5	(TF1, TF0, TF1)
UL_TFC6	(TF0, TF1, TF1)
UL_TFC7	(TF1, TF1, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 8kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF0, TF1, TF0)
DL_TFC3	(TF1, TF1, TF0)
DL_TFC4	(TF0, TF0, TF1)
DL_TFC5	(TF1, TF0, TF1)
DL_TFC6	(TF0, TF1, TF1)
DL_TFC7	(TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_ TFC2 DL_ TFC6	UL_ TFC2 UL_ TFC6	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4,	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC6	RB5: 640 RB6: 312	RB5: No data RB6: 312
2	DL_ TFC1 DL_ TFC5	UL_ TFC1 UL_ TFC5	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4,	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5	RB5: 640 RB6: 312	RB5: 2x640 RB6: No data
3	DL_TFC3 DL_TFC7	UL_TFC3 UL_TFC7	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4,	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 640 RB6: 312	RB5: 2x640 RB6: 312
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2_and UL_TFC4 are part of minimum set of TFCIs NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB6: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB6 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).						

14.2.51a.1.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15a and step 15b the UE shall return

- for sub-test 1: RLC SDUs on RB6 having the same content as sent by SS; and no data shall be received on RB5.
- for sub-test 2: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6.
- for sub-test 3: RLC SDUs on RB5 and RB6 having the same content as sent by SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.51a.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI + Interactive or background / UL:8 DL:8 kbps / PS RAB

14.2.51a.2.1 Conformance requirement

See 14.2.4.1.

14.2.51a.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.51a for the 40 ms TTI case.

14.2.51a.2.3 Method of test

Initial Conditions

The following RLC Info parameter values for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE SDU Discard Mode Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: 'Timer based discard without explicit signalling' is configured in uplink to secure that the UE will be able to return data in uplink for the case when the UE test loop function, due to processing delays, will not deliver the SDUs in one and the same TTI, but instead in two subsequent TTIs.	

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 8 kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF1, TF0, TF0)
UL_TFC3	(TF1, TF1, TF0)
UL_TFC4	(TF0, TF0, TF1)
UL_TFC5	(TF0, TF1, TF1)
UL_TFC6	(TF1, TF0, TF1)
UL_TFC7	(TF1, TF1, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 64 kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF1, TF0, TF0)
DL_TFC3	(TF1, TF1, TF0)
DL_TFC4	(TF0, TF0, TF1)
DL_TFC5	(TF0, TF1, TF1)
DL_TFC6	(TF1, TF0, TF1)
DL_TFC7	(TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) Note 2	Test data size (bits) Note 2
1	DL_TFC1 DL_TFC5,	UL_TFC1 UL_TFC5	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4,	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5	RB5: 640 RB6: 312	RB5: No data RB6: 312
2	DL_TFC2 DL_TFC5,	UL_TFC2 UL_TFC6	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4,	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC6	RB5: 640 RB6: 312	RB5: 4x640 RB6: No data
3	DL_TFC3 DL_TFC5,	UL_TFC3 UL_TFC7	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4,	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 640 RB6: 312	RB5: 4x640 RB6: 312
NOTE1: UL_TFC0, UL_TFC1, UL_TFC2_and UL_TFC4 are part of minimum set of TFCIs NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB6: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB6 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).						

14.2.51a.2.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15a and step 15b the UE shall return

- for sub-test 1: RLC SDUs on RB6 having the same content as sent by SS; and no data shall be received on RB5.

- for sub-test 2: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6.
- for sub-test 3: RLC SDUs on RB5 and RB6 having the same content as sent by SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.51b Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or Background / UL:16 DL:64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.51b.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI + Interactive or background / UL:16 DL:64 kbps / PS RAB

14.2.51b.1.1 Conformance requirement

See 14.2.4.1.

14.2.51b.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.51b for the 20 ms TTI case.

14.2.51b.1.3 Method of test

Initial Conditions

The following RLC Info parameter values for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE SDU Discard Mode Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: 'Timer based discard without explicit signalling' is configured in uplink to secure that the UE will be able to return data in uplink for the case when the UE test loop function, due to processing delays, will not deliver the SDUs in one and the same TTI, but instead in two subsequent TTIs.	

See 14.1.2 for test procedure.

For the PS UL:16/DL:64 kbps radio bearer the downlink TTI is 20ms while the uplink TTI is 40ms. As the SS will send one DL SDU every 20 ms then the UE test loop function will return 2 UL SDUs per uplink TTI. To not cause uplink transmission buffer overflow then the UL RLC SDU size should be chosen such that the UE will transmit 2 RLC SDUs per uplink TTI. For the case when the transport format under test does not allow for 2 SDUs to fit into the transport format size without requiring concatenation then the UL RLC SDU size shall be chosen such that one SDU is returned per uplink TTI.

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 16 kbps, 40 ms TTI)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF0, TF2, TF0)
UL_TFC3	(TF1, TF0, TF0)
UL_TFC4	(TF1, TF1, TF0)
UL_TFC5	(TF1, TF2, TF0)
UL_TFC6	(TF0, TF0, TF1)
UL_TFC7	(TF0, TF1, TF1)
UL_TFC8	(TF0, TF2, TF1)
UL_TFC9	(TF1, TF0, TF1)
UL_TFC10	(TF1, TF1, TF1)
UL_TFC11	(TF1, TF2, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF0, TF2, TF0)
DL_TFC3	(TF0, TF3, TF0)
DL_TFC4	(TF0, TF4, TF0)
DL_TFC5	(TF1, TF0, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF1, TF2, TF0)
DL_TFC8	(TF1, TF3, TF0)
DL_TFC9	(TF1, TF4, TF0)
DL_TFC10	(TF0, TF0, TF1)
DL_TFC11	(TF0, TF1, TF1)
DL_TFC12	(TF0, TF2, TF1)
DL_TFC13	(TF0, TF3, TF1)
DL_TFC14	(TF0, TF4, TF1)
DL_TFC15	(TF1, TF0, TF1)
DL_TFC16	(TF1, TF1, TF1)
DL_TFC17	(TF1, TF2, TF1)
DL_TFC18	(TF1, TF3, TF1)
DL_TFC19	(TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1, DL_TFC11	UL_TFC1, UL_TFC7	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC7	RB5: 1280 RB6: 312 (note 3)	RB5: No data RB6: 312
2	DL_TFC2, DL_TFC12	UL_TFC2, UL_TFC8	DL_TFC0, DL_TFC1, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 1280 RB6: 312 (note 4)	RB5: No data RB6: 632
3	DL_TFC3, DL_TFC13	UL_TFC2, UL_TFC8	DL_TFC0, DL_TFC1, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 1280 RB6: 312 (note 4)	RB5: No data RB6: 952
4	DL_TFC4, DL_TFC14	UL_TFC2, UL_TFC8	DL_TFC0, DL_TFC1, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 640 RB6: 312 (note 4)	RB5: No data RB6: 1272
5	DL_TFC5, DL_TFC15	UL_TFC3, UL_TFC9	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 640 RB6: 312	RB5: 2x640 RB6: No data
6	DL_TFC6, DL_TFC16	UL_TFC4, UL_TFC10	DL_TFC0, DL_TFC1, DL_TFC5, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 640 RB6: 312 (note 3)	RB5: 2x640 RB6: 312
7	DL_TFC7, DL_TFC17	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC1, DL_TFC5, DL_TFC6, DL_TFC10, UL_TFC0, UL_TFC4, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 640 RB6: 312 (note 4)	RB5: 2x640 RB6: 632
8	DL_TFC8, DL_TFC18	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC1, DL_TFC5, DL_TFC6, DL_TFC10, UL_TFC0, UL_TFC4, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL TFC4, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 640 RB6: 312 (note 4)	RB5: 2x640 RB6: 952

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
9	DL_TFC9, DL_TFC19	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC1, DL_TFC5, DL_TFC6, DL_TFC10, UL_TFC0, UL_TFC4, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 640 RB6: 312 (note 4)	RB5: 2x640 RB6: 1272

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC3 and UL_TFC6 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB6: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).
NOTE 3: RB6 (TF1): For sub-tests where uplink transport format TF1 (1x336) is used then no adaptation to the difference in downlink TTI (20 ms) and uplink TTI (40ms) is possible as this would require the UE to concatenate 2 SDUs into one PDU. For these sub-tests the UL RLC SDU size is set equal to the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).
NOTE 4: RB6 (TF2): For sub-tests where uplink transport formats TF2 (2x336) is used then to adopt to the difference in downlink TTI (20 ms) and uplink TTI (40ms) the UL RLC SDU size has been chosen such that 2 SDUs will be returned per uplink TTI. I.e. the UL RLC SDU size is set equal to half the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).

14.2.51b.1.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15a and step 15b the UE shall return

- for sub-test 1: RLC SDUs on RB6 having the same content as sent by SS; and no data shall be received on RB5.
- for sub-test 2: RLC SDUs on RB6 having the first 312 bits equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB5.
- for sub-test 3, 4: RLC SDUs on RB5 having the same content as sent by SS; and RLC SDUs on RB6 having the content equal to the first 312 bits of the test data sent by the SS in downlink
- for sub-test 5: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6.
- for sub-test 6 : RLC SDUs on RB5 and RB6 having the same content as sent by SS
- for sub-test 7 : RLC SDUs on RB5 having the same content as sent by SS; and RLC SDUs on RB6 having the content equal to the first 312 bits of the test data sent by the SS in downlink
- for sub-test 8 , 9 : RLC SDUs on RB5 having the same content as sent by SS; and RLC SDUs on RB6 having the content equal to the first 312 bits of the test data sent by the SS in downlink

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.51b.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI + Interactive or background / UL:16 DL:64 kbps / PS RAB

14.2.51b.2.1 Conformance requirement

See 14.2.4.1.

14.2.51b.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.51b for the 40 ms TTI case.

14.2.51b.2.3 Method of test

Initial Conditions

The following RLC Info parameter values for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE SDU Discard Mode Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling' is configured in uplink to secure that the UE will be able to return data in uplink for the case when the UE test loop function, due to processing delays, will not deliver the SDUs in one and the same TTI, but instead in two subsequent TTIs.	

See 14.1.2 for test procedure.

For the PS UL:16/DL:64 kbps radio bearer the downlink TTI is 20ms while the uplink TTI is 40ms. As the SS will send one DL SDU every 20 ms then the UE test loop function will return 2 UL SDUs per uplink TTI. To not cause uplink transmission buffer overflow then the UL RLC SDU size should be chosen such that the UE will transmit 2 RLC SDUs per uplink TTI. For the case when the transport format under test does not allow for 2 SDUs to fit into the transport format size without requiring concatenation then the UL RLC SDU size shall be chosen such that one SDU is returned per uplink TTI.

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 16 kbps, 40 ms TTI)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF0, TF2, TF0)
UL_TFC3	(TF1, TF0, TF0)
UL_TFC4	(TF1, TF1, TF0)
UL_TFC5	(TF1, TF2, TF0)
UL_TFC6	(TF0, TF0, TF1)
UL_TFC7	(TF0, TF1, TF1)
UL_TFC8	(TF0, TF2, TF1)
UL_TFC9	(TF1, TF0, TF1)
UL_TFC10	(TF1, TF1, TF1)
UL_TFC11	(TF1, TF2, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF0, TF2, TF0)
DL_TFC3	(TF0, TF3, TF0)
DL_TFC4	(TF0, TF4, TF0)
DL_TFC5	(TF1, TF0, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF1, TF2, TF0)
DL_TFC8	(TF1, TF3, TF0)
DL_TFC9	(TF1, TF4, TF0)
DL_TFC10	(TF0, TF0, TF1)
DL_TFC11	(TF0, TF1, TF1)
DL_TFC12	(TF0, TF2, TF1)
DL_TFC13	(TF0, TF3, TF1)
DL_TFC14	(TF0, TF4, TF1)
DL_TFC15	(TF1, TF0, TF1)
DL_TFC16	(TF1, TF1, TF1)
DL_TFC17	(TF1, TF2, TF1)
DL_TFC18	(TF1, TF3, TF1)
DL_TFC19	(TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1, DL_TFC11	UL_TFC1, UL_TFC7	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC7	RB5: 640 RB6: 312 (note 3)	RB5: No data RB6: 312
2	DL_TFC2, DL_TFC12	UL_TFC2, UL_TFC8	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 640 RB6: 312 (note 4)	RB5: No data RB6: 632
3	DL_TFC3, DL_TFC13	UL_TFC2, UL_TFC8	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 640 RB6: 312 (note 4)	RB5: No data RB6: 952
4	DL_TFC4, DL_TFC14	UL_TFC2, UL_TFC8	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 640 RB6: 312 (note 4)	RB5: No data RB6: 1272
5	DL_TFC5, DL_TFC15	UL_TFC3, UL_TFC9	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 640 RB6: 312	RB5: 4x640 RB6: No data
6	DL_TFC6, DL_TFC16	UL_TFC4, UL_TFC10	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 640 RB6: 312 (note 3)	RB5: 4x640 RB6: 312
7	DL_TFC7, DL_TFC17	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 640 RB6: 312 (note 4)	RB5: 4x640 RB6: 632
8	DL_TFC8, DL_TFC18	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 640 RB6: 312 (note 4)	RB5: 4x640 RB6: 952
9	DL_TFC9, DL_TFC19	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 640 RB6: 312 (note 4)	RB5: 4x640 RB6: 1272

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC3 and UL_TFC6 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB6: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).
NOTE 3: RB6 (TF1): For sub-tests where uplink transport format TF1 (1x336) is used then no adaptation to the difference in downlink TTI (20 ms) and uplink TTI (40ms) is possible as this would require the UE to concatenate 2 SDUs into one PDU. For these sub-tests the UL RLC SDU size is set equal to the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).
NOTE 4: RB6 (TF2): For sub-tests where uplink transport formats TF2 (2x336) is used then to adopt to the difference in downlink TTI (20 ms) and uplink TTI (40ms) the UL RLC SDU size has been chosen such that 2 SDUs will be returned per uplink TTI. I.e. the UL RLC SDU size is set equal to half the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).

14.2.51b.2.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15a and step 15b the UE shall return

- for sub-test 1: RLC SDUs on RB6 having the same content as sent by SS; and no data shall be received on RB5.
- for sub-test 2: RLC SDUs on RB6 having the first 312 bits equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB5.
- for sub-test 3, 4: RLC SDUS on RB5 having the same content as sent by SS; and RLC SDUs on RB6 having the content equal to the first 312 bits of the test data sent by the SS in downlink
- for sub-test 5: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6.
- for sub-test 6 : RLC SDUs on RB5 and RB6 having the same content as sent by SS
- for sub-test 7 : RLC SDUs on RB5 having the same content as sent by SS; and RLC SDUs on RB6 having the content equal to the first 312 bits of the test data sent by the SS in downlink
- for sub-test 8 , 9 : RLC SDUs on RB5 having the same content as sent by SS ; and RLC SDUs on RB6 having the content equal to the first 312 bits of the test data sent by the SS in downlink

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.52 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.52.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI + Interactive or background / UL:64 DL:128 kbps / PS RAB

14.2.52.1.1 Conformance requirement

See 14.2.4.1.

14.2.52.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.52 for the 20 ms TTI case.

14.2.52.1.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv. 64 kbps)
Uplink RLC TM RLC Segmentation indication Transmission RLC discard CHOICE SDU Discard Mode Timer based no explicit Timer_discard	 FALSE 100ms
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 64 kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF0, TF2, TF0)
UL_TFC3	(TF0, TF3, TF0)
UL_TFC4	(TF0, TF4, TF0)
UL_TFC5	(TF1, TF0, TF0)
UL_TFC6	(TF1, TF1, TF0)
UL_TFC7	(TF1, TF2, TF0)
UL_TFC8	(TF1, TF3, TF0)
UL_TFC9	(TF1, TF4, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF0, TF1, TF1)
UL_TFC12	(TF0, TF2, TF1)
UL_TFC13	(TF0, TF3, TF1)
UL_TFC14	(TF0, TF4, TF1)
UL_TFC15	(TF1, TF0, TF1)
UL_TFC16	(TF1, TF1, TF1)
UL_TFC17	(TF1, TF2, TF1)
UL_TFC18	(TF1, TF3, TF1)
UL_TFC19	(TF1, TF4, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 128 kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF0, TF2, TF0)
DL_TFC3	(TF0, TF3, TF0)
DL_TFC4	(TF0, TF4, TF0)
DL_TFC5	(TF1, TF0, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF1, TF2, TF0)
DL_TFC8	(TF1, TF3, TF0)
DL_TFC9	(TF1, TF4, TF0)
DL_TFC10	(TF0, TF0, TF1)
DL_TFC11	(TF0, TF1, TF1)
DL_TFC12	(TF0, TF2, TF1)
DL_TFC13	(TF0, TF3, TF1)
DL_TFC14	(TF0, TF4, TF1)
DL_TFC15	(TF1, TF0, TF1)
DL_TFC16	(TF1, TF1, TF1)
DL_TFC17	(TF1, TF2, TF1)
DL_TFC18	(TF1, TF3, TF1)
DL_TFC19	(TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
1	DL_TFC1, DL_TFC11	UL_TFC1, DL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10, UL_TFC11	RB5: 640 RB6: 312	RB5: No data RB6: 312
2	DL_TFC2, DL_TFC12	UL_TFC2, DL_TFC12	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC10, UL_TFC12	RB5: 640 RB6: 632	RB5: No data RB6: 632
3	DL_TFC3, DL_TFC13	UL_TFC3, DL_TFC13	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC10, UL_TFC13	RB5: 640 RB6: 952	RB5: No data RB6: 1272
4	DL_TFC4, DL_TFC14	UL_TFC4, DL_TFC14	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC10, UL_TFC14	RB5: 640 RB6: 1272	RB5: No data RB6: 2552
5	DL_TFC5, DL_TFC15	UL_TFC5, DL_TFC15	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10, UL_TFC15	RB5: 640 RB6: 312	RB5: 2x640 RB6: No data
6	DL_TFC6, DL_TFC16	UL_TFC6, DL_TFC16	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC10, UL_TFC11, UL_TFC15, UL_TFC16	RB5: 640 RB6: 312	RB5: 2x640 RB6: 312
7	DL_TFC7, DL_TFC17	UL_TFC7, DL_TFC17	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7, UL_TFC10, UL_TFC12, UL_TFC15, UL_TFC17	RB5: 640 RB6: 632	RB5: 2x640 RB6: 632
8	DL_TFC8, DL_TFC18	UL_TFC8, DL_TFC18	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8, UL_TFC10, UL_TFC13, UL_TFC15, UL_TFC18	RB5: 640 RB6: 952	RB5: 2x640 RB6: 1272

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
9	DL_TFC9, DL_TFC19	UL_TFC9, DL_TFC19	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9, UL_TFC10, UL_TFC14, UL_TFC15, UL_TFC19	RB5: 640 RB6: 1272	RB5: 2x640 RB6: 2552
NOTE1: UL_TFC0, UL_TFC1, UL_TFC5_and UL_TFC10 are part of minimum set of TFCIs NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB6: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB5 and RB6 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size for RB6 has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).and .the UL RLC SDU size for RB5 has been set equal to the uplink TB size.						

14.2.52.1.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual subtest.
- 3. At step 15 the UE shall return

- for sub-test 1, 2, 3, 4: RLC SDUs on RB6 having the same content as sent by SS; and no data shall be received on RB5.
- for sub-test 5: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6.
- for sub-test 6: RLC SDUs on RB5 and RLC SDUs on RB6 having the same content as sent by SS.
- For sub-test 3: RLC SDUs on RB6 having the content equal to the first 952 bits of the test data sent by the SS in downlink;
- For sub-test 4: RLC SDUs on RB6 having the content equal to the first 1272 bits of the test data sent by the SS in downlink;
- for sub-test 8: RLC SDUs on RB6 having the content equal to the first 952 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS.
- for sub-test 9: RLC SDUs on RB6 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.52.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI + Interactive or background / UL:64 DL:128 kbps / PS RAB

14.2.52.2.1 Conformance requirement

See 14.2.4.1.

14.2.52.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.51 for the 40 ms TTI case.

14.2.52.2.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv. 64 kbps)
Uplink RLC TM RLC Segmentation indication Transmission RLC discard CHOICE SDU Discard Mode Timer based no explicit Timer_discard	 FALSE 100ms
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 64 kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF0, TF2, TF0)
UL_TFC3	(TF0, TF3, TF0)
UL_TFC4	(TF0, TF4, TF0)
UL_TFC5	(TF1, TF0, TF0)
UL_TFC6	(TF1, TF1, TF0)
UL_TFC7	(TF1, TF2, TF0)
UL_TFC8	(TF1, TF3, TF0)
UL_TFC9	(TF1, TF4, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF0, TF1, TF1)
UL_TFC12	(TF0, TF2, TF1)
UL_TFC13	(TF0, TF3, TF1)
UL_TFC14	(TF0, TF4, TF1)
UL_TFC15	(TF1, TF0, TF1)
UL_TFC16	(TF1, TF1, TF1)
UL_TFC17	(TF1, TF2, TF1)
UL_TFC18	(TF1, TF3, TF1)
UL_TFC19	(TF1, TF4, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 128 kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF0, TF2, TF0)
DL_TFC3	(TF0, TF3, TF0)
DL_TFC4	(TF0, TF4, TF0)
DL_TFC5	(TF1, TF0, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF1, TF2, TF0)
DL_TFC8	(TF1, TF3, TF0)
DL_TFC9	(TF1, TF4, TF0)
DL_TFC10	(TF0, TF0, TF1)
DL_TFC11	(TF0, TF1, TF1)
DL_TFC12	(TF0, TF2, TF1)
DL_TFC13	(TF0, TF3, TF1)
DL_TFC14	(TF0, TF4, TF1)
DL_TFC15	(TF1, TF0, TF1)
DL_TFC16	(TF1, TF1, TF1)
DL_TFC17	(TF1, TF2, TF1)
DL_TFC18	(TF1, TF3, TF1)
DL_TFC19	(TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
1	DL_TFC1, DL_TFC11	UL_TFC1, DL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10, UL_TFC11	RB5: 640 RB6: 312	RB5: No data RB6: 312
2	DL_TFC2, DL_TFC12	UL_TFC2, DL_TFC12	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC10, UL_TFC12	RB5: 640 RB6: 632	RB5: No data RB6: 632
3	DL_TFC3, DL_TFC13	UL_TFC3, DL_TFC13	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC10, UL_TFC13	RB5: 640 RB6: 952	RB5: No data RB6: 1272
4	DL_TFC4, DL_TFC14	UL_TFC4, DL_TFC14	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC10, UL_TFC14	RB5: 640 RB6: 1272	RB5: No data RB6: 2552
5	DL_TFC5, DL_TFC15	UL_TFC5, DL_TFC15	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10, UL_TFC15	RB5: 640 RB6: 312	RB5: 4x640 RB6: No data
6	DL_TFC6, DL_TFC16	UL_TFC6, DL_TFC16	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC10, UL_TFC11, UL_TFC15, UL_TFC16	RB5: 640 RB6: 312	RB5: 4x640 RB6: 312
7	DL_TFC7, DL_TFC17	UL_TFC7, DL_TFC17	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7, UL_TFC10, UL_TFC12, UL_TFC15, UL_TFC17	RB5: 640 RB6: 632	RB5: 4x640 RB6: 632
8	DL_TFC8, DL_TFC18	UL_TFC8, DL_TFC18	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8, UL_TFC10, UL_TFC13, UL_TFC15, UL_TFC18	RB5: 640 RB6: 952	RB5: 4x640 RB6: 1272
9	DL_TFC9, DL_TFC19	UL_TFC9, DL_TFC19	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9, UL_TFC10, UL_TFC14, UL_TFC15, UL_TFC19	RB5: 640 RB6: 1272	RB5: 4x640 RB6: 2552

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
NOTE1: UL_TFC0, UL_TFC1, UL_TFC5_and UL_TFC10 are part of minimum set of TFCIs NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB6: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB5 and RB6 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size for RB6 has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).and .the UL RLC SDU size for RB5 has been set equal to the uplink TB size .						

14.2.52.2.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual subtest.
- 3. At step 15 the UE shall return

- for sub-test 1, 2, 3, 4: RLC SDUs on RB6 having the same content as sent by SS; and no data shall be received on RB5.
- for sub-test 5: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6.
- for sub-test 6: RLC SDUs on RB5 and RLC SDUs on RB6 having the same content as sent by SS.
- For sub-test 3: RLC SDUs on RB6 having the content equal to the first 652 bits of the test data sent by the SS in downlink;
- For sub-test 4: RLC SDUs on RB6 having the content equal to the first 1272 bits of the test data sent by the SS in downlink;
- for sub-test 8: RLC SDUs on RB6 having the content equal to the first 652 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS.
- for sub-test 9: RLC SDUs on RB6 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.53 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:128 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.53.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI + Interactive or background / UL:128 DL:128 kbps / PS RAB

14.2.53.1.1 Conformance requirement

See 14.2.4.1.

14.2.53.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.53 for the 20 ms TTI case.

14.2.53.1.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv. 64 kbps)
Uplink RLC TM RLC Segmentation indication Transmission RLC discard CHOICE SDU Discard Mode Timer based no explicit Timer_discard	 FALSE 100ms
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 128 kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF0, TF2, TF0)
UL_TFC3	(TF0, TF3, TF0)
UL_TFC4	(TF0, TF4, TF0)
UL_TFC5	(TF1, TF0, TF0)
UL_TFC6	(TF1, TF1, TF0)
UL_TFC7	(TF1, TF2, TF0)
UL_TFC8	(TF1, TF3, TF0)
UL_TFC9	(TF1, TF4, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF0, TF1, TF1)
UL_TFC12	(TF0, TF2, TF1)
UL_TFC13	(TF0, TF3, TF1)
UL_TFC14	(TF0, TF4, TF1)
UL_TFC15	(TF1, TF0, TF1)
UL_TFC16	(TF1, TF1, TF1)
UL_TFC17	(TF1, TF2, TF1)
UL_TFC18	(TF1, TF3, TF1)
UL_TFC19	(TF1, TF4, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 128 kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF0, TF2, TF0)
DL_TFC3	(TF0, TF3, TF0)
DL_TFC4	(TF0, TF4, TF0)
DL_TFC5	(TF1, TF0, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF1, TF2, TF0)
DL_TFC8	(TF1, TF3, TF0)
DL_TFC9	(TF1, TF4, TF0)
DL_TFC10	(TF0, TF0, TF1)
DL_TFC11	(TF0, TF1, TF1)
DL_TFC12	(TF0, TF2, TF1)
DL_TFC13	(TF0, TF3, TF1)
DL_TFC14	(TF0, TF4, TF1)
DL_TFC15	(TF1, TF0, TF1)
DL_TFC16	(TF1, TF1, TF1)
DL_TFC17	(TF1, TF2, TF1)
DL_TFC18	(TF1, TF3, TF1)
DL_TFC19	(TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
1	DL_TFC1, DL_TFC11	UL_TFC1, DL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10, UL_TFC11	RB5: 640 RB6: 312	RB5: No data RB6: 312
2	DL_TFC2, DL_TFC12	UL_TFC2, DL_TFC12	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC10, UL_TFC12	RB5: 640 RB6: 632	RB5: No data RB6: 632
3	DL_TFC3, DL_TFC13	UL_TFC3, DL_TFC13	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC10, UL_TFC13	RB5: 640 RB6: 1272	RB5: No data RB6: 1272
4	DL_TFC4, DL_TFC14	UL_TFC4, DL_TFC14	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC10, UL_TFC14	RB5: 640 RB6: 2552	RB5: No data RB6: 2552
5	DL_TFC5, DL_TFC15	UL_TFC5, DL_TFC15	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10, UL_TFC15	RB5: 640 RB6: 312	RB5: 2x640 RB6: No data
6	DL_TFC6, DL_TFC16	UL_TFC6, DL_TFC16	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC10, UL_TFC11, UL_TFC15, UL_TFC16	RB5: 640 RB6: 312	RB5: 2x640 RB6: 312
7	DL_TFC7, DL_TFC17	UL_TFC7, DL_TFC17	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7, UL_TFC10, UL_TFC12, UL_TFC15, UL_TFC17	RB5: 640 RB6: 632	RB5: 2x640 RB6: 632
8	DL_TFC8, DL_TFC18	UL_TFC8, DL_TFC18	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8, UL_TFC10, UL_TFC13, UL_TFC15, UL_TFC18	RB5: 640 RB6: 1272	RB5: 2x640 RB6: 1272

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
9	DL_TFC9, DL_TFC19	UL_TFC9, DL_TFC19	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9, UL_TFC10, UL_TFC14, UL_TFC15, UL_TFC19	RB5: 640 RB6: 2552	RB5: 2x640 RB6: 2552
NOTE1: UL_TFC0, UL_TFC1, UL_TFC5_and UL_TFC10 are part of minimum set of TFCIs NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB6: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB5 and RB6 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size for RB6 has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).and .the UL RLC SDU size for RB5 has been set equal to the uplink TFS size under test.						

14.2.53.1.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual subtest.
- 3. At step 15 the UE shall return

- for sub-test 1, 2, 3, 4: RLC SDUs on RB6 having the same content as sent by SS; and no data shall be received on RB5.
- for sub-test 5: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6.
- for sub-test 6, 7, 8 and 9: RLC SDUs on RB5 and RLC SDUs on RB6 having the same content as sent by SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.53.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI + Interactive or background / UL:128 DL:128 kbps / PS RAB

14.2.53.2.1 Conformance requirement

See 14.2.4.1.

14.2.53.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.53 for the 40 ms TTI case.

14.2.53.2.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv. 64 kbps)
Uplink RLC TM RLC Segmentation indication Transmission RLC discard CHOICE SDU Discard Mode Timer based no explicit Timer_discard	 FALSE 100ms
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 128 kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF0, TF2, TF0)
UL_TFC3	(TF0, TF3, TF0)
UL_TFC4	(TF0, TF4, TF0)
UL_TFC5	(TF1, TF0, TF0)
UL_TFC6	(TF1, TF1, TF0)
UL_TFC7	(TF1, TF2, TF0)
UL_TFC8	(TF1, TF3, TF0)
UL_TFC9	(TF1, TF4, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF0, TF1, TF1)
UL_TFC12	(TF0, TF2, TF1)
UL_TFC13	(TF0, TF3, TF1)
UL_TFC14	(TF0, TF4, TF1)
UL_TFC15	(TF1, TF0, TF1)
UL_TFC16	(TF1, TF1, TF1)
UL_TFC17	(TF1, TF2, TF1)
UL_TFC18	(TF1, TF3, TF1)
UL_TFC19	(TF1, TF4, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 128 kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF0, TF2, TF0)
DL_TFC3	(TF0, TF3, TF0)
DL_TFC4	(TF0, TF4, TF0)
DL_TFC5	(TF1, TF0, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF1, TF2, TF0)
DL_TFC8	(TF1, TF3, TF0)
DL_TFC9	(TF1, TF4, TF0)
DL_TFC10	(TF0, TF0, TF1)
DL_TFC11	(TF0, TF1, TF1)
DL_TFC12	(TF0, TF2, TF1)
DL_TFC13	(TF0, TF3, TF1)
DL_TFC14	(TF0, TF4, TF1)
DL_TFC15	(TF1, TF0, TF1)
DL_TFC16	(TF1, TF1, TF1)
DL_TFC17	(TF1, TF2, TF1)
DL_TFC18	(TF1, TF3, TF1)
DL_TFC19	(TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
1	DL_TFC1, UL_TFC11	UL_TFC1, UL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10, UL_TFC11	RB5: 640 RB6: 312	RB5: No data RB6: 312
2	DL_TFC2, UL_TFC12	UL_TFC2, UL_TFC12	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC10, UL_TFC12	RB5: 640 RB6: 632	RB5: No data RB6: 632
3	DL_TFC3, UL_TFC13	UL_TFC3, UL_TFC13	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC10, UL_TFC13	RB5: 640 RB6: 1272	RB5: No data RB6: 1272
4	DL_TFC4, UL_TFC14	UL_TFC4, UL_TFC14	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC10, UL_TFC14	RB5: 640 RB6: 2552	RB5: No data RB6: 2552
5	DL_TFC5, UL_TFC15	UL_TFC5, UL_TFC15	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10, UL_TFC15	RB5: 640 RB6: 312	RB5: 4x640 RB6: No data
6	DL_TFC6, UL_TFC16	UL_TFC6, UL_TFC16	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5 UL_TFC6, UL_TFC10, UL_TFC11, UL_TFC15, UL_TFC16	RB5: 640 RB6: 312	RB5: 4x640 RB6: 312
7	DL_TFC7, UL_TFC17	UL_TFC7, UL_TFC17	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7, UL_TFC10, UL_TFC12, UL_TFC15, UL_TFC17	RB5: 640 RB6: 632	RB5: 4x640 RB6: 632
8	DL_TFC8, UL_TFC18	UL_TFC8, UL_TFC18	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8, UL_TFC10, UL_TFC13, UL_TFC15, UL_TFC18	RB5: 4x640 RB6: 1272	RB5: 4x640 RB6: 1272

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note2)
9	DL_TFC9, UL_TFC19	UL_TFC9, UL_TFC19	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9, UL_TFC10, UL_TFC14, UL_TFC15, UL_TFC19	RB5: 640 RB6: 2552	RB5: 4x640 RB6: 2552
NOTE1: UL_TFC0, UL_TFC1, UL_TFC5_and UL_TFC10 are part of minimum set of TFCIs NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB6: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB5 and RB6 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size for RB6 has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).and .the UL RLC SDU size for RB5 has been set equal to the uplink TFS size under test.						

14.2.53.2.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual subtest.
- 3. At step 15 the UE shall return

- for sub-test 1, 2, 3, 4: RLC SDUs on RB6 having the same content as sent by SS; and no data shall be received on RB5.
- for sub-test 5: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6.
- for sub-test 6, 7, 8 and 9: RLC SDUs on RB5 and RLC SDUs on RB6 having the same content as sent by SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.54 Void

14.2.55 Void

14.2.56 Interactive or background / UL:8 DL:8 kbps / PS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.56.1 Conformance requirement

See 14.2.4.1.

14.2.56.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.56.

14.2.56.3 Method of test

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 + RB6 (2x8 kbps)	DCCH
TFS	TF0, bits	0x340	0x148
	TF1, bits	1x340	1x148

Uplink TFCS:

TFCI	(RB5 + RB6, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

		RB5 + RB6 (2x8 kbps)	DCCH
TFS	TF0, bits	0x340	0x148
	TF1, bits	1x340	1x148

Downlink TFCS:

TFCI	(RB5+RB6, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1, DL_TFC3	UL_TFC1, UL_TFC3	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 312 RB6: 312	RB5: 312 RB6: no data
2	DL_TFC1, DL_TFC3	UL_TFC1, UL_TFC3	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 312 RB6: 312	RB5: no data RB6: 312

NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC2 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5 and RB6: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).

14.2.56.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15a and step 15b the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6.
- for sub-test 2: RLC SDUs on RB6; and no data shall be received on RB5.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.57 Interactive or background / UL:64 DL:64 kbps / PS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.57.1 Conformance requirement

See 14.2.4.1.

14.2.57.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.57.

14.2.57.3 Method of test

See 14.1.2 for test procedure. However, in this test the RM attribute values used shall be derived separately in the UL and DL as the mid-values of the RM attribute value ranges as specified by the reference radio bearer configuration.

Specific Message Content:

Use the RADIO BEARER SETUP message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
- RAB information for setup	
- RAB info	(AM DTCH for PS domain)
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	useT315
- RB information to setup	
- RB identity	20
- PDCP Info	Not Present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	4
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- Logical channel identity	7
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	6
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter

Information Element	Value/remark
- MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity - DL DSCH Transport channel identity - Logical channel identity	Set 8 1 FACH Not Present Not Present 7
- RAB identity	0000 0110B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	useT315
- RB information to setup	
- RB identity	22
- PDCP info	Not Present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	4
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- Logical channel identity	8
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	6
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	8
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	8
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set

Information Element	Value/remark
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	8

Uplink TFS:

	TFI	RB5 + RB6 (64 kbps RAB, 20 ms TTI)	DCCH
TFS	TF0, bits	0x340	0x148
	TF1, bits	1x340	1x148
	TF2, bits	2x340	N/A
	TF3, bits	3x340	N/A
	TF4, bits	4x340	N/A

Uplink TFCS:

TFCI	(RB5 + RB6, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 + RB6 (64 kbps RAB, 20 ms TTI)	DCCH
TFS	TF0, bits	0x340	0x148
	TF1, bits	1x340	1x148
	TF2, bits	2x340	N/A
	TF3, bits	3x340	N/A
	TF4, bits	4x340	N/A

Downlink TFCS:

TFCI	(RB5 + RB6, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1 DL_TFC6	UL_TFC1 DL_TFC6	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312 RB6: 312	RB5: 312 RB6: No data
2	DL_TFC2 DL_TFC7	UL_TFC2 DL_TFC7	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632 RB6: 632	RB5: 632 RB6: No data
3	DL_TFC3 DL_TFC8	UL_TFC3 DL_TFC8	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952 RB6: 952	RB5: 952 RB6: No data
4	DL_TFC4 DL_TFC9	UL_TFC4 DL_TFC9	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272 RB6: 1272	RB5: 1272 RB6: No data
5	DL_TFC4 DL_TFC9	UL_TFC4 DL_TFC9	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272 RB5: 1272	RB5: No data RB6: 1272
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5 and RB6: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).						

14.2.57.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

- 3. At step 15a and step 15b the UE shall return

- for sub-test 1 to 4: RLC SDUs on RB5 having the same content as the DL RLC SDUs sent by the SS in RB5.
- for sub-test 5: RLC SDUs on RB6 having the same content as the DL RLC SDUs sent by the SS in RB6.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.58 Streaming / unknown / UL:16 DL:64 kbps / PS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.58.1 Conformance requirement

See 14.2.4.1.

14.2.58.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.58.

14.2.58.3 Method of test

See 14.1.2 for test procedure. However, in this test the RM attribute values used shall be derived separately in the UL and DL as the mid-values of the RM attribute value ranges as specified by the reference radio bearer configuration.

Uplink TFS:

	TFI	RB5 uplink (16 kbps, 20 ms TTI)	RB6 (8 kbps)	DCCH
TFS	TF0, bits	0x336	0x336	0x148
	TF1, bits	1x336	1x336	1x148

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF0, TF1, TF0)
UL_TFC3	(TF1, TF1, TF0)
UL_TFC4	(TF0, TF0, TF1)
UL_TFC5	(TF1, TF0, TF1)
UL_TFC6	(TF0, TF1, TF1)
UL_TFC7	(TF1, TF1, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps, 40 ms TTI)	RB6 (8 kbps)	DCCH
TFS	TF0, bits	0x656	0x336	0x148
	TF1, bits	1x656	1x336	1x148
	TF2, bits	2x656	N/A	N/A
	TF3, bits	4x656	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF0, TF0)
DL_TFC3	(TF3, TF0, TF0)
DL_TFC4	(TF0, TF1, TF0)
DL_TFC5	(TF1, TF1, TF0)
DL_TFC6	(TF2, TF1, TF0)
DL_TFC7	(TF3, TF1, TF0)
DL_TFC8	(TF0, TF0, TF1)
DL_TFC9	(TF1, TF0, TF1)
DL_TFC10	(TF2, TF0, TF1)
DL_TFC11	(TF3, TF0, TF1)
DL_TFC12	(TF0, TF1, TF1)
DL_TFC13	(TF1, TF1, TF1)
DL_TFC14	(TF2, TF1, TF1)
DL_TFC15	(TF3, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1, DL_TFC9	UL_TFC1, UL_TFC5	DL_TFC0, DL_TFC8, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5	RB5: 632 RB6: 312	RB5: 632 RB6: no data
2	DL_TFC2, DL_TFC10	UL_TFC1, UL_TFC5	DL_TFC0, DL_TFC1, DL_TFC8, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5	RB5: 632 RB6: 312	RB5: 1272 RB6: no data
3	DL_TFC3, DL_TFC11	UL_TFC1, UL_TFC5	DL_TFC0, DL_TFC1, DL_TFC8, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5	RB5: 632 RB6: 312	RB5: 2552 RB6: no data
4	DL_TFC4, DL_TFC12	UL_TFC2, UL_TFC6	DL_TFC0, DL_TFC8, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC6	RB5: 632 RB6: 312	RB5: no data RB6: 312
5	DL_TFC5, DL_TFC13	UL_TFC3, UL_TFC7	DL_TFC0, DL_TFC1, DL_TFC4, DL_TFC8, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 632 RB6: 312	RB5: 632 RB6: 312
6	DL_TFC6, DL_TFC14	UL_TFC3, UL_TFC7	DL_TFC0, DL_TFC1, DL_TFC2, DL_TFC4, DL_TFC5, DL_TFC8, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 632 RB6: 312	RB5: 1272 RB6: 312
7	DL_TFC7, DL_TFC15	UL_TFC3, UL_TFC7	DL_TFC0, DL_TFC1, DL_TFC3 DL_TFC4, DL_TFC5, DL_TFC8, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 632 RB6: 312	RB5: 2552 RB6: 312

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC4 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the uplink TTI for RB5 is 20 ms while the downlink TTI is 40 ms then, to achieve continuous data transmission in uplink the size of the uplink RLC SDU has been set such that it will be transmitted over two subsequent TTIs, i.e. UL RLC SDU size has been set to two times the payload size of the UL TF under test minus 8 bits (the size of a 7 bit length indicator and expansion bit).
RB6: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the uplink TFS size minus 8 bits (the size of a 7 bit length indicator and expansion bit).

14.2.58.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15a and step 15b the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by the SS; and no data shall be received on RB6.
- for sub-test 2 and 3: RLC SDUs on RB5 having the first 632 bits equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB6.
- for sub-test 4: RLC SDUs on RB6 having the same content as sent by the SS; and no data shall be received on RB5.
- for sub-test 5: RLC SDUs on RB5 and RB6 having the same content as sent by the SS.
- for sub-test 6 and 7: RLC SDUs on RB5 having the first 632 bits equal to the content of the test data sent by the SS in downlink; and RLC SDUs on RB6 having the same content as sent by the SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.58a Streaming / unknown / UL:16 DL:128 kbps / PS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.58a.1 Conformance requirement

See 14.2.4.1.

14.2.58a.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.58a.

14.2.58a.3 Method of test

See 14.1.2 for test procedure. However, in this test the RM attribute values used shall be derived separately in the UL and DL as the mid-values of the RM attribute value ranges as specified by the reference radio bearer configuration.

Specific Message Content:

Use the RADIO BEARER SETUP message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark

- RAB information for setup	
- RAB info	(AM DTCH for PS domain)
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	useT315
- RB information to setup	
- RB identity	20
- PDCP Info	Not Present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- Logical channel identity	Not Present
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	6
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	Not Present
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RAB identity	0000 0110B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.

- CN domain identity	PS domain
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	useT315
- RB information to setup	
- RB identity	22
- PDCP info	Not Present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	2
- Logical channel identity	Not Present
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	7
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	Not Present
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	8
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	8
Added or Reconfigured UL TrCH information	2 DCH added, 1 DCH reconfigured
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to TS34.108 clause 6.10 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)

- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE Logical Channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to TS34.108 clause 6.10 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6.10 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6.10 Parameter Set
- Rate matching attribute	Reference to TS34.108 clause 6.10 Parameter Set
- CRC size	Reference to TS34.108 clause 6.10 Parameter Set
- Uplink transport channel type	DCH
- UL Transport channel identity	2
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to TS34.108 clause 6.10 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE Logical Channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to TS34.108 clause 6.10 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6.10 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6.10 Parameter Set
- Rate matching attribute	Reference to TS34.108 clause 6.10 Parameter Set
- CRC size	Reference to TS34.108 clause 6.10 Parameter Set
- Uplink transport channel type	DCH
- UL Transport channel identity	5
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to TS34.108 clause 6.10 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE Logical Channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to TS34.108 clause 6.10 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6.10 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6.10 Parameter Set
- Rate matching attribute	Reference to TS34.108 clause 6.10 Parameter Set
- CRC size	Reference to TS34.108 clause 6.10 Parameter Set
Added or Reconfigured DL TrCH information	3 TrCHs(DCH for DCCH and DCH for DTCH)
- Downlink transport channel type	DCH
- DL Transport channel identity	6
- CHOICE DL parameters	Explicit
- TFS	
- CHOICE Transport channel type	Dedicated transport channel
- Dynamic transport format information	
- RLC Size	Reference to TS34.108 clause 6.10 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE Logical Channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to TS34.108 clause 6.10 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6.10 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6.10 Parameter Set
- Rate matching attribute	Reference to TS34.108 clause 6.10 Parameter Set
- CRC size	Reference to TS34.108 clause 6.10 Parameter Set
- DCH quality target	
- BLER Quality value	-2.0
- Downlink transport channel type	DCH
- DL Transport channel identity	7
- CHOICE DL parameters	Explicit
- TFS	
- CHOICE Transport channel type	Dedicated transport channel
- Dynamic transport format information	
- RLC Size	Reference to TS34.108 clause 6.10 Parameter Set

- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE Logical Channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to TS34.108 clause 6.10 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6.10 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6.10 Parameter Set
- Rate matching attribute	Reference to TS34.108 clause 6.10 Parameter Set
- CRC size	Reference to TS34.108 clause 6.10 Parameter Set
- DCH quality target	
- BLER Quality value	-2.0
- Downlink transport channel type	DCH
- DL Transport channel identity	10
- CHOICE DL parameters	Explicit
- TFS	
- CHOICE Transport channel type	Dedicated transport channel
- Dynamic transport format information	
- RLC Size	Reference to TS34.108 clause 6.10 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE Logical Channel list	All
- Semi-static Transport Format information	
- Transmission time interval	Reference to TS34.108 clause 6.10 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6.10 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6.10 Parameter Set
- Rate matching attribute	Reference to TS34.108 clause 6.10 Parameter Set
- CRC size	Reference to TS34.108 clause 6.10 Parameter Set
- DCH quality target	
- BLER Quality value	-2.0

Uplink TFS:

	TFI	RB5 uplink (16 kbps, 20 ms TTI)	RB6 (8 kbps)	DCCH
TFS	TF0, bits	0x336	0x336	0x148
	TF1, bits	1x336	1x336	1x148

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF0, TF1, TF0)
UL_TFC3	(TF1, TF1, TF0)
UL_TFC4	(TF0, TF0, TF1)
UL_TFC5	(TF1, TF0, TF1)
UL_TFC6	(TF0, TF1, TF1)
UL_TFC7	(TF1, TF1, TF1)

Downlink TFS:

	TFI	RB5 (128 kbps, 20 ms TTI)	RB6 (8 kbps)	DCCH
TFS	TF0, bits	0x656	0x336	0x148
	TF1, bits	1x656	1x336	1x148
	TF2, bits	2x656	N/A	N/A
	TF3, bits	3x656	N/A	N/A
	TF4, bits	4x656	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF0, TF0)
DL_TFC3	(TF3, TF0, TF0)
DL_TFC4	(TF4, TF0, TF0)
DL_TFC5	(TF0, TF1, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF2, TF1, TF0)
DL_TFC8	(TF3, TF1, TF0)
DL_TFC9	(TF4, TF1, TF0)
DL_TFC10	(TF0, TF0, TF1)
DL_TFC11	(TF1, TF0, TF1)
DL_TFC12	(TF2, TF0, TF1)
DL_TFC13	(TF3, TF0, TF1)
DL_TFC14	(TF4, TF0, TF1)
DL_TFC15	(TF0, TF1, TF1)
DL_TFC16	(TF1, TF1, TF1)
DL_TFC17	(TF2, TF1, TF1)
DL_TFC18	(TF3, TF1, TF1)
DL_TFC19	(TF4, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1, DL_TFC11	UL_TFC1, UL_TFC5	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5	RB5: 312 RB6: 312	RB5: 632 RB6: no data
2	DL_TFC2, DL_TFC12	UL_TFC1, UL_TFC5	DL_TFC0, DL_TFC1, DL_TFC10, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5	RB5: 312 RB6: 312	RB5: 1272 RB6: no data
3	DL_TFC3, DL_TFC13	UL_TFC1, UL_TFC5	DL_TFC0, DL_TFC1, DL_TFC10, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5	RB5: 312 RB6: 312	RB5: 1912 RB6: no data
4	DL_TFC4, DL_TFC14	UL_TFC1, UL_TFC5	DL_TFC0, DL_TFC1, DL_TFC10, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5	RB5: 312 RB6: 312	RB5: 2552 RB6: no data
5	DL_TFC5, DL_TFC15	UL_TFC2, UL_TFC6	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC6	RB5: 312 RB6: 312	RB5: no data RB6: 312
6	DL_TFC6, DL_TFC16	UL_TFC3, UL_TFC7	DL_TFC0, DL_TFC1, DL_TFC5, DL_TFC10, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 312 RB6: 312	RB5: 632 RB6: 312
7	DL_TFC7, DL_TFC17	UL_TFC3, UL_TFC7	DL_TFC0, DL_TFC1, DL_TFC5, DL_TFC6, DL_TFC10, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 312 RB6: 312	RB5: 1272 RB6: 312
8	DL_TFC8, DL_TFC18	UL_TFC3, UL_TFC7	DL_TFC0, DL_TFC1, DL_TFC5, DL_TFC6, DL_TFC10, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 312 RB6: 312	RB5: 1912 RB6: 312
9	DL_TFC9, DL_TFC19	UL_TFC3, UL_TFC7	DL_TFC0, DL_TFC1, DL_TFC5, DL_TFC6, DL_TFC10, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 312 RB6: 312	RB5: 2552 RB6: 312

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC4 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the UL TF under test minus 8 bits (the size of a 7 bit length indicator and expansion bit). RB6: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the uplink TF under test minus 8 bits (the size of a 7 bit length indicator and expansion bit).						

14.2.58a.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
- 3. At step 15a and step 15b the UE shall return

- for sub-test 1, 2, 3 and 4: RLC SDUs on RB5 having the first 312 bits equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB6.
- for sub-test 5: RLC SDUs on RB6 having the same content as sent by the SS; and no data shall be received on RB5.
- for sub-test 6, 7, 8 and 9: RLC SDUs on RB5 having the first 312 bits equal to the content of the test data sent by the SS in downlink; and RLC SDUs on RB6 having the same content as sent by the SS.

- 4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.59 Void

14.2.60 Void

14.2.61 Void

14.2.62 Conversational / speech / UL:(12.65 8.85 6.6) DL:(12.65 8.85 6.6) kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH + DL:0.15 kbps SRB#5 for DCCH.

14.2.62.1 Conformance requirement

See clause 14.2.4.1.

14.2.62.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.62.

14.2.62.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x72	0x181	0x60	0x148
	TF1, bits	1x40	1x78	N/A	1x148
	TF2, bits	1x54	1x113	N/A	N/A
	TF3, bits	1x64	1x181	N/A	N/A
	TF4, bits	1x72	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0, TF0)
UL_TFC3	(TF3, TF2, TF0, TF0)
UL_TFC4	(TF4, TF3, TF0, TF0)
UL_TFC5	(TF0, TF0, TF0, TF1)
UL_TFC6	(TF1, TF0, TF0, TF1)
UL_TFC7	(TF2, TF1, TF0, TF1)
UL_TFC8	(TF3, TF2, TF0, TF1)
UL_TFC9	(TF4, TF3, TF0, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH1	DCCH2 (SRB #5)
TFS	TF0, bits	1x0	0x181	0x60	0x148	0x3
	TF1, bits	1x40	1x78	N/A	1x148	1x3
	TF2, bits	1x54	1x113	N/A	N/A	N/A
	TF3, bits	1x64	1x181	N/A	N/A	N/A
	TF4, bits	1x72	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH1, DCCH2)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0, TF0, TF0)
DL_TFC3	(TF3, TF2, TF0, TF0, TF0)
DL_TFC4	(TF4, TF3, TF0, TF0, TF0)
DL_TFC5	(TF0, TF0, TF0, TF1, TF0)
DL_TFC6	(TF1, TF0, TF0, TF1, TF0)
DL_TFC7	(TF2, TF1, TF0, TF1, TF0)
DL_TFC8	(TF3, TF2, TF0, TF1, TF0)
DL_TFC9	(TF4, TF3, TF0, TF1, TF0)
DL_TFC10	(TF0, TF0, TF0, TF0, TF1)
DL_TFC11	(TF1, TF0, TF0, TF0, TF1)
DL_TFC12	(TF2, TF1, TF0, TF0, TF1)
DL_TFC13	(TF3, TF2, TF0, TF0, TF1)
DL_TFC14	(TF4, TF3, TF0, TF0, TF1)
DL_TFC15	(TF0, TF0, TF0, TF1, TF1)
DL_TFC16	(TF1, TF0, TF0, TF1, TF1)
DL_TFC17	(TF2, TF1, TF0, TF1, TF1)
DL_TFC18	(TF3, TF2, TF0, TF1, TF1)
DL_TFC19	(TF4, TF3, TF0, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	TFC subset identity (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, DL_TFC6, DL_TFC10, UL_TFC0, UL_TFC5	0	RB5: 40 bits RB6: 181 bits RB7: 60 bits	RB5: 40 bits RB6: No data RB7: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, DL_TFC7, DL_TFC10, UL_TFC0, UL_TFC5	0	RB5: 54 bits RB6: 78 bits RB7: 60 bits	RB5: 54 bits RB6: 78 bits RB7: No data
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, DL_TFC8, DL_TFC10, UL_TFC0, UL_TFC5	1	RB5: 64 bits RB6: 113 bits RB7: 60 bits	RB5: 64 bits RB6: 113 bits RB7: No data
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, DL_TFC9, DL_TFC10, UL_TFC0, UL_TFC5	2	RB5: 72 bits RB6: 181 bits RB7: 60 bits	RB5: 72 bits RB6: 181 bits RB7: No data
NOTE 1: TFC subset identity shall be signalled by the SS on the downlink SRB#5, see generic test procedure in clause 14.1.1a. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 14.1.1a for test procedure.

14.2.62.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x40).
- for sub-test 2: RB5/TF2 (1x54) and RB6/TF1 (1x78)
- for sub-test 3: RB5/TF3 (1x64) and RB6/TF2 (1x113)
- for sub-test 4: RB5/TF4 (1x72) and RB6/TF3 (1x181)

- 3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 2,3 and 4: an RLC SDU on RB5 and RB6 having the same content as sent by SS; and no data shall be received on RB7.

14.2.63 Interactive or background / UL:64 DL:768 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.63.1 Interactive or background / UL:64 DL:768 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH/ 10 ms TTI

14.2.63.1.1 Conformance requirement

See 14.2.4.1.

14.2.63.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.63 for the downlink 10 ms TTI case.

14.2.63.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (768 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A
	TF7, bits	20x336	N/A
	TF8, bits	24x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF0, TF1)
DL_TFC10	(TF1, TF1)
DL_TFC11	(TF2, TF1)
DL_TFC12	(TF3, TF1)
DL_TFC13	(TF4, TF1)
DL_TFC14	(TF5, TF1)
DL_TFC15	(TF6, TF1)
DL_TFC16	(TF7, TF1)
DL_TFC17	(TF8, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 3832	RB5: 3832
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 6392	RB5: 6392
8	DL_TFC8	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 7672	RB5: 7672
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.						

See 14.1.1 for test procedure.

14.2.63.1.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336).
- for sub-test 3: RB5/TF3 (3x336).

- for sub-test 4 to 8: RB5/TF4 (4x336).

    - 3. At step 15 the UE shall return

- for sub-test 1, 2 and 4 to 8: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

- for sub-test 3: an RLC SDU on RB5 having the first 1272 bits equal to the content of the test data sent by the SS in downlink.

14.2.63.2 Interactive or background / UL:64 DL:768 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH / 20 ms TTI

14.2.63.2.1 Conformance requirement

See 14.2.4.1.

14.2.63.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.63 for the downlink 20 ms TTI case.

14.2.63.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (768 kbps, 20ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A
	TF7, bits	20x336	N/A
	TF8, bits	24x336	N/A
	TF9, bits	28x336	N/A
	TF10, bits	32x336	N/A
	TF11, bits	36x336	N/A
	TF12, bits	40x336	N/A
	TF13, bits	44x336	N/A
	TF14, bits	48x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF9, TF0)
DL_TFC10	(TF10, TF0)
DL_TFC11	(TF11, TF0)
DL_TFC12	(TF12 TF0)
DL_TFC13	(TF13, TF0)
DL_TFC14	(TF14, TF0)
DL_TFC15	(TF0, TF1)
DL_TFC16	(TF1, TF1)
DL_TFC17	(TF2, TF1)
DL_TFC18	(TF3, TF1)
DL_TFC19	(TF4, TF1)
DL_TFC20	(TF5, TF1)
DL_TFC21	(TF6, TF1)
DL_TFC22	(TF7, TF1)
DL_TFC23	(TF8, TF1)
DL_TFC24	(TF9, TF1)
DL_TFC25	(TF10, TF1)
DL_TFC26	(TF11, TF1)
DL_TFC27	(TF12 TF1)
DL_TFC28	(TF13, TF1)
DL_TFC29	(TF14, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 3832	RB5: 3832
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 6392	RB5: 6392
8	DL_TFC8	UL_TFC4	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 7672	RB5: 7672
9	DL_TFC9	UL_TFC4	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 8952	RB5: 8952
10	DL_TFC10	UL…_TFC4	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 10232	RB5: 10232
11	DL_TFC11	UL_TFC4	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 11512	RB5: 11512
12	DL_TFC12	UL_TFC4	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 12792	RB5: 12792

13	DL_TFC13	UL_TFC4	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 14072	RB5: 14072
14	DL_TFC14	UL_TFC4	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 15352	RB5: 15352
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.						

See 14.1.1 for test procedure.

14.2.63.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
- 2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336).
- for sub-test 3: RB5/TF3 (3x336).
- for sub-test 4 to 14: RB5/TF4 (4x336).

- 3. At step 15 the UE shall return

- for sub-test 1, 2 and 4 to 14: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
- for sub-test 3: an RLC SDU on RB5 having the first 1272 bits equal to the content of the test data sent by the SS in downlink.

14.3 Combinations on PDSCH and DPCH

14.3.1 Void

14.3.2 Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

14.3.2.1 Interactive or background / UL:64 DL:384 kbps / PS RAB / 10 ms TTI

14.3.2.1.1 Conformance requirement

See 14.2.4.1.

14.3.2.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.2.2 for the downlink 10 ms TTI case.

14.3.2.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

DSCH downlink TFS:

	TFI	RB5 (384 kbps)
TFS	DSCH_TF0, bits	0x354
	DSCH_TF1, bits	1x354
	DSCH_TF2, bits	2x354
	DSCH_TF3, bits	4x354
	DSCH_TF4, bits	8x354
	DSCH_TF5, bits	12x354

DSCH downlink TFCS:

TFCI	RB5
DL_DSCH_TFC0	DSCH_TF0
DL_DSCH_TFC1	DSCH_TF1
DL_DSCH_TFC2	DSCH_TF2
DL_DSCH_TFC3	DSCH_TF3
DL_DSCH_TFC4	DSCH_TF4
DL_DSCH_TFC5	DSCH_TF5

DCH downlink TFS:

	TFI	DCCH
TFS	DCH_TF0, bits	0x148
	DCH_TF1, bits	1x148

DCH downlink TFCS:

TFCI	DCCH
DL_DCH_TFC0	DCH_TF0
DL_DCH_TFC1	DCH_TF1

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_DSCH_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_DSCH_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_DSCH_TFC3	UL_TFC3	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_DSCH_TFC4	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_DSCH_TFC5	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 3832	RB5: 3832
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs. NOTE 2 : See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 14.1.1 for test procedure.

14.3.2.1.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (3x336).
   - for sub-test 4 and 5: RB5/TF4 (4x336).
3. At step 15 the UE shall return
   - for sub-test 1, 2, 4 and 6: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the first 1272 bits equal to the content of the DL RLC SDU sent by the SS.

14.3.2.2 Interactive or background / UL:64 DL:384 kbps / PS RAB / 20 ms TTI

14.3.2.2.1 Conformance requirement

See 14.2.4.1.

14.3.2.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.2.2 for the downlink 20 ms TTI case.

14.3.2.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

DSCH downlink TFS:

	TFI	RB5 (384 kbps)
TFS	DSCH_TF0, bits	0x354
	DSCH_TF1, bits	1x354
	DSCH_TF2, bits	2x354
	DSCH_TF3, bits	4x354
	DSCH_TF4, bits	8x354
	DSCH_TF5, bits	12x354
	DSCH_TF6, bits	16x354
	DSCH_TF7, bits	20x354
	DSCH_TF8, bits	24x354

DSCH downlink TFCS:

TFCI	RB5
DL_DSCH_TFC0	DSCH_TF0
DL_DSCH_TFC1	DSCH_TF1
DL_DSCH_TFC2	DSCH_TF2
DL_DSCH_TFC3	DSCH_TF3
DL_DSCH_TFC4	DSCH_TF4
DL_DSCH_TFC5	DSCH_TF5
DL_DSCH_TFC6	DSCH_TF6
DL_DSCH_TFC7	DSCH_TF7
DL_DSCH_TFC8	DSCH_TF8

DCH downlink TFS:

	TFI	DCCH
TFS	DCH_TF0, bits	0x148
	DCH_TF1, bits	1x148

DCH downlink TFCS:

TFCI	DCCH
DL_DCH_TFC0	DCH_TF0
DL_DCH_TFC1	DCH_TF1

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_DSCH_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_DSCH_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_DSCH_TFC3	UL_TFC3	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_DSCH_TFC4	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
5	DL_DSCH_TFC5	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 3832	RB5: 3832
6	DL_DSCH_TFC6	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
7	DL_DSCH_TFC7	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 6392	RB5: 6392
8	DL_DSCH_TFC8	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 7672	RB5: 7672
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. . RB5: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 14.1.1 for test procedure.

14.3.2.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (3x336).
   - for sub-test 4, 5, 6, 7 and 8: RB5/TF4 (4x336).
3. At step 15 the UE shall return
   - for sub-test 1 , 2, 4, 5, 6, 7 and 8: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the first 1272 bits equal to the content of the DL RLC SDU sent by the SS.

14.3.3 Interactive or background / UL:64 DL:2048 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

14.3.3.1 Interactive or background / UL:64 DL:2048 kbps / PS RAB / 10 ms TTI

14.3.3.1.1 Conformance requirement

See 14.2.4.1.

14.3.3.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.2.3 for the downlink 10 ms TTI case.

14.3.3.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

DSCH downlink TFS:

	TFI	RB5 (384 kbps)
TFS	DSCH_TF0, bits	0x674
	DSCH_TF1, bits	1x674
	DSCH_TF2, bits	2x674
	DSCH_TF3, bits	4x674
	DSCH_TF4, bits	8x674
	DSCH_TF5, bits	12x674
	DSCH_TF6, bits	16x674
	DSCH_TF7, bits	20x674
	DSCH_TF8, bits	24x674
	DSCH_TF9, bits	28x674
	DSCH_TF10, bits	32x674

DSCH downlink TFCS:

TFCI	RB5
DL_DSCH_TFC0	DSCH_TF0
DL_DSCH_TFC1	DSCH_TF1
DL_DSCH_TFC2	DSCH_TF2
DL_DSCH_TFC3	DSCH_TF3
DL_DSCH_TFC4	DSCH_TF4
DL_DSCH_TFC5	DSCH_TF5
DL_DSCH_TFC6	DSCH_TF6
DL_DSCH_TFC7	DSCH_TF7
DL_DSCH_TFC8	DSCH_TF8
DL_DSCH_TFC9	DSCH_TF9
DL_DSCH_TFC10	DSCH_TF10

DCH downlink TFS:

	TFI	DCCH
TFS	DCH_TF0, bits	0x148
	DCH_TF1, bits	1x148

DCH downlink TFCS:

TFCI	DCCH
DL_DCH_TFC0	DCH_TF0
DL_DCH_TFC1	DCH_TF1

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_DSCH_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 632	RB5: 632
2	DL_DSCH_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 1272	RB5: 1272
3	DL_DSCH_TFC3	UL_TFC3	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 2872	RB5: 2552
4	DL_DSCH_TFC4	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
5	DL_DSCH_TFC5	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 7672	RB5: 7672
6	DL_DSCH_TFC6	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 10232	RB5: 10232
7	DL_DSCH_TFC7	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 12792	RB5: 12792
8	DL_DSCH_TFC8	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 15352	RB5: 15352

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
9	DL_DSCH_TFC9	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 17912	RB5: 17912
10	DL_DSCH_TFC10	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 20472	RB5: 20472
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs. NOTE 2 : See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 14.1.1 for test procedure.

14.3.3.1.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (3x336).
   - for sub-test 4, 5, 6, 7, 8, 9 and 10: RB5/TF4 (4x336).
3. At step 15 the UE shall return
   - for sub-test 1, 2, 4 to 10: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the first 2552 bits equal to the content of the DL RLC SDU sent by the SS.

14.3.3.2 Interactive or background / UL:64 DL:2048 kbps / PS RAB / 20 ms TTI

14.3.3.2.1 Conformance requirement

See 14.2.4.1.

14.3.3.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.2.3 for the downlink 20 ms TTI case.

14.3.3.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

DSCH downlink TFS:

	TFI	RB5 (384 kbps)
TFS	DSCH_TF0, bits	0x674
	DSCH_TF1, bits	1x674
	DSCH_TF2, bits	2x674
	DSCH_TF3, bits	4x674
	DSCH_TF4, bits	8x674
	DSCH_TF5, bits	12x674
	DSCH_TF6, bits	16x674
	DSCH_TF7, bits	20x674
	DSCH_TF8, bits	24x674
	DSCH_TF9, bits	28x674
	DSCH_TF10, bits	32x674
	DSCH_TF11, bits	36x674
	DSCH_TF12, bits	40x674
	DSCH_TF13, bits	44x674
	DSCH_TF14, bits	48x674
	DSCH_TF15, bits	52x674
	DSCH_TF16, bits	56x674
	DSCH_TF17, bits	60x674
	DSCH_TF18, bits	64x674

DSCH downlink TFCS:

TFCI	RB5
DL_DSCH_TFC0	DSCH_TF0
DL_DSCH_TFC1	DSCH_TF1
DL_DSCH_TFC2	DSCH_TF2
DL_DSCH_TFC3	DSCH_TF3
DL_DSCH_TFC4	DSCH_TF4
DL_DSCH_TFC5	DSCH_TF5
DL_DSCH_TFC6	DSCH_TF6
DL_DSCH_TFC7	DSCH_TF7
DL_DSCH_TFC8	DSCH_TF8
DL_DSCH_TFC9	DSCH_TF9
DL_DSCH_TFC10	DSCH_TF10
DL_DSCH_TFC11	DSCH_TF11
DL_DSCH_TFC12	DSCH_TF12
DL_DSCH_TFC13	DSCH_TF13
DL_DSCH_TFC14	DSCH_TF14
DL_DSCH_TFC15	DSCH_TF15
DL_DSCH_TFC16	DSCH_TF16
DL_DSCH_TFC17	DSCH_TF17
DL_DSCH_TFC18	DSCH_TF18

DCH downlink TFS:

	TFI	DCCH
TFS	DCH_TF0, bits	0x148
	DCH_TF1, bits	1x148

DCH downlink TFCS:

TFCI	DCCH
DL_DCH_TFC0	DCH_TF0
DL_DCH_TFC1	DCH_TF1

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_DSCH_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 632	RB5: 632
2	DL_DSCH_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 1272	RB5: 1272
3	DL_DSCH_TFC3	UL_TFC3	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 2872	RB5: 2552
4	DL_DSCH_TFC4	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
5	DL_DSCH_TFC5	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 7672	RB5: 7672
6	DL_DSCH_TFC6	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 10232	RB5: 20232
7	DL_DSCH_TFC7	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 12792	RB5: 12792
8	DL_DSCH_TFC8	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 15352	RB5: 15352
9	DL_DSCH_TFC9	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 17912	RB5: 17912
10	DL_DSCH_TFC10	UL_TFC4	DL_DSCH_TFC0, DL_DSC_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 20472	RB5: 20472
11	DL_DSCH_TFC11	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 23032	RB5: 23032
12	DL_DSCH_TFC12	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 25592	RB5: 25592

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
13	DL_DSCH_TFC13	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 28152	RB5: 28152
14	DL_DSCH_TFC14	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 30712	RB5: 30712
15	DL_DSCH_TFC15	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 33272	RB5: 33272
16	DL_DSCH_TFC16	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 35832	RB5: 35832
17	DL_DSCH_TFC17	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 38392	RB5: 38392
18	DL_DSCH_TFC18	UL_TFC4	DL_DSCH_TFC0, DL_DCH_TFC0, DL_DCH_TFC1, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 40952	RB5: 40952

NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

See 14.1.1 for test procedure.

14.3.3.2.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (3x336).
   - for sub-test 4 to 18: RB5/TF4 (4x336).
3. At step 15 the UE shall return
   - for sub-test 1, 2, 4 to 18: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the first 2552 bits equal to the content of the DL RLC SDU sent by the SS.

14.3.4 Void

14.3.5 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.3.5.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 10 ms TTI

14.3.5.1.1 Conformance requirement

See 14.2.4.1

14.3.5.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.2.5 for the downlink 10 ms TTI case.

14.3.5.1.3 Method of test

Uplink TFS:

	TFI	**RB5 (RAB subflow #1)**	**RB6 (RAB subflow #2)**	**RB7 (RAB subflow #3)**	**RB8 (64 kbps, 20 ms TTI)**	**DCCH**
TFS	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

DSCH downlink TFS:

	TFI	RB5 (384 kbps)
TFS	DSCH_TF0, bits	0x354
	DSCH_TF1, bits	1x354
	DSCH_TF2, bits	2x354
	DSCH_TF3, bits	4x354
	DSCH_TF4, bits	8x354
	DSCH_TF5, bits	12x354

DSCH downlink TFCS:

TFCI	RB8
DL_DSCH_TFC0	DSCH_TF0
DL_DSCH_TFC1	DSCH_TF1
DL_DSCH_TFC2	DSCH_TF2
DL_DSCH_TFC3	DSCH_TF3
DL_DSCH_TFC4	DSCH_TF4
DL_DSCH_TFC5	DSCH_TF5

Downlink TFS (For CS):

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)
TFS	TF0, bits	1x0	0x103	0x60
	TF1, bits	1x39	1x103	1x60
	TF2, bits	1x81	N/A	N/A
	TF3, bits	N/A	N/A	N/A
	TF4, bits	N/A	N/A	N/A
	TF5, bits	N/A	N/A	N/A

DCH downlink TFS:

	TFI	DCCH
TFS	DCH_TF0, bits	0x148
	DCH_TF1, bits	1x148

DCH downlink TFCS:

TFCI	DCCH
DL_DCH_TFC0	DCH_TF0
DL_DCH_TFC1	DCH_TF1

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, DCH_TF0)
DL_TFC1	(TF1, TF0, TF0, DCH_TF0)
DL_TFC2	(TF2, TF1, TF1, DCH_TF0)
DL_TFC3	(TF0, TF0, TF0, DCH_TF1)
DL_TFC4	(TF1, TF0, TF0, DCH_TF1)
DL_TFC5	(TF2, TF1, TF1, DCH_TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (Note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1, DL_TFC4,	UL_TFC1, UL_TFC16	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC5,	UL_TFC2, UL_TFC17	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC1, DL_TFC4, DL_DSCH_TFC1	UL_TFC3, UL_TFC18	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC18	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 312

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (Note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
4	DL_TFC1, DL_TFC4, DL_DSCH_TFC1	UL_TFC4, UL_TFC19	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC2, DL_TFC5, DL_DSCH_TFC1	UL_TFC5, UL_TFC20	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC5, UL_TFC15, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC1, DL_TFC4, DL_DSCH_TFC2	UL_TFC6, UL_TFC21	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3,UL_TFC6,UL_TFC15,UL_TFC21	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 632
7	DL_TFC1, DL_TFC4, DL_DSCH_TFC2	UL_TFC7, UL_TFC22	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC7, UL_TFC15, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 632
8	DL_TFC2, DL_TFC5, DL_DSCH_TFC2	UL_TFC8, UL_TFC23	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC8, UL_TFC15, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632
9	DL_TFC1, DL_TFC4, DL_DSCH_TFC3	UL_TFC9, UL_TFC24	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9 UL_TFC15, UL_TFC24	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: No data RB6: No data RB7: No data RB8: 1272
10	DL_TFC1, DL_TFC4, DL_DSCH_TFC3	UL_TFC10, UL_TFC25	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC10 UL_TFC15, UL_TFC25	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: 39 RB6: No data RB7: No data RB8: 1272
11	DL_TFC2, DL_TFC5, DL_DSCH_TFC3	UL_TFC11, UL_TFC26	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC11 ,UL_TFC15, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: 81 RB6: 103 RB7: 60 RB8: 1272
12	DL_TFC1, DL_TFC4, DL_DSCH_TFC4	UL_TFC12, UL_TFC27	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 2552

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (Note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
13	DL_TFC1, DL_TFC4, DL_DSCH_TFC4	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 2552
14	DL_TFC2, DL_TFC5, DL_DSCH_TFC4	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 2552
15	DL_TFC1, DL_TFC4, DL_DSCH_TFC5	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 3882
16	DL_TFC2, DL_TFC5, DL_DSCH_TFC5	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 3882

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, and UL_TFC15 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). The size of the uplink RLC SDU is set to the uplink TFS size minus 8 bits (size of 7 bit length indicator and expansion bit).

14.3.5.1.4 Test requirements

See 14.1.2a for definition of step B10 and step 15.

1. At step B10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15e and 15f the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 15e and 15f the UE shall return
   - for sub-test 1: RLC SDUs on RB5 having the same content as the DL RLC SDUs sent by the SS; and no data shall be received on RB6, RB7 and RB8
   - for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as the DL RLC SDUs sent by the SS; and no data shall be received on RB8.
   - for sub-test 3 and 6: RLC SDUs on RB8 having the same content as the DL RLC SDUs sent by the SS; no data shall be received on RB5, RB6 and RB7.
   - for sub-test 4 and 7: RLC SDUs on RB5 and RB8 having the same content as the DL RLC SDUs sent by the SS.
   - for sub-test 5 and 8: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as the DL RLC SDUs sent by the SS.

- for sub-test 9: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 10: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 11: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 12: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 13 and 15: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 14 and 16: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

4. At step 15f UE shall send at least one MEASUREMENT REPORT message.

14.3.5.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 20 ms TTI

14.3.5.2.1 Conformance requirement

See 14.2.4.1

14.3.5.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.2.5 for the downlink 20 ms TTI case.

14.3.5.2.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

DSCH downlink TFS:

	TFI	RB5 (384 kbps)
TFS	DSCH_TF0, bits	0x354
	DSCH_TF1, bits	1x354
	DSCH_TF2, bits	2x354
	DSCH_TF3, bits	4x354
	DSCH_TF4, bits	8x354
	DSCH_TF5, bits	12x354
	DSCH_TF6, bits	16x354
	DSCH_TF7, bits	20x354
	DSCH_TF8, bits	24x354

DSCH downlink TFCS:

TFCI	RB8
DL_DSCH_TFC0	DSCH_TF0
DL_DSCH_TFC1	DSCH_TF1
DL_DSCH_TFC2	DSCH_TF2
DL_DSCH_TFC3	DSCH_TF3
DL_DSCH_TFC4	DSCH_TF4
DL_DSCH_TFC5	DSCH_TF5
DL_DSCH_TFC6	DSCH_TF6
DL_DSCH_TFC7	DSCH_TF7
DL_DSCH_TFC8	DSCH_TF8

Downlink TFS (For CS):

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)
TFS	TF0, bits	1x0	0x103	0x60
	TF1, bits	1x39	1x103	1x60
	TF2, bits	1x81	N/A	N/A
	TF3, bits	N/A	N/A	N/A
	TF4, bits	N/A	N/A	N/A
	TF5, bits	N/A	N/A	N/A

DCH downlink TFS:

	TFI	DCCH
TFS	DCH_TF0, bits	0x148
	DCH_TF1, bits	1x148

DCH downlink TFCS:

TFCI	DCCH
DL_DCH_TFC0	DCH_TF0
DL_DCH_TFC1	DCH_TF1

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, DCH_TF0)
DL_TFC1	(TF1, TF0, TF0, DCH_TF0)
DL_TFC2	(TF2, TF1, TF1, DCH_TF0)
DL_TFC3	(TF0, TF0, TF0, DCH_TF1)
DL_TFC4	(TF1, TF0, TF0, DCH_TF1)
DL_TFC5	(TF2, TF1, TF1, DCH_TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1, DL_TFC4,	UL_TFC1, UL_TFC16	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC5,	UL_TFC2, UL_TFC17	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC1, DL_TFC4, DL_DSCH_TFC1	UL_TFC3, UL_TFC18	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC18, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 312

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
4	DL_TFC1, DL_TFC4, DL_DSCH_TFC1	UL_TFC4, UL_TFC19	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC19, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC2, DL_TFC5, DL_DSCH_TFC1	UL_TFC5, UL_TFC20	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC20, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC1, DL_TFC4, DL_DSCH_TFC2	UL_TFC6, UL_TFC21	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC15, UL_TFC21, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 632
7	DL_TFC1, DL_TFC4, DL_DSCH_TFC2	UL_TFC7, UL_TFC22	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC7, UL_TFC15, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 632
8	DL_TFC2, DL_TFC5, DL_DSCH_TFC2	UL_TFC8, UL_TFC23	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC8, UL_TFC15, UL_TFC23, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632
9	DL_TFC1, DL_TFC4, DL_DSCH_TFC3	UL_TFC9, UL_TFC24	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC15, UL_TFC24, ,	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: No data RB6: No data RB7: No data RB8: 1272
10	DL_TFC1, DL_TFC4, DL_DSCH_TFC3	UL_TFC10, UL_TFC25	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC10, UL_TFC15, UL_TFC25, ,	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: 39 RB6: No data RB7: No data RB8: 1272
11	DL_TFC2, DL_TFC5, DL_DSCH_TFC3	UL_TFC11, UL_TFC26	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC11, UL_TFC15, UL_TFC26, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: 81 RB6: 103 RB7: 60 RB8: 1272
12	DL_TFC1, DL_TFC4, DL_DSCH_TFC4	UL_TFC12, UL_TFC27	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 2552

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
13	DL_TFC1, DL_TFC4, DL_DSCH_TFC4	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 2552
14	DL_TFC2, DL_TFC5, DL_DSCH_TFC4	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3,, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 2552
15	DL_TFC1, DL_TFC4, DL_DSCH_TFC5	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3,, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 3882
16	DL_TFC2, DL_TFC5, DL_DSCH_TFC5	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 3882
17	DL_TFC1, DL_TFC4, DL_DSCH_TFC6	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 5112
18	DL_TFC2, DL_TFC5, DL_DSCH_TFC6	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 5112
19	DL_TFC1, DL_TFC4, DL_DSCH_TFC7	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 6392
20	DL_TFC2, DL_TFC5, DL_DSCH_TFC7	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 6392
21	DL_TFC1, DL_TFC4, DL_DSCH_TFC8	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 7672

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
22	DL_TFC2, DL_TFC5, DL_DSCH_TFC8	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 7672

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, and UL_TFC15 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).

14.3.5.2.4 Test requirements

See 14.1.2a for definition of step B10 and step 15.

1. At step B10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15e and 15f the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 15e and 15f the UE shall return
   - for sub-test 1: RLC SDUs on RB5 having the same content as the DL RLC SDUs sent by the SS; and no data shall be received on RB6, RB7 and RB8.
   - for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as the DL RLC SDUs sent by the SS; and no data shall be received on RB8.
   - for sub-test 3 and 6: RLC SDUs on RB8 having the same content as the DL RLC SDUs sent by the SS; no data shall be received on RB5, RB6 and RB7.
   - for sub-test 4 and 7: RLC SDUs on RB5 and RB8 having the same content as the DL RLC SDUs sent by the SS.
   - for sub-test 5 and 8: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as the DL RLC SDUs sent by the SS.
   - for sub-test 9: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
   - for sub-test 10: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
   - for sub-test 11: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
   - for sub-test 12: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
   - for sub-tests 13, 15, 17, 19 and 21: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
   - for sub-tests14, 16, 18, 20 and 22: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

4. At step 15f UE shall send at least one MEASUREMENT REPORT message.

14.3.6 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.3.6.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 10 ms TTI

14.3.6.1.1 Conformance requirement

See 14.2.4.1

14.3.6.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.2.6 for the downlink 10 ms TTI case.

14.3.6.1.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

DSCH downlink TFS:

	TFI	RB5 (2048 kbps)
TFS	DSCH_TF0, bits	0x674
	DSCH_TF1, bits	1x674
	DSCH_TF2, bits	2x674
	DSCH_TF3, bits	4x674
	DSCH_TF4, bits	8x674
	DSCH_TF5, bits	12x674
	DSCH_TF6, bits	16x674
	DSCH_TF7, bits	20x674
	DSCH_TF8, bits	24x674
	DSCH_TF9, bits	28x674
	DSCH_TF10, bits	32x674

DSCH downlink TFCS:

TFCI	RB8
DL_DSCH_TFC0	DSCH_TF0
DL_DSCH_TFC1	DSCH_TF1
DL_DSCH_TFC2	DSCH_TF2
DL_DSCH_TFC3	DSCH_TF3
DL_DSCH_TFC4	DSCH_TF4
DL_DSCH_TFC5	DSCH_TF5
DL_DSCH_TFC6	DSCH_TF6
DL_DSCH_TFC7	DSCH_TF7
DL_DSCH_TFC8	DSCH_TF8
DL_DSCH_TFC9	DSCH_TF9
DL_DSCH_TFC10	DSCH_TF10

Downlink TFS (For CS):

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)
TFS	TF0, bits	1x0	0x103	0x60
	TF1, bits	1x39	1x103	1x60
	TF2, bits	1x81	N/A	N/A
	TF3, bits	N/A	N/A	N/A
	TF4, bits	N/A	N/A	N/A
	TF5, bits	N/A	N/A	N/A

DCH downlink TFS:

	TFI	DCCH
TFS	DCH_TF0, bits	0x148
	DCH_TF1, bits	1x148

DCH downlink TFCS:

TFCI	DCCH
DL_DCH_TFC0	DCH_TF0
DL_DCH_TFC1	DCH_TF1

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, DCH_TF0)
DL_TFC1	(TF1, TF0, TF0, DCH_TF0)
DL_TFC2	(TF2, TF1, TF1, DCH_TF0)
DL_TFC3	(TF0, TF0, TF0, DCH_TF1)
DL_TFC4	(TF1, TF0, TF0, DCH_TF1)
DL_TFC5	(TF2, TF1, TF1, DCH_TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1, DL_TFC4,	UL_TFC1, UL_TFC16	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC16, ,	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC5,	UL_TFC2, UL_TFC17	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC17, ,	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC1, DL_TFC4, DL_DSCH_TFC1	UL_TFC3, UL_TFC18	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC18, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 632
4	DL_TFC1, DL_TFC4, DL_DSCH_TFC1	UL_TFC4, UL_TFC19	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC19, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 632
5	DL_TFC2, DL_TFC5, DL_DSCH_TFC1	UL_TFC5, UL_TFC20	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC20, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 632
6	DL_TFC1, DL_TFC4, DL_DSCH_TFC2	UL_TFC6, UL_TFC21	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC15, UL_TFC21, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 1272
7	DL_TFC1, DL_TFC4, DL_DSCH_TFC2	UL_TFC7, UL_TFC22	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC7, UL_TFC15, UL_TFC22, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 1272
8	DL_TFC2, DL_TFC5, DL_DSCH_TFC2	UL_TFC8, UL_TFC23	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC8, UL_TFC15, UL_TFC23, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 1272

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
9	DL_TFC1, DL_TFC4, DL_DSCH_TFC3	UL_TFC9, UL_TFC24	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC15, UL_TFC24, ,	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: No data RB6: No data RB7: No data RB8: 2552
10	DL_TFC1, DL_TFC4, DL_DSCH_TFC3	UL_TFC10, UL_TFC25	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC10, UL_TFC15, UL_TFC25, ,	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: 39 RB6: No data RB7: No data RB8: 2552
11	DL_TFC2, DL_TFC5, DL_DSCH_TFC3	UL_TFC11, UL_TFC26	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC11, UL_TFC15, UL_TFC26, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: 81 RB6: 103 RB7: 60 RB8: 2552
12	DL_TFC1, DL_TFC4, DL_DSCH_TFC4	UL_TFC12, UL_TFC27	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 5112
13	DL_TFC1, DL_TFC4, DL_DSCH_TFC4	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 5112
14	DL_TFC2, DL_TFC5, DL_DSCH_TFC4	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 5112
15	DL_TFC1, DL_TFC4, DL_DSCH_TFC5	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 7672
16	DL_TFC2, DL_TFC5, DL_DSCH_TFC5	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 7672

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
17	DL_TFC1, DL_TFC4, DL_DSCH_TFC6	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 10232
18	DL_TFC2, DL_TFC5, DL_DSCH_TFC6	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 10232
19	DL_TFC1, DL_TFC4, DL_DSCH_TFC7	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 12792
20	DL_TFC2, DL_TFC5, DL_DSCH_TFC7	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 12792
21	DL_TFC1, DL_TFC4, DL_DSCH_TFC8	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 15352
22	DL_TFC2, DL_TFC5, DL_DSCH_TFC8	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 15352
23	DL_TFC1, DL_TFC4, DL_DSCH_TFC9	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 17912
24	DL_TFC2, DL_TFC5, DL_DSCH_TFC9	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 17912

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
25	DL_TFC1, DL_TFC4, DL_DSCH_TFC10	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 20472
26	DL_TFC2, DL_TFC5, DL_DSCH_TFC10	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 20472
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, and UL_TFC15 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). The size of the uplink RLC SDU has been set such that it will be transmitted over each TTI, i.e. the uplink TFS size minus 8 bits (size of 7 bit length indicator and expansion bit).						

14.3.6.1.4 Test requirements

See 14.1.2a for definition of step B10 and step 15.

1. At step B10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15e and 15f the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 15e and 15f the UE shall return

   - for sub-test 1: RLC SDUs on RB5 having the same content as the DL RLC SDUs sent by the SS; and no data shall be received on RB6, RB7 and RB8.

   - for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as the DL RLC SDUs sent by the SS; and no data shall be received on RB8.

   - for sub-test 3: RLC SDUs on RB8 having the content equal to the first 312 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

   - for sub-test 4: RLC SDUs on RB8 having the content equal to the first 312 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

   - for sub-test 5: RLC SDUs on RB8 having the content equal to the first 312 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

   - for sub-test 6: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

   - for sub-test 7: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

   - for sub-test 8: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

   - for sub-test 9: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 10: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 11: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 12: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-tests 13, 15, 17, 19, 21, 23 and 25: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-tests 14, 16, 18, 20, 22, 24 and 26: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

4. At step 15f UE shall send at least one MEASUREMENT REPORT message.

14.3.6.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 10 ms TTI

14.3.6.2.1 Conformance requirement

See 14.2.4.1

14.3.6.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.2.6 for the downlink 20 ms TTI case.

14.3.6.2.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

DSCH downlink TFS:

	TFI	RB5 (2048 kbps)
TFS	DSCH_TF0, bits	0x674
	DSCH_TF1, bits	1x674
	DSCH_TF2, bits	2x674
	DSCH_TF3, bits	4x674
	DSCH_TF4, bits	8x674
	DSCH_TF5, bits	12x674
	DSCH_TF6, bits	16x674
	DSCH_TF7, bits	20x674
	DSCH_TF8, bits	24x674
	DSCH_TF9, bits	28x674
	DSCH_TF10, bits	32x674
	DSCH_TF11, bits	36x674
	DSCH_TF12, bits	40x674
	DSCH_TF13, bits	44x674
	DSCH_TF14, bits	48x674
	DSCH_TF15, bits	52x674
	DSCH_TF16, bits	56x674
	DSCH_TF17, bits	60x674
	DSCH_TF18, bits	64x674

DSCH downlink TFCS:

TFCI	RB8
DL_DSCH_TFC0	DSCH_TF0
DL_DSCH_TFC1	DSCH_TF1
DL_DSCH_TFC2	DSCH_TF2
DL_DSCH_TFC3	DSCH_TF3
DL_DSCH_TFC4	DSCH_TF4
DL_DSCH_TFC5	DSCH_TF5
DL_DSCH_TFC6	DSCH_TF6
DL_DSCH_TFC7	DSCH_TF7
DL_DSCH_TFC8	DSCH_TF8
DL_DSCH_TFC9	DSCH_TF9
DL_DSCH_TFC10	DSCH_TF10
DL_DSCH_TFC11	DSCH_TF11
DL_DSCH_TFC12	DSCH_TF12
DL_DSCH_TFC13	DSCH_TF13
DL_DSCH_TFC14	DSCH_TF14
DL_DSCH_TFC15	DSCH_TF15
DL_DSCH_TFC16	DSCH_TF16
DL_DSCH_TFC17	DSCH_TF17
DL_DSCH_TFC18	DSCH_TF18

Downlink TFS (For CS):

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)
TFS	TF0, bits	1x0	0x103	0x60
	TF1, bits	1x39	1x103	1x60
	TF2, bits	1x81	N/A	N/A
	TF3, bits	N/A	N/A	N/A
	TF4, bits	N/A	N/A	N/A
	TF5, bits	N/A	N/A	N/A

DCH downlink TFS:

	TFI	DCCH
TFS	DCH_TF0, bits	0x148
	DCH_TF1, bits	1x148

DCH downlink TFCS:

TFCI	DCCH
DL_DCH_TFC0	DCH_TF0
DL_DCH_TFC1	DCH_TF1

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, DCH_TF0)
DL_TFC1	(TF1, TF0, TF0, DCH_TF0)
DL_TFC2	(TF2, TF1, TF1, DCH_TF0)
DL_TFC3	(TF0, TF0, TF0, DCH_TF1)
DL_TFC4	(TF1, TF0, TF0, DCH_TF1)
DL_TFC5	(TF2, TF1, TF1, DCH_TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1, DL_TFC4,	UL_TFC1, UL_TFC16	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC16, ,	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC5,	UL_TFC2, UL_TFC17	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC17, ,	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC1, DL_TFC4, DL_DSCH_TFC1	UL_TFC3, UL_TFC18	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC18, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 632
4	DL_TFC1, DL_TFC4, DL_DSCH_TFC1	UL_TFC4, UL_TFC19	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC19, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 632
5	DL_TFC2, DL_TFC5, DL_DSCH_TFC1	UL_TFC5, UL_TFC20	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC20, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 632
6	DL_TFC1, DL_TFC4, DL_DSCH_TFC2	UL_TFC6, UL_TFC21	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC15, UL_TFC21, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 1272
7	DL_TFC1, DL_TFC4, DL_DSCH_TFC2	UL_TFC7, UL_TFC22	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC7, UL_TFC15, UL_TFC22, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 1272
8	DL_TFC2, DL_TFC5, DL_DSCH_TFC2	UL_TFC8, UL_TFC23	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC8, UL_TFC15, UL_TFC23, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 1272

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
9	DL_TFC1, DL_TFC4, DL_DSCH_TFC3	UL_TFC9, UL_TFC24	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC15, UL_TFC24, ,	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: No data RB6: No data RB7: No data RB8: 2552
10	DL_TFC1, DL_TFC4, DL_DSCH_TFC3	UL_TFC10, UL_TFC25	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC10, UL_TFC15, UL_TFC25, ,	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: 39 RB6: No data RB7: No data RB8: 2552
11	DL_TFC2, DL_TFC5, DL_DSCH_TFC3	UL_TFC11, UL_TFC26	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC11, UL_TFC15, UL_TFC26, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: 81 RB6: 103 RB7: 60 RB8: 2552
12	DL_TFC1, DL_TFC4, DL_DSCH_TFC4	UL_TFC12, UL_TFC27	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 5112
13	DL_TFC1, DL_TFC4, DL_DSCH_TFC4	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 5112
14	DL_TFC2, DL_TFC5, DL_DSCH_TFC4	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3,, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 5112
15	DL_TFC1, DL_TFC4, DL_DSCH_TFC5	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3,, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 7672
16	DL_TFC2, DL_TFC5, DL_DSCH_TFC5	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 7672

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
17	DL_TFC1, DL_TFC4, DL_DSCH_TFC6	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 10232
18	DL_TFC2, DL_TFC5, DL_DSCH_TFC6	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 10232
19	DL_TFC1, DL_TFC4, DL_DSCH_TFC7	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 12792
20	DL_TFC2, DL_TFC5, DL_DSCH_TFC7	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 12792
21	DL_TFC1, DL_TFC4, DL_DSCH_TFC8	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 15352
22	DL_TFC2, DL_TFC5, DL_DSCH_TFC8	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 15352
23	DL_TFC1, DL_TFC4, DL_DSCH_TFC9	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 17912
24	DL_TFC2, DL_TFC5, DL_DSCH_TFC9	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 17912

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
25	DL_TFC1, DL_TFC4, DL_DSCH_TFC10	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 20472
26	DL_TFC2, DL_TFC5, DL_DSCH_TFC10	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 20472
27	DL_TFC1, DL_TFC4, DL_DSCH_TFC11	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 23032
28	DL_TFC2, DL_TFC5, DL_DSCH_TFC11	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 23032
29	DL_TFC1, DL_TFC4, DL_DSCH_TFC12	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 25592
30	DL_TFC2, DL_TFC5, DL_DSCH_TFC12	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 25592
31	DL_TFC1, DL_TFC4, DL_DSCH_TFC13	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 28152
32	DL_TFC2, DL_TFC5, DL_DSCH_TFC13	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 28152

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
33	DL_TFC1, DL_TFC4, DL_DSCH_TFC14	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 30712
34	DL_TFC2, DL_TFC5, DL_DSCH_TFC14	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 30712
35	DL_TFC1, DL_TFC4, DL_DSCH_TFC15	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 33272
36	DL_TFC2, DL_TFC5, DL_DSCH_TFC15	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 33272
37	DL_TFC1, DL_TFC4, DL_DSCH_TFC16	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 35832
38	DL_TFC2, DL_TFC5, DL_DSCH_TFC16	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 35832
39	DL_TFC1, DL_TFC4, DL_DSCH_TFC17	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 38392
40	DL_TFC2, DL_TFC5, DL_DSCH_TFC17	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 38392

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
41	DL_TFC1, DL_TFC4, DL_DSCH_TFC18	UL_TFC13, UL_TFC28	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28, , ,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 40952
42	DL_TFC2, DL_TFC5, DL_DSCH_TFC18	UL_TFC14, UL_TFC29	DL_DSCH_TFC0, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC14, UL_TFC15, UL_TFC29, , ,	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 40952

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, and UL_TFC15 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).

14.3.6.2.4 Test requirements

See 14.1.2a for definition of step B10 and step 15.

1. At step B10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15e and 15f the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 15e and 15f the UE shall return
   - for sub-test 1: RLC SDUs on RB5 having the same content as the DL RLC SDUs sent by the SS; and no data shall be received on RB6, RB7 and RB8.
   - for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as the DL RLC SDUs sent by the SS; and no data shall be received on RB8.
   - for sub-test 3: RLC SDUs on RB8 having the content equal to the first 312 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
   - for sub-test 4: RLC SDUs on RB8 having the content equal to the first 312 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
   - for sub-test 5: RLC SDUs on RB8 having the content equal to the first 312 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
   - for sub-test 6: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
   - for sub-test 7: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
   - for sub-test 8: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
   - for sub-test 9: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 10: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 11: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 12: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-tests 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39 and 41: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-tests 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40 and 42: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

4. At step 15f UE shall send at least one MEASUREMENT REPORT message.

14.4 Combinations on SCCPCH

14.4.1 Stand-alone signalling RB for PCCH

Void

14.4.2 Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.3.2.

This radio bearer configuration is tested with three different SYSTEM INFORMATION (BCCH) configurations:

1. The contents of System Information Block type 5 / System Information Block type 5bis shall be as per the specific message content.

   Two SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and the second SCCPCH carries the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH.

   This configuration is verified in test case 14.4.2.1.

2. The contents of System Information Block type 5 / System Information Block type 5bis as specified in TS 34.108, clause 6.1.3.

   Three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and both the second and third SCCPCHs carry the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH.

   This configuration is verified in test case 14.4.2.2.

3. The contents of System Information Block type 5 / System Information Block type 5bis and 6 as specified in TS 34.108, clause 6.1.2.

   Three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH. The second SCCPCH carries the FACH for CTCH (Cell Broadcast Service) and the FACH for SRBs on CCCH/ BCCH for idle mode UEs. The third SCCPCH carries the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH for connected mode UEs.

   This configuration is verified in test case 14.4.2.3.

14.4.2.1 One SCCPCH: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

14.4.2.1.1 Conformance requirement

See 14.2.4.1.

14.4.2.1.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.10.2.4.3.2 and 6.10.2.4.4.1 for the case when two SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and the second SCCPCH carries the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.10.2.4.4.1 (Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

14.4.2.1.3 Method of Test

The contents of System Information Block type 5 / System Information Block type 5bis shall be as per the specific message content.

Uplink TFS:

	TFI	**RB7+SRB (32kbps on RACH)**
TFS	TF0, bits	1x168
	TF1, bits	1x360

Uplink TFCS:

TFCI	**RB7+SRB**
UL_TFC0	TF0
UL_TFC1	TF1

Downlink TFS:

		SRBs	**RB7 (32 kbps)**
TFS	TF0, bits	0x168	0x360
	TF1, bits	1x168	1x360
	TF2, bits	2x168	N/A

Downlink TFCS:

TFCI	**(SRB, RB7)**
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC3	UL_TFC1	DL_TFC0, UL_TFC0	RB7: 312 bits	RB7: 312 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB7: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit).					

See 14.1.1 for test procedure.

Specific Message Contents

Use the default parameter values for the system information block 5 with the same type specified in clause

6.1.1 of TS 34.108, with the following exceptions

Information Element	Value/remark
- SIB6 indicator	FALSE

14.4.2.1.4 Test Requirements

See 14.1.1 for definition of step 15

1. At step 15 the UE transmitted transport format shall be RB7/TF1 (1x360).
2. At step 15 the UE shall return an RLC SDU on RB7 having the same content as sent by SS

14.4.2.2 Two SCCPCHs: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

14.4.2.2.1 Conformance requirement

See 14.2.4.1.

14.4.2.2.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.10.2.4.3.2 and 6.10.2.4.4.1 for the case when three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and both the second and third SCCPCHs carry the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.10.2.4.4.1 (Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

14.4.2.2.3 Method of Test

The contents of System Information Block type 5 / System Information Block type 5bis shall be as specified in TS 34.108, clause 6.1.3.

Uplink TFS:

	TFI	RB7+SRB (32kbps on RACH)
TFS	TF0, bits	1x168
	TF1, bits	1x360

Uplink TFCS:

TFCI	RB7+SRB
UL_TFC0	TF0
UL_TFC1	TF1

Downlink TFS:

		SRBs	RB7 (32 kbps)
TFS	TF0, bits	0x168	0x360
	TF1, bits	1x168	1x360
	TF2, bits	2x168	N/A

Downlink TFCS:

TFCI	(SRB, RB7)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC3	UL_TFC1	DL_TFC0, UL_TFC0	RB7: 312 bits	RB7: 312 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB7: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit).					

See 14.1.1 for test procedure.

14.4.2.2.4 Test Requirements

See 14.1.1 for definition of step 15

1. At step 15 the UE transmitted transport format shall be RB7/TF1 (1x360).
2. At step 15 the UE shall return an RLC SDU on RB7 having the same content as sent by SS

14.4.2.3 One SCCPCH/connected mode: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

14.4.2.3.1 Conformance requirement

See 14.2.4.1.

14.4.2.3.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.10.2.4.3.2 and 6.10.2.4.4.1 for the case when three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH. The second SCCPCH carries the FACH for CTCH (Cell Broadcast Service) and the FACH for SRBs on CCCH/ BCCH for idle mode UEs. The third SCCPCH carries the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH for connected mode UEs.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.10.2.4.4.1 (Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

14.4.2.3.3 Method of Test

The contents of System Information Block type 5 / System Information Block type 5bis and 6 shall be as specified in TS 34.108, clause 6.1.2.

Uplink TFS:

	TFI	**RB7+SRB (32kbps on RACH)**
TFS	TF0, bits	1x168
	TF1, bits	1x360

Uplink TFCS:

TFCI	**RB7+SRB**
UL_TFC0	TF0
UL_TFC1	TF1

Downlink TFS:

		SRBs	**RB7 (32 kbps)**
TFS	TF0, bits	0x168	0x360
	TF1, bits	1x168	1x360
	TF2, bits	2x168	N/A

Downlink TFCS:

TFCI	**(SRB, RB7)**
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC3	UL_TFC1	DL_TFC0, UL_TFC0	RB7: 312 bits	RB7: 312 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB7: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit).					

See 14.1.1 for test procedure.

14.4.2.3.4 Test Requirements

See 14.1.1 for definition of step 15

1. At step 15 the UE transmitted transport format shall be RB7/TF1 (1x360).
2. At step 15 the UE shall return an RLC SDU on RB7 having the same content as sent by SS

14.4.2a Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.3.2a.

This radio bearer configuration is tested with three different SYSTEM INFORMATION (BCCH) configurations:

1. The contents of System Information Block type 5 / System Information Block type 5bis shall be as per the message specific content.

   Two SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and the second SCCPCH carries the FACH for two Interactive/Background 32 kbps PS RABs and the FACH for SRBs on CCCH/ DCCH/ BCCH.

   This configuration is verified in test case 14.4.2a.1.

2. The contents of System Information Block type 5 / System Information Block type 5bis as specified in TS 34.108, clause 6.1.3.

   Three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and both the second and third SCCPCHs carry the FACH for two Interactive/Background 32 kbps PS RABs and the FACH for SRBs on CCCH/ DCCH/ BCCH.

   This configuration is verified in test case 14.4.2a.2.

3. The contents of System Information Block type 5 / System Information Block type 5bis and 6 as specified in TS 34.108, clause 6.1.2.

   Three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH. The second SCCPCH carries the FACH for CTCH (Cell Broadcast Service) and the FACH for SRBs on CCCH/ BCCH for idle mode UEs. The third SCCPCH carries the FACH for two Interactive/Background 32 kbps PS RABs and the FACH for SRBs on CCCH/ DCCH/ BCCH for connected mode UEs.

   This configuration is verified in test case 14.4.2a.3.

Specific Message Content for Radio Bearer Setup message to be used for these test cases:

Use the RADIO BEARER SETUP message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
- RAB information for setup	
- RAB info	(AM DTCH for PS domain)
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	useT315
- RB information to setup	
- RB identity	20
- PDCP Info	Not Present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- Logical channel identity	7
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	6
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter

Information Element	Value/remark
- MAC logical channel priority - Downlink RLC logical channel info - Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity - DL DSCH Transport channel identity - Logical channel identity	Set 8 1 FACH Not Present Not Present 7
- RAB identity	0000 0110B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	useT315
- RB information to setup	
- RB identity	24
- PDCP info	Not Present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- Logical channel identity	10
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	6
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	10
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	10
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set

Information Element	Value/remark
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	10

14.4.2a.1 One SCCPCH: Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

14.4.2a.1.1 Conformance requirement

See 14.2.4.1.

14.4.2a.1.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.3.2a and 6.10.2.4.4.2 for the case when two SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and the second SCCPCH carries the FACH for two Interactive/Background 32 kbps PS RABs and the FACH for SRBs on CCCH/ DCCH/ BCCH.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.10.2.4.4.2 (Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

14.4.2a.1.3 Method of Test

The contents of System Information Block type shall be as per the specific message content below.

See 14.1.1 for test procedure.

NOTE The test procedure for single radio bearer configurations is used as there are no uplink transport format combination for simultaneous data transmission on the PS radio bearers, nor any transport format combination for simultaneous data transmission and signalling.

Uplink TFS:

	TFI	RB7+RB8+SRB (2x32 kbps on RACH)
TFS	TF0, bits	1x168
	TF1, bits	1x360

Uplink TFCS:

TFCI	RB7 + RB8
UL_TFC0	TF0
UL_TFC1	TF1

Downlink TFS:

		SRBs	RB7 + RB8 (2x32 kbps)
TFS	TF0, bits	0x168	0x360
	TF1, bits	1x168	1x360
	TF2, bits	2x168	N/A

Downlink TFCS:

TFCI	(SRB, RB7+RB8)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC3	UL_TFC1	DL_TFC0, UL_TFC0	RB7: 312 bits RB8: 312 bits	RB7: 312 bits RB8: No data
2	DL_TFC3	UL_TFC1	DL_TFC0, UL_TFC0	RB7: 312 bits RB8: 312 bits	RB7: No data RB8: 312 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB7 and RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit).					

Specific Message Contents

Use the default parameter values for the system information block 5 with the same type specified in clause

6.1.1 of TS 34.108, with the following exceptions

Information Element	Value/remark
- SIB6 indicator	FALSE

14.4.2a.1.4 Test Requirements

See 14.1.1 for definition of step 15

1. At step 15 the UE transmitted transport format shall be TF1 (1x360).
2. At step 15 the UE shall return
   - for sub test 1: RLC SDUs on RB7 having the same content as sent by SS
   - for sub test 2: RLC SDUs on RB8 having the same content as sent by SS

14.4.2a.2 Two SCCPCHs: Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

14.4.2a.2.1 Conformance requirement

See 14.2.4.1.

14.4.2a.2.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.10.2.4.3.2 and 6.10.2.4.4.2 for the case when three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and both the second and third SCCPCHs carry the FACH for two Interactive/Background 32 kbps PS RABs and the FACH for SRBs on CCCH/ DCCH/ BCCH.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.10.2.4.4.2 (Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

14.4.2a.2.3 Method of Test

The contents of System Information Block type 5 / System Information Block type 5bis shall be as specified in TS 34.108, clause 6.1.3.

See 14.1.1 for test procedure.

NOTE The test procedure for single radio bearer configurations is used as there are no uplink transport format combination for simultaneous data transmission on the PS radio bearers, nor any transport format combination for simultaneous data transmission and signalling.

Uplink TFS:

	TFI	RB7 + RB8 (2x32 kbps on RACH)
TFS	TF0, bits	1x168
	TF1, bits	1x360

Uplink TFCS:

TFCI	RB7 + RB8
UL_TFC0	TF0
UL_TFC1	TF1

Downlink TFS:

		SRBs	RB7 + RB8 (2x32 kbps)
TFS	TF0, bits	0x168	0x360
	TF1, bits	1x168	1x360
	TF2, bits	2x168	N/A

Downlink TFCS:

TFCI	(SRB, RB7+RB8)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC3	UL_TFC1	DL_TFC0, UL_TFC0	RB7: 312 bits RB8: 312 bits	RB7: 312 bits RB8: No data
2	DL_TFC3	UL_TFC1	DL_TFC0, UL_TFC0	RB7: 312 bits RB8: 312 bits	RB7: No data RB8: 312 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB7 and RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit).					

14.4.2a.2.4 Test Requirements

See 14.1.1 for definition of step 15

1. At step 15 the UE transmitted transport format shall be TF1 (1x360).
2. At step 15 the UE shall return
   - for sub test 1: RLC SDUs on RB7 having the same content as sent by SS
   - for sub test 2: RLC SDUs on RB8 having the same content as sent by SS

14.4.2a.3 One SCCPCH/connected mode: Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

14.4.2a.3.1 Conformance requirement

See 14.2.4.1.

14.4.2a.3.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.10.2.4.3.2 and 6.10.2.4.4.2 for the case when three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH. The second SCCPCH carries the FACH for CTCH (Cell Broadcast Service) and the FACH for SRBs on CCCH/ BCCH for idle mode UEs. The third SCCPCH carries the FACH for two Interactive/Background 32 kbps PS RABs and the FACH for SRBs on CCCH/ DCCH/ BCCH for connected mode UEs.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.10.2.4.4.2 (Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

14.4.2a.3.3 Method of Test

The contents of System Information Block type 5 / System Information Block type 5bis and 6 shall be as specified in TS 34.108, clause 6.1.2.

See 14.1.1 for test procedure.

NOTE The test procedure for single radio bearer configurations is used as there are no uplink transport format combination for simultaneous data transmission on the PS radio bearers, nor any transport format combination for simultaneous data transmission and signalling.

Uplink TFS:

	TFI	**RB7+RB8+SRB (2x32 kbps on RACH)**
TFS	TF0, bits	1x168
	TF1, bits	1x360

Uplink TFCS:

TFCI	**RB7 + RB8**
UL_TFC0	TF0
UL_TFC1	TF1

Downlink TFS:

		SRBs	RB7 + RB8 (2x32 kbps)
TFS	TF0, bits	0x168	0x360
	TF1, bits	1x168	1x360
	TF2, bits	2x168	N/A

Downlink TFCS:

TFCI	(SRB, RB7+RB8)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC3	UL_TFC1	DL_TFC0, UL_TFC0	RB7: 312 bits RB8: 312 bits	RB7: 312 bits RB8: No data
2	DL_TFC3	UL_TFC1	DL_TFC0, UL_TFC0	RB7: 312 bits RB8: 312 bits	RB7: No data RB8: 312 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB7 and RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit).					

14.4.2a.3.4 Test Requirements

1. At step 15 the UE transmitted transport format shall be TF1 (1x360).
2. At step 15 the UE shall return
   - for sub test 1: RLC SDUs on RB7 having the same content as sent by SS
   - for sub test 2: RLC SDUs on RB8 having the same content as sent by SS

14.4.3 Interactive/Background 32 kbps RAB + SRBs for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH

14.4.3.1 Conformance requirement

See 14.2.4.1.

14.4.3.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.10.2.4.3.3 and 6.10.2.4.4.1 for the case when one SCCPCH is used in this SYSTEM INFORMATION (BCCH) configuration. The SCCPCH carries the PCH, the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.10.2.4.4.1 (Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

14.4.3.3 Method of Test

The contents of System Information Block type 5 / System Information Block type 5bis and 6 shall be as specified in TS 34.108, clause 6.1.

Uplink TFS:

	TFI	RB8 (32kbps on RACH)
TFS	TF0, bits	1x168
	TF1, bits	1x360

Uplink TFCS:

TFCI	RB8
UL_TFC0	TF0
UL_TFC1	TF1

Downlink TFS:

		PCCH	SRBs	RB8 (32 kbps)
TFS	TF0, bits	0x240	0x168	0x360
	TF1, bits	1x240	1x168	1x360
	TF2, bits	N/A	2x168	N/A

Downlink TFCS:

TFCI	(PCCH, SRB, RB8)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF0, TF1, TF0)
DL_TFC3	(TF1, TF1, TF0)
DL_TFC4	(TF0, TF2, TF0)
DL_TFC5	(TF1, TF2, TF0)
DL_TFC6	(TF0, TF0, TF1)
DL_TFC7	(TF0, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC6	UL_TFC1	DL_TFC0, UL_TFC0	RB8: 312 bits	RB8: 312 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit).					

See 14.1.1 for test procedure.

14.4.3.4 Test requirements

See 14.1.1 for definition of step 15

1. At step 15 the UE transmitted transport format shall be RB8/TF1 (1x360).
2. At step 15 the UE shall return an RLC SDU on RB8 having the same content as sent by SS

14.4.4 RB for CTCH + SRB for CCCH +SRB for BCCH

14.4.4.1 Definition and applicability

Applicable only for a UE supporting Cell Broadcast Services (CBS) as a type of Broadcast/Multicast Services.

It shall be possible to indicate the reception of certain CBS message contents carried with certain activated CG message types in a clear way on UE side.

14.4.4.2 Conformance Requirement

See 14.2.4.1 and 7.4.2.1.2.

14.4.4.3 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.3.4 for the case when three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH. The second SCCPCH carries the FACH for CTCH (Cell Broadcast Service) and the FACH for SRBs on CCCH/ BCCH for idle mode UEs. The third SCCPCH carries the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH for connected mode UEs.

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.10.2.4.3.3. Data transfer on CTCH is tested similar to testing BMC for a UE in idle mode as specified in TS 34.123-1, clause 7.4.2, data transfer on CCCH is tested by establishing a RRC connection.

14.4.4.4 Method of Test

Initial conditions:

The contents of System Information Block type 1 shall be as per the specific message content.

The contents of System Information Block type 5 / System Information Block type 5bis and 6 shall be as specified in TS 34.108, clause 6.1.2.

The UE is RRC idle mode, the BMC entity is established.

The CB message ID stored on the SIM shall be known for this test (parameter for CBS PDUs). The CBS data type shall be allocated and activated in the UE.

Related ICS/IXIT Statement(s)

As in clause 7.4.2.1.4

Uplink TFS:

	TFI	**RB7+SRB (32 kbps on RACH)**
TFS	TF0, bits	1x168
	TF1, bits	1x360

Uplink TFCS:

TFCI	**RB7+SRB**
UL_TFC0	TF0
UL_TFC1	TF1

Downlink TFS:

		RB7 (32 kbps on CTCH)	SRBs
TFS	TF0, bits	0x168	0x168
	TF1, bits	1x168	1x168

Downlink TFCS:

TFCI	(RB7, SRB)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)

Test Procedure:

a) The UE in RRC Idle mode is triggered to wait for the next system information. The UE is activated to receive CBS messages.

b) The UE and the SS have configured their RLC, MAC, and PHYs layers with all CB related system information.

c) The SS sends the CVS message containing an activated CGS message type according to CB-Data 1 to the UE; this shall be repeated for CPREP times (indicated by the parameter "repetition period").

d) The UE indicates in an unambiguous way, that this message was received.

e) Steps 1 – 4 in the Expected sequence are followed by the steps 2 – 6 of the test procedure according to clause 14.1.1.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		SYSTEM INFORMATION	
2				The SS waits for about 10 s to make sure, that the UE is configured to receive CBS data
3	←		BMC CBS Message	Activated CBS message with CB Data 1 message content as described by the manufacturer. This message shall be repeated "CPREP" times, Parameter: - Message_ID, - Serial-No, - Data coding scheme, - CB-Data 1,
4				After having received the BMC CBS message the UE shall indicate the reception of CB Data 1 in a clear way.

Specific Message Contents

Use the default parameter values for the System Information Block type 1 with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions

Information Element	Conditions	Value/remark
- CN domain identity		PS
- CHOICE CN Type		GSM-MAP
- CN domain specific NAS system information		
- GSM-MAP NAS system information		05 00H
- CN domain specific DRX cycle length coefficient		9
- CN domain identity		CS
- CHOICE CN Type		GSM-MAP
- CN domain specific NAS system information		
- GSM-MAP NAS system information		1E 01H
- CN domain specific DRX cycle length coefficient		9

14.4.4.5 Test Requirements

At step 4 in the Expected sequence, the UE shall store and decode a received activated CBS message.

At step e of the test procedure according to clause 14.1.1 the RRC Connection shall be established.

14.4.5 64.8kbps RB for MTCH with 80 ms TTI / MBMS Broadcast Service

14.4.5.1 Conformance Requirement

The UE shall correctly receive user data on the MTCH from the peer to peer RLC entity according to the configured MTCH.

Reference(s)

3GPP TS 25.2xx series (Physical Layer)

3GPP TS 25.321 (MAC)

3GPP TS 25.322 (RLC)

3GPP TS 25.331 (RRC)

14.4.5.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.3.5.

14.4.5.3 Method of Test

Initial Condition

The UE is interested in the broadcast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).Related ICS/IXIT statements

MBMS Broadcast service application available on UE Yes / No

Test Procedure

See 14.1.5 for test procedure.

Downlink TFS:

	TFI	RB for MTCH (64.8 kbps)
TFS	TF0, bits	0x664
	TF1, bits	1x664
	TF2, bits	2x664
	TF3, bits	3x664
	TF4, bits	4x664
	TF5, bits	5x664
	TF6, bits	6x664
	TF7, bits	7x664
	TF8, bits	8x664

Downlink TFCS:

TFCI	RB for MTCH (64.8 kbps)
DL_TFC0	(TF0)
DL_TFC1	(TF1)
DL_TFC2	(TF2)
DL_TFC3	(TF3)
DL_TFC4	(TF4)
DL_TFC5	(TF5)
DL_TFC6	(TF6)
DL_TFC7	(TF7)
DL_TFC8	(TF8)

Sub-tests:

Sub-test	Downlink TFCS Under test	Implicitly tested	Test data size (bits) (note 1)
1	DL_TFC1	DL_TFC0	640
2	DL_TFC2	DL_TFC0	1288
3	DL_TFC3	DL_TFC0	1936
4	DL_TFC4	DL_TFC0	2584
5	DL_TFC5	DL_TFC0	3232
6	DL_TFC6	DL_TFC0	3880
7	DL_TFC7	DL_TFC0	4528
8	DL_TFC8	DL_TFC0	5176
NOTE 1: Test data size (=DL SDU size) has been set to the N*payload size of the DL TF under test minus 16 bits (size of 2, 7 bit length indicator and expansion bit), where N is the number of transport blocks in the transport format combination under test.			

14.4.5.4 Test Requirements

See 14.1.5 for definition of steps 8 and 12.

1. For the first sub-test: At step 8 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.

2. For the second and following sub-tests: At step 12 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

NOTE: For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the generic test procedure in section 14.1.5 runs through all sub-tests without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at the previous sub-test.

14.4.5m 64.8kbps RB for MTCH with 80 ms TTI / MBMS Multicast Service

14.4.5m.1 Conformance Requirement

Same conformance requirement as in clause 14.4.5.1.

14.4.5m.2 Test purpose

Same test purpose as in clause 14.4.5.2.

14.4.5m.3 Method of Test

Initial Condition

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

MBMS Multicast service application available on UE Yes / No

Test Procedure

Same test procedure as in clause 14.4.5.3

14.4.5m.4 Test Requirements

Same test requirements as in clause 14.4.5.4.

14.4.5n 64.8kbps RB for MTCH with 80 ms TTI / MBMS Multicast Service in MBSFN mode

14.4.5n.1 Conformance Requirement

Same conformance requirement as in clause 14.4.5.1.

14.4.5n.2 Test purpose

Same test purpose as in clause 14.4.5.2.

14.4.5n.3 Method of Test

Initial conditions

System Simulator:

- MBSFN carrier: 1 cell, Cell 31 (PLMN1). In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 and Default1 MCCH scheduling (No ongoing session) according to subclause 11.2 of TS 34.108.
- Unicast carrier : 1 cell, Cell 1 with default parameters.

User Equipment:

- On the unicast carrier cell the UE is in registered Idle Mode on PS (state 3) if the UE only supports PS domain or registered Idle Mode on CS/PS (state 7) if the UE supports both CS and PS domains, as specified in clause 7.2.2 of TS 34.108.

- The UE is in MBSFN Idle mode with one activated service as specified in clause 7.6.4 of TS 34.108. The UE has selected (i.e. it is included in MBMS_ACTIVATED_SERVICES variable) a national service for which a session will start on MBSFN Cell 31 (see TS 34.108 clause 11.2.4) during the test.

Related ICS/IXIT statements

- MBMS Broadcast services in MBSFN mode application available on UE Yes/No.
- Support of transmit and receive functions available on UE Yes/No.
- Support of MBSFN receive only function available on UE Yes/No.

Test Procedure

See 14.1.5m for test procedure.

Same Downlink TFS, Downlink TFCS and Sub-tests as in clause 14.4.5.3

14.4.5n.4 Test Requirements

Same test requirements as in clause 14.4.5.4.

14.4.6 129.6 kbps RB for MTCH with 80 ms TTI / MBMS Broadcast Service

14.4.6.1 Conformance Requirement

See 14.4.5.1.

14.4.6.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.3.6.

14.4.6.3 Method of Test

Initial Condition

The UE is interested in the broadcast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

MBMS Broadcast service application available on UE Yes / No

Test Procedure

See 14.1.5 for test procedure.

Downlink TFS:

	TFI	RB for MTCH (129.6 kbps kbps)
TFS	TF0, bits	0x664
	TF1, bits	1x664
	TF2, bits	2x664
	TF3, bits	3x664
	TF4, bits	4x664
	TF5, bits	5x664
	TF6, bits	6x664
	TF7, bits	7x664
	TF8, bits	8x664
	TF9, bits	9x664
	TF10, bits	10x664
	TF11, bits	11x664
	TF12, bits	12x664
	TF13, bits	13x664
	TF14, bits	14x664
	TF15, bits	15x664
	TF16, bits	16x664

Downlink TFCS:

TFCI	RB for MTCH (129.6 kbps)
DL_TFC0	(TF0)
DL_TFC1	(TF1)
DL_TFC2	(TF2)
DL_TFC3	(TF3)
DL_TFC4	(TF4)
DL_TFC5	(TF5)
DL_TFC6	(TF6)
DL_TFC7	(TF7)
DL_TFC8	(TF8)
DL_TFC9	(TF9)
DL_TFC10	(TF10)
DL_TFC11	(TF11)
DL_TFC12	(TF12)
DL_TFC13	(TF13)
DL_TFC14	(TF14)
DL_TFC15	(TF15)
DL_TFC16	(TF16)

Sub-tests:

Sub-test	Downlink TFCS Under test	Implicitly tested	Test data size (bits) (note 1)
1	DL_TFC1	DL_TFC0	640
2	DL_TFC2	DL_TFC0	1288
3	DL_TFC3	DL_TFC0	1936
4	DL_TFC4	DL_TFC0	2584
5	DL_TFC5	DL_TFC0	3232
6	DL_TFC6	DL_TFC0	3880
7	DL_TFC7	DL_TFC0	4528
8	DL_TFC8	DL_TFC0	5176
9	DL_TFC9	DL_TFC0	5824
10	DL_TFC10	DL_TFC0	6472
11	DL_TFC11	DL_TFC0	7120
12	DL_TFC12	DL_TFC0	7768
13	DL_TFC13	DL_TFC0	8416
14	DL_TFC14	DL_TFC0	9064
15	DL_TFC15	DL_TFC0	9712
16	DL_TFC16	DL_TFC0	10360
NOTE 1: Test data size (=DL SDU size) has been set to the N*payload size of the DL TF under test minus 16 bits (size of 2, 7 bit length indicator and expansion bit), where N is the number of transport blocks in the transport format combination under test.			

14.4.6.4 Test Requirements

See 14.1.5 for definition of steps 8 and 12.

1. For the first sub-test: At step 8 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.

2. For the second and following sub-tests: At step 12 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

NOTE: For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the generic test procedure in section 14.1.5 runs through all sub-tests without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at the previous sub-test.

14.4.6m 129.6 kbps RB for MTCH with 80 ms TTI / MBMS Multicast Service

14.4.6m.1 Conformance Requirement

Same conformance requirement as in clause 14.4.6.1.

14.4.6m.2 Test purpose

Same test purpose as in clause 14.4.6.2.

14.4.6m.3 Method of Test

Initial Condition

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

MBMS Multicast service application available on UE Yes / No

Test Procedure

Same test procedure as in clause 14.4.6.3.

14.4.6m.4 Test Requirements

Same test requirements as in clause 14.4.6.4.

14.4.6n 129.6 kbps RB for MTCH with 80 ms TTI / MBMS Broadcast Service in MBSFN mode

14.4.6n.1 Conformance Requirement

Same conformance requirement as in clause 14.4.6.1.

14.4.6n.2 Test purpose

Same test purpose as in clause 14.4.6.2.

14.4.6n.3 Method of Test

Initial conditions

System Simulator:

- MBSFN carrier: 1 cell, Cell 31 (PLMN1). In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 and Default1 MCCH scheduling (No ongoing session) according to subclause 11.2 of TS 34.108.
- Unicast carrier : 1 cell, Cell 1 with default parameters.

User Equipment:

- On the unicast carrier cell the UE is in registered Idle Mode on PS (state 3) if the UE only supports PS domain or registered Idle Mode on CS/PS (state 7) if the UE supports both CS and PS domains, as specified in clause 7.2.2 of TS 34.108.
- The UE is in MBSFN Idle mode with one activated service as specified in clause 7.6.4 of TS 34.108. The UE has selected (i.e. it is included in MBMS_ACTIVATED_SERVICES variable) a national service for which a session will start on MBSFN Cell 31 (see TS 34.108 clause 11.2.4) during the test.

Related ICS/IXIT statements

- MBMS Broadcast services in MBSFN mode application available on UE Yes/No.
- Support of transmit and receive functions available on UE Yes/No.
- Support of MBSFN receive only function available on UE Yes/No.

Test Procedure

See 14.1.5m for test procedure.

Same Downlink TFS, Downlink TFCS and Sub-tests as in clause 14.4.6.3

14.4.6n.4 Test Requirements

Same test requirements as in clause 14.4.6.4.

14.4.7 259.2 kbps RB for MTCH with 40 ms TTI / MBMS Broadcast Service

14.4.7.1 Conformance Requirement

See 14.4.5.1.

14.4.7.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.3.7.

14.4.7.3 Method of Test

Initial Condition

The UE is interested in the broadcast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).Related ICS/IXIT statements

MBMS Broadcast service application available on UE Yes / No

Test Procedure

See 14.1.5 for test procedure.

Downlink TFS:

	TFI	RB for MTCH (259.2 kbps kbps)
TFS	TF0, bits	0x664
	TF1, bits	1x664
	TF2, bits	2x664
	TF3, bits	3x664
	TF4, bits	4x664
	TF5, bits	5x664
	TF6, bits	6x664
	TF7, bits	7x664
	TF8, bits	8x664
	TF9, bits	9x664
	TF10, bits	10x664
	TF11, bits	11x664
	TF12, bits	12x664
	TF13, bits	13x664
	TF14, bits	14x664
	TF15, bits	15x664
	TF16, bits	16x664

Downlink TFCS:

TFCI	RB for MTCH (259.2 kbps)
DL_TFC0	(TF0)
DL_TFC1	(TF1)
DL_TFC2	(TF2)
DL_TFC3	(TF3)
DL_TFC4	(TF4)
DL_TFC5	(TF5)
DL_TFC6	(TF6)
DL_TFC7	(TF7)
DL_TFC8	(TF8)
DL_TFC9	(TF9)
DL_TFC10	(TF10)
DL_TFC11	(TF11)
DL_TFC12	(TF12)
DL_TFC13	(TF13)
DL_TFC14	(TF14)
DL_TFC15	(TF15)
DL_TFC16	(TF16)

Sub-tests:

Sub-test	Downlink TFCS Under test	Implicitly tested	Test data size (bits) (note 1)
1	DL_TFC1	DL_TFC0	640
2	DL_TFC2	DL_TFC0	1288
3	DL_TFC3	DL_TFC0	1936
4	DL_TFC4	DL_TFC0	2584
5	DL_TFC5	DL_TFC0	3232
6	DL_TFC6	DL_TFC0	3880
7	DL_TFC7	DL_TFC0	4528
8	DL_TFC8	DL_TFC0	5176
9	DL_TFC9	DL_TFC0	5824
10	DL_TFC10	DL_TFC0	6472
11	DL_TFC11	DL_TFC0	7120
12	DL_TFC12	DL_TFC0	7768
13	DL_TFC13	DL_TFC0	8416
14	DL_TFC14	DL_TFC0	9064
15	DL_TFC15	DL_TFC0	9712
16	DL_TFC16	DL_TFC0	10360
NOTE 1: Test data size (=DL SDU size) has been set to the N*payload size of the DL TF under test minus 16 bits (size of 2, 7 bit length indicator and expansion bit), where N is the number of transport blocks in the transport format combination under test.			

14.4.7.4 Test Requirements

See 14.1.5 for definition of steps 8 and 12.

1. For the first sub-test: At step 8 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.

2. For the second and following sub-tests: At step 12 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

NOTE: For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the generic test procedure in section 14.1.5 runs through all sub-tests without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at the previous sub-test.

14.4.7m 259.2 kbps RB for MTCH with 40 ms TTI / MBMS Multicast Service

14.4.7m.1 Conformance Requirement

Same conformance requirement as in clause 14.4.7.1.

14.4.7m.2 Test purpose

Same test purpose as in clause 14.4.7.2.

14.4.7m.3 Method of Test

Initial Condition

The UE has joined the multicast service to be provided by the SS (included in MBMS_ACTIVATED_SERVICES variable).

Related ICS/IXIT statements

MBMS Multicast service application available on UE Yes / No

Test Procedure

Same test procedure as in clause 14.4.7.3.

14.4.7m.4 Test Requirements

Same test requirements as in clause 14.4.7.4.

14.4.7n 259.2 kbps RB for MTCH with 40 ms TTI / MBMS Broadcast Service in MBSFN mode

14.4.7n.1 Conformance Requirement

Same conformance requirement as in clause 14.4.7.1.

14.4.7n.2 Test purpose

Same test purpose as in clause 14.4.7.2.

14.4.7n.3 Method of Test

Initial conditions

System Simulator:

- MBSFN carrier: 1 cell, Cell 31 (PLMN1). In addition to broadcasting System Information, MCCH messages are transmitted by the SS on Cell 31 using MBMS configuration C1 and Default1 MCCH scheduling (No ongoing session) according to subclause 11.2 of TS 34.108.
- Unicast carrier : 1 cell, Cell 1 with default parameters.

User Equipment:

- On the unicast carrier cell the UE is in registered Idle Mode on PS (state 3) if the UE only supports PS domain or registered Idle Mode on CS/PS (state 7) if the UE supports both CS and PS domains, as specified in clause 7.2.2 of TS 34.108.
- The UE is in MBSFN Idle mode with one activated service as specified in clause 7.6.4 of TS 34.108. The UE has selected (i.e. it is included in MBMS_ACTIVATED_SERVICES variable) a national service for which a session will start on MBSFN Cell 31 (see TS 34.108 clause 11.2.4) during the test.

Related ICS/IXIT statements

- MBMS Broadcast services in MBSFN mode application available on UE Yes/No.
- Support of transmit and receive functions available on UE Yes/No.
- Support of MBSFN receive only function available on UE Yes/No.

Test Procedure

See 14.1.5m for test procedure.

Same Downlink TFS, Downlink TFCS and Sub-tests as in clause 14.4.7.3

14.4.7n.4 Test Requirements

Same test requirements as in clause 14.4.7.4.

14.5 Combinations on PRACH

14.5.1 Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH

The reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.4.1 is implicitly tested by the test cases 14.4.2.1, 14.4.2.2, 14.4.2.3 and 14.4.3.

14.5.2 Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH

The reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.4.2 is implicitly tested by the test cases 14.4.2a.1, 14.4.2a.2 and 14.4.2a.3.

14.5.3 Interactive/Background / UL:32 DL: [max bit rate depending on UE category] with fixed RLC and MAC-ehs / PS RAB + SRBs for DCCH on RACH and SRB with fixed RLC and MAC-ehs on HS-DSCH / DL:QPSK

14.5.3.1 Conformance requirement

See 14.2.4.1.

14.5.3.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clauses 6.10.2.4.7.1 for QPSK using the downlink enhanced Layer 2 configuration with Fixed RLC and MAC-ehs

14.5.3.3 Method of Test

The contents of System Information Block type 5 / System Information Block type 5bis and 6 shall be as specified in TS 34.108, clause 6.1.2.

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-7 IE "HS-DSCH physical layer category extension". This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The following parameters are specific for this test case:

Parameter	Value
Radio bearer	TS 34.108, clause 6.10.2.4.4.3 using downlink MAC-d flow parameters
MAC-ehs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3.5a is run for each sub-test with QPSK and non-MIMO case using condition A24 for Radio Bearer Setup.

Uplink TFS:

	TFI	RB7+SRB (32kbps on RACH)
TFS	TF0, bits	1x168
	TF1, bits	1x360

Uplink TFCS:

TFCI	RB7+SRB
UL_TFC0	TF0
UL_TFC1	TF1

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size bits	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size bits (note 3)
1	5	6	512	256	336	UL_TFC1	UL_TFC0	UL_TFC0, UL_TFC1	RB7: 312
	6	6	512	256					
	7	6	1536	512					
	8	6	1536	512					
	9	6	2047	512					
	10	6	2047	512					
	12	6	1024	128					
	13	6	2047	512					
	14	6	2047	512					
	15	6	2047	512					
	16	6	2047	512					
	17	6	2047	512					
	18	6	2047	512					

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.

14.5.3.4 Test Requirements

See 14.1.3.5a for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE transmitted transport format shall be RB7/TF1 (1x1360)
3. At step 18 and for each TFRC test point:

   The UE shall for each radio bearer return the equal number of RLC SDUs on RB7 as sent by the SS in downlink. If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return RLC SDUs where the SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5a sends either 1 SDU or 4 SDUs depending on the transport block size under tests. For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

14.6 Combinations on DPCH and HS-PDSCH

14.6.1 Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.6.1.1 Conformance requirement

For all transmissions of a transport block, the transport block size is derived from the TFRI value as specified below, except only in those cases of retransmissions where the Node-B selects a combination for which no mapping exists between the original transport block size and the selected combination of channelisation Code set and modulation type. In such cases, the transport block size index value signalled to the UE shall be set to 111111, i.e., k_i=63.

Let k_i be the TFRI signalled on the HS-SCCH value and let $k_{0,i}$ be the value in the table 9.2.3.1 corresponding to the modulation and the number of codes signalled on the HS-SCCH. Let k_t be the sum of the two values: $k_t = k_i + k_{0,i}$. The transport block size $L(k_t)$ can be obtained by accessing the position k_t in the table in Annex A (normative) or by using the formula below (informative):

If $k_t < 40$

$$L(k_t) = 125 + 12 \cdot k_t$$

else

$$L(k_t) = \lfloor L_{\min} p^{k_t} \rfloor$$
$$p = 2085/2048$$
$$L_{\min} = 296$$

End

Table 9.2.3.1: Values of $k_{0,i}$ for different numbers of channelization codes and modulation schemes

Combination *i*	Modulation scheme	Number of channelization codes	$k_{0,i}$
0	QPSK	1	1
1		2	40
2		3	63
3		4	79
4		5	92
5		6	102
6		7	111
7		8	118
8		9	125
9		10	131
10		11	136
11		12	141
12		13	145
13		14	150
14		15	153
15	16QAM	1	40
16		2	79
17		3	102
18		4	118
19		5	131
20		6	141
21		7	150
22		8	157
23		9	164
24		10	169
25		11	175
26		12	180
27		13	184
28		14	188
29		15	192

The following table provides the mapping between k_t (as per the definition in subclause 9.2.3.1) and the HS-DSCH Transport Block Size ($L(k_t)$).

Table 9.2.3.2: mapping between k_t (as per the definition in subclause 9.2.3.1) and the HS-DSCH Transport Block Size (L(k_t))

Index	TB Size	Index	TB Size	Index	TB Size
1	137	86	1380	171	6324
2	149	87	1405	172	6438
3	161	88	1430	173	6554
4	173	89	1456	174	6673
5	185	90	1483	175	6793
6	197	91	1509	176	6916
7	209	92	1537	177	7041
8	221	93	1564	178	7168
9	233	94	1593	179	7298
10	245	95	1621	180	7430
11	257	96	1651	181	7564
12	269	97	1681	182	7700
13	281	98	1711	183	7840
14	293	99	1742	184	7981
15	305	100	1773	185	8125
16	317	101	1805	186	8272
17	329	102	1838	187	8422
18	341	103	1871	188	8574
19	353	104	1905	189	8729
20	365	105	1939	190	8886
21	377	106	1974	191	9047
22	389	107	2010	192	9210
23	401	108	2046	193	9377
24	413	109	2083	194	9546
25	425	110	2121	195	9719
26	437	111	2159	196	9894
27	449	112	2198	197	10073
28	461	113	2238	198	10255
29	473	114	2279	199	10440
30	485	115	2320	200	10629
31	497	116	2362	201	10821
32	509	117	2404	202	11017
33	521	118	2448	203	11216
34	533	119	2492	204	11418
35	545	120	2537	205	11625
36	557	121	2583	206	11835
37	569	122	2630	207	12048
38	581	123	2677	208	12266
39	593	124	2726	209	12488
40	605	125	2775	210	12713
41	616	126	2825	211	12943
42	627	127	2876	212	13177
43	639	128	2928	213	13415
44	650	129	2981	214	13657
45	662	130	3035	215	13904
46	674	131	3090	216	14155
47	686	132	3145	217	14411
48	699	133	3202	218	14671
49	711	134	3260	219	14936
50	724	135	3319	220	15206

51	737	136	3379	221	15481
52	751	137	3440	222	15761
53	764	138	3502	223	16045
54	778	139	3565	224	16335
55	792	140	3630	225	16630
56	806	141	3695	226	16931
57	821	142	3762	227	17237
58	836	143	3830	228	17548
59	851	144	3899	229	17865
60	866	145	3970	230	18188
61	882	146	4042	231	18517
62	898	147	4115	232	18851
63	914	148	4189	233	19192
64	931	149	4265	234	19538
65	947	150	4342	235	19891
66	964	151	4420	236	20251
67	982	152	4500	237	20617
68	1000	153	4581	238	20989
69	1018	154	4664	239	21368
70	1036	155	4748	240	21754
71	1055	156	4834	241	22147
72	1074	157	4921	242	22548
73	1093	158	5010	243	22955
74	1113	159	5101	244	23370
75	1133	160	5193	245	23792
76	1154	161	5287	246	24222
77	1175	162	5382	247	24659
78	1196	163	5480	248	25105
79	1217	164	5579	249	25558
80	1239	165	5680	250	26020
81	1262	166	5782	251	26490
82	1285	167	5887	252	26969
83	1308	168	5993	253	27456
84	1331	169	6101	254	27952
85	1356	170	6211		

Reference(s)

3GPP TS 25.321, 9.2.3.1 and Annex A

14.6.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.1.

14.6.1.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-5 IE “HS-DSCH physical layer category” (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)
1	1	2	512	128	336	UL_TFC1	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312
	2	2	512	128					
	3	3	512	128					
	4	3	512	128					
	5	6	512	256					
	6	6	512	256					
	7	6	1536	512					
	8	6	1536	512					
	9	6	2047	512					
	10	6	2047	512					
	11	3	1024	128					
	12	6	1024	128					
2	1	2	256	128	656	UL_TFC2	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632
	2	2	256	128					
	3	3	256	128					
	4	3	256	128					
	5	6	256	256					
	6	6	256	256					
	7	6	512	512					
	8	6	512	512					
	9	6	1024	512					
	10	6	1024	1024					
	11	3	512	128					
	12	6	512	128					
3	1	2	512	256	336	UL_TFC3	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952
	2	2	512	256					
	3	3	512	256					
	4	3	512	256					
	5	6	512	256					
	6	8	512	256					
	7	8	1536	512					
	8	8	1536	512					
	9	8	2047	512					
	10	6	2047	1024					
	11	3	1024	128					
	12	8	1024	128					
4	1	2	256	256	656	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272
	2	2	256	256					
	3	3	256	256					
	4	3	256	256					
	5	6	256	256					
	6	8	256	256					
	7	8	512	512					
	8	8	512	512					
	9	8	1024	512					
	10	6	1024	1024					
	11	3	512	128					
	12	8	512	128					

NOTE 1:	The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2:	UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3:	See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return th data within one UL TTI.

14.6.1.4 Test requirements

See 14.1.3.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE transmitted transport format shall be
   - for sub-test 1: TF1 (1x336).
   - for sub-test 2: TF2 (2x336).
   - for sub-test 3: TF3 (3x336).
   - for sub-test 4: TF4 (4x336)
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

14.6.1a Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.6.1a.1 Conformance requirement

See 14.6.1.1.

14.6.1a.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.1a.

14.6.1a.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-5 IE "HS-DSCH physical layer category" (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)
1	1	2	512	128	336	UL_TFC1	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312
	2	2	512	128					
	3	3	512	128					
	4	3	512	128					
	5	6	512	256					
	6	6	512	256					
	7	6	1536	512					
	8	6	1536	512					
	9	6	2047	512					
	10	6	2047	512					
	11	3	1024	128					
	12	6	1024	128					
2	1	2	256	128	656	UL_TFC2	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632
	2	2	256	128					
	3	3	256	128					
	4	3	256	128					
	5	6	256	256					
	6	6	256	256					
	7	6	512	512					
	8	6	512	512					
	9	6	1024	512					
	10	6	1024	1024					
	11	3	512	128					
	12	6	512	128					
3	1	2	512	256	336	UL_TFC3	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1272
	2	2	512	256					
	3	3	512	256					
	4	3	512	256					
	5	6	512	256					
	6	8	512	256					
	7	8	1536	512					
	8	8	1536	512					
	9	8	2047	512					
	10	6	2047	1024					
	11	3	1024	128					
	12	8	1024	128					
4	1	2	256	256	656	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552
	2	2	256	256					
	3	3	256	256					
	4	3	256	256					
	5	6	256	256					
	6	8	256	256					
	7	8	512	512					
	8	8	512	512					
	9	8	1024	512					
	10	6	1024	1024					
	11	3	512	128					
	12	8	512	128					

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return th data within one UL TTI.

14.6.1a.4 Test requirements

See 14.1.3.5.2 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE transmitted transport format shall be
   - for sub-test 1: TF1 (1x336).
   - for sub-test 2: TF2 (2x336).
   - for sub-test 3: TF3 (4x336).
   - for sub-test 4: TF4 (8x336).
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

14.6.1b Interactive or background / UL:64 DL: [max bit rate depending on UE category] with Fixed RLC and MAC-ehs PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: QPSK and 16QAM

14.6.1b.1 Conformance requirement

See 14.6.1.1.

14.6.1b.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.1 for the QPSK, 16QAM and non-MIMO case using the downlink enhanced Layer 2 configuration with Fixed RLC and MAC-ehs .

14.6.1b.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-7 IE “HS-DSCH physical layer category extension”. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The following parameters are specific for this test case:

Parameter	Value
Radio bearer	TS 34.108, clause 6.10.2.4.5.1 using downlink MAC-d flow parameters according to Alt 2 (Fixed RLC and MAC-ehs)
MAC-ehs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3.5a is run for each sub-test for test execution 1 and 2.

Execution counter	Downlink Modulation Scheme (M)	MIMO
1	QPSK	No
2	16QAM	No

Uplink TFS:

	TFI	RB5 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)
1	1	2	512	128	336	UL_TFC1	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312
	2	2	512	128					
	3	3	512	128					
	4	3	512	128					
	5	6	512	256					
	6	6	512	256					
	7	6	1536	512					
	8	6	1536	512					
	9	6	2047	512					
	10	6	2047	512					
	11	3	1024	128					
	12	6	1024	128					
	13 to 20	6	2047	512					
2	1	2	256	128	656	UL_TFC2	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632
	2	2	256	128					
	3	3	256	128					
	4	3	256	128					
	5	6	256	256					
	6	6	256	256					
	7	6	512	512					
	8	6	512	512					
	9	6	1024	512					
	10	6	1024	1024					
	11	3	512	128					
	12	6	512	128					
	13 to 20	6	1024	1024					
3	1	2	512	256	336	UL_TFC3	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952
	2	2	512	256					
	3	3	512	256					
	4	3	512	256					
	5	6	512	256					
	6	8	512	256					
	7	8	1536	512					
	8	8	1536	512					
	9	8	2047	512					
	10	8	2047	1024					
	11	3	1024	128					
	12	8	1024	128					
	13 to 20	8	2047	1024					
4	1	2	256	256	656	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272
	2	2	256	256					
	3	3	256	256					
	4	3	256	256					
	5	6	256	256					
	6	8	256	256					
	7	8	512	512					
	8	8	512	512					
	9	8	1024	512					
	10	8	1024	1024					
	11	3	512	128					
	12	8	512	128					

	13 to 20	8	1024	1024					

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return th data within one UL TTI.

14.6.1b.4 Test requirements

See 14.1.3.5a for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE transmitted transport format shall be
   - for sub-test 1: TF1 (1x336).
   - for sub-test 2: TF2 (2x336).
   - for sub-test 3: TF3 (3x336).
   - for sub-test 4: TF4 (4x336)
3. At step 18 and for each TFRC test point:

   The UE shall for each radio bearer return the equal number RLC SDUs as sent by the SS in downlink. If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return RLC SDUs where the SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5a sends either 1 SDU or 4 SDUs depending on the transport block size under tests. For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

14.6.1c Interactive or background / UL:64 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: 64QAM

14.6.1c.1 Conformance requirement

See 14.6.1.1.

14.6.1c.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.1 for the 64QAM and non-MIMO case using the downlink enhanced Layer 2 configuration with Flexible RLC and MAC-ehs .

14.6.1c.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-7 IE “HS-DSCH physical layer category extension”. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The following parameters are specific for this test case:

Parameter	Value
Radio bearer	TS 34.108, clause 6.10.2.4.5.1 using downlink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs)
MAC-ehs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3.5a is run for each sub-test with M=64QAM and non-MIMO case.

Uplink TFS:

	TFI	RB5 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)
1	13-20	6	2047	512	Flexible	UL_TFC1	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312
2	13-20	6	1024	1024	Flexible	UL_TFC2	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632
3	13-20	6	2047	1024	Flexible	UL_TFC3	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952
4	13-20	6	1024	1024	Flexible	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return th data within one UL TTI.

14.6.1c.4 Test requirements

See 14.1.3.5a for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE transmitted transport format shall be
   - for sub-test 1: TF1 (1x336).
   - for sub-test 2: TF2 (2x336).
   - for sub-test 3: TF3 (3x336).
   - for sub-test 4: TF4 (4x336)
3. At step 18 and for each TFRC test point:

   The UE shall for each radio bearer return the equal number RLC SDUs as sent by the SS in downlink. If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return RLC SDUs where the SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5a sends either 1 SDU or 4 SDUs depending on the transport block size under tests. For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

14.6.1d Interactive or background / UL:64 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: QPSK, 16QAM and MIMO

14.6.1d.1 Conformance requirement

See 14.6.1.1.

14.6.1d.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.1 for the QPSK, 16QAM and MIMO case using the downlink enhanced Layer 2 configuration with Flexible RLC and MAC-ehs .

14.6.1d.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-7 IE "HS-DSCH physical layer category extension". This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The following parameters are specific for this test case:

Parameter	Value	Comments
Radio bearer	TS 34.108, clause 6.10.2.4.5.1 using downlink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs).	
MIMO N_cqi_typeA/M_cqi ratio	1/1	25.331, 10.3.6.41a
Second CPICH pattern	Antenna1 S-CPICH	25.331, 10.3.6.41b
S-CPICH Channelisation code	12	
precodingWeightIndicator, W2	00	25.212, Table 14A
MAC-ehs receiver window size	16	
RLC Transmission window size	See sub-test table	
RLC Receiving window size	See sub-test table	

The generic test procedure in 14.1.3.5a is run for each sub-test for test execution 1 and 2.

Execution counter	Downlink Modulation Scheme (M1) MIMO data flow#1	Downlink Modulation Scheme (M2) MIMO data flow#2	MIMO
1	QPSK	QPSK	Yes
2	16QAM	16QAM	Yes
3	16QAM	QPSK	Yes

Uplink TFS:

	TFI	RB5 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)
1	15 to 20	12	2047	512	Flexible	UL_TFC1	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312
2	15 to 20	12	1024	1024	Flexible	UL_TFC2	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632
3	15 to 20	16	2047	1024	Flexible	UL_TFC3	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952
4	15 to 20	12	1024	1024	Flexible	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return th data within one UL TTI.
NOTE 4: For Subtest 3, when 16QAM/16QAM modulation is executed, test points 33 and above are not applicable.

14.6.1d.4 Test requirements

See 14.1.3.5a for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE transmitted transport format shall be
   - for sub-test 1: TF1 (1x336).
   - for sub-test 2: TF2 (2x336).

- for sub-test 3: TF3 (3x336).
- for sub-test 4: TF4 (4x336)

3. At step 18 and for each TFRC test point:

   The UE shall for each radio bearer return the equal number RLC SDUs as sent by the SS in downlink. If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return RLC SDUs where the SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5a sends either 2 SDU or 8 SDUs depending on the transport block size under tests. For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

14.6.1e Interactive or background / UL:64 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: 64QAM and MIMO

14.6.1e.1 Conformance requirement

See 14.6.1.1.

14.6.1e.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.1 for the 64QAM and MIMO case using the downlink enhanced Layer 2 configuration with Flexible RLC and MAC-ehs .

14.6.1e.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-7 IE “HS-DSCH physical layer category extension”. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The following parameters are specific for this test case:

Parameter	Value	Comments
Radio bearer	TS 34.108, clause 6.10.2.4.5.1 using downlink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs).	
MIMO N_cqi_typeA/M_cqi ratio	1/1	25.331, 10.3.6.41a
Second CPICH pattern	Antenna1 S-CPICH	25.331, 10.3.6.41b
S-CPICH Channelisation code	12	
precodingWeight2	00	25.212, Table 14A
MAC-ehs receiver window size	16	
RLC Transmission window size	See sub-test table	
RLC Receiving window size	See sub-test table	

The generic test procedure in 14.1.3.5a is run for each sub-test for test execution 1 to 3.

Execution counter	Downlink Modulation Scheme (M1) MIMO data flow#1	Downlink Modulation Scheme (M2) MIMO data flow#2	Number of HARQ processes	MIMO
1	64QAM	QPSK	12	Yes
2	64QAM	16QAM	12	Yes
3	64QAM	64QAM	12	Yes

Uplink TFS:

	TFI	RB5 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	UE Category	RLC Receiving window size (note 1)	RLC Transmission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test dat size (bit (note 4
1	19 and 20	2047	1024	Flexible	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272	See note

NOTE 1: The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return one complete UL RLC SDU per UL TTI.
NOTE 4: The test data size and number of DL RLC SDUs for RB5 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5a.

14.6.1e.4 Test requirements

See 14.1.3.5a for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE transmitted transport format shall be
   - for sub-test 1: TF4 (4x336)
3. At step 18 and for each TFRC test point:

   The UE shall for each radio bearer return the equal number RLC SDUs as sent by the SS in downlink. If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return RLC SDUs where the SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5a sends either 2 SDU or 8 SDUs depending on the transport block size under tests.

14.6.1f Interactive or background / UL:64 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: QPSK, 16QAM and Dual-Cell

14.6.1f.1 Conformance requirement

See 14.6.1.1.

14.6.1f.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.1 for the QPSK, 16QAM and Dual-Cell case using the downlink enhanced Layer 2 configuration with Flexible RLC and MAC-ehs .

14.6.1f.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-8 IE “HS-DSCH physical layer category extension 2”. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The following parameters are specific for this test case:

Parameter	Value	Comments
Radio bearer	TS 34.108, clause 6.10.2.4.5.1 using downlink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs).	
MAC-ehs receiver window size	16	
RLC Transmission window size	See sub-test table	
RLC Receiving window size	See sub-test table	

The generic test procedure in 14.1.3.5a is run for each sub-test for test execution 1 to 3.

Execution counter	Downlink Modulation Scheme (M1) Dual-Cell data flow#1	Downlink Modulation Scheme (M2) Dual-Cell data flow#2	Number of HARQ processes	Dual-Cell
1	QPSK	QPSK	6	Yes
2	16QAM	16QAM	8	Yes
3	16QAM	QPSK	8	Yes

Uplink TFS:

	TFI	RB5 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	UE Category	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	21 to 24	2047	1024	Flexible	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272	See note 4

NOTE 1: The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.
NOTE 4: The test data size and number of DL RLC SDUs for RB5 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5a.

14.6.1f.4 Test requirements

See 14.1.3.5a for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE transmitted transport format shall be
   - for sub-test 1: TF4 (4x336)
3. At step 18 and for each TFRC test point:

   The UE shall for each radio bearer return the equal number RLC SDUs as sent by the SS in downlink. If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in

downlink. Otherwise the UE shall return RLC SDUs where the SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

NOTE: The generic test procedure as specified in 14.1.3.5a sends either 2 SDU or 8 SDUs depending on the transport block size under tests.

14.6.1g Interactive or background / UL:64 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: 64QAM and Dual-Cell

14.6.1g.1 Conformance requirement

See 14.6.1.1.

14.6.1g.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.1 for the 64QAM and Dual-Cell case using the downlink enhanced Layer 2 configuration with Flexible RLC and MAC-ehs .

14.6.1g.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-8 IE "HS-DSCH physical layer category extension 2". This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The following parameters are specific for this test case:

Parameter	Value	Comments
Radio bearer	TS 34.108, clause 6.10.2.4.5.1 using downlink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs).	
MAC-ehs receiver window size	16	
RLC Transmission window size	See sub-test table	
RLC Receiving window size	See sub-test table	

The generic test procedure in 14.1.3.5a is run for each sub-test for test execution 1 to 3.

Execution counter	Downlink Modulation Scheme (M1) Dual-Cell data flow#1	Downlink Modulation Scheme (M2) Dual-Cell data flow#2	Number of HARQ processes	Dual-Cell
1	64QAM	QPSK	6	Yes
2	64QAM	16QAM	6	Yes
3	64QAM	64QAM	6	Yes

Uplink TFS:

	TFI	RB5 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	UE Category	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	23 and 24	2047	1024	Flexible	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272	See note 4

NOTE 1: The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.
NOTE 4: The test data size and number of DL RLC SDUs for RB5 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5a.

14.6.1g.4 Test requirements

See 14.1.3.5a for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE transmitted transport format shall be
   - for sub-test 1: TF4 (4x336)
3. At step 18 and for each TFRC test point:

   The UE shall for each radio bearer return the equal number RLC SDUs as sent by the SS in downlink. If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return RLC SDUs where the SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5a sends either 2 SDU or 8 SDUs depending on the transport block size under tests.

14.6.1h Interactive or background / UL:64 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: 16QAM, Dual-Cell and MIMO

14.6.1h.1 Conformance requirement

See 14.6.1.1.

14.6.1h.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.1 for the 16QAM, MIMO and Dual-Cell case using the downlink enhanced Layer 2 configuration with Flexible RLC and MAC-ehs .

14.6.1h.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-9 IE "HS-DSCH physical layer category extension 3". This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The following parameters are specific for this test case:

Parameter	Value	Comments
Radio bearer	TS 34.108, clause 6.10.2.4.5.1 using downlink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs).	
MAC-ehs receiver window size	64	
precodingWeight2	00	25.212, Table 14A
RLC Transmission window size	See sub-test table	
RLC Receiving window size	See sub-test table	

Execution counter	Dual-Cell#1		Dual-Cell#2		Number of HARQ processes
	Downlink Modulation Scheme (M1) For Cell#1 data flow#1	Downlink Modulation Scheme (M2) For Cell#1 data flow#2	Downlink Modulation Scheme (M3) For Cell#2 data flow#1	Downlink Modulation Scheme (M4) For Cell#2 data flow#2	
1	16QAM	16QAM	16QAM	16QAM	12

Uplink TFS:

	TFI	RB5 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

The generic test procedure in 14.1.3.5a is run for each sub-test.

Sub-tests:

Sub-test	UE Category	RLC Receiving window size (note 1)	RLC Transmission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	25 to 28	2047	1024	Flexible	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272	See note 4

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return th data within one UL TTI.
NOTE 4: The test data size for RB5 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5a.

14.6.1h.4 Test requirements

See 14.1.3.5a for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE transmitted transport format shall be TF1 (1x336).
3. At step 18 and for each TFRC test point:

   The UE shall for each radio bearer return the equal number RLC SDUs as sent by the SS in downlink. If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return RLC SDUs where the SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5a sends either 2 SDU or 8 SDUs depending on the transport block size under tests. For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

14.6.1i Interactive or background / UL:64 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: 64QAM, Dual-Cell and MIMO

14.6.1i.1 Conformance requirement

See 14.6.1.1.

14.6.1i.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.1 for the combination of 16QAM/64QAM, MIMO and Dual-Cell case using the downlink enhanced Layer 2 configuration with Flexible RLC and MAC-ehs .

14.6.1i.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-9 IE "HS-DSCH physical layer category extension 3". This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The following parameters are specific for this test case:

Parameter	Value	Comments
Radio bearer	TS 34.108, clause 6.10.2.4.5.1 using downlink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs).	
MAC-ehs receiver window size	64	
precodingWeight2	00	25.212, Table 14A
RLC Transmission window size	See sub-test table	
RLC Receiving window size	See sub-test table	

The generic test procedure in 14.1.3.5a is run for each sub-test for test execution 1 to 3.

Execution counter	Dual-Cell #1		Dual-Cell #2		Number of HARQ processes
	Downlink Modulation Scheme (M1) For Cell 1 data flow#1	Downlink Modulation Scheme (M2) For Cell 1 data flow#2	Downlink Modulation Scheme (M3) For Cell 2 data flow#1	Downlink Modulation Scheme (M4) For Cell 2 data flow#2	
1	64QAM	16QAM	64QAM	16QAM	12
2	64QAM	64QAM	64QAM	64QAM	12

Uplink TFS:

	TFI	RB5 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	UE Category	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	27 to 28	2047	1024	Flexible	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272	See note 4

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return th data within one UL TTI.
NOTE 4: The test data size for RB5 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5a.

14.6.1i.4 Test requirements

See 14.1.3.5a for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE transmitted transport format shall be TF1 (1x336).
3. At step 18 and for each TFRC test point:

   The UE shall for each radio bearer return the equal number RLC SDUs as sent by the SS in downlink. If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return RLC SDUs where the SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5a sends either 2 SDU or 8 SDUs depending on the transport block size under tests. For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

14.6.2 Interactive or background / UL:384 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.6.2.1 Conformance requirement

See 14.6.1.1.

14.6.2.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.2.

14.6.2.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-5 IE "HS-DSCH physical layer category" (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (384 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF0, TF1)
UL_TFC7	(TF1, TF1)
UL_TFC8	(TF2, TF1)
UL_TFC9	(TF3, TF1)
UL_TFC10	(TF4, TF1)
UL_TFC11	(TF5, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)
1	1	2	512	256	336	UL_TFC1	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7	RB5: 312
	2	2	512	256					
	3	3	512	256					
	4	3	512	256					
	5	6	512	256					
	6	6	512	256					
	7	6	1536	512					
	8	6	1536	512					
	9	6	2047	512					
	10	6	2047	512					
	11	3	512	256					
	12	6	512	256					
2	1	2	256	256	656	UL_TFC2	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 632
	2	2	256	256					
	3	3	256	256					
	4	3	256	256					
	5	6	256	256					
	6	6	256	256					
	7	6	512	512					
	8	6	512	512					
	9	6	1024	512					
	10	6	1024	1024					
	11	3	256	256					
	12	6	256	256					
3	1	2	512	256	336	UL_TFC3	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 1272
	2	2	512	256					
	3	3	512	256					
	4	3	512	256					
	5	6	512	256					
	6	8	512	256					
	7	8	1536	512					
	8	8	1536	512					
	9	8	2047	512					
	10	6	2047	1024					
	11	3	512	256					
	12	8	512	256					
4	1	2	256	256	656	UL_TFC4	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 2552
	2	2	256	256					
	3	3	256	256					
	4	3	256	256					
	5	6	256	256					
	6	8	256	256					
	7	8	512	512					
	8	8	512	512					
	9	8	1024	512					
	10	6	1024	1024					
	11	3	256	256					
	12	8	256	256					
5	1	2	256	256	656	UL_TFC5	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 3832
	2	2	256	256					
	3	3	256	256					
	4	3	256	256					
	5	6	256	256					
	6	8	256	256					

	7	8	512	512					
	8	8	512	512					
	9	8	1024	512					
	10	6	1024	1024					
	11	3	256	256					
	12	8	256	256					
NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test. NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC6 are part of minimum set of TFCIs. NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return th data within one UL TTI.									

14.6.2.4 Test requirements

See 14.1.3.5.2 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE transmitted transport format shall be
   - for sub-test 1: TF1 (1x336).
   - for sub-test 2: TF2 (2x336).
   - for sub-test 3: TF3 (4x336).
   - for sub-test 4: TF4 (8x336).
   - for sub-test 5: TF5 (12x336).
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

14.6.3 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.6.3.1 Conformance requirement

See 14.6.1.1.

14.6.3.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.3.

14.6.3.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-5 IE "HS-DSCH physical layer category" (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (384 kbps, 10 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A
	TF5, bits	N/A	N/A	N/A	12x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF5, TF0)
UL_TFC16	(TF1, TF0, TF0, TF5, TF0)
UL_TFC17	(TF2, TF1, TF1, TF5, TF0)
UL_TFC18	(TF0, TF0, TF0, TF0, TF1)
UL_TFC19	(TF1, TF0, TF0, TF0, TF1)
UL_TFC20	(TF2, TF1, TF1, TF0, TF1)
UL_TFC21	(TF0, TF0, TF0, TF1, TF1)
UL_TFC22	(TF1, TF0, TF0, TF1, TF1)
UL_TFC23	(TF2, TF1, TF1, TF1, TF1)
UL_TFC24	(TF0, TF0, TF0, TF2, TF1)
UL_TFC25	(TF1, TF0, TF0, TF2, TF1)
UL_TFC26	(TF2, TF1, TF1, TF2, TF1)
UL_TFC27	(TF0, TF0, TF0, TF3, TF1)
UL_TFC28	(TF1, TF0, TF0, TF3, TF1)
UL_TFC29	(TF2, TF1, TF1, TF3, TF1)
UL_TFC30	(TF0, TF0, TF0, TF4, TF1)
UL_TFC31	(TF1, TF0, TF0, TF4, TF1)
UL_TFC32	(TF2, TF1, TF1, TF4, TF1)
UL_TFC33	(TF0, TF0, TF0, TF5, TF1)
UL_TFC34	(TF1, TF0, TF0, TF5, TF1)
UL_TFC35	(TF2, TF1, TF1, TF5, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Speech and Interactive Background radio bearer. As the Interactive Background UL:384 kbps radio bearer (RB8) has the highest number of transport formats (5 for TTI=10 ms and excluding TF0) then 5 sub-tests has been defined. The selected UL TFCI to achieve test coverage of TF1 to TF5 for RB8 and for the different speech transport formats are: UL_TFC4 for TF1, UL_TFC8 for TF2, UL_TFC11 for TF3, UL_TFC13 for TF4 and UL_TFC17 for TF5.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	2	512	256	336	DL_TFC1	UL_TFC4	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC18	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC18, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	6	512	256							
	7	6	1536	512							
	8	6	1536	512							
	9	6	2047	512							
	10	6	2047	512							
	11	3	512	256							
	12	6	512	256							
2	1	2	256	256	656	DL_TFC2	UL_TFC8	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC18	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC8, UL_TFC18, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	6	256	256							
	7	6	512	512							
	8	6	512	512							
	9	6	1024	512							
	10	6	1024	1024							
	11	3	256	256							
	12	6	256	256							
3	1	2	512	256	336	DL_TFC2	UL_TFC11	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC18	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC11, UL_TFC18, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	6	2047	1024							
	11	3	512	256							
	12	8	512	256							
4	1	2	256	256	656	DL_TFC1	UL_TFC13	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
	2	2	256	256				DL_TFC3, UL_TFC0, UL_TFC18	UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC18, UL_TFC31	RB6: 103 RB7: 60 RB8: 2552	RB6: No data RB7: No data RB8: See note 4
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	6	1024	1024							
	11	3	256	256							
	12	8	256	256							
5	1	2	256	256	656	DL_TFC2	UL_TFC17	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC18	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC17, UL_TFC18, UL_TFC35	RB5: 81 RB6: 103 RB7: 60 RB8: 3832	RB5: 81 RB6: 103 RB7: 60 RB8: See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	6	1024	1024							
	11	3	256	256							
	12	8	256	256							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC18 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB8 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

14.6.3.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

14.6.3a Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL: 64 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.6.3a.1 Conformance requirement

See 14.6.1.1.

14.6.3a.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.3a for the uplink 64 kbps case.

14.6.3a.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-5 IE “HS-DSCH physical layer category” (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Speech and Interactive Background radio bearer. As the Interactive Background UL:64 kbps radio bearer (RB8) has the highest number of transport formats (4 excluding TF0) then 4 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF4 for RB8 and for the different speech transport formats are: UL_TFC4 for TF1, UL_TFC8 for TF2, UL_TFC11 for TF3 and UL_TFC13 for TF4.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	2	512	128	336	DL_TFC1	UL_TFC4	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: See note 4
	2	2	512	128							
	3	3	512	128							
	4	3	512	128							
	5	6	512	256							
	6	6	512	256							
	7	6	1536	512							
	8	6	1536	512							
	9	6	2047	512							
	10	6	2047	512							
	11	3	1024	128							
	12	6	1024	128							
2	1	2	256	128	656	DL_TFC2	UL_TFC8	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC8, UL_TFC15, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: See note 4
	2	2	256	128							
	3	3	256	128							
	4	3	256	128							
	5	6	256	256							
	6	6	256	256							
	7	6	512	512							
	8	6	512	512							
	9	6	1024	512							
	10	6	1024	1024							
	11	3	512	128							
	12	6	512	128							
3	1	2	512	256	336	DL_TFC2	UL_TFC11	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC11, UL_TFC15, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: 81 RB6: 103 RB7: 60 RB8: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	6	2047	1024							
	11	3	1024	128							
	12	8	1024	128							
4	1	2	256	256	656	DL_TFC1	UL_TFC13	DL_TFC0,	UL_TFC0,	RB5: 39	RB5: 39

	2	2	256	256				DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28	RB6: 103 RB7: 60 RB8: 1272	RB6: No data RB7: No data RB8: See note 4
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	6	1024	1024							
	11	3	512	128							
	12	8	512	128							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC15 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB8 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

14.6.3a.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

14.6.4 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.6.4.1 Conformance requirement

See 14.6.1.1.

14.6.4.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.4.

14.6.4.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-5 IE “HS-DSCH physical layer category” (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv. 64 kbps)
Uplink RLC	
TM RLC	
Segmentation indication	FALSE
Transmission RLC discard	
CHOICE *SDU Discard Mode*	
Timer based no explicit	
Timer_discard	100ms
Downlink RLC	
TM RLC	
Segmentation indication	FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	**RB5 (Conv. 64 kbps, 20 ms TTI)**	**RB6 (I/B 384 kbps, 10 ms TTI)**	**DCCH**
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	4x336	N/A
	TF4, bits	N/A	8x336	N/A
	TF5, bits	N/A	12x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0,TF0,TF0)
UL_TFC1	(TF1,TF0,TF0)
UL_TFC2	(TF0,TF1,TF0)
UL_TFC3	(TF1,TF1,TF0)
UL_TFC4	(TF0,TF2,TF0)
UL_TFC5	(TF1,TF2,TF0)
UL_TFC6	(TF0,TF3,TF0)
UL_TFC7	(TF1,TF3,TF0)
UL_TFC8	(TF0,TF4,TF0)
UL_TFC9	(TF1,TF4,TF0)
UL_TFC10	(TF0,TF5,TF0)
UL_TFC11	(TF1,TF5,TF0)
UL_TFC12	(TF0,TF0,TF1)
UL_TFC13	(TF1,TF0,TF1)
UL_TFC14	(TF0,TF1,TF1)
UL_TFC15	(TF1,TF1,TF1)
UL_TFC16	(TF0,TF2,TF1)
UL_TFC17	(TF1,TF2,TF1)
UL_TFC18	(TF0,TF3,TF1)
UL_TFC19	(TF1,TF3,TF1)
UL_TFC20	(TF0,TF4,TF1)
UL_TFC21	(TF1,TF4,TF1)
UL_TFC22	(TF0,TF5,TF1)
UL_TFC23	(TF1,TF5,TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	2x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Conversational CS and Interactive Background PS radio bearer. As the Interactive Background UL:384 kbps radio bearer (RB6) has the highest number of transport formats (5 for TTI=10 ms and excluding TF0) then 5 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF5 for RB6 and for TF1 for RB5 are: UL_TFC3 for TF1, UL_TFC5 for TF2, UL_TFC7 for TF3, UL_TFC9 for TF4 and UL_TFC11 for TF5.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	2	512	256	336	DL_TFC1	UL_TFC3	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15	RB5: 640 RB6: 312	RB5: 2x640 RB6: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	6	512	256							
	7	6	1536	512							
	8	6	1536	512							
	9	6	2047	512							
	10	5	2047	512							
	11	3	512	256							
	12	6	512	256							
2	1	2	256	256	656	DL_TFC1	UL_TFC5	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC12, UL_TFC17	RB5: 640 RB6: 632	RB5: 2x640 RB6: See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	6	256	256							
	7	6	512	512							
	8	6	512	512							
	9	6	1024	512							
	10	5	1024	1024							
	11	3	256	256							
	12	6	256	256							
3	1	2	512	256	336	DL_TFC1	UL_TFC7	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC7, UL_TFC12, UL_TFC19	RB5: 640 RB6: 1272	RB5: 2x640 RB6: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	5	2047	1024							
	11	3	512	256							
	12	8	512	256							
4	1	2	256	256	656	DL_TFC1	UL_TFC9	DL_TFC0,	UL_TFC0,	RB5: 640	RB5: 2x640

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
	2	2	256	256				DL_TFC2, UL_TFC0, UL_TFC12	UL_TFC1, UL_TFC2, UL_TFC9, UL_TFC12, UL_TFC21	RB6: 2552	RB6: See note 4
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	5	1024	1024							
	11	3	256	256							
	12	8	256	256							
5	1	2	256	256	656	DL_TFC1	UL_TFC11	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC11, UL_TFC12, UL_TFC23	RB5: 640 RB6: 3832	RB5: 2x640 RB6: See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	5	1024	1024							
	11	3	256	256							
	12	8	256	256							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, and UL_TFC12 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

14.6.4.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

14.6.4a Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.6.4a.1 Conformance requirement

See 14.6.1.1.

14.6.4a.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.4a.

14.6.4a.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-5 IE “HS-DSCH physical layer category” (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv. 64 kbps)
Uplink RLC TM RLC Segmentation indication Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard	 FALSE 100ms
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	**RB5 (Conv. 64 kbps, 20ms TTI)**	**RB6 (I/B 64 kbps)**	**DCCH**
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

Uplink TFCS:

TFCI	**(RB5, RB6, DCCH)**
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF0, TF1, TF0)
UL_TFC3	(TF1, TF1, TF0)
UL_TFC4	(TF0, TF2, TF0)
UL_TFC5	(TF1, TF2, TF0)
UL_TFC6	(TF0, TF3, TF0)
UL_TFC7	(TF1, TF3, TF0)
UL_TFC8	(TF0, TF4, TF0)
UL_TFC9	(TF1, TF4, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF1, TF0, TF1)
UL_TFC12	(TF0, TF1, TF1)
UL_TFC13	(TF1, TF1, TF1)
UL_TFC14	(TF0, TF2, TF1)
UL_TFC15	(TF1, TF2, TF1)
UL_TFC16	(TF0, TF3, TF1)
UL_TFC17	(TF1, TF3, TF1)
UL_TFC18	(TF0, TF4, TF1)
UL_TFC19	(TF1, TF4, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps, 20ms TTI)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	2x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Conversational CS and Interactive Background PS radio bearer. As the Interactive Background UL:64 kbps radio bearer (RB6) has the highest number of transport formats (4 excluding TF0) then 4 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF4 for RB6 and for TF1 for RB5 are: UL_TFC3 for TF1, UL_TFC5 for TF2, UL_TFC7 for TF3 and UL_TFC9 for TF4.

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Conversational CS and Interactive Background PS radio bearer. As the Interactive Background UL:64 kbps radio bearer (RB6) has the highest number of transport formats (4 excluding TF0) then 4 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF4 for RB6 and for TF1 for RB5 are: UL_TFC3 for TF1, UL_TFC5 for TF2, UL_TFC7 for TF3 and UL_TFC9 for TF4.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	2	512	128	336	DL_TFC1	UL_TFC3	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC10, UL_TFC13	RB5: 640 RB6: 312	RB5: 2x640 RB6: See note 4
	2	2	512	128							
	3	3	512	128							
	4	3	512	128							
	5	6	512	256							
	6	6	512	256							
	7	6	1536	512							
	8	6	1536	512							
	9	6	2047	512							
	10	5	2047	512							
	11	3	1024	128							
	12	6	1024	128							
2	1	2	256	128	656	DL_TFC1	UL_TFC5	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC10, UL_TFC15	RB5: 640 RB6: 632	RB5: 2x640 RB6: See note 4
	2	2	256	128							
	3	3	256	128							
	4	3	256	128							
	5	6	256	256							
	6	6	256	256							
	7	6	512	512							
	8	6	512	512							
	9	6	1024	512							
	10	5	1024	1024							
	11	3	512	128							
	12	6	512	128							
3	1	2	512	256	336	DL_TFC1	UL_TFC7	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC7, UL_TFC10, UL_TFC17	RB5: 640 RB6: 952	RB5: 2x640 RB6: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	5	2047	1024							
	11	3	1024	128							
	12	8	1024	128							
4	1	2	256	256	656	DL_TFC1	UL_TFC9	DL_TFC0, DL_TFC2,	UL_TFC0, UL_TFC1,	RB5: 640 RB6: 1272	RB5: 2x640 RB6: See note 4
	2	2	256	256							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
	3	3	256	256				UL_TFC0, UL_TFC10	UL_TFC2, UL_TFC9, UL_TFC10, UL_TFC19		
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	5	1024	1024							
	11	3	512	128							
	12	8	512	128							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, and UL_TFC10 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

14.6.4a.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

14.6.5 Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.6.5.1 Conformance requirement

See 14.6.1.1.

14.6.5.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.5.

14.6.5.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-5 IE “HS-DSCH physical layer category” (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	**RB5 + RB6 (64 kbps RAB, 10 ms TTI)**	**DCCH**
TFS	TF0, bits	0x340	0x148
	TF1, bits	1x340	1x148
	TF2, bits	2x340	N/A
	TF3, bits	4x340	N/A
	TF4, bits	8x340	N/A
	TF5, bits	12x340	N/A

Uplink TFCS:

TFCI	(RB5 + RB6, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF0, TF1)
UL_TFC7	(TF1, TF1)
UL_TFC8	(TF2, TF1)
UL_TFC9	(TF3, TF1)
UL_TFC10	(TF4, TF1)
UL_TFC11	(TF5, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the 2 x Interactive Background PS radio bearer. As the 2 x Interactive Background UL:384 kbps radio bearer (RB5+RB6) have 5 transport formats then 5 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF5 for RB5+RB6 are: UL_TFC1 for TF1, UL_TFC2 for TF2, UL_TFC3 for TF3, UL_TFC4 for TF4 and UL_TFC5 for TF5.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	2	512	256	336	N/A	UL_TFC1	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7	RB5: 312 RB6: 312	See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	6	512	256							
	7	6	1536	512							
	8	6	1536	512							
	9	6	2047	512							
	10	6	2047	512							
	11	3	512	256							
	12	6	512	256							
2	1	2	256	256	656	N/A	UL_TFC2	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 632 RB6: 632	See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	6	256	256							
	7	6	512	512							
	8	6	512	512							
	9	6	1024	512							
	10	6	1024	1024							
	11	3	256	256							
	12	6	256	256							
3	1	2	512	256	336	N/A	UL_TFC3	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 1272 RB6: 1272	See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	6	2047	1024							
	11	3	512	256							
	12	8	512	256							
4	1	2	256	256	656	N/A	UL_TFC4	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1,	RB5: 2552 RB6: 2552	See note 4
	2	2	256	256							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
	3	3	256	256					UL_TFC4, UL_TFC6, UL_TFC10		
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	6	1024	1024							
	11	3	256	256							
	12	8	256	256							
5	1	2	256	256	656	N/A	UL_TFC5	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 3832 RB6: 3832	See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	6	1024	1024							
	11	3	256	256							
	12	8	256	256							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC6 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5 and RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB5 and RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

14.6.5.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

14.6.5a Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.6.5a.1 Conformance requirement

See 14.6.1.1.

14.6.5a.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.5a.

14.6.5a.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-5 IE “HS-DSCH physical layer category” (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	RB5 + RB6 (64 kbps RAB, 20 ms TTI)	DCCH
TFS	TF0, bits	0x340	0x148
	TF1, bits	1x340	1x148
	TF2, bits	2x340	N/A
	TF3, bits	3x340	N/A
	TF4, bits	4x340	N/A

Uplink TFCS:

TFCI	(RB5 + RB6, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the 2 x Interactive Background PS radio bearer. As the 2 x Interactive Background UL:64 kbps radio bearer (RB5+RB6) has 4 transport formats then 4 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF4 for RB5+RB6 are: UL_TFC1 for TF1, UL_TFC2 for TF2, UL_TFC3 for TF3 and UL_TFC4 for TF4.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	2	512	128	336	N/A	UL_TFC1	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312 RB6: 312	See note 4
	2	2	512	128							
	3	3	512	128							
	4	3	512	128							
	5	6	512	256							
	6	6	512	256							
	7	6	1536	512							
	8	6	1536	512							
	9	6	2047	512							
	10	6	2047	512							
	11	3	512	128							
	12	6	512	128							
2	1	2	256	128	656	N/A	UL_TFC2	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632 RB6: 632	See note 4
	2	2	256	128							
	3	3	256	128							
	4	3	256	128							
	5	6	256	256							
	6	6	256	256							
	7	6	512	512							
	8	6	512	512							
	9	6	1024	512							
	10	6	1024	1024							
	11	3	1024	128							
	12	6	1024	128							
3	1	2	512	256	336	N/A	UL_TFC3	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952 RB6: 952	See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	6	2047	1024							
	11	3	1024	128							
	12	8	1024	128							
4	1	2	256	256	656	N/A	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1,	RB5: 1272 RB6: 1272	See note 4
	2	2	256	256							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
	3	3	256	256					UL_TFC4, UL_TFC5, UL_TFC9		
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	6	1024	1024							
	11	3	512	128							
	12	8	512	128							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, and UL_TFC10 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

14.6.5a.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

14.6.6 Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] kbps / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.6.6.1 Conformance requirement

See 14.6.1.1.

14.6.6.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.6.

14.6.6.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-5 IE “HS-DSCH physical layer category” (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	**RB5 (Streaming 128 kbps, 20ms)**	**RB6 (I/B 128 kbps, 20ms)**	**DCCH**
TFS	TF0, bits	0x656	0x336	0x148
	TF1, bits	1x656	1x336	1x148
	TF2, bits	2x656	2x336	N/A
	TF3, bits	4x656	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Uplink TFCS:

TFCI	(RB5 + RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)-
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF0, TF0)
UL_TFC3	(TF3, TF0, TF0)
UL_TFC4	(TF0, TF1, TF0)
UL_TFC5	(TF1, TF1, TF0)
UL_TFC6	(TF2, TF1, TF0)
UL_TFC7	(TF3, TF1, TF0)
UL_TFC8	(TF0, TF2, TF0)
UL_TFC9	(TF1, TF2, TF0)
UL_TFC10	(TF2, TF2, TF0)
UL_TFC11	(TF3, TF2, TF0)
UL_TFC12	(TF0, TF3, TF0)
UL_TFC13	(TF1, TF3, TF0)
UL_TFC14	(TF2, TF3, TF0)
UL_TFC15	(TF3, TF3, TF0)
UL_TFC16	(TF0, TF4, TF0)
UL_TFC17	(TF1, TF4, TF0)
UL_TFC18	(TF2, TF4, TF0)
UL_TFC19	(TF3, TF4, TF0)
UL_TFC20	(TF0, TF0, TF1)
UL_TFC21	(TF1, TF0, TF1)
UL_TFC22	(TF2, TF0, TF1)
UL_TFC23	(TF3, TF0, TF1)
UL_TFC24	(TF0, TF1, TF1)
UL_TFC25	(TF1, TF1, TF1)
UL_TFC26	(TF2, TF1, TF1)
UL_TFC27	(TF3, TF1, TF1)
UL_TFC28	(TF0, TF2, TF1)
UL_TFC29	(TF1, TF2, TF1)
UL_TFC30	(TF2, TF2, TF1)
UL_TFC31	(TF3, TF2, TF1)
UL_TFC32	(TF0, TF3, TF1)
UL_TFC33	(TF1, TF3, TF1)
UL_TFC34	(TF2, TF3, TF1)
UL_TFC35	(TF3, TF3, TF1)
UL_TFC36	(TF0, TF4, TF1)
UL_TFC37	(TF1, TF4, TF1)
UL_TFC38	(TF2, TF4, TF1)
UL_TFC39	(TF3, TF4, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Streaming + Interactive Background PS radio bearer. The Streaming UL:128 kbps + Interactive Background UL:128 kbps radio bearer (RB5+RB6) have 40 transport format combinations. As the transport formats where RB5, RB6 or DCCH has no data (TF0 for RB5, RB6 or DCCH) is considered as implicitly tested when the transport format combinations with data is tested then no specific sub-tests for those transport format combinations have been specified. The selected UL TFCI to achieve test coverage of TF1 to TF3 for RB5 and TF1 to TF4 for RB6 are: UL_TFC5 to UL_TFC7, UL_TFC9 to UL_TFC11, UL_TFC13 to UL_TFC15 and UL_TFC17 to UL_TFC19.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	2	512	128	336	N/A	UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC20, UL_TFC21	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC25	RB5: 632 RB6: 312	See note 4
	2	2	512	128							
	3	3	512	128							
	4	3	512	128							
	5	6	512	256							
	6	6	512	256							
	7	6	1536	512							
	8	6	1536	512							
	9	6	2047	512							
	10	6	2047	512							
	11	3	1024	128							
	12	6	1024	128							
2	1	2	256	128	656	N/A	UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC6, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC26	RB5: 1272 RB6: 312	See note 4
	2	2	256	128							
	3	3	256	128							
	4	3	256	128							
	5	6	256	256							
	6	6	256	256							
	7	6	512	512							
	8	6	512	512							
	9	6	1024	512							
	10	6	1024	1024							
	11	3	512	128							
	12	6	512	128							
3	1	2	512	256	336	N/A	UL_TFC7	UL_TFC0, UL_TFC3, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC7, UL_TFC20,	RB5: 2552 RB6: 312	See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	8	512	256							
	7	8	1536	512							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
	8	8	1536	512					UL_TFC21, UL_TFC24, UL_TFC27		
	9	8	2047	512							
	10	6	2047	1024							
	11	3	1024	128							
	12	8	1024	128							
4	1	2	256	256	656	N/A	UL_TFC9	UL_TFC0, UL_TFC8, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC9, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC29	RB5: 632 RB6: 632	See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	6	1024	1024							
	11	3	512	128							
	12	8	512	128							
5	1	2	512	256	656	N/A	UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC8, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC8, UL_TFC10, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC30	RB5: 1272 RB6: 632	See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	6	2047	1024							
	11	3	1024	128							
	12	8	1024	128							
6	1	2	256	256	656	N/A	UL_TFC11	UL_TFC0, UL_TFC3, UL_TFC8, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC8, UL_TFC11, UL_TFC20,	RB5: 2552 RB6: 632	See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
	10	6	1024	1024					UL_TFC21, UL_TFC24, UL_TFC31		
	11	3	512	128							
	12	8	512	128							
7	1	2	512	256	656	N/A	UL_TFC13	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC12, UL_TFC13, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC33	RB5: 632 RB6: 1272	See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	6	2047	1024							
	11	3	1024	128							
	12	8	1024	128							
8	1	2	256	256	656	N/A	UL_TFC14	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC12, UL_TFC14, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC34	RB5: 1272 RB6: 1272	See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	6	1024	1024							
	11	3	512	128							
	12	8	512	128							
9	1	2	512	256	656	N/A	UL_TFC15	UL_TFC0, UL_TFC3, UL_TFC12, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC12,	RB5: 2552 RB6: 1272	See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	8	512	256							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
	7	8	1536	512					UL_TFC15, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC35		
	8	8	1536	512							
	9	8	2047	512							
	10	6	2047	1024							
	11	3	1024	128							
	12	8	1024	128							
10	1	2	256	256	656	N/A	UL_TFC17	UL_TFC0, UL_TFC1, UL_TFC16, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC16, UL_TFC17, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC37	RB5: 632 RB6: 2552	See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	6	1024	1024							
	11	3	512	128							
	12	8	512	128							
11	1	2	512	256	656	N/A	UL_TFC18	UL_TFC0, UL_TFC8, UL_TFC16, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC16, UL_TFC18, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC38	RB5: 1272 RB6: 2552	See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	6	2047	1024							
	11	3	1024	128							
	12	8	1024	128							
12	1	2	256	256	656	N/A	UL_TFC19	UL_TFC0, UL_TFC3, UL_TFC16, UL_TFC4,	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4,	RB5: 2552 RB6: 2552	See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
	5	6	256	256				UL_TFC20, UL_TFC6	UL_TFC16, UL_TFC19, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC39		
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	6	1024	1024							
	11	3	512	128							
	12	8	512	128							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.

NOTE 2: UL_TFC0, UL_TFC1, UL_TFC4 and UL_TFC20 are part of minimum set of TFCIs. Also the transport format combinations UL_TFC21 and UL_TFC24 using TF1 on either RB5 or RB6 and TF1 on DCCH has been included in the allowed TFCs as those could happen during the sub-test.

NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5 and RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.

NOTE 4: The test data size for RB5 and RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

14.6.6.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

14.6.6a Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: QPSK and 16QAM

14.6.6a.1 Conformance requirement

See 14.6.1.1.

14.6.6a.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.6 for the QPSK, 16QAM and non-MIMO case using the downlink enhanced Layer 2 configuration with MAC-ehs and combination of Fixed and Flexible RLC.

14.6.6a.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-7 IE “HS-DSCH physical layer category extension”. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB is refered to as RB5. The Interactive or background / UL:128 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs / PS RAB is refered to as RB6.

The following parameters are specific for this test case and RB5 and RB6:

Parameter	Value
Radio bearer	TS 34.108, clause 6.10.2.4.5.6 using downlink MAC-d flow parameters according to Alt 2 (Fixed RLC and MAC-ehs) for RB5 and MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs) for RB6
MAC-ehs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3.5a is run for each sub-test for test execution 1 and 2.

Execution counter	Downlink Modulation Scheme (M)	MIMO
1	QPSK	No
2	16QAM	No

Uplink TFS:

	TFI	RB5 (Streaming 128 kbps, 20ms)	RB6 (I/B 128 kbps, 20ms)	DCCH
TFS	TF0, bits	0x656	0x336	0x148
	TF1, bits	1x656	1x336	1x148
	TF2, bits	2x656	2x336	N/A
	TF3, bits	4x656	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Uplink TFCS:

TFCI	(RB5 + RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)-
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF0, TF0)
UL_TFC3	(TF3, TF0, TF0)
UL_TFC4	(TF0, TF1, TF0)
UL_TFC5	(TF1, TF1, TF0)
UL_TFC6	(TF2, TF1, TF0)
UL_TFC7	(TF3, TF1, TF0)
UL_TFC8	(TF0, TF2, TF0)
UL_TFC9	(TF1, TF2, TF0)
UL_TFC10	(TF2, TF2, TF0)
UL_TFC11	(TF3, TF2, TF0)
UL_TFC12	(TF0, TF3, TF0)
UL_TFC13	(TF1, TF3, TF0)
UL_TFC14	(TF2, TF3, TF0)
UL_TFC15	(TF3, TF3, TF0)
UL_TFC16	(TF0, TF4, TF0)
UL_TFC17	(TF1, TF4, TF0)
UL_TFC18	(TF2, TF4, TF0)
UL_TFC19	(TF3, TF4, TF0)
UL_TFC20	(TF0, TF0, TF1)
UL_TFC21	(TF1, TF0, TF1)
UL_TFC22	(TF2, TF0, TF1)
UL_TFC23	(TF3, TF0, TF1)
UL_TFC24	(TF0, TF1, TF1)
UL_TFC25	(TF1, TF1, TF1)
UL_TFC26	(TF2, TF1, TF1)
UL_TFC27	(TF3, TF1, TF1)
UL_TFC28	(TF0, TF2, TF1)
UL_TFC29	(TF1, TF2, TF1)
UL_TFC30	(TF2, TF2, TF1)
UL_TFC31	(TF3, TF2, TF1)
UL_TFC32	(TF0, TF3, TF1)
UL_TFC33	(TF1, TF3, TF1)
UL_TFC34	(TF2, TF3, TF1)
UL_TFC35	(TF3, TF3, TF1)
UL_TFC36	(TF0, TF4, TF1)
UL_TFC37	(TF1, TF4, TF1)
UL_TFC38	(TF2, TF4, TF1)
UL_TFC39	(TF3, TF4, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Streaming + Interactive Background PS radio bearer. The Streaming UL:128 kbps + Interactive Background UL:128 kbps radio bearer (RB5+RB6) have 40 transport format combinations. As the transport formats where RB5, RB6 or DCCH has no data (TF0 for RB5, RB6 or DCCH) is considered as implicitly tested when the transport format combinations with data is tested then no specific sub-tests for those transport format combinations have been specified. The selected UL TFCI to achieve test coverage of TF1 to TF3 for RB5 and TF1 to TF4 for RB6 are: UL_TFC5 to UL_TFC7, UL_TFC9 to UL_TFC11, UL_TFC13 to UL_TFC15 and UL_TFC17 to UL_TFC19.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	2	512	128	RB5:336 RB6: Flexible	N/A	UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC20, UL_TFC21	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC25	RB5: 632 RB6: 312	See note 4
	2	2	512	128							
	3	3	512	128							
	4	3	512	128							
	5	6	512	256							
	6	6	512	256							
	7	6	1536	512							
	8	6	1536	512							
	9	6	2047	512							
	10	6	2047	512							
	11	3	1024	128							
	12	6	1024	128							
	13 - 20	6	2047	512							
2	1	2	256	128	RB5: 656 RB6: Flexible	N/A	UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC6, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC26	RB5: 1272 RB6: 312	See note 4
	2	2	256	128							
	3	3	256	128							
	4	3	256	128							
	5	6	256	256							
	6	6	256	256							
	7	6	512	512							
	8	6	512	512							
	9	6	1024	512							
	10	6	1024	1024							
	11	3	512	128							
	12	6	512	128							
	13 - 20	6	1024	1024							
3	1	2	512	256	RB5:336 RB6: Flexible	N/A	UL_TFC7	UL_TFC0, UL_TFC3, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC7, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC27	RB5: 2552 RB6: 312	See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	6	2047	1024							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
	11	3	1024	128							
	12	8	1024	128							
	13 - 20	8	2047	1024							
4	1	2	256	256	RB5: 656 RB6: Flexible	N/A	UL_TFC9	UL_TFC0, UL_TFC8, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC9, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC29	RB5: 632 RB6: 632	See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	6	1024	1024							
	11	3	512	128							
	12	8	512	128							
	13 - 20	8	1024	1024							
5	1	2	512	256	RB5: 656 RB6: Flexible	N/A	UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC8, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC8, UL_TFC10, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC30	RB5: 1272 RB6: 632	See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	6	2047	1024							
	11	3	1024	128							
	12	8	1024	128							
	13 - 20	8	2047	1024							
6	1	2	256	256	RB5: 656 RB6: Flexible	N/A	UL_TFC11	UL_TFC0, UL_TFC3, UL_TFC8, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC8, UL_TFC11, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC31	RB5: 2552 RB6: 632	See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	6	1024	1024							
	11	3	512	128							
	12	8	512	128							
	13 - 20	8	1024	1024							
7	1	2	512	256	RB5: 656 RB6: Flexible	N/A	UL_TFC13	UL_TFC0, UL_TFC1, UL_TFC12,	UL_TFC0, UL_TFC1, UL_TFC4,	RB5: 632 RB6: 1272	See note 4
	2	2	512	256							
	3	3	512	256							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
	4	3	512	256				UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC12, UL_TFC13, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC33		
	5	6	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	6	2047	1024							
	11	3	1024	128							
	12	8	1024	128							
	13 - 20	8	2047	1024							
8	1	2	256	256	RB5: 656 RB6: Flexible	N/A	UL_TFC14	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC12, UL_TFC14, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC34	RB5: 1272 RB6: 1272	See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	6	1024	1024							
	11	3	512	128							
	12	8	512	128							
	13 - 20	8	1024	1024							
9	1	2	512	256	RB5: 656 RB6: Flexible	N/A	UL_TFC15	UL_TFC0, UL_TFC3, UL_TFC12, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC12, UL_TFC15, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC35	RB5: 2552 RB6: 1272	See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	6	2047	1024							
	11	3	1024	128							
	12	8	1024	128							
	13 - 20	8	2047	1024							
10	1	2	256	256	RB5: 656 RB6: Flexible	N/A	UL_TFC17	UL_TFC0, UL_TFC1, UL_TFC16, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC16, UL_TFC17, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC37	RB5: 632 RB6: 2552	See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
	10	6	1024	1024							
	11	3	512	128							
	12	8	512	128							
	13 - 20	8	1024	1024							
11	1	2	512	256	RB5: 656 RB6: Flexible	N/A	UL_TFC18	UL_TFC0, UL_TFC8, UL_TFC16, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC16, UL_TFC18, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC38	RB5: 1272 RB6: 2552	See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	6	2047	1024							
	11	3	1024	128							
	12	8	1024	128							
	13 - 20	8	2047	1024							
12	1	2	256	256	RB5: 656 RB6: Flexible	N/A	UL_TFC19	UL_TFC0, UL_TFC3, UL_TFC16, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC16, UL_TFC19, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC39	RB5: 2552 RB6: 2552	See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	6	1024	1024							
	11	3	512	128							
	12	8	512	128							
	13 - 20	8	1024	1024							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.

NOTE 2: UL_TFC0, UL_TFC1, UL_TFC4 and UL_TFC20 are part of minimum set of TFCIs. Also the transport format combinations UL_TFC21 and UL_TFC24 using TF1 on either RB5 or RB6 and TF1 on DCCH has been included in the allowed TFCs as those could happen during the sub-test.

NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5 and RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.

NOTE 4: The test data size for RB5 and RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5a.

14.6.6a.4 Test requirements

See 14.1.3.5a for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   The UE shall for each radio bearer return the equal number RLC SDUs as sent by the SS in downlink. If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return RLC SDUs where the SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5a sends either 1 SDU or 4 SDUs depending on the transport block size under tests. For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

14.6.6b Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: 64QAM

14.6.6b.1 Conformance requirement

See 14.6.1.1.

14.6.6b.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.6 for the QPSK, 16QAM and non-MIMO case using the downlink enhanced Layer 2 configuration with MAC-ehs and combination of Fixed and Flexible RLC.

14.6.6b.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-7 IE “HS-DSCH physical layer category extension”. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB is refered to as RB5. The Interactive or background / UL:128 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs / PS RAB is refered to as RB6.

The following parameters are specific for this test case and RB5 and RB6:

Parameter	Value
Radio bearer	TS 34.108, clause 6.10.2.4.5.6 using downlink MAC-d flow parameters according to Alt 2 (Fixed RLC and MAC-ehs) for RB5 and MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs) for RB6
MAC-ehs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3.5a is run for each sub-test with M=64QAM and non-MIMO case.

Uplink TFS:

	TFI	RB5 (Streaming 128 kbps, 20ms)	RB6 (I/B 128 kbps, 20ms)	DCCH
TFS	TF0, bits	0x656	0x336	0x148
	TF1, bits	1x656	1x336	1x148
	TF2, bits	2x656	2x336	N/A
	TF3, bits	4x656	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Uplink TFCS:

TFCI	(RB5 + RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)-
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF0, TF0)
UL_TFC3	(TF3, TF0, TF0)
UL_TFC4	(TF0, TF1, TF0)
UL_TFC5	(TF1, TF1, TF0)
UL_TFC6	(TF2, TF1, TF0)
UL_TFC7	(TF3, TF1, TF0)
UL_TFC8	(TF0, TF2, TF0)
UL_TFC9	(TF1, TF2, TF0)
UL_TFC10	(TF2, TF2, TF0)
UL_TFC11	(TF3, TF2, TF0)
UL_TFC12	(TF0, TF3, TF0)
UL_TFC13	(TF1, TF3, TF0)
UL_TFC14	(TF2, TF3, TF0)
UL_TFC15	(TF3, TF3, TF0)
UL_TFC16	(TF0, TF4, TF0)
UL_TFC17	(TF1, TF4, TF0)
UL_TFC18	(TF2, TF4, TF0)
UL_TFC19	(TF3, TF4, TF0)
UL_TFC20	(TF0, TF0, TF1)
UL_TFC21	(TF1, TF0, TF1)
UL_TFC22	(TF2, TF0, TF1)
UL_TFC23	(TF3, TF0, TF1)
UL_TFC24	(TF0, TF1, TF1)
UL_TFC25	(TF1, TF1, TF1)
UL_TFC26	(TF2, TF1, TF1)
UL_TFC27	(TF3, TF1, TF1)
UL_TFC28	(TF0, TF2, TF1)
UL_TFC29	(TF1, TF2, TF1)
UL_TFC30	(TF2, TF2, TF1)
UL_TFC31	(TF3, TF2, TF1)
UL_TFC32	(TF0, TF3, TF1)
UL_TFC33	(TF1, TF3, TF1)
UL_TFC34	(TF2, TF3, TF1)
UL_TFC35	(TF3, TF3, TF1)
UL_TFC36	(TF0, TF4, TF1)
UL_TFC37	(TF1, TF4, TF1)
UL_TFC38	(TF2, TF4, TF1)
UL_TFC39	(TF3, TF4, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Streaming + Interactive Background PS radio bearer. The Streaming UL:128 kbps + Interactive Background UL:128 kbps radio bearer (RB5+RB6) have 40 transport format combinations. As the transport formats where RB5, RB6 or DCCH has no data (TF0 for RB5, RB6 or DCCH) is considered as implicitly tested when the transport format combinations with data is tested then no specific sub-tests for those transport format combinations have been specified. The selected UL TFCI to achieve test coverage of TF1 to TF3 for RB5 and TF1 to TF4 for RB6 are: UL_TFC5 to UL_TFC7, UL_TFC9 to UL_TFC11, UL_TFC13 to UL_TFC15 and UL_TFC17 to UL_TFC19.

								UL_TFC20, UL_TFC6	UL_TFC4, UL_TFC6, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC26		
3	13,14,17,18, 19,20	6	2047	1024	RB5:336 RB6: Flexible	N/A	UL_TFC7	UL_TFC0, UL_TFC3, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC7, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC27	RB5: 2552 RB6: 312	See note 4
4	13,14,17,18, 19,20	6	1024	1024	RB5: 656 RB6: Flexible	N/A	UL_TFC9	UL_TFC0, UL_TFC8, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC9, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC29	RB5: 632 RB6: 632	See note 4
5	13,14,17,18, 19,20	6	2047	1024	RB5: 656 RB6: Flexible	N/A	UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC8, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC8, UL_TFC10, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC30	RB5: 1272 RB6: 632	See note 4
6	13,14,17,18, 19,20	6	1024	1024	RB5: 656 RB6: Flexible	N/A	UL_TFC11	UL_TFC0, UL_TFC3, UL_TFC8, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC8, UL_TFC11, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC31	RB5: 2552 RB6: 632	See note 4
7	13,14,17,18, 19,20	6	2047	1024	RB5: 656 RB6: Flexible	N/A	UL_TFC13	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC4,	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC12,	RB5: 632 RB6: 1272	See note 4

								UL_TFC20, UL_TFC6	UL_TFC13, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC33		
8	13,14,17,18, 19,20	6	1024	1024	RB5: 656 RB6: Flexible	N/A	UL_TFC14	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC12, UL_TFC14, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC34	RB5: 1272 RB6: 1272	See note 4
9	13,14,17,18, 19,20	6	2047	1024	RB5: 656 RB6: Flexible	N/A	UL_TFC15	UL_TFC0, UL_TFC3, UL_TFC12, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC12, UL_TFC15, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC35	RB5: 2552 RB6: 1272	See note 4
10	13,14,17,18, 19,20	6	1024	1024	RB5: 656 RB6: Flexible	N/A	UL_TFC17	UL_TFC0, UL_TFC1, UL_TFC16, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC16, UL_TFC17, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC37	RB5: 632 RB6: 2552	See note 4
11	13,14,17,18, 19,20	6	2047	1024	RB5: 656 RB6: Flexible	N/A	UL_TFC18	UL_TFC0, UL_TFC8, UL_TFC16, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC16, UL_TFC18, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC38	RB5: 1272 RB6: 2552	See note 4
12	13,14,17,18, 19,20	6	1024	1024	RB5: 656 RB6: Flexible	N/A	UL_TFC19	UL_TFC0, UL_TFC3, UL_TFC16, UL_TFC4, UL_TFC20,	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC16,	RB5: 2552 RB6: 2552	See note 4

								UL_TFC6	UL_TFC19, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC39		

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC4 and UL_TFC20 are part of minimum set of TFCIs. Also the transport format combinations UL_TFC21 and UL_TFC24 using TF1 on either RB5 or RB6 and TF1 on DCCH has been included in the allowed TFCs as those could happen during the sub-test.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5 and RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB5 and RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5a.

14.6.6b.4 Test requirements

See 14.1.3.5a for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   The UE shall for each radio bearer return the equal number RLC SDUs as sent by the SS in downlink. If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return RLC SDUs where the SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5a sends either 1 SDU or 4 SDUs depending on the transport block size under tests. For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

14.6.6c Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: QPSK, 16QAM and MIMO

14.6.6c.1 Conformance requirement

See 14.6.1.1.

14.6.6c.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.6 for the QPSK, 16QAM and MIMO case using the downlink enhanced Layer 2 configuration with MAC-ehs and combination of Fixed and Flexible RLC.

14.6.6c.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-7 IE “HS-DSCH physical layer category extension”. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB is refered to as RB5. The Interactive or background / UL:128 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs / PS RAB is refered to as RB6.

The following parameters are specific for this test case and RB5 and RB6:

Parameter	Value	Comments
Radio bearer	TS 34.108, clause 6.10.2.4.5.6 using downlink MAC-d flow parameters according to Alt 2 (Fixed RLC and MAC-ehs) for RB5 and MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs) for RB6	
MAC-ehs receiver window size	16	
MIMO N_cqi_typeA/M_cqi ratio	1/1	25.331, 10.3.6.41a
Second CPICH pattern	Antenna1 S-CPICH	25.331, 10.3.6.41b
S-CPICH Channelisation code	12	
precodingWeightIndicator, W2	00	25.212, Table 14A
RLC Transmission window size	See sub-test table	
RLC Receiving window size	See sub-test table	

The generic test procedure in 14.1.3.5a is run for each sub-test for test execution 1 and 2.

Execution counter	Downlink Modulation Scheme (M1) MIMO data flow#1	Downlink Modulation Scheme (M2) MIMO data flow#2	MIMO
1	QPSK	QPSK	Yes
2	16QAM	16QAM	Yes
3	16QAM	QPSK	Yes

Uplink TFS:

	TFI	RB5 (Streaming 128 kbps, 20ms)	RB6 (I/B 128 kbps, 20ms)	DCCH
TFS	TF0, bits	0x656	0x336	0x148
	TF1, bits	1x656	1x336	1x148
	TF2, bits	2x656	2x336	N/A
	TF3, bits	4x656	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Uplink TFCS:

TFCI	(RB5 + RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)-
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF0, TF0)
UL_TFC3	(TF3, TF0, TF0)
UL_TFC4	(TF0, TF1, TF0)
UL_TFC5	(TF1, TF1, TF0)
UL_TFC6	(TF2, TF1, TF0)
UL_TFC7	(TF3, TF1, TF0)
UL_TFC8	(TF0, TF2, TF0)
UL_TFC9	(TF1, TF2, TF0)
UL_TFC10	(TF2, TF2, TF0)
UL_TFC11	(TF3, TF2, TF0)
UL_TFC12	(TF0, TF3, TF0)
UL_TFC13	(TF1, TF3, TF0)
UL_TFC14	(TF2, TF3, TF0)
UL_TFC15	(TF3, TF3, TF0)
UL_TFC16	(TF0, TF4, TF0)
UL_TFC17	(TF1, TF4, TF0)
UL_TFC18	(TF2, TF4, TF0)
UL_TFC19	(TF3, TF4, TF0)
UL_TFC20	(TF0, TF0, TF1)
UL_TFC21	(TF1, TF0, TF1)
UL_TFC22	(TF2, TF0, TF1)
UL_TFC23	(TF3, TF0, TF1)
UL_TFC24	(TF0, TF1, TF1)
UL_TFC25	(TF1, TF1, TF1)
UL_TFC26	(TF2, TF1, TF1)
UL_TFC27	(TF3, TF1, TF1)
UL_TFC28	(TF0, TF2, TF1)
UL_TFC29	(TF1, TF2, TF1)
UL_TFC30	(TF2, TF2, TF1)
UL_TFC31	(TF3, TF2, TF1)
UL_TFC32	(TF0, TF3, TF1)
UL_TFC33	(TF1, TF3, TF1)
UL_TFC34	(TF2, TF3, TF1)
UL_TFC35	(TF3, TF3, TF1)
UL_TFC36	(TF0, TF4, TF1)
UL_TFC37	(TF1, TF4, TF1)
UL_TFC38	(TF2, TF4, TF1)
UL_TFC39	(TF3, TF4, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Streaming + Interactive Background PS radio bearer. The Streaming UL:128 kbps + Interactive Background UL:128 kbps radio bearer (RB5+RB6) have 40 transport format combinations. As the transport formats where RB5, RB6 or DCCH has no data (TF0 for RB5, RB6 or DCCH) is considered as implicitly tested when the transport format combinations with data is tested then no specific sub-tests for those transport format combinations have been specified. The selected UL TFCI to achieve test coverage of TF1 to TF3 for RB5 and TF1 to TF4 for RB6 are: UL_TFC5 to UL_TFC7, UL_TFC9 to UL_TFC11, UL_TFC13 to UL_TFC15 and UL_TFC17 to UL_TFC19.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	15-20	12	2047	512	RB5:336 RB6: Flexible	N/A	UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC20, UL_TFC21	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC25	RB5: 632 RB6: 312	See note 4
2	15-20	12	1024	1024	RB5: 656 RB6: Flexible	N/A	UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC6, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC26	RB5: 1272 RB6: 312	See note 4
3	15-20	16	2047	1024	RB5:336 RB6: Flexible	N/A	UL_TFC7	UL_TFC0, UL_TFC3, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC7, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC27	RB5: 2552 RB6: 312	See note 4
4	15-20	12	1024	1024	RB5: 656 RB6: Flexible	N/A	UL_TFC9	UL_TFC0, UL_TFC8, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC9, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC29	RB5: 632 RB6: 632	See note 4

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
5	15-20	12	2047	1024	RB5: 656 RB6: Flexible	N/A	UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC8, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC8, UL_TFC10, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC30	RB5: 1272 RB6: 632	See note 4
6	15-20	12	1024	1024	RB5: 656 RB6: Flexible	N/A	UL_TFC11	UL_TFC0, UL_TFC3, UL_TFC8, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC8, UL_TFC11, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC31	RB5: 2552 RB6: 632	See note 4
7	15-20	12	2047	1024	RB5: 656 RB6: Flexible	N/A	UL_TFC13	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC12, UL_TFC13, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC33	RB5: 632 RB6: 1272	See note 4
8	15-20	12	1024	1024	RB5: 656 RB6: Flexible	N/A	UL_TFC14	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC12, UL_TFC14, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC34	RB5: 1272 RB6: 1272	See note 4
9	15-20	12	2047	1024	RB5: 656 RB6: Flexible	N/A	UL_TFC15	UL_TFC0, UL_TFC3, UL_TFC12, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC12, UL_TFC15, UL_TFC20, UL_TFC21,	RB5: 2552 RB6: 1272	See note 4

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
									UL_TFC24, UL_TFC35		
10	15-20	12	1024	1024	RB5: 656 RB6: Flexible	N/A	UL_TFC17	UL_TFC0, UL_TFC1, UL_TFC16, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC16, UL_TFC17, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC37	RB5: 632 RB6: 2552	See note 4
11	15-20	12	2047	1024	RB5: 656 RB6: Flexible	N/A	UL_TFC18	UL_TFC0, UL_TFC8, UL_TFC16, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC16, UL_TFC18, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC38	RB5: 1272 RB6: 2552	See note 4
12	15-20	12	1024	1024	RB5: 656 RB6: Flexible	N/A	UL_TFC19	UL_TFC0, UL_TFC3, UL_TFC16, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC16, UL_TFC19, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC39	RB5: 2552 RB6: 2552	See note 4

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC4 and UL_TFC20 are part of minimum set of TFCIs. Also the transport format combinations UL_TFC21 and UL_TFC24 using TF1 on either RB5 or RB6 and TF1 on DCCH has been included in the allowed TFCs as those could happen during the sub-test.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5 and RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB5 and RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5a.
NOTE 5: For Subtest 3, when 16QAM/16QAM modulation is executed, test points 33 and above are not applicable.

14.6.6c.4 Test requirements

See 14.1.3.5a for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   The UE shall for each radio bearer return the equal number RLC SDUs as sent by the SS in downlink. If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return RLC SDUs where the SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5a sends either 2 SDU or 8 SDUs depending on the transport block size under tests. For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

14.6.6d Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: 64QAM and MIMO

14.6.6d.1 Conformance requirement

See 14.6.1.1.

14.6.6d.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.6 for the 64QAM and MIMO case using the downlink enhanced Layer 2 configuration with MAC-ehs and combination of Fixed and Flexible RLC.

14.6.6d.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-7 IE “HS-DSCH physical layer category extension”. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB is refered to as RB5. The Interactive or background / UL:128 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs / PS RAB is refered to as RB6.

The following parameters are specific for this test case and RB5 and RB6:

Parameter	Value	Comments
Radio bearer	TS 34.108, clause 6.10.2.4.5.6 using downlink MAC-d flow parameters according to Alt 2 (Fixed RLC and MAC-ehs) for RB5 and MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs) for RB6	
MAC-ehs receiver window size	16	
MIMO N_cqi_typeA/M_cqi ratio	1/1	25.331, 10.3.6.41a
Second CPICH pattern	Antenna1 S-CPICH	25.331, 10.3.6.41b
S-CPICH Channelisation code	12	
precodingWeight2	00	25.212, Table 14A
RLC Transmission window size	See sub-test table	
RLC Receiving window size	See sub-test table	

The generic test procedure in 14.1.3.5a is run for each sub-test for test execution 1 to 3.

Execution counter	Downlink Modulation Scheme (M1) MIMO data flow#1	Downlink Modulation Scheme (M2) MIMO data flow#2	Number of HARQ processes	MIMO
1	64QAM	QPSK	12	Yes
2	64QAM	16QAM	12	Yes
3	64QAM	64QAM	12	Yes

Uplink TFS:

	TFI	RB5 (Streaming 128 kbps, 20ms)	RB6 (I/B 128 kbps, 20ms)	DCCH
TFS	TF0, bits	0x656	0x336	0x148
	TF1, bits	1x656	1x336	1x148
	TF2, bits	2x656	2x336	N/A
	TF3, bits	4x656	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Uplink TFCS:

TFCI	(RB5 + RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)-
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF0, TF0)
UL_TFC3	(TF3, TF0, TF0)
UL_TFC4	(TF0, TF1, TF0)
UL_TFC5	(TF1, TF1, TF0)
UL_TFC6	(TF2, TF1, TF0)
UL_TFC7	(TF3, TF1, TF0)
UL_TFC8	(TF0, TF2, TF0)
UL_TFC9	(TF1, TF2, TF0)
UL_TFC10	(TF2, TF2, TF0)
UL_TFC11	(TF3, TF2, TF0)
UL_TFC12	(TF0, TF3, TF0)
UL_TFC13	(TF1, TF3, TF0)
UL_TFC14	(TF2, TF3, TF0)
UL_TFC15	(TF3, TF3, TF0)
UL_TFC16	(TF0, TF4, TF0)
UL_TFC17	(TF1, TF4, TF0)
UL_TFC18	(TF2, TF4, TF0)
UL_TFC19	(TF3, TF4, TF0)
UL_TFC20	(TF0, TF0, TF1)
UL_TFC21	(TF1, TF0, TF1)
UL_TFC22	(TF2, TF0, TF1)
UL_TFC23	(TF3, TF0, TF1)
UL_TFC24	(TF0, TF1, TF1)
UL_TFC25	(TF1, TF1, TF1)
UL_TFC26	(TF2, TF1, TF1)
UL_TFC27	(TF3, TF1, TF1)
UL_TFC28	(TF0, TF2, TF1)
UL_TFC29	(TF1, TF2, TF1)
UL_TFC30	(TF2, TF2, TF1)
UL_TFC31	(TF3, TF2, TF1)
UL_TFC32	(TF0, TF3, TF1)
UL_TFC33	(TF1, TF3, TF1)
UL_TFC34	(TF2, TF3, TF1)
UL_TFC35	(TF3, TF3, TF1)
UL_TFC36	(TF0, TF4, TF1)
UL_TFC37	(TF1, TF4, TF1)
UL_TFC38	(TF2, TF4, TF1)
UL_TFC39	(TF3, TF4, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Streaming + Interactive Background PS radio bearer. The Streaming UL:128 kbps + Interactive Background UL:128 kbps radio bearer (RB5+RB6) have 40 transport format combinations. As the transport formats where RB5, RB6 or DCCH has no data (TF0 for RB5, RB6 or DCCH) is considered as implicitly tested when the transport format combinations with data is tested then no specific sub-tests for those transport format combinations have been specified.

Sub-tes	UE Category	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	19 and 20	2047	1024	RB5: 656 RB6: Flexible	UL_TFC19	UL_TFC0, UL_TFC3, UL_TFC16, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC16, UL_TFC19, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC39	RB5: 2552 RB6: 2552	See note 4

NOTE 1: The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC4 and UL_TFC20 are part of minimum set of TFCIs. Also the transport format combinations UL_TFC21 and UL_TFC24 using TF1 on either RB5 or RB6 and TF1 on DCCH has been included in the allowed TFCs as those could happen during the sub-test.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5 and RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return one complete UL RLC SDU per UL TTI.
NOTE 4: The test data size and number of DL RLC SDUs for RB5 and RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5a.

14.6.6d.4 Test requirements

See 14.1.3.5a for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   The UE shall for each radio bearer return the equal number RLC SDUs as sent by the SS in downlink. If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return RLC SDUs where the SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5a sends either 2 SDU or 8 SDUs depending on the transport block size under tests.

14.6.6e Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: QPSK, 16QAM and Dual-Cell

14.6.6e.1 Conformance requirement

See 14.6.1.1.

14.6.6e.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.6 for the QPSK, 16QAM and Dual-Cell case using the downlink enhanced Layer 2 configuration with MAC-ehs and combination of Fixed and Flexible RLC.

14.6.6e.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-8 IE “HS-DSCH physical layer category extension 2”. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB is refered to as RB5. The Interactive or background / UL:128 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs / PS RAB is refered to as RB6.

The following parameters are specific for this test case and RB5 and RB6:

Parameter	Value	Comments
Radio bearer	TS 34.108, clause 6.10.2.4.5.6 using downlink MAC-d flow parameters according to Alt 2 (Fixed RLC and MAC-ehs) for RB5 and MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs) for RB6	
MAC-ehs receiver window size	16	
RLC Transmission window size	See sub-test table	
RLC Receiving window size	See sub-test table	

The generic test procedure in 14.1.3.5a is run for each sub-test for test execution 1 to 3.

Execution counter	Downlink Modulation Scheme (M1) Dual-Cell data flow#1	Downlink Modulation Scheme (M2) Dual-Cell data flow#2	Number of HARQ processes	Dual-Cell
1	QPSK	QPSK	6	Yes
2	16QAM	16QAM	8	Yes
3	16QAM	QPSK	8	Yes

Uplink TFS:

	TFI	RB5 (Streaming 128 kbps, 20ms)	RB6 (I/B 128 kbps, 20ms)	DCCH
TFS	TF0, bits	0x656	0x336	0x148
	TF1, bits	1x656	1x336	1x148
	TF2, bits	2x656	2x336	N/A
	TF3, bits	4x656	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Uplink TFCS:

TFCI	(RB5 + RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)-
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF0, TF0)
UL_TFC3	(TF3, TF0, TF0)
UL_TFC4	(TF0, TF1, TF0)
UL_TFC5	(TF1, TF1, TF0)
UL_TFC6	(TF2, TF1, TF0)
UL_TFC7	(TF3, TF1, TF0)
UL_TFC8	(TF0, TF2, TF0)
UL_TFC9	(TF1, TF2, TF0)
UL_TFC10	(TF2, TF2, TF0)
UL_TFC11	(TF3, TF2, TF0)
UL_TFC12	(TF0, TF3, TF0)
UL_TFC13	(TF1, TF3, TF0)
UL_TFC14	(TF2, TF3, TF0)
UL_TFC15	(TF3, TF3, TF0)
UL_TFC16	(TF0, TF4, TF0)
UL_TFC17	(TF1, TF4, TF0)
UL_TFC18	(TF2, TF4, TF0)
UL_TFC19	(TF3, TF4, TF0)
UL_TFC20	(TF0, TF0, TF1)
UL_TFC21	(TF1, TF0, TF1)
UL_TFC22	(TF2, TF0, TF1)
UL_TFC23	(TF3, TF0, TF1)
UL_TFC24	(TF0, TF1, TF1)
UL_TFC25	(TF1, TF1, TF1)
UL_TFC26	(TF2, TF1, TF1)
UL_TFC27	(TF3, TF1, TF1)
UL_TFC28	(TF0, TF2, TF1)
UL_TFC29	(TF1, TF2, TF1)
UL_TFC30	(TF2, TF2, TF1)
UL_TFC31	(TF3, TF2, TF1)
UL_TFC32	(TF0, TF3, TF1)
UL_TFC33	(TF1, TF3, TF1)
UL_TFC34	(TF2, TF3, TF1)
UL_TFC35	(TF3, TF3, TF1)
UL_TFC36	(TF0, TF4, TF1)
UL_TFC37	(TF1, TF4, TF1)
UL_TFC38	(TF2, TF4, TF1)
UL_TFC39	(TF3, TF4, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Streaming + Interactive Background PS radio bearer. The Streaming UL:128 kbps + Interactive Background UL:128 kbps radio bearer (RB5+RB6) have 40 transport format combinations. As the transport formats where RB5, RB6 or DCCH has no data (TF0 for RB5, RB6 or DCCH) is considered as implicitly tested when the transport format combinations with data is tested then no specific sub-tests for those transport format combinations have been specified.

Sub-tes	UE Category	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	21 to 24	2047	1024	RB5: 656 RB6: Flexible	UL_TFC19	UL_TFC0, UL_TFC3, UL_TFC16, UL_TFC20,	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC16, UL_TFC19, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC39	RB5: 2552 RB6: 2552	See note 4

NOTE 1: The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC4 and UL_TFC20 are part of minimum set of TFCIs. Also the transport format combinations UL_TFC21 and UL_TFC24 using TF1 on either RB5 or RB6 and TF1 on DCCH has been included in the allowed TFCs as those could happen during the sub-test.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5 and RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB5 and RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5a.

14.6.6e.4 Test requirements

See 14.1.3.5a for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   The UE shall for each radio bearer return the equal number RLC SDUs as sent by the SS in downlink. If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return RLC SDUs where the SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5a sends either 2 SDU or 8 SDUs depending on the transport block size under tests.

14.6.6f Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: 64QAM and Dual-Cell

14.6.6f.1 Conformance requirement

See 14.6.1.1.

14.6.6f.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.6 for the 64QAM and Dual-Cell case using the downlink enhanced Layer 2 configuration with MAC-ehs and combination of Fixed and Flexible RLC.

14.6.6f.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-8 IE “HS-DSCH physical layer category extension 2”. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB is refered to as RB5. The Interactive or background / UL:128 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs / PS RAB is refered to as RB6.

The following parameters are specific for this test case and RB5 and RB6:

Parameter	Value	Comments
Radio bearer	TS 34.108, clause 6.10.2.4.5.6 using downlink MAC-d flow parameters according to Alt 2 (Fixed RLC and MAC-ehs) for RB5 and MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs) for RB6	
MAC-ehs receiver window size	16	
RLC Transmission window size	See sub-test table	
RLC Receiving window size	See sub-test table	

The generic test procedure in 14.1.3.5a is run for each sub-test for test execution 1 to 3.

Execution counter	Downlink Modulation Scheme (M1) Dual-Cell data flow#1	Downlink Modulation Scheme (M2) Dual-Cell data flow#2	Number of HARQ processes	Dual-Cell
1	64QAM	QPSK	6	Yes
2	64QAM	16QAM	6	Yes
3	64QAM	64QAM	6	Yes

Uplink TFS:

	TFI	RB5 (Streaming 128 kbps, 20ms)	RB6 (I/B 128 kbps, 20ms)	DCCH
TFS	TF0, bits	0x656	0x336	0x148
	TF1, bits	1x656	1x336	1x148
	TF2, bits	2x656	2x336	N/A
	TF3, bits	4x656	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Uplink TFCS:

TFCI	(RB5 + RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)-
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF0, TF0)
UL_TFC3	(TF3, TF0, TF0)
UL_TFC4	(TF0, TF1, TF0)
UL_TFC5	(TF1, TF1, TF0)
UL_TFC6	(TF2, TF1, TF0)
UL_TFC7	(TF3, TF1, TF0)
UL_TFC8	(TF0, TF2, TF0)
UL_TFC9	(TF1, TF2, TF0)
UL_TFC10	(TF2, TF2, TF0)
UL_TFC11	(TF3, TF2, TF0)
UL_TFC12	(TF0, TF3, TF0)
UL_TFC13	(TF1, TF3, TF0)
UL_TFC14	(TF2, TF3, TF0)
UL_TFC15	(TF3, TF3, TF0)
UL_TFC16	(TF0, TF4, TF0)
UL_TFC17	(TF1, TF4, TF0)
UL_TFC18	(TF2, TF4, TF0)
UL_TFC19	(TF3, TF4, TF0)
UL_TFC20	(TF0, TF0, TF1)
UL_TFC21	(TF1, TF0, TF1)
UL_TFC22	(TF2, TF0, TF1)
UL_TFC23	(TF3, TF0, TF1)
UL_TFC24	(TF0, TF1, TF1)
UL_TFC25	(TF1, TF1, TF1)
UL_TFC26	(TF2, TF1, TF1)
UL_TFC27	(TF3, TF1, TF1)
UL_TFC28	(TF0, TF2, TF1)
UL_TFC29	(TF1, TF2, TF1)
UL_TFC30	(TF2, TF2, TF1)
UL_TFC31	(TF3, TF2, TF1)
UL_TFC32	(TF0, TF3, TF1)
UL_TFC33	(TF1, TF3, TF1)
UL_TFC34	(TF2, TF3, TF1)
UL_TFC35	(TF3, TF3, TF1)
UL_TFC36	(TF0, TF4, TF1)
UL_TFC37	(TF1, TF4, TF1)
UL_TFC38	(TF2, TF4, TF1)
UL_TFC39	(TF3, TF4, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Streaming + Interactive Background PS radio bearer. The Streaming UL:128 kbps + Interactive Background UL:128 kbps radio bearer (RB5+RB6) have 40 transport format combinations. As the transport formats where RB5, RB6 or DCCH has no data (TF0 for RB5, RB6 or DCCH) is considered as implicitly tested when the transport format combinations with data is tested then no specific sub-tests for those transport format combinations have been specified.

Sub-tes	UE Category	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	23 and 24	2047	1024	RB5: 656 RB6: Flexible	UL_TFC19	UL_TFC0, UL_TFC3, UL_TFC16, UL_TFC20,	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC16, UL_TFC19, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC39	RB5: 2552 RB6: 2552	See note 4

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC4 and UL_TFC20 are part of minimum set of TFCIs. Also the transport format combinations UL_TFC21 and UL_TFC24 using TF1 on either RB5 or RB6 and TF1 on DCCH has been included in the allowed TFCs as those could happen during the sub-test.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5 and RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB5 and RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5a.

14.6.6f.4 Test requirements

See 14.1.3.5a for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   The UE shall for each radio bearer return the equal number RLC SDUs as sent by the SS in downlink. If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return RLC SDUs where the SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

NOTE: The generic test procedure as specified in 14.1.3.5a sends either 2 SDU or 8 SDUs depending on the transport block size under tests.

14.6.6g Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: combination of 16QAM, Dual-Carrier and MIMO

14.6.6g.1 Conformance requirement

See 14.6.1.1.

14.6.6g.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.6 for the 16QAM, MIMO and Dual-Cell case using the downlink enhanced Layer 2 configuration with Flexible RLC and MAC-ehs .

14.6.6g.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-9 IE “HS-DSCH physical layer category extension 3”. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB is refered to as RB5. The Interactive or background / UL:128 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs / PS RAB is refered to as RB6.

The following parameters are specific for this test case and RB5 and RB6:

Parameter	Value	Comments
Radio bearer	TS 34.108, clause 6.10.2.4.5.6 using downlink MAC-d flow parameters according to Alt 2 (Fixed RLC and MAC-ehs) for RB5 and using downlink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs) for RB6.	
MAC-ehs receiver window size	64	
precodingWeight2	00	25.212, Table 14A
RLC Transmission window size	See sub-test table	
RLC Receiving window size	See sub-test table	

Execution counter	Dual-Cell#1		Dual-Cell#2		Number of HARQ processes
	Downlink Modulation Scheme (M1) For Cell#1 data flow#1	Downlink Modulation Scheme (M2) For Cell#1 data flow#2	Downlink Modulation Scheme (M3) For Cell#2 data flow#1	Downlink Modulation Scheme (M4) For Cell#2 data flow#2	
1	16QAM	16QAM	16QAM	16QAM	12

Uplink TFS:

	TFI	RB5 (Streaming 128 kbps, 20ms)	RB6 (I/B 128 kbps, 20ms)	DCCH
TFS	TF0, bits	0x656	0x336	0x148
	TF1, bits	1x656	1x336	1x148
	TF2, bits	2x656	2x336	N/A
	TF3, bits	4x656	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Uplink TFCS:

TFCI	(RB5 + RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)-
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF0, TF0)
UL_TFC3	(TF3, TF0, TF0)
UL_TFC4	(TF0, TF1, TF0)
UL_TFC5	(TF1, TF1, TF0)
UL_TFC6	(TF2, TF1, TF0)
UL_TFC7	(TF3, TF1, TF0)
UL_TFC8	(TF0, TF2, TF0)
UL_TFC9	(TF1, TF2, TF0)
UL_TFC10	(TF2, TF2, TF0)
UL_TFC11	(TF3, TF2, TF0)
UL_TFC12	(TF0, TF3, TF0)
UL_TFC13	(TF1, TF3, TF0)
UL_TFC14	(TF2, TF3, TF0)
UL_TFC15	(TF3, TF3, TF0)
UL_TFC16	(TF0, TF4, TF0)
UL_TFC17	(TF1, TF4, TF0)
UL_TFC18	(TF2, TF4, TF0)
UL_TFC19	(TF3, TF4, TF0)
UL_TFC20	(TF0, TF0, TF1)
UL_TFC21	(TF1, TF0, TF1)
UL_TFC22	(TF2, TF0, TF1)
UL_TFC23	(TF3, TF0, TF1)
UL_TFC24	(TF0, TF1, TF1)
UL_TFC25	(TF1, TF1, TF1)
UL_TFC26	(TF2, TF1, TF1)
UL_TFC27	(TF3, TF1, TF1)
UL_TFC28	(TF0, TF2, TF1)
UL_TFC29	(TF1, TF2, TF1)
UL_TFC30	(TF2, TF2, TF1)
UL_TFC31	(TF3, TF2, TF1)
UL_TFC32	(TF0, TF3, TF1)
UL_TFC33	(TF1, TF3, TF1)
UL_TFC34	(TF2, TF3, TF1)
UL_TFC35	(TF3, TF3, TF1)
UL_TFC36	(TF0, TF4, TF1)
UL_TFC37	(TF1, TF4, TF1)
UL_TFC38	(TF2, TF4, TF1)
UL_TFC39	(TF3, TF4, TF1)

The generic test procedure in 14.1.3.5a is run for each sub-test.

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Streaming + Interactive Background PS radio bearer. The Streaming UL:128 kbps + Interactive Background UL:128 kbps radio bearer (RB5+RB6) have 40 transport format combinations. As the transport formats where RB5, RB6 or DCCH has no data (TF0 for RB5, RB6 or DCCH) is considered as implicitly tested when the transport format combinations with data is tested then no specific sub-tests for those transport format combinations have been specified.

Sub-tes	UE Category	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	25 to 28	2047	1024	RB5: 656 RB6: Flexible	UL_TFC19	UL_TFC0, UL_TFC3, UL_TFC16, UL_TFC20	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC16, UL_TFC19, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC39	RB5: 2552 RB6: 2552	See note 4

NOTE 1: The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC4 and UL_TFC20 are part of minimum set of TFCIs. Also the transport format combinations UL_TFC21 and UL_TFC24 using TF1 on either RB5 or RB6 and TF1 on DCCH has been included in the allowed TFCs as those could happen during the sub-test.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5 and RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB5 and RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5a.

14.6.6g.4 Test requirements

See 14.1.3.5a for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   The UE shall for each radio bearer return the equal number RLC SDUs as sent by the SS in downlink. If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return RLC SDUs where the SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5a sends either 4 SDU or 16 SDUs depending on the transport block size under tests.

14.6.6h Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] with Flexible RLC and MAC-ehs / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / DL: combination of 64QAM, Dual-Carrier and MIMO

14.6.6h.1 Conformance requirement

See 14.6.1.1.

14.6.6h.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.6 for the 64QAM, MIMO and Dual-Cell case using the downlink enhanced Layer 2 configuration with Flexible RLC and MAC-ehs .

14.6.6h.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-9 IE "HS-DSCH physical layer category extension 3". This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The following parameters are specific for this test case:

Parameter	Value	Comments
Radio bearer	TS 34.108, clause 6.10.2.4.5.6 using downlink MAC-d flow parameters according to Alt 2 (Fixed RLC and MAC-ehs) for RB5 and using downlink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs) for RB6.	
MAC-ehs receiver window size	64	
precodingWeight2	00	25.212, Table 14A
RLC Transmission window size	See sub-test table	
RLC Receiving window size	See sub-test table	

The generic test procedure in 14.1.3.5a is run for each sub-test for test execution 1 to 3.

Execution counter	Dual-Cell #1		Dual-Cell #2		Number of HARQ processes
	Downlink Modulation Scheme (M1) For Cell 1 data flow#1	Downlink Modulation Scheme (M2) For Cell 1 data flow#2	Downlink Modulation Scheme (M3) For Cell 2 data flow#1	Downlink Modulation Scheme (M4) For Cell 2 data flow#2	
1	64QAM	16QAM	64QAM	16QAM	12
2	64QAM	64QAM	64QAM	64QAM	12

Uplink TFS:

	TFI	RB5 (Streaming 128 kbps, 20ms)	RB6 (I/B 128 kbps, 20ms)	DCCH
TFS	TF0, bits	0x656	0x336	0x148
	TF1, bits	1x656	1x336	1x148
	TF2, bits	2x656	2x336	N/A
	TF3, bits	4x656	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Uplink TFCS:

TFCI	(RB5 + RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)-
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF0, TF0)
UL_TFC3	(TF3, TF0, TF0)
UL_TFC4	(TF0, TF1, TF0)
UL_TFC5	(TF1, TF1, TF0)
UL_TFC6	(TF2, TF1, TF0)
UL_TFC7	(TF3, TF1, TF0)
UL_TFC8	(TF0, TF2, TF0)
UL_TFC9	(TF1, TF2, TF0)
UL_TFC10	(TF2, TF2, TF0)
UL_TFC11	(TF3, TF2, TF0)
UL_TFC12	(TF0, TF3, TF0)
UL_TFC13	(TF1, TF3, TF0)
UL_TFC14	(TF2, TF3, TF0)
UL_TFC15	(TF3, TF3, TF0)
UL_TFC16	(TF0, TF4, TF0)
UL_TFC17	(TF1, TF4, TF0)
UL_TFC18	(TF2, TF4, TF0)
UL_TFC19	(TF3, TF4, TF0)
UL_TFC20	(TF0, TF0, TF1)
UL_TFC21	(TF1, TF0, TF1)
UL_TFC22	(TF2, TF0, TF1)
UL_TFC23	(TF3, TF0, TF1)
UL_TFC24	(TF0, TF1, TF1)
UL_TFC25	(TF1, TF1, TF1)
UL_TFC26	(TF2, TF1, TF1)
UL_TFC27	(TF3, TF1, TF1)
UL_TFC28	(TF0, TF2, TF1)
UL_TFC29	(TF1, TF2, TF1)
UL_TFC30	(TF2, TF2, TF1)
UL_TFC31	(TF3, TF2, TF1)
UL_TFC32	(TF0, TF3, TF1)
UL_TFC33	(TF1, TF3, TF1)
UL_TFC34	(TF2, TF3, TF1)
UL_TFC35	(TF3, TF3, TF1)
UL_TFC36	(TF0, TF4, TF1)
UL_TFC37	(TF1, TF4, TF1)
UL_TFC38	(TF2, TF4, TF1)
UL_TFC39	(TF3, TF4, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Streaming + Interactive Background PS radio bearer. The Streaming UL:128 kbps + Interactive Background UL:128 kbps radio bearer (RB5+RB6) have 40 transport format combinations. As the transport formats where RB5, RB6 or DCCH has no data (TF0 for RB5, RB6 or DCCH) is considered as implicitly tested when the transport format combinations with data is tested then no specific sub-tests for those transport format combinations have been specified.

Sub-tes	UE Category	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	27 and 28	2047	1024	RB5: 656 RB6: Flexible	UL_TFC19	UL_TFC0, UL_TFC3, UL_TFC16, UL_TFC20	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC16, UL_TFC19, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC39	RB5: 2552 RB6: 2552	See note 4

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC4 and UL_TFC20 are part of minimum set of TFCIs. Also the transport format combinations UL_TFC21 and UL_TFC24 using TF1 on either RB5 or RB6 and TF1 on DCCH has been included in the allowed TFCs as those could happen during the sub-test.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5 and RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB5 and RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5a.

14.6.6h.4 Test requirements

See 14.1.3.5a for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 18 and for each TFRC test point:
The UE shall for each radio bearer return the equal number RLC SDUs as sent by the SS in downlink. If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return RLC SDUs where the SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

NOTE: The generic test procedure as specified in 14.1.3.5a sends either 4 SDU or 16 SDUs depending on the transport block size under tests.

14.6.7 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] kbps / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.6.7.1 Conformance requirement

See 14.6.1.1.

14.6.7.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.7.

14.6.7.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-5 IE “HS-DSCH physical layer category” (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (Streaming 128 kbps, 20ms)	RB9 (I/B 128 kbps, 20ms)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x656	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x656	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x656	2x336	N/A
	TF3, bits	N/A	N/A	N/A	4x656	4x336	N/A
	TF4, bits	N/A	N/A	N/A	N/A	8x336	N/A

Uplink TFCS:

TFCI	(RB5 + RB6 + RB7 + RB8 + RB9, DCCH)
UL_TFC0	(TF0,TF0,TF0,TF0,TF0,TF0)
UL_TFC1	(TF1,TF0,TF0,TF0,TF0,TF0)
UL_TFC2	(TF2,TF1,TF1,TF0,TF0,TF0)
UL_TFC3	(TF0,TF0,TF0,TF1,TF0,TF0)
UL_TFC4	(TF0,TF0,TF0,TF0,TF1,TF0)
UL_TFC5	(TF0,TF0,TF0,TF2,TF1,TF0)
UL_TFC6	(TF1,TF0,TF0,TF2,TF1,TF0)
UL_TFC7	(TF2,TF1,TF1,TF2,TF1,TF0)
UL_TFC8	(TF0,TF0,TF0,TF3,TF1,TF0)
UL_TFC9	(TF1,TF0,TF0,TF3,TF1,TF0)
UL_TFC10	(TF2,TF1,TF1,TF3,TF1,TF0)
UL_TFC11	(TF0,TF0,TF0,TF2,TF2,TF0)
UL_TFC12	(TF1,TF0,TF0,TF2,TF2,TF0)
UL_TFC13	(TF2,TF1,TF1,TF2,TF2,TF0)
UL_TFC14	(TF0,TF0,TF0,TF3,TF2,TF0)
UL_TFC15	(TF1,TF0,TF0,TF3,TF2,TF0)
UL_TFC16	(TF2,TF1,TF1,TF3,TF2,TF0)
UL_TFC17	(TF0,TF0,TF0,TF1,TF3,TF0)
UL_TFC18	(TF1,TF0,TF0,TF1,TF3,TF0)
UL_TFC19	(TF2,TF1,TF1,TF1,TF3,TF0)
UL_TFC20	(TF0,TF0,TF0,TF2,TF3,TF0)
UL_TFC21	(TF1,TF0,TF0,TF2,TF3,TF0)
UL_TFC22	(TF2,TF1,TF1,TF2,TF3,TF0)
UL_TFC23	(TF0,TF0,TF0,TF3,TF3,TF0)
UL_TFC24	(TF1,TF0,TF0,TF3,TF3,TF0)
UL_TFC25	(TF2,TF1,TF1,TF3,TF3,TF0)
UL_TFC26	(TF0,TF0,TF0,TF2,TF4,TF0)
UL_TFC27	(TF1,TF0,TF0,TF2,TF4,TF0)
UL_TFC28	(TF2,TF1,TF1,TF2,TF4,TF0)
UL_TFC29	(TF0,TF0,TF0,TF3,TF4,TF0)
UL_TFC30	(TF1,TF0,TF0,TF3,TF4,TF0)
UL_TFC31	(TF2,TF1,TF1,TF3,TF4,TF0)
UL_TFC32	(TF0,TF0,TF0,TF0,TF0,TF1)
UL_TFC33	(TF1,TF0,TF0,TF0,TF0,TF1)
UL_TFC34	(TF2,TF1,TF1,TF0,TF0,TF1)
UL_TFC35	(TF0,TF0,TF0,TF2,TF1,TF1)
UL_TFC36	(TF1,TF0,TF0,TF2,TF1,TF1)
UL_TFC37	(TF2,TF1,TF1,TF2,TF1,TF1)
UL_TFC38	(TF0,TF0,TF0,TF3,TF1,TF1)
UL_TFC39	(TF1,TF0,TF0,TF3,TF1,TF1)
UL_TFC40	(TF2,TF1,TF1,TF3,TF1,TF1)
UL_TFC41	(TF0,TF0,TF0,TF2,TF2,TF1)
UL_TFC42	(TF1,TF0,TF0,TF2,TF2,TF1)
UL_TFC43	(TF2,TF1,TF1,TF2,TF2,TF1)
UL_TFC44	(TF0,TF0,TF0,TF3,TF2,TF1)
UL_TFC45	(TF1,TF0,TF0,TF3,TF2,TF1)
UL_TFC46	(TF2,TF1,TF1,TF3,TF2,TF1)
UL_TFC47	(TF0,TF0,TF0,TF1,TF3,TF1)
UL_TFC48	(TF1,TF0,TF0,TF1,TF3,TF1)
UL_TFC49	(TF2,TF1,TF1,TF1,TF3,TF1)
UL_TFC50	(TF0,TF0,TF0,TF2,TF3,TF1)
UL_TFC51	(TF1,TF0,TF0,TF2,TF3,TF1)

UL_TFC52	(TF2,TF1,TF1,TF2,TF3,TF1)
UL_TFC53	(TF0,TF0,TF0,TF3,TF3,TF1)
UL_TFC54	(TF1,TF0,TF0,TF3,TF3,TF1)
UL_TFC55	(TF2,TF1,TF1,TF3,TF3,TF1)
UL_TFC56	(TF0,TF0,TF0,TF2,TF4,TF1)
UL_TFC57	(TF1,TF0,TF0,TF2,TF4,TF1)
UL_TFC58	(TF2,TF1,TF1,TF2,TF4,TF1)
UL_TFC59	(TF0,TF0,TF0,TF3,TF4,TF1)
UL_TFC60	(TF1,TF0,TF0,TF3,TF4,TF1)
UL_TFC61	(TF2,TF1,TF1,TF3,TF4,TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Speech + Streaming + Interactive Background PS radio bearer. The CS speech 12.2 kbps + Streaming UL:128 kbps + Interactive Background UL:128 kbps radio bearer (RB5+RB6+RB7+RB8+RB9) have 62 transport format combinations. As the transport formats where RB5, RB6, RB7, RB8, RB9 or DCCH has no data (TF0 for RB5, RB6, RB7, RB8, RB9 or DCCH) is considered as implicitly tested when the transport format combinations with data is tested then no specific sub-tests for those transport format combinations have been specified. The selected UL TFCI to achieve test coverage of TF1 to TF3 for RB8 and TF1 to TF4 for RB9 are: UL_TFC3, UL_TFC6 to UL_TFC7, UL_TFC9 to UL_TFC10, UL_TFC11 to UL_TFC12, UL_TFC15 to UL_TFC16, UL_TFC18 to UL_TFC19, UL_TFC21 to UL_TFC22, UL_TFC24 to UL_TFC25, UL_TFC27 to UL_TFC28 and UL_TFC30 to UL_TFC31.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	2	256	128	656	DL_TFC1	UL_TFC6	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC1, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC32	RB5: 39 RB6: 103 RB7: 60 RB8: 1272 RB9: 312	RB5: 39 RB6: No data RB7: No data RB8, RB9: See note 4
	2	2	256	128							
	3	3	256	128							
	4	3	256	128							
	5	6	256	256							
	6	6	256	256							
	7	6	512	512							
	8	6	512	512							
	9	6	1024	512							
	10	6	1024	1024							
	11	3	512	128							
	12	6	512	128							
2	1	2	512	256	336	DL_TFC2	UL_TFC7	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC2, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC7, UL_TFC32	RB5: 81 RB6: 103 RB7: 60 RB8: 1272 RB9: 312	RB5: 81 RB6: 103 RB7: 60 RB8, RB9: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	6	2047	1024							
	11	3	1024	128							
	12	8	1024	128							
3	1	2	256	256	656	DL_TFC1	UL_TFC9	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC1, UL_TFC8	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC8, UL_TFC9, UL_TFC32	RB5: 39 RB6: 103 RB7: 60 RB8: 2552 RB9: 312	RB5: 39 RB6: No data RB7: No data RB8, RB9: See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	6	1024	1024							
	11	3	512	128							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
	12	8	512	128							
4	1	2	512	256	656	DL_TFC2	UL_TFC10	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC2, UL_TFC8	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4 , UL_TFC8, UL_TFC10, UL_TFC32	RB5: 81 RB6: 103 RB7: 60 RB8: 2552 RB9: 312	RB5: 81 RB6: 103 RB7: 60 RB8, RB9: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	8	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	6	2047	1024							
	11	6	1024	128							
	12	8	1024	128							
5	1	2	256	256	656	DL_TFC1	UL_TFC12	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC1, UL_TFC11	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC11, UL_TFC12, UL_TFC32	RB5: 39 RB6: 103 RB7: 60 RB8: 1272 RB9: 632	RB5: 39 RB6: No data RB7: No data RB8, RB9: See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	8	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	6	1024	1024							
	11	6	512	128							
	12	8	512	128							
6	1	2	512	256	656	DL_TFC2	UL_TFC13	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC2, UL_TFC11	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC11, UL_TFC13, UL_TFC32	RB5: 81 RB6: 103 RB7: 60 RB8: 1272 RB9: 632	RB5: 81 RB6: 103 RB7: 60 RB8, RB9: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	8	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	6	2047	1024							
	11	6	1024	128							
	12	8	1024	128							
7	1	2	256	256	656	DL_TFC1	UL_TFC15	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC1, UL_TFC14	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC14, UL_TFC15, UL_TFC32	RB5: 39 RB6: 103 RB7: 60 RB8: 2552 RB9: 632	RB5: 39 RB6: No data RB7: No data RB8, RB9: See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
	9	8	1024	512							
	10	6	1024	1024							
	11	3	512	128							
	12	8	512	128							
8	1	2	512	256	656	DL_TFC2	UL_TFC16	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC2, UL_TFC14	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC14, UL_TFC16, UL_TFC32	RB5: 81 RB6: 103 RB7: 60 RB8: 2552 RB9: 632	RB5: 81 RB6: 103 RB7: 60 RB8, RB9: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	6	2047	1024							
	11	3	1024	128							
	12	8	1024	128							
9	1	2	256	256	656	DL_TFC1	UL_TFC18	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC1, UL_TFC17	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC17, UL_TFC18, UL_TFC32	RB5: 39 RB6: 103 RB7: 60 RB8: 632 RB9: 1272	RB5: 39 RB6: No data RB7: No data RB8, RB9: See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	6	1024	1024							
	11	3	512	128							
	12	8	512	128							
10	1	2	512	256	656	DL_TFC2	UL_TFC19	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC2, UL_TFC17	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC17, UL_TFC19, UL_TFC32	RB5: 81 RB6: 103 RB7: 60 RB8: 632 RB9: 1272	RB5: 81 RB6: 103 RB7: 60 RB8, RB9: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	6	2047	1024							
	11	3	1024	128							
	12	8	1024	128							
11	1	2	256	256	656	DL_TFC1	UL_TFC21	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC1, UL_TFC20	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4,	RB5: 39 RB6: 103 RB7: 60 RB8: 1272 RB9: 1272	RB5: 39 RB6: No data RB7: No data RB8, RB9: See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
	6	8	256	256					UL_TFC20, UL_TFC21, UL_TFC32		
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	6	1024	1024							
	11	3	512	128							
	12	8	512	128							
12	1	2	512	256	656	DL_TFC2	UL_TFC22	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC2, UL_TFC20	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC20, UL_TFC22, UL_TFC32	RB5: 81 RB6: 103 RB7: 60 RB8: 1272 RB9: 1272	RB5: 81 RB6: 103 RB7: 60 RB8, RB9: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	6	2047	1024							
	11	3	1024	128							
	12	8	1024	128							
13	1	2	256	256	656	DL_TFC1	UL_TFC24	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC1, UL_TFC23	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC23, UL_TFC24, UL_TFC32	RB5: 39 RB6: 103 RB7: 60 RB8: 2552 RB9: 1272	RB5: 39 RB6: No data RB7: No data RB8, RB9: See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	6	1024	1024							
	11	3	512	128							
	12	8	512	128							
14	1	2	512	256	656	DL_TFC1	UL_TFC27	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC1, UL_TFC26	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC26, UL_TFC27, UL_TFC32	RB5: 39 RB6: 103 RB7: 60 RB8: 1272 RB9: 2552	RB5: 39 RB6: No data RB7: No data RB8, RB9: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	6	2047	1024							
	11	3	1024	128							
	12	8	1024	128							
15	1	2	256	256	656	DL_TFC2	UL_TFC28	DL_TFC0, DL_TFC3,	UL_TFC0, UL_TFC1,	RB5: 81 RB6: 103	RB5: 81 RB6: 103
	2	2	256	256							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
	3	3	256	256				UL_TFC0, UL_TFC2, UL_TFC26	UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC26, UL_TFC28, UL_TFC32	RB7: 60 RB8: 1272 RB9: 2552	RB7: 60 RB8, RB9: See note 4
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	6	1024	1024							
	11	3	512	128							
	12	8	512	128							
16	1	2	512	256	656	DL_TFC1	UL_TFC30	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC1, UL_TFC29	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC29, UL_TFC30, UL_TFC32	RB5: 39 RB6: 103 RB7: 60 RB8: 2552 RB9: 2552	RB5: 39 RB6: No data RB7: No data RB8, RB9: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	6	2047	1024							
	11	3	1024	128							
	12	8	1024	128							
17	1	2	256	256	656	DL_TFC2	UL_TFC31	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC2, UL_TFC29	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC29, UL_TFC31, UL_TFC32	RB5: 81 RB6: 103 RB7: 60 RB8: 2552 RB9: 2552	RB5: 81 RB6: 103 RB7: 60 RB8, RB9: See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	6	1024	1024							
	11	3	512	128							
	12	8	512	128							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4 and UL_TFC32 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5 and RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB5 and RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

14.6.7.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

14.6.8 Conversational / speech / UL:(12.65 8.85 6.6) DL:(12.65 8.85 6.6) kbps / CS RAB + Interactive or Background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB+ UL:3.4 DL:3.4 kbps SRBs for DCCH + DL:0.15 kbps SRB#5 for DCCH

14.6.8.1 Conformance requirement

See 14.6.1.1.

14.6.8.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.8.

14.6.8.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-5 IE “HS-DSCH physical layer category” (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

The generic test procedure in 14.1.3.6 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (I/B 384 kbps, 10ms)	DCCH
TFS	TF0, bits	0x72	0x181	0x60	0x336	0x148
	TF1, bits	1x40	1x78	N/A	1x336	1x148
	TF2, bits	1x54	1x113	N/A	2x336	N/A
	TF3, bits	1x64	1x181	N/A	4x336	N/A
	TF4, bits	1x72	N/A	N/A	8x336	N/A
	TF5, bits	N/A	N/A	N/A	12x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0,TF0,TF0,TF0,TF0)
UL_TFC1	(TF1,TF0,TF0,TF0,TF0)
UL_TFC2	(TF2,TF1,TF0,TF0,TF0)
UL_TFC3	(TF3,TF2,TF0,TF0,TF0)
UL_TFC4	(TF4,TF3,TF0,TF0,TF0)
UL_TFC5	(TF0,TF0,TF0,TF0,TF1)
UL_TFC6	(TF1,TF0,TF0,TF0,TF1)
UL_TFC7	(TF2,TF1,TF0,TF0,TF1)
UL_TFC8	(TF3,TF2,TF0,TF0,TF1)
UL_TFC9	(TF4,TF3,TF0,TF0,TF1)
UL_TFC10	(TF0,TF0,TF0,TF1,TF0)
UL_TFC11	(TF1,TF0,TF0,TF1,TF0)
UL_TFC12	(TF2,TF1,TF0,TF1,TF0)
UL_TFC13	(TF3,TF2,TF0,TF1,TF0)
UL_TFC14	(TF4,TF3,TF0,TF1,TF0)
UL_TFC15	(TF0,TF0,TF0,TF1,TF1)
UL_TFC16	(TF1,TF0,TF0,TF1,TF1)
UL_TFC17	(TF2,TF1,TF0,TF1,TF1)
UL_TFC18	(TF3,TF2,TF0,TF1,TF1)
UL_TFC19	(TF4,TF3,TF0,TF1,TF1)
UL_TFC20	(TF0,TF0,TF0,TF2,TF0)
UL_TFC21	(TF1,TF0,TF0,TF2,TF0)
UL_TFC22	(TF2,TF1,TF0,TF2,TF0)
UL_TFC23	(TF3,TF2,TF0,TF2,TF0)
UL_TFC24	(TF4,TF3,TF0,TF2,TF0)
UL_TFC25	(TF0,TF0,TF0,TF2,TF1)
UL_TFC26	(TF1,TF0,TF0,TF2,TF1)
UL_TFC27	(TF2,TF1,TF0,TF2,TF1)
UL_TFC28	(TF3,TF2,TF0,TF2,TF1)
UL_TFC29	(TF4,TF3,TF0,TF2,TF1)
UL_TFC30	(TF0,TF0,TF0,TF3,TF0)
UL_TFC31	(TF1,TF0,TF0,TF3,TF0)
UL_TFC32	(TF2,TF1,TF0,TF3,TF0)
UL_TFC33	(TF3,TF2,TF0,TF3,TF0)
UL_TFC34	(TF4,TF3,TF0,TF3,TF0)
UL_TFC35	(TF0,TF0,TF0,TF3,TF1)
UL_TFC36	(TF1,TF0,TF0,TF3,TF1)
UL_TFC37	(TF2,TF1,TF0,TF3,TF1)
UL_TFC38	(TF3,TF2,TF0,TF3,TF1)
UL_TFC39	(TF4,TF3,TF0,TF3,TF1)
UL_TFC40	(TF0,TF0,TF0,TF4,TF0)
UL_TFC41	(TF1,TF0,TF0,TF4,TF0)
UL_TFC42	(TF2,TF1,TF0,TF4,TF0)
UL_TFC43	(TF3,TF2,TF0,TF4,TF0)
UL_TFC44	(TF4,TF3,TF0,TF4,TF0)
UL_TFC45	(TF0,TF0,TF0,TF4,TF1)
UL_TFC46	(TF1,TF0,TF0,TF4,TF1)
UL_TFC47	(TF2,TF1,TF0,TF4,TF1)
UL_TFC48	(TF3,TF2,TF0,TF4,TF1)
UL_TFC49	(TF4,TF3,TF0,TF4,TF1)
UL_TFC50	(TF0,TF0,TF0,TF5,TF0)
UL_TFC51	(TF1,TF0,TF0,TF5,TF0)
UL_TFC52	(TF2,TF1,TF0,TF5,TF0)
UL_TFC53	(TF3,TF2,TF0,TF5,TF0)
UL_TFC54	(TF4,TF3,TF0,TF5,TF0)
UL_TFC55	(TF0,TF0,TF0,TF5,TF1)
UL_TFC56	(TF1,TF0,TF0,TF5,TF1)
UL_TFC57	(TF2,TF1,TF0,TF5,TF1)
UL_TFC58	(TF3,TF2,TF0,TF5,TF1)
UL_TFC59	(TF4,TF3,TF0,TF5,TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH1	DCCH2 (SRB #5)
TFS	TF0, bits	1x0	0x181	0x60	0x148	0x3
	TF1, bits	1x40	1x78	N/A	1x148	1x3
	TF2, bits	1x54	1x113	N/A	N/A	N/A
	TF3, bits	1x64	1x181	N/A	N/A	N/A
	TF4, bits	1x72	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7,DCCH1, DCCH2)
DL_TFC0	(TF0,TF0,TF0,TF0,TF0)
DL_TFC1	(TF1,TF0,TF0,TF0,TF0)
DL_TFC2	(TF2,TF1,TF0,TF0,TF0)
DL_TFC3	(TF3,TF2,TF0,TF0,TF0)
DL_TFC4	(TF4,TF3,TF0,TF0,TF0)
DL_TFC5	(TF0,TF0,TF0,TF1,TF0)
DL_TFC6	(TF1,TF0,TF0,TF1,TF0)
DL_TFC7	(TF2,TF1,TF0,TF1,TF0)
DL_TFC8	(TF3,TF2,TF0,TF1,TF0)
DL_TFC9	(TF4,TF3,TF0,TF1,TF0)
DL_TFC10	(TF0,TF0,TF0,TF0,TF1)
DL_TFC11	(TF1,TF0,TF0,TF0,TF1)
DL_TFC12	(TF2,TF1,TF0,TF0,TF1)
DL_TFC13	(TF3,TF2,TF0,TF0,TF1)
DL_TFC14	(TF4,TF3,TF0,TF0,TF1)
DL_TFC15	(TF0,TF0,TF0,TF1,TF1)
DL_TFC16	(TF1,TF0,TF0,TF1,TF1)
DL_TFC17	(TF2,TF1,TF0,TF1,TF1)
DL_TFC18	(TF3,TF2,TF0,TF1,TF1)
DL_TFC19	(TF4,TF3,TF0,TF1,TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Speech and Interactive Background radio bearer. As the Interactive Background UL:384 kbps radio bearer (RB8) has the highest number of transport formats (5 for TTI=10 ms and excluding TF0) then 5 sub-tests has been defined. The selected UL TFCI to achieve test coverage of TF1 to TF5 for RB8 and for the different speech transport formats are: UL_TFC11 for TF1, UL_TFC22 for TF2, UL_TFC33 for TF3, UL_TFC44 for TF4 and UL_TFC54 for TF5.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	TFC subset identity (note 5)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	2	512	256	336	DL_TFC1	UL_TFC11	DL_TFC0, DL_TFC5, DL_TFC6, DL_TFC10, UL_TFC0, UL_TFC5, UL_TFC16	0	RB5: 40 RB6: 78 RB7: 60 RB8: 312	RB5: 40 RB6: No data RB7: No data RB8: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	6	512	256							
	7	6	1536	512							
	8	6	1536	512							
	9	6	2047	512							
	10	6	2047	512							
	11	3	512	256							
	12	6	512	256							
2	1	2	256	256	656	DL_TFC2	UL_TFC22	DL_TFC0, DL_TFC5, DL_TFC7, DL_TFC10, UL_TFC0, UL_TFC5, UL_TFC27	0	RB5: 54 RB6: 78 RB7: 60 RB8: 632	RB5: 54 RB6: 78 RB7: No data RB8: See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	6	256	256							
	7	6	512	512							
	8	6	512	512							
	9	6	1024	512							
	10	6	1024	1024							
	11	3	256	256							
	12	6	256	256							
3	1	2	512	256	336	DL_TFC3	UL_TFC33	DL_TFC0, DL_TFC5, DL_TFC8, DL_TFC10, UL_TFC0, UL_TFC5, UL_TFC38	1	RB5: 64 RB6: 113 RB7: 60 RB8: 1272	RB5: 64 RB6: 113 RB7: No data RB8: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	6	2047	1024							
	11	3	512	256							
	12	8	512	256							
4	1	2	256	256	656	DL_TFC4	UL_TFC44	DL_TFC0,	2	RB5: 72	RB5: 72

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	TFC subset identity (note 5)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
	2	2	256	256				DL_TFC5, DL_TFC9, DL_TFC10, UL_TFC0, UL_TFC5, UL_TFC49		RB6: 181 RB7: 60 RB8: 2552	RB6: 181 RB7: No data RB8: See note 4
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	6	1024	1024							
	11	3	256	256							
	12	8	256	256							
5	1	2	256	256	656	DL_TFC4	UL_TFC54	DL_TFC0, DL_TFC5, DL_TFC9, DL_TFC10, UL_TFC0, UL_TFC5, UL_TFC59	2	RB5: 72 RB6: 181 RB7: 60 RB8: 3832	RB5: 72 RB6: 181 RB7: No data RB8: See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	6	1024	1024							
	11	3	256	256							
	12	8	256	256							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: Void.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB8 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.6.
NOTE 5: TFC subset identity shall be signalled by the SS on the downlink SRB#5, see generic test procedure in clause 14.1.3.6.

14.6.8.4 Test requirements

See 14.1.3.6 for definition of the referenced step numbers.

1. At step B12b the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for RB5 and RB6 the UE shall return an RLC SDU having the same content as sent by SS. No data shall be received on RB7.
4. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

14.6.9 Streaming MBMS PTP / unknown / UL:16 DL: [max bit rate depending on UE category] kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / MBMS Selected Service

NOTE: The testing of MBMS PTP radio bearer combinations on DPCH and HSPDSCH is focusing on verifying that the UE is capable to establish the radio bearer combination and to verify correct data transfer using all the possible uplink TFS for transport channels mapped on DCH. The verification of MAC-hs transport block size selection and that the UE is capable of transmitting all the possible transport block sizes within the UE capability is tested in the MAC-hs test case 7.1.5.6.

14.6.9.1 Conformance requirement

The UE shall be able to establish the UTRAN requested MBMS PTP radio bearers within the UE's signalled radio access capabilities.

The UE shall correctly transfer user data from peer to peer RLC entities according to the requested MBMS PTP radio bearer configuration.

Reference(s)

3GPP TS 25.2xx series (Physical Layer)

3GPP TS 25.321 (MAC)

3GPP TS 25.322 (RLC)

3GPP TS 25.331 (RRC)

14.6.9.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.9:

14.6.9.3 Method of test

NOTE: The reference to HS-DSCH Category refers to the UE capability as signalled in the Rel-5 IE "HS-DSCH physical layer category" (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See table for parameters for different HS-DSCH Categories

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	HS-PDSCH TFRC (note 2)					
				Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	Number of codes	TFRI
1	2	256	128	656	677	1	QPSK	2	7
2	2	256	128	656	677	1	QPSK	2	7
3	3	256	128	656	677	1	QPSK	2	7
4	3	256	128	656	677	1	QPSK	2	7
5	6	256	256	656	677	1	QPSK	2	7
6	6	256	256	656	677	1	QPSK	2	7
7	6	512	512	656	677	1	QPSK	2	7
8	6	512	512	656	677	1	QPSK	2	7
9	6	1024	512	656	677	1	QPSK	2	7
10	6	1024	1024	656	677	1	QPSK	2	7
11	3	512	128	656	677	1	QPSK	2	7
12	6	512	128	656	677	1	QPSK	2	7

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.

NOTE 2: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI, i.e. such that the MAC-hs transport block size is bigger than the maximum MAC-d PDU size under test + MAC-hs header size (21 bits). See 14.1.3.4 (MAC-d PDU size=656) for recommended TFRC values for different transport block size.

Uplink TFS:

	TFI	RB5 (16 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

The generic test procedure in 14.1.6, using the MBMS Selected Service branch, is run for each sub-test.

Sub-tests:

Sub-test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)
1	UL_TFC1	UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 312
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC2 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return th data within one UL TTI.				

14.6.9.4 Test requirements

See 14.1.6 for definition of step 14 and step 22.

1. At step 14 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 22 the UE shall return a RLC SDU where the first 312 bits has the same content as the RLC SDUs sent by the SS in downlink.

14.6.9m Streaming MBMS PTP / unknown / UL:16 DL: [max bit rate depending on UE category] kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / MBMS Multicast Service

This test case is identical to test case 14.6.9 with the exception that the SS shall use the MBMS Multicast Service branch in the generic test procedure in 14.1.6.

14.6.10 Streaming MBMS PTP / unknown / UL:16 DL: [max bit rate depending on UE category] kbps / PS RAB + Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / MBMS Selected Service

NOTE: The testing of MBMS PTP radio bearer combinations on DPCH and HSPDSCH is focusing on verifying that the UE is capable to establish the radio bearer combination and to verify correct data transfer using all the possible uplink TFS for transport channels mapped on DCH. The verification of MAC-hstransport block size selection and that the UE is capable of transmitting all the possible transport block sizes within the UE capability is tested in the MAC-hs test case 7.1.5.6.

14.6.10.1 Conformance requirement

The UE shall be able to establish the UTRAN requested MBMS PTP radio bearers within the UE's signalled radio access capabilities.

The UE shall correctly transfer user data from peer to peer RLC entities according to the requested MBMS PTP radio bearer configuration.

Reference(s)

3GPP TS 25.2xx series (Physical Layer)

3GPP TS 25.321 (MAC)

3GPP TS 25.322 (RLC)

3GPP TS 25.331 (RRC)

14.6.10.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.10:

14.6.10.3 Method of test

NOTE: The reference to HS-DSCH Categories refers to the UE capability as signalled in the Rel-5 IE "HS-DSCH physical layer category" (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See table for parameters for different HS-DSCH Categories

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	HS-PDSCH TFRC (note 2)					
				Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	Number of codes	TFRI
1	2	256	128	656	677	1	QPSK	2	7
2	2	256	128	656	677	1	QPSK	2	7
3	3	256	128	656	677	1	QPSK	2	7
4	3	256	128	656	677	1	QPSK	2	7
5	6	256	256	656	677	1	QPSK	2	7
6	6	256	256	656	677	1	QPSK	2	7
7	6	512	512	656	677	1	QPSK	2	7
8	6	512	512	656	677	1	QPSK	2	7
9	6	1024	512	656	677	1	QPSK	2	7
10	6	1024	1024	656	677	1	QPSK	2	7
11	3	512	128	656	677	1	QPSK	2	7
12	6	512	128	656	677	1	QPSK	2	7

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.

NOTE 2: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI, i.e. such that the MAC-hs transport block size is bigger than the maximum MAC-d PDU size under test + MAC-hs header size (21 bits). See 14.1.3.4 (MAC-d PDU size=656) for recommended TFRC values for different transport block size.

Uplink TFS:

	TFI	RB5 (16 kbps, 20 ms TTI)	RB6 + RB7 (64 kbps RAB, 20 ms TTI)	DCCH
TFS	TF0, bits	0x336	0x340	0x148
	TF1, bits	1x336	1x340	1x148
	TF2, bits	N/A	2x340	N/A
	TF3, bits	N/A	3x340	N/A
	TF4, bits	N/A	4x340	N/A

Uplink TFCS:

TFCI	(RB5, RB6 + RB7, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF0, TF1, TF0)
UL_TFC3	(TF1, TF1, TF0)
UL_TFC4	(TF0, TF2, TF0)
UL_TFC5	(TF1, TF2, TF0)
UL_TFC6	(TF0, TF3, TF0)
UL_TFC7	(TF1, TF3, TF0)
UL_TFC8	(TF0, TF4, TF0)
UL_TFC9	(TF1, TF4, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF1, TF0, TF1)
UL_TFC12	(TF0, TF1, TF1)
UL_TFC13	(TF1, TF1, TF1)
UL_TFC14	(TF0, TF2, TF1)
UL_TFC15	(TF1, TF2, TF1)
UL_TFC16	(TF0, TF3, TF1)
UL_TFC17	(TF1, TF3, TF1)
UL_TFC18	(TF0, TF4, TF1)
UL_TFC19	(TF1, TF4, TF1)

The generic test procedure in 14.1.6, using the MBMS Selected Service branch, is run for each sub-test.

Sub-tests:

Sub-test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data for RB6+RB7
1	UL_TFC1	UL_TFC0, UL_TFC11	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC10, UL_TFC11	RB5: 312 RB6: 312 RB7: 312	Test data for RB6+RB7 sent on RB6
2	UL_TFC2	UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC10, UL_TFC12	RB5: 312 RB6: 312 RB7: 312	Test data for RB6+RB7 sent on RB6
3	UL_TFC3	UL_TFC0, UL_TFC13	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC10, UL_TFC13	RB5: 312 RB6: 312 RB7: 312	Test data for RB6+RB7 sent on RB6
4	UL_TFC4	UL_TFC0, UL_TFC14	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC10, UL_TFC14	RB5: 312 RB6: 632 RB7: 632	Test data for RB6+RB7 sent on RB6
5	UL_TFC5	UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC10, UL_TFC15	RB5: 312 RB6: 632 RB7: 632	Test data for RB6+RB7 sent on RB6
6	UL_TFC6	UL_TFC0, UL_TFC16	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC6, UL_TFC10, UL_TFC16	RB5: 312 RB6: 952 RB7: 952	Test data for RB6+RB7 sent on RB6
7	UL_TFC7	UL_TFC0, UL_TFC17	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC7, UL_TFC10, UL_TFC17	RB5: 312 RB6: 952 RB7: 952	Test data for RB6+RB7 sent on RB6
8	UL_TFC8	UL_TFC0, UL_TFC18	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC8, UL_TFC10, UL_TFC18	RB5: 312 RB6: 1272 RB7: 1272	Test data for RB6+RB7 sent on RB6
9	UL_TFC9	UL_TFC0, UL_TFC19	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC9, UL_TFC10, UL_TFC19	RB5: 312 RB6: 1272 RB7: 1272	Test data for RB6+RB7 sent on RB6
10	UL_TFC9	UL_TFC0, UL_TFC19	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC9, UL_TFC10, UL_TFC19	RB5: 312 RB6: 1272 RB7: 1272	Test data for RB6+RB7 sent on RB7

NOTE 1:	UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC10 are part of minimum set of TFCIs.
NOTE 2:	See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return th data within one UL TTI.

14.6.10.4 Test requirements

See 14.1.6 for definition of step 14 and step 22.

1. At step 14 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 22 the UE shall return
   - for sub-test 1: RLC SDU on RB5 where the first 312 bits has the same content as the RLC SDUs sent by the SS in downlink and no data on RB6 and RB7.
   - for sub-test 2: RLC SDU on RB6 where the first 312 bits has the same content as the RLC SDUs sent by the SS in downlink and no data on RB5 and RB7.
   - for sub-test 3: RLC SDU on RB5 and RB6 where the first 312 bits has the same content as the RLC SDUs sent by the SS in downlink and no data on RB7.
   - for sub-test 4: RLC SDU on RB6 where the first 632 bits has the same content as the RLC SDUs sent by the SS in downlink and no data on RB5 and RB7.
   - for sub-test 5: RLC SDU on RB5 and RB6 where the first 312 bits for RB5 and the .first 632 bits for RB6 has the same content as the RLC SDUs sent by the SS in downlink and no data on RB7.
   - for sub-test 6: RLC SDU on RB6 where the first 952 bits has the same content as the RLC SDUs sent by the SS in downlink and no data on RB5 and RB7.
   - for sub-test 7: RLC SDU on RB5 and RB6 where the first 312 bits for RB5 and the first 952 bits for RB6 has the same content as the RLC SDUs sent by the SS in downlink and no data on RB7.
   - for sub-test 8: RLC SDU on RB6 where the first 1272 bits has the same content as the RLC SDUs sent by the SS in downlink and no data on RB5 and RB7.
   - for sub-test 9: RLC SDU on RB5 and RB6 where the first 312 bits for RB5 and the first 1272 bits for RB6 has the same content as the RLC SDUs sent by the SS in downlink and no data on RB7.
   - for sub-test 10: RLC SDU on RB5 and RB7 where the first 312 bits for RB5 and the first 1272 bits for RB7 has the same content as the RLC SDUs sent by the SS in downlink and no data on RB6.

14.6.10m Streaming MBMS PTP / unknown / UL:16 DL: [max bit rate depending on UE category] kbps / PS RAB + Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / MBMS Multicast Service

This test case is identical to test case 14.6.10 with the exception that the SS shall use the MBMS Multicast Service branch in the generic test procedure in 14.1.6.

14.7 Combinations on DPCH, HS-PDSCH and E-DPDCH

NOTE: The testing of radio bearer combinations on DPCH, HSPDSCH and E-DPDCH is focusing on verifying that the UE is capable to establish the radio bearer combination and to verify correct data transfer using all the possible uplink TFS for transport channels mapped on DCH and all the configured MAC-d PDU sizes for the transport channel mapped to E-DCH. The verification of MAC-e/es transport block size selection and that the UE is capable of transmitting all the possible transport block sizes within the UE capability is tested in the MAC-e/es test case 7.1.6.3.2. (UL QPSK), 7.1.6.3.2a (UL 16QAM), 7.1.7.4 (UL QPSK and MAC-i/is) and 7.1.7.5 (UL 16 QAM and MAC-i/is)

14.7.1 Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH on DCH

14.7.1.1 Conformance requirement

The UE shall be able to establish the UTRAN requested radio bearers within the UE's signalled radio access capabilities.

The UE shall correctly transfer user data from peer to peer RLC entities according to the requested radio bearer configuration.

Reference(s)

3GPP TS 25.331, clause 8.2.1

3GPP TS 25.2xx series (Physical Layer)

3GPP TS 25.321 (MAC)

3GPP TS 25.322 (RLC)

14.7.1.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.6.1:

1. To verify that the UE is able to establish the radio bearer combination.
2. To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

14.7.1.3 Method of test

NOTE: The reference to E-DCH Category refers to the UE capability as signalled in the Rel-6 IE “E-DCH physical layer category”. All UEs supporting E-DCH should signal a category between 1 and 6 for this IE even if the UE physical capability category is above 6.

NOTE: The reference to HS-DSCH Categories refers to the UE capability as signalled in the Rel-5 IE “HS-DSCH physical layer category” (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)					
			Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	Number of codes	TFRI
1	2	512	336	357	1	QPSK	1	19
2	2	512	336	357	1	QPSK	1	19
3	3	512	336	357	1	QPSK	1	19
4	3	512	336	357	1	QPSK	1	19
5	6	512	336	357	1	QPSK	1	19
6	6	512	336	357	1	QPSK	1	19
7	6	1536	336	357	1	QPSK	1	19
8	6	1536	336	357	1	QPSK	1	19
9	6	2047	336	357	1	QPSK	1	19
10	6	2047	336	357	1	QPSK	1	19
11	3	1024	336	357	1	QPSK	1	19
12	6	1024	336	357	1	QPSK	1	19

NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI, i.e. such that the MAC-hs transport block size is bigger than the maximum MAC-d PDU size under test + MAC-hs header size (21 bits). See 14.1.3.3 (MAC-d PDU size=336) for recommended TFRC values for different transport block size.

The generic test procedure in 14.1.4.1 is run for each sub-test.

Sub-tests:

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL RLC SDU size (note 2)	Test data size (note 3)
1	1 to 6	10ms, Table 0	4	312	312
2	2,4 and 6	2ms, Table 0	8	312	312

NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size is set to UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit). This will enable the UE to return the data within one UL TTI.
NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.

14.7.1.4 Test requirements

See 14.1.4.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink.

14.7.1a Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL: [max bit rate depending on UE category and TTI] DL:3.4 kbps SRBs for DCCH on E-DCH and DL DCH/ UL 16QAM

14.7.1a.1 Conformance requirement

The UE shall be able to establish the UTRAN requested radio bearers within the UE's signalled radio access capabilities.

The UE shall correctly transfer user data from peer to peer RLC entities according to the requested radio bearer configuration.

Reference(s)

3GPP TS 25.331, clause 8.2.1

3GPP TS 25.2xx series (Physical Layer)

3GPP TS 25.321 (MAC)

3GPP TS 25.322 (RLC)

14.7.1a.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.6.2:

1. To verify that the UE is able to establish the radio bearer combination.
2. To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

14.7.1a.3 Method of test

NOTE: The reference to E-DCH Category refers to the UE capability as signalled in the Rel-6 IE “E-DCH physical layer category”. All UEs supporting E-DCH should signal a category between 1 and 6 for this IE even if the UE physical capability category is above 6.

NOTE: The reference to HS-DSCH Categories refers to the UE capability as signalled in the Rel-5 IE “HS-DSCH physical layer category” (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
7	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)					
			Max MAC-d PDU size	Minimum TBS (note 2)	Number of MAC-d PDUs	Modulation scheme	Number of codes	TFRI
1	2	512	336	357	1	QPSK	1	19
2	2	512	336	357	1	QPSK	1	19
3	3	512	336	357	1	QPSK	1	19
4	3	512	336	357	1	QPSK	1	19
5	6	512	336	357	1	QPSK	1	19
6	6	512	336	357	1	QPSK	1	19
7	6	1536	336	357	1	QPSK	1	19
8	6	1536	336	357	1	QPSK	1	19
9	6	2047	336	357	1	QPSK	1	19
10	6	2047	336	357	1	QPSK	1	19
11	3	1024	336	357	1	QPSK	1	19
12	6	1024	336	357	1	QPSK	1	19
NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI, i.e. such that the MAC-hs transport block size is bigger than the maximum MAC-d PDU size under test + MAC-hs header size (21 bits). See 14.1.3.3 (MAC-d PDU size=336) for recommended TFRC values for different transport block size.								

The generic test procedure in 14.1.4.1 is run for each sub-test.

Sub-tests:

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL RLC SDU size (note 2 &4)	Test data size (note 3)
1	7	2ms, Table 2	8	7992	312
NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size is set to UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit). This will enable the UE to return the data within one UL TTI. NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested. NOTE 4: The UL RLC SDU size is calculated as 25*320-8= 7992, such that TB size 8450 corresponding to E-TFCI 103 will be selected. With PLnon-max = 0.84, [(8450+24[CRC]) *3 [TC]]= 25422 bits. 25422* PLnon-max =21355 , this guarantees as per algorithm in 25.212 clause 4.8.4.1,16QAM to be selected [$2\times M_2+2\times M_4$]					

14.7.1a.4 Test requirements

See 14.1.4.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE shall return a RLC SDU with first 312 bits equal to the content of the DL RLC SDU sent by the SS.

14.7.2 Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:[max bit rate depending on UE category and TTI] DL:3.4 kbps SRBs for DCCH on E-DCH and DL DCH

14.7.2.1 Conformance requirement

See 14.7.1.1.

14.7.2.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.6.2:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

14.7.2.3 Method of test

See 14.7.1.3.

14.7.2.4 Test requirements

See 14.7.1.4.

14.7.3 Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH

14.7.3.1 Conformance requirement

See 14.7.1.1.

14.7.3.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.6.3:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

14.7.3.3 Method of test

See 14.7.1.3.

14.7.3.4 Test requirements

See 14.7.1.4.

14.7.3a Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] with Flexible RLC, MAC-ehs and MAC-i/is / PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH with MAC-ehs and MAC-i/is

14.7.3a.1 Conformance requirement

See 14.7.1.1.

14.7.3a.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.6.3 and for the case when Flexible RLC and MAC-i/is is configured:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

14.7.3a.3 Method of test

NOTE: The reference to E-DCH Category refers to the UE capability as signalled in the Rel-6 IE "E-DCH physical layer category". All UEs supporting E-DCH should signal a category between 1 and 6 for this IE even if the UE physical capability category is above 6.

NOTE: The reference to HS-DSCH Categories refers to the UE capability as signalled in the Rel-7 IE "HS-DSCH physical layer category extension". This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The following parameters are specific for this test case:

Parameter	Value
Radio bearer	TS 34.108, clause 6.10.2.4.6.3 using downlink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs) and uplink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-i/is) and using downlink Alt 2 (Fixed RLC and MAC-ehs) and uplink Alt 2 (Fixed RLC and MAC-i/is) for the SRB#1 to SRB#4.
MAC-ehs receiver window size	16
HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)					
			Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	Number of codes	TFRI
1	2	512	336	360	1	QPSK	1	30
2	2	512	336	360	1	QPSK	1	30
3	3	512	336	360	1	QPSK	1	30
4	3	512	336	360	1	QPSK	1	30
5	6	512	336	360	1	QPSK	1	30
6	6	512	336	360	1	QPSK	1	30
7	6	1536	336	360	1	QPSK	1	30
8	6	1536	336	360	1	QPSK	1	30
9	6	2047	336	360	1	QPSK	1	30
10	6	2047	336	360	1	QPSK	1	30
11	3	1024	336	360	1	QPSK	1	30
12	6	1024	336	360	1	QPSK	1	30
13 to 20	6	2047	336	360	1	QPSK	1	30
NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI considering all sub-tests. i.e. such that the MAC-ehs transport block size is bigger than the "Minimum TBS" that equals maximum MAC-d PDU size under test + the MAC-ehs header size (24 bits).								

The generic test procedure in 14.1.4.1b is run for each sub-test.

Sub-tests:

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL MAC-d PDU size under test	DL MAC-d PDU size under test	UL RLC SDU size (note 2)	Test data size (note 3)
1	1 to 6	10ms, Table 0	4	Flexible	Flexible	320	320
2	2,4 and 6	2ms, Table 0	8	Flexible	Flexible	320	320
NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size is set to UL RLC payload size. This will enable the UE to return the data within one UL TTI ("Use special value of HE field" is configured). NOTE 3: The test data size is for DTCH mapped to E-DCH is selected according to the MAC-d PDU size to be tested = DL RLC payload size for the MAC-d PDU size.							

14.7.3a.4 Test requirements

See 14.1.4.1b for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink.

14.7.3b Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] with Flexible RLC, MAC-ehs and MAC-i/is / PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH with MAC-ehs and MAC-i/is / UL: QPSK and Dual-Cell DL: 16QAM and Dual-Cell

14.7.3b.1 Conformance requirement

See 14.7.1.1.

14.7.3b.2 Test purpose

When the reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.6.3 is configured for Dual-cell E-DCH and Dual-cell HSDPA, with uplink QPSK, Flexible RLC and MAC-i/is and downlink 16QAM, flexible RLC and MAC-ehs:

1. Verify that the UE is able to establish the radio bearer combination on both cells.

2 Verify correct data transfer of the established radio bearer combination on both cells.

14.7.3b.3 Method of test

NOTE: The reference to E-DCH Category refers to the UE capability as signalled in the Rel-9 IE "E-DCH physical layer category extension 2".

NOTE: The reference to HS-DSCH Categories refers to the UE capability as signalled in the Rel-8 IE "HS-DSCH physical layer category extension 2". This IE corresponds to the HS-DSCH category supported by the UE when Dual-Cell and MAC-ehs is configured.

The following parameters are specific for this test case:

Parameter	Value
Radio bearer	TS 34.108, clause 6.10.2.4.6.3 using downlink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs) and uplink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-i/is) and using downlink Alt 2 (Fixed RLC and MAC-ehs) and uplink Alt 2 (Fixed RLC and MAC-i/is) for the SRB#1 to SRB#4.
MAC-ehs receiver window size	16
HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
8	1536
9	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)					
			Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	Number of codes	TFRI
21 to 24	6	2047	336	360	1	16QAM	1	0
NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI considering all sub-tests. i.e. such that the MAC-ehs transport block size is bigger than the "Minimum TBS" that equals maximum MAC-d PDU size under test + the MAC-ehs header size (24 bits).								

The generic test procedure in 14.1.4.1c is run for each sub-test.

Sub-tests:

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL MAC-d PDU size under test	DL MAC-d PDU size under test	UL RLC SDU size (note 2)	Test data size (note 3)
1	8 and 9	2ms, Table 0	8	Flexible	Flexible	320	320
NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size is set to UL RLC payload size. This will enable the UE to return the data within one UL TTI ("Use special value of HE field" is configured). NOTE 3: The test data size is for DTCH mapped to E-DCH is selected according to the MAC-d PDU size to be tested = DL RLC payload size for the MAC-d PDU size.							

14.7.3b.4 Test requirements

See [14.1.4.1b] for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink.

14.7.3c Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] with Flexible RLC, MAC-ehs and MAC-i/is / PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH with MAC-ehs and MAC-i/is / UL: 16QAM and Dual-Cell DL: 16QAM and Dual-Cell

14.7.3c.1 Conformance requirement

See 14.7.1.1.

14.7.3c.2 Test purpose

When the reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.6.3 is configured for Dual-cell E-DCH and Dual-cell HSDPA, with uplink 16QAM, Flexible RLC and MAC-i/is and downlink 16QAM, flexible RLC and MAC-ehs:

1. Verify that the UE is able to establish the radio bearer combination on both cells.
2 Verify correct data transfer of the established radio bearer combination on both cells.

14.7.3c.3 Method of test

NOTE 1: The reference to E-DCH Category refers to the UE capability as signalled in the Rel-9 IE "E-DCH physical layer category extension 2".

NOTE 2: The reference to HS-DSCH Categories refers to the UE capability as signalled in the Rel-8 IE "HS-DSCH physical layer category extension 2". This IE corresponds to the HS-DSCH category supported by the UE when Dual-Cell and MAC-ehs is configured.

The following parameters are specific for this test case:

Parameter	Value
Radio bearer	TS 34.108, clause 6.10.2.4.6.3 using downlink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs) and uplink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-i/is) and using downlink Alt 2 (Fixed RLC and MAC-ehs) and uplink Alt 2 (Fixed RLC and MAC-i/is) for the SRB#1 to SRB#4.
MAC-ehs receiver window size	16
HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
8	1536
9	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)					
			Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	Number of codes	TFRI
21 to 24	6	2047	336	360	1	16QAM	1	0
NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI considering all sub-tests. i.e. such that the MAC-ehs transport block size is bigger than the "Minimum TBS" that equals maximum MAC-d PDU size under test + the MAC-ehs header size (24 bits).								

The generic test procedure in 14.1.4.1c is run for each sub-test.

Sub-tests:

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL MAC-d PDU size under test	DL MAC-d PDU size under test	UL RLC SDU size (note 2)	Test data size (note 3)
1	8 and 9	2ms, Table 0	8	Flexible	Flexible	320	320
NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size is set to UL RLC payload size. This will enable the UE to return the data within one UL TTI ("Use special value of HE field" is configured). NOTE 3: The test data size is for DTCH mapped to E-DCH is selected according to the MAC-d PDU size to be tested = DL RLC payload size for the MAC-d PDU size.							

14.7.3c.4 Test requirements

See [14.1.4.1b] for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink.

14.7.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.7.4.1 Conformance requirement

See 14.7.1.1.

14.7.4.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.6.4:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH in combination with the possible TFCI of the conversional speech radio bearer.

14.7.4.3 Method of test

NOTE: The reference to E-DCH Category refers to the UE capability as signalled in the Rel-6 IE "E-DCH physical layer category". All UEs supporting E-DCH should signal a category between 1 and 6 for this IE even if the UE physical capability category is above 6.

NOTE: The reference to HS-DSCH Categories refers to the UE capability as signalled in the Rel-5 IE "HS-DSCH physical layer category" (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

The following parameters are specific for this test case:

Uplink TFS:

		RB5 (RAB subflow #1)	**RB6 (RAB subflow #2)**	**RB7 (RAB subflow #3)**	**DCCH**
TFS	TF0, bits	1x0	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Uplink TFCS:

TFCI	**(RB5, RB6, RB7, DCCH)**
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	**RB6 (RAB subflow #2)**	**RB7 (RAB subflow #3)**	**DCCH**
TFS	TF0, bits	1x0	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Downlink TFCS:

TFCI	**(RB5, RB6, RB7, DCCH)**
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Parameter	Value
MAC-hs receiver window size	16
HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)					
			Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	Number of codes	TFRI
1	2	512	336	357	1	QPSK	1	19
2	2	512	336	357	1	QPSK	1	19
3	3	512	336	357	1	QPSK	1	19
4	3	512	336	357	1	QPSK	1	19
5	6	512	336	357	1	QPSK	1	19
6	6	512	336	357	1	QPSK	1	19
7	6	1536	336	357	1	QPSK	1	19
8	6	1536	336	357	1	QPSK	1	19
9	6	2047	336	357	1	QPSK	1	19
10	6	2047	336	357	1	QPSK	1	19
11	3	1024	336	357	1	QPSK	1	19
12	6	1024	336	357	1	QPSK	1	19
NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI, i.e. such that the MAC-hs transport block size (“Minimum TBS”) is bigger than the maximum MAC-d PDU size under test + MAC-hs header size (21 bits). See 14.1.3.3 (MAC-d PDU size=336) for recommended TFRC values for different transport block size.								

The generic test procedure in 14.1.4.1 is run for each sub-test.

Sub-tests:

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	DCH				UL RLC SDU size (note 3)	Test data size (note 4)
				DL TFCS Under test	UL TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)		
1	1 to 6	10ms, Table 0	4	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
2	1 to 6	10ms, Table 0	4	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312
3	2, 4 and 6	2ms, Table 0	8	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 UL_TFC4	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
4	2, 4 and 6	2ms, Table 0	8	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312

NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return th data within one UL TTI.
NOTE 4: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.

14.7.4.4 Test requirements

See 14.1.4.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the sub-test.
3. At step 18 and for each radio bearer where test data is sent in downlink the UE shall return a RLC SDU with same content as sent in downlink. For radio bearers where no data is sent in downlink then no data shall be received in uplink.

14.7.5 Streaming or interactive or background / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB + Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:[max bit rate depending on UE category and TTI] DL:3.4 kbps SRBs for DCCH on E-DCH and DL DCH

14.7.5.1 Conformance requirement

See 14.7.1.1.

14.7.5.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.6.5:

1. To verify that the UE is able to establish the radio bearer combination.
2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

14.7.5.3 Method of test

NOTE: The reference to E-DCH Category refers to the UE capability as signalled in the Rel-6 IE “E-DCH physical layer category”. All UEs supporting E-DCH should signal a category between 1 and 6 for this IE even if the UE physical capability category is above 6.

NOTE: The reference to HS-DSCH Categories refers to the UE capability as signalled in the Rel-5 IE “HS-DSCH physical layer category” (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

The first Streaming or background or interactive / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB is referred to as RB5 and the second Streaming or interactive or background UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB is referred to RB6.

The following parameters are specific for this test case and RB5 and RB6:

Parameter	Value
MAC-hs receiver window size	16
HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)					
			Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	Number of codes	TFRI
1	2	512	336	357	1	QPSK	1	19
2	2	512	336	357	1	QPSK	1	19
3	3	512	336	357	1	QPSK	1	19
4	3	512	336	357	1	QPSK	1	19
5	6	512	336	357	1	QPSK	1	19
6	6	512	336	357	1	QPSK	1	19
7	6	1536	336	357	1	QPSK	1	19
8	6	1536	336	357	1	QPSK	1	19
9	6	2047	336	357	1	QPSK	1	19
10	6	2047	336	357	1	QPSK	1	19
11	3	1024	336	357	1	QPSK	1	19
12	6	1024	336	357	1	QPSK	1	19

NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI, i.e. such that the MAC-hs transport block size ("Minimum TBS") is bigger than the maximum MAC-d PDU size under test + the MAC-hs header size (21 bits). See 14.1.3.3 (MAC-d PDU size=336) for recommended TFRC values for different transport block size.

The generic test procedure in 14.1.4.1 is run for each sub-test.

Sub-tests:

Sub-test	E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL RLC SDU size (note 2)	Test data size (note 2)
1	1 to 6	10ms, Table 0	4	RB5:312 RB6:312	RB5:312 RB6:312
2	2,4 and 6	2ms, Table 0	8	RB5:312 RB6:312	RB5:312 RB6:312

NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size is set to UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit). This will enable the UE to return the data within one UL TTI.
NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.

14.7.5.4 Test requirements

See 14.1.4.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE shall return a RLC SDU on RB5 and RB6 with same content as sent in downlink.

14.7.6 Conversational / unknown or speech / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB + Streaming or Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:[max bit rate depending on UE category and TTI] DL: :[max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH

14.7.6.1 Conformance requirement

See 14.7.1.1.

14.7.6.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.6.6:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

14.7.6.3 Method of test

NOTE: The reference to E-DCH Category refers to the UE capability as signalled in the Rel-6 IE "E-DCH physical layer category". All UEs supporting E-DCH should signal a category between 1 and 6 for this IE even if the UE physical capability category is above 6.

NOTE: The reference to HS-DSCH Categories refers to the UE capability as signalled in the Rel-5 IE "HS-DSCH physical layer category" (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

The Conversational / unknown or speech / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB is referred to as RB5 and the Streaming or interactive or background UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB is referred to RB6

The following parameters are specific for this test case and RB5 and RB6:

Parameter	Value
MAC-hs receiver window size	16
RB5: HS-DSCH MAC-d PDU size	See sub-test table
RB6: HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)					
			Max MAC-d PDU size	Minimum TBS (note 2)	Number of MAC-d PDUs	Modulation scheme	Number of codes	TFRI
1	2	512	344	365	1	QPSK	1	19
2	2	512	344	365	1	QPSK	1	19
3	3	512	344	365	1	QPSK	1	19
4	3	512	344	365	1	QPSK	1	19
5	6	512	344	365	1	QPSK	1	19
6	6	512	344	365	1	QPSK	1	19
7	6	1536	344	365	1	QPSK	1	19
8	6	1536	344	365	1	QPSK	1	19
9	6	2047	344	365	1	QPSK	1	19
10	6	2047	344	365	1	QPSK	1	19
11	3	1024	344	365	1	QPSK	1	19
12	6	1024	344	365	1	QPSK	1	19

NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI considering all sub-tests. i.e. such that the MAC-hs transport block size ("Minimum TBS") is bigger than the maximum MAC-d PDU size under test + the MAC-hs header size.

NOTE 2: For RB5 (UM) the maximum MAC-d PDU size is 344 and the MAC-hs header size is 21 bits, this result in the maximum required TBS for RB5 of 365 bits. For RB6 (AM) the maximum MAC-d PDU size is 336 and the MAC-hs header size is 21 bits, this result in the maximum required TBS for RB6 of 357 bits. The HS-PDSCH TFRC need to be selected for a TBS bigger or equal to 365.

The generic test procedure in 14.1.4.1 is run for each sub-test.

Sub-tests:

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL MAC-d PDU size under test	DL MAC-d PDU size under test	UL RLC SDU size (note 2)	Test data size (note 3)
1	1 to 6	10ms, Table 0	4	RB5:96 RB6:336	RB5:112 RB6:336	RB5:80 RB6:312	RB5:96 RB6:312
2	1 to 6	10ms, Table 0	4	RB5:112 RB6:336	RB5:112 RB6:336	RB5:96 RB6:312	RB5:96 RB6:312
3	1 to 6	10ms, Table 0	4	RB5:144 RB6:336	RB5:144 RB6:336	RB5:128 RB6:312	RB5:128 RB6:312
4	1 to 6	10ms, Table 0	4	RB5:160 RB6:336	RB5:160 RB6:336	RB5:144 RB6:312	RB5:144 RB6:312
5	1 to 6	10ms, Table 0	4	RB5:176 RB6:336	RB5:176 RB6:336	RB5:160 RB6:312	RB5:160 RB6:312
6	1 to 6	10ms, Table 0	4	RB5:192 RB6:336	RB5:192 RB6:336	RB5:176 RB6:312	RB5:176 RB6:312
7	1 to 6	10ms, Table 0	4	RB5:208 RB6:336	RB5:224 RB6:336	RB5:192 RB6:312	RB5:208 RB6:312
8	1 to 6	10ms, Table 0	4	RB5:224 RB6:336	RB5:224 RB6:336	RB5:208 RB6:312	RB5:208 RB6:312
9	1 to 6	10ms, Table 0	4	RB5:288 RB6:336	RB5:296 RB6:336	RB5:272 RB6:312	RB5:280 RB6:312
10	1 to 6	10ms, Table 0	4	RB5:296 RB6:336	RB5:296 RB6:336	RB5:280 RB6:312	RB5:280 RB6:312
11	1 to 6	10ms, Table 0	4	RB5:312 RB6:336	RB5:344 RB6:336	RB5:296 RB6:312	RB5:328 RB6:312
12	1 to 6	10ms, Table 0	4	RB5:344 RB6:336	RB5:344 RB6:336	RB5:328 RB6:312	RB5:328 RB6:312
13	2,4,6	2ms, Table 0	8	RB5:96 RB6:336	RB5:112 RB6:336	RB5:80 RB6:312	RB5:96 RB6:312
14	2,4,6	2ms, Table 0	8	RB5:112 RB6:336	RB5:112 RB6:336	RB5:96 RB6:312	RB5:96 RB6:312
15	2,4,6	2ms, Table 0	8	RB5:144 RB6:336	RB5:144 RB6:336	RB5:128 RB6:312	RB5:128 RB6:312
16	2,4,6	2ms, Table 0	8	RB5:160 RB6:336	RB5:160 RB6:336	RB5:144 RB6:312	RB5:144 RB6:312
17	2,4,6	2ms, Table 0	8	RB5:176 RB6:336	RB5:176 RB6:336	RB5:160 RB6:312	RB5:160 RB6:312
18	2,4,6	2ms, Table 0	8	RB5:192 RB6:336	RB5:192 RB6:336	RB5:176 RB6:312	RB5:176 RB6:312
19	2,4,6	2ms, Table 0	8	RB5:208 RB6:336	RB5:224 RB6:336	RB5:192 RB6:312	RB5:208 RB6:312
20	2,4,6	2ms, Table 0	8	RB5:224 RB6:336	RB5:224 RB6:336	RB5:208 RB6:312	RB5:208 RB6:312
21	2,4,6	2ms, Table 0	8	RB5:288 RB6:336	RB5:296 RB6:336	RB5:272 RB6:312	RB5:280 RB6:312
22	2,4,6	2ms, Table 0	8	RB5:296 RB6:336	RB5:296 RB6:336	RB5:280 RB6:312	RB5:280 RB6:312
23	2,4,6	2ms, Table 0	8	RB5:312 RB6:336	RB5:344 RB6:336	RB5:296 RB6:312	RB5:328 RB6:312
24	2,4,6	2ms, Table 0	8	RB5:344 RB6:336	RB5:344 RB6:336	RB5:328 RB6:312	RB5:328 RB6:312

NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size is set to UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit). This will enable the UE to return th data within one UL TTI.
NOTE 3: The test data size is for DTCH mapped to E-DCH is selected according to the MAC-d PDU size to be tested = DL RLC payload size for the MAC-d PDU size minus 8 bits (size of 7 bit length indicator and expansion bit).

14.7.6.4 Test requirements

See 14.1.4.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE shall return a RLC SDU on RB5 and RB6 with same content as sent in downlink. For the case the returned UL RLC SDU size under test is smaller than the sent DL RLC SDU size then the payload of the received UL RLC SDU shall have the same content as the first N bits of the DL RLC SDU payload, where N equals the payload size of the UL RLC SDU.

14.7.6a Conversational / unknown or speech / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB + Streaming or Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:[max bit rate depending on UE category and TTI] DL: :[max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH/ UL 16QAM

14.7.6a.1 Conformance requirement

See 14.7.1.1.

14.7.6a.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.6.6:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

14.7.6a.3 Method of test

NOTE: The reference to E-DCH Category refers to the UE capability as signalled in the Rel-7 IE “E-DCH physical layer category extension”.

NOTE: The reference to HS-DSCH Categories refers to the UE capability as signalled in the Rel-5 IE “HS-DSCH physical layer category” (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

The Conversational / unknown or speech / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB is referred to as RB5 and the Streaming or interactive or background UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB is referred to RB6

The following parameters are specific for this test case and RB5 and RB6:

Parameter	Value
MAC-hs receiver window size	16
RB5: HS-DSCH MAC-d PDU size	See sub-test table
RB6: HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
7	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)				
			Max MAC-d PDU size	Max MAC-d PDU size	Max MAC-d PDU size	Max MAC-d PDU size	Max MAC-d PDU size
1	2	512	344	365	1	QPSK	1
2	2	512	344	365	1	QPSK	1
3	3	512	344	365	1	QPSK	1
4	3	512	344	365	1	QPSK	1
5	6	512	344	365	1	QPSK	1
6	6	512	344	365	1	QPSK	1
7	6	1536	344	365	1	QPSK	1
8	6	1536	344	365	1	QPSK	1
9	6	2047	344	365	1	QPSK	1
10	6	2047	344	365	1	QPSK	1
11	3	1024	344	365	1	QPSK	1
12	6	1024	344	365	1	QPSK	1

NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI considering all sub-tests. i.e. such that the MAC-hs transport block size ("Minimum TBS") is bigger than the maximum MAC-d PDU size under test + the MAC-hs header size.

NOTE 2: For RB5 (UM) the maximum MAC-d PDU size is 344 and the MAC-hs header size is 21 bits, this result in the maximum required TBS for RB5 of 365 bits. For RB6 (AM) the maximum MAC-d PDU size is 336 and the MAC-hs header size is 21 bits, this result in the maximum required TBS for RB6 of 357 bits. The HS-PDSCH TFRC need to be selected for a TBS bigger or equal to 365.

The generic test procedure in 14.1.4.1 is run for each sub-test.

Sub-tests:

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL MAC-d PDU size under test	DL MAC-d PDU size under test	UL RLC SDU size (note 2)	Test data size (note 3)
1	7	2ms, Table 2	8	RB5:96 RB6:336	RB5:112 RB6:336	RB5:80 RB6: 7992	RB5:96 RB6:312
2	7	2ms, Table 2	8	RB5:112 RB6:336	RB5:112 RB6:336	RB5:96 RB6: 7992	RB5:96 RB6:312
3	7	2ms, Table 2	8	RB5:144 RB6:336	RB5:144 RB6:336	RB5:128 RB6: 7992	RB5:128 RB6:312
4	7	2ms, Table 2	8	RB5:160 RB6:336	RB5:160 RB6:336	RB5:144 RB6: 7992	RB5:144 RB6:312
5	7	2ms, Table 2	8	RB5:176 RB6:336	RB5:176 RB6:336	RB5:160 RB6: 7992	RB5:160 RB6:312
6	7	2ms, Table 2	8	RB5:192 RB6:336	RB5:192 RB6:336	RB5:176 RB6: 7992	RB5:176 RB6:312
7	7	2ms, Table 2	8	RB5:208 RB6:336	RB5:224 RB6:336	RB5:192 RB6: 7992	RB5:208 RB6:312
8	7	2ms, Table 2	8	RB5:224 RB6:336	RB5:224 RB6:336	RB5:208 RB6: 7992	RB5:208 RB6:312
9	7	2ms, Table 2	8	RB5:288 RB6:336	RB5:296 RB6:336	RB5:272 RB6: 7992	RB5:280 RB6:312
10	7	2ms, Table 2	8	RB5:296 RB6:336	RB5:296 RB6:336	RB5:280 RB6: 7992	RB5:280 RB6:312
11	7	2ms, Table 2	8	RB5:312 RB6:336	RB5:344 RB6:336	RB5:296 RB6: 7992	RB5:328 RB6:312
12	7	2ms, Table 2	8	RB5:344 RB6:336	RB5:344 RB6:336	RB5:328 RB6: 7992	RB5:328 RB6:312

NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size is set to UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit). This will enable the UE to return th data within one UL TTI.
NOTE 3: The test data size is for DTCH mapped to E-DCH is selected according to the MAC-d PDU size to be tested = DL RLC payload size for the MAC-d PDU size minus 8 bits (size of 7 bit length indicator and expansion bit).
NOTE 4: The UL RLC SDU size is calculated as 25*320-8= 7992, such that TB size 8450 corresponding to E-TFCI 103 will be selected. With PLnon-max = 0.84, [(8450+24[CRC]) *3 [TC]]= 25422 bits. 25422* PLnon-max =21355 , this guarantees as per algorithm in 25.212 clause 4.8.4.1,16QAM to be selected [$2\times M_2+2\times M_4$]

14.7.6a.4 Test requirements

See 14.1.4.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE shall return a RLC SDU on RB5 with same content as sent in downlink and on RB6 with first 312 bits equal to the content of the DL RLC SDU sent by the SS. For the case the returned UL RLC SDU size under test is smaller than the sent DL RLC SDU size then the payload of the received UL RLC SDU shall have the same content as the first N bits of the DL RLC SDU payload, where N equals the payload size of the UL RLC SDU.

14.7.6b Conversational / unknown or speech / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps with Flexible RLC and MAC-ehs / PS RAB + Streaming or Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB + UL:[max bit rate depending on UE category and TTI] DL: :[max bit rate depending on UE category] SRBs for DCCH on E-DCH and SRBs with Fixed RLC and MAC-ehs on HS-DSCH / UL: QPSK and DL: QPSK

14.7.6b.1 Conformance requirement

See 14.7.1.1.

14.7.6b.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.6.6 for the case for the QPSK and non-MIMO case using the downlink enhanced Layer 2 configuration with MAC-ehs and Fixed and Flexible RLC configured:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

14.7.6b.3 Method of test

NOTE: The reference to E-DCH Category refers to the UE capability as signalled in the Rel-6 IE "E-DCH physical layer category". All UEs supporting E-DCH should signal a category between 1 and 6 for this IE even if the UE physical capability category is above 6.

NOTE: The reference to HS-DSCH Categories refers to the UE capability as signalled in the Rel-7 IE "HS-DSCH physical layer category extension". This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The Conversational / unknown or speech / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB is referred to as RB5 and the Streaming or interactive or background UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB is referred to RB6

The following parameters are specific for this test case and RB5 and RB6:

Parameter	Value
Radio bearer	TS 34.108, clause 6.10.2.4.6.6 using downlink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs) for RB5; using downlink MAC-d flow parameters according to Alt 2 (Fixed RLC and MAC-ehs) for RB6; and using Alt 2 (Fixed RLC and MAC-ehs) for the SRB#1 to SRB#4.
MAC-ehs receiver window size	16
Alternative E-bit interpretation	TRUE
RB5: HS-DSCH MAC-d PDU size	See sub-test table
RB6: HS-DSCH MAC-d PDU size	336
RB5: DL UM RLC LI size	7

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)					
			Max MAC-d PDU size	Minimum TBS (note 2)	Number of MAC-d PDUs	Modulation scheme	Number of codes	TFRI
1	2	512	344	368	1	QPSK	1	31
2	2	512	344	368	1	QPSK	1	31
3	3	512	344	368	1	QPSK	1	31
4	3	512	344	368	1	QPSK	1	31
5	6	512	344	368	1	QPSK	1	31
6	6	512	344	368	1	QPSK	1	31
7	6	1536	344	368	1	QPSK	1	31
8	6	1536	344	368	1	QPSK	1	31
9	6	2047	344	368	1	QPSK	1	31
10	6	2047	344	368	1	QPSK	1	31
11	3	1024	344	368	1	QPSK	1	31
12	6	1024	344	368	1	QPSK	1	31
13 to 20	6	2047	344	368	1	QPSK	1	31

NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI considering all sub-tests. i.e. such that the MAC-hs transport block size ("Minimum TBS") is bigger than the maximum MAC-d PDU size under test + the MAC-ehs header size.

NOTE 2: For RB5 (UM) the maximum MAC-d PDU size is 344 and the MAC-ehs header size is 24 bits, this result in the maximum required TBS for RB5 of 368 bits. For RB6 (AM) the maximum MAC-d PDU size is 336 and the MAC-ehs header size is 24 bits, this result in the maximum required TBS for RB6 of 360 bits. The HS-PDSCH TFRC need to be selected for a TBS bigger or equal to 368.

The generic test procedure in 14.1.4.1a is run for each sub-test.

Sub-tests:

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL MAC-d PDU size under test	DL MAC-d PDU size under test	UL RLC SDU size (note 2)	Test data size (note 3)
1	1 to 6	10ms, Table 0	4	RB5:96 RB6:336	RB5:Flexible RB6:336	RB5:80 RB6:312	RB5:96 RB6:312
2	1 to 6	10ms, Table 0	4	RB5:112 RB6:336	RB5:Flexible RB6:336	RB5:96 RB6:312	RB5:96 RB6:312
3	1 to 6	10ms, Table 0	4	RB5:144 RB6:336	RB5:Flexible RB6:336	RB5:128 RB6:312	RB5:128 RB6:312
4	1 to 6	10ms, Table 0	4	RB5:160 RB6:336	RB5:Flexible RB6:336	RB5:144 RB6:312	RB5:144 RB6:312
5	1 to 6	10ms, Table 0	4	RB5:176 RB6:336	RB5:Flexible RB6:336	RB5:160 RB6:312	RB5:160 RB6:312
6	1 to 6	10ms, Table 0	4	RB5:192 RB6:336	RB5:Flexible RB6:336	RB5:176 RB6:312	RB5:176 RB6:312
7	1 to 6	10ms, Table 0	4	RB5:208 RB6:336	RB5:Flexible RB6:336	RB5:192 RB6:312	RB5:208 RB6:312
8	1 to 6	10ms, Table 0	4	RB5:224 RB6:336	RB5:Flexible RB6:336	RB5:208 RB6:312	RB5:208 RB6:312
9	1 to 6	10ms, Table 0	4	RB5:288 RB6:336	RB5:Flexible RB6:336	RB5:272 RB6:312	RB5:280 RB6:312
10	1 to 6	10ms, Table 0	4	RB5:296 RB6:336	RB5:Flexible RB6:336	RB5:280 RB6:312	RB5:280 RB6:312
11	1 to 6	10ms, Table 0	4	RB5:312 RB6:336	RB5:Flexible RB6:336	RB5:296 RB6:312	RB5:328 RB6:312
12	1 to 6	10ms, Table 0	4	RB5:344 RB6:336	RB5:Flexible RB6:336	RB5:328 RB6:312	RB5:328 RB6:312
13	2,4,6	2ms, Table 0	8	RB5:96 RB6:336	RB5:Flexible RB6:336	RB5:80 RB6:312	RB5:96 RB6:312
14	2,4,6	2ms, Table 0	8	RB5:112 RB6:336	RB5:Flexible RB6:336	RB5:96 RB6:312	RB5:96 RB6:312
15	2,4,6	2ms, Table 0	8	RB5:144 RB6:336	RB5:Flexible RB6:336	RB5:128 RB6:312	RB5:128 RB6:312
16	2,4,6	2ms, Table 0	8	RB5:160 RB6:336	RB5:Flexible RB6:336	RB5:144 RB6:312	RB5:144 RB6:312
17	2,4,6	2ms, Table 0	8	RB5:176 RB6:336	RB5:Flexible RB6:336	RB5:160 RB6:312	RB5:160 RB6:312
18	2,4,6	2ms, Table 0	8	RB5:192 RB6:336	RB5:Flexible RB6:336	RB5:176 RB6:312	RB5:176 RB6:312
19	2,4,6	2ms, Table 0	8	RB5:208 RB6:336	RB5:Flexible RB6:336	RB5:192 RB6:312	RB5:208 RB6:312
20	2,4,6	2ms, Table 0	8	RB5:224 RB6:336	RB5:Flexible RB6:336	RB5:208 RB6:312	RB5:208 RB6:312
21	2,4,6	2ms, Table 0	8	RB5:288 RB6:336	RB5:Flexible RB6:336	RB5:272 RB6:312	RB5:280 RB6:312
22	2,4,6	2ms, Table 0	8	RB5:296 RB6:336	RB5:Flexible RB6:336	RB5:280 RB6:312	RB5:280 RB6:312
23	2,4,6	2ms, Table 0	8	RB5:312 RB6:336	RB5:Flexible RB6:336	RB5:296 RB6:312	RB5:328 RB6:312
24	2,4,6	2ms, Table 0	8	RB5:344 RB6:336	RB5:Flexible RB6:336	RB5:328 RB6:312	RB5:328 RB6:312

NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size is set to UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit). This will enable the UE to return the data within one UL TTI.
NOTE 3: The test data size is for DTCH mapped to E-DCH is selected according to the MAC-d PDU size to be tested = DL RLC payload size for the MAC-d PDU size minus 8 bits (size of 7 bit length indicator and expansion bit).

14.7.6b.4 Test requirements

See 14.1.4.1a for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE shall return a RLC SDU on RB5 and RB6 with same content as sent in downlink. For the case the returned UL RLC SDU size under test is smaller than the sent DL RLC SDU size then the payload of the received UL RLC SDU shall have the same content as the first N bits of the DL RLC SDU payload, where N equals the payload size of the UL RLC SDU.

14.7.6c Conversational / unknown or speech / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps with Flexible RLC, MAC-ehs and MAC-i/is / PS RAB + Streaming or Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] with Fixed RLC, MAC-ehs and MAC-i/is / PS RAB + UL:[max bit rate depending on UE category and TTI] DL: :[max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH with MAC-ehs and MAC-i/is / UL: QPSK and DL: QPSK

14.7.6c.1 Conformance requirement

See 14.7.1.1.

14.7.6c.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.6.6 for the case QPSK and non-MIMO case when MAC-ehs and MAC-i/is and the mix of Fixed and Flexible RLC is configured:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

14.7.6c.3 Method of test

NOTE: The reference to E-DCH Category refers to the UE capability as signalled in the Rel-6 IE “E-DCH physical layer category”. All UEs supporting E-DCH should signal a category between 1 and 6 for this IE even if the UE physical capability category is above 6.

NOTE: The reference to HS-DSCH Categories refers to the UE capability as signalled in the Rel-7 IE “HS-DSCH physical layer category extension”. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The Conversational / unknown or speech / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB is referred to as RB5 and the Streaming or interactive or background UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB is referred to RB6

The following parameters are specific for this test case and RB5 and RB6:

Parameter	Value
Radio bearer	TS 34.108, clause 6.10.2.4.6.6 using downlink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs) and uplink MAC-d flow parameters according to Alt 2 (Flexible RLC and MAC-i/is) for RB5; using downlink MAC-d flow parameters according to Alt 2 (Fixed RLC and MAC-ehs) and uplink MAC-d flow parameters according to Alt 2 (Fixed RLC and MAC-i/is) for RB6; and using downlink Alt 2 (Fixed RLC and MAC-ehs) and uplink Alt 2 (Fixed RLC and MAC-i/is) for the SRB#1 to SRB#4.
MAC-ehs receiver window size	16
RB5: Alternative E-bit interpretation	TRUE
RB5: HS-DSCH MAC-d PDU size	See sub-test table
RB6: HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)					
			Max MAC-d PDU size	Minimum TBS (note 2)	Number of MAC-d PDUs	Modulation scheme	Number of codes	TFRI
1	2	512	344	368	1	QPSK	1	31
2	2	512	344	368	1	QPSK	1	31
3	3	512	344	368	1	QPSK	1	31
4	3	512	344	368	1	QPSK	1	31
5	6	512	344	368	1	QPSK	1	31
6	6	512	344	368	1	QPSK	1	31
7	6	1536	344	368	1	QPSK	1	31
8	6	1536	344	368	1	QPSK	1	31
9	6	2047	344	368	1	QPSK	1	31
10	6	2047	344	368	1	QPSK	1	31
11	3	1024	344	368	1	QPSK	1	31
12	6	1024	344	368	1	QPSK	1	31
13 to 20	6	2047	344	368	1	QPSK	1	31

NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI considering all sub-tests. i.e. such that the MAC-ehs transport block size ("Minimum TBS") is bigger than the maximum MAC-d PDU size under test + the MAC-ehs header size.

NOTE 2: For RB5 (UM) the maximum MAC-d PDU size is 344 and the MAC-ehs header size is 24 bits, this result in the maximum required TBS for RB5 of 368 bits. For RB6 (AM) the maximum MAC-d PDU size is 336 and the MAC-ehs header size is 24 bits, this result in the maximum required TBS for RB6 of 360 bits. The HS-PDSCH TFRC need to be selected for a TBS bigger or equal to 368.

The generic test procedure in 14.1.4.1b is run for each sub-test.

Sub-tests:

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL MAC-d PDU size under test	DL MAC-d PDU size under test	UL RLC SDU size (note 2)	Test data size (note 3)
1	1 to 6	10ms, Table 0	4	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:88 RB6:320	RB5:104 RB6:320
2	1 to 6	10ms, Table 0	4	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:104 RB6:320	RB5:104 RB6:320
3	1 to 6	10ms, Table 0	4	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:136 RB6:320	RB5:136 RB6:320
4	1 to 6	10ms, Table 0	4	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:152 RB6:320	RB5:152 RB6:320
5	1 to 6	10ms, Table 0	4	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:168 RB6:320	RB5:168 RB6:320
6	1 to 6	10ms, Table 0	4	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:184 RB6:320	RB5:184 RB6:320
7	1 to 6	10ms, Table 0	4	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:200 RB6:320	RB5:216 RB6:320
8	1 to 6	10ms, Table 0	4	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:216 RB6:320	RB5:216 RB6:320
9	1 to 6	10ms, Table 0	4	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:280 RB6:320	RB5:288 RB6:320
10	1 to 6	10ms, Table 0	4	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:288 RB6:320	RB5:288 RB6:320
11	1 to 6	10ms, Table 0	4	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:304 RB6:320	RB5:336 RB6:320
12	1 to 6	10ms, Table 0	4	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:336 RB6:320	RB5:336 RB6:320
13	2,4,6	2ms, Table 0	8	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:88 RB6:320	RB5:104 RB6:320
14	2,4,6	2ms, Table 0	8	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:104 RB6:320	RB5:104 RB6:320
15	2,4,6	2ms, Table 0	8	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:136 RB6:320	RB5:136 RB6:320
16	2,4,6	2ms, Table 0	8	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:152 RB6:320	RB5:152 RB6:320
17	2,4,6	2ms, Table 0	8	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:168 RB6:320	RB5:168 RB6:320
18	2,4,6	2ms, Table 0	8	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:184 RB6:320	RB5:184 RB6:320
19	2,4,6	2ms, Table 0	8	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:200 RB6:320	RB5:216 RB6:320
20	2,4,6	2ms, Table 0	8	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:216 RB6:320	RB5:216 RB6:320
21	2,4,6	2ms, Table 0	8	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:280 RB6:320	RB5:288 RB6:320
22	2,4,6	2ms, Table 0	8	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:288 RB6:320	RB5:288 RB6:320
23	2,4,6	2ms, Table 0	8	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:304 RB6:320	RB5:336 RB6:320
24	2,4,6	2ms, Table 0	8	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:336 RB6:320	RB5:336 RB6:320

NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B.

NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size is set to UL RLC payload size to be tested.. This will enable the UE to return the data within one UL TTI ("Alternative E-bit interpretation" is configured for RB5 (UM) and "Use special value of HE field" is configured for RB6 (AM)). The selected UL RLC SDU sizes for the flexible case (RB5) are the same as specified for the UL fixed case (Alt 1) of the reference radio bearer configuration in TS 34.108, clause 6.10.2.4.6.6 (88, 104, 136, 152, 168, 184, 200, 216, 280, 288, 304 and 336).

NOTE 3: The test data size is for DTCH mapped to E-DCH is selected according to the MAC-d PDU size to be tested = DL RLC payload size for the MAC-d PDU size. The selected DL test data sizes for RB5 are the same as specified for the DL fixed case (Alt 2) of the reference radio bearer configuration in TS 34.108, clause 6.10.2.4.6.6 (104, 136, 152, 168, 184, 216, 288 and 336).

14.7.6c.4 Test requirements

See 14.1.4.1b for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE shall return a RLC SDU on RB5 and RB6 with same content as sent in downlink. For the case the returned UL RLC SDU size under test is smaller than the sent DL RLC SDU size then the payload of the received UL RLC SDU shall have the same content as the first N bits of the DL RLC SDU payload, where N equals the payload size of the UL RLC SDU.

14.7.7 Conversational / unknown or speech / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB + Streaming or Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + Streaming or Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:[max bit rate depending on UE category and TTI] DL: :[max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH

14.7.7.1 Conformance requirement

See 14.7.1.1.

14.7.7.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.6.7:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

14.7.7.3 Method of test

NOTE: The reference to E-DCH Category refers to the UE capability as signalled in the Rel-6 IE “E-DCH physical layer category”. All UEs supporting E-DCH should signal a category between 1 and 6 for this IE even if the UE physical capability category is above 6.

NOTE: The reference to HS-DSCH Categories refers to the UE capability as signalled in the Rel-5 IE “HS-DSCH physical layer category” (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

The Conversational / unknown or speech / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB is referred to as RB5, the first Streaming or interactive or background UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB is referred to RB6 and the second the first Streaming or interactive or background UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB is referred to RB7.

The following parameters are specific for this test case and RB5, RB6 and RB7:

Parameter	Value
MAC-hs receiver window size	16
RB5: HS-DSCH MAC-d PDU size	See sub-test table
RB6: HS-DSCH MAC-d PDU size	336
RB7: HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)					
			Max MAC-d PDU size	Minimum TBS (note 2)	Number of MAC-d PDUs	Modulation scheme	Number of codes	TFRI
1	2	512	336	357	1	QPSK	1	19
2	2	512	336	357	1	QPSK	1	19
3	3	512	336	357	1	QPSK	1	19
4	3	512	336	357	1	QPSK	1	19
5	6	512	336	357	1	QPSK	1	19
6	6	512	336	357	1	QPSK	1	19
7	6	1536	336	357	1	QPSK	1	19
8	6	1536	336	357	1	QPSK	1	19
9	6	2047	336	357	1	QPSK	1	19
10	6	2047	336	357	1	QPSK	1	19
11	3	1024	336	357	1	QPSK	1	19
12	6	1024	336	357	1	QPSK	1	19

NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI considering all sub-tests. i.e. such that the MAC-hs transport block size ("Minimum TBS") is bigger than the maximum MAC-d PDU size under test + the MAC-hs header size.

NOTE 2: For RB5 (UM) the maximum MAC-d PDU size is 336 and the MAC-hs header size is 21 bits, this result in the maximum required TBS for RB5 of 357 bits. For RB6 and RB7 the maximum MAC-d PDU size is 336 and the MAC-hs header size is 21 bits, this result in the maximum required TBS for RB6 of 357 bits. The HS-PDSCH TFRC need to be selected for a TBS bigger or equal to 357.

The generic test procedure in 14.1.4.1 is run for each sub-test.

Sub-tests:

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL MAC-d PDU size under test	DL MAC-d PDU size under test	UL RLC SDU size (note 2)	Test data size (note 3)
1	1 to 6	10ms, Table 0	4	RB5:96 RB6:336 RB7:336	RB5:112 RB6:336 RB7:336	RB5:80 RB6:312 RB7:312	RB5:96 RB6:312 RB7:312
2	1 to 6	10ms, Table 0	4	RB5:112 RB6:336 RB7:336	RB5:112 RB6:336 RB7:336	RB5:96 RB6:312 RB7:312	RB5:96 RB6:312 RB7:312
3	1 to 6	10ms, Table 0	4	RB5:144 RB6:336 RB7:336	RB5:144 RB6:336 RB7:336	RB5:128 RB6:312 RB7:312	RB5:128 RB6:312 RB7:312
4	1 to 6	10ms, Table 0	4	RB5:160 RB6:336 RB7:336	RB5:160 RB6:336 RB7:336	RB5:144 RB6:312 RB7:312	RB5:144 RB6:312 RB7:312
5	1 to 6	10ms, Table 0	4	RB5:176 RB6:336 RB7:336	RB5:176 RB6:336 RB7:336	RB5:160 RB6:312 RB7:312	RB5:160 RB6:312 RB7:312
6	1 to 6	10ms, Table 0	4	RB5:192 RB6:336 RB7:336	RB5:192 RB6:336 RB7:336	RB5:176 RB6:312 RB7:312	RB5:176 RB6:312 RB7:312
7	1 to 6	10ms, Table 0	4	RB5:208 RB6:336 RB7:336	RB5:224 RB6:336 RB7:336	RB5:192 RB6:312 RB7:312	RB5:208 RB6:312 RB7:312
8	1 to 6	10ms, Table 0	4	RB5:224 RB6:336 RB7:336	RB5:224 RB6:336 RB7:336	RB5:208 RB6:312 RB7:312	RB5:208 RB6:312 RB7:312
9	1 to 6	10ms, Table 0	4	RB5:288 RB6:336 RB7:336	RB5:296 RB6:336 RB7:336	RB5:272 RB6:312 RB7:312	RB5:280 RB6:312 RB7:312
10	1 to 6	10ms, Table 0	4	RB5:296 RB6:336 RB7:336	RB5:296 RB6:336 RB7:336	RB5:280 RB6:312 RB7:312	RB5:280 RB6:312 RB7:312
11	1 to 6	10ms, Table 0	4	RB5:312 RB6:336 RB7:336	RB5:336 RB6:336 RB7:336	RB5:296 RB6:312 RB7:312	RB5:320 RB6:312 RB7:312
12	1 to 6	10ms, Table 0	4	RB5:336 RB6:336 RB7:336	RB5:336 RB6:336 RB7:336	RB5:320 RB6:312 RB7:312	RB5:320 RB6:312 RB7:312
13	2,4,6	2ms, Table 0	8	RB5:96 RB6:336 RB7:336	RB5:112 RB6:336 RB7:336	RB5:80 RB6:312 RB7:312	RB5:96 RB6:312 RB7:312
14	2,4,6	2ms, Table 0	8	RB5:112 RB6:336 RB7:336	RB5:112 RB6:336 RB7:336	RB5:96 RB6:312 RB7:312	RB5:96 RB6:312 RB7:312
15	2,4,6	2ms, Table 0	8	RB5:144 RB6:336 RB7:336	RB5:144 RB6:336 RB7:336	RB5:128 RB6:312 RB7:312	RB5:128 RB6:312 RB7:312
16	2,4,6	2ms, Table 0	8	RB5:160 RB6:336 RB7:336	RB5:160 RB6:336 RB7:336	RB5:144 RB6:312 RB7:312	RB5:144 RB6:312 RB7:312
17	2,4,6	2ms, Table 0	8	RB5:176 RB6:336 RB7:336	RB5:176 RB6:336 RB7:336	RB5:160 RB6:312 RB7:312	RB5:160 RB6:312 RB7:312
18	2,4,6	2ms, Table 0	8	RB5:192 RB6:336 RB7:336	RB5:192 RB6:336 RB7:336	RB5:176 RB6:312 RB7:312	RB5:176 RB6:312 RB7:312
19	2,4,6	2ms, Table 0	8	RB5:208 RB6:336 RB7:336	RB5:224 RB6:336 RB7:336	RB5:192 RB6:312 RB7:312	RB5:208 RB6:312 RB7:312
20	2,4,6	2ms, Table 0	8	RB5:224 RB6:336 RB7:336	RB5:224 RB6:336 RB7:336	RB5:208 RB6:312 RB7:312	RB5:208 RB6:312 RB7:312
21	2,4,6	2ms, Table 0	8	RB5:288	RB5:296	RB5:272	RB5:280

				RB6:336 RB7:336	RB6:336 RB7:336	RB6:312 RB7:312	RB6:312 RB7:312
22	2,4,6	2ms, Table 0	8	RB5:296 RB6:336 RB7:336	RB5:296 RB6:336 RB7:336	RB5:280 RB6:312 RB7:312	RB5:280 RB6:312 RB7:312
23	2,4,6	2ms, Table 0	8	RB5:312 RB6:336 RB7:336	RB5:336 RB6:336 RB7:336	RB5:296 RB6:312 RB7:312	RB5:320 RB6:312 RB7:312
24	2,4,6	2ms, Table 0	8	RB5:336 RB6:336 RB7:336	RB5:336 RB6:336 RB7:336	RB5:320 RB6:312 RB7:312	RB5:320 RB6:312 RB7:312
NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size is set to UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit). This will enable the UE to return th data within one UL TTI. NOTE 3: The test data size is for DTCH mapped to E-DCH is selected according to the MAC-d PDU size to be tested = DL RLC payload size for the MAC-d PDU size minus 8 bits (size of 7 bit length indicator and expansion bit).							

Specific Message Contents

Use the same RADIO BEARER SETUP message as specified in 34.108 using condition A16 with the following exceptions:

- RAB information for setup	The IE “RAB information for setup” shall be present in addition to the IE “RAB information for setup” present in the default message for condition A16. This means that three RABs shall be established.
- RAB info	(high-speed AM DTCH for PS domain)
- RAB identity	0000 0111B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	useT315
- RB information to setup	
- RB identity	27
- PDCP info	Not Present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	256
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- CHOICE Downlink RLC PDU Size	Reference to clause 6 Parameter Set
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present

- One sided RLC re-establishment	FALSE
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	E-DCH
- Logical channel identity	8
- E-DCH MAC-d flow identity	4
- DDI	7
- RLC PDU size list	1 RLC PDU size
- RLC PDU size	336 bits
- Include in scheduling info	TRUE
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	HS-DSCH
- DL DCH Transport channel identity	Not present
- DL DSCH Transport channel identity	Not present
- DL HS-DSCH MAC-d flow identity	3
- Logical channel identity	Not Present
Added or Reconfigured UL TrCH information	1 E-DCH added with one DCCH MAC-d flow and three DTCH MAC-d flows
- Uplink transport channel type	E-DCH
- CHOICE UL parameters	E-DCH
- E-DCH Transmission Time Interval	10 ms
- HARQ info for E-DCH	
- HARQ RV Configuration	rvtable
- Added or reconfigured E-DCH MAC-d flow	(for DCCH)
- E-DCH MAC-d flow identity	1
- E-DCH MAC-d flow power offset	0
- E-DCH MAC-d flow maximum number of retransmissions	7
- E-DCH MAC-d flow multiplexing list	Not Present
- CHOICE transmission grant type	Non-scheduled grant info
- Max MAC-e PDU contents size	162 bits
- 2 ms non-scheduled transmission grant HARQ process allocation	Not Present
- Uplink transport channel type	E-DCH
- CHOICE UL parameters	E-DCH
- E-DCH Transmission Time Interval	10 ms
- HARQ info for E-DCH	
- HARQ RV Configuration	rvtable
- Added or reconfigured E-DCH MAC-d flow	(for first DTCH)
- E-DCH MAC-d flow identity	2
- E-DCH MAC-d flow power offset	0
- E-DCH MAC-d flow maximum number of retransmissions	7
- E-DCH MAC-d flow multiplexing list	Not Present
- CHOICE transmission grant type	Scheduled grant info
- Added or reconfigured E-DCH MAC-d flow	(for second DTCH)
- E-DCH MAC-d flow identity	3
- E-DCH MAC-d flow power offset	0
- E-DCH MAC-d flow maximum number of retransmissions	7
- E-DCH MAC-d flow multiplexing list	Not Present
- CHOICE transmission grant type	Scheduled grant info
- Added or reconfigured E-DCH MAC-d flow	(for third DTCH)
- E-DCH MAC-d flow identity	4
- E-DCH MAC-d flow power offset	0
- E-DCH MAC-d flow maximum number of retransmissions	7
- E-DCH MAC-d flow multiplexing list	Not Present
- CHOICE transmission grant type	Scheduled grant info
Added or Reconfigured DL TrCH information	1 TrCH (HS-DSCH for DTCH and DCCH)
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	
- Number of Processes	Reference to clause 6.10.2.4.5 Parameter Set
- CHOICE *Memory Partitioning*	Implicit
- Added or reconfigured MAC-d flow	

- MAC-hs queue to add or reconfigure list	(four queues)
- MAC-hs queue Id	0 (for first DTCH)
- MAC-d Flow Identity	0
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	336
- MAC-d PDU size index	0
- MAC-hs queue Id	1 (for DCCH)
- MAC-d Flow Identity	1
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	148
- MAC-d PDU size index	0
- MAC-hs queue Id	2 (for second DTCH)
- MAC-d Flow Identity	0
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	336
- MAC-d PDU size index	0
- MAC-hs queue Id	3 (for third DTCH)
- MAC-d Flow Identity	0
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	336
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not present
- DCH quality target	Not present

14.7.7.4 Test requirements

See 14.1.4.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE shall return a RLC SDU on RB5, RB6 and RB7 with same content as sent in downlink. For the case the returned UL RLC SDU size under test is smaller than the sent DL RLC SDU size then the payload of the received UL RLC SDU shall have the same content as the first N bits of the DL RLC SDU payload, where N equals the payload size of the UL RLC SDU.

14.7.8 Conversational / speech / UL:(12.65 8.85 6.6) DL:(12.65 8.85 6.6) kbps / CS RAB + Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH + DL:0.15 kbps SRB#5 for DCCH

14.7.8.1 Conformance requirement

See 14.7.1.1.

14.7.8.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.6.8:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

14.7.8.3 Method of test

NOTE: The reference to E-DCH Category refers to the UE capability as signalled in the Rel-6 IE "E-DCH physical layer category". All UEs supporting E-DCH should signal a category between 1 and 6 for this IE even if the UE physical capability category is above 6.

NOTE: The reference to HS-DSCH Categories refers to the UE capability as signalled in the Rel-5 IE "HS-DSCH physical layer category" (1 to 12). All UEs supporting HS-DSCH should signal a category between 1 and 12 for this IE even if the UE physical capability category is above 12. This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is not configured.

The following parameters are specific for this test case:

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH 3.4
TFS	TF0, bits	0x72	0x181	0x60	0x148
	TF1, bits	1x40	1x78	N/A	1x148
	TF2, bits	1x54	1x113	N/A	N/A
	TF3, bits	1x64	1x181	N/A	N/A
	TF4, bits	1x72	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, DCCH 3.4)
UL_TFC0	(TF0,TF0,TF0,TF0)
UL_TFC1	(TF1,TF0,TF0,TF0)
UL_TFC2	(TF2,TF1,TF0,TF0)
UL_TFC3	(TF3,TF2,TF0,TF0)
UL_TFC4	(TF4,TF3,TF0,TF0)
UL_TFC5	(TF0,TF0,TF0,TF1)
UL_TFC6	(TF1,TF0,TF0,TF1)
UL_TFC7	(TF2,TF1,TF0,TF1)
UL_TFC8	(TF3,TF2,TF0,TF1)
UL_TFC9	(TF4,TF3,TF0,TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH 3.4	DCCH 0.15 (SRB #5)
TFS	TF0, bits	1x0	0x181	0x60	0x148	0x3
	TF1, bits	1x40	1x78	N/A	1x148	1x3
	TF2, bits	1x54	1x113	N/A	N/A	N/A
	TF3, bits	1x64	1x181	N/A	N/A	N/A
	TF4, bits	1x72	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7,DCCH 3.4, DCCH 0.15)
DL_TFC0	(TF0,TF0,TF0,TF0,TF0)
DL_TFC1	(TF1,TF0,TF0,TF0,TF0)
DL_TFC2	(TF2,TF1,TF0,TF0,TF0)
DL_TFC3	(TF3,TF2,TF0,TF0,TF0)
DL_TFC4	(TF4,TF3,TF0,TF0,TF0)
DL_TFC5	(TF0,TF0,TF0,TF1,TF0)
DL_TFC6	(TF1,TF0,TF0,TF1,TF0)
DL_TFC7	(TF2,TF1,TF0,TF1,TF0)
DL_TFC8	(TF3,TF2,TF0,TF1,TF0)
DL_TFC9	(TF4,TF3,TF0,TF1,TF0)
DL_TFC10	(TF0,TF0,TF0,TF0,TF1)
DL_TFC11	(TF1,TF0,TF0,TF0,TF1)
DL_TFC12	(TF2,TF1,TF0,TF0,TF1)
DL_TFC13	(TF3,TF2,TF0,TF0,TF1)
DL_TFC14	(TF4,TF3,TF0,TF0,TF1)
DL_TFC15	(TF0,TF0,TF0,TF1,TF1)
DL_TFC16	(TF1,TF0,TF0,TF1,TF1)
DL_TFC17	(TF2,TF1,TF0,TF1,TF1)
DL_TFC18	(TF3,TF2,TF0,TF1,TF1)
DL_TFC19	(TF4,TF3,TF0,TF1,TF1)

Parameter	Value
MAC-hs receiver window size	16
HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)					
			Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	Number of codes	TFRI
1	2	512	336	357	1	QPSK	1	19
2	2	512	336	357	1	QPSK	1	19
3	3	512	336	357	1	QPSK	1	19
4	3	512	336	357	1	QPSK	1	19
5	6	512	336	357	1	QPSK	1	19
6	6	512	336	357	1	QPSK	1	19
7	6	1536	336	357	1	QPSK	1	19
8	6	1536	336	357	1	QPSK	1	19
9	6	2047	336	357	1	QPSK	1	19
10	6	2047	336	357	1	QPSK	1	19
11	3	1024	336	357	1	QPSK	1	19
12	6	1024	336	357	1	QPSK	1	19
NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI, i.e. such that the MAC-hs transport block size ("Minimum TBS") is bigger than the maximum MAC-d PDU size under test data + RLC, MAC-d and MAC-hs header size (21 bits). See 14.1.3.3 (MAC-d PDU size=336).								

The generic test procedure in 14.1.4.2 is run for each sub-test.

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Speech radio bearer.

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	DCH				UL RLC SDU size (note 3)	Test data size (note 4)
				DL TFCS Under test	UL TFCS Under test	Implicitly tested	TFC subset identity (note 5)		
1	1 to 6	10ms, Table 0	4	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, DL_TFC6, DL_TFC10, UL_TFC0, UL_TFC5, UL_TFC6	0	RB5: 40 RB6: 181 RB7: 60 RB8: 312	RB5: 40 RB6: No data RB7: No data RB8: 312
2	1 to 6	10ms, Table 0	4	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, DL_TFC7, DL_TFC10, UL_TFC0, UL_TFC5, UL_TFC7	0	RB5: 54 RB6: 78 RB7: 60 RB8: 312	RB5: 54 RB6: 78 RB7: No data RB8: 312
3	2,4 and 6	2ms, Table 0	8	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, DL_TFC8, DL_TFC10, UL_TFC0, UL_TFC5, UL_TFC8	1	RB5: 64 RB6: 113 RB7: 60 RB8: 312	RB5: 64 RB6: 113 RB7: No data RB8: 312
4	2,4 and 6	2ms, Table 0	8	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, DL_TFC9, DL_TFC10, UL_TFC0, UL_TFC5, UL_TFC9	2	RB5: 72 RB6: 181 RB7: 60 RB8: 312	RB5: 72 RB6: 181 RB7: No data RB8: 312

NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B.
NOTE 2: Void
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return th data within one UL TTI.
NOTE 4: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.
NOTE 5: TFC subset identity shall be signalled by the SS on the downlink SRB#5, see generic test procedure in clause 14.1.4.2.

14.7.8.4 Test requirements

See 14.1.4.2 for definition of step numbers. For each sub-test:

1. At step 20 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 26 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the sub-test.
3. At step 26 and for each radio bearer where test data is sent in downlink the UE shall return a RLC SDU with same content as sent in downlink. For radio bearers where no data is sent in downlink then no data shall be received in uplink.

14.7.9 Conversational / speech / UL:(12.2, 7.95, 5.9, 4.75) kbps DL: (12.2, 7.95, 5.9, 4.75) kbps / CS RAB on E-DCH and HS-DSCH + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH

14.7.9.1 Conformance requirement

See 14.7.1.1.

14.7.9.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.6.9 (Alt.2)

14.7.9.3 Method of test

The following parameters are specific for this test case:

E-DCH Category	RLC Transmission window size	Modulation Scheme
1	512	QPSK
2	512	
3	512	
4	512	
5	1536	
6	1536	
7	1536	

HS-DSCH Category	Number of HARQ processes	RLC Receiving window size
1	2	512
2	2	512
3	3	512
4	3	512
5	6	512
6	6	512
7	6	1536
8	6	1536
9	6	2047
10	6	2047
11	3	1024
12	6	1024
13 to 20	6	2047

HS-PDSCH TFRC for mac-ehs (note 1)					
Max MAC-d PDU size	**Minimum TBS**	**Number of MAC-d PDUs**	**Modulation scheme**	**Number of codes**	**TFRI**
56	80	1	QPSK	1	0
112	136	1	QPSK	1	2
136	160	1	QPSK	1	5
176	200	1	QPSK	1	10
264	288	1	QPSK	1	21
NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI, i.e. such that the MAC-ehs transport block size is equal to or bigger than the maximum MAC-d PDU size under test + MAC-ehs header size (24 bits).					

The generic test procedure in 14.1.4.1a is run for each sub-test using condition A23 for radio bearer setup, as specified in 34.108.

Testing of UE supporting UE HS-DSCH physical layer category 13 to 20 shall be performed in accordance to test parameters, sub-tests and test points for UE HS-DSCH physical layer category 10.

Testing of UE supporting UE E-DCH category 7 shall be performed in accordance to test parameters, sub-tests and test points for E-DCH category 6.

Sub-tests:

Sub-test	**Applicable E-DCH Category**	**E-DPDCH TTI and E-TFCI Table (note 1)**	**E-DPDCH Number of HARQ processes**	**MAC-d PDU size under test (UL and DL)**	**UL RLC SDU size (note 2)**	**Test data size (note 3)**
1	1 to 7	10ms, Table 0	4	56	40	40
2	1 to 7	10ms, Table 0	4	112	96	96
3	1 to 7	10ms, Table 0	4	136	120	120
4	1 to 7	10ms, Table 0	4	176	160	160
5	1 to 7	10ms, Table 0	4	264	248	248
6	2,4, 6, 7	2ms, Table 0	8	56	40	40
7	2,4, 6, 7	2ms, Table 0	8	112	96	96
8	2,4, 6, 7	2ms, Table 0	8	136	120	120
9	2,4, 6, 7	2ms, Table 0	8	176	160	160
10	2,4, 6, 7	2ms, Table 0	8	264	248	248
NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size is set to UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit). This will enable the UE to return the data within one UL TTI. NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.						

14.7.9.4 Test requirements

See 14.1.4.1a for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE shall return a RLC SDU on RB5 with same content as sent in downlink.

14.7.10 Conversational / speech / UL:(12.65, 8.85, 6.6) kbps DL: (12.65, 8.85, 6.6) kbps / CS RAB on E-DCH and HS-DSCH + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH

14.7.10.1 Conformance requirement

See 14.7.1.1.

14.7.10.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.6.10 (Alt.2)

14.7.10.3 Method of test

The following parameters are specific for this test case:

E-DCH Category	RLC Transmission window size	Modulation Scheme
1	512	QPSK
2	512	
3	512	
4	512	
5	1536	
6	1536	
7	1536	

HS-DSCH Category	Number of HARQ processes	RLC Receiving window size
1	2	512
2	2	512
3	3	512
4	3	512
5	6	512
6	6	512
7	6	1536
8	6	1536
9	6	2047
10	6	2047
11	3	1024
12	6	1024
13 to 20	6	2047

HS-PDSCH TFRC for mac-ehs (note 1)					
Max MAC-d PDU size	**Minimum TBS**	**Number of MAC-d PDUs**	**Modulation scheme**	**Number of codes**	**TFRI**
56	80	1	QPSK	1	0
152	176	1	QPSK	1	7
200	224	1	QPSK	1	13
272	296	1	QPSK	1	22
NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI, i.e. such that the MAC-ehs transport block size is equal to or bigger than the maximum MAC-d PDU size under test + MAC-ehs header size (24 bits).					

The generic test procedure in 14.1.4.1a is run for each sub-test using condition A23 for radio bearer setup, as specified in 34.108.

Testing of UE supporting UE HS-DSCH physical layer category 13 to 20 shall be performed in accordance to test parameters, sub-tests and test points for UE HS-DSCH physical layer category 10.

Testing of UE supporting UE E-DCH category 7 shall be performed in accordance to test parameters, sub-tests and test points for E-DCH category 6.

Sub-tests:

Sub-test	**Applicable E-DCH Category**	**E-DPDCH TTI and E-TFCI Table (note 1)**	**E-DPDCH Number of HARQ processes**	**MAC-d PDU size under test (UL and DL)**	**UL RLC SDU size (note 2)**	**Test data size (note 3)**
1	1 to 7	10ms, Table 0	4	56	40	40
2	1 to 7	10ms, Table 0	4	152	136	136
3	1 to 7	10ms, Table 0	4	200	184	184
4	1 to 7	10ms, Table 0	4	272	256	256
5	2,4, 6, 7	2ms, Table 0	8	56	40	40
6	2,4, 6, 7	2ms, Table 0	8	152	136	136
7	2,4, 6, 7	2ms, Table 0	8	200	184	184
8	2,4, 6, 7	2ms, Table 0	8	272	256	256
NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size is set to UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit). This will enable the UE to return the data within one UL TTI. NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.						

14.7.10.4 Test requirements

See 14.1.4.1a for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE shall return a RLC SDU on RB5 with same content as sent in downlink.

14.7.11 Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH for enhanced uplink/downlink in CELL_FACH

14.7.11.1 Conformance requirement

Conformance requirement

See 14.7.1.1

14.7.11.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.6.3:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to common E-DCH in CELL_FACH.

14.7.11.3 Method of test

NOTE 1: The reference to E-DCH Category refers to the UE capability as signalled in the Rel-6 IE "E-DCH physical layer category". All UEs supporting E-DCH should signal a category between 1 and 6 for this IE even if the UE physical capability category is above 6.

NOTE 2: The reference to HS-DSCH Categories refers to the UE capability as signalled in the Rel-7 IE "HS-DSCH physical layer category extension". This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The following parameters are specific for this test case:

Parameter	Value
Radio bearer	TS 34.108, clause 6.10.2.4.6.3 using downlink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs) and uplink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-i/is) and using downlink Alt 2 (Fixed RLC and MAC-ehs) and uplink Alt 2 (Fixed RLC and MAC-i/is) for the SRB#1 to SRB#4.
MAC-ehs receiver window size	16
HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)					
			Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	Number of codes	TFRI
1	2	512	336	360	1	QPSK	1	30
2	2	512	336	360	1	QPSK	1	30
3	3	512	336	360	1	QPSK	1	30
4	3	512	336	360	1	QPSK	1	30
5	6	512	336	360	1	QPSK	1	30
6	6	512	336	360	1	QPSK	1	30
7	6	1536	336	360	1	QPSK	1	30
8	6	1536	336	360	1	QPSK	1	30
9	6	2047	336	360	1	QPSK	1	30
10	6	2047	336	360	1	QPSK	1	30
11	3	1024	336	360	1	QPSK	1	30
12	6	1024	336	360	1	QPSK	1	30
13 to 20	6	2047	336	360	1	QPSK	1	30
NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI considering all sub-tests. i.e. such that the MAC-ehs transport block size is bigger than the "Minimum TBS" that equals maximum MAC-d PDU size under test + the MAC-ehs header size (24 bits).								

The generic test procedure in 14.1.4.3 is run for each sub-test.

Sub-tests:

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL MAC-d PDU size under test	DL MAC-d PDU size under test	UL RLC SDU size (note 2)	Test data size (note 3)
1	1 to 6	10ms, Table 0	4	Flexible	Flexible	320	320
2	2,4 and 6	2ms, Table 0	8	Flexible	Flexible	320	320
NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size is set to UL RLC payload size. This will enable the UE to return the data within one UL TTI ("Use special value of HE field" is configured). NOTE 3: The test data size is for DTCH mapped to E-DCH is selected according to the MAC-d PDU size to be tested = DL RLC payload size for the MAC-d PDU size.							

14.7.11.4 Test requirements

See 14.1.5.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink.

14.7.11a Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on common E-DCH and HS-DSCH for enhanced CELL_FACH with DRX configured

14.7.11a.1 Conformance requirement

Conformance requirement

See 14.7.1.1

14.7.11a.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.6.3:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer corresponding to Enhanced DRX reception pattern by UE when transport channel is mapped to common E-DCH in CELL_FACH.

14.7.11a.3 Method of test

NOTE: The reference to E-DCH Category refers to the UE capability as signalled in the Rel-6 IE "E-DCH physical layer category". All UEs supporting E-DCH should signal a category between 1 and 6 for this IE even if the UE physical capability category is above 6.

NOTE: The reference to HS-DSCH Categories refers to the UE capability as signalled in the Rel-7 IE "HS-DSCH physical layer category extension". This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The following parameters are specific for this test case:

Parameter	Value
Radio bearer	TS 34.108, clause 6.10.2.4.6.3 using downlink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs) and uplink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-i/is) and using downlink Alt 2 (Fixed RLC and MAC-ehs) and uplink Alt 2 (Fixed RLC and MAC-i/is) for the SRB#1 to SRB#4.
MAC-ehs receiver window size	16
HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)					
			Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	Number of codes	TFRI
1	2	512	336	360	1	QPSK	1	30
2	2	512	336	360	1	QPSK	1	30
3	3	512	336	360	1	QPSK	1	30
4	3	512	336	360	1	QPSK	1	30
5	6	512	336	360	1	QPSK	1	30
6	6	512	336	360	1	QPSK	1	30
7	6	1536	336	360	1	QPSK	1	30
8	6	1536	336	360	1	QPSK	1	30
9	6	2047	336	360	1	QPSK	1	30
10	6	2047	336	360	1	QPSK	1	30
11	3	1024	336	360	1	QPSK	1	30
12	6	1024	336	360	1	QPSK	1	30
13 to 20	6	2047	336	360	1	QPSK	1	30
NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI considering all sub-tests. i.e. such that the MAC-ehs transport block size is bigger than the "Minimum TBS" that equals maximum MAC-d PDU size under test + the MAC-ehs header size (24 bits).								

The generic test procedure in 14.1.4.3 is run for each sub-test.

Sub-tests:

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL MAC-d PDU size under test	DL MAC-d PDU size under test	UL RLC SDU size (note 2)	Test data size (note 3)
1	1 to 6	10ms, Table 0	4	Flexible	Flexible	320	320
2	2,4 and 6	2ms, Table 0	8	Flexible	Flexible	320	320
NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size is set to UL RLC payload size. This will enable the UE to return the data within one UL TTI ("Use special value of HE field" is configured). NOTE 3: The test data size is for DTCH mapped to E-DCH is selected according to the MAC-d PDU size to be tested = DL RLC payload size for the MAC-d PDU size.							

Specific Message Contents

Use the default parameter values for the system information block 5 with the same type specified in clause

6.1.1 of TS 34.108 for common E-DCH and HS-DSCH reception in CELL_FACH, with the following exceptions

Information Element	Value/remark
HS-DSCH DRX in CELL_FACH Information	
-T321	200ms
- HS-DSCH DRX $cycle_{FACH}$	4
- HS-DSCH Rx $burst_{FACH}$	1
- DRX Interruption by HS-DSCH data	FALSE

14.7.11a.4 Test requirements

See 14.1.5.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink.

15 Supplementary Services

This clause is FFS.

16 Short message service (SMS)

Ref.: 3GPP TS 23.040, 3GPP TS 24.011 (point to point)
3GPP TS 23.041, (cell broadcast)

General

The purpose of these tests is to verify that the UE can handle Iu mode system functions when submitting or receiving Short Messages (SM) between UE and a short message service centre as described in 3GPP TS 23.040.

The procedures are based upon services provided by the Mobility Management (MM) sublayer and GPRS Mobility Management (GMM) sublayer which are not tested in this case.

The SMS comprises three basic services; SMS point to point services on CS mode, on PS mode and SMS cell broadcast service. The SMS point to point services on CS mode shall work in an active UE at any time independent of whether or not there is a speech or data call in progress. The SMS point to point services on PS mode shall work in an active UE at any time independent of whether or not there is a PDP context in progress. The SMS cell broadcast service only works when the UE is in idle mode.

Since the timer TC1M currently is not standardized, the value of TC1M shall be declared by the manufacturer (to be used in clauses 16.1.1 and 16.1.2).

The manufacturer shall declare whether SMS messages are stored in the USIM and/or the ME. This shall be referred to as the SMS message store in the following tests.

Unless otherwise stated default message contents from 3GPP TS 34.108 applies for following tests.

16.1 Short message service point to point on CS mode

All of test cases in this clause are applied to UE supporting CS mode.

16.1.1 SMS mobile terminated

16.1.1.1 Definition

16.1.1.2 Conformance requirements

An active UE shall be able to receive short message TPDU (SMS-DELIVER) at any time, independently of whether or not there is a speech or data call in progress. A report will always be returned to the SC, confirming that the UE has received the short message.

Reference

3GPP TS 23.040 clause 3.1.

16.1.1.3 Test purpose

To verify the ability of a UE to receive and decode the SMS where provided for the point to point service.

16.1.1.4 Method of test

Initial Conditions

- System simulator:
  - 1 cell, default parameters.
- User Equipment:

- the UE shall be in MM-state "Idle, updated";
- the SMS message storage shall be empty.

Related ICS/IXIT Statements

Support for Short message MT/PP.

The value of timer TC1M.

Whether SMS messages are stored in the USIM and/or the ME.

Support for call control state U10.

Maximum number of retransmissions of an unacknowledged CP-DATA message.

Test procedure

a) The UE terminates the establishment of Radio Resource Connection. After the completion of the RRC Connection the SS authenticates the UE.

After the SS receives SECURITY MODE COMPLETE, the SS sends a CP-DATA message. The information element of the CP-DATA message will be RP-DATA RPDU (SMS DELIVER TPDU).

b) The SS waits a maximum of 25 s for the CP-ACK message and then a maximum of 60 s for the CP-DATA message containing the RP-ACK RPDU.

c) The SS sends a CP-ACK to the UE within TC1M with no further CP-DATA messages and the SS initiates RRC Connection release.

d) Steps a), b) and c) are repeated but the first CP-DATA message from the UE is not acknowledged. The second CP-DATA message from the UE is acknowledged by a CP-ACK within a time TC1M.

e) Steps a) and b) are repeated. The SS is configured not to send CP-ACK. Then maximum 3 CP-DATA retransmissions may occur. After a duration of 4 times TC1M + 10 s (Maximum of T3240) SS initiates the channel release. This is the appropriate time to wait to verify that the UE does not send more than the maximum allowed (3) CP-DATA retransmissions.

f) The SMS message store shall be cleared manually by the operator.

g) A data or speech call is established on a DTCH with the SS and the state U10 of call control is entered.

The SS sends a CP-DATA message. The information element of the CP-DATA message will be RP-DATA RPDU (SMS DELIVER TPDU). The SS waits a maximum of 25 s for the CP-ACK message and then a maximum of 60 s for the CP-DATA message containing the RP-ACK RPDU.

h) The SS sends a CP-ACK to the UE within TC1M with no further CP-DATA messages. SS will wait for a period of 120ms. for the UE to send acknowledgement to the CP-ACK prior to the SS initiating the DISCONNECT. The SS initiates RRC Connection release. The SMS message store shall be cleared manually by the operator.

i) Steps g) and h) are repeated but the first CP-DATA message from the UE is not acknowledged. The second CP-DATA message from the UE is acknowledged by a CP-ACK within a time TC1M.

j) Step g) is repeated. The SS is configured not to send CP-ACK. Then maximum 3 CP-DATA retransmissions may occur. After a duration of 4 times TC1M + 10 s (Maximum of T3240) SS initiates the channel release. This is the appropriate time to wait to verify that the UE does not send more than the maximum allowed (3) CP-DATA retransmissions (during a call in progress).

k) A data or speech call is established on a DTCH with the SS and the state U10 of call control shall be entered. The speech call is cleared by the SS with a disconnect message. (The call clearing is continued on the DCCH in parallel to the following exchange of messages related to SMS).

The SS sends a CP-DATA RPDU (SMS DELIVER TPDU) message. The information element of the CP-DATA message is RP-DATA.

The SS waits a maximum of 25 s for the CP-ACK message and then a maximum of 60 s for the CP-DATA message containing the RP-ACK RPDU.

The SS sends a CP-ACK to the UE within TC1M with no further CP-DATA messages and the SS initiates channel release.

The SMS message store shall be cleared manually by the operator.

l) A data or speech call is established with the SS and the state U10 of call control is entered. The speech call shall be cleared from the UE. (The call clearing is continued in parallel to the following exchange of messages related to SMS).

The SS sends a CP-DATA message. The information element of the CP-DATA message is RP-DATA RPDU (SMS DELIVER TPDU).

The SS waits a maximum of 25 s for the CP-ACK message and then a maximum of 60 s for the CP-DATA message containing the RP-ACK RPDU.

The SS sends a CP-ACK to the UE within TC1M with no further CP-DATA messages and the SS initiates RRC Connection release.

The SMS message store shall be cleared manually by the operator.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS 34.108. The IE “Paging cause” in the PAGING TYPE 1 message is set to “Terminating Low Priority Signalling”. The SS verifies that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Terminating Low Priority Signalling”.
2	-->		PAGING RESPONSE	
3	<--		AUTHENTICATION REQUEST	
4	-->		AUTHENTICATION RESPONSE	
5	SS			The SS starts integrity protection
6			(void)	
7	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU)
8	SS			Waits max 25 s for CP-ACK
9	-->		CP-ACK	
10	SS			Waits max 60 s for RP-ACK RPDU
11	-->		CP-DATA	Contains RP-ACK RPDU
12	<--		CP-ACK	
13	SS			The SS releases the RRC connection
14	UE			The UE shall indicate that an SM has arrived.
15			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS 34.108. The IE “Paging cause” in the PAGING TYPE 1 message is set to “Terminating Low Priority Signalling”. The SS verifies that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Terminating Low Priority Signalling”.
16	-->		PAGING RESPONSE	
17	<--		AUTHENTICATION REQUEST	
18	-->		AUTHENTICATION RESPONSE	
19	SS			The SS starts integrity protection
20			(void)	
21	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU)
22	SS			Waits max 25 s for CP-ACK
23	-->		CP-ACK	
24	SS			Waits max 60 s for RP-ACK RPDU
25	-->		CP-DATA	First CP-DATA from UE, contains RP-ACK RPDU
26	SS			First CP-DATA message not acknowledged by SS

Step	Direction		Message	Comments
	UE	SS		
27	-->		CP-DATA	Retransmitted CP-DATA from UE within twice TC1M, after step 25, contains RP-ACK RPDU
28	<--		CP-ACK	Second CP_DATA message is acknowledged
29		SS		The SS releases the RRC connection
30	UE			The UE shall indicate that an SM has arrived.
31			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS 34.108. The IE “Paging cause” in the PAGING TYPE 1 message is set to “Terminating Low Priority Signalling”. The SS verifies that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Terminating Low Priority Signalling”.
32	-->		PAGING RESPONSE	
33	<--		AUTHENTICATION REQUEST	
34	-->		AUTHENTICATION RESPONSE	
35		SS		The SS starts integrity protection
36			(void)	
37	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU)
38		SS		Waits max 25 s for CP-ACK
39	-->		CP-ACK	
40		SS		Waits max 60 s for RP-ACK RPDU
41	-->		CP-DATA	Contains RP-ACK RPDU
42		SS		First CP-DATA message not acknowledged by SS
43			CP-DATA	Retransmitted CP-DATA from UE within twice TC1M after step 41, contains RP-ACK RPDU
44		SS		Retransmitted CP-DATA message not acknowledged by SS
45	UE			Depending upon the maximum number of CP-DATA retransmissions implemented, step 43 and 44 may be repeated. The maximum number of retransmissions may however not exceed three. The UE may also send less than 3 re-transmissions. The same RRC connection shall be used for CP-DATA retransmissions.
45a	UE			The UE may send a Signalling Connection Release Indication message immediately when TC1M has run out. This is according to TS 24.011 clause 5.3.2.1.
46		SS		The SS releases the RRC connection after a duration of 4*TC1M + 10 s (Maximum of T3240) from step 41.
47			(void)	
48	UE			The UE shall indicate that an SM has arrived.
49		SS		Following steps are applicable only for UE which supports CS call establishment (ICS pc_CS_CallEst). A data or speech call is established on a DTCH and the state U10 of call control is entered.
50			(void)	
51	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU)
52		SS		Waits max 25 s for CP-ACK
53	-->		CP-ACK	
54		SS		Waits max 60 s for RP-ACK RPDU
55	-->		CP-DATA	Contains RP-ACK RPDU
56	<--		CP-ACK	
56a		SS		SS will wait for 120 ms for the ACK SUFI.
57	<--		DISCONNECT	Disconnect the active call
58	-->		RELEASE	
58a	←		RELEASE COMPLETE	
58b		SS		The SS releases the RRC connection
59	UE			The UE shall indicate that an SM has arrived.
60	UE			Clear the SMS message store
61		SS		A data or speech call is established on a DTCH and the state U10 of call control is entered.
62			(void)	
63	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU)
64		SS		Waits max 25 s for CP-ACK
65	-->		CP-ACK	
66		SS		Waits max 60 s for RP-ACK RPDU
67	-->		CP-DATA	First CP-DATA from UE, contains RP-ACK RPDU

Step	Direction		Message	Comments
	UE	SS		
68		SS		First CP-DATA message not acknowledged by SS
69	-->		CP-DATA	Retransmitted CP-DATA message within twice TC1M after step 67, contains RP-ACK RPDU
70	<--		CP-ACK	Second CP-DATA message is acknowledged
70a		SS		SS will wait for 120 ms for the ACK SUFI.
71	<--		DISCONNECT	Disconnect the active call
72	-->		RELEASE	
73	←		RELEASE COMPLETE	
74		SS		The SS releases the RRC connection
75	UE			The UE shall indicate that an SM has arrived.
76	UE			Clear the SMS message store
77		SS		A data or speech call is established on a DTCH and the state U10 of call control is entered.
78			(void)	
79	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU)
80		SS		Waits max 25 s for CP-ACK
81	-->		CP-ACK	
82		SS		Waits max 60 s for RP-ACK RPDU
83	-->		CP-DATA	First CP-DATA from UE, contains RP-ACK RPDU
84		SS		First CP-DATA message not acknowledged by SS
85	-->		CP-DATA	Retransmitted CP-DATA message within twice TC1M after step 83, contains RP-ACK RPDU
86		SS		Retransmitted CP-DATA message not acknowledged by SS
87	UE			Depending on the maximum number of CP-DATA retransmissions implemented, step 85-86 may be repeated. The maximum number of retransmissions may however not exceed three. The UE may also send less than 3 re-transmissions. The same RRC connection shall be used for CP-DATA retransmissions.
87a	←		DISCONNECT	Disconnect the active call
87b	→		RELEASE	
87c	←		RELEASE COMPLETE	
88			(void)	
89		SS		The SS releases the RRC connection after a duration of 4*TC1M + 10 s (Maximum of T3240) from step 83.
90	UE			The UE shall indicate that an SM has arrived.
91	UE			Clear the SMS message store
92		SS		A data or speech call is established on a DTCH and the state U10 of call control is entered.
93			(void)	
94	<--		DISCONNECT	The speech call is cleared by the SS. The call clearing is continued in parallel to the following exchange of messages related to SMS.
95	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU)
96			void	
96a	→		RELEASE	UE releases the connection
96b	←		RELEASE COMPLETE	SS completes the connection release (Step 96a and 96b may be executed after step 97)
97	-->		CP-ACK	
			Void	
98		SS		Waits max 60 s for RP-ACK RPDU
99	-->		CP-DATA	Contains RP-ACK RPDU
100	<--		CP-ACK	
101		SS		The SS releases the RRC connection.
102	UE			The UE shall indicate that an SM has arrived.
103	UE			Clear the SMS message store
104		SS		A data or speech call is established on a DTCH and the state U10 of call control is entered.
105			(void)	
106	-->		DISCONNECT	The speech call is cleared from the UE. The call clearing is continued in parallel to the following exchange of messages related to SMS.
107	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU)

Step	Direction		Message	Comments
	UE	SS		
108	<--		RELEASE	This message is likely to be sent before all of the CP-DATA message has been sent on the DCCH.
109	-->		RELEASE COMPLETE	
110	-->		CP-ACK	shall be sent before 25 s after the start of step 107
111	SS			Waits max 60 s for RP-ACK RPDU
112	-->		CP-DATA	Contains RP-ACK RPDU
113	<--		CP-ACK	
114	SS			The SS releases the RRC connection
115	UE			The UE shall indicate that an SM has arrived.
116	UE			Clear the SMS message store
NOTE: Time values for SS wait time are chosen sufficiently high to be sure that the UE has enough time to respond to the different messages.				

Specific Message Contents

SMS DELIVER TPDU (not containing a type 0 message)

Information element	CommentValue
TP-PID	Different from Type 0: “01000000”B
TP-UDL	160
TP-UD (140 octets)	text of message (160 characters)
NOTE: The 160 characters in TP-UD shall include at least one occurrence of each character in the default alphabet (see 3GPP TS 23.038, clause 6.2.1).	

16.1.1.5 Test requirements

After step 7 UE shall receive SMS-DELIVER TPDU and send CP-ACK within 25 s and CP-DATA containing RP-ACK within 60 s after sending CP-ACK.

After step 14 UE shall indicate that an SM has arrived.

After step 25 UE shall retransmit CP-DATA containing RP-ACK within twice TC1M.

After step 30 UE shall indicate that an SM has arrived.

After step 43 UE shall repeat CP-DATA retransmissions and the maximum number of retransmissions must not exceed three.

After step 48 UE shall indicate that an SM has arrived.

After step 51 UE shall receive SMS-DELIVER TPDU and send CP-ACK within 25 s and CP-DATA containing RP-ACK within 60 s after sending CP-ACK.

After step 59 UE shall indicate that an SM has arrived.

After step 67 UE shall retransmit CP-DATA containing RP-ACK within twice TC1M.

After step 75 UE shall indicate that an SM has arrived.

After step 79 UE shall repeat CP-DATA retransmissions and the maximum number of retransmissions must not exceed three.

After step 90 UE shall indicate that an SM has arrived.

After step 95 UE shall receive SMS-DELIVER TPDU and send CP-ACK within 25 s and CP-DATA containing RP-ACK within 60 s after sending CP-ACK.

After step 102 UE shall indicate that an SM has arrived.

After step 107 UE shall receive SMS-DELIVER TPDU and send CP-ACK within 25 s and CP-DATA containing RP-ACK within 60 s after sending CP-ACK.

After step 115 UE shall indicate that an SM has arrived.

16.1.2 SMS mobile originated

16.1.2.1 Definition

16.1.2.2 Conformance requirements

An active UE shall be able to submit short message TPDU (SMS-SUBMIT) at any time, independently of whether or not there is a speech or data call in progress.

Reference

3GPP TS 23.040 clause 3.1.

16.1.2.3 Test purpose

To verify that the UE is able to correctly send a short message where the SMS is provided for the point to point service.

16.1.2.4 Method of test

Initial Conditions

- System simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE shall be in MM-state "Idle, updated";
  - the SMS message storage shall be empty.

Related ICS/IXIT Statements

Support for Short message MO/PP.

Support for state U10 of call control.

The value of timer TC1M.

Whether SMS messages are stored in the USIM and/or the ME.

Maximum number of retransmissions of an unacknowledged CP-DATA message.

Test procedure

a) The UE shall be set up to send an SM to the SS. The UE establishes successfully an RRC connection.

b) The SS performs authentication and after that, the SS starts integrity protection.

c) The SS responds to the CP-DATA containing RP-DATA RPDU (SMS SUBMIT TPDU) from the UE with a CP-ACK message within TC1M followed by a CP-DATA message containing the correct RP-ACK RPDU. The SS waits a maximum of 25 s for the CP-ACK message.

d) The SS sends a channel release message to the UE.

e) Steps a) and b) are repeated. The SS is configured not to send the CP-ACK message. Then maximum 3 CP-DATA retransmissions may occur. After a duration of 4 times TC1M + 10 s (Maximum of T3240) the SS initiates channel release. This is the appropriate time to wait to verify that the UE does not send more than the maximum CP-DATA retransmissions.

f) Steps a) and b) are repeated. On receipt of the CP-DATA from the UE the SS sends a CP-ERROR message within TC1M containing a "Network Failure" cause. Then the SS initiates channel release.

g) A data or speech call is established with the SS and the state U10 of call control is entered. The UE is set up to send an SM to the SS. After the reception of the CM SERVICE REQUEST, the SS sends a CM SERVICE ACCEPT message.

h) The SS responds to the CP-DATA containing RP-DATA RPDU (SMS SUBMIT TPDU) from the UE with a CP-ACK message within TC1M followed by a CP-DATA message containing the correct RP-ACK RPDU. The SS waits a maximum of 25 s for the CP-ACK message. Then the SS sends a channel release message to the UE.

i) Step g) is repeated. The SS is configured not to send the CP-ACK message. Then maximum 3 CP-DATA retransmissions may occur. After a duration of 4 times TC1M + 10 s (Maximum of T3240) the SS initiates channel release. This is the appropriate time to wait to verify that the UE does not send more than the maximum CP-DATA retransmissions (during a call in progress).

j) (void)

k) The UE is set up to send an SM to the SS. On receipt of the CM SERVICE REQUEST the SS sends a CM SERVICE REJECT message with the reject cause set to "Service Option not supported" or "Service Option temporarily out of order". After 5 s the SS initiates channel release.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set up to send an SM
2	SS			The SS verifies that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Originating Low Priority Signalling”.
3	<--		Void	
4	-->		Void	
5	-->		CM SERVICE REQUEST	CM service type set to "Short Message Service"
6	<--		AUTHENTICATION REQUEST	
7	-->		AUTHENTICATION RESPONSE	
8	SS			The SS starts integrity protection
9			Void	
10	-->		CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU)
11	<--		CP-ACK	Sent within TC1M after step 10
12	<--		CP-DATA	Contains RP-ACK RPDU
13	SS			Waits max 25 s for CP-ACK
14	-->		CP-ACK	
15	SS			The SS releases the RRC connection.
16	UE			The UE is set up to send an SM
17	SS			The SS verifies that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Originating Low Priority Signalling”.
18			Void	
19			Void	
20			Void	
21			Void	
22	-->		CM SERVICE REQUEST	CM service type set to "Short Message Service"
23	<--		AUTHENTICATION REQUEST	
24	-->		AUTHENTICATION RESPONSE	
25	<--		SECURITY MODE COMMAND	
26	-->		SECURITY MODE COMPLETE	
27	-->		CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU)
28	SS			SS configured not to send CP-ACK
29	-->		CP-DATA	Retransmitted CP-DATA message within twice TC1M after step 27
30	UE			Depending on the maximum number of CP-DATA retransmissions implemented, step 29 may be repeated. The maximum number of retransmissions may however not exceed three. The UE may also send less than 3 re-transmissions. The same RRC connection shall be used for CP-DATA retransmissions.

Step	Direction		Message	Comments
	UE	SS		
30aa	UE			The UE may send a Signalling Connection Release Indication message immediately when TC1M has run out. This is according to TS 24.011 clause 5.3.2.1.
30a	SS			The SS releases the RRC connection after a duration of 4*TC1m + 10 s (Maximum of T3240) from step 27.
30b			Void	
31			Void	
32	UE			The UE is set up to send an SM
33	SS			The SS verifies that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Originating Low Priority Signalling”.
34			(void)	
35			(void)	
36			(void)	
37	-->		CM SERVICE REQUEST	CM service type set to "Short Message Service"
38	<--		AUTHENTICATION REQUEST	
39	-->		AUTHENTICATION RESPONSE	
40	SS			The SS starts integrity protection
41			(void)	
42	-->		CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU)
43	<--		CP-ERROR	Sent within TC1M containing "Network Failure" cause.
44	SS			The SS releases the RRC connection.
45			(void)	
46	SS			Following steps are applicable only for UE which supports CS call establishment (ICS pc_CS_CallEst). A data or speech call is established on a DTCH and the state U10 of call control is entered.
47	UE			The UE is set up to send an SM
48	-->		CM SERVICE REQUEST	CM service type set to "short message "
49	<--		CM SERVICE ACCEPT	
50	-->		CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU)
51	<--		CP-ACK	Sent within TC1M after step 50
52	<--		CP-DATA	Contains RP-ACK RPDU
53	SS			Waits max 25 s for CP-ACK
54	-->		CP-ACK	
55	SS			The SS releases the RRC connection.
56			(void)	
57	SS			A data or speech call is established on a DTCH and the state U10 of call control is entered.
57a	UE			The UE is set up to send an SM
58	-->		CM SERVICE REQUEST	CM service type set to "Short Message Service", upon CP-DATA retransmission new RRC connection has to be established, see step 64a.
59	<--		CM SERVICE ACCEPT	
60	-->		CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU)
61	SS			SS configured not to send CP-ACK
62	-->		CP-DATA	Retransmitted CP-DATA message within twice TC1M after step 60
63	UE			Depending on the maximum number of CP-DATA retransmissions implemented, step 62 may be repeated. The maximum number of retransmissions may however not exceed three. The UE may also send less than 3 re-transmissions. The same RRC connection shall be used for CP-DATA retransmissions.
63a			(void)	
64	SS			The SS releases the RRC connection after a duration of 4*TC1m + 10 s (Maximum of T3240) from step 60.
64a			(void)	
65			(void)	
66-78			(void)	
79	UE			The UE is set up to send an SM
80	SS			The SS verifies that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Originating Low Priority Signalling”.
81			(void)	

Step	Direction		Message	Comments
	UE	SS		
82	-->		CM SERVICE REQUEST	CM service type set to "Short Message Service"
83	<--		CM SERVICE REJECT	Reject cause set to "Service Option not supported" or "Service Option temporarily out of order"
84			(void)	
85		SS		The SS releases the RRC connection. 5 s after CM SERVICE REJECT
86			(void)	
NOTE: Time values for SS wait times are chosen sufficiently high to be sure that the UE has enough time to respond to the different messages.				

Specific Message Contents

SMS SUBMIT TPDU

Information element	CommentValue
TP-UDL	as applicable
TP-UD (140 octets)	160 ASCII characters

16.1.2.5 Test requirements

After step 10 UE shall send a CP-DATA containing RP-data. The RP-DATA shall contain SMS SUBMIT TPDU.

After step 27 UE shall retransmit a CP-DATA containing RP-data and the maximum number of retransmissions must not exceed three. The RP-DATA shall contain SMS SUBMIT TPDU.

After step 50 UE shall send a CP-DATA containing RP-data. The RP-DATA shall contain SMS SUBMIT TPDU.

After step 62 UE shall retransmit a CP-DATA containing RP-data and the maximum number of retransmissions must not exceed three. The RP-DATA shall contain SMS SUBMIT TPDU.

After step 85 UE shall not send any CP-DATA.

16.1.3 Test of memory full condition and memory available notification:

The Memory Available Notification provides a means for the UE to notify the network that it has memory available to receive one or more short messages. The SMS status field in the USIM contains status information on the "memory available" notification flag.

16.1.3.1 Definition

16.1.3.2 Conformance requirement

1. When a mobile terminated message is Class 2, the UE shall ensure that the message has been transferred to the SMS data field in the USIM before sending an acknowledgement to the SC. The UE shall return a protocol error message if the short message cannot be stored in the USIM and there is other short message storage available in the UE. If all the short message storage in the UE is already in use, the UE shall return "memory capability exceeded".

2. When the UE rejects a short message due to lack of available memory capability the need to transfer notification shall be stored in the USIM.

3. If the memory capability becomes available because memory is cleared, the value of the memory capability exceeded notification flag in the USIM is read. If the flag is set, the UE notifies the network that memory capability is now available. After a positive acknowledgement from the network, the ME unsets the memory capability exceeded notification flag in the USIM.

References

- 3GPP TS 23.038 clause 4
- 3GPP TS 23.040 clauses 9.2.3.10, 10.3 (operation 14)..

16.1.3.3 Test purpose

1. To verify that the UE sends the correct acknowledgement when its memory in the USIM becomes full.
2. To verify that the UE sends the correct acknowledgement when its memory in the ME and the USIM becomes full, and sets the "memory exceeded" notification flag in the USIM.
3. To verify that the UE performs the "memory available" procedure when its message store becomes available for receiving short messages, and only at this moment.

16.1.3.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE shall be in MM-state "Idle, updated";
  - the SMS message storage shall be empty;
  - the UE shall be connected to the USIM simulator. The following shall be present in the USIM simulator:
    - EF_{SMS} with at least one record;
    - EF_{SMSS}, with SMS "Memory Cap. Exceed" notification flag set to "memory available";
    - Service no. 10 (SMS) in EF_{UST} set to allocated and activated.
  - for storing of Class 1 Short Messages the UE shall be set up to store Short Messages in the ME memory (by way of MMI, as described in ICS/IXIT statement).

Related ICS/IXIT Statements

Support for Short message MT/PP.

Whether SMS messages are stored in the USIM and/or the ME.

The value of timer TC1M.

Test procedure

a) step a) of clause 16.1.5.3 (test of Class 2 Short Messages) is repeated until the UE sends a negative acknowledgement (RP-ERROR). The USIM simulator shall indicate if the "memory capability exceeded" notification flag has been set on the USIM.

b) a Class 1 Short Message is sent to the UE.

c) step b) is repeated until the UE sends a negative acknowledgement (RP-ERROR). The USIM simulator shall indicate if the "memory capability exceeded" notification flag has been set on the USIM.

d) a Short Message is sent to the UE with the DCS field of the SMS-DELIVER TPDU set to 0.

e) the SS prompts the operator to read a short message and to remove it from the message store of the UE.

f) the SS waits for a RRC CONNECTION REQUEST from the UE, and sends a RRC CONNECTION SETUP.

g) after the SS receives a RRC CONNECTION SETUP COMPLETE, the SS authenticates the UE and activates ciphering.

h) the SS answers to the RP-SMMA from the UE with a CP-DATA containing a RP-ACK RPDU.

i) after the UE has acknowledged the CP-DATA with a CP-ACK, the SS releases the RRC connection. The USIM simulator shall indicate if the "memory capability exceeded" notification flag has been unset on the USIM.

j) step e) is repeated.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
2	-->		PAGING RESPONSE	
3	<--		AUTHENTICATION REQUEST	
4	-->		AUTHENTICATION RESPONSE	
5	<--		SECURITY MODE COMMAND	
6	-->		SECURITY MODE COMPLETE	
7	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU), Class 2 Short Message
8		SS		Waits max 25 s for CP-ACK
9	-->		CP-ACK	
10		SS		Waits max 60 s for RP-ACK RPDU
11	-->		CP-DATA	Contains RP-ACK RPDU
12	<--		CP-ACK	Within TC1M after step 11
13	<--		RRC CONNECTION RELEASE	RRC connection is released. Step 1-13 is repeated until UE sends a negative acknowledgement (RP-ERROR) in step 11. The RP-ERROR RPDU cause field shall be "Protocol error, unspecified" if there is message capability in the USIM, or "Memory capability exceeded" if there is no message capability in the USIM. If the total memory store of the UE is full, the ME shall set the "memory capability exceeded" notification flag on the USIM.
14	-->		RRC CONNECTION RELEASE COMPLETE	
15			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
16	-->		PAGING RESPONSE	
17	<--		AUTHENTICATION REQUEST	
18	-->		AUTHENTICATION RESPONSE	
19	<--		SECURITY MODE COMMAND	
20	-->		SECURITY MODE COMPLETE	
21	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU), Class 1 Short Message
22		SS		Waits max 25 s for CP-ACK
23	-->		CP-ACK	
24		SS		Waits max 60 s for RP-ACK RPDU
25	-->		CP-DATA	Shall contain RP-ACK RPDU if there is memory capability in the ME. If not it shall contain RP-ERROR RPDU which cause field shall be "memory capability exceeded". If the total memory store of the UE now becomes full at this step, the ME shall set the "memory cap. exceed" notification flag on the USIM.
26	<--		CP-ACK	Within TC1M after step 25
27	<--		RRC CONNECTION RELEASE	RRC connection is released. Step 15-27 is repeated until the UE sends an RP-ERROR. The USIM simulator shall indicate if the "memory capability exceeded" notification flag has been set on the USIM.
28	-->		RRC CONNECTION RELEASE COMPLETE	
29			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
30	-->		PAGING RESPONSE	
31	<--		AUTHENTICATION REQUEST	
32	-->		AUTHENTICATION RESPONSE	

Step	Direction		Message	Comments
	UE	SS		
33	<--		SECURITY MODE COMMAND	
34	-->		SECURITY MODE COMPLETE	
35	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU) with TP-DCS set to 0
36		SS		Waits max 25 s for CP-ACK
37	-->		CP-ACK	
38		SS		Waits max 60 s for RP-ACK RPDU
39	-->		CP-DATA	Shall contain RP-ERROR RPDU with error cause "memory capability exceeded".
40	<--		CP-ACK	Within TC1M after step 39
41	<--		RRC CONNECTION RELEASE	RRC connection is released.
42	-->		RRC CONNECTION RELEASE COMPLETE	
43		SS		Prompts the operator to remove one of the short messages from the message store of the UE.
44	<--		SYSTEM INFORMATION	BCCH
45	-->		RRC CONNECTION REQUEST	CCCH
46	<--		RRC CONNECTION SETUP	CCCH
47	-->		RRC CONNECTION SETUP COMPLETE	DCCH
48	-->		CM SERVICE REQUEST	CM service type information element is set to "Short message transfer".
49	<--		CM SERVICE ACCEPT	
50	-->		CP-DATA	Contains RP-SMMA RPDU
51	<--		CP-ACK	
52	<--		CP-DATA	Contains RP-ACK RPDU
53	-->		CP-ACK	Acknowledge of CP-DATA containing the RP-ACK RPDU. The ME shall unset the "memory capability exceeded" notification flag on the USIM.
54	<--		RRC CONNECTION RELEASE	RRC connection is released. The USIM simulator shall indicate if the "memory capability exceeded" notification flag has been unset on the USIM.
55	-->		RRC CONNECTION RELEASE COMPLETE	
56		SS		Prompts the operator to remove one of the short messages from the message store of the UE.
57		UE		Shall not attempt to send a RP-SMMA RPDU. This is verified by checking that the UE does not send a CHANNEL REQUEST message with the establishment cause "Other services which can be completed with an SDCCH"
NOTE: Time values for SS wait time are chosen sufficiently high to be sure that the UE has enough time to respond to the different messages.				

Specific Message Contents

SMS-DELIVER TPDU in step 7

Information element	Comment Value
TP-DCS	default alphabet, class 2 "11110010"B

SMS-DELIVER TPDU in step 21

TP-DCS	default alphabet, class 1 "11110001"B

SMS-DELIVER TPDU in step 35

TP-DCS	default alphabet "00000000"B

16.1.3.5 Test requirements

After UE sends a negative acknowledgement (RP-ERROR) in step 11, the USIM simulator shall indicate if the "memory capability exceeded" notification flag has been set on the USIM.

After UE sends a negative acknowledgement (RP-ERROR) in step 25, the USIM simulator shall indicate if the "memory capability exceeded" notification flag has been set on the USIM.

After step 53 the ME shall unset the "memory capability exceeded" notification flag on the USIM.

After step 57 UE shall not attempt to send a RP-SMMA RPDU.

16.1.4 Test of the status report capabilities and of SMS-COMMAND:

This test applies to UEs which support the status report capabilities.

16.1.4.1 Definition

16.1.4.2 Conformance requirement

The SMS offers the SC the capabilities of informing the UE of the status of a previously sent mobile originated short message. This is achieved by the SC returning a status report TPDU (SMS-STATUS-REPORT) to the originating UE.

SMS-COMMAND enables an UE to invoke an operation at the SC.

The UE shall increment TP-MR by 1 for each SMS-SUBMIT or SMS-COMMAND being submitted.

References

- 3GPP TS 23.040 clause 3.2.9.
- 3GPP TS 23.040 clauses 9.2.3.2, 9.2.3.4, 9.2.3.5, 9.2.3.6, 9.2.3.14, 9.2.3.18, 9.2.3.19, 9.2.3.26.

16.1.4.3 Test purpose

1) To verify that the UE is able to accept a SMS-STATUS-REPORT TPDU.
2) To verify that the UE is able to use the SMS-COMMAND functionality correctly and sends an SMS-COMMAND TPDU with the correct TP-Message-Reference.

16.1.4.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE shall be in MM-state "Idle, updated".

Related ICS/IXIT Statements

Support of SMS MO/PP and MT/PP.

Test procedure

a) The UE is made to send a Mobile Originated short message setting TP-SRR as in steps a) to d) of test 16.1.2 (SMS Mobile originated).

b) The SS sends a CP-DATA message containing a RP-DATA RPDU itself containing an SMS-STATUS-REPORT TPDU.

c) The SS sends a RRC CONNECTION RELEASE message.

d) The UE is made to send an SMS-COMMAND message enquiring about the previously submitted short message.

e) void.

f) The SS acknowledges the CP-DATA message from the UE with a CP-ACK followed by a CP-DATA message containing an RP-ACK RPDU

g) After receiving the CP-ACK from the UE, the SS releases the RRC connection by using a RRC CONNECTION RELEASE message.

h) The UE is made to send an SMS-COMMAND message requiring to delete the previously submitted short message.

i) steps e) to g) are repeated.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION	BCCH
2	-->		RRC CONNECTION REQUEST	CCCH
3	<--		RRC CONNECTION SETUP	CCCH
4	-->		RRC CONNECTION SETUP COMPLETE	DCCH
5	-->		CM SERVICE REQUEST	
6	<--		AUTHENTICATION REQUEST	
7	-->		AUTHENTICATION RESPONSE	
8	<--		SECURITY MODE COMMAND	
9	-->		SECURITY MODE COMPLETE	
10	-->		CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU)
11	<--		CP-ACK	Sent within TC1M after step 10
12	<--		CP-DATA	Contains RP-ACK RPDU
13	SS			Waits max 25 s for CP-ACK
14	-->		CP-ACK	
15	<--		RRC CONNECTION RELEASE	RRC connection is released.
16	-->		RRC CONNECTION RELEASE COMPLETE	
17			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
18	-->		PAGING RESPONSE	
19	<--		AUTHENTICATION REQUEST	
20	-->		AUTHENTICATION RESPONSE	
21	<--		SECURITY MODE COMMAND	
22	-->		SECURITY MODE COMPLETE	
23	<--		CP-DATA	Contains RP-DATA RPDU (SMS-STATUS-REPORT TPDU)
24	-->		CP-ACK	
25	-->		CP-DATA	Contains RP-ACK RPDU
26	<--		CP-ACK	
27	<--		RRC CONNECTION RELEASE	RRC connection is released.
28	-->		RRC CONNECTION RELEASE COMPLETE	
29	UE			The UE is made to send an SMS-COMMAND message enquiring about the previously submitted SM
30	<--		SYSTEM INFORMATION	BCCH
31	-->		RRC CONNECTION REQUEST	CCCH
32	<--		RRC CONNECTION SETUP	CCCH
33	-->		RRC CONNECTION SETUP COMPLETE	DCCH
34	-->		CM SERVICE REQUEST	
35	<--		AUTHENTICATION REQUEST	
36	-->		AUTHENTICATION RESPONSE	
37	<--		SECURITY MODE COMMAND	
38	-->		SECURITY MODE COMPLETE	
39	-->		CP-DATA	Contains RP-DATA RPDU (SMS-COMMAND TPDU) which shall contain the correct TP-MR

Step	Direction		Message	Comments
	UE	SS		
40	<--		CP-ACK	
41	<--		CP-DATA	Contains RP-ACK RPDU
42	-->		CP-ACK	
43	<--		RRC CONNECTION RELEASE	RRC connection is released.
44	-->		RRC CONNECTION RELEASE COMPLETE	
45	UE		The UE is made to send an SMS-COMMAND	message requiring to delete the previously submitted SM.
46	-->		RRC CONNECTION REQUEST	CCCH
47	<--		RRC CONNECTION SETUP	CCCH
48	-->		RRC CONNECTION SETUP COMPLETE	DCCH
49	-->		CM SERVICE REQUEST	
50	<--		AUTHENTICATION REQUEST	
51	-->		AUTHENTICATION RESPONSE	
52	<--		SECURITY MODE COMMAND	
53	-->		SECURITY MODE COMPLETE	
54	-->		CP-DATA	Contains RP-DATA RPDU (SMS-COMMAND TPDU) which shall contain the correct TP-MR
55	<--		CP-ACK	
56	<--		CP-DATA	Contains RP-ACK RPDU
57	-->		CP-ACK	
58	<--		RRC CONNECTION RELEASE	RRC connection is released.
59	-->		RRC CONNECTION RELEASE COMPLETE	

Specific Message Contents

SMS SUBMIT TPDU

Information element	Comment Value
TP-SRR	status report is requested "1"B

SMS-STATUS-REPORT TPDU (SS to UE in step 23):

Information element	Comment Value
TP-MR	same as previous SMS-SUBMIT
TP-MMS	no more messages "1"B
TP-SRQ	result of SMS-SUBMIT "0"B
TP-RA	same as the Destination address of the SMS-SUBMIT
TP-ST	SM received "00000000"B

first SMS-COMMAND TPDU (UE to SS in step 39)

Information element	Comment Value
TP-MR	TP-MR in previous SMS-SUBMIT plus "1"
TP-SRR	status report requested "1"B
TP-CT	Enquiry relating to previously submitted short message "00000000"B
TP-MN	not checked (TP-MR in previous SMS-SUBMIT)

second SMS-COMMAND TPDU (UE to SS in step 54)

Information element	Comment Value
TP-MR	TP-MR in previous SMS-COMMAND plus "1"
TP-CT	Delete previously submitted short message "00000010"B
TP-MN	not checked (TP-MR in previous SMS-SUBMIT)

16.1.4.5 Test requirements

After step 23 UE accept a SMS-STATUS-REPORT TPDU.

After step 39 UE shall send a SMS-COMMAND TPDU with the correct TP-Message-Reference.

After step 54 UE shall send a SMS-COMMAND TPDU with the correct TP-Message-Reference.

16.1.5 Test of message class 0 to 3

16.1.5.1 Short message class 0

16.1.5.1.1 Definition

16.1.5.1.2 Conformance requirement

When a mobile terminated message is class 0 and the UE has the capability of indicating short messages, the UE shall indicate the message immediately and send an acknowledgement to the SC when the message has successfully reached the UE irrespective of whether there is memory available in the USIM or ME. The message shall not be automatically stored in the USIM or ME.

Reference

3GPP TS 23.038 clause 4.

16.1.5.1.3 Test purpose

To verify that the UE will accept and indicate but not store a class 0 message, and that it will accept and indicate a class 0 message if its message store is full.

NOTE: failure of this test in a UE could cause it to reject a class 0 message when its SMS memory becomes full. This could lead to unwanted repetitions between the UE and the service centre.

16.1.5.1.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE shall be in MM-state "Idle, updated";
  - the UE message store shall be empty.

Related ICS/IXIT Statements

Support for Short message MT/PP.

The value of timer TC1M.

Whether SMS messages are stored in the USIM and/or the ME.

Test procedure

a) The SS sends a class 0 message by using the method described in step a) of clause 16.1.1 but with the TPDU described in this clause.

b) The UE message store shall be filled (for example by using the method of clause 16.1.3 test of the memory available notification) with the same SMS-DELIVER TPDU except that TP-DCS is set to class 1.

c) The SS sends a class 0 message as in step a).

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
2	-->		PAGING RESPONSE	
3	<--		AUTHENTICATION REQUEST	
4	-->		AUTHENTICATION RESPONSE	
5	<--		SECURITY MODE COMMAND	
6	-->		SECURITY MODE COMPLETE	
7	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU), Class 0 Short Message
8	-->		CP-ACK	
9	-->		CP-DATA	Contains RP-ACK RPDU.
10	<--		CP-ACK	
11	<--		RRC CONNECTION RELEASE	
12	-->		RRC CONNECTION RELEASE COMPLETE	
13	UE			The content of the short message shall be indicated by the ME. The UE shall not store the message. This can be checked by verifying that it is impossible to retrieve any short messages from the UE message store.
14		SS		The UE message store shall be filled (for example by using the method of 16.1.3) with Class 1 SMS-DELIVER TPDU.
15			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
16	-->		PAGING RESPONSE	
17	<--		AUTHENTICATION REQUEST	
18	-->		AUTHENTICATION RESPONSE	
19	<--		SECURITY MODE COMMAND	
20	-->		SECURITY MODE COMPLETE	
21	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU), Class 0 Short Message
22	-->		CP-ACK	
23	-->		CP-DATA	Contains RP-ACK RPDU.
24	<--		CP-ACK	
25	<--		RRC CONNECTION RELEASE	
26	-->		RRC CONNECTION RELEASE COMPLETE	
27	UE			The content of the short message shall be indicated by the ME.

Specific Message Contents

SMS-DELIVER TPDU (containing a class 0 message) (SS to UE)

Information element	Comment	Value
TP-DCS	default alphabet, class 0	"1111 0000"B

SMS-DELIVER TPDU (containing a class 1 message to fill the UE message store) (SS to UE)

Information element	Comment	Value
TP-DCS	default alphabet, class 1	"1111 0001"B

16.1.5.1.5 Test requirements

After step 7 UE shall accept and indicate but not store a class 0 message.

After step 21 UE shall accept and indicate a class 0 message.

16.1.5.2 Test of class 1 short messages

This test shall apply to UEs which support:

- storing of received Class 1 Short Messages; and
- indicating of stored Short Messages.

16.1.5.2.1 Definition

16.1.5.2.2 Conformance requirement

When a mobile terminated message is class 1, the UE shall send an acknowledgement to the SC when the message has successfully reached the UE and can be stored, either in the ME or in the USIM.

Reference

3GPP TS 23.038 clause 4.

16.1.5.2.3 Test purpose

This procedure verifies that the UE acts correctly on receiving a class 1 message, i.e. that it stores the message in the ME or USIM and sends an acknowledgement (at RP and CP-Layer).

16.1.5.2.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE shall be in MM-state "Idle, updated";
  - the UE message store shall be empty;
  - for storing of class 1 Short Messages, the UE shall be set up to store Short Messages in the ME memory (by way of MMI, as described in ICS/IXIT statement).

Related ICS/IXIT Statements

Support for Short message MT/PP.

The value of timer TC1M.

Whether SMS messages are stored in the USIM and/or the ME.

Test procedure

a) The SS delivers a Short Message of class 1 to the UE as specified in clause 16.1.1, step a).

b) The Short Message is recalled (e.g. by means of the MMI).

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
2	-->		PAGING RESPONSE	
3	<--		AUTHENTICATION REQUEST	
4	-->		AUTHENTICATION RESPONSE	
5	<--		SECURITY MODE COMMAND	
6	-->		SECURITY MODE COMPLETE	
7	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU), Class 1 Short Message
8	-->		CP-ACK	
9	-->		CP-DATA	Contains RP-ACK RPDU.
10	<--		CP-ACK	
11	<--		RRC CONNECTION RELEASE	
12	-->		RRC CONNECTION RELEASE COMPLETE	
13	UE			The short message shall be recalled and indicated at the UE.

Specific Message Contents

SMS-DELIVER TPDU (containing a class 1 message) (SS to UE)

Information element	Comment	Value
TP-DCS	default alphabet, class 1	"1111 0001"B

16.1.5.2.5 Test requirements

After step 7 UE shall store the message in the ME or USIM and send an acknowledgement.

16.1.5.3 Test of class 2 short messages

16.1.5.3.1 Definition

Class 2 Short Messages are defined as USIM specific, and the UE shall ensure that a message of this class is stored on the USIM.

16.1.5.3.2 Conformance requirement

When a mobile terminated message is Class 2, the UE shall ensure that the message has been correctly transferred to the SMS data field in the USIM before sending an acknowledgement to the SC. The UE shall return a "protocol error, unspecified" error message if the short message cannot be stored in the USIM and there is other short message storage available at the UE. If all the short message storage at the UE is already in use, the UE shall return "memory capacity exceeded".

References

- 3GPP TS 23.040 clause 9.2.3.10.
- 3GPP TS 23.038 clause 4.
- 3GPP TS 34.108 clause 8.3.2.28.

16.1.5.3.3 Test purpose

This procedure verifies that the UE acts correctly on receiving a class 2 message, i.e. that it stores the message correctly in the USIM, and if this is not possible, returns a protocol error message, with the correct error cause, to the network.

There are 2 cases:

1) if the UE supports storing of short messages in the USIM and in the ME, and storage in the ME is not full, and the short message cannot be stored in the USIM, the error cause shall be "protocol error, unspecified";

2) if the UE supports storing of short messages in the USIM and not in the ME, and storage in the ME is not full, and the short message cannot be stored in the USIM, the error cause shall be "memory capacity exceeded".

NOTE: If the UE supports storing of short messages in the USIM and the ME, and storage in the ME is full, and the short message cannot be stored in the USIM, the error cause shall be "memory capacity exceeded". This case is not tested in this test.

16.1.5.3.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE shall be in MM-state "Idle, updated";
  - the ME message store shall be empty;
  - the ME shall be connected to the USIM simulator. The following shall be present in the USIM simulator:
    - EF_{SMS} with at least two free records and one full record;
    - EF_{SMSS}, with SMS "Memory Cap. Exceed" notification flag set to "memory available";
    - Service no. 10 (SMS) in EF_{UST} set to allocated and activated;
    - for storing of Class 1 Short Messages the UE shall be set up to store Short Messages in the ME memory (by way of MMI, as described in ICS/IXIT statement).

Related ICS/IXIT Statements

Support for Short message MT/PP.

The value of timer TC1M.

Whether SMS messages are stored in the USIM and/or the ME.

Test procedure

a) The SS delivers a Short Message of class 2 to the UE as specified in clause 16.1.1, step b).

b) Following an attempt by the ME to store the short message in a free record of EF_{SMS} in the USIM, the USIM simulator returns the status response "OK" ("90 00").

c) Step a) is repeated.

d) Following an attempt by the ME to store the short message in a free record of EF_{SMS} in the USIM, the USIM simulator returns the status response "memory problem" ("92 40").

e) The USIM simulator indicates if an attempt was made in steps a) and c) to store the messages and if the messages are stored according to the requirement.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<		Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
2	-->		PAGING RESPONSE	
3	<--		AUTHENTICATION REQUEST	
4	-->		AUTHENTICATION RESPONSE	
5	<--		SECURITY MODE COMMAND	
6	-->		SECURITY MODE COMPLETE	
7	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU), Class 2 Short Message
8	-->		CP-ACK	
9	ME			The ME shall correctly store the short message in a free record of EFSMS in the USIM, i.e. - the ME shall use a free record - the first byte of the record shall indicate "message received by UE from network" - the TS-Service-Centre-Address shall be correctly stored - the TPDU shall be identical to that sent by the SS - bytes following the TPDU shall be set to "FF"
10	USIM			The USIM simulator returns the status response "OK" ("90 00"). The USIM simulator shall indicate if an attempt was made by the ME to store the short message in the USIM.
11	-->		CP-DATA	Contains RP-ACK RPDU.
12	<--		CP-ACK	
13	<--		RRC CONNECTION RELEASE	
14	-->		RRC CONNECTION RELEASE COMPLETE	
15			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
16	-->		PAGING RESPONSE	
17	<--		AUTHENTICATION REQUEST	
18	-->		AUTHENTICATION RESPONSE	
19	<--		SECURITY MODE COMMAND	
20	-->		SECURITY MODE COMPLETE	
21	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU), Class 2 Short Message
22	-->		CP-ACK	
23	ME			The ME shall attempt to store the short message in a free record of EFSMS in the USIM.
24	USIM			The USIM simulator returns the status response "memory problem" ("92 40"). The USIM simulator shall indicate if an attempt was made by the ME to store the short message in the USIM.
25	-->		CP-DATA	Contains RP-ERROR RPDU with error cause "protocol error, unspecified" if the UE supports storing of short messages in the ME, or error cause "memory capacity exceeded" if not.
26	<--		CP-ACK	
27	<--		RRC CONNECTION RELEASE	
28	-->		RRC CONNECTION RELEASE COMPLETE	

Specific Message Contents

SMS-DELIVER TPDU (containing a class 2 message) (SS to UE)

Information element	Comment	Value
TP-DCS	default alphabet, class 2	"1111 0010"B

16.1.5.3.5 Test requirements

After step 10 UE shall confirm that the short message is stored in the USIM and send CP-DATA containing RP-ACK RPDU.

After step 25 UE shall confirm that the short message cannot be stored in the USIM and send CP-DATA containing RP-ERROR RPDU. If UE supports storing of short message in the ME, the error cause of RP-ERROR RPDU shall be "protocol error, unspecified", and if not the error cause of RP-ERROR RPDU shall be "memory capacity exceeded"

16.1.5.4 Test of class 3 short messages

For further study.

16.1.6 Test of short message type 0 (R99 and REL-4 UE)

16.1.6.1 Definition and applicability

This tests that the UE correctly acknowledges the receipt of the short message type 0 to the SC in Circuit Switched mode. It is highly recommended that the UE discards the contents of the short message type 0.

This test shall apply to all R99 and REL-4 UEs supporting receipt of short messages in CS mode.

16.1.6.2 Conformance requirement

When a mobile terminated message is type 0, the UE shall acknowledge receipt of the short message to the SC but may discard its contents.

Note: It is highly recommended that the UE discards the type 0 short message. This means that the UE is able to receive the type 0 short message irrespective of whether there is memory available in the (U)SIM or ME or not, the UE does not indicate the receipt of the type 0 short message to the user, and the message is not stored in the (U)SIM or ME.

Reference(s)

3GPP TS 23.040, 9.2.3.9.

16.1.6.3 Test purpose

To verify that the UE will acknowledge receipt of the short message to the SC. The UE should discard its contents.

NOTE: failure of this test in a UE could cause it to reject a type 0 message when the network is trying to reach the UE. This could lead to unwanted repetitions between the UE and the service centre.

16.1.6.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

the UE shall be in MM-state "Idle, updated".

Related ICS/IXIT Statements

Support for Short Message MT/PP.

The value of timer TC1M.

Foreseen Final State of UE

Idle, updated.

Test Procedure

The SS sends a type 0 message by using the method described in step a) of section 16.1.1 but with the TPDU described in this section.

Maximum Duration of Test

1 minute

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
2	-->		PAGING RESPONSE	
3	<--		AUTHENTICATION REQUEST	
4	-->		AUTHENTICATION RESPONSE	
5	<--		SECURITY MODE COMMAND	
6	-->		SECURITY MODE COMPLETE	
7	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU), type 0 Short Message
8	-->		CP-ACK	
9	-->		CP-DATA	Contains RP-ACK TP-Protocol-Identifier (TP-PID).
10	<--		CP-ACK	
11	<--		RRC CONNECTION RELEASE	
12	-->		RRC CONNECTION RELEASE COMPLETE	
13	UE			It is highly recommended that the UE discards the type 0 short message. This means that the UE is able to receive the type 0 short message irrespective of whether there is memory available in the (U)SIM or ME or not, the UE does not indicate the receipt of the type 0 short message to the user, and the message is not stored in the (U)SIM or ME.

Specific Message Contents:

SMS-DELIVER TPDU (containing a type 0 message) (SS to UE):

Information element	Comment Value
TP-MTI	SMS-DELIVER "00"B
TP-MMS	more messages are waiting in SC "0"B
TP-RP	no reply path "0"B
TP-UDHI	TP-UD contains only the SM"0"B
TP-SRI	no status report returned0
TP-OA	an international number coded E.164
TP-PID	Type 0: "01000000"B
TP-DCS	default alphabet "0000 0000"B
TP-SCTS	any legal value (cf. 3GPP TS 23.040)
TP-UDL	160
TP-UD (140 octets)	text of message (160 characters)

16.1.6a Test of short message type 0 (≥ REL-5 UE)

16.1.6a.1 Definition and applicability

This tests that the UE correctly acknowledges the receipt of the short message type 0 to the SC in Circuit Switched mode. The UE shall discard the contents of the short message type 0.

This test shall apply to all ≥ REL-5 UEs supporting receipt of short messages in CS mode.

16.1.6a.2 Conformance requirement

When a mobile terminated message is type 0, the UE shall acknowledge receipt of the short message to the SC but shall discard its contents. This means that

- the UE shall be able to receive the type 0 short message irrespective of whether there is memory available in the (U)SIM or ME or not,
- the UE shall not indicate the receipt of the type 0 short message to the user,
- the short message shall neither be stored in the (U)SIM nor ME.

References

3GPP TS 23.040 9.2.3.1, 9.2.3.2, 9.2.3.4, 9.2.3.7, 9.2.3.9, 9.2.3.10, 9.2.3.11, 9.2.3.16, 9.2.3.17, 9.2.3.23.

16.1.6a.3 Test purpose

To verify that the UE will acknowledge receipt of the short message to the SC. The UE shall discard its contents. This means that

- the UE shall be able to receive the type 0 short message irrespective of whether there is memory available in the (U)SIM or ME or not,
- the UE shall not indicate the receipt of the type 0 short message to the user,
- the short message shall neither be stored in the (U)SIM nor ME.

NOTE: Failure of this test in a UE could cause it to reject a type 0 message when the network is trying to reach the UE. This could lead to unwanted repetitions between the US and the service centre. In addition service affecting restrictions could happen to the customer.

16.1.6a.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

the UE shall be in MM-state "Idle, updated".

the ME- and (U)SIM message store shall be empty.

Related ICS/IXIT Statements

Support for Short Message MT/PP.

The value of timer TC1M.

Foreseen Final State of UE

Idle, updated.

Test Procedure

a) The SS sends a type 0 short message by using the method described in step a) of clause 16.1.1 but with the TPDU described in this section.

b) The ME- and (U)SIM short message store shall be filled (for example by using the method of clause 16.1.3 test of the memory available notification).

c) The SS sends a type 0 short message as in step a).

Maximum Duration of Test

5 minutes

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
2	-->		PAGING RESPONSE	
3	<--		AUTHENTICATION REQUEST	
4	-->		AUTHENTICATION RESPONSE	
5	<--		SECURITY MODE COMMAND	
6	-->		SECURITY MODE COMPLETE	
7	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU), type 0 Short Message
8	-->		CP-ACK	
9	-->		CP-DATA	Contains RP-ACK RPDU.
10	<--		CP-ACK	
11	<--		RRC CONNECTION RELEASE	
12	-->		RRC CONNECTION RELEASE COMPLETE	
13	UE			The UE shall discard the type 0 short message. This means that the UE does not indicate the receipt of the type 0 short message to the user. The UE shall not store the message in the (U)SIM or ME. This can be checked by verifying that it is impossible to retrieve any short messages from the ME- and (U)SIM message store.
14		SS		The ME- and (U)SIM message store shall be filled (for example by using the method of 16.1.3).
15			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
16	-->		PAGING RESPONSE	
17	<--		AUTHENTICATION REQUEST	
18	-->		AUTHENTICATION RESPONSE	
19	<--		SECURITY MODE COMMAND	
20	-->		SECURITY MODE COMPLETE	
21	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU), type 0 Short Message
22	-->		CP-ACK	
23	-->		CP-DATA	Contains RP-ACK RPDU.
24	<--		CP-ACK	
25	<--		RRC CONNECTION RELEASE	
26	-->		RRC CONNECTION RELEASE COMPLETE	
27	UE			The UE shall discard the type 0 short message. This means that the UE does not indicate the receipt of the type 0 short message to the user. The UE shall not store the message in the (U)SIM or ME. This can be checked by verifying that it is impossible to retrieve any short messages from the ME- and (U)SIM message store.

Specific Message Contents:

SMS-DELIVER TPDU (containing a type 0 message) (SS to UE):

Information element	Comment	Value
TP-MTI	SMS-DELIVER	"00"B
TP-MMS	more messages are waiting in SC	"0"B
TP-RP	no reply path	"0"B
TP-UDHI	TP-UD contains only the SM	"0"B
TP-SRI	no status report returned	"0"B
TP-OA	an international number coded E.164	
TP-PID	Type 0:	"01000000"B
TP-DCS	default alphabet	"0000 0000"B
TP-SCTS	any legal value (cf. 3GPP TS 23.040)	
TP-UDL		160
TP-UD (140 octets)	text of message (160 characters)	

16.1.6a.5 Test requirements

After step 9 (ME- and (U)SIM message store not filled) UE shall send CP-DATA containing RP-ACK RPDU (TP-Protocol-Identifier: type 0 Short Message).

After step 13 UE shall discard the type 0 short message (it is impossible to retrieve any short messages from the ME- and (U)SIM message store).

After step 23 (ME- and (U)SIM message store filled) UE shall send CP-DATA containing RP-ACK RPDU (TP-Protocol-Identifier: type 0 Short Message).

After step 27 UE shall discard the type 0 short message (it is impossible to retrieve any short messages from the ME- and (U)SIM message store).

16.1.7 Test of the replace mechanism for SM type 1-7

16.1.7.1 Definition

16.1.7.2 Conformance requirement

On receipt of a short message, the UE shall check to see if the associated Protocol Identifier contains a Replace Short Message Type code. If such a code is present, then the UE will check the associated originating address (TP-OA) and replace any existing stored message having the same Protocol Identifier code and originating address with the new short message.

References

3GPP TS 23.040 clause 9.2.3.2, 9.2.3.9.

16.1.7.3 Test purpose

This procedure verifies the correct implementation of the replace mechanism for Replace Short Messages.

16.1.7.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE shall be in MM-state "Idle, updated";
  - the UE message store shall be empty.

Related ICS/IXIT Statements

Support for Short message MT/PP.

The value of timer TC1M.

Test procedure

a) Two different numbers n and m are drawn randomly between 1 and 7. Two different addresses for TP-Originating-Address (TPOA1 and TPOA2) are drawn.

b) The SS delivers a short message to the UE as specified in clause 16.1.1 step a). In the SMS-DELIVER TPDU, the TP-Protocol-Identifier parameter is "Replace Short Message Type n", the TP-Originating-Address is TPOA1, and the RP-Originating-Address is RPOA.

c) Step b) is repeated but with a different TP-Originating-Address (TPOA2), and different contents of TP-User-Data in the SMS-DELIVER TPDU. The other parameters are the same as in step b).

d) Void

e) Step c) is repeated but with the TP-Protocol-Identifier equal to "Replace Short Message Type m", and contents of TP-User-Data different from the former two messages. The other parameters are the same as in step c).

f) Step e) is repeated but the contents of TP-User-Data are different from that used in step e).

g) The SS prompts the operator to indicate the Short Messages stored in the UE.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
2	-->		PAGING RESPONSE	
3	<--		AUTHENTICATION REQUEST	
4	-->		AUTHENTICATION RESPONSE	
5	<--		SECURITY MODE COMMAND	
6	-->		SECURITY MODE COMPLETE	
7	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU) TP-PID is "Replace Short Message Type n", TP-OA is TPOA1 and RP-OA is RPOA
8	-->		CP-ACK	
9	-->		CP-DATA	Contains RP-ACK RPDU.
10	<--		CP-ACK	
11	<--		RRC CONNECTION RELEASE	
12	-->		RRC CONNECTION RELEASE COMPLETE	
13			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
14	-->		PAGING RESPONSE	
15	<--		AUTHENTICATION REQUEST	
16	-->		AUTHENTICATION RESPONSE	
17	<--		SECURITY MODE COMMAND	
18	-->		SECURITY MODE COMPLETE	
19	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU) TP-PID is "Replace Short Message Type n", TP-OA is TPOA2 and RP-OA is RPOA, TP-UD different from step 7
20	-->		CP-ACK	
21	-->		CP-DATA	Contains RP-ACK RPDU.
22	<--		CP-ACK	
23	<--		RRC CONNECTION RELEASE	
24	-->		RRC CONNECTION RELEASE COMPLETE	
25			(void)	
26			(void)	
27			(void)	
28			(void)	
29			(void)	
30			(void)	
31			(void)	
32			(void)	
33			(void)	
34			(void)	
35			(void)	
36			(void)	
37			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
38	-->		PAGING RESPONSE	
39	<--		AUTHENTICATION REQUEST	
40	-->		AUTHENTICATION RESPONSE	
41	<--		SECURITY MODE COMMAND	
42	-->		SECURITY MODE COMPLETE	

Step	Direction		Message	Comments
	UE	SS		
43	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU) TP-PID is "Replace Short Message Type m", TP-OA is TPOA2 and RP-OA is RPOA, TP-UD different from step 7 and 19
44	-->		CP-ACK	
45	-->		CP-DATA	Contains RP-ACK RPDU.
46	<--		CP-ACK	
47	<--		RRC CONNECTION RELEASE	
48	-->		RRC CONNECTION RELEASE COMPLETE	
49			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
50	-->		PAGING RESPONSE	
51	<--		AUTHENTICATION REQUEST	
52	-->		AUTHENTICATION RESPONSE	
53	<--		SECURITY MODE COMMAND	
54	-->		SECURITY MODE COMPLETE	
55	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU) TP-PID is "Replace Short Message Type m", TP-OA is TPOA2 and RP-OA is RPOA, TP-UD different from step 43
56	-->		CP-ACK	
57	-->		CP-DATA	Contains RP-ACK RPDU.
58	<--		CP-ACK	
59	<--		RRC CONNECTION RELEASE	
60	-->		RRC CONNECTION RELEASE COMPLETE	
61	SS			Prompts the operator to indicate the Short Messages stored in the UE. Only the Short Messages delivered in step 7, 19 and 55 shall be retrievable and indicated

Specific Message Contents

SMS-DELIVER TPDU

Information element	CommentValue
TP-MMS	no more messages are waiting in SC "1"B
TP-PID	binary 01000xxx, xxx represents n resp. m (see test method description)

16.1.7.5 Test requirements

After step 61 only the Short Messages delivered in step 7, 19 and 55 shall be retrieved and indicated.

16.1.8 Test of the reply path scheme

16.1.8.1 Definition

16.1.8.2 Conformance requirement

When a replying UE receives an original mobile terminated short message it has:

- originating SME = TP-Originating Address in the SMS-DELIVER TPDU;
- original SC = RP-Originating Address in the RP-MT-DATA.

When submitting the reply mobile originated short message, the replying UE should use parameters as follows:

- TP-Destination Address in SMS-SUBMIT TPDU = originating SME;

- RP-Destination Address in RP-MO-DATA = original SC.

References

3GPP TS 23.040 3.2.10, 9.2.3.2, 9.2.3.17, Annex D.5, D.6.

NOTE: Annex D of 3GPP TS 23.040 is only informative.

16.1.8.3 Test purpose

This procedure verifies that the UE is able to send a Reply Short Message back to the correct originating SME even if in the meantime it receives another Short Message.

16.1.8.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE shall be in MM-state "Idle, updated";
  - the UE message store shall be empty.

Related ICS/IXIT Statements

Support for Short message MT/PP.

Support for Short message MO/PP.

The value of timer TC1M.

Test procedure

a) The SS delivers a Short Message as specified in clause 16.1.1, step b) with TP-Reply-Path set to 1.

b) Step a) is repeated but with:
   - different TP-Originating-Address for the originating SME;
   - different RP-Originating-Address for the original SC; and
   - different message contents TP-User-Data.

c) UE sends the Reply Short Message corresponding to one of two received Short Messages (e.g. by means of the MMI).

d) step c) is repeated for the other Short Message.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
2	-->		PAGING RESPONSE	
3	<--		AUTHENTICATION REQUEST	
4	-->		AUTHENTICATION RESPONSE	
5	<--		SECURITY MODE COMMAND	
6	-->		SECURITY MODE COMPLETE	
7	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU) TP-RP set to 1

Step	Direction		Message	Comments
	UE	SS		
8	-->		CP-ACK	Sent within TC1M after step 7
9	-->		CP-DATA	Contains RP-ACK RPDU.
10	<--		CP-ACK	
11	<--		RRC CONNECTION RELEASE	
12	-->		RRC CONNECTION RELEASE COMPLETE	
13			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
14	-->		PAGING RESPONSE	
15	<--		AUTHENTICATION REQUEST	
16	-->		AUTHENTICATION RESPONSE	
17	<--		SECURITY MODE COMMAND	
18	-->		SECURITY MODE COMPLETE	
19	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU) TP-OA, RP-OA and TP-UD different from step 7
20	-->		CP-ACK	Sent within TC1M after step 7
21	-->		CP-DATA	Contains RP-ACK RPDU.
22	<--		CP-ACK	
23	<--		RRC CONNECTION RELEASE	
24	-->		RRC CONNECTION RELEASE COMPLETE	
25	UE			UE establishes the RRC connection in order to send the Reply Short Message corresponding to one of two received Short Messages:
26	<--		SYSTEM INFORMATION	BCCH
27	-->		RRC CONNECTION REQUEST	CCCH
28	<--		RRC CONNECTION SETUP	CCCH
29	-->		RRC CONNECTION SETUP COMPLETE	DCCH
30	-->		CM SERVICE REQUEST	
31	<--		AUTHENTICATION REQUEST	
32	-->		AUTHENTICATION RESPONSE	
33	<--		SECURITY MODE COMMAND	
34	-->		SECURITY MODE COMPLETE	
35	-->		CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU) RP-DA = RP-OA corresponding to the message TP-DA = TP-OA corresponding to the message
36	<--		CP-ACK	Sent within TC1M after step 35
37	<--		CP-DATA	Contains RP-ACK RPDU
38	SS			Waits max 25 s for CP-ACK
39	-->		CP-ACK	
40	<--		RRC CONNECTION RELEASE	RRC connection is released.
40A	-->		RRC CONNECTION RELEASE COMPLETE	
41	UE			UE establishes the RRC connection in order to send the Reply Short Message corresponding to other Short Message.
42	<--		SYSTEM INFORMATION	BCCH
43	-->		RRC CONNECTION REQUEST	CCCH
44	<--		RRC CONNECTION SETUP	CCCH
45	-->		RRC CONNECTION SETUP COMPLETE	DCCH
46	-->		CM SERVICE REQUEST	
47	<--		AUTHENTICATION REQUEST	
48	-->		AUTHENTICATION RESPONSE	
49	<--		SECURITY MODE COMMAND	
50	-->		SECURITY MODE COMPLETE	
51	-->		CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU) RP-DA = RP-OA corresponding to the Message TP-DA = TP-OA corresponding to the message
52	<--		CP-ACK	Sent within TC1M after step 51
53	<--		CP-DATA	Contains RP-ACK RPDU
54	SS			Waits max 25 s for CP-ACK
55	-->		CP-ACK	

Step	Direction		Message	Comments
	UE	SS		
56	<--		RRC CONNECTION RELEASE	RRC connection is released.
57	-->		RRC CONNECTION RELEASE COMPLETE	

Specific Message Contents

SMS-DELIVER TPDU

Information element	Comment	Value
TP-MMS	no more messages are waiting in SC	"1"B
TP-RP	Reply Path exists	"1"B

16.1.8.5 Test requirements

After step 35 UE shall send the Reply Short Message corresponding to one of two previously received short messages.

After step 51 UE shall send the Reply Short Message corresponding to the other of two previously received short messages.

16.1.9 Multiple SMS mobile originated

16.1.9.1 UE in idle mode

This test applies to UE supporting the ability of sending multiple short messages on the same RRC connection when there is no call in progress.

16.1.9.1.1 Definition

16.1.9.1.2 Conformance requirements

Release 1999:

If another short message or a memory available notification is to be sent, an originating SMR entity in the UE may choose to continue to use the same RRC connection. When the UE chooses to use the same RRC connection, then:

- the UE shall transmit a CM SERVICE REQUEST for the new CM connection before the final CP-ACK (e.g. the one that acknowledges the CP-DATA that carried the RP-ACK) for the old MM connection is transmitted;
- before transmission of the first CP-DATA on the new MM connection, the UE shall transmit the CP-ACK for the old MM connection;
- the Transaction Identifier used on the new MM connection shall be different to that used on the old MM connection; and
- the UE shall not initiate establishment of the new MM connection before the final CP-DATA (e.g. the one carrying the RP-ACK) has been received.

Release 4 or later release:

In the case of a SMS transfer via the CS domain, when the UE chooses to use the same RR or CS signalling connection, then:

- the UE shall transmit a CM SERVICE REQUEST for the new CM connection before the final CP-ACK (i.e. the one that acknowledges the CP-DATA that carried the RP-ACK) for the old MM connection is transmitted;
- before transmission of the first CP-DATA on the new MM connection, the UE may transmit the CP-ACK for the old MM connection; the UE shall not transmit the final CP-ACK after the new CP-DATA;

- the Transaction Identifier used on the new MM connection shall be different to that used on the old MM connection; and
- the UE shall not initiate establishment of the new MM connection before the final CP-DATA (e.g. the one carrying the RP-ACK) has been received.

References

- 3GPP TS 23.040 clause 3.1.
- 3GPP TS 24.011 clause 5.4.

16.1.9.1.3 Test purpose

To verify that the UE is able to correctly concatenate multiple short messages on the same RRC connection when using a DCCH.

16.1.9.1.4 Method of test

Initial conditions

- System simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE shall be in MM-state "Idle, updated";
  - the SMS message storage shall be empty.

Related ICS/IXIT statements

Support for concatenation of multiple short messages MO/PP on the same RRC connection.

Description of how to enter multiple SMS.

Whether SMS messages are stored in the USIM and/or the ME.

Foreseen final state of UE

Idle, updated.

Test procedure

a) The UE shall be set up to send 3 short messages as multiple SM to the SS. The UE establishes successfully an RRC connection and then the SS performs the authentication.

b) The SS starts integrity protection.

c) The SS responds to the CP-DATA containing RP-DATA RPDU (SMS SUBMIT TPDU) from the UE with a CP-ACK message followed by a CP-DATA message containing the correct RP-ACK RPDU. The Transaction Identifier used on this MM connection is 'x'.

d) The UE shall transmit a CM SERVICE REQUEST for the new CM connection (for the second short message) before the final CP-ACK (the one that acknowledges the CP-DATA that carried the RP-ACK before) for the old MM connection is transmitted. The UE shall not initiate establishment of the new MM connection before the final CP-DATA (i.e. the one carrying the RP-ACK for the first short message) has been received. Before transmission of the first CP-DATA on the new MM connection:

   - For R99: The UE shall transmit the CP-ACK for the old MM connection. The Transaction Identifier used on the new MM connection shall be y, where y <> x (see step c)). Thereby, the UE can transmit the final CP-ACK after either the sending of the CM SERVICE REQUEST for the new CM connection or the reception of

the CM SERVICE ACCEPT for the new CM connection, thus two branches for the transmission of the final CP-ACK are possible which are specified in the expected sequence table like A and B respectively. The SS waits for the UE to transmit the final CP-ACK. If received within 5 s then the SS transmits the CM SERVICE ACCEPT and waits for the UE to transmit the first CP-DATA on the new MM connection (branch A). If the final CP-ACK is not received within 5 s then the SS transmits the CM SERVICE ACCEPT and waits for the UE to send the final CP-ACK followed by the first CP-DATA on the new MM connection (branch B).

- For Rel-4 or later release: The UE may transmit the CP-ACK for the old MM connection. The Transaction Identifier used on the new MM connection shall be y, where y <> x (see step c)). Thereby, the UE can transmit the final CP-ACK after either the sending of the CM SERVICE REQUEST for the new CM connection or the reception of the CM SERVICE ACCEPT for the new CM connection or not to send a CP-ACK at all, thus three cases are possible. These cases are specified using two branches for the transmission of the final CP-ACK where the transmission of the final CP-ACK for the old MM connection is optional. The two branches are specified in the expected sequence table like A and B respectively. The SS waits for the UE to transmit the final CP-ACK. If received within 5 s then the SS transmits the CM SERVICE ACCEPT and waits for the UE to transmit the first CP-DATA on the new MM connection (branch A). If the final CP-ACK is not received within 5 s then the SS transmits the CM SERVICE ACCEPT and then waits for the UE to send the final CP-ACK (optional) and/or the first CP-DATA on the new MM connection (branch B).

e) Void.

f) The SS responds to the CP-DATA containing RP-DATA RPDU (SMS SUBMIT TPDU) from the UE with a CP-ACK message followed by a CP-DATA message containing the correct RP-ACK RPDU.

g) The UE shall transmit a CM SERVICE REQUEST for the new CM connection (for the third short message) before the final CP-ACK (the one that acknowledges the CP-DATA that carried the RP-ACK before) for the old MM connection is transmitted. Before transmission of the first CP-DATA on the new MM connection:

- For R99: The UE shall transmit the CP-ACK for the old MM connection. The Transaction Identifier used on the new MM connection shall be z, where z <> y (see step d)). The UE shall not initiate establishment of the new MM connection before the final CP-DATA (i.e. the one carrying the RP-ACK for the second short message) has been received. Thereby, the UE can transmit the final CP-ACK after either the sending of the CM SERVICE REQUEST for the new CM connection or the reception of the CM SERVICE ACCEPT for the new CM connection, thus two branches for the transmission of the final CP-ACK are possible which are specified in the expected sequence table like A and B respectively. The SS waits for the UE to transmit the final CP-ACK. If received within 5 s then the SS transmits the CM SERVICE ACCEPT and waits for the UE to transmit the first CP-DATA on the new MM connection (branch A). If the final CP-ACK is not received within 5 s then the SS transmits the CM SERVICE ACCEPT and waits for the UE to send the final CP-ACK followed by the first CP-DATA on the new MM connection (branch B).

- For Rel-4 or later release: The UE may transmit the CP-ACK for the old MM connection. The Transaction Identifier used on the new MM connection shall be z, where z <> y (see step d)). Thereby, the UE can transmit the final CP-ACK after either the sending of the CM SERVICE REQUEST for the new CM connection or the reception of the CM SERVICE ACCEPT for the new CM connection or not to send a CP-ACK at all, thus three cases are possible. These cases are specified using two branches for the transmission of the final CP-ACK where the transmission of the final CP-ACK for the old MM connection is optional. The two branches are specified in the expected sequence table like A and B respectively. The SS waits for the UE to transmit the final CP-ACK. If received within 5 s then the SS transmits the CM SERVICE ACCEPT and waits for the UE to transmit the first CP-DATA on the new MM connection (branch A). If the final CP-ACK is not received within 5 s then the SS transmits the CM SERVICE ACCEPT and then waits for the UE to send the final CP-ACK (optional) and/or the first CP-DATA on the new MM connection (branch B).

h) Void.

i) The SS responds to the CP-DATA containing RP-DATA RPDU (SMS SUBMIT TPDU) from the UE with a CP-ACK message followed by a CP-DATA message containing the correct RP-ACK RPDU.

j) The SS waits a maximum of 5 s after sending CP-DATA for the CP-ACK message from the UE.

k) The SS sends a RRC CONNECTION RELEASE to the UE.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set up to send 3 short messages as multiple SM
2	SS			The SS verifies that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Originating Low Priority Signalling”.
3			(void)	
4			(void)	
5	-->		CM SERVICE REQUEST	CM service type set to "Short Message Service".
6	<--		AUTHENTICATION REQUEST	
7	-->		AUTHENTICATION RESPONSE	
8	SS			The SS starts integrity protection
9			Void	
10	-->		CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU). The Transaction Identifier used in steps 10, 11, 12 and 14 shall be x.
11	<--		CP-ACK	
12	<--		CP-DATA	Contains RP-ACK RPDU
13	-->		CM SERVICE REQUEST	CM service type set to "Short Message Service".
14	-->		CP-ACK	The one that acknowledges the CP-DATA which carried the RP-ACK RPDU. If CP-ACK received then continue at A15 If CP-ACK is not received within 5 s from the CM SERVICE REQUEST was sent in step 13 then goto step B15a. (See note 1 and note 2)
Branch A				
A15	<--		CM SERVICE ACCEPT	After having sent the CM SERVICE ACCEPT then goto step 16.
Branch B				
B15a	<--		CM SERVICE ACCEPT	
B15b	-->		CP-ACK	The one that acknowledges the CP-DATA which carried the RP-ACK RPDU. For Rel-4 or later release UE: Optional step (See note 2)
16	-->		CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU). The Transaction Identifier used in steps 16, 17, 18 and 20 shall be y where y <> x (see step 10).
17	<--		CP-ACK	
18	<--		CP-DATA	Contains RP-ACK RPDU
19	-->		CM SERVICE REQUEST	CM service type set to "Short Message Service".
20	-->		CP-ACK	The one that acknowledges the CP-DATA which carried the RP-ACK RPDU. If CP-ACK received then continue at A21 If CP-ACK is not received within 5 s from the CM SERVICE REQUEST was sent in step 19 then goto step B21a. (See note 1 and note 2)
Branch A				
A21	<--		CM SERVICE ACCEPT	After having sent the CM SERVICE ACCEPT then goto step 22.
Branch B				
B21a	<--		CM SERVICE ACCEPT	
B21b	-->		CP-ACK	The one that acknowledges the CP-DATA which carried the RP-ACK RPDU. For Rel-4 or later release UE: Optional step (See note 2)
22	-->		CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU). The Transaction Identifier used in steps 22, 23, 24 and 25 shall be z, where z <> y (see step 16).
23	<--		CP-ACK	
24	<--		CP-DATA	Contains RP-ACK RPDU
25	-->		CP-ACK	Shall be sent within 5 s of step 24
26	SS			The SS releases the RRC connection

Step	Direction		Message	Comments
	UE	SS		
NOTE 1: 5 s have been agreed to be a reasonable value to secure that the UE have enough time to respond to the different messages.				
NOTE 2: The CP-ACK for the old MM connection can be received either before or after the reception of the CM SERVICE ACCEPT message. For Release 4 or later release the UE transmission of the final CP-ACK is optional.				

16.1.9.1.5 Test requirements

In step 13 the UE shall transmit a CM SERVICE REQUEST for the new CM connection (for the second short message) before the final CP-ACK for the old MM connection is transmitted.

In step 19 the UE shall transmit a CM SERVICE REQUEST for the new CM connection (for the third short message) before the final CP-ACK for the old MM connection is transmitted.

16.1.9.2 UE in active mode

This test applies to UE supporting the ability of sending concatenated multiple short messages when there is a call in progress.

16.1.9.2.1 Definition

16.1.9.2.2 Conformance requirements

Release 1999:

If another short message or a memory available notification is to be sent, an originating SMR entity in the UE may choose to continue to use the same RRC connection. When the UE chooses to use the same RRC connection, then:

- the UE shall transmit a CM SERVICE REQUEST for the new CM connection before the final CP-ACK (e.g. the one that acknowledges the CP-DATA that carried the RP-ACK) for the old MM connection is transmitted;
- before transmission of the first CP-DATA on the new MM connection, the UE shall transmit the CP-ACK for the old MM connection;
- the Transaction Identifier used on the new MM connection shall be different to that used on the old MM connection; and
- the UE shall not initiate establishment of the new MM connection before the final CP-DATA (e.g. the one carrying the RP-ACK) has been received.

Release 4 or later release:

In the case of a SMS transfer via the CS domain, when the UE chooses to use the same RR or CS signalling connection, then:

- the UE shall transmit a CM SERVICE REQUEST for the new CM connection before the final CP-ACK (i.e. the one that acknowledges the CP-DATA that carried the RP-ACK) for the old MM connection is transmitted;
- before transmission of the first CP-DATA on the new MM connection, the UE may transmit the CP-ACK for the old MM connection; the UE shall not transmit the final CP-ACK after the new CP-DATA;
- the Transaction Identifier used on the new MM connection shall be different to that used on the old MM connection; and
- the UE shall not initiate establishment of the new MM connection before the final CP-DATA (e.g. the one carrying the RP-ACK) has been received.

References

- 3GPP TS 23.040 clause 3.1.

- 3GPP TS 24.011 clause 5.4.

16.1.9.2.3 Test purpose

To verify that the UE is able to correctly concatenate multiple short messages on the same RRC connection when sent parallel to a call.

16.1.9.2.4 Method of test

Initial conditions

- System simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE shall be in MM-state "Idle, updated";
  - the SMS message storage shall be empty.

Related ICS/IXIT statements

Support for concatenation of multiple short messages MO/PP on the same RRC connection.

Description of how to enter multiple SMS.

Support for state U10 of call control.

Whether SMS messages are stored in the USIM and/or the ME.

Foreseen final state of UE

Idle, updated.

Test procedure

a) A data or speech call is established on a DTCH with the SS and the state U10 of call control is entered. The UE is set up to send 3 short messages as multiple SM to the SS. After the reception of the CM SERVICE REQUEST, the SS sends a CM SERVICE ACCEPT message.

b) Steps c) to k) of the test procedure in clause 16.1.9.1.4 are repeated.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		A data or speech call is established on a DTCH and the state U10 of call control is entered.
2	UE			The UE is set up to send 3 short messages as multiple SM
3	-->		CM SERVICE REQUEST	Sent in a layer 2 frame on the DCCH. CM service type set to "Short Message Service"
4	<--		CM SERVICE ACCEPT	
7	-->		CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU). The Transaction Identifier used in steps 7, 8, 9 and 11 shall be x.
8	<--		CP-ACK	
9	<--		CP-DATA	Contains RP-ACK RPDU
10	-->		CM SERVICE REQUEST	Sent in a layer 2 frame on the DCCH. CM service type set to "Short Message Service"
11	-->		CP-ACK	The one that acknowledges the CP-DATA which carried the RP-ACK RPDU. If CP-ACK received then continue at A12 If CP-ACK is not received within 5 s from the CM SERVICE REQUEST was sent in step 10 then goto step B11. (See note 1 and note 2)
Branch A				
A12	<--		CM SERVICE ACCEPT	After having sent the CM SERVICE ACCEPT then goto step 13.
Branch B				
B11	<--		CM SERVICE ACCEPT	
B12	-->		CP-ACK	The one that acknowledges the CP-DATA which carried the RP-ACK RPDU. For Rel-4 or later release UE: Optional step (See note 2)
13	-->		CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU). The Transaction Identifier used in steps 13, 14, 15 and 17 shall be y where y <> x (see step 7).
14	<--		CP-ACK	
15	<--		CP-DATA	Contains RP-ACK RPDU
16	-->		CM SERVICE REQUEST	Sent in a layer 2 frame on the DCCH. CM service type set to "Short Message Service"
17	-->		CP-ACK	The one that acknowledges the CP-DATA which carried the RP-ACK RPDU. If CP-ACK received then continue at A18. If CP-ACK is not received within 5 s from the CM SERVICE REQUEST was sent in step 16 then goto step B17. (See note 1 and note 2)
Branch A				
A18	<--		CM SERVICE ACCEPT	
Branch B				
B17	<--		CM SERVICE ACCEPT	
B18	-->		CP-ACK	The one that acknowledges the CP-DATA which carried the RP-ACK RPDU. For Rel-4 or later release UE: Optional step (See note 2)
19	-->		CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU). The Transaction Identifier used in steps 19, 20, 21 and 22 shall be z, where z <> y (see step 13).
20	<--		CP-ACK	
21	<--		CP-DATA	Contains RP-ACK RPDU
22	-->		CP-ACK	Shall be sent within 5 s of step 21
23	SS			The SS releases the RRC connection

NOTE 1: 5 s have been agreed to be a reasonable value to secure that the UE have enough time to respond to the different messages.

NOTE 2: The CP-ACK for the old MM connection can be received either before or after the reception of the CM SERVICE ACCEPT message. For Release 4 or later release the UE transmission of the final CP-ACK is optional.

16.1.9.2.5 Test requirements

In step 10 the UE shall transmit a CM SERVICE REQUEST for the new CM connection (for the second short message) before the final CP-ACK for the old MM connection is transmitted.

In step 16 the UE shall transmit a CM SERVICE REQUEST for the new CM connection (for the third short message) before the final CP-ACK for the old MM connection is transmitted.

16.1.10 Test of capabilities of simultaneously receiving a short message whilst sending a mobile originated short message

16.1.10.1 Definition

16.1.10.2 Conformance requirements

An active UE shall be able to receive a short message TPDU (SMS-DELIVER) at any time, independently of whether or not there is an SMS mobile originated call (SMS-SUBMIT or SMS-COMMAND) in progress.

References

3GPP TS 23.040 clauses 3.1, 9.2.3.16.

3GPP TS 24.011 clause 3.2.

16.1.10.3 Test purpose

The test verifies that the UE is capable of simultaneously receiving a network originated SM whilst sending a mobile originated SM.

16.1.10.4 Method of test

Initial Conditions

- System simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE shall be in MM-state "Idle, updated";
  - the SMS message storage shall be empty.

Related ICS/IXIT Statements

Support for Short message MO/PP and MT/PP.

Support for state U10 of call control.

The value of timer TC1M.

Whether SMS messages are stored in the USIM and/or the ME.

Test procedure

a) The SS is configured to receive a mobile originated SM. In clause 16.1.2 steps a) and b) are repeated and, using the end of the CP-DATA message from the UE as a trigger, the SS sends a SM to the UE. In this case a new transaction identifier shall be used in the CP messages of SMS mobile terminated.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set up to send an SM
2		SS		The SS verifies that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Originating Low Priority Signalling”.
3			(void)	
4			(void)	
5	-->		CM SERVICE REQUEST	CM service type set to "Short Message Service"
6	<--		AUTHENTICATION REQUEST	
7	-->		AUTHENTICATION RESPONSE	
8		SS		The SS starts integrity protection
9			(void)	
10	-->		CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU)
11		SS		The SS sends an SM to the UE triggered by the end of the CP-DATA message from the UE
12	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU)
13	UE			The UE shall correctly receive the SM and indicate that a message has arrived. In the MO case the UE shall send the CP-ACK message with transaction identifier assigned to this transfer. In the MT case the UE shall send a CP-ACK message and a CP-DATA message containing the RP-ACK RPDU. The transaction identifier shall be the same as chosen by the SS for the MT transfer.
NOTE: Time values for SS wait times are chosen sufficiently high to be sure that the UE has enough time to respond to the different messages.				

Specific Message Contents

SMS SUBMIT TPDU

Information element	CommentValue
TP-UDL	as applicable
TP-UD (140 octets)	160 ASCII characters

16.1.10.5 Test requirements

After step 12 UE shall correctly receive the SM and indicate that a message has arrived.

16.2 Short message service point to point on PS mode

All of test cases in this clause are applied to the UE supported PS mode.

16.2.1 SMS mobile terminated

16.2.1.1 Definition

16.2.1.2 Conformance requirements

An active UE shall be able to receive short message TPDU (SMS-DELIVER) at any time, independently of whether or not there is a PDP context in progress. A report will always be returned to the SC, confirming that the UE has received the short message.

References

3GPP TS 23.040 clauses 3.1, 9.2.3.16.

16.2.1.3 Test purpose

To verify the ability of a UE to receive and decode the SMS where provided for the point to point service.

16.2.1.4 Method of test

Initial Conditions

- System simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE shall be in GMM-state "GMM-REGISTERED";
  - the SMS message storage shall be empty.

Related ICS/IXIT Statements

Support for Short message MT/PP.

The value of timer TC1M.

Whether SMS messages are stored in the USIM and/or the ME.

Support for session management state "PDP-ACTIVE".

Maximum number of retransmissions of an unacknowledged CP-DATA message.

Test procedure

a) Mobile terminates establishment of Radio Resource Connection. After the completion of RRC Connection the SS authenticates the UE and activates ciphering.

After the SS receives SECURITY MODE COMPLETE, the SS sends a CP-DATA message. The information element of the CP-DATA message will be RP-DATA RPDU (SMS DELIVER TPDU).

b) The SS waits a maximum of 25 s for the CP-ACK message and then a maximum of 60 s for the CP-DATA message containing the RP-ACK RPDU.

c) The SS sends a CP-ACK to the UE within TC1M with no further CP-DATA messages and the SS initiates channel release.

d) Steps a), b) and c) are repeated but the first CP-DATA message from the UE is not acknowledged. The second CP-DATA message from the UE is acknowledged by a CP-ACK within a time TC1M.

e) Steps a) and b) are repeated. The SS is configured not to send CP-ACK. Then maximum 3 CP-DATA retransmissions may occur. After a duration of 4 times TC1M + 10 s (Maximum for T3317) SS initiates the channel release. This is the appropriate time to wait to verify that the UE does not send more than the maximum allowed (3) CP-DATA retransmissions.

f) The SMS message store shall be cleared manually by the operator.

g) A PDP context is established with the SS and the state PDP-ACTIVE of session management is entered.

The SS sends a CP-DATA message. The information element of the CP-DATA message will be RP-DATA RPDU (SMS DELIVER TPDU). The SS waits a maximum of 25 s for the CP-ACK message and then a maximum of 60 s for the CP-DATA message containing the RP-ACK RPDU.

h) The SS sends a CP-ACK to the UE within TC1M with no further CP-DATA messages and the SS initiates channel release. The SMS message store shall be cleared manually by the operator.

i) Steps g) and h) are repeated but the first CP-DATA message from the UE is not acknowledged. The second CP-DATA message from the UE is acknowledged by a CP-ACK within a time TC1M.

j) Step g) is repeated. The SS is configured not to send CP-ACK. Then maximum 3 CP-DATA retransmissions may occur. After a duration of 4 times TC1M + 10 s (Maximum for T3317) SS initiates the channel release. This is the appropriate time to wait to verify that the UE does not send more than the maximum allowed (3) CP-DATA retransmissions (during PDP context in progress).

k) A PDP context is established with the SS and the state PDP-ACTIVE of session management is entered. The PDP context is cleared by the SS with a disconnect message. (The PDP context deactivating is continued in parallel to the following exchange of messages related to SMS).

The SS sends a CP-DATA RPDU (SMS DELIVER TPDU) message. The information element of the CP-DATA message is RP-DATA.

The SS waits a maximum of 25 s for the CP-ACK message and then a maximum of 60 s for the CP-DATA message containing the RP-ACK RPDU.

The SS sends a CP-ACK to the UE within TC1M with no further CP-DATA messages and the SS initiates channel release.

The SMS message store shall be cleared manually by the operator.

l) A PDP context is established with the SS and the state PDP-ACTIVE of session management is entered. The PDP context shall be cleared from the UE. (The PDP context deactivating is continued in parallel to the following exchange of messages related to SMS).

The SS sends a CP-DATA message. The information element of the CP-DATA message is RP-DATA RPDU (SMS DELIVER TPDU).

The SS waits a maximum of 25 s for the CP-ACK message and then a maximum of 60 s for the CP-DATA message containing the RP-ACK RPDU.

The SS sends a CP-ACK to the UE within TC1M with no further CP-DATA messages and the SS initiates channel release.

The SMS message store shall be cleared manually by the operator.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108. The IE “Paging cause” in the PAGING TYPE 1 message is set to “Terminating Low Priority Signalling”. The SS verifies that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Terminating Low Priority Signalling”.
2	-->		SERVICE REQUEST	
3	<--		AUTHENTICATION AND CIPHERING REQUEST	
4	-->		AUTHENTICATION AND CIPHERING RESPONSE	
5		SS		The SS starts integrity protection
6			(void)	
7	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU)
8		SS		Waits max 25 s for CP-ACK
9	-->		CP-ACK	
10		SS		Waits max 60 s for RP-ACK RPDU
11	-->		CP-DATA	Contains RP-ACK RPDU
12	<--		CP-ACK	
13		SS		The SS releases the RRC connection.
14	UE			The UE shall indicate that an SM has arrived.
15			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108. The IE “Paging cause” in the PAGING TYPE 1 message is set to “Terminating Low Priority Signalling”. The SS verifies that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Terminating Low Priority Signalling”
16	-->		SERVICE REQUEST	
17	<--		AUTHENTICATION AND CIPHERING REQUEST	
18	-->		AUTHENTICATION AND CIPHERING RESPONSE	
19		SS		The SS starts integrity protection
20			(void)	
21	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU)
22		SS		Waits max 25 s for CP-ACK
23	-->		CP-ACK	
24		SS		Waits max 60 s for RP-ACK RPDU
25	-->		CP-DATA	First CP-DATA from UE, contains RP-ACK RPDU
26		SS		First CP-DATA message not acknowledged by SS
27	-->		CP-DATA	Retransmitted CP-DATA from UE within twice TC1M, after step 25, contains RP-ACK RPDU
28	<--		CP-ACK	Second CP_DATA message is acknowledged
29		SS		The SS releases the RRC connection.
30	UE			The UE shall indicate that an SM has arrived.
31			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108. The IE “Paging cause” in the PAGING TYPE 1 message is set to “Terminating Low Priority Signalling”. The SS verifies that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Terminating Low Priority Signalling”.
32	-->		SERVICE REQUEST	
33	<--		AUTHENTICATION AND CIPHERING REQUEST	
34	-->		AUTHENTICATION AND CIPHERING RESPONSE	
35		SS		The SS starts integrity protection
36			(void)	
37	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU)
38		SS		Waits max 25 s for CP-ACK
39	-->		CP-ACK	
40		SS		Waits max 60 s for RP-ACK RPDU
41	-->		CP-DATA	Contains RP-ACK RPDU
42		SS		First CP-DATA message not acknowledged by SS

Step	Direction		Message	Comments
	UE	SS		
43			CP-DATA	Retransmitted CP-DATA from UE within twice TC1M after step 41, contains RP-ACK RPDU
44		SS		Retransmitted CP-DATA message not acknowledged by SS
45	UE			Depending upon the maximum number of CP-DATA retransmissions implemented, step 43 and 44 may be repeated. The maximum number of retransmissions may however not exceed three. The UE may also send less than 3 re-transmissions. The same RRC connection shall be used for CP-DATA retransmissions.
45a	UE			The UE may send a Signalling Connection Release Indication message immediately when TC1M has run out. This is according to TS 24.011 clause 5.3.2.1.
46		SS		The SS releases the RRC connection after a duration of 4*TC1M + 10 s (Maximum for T3317) from step 41.
47			Void	
48	UE			The UE shall indicate that an SM has arrived.
49	UE			A PDP context is established with the SS and the state PDP-ACTIVE of session management is entered.
50			(void)	
51	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU)
52		SS		Waits max 25 s for CP-ACK
53	-->		CP-ACK	
54		SS		Waits max 60 s for RP-ACK RPDU
55	-->		CP-DATA	Contains RP-ACK RPDU
56	<--		CP-ACK	
57	<--		DEACTIVATE PDP CONTEXT REQUEST	Deactivates an existing PDP context.
58	-->		DEACTIVATE PDP CONTEXT ACCEPT	
58a	-->		DETACH REQUEST	A manual attach UE is detached
58b	<--		DETACH ACCEPT	
58c		SS		The SS releases the RRC connection.
59	UE			The UE shall indicate that an SM has arrived.
60	UE			Clear the SMS message store
61	UE			A PDP context is established with the SS and the state PDP-ACTIVE of session management is entered.
62			(void)	
63	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU)
64		SS		Waits max 25 s for CP-ACK
65	-->		CP-ACK	
66		SS		Waits max 60 s for RP-ACK RPDU
67	-->		CP-DATA	First CP-DATA from UE, contains RP-ACK RPDU
68		SS		First CP-DATA message not acknowledged by SS
69	-->		CP-DATA	Retransmitted CP-DATA message within twice TC1M after step 67, contains RP-ACK RPDU
70	<--		CP-ACK	Second CP-DATA message is acknowledged
71	<--		DEACTIVATE PDP CONTEXT REQUEST	Deactivates an existing PDP context.
72	-->		DEACTIVATE PDP CONTEXT ACCEPT	
72a	-->		DETACH REQUEST	A manual attach UE is detached
72b	<--		DETACH ACCEPT	
73		SS		The SS releases the RRC connection
74	UE			The UE shall indicate that an SM has arrived.
75	UE			Clear the SMS message store
76	UE			A PDP context is established with the SS and the state PDP-ACTIVE of session management is entered.
77			(void)	
78	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU)
79		SS		Waits max 25 s for CP-ACK
80	-->		CP-ACK	
81		SS		Waits max 60 s for RP-ACK RPDU
82	-->		CP-DATA	First CP-DATA from UE, contains RP-ACK RPDU
83		SS		First CP-DATA message not acknowledged by SS

Step	Direction		Message	Comments
	UE	SS		
84	-->		CP-DATA	Retransmitted CP-DATA message within twice TC1M after step 82, contains RP-ACK RPDU
85	SS			Retransmitted CP-DATA message not acknowledged by SS
86	UE			Depending on the maximum number of CP-DATA retransmissions implemented, step 83-84 may be repeated. The maximum number of retransmissions may however not exceed three. The UE may also send less than 3 re-transmissions. The same RRC connection shall be used for CP-DATA retransmissions.
86a	<--		DEACTIVATE PDP CONTEXT REQUEST	Deactivates an existing PDP context.
86b	-->		DEACTIVATE PDP CONTEXT ACCEPT	
86c	-->		DETACH REQUEST	A manual attach UE is detached
86d	<--		DETACH ACCEPT	
87	SS			The SS releases the RRC connection after a duration of 4*TC1M + 10 s (Maximum for T3317) from step 82.
88			(void)	
89	UE			The UE shall indicate that an SM has arrived.
90	UE			Clear the SMS message store
91	SS			A PDP context is established with the SS and the state PDP-ACTIVE of session management is entered.
92			(void)	
93			(void)	
94	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU)
94a	<--		DEACTIVATE PDP CONTEXT REQUEST	The PDP context is deactivated by the SS. The PDP context deactivating is continued in parallel to the following exchange of messages related to SMS.
94b	-->		DEACTIVATE PDP CONTEXT ACCEPT	This message should be transmitted within T3395 Expiry and at any step before step 96
94c			VOID	
94d			VOID	
94e			VOID	
95	SS			Waits max 25 s for CP-ACK
96	-->		CP-ACK	
97	SS			Waits max 60 s for RP-ACK RPDU
98	-->		CP-DATA	Contains RP-ACK RPDU
99	<--		CP-ACK	
99a	-->		DETACH REQUEST	A manual attach UE is detached
99b	<--		DETACH ACCEPT	
100	SS			The SS releases the RRC connection
101	UE			The UE shall indicate that an SM has arrived.
102	UE			Clear the SMS message store
103	UE			A PDP context is established with the SS and the state PDP-ACTIVE of session management is entered.
104			(void)	
105	-->		DEACTIVATE PDP CONTEXT REQUEST	The PDP context is deactivated by the UE. The PDP context deactivation is continued in parallel to the following
106	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU)
107	<--		DEACTIVATE PDP CONTEXT ACCEPT	
107a			VOID	
107b			VOID	
107c			VOID	

Step	Direction		Message	Comments
	UE	SS		
108	→		CP-ACK	shall be sent before 25 s after the start of step 106
109	SS			Waits max 60 s for RP-ACK RPDU
110	-->		CP-DATA	Contains RP-ACK RPDU
111	<--		CP-ACK	
111a	-->		DETACH REQUEST	A manual attach UE is detached
111b	<--		DETACH ACCEPT	
112	SS			The SS releases the RRC connection
113	UE			The UE shall indicate that an SM has arrived.
114	UE			Clear the SMS message store
NOTE: Time values for SS wait time are chosen sufficiently high to be sure that the UE has enough time to respond to the different messages.				

Specific Message Contents

SMS DELIVER TPDU (not containing a type 0 message)

Information element	Comment Value
TP-PID	Different from Type 0: “01000000”B
TP-UDL	160
TP-UD (140 octets)	text of message (160 characters)
NOTE: The 160 characters in TP-UD shall include at least one occurrence of each character in the default alphabet (see 3GPP TS 23.038, clause 6.2.1).	

16.2.1.5 Test requirements

After step 7 UE shall receive SMS-DELIVER TPDU and send CP-ACK within 25 s and CP-DATA containing RP-ACK within 60 s.

After step 14 UE shall indicate that an SM has arrived.

After step 27 UE shall retransmit CP-DATA containing RP-ACK within twice TC1M.

After step 30 UE shall indicate that an SM has arrived.

After step 43 UE shall repeat CP-DATA retransmissions and the maximum number of retransmissions must not exceed three.

After step 48 UE shall indicate that an SM has arrived.

After step 51 UE shall receive SMS-DELIVER TPDU and send CP-ACK within 25 s and CP-DATA containing RP-ACK within 60 s.

After step 59 UE shall indicate that an SM has arrived.

After step 69 UE shall retransmit CP-DATA containing RP-ACK within twice TC1M.

After step 74 UE shall indicate that an SM has arrived.

After step 84 UE shall repeat CP-DATA retransmissions and the maximum number of retransmissions must not exceed three.

After step 89 UE shall indicate that an SM has arrived.

After step 94 UE shall receive SMS-DELIVER TPDU and send CP-ACK within 25 s and CP-DATA containing RP-ACK within 60 s.

After step 101 UE shall indicate that an SM has arrived.

After step 106 UE shall receive SMS-DELIVER TPDU and send CP-ACK within 25 s and CP-DATA containing RP-ACK within 60 s.

After step 113 UE shall indicate that an SM has arrived.

16.2.2 SMS mobile originated

16.2.2.1 Definition

16.2.2.2 Conformance requirements

An active UE shall be able to submit short message TPDU (SMS-SUBMIT) at any time, independently of whether or not there is a PDP context in progress.

References

3GPP TS 23.040 clause 3.1, 9.2.3.16.

16.2.2.3 Test purpose

To verify that the UE is able to correctly send a short message where the SMS is provided for the point to point service.

16.2.2.4 Method of test

Initial Conditions

- System simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE shall be in GMM-state "GMM-REGISTERED";
  - the SMS message storage shall be empty.

Related ICS/IXIT Statements

Support for Short message MO/PP.

Support for state PDP-ACTIVE of session management.

The value of timer TC1M.

Whether SMS messages are stored in the USIM and/or the ME.

Maximum number of retransmissions of an unacknowledged CP-DATA message.

Test procedure

a) The UE shall be set up to send an SM to the SS. The UE establishes successfully an RRC connection.

b) The SS performs authentication and after that, the SS starts integrity protection.

c) The SS responds to the CP-DATA containing RP-DATA RPDU (SMS SUBMIT TPDU) from the UE with a CP-ACK message within TC1M followed by a CP-DATA message containing the correct RP-ACK RPDU. The SS waits a maximum of 25 s for the CP-ACK message.

d) The SS sends a channel release message to the UE.

e) Steps a) and b) are repeated. The SS is configured not to send the CP-ACK message. Then maximum 3 CP-DATA retransmissions may occur. After a duration of 4 times TC1M + 10 s (Maximum for T3317) SS initiates channel release. This is the appropriate time to wait to verify that the UE does not send more than the maximum CP-DATA retransmissions.

f) Steps a) and b) are repeated. On receipt of the CP-DATA from the UE the SS sends a CP-ERROR message within TC1M containing a "Network Failure" cause. Then the SS initiates channel release.

g) A PDP context is established with the SS and the state PDP-ACTIVE of session management is entered. The UE is set up to send an SM to the SS.

h) The SS responds to the CP-DATA containing RP-DATA RPDU (SMS SUBMIT TPDU) from the UE with a CP-ACK message within TC1M followed by a CP-DATA message containing the correct RP-ACK RPDU. The SS waits a maximum of 25 s for the CP-ACK message. Then the SS sends a channel release message to the UE.

i) Step g) is repeated. The SS is configured not to send the CP-ACK message. Then maximum 3 CP-DATA retransmissions may occur. After a duration of 4 times TC1M + 10 s (Maximum for T3317) the SS initiates channel release. This is the appropriate time to wait to verify that the UE does not send more than the maximum CP-DATA retransmissions (during a PDP context in progress).

j) (void)

k) The UE is set up to send an SM to the SS. On receipt of the SERVICE REQUEST the SS sends a SERVICE REJECT message with the reject cause set to "GPRS services not allowed". After 5 s the SS initiates channel release.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set up to send an SM
2	SS			The SS verifies that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Originating Low Priority Signalling”.
3			(void)	
4			(void)	
5	-->		SERVICE REQUEST	
6	<--		AUTHENTICATION AND CIPHERING REQUEST	
7	-->		AUTHENTICATION AND CIPHERING RESPONSE	
8	SS			The SS starts integrity protection
9			(void)	
10	-->		CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU)
11	<--		CP-ACK	Sent within TC1M after step 10
12	<--		CP-DATA	Contains RP-ACK RPDU
13	SS			Waits max 25 s for CP-ACK
14	-->		CP-ACK	
15	SS			The SS releases the RRC connection
16			(void)	
17	UE			The UE is set up to send an SM
18	SS			The SS verifies that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Originating Low Priority Signalling”.
19			(void)	
20			(void)	
21	-->		SERVICE REQUEST	
22	<--		AUTHENTICATION AND CIPHERING REQUEST	
23	-->		AUTHENTICATION AND CIPHERING RESPONSE	
24	SS			The SS starts integrity protection
25			(void)	
26	-->		CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU)
27	SS			SS configured not to send CP-ACK
28	-->		CP-DATA	Retransmitted CP-DATA message within twice TC1M after step 26
29	UE			Depending on the maximum number of CP-DATA retransmissions implemented, step 28 may be repeated. The maximum number of retransmissions may however not exceed three. The UE may also send less than 3 re-transmissions. The same RRC connection shall be used for CP-DATA retransmissions.

Step	Direction		Message	Comments
	UE	SS		
29a	UE			The UE may send a Signalling Connection Release Indication message immediately when TC1M has run out. This is according to TS 24.011 clause 5.3.2.1.
30	SS			The SS releases the RRC connection after a duration of 4*TC1M + 10 s (Maximum for T3317) from step 26.
30a			(void)	
31			(void)	
32	UE			The UE is set up to send an SM
33	SS			The SS verifies that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Originating Low Priority Signalling”.
34			(void)	
35			(void)	
36	-->		SERVICE REQUEST	
37	<--		AUTHENTICATION AND CIPHERING REQUEST	
38	-->		AUTHENTICATION AND CIPHERING RESPONSE	
39	SS			The SS starts integrity protection
40			(void)	
41	-->		CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU)
42	<--		CP-ERROR	Sent within TC1M containing "Network Failure" cause.
43	SS			The SS releases the RRC connection.
44			(void)	
45	UE			A PDP context is established with the SS and the state PDP-ACTIVE of session management is entered.
46	UE			The UE is set up to send an SM
47			(void)	
48			(void)	
49	-->		CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU)
50	<--		CP-ACK	Sent within TC1M after step 49
51	<--		CP-DATA	Contains RP-ACK RPDU
52	SS			Waits max 25 s for CP-ACK
53	-->		CP-ACK	
53a	<--		DEACTIVATE PDP CONTEXT REQUEST	Deactivates an existing PDP context.
53b	-->		DEACTIVATE PDP CONTEXT ACCEPT	
53c	-->		DETACH REQUEST	A manual attach UE is detached
53d	<--		DETACH ACCEPT	
54	SS			The SS releases the RRC connection.
55			(void)	
56	UE			A PDP context is established with the SS and the state PDP-ACTIVE of session management is entered.
56a	UE			The UE is set up to send an SM. Continue at step 59 (signalling connection already established in step 56).
56b			(void)	
56c			(void)	
56d			(void)	
56e			(void)	
57			(void)	
58			(void)	
59	-->		CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU)
60	SS			SS configured not to send CP-ACK
61	-->		CP-DATA	Retransmitted CP-DATA message within twice TC1M after step 59
62	UE			Depending on the maximum number of CP-DATA retransmissions implemented, step 61 may be repeated. The maximum number of retransmissions may however not exceed three. The UE may also send less than 3 re-transmissions. The same RRC connection shall be used for CP-DATA retransmissions.
63	SS			The SS releases the RRC connection after a duration of 4*TC1M + 10 s (Maximum for T3317) from step 59.

Step	Direction		Message	Comments
	UE	SS		
63a			(void)	
64			(void)	
65-77			(void)	
78	UE			The UE is set up to send an SM
79	SS			The SS verifies that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Originating Low Priority Signalling”.
80			(void)	
81	-->		SERVICE REQUEST	
82	<--		SERVICE REJECT	Reject cause set to "GPRS services not allowed"
83	SS			The SS releases the RRC connection. The RRC connection is releases 5 s after SERVICE REJECT
NOTE:	Time values for SS wait times are chosen sufficiently high to be sure that the UE has enough time to respond to the different messages.			

Specific Message Contents

SMS SUBMIT TPDU

Information element	Comment Value
TP-UDL	as applicable
TP-UD (140 octets)	160 ASCII characters

16.2.2.5 Test requirements

After step 10 UE shall send a CP-DATA containing RP-data. The RP-DATA shall contain SMS SUBMIT TPDU.

After step 26 UE shall retransmit a CP-DATA containing RP-data. The RP-DATA shall contain SMS SUBMIT TPDU.

After step 49 UE shall send a CP-DATA containing RP-data. The RP-DATA shall contain SMS SUBMIT TPDU.

After step 61 UE shall repeat CP-DATA retransmissions and the maximum number of retransmissions must not exceed three.

After step 82 UE shall not send CP-DATA.

16.2.3 Test of memory full condition and memory available notification:

The Memory Available Notification provides a means for the UE to notify the network that it has memory available to receive one or more short messages. The SMS status field in the USIM contains status information on the "memory available" notification flag.

16.2.3.1 Definition

16.2.3.2 Conformance requirement

1. When a mobile terminated message is Class 2, the UE shall ensure that the message has been transferred to the SMS data field in the USIM before sending an acknowledgement to the SC. The UE shall return a protocol error message if the short message cannot be stored in the USIM and there is other short message storage available in the UE. If all the short message storage in the UE is already in use, the UE shall return "memory capability exceeded".

2. When the UE rejects a short message due to lack of available memory capability the need to transfer notification shall be stored in the USIM.

3. If the memory capability becomes available because memory is cleared, the value of the memory capability exceeded notification flag in the USIM is read. If the flag is set, the UE notifies the network that memory capability is now available. After a positive acknowledgement from the network, the ME unsets the memory capability exceeded notification flag in the USIM.

References

- 3GPP TS 23.038 clause 4.
- 3GPP TS 23.040 clauses 9.2.3.10, 10.3 (operation 14).

16.2.3.3 Test purpose

1. To verify that the UE sends the correct acknowledgement when its memory in the USIM becomes full.
2. To verify that the UE sends the correct acknowledgement when its memory in the ME and the USIM becomes full, and sets the "memory exceeded" notification flag in the USIM.
3. To verify that the UE performs the "memory available" procedure when its message store becomes available for receiving short messages, and only at this moment.

16.2.3.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE shall be in GMM-state "GMM-REGISTERED";
  - the SMS message storage shall be empty;
  - the UE shall be connected to the USIM simulator. The following shall be present in the USIM simulator:
    - EF_{SMS} with at least one record;
    - EF_{SMSS}, with SMS "Memory Cap. Exceed" notification flag set to "memory available";
    - Service no. 10 (SMS) in EF_{UST} set to allocated and activated.
  - for storing of Class 1 Short Messages the UE shall be set up to store Short Messages in the ME memory (by way of MMI, as described in ICS/IXIT statement).

Related ICS/IXIT Statements

Support for Short message MT/PP.

Whether SMS messages are stored in the USIM and/or the ME.

The value of timer TC1M.

Test procedure

a) step a) of clause 16.2.5.3 (test of Class 2 Short Messages) is repeated until the UE sends a negative acknowledgement (RP-ERROR). The USIM simulator shall indicate if the "memory capability exceeded" notification flag has been set on the USIM.

b) a Class 1 Short Message is sent to the UE.

c) step b) is repeated until the UE sends a negative acknowledgement (RP-ERROR). The USIM simulator shall indicate if the "memory capability exceeded" notification flag has been set on the USIM.

d) a Short Message is sent to the UE with the DCS field of the SMS-DELIVER TPDU set to 0.

e) the SS prompts the operator to read a short message and to remove it from the message store of the UE.

f) the SS waits for a RRC CONNECTION REQUEST from the UE, and sends a RRC CONNECTION SETUP.

g) after the SS receives a RRC CONNECTION SETUP COMPLETE, the SS authenticates the UE and activates ciphering.

h) the SS answers to the RP-SMMA from the UE with a CP-DATA containing a RP-ACK RPDU.

i) after the UE has acknowledged the CP-DATA with a CP-ACK, the SS releases the RRC connection. The USIM simulator shall indicate if the "memory capability exceeded" notification flag has been unset on the USIM.

j) step e) is repeated.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
2	-->		SERVICE REQUEST	
3	<--		AUTHENTICATION AND CIPHERING REQUEST	
4	-->		AUTHENTICATION AND CIPHERING RESPONSE	
5	<--		SECURITY MODE COMMAND	
6	-->		SECURITY MODE COMPLETE	
7	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU), Class 2 Short Message
8	SS			Waits max 25 s for CP-ACK
9	-->		CP-ACK	
10	SS			Waits max 60 s for RP-ACK RPDU
11	-->		CP-DATA	Contains RP-ACK RPDU
12	<--		CP-ACK	Within TC1M after step 11
13	<--		RRC CONNECTION RELEASE	RRC connection is released. Step 1-13 is repeated until UE sends a negative acknowledgement (RP-ERROR) in step 11. The RP-ERROR RPDU cause field shall be "Protocol error, unspecified" if there is message capability in the USIM, or "Memory capability exceeded" if there is no message capability in the USIM. If the total memory store of the UE is full, the ME shall set the "memory capability exceeded" notification flag on the USIM.
14	-->		RRC CONNECTION RELEASE COMPLETE	
15			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
16	-->		SERVICE REQUEST	
17	<--		AUTHENTICATION AND CIPHERING REQUEST	
18	-->		AUTHENTICATION AND CIPHERING RESPONSE	
19	<--		SECURITY MODE COMMAND	
20	-->		SECURITY MODE COMPLETE	
21	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU), Class 1 Short Message
22	SS			Waits max 25 s for CP-ACK
23	-->		CP-ACK	
24	SS			Waits max 60 s for RP-ACK RPDU
25	-->		CP-DATA	Shall contain RP-ACK RPDU if there is memory capability in the ME. If not it shall contain RP-ERROR RPDU which cause field shall be "memory capability exceeded". If the total memory store of the UE now becomes full at this step, the ME shall set the "memory cap. exceed" notification flag on the USIM.
26	<--		CP-ACK	Within TC1M after step 25
27	<--		RRC CONNECTION RELEASE	RRC connection is released. Step 16-27 is repeated until the UE sends an RP-ERROR. The USIM simulator shall indicate if the "memory capability exceeded" notification flag has been set on the USIM.
28	-->		RRC CONNECTION RELEASE COMPLETE	

Step	Direction		Message	Comments
	UE	SS		
29			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
30	-->		SERVICE REQUEST	
31	<--		AUTHENTICATION AND CIPHERING REQUEST	
32	-->		AUTHENTICATION AND CIPHERING RESPONSE	
33	<--		SECURITY MODE COMMAND	
34	-->		SECURITY MODE COMPLETE	
35	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU) with TP-DCS set to 0
36		SS		Waits max 25 s for CP-ACK
37	-->		CP-ACK	
38		SS		Waits max 60 s for RP-ACK RPDU
39	-->		CP-DATA	Shall contain RP-ERROR RPDU with error cause "memory capability exceeded".
40	<--		CP-ACK	Within TC1M after step 39
41	<--		RRC CONNECTION RELEASE	RRC connection is released.
42	-->		RRC CONNECTION RELEASE COMPLETE	
43		SS		Prompts the operator to remove one of the short messages from the message store of the UE.
44	<--		SYSTEM INFORMATION	BCCH
45	-->		RRC CONNECTION REQUEST	CCCH
46	<--		RRC CONNECTION SETUP	CCCH
47	-->		RRC CONNECTION SETUP COMPLETE	DCCH
48	-->		SERVICE REQUEST	
49	<--		SERVICE ACCEPT	
50	-->		CP-DATA	Contains RP-SMMA RPDU
51	<--		CP-ACK	
52	<--		CP-DATA	Contains RP-ACK RPDU
53	-->		CP-ACK	Acknowledge of CP-DATA containing the RP-ACK RPDU. The ME shall unset the "memory capability exceeded" notification flag on the USIM.
54	<--		RRC CONNECTION RELEASE	RRC connection is released. The USIM simulator shall indicate if the "memory capability exceeded" notification flag has been unset on the USIM.
55	-->		RRC CONNECTION RELEASE COMPLETE	
56		SS		Prompts the operator to remove one of the short messages from the message store of the UE.
57		UE		Shall not attempt to send a RP-SMMA RPDU. This is verified by checking that the UE does not send a CHANNEL REQUEST message with the establishment cause "Other services which can be completed with an SDCCH"
NOTE: Time values for SS wait time are chosen sufficiently high to be sure that the UE has enough time to respond to the different messages.				

Specific Message Contents

SMS-DELIVER TPDU in step 7

Information element	Comment Value
TP-DCS	default alphabet, class 2 "11110010"B

SMS-DELIVER TPDU in step 21

TP-DCS	default alphabet, class 1 "11110001"B

SMS-DELIVER TPDU in step 35

TP-DCS	default alphabet "00000000"B

16.2.3.5 Test requirements

After UE sends a negative acknowledgement (RP-ERROR) in step 11, the USIM simulator shall indicate if the "memory capability exceeded" notification flag has been set on the USIM.

After UE sends a negative acknowledgement (RP-ERROR) in step 25, the USIM simulator shall indicate if the "memory capability exceeded" notification flag has been set on the USIM.

After step 53 the ME shall unset the "memory capability exceeded" notification flag on the USIM.

After step 57 UE shall not attempt to send a RP-SMMA RPDU.

16.2.4 Test of the status report capabilities and of SMS-COMMAND:

This test applies to UEs which support the status report capabilities.

16.2.4.1 Definition

16.2.4.2 Conformance requirement

The SMS offers the SC the capabilities of informing the UE of the status of a previously sent mobile originated short message. This is achieved by the SC returning a status report TPDU (SMS-STATUS-REPORT) to the originating UE.

SMS-COMMAND enables an UE to invoke an operation at the SC.

The UE shall increment TP-MR by 1 for each SMS-SUBMIT or SMS-COMMAND being submitted.

References

- 3GPP TS 23.040 clauses 3.2.9, 9.2.3.2, 9.2.3.4, 9.2.3.5, 9.2.3.6, 9.2.3.14, 9.2.3.18, 9.2.3.19, 9.2.3.26.

16.2.4.3 Test purpose

1) To verify that the UE is able to accept a SMS-STATUS-REPORT TPDU.

2) To verify that the UE is able to use the SMS-COMMAND functionality correctly and sends an SMS-COMMAND TPDU with the correct TP-Message-Reference.

16.2.4.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE shall be in GMM-state "GMM-REGISTERED".

Related ICS/IXIT Statements

Support of SMS MO/PP and MT/PP.

Test procedure

a) The UE is made to send a Mobile Originated short message setting TP-SRR as in steps a) to d) of test 16.2.2 (SMS Mobile originated).

b) The SS sends a CP-DATA message containing a RP-DATA RPDU itself containing an SMS-STATUS-REPORT TPDU.

c) The SS sends a RRC CONNECTION RELEASE message.

d) The UE is made to send an SMS-COMMAND message enquiring about the previously submitted short message.

e) Void.

f) The SS acknowledges the CP-DATA message from the UE with a CP-ACK followed by a CP-DATA message containing an RP-ACK RPDU.

g) After receiving the CP-ACK from the UE, the SS releases the RRC connection by using a RRC CONNECTION RELEASE message.

h) The UE is made to send an SMS-COMMAND message requiring to delete the previously submitted short message.

i) steps e) to g) are repeated.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION	BCCH
2	-->		RRC CONNECTION REQUEST	CCCH
3	<--		RRC CONNECTION SETUP	CCCH
4	-->		RRC CONNECTION SETUP COMPLETE	DCCH
5	-->		SERVICE REQUEST	
6	<--		AUTHENTICATION AND CIPHERING REQUEST	
7	-->		AUTHENTICATION AND CIPHERING RESPONSE	
8	<--		SECURITY MODE COMMAND	
9	-->		SECURITY MODE COMPLETE	
10	-->		CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU)
11	<--		CP-ACK	Sent within TC1M after step 10
12	<--		CP-DATA	Contains RP-ACK RPDU
13	SS			Waits max 25 s for CP-ACK
14	-->		CP-ACK	
15	<--		RRC CONNECTION RELEASE	RRC connection is released.
16	-->		RRC CONNECTION RELEASE COMPLETE	
17			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
18	-->		SERVICE REQUEST	
19	<--		AUTHENTICATION AND CIPHERING REQUEST	
20	-->		AUTHENTICATION AND CIPHERING RESPONSE	
21	<--		SECURITY MODE COMMAND	
22	-->		SECURITY MODE COMPLETE	
23	<--		CP-DATA	Contains RP-DATA RPDU (SMS-STATUS-REPORT TPDU)
24	-->		CP-ACK	
25	-->		CP-DATA	Contains RP-ACK RPDU
26	<--		CP-ACK	
27	<--		RRC CONNECTION RELEASE	
28	-->		RRC CONNECTION RELEASE COMPLETE	

Step	Direction		Message	Comments
	UE	SS		
29	UE			The UE is made to send an SMS-COMMAND message enquiring about the previously submitted SM
30	<--		SYSTEM INFORMATION	BCCH
31	-->		RRC CONNECTION REQUEST	CCCH
32	<--		RRC CONNECTION SETUP	CCCH
33	-->		RRC CONNECTION SETUP COMPLETE	DCCH
34	-->		SERVICE REQUEST	
35	<--		AUTHENTICATION AND CIPHERING REQUEST	
36	-->		AUTHENTICATION AND CIPHERING RESPONSE	
37	<--		SECURITY MODE COMMAND	
38	-->		SECURITY MODE COMPLETE	
39	-->		CP-DATA	Contains RP-DATA RPDU (SMS-COMMAND TPDU) which shall contain the correct TP-MR
40	<--		CP-ACK	
41	<--		CP-DATA	Contains RP-ACK RPDU
42	-->		CP-ACK	
43	<--		RRC CONNECTION RELEASE	
44	-->		RRC CONNECTION RELEASE COMPLETE	
45	UE		The UE is made to send an SMS-COMMAND	message requiring to delete the previously submitted SM.
46	-->		RRC CONNECTION REQUEST	CCCH
47	<--		RRC CONNECTION SETUP	CCCH
48	-->		RRC CONNECTION SETUP COMPLETE	DCCH
49	-->		SERVICE REQUEST	
50	<--		AUTHENTICATION AND CIPHERING REQUEST	
51	-->		AUTHENTICATION AND CIPHERING RESPONSE	
52	<--		SECURITY MODE COMMAND	
53	-->		SECURITY MODE COMPLETE	
54	-->		CP-DATA	Contains RP-DATA RPDU (SMS-COMMAND TPDU) which shall contain the correct TP-MR
55	<--		CP-ACK	
56	<--		CP-DATA	Contains RP-ACK RPDU
57	-->		CP-ACK	
58	<--		RRC CONNECTION RELEASE	
59	-->		RRC CONNECTION RELEASE COMPLETE	

Specific Message Contents

SMS SUBMIT TPDU

Information element	Comment Value
TP-SRR	status report is requested "1"B

SMS-STATUS-REPORT TPDU (SS to UE in step 23):

Information element	Comment Value
TP-MR	same as previous SMS-SUBMIT
TP-MMS	no more messages "1"B
TP-SRQ	result of SMS-SUBMIT "0"B
TP-RA	same as the Destination address of the SMS-SUBMIT
TP-ST	SM received "00000000"B

first SMS-COMMAND TPDU (UE to SS in step 39)

Information element	Comment Value
TP-MR	TP-MR in previous SMS-SUBMIT plus "1"
TP-SRR	status report requested "1"B
TP-CT	Enquiry relating to previously submitted short message "00000000"B
TP-MN	not checked (TP-MR in previous SMS-SUBMIT)

second SMS-COMMAND TPDU (UE to SS in step 54)

Information element	Comment Value
TP-MR	TP-MR in previous SMS-COMMAND plus "1"
TP-CT	Delete previously submitted short message "00000010"B
TP-MN	not checked (TP-MR in previous SMS-SUBMIT)

16.2.4.5 Test requirements

After step 23 UE accept a SMS-STATUS-REPORT TPDU.

After step 39 UE shall send a SMS-COMMAND TPDU with the correct TP-Message-Reference.

After step 54 UE shall send a SMS-COMMAND TPDU with the correct TP-Message-Reference.

16.2.5 Test of message class 0 to 3

16.2.5.1 Short message class 0

16.2.5.1.1 Definition

16.2.5.1.2 Conformance requirement

When a mobile terminated message is class 0 and the UE has the capability of indicating short messages, the UE shall indicate the message immediately and send an acknowledgement to the SC when the message has successfully reached the UE irrespective of whether there is memory available in the USIM or ME. The message shall not be automatically stored in the USIM or ME.

Reference

3GPP TS 23.038 clause 4.

16.2.5.1.3 Test purpose

To verify that the UE will accept and indicate but not store a class 0 message, and that it will accept and indicate a class 0 message if its message store is full.

NOTE: failure of this test in a UE could cause it to reject a class 0 message when its SMS memory becomes full. This could lead to unwanted repetitions between the UE and the service centre.

16.2.5.1.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:

- the UE shall be in GMM-state "GMM-REGISTERED";
- the UE message store shall be empty.

Related ICS/IXIT Statements

Support for Short message MT/PP.

The value of timer TC1M.

Whether SMS messages are stored in the USIM and/or the ME.

Test procedure

a) The SS sends a class 0 message by using the method described in step a) of clause 16.2.1 but with the TPDU described in this clause.

b) The UE message store shall be filled (for example by using the method of clause 16.2.3 test of the memory available notification) with the same SMS-DELIVER TPDU except that TP-DCS is set to class 1.

c) The SS sends a class 0 message as in step a).

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
2	-->		SERVICE REQUEST	
3	<--		AUTHENTICATION AND CIPHERING REQUEST	
4	-->		AUTHENTICATION AND CIPHERING RESPONSE	
5	<--		SECURITY MODE COMMAND	
6	-->		SECURITY MODE COMPLETE	
7	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU), Class 0 Short Message
8	-->		CP-ACK	
9	-->		CP-DATA	Contains RP-ACK RPDU.
10	<--		CP-ACK	
11	<--		RRC CONNECTION RELEASE	
12	-->		RRC CONNECTION RELEASE COMPLETE	
13	UE			The content of the short message shall be indicated by the ME. The UE shall not store the message. This can be checked by verifying that it is impossible to retrieve any short messages from the UE message store.
14	SS			The UE message store shall be filled (for example by using the method of 16.2.3) with Class 1 SMS-DELIVER TPDU.
15			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
16	-->		SERVICE REQUEST	
17	<--		AUTHENTICATION AND CIPHERING REQUEST	
18	-->		AUTHENTICATION AND CIPHERING RESPONSE	
19	<--		SECURITY MODE COMMAND	
20	-->		SECURITY MODE COMPLETE	
21	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU), Class 0 Short Message
22	-->		CP-ACK	
23	-->		CP-DATA	Contains RP-ACK RPDU.
24	<--		CP-ACK	
25	<--		RRC CONNECTION RELEASE	

Step	Direction		Message	Comments
	UE	SS		
26	-->		RRC CONNECTION RELEASE COMPLETE	
27	UE			The content of the short message shall be indicated by the ME.

Specific Message Contents

SMS-DELIVER TPDU (containing a class 0 message) (SS to UE)

Information element	Comment	Value
TP-DCS	default alphabet, class 0	"1111 0000"B

SMS-DELIVER TPDU (containing a class 1 message to fill the UE message store) (SS to UE)

Information element	Comment	Value
TP-DCS	default alphabet, class 1	"1111 0001"B

16.2.5.1.5 Test requirements

After step 7 UE shall accept and indicate but not store a class 0 message.

After step 21 UE shall accept and indicate a class 0 message.

16.2.5.2 Test of class 1 short messages

This test shall apply to UEs which support:

- storing of received Class 1 Short Messages; and
- indicating of stored Short Messages.

16.2.5.2.1 Definition

16.2.5.2.2 Conformance requirement

When a mobile terminated message is class 1, the UE shall send an acknowledgement to the SC when the message has successfully reached the UE and can be stored, either in the ME or in the USIM.

Reference

3GPP TS 23.038 clause 4.

16.2.5.2.3 Test purpose

This procedure verifies that the UE acts correctly on receiving a class 1 message, i.e. that it stores the message in the ME or USIM and sends an acknowledgement (at RP and CP-Layer).

16.2.5.2.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:

- the UE shall be in GMM-state "GMM-REGISTERED";
- the UE message store shall be empty;
- for storing of class 1 Short Messages, the UE shall be set up to store Short Messages in the ME memory (by way of MMI, as described in ICS/IXIT statement).

Related ICS/IXIT Statements

Support for Short message MT/PP.

The value of timer TC1M.

Whether SMS messages are stored in the USIM and/or the ME.

Test procedure

a) The SS delivers a Short Message of class 1 to the UE as specified in clause 16.2.1, step a).

b) The Short Message is recalled (e.g. by means of the MMI).

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
2	-->		SERVICE REQUEST	
3	<--		AUTHENTICATION AND CIPHERING REQUEST	
4	-->		AUTHENTICATION AND CIPHERING RESPONSE	
5	<--		SECURITY MODE COMMAND	
6	-->		SECURITY MODE COMPLETE	
7	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU), Class 1 Short Message
8	-->		CP-ACK	
9	-->		CP-DATA	Contains RP-ACK RPDU.
10	<--		CP-ACK	
11	<--		RRC CONNECTION RELEASE	
12	-->		RRC CONNECTION RELEASE COMPLETE	
13	UE			The short message shall be recalled and indicated at the UE.

Specific Message Contents

SMS-DELIVER TPDU (containing a class 1 message) (SS to UE)

Information element	Comment	Value
TP-DCS	default alphabet, class 1	"1111 0001"B

16.2.5.2.5 Test requirements

After step 7 UE shall store the message in the ME or USIM and send an acknowledgement.

16.2.5.3 Test of class 2 short messages

16.2.5.3.1 Definition

Class 2 Short Messages are defined as USIM specific, and the UE shall ensure that a message of this class is stored on the USIM.

16.2.5.3.2 Conformance requirement

When a mobile terminated message is Class 2, the UE shall ensure that the message has been correctly transferred to the SMS data field in the USIM before sending an acknowledgement to the SC. The UE shall return a "protocol error, unspecified" error message if the short message cannot be stored in the USIM and there is other short message storage available at the UE. If all the short message storage at the UE is already in use, the UE shall return "memory capacity exceeded".

References

3GPP TS 23.040 clause 9.2.3.10.

3GPP TS 23.038 clause 4.3

3GPP TS 34.108 clause 8.3.2.28.

16.2.5.3.3 Test purpose

This procedure verifies that the UE acts correctly on receiving a class 2 message, i.e. that it stores the message correctly in the USIM, and if this is not possible, returns a protocol error message, with the correct error cause, to the network.

There are 2 cases:

1) if the UE supports storing of short messages in the USIM and in the ME, and storage in the ME is not full, and the short message cannot be stored in the USIM, the error cause shall be "protocol error, unspecified";

2) if the UE supports storing of short messages in the USIM and not in the ME, and storage in the ME is not full, and the short message cannot be stored in the USIM, the error cause shall be "memory capacity exceeded".

NOTE: If the UE supports storing of short messages in the USIM and the ME, and storage in the ME is full, and the short message cannot be stored in the USIM, the error cause shall be "memory capacity exceeded". This case is not tested in this test.

16.2.5.3.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE shall be in GMM-state "GMM-REGISTERED";
  - the ME message store shall be empty;
  - the ME shall be connected to the USIM simulator. The following shall be present in the USIM simulator:
    - EF_{SMS} with at least two free records and one full record;
    - EF_{SMSS}, with SMS "Memory Cap. Exceed" notification flag set to "memory available";
    - Service no. 10 (SMS) in EF_{UST} set to allocated and activated;
    - for storing of Class 1 Short Messages the UE shall be set up to store Short Messages in the ME memory (by way of MMI, as described in ICS/IXIT statement).

Related ICS/IXIT Statements

Support for Short message MT/PP.

The value of timer TC1M.

Whether SMS messages are stored in the USIM and/or the ME.

Test procedure

a) The SS delivers a Short Message of class 2 to the UE as specified in clause 16.2.1, step b).

b) Following an attempt by the ME to store the short message in a free record of EF_{SMS} in the USIM, the USIM simulator returns the status response "OK" ("90 00").

c) Step a) is repeated.

d) Following an attempt by the ME to store the short message in a free record of EF_{SMS} in the USIM, the USIM simulator returns the status response "memory problem" ("92 40").

e) The USIM simulator indicates if an attempt was made in steps a) and c) to store the messages and if the messages are stored according to the requirement.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
2	-->		SERVICE REQUEST	
3	<--		AUTHENTICATION AND CIPHERING REQUEST	
4	-->		AUTHENTICATION AND CIPHERING RESPONSE	
5	<--		SECURITY MODE COMMAND	
6	-->		SECURITY MODE COMPLETE	
7	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU), Class 2 Short Message
8	-->		CP-ACK	
9	ME			The ME shall correctly store the short message in a free record of EFSMS in the USIM, i.e. - the ME shall use a free record - the first byte of the record shall indicate "message received by UE from network" - the TS-Service-Centre-Address shall be correctly stored - the TPDU shall be identical to that sent by the SS - bytes following the TPDU shall be set to "FF"
10	USIM			The USIM simulator returns the status response "OK" ("90 00"). The USIM simulator shall indicate if an attempt was made by the ME to store the short message in the USIM.
11	-->		CP-DATA	Contains RP-ACK RPDU.
12	<--		CP-ACK	
13	<--		RRC CONNECTION RELEASE	
14	-->		RRC CONNECTION RELEASE COMPLETE	
15			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
16	-->		SERVICE REQUEST	
17	<--		AUTHENTICATION AND CIPHERING REQUEST	

Step	Direction		Message	Comments
	UE	SS		
18	-->		AUTHENTICATION AND CIPHERING RESPONSE	
19	<--		SECURITY MODE COMMAND	
20	-->		SECURITY MODE COMPLETE	
21	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU), Class 2 Short Message
22	-->		CP-ACK	
23	ME			The ME shall attempt to store the short message in a free record of EFSMS in the USIM.
24	USIM			The USIM simulator returns the status response "memory problem" ("92 40"). The USIM simulator shall indicate if an attempt was made by the ME to store the short message in the USIM.
25	-->		CP-DATA	Contains RP-ERROR RPDU with error cause "protocol error, unspecified" if the UE supports storing of short messages in the ME, or error cause "memory capacity exceeded" if not.
26	<--		CP-ACK	
27	<--		RRC CONNECTION RELEASE	
28	-->		RRC CONNECTION RELEASE COMPLETE	

Specific Message Contents

SMS-DELIVER TPDU (containing a class 2 message) (SS to UE)

Information element	Comment	Value
TP-DCS	default alphabet, class 2	"1111 0010"B

16.2.5.3.5 Test requirements

After step 10 UE shall confirm that the short message is stored in the USIM and send CP-DATA containing RP-ACK RPDU.

After step 24 UE shall confirm that the short message cannot be stored in the USIM and send CP-DATA containing RP-ERROR RPDU. If UE supports storing of short message in the ME, the error cause of RP-ERROR RPDU shall be "protocol error, unspecified", and if not the error cause of RP-ERROR RPDU shall be "memory capacity exceeded"

16.2.5.4 Test of class 3 short messages

For further study.

16.2.6 Test of short message type 0 (R99 and REL-4 UE)

16.2.6.1 Definition and applicability

This tests that the UE correctly acknowledges the receipt of the short message type 0 to the SC in Packet Switched mode. It is highly recommended that the UE discards the contents of the short message type 0.

This test shall apply to all R99 and REL-4 UEs supporting receipt of short messages in PS mode.

16.2.6.2 Conformance requirement

When a mobile terminated message is type 0, the UE shall acknowledge receipt of the short message to the SC but may discard its contents.

Note: It is highly recommended that the UE discards the type 0 short message. This means that the UE is able to receive the type 0 short message irrespective of whether there is memory available in the (U)SIM or ME or not, the UE does not indicate the receipt of the type 0 short message to the user, and the message is not stored in the (U)SIM or ME.

Reference(s)

3GPP TS 23.040, 9.2.3.9.

16.2.6.3 Test purpose

To verify that the UE will acknowledge receipt of the short message to the SC. The UE should discard its contents.

NOTE: failure of this test in a UE could cause it to reject a type 0 message when the network is trying to reach the UE. This could lead to unwanted repetitions between the UE and the service centre.

16.2.6.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

the UE shall be in GMM-state "GMM-REGISTERED";

Related ICS/IXIT Statements

Support for Short Message MT/PP.

The value of timer TC1M.

Foreseen Final State of UE

Idle, updated.

Test Procedure

The SS sends a type 0 message by using the method described in step a) of section 16.2.1 but with the TPDU described in this section.

Maximum Duration of Test

1 minute

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
2	-->		SERVICE REQUEST	
3	<--		AUTHENTICATION AND CIPHERING REQUEST	
4	-->		AUTHENTICATION AND CIPHERING RESPONSE	
5	<--		SECURITY MODE COMMAND	
6	-->		SECURITY MODE COMPLETE	
7	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU), type 0 Short Message
8	-->		CP-ACK	
9	-->		CP-DATA	Contains RP-ACK TP-Protocol-Identifier (TP-PID).
10	<--		CP-ACK	
11	<--		RRC CONNECTION RELEASE	
12	-->		RRC CONNECTION RELEASE COMPLETE	
13	UE			It is highly recommended that the UE discards the type 0 short message. This means that the UE is able to receive the type 0 short message irrespective of whether there is memory available in the (U)SIM or ME or not, the UE does not indicate the receipt of the type 0 short message to the user, and the message is not stored in the (U)SIM or ME.

Specific Message Contents:

SMS-DELIVER TPDU (containing a type 0 message) (SS to UE):

Information element	Comment Value
TP-MTI	SMS-DELIVER "00"B
TP-MMS	more messages are waiting in SC "0"B
TP-RP	no reply path "0"B
TP-UDHI	TP-UD contains only the SM"0"B
TP-SRI	no status report returned0
TP-OA	an international number coded E.164
TP-PID	Type 0: "01000000"B
TP-DCS	default alphabet “0000 0000"B
TP-SCTS	any legal value (cf. 3GPP TS 23.040)
TP-UDL	160
TP-UD (140 octets)	text of message (160 characters)

16.2.6a Test of short message type 0 (≥ REL-5 UE)

16.2.6a.1 Definition and applicability

This tests that the UE correctly acknowledges the receipt of the short message type 0 to the SC in Packet Switched mode. The UE discards the contents of the short message type 0.

This test shall apply to all ≥ REL-5 UEs supporting receipt of short messages in PS mode.

16.2.6a.2 Conformance requirement

When a mobile terminated message is type 0, the UE shall acknowledge receipt of the short message to the SC but shall discard its contents. This means that

- the UE shall be able to receive the type 0 short message irrespective of whether there is memory available in the (U)SIM or ME or not,

- the UE shall not indicate the receipt of the type 0 short message to the user,
- the short message shall neither be stored in the (U)SIM nor ME.

References

3GPP TS 23.040 9.2.3.2, 9.2.3.4, 9.2.3.7, 9.2.3.9, 9.2.3.10, 9.2.3.11, 9.2.3.16, 9.2.3.17, 9.2.3.23.

16.2.6a.3 Test purpose

To verify that the UE will acknowledge receipt of the short message to the SC. The UE shall discard its contents. This means that

- the UE shall be able to receive the type 0 short message irrespective of whether there is memory available in the (U)SIM or ME or not,
- the UE shall not indicate the receipt of the type 0 short message to the user,
- the short message shall neither be stored in the (U)SIM nor ME.

NOTE: failure of this test in a UE could cause it to reject a type 0 message when the network is trying to reach the UE. This could lead to unwanted repetitions between the US and the service centre. In addition service affecting restrictions could happen to the customer.

16.2.6a.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

the UE shall be in GMM-state "GMM-REGISTERED";

the ME- and (U)SIM message store shall be empty.

Related ICS/IXIT Statements

Support for Short Message MT/PP.

The value of timer TC1M.

Foreseen Final State of UE

Idle, updated.

Test Procedure

a) The SS sends a type 0 short message by using the method described in step a) of clause 16.2.1 but with the TPDU described in this section.

b) The ME- and (U)SIM short message store shall be filled (for example by using the method of clause 16.2.3 test of the memory available notification).

c) The SS sends a type 0 short message as in step a).

Maximum Duration of Test

5 minutes

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
2	-->		SERVICE REQUEST	
3	<--		AUTHENTICATION AND CIPHERING REQUEST	
4	-->		AUTHENTICATION AND CIPHERING RESPONSE	
5	<--		SECURITY MODE COMMAND	
6	-->		SECURITY MODE COMPLETE	
7	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU), type 0 Short Message
8	-->		CP-ACK	
9	-->		CP-DATA	Contains RP-ACK RPDU.
10	<--		CP-ACK	
11	<--		RRC CONNECTION RELEASE	
12	-->		RRC CONNECTION RELEASE COMPLETE	
13	UE			The UE shall discard the type 0 short message. This means that the UE does not indicate the receipt of the type 0 short message to the user. The UE shall not store the message in the (U)SIM or ME. This can be checked by verifying that it is impossible to retrieve any short messages from the ME- and (U)SIM message store.
14	SS			The ME- and (U)SIM message store shall be filled (for example by using the method of 16.1.3).
15			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
16	-->		SERVICE REQUEST	
17	<--		AUTHENTICATION AND CIPHERING REQUEST	
18	-->		AUTHENTICATION AND CIPHERING RESPONSE	
19	<--		SECURITY MODE COMMAND	
20	-->		SECURITY MODE COMPLETE	
21	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU), type 0 Short Message
22	-->		CP-ACK	
23	-->		CP-DATA	Contains RP-ACK RPDU.
24	<--		CP-ACK	
25	<--		RRC CONNECTION RELEASE	
26	-->		RRC CONNECTION RELEASE COMPLETE	
27	UE			The UE shall discard the type 0 short message. This means that the UE does not indicate the receipt of the type 0 short message to the user. The UE shall not store the message in the (U)SIM or ME. This can be checked by verifying that it is impossible to retrieve any short messages from the ME- and (U)SIM message store.

Specific Message Contents:

SMS-DELIVER TPDU (containing a type 0 message) (SS to UE):

Information element	Comment	Value
TP-MTI	SMS-DELIVER	"00"B
TP-MMS	more messages are waiting in SC	"0"B
TP-RP	no reply path	"0"B
TP-UDHI	TP-UD contains only the SM	"0"B
TP-SRI	no status report returned	"0"B
TP-OA	an international number coded E.164	
TP-PID	Type 0:	"01000000"B
TP-DCS	default alphabet	“0000 0000"B
TP-SCTS	any legal value (cf. 3GPP TS 23.040)	
TP-UDL		160
TP-UD (140 octets)	text of message (160 characters)	

16.2.6a.5 Test requirements

After step 9 (ME- and (U)SIM message store not filled) UE shall send CP-DATA containing RP-ACK RPDU (TP-Protocol-Identifier: type 0 Short Message).

After step 13 UE shall discard the type 0 short message (it is impossible to retrieve any short messages from the ME- and (U)SIM message store).

After step 23 (ME- and (U)SIM message store filled) UE shall send CP-DATA containing RP-ACK RPDU (TP-Protocol-Identifier: type 0 Short Message).

After step 27 UE shall discard the type 0 short message (it is impossible to retrieve any short messages from the ME- and (U)SIM message store).

16.2.7 Test of the replace mechanism for SM type 1-7

16.2.7.1 Definition

16.2.7.2 Conformance requirement

On receipt of a short message, the UE shall check to see if the associated Protocol Identifier contains a Replace Short Message Type code. If such a code is present, then the UE will check the associated originating address (TP-OA) and replace any existing stored message having the same Protocol Identifier code and originating address with the new short message.

References

3GPP TS 23.040 clause 9.2.3.2, 9.2.3.9.

16.2.7.3 Test purpose

This procedure verifies the correct implementation of the replace mechanism for Replace Short Messages.

16.2.7.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE shall be in GMM-state "GMM-REGISTERED";

- the UE message store shall be empty.

Related ICS/IXIT Statements

Support for Short message MT/PP.

The value of timer TC1M.

Test procedure

a) Two different numbers n and m are drawn randomly between 1 and 7. Two different addresses for TP-Originating-Address (TPOA1 and TPOA2) are drawn.

b) The SS delivers a short message to the UE as specified in clause 16.2.1 step a). In the SMS-DELIVER TPDU, the TP-Protocol-Identifier parameter is "Replace Short Message Type n", the TP-Originating-Address is TPOA1, and the RP-Originating-Address is RPOA.

c) Step b) is repeated but with a different TP-Originating-Address (TPOA2), and different contents of TP-User-Data in the SMS-DELIVER TPDU. The other parameters are the same as in step b).

d)

e) Step c) is repeated but with the TP-Protocol-Identifier equal to "Replace Short Message Type m", and contents of TP-User-Data different from the former two messages. The other parameters are the same as in step c).

f) Step e) is repeated but the contents of TP-User-Data are different from that used in step e).

g) The SS prompts the operator to indicate the Short Messages stored in the UE.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
2	-->		SERVICE REQUEST	
3	<--		AUTHENTICATION AND CIPHERING REQUEST	
4	-->		AUTHENTICATION AND CIPHERING RESPONSE	
5	<--		SECURITY MODE COMMAND	
6	-->		SECURITY MODE COMPLETE	
7	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU) TP-PID is "Replace Short Message Type n", TP-OA is TPOA1 and RP-OA is RPOA
8	-->		CP-ACK	
9	-->		CP-DATA	Contains RP-ACK RPDU.
10	<--		CP-ACK	
11	<--		RRC CONNECTION RELEASE	
12	-->		RRC CONNECTION RELEASE COMPLETE	
13			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
14	-->		SERVICE REQUEST	
15	<--		AUTHENTICATION AND CIPHERING REQUEST	
16	-->		AUTHENTICATION AND CIPHERING RESPONSE	
17	<--		SECURITY MODE COMMAND	
18	-->		SECURITY MODE COMPLETE	
19	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU) TP-PID is "Replace Short Message Type n", TP-OA is TPOA2 and RP-OA is RPOA1, TP-UD different from step 7
20	-->		CP-ACK	
21	-->		CP-DATA	Contains RP-ACK RPDU.

Step	Direction		Message	Comments
	UE	SS		
22	<--		CP-ACK	
23	<--		RRC CONNECTION RELEASE	
24	-->		RRC CONNECTION RELEASE COMPLETE	
25			(void)	
26			(void)	
27			(void)	
28			(void)	
29			(void)	
30			(void)	
31			(void)	
32			(void)	
33			(void)	
34			(void)	
35			(void)	
36			(void)	
37			(void)	See 3GPP TS34.108
38	-->		SERVICE REQUEST	
39	<--		AUTHENTICATION AND CIPHERING REQUEST	
40	-->		AUTHENTICATION AND CIPHERING RESPONSE	
41	<--		SECURITY MODE COMMAND	
42	-->		SECURITY MODE COMPLETE	
43	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU) TP-PID is "Replace Short Message Type m", TP-OA is TPOA2 and RP-OA is RPOA, TP-UD different from step 7 and 19
44	-->		CP-ACK	
45	-->		CP-DATA	Contains RP-ACK RPDU.
46	<--		CP-ACK	
47	<--		RRC CONNECTION RELEASE	
48	-->		RRC CONNECTION RELEASE COMPLETE	
49			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
50	-->		SERVICE REQUEST	
51	<--		AUTHENTICATION AND CIPHERING REQUEST	
52	-->		AUTHENTICATION AND CIPHERING RESPONSE	
53	<--		SECURITY MODE COMMAND	
54	-->		SECURITY MODE COMPLETE	
55	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU) TP-PID is "Replace Short Message Type m", TP-OA is TPOA2 and RP-OA is RPOA, TP-UD different from step 43
56	-->		CP-ACK	
57	-->		CP-DATA	Contains RP-ACK RPDU.
58	<--		CP-ACK	
59	<--		RRC CONNECTION RELEASE	
60	-->		RRC CONNECTION RELEASE COMPLETE	
61	SS			Prompts the operator to indicate the Short Messages stored in the UE. Only the Short Messages delivered in step 7, 19 and 55 shall be retrievable and indicated

Specific Message Contents

SMS-DELIVER TPDU

Information element	CommentValue
TP-MMS TP-PID	no more messages are waiting in SC "1"B binary 01000xxx, xxx represents n resp. m (see test method description)

16.2.7.5 Test requirements

After step 61 only the Short Messages delivered in step 7, 19 and 55 shall be retrieved and indicated.

16.2.8 Test of the reply path scheme

16.2.8.1 Definition

16.2.8.2 Conformance requirement

When a replying UE receives an original mobile terminated short message it has:

- originating SME = TP-Originating Address in the SMS-DELIVER TPDU;
- original SC = RP-Originating Address in the RP-MT-DATA.

When submitting the reply mobile originated short message, the replying UE should use parameters as follows:

- TP-Destination Address in SMS-SUBMIT TPDU = originating SME;
- RP-Destination Address in RP-MO-DATA = original SC.

References

3GPP TS 23.040 3.2.10, 9.2.3.2, 9.2.3.17, Annex D clauses D.5 and D.6.

NOTE: Annex D of 3GPP TS 23.040 is only informative.

16.2.8.3 Test purpose

This procedure verifies that the UE is able to send a Reply Short Message back to the correct originating SME even if in the meantime it receives another Short Message.

16.2.8.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE shall be in GMM-state "GMM-REGISTERED";
  - the UE message store shall be empty.

Related ICS/IXIT Statements

Support for Short message MT/PP.

Support for Short message MO/PP.

The value of timer TC1M.

Test procedure

a) The SS delivers a Short Message as specified in clause 16.2.1, step b) with TP-Reply-Path set to 1.

b) Step a) is repeated but with:

- different TP-Originating-Address for the originating SME;
- different RP-Originating-Address for the original SC; and
- different message contents TP-User-Data.

c) UE sends the Reply Short Message corresponding to one of two received Short Messages (e.g. by means of the MMI).

d) step c) is repeated for the other Short Message.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
2	-->		SERVICE REQUEST	
3	<--		AUTHENTICATION AND CIPHERING REQUEST	
4	-->		AUTHENTICATION AND CIPHERING RESPONSE	
5	<--		SECURITY MODE COMMAND	
6	-->		SECURITY MODE COMPLETE	
7	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU) TP-RP set to 1
8	-->		CP-ACK	Sent within TC1M after step 7
9	-->		CP-DATA	Contains RP-ACK RPDU.
10	<--		CP-ACK	
11	<--		RRC CONNECTION RELEASE	
12	-->		RRC CONNECTION RELEASE COMPLETE	
13			Mobile terminated establishment of Radio Resource Connection	See 3GPP TS34.108
14	-->		SERVICE REQUEST	
15	<--		AUTHENTICATION AND CIPHERING REQUEST	
16	-->		AUTHENTICATION AND CIPHERING RESPONSE	
17	<--		SECURITY MODE COMMAND	
18	-->		SECURITY MODE COMPLETE	
19	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU) TP-OA, RP-OA and TP-UD different from step 7
20	-->		CP-ACK	Sent within TC1M after step 7
21	-->		CP-DATA	Contains RP-ACK RPDU.
22	<--		CP-ACK	
23	<--		RRC CONNECTION RELEASE	
24	-->		RRC CONNECTION RELEASE COMPLETE	
25	UE			UE establishes the RRC connection in order to send the Reply Short Message corresponding to one of two received Short Messages
26	<--		SYSTEM INFORMATION	BCCH
27	-->		RRC CONNECTION REQUEST	CCCH
28	<--		RRC CONNECTION SETUP	CCCH
29	-->		RRC CONNECTION SETUP COMPLETE	DCCH
30	-->		SERVICE REQUEST	

Step	Direction		Message	Comments
	UE	SS		
31	<--		AUTHENTICATION AND CIPHERING REQUEST	
32	-->		AUTHENTICATION AND CIPHERING RESPONSE	
33	<--		SECURITY MODE COMMAND	
34	-->		SECURITY MODE COMPLETE	
35	-->		CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU) RP-DA = RP-OA corresponding to the message TP-DA = TP-OA corresponding to the message
36	<--		CP-ACK	Sent within TC1M after step 35
37	<--		CP-DATA	Contains RP-ACK RPDU
38		SS		Waits max 25 s for CP-ACK
39	-->		CP-ACK	
40	<--		RRC CONNECTION RELEASE	RRC connection is released.
41	-->		RRC CONNECTION RELEASE COMPLETE	
42	UE			UE establishes the RRC connection in order to send the Reply Short Message corresponding to other Short Message.
43	<--		SYSTEM INFORMATION	BCCH
44	-->		RRC CONNECTION REQUEST	CCCH
45	<--		RRC CONNECTION SETUP	CCCH
46	-->		RRC CONNECTION SETUP COMPLETE	DCCH
47	-->		SERVICE REQUEST	
48	<--		AUTHENTICATION AND CIPHERING REQUEST	
49	-->		AUTHENTICATION AND CIPHERING RESPONSE	
50	<--		SECURITY MODE COMMAND	
51	-->		SECURITY MODE COMPLETE	
52	-->		CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU) RP-DA = RP-OA corresponding to the Message TP-DA = TP-OA corresponding to the message
53	<--		CP-ACK	Sent within TC1M after step 52
54	<--		CP-DATA	Contains RP-ACK RPDU
55		SS		Waits max 25 s for CP-ACK
56	-->		CP-ACK	
57	<--		RRC CONNECTION RELEASE	RRC connection is released.
58	-->		RRC CONNECTION RELEASE COMPLETE	

Specific Message Contents

SMS-DELIVER TPDU

Information element	Comment	Value
TP-MMS	no more messages are waiting in SC	"1"B
TP-RP	Reply Path exists	"1"B

16.2.8.5 Test requirements

After step 35 UE shall send the Reply Short Message corresponding to one of two previously received short messages.

After step 52 UE shall send the Reply Short Message corresponding to the other of two previously received short messages.

16.2.9 Multiple SMS mobile originated

16.2.9.1 UE in idle mode

This test is not applicable for R99.

16.2.9.2 UE in active mode

This test is not applicable for R99.

16.2.10 Test of capabilities of simultaneously receiving a short message whilst sending a mobile originated short message

16.2.10.1 Definition

16.2.10.2 Conformance requirements

An active UE shall be able to receive a short message TPDU (SMS-DELIVER) at any time, independently of whether or not there is an SMS mobile originated call (SMS-SUBMIT or SMS-COMMAND) in progress.

References

3GPP TS 23.040 clause 3.1, 9.2.3.16.

3GPP TS 24.011 clause 3.2.

16.2.10.3 Test purpose

The test verifies that the UE is capable of simultaneously receiving a network originated SM whilst sending a mobile originated SM.

16.2.10.4 Method of test

Initial Conditions

- System simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE shall be in GMM-state "GMM-REGISTERED";
  - the SMS message storage shall be empty.

Related ICS/IXIT Statements

Support for Short message MO/PP and MT/PP.

Support for state PDP-ACTIVE of session management.

The value of timer TC1M.

Whether SMS messages are stored in the USIM and/or the ME.

Test procedure

a) The SS is configured to receive a mobile originated SM. In clause 16.2.2 steps a) and b) are repeated and, using the end of the CP-DATA message from the UE as a trigger, the SS sends a SM to the UE. In this case a new transaction identifier shall be used in the CP messages of SMS mobile terminated.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set up to send an SM
2	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Originating Low Priority Signalling".
3			(void)	
4			(void)	
5	-->		SERVICE REQUEST	
6	<--		AUTHENTICATION AND CIPHERING REQUEST	
7	-->		AUTHENTICATION AND CIPHERING RESPONSE	
8	SS			The SS starts integrity protection
9				
10	-->		CP-DATA	Contains RP-DATA RPDU (SMS SUBMIT TPDU)
11	SS			The SS sends an SM to the UE triggered by the end of the CP-DATA message from the UE
12	<--		CP-DATA	Contains RP-DATA RPDU (SMS DELIVER TPDU)
13	UE			The UE shall correctly receive the SM and indicate that a message has arrived. In the MO case the UE shall send the CP-ACK message with transaction identifier assigned to this transfer. In the MT case the UE shall send a CP-ACK message and a CP-DATA message containing the RP-ACK RPDU. The transaction identifier shall be the same as chosen by the SS for the MT transfer.
NOTE: Time values for SS wait times are chosen sufficiently high to be sure that the UE has enough time to respond to the different messages.				

Specific Message Contents

SMS SUBMIT TPDU

Information element	CommentValue
TP-UDL	as applicable
TP-UD (140 octets)	160 ASCII characters

16.2.10.5 Test requirements

After step 12 UE shall correctly receive the SM and indicate that a message has arrived.

16.3 Short message service cell broadcast

16.3.1 Definition

16.3.2 Conformance requirements

In idle mode, the UE has the ability to ignore repeated broadcasts of CBS messages already received (the message has not changed since it was last broadcast i.e. sequence number has not changed within the message's indicated geographical area);

A UE supporting Cell Broadcast Service (CBS) shall be capable to receive BMC messages in the Idle mode.

References

- 3GPP TS 23.041 clause 8.
- 3GPP TS 25.324 clause 11.

16.3.3 Test purpose

This test verifies that an UE supporting SMS-CB is able to receive SMS-CB messages and is able to ignore repeated broadcasts of CBS messages.

16.3.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters;
  - the SS provides a BCCH/CCCH to support the UE in idle mode;
  - periodic location updating is disabled.
- User Equipment:
  - the UE shall be in the idle updated state.

Related ICS/IXIT Statements

Support for short message transmission cell broadcast.

Test procedure

Three Cell Broadcast (CB) messages are sent by the SS on the CTCH with message codes 0,1,1 in serial number fields respectively.

NOTE: If the UE fails the test because of a failure to receive the message due to collision of CTCH and paging occasion, then the operator may re-run the test.

Expected sequence

Since the SMS-CB messages are sent continuously, a table is not applicable in this test.

Specific Message Contents:

Use the default parameter values for the system information block 1 with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions:

- CN domain identity		PS
- CHOICE CN Type		GSM-MAP
- CN domain specific NAS system information		
- GSM-MAP NAS system information		05 00H
- CN domain specific DRX cycle length coefficient		9
- CN domain identity		CS
- CHOICE CN Type		GSM-MAP
- CN domain specific NAS system information		
- GSM-MAP NAS system information		1E 01H
- CN domain specific DRX cycle length coefficient		9

Use the default parameter values for the system information block 5 with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions:

- FACH/PCH information	
- TFS	(PCH)
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC Size	240
- Number of TB and TTI List	
- Number of Transport blocks	0
- Number of Transport blocks	1

- CHOICE Logical channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	230
- CRC size	16 bit
- Transport channel Identity	12 (for PCH)
- CTCH indicator	FALSE
- TFS	(FACH)
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC Size	168
- Number of TB and TTI List	
- Number of Transport blocks	0
- Number of Transport blocks	1
- Number of Transport blocks	2
- CHOICE Logical channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	220
- CRC size	16 bit
- Transport channel Identity	13 (for FACH)
- CTCH indicator	TRUE
- TFS	(FACH)
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC Size	360
- Number of TB and TTI List	
- Number of Transport blocks	0
- Number of Transport blocks	1
- CHOICE Logical channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Turbo
- Rate matching attribute	130
- CRC size	16bit
- Transport channel Identity	14 (for FACH)
- CTCH indicator	FALSE
- PICH info	
- CHOICE mode	FDD
- Channelisation code	2
- Number of PI per frame	18
- STTD indicator	FALSE
- CBS DRX Level 1 information	
- Period of CTCH allocation (N)	2
- CBS frame offset (K)	0

Cell broadcast test message content

Information element	Comment Value
Message Type	CBS Message "1"B (see 3GPP TS 25.324, clause 11.1)
Message ID	
Serial Number	
- Geographical scope	"01"B
- Message code	see test procedure "0000000000"B or "0000000001"B
- Update number	as applicable
Data Coding Scheme	Default alphabet, English "00000001"B
CB Data	max 1246 octets

16.3.5 Test requirements

In consequence of test the UE shall ignore third message and store two messages.

16.3a Short message service cell broadcast Discontinuous Reception (DRX)

16.3a.1 Definition

16.3a.2 Conformance requirements

A UE supporting Cell Broadcast Service (CBS) shall be capable to receive BMC messages in the Idle mode.

In idle mode, the UE will enter CBS DRX mode based upon received Schedule Messages.

References

- 3GPP TS 25.324 clause 9.1.
- 3GPP TS 23.041 clause 8.

16.3a.3 Test purpose

This test verifies that a UE supporting SMS-CB and SMS-CB DRX is able to receive SMS-CB messages in DRX..

16.3a.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters;
  - the SS provides a BCCH/CCCH to support the UE in idle mode;
  - Cell Broadcast Service DRX is enabled.
  - periodic location updating is disabled.
- User Equipment:
  - the UE shall be in the idle updated state.
  - the UE shall be configured, not to opt-out of presentation of Cell Broadcast messages with Message ID 4371 and 4379.

Related ICS/IXIT Statements

Support for short message transmission cell broadcast.

Support for short message transmission cell broadcast DRX.

Test procedure

a) The SS sends CELL BROADCAST SCHEDULE #1 message (1 CTCH-BS) on the CTCH.

b) The SS waits for 6 CTCH-BS after Step a), then sends CELL BROADCAST TEST #1 message (3 CTCH-BS), followed by CELL BROADCAST SCHEDULE #2 message (1 CTCH-BS). (Note 1)

c) The SS waits for 9 CTCH-BS after Step b), then sends CELL BROADCAST SCHEDULE#3 message (1 CTCH-BS), followed by CELL BROADCAST TEST #2 message (3 CTCH-BS). (Note 2)

d) The SS waits for 10 CTCH-BS after Step c), then sends CELL BROADCAST TEST #3 message (3 CTCH-BS). (Note 3)

NOTE 1: CELL BROADCAST TEST#1 and CELL BROADCAST SCHEDULE #2 are situated at the beginning of the Scheduling period referred to by CELL BROADCAST SCHEDULE #1.

NOTE 2: CELL BROADCAST SCHEDULE #3 and CELL BROADCAST TEST#2 and are situated in the middle of the Scheduling period referred to by CELL BROADCAST SCHEDULE #2.

NOTE 3: CELL BROADCAST TEST#3 is situated at the end of the Scheduling period referred to by CELL BROADCAST SCHEDULE #3.

NOTE 4: If the UE fails the test because of a failure to receive the message due to collision of CTCH and paging occasion, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<--		CELL BROADCAST SCHEDULE #1	
2	SS		Waits for 6 CTCH-BS	
3-4	<--		CELL BROADCAST TEST #1	
	UE		The UE shall receive the CELL BROADCAST TEST #1	
5	-->		CELL BROADCAST SCHEDULE #2	
6	SS		Waits for 9 CTCH-BS	
7	<--		CELL BROADCAST SCHEDULE #3	
8-9	-->		CELL BROADCAST TEST #2	
	UE		The UE shall receive the CELL BROADCAST TEST #2	
10	SS		Waits for 10 CTCH-BS	
11-12	<--		CELL BROADCAST TEST #3	
	UE		The UE shall receive the CELL BROADCAST TEST #3	

Specific Message Contents:

Use the default parameter values for the system information block 1 with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/remark
- CN domain identity	PS
- CHOICE CN Type	GSM-MAP
- CN domain specific NAS system information	
- GSM-MAP NAS system information	05 00H
- CN domain specific DRX cycle length coefficient	9
- CN domain identity	CS
- CHOICE CN Type	GSM-MAP
- CN domain specific NAS system information	
- GSM-MAP NAS system information	1E 01H
- CN domain specific DRX cycle length coefficient	9

Use the default parameter values for the system information block 5 with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/remark
- FACH/PCH information	
- TFS	(PCH)
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC Size	240
- Number of TB and TTI List	
- Number of Transport blocks	0
- Number of Transport blocks	1

- CHOICE Logical channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	230
- CRC size	16 bit
- Transport channel Identity	12 (for PCH)
- CTCH indicator	FALSE
- TFS	(FACH)
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC Size	168
- Number of TB and TTI List	
- Number of Transport blocks	0
- Number of Transport blocks	1
- Number of Transport blocks	2
- CHOICE Logical channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	220
- CRC size	16 bit
- Transport channel Identity	13 (for FACH)
- CTCH indicator	TRUE
- TFS	(FACH)
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC Size	360
- Number of TB and TTI List	
- Number of Transport blocks	0
- Number of Transport blocks	1
- CHOICE Logical channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Turbo
- Rate matching attribute	130
- CRC size	16bit
- Transport channel Identity	14 (for FACH)
- CTCH indicator	FALSE
- PICH info	
- CHOICE mode	FDD
- Channelisation code	2
- Number of PI per frame	18
- STTD indicator	FALSE
- CBS DRX Level 1 information	
- Period of CTCH allocation (N)	2
- CBS frame offset (K)	0

CELL BROADCAST SCHEDULE #1

Information element	CommentValue
Message Type	"00000010"B (Schedule message)
Offset to Begin CTCH BS index	"00000111"B
Length of CBS Scheduling Period	"00001010"B
New Message Bitmap	octet 1: “11110000”B octet 2: “00000000”B
Message Description	
- Message Description Type[1]	"00000001"B (New message)
- Message ID[1]	4370 (CMAS Presidential Alert)
- Message Description Type[2]	"00000110"B (Schedule message)

CELL BROADCAST SCHEDULE #2

Information element	Comment Value
Message Type	"00000010"B
Offset to Begin CTCH BS index	"00000111"B
Length of CBS Scheduling Period	"00001010"B
New Message Bitmap	octet 1: “00011110”B octet 2: “00000000”B
Message Description	
- Message Description Type[1]	"00000110"B (Schedule message)
- Message Description Type[2]	"00000001"B (New message)
- Message ID[2]	4371 (CMAS Imminent Threat Alert – Severity: Extreme, Urgency: Immediate, Certainty: Observed)

CELL BROADCAST SCHEDULE #3

Information element	Comment Value
Message Type	"00000010"B
Offset to Begin CTCH BS index	"00000111"B
Length of CBS Scheduling Period	"00001010"B
New Message Bitmap	octet 1: “00000001”B octet 2: “11000000”B
Message Description	
- Message Description Type[1]	"00000001"B (New message)
- Message ID[1]	4379 (CMAS Child Abduction Emergency)

CELL BROADCAST TEST #1

Information element	Comment Value
Message Type	"00000001"B (CBS message)
Message ID	4370 (CMAS Presidential Alert)
Serial Number	
- Geographical scope	"10"B (Service Area wide)
- Message code	"0000000000"B
- Update number	“0000”B
Data Coding Scheme	“00000001"B (GSM 7-bit default alphabet, English)
CB Data	90 characters i.e. 79 octets

CELL BROADCAST TEST #2

Information element	Comment Value
Message Type	"00000001"B (CBS message)
Message ID	4371 (CMAS Imminent Threat Alert – Severity: Extreme, Urgency: Immediate, Certainty: Observed)
Serial Number	
- Geographical scope	"10"B (Service Area wide)
- Message code	"0000000000"B
- Update number	“0000”B
Data Coding Scheme	“00000001"B (GSM 7-bit default alphabet, English)
CB Data	90 characters i.e. 79 octets

CELL BROADCAST TEST #3

Information element	CommentValue
Message Type	"00000001"B (CBS message)
Message ID	4379 (CMAS Child Abduction Emergency)
Serial Number	
- Geographical scope	"10"B (Service Area wide)
- Message code	"0000000000"B
- Update number	“0000”B
Data Coding Scheme	“00000001"B (GSM 7-bit default alphabet, English)
CB Data	90 characters i.e. 79 octets

16.3a.5 Test requirements

1. After Step 3 the UE shall receive the CELL BROADCAST TEST #1.
2. After Step 8 the UE shall receive the CELL BROADCAST TEST #2.
3. After Step 11 the UE shall receive the CELL BROADCAST TEST #3.

16.4 Default message contents:

16.4.1 Default message contents for SM-CP protocol

CP-DATA

Information element	Comment Value
Protocol Discriminator	SMS messages ("1001"B)
Transaction Identifier	
TIO	any value from the set {0, ..., 6}
TI flag	0
Message type	00000001
CP-User data	
length indicator	
RPDU	max 248 octets

CP-ACK

Information element	Comment Value
Transaction Identifier	
TIO	
TI flag	
Message type	00000100

CP-ERROR

Information element	Comment Value
Transaction Identifier	
TIO	
TI flag	
Message type	00010000
CP-Cause	
Cause value	see 3GPP TS 24.011, clause 8.1.4.2

16.4.2 Default message contents for SM-RP protocol

RP-DATA

Information element	Comment Value
RP-Message Type	"001"B (SS->UE) or "000"B(UE->SS)
RP-Message Reference	see 3GPP TS 24.011, clause 8.2.3
RP-Originator Address	see 3GPP TS 24.011, clause 8.2.5.1
RP-Destination Address	see 3GPP TS 24.011, clause 8.2.5.2
RP-User Data	see 3GPP TS 24.011, clause 8.2.5.3
Length indicator	
TP-DATA	max 233 octets

RP-ACK

Information element	Comment Value
RP-Message Type	"010"B (UE->SS) or "011"B(SS->UE)
RP-Message Reference	see 3GPP TS 24.011, clause 8.2.3
RP-User Data	see 3GPP TS 24.011, clause 8.2.5.3 : optional, may be present or not
RP-User Data IEI	"1000001"B
Length indicator	
TP-Data	max 232 octets

RP-ERROR

Information element	Comment Value
RP-Message Type	"100"B (UE->SS) or "101"B(SS->UE)
RP-Message Reference	see 3GPP TS 24.011, clause 8.2.3
RP-Cause	see 3GPP TS 24.011, clause 8.2.5.4
RP-User Data	see 3GPP TS 24.011, clause 8.2.5.3: optional, may be present or not
RP-User Data IEI	"1000001"B
Length indicator	
TP-Data	max 232 octets

RP-SMMA (UE->SS)

Information element	Comment Value
RP-Message Type	"110"B (UE->SS)
RP-Message Reference	see 3GPP TS 24.011, clause 8.2.3

16.4.3 Default message contents for SM-TP protocol

SMS DELIVER TPDU

Information element	Comment Value
TP-MTI	SMS DELIVER "00"B
TP-MMS	more messages are waiting in SC "0"B
TP-RP	no reply path "0"B
TP-UDHI	TP-UD contains only the SM"0"B
TP-SRI	no status report returned"0"B
TP-OA	an international number coded E.164
TP-PID	default"00000000"B
TP-DCS	default alphabet "00000000"B
TP-SCTS	any legal value (cf. 3GPP TS 23.040)
TP-UDL	
TP-UD	max 140 octets

SMS SUBMIT TPDU

Information element	Comment	Value
TP-MTI	SMS SUBMIT	"01"B
TP-RD	SC shall accept same SMS-SUBMIT	"0"B
TP-VPF	TP-VP field not present	"00"B
TP-RP	no reply path	"0"B
TP-UDHI	TP-UD contains only the SM	"00"B
TP-SRR	no request of status report	"00"B
TP-MR		
TP-DA	an international number coded E164	
TP-PID	default	"00000000"B
TP-DCS	default alphabet	"00000000"B
TP-VP		
TP-UDL		
TP-UD	max 140 octets	

SMS COMMAND TPDU

Information element	Comment	Value
TP-MTI	SMS-COMMAND	"10"B
TP-UDHI	TP-UD contains only the SM	"00"B
TP-SRR	status report not requested	"0"B
TP-MR		
TP-PID	default	"00000000"B
TP-CT		
TP-MN		
TP-DA	an international number coded E164	
TP-CDL		
TP-CD		

SMS STATUS REPORT TPDU

Information element	Comment	Value
TP-MTI	SMS-STATUS-REPORT	"10"B
TP-MMS	no more messages	"1"B
TP-SRQ	result of SMS-SUBMIT	"0"B
TP-MR		
TP-RA	the destination address of the previous SM MO	
TP-SCTS	any legal value (cf. 3GPP TS 23.040, clause 9.2.3.11)	
TP-DT	any legal value (cf. 3GPP TS 23.040, clause 9.2.3.13)	
TP-ST	see 3GPP TS 23.040, clause 9.2.3.15	

17 Specific features

17.1 Test of autocalling restrictions

17.1.1 General

It is essential that all autocalling apparatus is prevented from continuously dialling a given number, to avoid machines repeatedly disturbing PSTN subscribers in error, or numerous repeat attempts to unobtainable numbers which cause waste of valuable network resources. Therefore autocalling restrictions are defined by TS 22.001.

The tests shall be performed using all of the call methods specified by the supplier in the IXIT statement TS 34.123-2. The supplier shall state any autocalling procedures implemented and how many times they can be repeated to a single number and the minimum re-attempt interval(s), i.e. the complete re-try schedule or algorithm with parameter values. The supplier shall further describe any automatic methods for making repeated calls to a single number. The supplier

shall also state in the IXIT statement the number of B-party numbers that can be stored on the list of blacklisted numbers as described in TS 22.001, annex E.

For an external R-interface the supplier shall state in the IXIT statement the procedure for autocalling restrictions for that interface and the possible parameter settings for the number of times the LTE can make a re-attempt and the minimum accepted time between re-attempts accepted by the UE. The conditions for clearing the autocalling constraints shall be stated in the IXIT statement.

For external interfaces the LTE must be programmed so that it clearly attempts to violate the autocalling constraints.

For all the tests in this clause the call setup procedure uses the Generic Setup Procedure for Circuit Switched connection as specified in TS 34.108 clause 7. A Radio Access Bearer to set up shall be selected from one of the speech or CS data bearers within the capability of the UE as specified in the ICS statement. Unless otherwise indicated, this procedure shall only run to the transmission by the SS or UE of the SETUP message (CC).

17.1.2 Constraining the access to a single number (TS 22.001 category 3)

17.1.2.1 Definition

This test checks that when an auto-dialled call to a B-party number fails due to a category 3 cause, only one retry to that number is permitted.

During this test the SETUP messages shall contain the same B-party number.

No manual intervention shall be performed except to initiate and end the test.

17.1.2.2 Conformance requirement

A repeat call attempt may be made when a call attempt is unsuccessful for the reasons listed below (as defined in TS 24.008).

These reasons are classified in three major categories:

1. "Busy destination";
2. "Unobtainable destination - temporary";
3. "Unobtainable destination - permanent/long term".

NOTE: Cause values for each category are defined in TS 22.001, annex E.

The table below describes a repeat call restriction pattern to any B number. This pattern defines a maximum number (n) of call repeat attempts; when this number n is reached, the associated B number shall be blacklisted by the UE until a manual re-set at the UE is performed in respect of that B number. When a repeat attempt to any one B number fails, or is blacklisted, this does not prevent calls being made to other B numbers.

For the categories 1 and 2 above, n shall be 10; for category 3, n shall be 1.

Call attempt	Minimum duration between call attempts
Initial call attempt	-
1st repeat attempt	5 s
2nd repeat attempt	1 min
3rd repeat attempt	1 min
4th repeat attempt	1 min
5th repeat attempt	3 min
.	
.	
nth repeat attempt	3 min

Reference:

3GPP TS 22.001 annex E.

17.1.2.3 Test purpose

To ensure the correct behaviour of the UE to TS 22.001 Category 3.

17.1.2.4 Method of test

Initial condition.

There shall be no numbers in the list of blacklisted numbers in the UE. The time set between the first re-attempt and the next re-attempt is set to the minimum value possible. The number of re-attempts is set to the lowest possible number, greater than 1, that is supported by the UE. The autocalling function is invoked for the B-party number to be used during the test.

Related ICS/IXIT Statement(s)

ICS: TBD.

IXIT: Description of auto calling management:

- selection of the auto calling;
- indication that the call failed and a re-try is attempted;
- indication that a call finally failed.

Test Procedure

Step	Direction		Message	Comments
	UE	SS		
1	UE			"called number" entered
2	→		GENERIC SETUP PROCEDURE MOBILE ORIGINATED, CS (Up to SETUP)	Establishment cause indicates "originating call".
3	←		RELEASE COMPLETE	Cause value from category 3 of TS 22.001, Annex E.
4	←		RRC CONNECTION RELEASE	
5	→		RRC CONNECTION RELEASE COMPLETE	The signalling link is released
6				The UE is invoking the auto calling function. The time between step 4 and 7 must be minimum 5 sec.
7	→		GENERIC SETUP PROCEDURE MOBILE ORIGINATED, CS (Up to SETUP)	Establishment cause indicates "originating call".
8	←		RELEASE COMPLETE	Cause value from category 3 of TS 22.001, Annex E.
9	←		RRC CONNECTION RELEASE	
10	→		RRC CONNECTION RELEASE COMPLETE	The main signalling link is released
11	UE			Clear the auto calling constraint after a minimum of 2 minutes from step 9.

17.1.2.5 Test requirements

The time between step 4 and 7 must be minimum 5 s.

No further call attempt shall be made after step 9.

17.1.3 Constraining the access to a single number (TS 22.001 categories 1 and 2)

17.1.3.1 Definition

This test checks that when an auto-dialled call to a B-party number fails due to a category 2 cause, the time between of retries complies with the requirements, and the number of retries does not exceed that declared by the UE manufacturer, and is never more than 10.

During this test the SETUP messages shall contain the same B-party number.

No manual intervention shall be performed except to initiate and end the test.

17.1.3.2 Conformance requirement

The UE must fulfil the requirements for category 1 and 2, see clause 17.1.2.2.

Reference:

3GPP TS 22.001 annex E.

17.1.3.3 Test purpose

To ensure the correct behaviour of the UE to TS 22.001 Categories 1 and 2.

17.1.3.4 Method of test

Initial condition

There shall be no numbers in the list of blacklisted numbers in the UE. The re-try scheme is set to give the shortest possible intervals between re-tries. The number of re-attempts is set to the maximum possible number (N), that is supported by the UE. The autocalling function is invoked for the B-party number to be used during the test.

Related ICS/IXIT Statement(s)

ICS: TBD

IXIT: Description of auto calling management:

- selection of the auto calling;
- indication that the call failed and a re-try is attempted;
- indication that a call finally failed.

Test Procedure

A, UE originated, generic call setup is performed up to the SETUP message. The SS then releases the establishment with a cause value from category 1 or 2 (TS 22.001, annex E).

The UE is continuously making new generic call setup attempts invoked by the auto calling function after each RRC CONNECTION RELEASE from the SS.

Step	Direction		Message	Comments
	UE	SS		
1	UE			"called number" entered
2	→		GENERIC SETUP PROCEDURE MOBILE ORIGINATED, CS (Up to SETUP)	Establishment cause indicates "originating call".
3	←		RELEASE COMPLETE	Cause value from category 1 or 2 of TS 22.001, Annex E. This shall be chosen randomly, from both categories. Cause no. 27 shall be excluded if the UE has implemented in category 3 of TS 22.001, as declared in IXIT statement
4	←		RRC CONNECTION RELEASE	
5				The UE is invoking the auto calling function. 1: At the first re-attempt the time between step 4 and 7 must be minimum 5 sec. 2: At the 2nd, 3rd and 4th re-attempt the time between step 4 and 7 must be minimum 1 min. 3: At the 5th to 10th re-attempt the time between step 4 and 7 must be minimum 3 min.
6	→		RRC CONNECTION RELEASE COMPLETE	The signalling link is released
7	→		GENERIC SETUP PROCEDURE MOBILE ORIGINATED, CS (Up to SETUP)	Establishment cause indicates "originating call".
8	←		RELEASE COMPLETE	Cause value from category 1 or 2 of TS 22.001, Annex E. This shall be chosen randomly, from both categories. Cause no. 27 shall be excluded if the UE has implemented in category 3 of TS 22.001, as declared in PIXIT statement
9	←		RRC CONNECTION RELEASE	
10	→		RRC CONNECTION RELEASE COMPLETE	The signalling link is released.
11				The auto calling function shall repeat step 5 to 9 (N-1) times. The UE shall not make more than maximum 10 re-attempts.
12	UE			Clear the auto calling constraint by manual intervention after a minimum of 4 minutes from step 11. Following the final completion of step 11 the UE initiate a call prior to manual intervention.

17.1.3.5 Test requirements

1: At the first re-attempt the time between step 4 and 7 must be minimum 5 sec. 2: At the 2nd, 3rd and 4th re-attempt the time between step 4 and 7 must be minimum 1 min. 3: At the 5th to 10th re-attempt the time between step 4 and 7 must be minimum 3 min.

The UE shall not make more than maximum 10 re-attempts.

17.1.4 Behaviour of the UE when its list of blacklisted numbers is full

17.1.4.1 Definition and applicability

This tests that the UE does not allow autocalling when its list of blacklisted numbers is full.

The number of B-party numbers that can be stored in the list of blacklisted numbers, as stated in the IXIT statement, is M.

This test shall only apply to UE that are capable of autocalling more than M B-party numbers.

17.1.4.2 Conformance requirement

The number of B numbers that can be held in the blacklist is at the manufacturers discretion but there shall be at least 8. However, when the blacklist is full the UE shall prohibit further automatic call attempts to any one number until the blacklist is manually cleared at the UE in respect of one or more B numbers.

Reference

TS 22.001, Annex E.

17.1.4.3 Test purpose

To ensure the correct behaviour of the UE when its list of blacklisted numbers is full.

17.1.4.4 Method of test

Initial condition

The list of blacklisted numbers, in the UE, shall be full. This may be achieved as described in the procedure in clause 17.1.2, applied to M B-party numbers.

Related ICS/IXIT Statement(s)

PICS: TBD.

PIXIT: Description of auto calling management:

- selection of the auto calling;
- indication that the call failed and a re-try is attempted;
- indication that a call finally failed.

Test Procedure

The autocalling function is invoked for a B-party number that is not in the list of blacklisted numbers.

Clear the autocalling constraint by manual intervention after a minimum of 10 s.

17.1.4.5 Test requirements

The UE must not initiate a call.

17.2 Location Services

The test cases for Location Services (LCS) are provided in 3GPP TS 37.571-2 [49], clause 6..

17.2.1 Void

17.2.2 Assisted GPS Network Induced Tests

17.2.2.1 LCS Network Induced location request/ UE-Based GPS/ Emergency Call / with USIM

This test case is provided in 3GPP TS 37.571-2 [49], sub-clause 6.1.1.1.

17.2.2.2 LCS Network Induced location request/ UE-Based GPS/ Emergency Call / without USIM

This test case is provided in 3GPP TS 37.571-2 [49], sub-clause 6.1.1.2.

17.2.2.3 LCS Network induced location request/ UE-Assisted GPS/ Emergency call/ With USIM

This test case is provided in 3GPP TS 37.571-2 [49], sub-clause 6.1.1.3.

17.2.2.4 LCS Network induced location request/ UE-Assisted GPS/ Emergency call/ Without USIM

This test case is provided in 3GPP TS 37.571-2 [49], sub-clause 6.1.1.4.

17.2.3 Assisted GPS Mobile Originated Tests

17.2.3.1 Void

17.2.3.2 LCS Mobile originated location request/ UE-Based GPS/ Position estimate request/ Success

This test case is provided in 3GPP TS 37.571-2 [49], sub-clause 6.1.2.1.17.2.3.3 LCS Mobile originated location request/ UE-Based or UE-Assisted GPS/ Assistance data request/ Success

This test case is provided in 3GPP TS 37.571-2 [49], sub-clause 6.1.2.2.

17.2.3.4 LCS Mobile originated location request/ UE-Assisted GPS/ Position Estimate/ Success

This test case is provided in 3GPP TS 37.571-2 [49], sub-clause 6.1.2.3.

17.2.3.5 Void

17.2.3.6 LCS Mobile originated location request/ UE-Based GPS/ Transfer to third party/ Success

This test case is provided in 3GPP TS 37.571-2 [49], sub-clause 6.1.2.4.

17.2.3.7 LCS Mobile originated location request/ UE-Assisted GPS/ Transfer to third party/ Success

This test case is provided in 3GPP TS 37.571-2 [49], sub-clause 6.1.2.5.

17.2.3.8 LCS Mobile originated location request/ UE-Based or UE-Assisted GPS/ Assistance data request/ Failure

This test case is provided in 3GPP TS 37.571-2 [49], sub-clause 6.1.2.6.

17.2.3.9 LCS Mobile originated location request/ UE-Based GPS/ Position estimate request/ Failure

This test case is provided in 3GPP TS 37.571-2 [49], sub-clause 6.1.2.7.

17.2.4 Assisted GPS Mobile Terminated Tests

17.2.4.1 LCS Mobile terminated location request/ UE-Based GPS

This test case is provided in 3GPP TS 37.571-2 [49], sub-clause 6.1.3.1.

17.2.4.2 LCS Mobile-terminated location request/UE-Based GPS/ Request for additional assistance data/ Success

This test case is provided in 3GPP TS 37.571-2 [49], sub-clause 6.1.3.2.

17.2.4.3 LCS Mobile-terminated location request/UE-Based GPS/ Failure – Not Enough Satellites

This test case is provided in 3GPP TS 37.571-2 [49], sub-clause 6.1.3.3.

17.2.4.4 LCS Mobile terminated location request/ UE-Assisted GPS/ Success

This test case is provided in 3GPP TS 37.571-2 [49], sub-clause 6.1.3.4.

17.2.4.5 LCS Mobile terminated location request/ UE-Assisted GPS/ Request for additional assistance data/ Success

This test case is provided in 3GPP TS 37.571-2 [49], sub-clause 6.1.3.5.

17.2.4.6 LCS Mobile terminated location request/ UE-Based GPS/ Privacy Verification/ Location Allowed if No Response

This test case is provided in 3GPP TS 37.571-2 [49], sub-clause 6.1.3.6.

17.2.4.7 LCS Mobile terminated location request/ UE-Based GPS/ Privacy Verification/ Location Not Allowed if No Response

This test case is provided in 3GPP TS 37.571-2 [49], sub-clause 6.1.3.7.

17.2.4.8 LCS Mobile terminated location request/ UE-Assisted GPS/ Privacy Verification/ Location Allowed if No Response

This test case is provided in 3GPP TS 37.571-2 [49], sub-clause 6.1.3.8.

17.2.4.9 LCS Mobile terminated location request/ UE-Assisted GPS/ Privacy Verification/ Location Not Allowed if No Response

This test case is provided in 3GPP TS 37.571-2 [49], sub-clause 6.1.3.9.

17.2.4.10 LCS Mobile terminated location request/ UE-Based or UE-Assisted GPS/ Configuration Incomplete

This test case is provided in 3GPP TS 37.571-2 [49], sub-clause 6.1.3.10.

17.2.5 Void

17.2.6 Void

17.2.7 Void

17.3 Mobility between 3GPP WLAN Interworking and 3GPP Systems

17.3.1 Discovery of the Home Agent via DNS

17.3.1.1 Definition and applicability

This test case is applicable for all UEs which support mobility between 3GPP WLAN Interworking and 3GPP Systems, and discovery of the Home Agent via DNS.

17.3.1.2 Conformance requirement

From TS 24.327 clause 5.1.2.2

The first procedure the UE needs to perform for DSMIPv6 initial attach is the discovery of the node acting as the HA.

The UE discovers the IPv6 address and optionally the IPv4 address of the HA in one of the three following ways:

- via DNS as defined in 3GPP TS 24.303 [3];
- during the PDP context activation procedure in GERAN or UTRAN accesses via the Protocol Configuration Options as defined in 3GPP TS 24.008 [4] if the HA IP address is available in the GGSN; or
- via IKEv2 during tunnel setup with PDG for 3GPP I-WLAN as defined in annex B if the HA IP address is available in the PDG.

From TS 24.303 clause 5.1.2.1.2

A UE performing Home Agent discovery based on DNS shall support the implementation of standard DNS mechanisms.

The UE shall perform DNS Lookup by Home Agent Name as specified in IETF RFC 5026 [10].The QNAME shall be set to the requested HA-APN. The HA-APN shall be constructed as specified in 3GPP TS 23.003 [17]. If a HA has both an IPv4 and an IPv6 address, the corresponding DNS record should be configured with both 'AAAA' and 'A' records. Accordingly the UE should perform one DNS lookup procedure to retrieve both 'AAAA' and 'A' records. The DNS server replies with one 'AAAA' and one 'A' record.

Reference(s)

3GPP TS 24.327 clause 5.1.2.2

3GPP TS 24.303 clause 5.1.2.1.2

17.3.1.3 Test purpose

The purpose of this test case is to verify that when the UE is configured to discover the IP address of the Home Agent via DNS, it transmits a DNS Query with QNAME set to the FQDN of the Home Agent.

17.3.1.4 Method of test

Initial Conditions

- System simulator:

- 1 cell, default parameters.

- User Equipment:
  - The UE shall be in MM-state "Idle, updated".
  - The UE is configured to discover the Home Agent address via DNS.
  - The UE is configured with a DNS server address.
  - The UE is configured with the HA-APN Network Identifier.
  - The UE has acquired an IP address.

Related ICS/IXIT Statements

Support of mobility between 3GPP WLAN Interworking and 3GPP Systems

Support for being configured to discover the Home Agent address via DNS

Test procedure

a) The UE transmits a DNS Query message with QNAME set to the FQDN of the Home Agent (derived from HA-APN Network Identifier and PLMN information).

b) The SS transmits a DNS Response message with the IPv6 and IPv4 addresses of the Home Agent.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	→		DNS Query	QNAME set to FQDN of the Home Agent
2	←		DNS Response	DNS Response message contains IPv6 and IPv4 addresses of the Home Agent

Specific Message Contents

DNS Query (Step 1)

Information Element	Value/remark
QR=	'0'B
QPCODE=	'0000'B
QNAME=	Fully Qualified Domain Name of the Home Agent
QTYPE=	A
QCLASS=	IN
QNAME=	Fully Qualified Domain Name of the Home Agent
QTYPE=	AAAA
QCLASS=	IN

DNS Response (Step 2)

Information Element	Value/remark
QR=	'1'B
QPCODE=	'0000'B
QNAME=	Same as received in DNS Query (Step 1)
QTYPE=	A
QCLASS=	IN
QNAME=	Same as received in DNS Query (Step 1)
QTYPE=	AAAA
QCLASS=	IN
RR	
- NAME	Same as received in DNS Query (Step 1)
- TYPE	A
- CLASS	IN
- RDATA	IPv4 address of HA
RR	
- NAME	Same as received in DNS Query (Step 1)
- TYPE	AAAA
- CLASS	IN
- RDATA	IPv6 address of HA

17.3.1.5 Test requirements

1. At Step 1, UE shall send a DNS Query message with QNAME set to the FQDN of the Home Agent (derived from HA-APN Network Identifier and PLMN information).

17.3.2 Discovery of the Home Agent address and Home Network Prefix during PDP context activation procedure

17.3.2.1 Definition and applicability

This test case is applicable for all UEs which support mobility between 3GPP WLAN Interworking and 3GPP Systems.

17.3.2.2 Conformance requirement

from TS 24.327, subclause 5.1.2.2

The first procedure the UE needs to perform for DSMIPv6 initial attach is the discovery of the node acting as the HA.

The UE discovers the IPv6 address and optionally the IPv4 address of the HA in one of the three following ways:

- via DNS as defined in 3GPP TS 24.303 [3];
- during the PDP context activation procedure in GERAN or UTRAN accesses via the Protocol Configuration Options as defined in 3GPP TS 24.008 [4] if the HA IP address is available in the GGSN; or
- via IKEv2 during tunnel setup with PDG for 3GPP I-WLAN as defined in annex B if the HA IP address is available in the PDG.

If the HA IP address(es) are available in the GGSN, the GGSN shall return the HA IP address(es) in the Protocol Configuration Options during the PDP context activation procedure when attaching to the GERAN or UTRAN accesses. If the HA IP address(es) are not available in the GGSN, the UE shall discover the HA IP address(es) by DNS if the UE wants to perform the handover to 3GPP I-WLAN.

If the UE requests the HA IP address(es) during the IPsec tunnel setup to PDG in 3GPP I-WLAN connection and if the HA IP address(es) are available in the PDG, the PDG shall return the HA IP address(es) in IKEv2 configuration payload attributes as defined in annex B. If the HA IP address(es) are not available in the PDG, the UE shall discover the HA IP address(es) by DNS before performing the H1 PDN attach.

The UE shall support the HA discovery based on DNS and on Protocol Configuration Options. The UE may support the HA discovery based on IKEv2.

The HA IP address(es) may also be pre-configured in the UE.

from TS 24.327, subclause 5.1.2.3

The UE shall perform the security association establishment with the HA as specified in 3GPP TS 24.303 [3]. For this procedure the UE shall support IKEv2 protocol and EAP over IKEv2 as described in IETF RFC 4306 [9]. The detailed procedure and supported extensions for this step are specified in 3GPP TS 24.303 [3]. The UE may use either EAP-SIM or EAP-AKA for authentication purposes.

During the IKEv2 exchange, the UE shall request an IPv6 home network prefix as specified in 3GPP TS 24.303 [3]. The UE shall then auto-configure an IPv6 home address from the received prefix and create child SA as specified in 3GPP TS 24.303 [3].

In the IKEv2 signalling the UE should indicate the target PDN the UE wants to connect to in the IDr payload as specified in 3GPP TS 24.303 [3].

from TS 24.327, subclause 5.1.2.4

The DSMIPv6 home link detection function is used by the UE to detect if, for a specific PDN, an access interface is on the home link from DSMIPv6 perspective. The home link detection function for a specific PDN connection shall be performed whenever the UE receives a new IPv6 prefix, either at initial attach or after a handover.

The UE is informed of the IPv6 prefix associated with a specific access interface. If the UE is connected to GPRS systems, the UE knows the IPv6 prefix via the IPv6 address auto configuration as described in 3GPP TS 29.061 [6]. If UE is connected to the 3GPP I-WLAN, it knows the IPv6 prefix via IPv6 address auto configuration as described in 3GPP TS 29.161 [7].

In the scenarios considered in this specification, the Home Network Prefix associated to the PDN connection can be assigned:

- via Protocol Configuration Options from the GGSN in GPRS systems as specified in 3GPP TS 24.008 [4];
- via IPsec security associations bootstrap with the PDG in I-WLAN as specified in annex B;
- via the establishment of IPsec security associations with the HA as specified in 3GPP TS 24.303 [3] subclause 5.1.2.2; or
- the HNP may also be pre-configured in the UE.

NOTE: If a pre-configured HNP is available, the UE can use it for home link detection. However the UE cannot use it for the IPv6 address auto configuration.

The home link detection procedure performed by the UE is specified in 3GPP TS 24.303 [3].

If the UE detects it is in the home link for this specific PDN over the access interface, the UE shall not perform the H1 PDN attach. If the UE detects it is not on the home link, the UE shall perform IKEv2 procedure for security associations setup and IPv6 prefix and optionally IPv4 HA assignment if the UE does not have a valid security association with the HA, and then the UE shall send a Binding Update as specified in 3GPP TS 24.303 [3].

Reference(s)

3GPP TS 24.327 clause 5.1.2.32

3GPP TS 24.327 clause 5.1.2.3

3GPP TS 24.327 clause 5.1.2.4

17.3.2.3 Test purpose

1) To verify that when the UE has sets up PDP context, it requests for Home Agent IPv6 address and optionally for Home Agent IPv4 address and Home Network Prefix

17.3.2.4 Method of test

Initial Conditions

- System simulator:
  - 1 cell, default parameters.
- User Equipment:
  - The UE shall be in GMM-state "GMM-REGISTERED, normal service".

Related ICS/IXIT Statements

Support of mobility between 3GPP WLAN Interworking and 3GPP Systems

Test procedure

a) UE sets request for a Home Agent address and Home Network Prefix to the GGSN within the Protocol Configuration Options IE in Activate PDP Context Request message. UE initiates an Activate PDP Context procedure.

b) SS responds with an Activate PDP Context Accept including list of HA addresses and Home Network Prefix..

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	→		Activate PDP Context Request	
2	←		Activate PDP Context Accept	

Specific Message Contents

Activate PDP Context Request (step 1)

NOTE: Containers can be in any order.

Information Elements	Value/Remarks
Protocol Configuration options	
- Additional Parameters	
-- container 1 Identifier	0007H (DSMIPv6 Home Agent Address);
-- Container 1 Length	0 bytes
-- container 2 Identifier	0008H (DSMIPv6 Home Network Prefix) (optional);
-- Container 2 Length	0 bytes
-- container 3 Identifier	0009H (DSMIPv6 IPv4 Home Agent Address) (optional)
-- Container 3 Length	0 bytes

Activate PDP Context Accept (step 2)

Information Elements	Value/Remarks
Protocol Configuration options	
- Additional Parameters	
-- container 1 Identifier	0007H (DSMIPv6 Home Agent Address);
-- Container 1 Length	16 bytes;
-- Container 1 contents	IPv6 HA Address set by SS;
-- container 2 Identifier	0008H (DSMIPv6 Home Network Prefix); sent if requested by UE
-- Container 2 Length	17 bytes;
-- Container 2 contents	Home Network Prefix set by SS;
-- container 3 Identifier	0009H (DSMIPv6 IPv4 Home Agent Address); sent if requested by UE
-- Container 3 Length	4 bytes;
-- Container 3 contents	IPv4 HA Address set by SS;

17.3.2.5 Test requirements

1) In step 1, the UE shall request for HA IPv6 address and optionally HA IPv4 address and Home Network Prefix to the GGSN within the Protocol Configuration Options IE.

17.3.3 Void

17.3.4 Security association establishment

17.3.4.1 Definition and applicability

This test case is applicable for all UEs which support mobility between 3GPP WLAN Interworking and 3GPP Systems.

17.3.4.2 Conformance requirement

From TS 24.327 clause 5.1.2.3

The UE shall perform the security association establishment with the HA as specified in 3GPP TS 24.303 [3]. For this procedure the UE shall support IKEv2 protocol and EAP over IKEv2 as described in IETF RFC 4306 [9]. The detailed procedure and supported extensions for this step are specified in 3GPP TS 24.303 [3]. The UE may use either EAP-SIM or EAP-AKA for authentication purposes.

During the IKEv2 exchange, the UE shall request an IPv6 home network prefix as specified in 3GPP TS 24.303 [3]. The UE shall then auto-configure an IPv6 home address from the received prefix and create child SA as specified in 3GPP TS 24.303 [3].

In the IKEv2 signalling the UE should indicate the target PDN the UE wants to connect to in the IDr payload as specified in 3GPP TS 24.303 [3].

From TS 24.303 clause 5.1.2.2

The UE shall support the IKEv2 protocol (see IETF RFC 4306 [14]) for negotiating the IPsec security association to secure DSMIPv6 signalling and shall support EAP over IKEv2 as described in IETF RFC 4306 [14] to perform authentication with an AAA server. In a case an additional authentication and authorization of the IPSec security association is needed with an external AAA server, then the additional authentication steps during the IKEv2 exchange shall be supported as specified in IETF RFC 4739 [23] and described in 3GPP TS 33.234 [24].

The UE shall support IPsec ESP (see IETF RFC 4303 [11]) in order to provide authentication of Binding Update and Binding Acknowledgement messages as specified in IETF RFC 4877 [4]. The UE shall support multiple authentication exchanges in the IKEv2 protocol as specified in IETF RFC 4739 [23] in order to support authentication with an external AAA server. The UE shall support the redirect mechanism as defined in draft-ietf-ipsecme-ikev2-redirect [30].

The UE shall initiate the security association establishment procedure by sending the IKE_SA_INIT request message defined in IETF RFC 4306 [14] to the HA. The UE shall indicate support for the HA reallocation by including a REDIRECT_SUPPORTED payload in the IKE_SA_INIT request as specified in draft-ietf-ipsecme-ikev2-redirect [30]. On receipt of an IKE_SA_INIT response, the UE shall send an IKE_AUTH request message including the MN-NAI in the IDi payload and the Access Point Name (APN) of the target PDN the UE wants to connect to in the IDr payload. The APN shall be formatted as defined in 3GPP TS 23.003 [17]. The username part of the MN-NAI included in "IDi" payload may be an IMSI, pseudonym or re-authentication ID. The UE shall include in the IDi payload the same MN-NAI it includes in the EAP-Response/Identity within the EAP-AKA exchange.

In the very first EAP-Response/Identity within the IKEv2 exchange the UE shall include a NAI whose username is derived from IMSI. In subsequent exchanges the UE should use pseudonyms and re-authentication identities provided by the 3GPP AAA server as specified in IETF RFC 4187 [26].

NOTE: Fast re-authentication mechanism is optional, and therefore is an implementation option in the UE and operator configuration issue (i.e. it also depends on whether the AAA server sent a re-authentication ID during previous EAP authentication) whether to use it during security association establishment.

EAP-AKA over IKEv2 shall be used to authenticate UE in the IKE_AUTH exchange, while public key signature based authentication with certificates shall be used to authenticate the HA.

During the IKEv2 exchange, the HA may trigger the UE to perform the HA reallocation procedure. If the UE receives as part of the IKE_AUTH response message a REDIRECT payload containing the IP address of a target HA as specified in subclause 5.1.3.1, the UE shall initiate a new IKEv2 security association with the target HA. The UE shall terminate the IKEv2 security association with the initial HA by sending an IKEv2 Informational message with a DELETE payload as specified in IETF RFC 4306 [14].

During the IKEv2 exchange, the UE shall request the allocation of an IPv6 home prefix through the Configuration Payload in the IKE_AUTH. Since in EPS a unique IPv6 prefix is assigned to the UE, the UE shall include a MIP6_HOME_PREFIX attribute in the CFG_REQUEST message as described in IETF RFC 5026 [10]. In addition the UE may include the INTERNAL_IP6_DNS attribute in the CFG_REQUEST as described in IETF RFC 4306 [14] to request the DNS server IPv6 address of the PLMN it is connecting to via DSMIPv6. In the same way the UE may include the INTERNAL_IP4_DNS attribute in the CFG_REQUEST to request the IPv4 address of the DNS server.

The UE shall then auto-configure a Home Address from the IPv6 prefix received from the HA and shall run a CREATE_CHILD_SA exchange to create the security association for the new Home Address. In the CREATE_CHILD_SA exchange the UE shall include the Home Address and the appropriate selectors in the TSi (Traffic Selector-initiator) payload to negotiate the IPsec security association for protecting the Binding Update and Binding Acknowledgement messages as specified in IETF RFC 4877 [4].

Reference(s)

3GPP TS 24.327 clause 5.1.2.3

3GPP TS 24.303 clause 5.1.2.2

17.3.4.3 Test purpose

1. To verify that when the UE has acquired the IP address of the Home Agent, it transmits an IKE_SA_INIT message addressed to the Home Agent to initiate security association establishment.

2. To verify that when the UE receives an IKA_SA_INIT response message, it transmits an IKE_AUTH Request message containing the configuration payload MIP6_HOME_PREFIX to receive the prefix to use for Home Address configuration.

3. To verify that when the UE receives an IKE_AUTH Response message including an EAP-Request/AKA Challenge, it transmits an IKE_AUTH Request message containing the correct EAP-Response/AKA-Challenge.

4. To verify that when the UE receives an IKE_AUTH Response message including EAP-Success, it transmits an IKE_AUTH Request message with Authentication payload.

5. To verify that when the UE receives an IKE_AUTH Response message with configuration payload MIP6_HOME_PREFIX containing the Home Network Prefix HNP associated to the UE, it transmits a CREATE_CHILD_SA Request message including traffic selectors fields (TSi and TSr) that contain the parameters identifying the Binding Update (BU)/Binding Acknowledgments (BA) messages.

17.3.4.4 Method of test

Initial Conditions

- System simulator:
  - 1 cell, default parameters.
- User Equipment:
  - The UE shall be in MM-state "Idle, updated".
  - The UE has acquired an IP address.
  - The UE has discovered the IP address of the Home Agent (either via DNS, IKEv2 signalling or during PDP context activation procedure).

Related ICS/IXIT Statements

Support of mobility between 3GPP WLAN Interworking and 3GPP Systems

Test procedure

a) The UE transmits an IKE_SA_INIT message addressed to the Home Agent.

b) The SS transmits an IKE_SA_INIT message.

c) The UE transmits an IKE_AUTH Request message containing the configuration payload MIP6_HOME_PREFIX, a MN-NAI derived from UE IMSI in the IDi field and an APN in the IDr field.

d) The SS transmits an IKE_AUTH Response message including an EAP-Request/AKA-Challenge.

e) The UE transmits an IKE_AUTH Request message including the EAP-Response/AKA-Challenge.

f) The SS transmits an IKE_AUTH Response message including EAP-Success.

g) The UE transmits an IKE_AUTH Request message with Authentication payload.

h) The SS transmits an IKE_AUTH Response message with configuration payload MIP6_HOME_PREFIX containing the Home Network Prefix HNP associated to the UE.

i) The UE transmits a CREATE_CHILD_SA Request message including traffic selectors fields (TSi and TSr) that contain the parameters identifying the Binding Update (BU) / Binding Acknowledgments (BA) messages.

j) The SS transmits a CREATE_CHILD_SA Response message.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	→		IKE_SA_INIT	IKE_SA_INIT addressed to the Home Agent
2	←		IKE_SA_INIT	
3	→		IKE_AUTH Request	IKE_AUTH Request message contains the configuration payload MIP6_HOME_PREFIX, a MN-NAI derived from UE IMSI in the IDi field and an APN in the IDr field
4	←		IKE_AUTH Response	IKE_AUTH Response message includes an EAP-Request/AKA-Challenge
5	→		IKE_AUTH Request	IKE_AUTH Request message includes the EAP-Response/AKA-Challenge
6	←		IKE_AUTH Response	IKE_AUTH Response message includes EAP-Success
7	→		IKE_AUTH Request	IKE_AUTH Request message with Authentication payload
8	←		IKE_AUTH Response	IKE_AUTH Response message with configuration payload MIP6_HOME_PREFIX containing the Home Network Prefix HNP associated to the UE
9	→		CREATE_CHILD_SA Request	CREATE_CHILD_SA Request message includes traffic selectors fields (TSi and TSr) that contain the parameters identifying the Binding Update (BU) / Binding Acknowledgments (BA) messages
10	←		CREATE_CHILD_SA Response	

Specific Message Contents

IKE_SA_INIT (Step 1)

Information Element	Value/remark
IKE Header	
- Initiator's IKE_SA SPI	Set by the UE
- Responder's IKE_SA SPI	'0'B (First message in IKE_SA_INIT exchange)
- Next Payload	'00100001'B (SA)
- Exchange Type	'00100010'B (IKE_SA_INIT)
Security Association Payload	
- Next Payload	'00100010'B (KE)
- More Proposal	'00000010'B
- Proposal #	'00000001'B
- Protocol ID	'00000001'B (IKE)
- SPI size	'00000000'B
- Number of transforms	'00000010'B
- More transform	'00000011'B (This is the transform for confidentiality)
- Transform type	'00000001'B (Encryption)
- Transform ID	'00000011'B (3DES in CBC mode)
- More transform	'00000011'B (This is the transform for prf)
- Transform type	'00000010'B (PRF)
- Transform ID	'00000010'B (PRF_HMAC_SHA1)
- More transform	'00000011'B (This is the transform for integrity)
- Transform type	'00000011'B (Integrity)
- Transform ID	'00000010'B (HMAC-SHA1-96)
- Last transform	'00000000'B (This is the transform for DH)
- Transform type	'00000100'B (DH)
- Transform ID	'00000010'B (Diffie-Hellman group 2)
- Last proposal	'00000000'B
- Proposal #	'00000010'B (Second cryptographic suite)
- Protocol ID	'00000001'B (IKE)
- SPI size	'00000000'B
- Number of transforms	'00000010'B
- More transform	'00000011'B (This is the transform for confidentiality)
- Transform type	'00000001'B (Encryption)
- Transform ID	'00001011'B (AES with 128-bit keys in CBC mode)
- More transform	'00000011'B (This is the transform for prf)
- Transform type	'00000010'B (PRF)
- Transform ID	'00000100'B (PRF_AES128_XCBC)
- More transform	'00000011'B (This is the transform for integrity)
- Transform type	'00000011'B (Integrity)
- Transform ID	'00000101'B (AES-XCBC-MAC-96)
- Last transform	'00000000'B (This is the transform for DH)
- Transform type	'00000100'B (DH)
- Transform ID	'00000010'B (Diffie-Hellman group 2)
Key Exchange Payload	
- Next Payload	'00101000'B (Nonce)
- DH Group #	'0000000000000010'B (DH group 2)
- Key Exchange Data	Set by the UE
Nonce Payload	
- Next Payload	'00101001'B (Notify REDIRECT_SUPPORTED)
- Nonce data	Random number set by the UE
REDIRECT_SUPPORTED Notify Payload	
- Next Payload	'00000000'B (No Next Payload)
- Protocol ID	'00000000'B (Notification not specific to a particular SA)
- SPI size	'00000000'B (SPI field not present)
- Notify Message Type	'0100000000010110'B (REDIRECT_SUPPORTED)

IKE_SA_INIT (Step 2)

Information Element	Value/remark
IKE Header	
- Initiator's IKE_SA SPI	Same as that set by the UE in IKE_SA_INIT as Step 1
- Responder's IKE_SA SPI	Set by the SS
- Next Payload	'00100001'B (SA)
- Exchange Type	'00100010'B (IKE_SA_INIT)
Security Association Payload	
- Next Payload	'00100010'B (KE)
- Proposal	One of the 2 proposals included in IKE_SA_INIT at Step 1
Key Exchange Payload	
- Next Payload	'00101000'B (Nonce)
- DH Group #	'0000000000000010'B (DH group 2)
- Key Exchange Data	Set by the SS
Nonce Payload	
- Next Payload	'00000000'B (No Next Payload)
- Nonce data	Set by the SS

IKE_AUTH Request (Step 3)

Information Element	Value/remark
IKE Header	
- Initiator's IKE_SA SPI	Same as that set by the UE in IKE_SA_INIT as Step 1
- Responder's IKE_SA SPI	Same as that set by the SS in IKE_SA_INIT as Step 2
- Next Payload	'00101110'B (E)
- Exchange Type	'00100011'B (IKE_AUTH)
Encrypted Payload	
- Next Payload	'00100011'B (IDi)
- Initialization Vector	Random value set by the UE
- Encrypted IKE Payloads	
- Identification – Initiator Payload	
- Next Payload	'00101111'B (CP)
- ID Type	'00000010'B
- ID	Set to MN-NAI
- Configuration Payload	
- Next Payload	'00100001'B (SA)
- CFG Type	'00000001'B (Request)
- Configuration Attribute	'00010000'B (MIP6_HOME_PREFIX attribute)
- Length	'0000000000000000'B
- Security Association Payload	
- Next Payload	'00101100'B (TSi)
- Proposals	Any set of allowed values
- Traffic Selector – Initiator Payload	
- Next Payload	'00101100'B (TSr)
- Traffic selector data	Any set of allowed values
- Traffic Selector – Responder Payload	
- Next Payload	'00100100'B (IDr)
- Traffic selector data	Any set of allowed values
- Identification – Responder Payload	
- Next Payload	'00000000'B (No Next Payload)
- ID Type	'00000010'B
- ID	APN
- Padding	Set by the UE
- Pad Length	Set by the UE
- Integrity checksum data	Set by the UE

IKE_AUTH Response (Step 4)

Information Element	Value/remark
IKE Header	
- Initiator's IKE_SA SPI	Same as that set by the UE in IKE_SA_INIT as Step 1
- Responder's IKE_SA SPI	Same as that set by the SS in IKE_SA_INIT as Step 2
- Next Payload	'00101110'B (E)
- Exchange Type	'00100011'B (IKE_AUTH)
Encrypted Payload	
- Next Payload	'00100100'B (IDr)
- Initialization Vector	Set by the SS
- Encrypted IKE Payloads	
- Identification – Responder Payload	
- Next Payload	'00100101'B (CERT)
- ID Type	'00000010'B
- ID	APN
- Certificate Payload	
- Next Payload	'00110000'B (EAP)
- Cert encoding	'00000100'B (X.509 certificate - signature)
- Certificate data	Set by the SS (DER encoded X.509 certificate)
- Length	'0000000000000000'B
- Extensible Authentication Payload	
- Next Payload	'00000000'B (No Next Payload)
- Code	'00000001'B (Request)
- Type	'00010111'B (AKA)
- Subtype	AKA-Challenge
- Attribute Type	'00000001'B (AT_RAND)
- AT_RAND	An arbitrarily selected 128 bits value
- Attribute Type	'00000010'B (AT_AUTN)
- AT_AUTN	See TS 24.301 subclause 9.9.3.2
- Padding	Set by the SS
- Pad Length	Set by the SS
- Integrity checksum data	Set by the SS

IKE_AUTH Request (Step 5)

Information Element	Value/remark
IKE Header	
- Initiator's IKE_SA SPI	Same as that set by the UE in IKE_SA_INIT as Step 1
- Responder's IKE_SA SPI	Same as that set by the SS in IKE_SA_INIT as Step 2
- Next Payload	'00101110'B (E)
- Exchange Type	'00100011'B (IKE_AUTH)
Encrypted Payload	
- Next Payload	'00110000'B (EAP)
- Initialization Vector	Random value set by the UE
- Encrypted IKE Payloads	
- Extensible Authentication Payload	
- Next Payload	'00000000'B (No Next Payload)
- Code	'00000010'B (Response)
- Type	'00010111'B (AKA)
- Subtype	AKA-Challenge
- Attribute Type	'00000011'B (AT_RES)
- AT_RES	See TS 24.301 subclause 9.9.3.4
- Padding	Set by the UE
- Pad Length	Set by the UE
- Integrity checksum data	Set by the UE

IKE_AUTH Response (Step 6)

Information Element	Value/remark
IKE Header	
- Initiator's IKE_SA SPI	Same as that set by the UE in IKE_SA_INIT as Step 1
- Responder's IKE_SA SPI	Same as that set by the SS in IKE_SA_INIT as Step 2
- Next Payload	'00101110'B (E)
- Exchange Type	'00100011'B (IKE_AUTH)
Encrypted Payload	
- Next Payload	'00110000'B (EAP)
- Initialization Vector	Set by the SS
- Encrypted IKE Payloads	
- Extensible Authentication Payload	
- Next Payload	'00000000'B (No Next Payload)
- Code	'00000011'B (Success)
- Padding	Set by the SS
- Pad Length	Set by the SS
- Integrity checksum data	Set by the SS

IKE_AUTH Request (Step 7)

Information Element	Value/remark
IKE Header	
- Initiator's IKE_SA SPI	Same as that set by the UE in IKE_SA_INIT as Step 1
- Responder's IKE_SA SPI	Same as that set by the SS in IKE_SA_INIT as Step 2
- Next Payload	'00101110'B (E)
- Exchange Type	'00100011'B (IKE_AUTH)
Encrypted Payload	
- Next Payload	'00100111'B (AUTH)
- Initialization Vector	Random value set by the UE
- Encrypted IKE Payloads	
- Authentication Payload	
- Next Payload	'00000000'B (No Next Payload)
- Auth Method	'00000010'B (Shared Key Integrity code)
- Auth Data	Derived from the MSK obtained from AKA exchange
- Padding	Set by the UE
- Pad Length	Set by the UE
- Integrity checksum data	Set by the UE

IKE_AUTH Response (Step 8)

Information Element	Value/remark
IKE Header	
- Initiator's IKE_SA SPI	Same as that set by the UE in IKE_SA_INIT as Step 1
- Responder's IKE_SA SPI	Same as that set by the SS in IKE_SA_INIT as Step 2
- Next Payload	'00101110'B (E)
- Exchange Type	'00100011'B (IKE_AUTH)
Encrypted Payload	
- Next Payload	'00100111'B (AUTH)
- Initialization Vector	Set by the SS
- Encrypted IKE Payloads	
- Authentication Payload	
- Next Payload	'00101111'B (CP)
- Auth Method	'00000010'B (Shared Key Integrity code)
- Auth Data	Derived from the MSK obtained from AKA exchange
- Configuration Payload	
- Next Payload	'00100001'B (SA)
- CFG Type	'00000010'B (Reply)
- Configuration Attribute	'00010000'B (MIP6_HOME_PREFIX attribute)
- Length	'0000000000010101'B
- Prefix lifetime	Any allowed value
- Home Prefix	IPv6 prefix – 16 bytes
- Prefix length	'10000000'B
- Security Association Payload	
- Next Payload	'00101101'B (TSi)
- Proposal	One of the 2 proposals included in IKE_AUTH Request at Step 3
- Traffic Selector – Initiator Payload	
- Next Payload	'00101100'B (TSr)
- Traffic Selector data	Any allowed set of values
- Traffic Selector – Responder Payload	
- Next Payload	'00000000'B (No Next Payload)
- Traffic Selector data	Any allowed set of values
- Padding	Set by the SS
- Pad Length	Set by the SS
- Integrity checksum data	Set by the SS

CREATE_CHILD_SA Request (Step 9)

Information Element	Value/remark
IKE Header	
- Initiator's IKE_SA SPI	Same as that set by the UE in IKE_SA_INIT as Step 1
- Responder's IKE_SA SPI	Same as that set by the SS in IKE_SA_INIT as Step 2
- Next Payload	'00101110'B (E)
- Exchange Type	'00 100100'B (CREATE_CHILD_SA)
Encrypted Payload	
- Next Payload	'00100001'B (SA)
- Initialization Vector	Random value set by the UE
- Encrypted IKE Payloads	
- Security Association Payload	
- Next Payload	'00101000'B (Ni)
- More proposal	'00000010'B
- Proposal #	'00000001'B (First cryptographic suite)
- Protocol ID	'00000011'B
- SPI size	'00000100'B
- Number of transforms	'00000010'B
- SPI	Set by the UE
- More transform	'00000011'B (This is the transform for confidentiality)
- Transform type	'00000001'B (Encryption)
- Transform ID	'00000011'B (3DES in CBC mode)
- Last transform	'00000011'B (This is the transform for integrity)
- Transform type	'00000011'B (Integrity)
- Transform ID	'00000010'B (HMAC-SHA1-96)
- Last proposal	'00000000'B
- Proposal #	'00000010'B (Second cryptographic suite)
- Protocol ID	'00000011'B (ESP)
- SPI size	'00000100'B
- Number of transforms	'00000010'B
- SPI	Set by the UE
- More transform	'00000011'B (This is the transform for confidentiality)
- Transform type	'00000001'B (Encryption)
- Transform ID	'00001011'B (AES with 128-bit keys in CBC mode)
- Last transform	'00000011'B (This is the transform for integrity)
- Transform type	'00000011'B (Integrity)
- Transform ID	'00000101'B (AES-XCBC-MAC-96)
- Nonce Payload	
- Next Payload	'00101100'B (TSi)
- Nonce data	Random number set by the UE
- Traffic Selector – Initiator Payload	
- Next Payload	'00101101'B (TSr)
- Traffic Selector data	Any set of values containing the traffic selector of the CREATE_CHILD_SA Response at Step 10
- Traffic Selector – Responder Payload	'00000000'B (SPI field not present)
- Next Payload	'00101001'B (Notify – Use transport mode)
- Traffic Selector data	Any set of values containing the traffic selector of the CREATE_CHILD_SA Response at Step 10
- Use transport mode Notify Payload	
- Next Payload	'00101001'B (Notify – Use transport mode)
- Protocol ID	'00000011'B (ESP)
- SPI size	'00000100'B
- Notify Message Type	'1000000000000111'B (Use transport mode)
- SPI	Same as that set by the UE in SA proposal #1
- Use transport mode Notify Payload	
- Next Payload	'00000000'B (No Next Payload)
- Protocol ID	'00000011'B (ESP)
- SPI size	'00000100'B
- Notify Message Type	'1000000000000111'B (Use transport mode)
- SPI	Same as that set by the UE in SA proposal #1
- Padding	Set by the UE
- Pad Length	Set by the UE
- Integrity checksum data	Set by the UE

CREATE_CHILD_SA Response (Step 10)

Information Element	Value/remark
IKE Header	
- Initiator's IKE_SA SPI	Same as that set by the UE in IKE_SA_INIT as Step 1
- Responder's IKE_SA SPI	Same as that set by the SS in IKE_SA_INIT as Step 2
- Next Payload	'00101110'B (E)
- Exchange Type	'00 100100'B (CREATE_CHILD_SA)
Encrypted Payload	
- Next Payload	'00100001'B (SA)
- Initialization Vector	Set by the SS
- Encrypted IKE Payloads	
- Security Association Payload	
- Next Payload	'00101000'B (Nr)
- Last proposal	'00000000'B
- Proposal #	One of the 2 proposals included in the CREATE_CHILD_SA Request at Step 9
- Protocol ID	'00000011'B (ESP)
- SPI size	'00000100'B
- SPI	Set by the SS
- First transform	'00000011'B (This is the transform for confidentiality)
- Transform type	'00000001'B (Encryption)
- Transform attribute type	The corresponding value of the chosen proposal
- Last transform	'00000011'B (This is the transform for integrity)
- Transform type	'00000011'B (Integrity)
- Transform attribute type	The corresponding value of the chosen proposal
- Nonce Payload	
- Next Payload	
- Nonce data	'00101100'B (TSi)
- Traffic Selector – Initiator Payload	Set by the SS
- Next Payload	'00101101'B (TSr)
- Number of traffic selectors	'00000010'B
- TS type	'00001000'B (IPv6 range)
- IP protocol	'10000111B (Mobility header)
- Start port	'0000010100000000'B (BU)
- End port	'0000010100000000'B (BU)
- Starting address	HoA address derived from HNP
- Ending address	HoA address derived from HNP
- TS type	'00001000'B (IPv6 range)
- IP protocol	'10000111B (Mobility header)
- Start port	'0000011000000000'B (BA)
- End port	'0000011000000000'B (BA)
- Starting address	HoA address derived from HNP
- Ending address	HoA address derived from HNP
- Traffic Selector – Responder Payload	
- Next Payload	'00101001'B (Notify – Use transport mode)
- Number of traffic selectors	'00000010'B
- TS type	'00001000'B (IPv6 range)
- IP protocol	'10000111B (Mobility header)
- Start port	'0000010100000000'B (BU)
- End port	'0000010100000000'B (BU)
- Starting address	HA address
- Ending address	HA address
- TS type	'00001000'B (IPv6 range)
- IP protocol	'10000111B (Mobility header)
- Start port	'0000011000000000'B (BA)
- End port	'0000011000000000'B (BA)
- Starting address	HA address
- Ending address	HA address
- Use transport mode Notify Payload	
- Next Payload	'00000000'B (No Next Payload)
- Protocol ID	'00000011'B (ESP)
- SPI size	Set by the SS
- Notify Message Type	'1000000000000111'B (Use transport mode)
- SPI	Same as that set by the SS in the accepted proposal
- Padding	Set by the UE
- Pad Length	Set by the UE
- Integrity checksum data	Set by the UE

17.3.4.5 Test requirements

1. At Step 1, UE shall send an IKE_SA_INIT message addressed to the Home Agent to initiate security association establishment.
2. At Step 3, UE shall send an IKE_AUTH Request message containing the configuration payload MIP6_HOME_PREFIX.
3. At Step 5, UE shall send an IKE_AUTH Request message containing the correct EAP-Response/AKA-Challenge.
4. At Step 7, UE shall send an IKE_AUTH Request message with Authentication payload.
5. At Step 9, UE shall send a CREATE_CHILD_SA Request message including traffic selectors fields (TSi and TSr) that contain the parameters identifying the Binding Update (BU)/Binding Acknowledgments (BA) messages.

17.3.5 Registration of a new IPv6 CoA (Binding Update/Acknowledgment procedure in IPv6 network)

17.3.5.1 Definition and applicability

This test case is applicable for all UEs which support mobility between 3GPP WLAN Interworking and 3GPP Systems.

17.3.5.2 Conformance requirement

From TS 24.327 clause 5.1.2.5

After establishing the security association and obtaining the IPv6 home network prefix and after performing the home link detection, if not on the home link, the UE shall send a Binding Update message as specified in 3GPP TS 24.303 [3] to register its IPv6 home address with its care-of address.

The UE may also request in the Binding Update an IPv4 home address based on the procedure specified in 3GPP TS 24.303 [3].

From TS 24.303 clause 5.1.2.3

The DSMIPv6 Home Link Detection Function is used by the UE to detect if an access interface is on the home link for a PDN from a DSMIPv6 perspective. The Home Link Detection function shall be performed before sending DSMIPv6 Binding Update via the same access interface.

To perform the Home Link Detection procedure, the UE shall compare the assigned Home Network Prefix for a PDN with the IPv6 prefix or prefixes included in the Prefix Information Option in the Router Advertisements received on the local link. The Home Network Prefix can be assigned in a 3GPP access via PCO, as specified in 3GPP TS 24.301 [15], or via IKEv2 as specified in subclause 5.1.2.2. If there is a match between the Home Network Prefix and one of the local prefixes, the UE is attached on the home link over the respective access interface and shall not send a Binding Update to the HA unless the UE currently has a valid DSMIPv6 Binding Update list entry. If the UE has a valid DSMIPv6 Binding Update list entry, the UE shall proceed to perform the action specified in subclause 5.2.2.4. If there is not any match, the UE shall proceed as specified in subclause 5.1.2.4.

NOTE: The UE does not need to run IKEv2 for home link detection if the Home Network prefix is dynamically received in a PCO Information Element.

From TS 24.303 clause 5.1.2.4

After establishing the security association and obtaining the IPv6 Home Address, the UE shall send a Binding Update message as specified in IETF RFC 3775 [6] and IETF RFC 5555 [2] in order to register its Home Address and Care-of Address at the HA, if it detects it is in the foreign network.

If both IPv4 and IPv6 Care-of Address are received at the foreign network, the UE shall first attempt to use the IPv6 Care-of Address for its binding registration. The UE shall not register both IPv4 and IPv6 Care-of Address to its HA.

If IPv6 Care-of Address is used for initial binding registration, the UE shall send the Binding Update message to the IPv6 address of the HA. In this Binding Update message the H (home registration) and A (acknowledge) bits shall be set. If the UE needs an IPv4 Home Address, the UE shall include the 0.0.0.0 address in the IPv4 Home Address option to request a dynamic IPv4 Home Address.

When IPv6 Care-of Address is used for initial binding registration, the Alternate Care-of Address option shall be used by the UE to carry the Care-of Address inside a Mobility Header which is protected by ESP. If this option is present, the address included in this option is the same address present in the source address of the IPv6 packet.

If IPv4 Care-of Address is used for initial binding registration, the UE shall send the Binding Update as follows (see IETF RFC 5555 [2]):

- The IPv6 packet, with the IPv6 Home Address as the Source Address field of the IPv6 header, shall be encapsulated in UDP.
- The UE shall include the IPv4 Care-of Address as the Source Address field of the IPv4 header and the HA IPv4 address as the Destination Address field of the IPv4 header.
- The UE shall include the IPv4 Care-of Address option containing the IPv4 Care-of Address.
- The UE shall set the H (home registration) and A (acknowledge) flags.
- The UE shall set the F (UDP encapsulation required) flag to 0.
- The UE shall set the R (Mobile Router Flag) flag to 1.
- If the UE needs an IPv4 Home Address, the UE shall include an IPv4 Home Address option with the 0.0.0.0 address in the Binding Update message, as defined in IETF RFC 5555 [2].

When the UE receives the Binding Acknowledgement from the HA, it shall validate it based on the rules described in IETF RFC 3775 [6] and IETF RFC 5555 [2]. If the Binding Acknowledgement contains the successful status code 0 ("Binding Update Accepted"), the UE shall create an entry for the registered Home Address in its Binding Update List and may start sending packets containing its IPv6 Home Address or other IPv6 addresses auto-configured from the assigned home network prefix.

If the Binding Acknowledgement contains a value of 128, the UE may re-send the BU as specified in IETF RFC 3775 [6]. If the Binding Acknowledgement contains a value from 129 to 133 as specified in IETF RFC 3775 [6] or a value from 140 to 143 as specified in IETF RFC 3963 [29], the UE shall not send the BU to the HA and should discover another HA.

If the Binding Acknowledgment contains an IPv4 Address Acknowledgement option with status code value from 0 to 127 (indicating success), the UE shall create two entries in its Binding Update List, one for the IPv6 Home Address and another for the IPv4 Home Address. If the Binding Acknowledgement contains an IPv4 Address Acknowledgment option with status code indicating error (i.e. 128 or higher), the UE shall create an entry only for the IPv6 HoA in its binding update list. Moreover, if the status code is 129 ("Administratively prohibited") or 132 ("Dynamic IPv4 home address assignment not available"), the UE shall not re-send the Binding Update and it shall use only the IPv6 HoA. If the Binding Acknowledgement contains an IPv4 Address Acknowledgement option with status 128 ("Failure, reason unspecified"), 130 ("Incorrect IPv4 home address"), 131 ("Invalid IPv4 address") or 133 ("Prefix allocation unauthorized") it shall re-send the Binding Update including the 0.0.0.0 address in the IPv4 Home Address option. If the Binding Acknowledgement does not contain an IPv4 Address Acknowledgment option, the UE shall create an entry only for the IPv6 HoA in its binding update list.

NOTE: The value to be used to identify the IPv4 address acknowledgement option in the mobility header is 30;

The UE may then send data traffic either with the IPv6 Home Address or with the IPv4 Home Address. If the UE is located on an IP6-enabled link, it shall send IPv6 packets as described in IETF RFC 3775 [6]; IPv4 traffic shall be encapsulated in IPv6 packets as described in IETF RFC 5555 [2]. If the UE is located on an IPv4-only link and the Binding Acknowledgement contains the NAT detection option with the F flag set, the UE shall send IPv6 and IPv4 packets following the vanilla UDP encapsulation rules specified in IETF RFC 5555 [2]. Otherwise the UE shall send IPv6 and IPv4 packets encapsulated in IPv4 as specified in IETF RFC 5555 [2].

Once the DSMIPv6 tunnel is established, the UE may build a DHCPv4 or DHCPv6 message as described in IETF RFC 4039 [26] or IETF RFC 3736 [13] respectively and send it via the DSMIPv6 tunnel as described in IETF RFC 3775 [6] in order to retrieve additional parameters, e.g. Vendor-specific options.

From TS 24.303 clause 5.2.2.3

If the access network supports IPv6, as soon as the UE has received via a Router Advertisement at least an IPv6 prefix which is not present in its Prefix List, the UE shall perform the Home Link detection as specified in subclause 5.1.2.3.

If the UE detects it is not attached to the home link, the UE shall send a Binding Update to the HA including the newly configured IP address as the Care-of Address in the Source IP address of the packet and optionally in the Alternate Care-of Address Option [6]. The UE build the Binding Update message as specified in IETF RFC 3775 [6].

If the UE has been assigned also an IPv4 Home Address and wants to update also the binding for it, the UE shall include the IPv4 Home Address option including the assigned IPv4 Home Address in the same Binding Update message.

If the UE has been assigned also an IPv4 Home Address and wants to release it, the UE shall not include any IPv4 Home Address option in the same Binding Update.

If the UE does not have an IPv4 Home Address but wants to configure one, the UE shall include the IPv4 Home Address option with the 0.0.0.0 address as specified in subclause 5.1.2.4.

If the access network supports only IPv4, as soon as the UE has configured an IPv4 Care-of Address which is different from the previous Care-of Address, the UE shall send a Binding Update tunnelled in UDP as specified in IETF RFC 5555 [2]. The UE shall set the F flag to "0". The UE shall set the R flag to "1".

Independent of an IPv6 or IPv4 access network the UE shall set the Key Management Capability (K) bit in the Binding Update message.

Reference(s)

3GPP TS 24.327 clause 5.1.2.5

3GPP TS 24.303 clauses 5.1.2.3, 5.1.2.4 and 5.2.2.3

17.3.5.3 Test purpose

To verify that when the UE has established a security association with the Home Agent and received the IPv6 Home Address, upon detecting that it is not on the Home Link, it transmits a Binding Update message in order to register it Home Address and Care-of-Address at the Home Agent.

17.3.5.4 Method of test

Initial Conditions

- System simulator:
  - 1 cell, default parameters.
- User Equipment:
  - The UE’s Prefix List has been cleared.
  - The UE shall be in MM-state "Idle, updated".
  - The UE has acquired an IP address.
  - The UE has established a security association with the Home Agent and obtained an IPv6 Home Address, by executing the steps in test case 17.3.4 with the following exception: the IPv6 home prefix assigned to the UE by the SS shall be the same as the prefix used during IP address acquisition by the UE.

Related ICS/IXIT Statements

Support of mobility between 3GPP WLAN Interworking and 3GPP Systems

Test procedure

a) The SS broadcasts a Router Advertisement with a Prefix Information Option containing an IPv6 prefix different from the Home Network Prefix assigned to the UE during the preamble.

b) The UE transmits a Binding Update with its IPv6 CoA in the IP Source Address field of the IP Header and the IPv6 Home Agent address in the IP destination Address field of the IP header.

c) The SS transmits a Binding Acknowledgement accepting the Binding Update.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		Router Advertisement	The Prefix Information Option in the Router Advertisement contains an IPv6 prefix different from the Home Network Prefix assigned to the UE during the preamble
2	→		Binding Update	Binding Update contains UE's IPv6 CoA in the IP Source Address field of the IP Header and the IPv6 Home Agent address in the IP destination Address field of the IP header
3	←		Binding Acknowledgement	Binding Acknowledgement accepting the Binding Update

Specific Message Contents

Router Advertisement (Step 1)

Use the default message contents found in TS 34.108, clause 9.1.4, with the following exceptions:

Information Element	Value/remark
Prefix	IPv6 prefix different from the Home Network Prefix assigned to the UE during the preamble

Binding Update (Step 2)

Use the default message contents found in TS 34.108, clause 9.1.4, with the following exceptions:

Information Element	Value/remark
IPv4 Home Address option	Optional: Set to the value "0.0.0.0" to request allocation for the UE. The "P" flag is set to '0'B.
Alternate Care-of Address option	The Prefix Length is set to the requested prefix length of '32'. Same IPv6 address as that inserted in the IP Source Address field

Binding Acknowledgement (Step 3)

Use the default message contents found in TS 34.108, clause 9.1.4.

17.3.5.5 Test requirements

1. At Step 2, UE shall send a Binding Update with its IPv6 CoA in the IP Source Address field of the IP Header and the IPv6 Home Agent address in the IP destination Address field of the IP header.

17.3.6 Registration of a new IPv4 CoA (Binding Update/Acknowledgment procedure in IPv4 network)

17.3.6.1 Definition and applicability

This test case is applicable for all UEs which support mobility between 3GPP WLAN Interworking and 3GPP Systems.

17.3.6.2 Conformance requirement

From TS 24.327 clause 5.1.2.5

After establishing the security association and obtaining the IPv6 home network prefix and after performing the home link detection, if not on the home link, the UE shall send a Binding Update message as specified in 3GPP TS 24.303 [3] to register its IPv6 home address with its care-of address.

The UE may also request in the Binding Update an IPv4 home address based on the procedure specified in 3GPP TS 24.303 [3].

From TS 24.303 clause 5.1.2.3

The DSMIPv6 Home Link Detection Function is used by the UE to detect if an access interface is on the home link for a PDN from a DSMIPv6 perspective. The Home Link Detection function shall be performed before sending DSMIPv6 Binding Update via the same access interface.

To perform the Home Link Detection procedure, the UE shall compare the assigned Home Network Prefix for a PDN with the IPv6 prefix or prefixes included in the Prefix Information Option in the Router Advertisements received on the local link. The Home Network Prefix can be assigned in a 3GPP access via PCO, as specified in 3GPP TS 24.301 [15], or via IKEv2 as specified in subclause 5.1.2.2. If there is a match between the Home Network Prefix and one of the local prefixes, the UE is attached on the home link over the respective access interface and shall not send a Binding Update to the HA unless the UE currently has a valid DSMIPv6 Binding Update list entry. If the UE has a valid DSMIPv6 Binding Update list entry, the UE shall proceed to perform the action specified in subclause 5.2.2.4. If there is not any match, the UE shall proceed as specified in subclause 5.1.2.4.

NOTE: The UE does not need to run IKEv2 for home link detection if the Home Network prefix is dynamically received in a PCO Information Element.

From TS 24.303 clause 5.1.2.4

After establishing the security association and obtaining the IPv6 Home Address, the UE shall send a Binding Update message as specified in IETF RFC 3775 [6] and IETF RFC 5555 [2] in order to register its Home Address and Care-of Address at the HA, if it detects it is in the foreign network.

If both IPv4 and IPv6 Care-of Address are received at the foreign network, the UE shall first attempt to use the IPv6 Care-of Address for its binding registration. The UE shall not register both IPv4 and IPv6 Care-of Address to its HA.

If IPv6 Care-of Address is used for initial binding registration, the UE shall send the Binding Update message to the IPv6 address of the HA. In this Binding Update message the H (home registration) and A (acknowledge) bits shall be set. If the UE needs an IPv4 Home Address, the UE shall include the 0.0.0.0 address in the IPv4 Home Address option to request a dynamic IPv4 Home Address.

When IPv6 Care-of Address is used for initial binding registration, the Alternate Care-of Address option shall be used by the UE to carry the Care-of Address inside a Mobility Header which is protected by ESP. If this option is present, the address included in this option is the same address present in the source address of the IPv6 packet.

If IPv4 Care-of Address is used for initial binding registration, the UE shall send the Binding Update as follows (see IETF RFC 5555 [2]):

- The IPv6 packet, with the IPv6 Home Address as the Source Address field of the IPv6 header, shall be encapsulated in UDP.
- The UE shall include the IPv4 Care-of Address as the Source Address field of the IPv4 header and the HA IPv4 address as the Destination Address field of the IPv4 header.
- The UE shall include the IPv4 Care-of Address option containing the IPv4 Care-of Address.
- The UE shall set the H (home registration) and A (acknowledge) flags.
- The UE shall set the F (UDP encapsulation required) flag to 0.
- The UE shall set the R (Mobile Router Flag) flag to 1.
- If the UE needs an IPv4 Home Address, the UE shall include an IPv4 Home Address option with the 0.0.0.0 address in the Binding Update message, as defined in IETF RFC 5555 [2].

When the UE receives the Binding Acknowledgement from the HA, it shall validate it based on the rules described in IETF RFC 3775 [6] and IETF RFC 5555 [2]. If the Binding Acknowledgement contains the successful status code 0 ("Binding Update Accepted"), the UE shall create an entry for the registered Home Address in its Binding Update List and may start sending packets containing its IPv6 Home Address or other IPv6 addresses auto-configured from the assigned home network prefix.

If the Binding Acknowledgement contains a value of 128, the UE may re-send the BU as specified in IETF RFC 3775 [6]. If the Binding Acknowledgement contains a value from 129 to 133 as specified in IETF RFC 3775 [6] or a value from 140 to 143 as specified in IETF RFC 3963 [29], the UE shall not send the BU to the HA and should discover another HA.

If the Binding Acknowledgment contains an IPv4 Address Acknowledgement option with status code value from 0 to 127 (indicating success), the UE shall create two entries in its Binding Update List, one for the IPv6 Home Address and another for the IPv4 Home Address. If the Binding Acknowledgement contains an IPv4 Address Acknowledgment option with status code indicating error (i.e. 128 or higher), the UE shall create an entry only for the IPv6 HoA in its binding update list. Moreover, if the status code is 129 ("Administratively prohibited") or 132 ("Dynamic IPv4 home address assignment not available"), the UE shall not re-send the Binding Update and it shall use only the IPv6 HoA. If the Binding Acknowledgement contains an IPv4 Address Acknowledgement option with status 128 ("Failure, reason unspecified"), 130 ("Incorrect IPv4 home address"), 131 ("Invalid IPv4 address") or 133 ("Prefix allocation unauthorized") it shall re-send the Binding Update including the 0.0.0.0 address in the IPv4 Home Address option. If the Binding Acknowledgement does not contain an IPv4 Address Acknowledgment option, the UE shall create an entry only for the IPv6 HoA in its binding update list.

NOTE: The value to be used to identify the IPv4 address acknowledgement option in the mobility header is 30;

The UE may then send data traffic either with the IPv6 Home Address or with the IPv4 Home Address. If the UE is located on an IP6-enabled link, it shall send IPv6 packets as described in IETF RFC 3775 [6]; IPv4 traffic shall be encapsulated in IPv6 packets as described in IETF RFC 5555 [2]. If the UE is located on an IPv4-only link and the Binding Acknowledgement contains the NAT detection option with the F flag set, the UE shall send IPv6 and IPv4 packets following the vanilla UDP encapsulation rules specified in IETF RFC 5555 [2]. Otherwise the UE shall send IPv6 and IPv4 packets encapsulated in IPv4 as specified in IETF RFC 5555 [2].

Once the DSMIPv6 tunnel is established, the UE may build a DHCPv4 or DHCPv6 message as described in IETF RFC 4039 [26] or IETF RFC 3736 [13] respectively and send it via the DSMIPv6 tunnel as described in IETF RFC 3775 [6] in order to retrieve additional parameters, e.g. Vendor-specific options.

From TS 24.303 clause 5.2.2.3

If the access network supports IPv6, as soon as the UE has received via a Router Advertisement at least an IPv6 prefix which is not present in its Prefix List, the UE shall perform the Home Link detection as specified in subclause 5.1.2.3.

If the UE detects it is not attached to the home link, the UE shall send a Binding Update to the HA including the newly configured IP address as the Care-of Address in the Source IP address of the packet and optionally in the Alternate Care-of Address Option [6]. The UE build the Binding Update message as specified in IETF RFC 3775 [6].

If the UE has been assigned also an IPv4 Home Address and wants to update also the binding for it, the UE shall include the IPv4 Home Address option including the assigned IPv4 Home Address in the same Binding Update message.

If the UE has been assigned also an IPv4 Home Address and wants to release it, the UE shall not include any IPv4 Home Address option in the same Binding Update.

If the UE does not have an IPv4 Home Address but wants to configure one, the UE shall include the IPv4 Home Address option with the 0.0.0.0 address as specified in subclause 5.1.2.4.

If the access network supports only IPv4, as soon as the UE has configured an IPv4 Care-of Address which is different from the previous Care-of Address, the UE shall send a Binding Update tunnelled in UDP as specified in IETF RFC 5555 [2]. The UE shall set the F flag to "0". The UE shall set the R flag to "1".

Independent of an IPv6 or IPv4 access network the UE shall set the Key Management Capability (K) bit in the Binding Update message.

Reference(s)

3GPP TS 24.327 clause 5.1.2.5

3GPP TS 24.303 clauses 5.1.2.3, 5.1.2.4 and 5.2.2.3

17.3.6.3 Test purpose

To verify that when the UE has established a security association with the Home Agent and received the IPv6 Home Address, upon detecting that it is not on the Home Link, it transmits a Binding Update message in order to register it Home Address and Care-of-Address at the Home Agent.

17.3.6.4 Method of test

Initial Conditions

- System simulator:
  - 1 cell, default parameters.
- User Equipment:
  - The UE's Prefix List has been cleared.
  - The UE shall be in MM-state "Idle, updated".
  - The UE has acquired an IPv4 address.
  - The UE has established a security association with the Home Agent and obtained an IPv6 Home Address, by executing the steps in test case 17.3.4.

Related ICS/IXIT Statements

Support of mobility between 3GPP WLAN Interworking and 3GPP Systems

Test procedure

a) The UE transmits a Binding Update with its IPv4 CoA in the IP Source Address field of the IP Header and the IPv4 Home Agent address in the IP destination Address field of the outer IP header.

b) The SS transmits a Binding Acknowledgement accepting the Binding Update.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	→		Binding Update	Binding Update contains UE's IPv4 CoA in the IP Source Address field of the IP Header and the IPv4 Home Agent address in the IP destination Address field of the outer IP header
2	←		Binding Acknowledgement	Binding Acknowledgement accepting the Binding Update

Specific Message Contents

Binding Update (Step1)

Use the default message contents found in TS 34.108, clause 9.1.4, with the following exceptions:

Information Element	Value/remark
IPv4 Home Address option	Optional: Set to the value "0.0.0.0" to request allocation for the UE. The "P" flag is set to '0'B. The Prefix Length is set to the requested prefix length of '32'.
Alternate Care-of Address option	Not present

Binding Acknowledgement (Step 2)

Use the default message contents found in TS 34.108, clause 9.1.4.

17.3.6.5 Test requirements

1. At Step 1, UE shall send a Binding Update with its IPv4 CoA in the IP Source Address field of the IP Header and the IPv4 Home Agent address in the IP destination Address field of the IP header.

17.3.7 Re-registration of IPv6 CoA

17.3.7.1 Definition and applicability

This test case is applicable for all UEs which support mobility between 3GPP WLAN Interworking and 3GPP Systems.

17.3.7.2 Conformance requirement

From TS 24.303 clause 5.3.2

As specified in IETF RFC 3775 [6], if the UE wants to extend the validity of an existing binding at the HA, the UE shall send a new Binding Update to the HA before the expiration of the lifetime indicated in the received Binding Acknowledgement, even if it is not changing its primary Care-of Address. This Binding Update is usually referred as periodic Binding Update.

The UE shall follow the rules described in IETF RC 3775 [6], IETF RFC 5555 [2] and in subclause 5.1.2.4 to send a periodic Binding Update and handle the associated Binding Acknowledgement. As the UE has not performed any handover, the UE shall confirm the already registered Care of Address and shall indicate the desired lifetime value. In a periodic Binding Update the UE may request an IPv4 Home Address.

Reference(s)

3GPP TS 24.303 clause 5.3.2

17.3.7.3 Test purpose

To verify that when the registration of the UE's Care-of-Address is about to expire, the UE initiates the re-registration procedure to extend the lifetime of the registration of its Care-of-Address.

17.3.7.4 Method of test

Initial Conditions

- System simulator:
  - 1 cell, default parameters.
- User Equipment:
  - The UE's Prefix List has been cleared.
  - The UE shall be in MM-state "Idle, updated".
  - The UE has acquired an IP address.
  - The UE has established a security association with the Home Agent and obtained an IPv6 Home Address, by executing the steps in test case 17.3.4 with the following exception: the IPv6 home prefix assigned to the UE by the SS shall be the same as the prefix used during IP address acquisition by the UE.

Related ICS/IXIT Statements

Support of mobility between 3GPP WLAN Interworking and 3GPP Systems

Test procedure

a - c) The UE registers its IPv6 Home Address and IPv6 Care-of-Address at the Home Agent by performing steps a – c) defined in test case 17.3.5.

d) Within 10 min of Step c), the UE transmits a Binding Update with its IPv6 CoA in the IP Source Address field of the IP Header and the IPv6 Home Agent address in the IP Destination Address field of the IP header.

e) The SS transmits a Binding Acknowledgement accepting the Binding Update.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1-3			Steps defined in test case 17.3.5	The same messages as in test case 17.3.5 Steps 1-3 are used.
4	→		Binding Update	Binding Update contains UE's IPv6 CoA in the IP Source Address field of the IP Header and the IPv6 Home Agent address in the IP Destination Address field of the IP header. Message shall be sent within 10 min of Step 3.
5	←		Binding Acknowledgement	Binding Acknowledgement accepting the Binding Update

Specific Message Contents

Binding Update (Step 4)

Use the default message contents found in TS 34.108, clause 9.1.4, with the following exceptions:

Information Element	Value/remark
IPv4 Home Address option	Optional: If an IPv4 Home Address was included in the Binding Acknowledgement sent by the SS at Step 3, field should be set to this IPv4 Home Address. Else, set to the value "0.0.0.0" to request allocation for the UE. The "P" flag is set to '0'. The Prefix Length is set to the requested prefix length of '32'.
Alternate Care-of Address option	Same IPv6 address as that inserted in the IP Source Address field

Binding Acknowledgement (Step 5)

Use the default message contents found in TS 34.108, clause 9.1.4, with the following exceptions:

Information Element	Value/remark
P	Not present

17.3.7.5 Test requirements

1. Within 10 min of Step 3, UE shall send a Binding Update with its IPv6 CoA in the IP Source Address field of the IP Header and the IPv6 Home Agent address in the IP Destination Address field of the IP header.

17.3.8 Re-registration of Ipv4 CoA

17.3.8.1 Definition and applicability

This test case is applicable for all UEs which support mobility between 3GPP WLAN Interworking and 3GPP Systems.

17.3.8.2 Conformance requirement

From TS 24.303 clause 5.3.2

As specified in IETF RFC 3775 [6], if the UE wants to extend the validity of an existing binding at the HA, the UE shall send a new Binding Update to the HA before the expiration of the lifetime indicated in the received Binding Acknowledgement, even if it is not changing its primary Care-of Address. This Binding Update is usually referred as periodic Binding Update.

The UE shall follow the rules described in IETF RC 3775 [6], IETF RFC 5555 [2] and in subclause 5.1.2.4 to send a periodic Binding Update and handle the associated Binding Acknowledgement. As the UE has not performed any handover, the UE shall confirm the already registered Care of Address and shall indicate the desired lifetime value. In a periodic Binding Update the UE may request an IPv4 Home Address.

Reference(s)

3GPP TS 24.303 clause 5.3.2

17.3.8.3 Test purpose

To verify that when the registration of the UE's Care-of-Address is about to expire, the UE initiates the re-registration procedure to extend the lifetime of the registration of its Care-of-Address.

17.3.8.4 Method of test

Initial Conditions

- System simulator:
  - 1 cell, default parameters.
- User Equipment:
  - The UE's Prefix List has been cleared.
  - The UE shall be in MM-state "Idle, updated".
  - The UE has acquired an IPv4 address.
  - The UE has established a security association with the Home Agent and obtained an IPv6 Home Address, by executing the steps in test case 17.3.4.

Related ICS/IXIT Statements

Support of mobility between 3GPP WLAN Interworking and 3GPP Systems

Test procedure

a - b) The UE registers its IPv6 Home Address and IPv4 Care-of-Address at the Home Agent by performing steps a –b) defined in test case 17.3.6.

c) Within 10 min of Step b), the UE transmits a Binding Update with its IPv4 CoA in the IP Source Address field of the outer IP Header and the IPv4 Home Agent address in the IP Destination Address field of the outer IP header.

d) The SS transmits a Binding Acknowledgement accepting the Binding Update.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1-2			Steps defined in test case 17.3.6	The same messages as in test case 17.3.6 Steps 1-2 are used.
3	→		Binding Update	Binding Update contains UE's IPv4 CoA in the IP Source Address field of the outer IP Header and the IPv4 Home Agent address in the IP Destination Address field of the outer IP header. Message shall be sent within 10 min of Step 2.
4	←		Binding Acknowledgement	Binding Acknowledgement accepting the Binding Update

Specific Message Contents

Binding Update (Step 3)

Use the default message contents found in TS 34.108, clause 9.1.4, with the following exceptions:

Information Element	Value/remark
IPv4 Home Address option	Optional: If an IPv4 Home Address was included in the Binding Acknowledgement sent by the SS at Step 2, field should be set to this IPv4 Home Address. Else, set to the value "0.0.0.0" to request allocation for the UE. The "P" flag is set to '0'. The Prefix Length is set to the requested prefix length of '32'.
Alternate Care-of Address option	Not present

Binding Acknowledgement (Step 4)

Use the default message contents found in TS 34.108, clause 9.1.4, with the following exceptions:

Information Element	Value/remark
P	Not present

17.3.8.5 Test requirements

1. Within 10 min of Step 2, UE shall send a Binding Update with its IPv4 CoA in the IP Source Address field of the outer IP Header and the IPv4 Home Agent address in the IP Destination Address field of the outer IP header.

17.3.9 Return to home link

17.3.9.1 Definition and applicability

This test case is applicable for all UEs which support mobility between 3GPP WLAN Interworking and 3GPP Systems.

17.3.9.2 Conformance requirement

From TS 24.327 clause 5.2.2.1

When the UE is connected to the GPRS systems and wants to move to 3GPP I-WLAN, the UE shall initiate the tunnel establishment procedure towards the PDG as described in 3GPP TS 24.234 [5] and shall then perform the home link detection as described in subclause 5.1.2.4:

…

- If the UE is on the home link, the UE shall send a Binding Update with lifetime set to 0 to remove the binding at the HA as specified in 3GPP TS 24.303 [3].

From TS 24.327 clause 5.2.3.1

Once the UE is attached to the GPRS system and after performing the PDP context activation procedure, it will receive a new PDP address as a Care-of-Address. The UE shall then perform the home link detection procedure as specified in subclause 5.1.2.4:

….

- If the UE is on the home link, the UE shall send a Binding Update with lifetime set to 0 to remove the binding at the HA as specified in 3GPP TS 24.303 [3].

From TS 24.303 clause 5.2.2.4

If the access network supports IPv6, as soon as the UE has received via a Router Advertisement message at least an IPv6 prefix which is not present in its Prefix List, the UE shall perform the Home Link detection as specified in subclause 5.1.2.3 to detect if the UE is attaching to the home link. If the UE detects it is attached to the home link and there is a valid DSMIPv6 Binding Update list entry at the UE, the UE shall send a Binding Update with the Lifetime field set to "0" in order to remove the binding at the HA, as specified in IETF RFC 3775 [6]. If an IPv4 home address was assigned to the UE, as an optimization the UE may not include the IPv4 home address option as the binding for the IPv4 home address will be removed by the HA. Independent of an IPv6 or IPv4 access network the UE shall set the Key Management Capability (K) bit in the de-registration Binding Update message. The UE may preserve the IKEv2 session in order to avoid re-establishing the session when the next handover occurs. If there is not a safe assumption that the UE will remain in the home link (e.g. switching off the non-3GPP radio interface in case of a dual radio terminal), the UE should preserve the IKEv2 session.

Reference(s)

3GPP TS 24.327 clauses 5.2.2.1 and 5.2.3.1

3GPP TS 24.303 clause 5.2.2.4

17.3.9.3 Test purpose

To verify that when the UE detects it is attached to the home link, it transmits a Binding Update message with the lifetime field set to “0”.

17.3.9.4 Method of test

Initial Conditions

- System simulator:
  - 1 cell, default parameters.
- User Equipment:
  - The UE shall be in MM-state "Idle, updated".
  - The UE has acquired an IP address.
  - The UE has established a security association with the Home Agent and obtained an IPv6 Home Address, by executing the steps in test case 17.3.4 with the following exception: the IPv6 home prefix assigned to the UE by the SS shall be the same as the prefix used during IP address acquisition by the UE.
  - The UE has registered its IPv6 Home Address and its Care-of-Address (acquired IPv6 address) at the Home Agent, by executing the steps in test case 17.3.5.

Related ICS/IXIT Statements

Support of mobility between 3GPP WLAN Interworking and 3GPP Systems

Test procedure

a) The SS broadcasts a Router Advertisement with a Prefix Information Option containing an IPv6 prefix matching the Home Network Prefix assigned to the UE during the preamble.

b) The UE transmits a Binding Update message with the lifetime field set to “0”.

c) The SS transmits a Binding Acknowledgement accepting the Binding Update with the lifetime field set to “0”.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		Router Advertisement	The Prefix Information Option in the Router Advertisement contains an IPv6 prefix matching the Home Network Prefix assigned to the UE during the preamble
2	→		Binding Update	Lifetime field is set to "0"
3	←		Binding Acknowledgement	Binding Acknowledgement accepting the Binding Update with the lifetime field set to "0"

Specific Message Contents

Router Advertisement (Step 1)

Use the default message contents found in TS 34.108, clause 9.1.4, with the following exceptions:

Information Element	Value/remark
Prefix	IPv6 prefix equal to Home Network Prefix assigned to the UE during preamble

Binding Update (Step 2)

Use the default message contents found in TS 34.108, clause 9.1.4, with the following exceptions:

Information Element	Value/remark
Lifetime	'0000000000000000'B
IPv4 Home Address option	Not present
Alternate Care-of Address option	Not present

Binding Acknowledgement (Step 3)

Use the default message contents found in TS 34.108, clause 9.1.4, with the following exceptions:

Information Element	Value/remark
Lifetime	'0000000000000000'B
IPv4 Address Acknowledgement option	Not present
Binding Refresh Advice option	Not present

17.3.9.5 Test requirements

1. At Step 2, UE shall send a Binding Update message with the lifetime field set to "0".

17.3.10 Security association establishment

17.3.10.1 Definition and applicability

This test case is applicable for all UEs which support mobility between 3GPP WLAN Interworking and 3GPP Systems.

17.3.10.2 Conformance requirement

Reference(s)

3GPP TS 24.327 clause 5.4.1

UE and HA may create a child security association using the IKEv2 session established as described in subclause 5.1.2.3. This child security association is used to cipher or integrity protect, or both, all data traffic exchanged within the DSMIPv6 tunnel. The profiles for tunnel mode IPsec ESP are defined in 3GPP TS 33.234 [19]. The procedure is initiated by the HA and may be initiated at any time after the security association between UE and HA has been set up. The support of this procedure is optional for both the HA and the UE.

3GPP TS 24.327 clause 5.4.2

When the UE receives a CREATE_CHILD_SA request from the HA with selectors indicating the DSMIPv6 tunnel traffic, the UE should reply with a CREATE_CHILD_SA response selecting the preferred transform proposed by the HA as specified in IETF RFC 4306 [9].

If the child SA is created successfully, the UE shall start ciphering or integrity protecting, or both, all the uplink packets in the DSMIPv6 tunnel as negotiated with the HA during the CREATE_CHILD_SA procedure.

The UE may stop ciphering or integrity protecting, or both, the DSMIPv6 tunnel traffic. In order to do that, the UE shall delete the respective child security association by sending an INFORMATIONAL request message including the DELETE payload as specified in IETF RFC 4306 [9]. The protocol ID shall be set to 3 in order to indicate that only the ESP SA shall be removed.

3GPP TS 24.327 clause 5.4.3

After establishing the IPsec security association with the UE as described in subclause 5.1.3.3, the HA may optionally trigger the creation of a child security association to protect the traffic send via the DSMIPv6 tunnel.

In order to activate the protection of DSMIPv6 tunnel traffic, the HA shall initiate the creation of a child security association sending a CREATE_CHILD_SA request message to the UE. In the CREATE_CHILD_SA message the HA shall request for an ESP security association; the HA shall also set the SA payload depending if integrity protection or ciphering, or both, are needed as described in IETF RFC 4306 [9]. The traffic selectors shall be set as described in subclause 5.2.4 of IETF RFC 3776 [11].

If the child security association is created successfully, the HA shall start ciphering or integrity protecting, or both, all the downlink packets in the DSMIPv6 tunnel as negotiated with the UE during the CREATE_CHILD_SA procedure.

At any time the HA may stop ciphering or integrity protecting, or both, the DSMIPv6 tunnel traffic. In order to do that, the HA shall delete the respective child security association by sending an INFORMATIONAL request message including the DELETE payload as specified in IETF RFC 4306 [9]. The protocol ID shall be set to 3 in order to indicate that only the ESP SA shall be removed.

After establishing the IPsec security association with the UE as described in subclause 5.1.3.3, the HA may optionally trigger the creation of a child security association to protect the traffic send via the DSMIPv6 tunnel.

In order to activate the protection of DSMIPv6 tunnel traffic, the HA shall initiate the creation of a child security association sending a CREATE_CHILD_SA request message to the UE. In the CREATE_CHILD_SA message the HA shall request for an ESP security association; the HA shall also set the SA payload depending if integrity protection or ciphering, or both, are needed as described in IETF RFC 4306 [9]. The traffic selectors shall be set as described in subclause 5.2.4 of IETF RFC 3776 [11].

If the child security association is created successfully, the HA shall start ciphering or integrity protecting, or both, all the downlink packets in the DSMIPv6 tunnel as negotiated with the UE during the CREATE_CHILD_SA procedure.

At any time the HA may stop ciphering or integrity protecting, or both, the DSMIPv6 tunnel traffic. In order to do that, the HA shall delete the respective child security association by sending an INFORMATIONAL request message including the DELETE payload as specified in IETF RFC 4306 [9]. The protocol ID shall be set to 3 in order to indicate that only the ESP SA shall be removed.

17.3.10.3 Test purpose

To verify that when the HA sets up a Child SA by sending a CREATE_CHILD_SA Request the UE replies with a CREATE_CHILD_SA Response.

17.3.10.4 Method of test

Initial Conditions

- System simulator:
  - 1 cell, default parameters.
- User Equipment:
  - The UE shall be in MM-state "Idle, updated".
  - The UE has acquired an IP address.
  - The UE has discovered the IP address of the Home Agent (either via DNS, IKEv2 signalling or during PDP context activation procedure).
  - The UE has set up a Security Association with the Home Agent

Related ICS/IXIT Statements

Support of mobility between 3GPP WLAN Interworking and 3GPP Systems

Test procedure

a) The SS transmits a CREATE_CHILD_SA Request message including traffic selectors fields (TSi and TSr) that contain the parameters identifying the data traffic to be encrypted.

b) The UE transmits a CREATE_CHILD_SA Response message.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	→		CREATE_CHILD_SA Request	CREATE_CHILD_SA Request message includes traffic selectors fields (TSi and TSr) that contain the parameters identifying the data traffic to be encrypted
2	←		CREATE_CHILD_SA Response	

Specific Message Contents

CREATE_CHILD_SA Request (Step 1)

Information Element	Value/remark
IKE Header	
- Initiator's IKE_SA SPI	Same as that set by the SS in IKE_SA exchange
- Responder's IKE_SA SPI	Same as that set by the UE in IKE_SA exchange
- Next Payload	'00101110'B (E)
- Exchange Type	'00 100100'B (CREATE_CHILD_SA)
Encrypted Payload	
- Next Payload	'00100001'B (SA)
- Initialization Vector	Random value set by the UE

- Encrypted IKE Payloads	
- Security Association Payload	
- Next Payload	‘00101000’B (Ni)
- More proposal	‘00000010’B
- Proposal #	‘00000001’B (First cryptographic suite)
- Protocol ID	‘00000011’B
- SPI size	‘00000100’B
- Number of transforms	‘00000010’B
- SPI	Set by the SS
- More transform	‘00000011’B (This is the transform for confidentiality)
- Transform type	‘00000001’B (Encryption)
- Transform ID	‘00000011’B (3DES in CBC mode)
- Last transform	‘00000011’B (This is the transform for integrity)
- Transform type	‘00000011’B (Integrity)
- Transform ID	‘00000010’B (HMAC-SHA1-96)
- Last proposal	‘00000000’B
- Proposal #	‘00000010’B (Second cryptographic suite)
- Protocol ID	‘00000011’B (ESP)
- SPI size	‘00000100’B
- Number of transforms	‘00000010’B
- SPI	Set by the SS
- More transform	‘00000011’B (This is the transform for confidentiality)
- Transform type	‘00000001’B (Encryption)
- Transform ID	‘00001011’B (AES with 128-bit keys in CBC mode)
- Last transform	‘00000011’B (This is the transform for integrity)
- Transform type	‘00000011’B (Integrity)
- Transform ID	‘00000101’B (AES-XCBC-MAC-96)
- Nonce Payload	
- Next Payload	‘00101100’B (TSi)
- Nonce data	Random number set by the SS
- Traffic Selector – Initiator Payload	
- Next Payload	‘00101101’B (TSr)
- Number of traffic selectors	‘00000001’B
- TS type	‘00001000’B (IPv6 range)
- Starting address	HoA address derived from HNP
- Ending address	HoA address derived from HNP
- Traffic Selector – Responder Payload	
- Next Payload	‘00101001’B (Notify – Use transport mode)
- Traffic Selector data	Any value
- Use transport mode Notify Payload	‘00101001’B (Notify – Use tunnel mode)
- Next Payload	‘00000011’B (ESP)
- Protocol ID	‘00000100’B
- SPI size	‘1000000000000111’B (Use tunnel mode)
- Notify Message Type	Same as that set by the SS in SA proposal #1
- SPI	‘00000000’B (SPI field not present)
- Use transport mode Notify Payload	
- Next Payload	‘00000000’B (No Next Payload)
- Protocol ID	‘00000011’B (ESP)
- SPI size	‘00000100’B
- Notify Message Type	‘1000000000000111’B (Use transport mode)
- SPI	Set by the SS
- Padding	Set by the SS
- Pad Length	Set by the SS
- Integrity checksum data	Set by the SS

CREATE_CHILD_SA Response (Step 2)

Information Element	Value/remark
IKE Header	
- Initiator's IKE_SA SPI	Same as that set by the UE in IKE_SA exchange
- Responder's IKE_SA SPI	Same as that set by the SS in IKE_SA exchange
- Next Payload	'00101110'B (E)
- Exchange Type	'00 100100'B (CREATE_CHILD_SA)
Encrypted Payload	
- Next Payload	'00100001'B (SA)
- Initialization Vector	Set by the SS
- Encrypted IKE Payloads	
- Security Association Payload	
- Next Payload	'00101000'B (Nr)
- Last proposal	'00000000'B
- Proposal #	One of the 2 proposals included in the CREATE_CHILD_SA Request at Step 1
- Protocol ID	'00000011'B (ESP)
- SPI size	'00000100'B
- SPI	Set by the UE
- First transform	'00000011'B (This is the transform for confidentiality)
- Transform type	'00000001'B (Encryption)
- Transform attribute type	The corresponding value of the chosen proposal
- Last transform	'00000011'B (This is the transform for integrity)
- Transform type	'00000011'B (Integrity)
- Transform attribute type	The corresponding value of the chosen proposal
- Nonce Payload	
- Next Payload	'00101100'B (TSi)
- Nonce data	Set by the SS
- Traffic Selector – Initiator Payload	
- Next Payload	'00101101'B (TSr)
- Traffic Selector – Responder Payload	
- Next Payload	'00101001'B (Notify – Use transport mode)
- Use transport mode Notify Payload	
- Next Payload	'00000000'B (No Next Payload)
- Protocol ID	'00000011'B (ESP)
- SPI size	Set by the UE
- Notify Message Type	'1000000000000111'B (Use transport mode)
- SPI	Set by the UE
- Padding	Set by the UE
- Pad Length	Set by the UE
- Integrity checksum data	Set by the UE

17.3.10.5 Test requirements

1. At Step 2, UE shall send a CREATE_CHILD_SA response addressed to the Home Agent to initiate data traffic tunnelling.

17.3.11 Termination of protection of DSMIPv6 tunnel traffic by Home Agent

17.3.11.1 Definition and applicability

This test case is applicable for all UEs which support mobility between 3GPP WLAN Interworking and 3GPP Systems.

17.3.11.2 Conformance requirement

From TS 24.327 clause 5.4.1

UE and HA may create a child security association using the IKEv2 session established as described in subclause 5.1.2.3. This child security association is used to cipher or integrity protect, or both, all data traffic exchanged within the DSMIPv6 tunnel. The profiles for tunnel mode IPsec ESP are defined in 3GPP TS 33.234 [19]. The procedure is initiated by the HA and may be initiated at any time after the security association between UE and HA has been set up. The support of this procedure is optional for both the HA and the UE.

From TS 24.327 clause 5.4.2

When the UE receives a CREATE_CHILD_SA request from the HA with selectors indicating the DSMIPv6 tunnel traffic, the UE should reply with a CREATE_CHILD_SA response selecting the preferred transform proposed by the HA as specified in IETF RFC 4306 [9].

If the child SA is created successfully, the UE shall start ciphering or integrity protecting, or both, all the uplink packets in the DSMIPv6 tunnel as negotiated with the HA during the CREATE_CHILD_SA procedure.

The UE may stop ciphering or integrity protecting, or both, the DSMIPv6 tunnel traffic. In order to do that, the UE shall delete the respective child security association by sending an INFORMATIONAL request message including the DELETE payload as specified in IETF RFC 4306 [9]. The protocol ID shall be set to 3 in order to indicate that only the ESP SA shall be removed.

From TS 24.327 clause 5.4.3

After establishing the IPsec security association with the UE as described in subclause 5.1.3.3, the HA may optionally trigger the creation of a child security association to protect the traffic send via the DSMIPv6 tunnel.

In order to activate the protection of DSMIPv6 tunnel traffic, the HA shall initiate the creation of a child security association sending a CREATE_CHILD_SA request message to the UE. In the CREATE_CHILD_SA message the HA shall request for an ESP security association; the HA shall also set the SA payload depending if integrity protection or ciphering, or both, are needed as described in IETF RFC 4306 [9]. The traffic selectors shall be set as described in subclause 5.2.4 of IETF RFC 3776 [11].

If the child security association is created successfully, the HA shall start ciphering or integrity protecting, or both, all the downlink packets in the DSMIPv6 tunnel as negotiated with the UE during the CREATE_CHILD_SA procedure.

At any time the HA may stop ciphering or integrity protecting, or both, the DSMIPv6 tunnel traffic. In order to do that, the HA shall delete the respective child security association by sending an INFORMATIONAL request message including the DELETE payload as specified in IETF RFC 4306 [9]. The protocol ID shall be set to 3 in order to indicate that only the ESP SA shall be removed.

After establishing the IPsec security association with the UE as described in subclause 5.1.3.3, the HA may optionally trigger the creation of a child security association to protect the traffic send via the DSMIPv6 tunnel.

In order to activate the protection of DSMIPv6 tunnel traffic, the HA shall initiate the creation of a child security association sending a CREATE_CHILD_SA request message to the UE. In the CREATE_CHILD_SA message the HA shall request for an ESP security association; the HA shall also set the SA payload depending if integrity protection or ciphering, or both, are needed as described in IETF RFC 4306 [9]. The traffic selectors shall be set as described in subclause 5.2.4 of IETF RFC 3776 [11].

If the child security association is created successfully, the HA shall start ciphering or integrity protecting, or both, all the downlink packets in the DSMIPv6 tunnel as negotiated with the UE during the CREATE_CHILD_SA procedure.

At any time the HA may stop ciphering or integrity protecting, or both, the DSMIPv6 tunnel traffic. In order to do that, the HA shall delete the respective child security association by sending an INFORMATIONAL request message including the DELETE payload as specified in IETF RFC 4306 [9]. The protocol ID shall be set to 3 in order to indicate that only the ESP SA shall be removed.

Reference(s)

3GPP TS 24.327 clauses 5.4.1, 5.4.2 and 5.4.3

17.3.11.3 Test purpose

To verify that when the Home Agent terminates the previously set up Child SA by sending an INFORMATIONAL Request, the UE replies with an INFORMATIONAL Response.

17.3.11.4 Method of test

Initial Conditions

- System simulator:

- 1 cell, default parameters.

- User Equipment:
  - The UE shall be in MM-state "Idle, updated".
  - The UE has acquired an IP address.
  - The UE has discovered the IP address of the Home Agent (either via DNS, IKEv2 signalling or during PDP context activation procedure).
  - The UE has set up a Security Association with the Home Agent.
  - The Home Agent has set up a child Security Association to protect data traffic.

Related ICS/IXIT Statements

Support of mobility between 3GPP WLAN Interworking and 3GPP Systems

Test procedure

a) The SS transmits an INFORMATIONAL Request message including a DELETE payload with the SPI value of the security association set up during preamble to protect data traffic.

b) The UE transmits an INFORMATIONAL Response message including a DELETE payload with the SPI value of the security association set up during preamble to protect data traffic..

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		INFORMATIONAL Request	INFORMATIONAL Request message includes a DELETE payload indicating the SPIs of the CHILD_SA to be removed
2	→		INFORMATIONAL Response	

Specific Message Contents

INFORMATIONAL Request (Step 1)

Information Element	Value/remark
IKE Header	
- Initiator's IKE_SA SPI	Same as that set by the SS in IKE_SA exchange
- Responder's IKE_SA SPI	Same as that set by the UE in IKE_SA exchange
- Next Payload	'00101110'B (E)
- Exchange Type	'00 100101'B (INFORMATIONAL)
Encrypted Payload	
- Next Payload	'00101010'B (DELETE payload)
- Encrypted IKE Payloads	
- Delete Payload	
- Next Payload	'00000000'B (No Next Payload)
- Protocol ID	'00000011'B (ESP)
- SPI size	'00000100'B
- SPI	Same as the one set by SS when creating the CHILD_SA
- Padding	Set by the SS
- Pad Length	Set by the SS
- Integrity checksum data	Set by the SS

INFORMATIONAL Response (Step 2)

Information Element	Value/remark
IKE Header	
- Initiator's IKE_SA SPI	Same as that set by the UE in IKE_SA exchange
- Responder's IKE_SA SPI	Same as that set by the SS in IKE_SA exchange
- Next Payload	'00101110'B (E)
- Exchange Type	'00 100101'B (INFORMATIONAL)
Encrypted Payload	
- Next Payload	'00101010'B (DELETE payload)
- Encrypted IKE Payloads	
- Delete Payload	
- Next Payload	'00000000'B (No Next Payload)
- Protocol ID	'00000011'B (ESP)
- SPI size	'00000100'B
- SPI	Same as the one set by UE when creating the CHILD_SA
- Padding	Set by the UE
- Pad Length	Set by the UE
- Integrity checksum data	Set by the UE

17.3.11.5 Test requirements

1. At Step 2, the UE shall send an INFORMATIONAL response addressed to the Home Agent to stop data traffic encryption.

17.3.12 Dual-Stack Mobile IPv6 detach in IPv6 network

17.3.12.1 Definition and applicability

This test case is applicable for all UEs which support mobility between 3GPP WLAN Interworking and 3GPP Systems.

17.3.12.2 Conformance requirement

From TS 24.327 clause 5.3.2.1

The network-initiated detach is based on the usage of the Binding Revocation Indication (BRI) message. When the UE receives a BRI, it shall proceed as described in 3GPP TS 24.303 [3].

From TS 24.303 clause 5.4.2.1

Upon receiving a Binding Revocation Indication (BRI) message according to draft-ietf-mext-binding-revocation [19] from the HA, the UE first shall perform the required validity checks on the BRI according to draft-ietf-mext-binding-revocation [19].

The UE shall send a Binding Revocation Acknowledgement (BRA) as specified in draft-ietf-mext-binding-revocation [19]. In this message the UE shall set the status field to 'Success' to reflect that it has received the BRI message. The BRA message may be tunnelled in UDP or IPv4 as specified in subclause 5.1.2.4 for Binding Update messages.

The UE then shall remove the entry identified in the BRI as deregistered from its binding update list and shall use the procedures defined in IETF RFC 4306 [14] to remove the IPsec security associations associated with the DSMIPv6 registration as described in subclause 5.4.2.2.

From TS 24.303 clause 5.4.2.2

To detach from a specific PDN to which it is connected through a DSMIPv6 session, the UE shall send a Binding Update with the Lifetime field set to 0 as specified in IETF RFC 3775 [6].

The UE shall use the procedures defined in the IKEv2 protocol in IETF RFC 4306 [14] to remove the IPsec security associations associated with the DSMIPv6 registration. The UE shall close the security associations associated with the DSMIPv6 registration and instruct the HA to do the same by sending the INFORMATIONAL request message

including a DELETE payload. The Protocol ID in the DELETE payload shall be set to "1" (IKE) to indicate that all IPsec ESP security associations that were negotiated within the IKEv2 exchange shall be deleted.

Reference(s)

3GPP TS 24.327 clause 5.3.2.1

3GPP TS 24.303 clauses 5.4.2.1 and 5.4.2.2

17.3.12.3 Test purpose

To verify that when the UE receives a Binding Revocation Indication message from the HA, it transmits a Binding Revocation Acknowledgement message with the status field set to 'Success', and removes the IPsec security associations associated with the DSMIPv6 registration.

17.3.12.4 Method of test

Initial Conditions

- System simulator:
  - 1 cell, default parameters.
- User Equipment:
  - The UE shall be in MM-state "Idle, updated".
  - The UE has acquired an IPv6 address.
  - The UE has established a security association with the Home Agent and obtained an IPv6 Home Address, by executing the steps in test case 17.3.4 with the following exception: the IPv6 home prefix assigned to the UE by the SS shall be the same as the prefix used during IP address acquisition by the UE.
  - The UE has registered its IPv6 Home Address and its Care-of-Address (acquired IPv6 address) at the Home Agent, by executing the steps in test case 17.3.5.

Related ICS/IXIT Statements

Support of mobility between 3GPP WLAN Interworking and 3GPP Systems

Test procedure

a) The SS transmits a Binding Revocation Indication message to the UE.

b) The UE transmits a Binding Revocation Acknowledgement message with the status field set to 'Success'.

c) The UE transmits an IKEv2 INFORMATIONAL message containing a DELETE payload.

d) The SS transmits an IKEv2 INFORMATIONAL message containing a DELETE payload back to the UE.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		Binding Revocation Indication	
2	→		Binding Revocation Acknowledgement	Status field is set to 'Success'
3	→		IKEv2 INFORMATIONAL	Message contains a DELETE payload
4	←		IKEv2 INFORMATIONAL	Message contains a DELETE payload

Specific Message Contents

Binding Revocation Indication (Step 1)

Use the default message contents found in TS 34.108, clause 9.1.4.

Binding Revocation Acknowledgement (Step 2)

Use the default message contents found in TS 34.108, clause 9.1.4.

IKEv2 INFORMATIONAL (Step 3)

Information Element	Value/remark
IKE Header	
- Initiator's IKE_SA SPI	The one identifying the UE in the SA set up during the preamble
- Responder's IKE_SA SPI	The one identifying the HA in the SA set up during the preamble
- Next Payload	'00101110'B (E)
- Exchange Type	'00100101'B (INFORMATIONAL)
Encrypted Payload	
- Next Payload	'00101010'B (DELETE)
Delete Payload	
- Next Payload	'00000000'B (No Next Payload)
- Protocol ID	'00000001'B (IKE_SA)
Padding	Set by the UE
Pad Length	Set by the UE
Integrity checksum data	Set by the UE

IKEv2 INFORMATIONAL (Step 4)

Information Element	Value/remark
IKE Header	
- Initiator's IKE_SA SPI	Same as that set by the UE at Step 3
- Responder's IKE_SA SPI	Same as that set by the SS at Step 3
- Next Payload	'00101110'B (E)
- Exchange Type	'00100101'B (INFORMATIONAL)
Encrypted Payload	
- Next Payload	'00101010'B (DELETE)
Delete Payload	
- Next Payload	'00000000'B (No Next Payload)
- Protocol ID	'00000001'B (IKE_SA)
Padding	Set by the SS
Pad Length	Set by the SS
Integrity checksum data	Set by the SS

17.3.12.5 Test requirements

1. At Step 2, UE shall send a Binding Revocation Acknowledgement message with the status field set to 'Success'.
2. At Step 3, UE shall send an IKEv2 INFORMATIONAL message containing a DELETE payload.

17.3.13 Dual-Stack Mobile IPv6 detach in IPv4 network

17.3.13.1 Definition and applicability

This test case is applicable for all UEs which support mobility between 3GPP WLAN Interworking and 3GPP Systems.

17.3.13.2 Conformance requirement

From TS 24.327 clause 5.3.2.1

The network-initiated detach is based on the usage of the Binding Revocation Indication (BRI) message. When the UE receives a BRI, it shall proceed as described in 3GPP TS 24.303 [3].

From TS 24.303 clause 5.4.2.1

Upon receiving a Binding Revocation Indication (BRI) message according to draft-ietf-mext-binding-revocation [19] from the HA, the UE first shall perform the required validity checks on the BRI according to draft-ietf-mext-binding-revocation [19].

The UE shall send a Binding Revocation Acknowledgement (BRA) as specified in draft-ietf-mext-binding-revocation [19]. In this message the UE shall set the status field to ‘Success’ to reflect that it has received the BRI message. The BRA message may be tunnelled in UDP or IPv4 as specified in subclause 5.1.2.4 for Binding Update messages.

The UE then shall remove the entry identified in the BRI as deregistered from its binding update list and shall use the procedures defined in IETF RFC 4306 [14] to remove the IPsec security associations associated with the DSMIPv6 registration as described in subclause 5.4.2.2.

From TS 24.303 clause 5.4.2.2

The UE shall use the procedures defined in the IKEv2 protocol in IETF RFC 4306 [14] to remove the IPsec security associations associated with the DSMIPv6 registration. The UE shall close the security associations associated with the DSMIPv6 registration and instruct the HA to do the same by sending the INFORMATIONAL request message including a DELETE payload. The Protocol ID in the DELETE payload shall be set to "1" (IKE) to indicate that all IPsec ESP security associations that were negotiated within the IKEv2 exchange shall be deleted.

Reference(s)

3GPP TS 24.327 clause 5.3.2.1

3GPP TS 24.303 clauses 5.4.2.1 and 5.4.2.2

17.3.13.3 Test purpose

To verify that when the UE receives a Binding Revocation Indication message from the HA, it transmits a Binding Revocation Acknowledgement message with the status field set to ‘Success’, and removes the IPsec security associations associated with the DSMIPv6 registration.

17.3.13.4 Method of test

Initial Conditions

- System simulator:
  - 1 cell, default parameters.
- User Equipment:
  - The UE shall be in MM-state "Idle, updated".
  - The UE has acquired an IPv4 address.
  - The UE has established a security association with the Home Agent and obtained an IPv6 Home Address, by executing the steps in test case 17.3.4.
  - The UE has registered its IPv6 Home Address and its Care-of-Address (acquired IPv4 address) at the Home Agent, by executing the steps in test case 17.3.6.

Related ICS/IXIT Statements

Support of mobility between 3GPP WLAN Interworking and 3GPP Systems

Test procedure

a) The SS transmits a Binding Revocation Indication message with the A flag set to the UE.

b) The UE transmits a Binding Revocation Acknowledgement message with the status field set to 'Success'.

c) The UE transmits an IKEv2 INFORMATIONAL message containing a DELETE payload.

d) The SS transmits an IKEv2 INFORMATIONAL message containing a DELETE payload back to the UE.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		Binding Revocation Indication	A flag is set
2	→		Binding Revocation Acknowledgement	Status field is set to 'Success'
3	→		IKEv2 INFORMATIONAL	Message contains a DELETE payload
4	←		IKEv2 INFORMATIONAL	Message contains a DELETE payload

Specific Message Contents

Binding Revocation Indication (Step 1)

Use the default message contents found in TS 34.108, clause 9.1.4.

Binding Revocation Acknowledgement (Step 2)

Use the default message contents found in TS 34.108, clause 9.1.4.

IKEv2 INFORMATIONAL (Step 3)

Information Element	Value/remark
IKE Header	
- Initiator's IKE_SA SPI	The one identifying the UE in the SA set up during the preamble
- Responder's IKE_SA SPI	The one identifying the HA in the SA set up during the preamble
- Next Payload	'00101110'B (E)
- Exchange Type	'00100101'B (INFORMATIONAL)
Encrypted Payload	
- Next Payload	'00101010'B (DELETE)
Delete Payload	
- Next Payload	'00000000'B (No Next Payload)
- Protocol ID	'00000001'B (IKE_SA)
Padding	Set by the UE
Pad Length	Set by the UE
Integrity checksum data	Set by the UE

IKEv2 INFORMATIONAL (Step 4)

Information Element	Value/remark
IKE Header	
- Initiator's IKE_SA SPI	Same as that set by the UE at Step 3
- Responder's IKE_SA SPI	Same as that set by the SS at Step 3
- Next Payload	'00101110'B (E)
- Exchange Type	'00100101'B (INFORMATIONAL)
Encrypted Payload	
- Next Payload	'00101010'B (DELETE)
Delete Payload	
- Next Payload	'00000000'B (No Next Payload)
- Protocol ID	'00000001'B (IKE_SA)
Padding	Set by the SS
Pad Length	Set by the SS
Integrity checksum data	Set by the SS

17.3.13.5 Test requirements

1. At Step 2, UE shall send a Binding Revocation Acknowledgement message with the status field set to 'Success'.
2. At Step 3, UE shall send an IKEv2 INFORMATIONAL message containing a DELETE payload.

18 Multi-Layer Functional Tests

The present clause specifies the multi-layer functional test cases that are not covered by the interoperability radio bearer test cases in clause 14 or by any other test cases in the present document.

18.1 Radio Bearer Tests for 1.28 Mcps TDD option

18.1.1 General information for radio bearer tests (1.28 Mcps TDD)

The purpose of these radio bearer test cases is to test properly the Reference Radio Bearer configurations included in TS34.108 [9], clause 6.11 for 1.28 Mcps TDD option.

The applicability of radio bearer tests is dependent on the UE uplink and downlink radio access capabilities and UE support tele- and bearer-services. See TS 34.123-2, annex B for applicability of the specific test cases.

The test procedure for radio bearer for 1.28Mcps option is identical to generic radio bearer test procedure in chap 14.

14.1.1.1 Generic radio bearer test procedure for Single RB configuration is used for generic radio bearer test procedure for single RB configuration of 1.28 Mcps TDD option.

14.1.1.2 Generic test procedure for testing multi-RB combination and simultaneous signalling is used for generic test procedure for testing multi-RB combination and simultaneous signalling of 1.28 Mcps TDD option.

For radio bearer combinations which are representative to multiple traffic classes, such as “Interactive or Background”, “Streaming or Interactive or Background” etc, then it is only required to execute the radio bearer test procedure once using one of the applicable traffic class for the UE under test.

NOTE: As the purpose of the radio bearer test cases is to functionally verify that the UE is able to establish the radio bearer combination, and to verify correct data transfer using the different transport formats, then the necessary test coverage is achieved by performing the radio bearer test procedure once for one of the applicable traffic classes.

18.1.1.1 Generic radio bearer test procedure for Single RB configuration

See 14.1.1for test procedure

18.1.1.2 Generic test procedure for testing multi-RB configuration and simultaneous signalling

See 14.1. 2 for test procedure

18.1.1.3 Generic test procedure radio bearers on MTCH

See 14.1.5 for test procedure

18.1.1.4 General information interoperability radio bearer tests for E-DCH and HS-DSCH combinations

See 14.1.4 for test procedure

18.1.1.5 Generic test procedure for radio bearers on MBSFN MTCH

See 18.2.1.6 for test procedure

18.1.1.6 Generic test procedure for HS-DSCH radio bearer combinations with non-enhanced Layer 2

See 14.1.3.5 for test procedure

18.1.1.6a General information interoperability radio bearer tests for HS-DSCH

18.1.1.6a.1 HS-DSCH radio bearer test parameters

In the radio bearer tests on radio bearers mapped on HS-DSCH, the following UE specific parameters should be used.

Table 18.1.1.6a.1.1: 1.28 Mcps TDD HS-DSCH physical layer categories

HS-DSCH category	Maximum number of HS-DSCH codes per timeslot	Maximum number of HS-DSCH timeslots per TTI	Maximum number of HS-DSCH transport channel bits that can be received within an HS-DSCH TTI	Total number of soft channel bits	Supported modulations without MIMO operation	Supported modulations simultaneous with MIMO operation
Category 1	16	2	2788	11264	QPSK	Not applicable (MIMO not supported)
Category 2	16	2	2788	22528		
Category 3	16	2	2788	33792		
Category 4	16	2	5600	22528	QPSK,16QAM	
Category 5	16	2	5600	45056		
Category 6	16	2	5600	67584		
Category 7	16	3	8416	33792		
Category 8	16	3	8416	67584		
Category 9	16	3	8416	101376		
Category 10	16	4	11226	45056		
Category 11	16	4	11226	90112		
Category 12	16	4	11226	135168		
Category 13	16	5	14043	56320		
Category 14	16	5	14043	112640		
Category 15	16	5	14043	168960		
Category 16	16	3	12636	50688	QPSK,16QAM, 64QAM	Not applicable (MIMO not supported)
Category 17	16	3	12636	101376		
Category 18	16	3	12636	152064		
Category 19	16	4	16856	67584		
Category 20	16	4	16856	135168		
Category 21	16	4	16856	202752		
Category 22	16	5	21076	84480		
Category 23	16	5	21076	168960		
Category 24	16	5	21076	253440		

HS-DSCH category	Maximum number of HS-DSCH codes per timeslot	Maximum number of HS-DSCH timeslots per TTI	Maximum number of HS-DSCH transport channel bits that can be received within an HS-DSCH TTI	Total number of soft channel bits	Supported modulations without MIMO operation	Supported modulations simultaneous with MIMO operation
Category 25 NOTE 1	16	3	12636	152064	QPSK,16QAM, 64QAM	--
			8416	202752	--	QPSK,16QAM
Category 26 NOTE 2	16	4	16856	202752	QPSK,16QAM, 64QAM	--
			11226	270336	--	QPSK,16QAM
Category 27 NOTE 3	16	5	21076	253440	QPSK,16QAM, 64QAM	--
			14043	337920	--	QPSK,16QAM
Category 28	16	3	12636	304128	QPSK,16QAM, 64QAM	QPSK,16QAM, 64QAM
Category 29	16	4	16856	405504		
Category 30	16	5	21076	506880		

A UE in CELL_FACH, CELL_PCH or URA_PCH state with HS-DSCH reception shall support the HS-DSCH physical layer category 9 and may support the total number of soft channel bits larger than that of the category 9 in table 5.1c. When HS-DSCH reception in CELL_FACH, CELL_PCH or URA_PCH state is configured, the octet aligned table of transport block size for the HS-DSCH physical layer category 9 shall be used (see [9]).

NOTE 1: A UE of category 25 supports the physical capabilities of categories 18. The first row of category 25 in table 5.1c specifies the capabilities when MIMO is not configured and the capabilities of category 18 apply .The second row of category 25 in table 5.1c specifies the capabilities when MIMO is configured.

NOTE 2: A UE of category 26 supports the physical capabilities of categories 21. The first row of category 26 in table 5.1c specifies the capabilities when MIMO is not configured and the capabilities of category 21 apply .The second row of category 26 in table 5.1c specifies the capabilities when MIMO is configured.

NOTE 3: A UE of category 27 supports the physical capabilities of categories 24. The first row of category 27 in table 5.1c specifies the capabilities when MIMO is not configured and the capabilities of category 24 apply .The second row of category 27 in table 5.1c specifies the capabilities when MIMO is configured.

18.1.1.6a.2 Selecting TFRC test points

18.1.1.6a.2.1 Principle for non-enhanced Layer 2

The transport format and resource combination (TFRC) is identified by the UE by the type of modulation, number of channalisation codes and the transport format and resource identifier (TFRI) signalled on the HS-SCCH.

For the HSDPA radio bearer test cases the principle for selecting typical test points for TFRC is:

1. Select one TFRC per modulation scheme and number of MAC-d PDUs.

2. For each number of MAC-d PDUs select the TFRC minimizing padding.

3. Any TFRC that would cause turbo coder irregularities should be avoided.

The problem with turbo coder regularities appears at certain coding rates. The coding rate for a certain TFCR is:

$Coding\_rate = (TB_{size} + N_{CRC}) / (N_{timeslots} N_{codes} \cdot N_{phy\_bits})$, where

TB_{size} is the selected transport block,

N_{CRC} is the number of CRC bits,

$N_{timeslots}$ is the number of channelisation codes,

N_{codes} is the number of channelisation codes, and

N_{phy_bits} is the number physical bits per code (88 for QPSK, 172 for 16QAM and 344 for 64 QAM).

Table 18.1.1.6a.2.1 lists the coding rates that cause turbo coder irregularities. In case a candidate TFRC value is causing turbo coder irregularities then the closest higher TFRI value, which do not cause any turbo coder irregularities, is selected.

Table 18.1.1.6a.2.1: Coding rates causing degradation due to turbo coder irregularities

Coding rate	Comment
0.77-0.79	Cause loss up to 3.5 dB
0.835-0.84	Cause loss up to 1.5 dB
0.871-0.878	Cause loss up to 2 dB
0.91-0.914	Cause loss up to 2 dB

NOTE The coding rates in Table 14.2.3.2.1 is based on the simulations as described in RAN WG1 document R1-030444 (Turbo-coding and puncturing interactions on HS-DSCH in R5 HSDPA)

The selection algorithm for the TFRC test points for a certain UE category and MAC-d PDU size is:

1. Set the number of MAC-d PDUs, N_PDU, to 1

2. Calculate the minimum transport block size to fit the number of MAC-d PDUs.

3. If the transport block size is less or equal to the UE capability for “Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI” in Table 18.1.1.6a.3.1.1 then continue with step 4 else there is no more testing points.

4. Select the QPSK test point:
If it, for the actual UE category and for the selected transport block size, exists a TFRI for QPSK then select the TFRI that maximises the number of timeslots and number of codes per timeslot.

5. Select the 16QAM test point:
If it, for the actual UE category and for the selected transport block size, exists a TFRI for 16QAM then select the TFRI that maximises the number of timeslots and number of codes per timeslot.

6. Check that the coding rate for the selected TFRC does not cause turbo coder irregularities, see Table 18.1.1.6a.3.2.1. If the coding rate is ok then accept the testing point and continue with step 8 else continue with step 7.

7. If the coding rate is not ok then select the next higher TFRI value that corresponds to an acceptable coding rate. Calculate the transport block size correspondent to the modified TFRI values and if it is less or equal to the UE capability for “Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI” in Table 18.1.1.6a.3.1.1 then accept the testing point else skip it.

8. Increment N_PDUs. If N_PDU is less or equal to 48 then repeat from step 2 else there is no more testing points.

18.1.1.6a.2.1a Principle for enhanced Layer 2

For the combination of MAC-ehs and Fixed RLC then the same principle to select test points as for the non-enhanced Layer 2 case as described in sub-clause 14.1.3.2.1 is used (MAC-d PDU size 336 and 656 bits).

For the combination of MAC-ehs and Flexible RLC then the same TFRI test points as for the fixed MAC-d PDU size=656 bits case are used.

18.1.1.6a.3 TFRC test points for MAC-d PDU size=336

Table 18.1.1.6a.3.1: TFRC test points for UE category 1 to UE category 3 for MAC-d PDU size=336

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	370	QPSK	1	5	12	
2	698	QPSK	1	9	28	
3	1037	QPSK	1	13	38	
4	1367	QPSK	1	16	45	
5	1734	QPSK	2	11	51	
6	2113	QPSK	2	13	56	
7	2380	QPSK	2	14	59	
8	2788	QPSK	2	16	63	

Table 18.1.1.6a.3.2: TFRC test points for UE category 4 to UE category 6 for MAC-d PDU size=336

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	360	QPSK	1	5	9	
1	360	16QAM	1	3	9	
2	697	QPSK	1	9	22	
2	697	16QAM	1	5	22	
3	1047	QPSK	1	13	30	
3	1047	16QAM	1	7	30	
4	1420	QPSK	2	9	36	
4	1420	16QAM	1	9	36	
5	1740	QPSK	2	11	40	
5	1740	16QAM	1	11	40	
6	2132	QPSK	2	13	44	
6	2132	16QAM	1	13	44	
7	2484	QPSK	2	15	47	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
7	2484	16QAM	1	15	47	
8	2749	QPSK	2	16	49	
8	2749	16QAM	1	16	49	
9	3202	16QAM	2	10	52	
10	3544	16QAM	2	11	54	
11	3729	16QAM	2	11	55	
12	4128	16QAM	2	12	57	
13	4570	16QAM	2	14	59	
14	4808	16QAM	2	14	60	
15	5322	16QAM	2	16	62	
16	5600	16QAM	2	16	63	

Table 18.1.1.6a.3.3: TFRC test points for UE category 7 to UE category 9 for MAC-d PDU size=336

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	358	QPSK	1	5	8	
1	358	16QAM	1	3	8	
2	713	QPSK	1	9	20	
2	713	16QAM	1	5	20	
3	1066	QPSK	1	13	27	
3	1066	16QAM	1	7	27	
4	1421	QPSK	2	9	32	
4	1421	16QAM	1	9	32	
5	1787	QPSK	2	11	36	
5	1787	16QAM	1	11	36	
6	2123	QPSK	2	13	39	
6	2123	16QAM	1	13	39	
7	2381	QPSK	2	14	41	
7	2381	16QAM	1	14	41	
8	2829	QPSK	3	11	44	
8	2829	16QAM	2	9	44	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
9	3173	QPSK	3	13	46	
9	3173	16QAM	2	10	46	
10	3559	QPSK	3	14	48	
10	3559	16QAM	2	11	48	
11	3769	QPSK	3	15	49	
11	3769	16QAM	2	11	49	
12	4227	16QAM	2	13	51	
13	4477	16QAM	2	13	52	
14	4741	16QAM	2	14	53	
15	5318	16QAM	2	16	55	
16	5632	16QAM	3	11	56	
17	5964	16QAM	3	12	57	
18	6317	16QAM	3	13	58	
19	6690	16QAM	3	13	59	
20	7085	16QAM	3	14	60	
21	7085	16QAM	3	14	60	
22	7503	16QAM	3	15	61	
23	7946	16QAM	3	16	62	
24	8416	16QAM	3	16	63	

Table 18.1.1.6a.3.4: TFRC test points for UE category 10 to UE category 12 for MAC-d PDU size=336

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	370	QPSK	1	5	8	
1	370	16QAM	1	3	8	
2	732	QPSK	1	9	19	
2	732	16QAM	1	5	19	
3	1063	QPSK	1	13	25	
3	1063	16QAM	1	7	25	
4	1449	QPSK	2	9	30	
4	1449	16QAM	1	9	30	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
5	1746	QPSK	2	11	33	
5	1746	16QAM	1	11	33	
6	2103	QPSK	2	13	36	
6	2103	16QAM	1	13	36	
7	2381	QPSK	2	14	38	
7	2381	16QAM	1	14	38	
8	2868	QPSK	3	11	41	
8	2868	16QAM	2	9	41	
9	3051	QPSK	3	12	42	
9	3051	16QAM	2	9	42	
10	3455	QPSK	3	14	44	
10	3455	16QAM	2	10	44	
11	3911	QPSK	3	15	46	
11	3911	16QAM	2	12	46	
12	4161	QPSK	3	16	47	
12	4161	16QAM	2	12	47	
13	4427	QPSK	4	13	48	
13	4427	16QAM	2	13	48	
14	5012	QPSK	4	15	50	
14	5012	16QAM	2	15	50	
15	5333	QPSK	4	16	51	
15	5333	16QAM	2	16	51	
16	5674	16QAM	3	11	52	
17	6037	16QAM	3	12	53	
18	6424	16QAM	3	13	54	
19	6424	16QAM	3	13	54	
20	6835	16QAM	3	14	55	
21	7272	16QAM	3	14	56	
22	7737	16QAM	3	15	57	
23	8232	16QAM	3	16	58	
24	8232	16QAM	3	16	58	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
25	8759	16QAM	4	13	59	
26	8759	16QAM	4	13	59	
27	9320	16QAM	4	14	60	
28	9916	16QAM	4	15	61	
29	9916	16QAM	4	15	61	
30	10550	16QAM	4	16	62	
31	10550	16QAM	4	16	62	
32	11226	16QAM	4	16	63	
33	11226	16QAM	4	16	63	

Table 18.1.1.6a.3.5: TFRC test points for UE category 13 to UE category 15 for MAC-d PDU size=336

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	380	QPSK	1	5	8	
1	380	16QAM	1	3	8	
2	732	QPSK	1	9	18	
2	732	16QAM	1	5	18	
3	1086	QPSK	1	13	24	
3	1086	16QAM	1	7	24	
4	1412	QPSK	2	9	28	
4	1412	16QAM	1	9	28	
5	1719	QPSK	2	10	31	
5	1719	16QAM	1	10	31	
6	2094	QPSK	2	13	34	
6	2094	16QAM	1	13	34	
7	2388	QPSK	2	14	36	
7	2388	16QAM	1	14	36	
8	2723	QPSK	2	16	38	
8	2723	16QAM	1	16	38	
9	3105	QPSK	3	12	40	
9	3105	16QAM	2	9	40	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
10	3541	QPSK	3	14	42	
10	3541	16QAM	2	11	42	
11	3781	QPSK	3	15	43	
11	3781	16QAM	2	11	43	
12	4311	QPSK	4	13	45	
12	4311	16QAM	2	13	45	
13	4604	QPSK	4	14	46	
13	4604	16QAM	2	14	46	
14	4916	QPSK	4	15	47	
14	4916	16QAM	2	15	47	
15	5250	QPSK	4	16	48	
15	5250	16QAM	2	16	48	
16	5606	QPSK	5	13	49	
16	5606	16QAM	3	11	49	
17	5987	QPSK	5	14	50	
17	5987	16QAM	3	12	50	
18	6393	QPSK	5	15	51	
18	6393	16QAM	3	13	51	
19	6827	QPSK	5	16	52	
19	6827	16QAM	3	13	52	
20	6827	QPSK	5	16	52	
20	6827	16QAM	3	13	52	
21	7290	16QAM	3	14	53	
22	7785	16QAM	3	15	54	
23	7785	16QAM	3	15	54	
24	8313	16QAM	3	16	55	
25	8877	16QAM	4	13	56	
26	8877	16QAM	4	13	56	
27	9479	16QAM	4	14	57	
28	9479	16QAM	4	14	57	
29	10123	16QAM	4	15	58	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
30	10123	16QAM	4	15	58	
31	10809	16QAM	4	16	59	
32	10809	16QAM	4	16	59	
33	11543	16QAM	5	14	60	
34	11543	16QAM	5	14	60	
35	12326	16QAM	5	15	61	
36	12326	16QAM	5	15	61	
37	13162	16QAM	5	15	62	
38	13162	16QAM	5	15	62	
39	13162	16QAM	5	15	62	
40	14043	16QAM	5	16	63	
41	14043	16QAM	5	16	63	

18.1.1.6a.4 TFRC test points for MAC-d PDU size=656

Table 18.1.1.6a.4.1: TFRC test points for UE category 1 to UE category 3 for MAC-d PDU size=656

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	698	QPSK	1	9	28	
2	1367	QPSK	1	16	45	
3	2031	QPSK	2	12	55	
4	2679	QPSK	2	16	62	

Table 18.1.1.6a.4.2: TFRC test points for UE category 4 to UE category 6 for MAC-d PDU size=656

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	697	QPSK	1	9	22	
1	697	16QAM	1	5	22	
2	1350	QPSK	1	16	35	
2	1350	16QAM	1	8	35	
3	2027	QPSK	2	12	43	
3	2027	16QAM	1	12	43	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
4	2749	QPSK	2	16	49	
4	2749	16QAM	1	16	49	
5	3369	16QAM	2	10	53	
6	4128	16QAM	2	12	57	
7	4808	16QAM	2	14	60	
8	5322	16QAM	2	16	62	

Table 18.1.1.6a.4.3: TFRC test points for UE category 7 to UE category 9 for MAC-d PDU size=656

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	713	QPSK	1	9	20	
1	713	16QAM	1	5	20	
2	1341	QPSK	1	16	31	
2	1341	16QAM	1	8	31	
3	2005	QPSK	2	12	38	
3	2005	16QAM	1	12	38	
4	2671	QPSK	2	16	43	
4	2671	16QAM	1	16	43	
5	3360	QPSK	3	13	47	
5	3360	16QAM	2	10	47	
6	3991	QPSK	3	16	50	
6	3991	16QAM	2	12	50	
7	4741	16QAM	2	14	53	
8	5318	16QAM	2	16	55	
9	5964	16QAM	3	12	57	
10	6690	16QAM	3	13	59	
11	7503	16QAM	3	15	61	
12	7946	16QAM	3	16	62	

Table 18.1.1.6a.4.4: TFRC test points for UE category 10 to UE category 12 for MAC-d PDU size=656

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	688	QPSK	1	9	18	
1	688	16QAM	1	5	18	
2	1362	QPSK	1	16	29	
2	1362	16QAM	1	8	29	
3	2103	QPSK	2	13	36	
3	2103	16QAM	1	13	36	
4	2695	QPSK	2	16	40	
4	2695	16QAM	1	16	40	
5	3455	QPSK	3	14	44	
5	3455	16QAM	2	10	44	
6	4161	QPSK	3	16	47	
6	4161	16QAM	2	12	47	
7	4711	QPSK	4	14	49	
7	4711	16QAM	2	14	49	
8	5333	QPSK	4	16	51	
8	5333	16QAM	2	16	51	
9	6037	16QAM	3	12	53	
10	6835	16QAM	3	14	55	
11	7272	16QAM	3	14	56	
12	8232	16QAM	3	16	58	
13	8759	16QAM	4	13	59	
14	9320	16QAM	4	14	60	
15	9916	16QAM	4	15	61	
16	10550	16QAM	4	16	62	
17	11226	16QAM	4	16	63	

Table 18.1.1.6a.4.5: TFRC test points for UE category 13 to UE category 15 for MAC-d PDU size=656

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	686	QPSK	1	9	17	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	686	16QAM	1	5	17	
2	1412	QPSK	2	9	28	
2	1412	16QAM	1	9	28	
3	2094	QPSK	2	13	34	
3	2094	16QAM	1	13	34	
4	2723	QPSK	2	16	38	
4	2723	16QAM	1	16	38	
5	3316	QPSK	3	13	41	
5	3316	16QAM	2	10	41	
6	4037	QPSK	3	16	44	
6	4037	16QAM	2	12	44	
7	4916	QPSK	4	15	47	
7	4916	16QAM	2	15	47	
8	5606	QPSK	5	13	49	
8	5606	16QAM	3	11	49	
9	5987	QPSK	5	14	50	
9	5987	16QAM	3	12	50	
10	6827	QPSK	5	16	52	
10	6827	16QAM	3	13	52	
11	7290	16QAM	3	14	53	
12	8313	16QAM	3	16	55	
13	8877	16QAM	4	13	56	
14	9479	16QAM	4	14	57	
15	10123	16QAM	4	15	58	
16	10809	16QAM	4	16	59	
17	11543	16QAM	5	14	60	
18	12326	16QAM	5	15	61	
19	13162	16QAM	5	15	62	
20	13162	16QAM	5	15	62	
21	14043	16QAM	5	16	63	

18.1.1.6a.5 TFRC test points for MAC-ehs with fixed MAC-d PDU size=336

Table 18.1.1.6a.5.1: TFRC test points for UE category 1 to UE category 3 for MAC-d PDU size=336

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	368	QPSK	1	5	12	
2	696	QPSK	1	9	28	
3	1032	QPSK	1	13	38	
4	1416	QPSK	2	9	46	
5	1728	QPSK	2	10	51	
6	2104	QPSK	2	13	56	
7	2376	QPSK	2	14	59	
8	2784	QPSK	2	16	63	

Table 18.1.1.6a.5.2: TFRC test points for UE category 4 to UE category 6 for MAC-d PDU size=336

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	360	QPSK	1	5	9	
1	360	16QAM	1	3	9	
2	696	QPSK	1	9	22	
2	696	16QAM	1	5	22	
3	1040	QPSK	1	13	30	
3	1040	16QAM	1	7	30	
4	1416	QPSK	2	9	36	
4	1416	16QAM	1	9	36	
5	1736	QPSK	2	11	40	
5	1736	16QAM	1	11	40	
6	2128	QPSK	2	13	44	
6	2128	16QAM	1	13	44	
7	2480	QPSK	2	15	47	
7	2480	16QAM	1	15	47	
8	2744	QPSK	2	16	49	
8	2744	16QAM	1	16	49	
9	3200	16QAM	2	10	52	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
10	3544	16QAM	2	11	54	
11	3728	16QAM	2	11	55	
12	4128	16QAM	2	12	57	
13	4568	16QAM	2	14	59	
14	4808	16QAM	2	14	60	
15	5320	16QAM	2	16	62	
16	5600	16QAM	2	16	63	

Table 18.1.1.6a.5.3: TFRC test points for UE category 7 to UE category 9 for MAC-d PDU size=336

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	368	QPSK	1	5	9	
1	368	16QAM	1	3	9	
2	712	QPSK	1	9	20	
2	712	16QAM	1	5	20	
3	1064	QPSK	1	13	27	
3	1064	16QAM	1	7	27	
4	1416	QPSK	2	9	32	
4	1416	16QAM	1	9	32	
5	1784	QPSK	2	11	36	
5	1784	16QAM	1	11	36	
6	2120	QPSK	2	13	39	
6	2120	16QAM	1	13	39	
7	2376	QPSK	2	14	41	
7	2376	16QAM	1	14	41	
8	2824	QPSK	3	11	44	
8	2824	16QAM	2	9	44	
9	3168	QPSK	3	13	46	
9	3168	16QAM	2	10	46	
10	3552	QPSK	3	14	48	
10	3552	16QAM	2	11	48	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
11	3768	QPSK	3	15	49	
11	3768	16QAM	2	11	49	
12	4224	16QAM	2	13	51	
13	4472	16QAM	2	13	52	
14	4736	16QAM	2	14	53	
15	5312	16QAM	2	16	55	
16	5632	16QAM	3	11	56	
17	5960	16QAM	3	12	57	
18	6312	16QAM	3	13	58	
19	6688	16QAM	3	13	59	
20	7080	16QAM	3	14	60	
21	7080	16QAM	3	14	60	
22	7496	16QAM	3	15	61	
23	7944	16QAM	3	16	62	
24	8416	16QAM	3	16	63	

Table 18.1.1.6a.5.4: TFRC test points for UE category 10 to UE category 12 for MAC-d PDU size=336

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	376	QPSK	1	5	9	
1	376	16QAM	1	3	9	
2	728	QPSK	1	9	19	
2	728	16QAM	1	5	19	
3	1056	QPSK	1	13	25	
3	1056	16QAM	1	7	25	
4	1448	QPSK	2	9	30	
4	1448	16QAM	1	9	30	
5	1744	QPSK	2	11	33	
5	1744	16QAM	1	11	33	
6	2096	QPSK	2	13	36	
6	2096	16QAM	1	13	36	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
7	2376	QPSK	2	14	38	
7	2376	16QAM	1	14	38	
8	2864	QPSK	3	11	41	
8	2864	16QAM	2	9	41	
9	3048	QPSK	3	12	42	
9	3048	16QAM	2	9	42	
10	3448	QPSK	3	14	44	
10	3448	16QAM	2	10	44	
11	3904	QPSK	3	15	46	
11	3904	16QAM	2	12	46	
12	4160	QPSK	3	16	47	
12	4160	16QAM	2	12	47	
13	4424	QPSK	4	13	48	
13	4424	16QAM	2	13	48	
14	5008	QPSK	4	15	50	
14	5008	16QAM	2	15	50	
15	5328	QPSK	4	16	51	
15	5328	16QAM	2	16	51	
16	5672	16QAM	3	11	52	
17	6032	16QAM	3	12	53	
18	6416	16QAM	3	13	54	
19	6416	16QAM	3	13	54	
20	6832	16QAM	3	13	55	
21	7264	16QAM	3	14	56	
22	7736	16QAM	3	15	57	
23	8224	16QAM	3	16	58	
24	8224	16QAM	3	16	58	
25	8752	16QAM	4	13	59	
26	9312	16QAM	4	14	60	
27	9312	16QAM	4	14	60	
28	9912	16QAM	4	15	61	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
29	9912	16QAM	4	15	61	
30	10544	16QAM	4	16	62	
31	10544	16QAM	4	16	62	
32	11224	16QAM	4	16	63	
33	11224	16QAM	4	16	63	

Table 18.1.1.6a.5.5: TFRC test points for UE category 13 to UE category 15 for MAC-d PDU size=336

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	392	QPSK	1	5	9	
1	392	16QAM	1	3	9	
2	728	QPSK	1	9	18	
2	728	16QAM	1	5	18	
3	1080	QPSK	1	13	24	
3	1080	16QAM	1	7	24	
4	1408	QPSK	2	9	28	
4	1408	16QAM	1	9	28	
5	1712	QPSK	2	10	31	
5	1712	16QAM	1	10	31	
6	2088	QPSK	2	13	34	
6	2088	16QAM	1	13	34	
7	2384	QPSK	2	14	36	
7	2384	16QAM	1	14	36	
8	2720	QPSK	2	16	38	
8	2720	16QAM	1	16	38	
9	3096	QPSK	3	12	40	
9	3096	16QAM	2	9	40	
10	3536	QPSK	3	14	42	
10	3536	16QAM	2	11	42	
11	3776	QPSK	3	15	43	
11	3776	16QAM	2	11	43	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
12	4304	QPSK	4	13	45	
12	4304	16QAM	2	13	45	
13	4600	QPSK	4	14	46	
13	4600	16QAM	2	14	46	
14	4912	QPSK	4	15	47	
14	4912	16QAM	2	15	47	
15	5240	QPSK	4	15	48	
15	5240	16QAM	2	15	48	
16	5600	QPSK	4	16	49	
16	5600	16QAM	2	16	49	
17	5976	QPSK	5	14	50	
17	5976	16QAM	3	12	50	
18	6384	QPSK	5	15	51	
18	6384	16QAM	3	13	51	
19	6816	QPSK	5	16	52	
19	6816	16QAM	3	13	52	
20	6816	QPSK	5	16	52	
20	6816	16QAM	3	13	52	
21	7280	16QAM	3	14	53	
22	7776	16QAM	3	15	54	
23	7776	16QAM	3	15	54	
24	8304	16QAM	3	16	55	
25	8864	16QAM	4	13	56	
26	8864	16QAM	4	13	56	
27	9464	16QAM	4	14	57	
28	9464	16QAM	4	14	57	
29	10112	16QAM	4	15	58	
30	10112	16QAM	4	15	58	
31	10792	16QAM	4	16	59	
32	10792	16QAM	4	16	59	
33	11528	16QAM	5	14	60	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
34	11528	16QAM	5	14	60	
35	12312	16QAM	5	15	61	
36	12312	16QAM	5	15	61	
37	13144	16QAM	5	15	62	
38	13144	16QAM	5	15	62	
39	13144	16QAM	5	15	62	
40	14040	16QAM	5	16	63	
41	14040	16QAM	5	16	63	

Table 18.1.1.6a.5.6: TFRC test points for UE category 16 to UE category 18 for MAC-d PDU size=336

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	384	QPSK	1	5	9	
1	384	16QAM	1	3	9	
1	384	64QAM	1	2	9	
2	704	QPSK	1	9	18	
2	704	16QAM	1	5	18	
2	704	64QAM	1	3	18	
3	1040	QPSK	1	13	24	
3	1040	16QAM	1	7	24	
3	1040	64QAM	1	5	24	
4	1432	QPSK	2	9	29	
4	1432	16QAM	1	9	29	
4	1432	64QAM	1	6	29	
5	1736	QPSK	2	11	32	
5	1736	16QAM	1	11	32	
5	1736	64QAM	1	7	32	
6	2104	QPSK	2	13	35	
6	2104	16QAM	1	13	35	
6	2104	64QAM	1	9	35	
7	2392	QPSK	2	14	37	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
7	2392	16QAM	1	14	37	
7	2392	64QAM	1	10	37	
8	2720	QPSK	2	16	39	
8	2720	16QAM	1	16	39	
8	2720	64QAM	1	11	39	
9	3088	QPSK	3	12	41	
9	3088	16QAM	2	9	41	
9	3088	64QAM	1	12	41	
10	3512	QPSK	3	14	43	
10	3512	16QAM	2	11	43	
10	3512	64QAM	1	14	43	
11	3744	QPSK	3	15	44	
11	3744	16QAM	2	11	44	
11	3744	64QAM	1	15	44	
12	4256	16QAM	2	13	46	
12	4256	64QAM	2	9	46	
13	4536	16QAM	2	13	47	
13	4536	64QAM	2	9	47	
14	4840	16QAM	2	14	48	
14	4840	64QAM	2	10	48	
15	5160	16QAM	2	15	49	
15	5160	64QAM	2	10	49	
16	5496	16QAM	2	16	50	
16	5496	64QAM	2	11	50	
17	5864	16QAM	3	12	51	
17	5864	64QAM	2	12	51	
18	6248	16QAM	3	12	52	
18	6248	64QAM	2	12	52	
19	6664	16QAM	3	13	53	
19	6664	64QAM	2	13	53	
20	7104	16QAM	3	14	54	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
20	7104	64QAM	2	14	54	
21	7104	16QAM	3	14	54	
21	7104	64QAM	2	14	54	
22	7568	16QAM	3	15	55	
22	7568	64QAM	2	15	55	
23	8072	16QAM	3	16	56	
23	8072	64QAM	2	16	56	
24	8600	64QAM	3	11	57	
25	8600	64QAM	3	11	57	
26	9176	64QAM	3	12	58	
27	9176	64QAM	3	12	58	
28	9776	64QAM	3	13	59	
29	9776	64QAM	3	13	59	
30	10424	64QAM	3	14	60	
31	11112	64QAM	3	15	61	
32	11112	64QAM	3	15	61	
33	11112	64QAM	3	15	61	
34	11848	64QAM	3	16	62	
35	11848	64QAM	3	16	62	
36	12632	64QAM	3	16	63	
37	12632	64QAM	3	16	63	

Table 18.1.1.6a.5.7: TFRC test points for UE category 19 to UE category 21 for MAC-d PDU size=336

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	360	QPSK	1	5	8	
1	360	16QAM	1	3	8	
1	360	64QAM	1	2	8	
2	712	QPSK	1	9	17	
2	712	16QAM	1	5	17	
2	712	64QAM	1	3	17	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
3	1080	QPSK	1	13	23	
3	1080	16QAM	1	7	23	
3	1080	64QAM	1	5	23	
4	1424	QPSK	2	9	27	
4	1424	16QAM	1	9	27	
4	1424	64QAM	1	6	27	
5	1752	QPSK	2	11	30	
5	1752	16QAM	1	11	30	
5	1752	64QAM	1	7	30	
6	2152	QPSK	2	13	33	
6	2152	16QAM	1	13	33	
6	2152	64QAM	1	9	33	
7	2464	QPSK	2	15	35	
7	2464	16QAM	1	15	35	
7	2464	64QAM	1	10	35	
8	2832	QPSK	3	11	37	
8	2832	16QAM	2	9	37	
8	2832	64QAM	1	11	37	
9	3248	QPSK	3	13	39	
9	3248	16QAM	2	10	39	
9	3248	64QAM	1	13	39	
10	3480	QPSK	3	14	40	
10	3480	16QAM	2	10	40	
10	3480	64QAM	1	14	40	
11	3728	QPSK	3	15	41	
11	3728	16QAM	2	11	41	
11	3728	64QAM	1	15	41	
12	4272	QPSK	4	13	43	
12	4272	16QAM	2	13	43	
12	4272	64QAM	2	9	43	
13	4576	QPSK	4	14	44	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
13	4576	16QAM	2	14	44	
13	4576	64QAM	2	9	44	
14	4904	QPSK	4	15	45	
14	4904	16QAM	2	15	45	
14	4904	64QAM	2	10	45	
15	5248	QPSK	4	15	46	
15	5248	16QAM	2	15	46	
15	5248	64QAM	2	10	46	
16	5624	16QAM	3	11	47	
16	5624	64QAM	2	11	47	
17	6024	16QAM	3	12	48	
17	6024	64QAM	2	12	48	
18	6448	16QAM	3	13	49	
18	6448	64QAM	2	13	49	
19	6448	16QAM	3	13	49	
19	6448	64QAM	2	13	49	
20	6904	16QAM	3	14	50	
20	6904	64QAM	2	14	50	
21	7400	16QAM	3	15	51	
21	7400	64QAM	2	15	51	
22	7920	16QAM	3	16	52	
22	7920	64QAM	2	16	52	
23	7920	16QAM	3	16	52	
23	7920	64QAM	2	16	52	
24	8488	16QAM	4	13	53	
24	8488	64QAM	3	11	53	
25	8488	16QAM	4	13	53	
25	8488	64QAM	3	11	53	
26	9088	16QAM	4	13	54	
26	9088	64QAM	3	12	54	
27	9736	16QAM	4	14	55	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
27	9736	64QAM	3	13	55	
28	9736	16QAM	4	14	55	
28	9736	64QAM	3	13	55	
29	10424	16QAM	4	15	56	
29	10424	64QAM	3	14	56	
30	10424	16QAM	4	15	56	
30	10424	64QAM	3	14	56	
31	11168	16QAM	4	16	57	
31	11168	64QAM	3	15	57	
32	11168	16QAM	4	16	57	
32	11168	64QAM	3	15	57	
33	11168	16QAM	4	16	57	
33	11168	64QAM	3	15	57	
34	11960	64QAM	3	16	58	
35	11960	64QAM	3	16	58	
36	12808	64QAM	4	13	59	
37	12808	64QAM	4	13	59	
38	12808	64QAM	4	13	59	
39	13720	64QAM	4	14	60	
40	13720	64QAM	4	14	60	
41	14688	64QAM	4	14	61	
42	14688	64QAM	4	14	61	
43	14688	64QAM	4	14	61	
44	15736	64QAM	4	15	62	
45	15736	64QAM	4	15	62	
46	15736	64QAM	4	15	62	
47	16856	64QAM	4	16	63	
48	16856	64QAM	4	16	63	
49	16856	64QAM	4	16	63	
50	16856	64QAM	4	16	63	

Table 18.1.1.6a.5.8: TFRC test points for UE category 22 to UE category 24 for MAC-d PDU size=336

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	376	QPSK	1	5	8	
1	376	16QAM	1	3	8	
1	376	64QAM	1	2	8	
2	704	QPSK	1	9	16	
2	704	16QAM	1	5	16	
2	704	64QAM	1	3	16	
3	1088	QPSK	1	13	22	
3	1088	16QAM	1	7	22	
3	1088	64QAM	1	5	22	
4	1456	QPSK	2	9	26	
4	1456	16QAM	1	9	26	
4	1456	64QAM	1	6	26	
5	1808	QPSK	2	11	29	
5	1808	16QAM	1	11	29	
5	1808	64QAM	1	7	29	
6	2088	QPSK	2	13	31	
6	2088	16QAM	1	13	31	
6	2088	64QAM	1	9	31	
7	2416	QPSK	2	14	33	
7	2416	16QAM	1	14	33	
7	2416	64QAM	1	10	33	
8	2792	QPSK	3	11	35	
8	2792	16QAM	2	9	35	
8	2792	64QAM	1	11	35	
9	3224	QPSK	3	13	37	
9	3224	16QAM	2	10	37	
9	3224	64QAM	1	13	37	
10	3464	QPSK	3	14	38	
10	3464	16QAM	2	10	38	
10	3464	64QAM	1	14	38	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
11	3720	QPSK	3	15	39	
11	3720	16QAM	2	11	39	
11	3720	64QAM	1	15	39	
12	4304	QPSK	4	13	41	
12	4304	16QAM	2	13	41	
12	4304	64QAM	2	9	41	
13	4624	QPSK	4	14	42	
13	4624	16QAM	2	14	42	
13	4624	64QAM	2	9	42	
14	4968	QPSK	4	15	43	
14	4968	16QAM	2	15	43	
14	4968	64QAM	2	10	43	
15	5344	QPSK	4	16	44	
15	5344	16QAM	2	16	44	
15	5344	64QAM	2	11	44	
16	5744	QPSK	5	14	45	
16	5744	16QAM	3	11	45	
16	5744	64QAM	2	11	45	
17	5744	QPSK	5	14	45	
17	5744	16QAM	3	11	45	
17	5744	64QAM	2	11	45	
18	6176	QPSK	5	15	46	
18	6176	16QAM	3	12	46	
18	6176	64QAM	2	12	46	
19	6632	QPSK	5	16	47	
19	6632	16QAM	3	13	47	
19	6632	64QAM	2	13	47	
20	7136	16QAM	3	14	48	
20	7136	64QAM	2	14	48	
21	7136	16QAM	3	14	48	
21	7136	64QAM	2	14	48	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
22	7664	16QAM	3	15	49	
22	7664	64QAM	2	15	49	
23	8240	16QAM	3	16	50	
23	8240	64QAM	2	16	50	
24	8240	16QAM	3	16	50	
24	8240	64QAM	2	16	50	
25	8856	16QAM	4	13	51	
25	8856	64QAM	3	12	51	
26	8856	16QAM	4	13	51	
26	8856	64QAM	3	12	51	
27	9520	16QAM	4	14	52	
27	9520	64QAM	3	13	52	
28	9520	16QAM	4	14	52	
28	9520	64QAM	3	13	52	
29	10232	16QAM	4	15	53	
29	10232	64QAM	3	13	53	
30	10232	16QAM	4	15	53	
30	10232	64QAM	3	13	53	
31	11000	16QAM	4	16	54	
31	11000	64QAM	3	14	54	
32	11000	16QAM	4	16	54	
32	11000	64QAM	3	14	54	
33	11824	16QAM	5	14	55	
33	11824	64QAM	3	15	55	
34	11824	16QAM	5	14	55	
34	11824	64QAM	3	15	55	
35	11824	16QAM	5	14	55	
35	11824	64QAM	3	15	55	
36	12712	16QAM	5	15	56	
36	12712	64QAM	4	13	56	
37	12712	16QAM	5	15	56	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
37	12712	64QAM	4	13	56	
38	13664	16QAM	5	16	57	
38	13664	64QAM	4	13	57	
39	13664	16QAM	5	16	57	
39	13664	64QAM	4	13	57	
40	13664	16QAM	5	16	57	
40	13664	64QAM	4	13	57	
41	14688	64QAM	4	14	58	
42	14688	64QAM	4	14	58	
43	14688	64QAM	4	14	58	
44	15784	64QAM	4	15	59	
45	15784	64QAM	4	15	59	
46	15784	64QAM	4	15	59	
47	16968	64QAM	5	13	60	
48	16968	64QAM	5	13	60	
49	16968	64QAM	5	13	60	
50	16968	64QAM	5	13	60	
51	18232	64QAM	5	14	61	
52	18232	64QAM	5	14	61	
53	18232	64QAM	5	14	61	
54	18232	64QAM	5	14	61	
55	19600	64QAM	5	15	62	
56	19600	64QAM	5	15	62	
57	19600	64QAM	5	15	62	
58	19600	64QAM	5	15	62	
59	21072	64QAM	5	16	63	
60	21072	64QAM	5	16	63	
61	21072	64QAM	5	16	63	
62	21072	64QAM	5	16	63	

18.1.1.6a.6 TFRC test points for MAC-ehs with fixed MAC-d PDU size=656

Table 18.1.1.6a.6.1: TFRC test points for UE category 1 to UE category 3 for MAC-d PDU size=656

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	696	QPSK	1	9	28	
2	1360	QPSK	1	16	45	
3	2024	QPSK	2	12	55	
4	2672	QPSK	2	16	62	

Table 18.1.1.6a.6.2: TFRC test points for UE category 4 to UE category 6 for MAC-d PDU size=656

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	696	QPSK	1	9	22	
1	696	16QAM	1	5	22	
2	1344	QPSK	1	16	35	
2	1344	16QAM	1	8	35	
3	2024	QPSK	2	12	43	
3	2024	16QAM	1	12	43	
4	2744	QPSK	2	16	49	
4	2744	16QAM	1	16	49	
5	3368	16QAM	2	10	53	
6	4128	16QAM	2	12	57	
7	4808	16QAM	2	14	60	
8	5320	16QAM	2	16	62	

Table 18.1.1.6a.6.3: TFRC test points for UE category 7 to UE category 9 for MAC-d PDU size=656

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	712	QPSK	1	9	20	
1	712	16QAM	1	5	20	
2	1336	QPSK	1	16	31	
2	1336	16QAM	1	8	31	
3	2000	QPSK	2	12	38	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
3	2000	16QAM	1	12	38	
4	2664	QPSK	2	16	43	
4	2664	16QAM	1	16	43	
5	3360	QPSK	3	13	47	
5	3360	16QAM	2	10	47	
6	3984	QPSK	3	16	50	
6	3984	16QAM	2	12	50	
7	4736	16QAM	2	14	53	
8	5312	16QAM	2	16	55	
9	5960	16QAM	3	12	57	
10	6688	16QAM	3	13	59	
11	7496	16QAM	3	15	61	
12	7944	16QAM	3	16	62	

Table 18.1.1.6a.6.4: TFRC test points for UE category 10 to UE category 12 for MAC-d PDU size=656

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	688	QPSK	1	9	18	
1	688	16QAM	1	5	18	
2	1360	QPSK	1	16	29	
2	1360	16QAM	1	8	29	
3	2096	QPSK	2	13	36	
3	2096	16QAM	1	13	36	
4	2688	QPSK	2	16	40	
4	2688	16QAM	1	16	40	
5	3448	QPSK	3	14	44	
5	3448	16QAM	2	10	44	
6	4160	QPSK	3	16	47	
6	4160	16QAM	2	12	47	
7	4704	QPSK	4	14	49	
7	4704	16QAM	2	14	49	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
8	5328	QPSK	4	16	51	
8	5328	16QAM	2	16	51	
9	6032	16QAM	3	12	53	
10	6832	16QAM	3	13	55	
11	7264	16QAM	3	14	56	
12	8224	16QAM	3	16	58	
13	8752	16QAM	4	13	59	
14	9312	16QAM	4	14	60	
15	9912	16QAM	4	15	61	
16	10544	16QAM	4	16	62	
17	11224	16QAM	4	16	63	

Table 18.1.1.6a.6.5: TFRC test points for UE category 13 to UE category 15 for MAC-d PDU size=656

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	680	QPSK	1	9	17	
1	680	16QAM	1	5	17	
2	1408	QPSK	2	9	28	
2	1408	16QAM	1	9	28	
3	2088	QPSK	2	13	34	
3	2088	16QAM	1	13	34	
4	2720	QPSK	2	16	38	
4	2720	16QAM	1	16	38	
5	3312	QPSK	3	13	41	
5	3312	16QAM	2	10	41	
6	4032	QPSK	3	16	44	
6	4032	16QAM	2	12	44	
7	4912	QPSK	4	15	47	
7	4912	16QAM	2	15	47	
8	5600	QPSK	4	16	49	
8	5600	16QAM	2	16	49	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
9	5976	QPSK	5	14	50	
9	5976	16QAM	3	12	50	
10	6816	QPSK	5	16	52	
10	6816	16QAM	3	13	52	
11	7280	16QAM	3	14	53	
12	8304	16QAM	3	16	55	
13	8864	16QAM	4	13	56	
14	9464	16QAM	4	14	57	
15	10112	16QAM	4	15	58	
16	10792	16QAM	4	16	59	
17	11528	16QAM	5	14	60	
18	12312	16QAM	5	15	61	
19	13144	16QAM	5	15	62	
20	13144	16QAM	5	15	62	
21	14040	16QAM	5	16	63	

Table 18.1.1.6a.6.6: TFRC test points for UE category 16 to UE category 18 for MAC-d PDU size=656

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	704	QPSK	1	9	18	
1	704	16QAM	1	5	18	
1	704	64QAM	1	3	18	
2	1344	QPSK	1	16	28	
2	1344	16QAM	1	8	28	
2	1344	64QAM	1	6	28	
3	2104	QPSK	2	13	35	
3	2104	16QAM	1	13	35	
3	2104	64QAM	1	9	35	
4	2720	QPSK	2	16	39	
4	2720	16QAM	1	16	39	
4	2720	64QAM	1	11	39	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
5	3512	QPSK	3	14	43	
5	3512	16QAM	2	11	43	
5	3512	64QAM	1	14	43	
6	3992	QPSK	3	16	45	
6	3992	16QAM	2	12	45	
6	3992	64QAM	1	16	45	
7	4840	16QAM	2	14	48	
7	4840	64QAM	2	10	48	
8	5496	16QAM	2	16	50	
8	5496	64QAM	2	11	50	
9	6248	16QAM	3	12	52	
9	6248	64QAM	2	12	52	
10	6664	16QAM	3	13	53	
10	6664	64QAM	2	13	53	
11	7568	16QAM	3	15	55	
11	7568	64QAM	2	15	55	
12	8072	16QAM	3	16	56	
12	8072	64QAM	2	16	56	
13	8600	64QAM	3	11	57	
14	9776	64QAM	3	13	59	
15	10424	64QAM	3	14	60	
16	11112	64QAM	3	15	61	
17	11848	64QAM	3	16	62	
18	11848	64QAM	3	16	62	
19	12632	64QAM	3	16	63	

Table 18.1.1.6a.6.7: TFRC test points for UE category 19 to UE category 21 for MAC-d PDU size=656

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	712	QPSK	1	9	17	
1	712	16QAM	1	5	17	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	712	64QAM	1	3	17	
2	1424	QPSK	2	9	27	
2	1424	16QAM	1	9	27	
2	1424	64QAM	1	6	27	
3	2008	QPSK	2	12	32	
3	2008	16QAM	1	12	32	
3	2008	64QAM	1	8	32	
4	2832	QPSK	3	11	37	
4	2832	16QAM	2	9	37	
4	2832	64QAM	1	11	37	
5	3480	QPSK	3	14	40	
5	3480	16QAM	2	10	40	
5	3480	64QAM	1	14	40	
6	3992	QPSK	3	16	42	
6	3992	16QAM	2	12	42	
6	3992	64QAM	1	16	42	
7	4904	QPSK	4	15	45	
7	4904	16QAM	2	15	45	
7	4904	64QAM	2	10	45	
8	5624	16QAM	3	11	47	
8	5624	64QAM	2	11	47	
9	6024	16QAM	3	12	48	
9	6024	64QAM	2	12	48	
10	6904	16QAM	3	14	50	
10	6904	64QAM	2	14	50	
11	7400	16QAM	3	15	51	
11	7400	64QAM	2	15	51	
12	7920	16QAM	3	16	52	
12	7920	64QAM	2	16	52	
13	9088	16QAM	4	13	54	
13	9088	64QAM	3	12	54	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
14	9736	16QAM	4	14	55	
14	9776	64QAM	3	13	55	
15	10424	16QAM	4	15	56	
15	10424	64QAM	3	14	56	
16	11168	16QAM	4	16	57	
16	11168	64QAM	3	15	57	
17	11960	64QAM	3	16	58	
18	11960	64QAM	3	16	58	
19	12808	64QAM	4	13	59	
20	13720	64QAM	4	14	60	
21	14688	64QAM	4	14	61	
22	14688	64QAM	4	14	61	
23	15736	64QAM	4	15	62	
24	16856	64QAM	4	16	63	
25	16856	64QAM	4	16	63	

Table 18.1.1.6a.6.8: TFRC test points for UE category 22 to UE category 24 for MAC-d PDU size=656

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
1	704	QPSK	1	9	16	
1	704	16QAM	1	5	16	
1	704	64QAM	1	3	16	
2	1352	QPSK	1	16	25	
2	1352	16QAM	1	8	25	
2	1352	64QAM	1	6	25	
3	2088	QPSK	2	13	31	
3	2088	16QAM	1	13	31	
3	2088	64QAM	1	9	31	
4	2792	QPSK	3	11	35	
4	2792	16QAM	2	9	35	
4	2792	64QAM	1	11	35	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
5	3464	QPSK	3	14	38	
5	3464	16QAM	2	10	38	
5	3464	64QAM	1	14	38	
6	4000	QPSK	3	16	40	
6	4000	16QAM	2	12	40	
6	4000	64QAM	1	16	40	
7	4624	QPSK	4	14	42	
7	4624	16QAM	2	14	42	
7	4624	64QAM	2	9	42	
8	5344	QPSK	4	16	44	
8	5344	16QAM	2	16	44	
8	5344	64QAM	2	11	44	
9	6176	QPSK	5	15	46	
9	6176	16QAM	3	12	46	
9	6176	64QAM	2	12	46	
10	6632	QPSK	5	16	47	
10	6632	16QAM	3	13	47	
10	6632	64QAM	2	13	47	
11	7664	16QAM	3	15	49	
11	7664	64QAM	2	15	49	
12	8240	16QAM	3	16	50	
12	8240	64QAM	2	16	50	
13	8856	16QAM	4	13	51	
13	8856	64QAM	3	12	51	
14	9520	16QAM	4	14	52	
14	9520	64QAM	3	13	52	
15	10232	16QAM	4	15	53	
15	10232	64QAM	3	13	53	
16	11000	16QAM	4	16	54	
16	11000	64QAM	3	14	54	
17	11824	16QAM	5	14	55	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of timeslots	Number of codes per timeslot	TFRI	Comments
17	11824	64QAM	3	15	55	
18	12712	16QAM	5	15	56	
18	12712	64QAM	4	13	56	
19	12712	16QAM	5	15	56	
19	12712	64QAM	4	13	56	
20	13664	16QAM	5	16	57	
20	13664	64QAM	4	13	57	
21	14688	64QAM	4	14	58	
22	14688	64QAM	4	14	58	
23	15784	64QAM	4	15	59	
24	15784	64QAM	4	15	59	
25	16968	64QAM	5	13	60	
26	18232	64QAM	5	14	61	
27	18232	64QAM	5	14	61	
28	19600	64QAM	5	15	62	
29	19600	64QAM	5	15	62	
30	21072	64QAM	5	16	63	
31	21072	64QAM	5	16	63	
32	21072	64QAM	5	16	63	

18.1.1.7 Generic test procedure for HS-DSCH radio bearer combinations with enhanced Layer 2

See 14.1.3.5a for test procedure

18.1.1.8 Generic test procedure for HS-DSCH and E-DCH radio bearer combinations with downlink and uplink enhanced Layer 2

See 14.1.4.1b for test procedure

18.1.1.9 Generic test procedure for HS-DSCH and E-DCH radio bearer combinations for enhanced uplink in CELL_FACH

See 14.1.4.3 for test procedure

18.1.2 Combinations on DPCH

18.1.2.1 Stand-alone UL:1.7 DL:1.7 kbps SRBs for DCCH

Test to verify establishment and signalling of stand-alone signalling reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.1.

The test case is performed by running test case 9.4.1 (Location updating / accepted) using the stand-alone signalling reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.1.

18.1.2.2 Stand-alone UL:3.4 DL:3.4 kbps SRBs for DCCH

Test to verify establishment and signalling of stand-alone signalling reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.2.

The test case is performed by running test case 9.4.1 (Location updating / accepted) using the stand-alone signalling reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.2.

18.1.2.3 Stand-alone UL:13.6 DL:13.6 kbps SRBs for DCCH

Implicitly tested.

NOTE: The stand-alone UL:13.6 DL:13.6 kbps SRBs for DCCH in TS 34.108, clause 6.11.5.4.1.3 is the default signalling radio bearer used in the generic setup procedure as specified in TS 34.108 clause 7.

18.1.2.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.4.1 Conformance requirement

The UE shall be able to establish the UTRAN requested radio bearers within the UE's signalled radio access capabilities.

The UE shall correctly transfer user data from peer to peer RLC entities according to the requested radio bearer configuration.

Reference(s)

3GPP TS 25.331, clause 8.2.1

3GPP TS 25.2xx series (Physical Layer)

3GPP TS 25.321 (MAC)

3GPP TS 25.322 (RLC)

18.1.2.4.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.4.

18.1.2.4.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 103 bits RB7: 60 bits	RB5: 39 bits RB6: No data RB7: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 81 bits RB6: 103 bits RB7: 60 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.1.1.1 for test procedure.

18.1.2.4.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x81); RB6/TF1 (1x103); and RB7/TF1 (1x60).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 or RB7.
   - for sub-test 2: an RLC SDU on each of RB5, RB6 and RB7 having the same content as sent by SS

18.1.2.4a Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH(TDD)

18.1.2.4a.1 Definition and applicability

All UEs which support TDD.

18.1.2.4a.2 Conformance requirement

The UE shall be able to establish the UTRAN requested radio bearers within the UE's signalled radio access capabilities.

The UE shall correctly transfer user data from peer to peer RLC entities according to the requested radio bearer configuration.

Reference(s)

3GPP TS 25.331, clause 8.2.1

3GPP TS 25.2xx series (Physical Layer)

3GPP TS 25.321 (MAC)

3GPP TS 25.322 (RLC)

18.1.2.4a.3 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.4.

18.1.2.4a.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and 2 are active. Each cell configure 3 carriers, one is the primary carrier, the other two are secondary carrier.

Uplink TFS:

	TFI	**RB5 (RAB subflow #1)**	**RB6 (RAB subflow #2)**	**RB7 (RAB subflow #3)**	**DCCH**
TFS	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Uplink TFCS:

TFCI	**(RB5, RB6, RB7, DCCH)**
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	**RB6 (RAB subflow #2)**	**RB7 (RAB subflow #3)**	**DCCH**
TFS	TF0, bits	1x0	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 103 bits RB7: 60 bits	RB5: 39 bits RB6: No data RB7: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 81 bits RB6: 103 bits RB7: 60 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.1.1.1 for test procedure.

18.1.2.4a.5 Test requirements

See 18.1.1.1 for definition of step 10 and step 15. (establish the connection on the secondary carrier)

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x81); RB6/TF1 (1x103); and RB7/TF1 (1x60).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 or RB7.
- for sub-test 2: an RLC SDU on each of RB5, RB6 and RB7 having the same content as sent by SS

18.1.2.5 Conversational / speech / UL:10.2 DL:10.2 kbps / CS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

18.1.2.5.1 Conformance requirement

See clause 18.1.2.4.1.

18.1.2.5.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.5.

18.1.2.5.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x65(alt. 1x0)	0x99	0x40	0x148
	TF1, bits	1x39	1x99	1x40	1x148
	TF2, bits	1x65	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7,DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x99	0x40	0x148
	TF1, bits	1x39	1x99	1x40	1x148
	TF2, bits	1x65	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 99 bits RB7: 40 bits	RB5: 39 bits RB6: No data RB7: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 65 bits RB6: 99 bits RB7: 40 bits	RB5: 65 bits RB6: 99 bits RB7: 40 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.1.1.1 for test procedure.

18.1.2.5.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).

- for sub-test 2: RB5/TF2 (1x65); RB6/TF1 (1x99); and RB7/TF1 (1x40).

3. At step 15 the UE shall return

   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 or RB7.

   - for sub-test 2: an RLC SDU on each of RB5, RB6 and RB7 having the same content as sent by SS.

18.1.2.6 Conversational / speech / UL:7.95 DL:7.95 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.6.1 Conformance requirement

See clause 18.1.2.4.1.

18.1.2.6.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.6.

18.1.2.6.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x75 (alt. 1x0)	0x84	0x148
	TF1, bits	1x39	1x84	1x148
	TF2, bits	1x75	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0)
UL_TFC3	(TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	1x0	0x84	0x148
	TF1, bits	1x39	1x84	1x148
	TF2, bits	1x75	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0)
DL_TFC3	(TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 84 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 75 bits RB6: 84 bits	RB5: 75 bits RB6: 84 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.1.1.1 for test procedure.

18.1.2.6.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x75) and RB6/TF1 (1x84).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
   - for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS.

18.1.2.7 Conversational / speech / UL:7.4 DL:7.4 kbps / CS RAB+ UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.7.1 Conformance requirement

See clause 18.1.2.4.1.

18.1.2.7.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.7.

18.1.2.7.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x61 (alt. 1x0)	0x87	0x148
	TF1, bits	1x39	1x87	1x148
	TF2, bits	1x61	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0)
UL_TFC3	(TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	1x0	0x87	0x148
	TF1, bits	1x39	1x87	1x148
	TF2, bits	1x61	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0)
DL_TFC3	(TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 87 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 61 bits RB6: 87 bits	RB5: 61 bits RB6: 87 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.1.1.1 for test procedure.

18.1.2.7.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x61) and RB6/TF1 (1x87).

3. At step 15 the UE shall return

   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.

   - for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS

18.1.2.8 Conversational / speech / UL:6.7 DL:6.7 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.8.1 Conformance requirement

See clause 18.1.2.4.1.

18.1.2.8.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.8.

18.1.2.8.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x58 (alt. 1x0)	0x76	0x148
	TF1, bits	1x39	1x76	1x148
	TF2, bits	1x58	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0)
UL_TFC3	(TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	1x0	0x76	0x148
	TF1, bits	1x39	1x76	1x148
	TF2, bits	1x58	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0)
DL_TFC3	(TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 76 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 58 bits RB6: 76 bits	RB5: 58 bits RB6: 76 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.1.1.1 for test procedure.

18.1.2.8.4 Test requirements

See clause 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x58) and RB6/TF1 (1x76).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
   - for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS

18.1.2.9 Conversational / speech / UL:5.9 DL:5.9 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.9.1 Conformance requirement

See clause 18.1.2.4.1.

18.1.2.9.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.9.

18.1.2.9.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x55 (alt. 1x0)	0x63	0x148
	TF1, bits	1x39	1x63	1x148
	TF2, bits	1x55	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0)
UL_TFC3	(TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	1x0	0x63	0x148
	TF1, bits	1x39	1x63	1x148
	TF2, bits	1x55	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0)
DL_TFC3	(TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 63 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 55 bits RB6: 63 bits	RB5: 55 bits RB6: 63 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.1.1.1.1 for test procedure.

18.1.2.9.4 Test requirements

See 18.1.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x55) and RB6/TF1 (1x63).

3. At step 15 the UE shall return

   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.

   - for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS

18.1.2.10 Conversational / speech / UL:5.15 DL:5.15 kbps / CS RAB + UL:1.7 DL:1.7 kbps SRBs for DCCH

18.1.2.10.1 Conformance requirement

See clause 18.1.2.4.1.

18.1.2.10.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.10.

18.1.2.10.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x49 (alt. 1x0)	0x54	0x148
	TF1, bits	1x39	1x54	1x148
	TF2, bits	1x49	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0)
UL_TFC3	(TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	1x0	0x54	0x148
	TF1, bits	1x39	1x54	1x148
	TF2, bits	1x49	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0)
DL_TFC3	(TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 54 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 49 bits RB6: 54 bits	RB5: 49 bits RB6: 54 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.1.1.1 for test procedure.

18.1.2.10.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x49) and RB6/TF1 (1x54).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
   - for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS

18.1.2.11 Conversational / speech / UL:4.75 DL:4.75 kbps / CS RAB + UL:1.7 DL:1.7 kbps SRBs for DCCH

18.1.2.11.1 Conformance requirement

See clause 18.1.2.4.1.

18.1.2.11.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.11.

18.1.2.11.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x49 (alt. 1x0)	0x53	0x148
	TF1, bits	1x39	1x53	1x148
	TF2, bits	1x42	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0)
UL_TFC3	(TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	1x0	0x53	0x148
	TF1, bits	1x39	1x53	1x148
	TF2, bits	1x42	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0)
DL_TFC3	(TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 53 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 42 bits RB6: 53 bits	RB5: 42 bits RB6: 53 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.1.1.1 for test procedure.

18.1.2.11.4 Test requirements

See clause 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x42) and RB6/TF1 (1x53).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.

- for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS

18.1.2.12 Conversational / unknown / UL:28.8 DL:28.8 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.12.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.12.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.12.

18.1.2.12.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: 'Timer based discard without explicit signalling' is configured in uplink to secure that the UE will be able to return data in uplink for the case when the UE test loop function, due to processing delays, will not deliver the SDUs in one and the same TTI, but instead in two subsequent TTIs.	

Uplink TFS:

	TFI	**RB5 (28.8 kbps)**	**DCCH**
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148
	TF2, bits	2x576	N/A

Uplink TFCS:

TFCI	**(RB5, DCCH)**
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

		RB5 (28.8 kbps)	**DCCH**
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148
	TF2, bits	2x576	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)
DL_TFC5	(TF2, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 576	RB5: 576
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 576	RB5: 2x576
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.1.1.1 for test procedure.

18.1.2.12.4 Test requirements

See clause 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x576).
   - for sub-test 2: RB5/TF2 (2x576).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS.
   - for sub-test 2: two RLC SDUs on RB5 having the same content as sent by SS.

18.1.2.13 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.13.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI

18.1.2.13.1.1 Conformance requirement

See clause 18.1.2.4.1.

18.1.2.13.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.13 for the 20 ms TTI case.

18.1.2.13.1.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	2x640	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	2x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 640	RB5: 2x640
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.1.1.1 for test procedure.

18.1.2.13.1.4 Test requirements

See clause 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (2x640).
3. At step 15 the UE shall return
   - for sub-test 1: two RLC SDUs on RB5 having the same content as sent by SS.

18.1.2.13.1a Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI(TDD)

18.1.2.13.1a.1 Definition and applicability

All UEs which support TDD.

18.1.2.13.1a.2 Conformance requirement

See clause 18.1.2.4.1.

18.1.2.13.1a.3 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.13 for the 20 ms TTI case.

18.1.2.13.1a.4 Method of test

Initial Conditions

System Simulator: 2 cells - Cell 1 and 2 are active. Each cell configure 3 carriers, one is the primary carrier, the other two are secondary carrier.

The following RLC Info parameter values shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI.	

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	2x640	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	2x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 640	RB5: 2x640
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.1.1.1 for test procedure.

18.1.2.13.1a.5 Test requirements

See clause 18.1.1.1 for definition of step 10 and step 15 (establish the connection on the secondary carrier).

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (2x640).
3. At step 15 the UE shall return
   - for sub-test 1: two RLC SDUs on RB5 having the same content as sent by SS.

18.1.2.13.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI

18.1.2.13.2.1 Conformance requirement

See clause 18.1.2.4.1.

18.1.2.13.2.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.13 for the 40 ms TTI case.

18.1.2.13.2.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	4x640	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	4x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 640	RB5: 4x640
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.1.1.1 for test procedure.

18.1.2.13.2.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (4x640).
3. At step 15 the UE shall return
   - for sub-test 1: four RLC SDUs on RB5 having the same content as sent by SS.

18.1.2.14 Conversational / unknown / UL:32 DL:32 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.14.1 Conversational / unknown / UL:32 DL:32 kbps / CS RAB / 20 ms TTI

18.1.2.14.1.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.14.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.14 for the 20 ms TTI case.

18.1.2.14.1.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC TM RLC Segmentation indication	 FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	1x640	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	1x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 640	RB5: 640
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.1.1.1 for test procedure.

18.1.2.14.1.4 Test requirements

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x640).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS.

18.1.2.14.2 Conversational / unknown / UL:32 DL:32 kbps / CS RAB / 40 ms TTI

18.1.2.14.2.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.14.2.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.14 for the 40 ms TTI case.

18.1.2.14.2.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	2x640	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	2x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 640	RB5: 2x640
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.1.1.1 for test procedure.

18.1.2.14.2.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (2x640).
3. At step 15 the UE shall return
   - for sub-test 1: two RLC SDUs on RB5 having the same content as sent by SS.

18.1.2.15 Streaming / unknown / UL:14.4/DL:14.4 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.15.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.15.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.15.

18.1.2.15.3 Method of test

Uplink TFS:

	TFI	RB5 (14.4 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (14.4 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 576	RB5: 576
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.1.1.1 for test procedure.

18.1.2.15.4 Test requirements

See 18,1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x576).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS.

18.1.2.16 Streaming / unknown / UL:28.8/DL:28.8 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.16.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.16.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.16.

18.1.2.16.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

Uplink TFS:

	TFI	**RB5 (28.8 kbps)**	**DCCH**
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148
	TF2, bits	2x576	N/A

Uplink TFCS:

TFCI	**(RB5, DCCH)**
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

		RB5 (28.8 kbps)	**DCCH**
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148
	TF2, bits	2x576	N/A

Downlink TFCS:

TFCI	**(RB5, DCCH)**
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)
DL_TFC5	(TF2, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 576	RB5: 576
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 576	RB5: 2x576
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.1.1.1 for test procedure.

18.1.2.16.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x576).
   - for sub-test 2: RB5/TF2 (2x576).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS.
   - for sub-test 2: two RLC SDU on RB5 having the same content as sent by SS.

18.1.2.17 Streaming / unknown / UL:57.6/DL:57.6 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.17.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.17.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.17.

18.1.2.17.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

Uplink TFS:

	TFI	RB5 (57.6 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148
	TF2, bits	2x576	N/A
	TF3, bits	3x576	N/A
	TF4, bits	4x576	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (57.6 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148
	TF2, bits	2x576	N/A
	TF3, bits	3x576	N/A
	TF4, bits	4x576	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5,	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 576	RB5: 576
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 576	RB5: 2x576
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 576	RB5: 3x576
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 576	RB5: 4x576
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.1.1.1 for test procedure.

18.1.2.17.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x576).
   - for sub-test 2: RB5/TF2 (2x576).
   - for sub-test 3: RB5/TF3 (3x576).
   - for sub-test 4: RB5/TF4 (4x576).
3. At step 15 the UE shall return
   - for sub-test 1: one RLC SDU on RB5 having the same content as sent by SS.
   - for sub-test 2: two RLC SDU on RB5 having the same content as sent by SS.
   - for sub-test 3: three RLC SDU on RB5 having the same content as sent by SS.
   - for sub-test 4: four RLC SDU on RB5 having the same content as sent by SS.

18.1.2.18 Streaming / unknown / UL:0 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.18.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.18.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.18.

To be able to test the downlink radio bearer using the UE loopback function for the reference radio bearer UL:0 DL: 64 kbps, the reference radio bearer configuration according to TS 34.108, clause 6.11.5.4.1.15.1 (Streaming/unknown/UL:14.4 kbps) is used in uplink.

18.1.2.18.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

Uplink TFS:

	TFI	RB5 (14.4 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x320	0x148
	TF1, bits	1x320	1x148
	TF2, bits	2x320	N/A
	TF3, bits	4x320	N/A
	TF4, bits	8x320	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note 1)	Test data size (bits) (note 1)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 576	RB5: 320
2	DL_TFC2	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 576	RB5: 2x320
3	DL_TFC3	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 576	RB5: 4x320
4	DL_TFC4	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 576	RB5: 8x320
NOTE 1: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.1.1.1 for test procedure.

18.1.2.18.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 where the first 320 bits have the same content as the RLC SDU sent by the SS.
   - for sub-test 2 to 4: one or more RLC SDUs on RB5 where the first 320 bits have the same content as the RLC SDU sent by the SS.

18.1.2.19 Streaming / unknown / UL:64 DL:0 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.19.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.19.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.19.

To be able to test the uplink radio bearer using the UE loopback function for the reference radio bearer UL:64 DL: 0 kbps, the reference radio bearer configuration according to TS 34.108, clause 6.11.5.4.1.15.2 (Streaming/unknown/DL:14.4 kbps) is used in downlink.

18.1.2.19.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC TM RLC Segmentation indication	 TRUE
Downlink RLC TM RLC Segmentation indication	 TRUE

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x320	0x148
	TF1, bits	1x320	1x148
	TF2, bits	2x320	N/A
	TF3, bits	4x320	N/A
	TF4, bits	8x320	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (14.4 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note 1)	Test data size (bits) (note 1)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 320	RB5: 576 (note 2)
2	DL_TFC1	UL_TFC2	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 640	RB5: 576 (note 3)
3	DL_TFC1	UL_TFC3	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1280	RB5: 576 (note 4)
4	DL_TFC1	UL_TFC4	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2560	RB5: 576 (note 5)

NOTE 1: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
NOTE 2: SS is using a DL RLC SDU with 576 bits as test data (=DL RLC PDU size for DL/TF1). UE will return the first 320 bits of the test data.
NOTE 3: SS is using a DL RLC SDU size of 576 bits as test data (=DL RLC PDU size for DL/TF1). UE will return an RLC SDU repeating the received DL RLC SDU two times (truncating the last one to fit the UL RLC SDU size of 640 bits).
NOTE 4: SS is using a DL RLC SDU size of 576 bits as test data (=DL RLC PDU size for DL/TF1). UE will return an RLC SDU repeating the received DL RLC SDU three times (truncating the last one to fit the UL RLC SDU size of 1280 bits).
NOTE 5: SS is using a DL RLC SDU size of 576 bits as test data (=DL RLC PDU size for DL/TF1). UE will return an RLC SDU repeating the received DL RLC SDU five times (truncating the last one to fit the UL RLC SDU size of 2560 bits).

See 18.1.1.1 for test procedure.

18.1.2.19.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x320).
   - for sub-test 2: RB5/TF2 (2x320).
   - for sub-test 3: RB5/TF3 (4x320).
   - for sub-test 4: RB5/TF4 (8x320).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as the first 320 bits of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 for which the first 576 bits are equal to the sent DL RLC SDU bit pattern and the remaining 64 bits are equal to the first 64 bits of the sent DL RLC SDU.
   - for sub-test 3: an RLC SDU on RB5 for which the first 1152 bits are equal to the sent DL RLC SDU bit pattern repeated twice and the remaining 128 bits are equal to the first 128 bits of the sent DL RLC SDU.
   - for sub-test 4: an RLC SDU on RB5 for which the first 2304 bits are equal to the sent DL RLC SDU bit pattern repeated four times and the remaining 256 bits are equal to the first 256 of the sent DL RLC SDU.

18.1.2.20 Void

18.1.2.21 Void

18.1.2.22 Void

18.1.2.23 Interactive or background / UL:32 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.23.1 Interactive or background / UL:32 DL:8 kbps / PS RAB / (TC,10 ms TTI)

18.1.2.23.1.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.23.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.23 for the turbo channel coding and uplink 10 ms TTI case.

18.1.2.23.1.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (8 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 312	RB5: 312
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.1.1.1 for test procedure.

18.1.2.23.1.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.1.2.23.2 Interactive or background / UL:32 DL:8 kbps / PS RAB / (TC, 20 ms TTI)

18.1.2.23.2.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.23.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.23 for the turbo channel coding and uplink 20 ms TTI case.

18.1.2.23.2.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

	TFI	RB5 (8 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 312	RB5: 312
2	DL_TFC1	UL_TFC2	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632	RB5: 632
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.1.1.1 for test procedure.

18.1.2.23.2.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
3. At step 15 the UE shall return
   - for sub-test 1 and 2: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.1.2.23.3 Interactive or background / UL:32 DL:8 kbps / PS RAB / (CC, 10 ms TTI)

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.23 for the convolutional channel coding and uplink 10 ms TTI case.

See test case 18.1.2.23.1 for test procedure and test requirement.

18.1.2.23.4 Interactive or background / UL:32 DL:8 kbps / PS RAB / (CC, 20 ms TTI)

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.23 for the convolutional channel coding and uplink 20 ms TTI case.

See test case 18.1.2.23.2 for test procedure and test requirement.

18.1.2.24 Interactive or background / UL:64 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.24.1 Interactive or background / UL:64 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / TC

18.1.2.24.1.1 Conformance requirement

See 18.1.2.4.1.1.

18.1.2.24.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.24 for the downlink turbo coding case.

18.1.2.24.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (8 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC1	UL_TFC2	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC1	UL_TFC3	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952	RB5: 952
4	DL_TFC1	UL_TFC4	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272	RB5: 1272
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.1.1.1 for test procedure.

18.1.2.24.1.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (3x336).
   - for sub-test 4: RB5/TF4 (4x336).
3. At step 15 the UE shall return
   - for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.1.2.24.2 Interactive or background / UL:64 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / CC

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.24 for the downlink convolutional channel coding case.

See test case 18.1.2.24.1 for test procedure and test requirement.

18.1.2.25 Interactive or background / UL:32 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.25.1 Interactive or background / UL:32 DL: 64 kbps / PS RAB / (TC, 10 ms TTI)

18.1.2.25.1.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.25.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.25 for the uplink turbo channel coding and 10 ms TTI case.

18.1.2.25.1.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 952	RB5: 952
4	DL_TFC4	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 1272	RB5: 1272
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.1.1.1 for test procedure.

18.1.2.25.1.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1 to 4: RB5/TF1 (1x336).
3. At step 15 the UE shall return
   - for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.1.2.25.2 Interactive or background / UL:32 DL: 64 kbps / PS RAB / (TC, 20 ms TTI)

18.1.2.25.2.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.25.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.25 for the uplink turbo channel coding and 20 ms TTI case.

18.1.2.25.2.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 952	RB5: 952
4	DL_TFC4	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 1272	RB5: 1272
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.1.1.1 for test procedure.

18.1.2.25.2.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF1 (1x336).
   - for sub-test 4: RB5/TF2 (2x336).
3. At step 15 the UE shall return
   - for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.1.2.25.3 Interactive or background / UL:32 DL:64 kbps / PS RAB / (CC, 10 ms TTI)

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.25 for the uplink convolutional channel coding and 10 ms TTI case.

See test case 18.1.2.25.1 for test procedure and test requirement.

18.1.2.25.4 Interactive or background / UL:32 DL:64 kbps / PS RAB / (CC, 20 ms TTI)

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.25 for the uplink convolutional channel coding and 20 ms TTI case.

See test case 18.1.2.25.2 for test procedure and test requirement.

18.1.2.26 Interactive or background / UL:64 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.26.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.26.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.26.

18.1.2.26.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952	RB5: 952
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272	RB5: 1272

NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 18.1.1.1 for test procedure.

18.1.2.26.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (3x336).
   - for sub-test 4: RB5/TF4 (4x336).
3. At step 15 the UE shall return
   - for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.1.2.27 Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.27.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.27.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.27.

18.1.2.27.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552

NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 18.1.1.1 for test procedure.

18.1.2.27.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (3x336).
   - for sub-test 4: RB5/TF4 (4x336).
3. At step 15 the UE shall return
   - for sub-test 1, 2 and 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the first 1272 bits equal to the content of the test data sent by the SS in downlink.

18.1.2.28 Interactive or background / UL:128 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.28.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.28.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.28.

18.1.2.28.3 Method of test

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1272	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.1.1.1 for test procedure.

18.1.2.28.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (4x336).
   - for sub-test 4: RB5/TF4 (8x336).
3. At step 15 the UE shall return
   - for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.1.2.29 Interactive or background / UL:64 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

18.1.2.29.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.29.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.29.

18.1.2.29.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (144 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	9x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 2872	RB5: 2872

NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 18.1.1.1 for test procedure.

18.1.2.29.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (4x336).
   - for sub-test 4: RB5/TF4 (8x336).
   - for sub-test 5: RB5/TF3 (4x336).
3. At step 15 the UE shall return
   - for sub-test 1, 2, 4 and 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the first 1272 bits equal to the content of the test data sent by the SS in downlink.

18.1.2.30 Interactive or background / UL:144 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

18.1.2.30.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.30.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.30.

18.1.2.30.3 Method of test

Uplink TFS:

	TFI	RB5 (144 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	9x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF0, TF1)
UL_TFC7	(TF1, TF1)
UL_TFC8	(TF2, TF1)
UL_TFC9	(TF3, TF1)
UL_TFC10	(TF4, TF1)
UL_TFC11	(TF5, TF1)

Downlink TFS:

	TFI	RB5 (144 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	9x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 1272	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 2872	RB5: 2872
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.1.1.1 for test procedure.

18.1.2.30.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (4x336).
   - for sub-test 4: RB5/TF4 (8x336).
   - for sub-test 5: RB5/TF5 (9x336).
3. At step 15 the UE shall return
   - for sub-test 1 to 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.1.2.31 Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

18.1.2.31.1 Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH/ 10 ms TTI

18.1.2.31.1.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.31.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.31 for the downlink 10 ms TTI case.

18.1.2.31.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (256 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552

NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 18.1.1.1 for test procedure.

18.1.2.31.1.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (3x336).
   - for sub-test 4: RB5/TF4 (4x336).
3. At step 15 the UE shall return
   - for sub-test 1, 2 and 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the first 1272 bits equal to the content of the test data sent by the SS in downlink.

18.1.2.31.2 Interactive or background / UL:64 DL:256 kbps / PS RAB / 20 ms TTI

18.1.2.31.2.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.31.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.31 for the downlink 20 ms TTI case.

18.1.2.31.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (256 kbps, 20ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF0, TF1)
DL_TFC8	(TF1, TF1)
DL_TFC9	(TF2, TF1)
DL_TFC10	(TF3, TF1)
DL_TFC11	(TF4, TF1)
DL_TFC12	(TF5, TF1)
DL_TFC13	(TF6, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 3832	RB5: 3832
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.1.1.1 for test procedure.

18.1.2.31.2.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (3x336).
   - for sub-test 4 to 6: RB5/TF4 (4x336).
3. At step 15 the UE shall return
   - for sub-test 1 to 6: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.1.2.32 Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

18.1.2.32.1 Interactive or background / UL:64 DL:384 kbps / PS RAB / 10 ms TTI

18.1.2.32.1.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.32.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.32 for the 10 ms TTI case.

18.1.2.32.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (384 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 3832	RB5: 3832

NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 18.1.1.1 for test procedure.

18.1.2.32.1.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (3x336).
   - for sub-test 4 and 5: RB5/TF4 (4x336).
3. At step 15 the UE shall return
   - for sub-test 1, 2, 4 and 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the first 1272 bits equal to the content of the test data sent by the SS in downlink.

18.1.2.32.2 Interactive or background / UL:64 DL:384 kbps / PS RAB / 20 ms TTI

18.1.2.32.2.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.32.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.32 for the 20 ms TTI case.

18.1.2.32.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (384 kbps, 20ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A
	TF7, bits	20x336	N/A
	TF8, bits	24x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF0, TF1)
DL_TFC10	(TF1, TF1)
DL_TFC11	(TF2, TF1)
DL_TFC12	(TF3, TF1)
DL_TFC13	(TF4, TF1)
DL_TFC14	(TF5, TF1)
DL_TFC15	(TF6, TF1)
DL_TFC16	(TF7, TF1)
DL_TFC17	(TF8, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 3832	RB5: 3832
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC9, , UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 6392	RB5: 6392
8	DL_TFC8	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 7672	RB5: 7672
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.1.1.1 for test procedure.

18.1.2.32.2.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (3x336).
   - for sub-test 4 to 8: RB5/TF4 (4x336).
3. At step 15 the UE shall return
   - for sub-test 1 to 8: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.1.2.33 Interactive or background / UL:128 DL:384 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

18.1.2.33.1 Interactive or background / UL:128 DL:384 kbps / PS RAB / 10 ms TTI

18.1.2.33.1.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.33.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.33 for the 10 ms TTI case.

18.1.2.33.1.3 Method of test

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (384 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1272	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 3832	RB5: 3832
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.1.1.1 for test procedure.

18.1.2.33.1.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (4x336).
   - for sub-test 4 and 5: RB5/TF4 (8x336).
3. At step 15 the UE shall return

- for sub-test 1 to 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.1.2.33.2 Interactive or background / UL:128 DL:384 kbps / PS RAB / 20 ms TTI

18.1.2.33.2.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.33.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.33 for the 20 ms TTI case.

18.1.2.33.2.3 Method of test

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (384 kbps, 20ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A
	TF7, bits	20x336	N/A
	TF8, bits	24x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF0, TF1)
DL_TFC10	(TF1, TF1)
DL_TFC11	(TF2, TF1)
DL_TFC12	(TF3, TF1)
DL_TFC13	(TF4, TF1)
DL_TFC14	(TF5, TF1)
DL_TFC15	(TF6, TF1)
DL_TFC16	(TF7, TF1)
DL_TFC17	(TF8, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1272	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC3	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5,	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 3832	RB5: 3832
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
7	DL_TFC7	UL_TFC3	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 6392	RB5: 6392
8	DL_TFC8	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4 UL_TFC5, UL_TFC9	RB5: 7672	RB5: 7672
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.1.1.1 for test procedure.

18.1.2.33.2.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (4x336).
   - for sub-test 4 to 8: RB5/TF4 (8x336).
3. At step 15 the UE shall return

- for sub-test 1 to 8: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.1.2.34 Interactive or background / UL:384 DL:384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.34.1 Interactive or background / UL:384 DL:384 kbps / PS RAB / 10 ms TTI

18.1.2.34.1.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.34.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.34 for the 10 ms TTI case.

18.1.2.34.1.3 Method of test

Uplink TFS:

	TFI	RB5 (384 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF0, TF1)
UL_TFC7	(TF1, TF1)
UL_TFC8	(TF2, TF1)
UL_TFC9	(TF3, TF1)
UL_TFC10	(TF4, TF1)
UL_TFC11	(TF5, TF1)

Downlink TFS:

	TFI	RB5 (384 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC7	UL_TFC0, UL_TFC1, UL_TFC7, UL_TFC8	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC7	UL_TFC0, UL_TFC2, UL_TFC7, UL_TFC9	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC7	UL_TFC0, UL_TFC3, UL_TFC7, UL_TFC10	RB5: 1272	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC7	UL_TFC0, UL_TFC4, UL_TFC7, UL_TFC11	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC7	UL_TFC0, UL_TFC5, UL_TFC7, UL_TFC12	RB5: 3832	RB5: 3832
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.1.1.1 for test procedure.

18.1.2.34.1.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336).
- for sub-test 3: RB5/TF3 (4x336).
- for sub-test 4: RB5/TF4 (8x336).
- for sub-test 5: RB5/TF4 (12x336).

3. At step 15 the UE shall return
   - for sub-test 1 to 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.1.2.34.2 Interactive or background / UL:384 DL:384 kbps / PS RAB / 20 ms TTI

18.1.2.34.2.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.34.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.34. for the 20 ms TTI case

18.1.2.34.2.3 Method of test

Uplink TFS:

	TFI	RB5 (384 kbps, 20ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A
	TF7, bits	20x336	N/A
	TF8, bits	24x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF6, TF0)
UL_TFC7	(TF7, TF0)
UL_TFC8	(TF8, TF0)
UL_TFC9	(TF0, TF1)
UL_TFC10	(TF1, TF1)
UL_TFC11	(TF2, TF1)
UL_TFC12	(TF3, TF1)
UL_TFC13	(TF4, TF1)
UL_TFC14	(TF5, TF1)
UL_TFC15	(TF6, TF1)
UL_TFC16	(TF7, TF1)
UL_TFC17	(TF8, TF1)

Downlink TFS:

	TFI	RB5 (384 kbps, 20ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A
	TF7, bits	20x336	N/A
	TF8, bits	24x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF0, TF1)
DL_TFC10	(TF1, TF1)
DL_TFC11	(TF2, TF1)
DL_TFC12	(TF3, TF1)
DL_TFC13	(TF4, TF1)
DL_TFC14	(TF5, TF1)
DL_TFC15	(TF6, TF1)
DL_TFC16	(TF7, TF1)
DL_TFC17	(TF8, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC10	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC2, UL_TFC9, UL_TFC11	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC3, UL_TFC9, UL_TFC12	RB5: 1272	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC4, UL_TFC9, UL_TFC13	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC5, UL_TFC9, UL_TFC14	RB5: 3832	RB5: 3832
6	DL_TFC6	UL_TFC6	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC6, UL_TFC9, UL_TFC15	RB5: 5112	RB5: 5112
7	DL_TFC7	UL_TFC7	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC7, UL_TFC9, UL_TFC16	RB5: 6392	RB5: 6392
8	DL_TFC8	UL_TFC8	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC8, UL_TFC9, UL_TFC17	RB5: 7672	RB5: 7672
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.1.1.1 for test procedure.

18.1.2.34.2.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (4x336).
   - for sub-test 4: RB5/TF4 (8x336).
   - for sub-test 5: RB5/TF5 (12x336).
   - for sub-test 6: RB5/TF6 (16x336).
   - for sub-test 7: RB5/TF7 (20x336).
   - for sub-test 8: RB5/TF8 (24x336).

3. At step 15 the UE shall return

- for sub-test 1 to 8: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.1.2.35 Interactive or background / UL:64 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.35.1 Interactive or background / UL:64 DL:2048 kbps / PS RAB / 10 ms TTI

18.1.2.35.1.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.35.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.35 for the 10 ms TTI case.

18.1.2.35.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (2048 kbps, 10ms)	DCCH
TFS	TF0, bits	0x656	0x148
	TF1, bits	1x656	1x148
	TF2, bits	2x656	N/A
	TF3, bits	4x656	N/A
	TF4, bits	8x656	N/A
	TF5, bits	12x656	N/A
	TF6, bits	16x656	N/A
	TF7, bits	20x656	N/A
	TF8, bits	24x656	N/A
	TF9, bits	28x656	N/A
	TF10, bits	32x656	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF9, TF0)
DL_TFC10	(TF10, TF0)
DL_TFC11	(TF0, TF1)
DL_TFC12	(TF1, TF1)
DL_TFC13	(TF2, TF1)
DL_TFC14	(TF3, TF1)
DL_TFC15	(TF4, TF1)
DL_TFC16	(TF5, TF1)
DL_TFC17	(TF6, TF1)
DL_TFC18	(TF7, TF1)
DL_TFC19	(TF8, TF1)
DL_TFC20	(TF9, TF1)
DL_TFC21	(TF10, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 632	RB5: 632
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 1272	RB5: 1272
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 2872	RB5: 2552
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 7672	RB5: 7672
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 10232	RB5: 10232
7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 12792	RB5: 12792
8	DL_TFC8	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 15352	RB5: 15352
9	DL_TFC9	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 17912	RB5: 17912
10	DL_TFC10	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 20472	RB5: 20472
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.1.1.1 for test procedure.

18.1.2.35.1.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (3x336).

- for sub-test 4 to 10: RB5/TF4 (4x336).

3. At step 15 the UE shall return

- for sub-test 1 to 10: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.1.2.35.2 Interactive or background / UL:64 DL:2048 kbps / PS RAB / 20 ms TTI

18.1.2.35.2.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.35.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.35 for the 20 ms TTI case.

18.1.2.35.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (2048 kbps, 10ms)	DCCH
TFS	TF0, bits	0x656	0x148
	TF1, bits	1x656	1x148
	TF2, bits	2x656	N/A
	TF3, bits	4x656	N/A
	TF4, bits	8x656	N/A
	TF5, bits	12x656	N/A
	TF6, bits	16x656	N/A
	TF7, bits	20x656	N/A
	TF8, bits	24x656	N/A
	TF9, bits	28x656	N/A
	TF10, bits	32x656	N/A
	TF11, bits	36x656	N/A
	TF12, bits	40x656	N/A
	TF13, bits	44x656	N/A
	TF14, bits	48x656	N/A
	TF15, bits	52x656	N/A
	TF16, bits	56x656	N/A
	TF17, bits	60x656	N/A
	TF18, bits	64x656	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF9, TF0)
DL_TFC10	(TF10, TF0)
DL_TFC11	(TF11, TF0)
DL_TFC12	(TF12, TF0)
DL_TFC13	(TF13, TF0)
DL_TFC14	(TF14, TF0)
DL_TFC15	(TF15, TF0)
DL_TFC16	(TF16, TF0)
DL_TFC17	(TF17, TF0)
DL_TFC18	(TF18, TF0)
DL_TFC19	(TF0, TF1)
DL_TFC20	(TF1, TF1)
DL_TFC21	(TF2, TF1)
DL_TFC22	(TF3, TF1)
DL_TFC23	(TF4, TF1)
DL_TFC24	(TF5, TF1)
DL_TFC25	(TF6, TF1)
DL_TFC26	(TF7, TF1)
DL_TFC27	(TF8, TF1)
DL_TFC28	(TF9, TF1)
DL_TFC29	(TF10, TF1)
DL_TFC30	(TF11, TF1)
DL_TFC31	(TF12, TF1)
DL_TFC32	(TF13, TF1)
DL_TFC33	(TF14, TF1)
DL_TFC34	(TF15, TF1)

TFCI	(RB5, DCCH)
DL_TFC35	(TF16, TF1)
DL_TFC36	(TF17, TF1)
DL_TFC37	(TF18, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 632	RB5: 632
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 1272	RB5: 1272
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 2872	RB5: 2552
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 7672	RB5: 7672
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 10232	RB5: 10232
7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 12792	RB5: 12792
8	DL_TFC8	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 15352	RB5: 15352
9	DL_TFC9	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 17912	RB5: 17912
10	DL_TFC10	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 20472	RB5: 20472
11	DL_TFC11	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 23032	RB5: 23032
12	DL_TFC12	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 25592	RB5: 25592
13	DL_TFC13	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4 UL_TFC5, UL_TFC9	RB5: 28152	RB5: 28152

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
14	DL_TFC14	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 30712	RB5: 30712
15	DL_TFC15	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 33272	RB5: 33272
16	DL_TFC16	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 35832	RB5: 35832
17	DL_TFC17	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4 UL_TFC5, UL_TFC9	RB5: 38392	RB5: 38392
18	DL_TFC18	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 40952	RB5: 40952
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.1.1.1 for test procedure.

18.1.2.35.2.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (3x336).
   - for sub-test 4 to 18: RB5/TF4 (4x336).
3. At step 15 the UE shall return

- for sub-test 1 to 18: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.1.2.36 Interactive or background / UL:128 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.36.1 Interactive or background / UL:128 DL:2048 kbps / PS RAB / 10 ms TTI

18.1.2.36.1.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.36.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.36 for the 10 ms TTI case.

18.1.2.36.1.3 Method of test

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (2048 kbps, 10ms)	DCCH
TFS	TF0, bits	0x656	0x148
	TF1, bits	1x656	1x148
	TF2, bits	2x656	N/A
	TF3, bits	4x656	N/A
	TF4, bits	8x656	N/A
	TF5, bits	12x656	N/A
	TF6, bits	16x656	N/A
	TF7, bits	20x656	N/A
	TF8, bits	24x656	N/A
	TF9, bits	28x656	N/A
	TF10, bits	32x656	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF9, TF0)
DL_TFC10	(TF10, TF0)
DL_TFC11	(TF0, TF1)
DL_TFC12	(TF1, TF1)
DL_TFC13	(TF2, TF1)
DL_TFC14	(TF3, TF1)
DL_TFC15	(TF4, TF1)

TFCI	(RB5, DCCH)
DL_TFC16	(TF5, TF1)
DL_TFC17	(TF6, TF1)
DL_TFC18	(TF7, TF1)
DL_TFC19	(TF8, TF1)
DL_TFC20	(TF9, TF1)
DL_TFC21	(TF10, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 632	RB5: 632
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 1272	RB5: 1272
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 2552	RB5: 2552
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 7672	RB5: 7672
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 10232	RB5: 10232
7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 12792	RB5: 12792
8	DL_TFC8	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 15352	RB5: 15352
9	DL_TFC9	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 17912	RB5: 17912
10	DL_TFC10	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 20472	RB5: 20472

NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

See 18.1.1.1 for test procedure.

18.1.2.36.1.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (4x336).
   - for sub-test 4 to 10: RB5/TF4 (8x336).
3. At step 15 the UE shall return

- for sub-test 1 to 10: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.1.2.36.2 Interactive or background / UL:128 DL:2048 kbps / PS RAB / 20 ms TTI

18.1.2.36.2.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.36.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.36 for the 20 ms TTI case.

18.1.2.36.2.3 Method of test

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (2048 kbps, 10ms)	DCCH
TFS	TF0, bits	0x656	0x148
	TF1, bits	1x656	1x148
	TF2, bits	2x656	N/A
	TF3, bits	4x656	N/A
	TF4, bits	8x656	N/A
	TF5, bits	12x656	N/A
	TF6, bits	16x656	N/A
	TF7, bits	20x656	N/A
	TF8, bits	24x656	N/A
	TF9, bits	28x656	N/A
	TF10, bits	32x656	N/A
	TF11, bits	36x656	N/A
	TF12, bits	40x656	N/A
	TF13, bits	44x656	N/A
	TF14, bits	48x656	N/A
	TF15, bits	52x656	N/A
	TF16, bits	56x656	N/A
	TF17, bits	60x656	N/A
	TF18, bits	64x656	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF9, TF0)
DL_TFC10	(TF10, TF0)
DL_TFC11	(TF11, TF0)
DL_TFC12	(TF12, TF0)
DL_TFC13	(TF13, TF0)
DL_TFC14	(TF14, TF0)
DL_TFC15	(TF15, TF0)
DL_TFC16	(TF16, TF0)
DL_TFC17	(TF17, TF0)
DL_TFC18	(TF18, TF0)
DL_TFC19	(TF0, TF1)
DL_TFC20	(TF1, TF1)
DL_TFC21	(TF2, TF1)
DL_TFC22	(TF3, TF1)
DL_TFC23	(TF4, TF1)
DL_TFC24	(TF5, TF1)
DL_TFC25	(TF6, TF1)
DL_TFC26	(TF7, TF1)
DL_TFC27	(TF8, TF1)
DL_TFC28	(TF9, TF1)
DL_TFC29	(TF10, TF1)
DL_TFC30	(TF11, TF1)
DL_TFC31	(TF12, TF1)
DL_TFC32	(TF13, TF1)
DL_TFC33	(TF14, TF1)
DL_TFC34	(TF15, TF1)

TFCI	(RB5, DCCH)
DL_TFC35	(TF16, TF1)
DL_TFC36	(TF17, TF1)
DL_TFC37	(TF18, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 632	RB5: 632
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 1272	RB5: 1272
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 2552	RB5: 2552
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 7672	RB5: 7672
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 10232	RB5: 10232
7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 12792	RB5: 12792
8	DL_TFC8	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 15352	RB5: 15352
9	DL_TFC9	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 17912	RB5: 17912
10	DL_TFC10	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 20472	RB5: 20472
11	DL_TFC11	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 23032	RB5: 23032
12	DL_TFC12	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 25592	RB5: 25592
13	DL_TFC13	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 28152	RB5: 28152

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
14	DL_TFC14	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 30712	RB5: 30712
15	DL_TFC15	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 33272	RB5: 33272
16	DL_TFC16	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 35832	RB5: 35832
17	DL_TFC17	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 38392	RB5: 38392
18	DL_TFC18	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 40952	RB5: 40952
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.1.1.1 for test procedure.

18.1.2.36.2.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (4x336).
   - for sub-test 4 to 18: RB5/TF4 (8x336).
3. At step 15 the UE shall return

- for sub-test 1 to 18: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.1.2.37 Interactive or background / UL:384 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.37.1 Interactive or background / UL:384 DL:2048 kbps / PS RAB / 10 ms TTI

18.1.2.37.1.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.37.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.37 for the 10 ms TTI case.

18.1.2.37.1.3 Method of test

Uplink TFS:

	TFI	RB5 (384 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF0, TF1)
UL_TFC7	(TF1, TF1)
UL_TFC8	(TF2, TF1)
UL_TFC9	(TF3, TF1)
UL_TFC10	(TF4, TF1)
UL_TFC11	(TF5, TF1)

Downlink TFS:

	TFI	RB5 (2048 kbps, 10ms)	DCCH
TFS	TF0, bits	0x656	0x148
	TF1, bits	1x656	1x148
	TF2, bits	2x656	N/A
	TF3, bits	4x656	N/A
	TF4, bits	8x656	N/A
	TF5, bits	12x656	N/A
	TF6, bits	16x656	N/A
	TF7, bits	20x656	N/A
	TF8, bits	24x656	N/A
	TF9, bits	28x656	N/A
	TF10, bits	32x656	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF9, TF0)
DL_TFC10	(TF10, TF0)
DL_TFC11	(TF0, TF1)
DL_TFC12	(TF1, TF1)

TFCI	(RB5, DCCH)
DL_TFC13	(TF2, TF1)
DL_TFC14	(TF3, TF1)
DL_TFC15	(TF4, TF1)
DL_TFC16	(TF5, TF1)
DL_TFC17	(TF6, TF1)
DL_TFC18	(TF7, TF1)
DL_TFC19	(TF8, TF1)
DL_TFC20	(TF9, TF1)
DL_TFC21	(TF10, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7	RB5: 632	RB5: 632
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 1272	RB5: 1272
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 2552	RB5: 2552
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 5112	RB5: 5112
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 7672	RB5: 7672
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 10232	RB5: 10232
7	DL_TFC7	UL_TFC3	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 12792	RB5: 12792
8	DL_TFC8	UL_TFC5	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 15352	RB5: 15352
9	DL_TFC9	UL_TFC3	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 17912	RB5: 17912
10	DL_TFC10	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 20472	RB5: 20472
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.1.1.1 for test procedure.

18.1.2.37.1.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (4x336).
   - for sub-test 4: RB5/TF3 (8x336).
   - for sub-test 5 to 10: RB5/TF4 (12x336).
3. At step 15 the UE shall return

- for sub-test 1 to 10: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.1.2.37.2 Interactive or background / UL:384 DL:2048 kbps / PS RAB / 20 ms TTI

18.1.2.37.2.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.37.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.37 for the 20 ms TTI case.

18.1.2.37.2.3 Method of test

Uplink TFS:

	TFI	RB5 (384 kbps, 20ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A
	TF7, bits	20x336	N/A
	TF8, bits	24x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF6, TF0)
UL_TFC7	(TF7, TF0)
UL_TFC8	(TF8, TF0)
UL_TFC9	(TF0, TF1)
UL_TFC10	(TF1, TF1)
UL_TFC11	(TF2, TF1)
UL_TFC12	(TF3, TF1)

TFCI	(RB5, DCCH)
UL_TFC13	(TF4, TF1)
UL_TFC14	(TF5, TF1)
UL_TFC15	(TF6, TF1)
UL_TFC16	(TF7, TF1)
UL_TFC17	(TF8, TF1)

Downlink TFS:

	TFI	RB5 (2048 kbps, 10ms)	DCCH
TFS	TF0, bits	0x656	0x148
	TF1, bits	1x656	1x148
	TF2, bits	2x656	N/A
	TF3, bits	4x656	N/A
	TF4, bits	8x656	N/A
	TF5, bits	12x656	N/A
	TF6, bits	16x656	N/A
	TF7, bits	20x656	N/A
	TF8, bits	24x656	N/A
	TF9, bits	28x656	N/A
	TF10, bits	32x656	N/A
	TF11, bits	36x656	N/A
	TF12, bits	40x656	N/A
	TF13, bits	44x656	N/A
	TF14, bits	48x656	N/A
	TF15, bits	52x656	N/A
	TF16, bits	56x656	N/A
	TF17, bits	60x656	N/A
	TF18, bits	64x656	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF9, TF0)
DL_TFC10	(TF10, TF0)
DL_TFC11	(TF11, TF0)
DL_TFC12	(TF12, TF0)
DL_TFC13	(TF13, TF0)
DL_TFC14	(TF14, TF0)
DL_TFC15	(TF15, TF0)
DL_TFC16	(TF16, TF0)
DL_TFC17	(TF17, TF0)
DL_TFC18	(TF18, TF0)
DL_TFC19	(TF0, TF1)
DL_TFC20	(TF1, TF1)
DL_TFC21	(TF2, TF1)
DL_TFC22	(TF3, TF1)
DL_TFC23	(TF4, TF1)
DL_TFC24	(TF5, TF1)
DL_TFC25	(TF6, TF1)
DL_TFC26	(TF7, TF1)

TFCI	(RB5, DCCH)
DL_TFC27	(TF8, TF1)
DL_TFC28	(TF9, TF1)
DL_TFC29	(TF10, TF1)
DL_TFC30	(TF11, TF1)
DL_TFC31	(TF12, TF1)
DL_TFC32	(TF13, TF1)
DL_TFC33	(TF14, TF1)
DL_TFC34	(TF15, TF1)
DL_TFC35	(TF16, TF1)
DL_TFC36	(TF17, TF1)
DL_TFC37	(TF18, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC10	RB5: 632	RB5: 632
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC2, UL_TFC9, UL_TFC11	RB5: 1272	RB5: 1272
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC3, UL_TFC9, UL_TFC12	RB5: 2552	RB5: 2552
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC4, UL_TFC9, UL_TFC13	RB5: 5112	RB5: 5112
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC5, UL_TFC9, UL_TFC14	RB5: 7672	RB5: 7672
6	DL_TFC6	UL_TFC6	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC6, UL_TFC9, UL_TFC15	RB5: 10232	RB5: 10232
7	DL_TFC7	UL_TFC7	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC7, UL_TFC9, UL_TFC16	RB5: 12792	RB5: 12792
8	DL_TFC8	UL_TFC8	DL_TFC0, DL_TFC19, , UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC8, UL_TFC9, UL_TFC17	RB5: 15352	RB5: 15352
9	DL_TFC9	UL_TFC3	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC3, UL_TFC9, UL_TFC12	RB5: 17912	RB5: 17912
10	DL_TFC10	UL_TFC6	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC6, UL_TFC9, UL_TFC15	RB5: 20472	RB5: 20472
11	DL_TFC11	UL_TFC3	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC3, UL_TFC9, UL_TFC12	RB5: 23032	RB5: 23032

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
12	DL_TFC12	UL_TFC7	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC7, UL_TFC9, UL_TFC16	RB5: 25592	RB5: 25592
13	DL_TFC13	UL_TFC3	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC3, UL_TFC9, UL_TFC12	RB5: 28152	RB5: 28152
14	DL_TFC14	UL_TFC8	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC8, UL_TFC9, UL_TFC17	RB5: 30712	RB5: 30712
15	DL_TFC15	UL_TFC3	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC3, UL_TFC9, UL_TFC12	RB5: 33272	RB5: 33272
16	DL_TFC16	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC4, UL_TFC9, UL_TFC13	RB5: 35832	RB5: 35832
17	DL_TFC17	UL_TFC7	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC7, UL_TFC9, UL_TFC16	RB5: 38392	RB5: 38392
18	DL_TFC18	UL_TFC6	DL_TFC0, DL_TFC19, , UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC6, UL_TFC9, UL_TFC15	RB5: 40952	RB5: 40952
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.1.1.1 for test procedure.

18.1.2.37.2.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (4x336).
   - for sub-test 4: RB5/TF4 (8336).
   - for sub-test 5: RB5/TF5 (12x336).
   - for sub-test 6: RB5/TF6 (16x336).
   - for sub-test 7: RB5/TF7 (20x336).
   - for sub-test 8 to 18: RB5/TF4 (24x336).
3. At step 15 the UE shall return
   - for sub-test 1 to 18: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.1.2.38 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.38.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:8 kbps / PS RAB / (TC, 20 ms TTI)

18.1.2.38.1.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.38.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.38 for the turbo channel coding and 20 ms TTI case.

18.1.2.38.1.3 Method of test

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (32 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF0, TF1)
UL_TFC10	(TF1, TF0, TF0, TF0, TF1)
UL_TFC11	(TF2, TF1, TF1, TF0, TF1)
UL_TFC12	(TF0, TF0, TF0, TF1, TF1)
UL_TFC13	(TF1, TF0, TF0, TF1, TF1)
UL_TFC14	(TF2, TF1, TF1, TF1, TF1)
UL_TFC15	(TF0, TF0, TF0, TF2, TF1)
UL_TFC16	(TF1, TF0, TF0, TF2, TF1)
UL_TFC17	(TF2, TF1, TF1, TF2, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (8 kbps)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF0, TF1)
DL_TFC7	(TF1, TF0, TF0, TF0, TF1)
DL_TFC8	(TF2, TF1, TF1, TF0, TF1)
DL_TFC9	(TF0, TF0, TF0, TF1, TF1)
DL_TFC10	(TF1, TF0, TF0, TF1, TF1)
DL_TFC11	(TF2, TF1, TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1 DL_TFC7	UL_TFC1 UL_TFC10	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2 DL_TFC8	UL_TFC2 UL_TFC11	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC2, UL_TFC9, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3 DL_TFC9	UL_TFC3 UL_TFC12	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC3, UL_TFC9, UL_TFC12	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4 DL_TFC10	UL_TFC4 UL_TFC13	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC9, UL_TFC10, UL_TFC12, UL_TFC13	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5 DL_TFC11	UL_TFC5 UL_TFC14	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC9, UL_TFC11, UL_TFC12, UL_TFC14	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC3 DL_TFC9	UL_TFC6 UL_TFC15	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC6, UL_TFC9, UL_TFC15	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 312
7	DL_TFC4 DL_TFC10	UL_TFC7 UL_TFC16	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 312
8	DL_TFC5 DL_TFC11	UL_TFC8 UL_TFC17	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 312

NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the uplink TTI for RB8 is 20 ms while the downlink TTI is 40 ms then, to achieve continuous data transmission in uplink the size of the uplink RLC SDU has been set such that it will be transmitted over two subsequent TTIs, i.e. UL RLC SDU SIZE has been set to two times the uplink TFS size minus 8 (the size of a 7 bit length indicator and expansion bit).

18.1.2.38.1.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub test.

3. At step 15 the UE shall return

   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.

   - for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.

   - for sub-test 3 and 6: an RLC SDU on RB8 having the first 312 bits equal to the content sent by the SS in the downlink; and no data shall be received on RB5, RB6 and RB7.

   - for sub-test 4 and 7: an RLC SDU on RB5 having the same content as sent by SS and on RB8 having the first 312 bits equal to the content sent by the SS in the downlink; and no data shall be received on RB6 and RB7.

   - for sub-test 5 and 8: an RLC SDU on RB5, RB6, RB7 having the same content as sent by SS and on RB8 having the first 312 bits equal to the content sent by the SS in the downlink.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.38.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:8 kbps / PS RAB / (TC, 10 ms TTI)

18.1.2.38.2.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.38.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.38 for the turbo channel coding and 10 ms TTI case.

18.1.2.38.2.3 Method of test

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (32 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF0, TF0, TF1)
UL_TFC8	(TF2, TF1, TF1, TF0, TF1)
UL_TFC9	(TF0, TF0, TF0, TF1, TF1)
UL_TFC10	(TF1, TF0, TF0, TF1, TF1)
UL_TFC11	(TF2, TF1, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (8 kbps)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF0, TF1)
DL_TFC7	(TF1, TF0, TF0, TF0, TF1)
DL_TFC8	(TF2, TF1, TF1, TF0, TF1)
DL_TFC9	(TF0, TF0, TF0, TF1, TF1)
DL_TFC10	(TF1, TF0, TF0, TF1, TF1)
DL_TFC11	(TF2, TF1, TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1 DL_TFC7	UL_TFC1 UL_TFC7	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2 DL_TFC8	UL_TFC2 UL_TFC8	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3 DL_TFC9	UL_TFC3 UL_TFC9	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4 DL_TFC10	UL_TFC4 UL_TFC10	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5 DL_TFC11	UL_TFC5 UL_TFC11	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 312

NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the uplink TTI for RB8 is 10 ms while the downlink TTI is 40 ms then, to achieve continuous data transmission in uplink the size of the uplink RLC SDU has been set such that it will be transmitted over four subsequent TTIs, i.e. UL RLC SDU SIZE has been set to four times the uplink TFS size minus 8 (the size of a 7 bit length indicator and expansion bit).

18.1.2.38.2.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub test.

3. At step 15 the UE shall return

   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
   - for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
   - for sub-test 3: an RLC SDU on RB8 having the first 312 bits equal to the content sent by the SS in the downlink; and no data shall be received on RB5, RB6 and RB7.
   - for sub-test 4: an RLC SDU on RB5 having the same content as sent by SS and on RB8 having the first 312 bits equal to the content sent by the SS in the downlink; and no data shall be received on RB6 and RB7.
   - for sub-test 5: an RLC SDU on RB5, RB6, RB7 having the same content as sent by SS and on RB8 having the first 312 bits equal to the content sent by the SS in the downlink.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.38.3 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:8 kbps / PS RAB / (CC, 20 ms TTI)

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.38 for the convolutional channel coding and 20 ms TTI case.

See test case 18.1.2.38.1 for test procedure and test requirement.

18.1.2.38.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:8 kbps / PS RAB / (CC, 10 ms TTI)

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.38 for the convolutional channel coding and 10 ms TTI case.

See test case 18.1.2.38.2 for test procedure and test requirement.

18.1.2.39 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:64 kbps / PS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH

18.1.2.39.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:64 kbps / PS RAB / (TC, 10 ms TTI)

18.1.2.39.1.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.39.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.39 for the uplink turbo channel coding and 10 ms TTI case.

18.1.2.39.1.3 Method of test

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (32 kbps, 10 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF0, TF0, TF1)
UL_TFC8	(TF2, TF1, TF1, TF0, TF1)
UL_TFC9	(TF0, TF0, TF0, TF1, TF1)
UL_TFC10	(TF1, TF0, TF0, TF1, TF1)
UL_TFC11	(TF2, TF1, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF2, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC16	UL_TFC1 UL_TFC7	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC17	UL_TFC2, UL_TFC8	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC18	UL_TFC3, UL_TFC9	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4, DL_TFC19	UL_TFC4, UL_TFC10	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5, DL_TFC20	UL_TFC5 UL_TFC11	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC6, DL_TFC21	UL_TFC3, UL_TFC9	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 632
7	DL_TFC7, DL_TFC22	UL_TFC4, UL_TFC10	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 632
8	DL_TFC8, DL_TFC23	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632
9	DL_TFC9, DL_TFC24	UL_TFC3, UL_TFC9	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 952
10	DL_TFC10, DL_TFC25	UL_TFC4, UL_TFC10	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 952

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
11	DL_TFC11, DL_TFC26	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 952
12	DL_TFC12, DL_TFC27	UL_TFC3, UL_TFC9	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 1272
13	DL_TFC13, DL_TFC28	UL_TFC4, UL_TFC10	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 1272
14	DL_TFC14, DL_TFC29	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 1272
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the uplink TTI for RB8 is 10 ms while the downlink TTI is 20 ms then, to achieve continuous data transmission in uplink the size of the uplink RLC SDU has been set such that it will be transmitted over two subsequent TTIs, i.e. UL RLC SDU SIZE has been set to two times the uplink TFS size minus 8 bits (size of 7 bit length indicator and expansion bit).						

18.1.2.39.1.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 15a and step 15b the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.

- for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.

- for sub-test 3: an RLC SDU on RB8 having the first 312 bits equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 4: an RLC SDU on RB8 having the first 312 bits equal to the content of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 5: an RLC SDU on RB8 having the first 312 bits equal to the content of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 6: an RLC SDU on RB8 having the content equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 7: an RLC SDU on RB8 having the content equal to the content of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 8: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS.
- for sub-test 9: an RLC SDU on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 10: an RLC SDU on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 11: an RLC SDU on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 12: an RLC SDU on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 13: an RLC SDU on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 14: an RLC SDU on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.39.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:64 kbps / PS RAB / (TC, 20 ms TTI)

18.1.2.39.2.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.39.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.39 for the uplink turbo channel coding and 20 ms TTI case.

18.1.2.39.2.3 Method of test

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (32 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF0, TF1)
UL_TFC10	(TF1, TF0, TF0, TF0, TF1)
UL_TFC11	(TF2, TF1, TF1, TF0, TF1)
UL_TFC12	(TF0, TF0, TF0, TF1, TF1)
UL_TFC13	(TF1, TF0, TF0, TF1, TF1)
UL_TFC14	(TF2, TF1, TF1, TF1, TF1)
UL_TFC15	(TF0, TF0, TF0, TF2, TF1)
UL_TFC16	(TF1, TF0, TF0, TF2, TF1)
UL_TFC17	(TF2, TF1, TF1, TF2, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF2, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC16	UL_TFC1, UL_TFC10	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC17	UL_TFC2, UL_TFC11	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC2, UL_TFC9, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC18	UL_TFC3, UL_TFC12	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC3, UL_TFC9, UL_TFC12	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4, DL_TFC19	UL_TFC4, UL_TFC13	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC9, UL_TFC10, UL_TFC12, UL_TFC13	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5, DL_TFC20	UL_TFC5, UL_TFC14	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC9, UL_TFC11, UL_TFC12, UL_TFC14	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC6, DL_TFC21	UL_TFC6, UL_TFC15	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC6, UL_TFC9, UL_TFC15	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 632
7	DL_TFC7, DL_TFC22	UL_TFC7, UL_TFC16	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 632
8	DL_TFC8, DL_TFC23	UL_TFC8, UL_TFC17	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632
9	DL_TFC9, DL_TFC24	UL_TFC6, UL_TFC15	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC6, UL_TFC9, UL_TFC15	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 952
10	DL_TFC10, DL_TFC25	UL_TFC7, UL_TFC16	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 952

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
11	DL_TFC11, DL_TFC26	UL_TFC8, UL_TFC17	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 952
12	DL_TFC12, DL_TFC27	UL_TFC6, UL_TFC15	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC6, UL_TFC9, UL_TFC15	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 1272
13	DL_TFC13, DL_TFC28	UL_TFC7, UL_TFC16	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 1272
14	DL_TFC14, DL_TFC29	UL_TFC8, UL_TFC17	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 1272
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).						

18.1.2.39.2.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 15a and step 15b the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 3: an RLC SDU on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4: an RLC SDU on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 5: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS.
- for sub-test 6: an RLC SDU on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 7: an RLC SDU on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 8: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS.
- for sub-test 9: an RLC SDU on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 10: an RLC SDU on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 11: an RLC SDU on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 12: an RLC SDU on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 13: an RLC SDU on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 14: an RLC SDU on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.39.3 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:64 kbps / PS RAB / (CC, 10 ms TTI)

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.39 for the uplink convolutional channel coding and 10 ms TTI case.

See test case 18.1.2.39.1 for test procedure and test requirement.

18.1.2.39.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:64 kbps / PS RAB / (CC, 20 ms TTI)

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.39 for the uplink convolutional channel coding and 20 ms TTI case.

See test case 18.1.2.39.2 for test procedure and test requirement.

18.1.2.40 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH

18.1.2.40.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.40.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.40.

18.1.2.40.3 Method of test

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF2, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC16	UL_TFC1, UL_TFC16	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC17	UL_TFC2, UL_TFC17	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC18	UL_TFC3, UL_TFC18	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC3, UL_TFC15, UL_TFC18	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4, DL_TFC19	UL_TFC4, UL_TFC19	DL_TFC0, DL_TFC15, DUL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5, DL_TFC20	UL_TFC5, UL_TFC20	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC17, UL_TFC18, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC6, DL_TFC21	UL_TFC6, UL_TFC21	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC6, UL_TFC15, UL_TFC21	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 632
7	DL_TFC7, DL_TFC22	UL_TFC7, UL_TFC22	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 632
8	DL_TFC8, DL_TFC23	UL_TFC8, UL_TFC23	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8, UL_TFC15, UL_TFC17, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632
9	DL_TFC9, DL_TFC24	UL_TFC9, UL_TFC24	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC9, UL_TFC15, UL_TFC24	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: No data RB6: No data RB7: No data RB8: 952
10	DL_TFC10, DL_TFC25	UL_TFC10, UL_TFC25	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16, UL_TFC24, UL_TFC25	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: 39 RB6: No data RB7: No data RB8: 952

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
11	DL_TFC11, DL_TFC26	UL_TFC11, UL_TFC26	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17, UL_TFC24, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: 81 RB6: 103 RB7: 60 RB8: 952
12	DL_TFC12, DL_TFC27	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 1272
13	DL_TFC13, DL_TFC28	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 1272
14	DL_TFC14, DL_TFC29	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 1272
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit).						

18.1.2.40.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 15a and step 15b the UE shall return

   - for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.

   - for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.

   - for sub-test 3, 6, 9 and 12: RLC SDUs on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.

   - for sub-test 4, 7, 10 and 13: RLC SDUs on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

   - for sub-test 5, 8, 11 and 14: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.41 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.41.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.41.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.41.

18.1.2.41.3 Method of test

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (128 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF2, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC16	UL_TFC1, UL_TFC16	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC17	UL_TFC2, UL_TFC17	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC18	UL_TFC3, UL_TFC18	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC3, UL_TFC15, UL_TFC18	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4, DL_TFC19	UL_TFC4, UL_TFC19	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC3 UL_TFC4, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5, DL_TFC20	UL_TFC5, UL_TFC20	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC17, UL_TCF18, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC6, DL_TFC21	UL_TFC6, UL_TFC21	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC6, UL_TFC15, UL_TFC21	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 632
7	DL_TFC7, DL_TFC22	UL_TFC7, UL_TFC22	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 632
8	DL_TFC8, DL_TFC23	UL_TFC8, UL_TFC23	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8, UL_TFC15, UL_TFC17, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632
9	DL_TFC9, DL_TFC24	UL_TFC9, UL_TFC24	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC9, UL_TFC15, UL_TFC24	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: No data RB6: No data RB7: No data RB8: 1272
10	DL_TFC10, DL_TFC25	UL_TFC10, UL_TFC25	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16, UL_TFC24, UL_TFC25	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: 39 RB6: No data RB7: No data RB8: 1272

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
11	DL_TFC11, DL_TFC26	UL_TFC11, UL_TFC26	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17, UL_TFC24, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: 81 RB6: 103 RB7: 60 RB8: 1272
12	DL_TFC12, DL_TFC27	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 2552
13	DL_TFC13, DL_TFC28	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC15, , UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 2552
14	DL_TFC14, DL_TFC29	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 2552
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit).						

18.1.2.41.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 15a and step 15b the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 3: RLC SDUs on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4: RLC SDUs on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 5: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by SS.
- for sub-test 6: RLC SDUs on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 7: RLC SDUs on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 8: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by SS.
- for sub-test 9: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 10: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 11: RLC SDUs on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 12: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 13: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 14: RLC SDUs on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.42 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.42.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:256 kbps / PS RAB / 10 ms TTI

18.1.2.42.1.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.42.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.42 for the downlink 10 ms TTI case.

18.1.2.42.1.3 Method of test

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (256 kbps)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF2, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC16	UL_TFC1, DL_TFC16	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC17	UL_TFC2, DL_TFC17	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC18	UL_TFC3, DL_TFC18	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC3, UL_TFC15, UL_TFC18	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4, DL_TFC19	UL_TFC4, DL_TFC19	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5, DL_TFC20	UL_TFC5, DL_TFC20	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC17, UL_TFC18, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC6, DL_TFC21	UL_TFC6, DL_TFC21	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC6, UL_TFC15, UL_TFC21	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 632
7	DL_TFC7, DL_TFC22	UL_TFC7, DL_TFC22	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 632
8	DL_TFC8, DL_TFC23	UL_TFC8, DL_TFC23	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8, UL_TFC15, UL_TFC17, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632
9	DL_TFC9, DL_TFC24	UL_TFC9, DL_TFC24	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC9, UL_TFC15, UL_TFC24	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: No data RB6: No data RB7: No data RB8: 1272
10	DL_TFC10, DL_TFC25	UL_TFC10, DL_TFC25	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16, UL_TFC24, UL_TFC25	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: 39 RB6: No data RB7: No data RB8: 1272

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
11	DL_TFC11, DL_TFC26	UL_TFC11, DL_TFC26	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17, UL_TFC24, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: 81 RB6: 103 RB7: 60 RB8: 1272
12	DL_TFC12, DL_TFC27	UL_TFC12, DL_TFC27	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 2552
13	DL_TFC13, DL_TFC28	UL_TFC13, DL_TFC28	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 2552
14	DL_TFC14, DL_TFC29	UL_TFC14, DL_TFC29	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 2552
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the uplink TTI for RB8 is 20 ms while the downlink TTI is 10 ms then, to achieve continuous data transmission in uplink the size of the uplink RLC SDU has been set such that it will be transmitted over each TTIs, i.e. UL RLC SDU SIZE has been set to the uplink TFS size under test minus 8 (the size of a 7 bit length indicator and expansion bit).						

18.1.2.42.1.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.

- for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.

- for sub-test 3: an RLC SDU on RB8 having the first 312 bits equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 4: an RLC SDU on RB8 having the first 312 bits equal to the content of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 5: an RLC SDU on RB8 having the first 312 bits equal to the content of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 6: an RLC SDU on RB8 having the content equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 7: an RLC SDU on RB8 having the content equal to the content of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 8: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS.
- for sub-test 9: an RLC SDU on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 10: an RLC SDU on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 11: an RLC SDU on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 12: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 13: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 14: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.42.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:256 kbps / PS RAB / 20 ms TTI

18.1.2.42.2.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.42.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.42 for the downlink 20 ms TTI case.

18.1.2.42.2.3 Method of test

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (256 kbps, 20 ms)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A
	TF5, bits	N/A	N/A	N/A	12x336	N/A
	TF6, bits	N/A	N/A	N/A	16x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF5, TF0)
DL_TFC16	(TF1, TF0, TF0, TF5, TF0)
DL_TFC17	(TF2, TF1, TF1, TF5, TF0)
DL_TFC18	(TF0, TF0, TF0, TF6, TF0)
DL_TFC19	(TF1, TF0, TF0, TF6, TF0)
DL_TFC20	(TF2, TF1, TF1, TF6, TF0)
DL_TFC21	(TF0, TF0, TF0, TF0, TF1)
DL_TFC22	(TF1, TF0, TF0, TF0, TF1)
DL_TFC23	(TF2, TF1, TF1, TF0, TF1)
DL_TFC24	(TF0, TF0, TF0, TF1, TF1)
DL_TFC25	(TF1, TF0, TF0, TF1, TF1)
DL_TFC26	(TF2, TF1, TF1, TF1, TF1)
DL_TFC27	(TF0, TF0, TF0, TF2, TF1)
DL_TFC28	(TF1, TF0, TF0, TF2, TF1)
DL_TFC29	(TF2, TF1, TF1, TF2, TF1)
DL_TFC30	(TF0, TF0, TF0, TF3, TF1)
DL_TFC31	(TF1, TF0, TF0, TF3, TF1)
DL_TFC32	(TF2, TF1, TF1, TF3, TF1)
DL_TFC33	(TF0, TF0, TF0, TF4, TF1)
DL_TFC34	(TF1, TF0, TF0, TF4, TF1)
DL_TFC35	(TF2, TF1, TF1, TF4, TF1)
DL_TFC36	(TF0, TF0, TF0, TF5, TF1)
DL_TFC37	(TF1, TF0, TF0, TF5, TF1)
DL_TFC38	(TF2, TF1, TF1, TF5, TF1)
DL_TFC39	(TF0, TF0, TF0, TF6, TF1)
DL_TFC40	(TF1, TF0, TF0, TF6, TF1)
DL_TFC41	(TF2, TF1, TF1, TF6, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC22	UL_TFC1, UL_TFC16	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC23	UL_TFC2, UL_TFC17	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC24	UL_TFC3, UL_TFC18	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC3, UL_TFC15, UL_TFC18	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4, DL_TFC25	UL_TFC4, UL_TFC19	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5, DL_TFC26	UL_TFC5, UL_TFC20	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC17, UL_TFC18, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC6, DL_TFC27	UL_TFC6, UL_TFC21	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC6, UL_TFC15, UL_TFC21	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 632
7	DL_TFC7, DL_TFC28	UL_TFC7, UL_TFC22	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 632
8	DL_TFC8, DL_TFC29	UL_TFC8, UL_TFC23	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8, UL_TFC15, UL_TFC17, UL_TFC21 UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632
9	DL_TFC9, DL_TFC30	UL_TFC9, UL_TFC24	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC9, UL_TFC15, UL_TFC24	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: No data RB6: No data RB7: No data RB8: 1272
10	DL_TFC10, DL_TFC31	UL_TFC10, UL_TFC25	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16, UL_TFC24, UL_TFC25	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: 39 RB6: No data RB7: No data RB8: 1272

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
11	DL_TFC11, DL_TFC32	UL_TFC11, UL_TFC26	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17, UL_TFC24, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: 81 RB6: 103 RB7: 60 RB8: 1272
12	DL_TFC12, DL_TFC33	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 2552
13	DL_TFC13, DL_TFC34	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27 UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 2552
14	DL_TFC14, DL_TFC35	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 2552
15	DL_TFC15, DL_TFC36	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 3832
16	DL_TFC16, DL_TFC37	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27 UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 3832
17	DL_TFC17, DL_TFC38	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 3832
18	DL_TFC18, DL_TFC39	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 5112
19	DL_TFC19, DL_TFC40	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 5112

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
20	DL_TFC20, DL_TFC41	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC21, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 5112
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).						

18.1.2.42.2.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 3: an RLC SDU on RB8 having the content equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4: an RLC SDU on RB5 and RB8 having the content equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB6 and RB7.
- for sub-test 5: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS.
- for sub-test 6: an RLC SDU on RB8 having the content equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 7: an RLC SDU on RB5 and RB8 having the content equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB6 and RB7.
- for sub-test 8: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS.
- for sub-test 9: an RLC SDU on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 10: an RLC SDU on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 11: an RLC SDU on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 12: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 13: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 14: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 15: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 16: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 17: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 18: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 19: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 20: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.43 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.43.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:384 kbps / PS RAB / 10 ms TTI

18.1.2.43.1.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.43.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.43 for the downlink 10 ms TTI case.

18.1.2.43.1.3 Method of test

See 18.1.1.2 for test procedure.

For the PS DL:384/UL:64 kbps radio bearer the downlink TTI is 10ms while the uplink TTI is 20ms. As the SS will send one DL SDU every 10 ms then the UE test loop function will return 2 UL SDUs per uplink TTI. To not cause uplink transmission buffer overflow then the UL RLC SDU size should be chosen such that the UE will transmit 2 RLC SDUs per uplink TTI. For the case when the transport format under test does not allow for 2 SDUs to fit into the transport format size without requiring concatenation then the UL RLC SDU size shall be chosen such that one SDU is returned per uplink TTI.

The following RLC parameter value is used in the RADIO BEARER SETUP message used to setup the PS DL:384/UL:64 kbps radio bearer:

Uplink RLC Transmission window size	512

NOTE The transmission window size value have been chosen to avoid that UE transmission buffer becomes full during the test.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (384 kbps, 10 ms)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A
	TF5, bits	N/A	N/A	N/A	12x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF5, TF0)
DL_TFC16	(TF1, TF0, TF0, TF5, TF0)
DL_TFC17	(TF2, TF1, TF1, TF5, TF0)
DL_TFC18	(TF0, TF0, TF0, TF0, TF1)
DL_TFC19	(TF1, TF0, TF0, TF0, TF1)
DL_TFC20	(TF2, TF1, TF1, TF0, TF1)
DL_TFC21	(TF0, TF0, TF0, TF1, TF1)
DL_TFC22	(TF1, TF0, TF0, TF1, TF1)
DL_TFC23	(TF2, TF1, TF1, TF1, TF1)
DL_TFC24	(TF0, TF0, TF0, TF2, TF1)
DL_TFC25	(TF1, TF0, TF0, TF2, TF1)
DL_TFC26	(TF2, TF1, TF1, TF2, TF1)
DL_TFC27	(TF0, TF0, TF0, TF3, TF1)
DL_TFC28	(TF1, TF0, TF0, TF3, TF1)
DL_TFC29	(TF2, TF1, TF1, TF3, TF1)
DL_TFC30	(TF0, TF0, TF0, TF4, TF1)
DL_TFC31	(TF1, TF0, TF0, TF4, TF1)
DL_TFC32	(TF2, TF1, TF1, TF4, TF1)
DL_TFC33	(TF0, TF0, TF0, TF5, TF1)
DL_TFC34	(TF1, TF0, TF0, TF5, TF1)
DL_TFC35	(TF2, TF1, TF1, TF5, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note 1)	Test data size (bits) (note 1)
1	DL_TFC1, DL_TFC19	UL_TFC1, UL_TFC16	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC20	UL_TFC2, UL_TFC17	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC21	UL_TFC3, UL_TFC18	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC3, UL_TFC15, UL_TFC18	RB5: 39 RB6: 103 RB7: 60 RB8: 312 (note 2)	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4, DL_TFC22	UL_TFC4, UL_TFC19	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312 (note 2)	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5, DL_TFC23	UL_TFC5, UL_TFC20	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC5, UL_TFC17, UL_TFC18, UL_TFC15, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 312 (note 2)	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC6, DL_TFC24	UL_TFC6, UL_TFC21	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC6, UL_TFC15, UL_TFC21	RB5: 39 RB6: 103 RB7: 60 RB8: 312 (note 3)	RB5: No data RB6: No data RB7: No data RB8: 632
7	DL_TFC7, DL_TFC25	UL_TFC7, UL_TFC22	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 312 (note 3)	RB5: 39 RB6: No data RB7: No data RB8: 632
8	DL_TFC8, DL_TFC26	UL_TFC8, UL_TFC23	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8, UL_TFC15, UL_TFC17, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 312 (note 3)	RB5: 81 RB6: 103 RB7: 60 RB8: 632
9	DL_TFC9, DL_TFC27	UL_TFC9, UL_TFC24	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC9, UL_TFC15, UL_TFC24	RB5: 39 RB6: 103 RB7: 60 RB8: 1272 (note 2)	RB5: No data RB6: No data RB7: No data RB8: 1272

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note 1)	Test data size (bits) (note 1)
10	DL_TFC10, DL_TFC28	UL_TFC10, UL_TFC25	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16, UL_TFC24, UL_TFC25	RB5: 39 RB6: 103 RB7: 60 RB8: 1272 (note 2)	RB5: 39 RB6: No data RB7: No data RB8: 1272
11	DL_TFC11, DL_TFC29	UL_TFC11, UL_TFC26	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17, UL_TFC24, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 1272 (note 2)	RB5: 81 RB6: 103 RB7: 60 RB8: 1272
12	DL_TFC12, DL_TFC30	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 632 (note 3)	RB5: No data RB6: No data RB7: No data RB8: 2552
13	DL_TFC13, DL_TFC31	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 632 (note 3)	RB5: 39 RB6: No data RB7: No data RB8: 2552
14	DL_TFC14, DL_TFC32	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 632 (note 3)	RB5: 81 RB6: 103 RB7: 60 RB8: 2552
15	DL_TFC15, DL_TFC33	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 632 (note 3)	RB5: No data RB6: No data RB7: No data RB8: 3832
16	DL_TFC16, DL_TFC34	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC18, , UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 632 (note 3)	RB5: 39 RB6: No data RB7: No data RB8: 3832
17	DL_TFC17, DL_TFC35	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC18, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 632 (note 3)	RB5: 81 RB6: 103 RB7: 60 RB8: 3832

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note 1)	Test data size (bits) (note 1)
NOTE 1: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit).						
NOTE 2: RB8 (TF1/TF3): For sub-tests where uplink transport format TF1 (1x336) or TF3 (3x336) are used then no adaptation to the difference in downlink TTI (10 ms) and uplink TTI (20ms) is possible as this would require the UE to concatenate 2 SDUs into one PDU for TF1; or into three PDUs for TF3. For these sub-tests the UL RLC SDU size is set equal to the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).						
NOTE 3: RB8 (TF2/TF4): For sub-tests where uplink transport formats TF2 (2x336) or TF4 (4x336) is used then to adopt to the difference in downlink TTI (10 ms) and uplink TTI (20ms) the UL RLC SDU size has been chosen such that 2 SDUs will be returned per uplink TTI. I.e. the UL RLC SDU size is set equal to half the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).						

18.1.2.43.1.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 15a and step 15b the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by the SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by the SS; and no data shall be received on RB8.
- for sub-test 3: RLC SDUs on RB8 having the same content as sent by the SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4: RLC SDUs on RB5 and RB8 having the same content as sent by the SS; and no data shall be received on RB6 and RB7.
- for sub-test 5: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by the SS.
- for sub-test 6: RLC SDUs on RB8 having the first 312 bits equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 7: RLC SDUs on RB5 having the same content as sent by the SS; RLC SDUs on RB8 having the first 312 bits equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB6 and RB7.
- for sub-test 8: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by the SS; and RLC SDUs on RB8 having the first 312 bits equal to the content of the test data sent by the SS in downlink.
- for sub-test 9: RLC SDUs on RB8 having the same content as sent by the SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 10: RLC SDUs on RB5 and RB8 having the same content as sent by the SS; and no data shall be received on RB6 and RB7.
- for sub-test 11: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by the SS.
- for sub-test 12: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 13: RLC SDUs on RB5 having the same content as sent by the SS; RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; and no data shall be received on RB6 and RB7.

- for sub-test 14: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by the SS; and RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink.

- for sub-test 15: RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 16: RLC SDUs on RB5 having the same content as sent by the SS; RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; and no data shall be received on RB6 and RB7.

- for sub-test 17: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by the SS; and RLC SDUs on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.43.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:384 kbps / PS RAB / 20 ms TTI

18.1.2.43.2.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.43.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.43 for the downlink 20 ms TTI case.

18.1.2.43.2.3 Method of test

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (384 kbps, 20 ms)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A
	TF5, bits	N/A	N/A	N/A	12x336	N/A
	TF6, bits	N/A	N/A	N/A	16x336	N/A
	TF7, bits	N/A	N/A	N/A	20x336	N/A
	TF8, bits	N/A	N/A	N/A	24x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF5, TF0)
DL_TFC16	(TF1, TF0, TF0, TF5, TF0)
DL_TFC17	(TF2, TF1, TF1, TF5, TF0)
DL_TFC18	(TF0, TF0, TF0, TF6, TF0)
DL_TFC19	(TF1, TF0, TF0, TF6, TF0)
DL_TFC20	(TF2, TF1, TF1, TF6, TF0)
DL_TFC21	(TF0, TF0, TF0, TF7, TF0)
DL_TFC22	(TF1, TF0, TF0, TF7, TF0)
DL_TFC23	(TF2, TF1, TF1, TF7, TF0)
DL_TFC24	(TF0, TF0, TF0, TF8, TF0)
DL_TFC25	(TF1, TF0, TF0, TF8, TF0)
DL_TFC26	(TF2, TF1, TF1, TF8, TF0)
DL_TFC27	(TF0, TF0, TF0, TF0, TF1)
DL_TFC28	(TF1, TF0, TF0, TF0, TF1)
DL_TFC29	(TF2, TF1, TF1, TF0, TF1)
DL_TFC30	(TF0, TF0, TF0, TF1, TF1)
DL_TFC31	(TF1, TF0, TF0, TF1, TF1)
DL_TFC32	(TF2, TF1, TF1, TF1, TF1)
DL_TFC33	(TF0, TF0, TF0, TF2, TF1)
DL_TFC34	(TF1, TF0, TF0, TF2, TF1)
DL_TFC35	(TF2, TF1, TF1, TF2, TF1)
DL_TFC36	(TF0, TF0, TF0, TF3, TF1)
DL_TFC37	(TF1, TF0, TF0, TF3, TF1)
DL_TFC38	(TF2, TF1, TF1, TF3, TF1)
DL_TFC39	(TF0, TF0, TF0, TF4, TF1)
DL_TFC40	(TF1, TF0, TF0, TF4, TF1)
DL_TFC41	(TF2, TF1, TF1, TF4, TF1)
DL_TFC42	(TF0, TF0, TF0, TF5, TF1)
DL_TFC43	(TF1, TF0, TF0, TF5, TF1)
DL_TFC44	(TF2, TF1, TF1, TF5, TF1)
DL_TFC45	(TF0, TF0, TF0, TF6, TF1)
DL_TFC46	(TF1, TF0, TF0, TF6, TF1)
DL_TFC47	(TF2, TF1, TF1, TF6, TF1)
DL_TFC48	(TF0, TF0, TF0, TF7, TF1)
DL_TFC49	(TF1, TF0, TF0, TF7, TF1)
DL_TFC50	(TF2, TF1, TF1, TF7, TF1)
DL_TFC51	(TF0, TF0, TF0, TF8, TF1)
DL_TFC52	(TF1, TF0, TF0, TF8, TF1)
DL_TFC53	(TF2, TF1, TF1, TF8, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC28	UL_TFC1,UL_TFC16	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC29	UL_TFC2,UL_TFC17	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC30	UL_TFC3,UL_TFC19	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC3, UL_TFC15, UL_TFC18	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 312

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
4	DL_TFC4, DL_TFC31	UL_TFC4,UL_TFC19	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15,	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5, DL_TFC32	UL_TFC5,UL_TFC20	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC17, UL_TFC18 UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC6, DL_TFC33	UL_TFC6,UL_TFC21	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC6, UL_TFC15, UL_TFC21	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 632
7	DL_TFC7, DL_TFC34	UL_TFC7,UL_TFC22	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 632
8	DL_TFC8, DL_TFC35	UL_TFC8,UL_TFC23	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8, UL_TFC15, UL_TFC17, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632
9	DL_TFC9, DL_TFC36	UL_TFC9,UL_TFC24	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC9, UL_TFC15, UL_TFC24	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: No data RB6: No data RB7: No data RB8: 1272
10	DL_TFC10, DL_TFC37	UL_TFC10, UL_TFC25	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16, UL_TFC24 UL_TFC25	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: 39 RB6: No data RB7: No data RB8: 1272
11	DL_TFC11, DL_TFC38	UL_TFC11, UL_TFC26	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17, UL_TFC24, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: 81 RB6: 103 RB7: 60 RB8: 1272
12	DL_TFC12, DL_TFC39	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 2552

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
13	DL_TFC13, DL_TFC40	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 2552
14	DL_TFC14, DL_TFC41	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 2552
15	DL_TFC15, DL_TFC42	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 3832
16	DL_TFC16, DL_TFC43	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC27, , UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 3832
17	DL_TFC17, DL_TFC44	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 3832
18	DL_TFC18, DL_TFC45	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 5112
19	DL_TFC19, DL_TFC46	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 5112
20	DL_TFC20, DL_TFC47	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 5112
21	DL_TFC21, DL_TFC48	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 6392

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
22	DL_TFC22, DL_TFC49	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 6392
23	DL_TFC23, DL_TFC50	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 6392
24	DL_TFC24, DL_TFC51	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 7672
25	DL_TFC25, DL_TFC52	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 7672
26	DL_TFC26, DL_TFC53	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC27, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 7672

NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).

18.1.2.43.2.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.

- for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.

- for sub-test 3: an RLC SDU on RB8 having the content equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 4: an RLC SDU on RB5 and RB8 having the content equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB6 and RB7.

- for sub-test 5: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS.

- for sub-test 6: an RLC SDU on RB8 having the content equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 7: an RLC SDU on RB5 and RB8 having the content equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB6 and RB7.

- for sub-test 8: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS.

- for sub-test 9: an RLC SDU on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 10: an RLC SDU on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 11: an RLC SDU on RB8 having the content equal to the first 952 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 12: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 13: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 14: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 15: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 16: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 17: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 18: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 19: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 20: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 21: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 22: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 23: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 24: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 25: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 26: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.44 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:128 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.44.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:128 DL:2048 kbps / PS RAB / 10 ms TTI

18.1.2.44.1.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.44.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.44 for the downlink 10 ms TTI case.

18.1.2.44.1.3 Method of test

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (128 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (2048 kbps)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x656	0x148
	TF1, bits	1x39	1x103	1x60	1x656	1x148
	TF2, bits	1x81	N/A	N/A	2x656	N/A
	TF3, bits	N/A	N/A	N/A	4x656	N/A
	TF4, bits	N/A	N/A	N/A	8x656	N/A
	TF5, bits	N/A	N/A	N/A	12x656	N/A
	TF6, bits	N/A	N/A	N/A	16x656	N/A
	TF7, bits	N/A	N/A	N/A	20x656	N/A
	TF8, bits	N/A	N/A	N/A	24x656	N/A
	TF9, bits	N/A	N/A	N/A	28x656	N/A
	TF10, bits	N/A	N/A	N/A	32x656	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF5, TF0)
DL_TFC16	(TF1, TF0, TF0, TF5, TF0)
DL_TFC17	(TF2, TF1, TF1, TF5, TF0)
DL_TFC18	(TF0, TF0, TF0, TF6, TF0)
DL_TFC19	(TF1, TF0, TF0, TF6, TF0)
DL_TFC20	(TF2, TF1, TF1, TF6, TF0)
DL_TFC21	(TF0, TF0, TF0, TF7, TF0)
DL_TFC22	(TF1, TF0, TF0, TF7, TF0)
DL_TFC23	(TF2, TF1, TF1, TF7, TF0)
DL_TFC24	(TF0, TF0, TF0, TF8, TF0)
DL_TFC25	(TF1, TF0, TF0, TF8, TF0)
DL_TFC26	(TF2, TF1, TF1, TF8, TF0)
DL_TFC27	(TF0, TF0, TF0, TF9, TF0)
DL_TFC28	(TF1, TF0, TF0, TF9, TF0)
DL_TFC29	(TF2, TF1, TF1, TF9, TF0)
DL_TFC30	(TF0, TF0, TF0, TF10, TF0)
DL_TFC31	(TF1, TF0, TF0, TF10, TF0)
DL_TFC32	(TF2, TF1, TF1, TF10, TF0)
DL_TFC33	(TF0, TF0, TF0, TF0, TF1)
DL_TFC34	(TF1, TF0, TF0, TF0, TF1)
DL_TFC35	(TF2, TF1, TF1, TF0, TF1)
DL_TFC36	(TF0, TF0, TF0, TF1, TF1)
DL_TFC37	(TF1, TF0, TF0, TF1, TF1)
DL_TFC38	(TF2, TF1, TF1, TF1, TF1)
DL_TFC39	(TF0, TF0, TF0, TF2, TF1)
DL_TFC40	(TF1, TF0, TF0, TF2, TF1)
DL_TFC41	(TF2, TF1, TF1, TF2, TF1)
DL_TFC42	(TF0, TF0, TF0, TF3, TF1)
DL_TFC43	(TF1, TF0, TF0, TF3, TF1)
DL_TFC44	(TF2, TF1, TF1, TF3, TF1)
DL_TFC45	(TF0, TF0, TF0, TF4, TF1)
DL_TFC46	(TF1, TF0, TF0, TF4, TF1)
DL_TFC47	(TF2, TF1, TF1, TF4, TF1)
DL_TFC48	(TF0, TF0, TF0, TF5, TF1)
DL_TFC49	(TF1, TF0, TF0, TF5, TF1)
DL_TFC50	(TF2, TF1, TF1, TF5, TF1)
DL_TFC51	(TF0, TF0, TF0, TF6, TF1)
DL_TFC52	(TF1, TF0, TF0, TF6, TF1)
DL_TFC53	(TF2, TF1, TF1, TF6, TF1)
DL_TFC54	(TF0, TF0, TF0, TF7, TF1)
DL_TFC55	(TF1, TF0, TF0, TF7, TF1)
DL_TFC56	(TF2, TF1, TF1, TF7, TF1)
DL_TFC57	(TF0, TF0, TF0, TF8, TF1)
DL_TFC58	(TF1, TF0, TF0, TF8, TF1)
DL_TFC59	(TF2, TF1, TF1, TF8, TF1)
DL_TFC60	(TF0, TF0, TF0, TF9, TF1)
DL_TFC61	(TF1, TF0, TF0, TF9, TF1)
DL_TFC62	(TF2, TF1, TF1, TF9, TF1)
DL_TFC63	(TF0, TF0, TF0, TF10, TF1)
DL_TFC64	(TF1, TF0, TF0, TF10, TF1)
DL_TFC65	(TF2, TF1, TF1, TF10, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC34	UL_TFC1, UL_TFC16	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC35	UL_TFC2, UL_TFC17	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC36	UL_TFC3, UL_TFC18	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC3, UL_TFC15, UL_TFC18	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 632
4	DL_TFC4, DL_TFC37	UL_TFC4, UL_TFC19	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 632
5	DL_TFC5, DL_TFC38	UL_TFC5, UL_TFC20	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC17, UL_TFC18, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632
6	DL_TFC6, DL_TFC39	UL_TFC6, UL_TFC21	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC6, UL_TFC15, UL_TFC21	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 1272
7	DL_TFC7, DL_TFC40	UL_TFC7, UL_TFC22	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 1272
8	DL_TFC8, DL_TFC41	UL_TFC8, UL_TFC23	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8, UL_TFC15, UL_TFC17, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 1272
9	DL_TFC9, DL_TFC42	UL_TFC9, UL_TFC24	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC9, UL_TFC15, UL_TFC24	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 2552
10	DL_TFC10, DL_TFC43	UL_TFC10, UL_TFC25	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16, UL_TFC24, UL_TFC25	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 2552

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
11	DL_TFC11, DL_TFC44	UL_TFC11, UL_TFC26	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17, UL_TFC24, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 2552
12	DL_TFC12, DL_TFC45	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 5112
13	DL_TFC13, DL_TFC46	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 5112
14	DL_TFC14, DL_TFC47	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27 UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 5112
15	DL_TFC15, DL_TFC48	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 7672
16	DL_TFC16, DL_TFC49	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 7672
17	DL_TFC17, DL_TFC50	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 7672
18	DL_TFC18, DL_TFC51	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 10232
19	DL_TFC19, DL_TFC52	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 10232

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
20	DL_TFC20, DL_TFC53	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 10232
21	DL_TFC21, DL_TFC54	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 12792
22	DL_TFC22, DL_TFC55	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 12792
23	DL_TFC23, DL_TFC56	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 12792
24	DL_TFC24, DL_TFC57	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 15352
25	DL_TFC25, DL_TFC58	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 15352
26	DL_TFC26, DL_TFC59	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 15352
27	DL_TFC27, DL_TFC60	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 17912
28	DL_TFC28, DL_TFC61	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 17912

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
29	DL_TFC29, DL_TFC62	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27 UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 17912
30	DL_TFC30, DL_TFC63	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 20472
31	DL_TFC31, DL_TFC64	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 20472
32	DL_TFC32, DL_TFC65	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC33, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27 UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 20472
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the uplink TTI for RB8 is 20 ms while the downlink TTI is 10 ms then, to achieve continuous data transmission in uplink the size of the uplink RLC SDU has been set such that it will be transmitted over each TTI, i.e. the uplink TFS size minus 8 bits (size of 7 bit length indicator and expansion bit).						

18.1.2.44.1.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.

- for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.

- for sub-test 3: an RLC SDU on RB8 having the content equal to the first 312 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 4: an RLC SDU on RB8 having the content equal to the first 312 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 5: an RLC SDU on RB8 having the content equal to the first 312 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 6: an RLC SDU on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 7: an RLC SDU on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 8: an RLC SDU on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 9: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 10: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 11: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 12: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 13: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 14: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 15: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 16: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 17: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 18: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 19: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 20: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 21: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 22: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 23: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 24: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 25: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 26: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 27: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 28: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 29: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 30: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 31: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 32: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.44.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:128 DL:2048 kbps / PS RAB / 20 ms TTI

18.1.2.44.2.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.44.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.44 for the downlink 20 ms TTI case.

18.1.2.44.2.3 Method of test

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (128 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (2048 kbps)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x656	0x148
	TF1, bits	1x39	1x103	1x60	1x656	1x148
	TF2, bits	1x81	N/A	N/A	2x656	N/A
	TF3, bits	N/A	N/A	N/A	4x656	N/A
	TF4, bits	N/A	N/A	N/A	8x656	N/A
	TF5, bits	N/A	N/A	N/A	12x656	N/A
	TF6, bits	N/A	N/A	N/A	16x656	N/A
	TF7, bits	N/A	N/A	N/A	20x656	N/A
	TF8, bits	N/A	N/A	N/A	24x656	N/A
	TF9, bits	N/A	N/A	N/A	28x656	N/A
	TF10, bits	N/A	N/A	N/A	32x656	N/A
	TF11, bits	N/A	N/A	N/A	36x656	N/A
	TF12, bits	N/A	N/A	N/A	40x656	N/A
	TF13, bits	N/A	N/A	N/A	44x656	N/A
	TF14, bits	N/A	N/A	N/A	48x656	N/A
	TF15, bits	N/A	N/A	N/A	52x656	N/A
	TF16, bits	N/A	N/A	N/A	56x656	N/A
	TF17, bits	N/A	N/A	N/A	60x656	N/A
	TF18, bits	N/A	N/A	N/A	64x656	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF5, TF0)
DL_TFC16	(TF1, TF0, TF0, TF5, TF0)
DL_TFC17	(TF2, TF1, TF1, TF5, TF0)
DL_TFC18	(TF0, TF0, TF0, TF6, TF0)
DL_TFC19	(TF1, TF0, TF0, TF6, TF0)
DL_TFC20	(TF2, TF1, TF1, TF6, TF0)
DL_TFC21	(TF0, TF0, TF0, TF7, TF0)
DL_TFC22	(TF1, TF0, TF0, TF7, TF0)
DL_TFC23	(TF2, TF1, TF1, TF7, TF0)
DL_TFC24	(TF0, TF0, TF0, TF8, TF0)
DL_TFC25	(TF1, TF0, TF0, TF8, TF0)
DL_TFC26	(TF2, TF1, TF1, TF8, TF0)
DL_TFC27	(TF0, TF0, TF0, TF9, TF0)
DL_TFC28	(TF1, TF0, TF0, TF9, TF0)
DL_TFC29	(TF2, TF1, TF1, TF9, TF0)
DL_TFC30	(TF0, TF0, TF0, TF10, TF0)
DL_TFC31	(TF1, TF0, TF0, TF10, TF0)
DL_TFC32	(TF2, TF1, TF1, TF10, TF0)
DL_TFC33	(TF0, TF0, TF0, TF11, TF0)
DL_TFC34	(TF1, TF0, TF0, TF11, TF0)
DL_TFC35	(TF2, TF1, TF1, TF11, TF0)
DL_TFC36	(TF0, TF0, TF0, TF12, TF0)
DL_TFC37	(TF1, TF0, TF0, TF12, TF0)
DL_TFC38	(TF2, TF1, TF1, TF12, TF0)
DL_TFC39	(TF0, TF0, TF0, TF13, TF0)
DL_TFC40	(TF1, TF0, TF0, TF13, TF0)
DL_TFC41	(TF2, TF1, TF1, TF13, TF0)
DL_TFC42	(TF0, TF0, TF0, TF14, TF0)
DL_TFC43	(TF1, TF0, TF0, TF14, TF0)
DL_TFC44	(TF2, TF1, TF1, TF14, TF0)
DL_TFC45	(TF0, TF0, TF0, TF15, TF0)
DL_TFC46	(TF1, TF0, TF0, TF15, TF0)
DL_TFC47	(TF2, TF1, TF1, TF15, TF0)
DL_TFC48	(TF0, TF0, TF0, TF16, TF0)
DL_TFC49	(TF1, TF0, TF0, TF16, TF0)
DL_TFC50	(TF2, TF1, TF1, TF16, TF0)
DL_TFC51	(TF0, TF0, TF0, TF17, TF0)
DL_TFC52	(TF1, TF0, TF0, TF17, TF0)
DL_TFC53	(TF2, TF1, TF1, TF17, TF0)
DL_TFC54	(TF0, TF0, TF0, TF18, TF0)
DL_TFC55	(TF1, TF0, TF0, TF18, TF0)
DL_TFC56	(TF2, TF1, TF1, TF18, TF0)
DL_TFC57	(TF0, TF0, TF0, TF0, TF1)
DL_TFC58	(TF1, TF0, TF0, TF0, TF1)
DL_TFC59	(TF2, TF1, TF1, TF0, TF1)
DL_TFC60	(TF0, TF0, TF0, TF1, TF1)

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC61	(TF1, TF0, TF0, TF1, TF1)
DL_TFC61	(TF2, TF1, TF1, TF1, TF1)
DL_TFC63	(TF0, TF0, TF0, TF2, TF1)
DL_TFC64	(TF1, TF0, TF0, TF2, TF1)
DL_TFC65	(TF2, TF1, TF1, TF2, TF1)
DL_TFC66	(TF0, TF0, TF0, TF3, TF1)
DL_TFC67	(TF1, TF0, TF0, TF3, TF1)
DL_TFC68	(TF2, TF1, TF1, TF3, TF1)
DL_TFC69	(TF0, TF0, TF0, TF4, TF1)
DL_TFC70	(TF1, TF0, TF0, TF4, TF1)
DL_TFC71	(TF2, TF1, TF1, TF4, TF1)
DL_TFC72	(TF0, TF0, TF0, TF5, TF1)
DL_TFC73	(TF1, TF0, TF0, TF5, TF1)
DL_TFC74	(TF2, TF1, TF1, TF5, TF1)
DL_TFC75	(TF0, TF0, TF0, TF6, TF1)
DL_TFC76	(TF1, TF0, TF0, TF6, TF1)
DL_TFC77	(TF2, TF1, TF1, TF6, TF1)
DL_TFC78	(TF0, TF0, TF0, TF7, TF1)
DL_TFC79	(TF1, TF0, TF0, TF7, TF1)
DL_TFC80	(TF2, TF1, TF1, TF7, TF1)
DL_TFC81	(TF0, TF0, TF0, TF8, TF1)
DL_TFC82	(TF1, TF0, TF0, TF8, TF1)
DL_TFC83	(TF2, TF1, TF1, TF8, TF1)
DL_TFC84	(TF0, TF0, TF0, TF9, TF1)
DL_TFC85	(TF1, TF0, TF0, TF9, TF1)
DL_TFC86	(TF2, TF1, TF1, TF9, TF1)
DL_TFC87	(TF0, TF0, TF0, TF10, TF1)
DL_TFC88	(TF1, TF0, TF0, TF10, TF1)
DL_TFC89	(TF2, TF1, TF1, TF10, TF1)
DL_TFC90	(TF0, TF0, TF0, TF11, TF1)
DL_TFC91	(TF1, TF0, TF0, TF11, TF1)
DL_TFC92	(TF2, TF1, TF1, TF11, TF1)
DL_TFC93	(TF0, TF0, TF0, TF12, TF1)
DL_TFC94	(TF1, TF0, TF0, TF12, TF1)
DL_TFC95	(TF2, TF1, TF1, TF12, TF1)
DL_TFC96	(TF0, TF0, TF0, TF13, TF1)
DL_TFC97	(TF1, TF0, TF0, TF13, TF1)
DL_TFC98	(TF2, TF1, TF1, TF13, TF1)
DL_TFC99	(TF0, TF0, TF0, TF14, TF1)
DL_TFC100	(TF1, TF0, TF0, TF14, TF1)
DL_TFC101	(TF2, TF1, TF1, TF14, TF1)
DL_TFC102	(TF0, TF0, TF0, TF15, TF1)
DL_TFC103	(TF1, TF0, TF0, TF15, TF1)
DL_TFC104	(TF2, TF1, TF1, TF15, TF1)
DL_TFC105	(TF0, TF0, TF0, TF16, TF1)
DL_TFC106	(TF1, TF0, TF0, TF16, TF1)
DL_TFC107	(TF2, TF1, TF1, TF16, TF1)
DL_TFC108	(TF0, TF0, TF0, TF17, TF1)
DL_TFC109	(TF1, TF0, TF0, TF17, TF1)
DL_TFC110	(TF2, TF1, TF1, TF17, TF1)
DL_TFC111	(TF0, TF0, TF0, TF18, TF1)
DL_TFC112	(TF1, TF0, TF0, TF18, TF1)
DL_TFC113	(TF2, TF1, TF1, TF18, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC58	UL_TFC1, UL_TFC16	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC59	UL_TFC2, UL_TFC17	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC60	UL_TFC3, UL_TFC18	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC3, UL_TFC15, UL_TFC18	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 632
4	DL_TFC4, DL_TFC61	UL_TFC4, UL_TFC19	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC16, UL_TFC18 UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 632
5	DL_TFC5, DL_TFC62	UL_TFC5, UL_TFC20	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC17, UL_TFC18, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 632
6	DL_TFC6, DL_TFC63	UL_TFC6, UL_TFC21	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC6, UL_TFC15, UL_TFC21	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 1272
7	DL_TFC7, DL_TFC64	UL_TFC7, UL_TFC22	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 1272
8	DL_TFC8, DL_TFC65	UL_TFC8, UL_TFC23	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8, UL_TFC15, UL_TFC17, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 1272
9	DL_TFC9, DL_TFC66	UL_TFC9, UL_TFC24	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC9, UL_TFC15, UL_TFC24	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 2552
10	DL_TFC10, DL_TFC67	UL_TFC10, UL_TFC25	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16, UL_TFC24, UL_TFC25	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 2552

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
11	DL_TFC11, DL_TFC68	UL_TFC11, UL_TFC26	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC9 UL_TFC11, UL_TFC15, UL_TFC17, UL_TFC24, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 2552
12	DL_TFC12, DL_TFC69	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 5112
13	DL_TFC13, DL_TFC70	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 5112
14	DL_TFC14, DL_TFC71	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 5112
15	DL_TFC15, DL_TFC72	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 7672
16	DL_TFC16, DL_TFC73	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 7672
17	DL_TFC17, DL_TFC74	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27 UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 7672
18	DL_TFC18, DL_TFC75	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 10232
19	DL_TFC19, DL_TFC76	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 10232

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
20	DL_TFC20, DL_TFC77	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 10232
21	DL_TFC21, DL_TFC78	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 12792
22	DL_TFC22, DL_TFC79	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 12792
23	DL_TFC23, DL_TFC80	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 12792
24	DL_TFC24, DL_TFC81	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 15352
25	DL_TFC25, DL_TFC82	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 15352
26	DL_TFC26, DL_TFC83	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 15352
27	DL_TFC27, DL_TFC84	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 17912
28	DL_TFC28, DL_TFC85	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 17912

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
29	DL_TFC29, DL_TFC86	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 17912
30	DL_TFC30, DL_TFC87	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 20472
31	DL_TFC31, DL_TFC88	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 20472
32	DL_TFC32, DL_TFC89	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 20472
33	DL_TFC33, DL_TFC90	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 23032
34	DL_TFC34, DL_TFC91	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 23032
35	DL_TFC35, DL_TFC92	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 23032
36	DL_TFC36, DL_TFC93	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 25592
37	DL_TFC37, DL_TFC94	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 25592

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
38	DL_TFC38, DL_TFC95	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 25592
39	DL_TFC39, DL_TFC96	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 28152
40	DL_TFC40, DL_TFC97	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 28152
41	DL_TFC41, DL_TFC98	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 28152
42	DL_TFC42, DL_TFC99	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 30712
43	DL_TFC43, DL_TFC100	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 30712
44	DL_TFC44, DL_TFC101	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 30712
45	DL_TFC45, DL_TFC102	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 33272
46	DL_TFC46, DL_TFC103	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 33272

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
47	DL_TFC47, DL_TFC104	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 33272
48	DL_TFC48, DL_TFC105	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 35832
49	DL_TFC49, DL_TFC106	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 35832
50	DL_TFC50, DL_TFC107	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 35832
51	DL_TFC51, DL_TFC108	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 38392
52	DL_TFC52, DL_TFC109	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 38392
53	DL_TFC53, DL_TFC110	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 38392
54	DL_TFC54, DL_TFC111	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 40952
55	DL_TFC55, DL_TFC112	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 40952

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
56	DL_TFC56, DL_TFC113	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC57, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 40952
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).						

18.1.2.44.2.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 3: an RLC SDU on RB8 having the content equal to the first 312 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4: an RLC SDU on RB8 having the content equal to the first 312 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 5: an RLC SDU on RB8 having the content equal to the first 312 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 6: an RLC SDU on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 7: an RLC SDU on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 8: an RLC SDU on RB8 having the content equal to the first 632 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 9: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 10: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 11: an RLC SDU on RB8 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 12: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 13: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 14: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 15: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 16: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 17: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 18: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 19: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 20: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 21: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 22: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 23: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 24: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 25: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 26: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 27: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 28: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 29: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 30: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 31: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 32: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 33: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 34: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 35: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 36: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 37: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 38: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 39: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 40: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 41: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 42: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 43: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 44: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 45: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 46: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 47: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 48: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 49: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 50: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 51: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 52: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 53: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

- for sub-test 54: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 55: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

- for sub-test 56: an RLC SDU on RB8 having the content equal to the first 2552 bits of the test data sent by the SS in downlink; an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.45 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / unknown / UL:57.6 DL:57.6 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.45.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.45.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.45.

18.1.2.45.3 Method of test

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (57.6 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x576	0x148
	TF1, bits	1x39	1x103	1x60	1x576	1x148
	TF2, bits	1x81	N/A	N/A	2x576	N/A
	TF3, bits	N/A	N/A	N/A	3x576	N/A
	TF4, bits	N/A	N/A	N/A	4x576	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (57.6 kbps)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x576	0x148
	TF1, bits	1x39	1x103	1x60	1x576	1x148
	TF2, bits	1x81	N/A	N/A	2x576	N/A
	TF3, bits	N/A	N/A	N/A	3x576	N/A
	TF4, bits	N/A	N/A	N/A	4x576	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF2, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC16	UL_TFC1, DL_TFC16	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 576	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC17	UL_TFC2, DL_TFC17	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 576	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC18	UL_TFC3,UL_TFC18	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC3, UL_TFC15, UL_TFC18	RB5: 39 RB6: 103 RB7: 60 RB8: 576	RB5: No data RB6: No data RB7: No data RB8: 576
4	DL_TFC4, DL_TFC19	UL_TFC4, DL_TFC19	DL_TFC0, DL_TFC15, , UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC3 UL_TFC4, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 576	RB5: 39 RB6: No data RB7: No data RB8: 576
5	DL_TFC5, DL_TFC20	UL_TFC5, DL_TFC20	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC17, UL_TFC18, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 576	RB5: 81 RB6: 103 RB7: 60 RB8: 576
6	DL_TFC6, DL_TFC21	UL_TFC6, DL_TFC21	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC6, UL_TFC15, UL_TFC21	RB5: 39 RB6: 103 RB7: 60 RB8: 1152	RB5: No data RB6: No data RB7: No data RB8: 1152
7	DL_TFC7, DL_TFC22	UL_TFC7, DL_TFC22	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 1152	RB5: 39 RB6: No data RB7: No data RB8: 1152
8	DL_TFC8, DL_TFC23	UL_TFC8, DL_TFC23	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8, UL_TFC15, UL_TFC17, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 1152	RB5: 81 RB6: 103 RB7: 60 RB8: 1152
9	DL_TFC9, DL_TFC24	UL_TFC9, DL_TFC24	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC9, UL_TFC15, UL_TFC24	RB5: 39 RB6: 103 RB7: 60 RB8: 1728	RB5: No data RB6: No data RB7: No data RB8: 1728
10	DL_TFC10, DL_TFC25	UL_TFC10, UL_TFC25	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16, UL_TFC24, UL_TFC25	RB5: 39 RB6: 103 RB7: 60 RB8: 1728	RB5: 39 RB6: No data RB7: No data RB8: 1728

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
11	DL_TFC11, DL_TFC26	UL_TFC11, DL_TFC26	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17, UL_TFC24, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 1728	RB5: 81 RB6: 103 RB7: 60 RB8: 1728
12	DL_TFC12, DL_TFC27	UL_TFC12, DL_TFC27	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC26	RB5: 39 RB6: 103 RB7: 60 RB8: 2304	RB5: No data RB6: No data RB7: No data RB8: 2304
13	DL_TFC13, DL_TFC28	UL_TFC13, DL_TFC28	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 2304	RB5: 39 RB6: No data RB7: No data RB8: 2304
14	DL_TFC14, DL_TFC29	UL_TFC14, DL_TFC29	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 2304	RB5: 81 RB6: 103 RB7: 60 RB8: 2304
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TFS size under test .						

18.1.2.45.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified in the actual sub test.

3. At step 15 the UE shall return

   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.

   - for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.

   - for sub-test 3, 6, 9 and 12: an RLC SDU on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.

   - for sub-test 4, 7, 10 and 13: an RLC SDU on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.

   - for sub-test 5, 8, 11 and 14: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.46 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / unknown / UL:0 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.46.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.46.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.46.

To be able to test the downlink radio bearer using the UE loopback function for the reference radio bearer UL:0 DL: 64 kbps,, the reference radio bearer configuration according to TS 34.108, clause 6.11.5.4.1.15.1 (Streaming/unknown/UL:14.4 kbps) is used in uplink.

18.1.2.46.3 Method of test

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (14.4 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x576	0x148
	TF1, bits	1x39	1x103	1x60	1x576	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF0, TF0, TF1)
UL_TFC8	(TF2, TF1, TF1, TF0, TF1)
UL_TFC9	(TF0, TF0, TF0, TF1, TF1)
UL_TFC10	(TF1, TF0, TF0, TF1, TF1)
UL_TFC11	(TF2, TF1, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x320	0x148
	TF1, bits	1x39	1x103	1x60	1x320	1x148
	TF2, bits	1x81	N/A	N/A	2x320	N/A
	TF3, bits	N/A	N/A	N/A	4x320	N/A
	TF4, bits	N/A	N/A	N/A	8x320	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF2, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note 1)	Test data size (bits) (note 1)
1	DL_TFC1, DL_TFC16	UL_TFC1, UL_TFC7	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7	RB5: 39 RB6: 103 RB7: 60 RB8: 576	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC17	UL_TFC2, UL_TFC8	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 81 RB6: 103 RB7: 60 RB8: 576	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC18	UL_TFC3, UL_TFC9	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: 576	RB5: No data RB6: No data RB7: No data RB8: 320 (note 2)
4	DL_TFC4, DL_TFC19	UL_TFC4, UL_TFC10	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 576	RB5: 39 RB6: No data RB7: No data RB8: 320 (note 2)
5	DL_TFC5, DL_TFC20	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 576	RB5: 81 RB6: 103 RB7: 60 RB8: 320 (note 2)
6	DL_TFC6, DL_TFC21	UL_TFC3, UL_TFC9	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: 576	RB5: No data RB6: No data RB7: No data RB8: 640 (note 3)
7	DL_TFC7, DL_TFC22	UL_TFC4, UL_TFC10	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 576	RB5: 39 RB6: No data RB7: No data RB8: 640 (note 3)
8	DL_TFC8, DL_TFC23	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 576	RB5: 81 RB6: 103 RB7: 60 RB8: 640 (note 3)
9	DL_TFC9, DL_TFC24	UL_TFC3, UL_TFC9	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: 576	RB5: No data RB6: No data RB7: No data RB8: 1280 (note 4)

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note 1)	Test data size (bits) (note 1)
10	DL_TFC10, DL_TFC25	UL_TFC4, UL_TFC10	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9 UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 576	RB5: 39 RB6: No data RB7: No data RB8: 1280 (note 4)
11	DL_TFC11, DL_TFC26	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 576	RB5: 81 RB6: 103 RB7: 60 RB8: 1280 (note 4)
12	DL_TFC12, DL_TFC27	UL_TFC3 UL_TFC9	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: 576	RB5: No data RB6: No data RB7: No data RB8: 2560 (note 5)
13	DL_TFC13, DL_TFC28	UL_TFC4, UL_TFC10	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 576	RB5: 39 RB6: No data RB7: No data RB8: 2560 (note 5)
14	DL_TFC14, DL_TFC29	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 576	RB5: 81 RB6: 103 RB7: 60 RB8: 2560 (note 5)

NOTE 1: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
NOTE 2: RB8: SS is using a DL RLC SDU with 320 bits as test data (=DL RLC PDU size for DL/TF1). UE will return one RLC PDU. SS creates an UL RLC SDU from the first 320 bits of the received RLC PDU.
NOTE 3: RB8: SS is using a DL RLC SDU size of 640 bits as test data (=DL RLC PDU size for DL/TF2). UE will return one RLC PDU. SS creates an UL RLC SDU from the received RLC PDU.
NOTE 4: RB8: SS is using a DL RLC SDU size of 1280 bits as test data (=DL RLC PDU size for DL/TF3). UE will return one RLC PDU. SS creates an UL RLC SDU from the received RLC PDU.
NOTE 5: RB8: SS is using a DL RLC SDU size of 2560 bits as test data (=DL RLC PDU size for DL/TF4). UE will return one RLC PDU. SS creates an UL RLC SDU from the received RLC PDU.
As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TFS size under test

18.1.2.46.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified in the actual sub test.

3. At step 15 the UE shall return

- for sub-test 3, 6, 9 and 12: no data on RB5, RB6 and RB7.

- for sub-test 1, 4, 7, 10 and 13: an RLC SDU on RB5 having the same content as sent by the SS; and no data shall be received on RB6 or RB7.
- for sub-test 2, 5, 8, 11 and 14: an RLC SDU on each of RB5, RB6 and RB7 having the same content as sent by the SS.
- for sub-test 1 to 2: no data on RB8.
- for sub-test 3 to 5: an RLC SDU on RB8 having the same content as sent by the SS.
- for sub-test 6 to 14: an RLC SDU on RB5 having the same content as the first 576 bits of the RLC SDU sent by the SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.47 Void

18.1.2.48 Void

18.1.2.49 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.49.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI

18.1.2.49.1.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.49.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.49 for the 20 ms TTI case.

18.1.2.49.1.3 Method of test

See 18.1.1.2 for test procedure.

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB8):

Uplink RLC TM RLC Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x640	0x148
	TF1, bits	1x39	1x103	1x60	2x640	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF0, TF0, TF1)
UL_TFC8	(TF2, TF1, TF1, TF0, TF1)
UL_TFC9	(TF0, TF0, TF0, TF1, TF1)
UL_TFC10	(TF1, TF0, TF0, TF1, TF1)
UL_TFC11	(TF2, TF1, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x640	0x148
	TF1, bits	1x39	1x103	1x60	2x640	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF0, TF1)
DL_TFC7	(TF1, TF0, TF0, TF0, TF1)
DL_TFC8	(TF2, TF1, TF1, TF0, TF1)
DL_TFC9	(TF0, TF0, TF0, TF1, TF1)
DL_TFC10	(TF1, TF0, TF0, TF1, TF1)
DL_TFC11	(TF2, TF1, TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC7	UL_TFC1, DL_TFC7	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7	RB5: 39 RB6: 103 RB7: 60 RB8: 640	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC8	UL_TFC2, DL_TFC8	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 81 RB6: 103 RB7: 60 RB8: 640	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC9	UL_TFC3, DL_TFC9	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: 640	RB5: No data RB6: No data RB7: No data RB8: 2x640
4	DL_TFC4, DL_TFC10	UL_TFC4, UL_TFC10	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 640	RB5: 39 RB6: No data RB7: No data RB8: 2x640
5	DL_TFC5, DL_TFC11	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 640	RB5: 81 RB6: 103 RB7: 60 RB8: 2x640
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.1.1.1 for test procedure.

18.1.2.49.1.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 15a and step 15b the UE shall return

   - for sub-test 1: RLC SDUs on RB5 having the same content as sent by the SS; and no data shall be received on RB6, RB7 and RB8.

   - for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by the SS; and no data shall be received on RB8.

   - for sub-test 3: RLC SDUs on RB8 having the same content as sent by the SS; and no data shall be received on RB5, RB6 and RB7.

   - for sub-test 4: RLC SDUs on RB5 and RB8 having the same content as sent by the SS; and no data shall be received on RB6 and RB7.

   - for sub-test 5: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by the SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.49.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI

18.1.2.49.2.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.49.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.49 for the 40 ms TTI case.

18.1.2.49.2.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB8):

Uplink RLC TM RLC Segmentation indication Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard	 FALSE 100ms
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x640	0x148
	TF1, bits	1x39	1x103	1x60	4x640	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF0, TF0, TF1)
UL_TFC8	(TF2, TF1, TF1, TF0, TF1)
UL_TFC9	(TF0, TF0, TF0, TF1, TF1)
UL_TFC10	(TF1, TF0, TF0, TF1, TF1)
UL_TFC11	(TF2, TF1, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x640	0x148
	TF1, bits	1x39	1x103	1x60	4x640	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF0, TF1)
DL_TFC7	(TF1, TF0, TF0, TF0, TF1)
DL_TFC8	(TF2, TF1, TF1, TF0, TF1)
DL_TFC9	(TF0, TF0, TF0, TF1, TF1)
DL_TFC10	(TF1, TF0, TF0, TF1, TF1)
DL_TFC11	(TF2, TF1, TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC7	UL_TFC1, DL_TFC7	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7	RB5: 39 RB6: 103 RB7: 60 RB8: 640	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC8	UL_TFC2, DL_TFC8	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 81 RB6: 103 RB7: 60 RB8: 640	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC9	UL_TFC3, DL_TFC9	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: 640	RB5: No data RB6: No data RB7: No data RB8: 4x640
4	DL_TFC4, DL_TFC10	UL_TFC4, DL_TFC10	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 640	RB5: 39 RB6: No data RB7: No data RB8: 4x640
5	DL_TFC5, DL_TFC11	UL_TFC5, DL_TFC11	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 640	RB5: 81 RB6: 103 RB7: 60 RB8: 4x640
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TB size.						

18.1.2.49.2.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual subtest.

3. At step 15 the UE shall return

   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
   - for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
   - for sub-test 3: four RLC SDUs on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
   - for sub-test 4: an RLC SDU on RB5 and four RLC SDUs on RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
   - - for sub-test 5: an RLC SDU on RB5, RB6 and RB7; and four RLC SDUs on RB8 having the same content as sent by SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.50 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.50.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 20 ms TTI

18.1.2.50.1.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.50.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.50 for the 20 ms TTI case.

18.1.2.50.1.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5 and RB6):

	RB5 (64 kbps)	**RB6 (64 kbps)**
Uplink RLC		
TM RLC		
Segmentation indication	FALSE	FALSE
Transmission RLC discard		
CHOICE *SDU Discard Mode*		
Timer based no explicit		
Timer_discard	100ms	100ms
Downlink RLC		
TM RLC		
Segmentation indication	FALSE	FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .		

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (64 kbps)	RB6 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x640	0x148
	TF1, bits	2x640	2x640	1x148
	TF2, bits	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF0, TF1, TF0)
UL_TFC3	(TF1, TF1, TF0)
UL_TFC4	(TF0, TF0, TF1)
UL_TFC5	(TF1, TF0, TF1)
UL_TFC6	(TF0, TF1, TF1)
UL_TFC7	(TF1, TF1, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps)	RB6 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x640	0x148
	TF1, bits	2x640	2x640	1x148
	TF2, bits	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF0, TF1, TF0)
DL_TFC3	(TF1, TF1, TF0)
DL_TFC4	(TF0, TF0, TF1)
DL_TFC5	(TF1, TF0, TF1)
DL_TFC6	(TF0, TF1, TF1)
DL_TFC7	(TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC5	UL_TFC1, DL_TFC5	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5	RB5: 640 RB6: 640	RB5: 2x640 RB6: No data
2	DL_TFC2, DL_TFC6	UL_TFC2, DL_TFC6	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC2, UL_TFC4, UL_TFC6	RB5: 640 RB6: 640	RB5: No data RB6: 2x640
3	DL_TFC3, DL_TFC7	UL_TFC3, DL_TFC7	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 640 RB6: 640	RB5: 2x640 RB6: 2x640
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. As the TTI for RB5 and RB6 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TB size.						

18.1.2.50.1.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual subtest.

3. At step 15 the UE shall return

   - for sub-test 1: two RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6.

   - for sub-test 2: two RLC SDUs on RB6 having the same content as sent by SS; and no data shall be received on RB5.

   - for sub-test 3: two RLC SDUs on RB5 and RB6 having the same content as sent by SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.50.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 40 ms TTI

18.1.2.50.2.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.50.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.50 for the 40 ms TTI case.

18.1.2.50.2.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5 and RB6):

	RB5 (64 kbps)	RB6 (64 kbps)
Uplink RLC TM RLC Segmentation indication Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard	 FALSE 100ms	 FALSE 100ms
Downlink RLC TM RLC Segmentation indication	 FALSE	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .		

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (64 kbps)	RB6 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x640	0x148
	TF1, bits	4x640	4x640	1x148
	TF2, bits	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF0, TF1, TF0)
UL_TFC3	(TF1, TF1, TF0)
UL_TFC4	(TF0, TF0, TF1)
UL_TFC5	(TF1, TF0, TF1)
UL_TFC6	(TF0, TF1, TF1)
UL_TFC7	(TF1, TF1, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps)	RB6 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x640	0x148
	TF1, bits	4x640	4x640	1x148
	TF2, bits	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF0, TF1, TF0)
DL_TFC3	(TF1, TF1, TF0)
DL_TFC4	(TF0, TF0, TF1)
DL_TFC5	(TF1, TF0, TF1)
DL_TFC6	(TF0, TF1, TF1)
DL_TFC7	(TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC5	UL_TFC1, DL_TFC5	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5	RB5: 640 RB6: 640	RB5: 4x640 RB6: No data
2	DL_TFC2, DL_TFC6	UL_TFC2, DL_TFC6	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC2, UL_TFC4, UL_TFC6	RB5: 640 RB6: 640	RB5: No data RB6: 4x640
3	DL_TFC3, DL_TFC7	UL_TFC3, DL_TFC7	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 640 RB6: 640	RB5: 4x640 RB6: 4x640
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. As the TTI for RB5 and RB6 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TB size.						

18.1.2.50.2.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual subtest.

3. At step 15 the UE shall return

   - for sub-test 1: four RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6.

   - for sub-test 2: four RLC SDUs on RB6 having the same content as sent by SS; and no data shall be received on RB5.

   - for sub-test 3: four RLC SDUs on RB5 and RB6 having the same content as sent by SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.51 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.51.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI + Interactive or background / UL:64 DL:64 kbps / PS RAB

18.1.2.51.1.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.51.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.51 for the 20 ms TTI case.

18.1.2.51.1.3 Method of test

See 18.1.1.2 for test procedure.

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv. 64 kbps)
Uplink RLC TM RLC Segmentation indication Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard	 FALSE 100ms
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

Uplink TFS:

	TFI	**RB5 (Conv. 64 kbps, 20 ms TTI)**	**RB6 (I/B 64 kbps, 20 ms TTI)**	**DCCH**
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

Uplink TFCS:

TFCI	**(RB5, RB6, DCCH)**
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF0, TF2, TF0)
UL_TFC3	(TF0, TF3, TF0)
UL_TFC4	(TF0, TF4, TF0)
UL_TFC5	(TF1, TF0, TF0)
UL_TFC6	(TF1, TF1, TF0)
UL_TFC7	(TF1, TF2, TF0)
UL_TFC8	(TF1, TF3, TF0)
UL_TFC9	(TF1, TF4, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF0, TF1, TF1)
UL_TFC12	(TF0, TF2, TF1)
UL_TFC13	(TF0, TF3, TF1)
UL_TFC14	(TF0, TF4, TF1)
UL_TFC15	(TF1, TF0, TF1)
UL_TFC16	(TF1, TF1, TF1)
UL_TFC17	(TF1, TF2, TF1)
UL_TFC18	(TF1, TF3, TF1)
UL_TFC19	(TF1, TF4, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps, 20 ms TTI)	RB6 (I/B 64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF0, TF2, TF0)
DL_TFC3	(TF0, TF3, TF0)
DL_TFC4	(TF0, TF4, TF0)
DL_TFC5	(TF1, TF0, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF1, TF2, TF0)
DL_TFC8	(TF1, TF3, TF0)
DL_TFC9	(TF1, TF4, TF0)
DL_TFC10	(TF0, TF0, TF1)
DL_TFC11	(TF0, TF1, TF1)
DL_TFC12	(TF0, TF2, TF1)
DL_TFC13	(TF0, TF3, TF1)
DL_TFC14	(TF0, TF4, TF1)
DL_TFC15	(TF1, TF0, TF1)
DL_TFC16	(TF1, TF1, TF1)
DL_TFC17	(TF1, TF2, TF1)
DL_TFC18	(TF1, TF3, TF1)
DL_TFC19	(TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC11	UL_TFC1, UL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC10, UL_TFC11	RB5: 640 RB6: 312	RB5: No data RB6: 312
2	DL_TFC2, DL_TFC12	UL_TFC2, UL_TFC12	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC10, UL_TFC12	RB5: 640 RB6: 632	RB5: No data RB6: 632
3	DL_TFC3, DL_TFC13	UL_TFC3, UL_TFC13	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC3, UL_TFC10, UL_TFC13	RB5: 640 RB6: 952	RB5: No data RB6: 952
4	DL_TFC4, DL_TFC14	UL_TFC4, UL_TFC14	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC4, UL_TFC10, UL_TFC14	RB5: 640 RB6: 1272	RB5: No data RB6: 1272
5	DL_TFC5, DL_TFC15	UL_TFC5, UL_TFC15	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC5, UL_TFC10, UL_TFC15	RB5: 640 RB6: 312	RB5: 2x640 RB6: No data

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
6	DL_TFC6, DL_TFC16	UL_TFC6, UL_TFC16	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC10, UL_TFC11, UL_TFC15, UL_TFC16	RB5: 640 RB6: 312	RB5: 2x640 RB6: 312
7	DL_TFC7, DL_TFC17	UL_TFC7, UL_TFC17	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7, UL_TFC10, UL_TFC12, UL_TFC15, UL_TFC17	RB5: 640 RB6: 632	RB5: 2x640 RB6: 632
8	DL_TFC8, DL_TFC18	UL_TFC8, UL_TFC18	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8, UL_TFC10, UL_TFC13, UL_TFC15, UL_TFC18	RB5: 640 RB6: 952	RB5: 2x640 RB6: 952
9	DL_TFC9, DL_TFC19	UL_TFC9, UL_TFC19	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9, UL_TFC10, UL_TFC14, UL_TFC15, UL_TFC19	RB5: 640 RB6: 1272	RB5: 2x640 RB6: 1272
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).						

18.1.2.51.1.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 15a and step 15b the UE shall return

   - for sub-test 1, 2, 3, 4: RLC SDUs on RB6 having the same content as sent by the SS; and no data shall be received on RB5.

   - for sub-test 5: RLC SDUs on RB5 having the same content as sent by the SS; and no data shall be received on RB6.

   - for sub-test 6, 7, 8 and 9: RLC SDUs on RB5 and RB6 having the same content as sent by the SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.51.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI + Interactive or background / UL:64 DL:64 kbps / PS RAB

18.1.2.51.2.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.51.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.51 for the 40 ms TTI case.

18.1.2.51.2.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv. 64 kbps)
Uplink RLC TM RLC Segmentation indication Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard	 FALSE 100ms
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	**RB5 (Conv. 64 kbps)**	**RB6 (I/B 64 kbps)**	**DCCH**
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF0, TF2, TF0)
UL_TFC3	(TF0, TF3, TF0)
UL_TFC4	(TF0, TF4, TF0)
UL_TFC5	(TF1, TF0, TF0)
UL_TFC6	(TF1, TF1, TF0)
UL_TFC7	(TF1, TF2, TF0)
UL_TFC8	(TF1, TF3, TF0)
UL_TFC9	(TF1, TF4, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF0, TF1, TF1)
UL_TFC12	(TF0, TF2, TF1)
UL_TFC13	(TF0, TF3, TF1)
UL_TFC14	(TF0, TF4, TF1)
UL_TFC15	(TF1, TF0, TF1)
UL_TFC16	(TF1, TF1, TF1)
UL_TFC17	(TF1, TF2, TF1)
UL_TFC18	(TF1, TF3, TF1)
UL_TFC19	(TF1, TF4, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 64 kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF0, TF2, TF0)
DL_TFC3	(TF0, TF3, TF0)
DL_TFC4	(TF0, TF4, TF0)
DL_TFC5	(TF1, TF0, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF1, TF2, TF0)
DL_TFC8	(TF1, TF3, TF0)
DL_TFC9	(TF1, TF4, TF0)
DL_TFC10	(TF0, TF0, TF1)
DL_TFC11	(TF0, TF1, TF1)
DL_TFC12	(TF0, TF2, TF1)
DL_TFC13	(TF0, TF3, TF1)
DL_TFC14	(TF0, TF4, TF1)
DL_TFC15	(TF1, TF0, TF1)
DL_TFC16	(TF1, TF1, TF1)
DL_TFC17	(TF1, TF2, TF1)
DL_TFC18	(TF1, TF3, TF1)
DL_TFC19	(TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC11	UL_TFC1, DL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC10, UL_TFC11	RB5: 640 RB6: 312	RB5: No data RB6: 312
2	DL_TFC2, DL_TFC12	UL_TFC2, DL_TFC12	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC10, UL_TFC12	RB5: 640 RB6: 632	RB5: No data RB6: 632
3	DL_TFC3, DL_TFC13	UL_TFC3, DL_TFC13	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC3, UL_TFC10, UL_TFC13	RB5: 640 RB6: 952	RB5: No data RB6: 952
4	DL_TFC4, DL_TFC14	UL_TFC4, DL_TFC14	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC4, UL_TFC10, UL_TFC14	RB5: 640 RB6: 1272	RB5: No data RB6: 1272
5	DL_TFC5, DL_TFC15	UL_TFC5, DL_TFC15	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC5, UL_TFC10, UL_TFC11, UL_TFC15, UL_TFC15	RB5: 640 RB6: 312	RB5: 4x640 RB6: No data
6	DL_TFC6, DL_TFC16	UL_TFC6, DL_TFC16	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC6, UL_TFC10, UL_TFC16	RB5: 640 RB6: 312	RB5: 4x640 RB6: 312
7	DL_TFC7, DL_TFC17	UL_TFC7, DL_TFC17	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7, UL_TFC10, UL_TFC12, UL_TFC15, UL_TFC17	RB5: 640 RB6: 632	RB5: 4x640 RB6: 632
8	DL_TFC8, DL_TFC18	UL_TFC8, DL_TFC18	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8, UL_TFC10, UL_TFC13, UL_TFC15, UL_TFC18	RB5: 640 RB6: 952	RB5: 4x640 RB6: 952
9	DL_TFC9, DL_TFC19	UL_TFC9, DL_TFC19	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9, UL_TFC10, UL_TFC14, UL_TFC15, UL_TFC19	RB5: 640 RB6: 1272	RB5: 4x640 RB6: 1272
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB6: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB5 and RB6 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size for RB6 has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).and .the UL RLC SDU size for RB5 has been set equal to the uplink TB size .						

18.1.2.51.2.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual subtest.

3. At step 15 the UE shall return

   - for sub-test 1, 2, 3, 4: an RLC SDU on RB6 having the same content as sent by SS; and no data shall be received on RB5.
   - for sub-test 5: two RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6.
   - for sub-test 6, 7, 8 and 9: two RLC SDUs on RB5 and one RLC SDU on RB6 having the same content as sent by SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.52 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.52.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI + Interactive or background / UL:64 DL:128 kbps / PS RAB

18.1.2.52.1.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.52.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.52 for the 20 ms TTI case.

18.1.2.52.1.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv. 64 kbps)
Uplink RLC TM RLC Segmentation indication Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard	 FALSE 100ms
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 64 kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF0, TF2, TF0)
UL_TFC3	(TF0, TF3, TF0)
UL_TFC4	(TF0, TF4, TF0)
UL_TFC5	(TF1, TF0, TF0)
UL_TFC6	(TF1, TF1, TF0)
UL_TFC7	(TF1, TF2, TF0)
UL_TFC8	(TF1, TF3, TF0)
UL_TFC9	(TF1, TF4, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF0, TF1, TF1)
UL_TFC12	(TF0, TF2, TF1)
UL_TFC13	(TF0, TF3, TF1)
UL_TFC14	(TF0, TF4, TF1)
UL_TFC15	(TF1, TF0, TF1)
UL_TFC16	(TF1, TF1, TF1)
UL_TFC17	(TF1, TF2, TF1)
UL_TFC18	(TF1, TF3, TF1)
UL_TFC19	(TF1, TF4, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 128 kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF0, TF2, TF0)
DL_TFC3	(TF0, TF3, TF0)
DL_TFC4	(TF0, TF4, TF0)
DL_TFC5	(TF1, TF0, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF1, TF2, TF0)
DL_TFC8	(TF1, TF3, TF0)
DL_TFC9	(TF1, TF4, TF0)
DL_TFC10	(TF0, TF0, TF1)
DL_TFC11	(TF0, TF1, TF1)
DL_TFC12	(TF0, TF2, TF1)
DL_TFC13	(TF0, TF3, TF1)
DL_TFC14	(TF0, TF4, TF1)
DL_TFC15	(TF1, TF0, TF1)
DL_TFC16	(TF1, TF1, TF1)
DL_TFC17	(TF1, TF2, TF1)
DL_TFC18	(TF1, TF3, TF1)
DL_TFC19	(TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC11	UL_TFC1, DL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC10, UL_TFC11	RB5: 640 RB6: 312	RB5: No data RB6: 312
2	DL_TFC2, DL_TFC12	UL_TFC2, DL_TFC12	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC10, UL_TFC12	RB5: 640 RB6: 632	RB5: No data RB6: 632
3	DL_TFC3, DL_TFC13	UL_TFC3, DL_TFC13	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC3, UL_TFC10, UL_TFC13	RB5: 640 RB6: 952	RB5: No data RB6: 1272
4	DL_TFC4, DL_TFC14	UL_TFC4, DL_TFC14	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC4, UL_TFC10, UL_TFC14	RB5: 640 RB6: 1272	RB5: No data RB6: 2552
5	DL_TFC5, DL_TFC15	UL_TFC5, DL_TFC15	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC5, UL_TFC10, UL_TFC15	RB5: 640 RB6: 312	RB5: 2x640 RB6: No data
6	DL_TFC6, DL_TFC16	UL_TFC6, DL_TFC16	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC10, UL_TFC11, UL_TFC15, UL_TFC16	RB5: 640 RB6: 312	RB5: 2x640 RB6: 312
7	DL_TFC7, DL_TFC17	UL_TFC7, DL_TFC17	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7, UL_TFC10, UL_TFC12, UL_TFC15, UL_TFC17	RB5: 640 RB6: 632	RB5: 2x640 RB6: 632
8	DL_TFC8, DL_TFC18	UL_TFC8, DL_TFC18	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8, UL_TFC10, UL_TFC13, UL_TFC15, UL_TFC18	RB5: 640 RB6: 952	RB5: 2x640 RB6: 1272
9	DL_TFC9, DL_TFC19	UL_TFC9, DL_TFC19	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9, UL_TFC10, UL_TFC14, UL_TFC15, UL_TFC19	RB5: 640 RB6: 1272	RB5: 2x640 RB6: 2552
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB6: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB5 and RB6 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size for RB6 has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).and .the UL RLC SDU size for RB5 has been set equal to the uplink TB size.						

18.1.2.52.1.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual subtest.

3. At step 15 the UE shall return

   - for sub-test 1, 2, 3, 4: an RLC SDU on RB6 having the same content as sent by SS; and no data shall be received on RB5.
   - for sub-test 5: two RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6.
   - for sub-test 6: two RLC SDUs on RB5 and one RLC SDU on RB6 having the same content as sent by SS.
   - For sub-test 3: RLC SDU on RB6 having the content equal to the first 952 bits of the test data sent by the SS in downlink;
   - For sub-test 4: RLC SDU on RB6 having the content equal to the first 1272 bits of the test data sent by the SS in downlink;
   - for sub-test 8: an RLC SDU on RB6 having the content equal to the first 952 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS.
   - for sub-test 9: an RLC SDU on RB6 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.52.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI + Interactive or background / UL:64 DL:128 kbps / PS RAB

18.1.2.52.2.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.52.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.51 for the 40 ms TTI case.

18.1.2.52.2.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv. 64 kbps)
Uplink RLC TM RLC Segmentation indication Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard	 FALSE 100ms
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	**RB5 (Conv. 64 kbps)**	**RB6 (I/B 64 kbps)**	**DCCH**
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

Uplink TFCS:

TFCI	**(RB5, RB6, DCCH)**
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF0, TF2, TF0)
UL_TFC3	(TF0, TF3, TF0)
UL_TFC4	(TF0, TF4, TF0)
UL_TFC5	(TF1, TF0, TF0)
UL_TFC6	(TF1, TF1, TF0)
UL_TFC7	(TF1, TF2, TF0)
UL_TFC8	(TF1, TF3, TF0)
UL_TFC9	(TF1, TF4, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF0, TF1, TF1)
UL_TFC12	(TF0, TF2, TF1)
UL_TFC13	(TF0, TF3, TF1)
UL_TFC14	(TF0, TF4, TF1)
UL_TFC15	(TF1, TF0, TF1)
UL_TFC16	(TF1, TF1, TF1)
UL_TFC17	(TF1, TF2, TF1)
UL_TFC18	(TF1, TF3, TF1)
UL_TFC19	(TF1, TF4, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 128 kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF0, TF2, TF0)
DL_TFC3	(TF0, TF3, TF0)
DL_TFC4	(TF0, TF4, TF0)
DL_TFC5	(TF1, TF0, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF1, TF2, TF0)
DL_TFC8	(TF1, TF3, TF0)
DL_TFC9	(TF1, TF4, TF0)
DL_TFC10	(TF0, TF0, TF1)
DL_TFC11	(TF0, TF1, TF1)
DL_TFC12	(TF0, TF2, TF1)
DL_TFC13	(TF0, TF3, TF1)
DL_TFC14	(TF0, TF4, TF1)
DL_TFC15	(TF1, TF0, TF1)
DL_TFC16	(TF1, TF1, TF1)
DL_TFC17	(TF1, TF2, TF1)
DL_TFC18	(TF1, TF3, TF1)
DL_TFC19	(TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC11	UL_TFC1, DL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC10, UL_TFC11	RB5: 640 RB6: 312	RB5: No data RB6: 312
2	DL_TFC2, DL_TFC12	UL_TFC2, DL_TFC12	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC10, UL_TFC12	RB5: 640 RB6: 632	RB5: No data RB6: 632
3	DL_TFC3, DL_TFC13	UL_TFC3, DL_TFC13	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC3, UL_TFC10, UL_TFC13	RB5: 640 RB6: 952	RB5: No data RB6: 1272
4	DL_TFC4, DL_TFC14	UL_TFC4, DL_TFC14	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC4, UL_TFC10, UL_TFC14	RB5: 640 RB6: 1272	RB5: No data RB6: 2552
5	DL_TFC5, DL_TFC15	UL_TFC5, DL_TFC15	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC5, UL_TFC10, UL_TFC15	RB5: 640 RB6: 312	RB5: 4x640 RB6: No data

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
6	DL_TFC6, DL_TFC16	UL_TFC6, DL_TFC16	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC10, UL_TFC11, UL_TFC15, UL_TFC16	RB5: 640 RB6: 312	RB5: 4x640 RB6: 312
7	DL_TFC7, DL_TFC17	UL_TFC7, DL_TFC17	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7, UL_TFC10, UL_TFC12, UL_TFC15, UL_TFC17	RB5: 640 RB6: 632	RB5: 4x640 RB6: 632
8	DL_TFC8, DL_TFC18	UL_TFC8, DL_TFC18	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8, UL_TFC10, UL_TFC13, UL_TFC15, UL_TFC18	RB5: 640 RB6: 952	RB5: 4x640 RB6: 1272
9	DL_TFC9, DL_TFC19	UL_TFC9, DL_TFC19	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC4, UL_TFC15, UL_TFC9, UL_TFC10, UL_TFC14, UL_TFC15, UL_TFC19	RB5: 640 RB6: 1272	RB5: 4x640 RB6: 2552
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB6: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB5 and RB6 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size for RB6 has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).and .the UL RLC SDU size for RB5 has been set equal to the uplink TB size .						

18.1.2.52.2.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual subtest.

3. At step 15 the UE shall return

- for sub-test 1, 2, 3, 4: an RLC SDU on RB6 having the same content as sent by SS; and no data shall be received on RB5.
- for sub-test 5: four RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6.
- for sub-test 6: four RLC SDUs on RB5 and one RLC SDU on RB6 having the same content as sent by SS.
- For sub-test 3: RLC SDU on RB6 having the content equal to the first 652 bits of the test data sent by the SS in downlink;
- For sub-test 4: RLC SDU on RB6 having the content equal to the first 1272 bits of the test data sent by the SS in downlink;

- for sub-test 8: an RLC SDU on RB6 having the content equal to the first 652 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS.
- for sub-test 9: an RLC SDU on RB6 having the content equal to the first 1272 bits of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.53 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:128 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.53.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI + Interactive or background / UL:128 DL:128 kbps / PS RAB

18.1.2.53.1.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.53.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.53 for the 20 ms TTI case.

18.1.2.53.1.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv. 64 kbps)
Uplink RLC TM RLC Segmentation indication Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard	 FALSE 100ms
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	**RB5 (Conv. 64 kbps)**	**RB6 (I/B 128 kbps)**	**DCCH**
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF0, TF2, TF0)
UL_TFC3	(TF0, TF3, TF0)
UL_TFC4	(TF0, TF4, TF0)
UL_TFC5	(TF1, TF0, TF0)
UL_TFC6	(TF1, TF1, TF0)
UL_TFC7	(TF1, TF2, TF0)
UL_TFC8	(TF1, TF3, TF0)
UL_TFC9	(TF1, TF4, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF0, TF1, TF1)
UL_TFC12	(TF0, TF2, TF1)
UL_TFC13	(TF0, TF3, TF1)
UL_TFC14	(TF0, TF4, TF1)
UL_TFC15	(TF1, TF0, TF1)
UL_TFC16	(TF1, TF1, TF1)
UL_TFC17	(TF1, TF2, TF1)
UL_TFC18	(TF1, TF3, TF1)
UL_TFC19	(TF1, TF4, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 128 kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF0, TF2, TF0)
DL_TFC3	(TF0, TF3, TF0)
DL_TFC4	(TF0, TF4, TF0)
DL_TFC5	(TF1, TF0, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF1, TF2, TF0)
DL_TFC8	(TF1, TF3, TF0)
DL_TFC9	(TF1, TF4, TF0)
DL_TFC10	(TF0, TF0, TF1)
DL_TFC11	(TF0, TF1, TF1)
DL_TFC12	(TF0, TF2, TF1)
DL_TFC13	(TF0, TF3, TF1)
DL_TFC14	(TF0, TF4, TF1)
DL_TFC15	(TF1, TF0, TF1)
DL_TFC16	(TF1, TF1, TF1)
DL_TFC17	(TF1, TF2, TF1)
DL_TFC18	(TF1, TF3, TF1)
DL_TFC19	(TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC11	UL_TFC1, DL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC10, UL_TFC11	RB5: 640 RB6: 312	RB5: No data RB6: 312
2	DL_TFC2, DL_TFC12	UL_TFC2, DL_TFC12	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC10, UL_TFC12	RB5: 640 RB6: 632	RB5: No data RB6: 632
3	DL_TFC3, DL_TFC13	UL_TFC3, DL_TFC13	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC3, UL_TFC10, UL_TFC13	RB5: 640 RB6: 1272	RB5: No data RB6: 1272
4	DL_TFC4, DL_TFC14	UL_TFC4, DL_TFC14	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC4, UL_TFC10, UL_TFC14	RB5: 640 RB6: 2552	RB5: No data RB6: 2552
5	DL_TFC5, DL_TFC15	UL_TFC5, DL_TFC15	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC5, UL_TFC10, UL_TFC15	RB5: 640 RB6: 312	RB5: 2x640 RB6: No data
6	DL_TFC6, DL_TFC16	UL_TFC6, DL_TFC16	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC10, UL_TFC11, UL_TFC15, UL_TFC16	RB5: 640 RB6: 312	RB5: 2x640 RB6: 312
7	DL_TFC7, DL_TFC17	UL_TFC7, DL_TFC17	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7, UL_TFC10, UL_TFC12, UL_TFC15, UL_TFC17	RB5: 640 RB6: 632	RB5: 2x640 RB6: 632
8	DL_TFC8, DL_TFC18	UL_TFC8, DL_TFC18	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8, UL_TFC10, UL_TFC13, UL_TFC15, UL_TFC18	RB5: 640 RB6: 1272	RB5: 2x640 RB6: 1272
9	DL_TFC9, DL_TFC19	UL_TFC9, DL_TFC19	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9, UL_TFC10, UL_TFC14, UL_TFC15, UL_TFC19	RB5: 640 RB6: 2552	RB5: 2x640 RB6: 2552

NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB6: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB5 and RB6 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size for RB6 has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).and .the UL RLC SDU size for RB5 has been set equal to the uplink TFS size under test.

18.1.2.53.1.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual subtest.

3. At step 15 the UE shall return

   - for sub-test 1, 2, 3, 4: an RLC SDU on RB6 having the same content as sent by SS; and no data shall be received on RB5.
   - for sub-test 5: two RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6.
   - for sub-test 6, 7, 8 and 9: two RLC SDUs on RB5 and one RLC SDU on RB6 having the same content as sent by SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.53.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI + Interactive or background / UL:128 DL:128 kbps / PS RAB

18.1.2.53.2.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.53.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.53 for the 40 ms TTI case.

18.1.2.53.2.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv. 64 kbps)
Uplink RLC	
TM RLC	
Segmentation indication	FALSE
Transmission RLC discard	
CHOICE *SDU Discard Mode*	
Timer based no explicit	
Timer_discard	100ms
Downlink RLC	
TM RLC	
Segmentation indication	FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 128 kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF0, TF2, TF0)
UL_TFC3	(TF0, TF3, TF0)
UL_TFC4	(TF0, TF4, TF0)
UL_TFC5	(TF1, TF0, TF0)
UL_TFC6	(TF1, TF1, TF0)
UL_TFC7	(TF1, TF2, TF0)
UL_TFC8	(TF1, TF3, TF0)
UL_TFC9	(TF1, TF4, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF0, TF1, TF1)
UL_TFC12	(TF0, TF2, TF1)
UL_TFC13	(TF0, TF3, TF1)
UL_TFC14	(TF0, TF4, TF1)
UL_TFC15	(TF1, TF0, TF1)
UL_TFC16	(TF1, TF1, TF1)
UL_TFC17	(TF1, TF2, TF1)
UL_TFC18	(TF1, TF3, TF1)
UL_TFC19	(TF1, TF4, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 128 kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF0, TF2, TF0)
DL_TFC3	(TF0, TF3, TF0)
DL_TFC4	(TF0, TF4, TF0)
DL_TFC5	(TF1, TF0, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF1, TF2, TF0)
DL_TFC8	(TF1, TF3, TF0)
DL_TFC9	(TF1, TF4, TF0)
DL_TFC10	(TF0, TF0, TF1)
DL_TFC11	(TF0, TF1, TF1)
DL_TFC12	(TF0, TF2, TF1)
DL_TFC13	(TF0, TF3, TF1)
DL_TFC14	(TF0, TF4, TF1)
DL_TFC15	(TF1, TF0, TF1)
DL_TFC16	(TF1, TF1, TF1)
DL_TFC17	(TF1, TF2, TF1)
DL_TFC18	(TF1, TF3, TF1)
DL_TFC19	(TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, UL_TFC11	UL_TFC1, UL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC10, UL_TFC11	RB5: 640 RB6: 312	RB5: No data RB6: 312
2	DL_TFC2, UL_TFC12	UL_TFC2, UL_TFC12	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC10, UL_TFC12	RB5: 640 RB6: 632	RB5: No data RB6: 632
3	DL_TFC3, UL_TFC13	UL_TFC3, UL_TFC13	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC3, UL_TFC10, UL_TFC13	RB5: 640 RB6: 1272	RB5: No data RB6: 1272
4	DL_TFC4, UL_TFC14	UL_TFC4, UL_TFC14	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC4, UL_TFC10, UL_TFC14	RB5: 640 RB6: 2552	RB5: No data RB6: 2552
5	DL_TFC5, UL_TFC15	UL_TFC5, UL_TFC15	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC5, UL_TFC10, UL_TFC15	RB5: 640 RB6: 312	RB5: 4x640 RB6: No data
6	DL_TFC6, UL_TFC16	UL_TFC6, UL_TFC16	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5 UL_TFC6, UL_TFC10, UL_TFC11, UL_TFC15, UL_TFC16	RB5: 640 RB6: 312	RB5: 4x640 RB6: 312
7	DL_TFC7, UL_TFC17	UL_TFC7, UL_TFC17	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7, UL_TFC10, UL_TFC12, UL_TFC15, UL_TFC17	RB5: 640 RB6: 632	RB5: 4x640 RB6: 632
8	DL_TFC8, UL_TFC18	UL_TFC8, UL_TFC18	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8, UL_TFC10, UL_TFC13, UL_TFC15, UL_TFC18	RB5: 4x640 RB6: 1272	RB5: 4x640 RB6: 1272
9	DL_TFC9, UL_TFC19	UL_TFC9, UL_TFC19	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9, UL_TFC10, UL_TFC14, UL_TFC15, UL_TFC19	RB5: 640 RB6: 2552	RB5: 4x640 RB6: 2552
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB6: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB5 and RB6 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size for RB6 has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).and .the UL RLC SDU size for RB5 has been set equal to the uplink TFS size under test.						

18.1.2.53.2.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual subtest.

3. At step 15 the UE shall return

   - for sub-test 1, 2, 3, 4: an RLC SDU on RB6 having the same content as sent by SS; and no data shall be received on RB5.
   - for sub-test 5: four RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6.
   - for sub-test 6, 7, 8 and 9: four RLC SDUs on RB5 and one RLC SDU on RB6 having the same content as sent by SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.54 Interactive or background / UL:64 DL:128 kbps / PS RAB + Streaming / unknown / UL:0 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.54.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.54.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.54.

To be able to test the downlink radio bearer using the UE loopback function for the reference radio bearer UL:0 DL: 64 kbps, the reference radio bearer configuration according to TS 34.108, clause 6.11.5.4.1.15.1 (Streaming/unknown/UL:14.4 kbps) is used in uplink.

18.1.2.54.3 Method of test

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	**RB5 (I/B 64 kbps)**	**RB6 (Str. 14.4 kbps)**	**DCCH**
TFS	TF0, bits	0x336	0x576	0x148
	TF1, bits	1x336	1x576	1x148
	TF2, bits	2x336	N/A	N/A
	TF3, bits	3x336	N/A	N/A
	TF4, bits	4x336	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF0, TF0)
UL_TFC3	(TF3, TF0, TF0)
UL_TFC4	(TF4, TF0, TF0)
UL_TFC5	(TF0, TF1, TF0)
UL_TFC6	(TF1, TF1, TF0)
UL_TFC7	(TF2, TF1, TF0)
UL_TFC8	(TF3, TF1, TF0)
UL_TFC9	(TF4, TF1, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF1, TF0, TF1)
UL_TFC12	(TF2, TF0, TF1)
UL_TFC13	(TF3, TF0, TF1)
UL_TFC14	(TF4, TF0, TF1)
UL_TFC15	(TF0, TF1, TF1)
UL_TFC16	(TF1, TF1, TF1)
UL_TFC17	(TF2, TF1, TF1)
UL_TFC18	(TF3, TF1, TF1)
UL_TFC19	(TF4, TF1, TF1)

Downlink TFS:

	TFI	RB5 (I/B 128 kbps)	RB6 (Str. 64 kbps)	DCCH
TFS	TF0, bits	0x336	0x320	0x148
	TF1, bits	1x336	1x320	1x148
	TF2, bits	2x336	2x320	N/A
	TF3, bits	4x336	4x320	N/A
	TF4, bits	8x336	8x320	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF0, TF0)
DL_TFC3	(TF3, TF0, TF0)
DL_TFC4	(TF4, TF0, TF0)
DL_TFC5	(TF0, TF1, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF2, TF1, TF0)
DL_TFC8	(TF3, TF1, TF0)
DL_TFC9	(TF4, TF1, TF0)
DL_TFC10	(TF0, TF2, TF0)
DL_TFC11	(TF1, TF2, TF0)
DL_TFC12	(TF2, TF2, TF0)
DL_TFC13	(TF3, TF2, TF0)
DL_TFC14	(TF4, TF2, TF0)
DL_TFC15	(TF0, TF3, TF0)
DL_TFC16	(TF1, TF3, TF0)
DL_TFC17	(TF2, TF3, TF0)
DL_TFC18	(TF3, TF3, TF0)
DL_TFC19	(TF4, TF3, TF0)
DL_TFC20	(TF0, TF4, TF0)
DL_TFC21	(TF1, TF4, TF0)
DL_TFC22	(TF2, TF4, TF0)
DL_TFC23	(TF3, TF4, TF0)
DL_TFC24	(TF4, TF4, TF0)

TFCI	(RB5, RB6, DCCH)
DL_TFC25	(TF0, TF0, TF1)
DL_TFC26	(TF1, TF0, TF1)
DL_TFC27	(TF2, TF0, TF1)
DL_TFC28	(TF3, TF0, TF1)
DL_TFC29	(TF4, TF0, TF1)
DL_TFC30	(TF0, TF1, TF1)
DL_TFC31	(TF1, TF1, TF1)
DL_TFC32	(TF2, TF1, TF1)
DL_TFC33	(TF3, TF1, TF1)
DL_TFC34	(TF4, TF1, TF1)
DL_TFC35	(TF0, TF2, TF1)
DL_TFC36	(TF1, TF2, TF1)
DL_TFC37	(TF2, TF2, TF1)
DL_TFC38	(TF3, TF2, TF1)
DL_TFC39	(TF4, TF2, TF1)
DL_TFC40	(TF0, TF3, TF1)
DL_TFC41	(TF1, TF3, TF1)
DL_TFC42	(TF2, TF3, TF1)
DL_TFC43	(TF3, TF3, TF1)
DL_TFC44	(TF4, TF3, TF1)
DL_TFC45	(TF0, TF4, TF1)
DL_TFC46	(TF1, TF4, TF1)
DL_TFC47	(TF2, TF4, TF1)
DL_TFC48	(TF3, TF4, TF1)
DL_TFC49	(TF4, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note 1)	Test data size (bits) (note 1)
1	DL_TFC1, DL_TFC26	UL_TFC1, UL_TFC11	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC10, UL_TFC11	RB5: 312 RB6: 576	RB5: 312 RB6: No data
2	DL_TFC2, DL_TFC27	UL_TFC2, UL_TFC12	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC10, UL_TFC12	RB5: 632 RB6: 576	RB5: 632 RB6: No data
3	DL_TFC3, DL_TFC28	UL_TFC3, UL_TFC13	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC3, UL_TFC10, UL_TFC13	RB5: 952 RB6: 576	RB5: 1272 RB6: No data
4	DL_TFC4, DL_TFC29	UL_TFC4, UL_TFC14	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC4, UL_TFC10, UL_TFC14	RB5: 1272 RB6: 576	RB5: 2552 RB6: No data
5	DL_TFC5, DL_TFC30	UL_TFC5, UL_TFC15	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC5, UL_TFC10, UL_TFC15	RB5: 312 RB6: 576	RB5: No data RB6: 320 (note 2)
6	DL_TFC6, DL_TFC31	UL_TFC6, UL_TFC16	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC10, UL_TFC11, UL_TFC15, UL_TFC16	RB5: 312 RB6: 576	RB5: 312 RB6: 320 (note 2)

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note 1)	Test data size (bits) (note 1)
7	DL_TFC7, DL_TFC32	UL_TFC7, UL_TFC17	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC5 UL_TFC7, UL_TFC10, UL_TFC12, UL_TFC15, UL_TFC17	RB5: 632 RB6: 576	RB5: 632 RB6: 320 (note 2)
8	DL_TFC8, DL_TFC33	UL_TFC8, UL_TFC18	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC3, UL_TFC5 UL_TFC8, UL_TFC10, UL_TFC13, UL_TFC15, UL_TFC18	RB5: 952 RB6: 576	RB5: 1272 RB6: 320 (note 2)
9	DL_TFC9, DL_TFC34	UL_TFC9, UL_TFC19	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9, UL_TFC10, UL_TFC14, UL_TFC15, UL_TFC19	RB5: 1272 RB6: 576	RB5: 2552 RB6: 320 (note 2)
10	DL_TFC10, DL_TFC35	UL_TFC5, UL_TFC15	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC5, UL_TFC10, UL_TFC15	RB5: 312 RB6: 576	RB5: No data RB6: 640 (note 3)
11	DL_TFC11, DL_TFC36	UL_TFC6, UL_TFC16	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC10, UL_TFC11, UL_TFC15, UL_TFC16	RB5: 312 RB6: 576	RB5: 312 RB6: 640 (note 3)
12	DL_TFC12, DL_TFC37	UL_TFC7, UL_TFC17	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC5 UL_TFC7, UL_TFC10, UL_TFC12, UL_TFC15, UL_TFC17	RB5: 632 RB6: 576	RB5: 632 RB6: 640 (note 3)
13	DL_TFC13, DL_TFC38	UL_TFC8, UL_TFC18	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8, UL_TFC10, UL_TFC13, UL_TFC15, UL_TFC18	RB5: 952 RB6: 576	RB5: 1272 RB6: 640 (note 3)
14	DL_TFC14, DL_TFC39	UL_TFC9, UL_TFC19	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9, UL_TFC10, UL_TFC14, UL_TFC15, UL_TFC19	RB5: 1272 RB6: 576	RB5: 2552 RB6: 640 (note 3)
15	DL_TFC15, DL_TFC40	UL_TFC5, UL_TFC15	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC5, UL_TFC10, UL_TFC15	RB5: 312 RB6: 576	RB5: No data RB6: 1280 (note 4)

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note 1)	Test data size (bits) (note 1)
16	DL_TFC16, DL_TFC41	UL_TFC6, UL_TFC16	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC10, UL_TFC11, UL_TFC15, UL_TFC16	RB5: 312 RB6: 576	RB5: 312 RB6: 1280 (note 4)
17	DL_TFC17, DL_TFC42	UL_TFC7, UL_TFC17	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7, UL_TFC10, UL_TFC12, UL_TFC15, UL_TFC17	RB5: 632 RB6: 576	RB5: 632 RB6: 1280 (note 4)
18	DL_TFC18, DL_TFC43	UL_TFC8, UL_TFC18	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8, UL_TFC10, UL_TFC13, UL_TFC15, UL_TFC18	RB5: 952 RB6: 576	RB5: 1272 RB6: 1280 (note 4)
19	DL_TFC19, DL_TFC44	UL_TFC9, UL_TFC19	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9, UL_TFC10, UL_TFC14, UL_TFC15, UL_TFC19	RB5: 1272 RB6: 576	RB5: 2552 RB6: 1280 (note 4)
20	DL_TFC20, DL_TFC45	UL_TFC5, UL_TFC15	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC5, UL_TFC10, UL_TFC15	RB5: 312 RB6: 576	RB5: No data RB6: 2560 (note 5)
21	DL_TFC21, DL_TFC46	UL_TFC6, UL_TFC16	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC10, UL_TFC11, UL_TFC15, UL_TFC16	RB5: 312 RB6: 576	RB5: 312 RB6: 2560 (note 5)
22	DL_TFC22, DL_TFC47	UL_TFC7, UL_TFC17	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7, UL_TFC10, UL_TFC12, UL_TFC15, UL_TFC17	RB5: 632 RB6: 576	RB5: 632 RB6: 2560 (note 5)

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note 1)	Test data size (bits) (note 1)
23	DL_TFC23, DL_TFC48	UL_TFC8, UL_TFC18	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC3, UL_TFC5 UL_TFC8, UL_TFC10, UL_TFC13, UL_TFC15, UL_TFC18	RB5: 952 RB6: 576	RB5: 1272 RB6: 2560 (note 5)
24	DL_TFC24, DL_TFC49	UL_TFC9, UL_TFC19	DL_TFC0, DL_TFC25, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9, UL_TFC10, UL_TFC14, UL_TFC15, UL_TFC19	RB5: 1272 RB6: 576	RB5: 2552 RB6: 2560 (note 5)

NOTE 1: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
NOTE 2: RB6: SS is using a DL RLC SDU with 320 bits as test data (=DL RLC PDU size for DL/TF1). UE will return one RLC PDU. SS creates an UL RLC SDU from the first 320 bits of the received RLC PDU.
NOTE 3: RB6: SS is using a DL RLC SDU size of 640 bits as test data (=DL RLC PDU size for DL/TF2). UE will return one RLC PDU. SS creates an UL RLC SDU from the received RLC PDU.
NOTE 4: RB6: SS is using a DL RLC SDU size of 1280 bits as test data (=DL RLC PDU size for DL/TF3). UE will return one RLC PDU. SS creates an UL RLC SDU from the received RLC PDU.
NOTE 5: RB6: SS is using a DL RLC SDU size of 2560 bits as test data (=DL RLC PDU size for DL/TF4). UE will return one RLC PDU. SS creates an UL RLC SDU from the received RLC PDU.
RB5: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB5 and RB6 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size for RB5 has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).and .the UL RLC SDU size for RB6 has been set equal to the uplink TFS size under test.

18.1.2.54.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual subtest.

3. At step 15 the UE shall return

- for sub-test 1, 2, 6, 7, 11, 12, 16, 17, 21, 22: an RLC SDU on RB5 having the same content as sent by the SS.
- for sub-test 5, 10, 15 and 20: no data shall be received on RB5.
- for sub-test 1 to 4: no data shall be received on RB6.
- for sub-test 5 to 9: an RLC SDU on RB6 having the same content as sent by the SS.
- for sub-test 10, 11, 12, 15, 16, 17, 20, 21 and 22: an RLC SDU on RB5 having the same content as the first 576 bits of the RLC SDU sent by the SS.
- For sub-test 3,8,13,18,23: an RLC SDU on RB5 having the content equal to the first 952 bits of the test data sent by the SS in downlink;
- For sub-test 4,9,14,19,24: an RLC SDU on RB5 having the content equal to the first 1272 bits of the test data sent by the SS in downlink;

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.55 Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.55.1 Conformance requirement

See 18.1.2.4.1.1.

18.1.2.55.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.23a for the 40 ms TTI case.

18.1.2.55.3 Method of test

Uplink TFS:

	TFI	RB5 (8 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (8 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0,UL_TFC0	UL_TFC0, UL_TFC1	RB5: 312	RB5: 312
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.1.1.1 for test procedure.

18.1.2.55.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15 the UE transmitted transport format shall be

   - for sub-test 1: RB5/TF1 (1x336).

.3. At step 15 the UE shall return

   - for sub-test: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.1.2.56 Interactive or background / UL:16 DL: 16 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.56.1 Conformance requirement

See 18.1.2.4.1.1.

18.1.2.56.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.23b for 40 ms TTI case.

18.1.2.56.3 Method of test

Uplink TFS:

	TFI	RB5 (16 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	n/a

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

	TFI	RB5 (8 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	n/a

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)
DL_TFC5	(TF2, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC4	UL_TFC1, UL_TFC4	DL_TFC0,DL_TFC3, UL_TFC0,UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 312	RB5: 312
2	DL_TFC2, DL_TFC5	UL_TFC2, UL_TFC5	DL_TFC0, DL_ TFC3, UL_TFC0, UL_ TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632	RB5:632
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.1.1.1 for test procedure.

18.1.2.56.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).

.3. At step 15 the UE shall return
   - for sub-test 1 to 2: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.1.2.57 Interactive or background / UL:32 DL: 32 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.57.1 Conformance requirement

See 18.1.2.4.1.1.

18.1.2.57.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.23c for 40 ms TTI case.

18.1.2.57.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	n/a
	TF3, bits	3x336	n/a
	TF4, bits	4x336	n/a

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	n/a
	TF3, bits	3x336	n/a
	TF4, bits	4x336	n/a

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC6	UL_TFC1, UL_TFC6	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2, DL_TFC7	UL_TFC2, UL_TFC7	DL_TFC0, DL_ TFC5, UL_TFC0, UL_ TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3, DL_TFC8	UL_TFC3, UL_TFC8	DL_TFC0, DL_ TFC5, UL_TFC0, UL_ TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_ TFC5, UL_TFC8	RB5: 952	RB5: 952
4	DL_TFC4, DL_TFC9	UL_TFC4, UL_TFC9	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272	RB5: 1272
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.1.1.1 for test procedure.

18.1.2.57.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15 the UE transmitted transport format shall be

   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (3x336)
   - for sub-test 4: RB5/TF4 (4x336)

.3. At step 15 the UE shall return

   - for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.1.2.58 Interactive or background / UL:256 DL:64 kbps / PS RAB / 20 ms TTI+ UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.58.1 Conformance requirement

See 18.1.2.4.1.1.

18.1.2.58.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.62 for 20 ms TTI case.

18.1.2.58.3 Method of test

Uplink TFS:

	TFI	RB5 (256 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	n/a
	TF3, bits	4x336	n/a
	TF4, bits	8x336	n/a
	TF5, bits	16x336	n/a

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF0, TF1)
UL_TFC7	(TF1, TF1)
UL_TFC8	(TF2, TF1)
UL_TFC9	(TF3, TF1)
UL_TFC10	(TF4, TF1)
UL_TFC11	(TF5, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC6	UL_TFC1, UL_TFC7	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7	RB5: 312	RB5: 312
2	DL_TFC2, DL_TFC7	UL_TFC2, UL_TFC8	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 632	RB5: 632
3	DL_TFC3, DL_TFC8	UL_TFC3, UL_TFC9	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 1272	RB5: 952
4	DL_TFC4, DL_TFC9	UL_TFC4, UL_TFC10	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 2552	RB5: 1272
5	DL_TFC4, DL_TFC9	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 5112	RB5: 1272
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.1.1.1 for test procedure.

18.1.2.58.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).

- for sub-test 3: RB5/TF3 (4x336).
- for sub-test 4: RB5/TF4 (8x336).
- for sub-test 5: RB5/TF5 (16x336).

3. At step 15 the UE shall return
   - for sub-test 1 to 6: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the S.

18.1.2.59 Streaming / unknown / UL:16 DL:32 kbps / PS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.59.1 Conformance requirement

See 18.1.2.4.1.1.

18.1.2.59.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.63 for 20 ms TTI case.

18.1.2.59.3 Method of test

Uplink TFS:

	TFI	**RB5 (16 kbps TTI 20ms)**	**RB6 (8 kbps TTI 40ms))**	**DCCH**
TFS	TF0, bits	0x336	0x336	0x148
	TF1, bits	1x336	1x336	1x148

Uplink TFCS:

TFCI	**(RB5,RB6 DCCH)**
UL_TFC0	(TF0, TF0,TF0)
UL_TFC1	(TF1, TF0,TF0)
UL_TFC2	(TF0, TF1,TF0)
UL_TFC3	(TF1, TF1,TF0)
UL_TFC4	(TF0, TF0,TF1)
UL_TFC5	(TF1, TF0,TF1)
UL_TFC6	(TF0, TF1,TF1)
UL_TFC7	(TF1, TF1,TF1)

Downlink TFS:

	TFI	**RB5 (32 kbps TTI 20ms)**	**RB6 (8 kbps TTI 40ms))**	**DCCH**
TFS	TF0, bits	0x336	0x336	0x148
	TF1, bits	1x336	1x336	1x148
	TF2, bits	2x336	N/A	N/A

Downlink TFCS:

TFCI	(RB5,RB6 DCCH)
DL_TFC0	(TF0, TF0,TF0)
DL_TFC1	(TF1, TF0,TF0)
DL_TFC2	(TF2, TF0,TF0)
DL_TFC3	(TF0, TF1,TF0)
DL_TFC4	(TF1, TF1,TF0)
DL_TFC5	(TF2, TF1,TF0)
DL_TFC6	(TF0, TF0,TF1)
DL_TFC7	(TF1, TF0,TF1)
DL_TFC8	(TF2, TF0,TF1)
DL_TFC9	(TF0, TF1,TF1)
DL_TFC10	(TF1, TF1,TF1)
DL_TFC11	(TF2, TF1,TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC7	UL_TFC1, UL_TFC5	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5	RB5: 312 RB6: No data	RB5: 312 RB6: No data
2	DL_TFC2, DL_TFC8	UL_TFC1, UL_TFC5	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5	RB5: 312 RB6: No data	RB5: 632 RB6: No data
3	DL_TFC3, DL_TFC9	UL_TFC2, UL_TFC6	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC6	RB5: No data RB6: 312	RB5: No data RB6: 312
4	DL_TFC4 DL_TFC10	UL_TFC3, UL_TFC7	DL_TFC0, DL_TFC1, DL_TFC3, DL_TFC6, DL_TFC7, DL_TFC9,UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 312 RB6: 312	RB5: 312 RB6: 312
5	DL_TFC5, DL_TFC11	UL_TFC3, UL_TFC7	DL_TFC0, DL_TFC2, DL_TFC3, DL_TFC6, DL_TFC8, DL_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 312 RB6: 312	RB5: 632 RB6: 312
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TB size.						

See 18.1.1.1 for test procedure.

18.1.2.59.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15 the UE transmitted transport format shall be

   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6;.

   - for sub-test 2: 2 RLC SDU on RB5 having the content equal to the first 312 bits of the test data sent by sent by SS; and no data shall be received on RB6.

   - for sub-test 3: an RLC SDUs on RB6 having the same content as sent by SS; and no data shall be received on RB5.

   - for sub-test 4: 1 RLC SDU on RB5 and an RLC SDUs on RB6 having the same content as sent by SS..

   - for sub-test 5: 2 RLC SDU on RB5 having the content equal to the first 312 bits of the test data sent by sent by SS and an RLC SDUs on RB6 having the same content as sent by SS.

18.1.2.60 Streaming / unknown / UL:16 DL:64 kbps / PS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.60.1 Conformance requirement

See 18.1.2.4.1.1.

18.1.2.60.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.58.

18.1.2.60.3 Method of test

Uplink TFS:

	TFI	**RB5 (16 kbps TTI 20ms)**	**RB6 (8 kbps TTI 40ms))**	**DCCH**
TFS	TF0, bits	0x336	0x336	0x148
	TF1, bits	1x336	1x336	1x148

Uplink TFCS:

TFCI	**(RB5,RB6 DCCH)**
UL_TFC0	(TF0, TF0,TF0)
UL_TFC1	(TF1, TF0,TF0)
UL_TFC2	(TF0, TF1,TF0)
UL_TFC3	(TF1, TF1,TF0)
UL_TFC4	(TF0, TF0,TF1)
UL_TFC5	(TF1, TF0,TF1)
UL_TFC6	(TF0, TF1,TF1)
UL_TFC7	(TF1, TF1,TF1)

Downlink TFS:

	TFI	RB5 (64 kbps TTI 40ms)	RB6 (8 kbps TTI 40ms))	DCCH
TFS	TF0, bits	0x656	0x336	0x148
	TF1, bits	1x656	1x336	1x148
	TF2, bits	2x656	N/A	N/A
	TF3, bits	4x656	N/A	N/A

Downlink TFCS:

TFCI	(RB5,RB6 DCCH)
DL_TFC0	(TF0,TF0,TF0)
DL_TFC1	(TF1,TF0,TF0)
DL_TFC2	(TF2,TF0,TF0)
DL_TFC3	(TF3,TF0,TF0)
DL_TFC4	(TF0,TF1,TF0)
DL_TFC5	(TF1,TF1,TF0)
DL_TFC6	(TF2,TF1,TF0)
DL_TFC7	(TF3,TF1,TF0)
DL_TFC8	(TF0,TF0,TF1)
DL_TFC9	(TF1,TF0,TF1)
DL_TFC10	(TF2,TF0,TF1)
DL_TFC11	(TF3,TF0,TF1)
DL_TFC12	(TF0,TF1,TF1)
DL_TFC13	(TF1,TF1,TF1)
DL_TFC14	(TF2,TF1,TF1)
DL_TFC15	(TF3,TF1,TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC9	UL_TFC1, UL_TFC5	DL_TFC0, DL_TFC8, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5	RB5: 312 RB6: No data	RB5: 632 RB6: No data
2	DL_TFC2, DL_TFC10	UL_TFC1, UL_TFC5	DL_TFC0, DL_TFC8, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5	RB5: 312 RB6: No data	RB5: 1272 RB6: No data
3	DL_TFC3, DL_TFC11	UL_TFC1, UL_TFC5	DL_TFC0, DL_TFC8, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5	RB5: 312 RB6: No data	RB5: 2552 RB6: No data
4	DL_TFC4 DL_TFC12	UL_TFC2, UL_TFC6	DL_TFC0, DL_TFC8, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC6	RB5: No data RB6: 312	RB5: No data RB6: 312
5	DL_TFC5 DL_TFC13	UL_TFC3, UL_TFC7	DL_TFC0, DL_TFC1, DL_TFC4, DL_TFC8, DL_TFC9, DL_TFC12, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 312 RB6: 312	RB5: 632 RB6: 312
6	DL_TFC6 DL_TFC14	UL_TFC3, UL_TFC7	DL_TFC0, DL_TFC2, DL_TFC4, DL_TFC8, DL_TFC10, DL_TFC12, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 312 RB6: 312	RB5: 1272 RB6: 312
7	DL_TFC7 DL_TFC15	UL_TFC3, UL_TFC7	DL_TFC0, DL_TFC3, DL_TFC4, DL_TFC8, DL_TFC11, DL_TFC12, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 312 RB6: 312	RB5: 2552 RB6: 312

NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TB size.

See 18.1.1.1 for test procedure.

18.1.2.60.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15 the UE transmitted transport format shall be

   - for sub-test 1: RLC SDUs on RB5 having the content equal to the first 312 bits of the test data sent by the SS in downlink; and no data shall be received on RB6.

   - for sub-test 2: RLC SDUs on RB5 having the content equal to the first 312 bits of the test data sent by the SS in downlink; and no data shall be received on RB6.

   - for sub-test 3: RLC SDUs on RB5 having the content equal to the first 312 bits of the test data sent by the SS in downlink; and no data shall be received on RB6.

   - for sub-test 4: RLC SDU on RB6 having the same content as sent by SS; and no data shall be received on RB5.

   - for sub-test 5 -7 : RLC SDU on RB6 having the same content as sent by SS; RLC SDUs on RB5 having the content equal to the first 312 bits of the test data sent by the SS in downlink.

18.1.2.61 Streaming / unknown / UL:16 DL:128 kbps / PS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.61.1 Conformance requirement

See 18.1.2.4.1.1.

18.1.2.61.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.64.

18.1.2.61.3 Method of test

Uplink TFS:

	TFI	RB5 (16 kbps TTI 20ms)	RB6 (8 kbps TTI 40ms))	DCCH
TFS	TF0, bits	0x336	0x336	0x148
	TF1, bits	1x336	1x336	1x148

Uplink TFCS:

TFCI	(RB5,RB6 DCCH)
UL_TFC0	(TF0, TF0,TF0)
UL_TFC1	(TF1, TF0,TF0)
UL_TFC2	(TF0, TF1,TF0)
UL_TFC3	(TF1, TF1,TF0)
UL_TFC4	(TF0, TF0,TF1)
UL_TFC5	(TF1, TF0,TF1)
UL_TFC6	(TF0, TF1,TF1)
UL_TFC7	(TF1, TF1,TF1)

Downlink TFS:

	TFI	RB5 (128 kbps TTI 20ms)	RB6 (8 kbps TTI 40ms))	DCCH
TFS	TF0, bits	0x656	0x336	0x148
	TF1, bits	1x656	1x336	1x148
	TF2, bits	2x656	N/A	N/A
	TF3, bits	3x656	N/A	N/A
	TF4, bits	4x656	N/A	N/A

Downlink TFCS:

TFCI	(RB5,RB6 DCCH)
DL_TFC0	(TF0, TF0,TF0)
DL_TFC1	(TF1, TF0,TF0)
DL_TFC2	(TF2, TF0,TF0)
DL_TFC3	(TF3,TF0,TF0)
DL_TFC4	(TF4,TF1,TF0)
DL_TFC5	(TF0,TF1,TF0)
DL_TFC6	(TF1,TF1,TF0)
DL_TFC7	(TF2,TF1,TF0)
DL_TFC8	(TF3,TF1,TF0)
DL_TFC9	(TF4,TF1,TF0)
DL_TFC10	(TF0,TF0,TF1)
DL_TFC11	(TF1,TF0,TF1)
DL_TFC12	(TF2,TF0,TF1)
DL_TFC13	(TF3,TF0,TF1)
DL_TFC14	(TF4,TF0,TF1)
DL_TFC15	(TF0,TF1,TF1)
DL_TFC16	(TF1,TF1,TF1)
DL_TFC17	(TF2,TF1,TF1)
DL_TFC18	(TF3,TF1,TF1)
DL_TFC19	(TF4,TF1,TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC9	UL_TFC1, UL_TFC5	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5	RB5: 312 RB6: No data	RB5: 632 RB6: No data
2	DL_TFC2, DL_TFC10	UL_TFC1, UL_TFC5	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5	RB5: 312 RB6: No data	RB5: 1272 RB6: No data
3	DL_TFC3, DL_TFC11	UL_TFC1, UL_TFC5	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5	RB5: 312 RB6: No data	RB5: 1912 RB6: No data
4	DL_TFC4 DL_TFC14	UL_TFC1, UL_TFC5	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5	RB5: 312 RB6: No data	RB5: 2552 RB6: No data
5	DL_TFC5 DL_TFC15	UL_TFC2, UL_TFC6	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC2, UL_TFC4, UL_TFC6	RB5: No data RB6: 312	RB5: No data RB6: 312
6	DL_TFC6 DL_TFC16	UL_TFC3 UL_TFC7	DL_TFC0, DL_TFC1, DL_TFC5, DL_TFC10, DL_TFC11, DL_TFC15, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 312 RB6: 312	RB5: 632 RB6: 312
7	DL_TFC7 DL_TFC17	UL_TFC3, UL_TFC7	DL_TFC0, DL_TFC2, DL_TFC5, DL_TFC10, DL_TFC12, DL_TFC15, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC7,	RB5: 312 RB6: 312	RB5: 1272 RB6: 312
8	DL_TFC8 DL_TFC18	UL_TFC3, UL_TFC7	DL_TFC0, DL_TFC3, DL_TFC5, DL_TFC10, DL_TFC13, DL_TFC15, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 312 RB6: 312	RB5: 1912 RB6: 312

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
9	DL_TFC9 DL_TFC19	UL_TFC3, UL_TFC7	DL_TFC0, DL_TFC4, DL_TFC5, DL_TFC10, DL_TFC14, DL_TFC15, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 312 RB6: 312	RB5: 2552 RB6: 312
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TB size.						

See 18.1.1.1 for test procedure.

18.1.2.61.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1-4 : RLC SDUs on RB5 having the content equal to the first 312 bits of the test data sent by the SS in downlink; and no data shall be received on RB6.
   - for sub-test 5: RLC SDU on RB6 having the same content as sent by SS; and no data shall be received on RB5.
   - for sub-test 6 - 9: RLC SDUs on RB5 having the content equal to the first 312 bits of the test data sent by the SS in downlink and RLC SDU on RB6 having the same content as sent by SS.

18.1.2.62 Streaming / unknown / UL:32 DL:256 kbps / PS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.62.1 Conformance requirement

See 18.1.2.4.1.1.

18.1.2.62.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.65 for 20 ms TTI case.

18.1.2.62.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps TTI 20ms)	RB6 (8 kbps TTI 40ms))	DCCH
TFS	TF0, bits	0x336	0x336	0x148
	TF1, bits	1x336	1x336	1x148
	TF2, bits	2x336	N/A	N/A

Uplink TFCS:

TFCI	(RB5,RB6 DCCH)
UL_TFC0	(TF0, TF0,TF0)
UL_TFC1	(TF1, TF0,TF0)
UL_TFC2	(TF2, TF0,TF0)
UL_TFC3	(TF0,TF1,TF0)
UL_TFC4	(TF1,TF1,TF0)
UL_TFC5	(TF2,TF1,TF0)
UL_TFC6	(TF0,TF0,TF1)
UL_TFC7	(TF1,TF0,TF1)
UL_TFC8	(TF2,TF0,TF1)
UL_TFC9	(TF0,TF1,TF1)
UL_TFC10	(TF1,TF1,TF1)
UL_TFC11	(TF2,TF1,TF1)

Downlink TFS:

	TFI	RB5 (256 kbps TTI 10ms)	RB6 (8 kbps TTI 40ms))	DCCH
TFS	TF0, bits	0x336	0x336	0x148
	TF1, bits	1x336	1x336	1x148
	TF2, bits	2x336	N/A	N/A
	TF3, bits	4x336	N/A	N/A
	TF4, bits	8x336	N/A	N/A

Downlink TFCS:

TFCI	(RB5,RB6 DCCH)
DL_TFC0	(TF0, TF0,TF0)
DL_TFC1	(TF1, TF0,TF0)
DL_TFC2	(TF2, TF0,TF0)
DL_TFC3	(TF3,TF0,TF0)
DL_TFC4	(TF4,TF0,TF0)
DL_TFC5	(TF0,TF1,TF0)
DL_TFC6	(TF1,TF1,TF0)
DL_TFC7	(TF2,TF1,TF0)
DL_TFC8	(TF3,TF1,TF0)
DL_TFC9	(TF4,TF1,TF0)
DL_TFC10	(TF0,TF0,TF1)
DL_TFC11	(TF1,TF0,TF1)
DL_TFC12	(TF2,TF0,TF1)
DL_TFC13	(TF3,TF0,TF1)
DL_TFC14	(TF4,TF0,TF1)
DL_TFC15	(TF0,TF1,TF1)
DL_TFC16	(TF1,TF1,TF1)
DL_TFC17	(TF2,TF1,TF1)
DL_TFC18	(TF3,TF1,TF1)
DL_TFC19	(TF4,TF1,TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC11	UL_TFC1, UL_TFC7	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7	RB5: 312 RB6: No data	RB5: 312 RB6: No data
2	DL_TFC2, DL_TFC12	UL_TFC2, UL_TFC8	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 632 RB6: No data	RB5: 632 RB6: No data
3	DL_TFC3, DL_TFC13	UL_TFC2, UL_TFC8	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 632 RB6: No data	RB5: 1272 RB6: No data
4	DL_TFC4 DL_TFC14	UL_TFC2, UL_TFC8	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 632 RB6: No data	RB5: 2552 RB6: No data
5	DL_TFC5 DL_TFC15	UL_TFC3, UL_TFC9	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: No data RB6: 312	RB5: No data RB6: 312
6	DL_TFC6 DL_TFC16	UL_TFC4 UL_TFC10	DL_TFC0, DL_TFC1, DL_TFC5, DL_TFC10, DL_TFC11, DL_TFC15, UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC7, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 312 RB6: 312	RB5: 312 RB6: 312
7	DL_TFC7 DL_TFC17	UL_TFC4 UL_TFC10	DL_TFC0, DL_TFC2, DL_TFC5, DL_TFC10, DL_TFC12, DL_TFC15, UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC7, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 312 RB6: 312	RB5: 632 RB6: 312
8	DL_TFC8 DL_TFC18	UL_TFC4 UL_TFC10	DL_TFC0, DL_TFC3, DL_TFC5, DL_TFC10, DL_TFC13, DL_TFC15, UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC7, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 312 RB6: 312	RB5: 1272 RB6: 312

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
9	DL_TFC9 DL_TFC19	UL_TFC4 UL_TFC10	DL_TFC0, DL_TFC4, DL_TFC5, DL_TFC10, DL_TFC14, DL_TFC15, UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC7, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 312 RB6: 312	RB5: 2552 RB6: 312
10	DL_TFC9 DL_TFC19	UL_TFC5 UL_TFC11	DL_TFC0, DL_TFC4, DL_TFC5, DL_TFC10, DL_TFC14, DL_TFC15, UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8, UL_TFC9	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 632 RB6: 312	RB5: 2552 RB6: 312
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TB size.						

See 18.1.1.1 for test procedure.

18.1.2.62.4 Test requirements

See 18.1.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15 the UE transmitted transport format shall be:

   - for sub-test 1: RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.

   - for sub-test 2 -4 : RLC SDUs on RB5 having the content equal to the first 632 bits of the test data sent by the SS in downlink; and no data shall be received on RB6.

   - for sub-test 5: RLC SDU on RB6 having the same content as sent by SS; and no data shall be received on RB5.

   - for sub-test 6: RLC SDUs on RB5 having the content equal to the first 632 bits of the test data sent by the SS in downlink; RLC SDU on RB6 having the same content as sent by SS.

   - for sub-test 7 -9: RLC SDUs on RB5 having the content equal to the first 312 bits of the test data sent by the SS in downlink;. RLC SDU on RB6 having the same content as sent by SS.

   - for sub-test 10: RLC SDUs on RB5 having the content equal to the first 632 bits of the test data sent by the SS in downlink;. RLC SDU on RB6 having the same content as sent by SS.

18.1.2.63 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:0 DL:0 kbps / PS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH

18.1.2.63.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.63.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.38a.

18.1.2.63.3 Method of test

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (0 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	N/A	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF0, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (0 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	N/A	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF0, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC4	UL_TFC1, UL_TFC4	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 39 RB6: 103 RB7: 60 RB8: No data	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC5	UL_TFC2, UL_TFC5	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit).						

18.1.2.63.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 15a and step 15b the UE shall return

   - for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.

   - for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.64 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH

18.1.2.64.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.64.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.38b.

18.1.2.64.3 Method of test

See 18.1.1.2 for test procedure.

Uplink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (8 kbps)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF0, TF0, TF1)
UL_TFC8	(TF2, TF1, TF1, TF0, TF1)
UL_TFC9	(TF0, TF0, TF0, TF1, TF1)
UL_TFC10	(TF1, TF0, TF0, TF1, TF1)
UL_TFC11	(TF2, TF1, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (8 kbps)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF0, TF1)
DL_TFC7	(TF1, TF0, TF0, TF0, TF1)
DL_TFC8	(TF2, TF1, TF1, TF0, TF1)
DL_TFC9	(TF0, TF0, TF0, TF1, TF1)
DL_TFC10	(TF1, TF0, TF0, TF1, TF1)
DL_TFC11	(TF2, TF1, TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1 DL_TFC7	UL_TFC1 UL_TFC7	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2 DL_TFC8	UL_TFC2 UL_TFC8	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 81 RB6: 103 RB7: 60 RB8:312	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3 DL_TFC9	UL_TFC3 UL_TFC9	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4 DL_TFC10	UL_TFC4 UL_TFC10	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5 DL_TFC11	UL_TFC5 UL_TFC11	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312

NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the uplink TTI for RB8 is 10 ms while the downlink TTI is 40 ms then, to achieve continuous data transmission in uplink the size of the uplink RLC SDU has been set such that it will be transmitted over four subsequent TTIs, i.e. UL RLC SDU SIZE has been set to four times the uplink TFS size minus 8 (the size of a 7 bit length indicator and expansion bit).

18.1.2.64.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub test.

3. At step 15 the UE shall return

   - for sub-test 1: RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.

   - for sub-test 2: RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.

   - for sub-test 3: RLC SDU on RB8 having the same content as sent by SS in the downlink; and no data shall be received on RB5, RB6 and RB7.

   - for sub-test 4: RLC SDU on RB5, RB8 having the same content as sent by SS and no data shall be received on RB6 and RB7.

   - for sub-test 5: RLC SDU on RB5, RB6, RB7, RB8 having the same content as sent by SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.65 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:32 kbps / PS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH

18.1.2.65.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.65.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.38c.

18.1.2.65.3 Method of test

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (32 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (32 kbps)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF2, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1 DL_TFC16	UL_TFC1 UL_TFC16	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC15, UL_TFC16	RB5: 39 RB6: No data RB7: No data RB8: No data	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2 DL_TFC17	UL_TFC2 UL_TFC17	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: No data	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3 DL_TFC18	UL_TFC3 UL_TFC18	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC3, UL_TFC15, UL_TFC18	RB5: No data RB6: No data RB7: No data RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4 DL_TFC19	UL_TFC4 UL_TFC19	DL_TFC0, DL_TFC1, DL_TFC3, DL_TFC15, DL_TFC16, DL_TFC18, UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC15, UL_TFC16, UL_TFC18	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19	RB5: 39 RB6: No data RB7: No data RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5 DL_TFC20	UL_TFC5 UL_TFC20	DL_TFC0, DL_TFC2, DL_TFC3, DL_TFC15, DL_TFC17, DL_TFC18, UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC17, UL_TFC18	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC17, UL_TFC18, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC6, DL_TFC21	UL_TFC6, UL_TFC21	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC6, UL_TFC15, UL_TFC21	RB5: No data RB6: No data RB7: No data RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 632
7	DL_TFC7, DL_TFC22	UL_TFC7, UL_TFC22	DL_TFC0, DL_TFC1, DL_TFC6, DL_TFC15, DL_TFC16, DL_TFC21, UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC15, UL_TFC16, UL_TFC21	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC22	RB5: 39 RB6: No data RB7: No data RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 632
8	DL_TFC8, DL_TFC23	UL_TFC8, UL_TFC23	DL_TFC0, DL_TFC2, DL_TFC6, DL_TFC15, DL_TFC17, DL_TFC21, UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC15, UL_TFC17, UL_TFC21	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8, UL_TFC15, UL_TFC17, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
9	DL_TFC9, DL_TFC24	UL_TFC9, UL_TFC24	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC9, UL_TFC15, UL_TFC24	RB5: No data RB6: No data RB7: No data RB8: 952	RB5: No data RB6: No data RB7: No data RB8: 952
10	DL_TFC10 , DL_TFC25	UL_TFC10 , UL_TFC25	DL_TFC0, DL_TFC1, DL_TFC9, DL_TFC15, DL_TFC16, DL_TFC24, UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC15, UL_TFC16, UL_TFC24	UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16, UL_TFC24, UL_TFC25	RB5: 39 RB6: No data RB7: No data RB8: 952	RB5: 39 RB6: No data RB7: No data RB8: 952
11	DL_TFC11 , DL_TFC26	UL_TFC11 , UL_TFC26	DL_TFC0, DL_TFC2, DL_TFC9, DL_TFC15, DL_TFC17, DL_TFC24, UL_TFC0, UL_TFC2, UL_TFC9, UL_TFC15, UL_TFC17, UL_TFC24	UL_TFC0, UL_TFC2, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17, UL_TFC24, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: 81 RB6: 103 RB7: 60 RB8: 952
12	DL_TFC12 , DL_TFC27	UL_TFC12 , UL_TFC27	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: No data RB6: No data RB7: No data RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 1272
13	DL_TFC13 , DL_TFC28	UL_TFC13 , UL_TFC28	DL_TFC0, DL_TFC1, DL_TFC12, DL_TFC15, DL_TFC16, DL_TFC27, UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC15, UL_TFC16, UL_TFC27	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 1272
14	DL_TFC14 , DL_TFC29	UL_TFC14 , UL_TFC29	DL_TFC0, DL_TFC2, DL_TFC12, DL_TFC15, DL_TFC17, DL_TFC27, UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC15, UL_TFC17, UL_TFC27	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 1272

NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the uplink TTI for RB8 is 10 ms while the downlink TTI is 40 ms then, to achieve continuous data transmission in uplink the size of the uplink RLC SDU has been set such that it will be transmitted over four subsequent TTIs, i.e. UL RLC SDU SIZE has been set to four times the uplink TFS size minus 8 (the size of a 7 bit length indicator and expansion bit).

18.1.2.65.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub test.

3. At step 15 the UE shall return

- for sub-test 1: RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
- for sub-test 2: RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 3, 6, 9 and 12: RLC SDU on RB8 having the same content sent by the SS in the downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 4, 7, 10 and 13: RLC SDU on RB5 ,RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 5, 8, 11 and 14: an RLC SDU on RB5, RB6, RB7, RB8 having the same content as sent by SS in the downlink.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.66 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:128 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.66.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.66.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.66.

18.1.2.66.3 Method of test

See 18.1.1.2 for test procedure.

Uplink TFS:

		RB5 (RAB subflow #1)	**RB6 (RAB subflow #2)**	**RB7 (RAB subflow #3)**	**RB8 (128 kbps, 20 ms TTI)**	**DCCH**
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (128 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF2, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) Note 2	Test data size (bits) Note 2
1	DL_TFC1, DL_TFC16	UL_TFC1, UL_TFC16	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC17	UL_TFC2, UL_TFC17	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC18	UL_TFC3, UL_TFC18	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC18	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4, DL_TFC19	UL_TFC4, UL_TFC19	DL_TFC0, DL_TFC15, DUL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5, DL_TFC20	UL_TFC5, UL_TFC20	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC17, UL_TFC18, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC6, DL_TFC21	UL_TFC6, UL_TFC21	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC15, UL_TFC21	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 632
7	DL_TFC7, DL_TFC22	UL_TFC7, UL_TFC22	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC7, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 632
8	DL_TFC8, DL_TFC23	UL_TFC8, UL_TFC23	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8, UL_TFC15, UL_TFC17, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632

9	DL_TFC9, DL_TFC24	UL_TFC9, UL_TFC24	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC15, UL_TFC24	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: No data RB6: No data RB7: No data RB8: 952
10	DL_TFC10, DL_TFC25	UL_TFC10, UL_TFC25	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16, UL_TFC24, UL_TFC25	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: 39 RB6: No data RB7: No data RB8: 952
11	DL_TFC11, DL_TFC26	UL_TFC11, UL_TFC26	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17, UL_TFC24, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: 81 RB6: 103 RB7: 60 RB8: 952
12	DL_TFC12, DL_TFC27	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 1272
13	DL_TFC13, DL_TFC28	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 1272
14	DL_TFC14, DL_TFC29	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 1272
NOTE1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC15 are part of minimum set of TFCIs NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).						

18.1.2.66.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 15a and step 15b the UE shall return

- for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7, RB8 or RB9.
- for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8 or RB9.
- for sub-test 3, 6, 9 and 12: RLC SDUs on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6, RB7 or RB9.
- for sub-test 4, 7, 10 and 13: RLC SDUs on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6, RB7 or RB9.
- for sub-test 5, 8, 11 and 14: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by SS. No data shall be received on RB9.
- for sub-test 15: RLC SDUs on RB5, RB6, RB7 and RB9 having the same content as sent by SS; and no data shall be received on RB8.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.67 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.67.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.67.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.38d.

18.1.2.67.3 Method of test

See 18.1.2 for test procedure.

Uplink TFS:

	TFI	**RB5 (RAB subflow #1)**	**RB6 (RAB subflow #2)**	**RB7 (RAB subflow #3)**	**RB8 + RB9 (64 kbps, 20 ms TTI)**	**DCCH**
TFS	TF0, bits	0x81	0x103	0x60	0x340	0x148
	TF1, bits	1x39	1x103	1x60	1x340	1x148
	TF2, bits	1x81	N/A	N/A	2x340	N/A
	TF3, bits	N/A	N/A	N/A	3x340	N/A
	TF4, bits	N/A	N/A	N/A	4x340	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8+RB9, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 + RB9 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x340	0x148
	TF1, bits	1x39	1x103	1x60	1x340	1x148
	TF2, bits	1x81	N/A	N/A	2x340	N/A
	TF3, bits	N/A	N/A	N/A	3x340	N/A
	TF4, bits	N/A	N/A	N/A	4x340	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8+RB9, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF2, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) Note 2	Test data size (bits) Note 2
1	DL_TFC1, DL_TFC16	UL_TFC1, UL_TFC16	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312	RB5: 39 RB6: No data RB7: No data RB8: No data RB9: No data
2	DL_TFC2, DL_TFC17	UL_TFC2, UL_TFC17	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data RB9: No data
3	DL_TFC3, DL_TFC18	UL_TFC3, UL_TFC18	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC18	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312	RB5: No data RB6: No data RB7: No data RB8: 312 RB9: No data
4	DL_TFC4, DL_TFC19	UL_TFC4, UL_TFC19	DL_TFC0, DL_TFC15, DUL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312	RB5: 39 RB6: No data RB7: No data RB8: 312 RB9: No data
5	DL_TFC5, DL_TFC20	UL_TFC5, UL_TFC20	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC17, UL_TFC18, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: No data
6	DL_TFC6, DL_TFC21	UL_TFC6, UL_TFC21	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC15, UL_TFC21	RB5: 39 RB6: 103 RB7: 60 RB8: 632 RB9: 632	RB5: No data RB6: No data RB7: No data RB8: 632 RB9: No data
7	DL_TFC7, DL_TFC22	UL_TFC7, UL_TFC22	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC7, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 632 RB9: 632	RB5: 39 RB6: No data RB7: No data RB8: 632 RB9: No data
8	DL_TFC8, DL_TFC23	UL_TFC8, UL_TFC23	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8, UL_TFC15, UL_TFC17, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632 RB9: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632 RB9: No data

9	DL_TFC9, DL_TFC24	UL_TFC9, UL_TFC24	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC15, UL_TFC24	RB5: 39 RB6: 103 RB7: 60 RB8: 952 RB9: 952	RB5: No data RB6: No data RB7: No data RB8: 952 RB9: No data
10	DL_TFC10, DL_TFC25	UL_TFC10, UL_TFC25	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16, UL_TFC24, UL_TFC25	RB5: 39 RB6: 103 RB7: 60 RB8: 952 RB9: 952	RB5: 39 RB6: No data RB7: No data RB8: 952 RB9: No data
11	DL_TFC11, DL_TFC26	UL_TFC11, UL_TFC26	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17, UL_TFC24, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 952 RB9: 952	RB5: 81 RB6: 103 RB7: 60 RB8: 952 RB9: No data
12	DL_TFC12, DL_TFC27	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272 RB9: 1272	RB5: No data RB6: No data RB7: No data RB8: 1272 RB9: No data
13	DL_TFC13, DL_TFC28	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272 RB9: 1272	RB5: 39 RB6: No data RB7: No data RB8: 1272 RB9: No data
14	DL_TFC14, DL_TFC29	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272 RB9: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 1272 RB9: No data
14	DL_TFC14, DL_TFC29	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272 RB9: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: No data RB9: 1272

NOTE1:	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC15 are part of minimum set of TFCIs
NOTE2:	See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8 and RB9: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).

18.1.2.67.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 15a and step 15b the UE shall return

   - for sub-test 1: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7, RB8 or RB9.

   - for sub-test 2: RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8 or RB9.

   - for sub-test 3, 6, 9 and 12: RLC SDUs on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6, RB7 or RB9.

   - for sub-test 4, 7, 10 and 13: RLC SDUs on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6, RB7 or RB9.

   - for sub-test 5, 8, 11 and 14: RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by SS; no data shall be received on RB9.

   - for sub-test 15: RLC SDUs on RB5, RB6, RB7 and RB9 having the same content as sent by SS; and no data shall be received on RB8.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message

18.1.2.68 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.68.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.68.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.51a for the 20 ms TTI case.

18.1.2.68.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv. 64 kbps)
Uplink RLC TM RLC Segmentation indication Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard	 FALSE 100ms
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	**RB5 (Conv. 64 kbps)**	**RB6 (I/B 8 kbps)**	**DCCH**
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148

Uplink TFCS:

TFCI	**(RB5, RB6, DCCH)**
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF0, TF1, TF0)
UL_TFC3	(TF1, TF1, TF0)
UL_TFC4	(TF0, TF0, TF1)
UL_TFC5	(TF1, TF0, TF1)
UL_TFC6	(TF0, TF1, TF1)
UL_TFC7	(TF1, TF1, TF1)

Downlink TFS:

	TFI	**RB5 (Conv. 64 kbps)**	**RB6 (I/B 8 kbps)**	**DCCH**
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148

Downlink TFCS:

TFCI	**(RB5, RB6, DCCH)**
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF0, TF1, TF0)
DL_TFC3	(TF1, TF1, TF0)
DL_TFC4	(TF0, TF0, TF1)
DL_TFC5	(TF1, TF0, TF1)
DL_TFC6	(TF0, TF1, TF1)
DL_TFC7	(TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC5	UL_TFC1, DL_TFC5	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5	RB5: No data RB6: 312	RB5: No data RB6: 312
2	DL_TFC2, DL_TFC6	UL_TFC2, DL_TFC6	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC2, UL_TFC4, UL_TFC6	RB5: 2x640 RB6: No data	RB5: 2x640 RB6: No data
3	DL_TFC3, DL_TFC7	UL_TFC3, DL_TFC7	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 2x640 RB6: 312	RB5: 2x640 RB6: 312
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB6: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB5 and RB6 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size for RB6 has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).and .the UL RLC SDU size for RB5 has been set equal to the uplink TFS size under test.						

18.1.2.68.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 15a and step 15b the UE shall return

   - for sub-test 1: an RLC SDU on RB6 having the same content as sent by SS; and no data shall be received on RB5.

   - for sub-test 2: two RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6.

   - for sub-test 3: two RLC SDUs on RB5 and one RLC SDU on RB6 having the same content as sent by SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.69 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / unknown / UL:16 DL:64 kbps / PS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.69.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.69.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.67.

18.1.2.69.3 Method of test

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (16bps, 20 ms TTI)	RB9 (8kbps, 40ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x336	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, RB9, DCCH)
UL_TFC0	(TF0,TF0,TF0,TF0,TF0,TF0)
UL_TFC1	(TF1,TF0,TF0,TF0,TF0,TF0)
UL_TFC2	(TF2,TF1,TF1,TF0,TF0,TF0)
UL_TFC3	(TF0,TF0,TF0,TF1,TF0,TF0)
UL_TFC4	(TF1,TF0,TF0,TF1,TF0,TF0)
UL_TFC5	(TF2,TF1,TF1,TF1,TF0,TF0)
UL_TFC6	(TF0,TF0,TF0,TF0,TF1,TF0)
UL_TFC7	(TF1,TF0,TF0,TF0,TF1,TF0)
UL_TFC8	(TF2,TF1,TF1,TF0,TF1,TF0)
UL_TFC9	(TF0,TF0,TF0,TF1,TF1,TF0)
UL_TFC10	(TF1,TF0,TF0,TF1,TF1,TF0)
UL_TFC11	(TF2,TF1,TF1,TF1,TF1,TF0)
UL_TFC12	(TF0,TF0,TF0,TF0,TF0,TF1)
UL_TFC13	(TF1,TF0,TF0,TF0,TF0,TF1)
UL_TFC14	(TF2,TF1,TF1,TF0,TF0,TF1)
UL_TFC15	(TF0,TF0,TF0,TF1,TF0,TF1)
UL_TFC16	(TF1,TF0,TF0,TF1,TF0,TF1)
UL_TFC17	(TF2,TF1,TF1,TF1,TF0,TF1)
UL_TFC18	(TF0,TF0,TF0,TF0,TF1,TF1)
UL_TFC19	(TF1,TF0,TF0,TF0,TF1,TF1)
UL_TFC20	(TF2,TF1,TF1,TF0,TF1,TF1)
UL_TFC21	(TF0,TF0,TF0,TF1,TF1,TF1)
UL_TFC22	(TF1,TF0,TF0,TF1,TF1,TF1)
UL_TFC23	(TF2,TF1,TF1,TF1,TF1,TF1)

Downlink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64s, 40ms TTI)	RB9 (8kbps, 40ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x656	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x656	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x656	N/A	N/A
	TF3, bits	N/A	N/A	N/A	4x656	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, RB9, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0, TF0)
DL_TFC12	(TF0, TF0, TF0, TF0, TF1, TF0)
DL_TFC13	(TF1, TF0, TF0, TF0, TF1, TF0)
DL_TFC14	(TF2, TF1, TF1, TF0, TF1, TF0)
DL_TFC15	(TF0, TF0, TF0, TF1, TF1, TF0)
DL_TFC16	(TF1, TF0, TF0, TF1, TF1, TF0)
DL_TFC17	(TF2, TF1, TF1, TF1, TF1, TF0)
DL_TFC18	(TF0, TF0, TF0, TF2, TF1, TF0)
DL_TFC19	(TF1, TF0, TF0, TF2, TF1, TF0)
DL_TFC20	(TF2, TF1, TF1, TF2, TF1, TF0)
DL_TFC21	(TF0, TF0, TF0, TF3, TF1, TF0)
DL_TFC22	(TF1, TF0, TF0, TF3, TF1, TF0)
DL_TFC23	(TF2, TF1, TF1, TF3, TF1, TF0)
DL_TFC24	(TF0, TF0, TF0, TF0, TF0, TF1)
DL_TFC25	(TF1, TF0, TF0, TF0, TF0, TF1)
DL_TFC26	(TF2, TF1, TF1, TF0, TF0, TF1)
DL_TFC27	(TF0, TF0, TF0, TF1, TF0, TF1)
DL_TFC28	(TF1, TF0, TF0, TF1, TF0, TF1)
DL_TFC29	(TF2, TF1, TF1, TF1, TF0, TF1)
DL_TFC30	(TF0, TF0, TF0, TF2, TF0, TF1)
DL_TFC31	(TF1, TF0, TF0, TF2, TF0, TF1)
DL_TFC32	(TF2, TF1, TF1, TF2, TF0, TF1)
DL_TFC33	(TF0, TF0, TF0, TF3, TF0, TF1)
DL_TFC34	(TF1, TF0, TF0, TF3, TF0, TF1)
DL_TFC35	(TF2, TF1, TF1, TF3, TF0, TF1)
DL_TFC36	(TF0, TF0, TF0, TF0, TF1, TF1)
DL_TFC37	(TF1, TF0, TF0, TF0, TF1, TF1)
DL_TFC38	(TF2, TF1, TF1, TF0, TF1, TF1)
DL_TFC39	(TF0, TF0, TF0, TF1, TF1, TF1)
DL_TFC40	(TF1, TF0, TF0, TF1, TF1, TF1)
DL_TFC41	(TF2, TF1, TF1, TF1, TF1, TF1)
DL_TFC42	(TF0, TF0, TF0, TF2, TF1, TF1)
DL_TFC43	(TF1, TF0, TF0, TF2, TF1, TF1)
DL_TFC44	(TF2, TF1, TF1, TF2, TF1, TF1)
DL_TFC45	(TF0, TF0, TF0, TF3, TF1, TF1)
DL_TFC46	(TF1, TF0, TF0, TF3, TF1, TF1)
DL_TFC47	(TF2, TF1, TF1, TF3, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC25	UL_TFC1, UL_TFC13	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13	RB5: 39 RB6: No data RB7: No data RB8: No data RB8: No data	RB5: 39 RB6: No data RB7: No data RB8: No data RB9: No data
2	DL_TFC2, DL_TFC26	UL_TFC2, UL_TFC14	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14	RB5: 81 RB6: 103 RB7: 60 RB8: No data RB8: No data	RB5: 81 RB6: 103 RB7: 60 RB8: No data RB9: No data
3	DL_TFC3, DL_TFC27	UL_TFC3, UL_TFC15	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC3, UL_TFC12, UL_TFC15	RB5: No data RB6: No data RB7: No data RB8: 312 RB9: No data	RB5: No data RB6: No data RB7: No data RB8: 632 RB9: No data
4	DL_TFC4, DL_TFC28	UL_TFC4, UL_TFC16	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16	RB5: 39 RB6: No data RB7: No data RB8:312 RB9: No data	RB5: 39 RB6: No data RB7: No data RB8: 632 RB9: No data
5	DL_TFC5, DL_TFC29	UL_TFC5 UL_TFC17	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: No data	RB5: 81 RB6: 103 RB7: 60 RB8: 632 RB9: No data
6	DL_TFC6, DL_TFC30	UL_TFC6, UL_TFC18	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC3, UL_TFC12, UL_TFC15	RB5: No data RB6: No data RB7: No data RB8: 312 RB9: No data	RB5: No data RB6: No data RB7: No data RB8: 1272 RB9: No data
7	DL_TFC7, DL_TFC31	UL_TFC7, UL_TFC19	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16	RB5: 39 RB6: No data RB7: No data RB8: 312 RB9: No data	RB5: 39 RB6: No data RB7: No data RB8: 1272 RB9: No data

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
8	DL_TFC8, DL_TFC32	UL_TFC8, UL_TFC20	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: No data	RB5: 81 RB6: 103 RB7: 60 RB8:1272 RB9: No data
9	DL_TFC9, DL_TFC33	UL_TFC9, UL_TFC21	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC3, UL_TFC12, UL_TFC15	RB5: No data RB6: No data RB7: No data RB8: 312 RB9: No data	RB5: No data RB6: No data RB7: No data RB8: 2552 RB9: No data
10	DL_TFC10, DL_TFC34	UL_TFC10 UL_TFC22	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16	RB5: 39 RB6: No data RB7: No data RB8: 312 RB9: No data	RB5: 39 RB6: No data RB7: No data RB8: 2552 RB9: 312
11	DL_TFC11, DL_TFC35	UL_TFC11 , UL_TFC23	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: No data	RB5: 81 RB6: 103 RB7: 60 RB8: 2552 RB9: No data
12	DL_TFC12, DL_TFC36	UL_TFC6, UL_TFC18	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC6, UL_TFC12, UL_TFC18	RB5: No data RB6: No data RB7: No data RB8: No data RB9: 312	RB5: No data RB6: No data RB7: No data RB8: No data RB9: 312
13	DL_TFC13, DL_TFC37	UL_TFC7, UL_TFC19	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7, UL_TFC12, UL_TFC13, UL_TFC18, UL_TFC19	RB5: 39 RB6: No data RB7: No data RB8: No data RB9: 312	RB5: 39 RB6: No data RB7: No data RB8: No data RB9: 312
14	DL_TFC14, DL_TFC38	UL_TFC8, UL_TFC20	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8, UL_TFC12, UL_TFC14, UL_TFC18, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: No data RB9: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data RB9: 312

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
15	DL_TFC15, DL_TFC39	UL_TFC9, UL_TFC21	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9, UL_TFC12, UL_TFC15, UL_TFC18, UL_TFC21	RB5: No data RB6: No data RB7: No data RB8: 312 RB9: 312	RB5: No data RB6: No data RB7: No data RB8: 632 RB9: 312
16	DL_TFC16, DL_TFC40	UL_TFC10, UL_TFC22	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19, UL_TFC21, UL_TFC22	RB5: 39 RB6: No data RB7: No data RB8: 312 RB9: 312	RB5: 39 RB6: No data RB7: No data RB8: 632 RB9: 312
17	DL_TFC17, DL_TFC41	UL_TFC11, UL_TFC23	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC18, UL_TFC20, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 632 RB9: 312
18	DL_TFC18, DL_TFC42	UL_TFC9, UL_TFC21	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9, UL_TFC12, UL_TFC15, UL_TFC18, UL_TFC21	RB5: No data RB6: No data RB7: No data RB8: 312 RB9: 312	RB5: No data RB6: No data RB7: No data RB8: 1272 RB9: 312
19	DL_TFC19, DL_TFC43	UL_TFC10, UL_TFC22	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19, UL_TFC21, UL_TFC22	RB5: 39 RB6: No data RB7: No data RB8: 312 RB9: 312	RB5: 39 RB6: No data RB7: No data RB8: 1272 RB9: 312

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
20	DL_TFC20, DL_TFC44	UL_TFC11, UL_TFC23	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC18, UL_TFC20, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 1272 RB9: 312
21	DL_TFC21, DL_TFC45	UL_TFC9, UL_TFC21	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9 UL_TFC12, UL_TFC15, UL_TFC18, UL_TFC21	RB5: No data RB6: No data RB7: No data RB8: 312 RB9: 312	RB5: No data RB6: No data RB7: No data RB8: 2552 RB9: 312
22	DL_TFC22, DL_TFC46	UL_TFC10, UL_TFC22	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10 UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19, UL_TFC21, UL_TFC22	RB5: 39 RB6: No data RB7: No data RB8: 312 RB9: 312	RB5: 39 RB6: No data RB7: No data RB8: 2552 RB9: 312
23	DL_TFC23, DL_TFC47	UL_TFC11, UL_TFC23	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11 UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC18, UL_TFC20, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 2552 RB9: 312

NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the uplink TTI for RB8 is 10 ms while the downlink TTI is 20 ms then, to achieve continuous data transmission in uplink the size of the uplink RLC SDU has been set such that it will be transmitted over two subsequent TTIs, i.e. UL RLC SDU SIZE has been set to two times the uplink TFS size minus 8 bits (size of 7 bit length indicator and expansion bit).

18.1.2.69.4 Test requirements

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 15a and step 15b the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7, RB8 and RB9.
- for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8 and RB9.
- for sub-test 3, 6, 9: an RLC SDU on RB8 having the content equal to the first 312 bits of the test data sent by sent by SS in downlink; and no data shall be received on RB5, RB6, RB7 and RB9.
- for sub-test 4, 7, 10: an RLC SDU on RB5 having the same content of the test data sent by the SS in downlink; and no data shall be received on RB6, RB7 and RB9; an RLC SDU on RB8 having the content equal to the first 312 bits of the test data sent by sent by SS.
- for sub-test 5, 8, 11: an RLC SDU on RB5, RB6, RB7 having the same content as sent by SS; and no data shall be received on RB9; an RLC SDU on RB8 having the content equal to the first 312 bits of the test data sent by sent by SS.
- for sub-test 12:an RLC SDU on RB9 having the same content as sent by SS; and no data shall be received on RB5, RB6, RB7, RB8.
- for sub-test 13: an RLC SDU on RB5 and RB9 having the same content as sent by SS; and no data shall be received on RB6, RB7, RB8.
- for sub-test 14: an RLC SDU on RB5, RB6, RB7 and RB9 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 15, 18, 21: an RLC SDU on RB9 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7; an RLC SDU on RB8 having the content equal to the first 312 bits of the test data sent by sent by SS.
- for sub-test 16, 19, 22: an RLC SDU on RB5 and RB9 having the same content as sent by SS; and no data shall be received on RB6 and RB7; an RLC SDU on RB8 having the content equal to the first 312 bits of the test data sent by sent by SS.
- for sub-test 17, 20, 23: an RLC SDU on RB5, RB6, RB7 and RB9 having the same content as sent by SS; an RLC SDU on RB8 having the content equal to the first 312 bits of the test data sent by sent by SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.70 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / unknown / UL:16 DL:128 kbps / PS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.70.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.70.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.68.

18.1.2.70.3 Method of test

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (16 kbps, 20ms TTI)	RB9 (8kbps, 40ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x336	1x148
	TF2, bits	1x81	N/A	N/A	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, RB9, DCCH)
UL_TFC0	(TF0,TF0,TF0,TF0,TF0,TF0)
UL_TFC1	(TF1,TF0,TF0,TF0,TF0,TF0)
UL_TFC2	(TF2,TF1,TF1,TF0,TF0,TF0)
UL_TFC3	(TF0,TF0,TF0,TF1,TF0,TF0)
UL_TFC4	(TF1,TF0,TF0,TF1,TF0,TF0)
UL_TFC5	(TF2,TF1,TF1,TF1,TF0,TF0)
UL_TFC6	(TF0,TF0,TF0,TF0,TF1,TF0)
UL_TFC7	(TF1,TF0,TF0,TF0,TF1,TF0)
UL_TFC8	(TF2,TF1,TF1,TF0,TF1,TF0)
UL_TFC9	(TF0,TF0,TF0,TF1,TF1,TF0)
UL_TFC10	(TF1,TF0,TF0,TF1,TF1,TF0)
UL_TFC11	(TF2,TF1,TF1,TF1,TF1,TF0)
UL_TFC12	(TF0,TF0,TF0,TF0,TF0,TF1)
UL_TFC13	(TF1,TF0,TF0,TF0,TF0,TF1)
UL_TFC14	(TF2,TF1,TF1,TF0,TF0,TF1)
UL_TFC15	(TF0,TF0,TF0,TF1,TF0,TF1)
UL_TFC16	(TF1,TF0,TF0,TF1,TF0,TF1)
UL_TFC17	(TF2,TF1,TF1,TF1,TF0,TF1)
UL_TFC18	(TF0,TF0,TF0,TF0,TF1,TF1)
UL_TFC19	(TF1,TF0,TF0,TF0,TF1,TF1)
UL_TFC20	(TF2,TF1,TF1,TF0,TF1,TF1)
UL_TFC21	(TF0,TF0,TF0,TF1,TF1,TF1)
UL_TFC22	(TF1,TF0,TF0,TF1,TF1,TF1)
UL_TFC23	(TF2,TF1,TF1,TF1,TF1,TF1)

Downlink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (128 kbps s, 20ms TTI)	RB9 (8kbps, 40ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, RB9, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0, TF0)
DL_TFC15	(TF0, TF0, TF0, TF0, TF1, TF0)
DL_TFC16	(TF1, TF0, TF0, TF0, TF1, TF0)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1, TF0)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1, TF0)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1, TF0)
DL_TFC20	(TF2, TF1, TF1, TF1, TF1, TF0)
DL_TFC21	(TF0, TF0, TF0, TF2, TF1, TF0)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1, TF0)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1, TF0)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1, TF0)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1, TF0)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1, TF0)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1, TF0)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1, TF0)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1, TF0)
DL_TFC30	(TF0, TF0, TF0, TF0, TF0, TF1)
DL_TFC31	(TF1, TF0, TF0, TF0, TF0, TF1)
DL_TFC32	(TF2, TF1, TF1, TF0, TF0, TF1)
DL_TFC33	(TF0, TF0, TF0, TF1, TF0, TF1)
DL_TFC34	(TF1, TF0, TF0, TF1, TF0, TF1)
DL_TFC35	(TF2, TF1, TF1, TF1, TF0, TF1)
DL_TFC36	(TF0, TF0, TF0, TF2, TF0, TF1)
DL_TFC37	(TF1, TF0, TF0, TF2, TF0, TF1)
DL_TFC38	(TF2, TF1, TF1, TF2, TF0, TF1)
DL_TFC39	(TF0, TF0, TF0, TF3, TF0, TF1)
DL_TFC40	(TF1, TF0, TF0, TF3, TF0, TF1)
DL_TFC41	(TF2, TF1, TF1, TF3, TF0, TF1)
DL_TFC42	(TF0, TF0, TF0, TF4, TF0, TF1)
DL_TFC43	(TF1, TF0, TF0, TF4, TF0, TF1)
DL_TFC44	(TF2, TF1, TF1, TF4, TF0, TF1)
DL_TFC45	(TF0, TF0, TF0, TF0, TF1, TF1)
DL_TFC46	(TF1, TF0, TF0, TF0, TF1, TF1)
DL_TFC47	(TF2, TF1, TF1, TF0, TF1, TF1)
DL_TFC48	(TF0, TF0, TF0, TF1, TF1, TF1)
DL_TFC49	(TF1, TF0, TF0, TF1, TF1, TF1)
DL_TFC50	(TF2, TF1, TF1, TF1, TF1, TF1)
DL_TFC51	(TF0, TF0, TF0, TF2, TF1, TF1)
DL_TFC52	(TF1, TF0, TF0, TF2, TF1, TF1)
DL_TFC53	(TF2, TF1, TF1, TF2, TF1, TF1)
DL_TFC54	(TF0, TF0, TF0, TF3, TF1, TF1)
DL_TFC55	(TF1, TF0, TF0, TF3, TF1, TF1)
DL_TFC56	(TF2, TF1, TF1, TF3, TF1, TF1)
DL_TFC57	(TF0, TF0, TF0, TF4, TF1, TF1)
DL_TFC58	(TF1, TF0, TF0, TF4, TF1, TF1)
DL_TFC59	(TF2, TF1, TF1, TF4, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC31	UL_TFC1 UL_TFC13	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13	RB5: 39 RB6: No data RB7: No data RB8: No data RB8: No data	RB5: 39 RB6: No data RB7: No data RB8: No data RB9: No data
2	DL_TFC2, DL_TFC32	UL_TFC2, UL_TFC14	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14	RB5: 81 RB6: 103 RB7: 60 RB8: No data RB8: No data	RB5: 81 RB6: 103 RB7: 60 RB8: No data RB9: No data
3	DL_TFC3, DL_TFC33	UL_TFC3, UL_TFC15	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC3, UL_TFC12, UL_TFC15	RB5: No data RB6: No data RB7: No data RB8: 312 RB9: No data	RB5: No data RB6: No data RB7: No data RB8: 312 RB9: No data
4	DL_TFC4, DL_TFC34	UL_TFC4, UL_TFC16	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16	RB5: 39 RB6: No data RB7: No data RB8:312 RB9: No data	RB5: 39 RB6: No data RB7: No data RB8: 312 RB9: No data
5	DL_TFC5, DL_TFC35	UL_TFC5 UL_TFC17	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC12 UL_TFC14, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8:312 RB9: No data	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: No data
6	DL_TFC6, DL_TFC36	UL_TFC3, UL_TFC15	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC3, UL_TFC12, UL_TFC15	RB5: No data RB6: No data RB7: No data RB8: 312 RB9: No data	RB5: No data RB6: No data RB7: No data RB8: 632 RB9: No data
7	DL_TFC7, DL_TFC37	UL_TFC4, UL_TFC16	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16	RB5: 39 RB6: No data RB7: No data RB8: 312 RB9: No data	RB5: 39 RB6: No data RB7: No data RB8: 632 RB9: No data

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
8	DL_TFC8, DL_TFC38	UL_TFC5, UL_TFC17	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: No data	RB5: 81 RB6: 103 RB7: 60 RB8: 632 RB9: No data
9	DL_TFC9, DL_TFC39	UL_TFC3, UL_TFC15	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC3, UL_TFC12, UL_TFC15	RB5: No data RB6: No data RB7: No data RB8: 312 RB9: No data	RB5: No data RB6: No data RB7: No data RB8: 952 RB9: No data
10	DL_TFC10, DL_TFC40	UL_TFC4 UL_TFC16	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16	RB5: 39 RB6: No data RB7: No data RB8: 312 RB9: No data	RB5: 39 RB6: No data RB7: No data RB8: 952 RB9: No data
11	DL_TFC11, DL_TFC41	UL_TFC5, UL_TFC17	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: No data	RB5: 81 RB6: 103 RB7: 60 RB8: 952 RB9: No data
12	DL_TFC12, DL_TFC42	UL_TFC3, UL_TFC15	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC3, UL_TFC12, UL_TFC15	RB5: No data RB6: No data RB7: No data RB8: 312 RB9: No data	RB5: No data RB6: No data RB7: No data RB8: 1272 RB9: No data
13	DL_TFC13, DL_TFC43	UL_TFC4, UL_TFC16	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16	RB5: 39 RB6: No data RB7: No data RB8: 312 RB9: No data	RB5: 39 RB6: No data RB7: No data RB8: 1272 RB9: No data
14	DL_TFC14, DL_TFC44	UL_TFC5, UL_TFC17	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: No data	RB5: 81 RB6: 103 RB7: 60 RB8: 1272 RB9: No data

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
15	DL_TFC15, DL_TFC45	UL_TFC6, UL_TFC18	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC6, UL_TFC12, UL_TFC18	RB5: No data RB6: No data RB7: No data RB8: No data RB9: 312	RB5: No data RB6: No data RB7: No data RB8: No data RB9: 312
16	DL_TFC16, DL_TFC46	UL_TFC7, UL_TFC19	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7, UL_TFC12, UL_TFC13, UL_TFC18, UL_TFC19	RB5: 39 RB6: No data RB7: No data RB8: No data RB9: 312	RB5: 39 RB6: No data RB7: No data RB8: No data RB9: 312
17	DL_TFC17, DL_TFC47	UL_TFC8, UL_TFC20	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8, UL_TFC12, UL_TFC14, UL_TFC18, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: No data RB9: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data RB9: 312
18	DL_TFC18, DL_TFC48	UL_TFC9, UL_TFC21	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC3, UL_TFC6, UL_TFC9, UL_TFC12, UL_TFC15, UL_TFC18, UL_TFC21	RB5: No data RB6: No data RB7: No data RB8: 312 RB9: 312	RB5: No data RB6: No data RB7: No data RB8: 312 RB9: 312
19	DL_TFC19, DL_TFC49	UL_TFC10, UL_TFC22	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19, UL_TFC21, UL_TFC22	RB5: 39 RB6: No data RB7: No data RB8: 312 RB9: 312	RB5: 39 RB6: No data RB7: No data RB8: 312 RB9: 312

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
20	DL_TFC20, DL_TFC50	UL_TFC11, UL_TFC23	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC18, UL_TFC20, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312
21	DL_TFC21, DL_TFC51	UL_TFC9, UL_TFC21	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC9, UL_TFC12, UL_TFC21	RB5: No data RB6: No data RB7: No data RB8: 312 RB9: 312	RB5: No data RB6: No data RB7: No data RB8: 632 RB9: 312
22	DL_TFC22, DL_TFC52	UL_TFC10, UL_TFC22	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19, UL_TFC21, UL_TFC22	RB5: 39 RB6: No data RB7: No data RB8: 312 RB9: 312	RB5: 39 RB6: No data RB7: No data RB8: 632 RB9: 312
23	DL_TFC23, DL_TFC53	UL_TFC11, UL_TFC23	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC18, UL_TFC20, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 632 RB9: 312
24	DL_TFC24, DL_TFC54	UL_TFC9, UL_TFC21	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC9 UL_TFC12, UL_TFC21	RB5: No data RB6: No data RB7: No data RB8: 312 RB9: 312	RB5: No data RB6: No data RB7: No data RB8: 952 RB9: 312

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
25	DL_TFC25, DL_TFC55	UL_TFC10, UL_TFC22	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10 UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19, UL_TFC21, UL_TFC22	RB5: 39 RB6: No data RB7: No data RB8: 312 RB9: 312	RB5: 39 RB6: No data RB7: No data RB8: 952 RB9: 312
26	DL_TFC26, DL_TFC56	UL_TFC11, UL_TFC23	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11 UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC18, UL_TFC20, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 952 RB9: 312
27	DL_TFC27, DL_TFC57	UL_TFC9, UL_TFC21	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC9 UL_TFC12, UL_TFC21	RB5: No data RB6: No data RB7: No data RB8: 312 RB9: 312	RB5: No data RB6: No data RB7: No data RB8: 1272 RB9: 312
28	DL_TFC28, DL_TFC58	UL_TFC10, UL_TFC22	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10 UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19, UL_TFC21, UL_TFC22	RB5: 39 RB6: No data RB7: No data RB8: 312 RB9: 312	RB5: 39 RB6: No data RB7: No data RB8: 1272 RB9: 312

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
29	DL_TFC29, DL_TFC59	UL_TFC11 , UL_TFC23	DL_TFC0, DL_TFC30, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11 UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC18, UL_TFC20, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 1272 RB9: 312
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the uplink TTI for RB8 is 10 ms while the downlink TTI is 20 ms then, to achieve continuous data transmission in uplink the size of the uplink RLC SDU has been set such that it will be transmitted over two subsequent TTIs, i.e. UL RLC SDU SIZE has been set to two times the uplink TFS size minus 8 bits (size of 7 bit length indicator and expansion bit).						

18.1.2.70.4 Test requirements

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 15a and step 15b the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 RB8 and RB9.
- for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8 and RB9.
- for sub-test 3: an RLC SDU on RB8 he same content of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6, RB7 and RB9.
- for sub-test 4: an RLC SDU on RB8 having the same content of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 5: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS; and no data shall be received on RB9.
- for sub-test 6, 9, 12: an RLC SDU on RB8 having the content equal to the first 312 bits of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6, RB7 and RB9.
- for sub-test 7, 10, 13: an RLC SDU on RB5 having the content equal to the content of the test data sent by the SS in downlink; an RLC SDU on RB8 having the content equal to the first 312 bits of the test data sent by sent by SS; and no data shall be received on RB6, RB7 and RB9.
- for sub-test 8, 11, 14: an RLC SDU on RB5, RB6, RB7 having the same content as sent by SS; an RLC SDU on RB8 having the content equal to the first 312 bits of the test data sent by sent by SS; no data shall be received on RB9.
- for sub-test 15: an RLC SDU on RB9 having the same content as sent by SS; and no data shall be received on RB5, RB6, RB7 and RB8.

- for sub-test 16: an RLC SDU on RB5 and RB9 having the same content as sent by SS; and no data shall be received on RB6, RB7, RB8.
- for sub-test 17: an RLC SDU on RB5, RB6, RB7 and RB9 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 18: an RLC SDU on RB8 and RB9 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 19: an RLC SDU on RB5, RB8 and RB9 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 20: an RLC SDU on RB5, RB6, RB7, RB8 and RB9 having the same content as sent by SS.
- for sub-test 21, 24, 27: an RLC SDU on RB9 having the same content as sent by SS; an RLC SDU on RB8 having the content equal to the first 312 bits of the test data sent by sent by SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 22, 25, 28: an RLC SDU on RB5 and RB9 having the same content as sent by SS; an RLC SDU on RB8 having the content equal to the first 312 bits of the test data sent by sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 23, 26, 29: an RLC SDU on RB5, RB6, RB7 and RB9 having the same content as sent by SS; an RLC SDU on RB8 having the content equal to the first 312 bits of the test data sent by sent by SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.71 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / unknown / UL:128 DL:64 kbps / PS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.71.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.71.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.69.

18.1.2.71.3 Method of test

See 18.1.1.2 for test procedure.

Uplink TFS:

	TFI	**RB5 (RAB subflow #1)**	**RB6 (RAB subflow #2)**	**RB7 (RAB subflow #3)**	**RB8 (128 kbps s, 20ms TTI)**	**RB9 (8kbps, 40ms TTI)**	**DCCH**
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, RB9, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1, TF0)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1, TF0)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1, TF0)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1, TF0)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1, TF0)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1, TF0)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1, TF0)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1, TF0)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1, TF0)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1, TF0)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1, TF0)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1, TF0)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1, TF0)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1, TF0)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1, TF0)
UL_TFC30	(TF0, TF0, TF0, TF0, TF0, TF1)
UL_TFC31	(TF1, TF0, TF0, TF0, TF0, TF1)
UL_TFC32	(TF2, TF1, TF1, TF0, TF0, TF1)
UL_TFC33	(TF0, TF0, TF0, TF1, TF0, TF1)
UL_TFC34	(TF1, TF0, TF0, TF1, TF0, TF1)
UL_TFC35	(TF2, TF1, TF1, TF1, TF0, TF1)
UL_TFC36	(TF0, TF0, TF0, TF2, TF0, TF1)
UL_TFC37	(TF1, TF0, TF0, TF2, TF0, TF1)
UL_TFC38	(TF2, TF1, TF1, TF2, TF0, TF1)
UL_TFC39	(TF0, TF0, TF0, TF3, TF0, TF1)
UL_TFC40	(TF1, TF0, TF0, TF3, TF0, TF1)
UL_TFC41	(TF2, TF1, TF1, TF3, TF0, TF1)
UL_TFC42	(TF0, TF0, TF0, TF4, TF0, TF1)
UL_TFC43	(TF1, TF0, TF0, TF4, TF0, TF1)
UL_TFC44	(TF2, TF1, TF1, TF4, TF0, TF1)
UL_TFC45	(TF0, TF0, TF0, TF0, TF1, TF1)
UL_TFC46	(TF1, TF0, TF0, TF0, TF1, TF1)
UL_TFC47	(TF2, TF1, TF1, TF0, TF1, TF1)
UL_TFC48	(TF0, TF0, TF0, TF1, TF1, TF1)
UL_TFC49	(TF1, TF0, TF0, TF1, TF1, TF1)
UL_TFC50	(TF2, TF1, TF1, TF1, TF1, TF1)
UL_TFC51	(TF0, TF0, TF0, TF2, TF1, TF1)
UL_TFC52	(TF1, TF0, TF0, TF2, TF1, TF1)
UL_TFC53	(TF2, TF1, TF1, TF2, TF1, TF1)
UL_TFC54	(TF0, TF0, TF0, TF3, TF1, TF1)
UL_TFC55	(TF1, TF0, TF0, TF3, TF1, TF1)
UL_TFC56	(TF2, TF1, TF1, TF3, TF1, TF1)
UL_TFC57	(TF0, TF0, TF0, TF4, TF1, TF1)
UL_TFC58	(TF1, TF0, TF0, TF4, TF1, TF1)
UL_TFC59	(TF2, TF1, TF1, TF4, TF1, TF1)

Downlink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps s, 40ms TTI)	RB9 (8kbps, 40ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x656	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x656	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x656	N/A	N/A
	TF3,its	N/A	N/A	N/A	4x656	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, RB9, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0, TF0)
DL_TFC12	(TF0, TF0, TF0, TF0, TF1, TF0)
DL_TFC13	(TF1, TF0, TF0, TF0, TF1, TF0)
DL_TFC14	(TF2, TF1, TF1, TF0, TF1, TF0)
DL_TFC15	(TF0, TF0, TF0, TF1, TF1, TF0)
DL_TFC16	(TF1, TF0, TF0, TF1, TF1, TF0)
DL_TFC17	(TF2, TF1, TF1, TF1, TF1, TF0)
DL_TFC18	(TF0, TF0, TF0, TF2, TF1, TF0)
DL_TFC19	(TF1, TF0, TF0, TF2, TF1, TF0)
DL_TFC20	(TF2, TF1, TF1, TF2, TF1, TF0)
DL_TFC21	(TF0, TF0, TF0, TF3, TF1, TF0)
DL_TFC22	(TF1, TF0, TF0, TF3, TF1, TF0)
DL_TFC23	(TF2, TF1, TF1, TF3, TF1, TF0)
DL_TFC24	(TF0, TF0, TF0, TF0, TF0, TF1)
DL_TFC25	(TF1, TF0, TF0, TF0, TF0, TF1)
DL_TFC26	(TF2, TF1, TF1, TF0, TF0, TF1)
DL_TFC27	(TF0, TF0, TF0, TF1, TF0, TF1)
DL_TFC28	(TF1, TF0, TF0, TF1, TF0, TF1)
DL_TFC29	(TF2, TF1, TF1, TF1, TF0, TF1)
DL_TFC30	(TF0, TF0, TF0, TF2, TF0, TF1)
DL_TFC31	(TF1, TF0, TF0, TF2, TF0, TF1)
DL_TFC32	(TF2, TF1, TF1, TF2, TF0, TF1)
DL_TFC33	(TF0, TF0, TF0, TF3, TF0, TF1)
DL_TFC34	(TF1, TF0, TF0, TF3, TF0, TF1)
DL_TFC35	(TF2, TF1, TF1, TF3, TF0, TF1)
DL_TFC36	(TF0, TF0, TF0, TF0, TF1, TF1)
DL_TFC37	(TF1, TF0, TF0, TF0, TF1, TF1)
DL_TFC38	(TF2, TF1, TF1, TF0, TF1, TF1)
DL_TFC39	(TF0, TF0, TF0, TF1, TF1, TF1)
DL_TFC40	(TF1, TF0, TF0, TF1, TF1, TF1)
DL_TFC41	(TF2, TF1, TF1, TF1, TF1, TF1)
DL_TFC42	(TF0, TF0, TF0, TF2, TF1, TF1)
DL_TFC43	(TF1, TF0, TF0, TF2, TF1, TF1)
DL_TFC44	(TF2, TF1, TF1, TF2, TF1, TF1)
DL_TFC45	(TF0, TF0, TF0, TF3, TF1, TF1)
DL_TFC46	(TF1, TF0, TF0, TF3, TF1, TF1)
DL_TFC47	(TF2, TF1, TF1, TF3, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1, DL_TFC25	UL_TFC1, UL_TFC31	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC30	UL_TFC0, UL_TFC1, UL_TFC30, UL_TFC31	RB5: 39 RB6: 103 RB7: 60 RB8: No data RB8: no data	RB5: 39 RB6: No data RB7: No data RB8: No data RB9: No data
2	DL_TFC2, DL_TFC26	UL_TFC2, UL_TFC32	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC30	UL_TFC0, UL_TFC2, UL_TFC30, UL_TFC32	RB5: 81 RB6: 103 RB7: 60 RB8: No data RB8: No data	RB5: 81 RB6: 103 RB7: 60 RB8: No data RB9: No data
3	DL_TFC3, DL_TFC27	UL_TFC3, UL_TFC33	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC30	UL_TFC0, UL_TFC3, UL_TFC30, UL_TFC33	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: No data	RB5: No data RB6: No data RB7: No data RB8: 632 RB9: No data
4	DL_TFC4, DL_TFC28	UL_TFC4, UL_TFC34	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC30	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC30, UL_TFC31, UL_TFC33, UL_TFC34	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: No data	RB5: 39 RB6: No data RB7: No data RB8: 632 RB9: No data
5	DL_TFC5, DL_TFC29	UL_TFC8 UL_TFC38	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC30	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8, UL_TFC30, UL_TFC32, UL_TFC36, UL_TFC38	RB5: 81 RB6: 103 RB7: 60 RB8: 632 RB9: No data	RB5: 81 RB6: 103 RB7: 60 RB8: 632 RB9: No data
6	DL_TFC6, DL_TFC30	UL_TFC9, UL_TFC39	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC30	UL_TFC0, UL_TFC9, UL_TFC30, UL_TFC39	RB5: 39 RB6: 103 RB7: 60 RB8: 1272 RB9: No data	RB5: No data RB6: No data RB7: No data RB8: 1272 RB9: No data
7	DL_TFC7, DL_TFC31	UL_TFC10 , UL_TFC40	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC30	UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC10, UL_TFC30, UL_TFC31, UL_TFC39, UL_TFC40	RB5: 39 RB6: No data RB7: No data RB8: 1272 RB9: No data	RB5: 39 RB6: No data RB7: No data RB8: 1272 RB9: No data
8	DL_TFC8, DL_TFC32	UL_TFC11 , UL_TFC41	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC30	UL_TFC0, UL_TFC2, UL_TFC9, UL_TFC11, UL_TFC30, UL_TFC32, UL_TFC39, UL_TFC41	RB5: 81 RB6: 103 RB7: 60 RB8: 1272 RB9: No data	RB5: 81 RB6: 103 RB7: 60 RB8:1272 RB9: No data

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
9	DL_TFC9, DL_TFC33	UL_TFC12, UL_TFC42	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC30	UL_TFC0, UL_TFC12, UL_TFC30, UL_TFC42	RB5: No data RB6: No data RB7: No data RB8: 2552 RB9: No data	RB5: No data RB6: No data RB7: No data RB8: 2552 RB9: No data
10	DL_TFC10, DL_TFC34	UL_TFC13 UL_TFC43	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC30	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC30, UL_TFC31, UL_TFC42, UL_TFC43	RB5: 39 RB6: No data RB7: No data RB8: 2552 RB9: No data	RB5: 39 RB6: No data RB7: No data RB8: 2552 RB9: No data
11	DL_TFC11, DL_TFC35	UL_TFC14, UL_TFC44	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC30	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC30, UL_TFC32, UL_TFC42, UL_TFC44	RB5: 81 RB6: 103 RB7: 60 RB8: 2552 RB9: No data	RB5: 81 RB6: 103 RB7: 60 RB8: 2552 RB9: No data
12	DL_TFC12, DL_TFC36	UL_TFC15, UL_TFC45	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC30	UL_TFC0, UL_TFC15, UL_TFC30, UL_TFC45	RB5: No data RB6: No data RB7: No data RB8: No data RB9: 312	RB5: No data RB6: No data RB7: No data RB8: No data RB9: 312
13	DL_TFC13, DL_TFC37	UL_TFC16, UL_TFC46	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC30	UL_TFC0, UL_TFC1, UL_TFC15, UL_TFC16, UL_TFC30, UL_TFC31, UL_TFC45, UL_TFC46	RB5: 39 RB6: No data RB7: No data RB8: No data RB9: 312	RB5: 39 RB6: No data RB7: No data RB8: No data RB9: 312
14	DL_TFC14, DL_TFC38	UL_TFC17, UL_TFC47	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC30	UL_TFC0, UL_TFC2, UL_TFC15, UL_TFC17, UL_TFC30, UL_TFC32, UL_TFC45, UL_TFC47	RB5: 81 RB6: 103 RB7: 60 RB8: No data RB9: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data RB9: 312
15	DL_TFC15, DL_TFC39	UL_TFC21, UL_TFC51	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC30	UL_TFC0, UL_TFC6, UL_TFC15, UL_TFC21, UL_TFC30, UL_TFC36, UL_TFC45, UL_TFC51	RB5: No data RB6: No data RB7: No data RB8: 632 RB9: 312	RB5: No data RB6: No data RB7: No data RB8: 632 RB9: 312

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
16	DL_TFC16, DL_TFC40	UL_TFC22, UL_TFC52	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC30	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC22, UL_TFC30, UL_TFC31, UL_TFC36, UL_TFC37, UL_TFC45, UL_TFC46, UL_TFC51, UL_TFC52	RB5: 39 RB6: No data RB7: No data RB8: 632 RB9: 312	RB5: 39 RB6: No data RB7: No data RB8: 632 RB9: 312
17	DL_TFC17, DL_TFC41	UL_TFC23, UL_TFC53	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC30	UL_TFC0, UL_TFC2, UL_TFC6, UL_TFC8, UL_TFC15, UL_TFC17, UL_TFC21, UL_TFC23, UL_TFC30, UL_TFC32, UL_TFC36, UL_TFC38, UL_TFC45, UL_TFC47, UL_TFC51, UL_TFC53	RB5: 81 RB6: 103 RB7: 60 RB8: 632 RB9: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 632 RB9: 312
18	DL_TFC18, DL_TFC42	UL_TFC24, UL_TFC54	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC30	UL_TFC0, UL_TFC9, UL_TFC15, UL_TFC24, UL_TFC30, UL_TFC39, UL_TFC45, UL_TFC54	RB5: No data RB6: No data RB7: No data RB8: 1272 RB9: 312	RB5: No data RB6: No data RB7: No data RB8: 1272 RB9: 312
19	DL_TFC19, DL_TFC43	UL_TFC25, UL_TFC55	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC30	UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16, UL_TFC24, UL_TFC25, UL_TFC30, UL_TFC31, UL_TFC39, UL_TFC40, UL_TFC45, UL_TFC46, UL_TFC54, UL_TFC55	RB5: 39 RB6: No data RB7: no data RB8: 1272 RB9: 312	RB5: 39 RB6: No data RB7: No data RB8: 1272 RB9: 312

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
20	DL_TFC20, DL_TFC44	UL_TFC26, UL_TFC56	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC30	UL_TFC0, UL_TFC2, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17, UL_TFC24, UL_TFC26, UL_TFC30, UL_TFC32, UL_TFC39, UL_TFC41, UL_TFC45, UL_TFC47, UL_TFC54, UL_TFC56	RB5: 81 RB6: 103 RB7: 60 RB8: 1272 RB9: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 1272 RB9: 312
21	DL_TFC21, DL_TFC45	UL_TFC27, UL_TFC57	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC30	UL_TFC0, UL_TFC12 UL_TFC15, UL_TFC27, UL_TFC30, UL_TFC42, UL_TFC45, UL_TFC57	RB5: No data RB6: No data RB7: No data RB8: 2552 RB9: 312	RB5: No data RB6: No data RB7: No data RB8: 2552 RB9: 312
22	DL_TFC22, DL_TFC46	UL_TFC28, UL_TFC58	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC30	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28, UL_TFC30, UL_TFC31, UL_TFC42, UL_TFC43, UL_TFC45, UL_TFC46, UL_TFC57, UL_TFC58	RB5: 39 RB6: No data RB7: No data RB8: 2552 RB9: 312	RB5: 39 RB6: No data RB7: No data RB8: 2552 RB9: 312
23	DL_TFC23, DL_TFC47	UL_TFC29, UL_TFC59	DL_TFC0, DL_TFC24, UL_TFC0, UL_TFC30	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29, UL_TFC30, UL_TFC32, UL_TFC42, UL_TFC44, UL_TFC45, UL_TFC47, UL_TFC57, UL_TFC59	RB5: 81 RB6: 103 RB7: 60 RB8: 2552 RB9: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 2552 RB9: 312

NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the uplink TTI for RB8 is 10 ms while the downlink TTI is 20 ms then, to achieve continuous data transmission in uplink the size of the uplink RLC SDU has been set such that it will be transmitted over two subsequent TTIs, i.e. UL RLC SDU SIZE has been set to two times the uplink TFS size minus 8 bits (size of 7 bit length indicator and expansion bit).

18.1.2.71.4 Test requirements

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 15a and step 15b the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7, RB8 and RB9.
- for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8 and RB9.
- for sub-test 3: an RLC SDU on RB8 having the content equal to the first 312 bits of the test data sent by sent by SS in downlink; and no data shall be received on RB5, RB6, RB7 and RB9.
- for sub-test 4: an RLC SDU on RB8 having the content equal to the first 312 bits of the test data sent by sent by SS; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 5, 8, 11: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS; and no data shall be received on RB9.
- for sub-test 6, 9: an RLC SDU on RB8 having the same content as sent by SS in downlink; and no data shall be received on RB5, RB6, RB7 and RB9.
- for sub-test 7, 10: an RLC SDU on RB5 having the content equal to the content of the test data sent by the SS in downlink; an RLC SDU on RB8 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB9.
- for sub-test 12: an RLC SDU on RB9 having the same content as sent by SS; and no data shall be received on RB5, RB6, RB7, RB8 .
- for sub-test 13: an RLC SDU on RB5 and RB9 having the same content as sent by SS; and no data shall be received on RB6, RB7, RB8.
- for sub-test 14: an RLC SDU on RB5, RB6, RB7 and RB9 having the same content as sent by SS; and no data shall be received on RB8.
- for sub-test 15, 18, 21: an RLC SDU on RB8 and RB9 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 16, 19, 22: an RLC SDU on RB5, RB8 and RB9 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 17, 20, 23: an RLC SDU on RB5, RB6, RB7, RB8 and RB9 having the same content as sent by SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.72 Interactive or background / UL:64 DL:64 kbps / PS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.72.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.72.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.57.

18.1.2.72.3 Method of test

See 18.1.1.2 for test procedure. However, in this test the RM attribute values used shall be derived separately in the UL and DL as the mid-values of the RM attribute value ranges as specified by the reference radio bearer configuration.

Specific Message Content:

Use the RADIO BEARER SETUP message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
- RAB information for setup	
- RAB info	(AM DTCH for PS domain)
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	useT315
- RB information to setup	
- RB identity	20
- PDCP Info	Not Present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	4
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- Logical channel identity	7
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	6
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1

Information Element	Value/remark
- Downlink transport channel type - DL DCH Transport channel identity - DL DSCH Transport channel identity - Logical channel identity	FACH Not Present Not Present 7
- RAB identity	0000 0110B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	useT315
- RB information to setup	
- RB identity	22
- PDCP info	Not Present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	4
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- Logical channel identity	8
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	6
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	8
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	8
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH

Information Element	Value/remark
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	8

Uplink TFS:

	TFI	RB5 + RB6 (64 kbps RAB, 20 ms TTI)	DCCH
TFS	TF0, bits	0x340	0x148
	TF1, bits	1x340	1x148
	TF2, bits	2x340	N/A
	TF3, bits	3x340	N/A
	TF4, bits	4x340	N/A

Uplink TFCS:

TFCI	(RB5 + RB6, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 + RB6 (64 kbps RAB, 20 ms TTI)	DCCH
TFS	TF0, bits	0x340	0x148
	TF1, bits	1x340	1x148
	TF2, bits	2x340	N/A
	TF3, bits	3x340	N/A
	TF4, bits	4x340	N/A

Downlink TFCS:

TFCI	(RB5 + RB6, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1 DL_TFC6	UL_TFC1 DL_TFC6	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312 RB6: 312	RB5: 312 RB6: No data
2	DL_TFC2 DL_TFC7	UL_TFC2 DL_TFC7	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632 RB6: 632	RB5: 632 RB6: No data
3	DL_TFC3 DL_TFC8	UL_TFC3 DL_TFC8	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952 RB6: 952	RB5: 952 RB6: No data
4	DL_TFC4 DL_TFC9	UL_TFC4 DL_TFC9	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272 RB6: 1272	RB5: 1272 RB6: No data
5	DL_TFC4 DL_TFC9	UL_TFC4 DL_TFC9	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272 RB5: 1272	RB5: No data RB6: 1272

NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5 and RB6: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).

18.1.2.72.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 15a and step 15b the UE shall return

   - for sub-test 1 to 4: RLC SDUs on RB5 having the same content as the DL RLC SDUs sent by the SS in RB5.

   - for sub-test 5: RLC SDUs on RB6 having the same content as the DL RLC SDUs sent by the SS in RB6.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.2.73 Interactive or background / UL:64 DL:64 kbps / PS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.2.73.1 Conformance requirement

See 18.1.2.4.1.

18.1.2.73.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.1.70.

18.1.2.73.3 Method of test

Uplink TFS:

	TFI	RB5 + RB6 +RB7) (64 kbps RAB, 20 ms TTI)	DCCH
TFS	TF0, bits	0x340	0x148
	TF1, bits	1x340	1x148
	TF2, bits	2x340	N/A
	TF3, bits	3x340	N/A
	TF4, bits	4x340	N/A

Uplink TFCS:

TFCI	(RB5 + RB6 + RB7, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 + RB6 + RB7 (64 kbps RAB, 20 ms TTI)	DCCH
TFS	TF0, bits	0x340	0x148
	TF1, bits	1x340	1x148
	TF2, bits	2x340	N/A
	TF3, bits	3x340	N/A
	TF4, bits	4x340	N/A

Downlink TFCS:

TFCI	(RB5 + RB6 + RB7, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1 DL_TFC6	UL_TFC1 DL_TFC6	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312 RB6: 312 RB7: 312	RB5: 312 RB6: No data RB7: No data
2	DL_TFC2 DL_TFC7	UL_TFC2 DL_TFC7	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632 RB6: 632 RB7: 632	RB5: 632 RB6: No data RB7: No data
3	DL_TFC3 DL_TFC8	UL_TFC3 DL_TFC8	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952 RB6: 952 RB7: 952	RB5: 952 RB6: No data RB7: No data
4	DL_TFC4 DL_TFC9	UL_TFC4 DL_TFC9	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272 RB6: 1272 RB7: 1272	RB5: 1272 RB6: No data RB7: No data
5	DL_TFC4 DL_TFC9	UL_TFC4 DL_TFC9	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272 RB6: 1272 RB7: 1272	RB5: No data RB6: 1272 RB7: No data
6	DL_TFC4 DL_TFC9	UL_TFC4 DL_TFC9	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272 RB6: 1272 RB7: 1272	RB5: No data RB6: No data RB7: 1272

NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5 RB6 and RB7: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).

18.1.2.73.4 Test requirements

See 18.1.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 15a and step 15b the UE shall return

   - for sub-test 1 to 4: RLC SDUs on RB5 having the same content as the DL RLC SDUs sent by the SS in RB5.

   - for sub-test 5: RLC SDUs on RB6 having the same content as the DL RLC SDUs sent by the SS in RB6.

   - for sub-test 6: RLC SDUs on RB6 having the same content as the DL RLC SDUs sent by the SS in RB7.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

18.1.3 Combinations on SCCPCH

18.1.3.1 Stand-alone signalling RB for PCCH

Implicitly tested.

NOTE The stand-alone signalling radio bearer for PCCH in TS 34.108, clause 6.11.5.4.4.1 is used in RRC test case 8.1.2.2.

18.1.3.2 Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.4.2.

This radio bearer configuration is tested with three different SYSTEM INFORMATION (BCCH) configurations:

1. The contents of System Information Block type 5 and 6 as specified in TS 34.108, clause 6.1.1.

   Two SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and the second SCCPCH carries the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH.

   This configuration is verified in test case 18.1.3.2.1.

2. The contents of System Information Block type 5 as specified in TS 34.108, clause 6.1.3.

   Three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and both the second and third SCCPCHs carry the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH.

   This configuration is verified in test case 18.1.3.2.2.

3. The contents of System Information Block type 5 and 6 as specified in TS 34.108, clause 6.1.2.

   Three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH. The second SCCPCH carries the FACH for CTCH (Cell Broadcast Service) and the FACH for SRBs on CCCH/ BCCH for idle mode UEs. The third SCCPCH carries the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH for connected mode UEs.

   This configuration is verified in test case 18.1.3.2.3.

18.1.3.2.1 One SCCPCH: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

18.1.3.2.1.1 Conformance requirement

See 18.1.2.4.1

18.1.3.2.1.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.11.5.4.4.2 and 6.11.5.4.5.1 for the case when two SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and the second SCCPCH carries the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.11.5.4.5.1 (Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

18.1.3.2.1.3 Method of Test

The contents of System Information Block type 5 and 6 shall be as specified in TS 34.108, clause 6.1.1.

Uplink TFS:

	TFI	RB7+SRB (32kbps on RACH)
TFS	TF0, bits	1x171
	TF1, bits	1x363

Uplink TFCS:

TFCI	RB7+SRB
UL_TFC0	TF0
UL_TFC1	TF1

Downlink TFS:

		SRBs	RB7 (32 kbps)
TFS	TF0, bits	0x171	0x363
	TF1, bits	1x171	1x363
	TF2, bits	2x171	N/A

Downlink TFCS:

TFCI	(SRB, RB7)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC3	UL_TFC1	DL_TFC0, UL_TFC0	UL_TFC1, UL_TFC0	RB7: 312 bits	RB7: 312 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB7: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit).						

See 18.1.1 for test procedure.

18.1.3.2.1.4 Test Requirements

See 18.1.1 for definition of step 15

1. At step 15 the UE transmitted transport format shall be RB7/TF1 (1x363).

2. At step 15 the UE shall return an RLC SDU on RB7 having the same content as sent by SS

18.1.3.2.2 Two SCCPCHs: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

18.1.3.2.2.1 Conformance requirement

See 18.1.2.4

18.1.3.2.2.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.11.5.4.4.2 and 6.11.5.4.5.1 for the case when three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and both the second and third SCCPCHs carry the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.11.5.4.5.1 (Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

18.1.3.2.2.3 Method of Test

The contents of System Information Block type 5 shall be as specified in TS 34.108, clause 6.1.3.

Uplink TFS:

	TFI	RB7+SRB (32kbps on RACH)
TFS	TF0, bits	1x171
	TF1, bits	1x363

Uplink TFCS:

TFCI	RB7+SRB
UL_TFC0	TF0
UL_TFC1	TF1

Downlink TFS:

		SRBs	RB7 (32 kbps)
TFS	TF0, bits	0x171	0x363
	TF1, bits	1x171	1x363
	TF2, bits	2x171	N/A

Downlink TFCS:

TFCI	(SRB, RB7)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC3	UL_TFC1	DL_TFC0, UL_TFC0	UL_TFC1, UL_TFC0	RB7: 312 bits	RB7: 312 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB7: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit).						

See 18.1.1 for test procedure.

18.1.3.2.2.4 Test Requirements

See 18.1.1 for definition of step 15

1. At step 15 the UE transmitted transport format shall be RB7/TF1 (1x363).

2. At step 15 the UE shall return an RLC SDU on RB7 having the same content as sent by SS

18.1.3.2.3 One SCCPCH/connected mode: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

18.1.3.2.3.1 Conformance requirement

See 18.1.2.4.1

18.1.3.2.3.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.11.5.4.4.2 and 6.11.5.4.5.1 for the case when three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH. The second SCCPCH carries the FACH for CTCH (Cell Broadcast Service) and the FACH for SRBs on CCCH/ BCCH for idle mode UEs. The third SCCPCH carries the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH for connected mode UEs.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.11.5.4.5.1 (Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

18.1.3.2.3.3 Method of Test

The contents of System Information Block type 5 and 6 shall be as specified in TS 34.108, clause 6.1.2.

Uplink TFS:

	TFI	RB7+SRB (32kbps on RACH)
TFS	TF0, bits	1x171
	TF1, bits	1x363

Uplink TFCS:

TFCI	RB7+SRB
UL_TFC0	TF0
UL_TFC1	TF1

Downlink TFS:

		SRBs	RB7 (32 kbps)
TFS	TF0, bits	0x171	0x363
	TF1, bits	1x171	1x363
	TF2, bits	2x171	N/A

Downlink TFCS:

TFCI	(SRB, RB7)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC3	UL_TFC1	DL_TFC0, UL_TFC0	UL_TFC1, UL_TFC0	RB7: 312 bits	RB7: 312 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB7: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit).						

See 18.1.1 for test procedure.

18.1.3.2.3.4 Test Requirements

See 18.1.1 for definition of step 15

1. At step 15 the UE transmitted transport format shall be RB7/TF1 (1x363).

2. At step 15 the UE shall return an RLC SDU on RB7 having the same content as sent by SS

18.1.3.3 Interactive/Background UL:12.8 DL:32 kbps RAB + SRBs for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH

18.1.3.3.1 Conformance requirement

See 18.1.2.4

18.1.3.3.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.11.5.4.4.2 and 6.11.5.4.5.2 for the case when one SCCPCH is used in this SYSTEM INFORMATION (BCCH) configuration. The SCCPCH carries the PCH, the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.11.5.4.5.2 (Interactive/Background 12.8 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

18.1.3.3.3 Method of Test

The contents of System Information Block type 5 and 6 shall be as specified in TS 34.108, clause 6.1.

Uplink TFS:

	TFI	RB8 (12.8kbps on RACH)
TFS	TF0, bits	0x170
	TF1, bits	1x170

Uplink TFCS:

TFCI	RB8
UL_TFC0	TF0
UL_TFC1	TF1

Downlink TFS:

		PCCH	SRBs	RB8 (32 kbps)
TFS	TF0, bits	0x240	0x171	0x363
	TF1, bits	1x240	1x171	1x363
	TF2, bits	N/A	2x171	N/A

Downlink TFCS:

TFCI	(PCCH, SRB, RB8)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF0, TF1, TF0)
DL_TFC3	(TF1, TF1, TF0)
DL_TFC4	(TF0, TF2, TF0)
DL_TFC5	(TF1, TF2, TF0)
DL_TFC6	(TF0, TF0, TF1)
DL_TFC7	(TF0, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC6	UL_TFC1	DL_TFC0, UL_TFC0	UL_TFC1, UL_TFC0	RB8: 128 bits	RB8: 312 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit).						

See 18.1.1 for test procedure.

18.1.3.3.4 Test requirements

See 18.1.1 for definition of step 15

1. At step 15 the UE transmitted transport format shall be RB8/TF1 (1x170).

2. At step 15 the UE shall return an RLC SDU on RB8 having the same content as sent by SS

18.1.3.4 64.8kbps RB for MTCH with 40 ms TTI

18.1.3.4.1 Conformance Requirement

The UE shall correctly receive user data on the MTCH from the peer to peer RLC entity according to the configured MTCH.

Reference(s)

3GPP TS 25.2xx series (Physical Layer)

3GPP TS 25.321 (MAC)

3GPP TS 25.322 (RLC)

3GPP TS 25.331 (RRC)

18.1.3.4.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.4.5.

18.1.3.4.3 Method of Test

See 14.1.5 for test procedure.

Downlink TFS:

	TFI	RB for MTCH (64.8 kbps)
TFS	TF0, bits	0x665
	TF1, bits	1x665
	TF2, bits	2x665
	TF3, bits	3x665
	TF4, bits	4x665

Downlink TFCS:

TFCI	RB for MTCH (64.8 kbps)
DL_TFC0	(TF0)
DL_TFC1	(TF1)
DL_TFC2	(TF2)
DL_TFC3	(TF3)
DL_TFC4	(TF4)

Sub-tests:

Sub-test	Downlink TFCS Under test	Implicitly tested	Test data size (bits) (note 1)
1	DL_TFC1	DL_TFC0	640
2	DL_TFC2	DL_TFC0	1288
3	DL_TFC3	DL_TFC0	1936
4	DL_TFC4	DL_TFC0	2584
NOTE 1: Test data size (=DL SDU size) has been set to the N*payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks in the transport format combination under test.			

18.1.3.4.4 Test Requirements

See 14.1.5 for definition of steps 8 and 12.

1. For the first sub-test: At step 8 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.

2. For the second and following sub-tests: At step 12 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

NOTE For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the generic test procedure in section 14.1.5 runs through all sub-tests without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at the previous sub-test.

18.1.3.5 129.6 kbps RB for MTCH with 40 ms TTI

18.1.3.5.1 Conformance Requirement

See 18.1.3.4.1.

18.1.3.5.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.4.6.

18.1.3.5.3 Method of Test

See 14.1.5 for test procedure.

Downlink TFS:

	TFI	RB for MTCH (129.6 kbps kbps)
TFS	TF0, bits	0x665
	TF1, bits	1x665
	TF2, bits	2x665
	TF3, bits	3x665
	TF4, bits	4x665
	TF5, bits	5x665
	TF6, bits	6x665
	TF7, bits	7x665
	TF8, bits	8x665

Downlink TFCS:

TFCI	RB for MTCH (129.6 kbps)
DL_TFC0	(TF0)
DL_TFC1	(TF1)
DL_TFC2	(TF2)
DL_TFC3	(TF3)
DL_TFC4	(TF4)
DL_TFC5	(TF5)
DL_TFC6	(TF6)
DL_TFC7	(TF7)
DL_TFC8	(TF8)

Sub-tests:

Sub-test	Downlink TFCS Under test	Implicitly tested	Test data size (bits) (note 1)
1	DL_TFC1	DL_TFC0	640
2	DL_TFC2	DL_TFC0	1288
3	DL_TFC3	DL_TFC0	1936
4	DL_TFC4	DL_TFC0	2584
5	DL_TFC5	DL_TFC0	3232
6	DL_TFC6	DL_TFC0	3880
7	DL_TFC7	DL_TFC0	4528
8	DL_TFC8	DL_TFC0	5176
NOTE 1: Test data size (=DL SDU size) has been set to the N*payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks in the transport format combination under test.			

18.1.3.5.4 Test Requirements

See 14.1.5 for definition of steps 8 and 12.

1. For the first sub-test: At step 8 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.

2. For the second and following sub-tests: At step 12 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

NOTE For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the generic test procedure in section 14.1.5 runs through all sub-tests without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at the previous sub-test.

18.1.3.6 259.2 kbps RB for MTCH with 40 ms TTI

18.1.3.6.1 Conformance Requirement

See 18.1.3.4.1.

18.1.3.6.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.4.7.

18.1.3.6.3 Method of Test

See 14.1.5 for test procedure.

Downlink TFS:

	TFI	RB for MTCH (259.2 kbps kbps)
TFS	TF0, bits	0x665
	TF1, bits	1x665
	TF2, bits	2x665
	TF3, bits	3x665
	TF4, bits	4x665
	TF5, bits	5x665
	TF6, bits	6x665
	TF7, bits	7x665
	TF8, bits	8x665
	TF9, bits	9x665
	TF10, bits	10x665
	TF11, bits	11x665
	TF12, bits	12x665
	TF13, bits	13x665
	TF14, bits	14x665
	TF15, bits	15x665
	TF16, bits	16x665

Downlink TFCS:

TFCI	RB for MTCH (259.2 kbps)
DL_TFC0	(TF0)
DL_TFC1	(TF1)
DL_TFC2	(TF2)
DL_TFC3	(TF3)
DL_TFC4	(TF4)
DL_TFC5	(TF5)
DL_TFC6	(TF6)
DL_TFC7	(TF7)
DL_TFC8	(TF8)
DL_TFC9	(TF9)
DL_TFC10	(TF10)
DL_TFC11	(TF11)
DL_TFC12	(TF12)
DL_TFC13	(TF13)
DL_TFC14	(TF14)
DL_TFC15	(TF15)
DL_TFC16	(TF16)

Sub-tests:

Sub-test	Downlink TFCS Under test	Implicitly tested	Test data size (bits) (note 1)
1	DL_TFC1	DL_TFC0	640
2	DL_TFC2	DL_TFC0	1288
3	DL_TFC3	DL_TFC0	1936
4	DL_TFC4	DL_TFC0	2584
5	DL_TFC5	DL_TFC0	3232
6	DL_TFC6	DL_TFC0	3880
7	DL_TFC7	DL_TFC0	4528
8	DL_TFC8	DL_TFC0	5176
9	DL_TFC9	DL_TFC0	5824
10	DL_TFC10	DL_TFC0	6472
11	DL_TFC11	DL_TFC0	7120
12	DL_TFC12	DL_TFC0	7768
13	DL_TFC13	DL_TFC0	8416
14	DL_TFC14	DL_TFC0	9064
15	DL_TFC15	DL_TFC0	9712
16	DL_TFC16	DL_TFC0	10360
NOTE 1: Test data size (=DL SDU size) has been set to the N*payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks in the transport format combination under test.			

18.1.3.6.4 Test Requirements

See 14.1.5 for definition of steps 8 and 12.

1. For the first sub-test: At step 8 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.

2. For the second and following sub-tests: At step 12 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

NOTE For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the generic test procedure in section 14.1.5 runs through all sub-tests without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at the previous sub-test.

18.1.3.7 128kbps RB for MBSFN MTCH with 40 ms TTI

18.1.3.7.1 Conformance Requirement

The UE shall correctly receive user data on the MTCH from the peer to peer RLC entity according to the configured MTCH.

Reference(s)

3GPP TS 25.2xx series (Physical Layer)

3GPP TS 25.321 (MAC)

3GPP TS 25.322 (RLC)

3GPP TS 25.331 (RRC)

18.1.3.7.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.4.9.

18.1.3.7.3 Method of Test

See subclause 18.2.1.6 for test procedure.

Downlink TFS:

	TFI	RB for MTCH (128 kbps)
TFS	TF0, bits	0x2561
	TF1, bits	1x2561

Downlink TFCS:

TFCI	RB for MTCH (128 kbps)
DL_TFC0	(TF0)
DL_TFC1	(TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Implicitly tested	Test data size (bits) (note 1)
1	DL_TFC1	DL_TFC0	2528
NOTE 1: Test data size (=DL SDU size) has been set to the N*payload size of the DL TF under test minus 16 bits (size of 15 bit length indicator and expansion bit), where N is the number of transport blocks in the transport format combination under test.			

18.1.3.7.4 Test Requirements

See subclause 18.1.1.5 for definition of steps 9 and 13.

1. For the first sub-test: At step 9 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.

2. For the second and following sub-tests: At step 13 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

NOTE: For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the generic test procedure in section 18.1.1.5 runs through all sub-tests without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at the previous sub-test.

18.1.3.8 192kbps RB for MBSFN MTCH with 40 ms TTI

18.1.3.8.1 Conformance Requirement

See 18.1.3.7.1.

18.1.3.8.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.4.10.

18.1.3.8.3 Method of Test

See subclause 18.1.1.5 for test procedure.

Downlink TFS:

	TFI	RB for MTCH (192 kbps kbps)
TFS	TF0, bits	0x2561
	TF1, bits	3x2561

Downlink TFCS:

TFCI	RB for MTCH (192 kbps)
DL_TFC0	(TF0)
DL_TFC1	(TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Implicitly tested	Test data size (bits) (note 1)
1	DL_TFC1	DL_TFC0	7616
NOTE 1: Test data size (=DL SDU size) has been set to the N*payload size of the DL TF under test minus 16 bits (size of 15 bit length indicator and expansion bit), where N is the number of transport blocks in the transport format combination under test.			

18.1.3.8.4 Test Requirements

See subclause 18.1.1.5 for definition of steps 9 and 13.

1. For the first sub-test: At step 9 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.

2. For the second and following sub-tests: At step 13 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

NOTE For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the generic test procedure in section 18.1.1.5 runs through all sub-tests without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at the previous sub-test.

18.1.3.9 384kbps RB for MBSFN MTCH with 40 ms TTI

18.1.3.9.1 Conformance Requirement

See 18.1.3.7.1.

18.1.3.9.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.4.11.

18.1.3.9.3 Method of Test

See subclause 18.1.1.5 for test procedure.

Downlink TFS:

	TFI	RB for MTCH (384 kbps kbps)
TFS	TF0, bits	0x2561
	TF1, bits	6x2561

Downlink TFCS:

TFCI	RB for MTCH (384 kbps)
DL_TFC0	(TF0)
DL_TFC1	(TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Implicitly tested	Test data size (bits) (note 1)
1	DL_TFC1	DL_TFC0	15250
NOTE 1: Test data size (=DL SDU size) has been set to the N*payload size of the DL TF under test minus 16 bits (size of 15 bit length indicator and expansion bit), where N is the number of transport blocks in the transport format combination under test.			

18.1.3.9.4 Test Requirements

See subclause 18.2.1.6 for definition of steps 9 and 13.

1. For the first sub-test: At step 9 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.

2. For the second and following sub-tests: At step 13 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

NOTE For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the generic test procedure in section 18.1.1.5 runs through all sub-tests without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at the previous sub-test.

18.1.4 Combinations on PRACH

18.1.4.1 Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH

The reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.5.1 is implicitly tested by the test cases 18.1.3.2.1, 18.1.3.2.2, 18.1.3.2.3 and 18.1.3.3.

18.1.5 Combinations on DPCH and HS-PDSCH

18.1.5.1 Interactive or background / UL:8 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5)

18.1.5.1.1 Conformance requirement

The mapping of transport block size, in bits, to TFRI value is dependent upon the UE's HS-DSCH capability class.

Table 18.1.5.1.1: HS-DSCH physical layer and RLC and MAC-hs parameters for 1.28 Mcps TDD HS-DSCH physical layer categories

HS-DSCH category	Maximum number of HS-DSCH codes per timeslot	Maximum number of HS-DSCH timeslots per TTI	Maximum number of HS-DSCH transport channel bits that can be received within an HS-DSCH TTI	Total number of soft channel bits	Maximum number of AM RLC entities	Minimum total RLC AM and MAC-hs buffer size [kBytes]
UE Category 1	12	5	7008	28160	6	50
UE Category 2	12	5	7008	56320	6	50

HS-DSCH category	Maximum number of HS-DSCH codes per timeslot	Maximum number of HS-DSCH timeslots per TTI	Maximum number of HS-DSCH transport channel bits that can be received within an HS-DSCH TTI	Total number of soft channel bits	Maximum number of AM RLC entities	Minimum total RLC AM and MAC-hs buffer size [kBytes]
UE Category 3	12	5	7008	84480	6	50
UE Category 4	16	5	7008	28160	6	50
UE Category 5	16	5	7008	56320	6	50
UE Category 6	16	5	7008	84480	6	50
UE Category 7	12	5	10204	40944	6	50
UE Category 8	12	5	10204	81888	6	50
UE Category 9	12	5	10204	122832	6	50
UE Category 10	16	5	10204	40944	6	50
UE Category 11	16	5	10204	81888	6	50
UE Category 12	16	5	10204	122832	6	50
UE Category 13	16	5	14043	56320	6	100
UE Category 14	16	5	14043	112640	6	100
UE Category 15	16	5	14043	168960	6	100

If k is the signalled TFRI value then the corresponding HS-DSCH transport block size L_k is given by:

If k = 1..62

$$L_k = \lfloor L_{\min} p^{k-1} \rfloor$$

where

$p = \frac{6214}{5973}$ if the HS-DSCH physical layer category is between 1 and 3 inclusively,

$p = \frac{1292}{1228}$ if the HS-DSCH physical layer category is between 4 and 6 inclusively,

$p = \frac{1901}{1795}$ if the HS-DSCH physical layer category is between 7 and 9 inclusively,

$p = \frac{9445}{8877}$ if the HS-DSCH physical layer category is between 10 and 12 inclusively,

$p = \frac{2345}{2196}$ if the HS-DSCH physical layer category is between 13 and 15 inclusively,

and

$$L_{\min} = 240$$

If k = 63 then,

L_k = 2788 if the HS-DSCH physical layer category is between 1 and 3 inclusively,

5600 if the HS-DSCH physical layer category is between 4 and 6 inclusively,

8416 if the HS-DSCH physical layer category is between 7 and 9 inclusively,

11226 if the HS-DSCH physical layer category is between 10 and 12 inclusively,

14043 if the HS-DSCH physical layer category is between 13 and 15 inclusively.

If k=0, L_k indicates NULL and shall not be used to signal a transport block size in the TFRI.

Transport block sizes calculated by this formula shall equal the values indicated in the following tables: –

Table 18.1.5.1.2: HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [1, 3]

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	434	32	817	48	1540
1	240	17	451	33	851	49	1602
2	249	18	470	34	885	50	1667
3	259	19	489	35	921	51	1734
4	270	20	508	36	958	52	1804
5	281	21	529	37	996	53	1877
6	292	22	550	38	1037	54	1952
7	304	23	572	39	1078	55	2031
8	316	24	596	40	1122	56	2113
9	329	25	620	41	1167	57	2198
10	342	26	645	42	1214	58	2287
11	356	27	671	43	1263	59	2380
12	370	28	698	44	1314	60	2476
13	385	29	726	45	1367	61	2575
14	401	30	755	46	1423	62	2679
15	417	31	786	47	1480	63	2788

Table 18.1.5.1.3: HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [4, 6]

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	514	32	1159	48	2613
1	240	17	541	33	1219	49	2749
2	252	18	569	34	1283	50	2893
3	265	19	598	35	1350	51	3043

4	279	20	630	36	1420	52	3202
5	294	21	662	37	1494	53	3369
6	309	22	697	38	1572	54	3544
7	325	23	733	39	1654	55	3729
8	342	24	772	40	1740	56	3924
9	360	25	812	41	1831	57	4128
10	379	26	854	42	1926	58	4343
11	398	27	899	43	2027	59	4570
12	419	28	946	44	2132	60	4808
13	441	29	995	45	2244	61	5058
14	464	30	1047	46	2361	62	5322
15	488	31	1101	47	2484	63	5600

Table 18.1.5.1.4: HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [7, 9]

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	567	32	1421	48	3559
1	240	17	601	33	1505	49	3769
2	254	18	636	34	1594	50	3991
3	269	19	674	35	1688	51	4227
4	285	20	713	36	1787	52	4477
5	301	21	756	37	1893	53	4741
6	319	22	800	38	2005	54	5021
7	338	23	848	39	2123	55	5318
8	358	24	898	40	2249	56	5632
9	379	25	951	41	2383	57	5964
10	402	26	1007	42	2522	58	6317
11	425	27	1066	43	2671	59	6690
12	451	28	1129	44	2829	60	7085
13	477	29	1196	45	2996	61	7503
14	505	30	1267	46	3173	62	7946
15	535	31	1341	47	3360	63	8416

Table 18.1.5.1.5: HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [10, 12]

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	608	32	1641	48	4427
1	240	17	647	33	1746	49	4711
2	255	18	688	34	1858	50	5012
3	271	19	732	35	1977	51	5333
4	289	20	779	36	2103	52	5674
5	307	21	829	37	2238	53	6037
6	327	22	882	38	2381	54	6424
7	348	23	939	39	2533	55	6835
8	370	24	999	40	2695	56	7272
9	394	25	1063	41	2868	57	7737
10	419	26	1131	42	3051	58	8232
11	446	27	1203	43	3247	59	8759
12	474	28	1280	44	3455	60	9320
13	505	29	1362	45	3676	61	9916
14	537	30	1449	46	3911	62	10550
15	571	31	1542	47	4161	63	11226

Table 18.1.5.1.6: HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [13,15]

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	642	32	1836	48	5250
1	240	17	686	33	1961	49	5606
2	256	18	732	34	2094	50	5987
3	273	19	782	35	2236	51	6393
4	292	20	835	36	2388	52	6827
5	312	21	892	37	2550	53	7290
6	333	22	952	38	2723	54	7785
7	355	23	1017	39	2908	55	8313
8	380	24	1086	40	3105	56	8877
9	405	25	1160	41	3316	57	9479
10	433	26	1238	42	3541	58	10123

11	462	27	1322	43	3781	59	10809
12	494	28	1412	44	4037	60	11543
13	527	29	1508	45	4311	61	12326
14	563	30	1610	46	4604	62	13162
15	601	31	1719	47	4916	63	14056

Reference(s)

3GPP TS 25.321, 9.2.3.1 and Annex A

18.1.5.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.6.1.

18.1.5.1.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

Uplink TFS:

	TFI	RB5 (8 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)
1	1	4	512	128	336	UL_TFC1	UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 312
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					
	14	6	512	256					
	15	8	512	512					

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.

18.1.5.1.4 Test requirements

See 14.1.3.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE transmitted transport format shall be

   - for sub-test 1: TF1 (1x336).

3. At step 18 and for each TFRC test point:

If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

18.1.5.1a Interactive or background / UL:8 (multiframe) DL: [max bit rate depending on UE category] / PS RAB+ UL:3.4 DL:3.4 kbps SRBs for DCCH (multiframe) (REL-5)

18.1.5.1a.1 Conformance requirement

See clause 18.1.5.1.1.

18.1.5.1a.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.6.1a.

18.1.5.1a.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

Uplink TFS:

	TFI	RB5 (16 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)
1	1	4	512	128	336	UL_TFC1	UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 312
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					
	14	6	512	256					
	15	8	512	512					
2	1	4	512	128	656	UL_TFC2	UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					
	14	6	512	256					
	15	8	512	512					

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.

18.1.5.1a.4 Test requirements

See 14.1.3.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE transmitted transport format shall be

   - for sub-test 1: TF1 (1x336).

   - for sub-test 2: TF2 (2x336).

3. At step 18 and for each TFRC test point:

If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

18.1.5.1b Interactive or background / UL:8 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (64QAM)

18.1.5.1b.1 Conformance requirement

The mapping of transport block size, in bits, to TFRI value is dependent upon the UE's HS-DSCH capability class.

Table 18.1.5.1b.1: HS-DSCH physical layer and RLC and MAC-hs parameters for 1.28 Mcps TDD HS-DSCH physical layer categories

HS-DSCH category	Maximum number of HS-DSCH codes per timeslot	Maximum number of HS-DSCH timeslots per TTI	Maximum number of HS-DSCH transport channel bits that can be received within an HS-DSCH TTI	Total number of soft channel bits	Supported modulations
Category 1	16	2	2788	11264	QPSK
Category 2	16	2	2788	22528	
Category 3	16	2	2788	33792	
Category 4	16	2	5600	22528	QPSK,16QAM
Category 5	16	2	5600	45056	
Category 6	16	2	5600	67584	
Category 7	16	3	8416	33792	
Category 8	16	3	8416	67584	
Category 9	16	3	8416	101376	
Category 10	16	4	11226	45056	
Category 11	16	4	11226	90112	
Category 12	16	4	11226	135168	
Category 13	16	5	14043	56320	
Category 14	16	5	14043	112640	
Category 15	16	5	14043	168960	
Category 16	16	3	12636	50688	QPSK,16QAM, 64QAM
Category 17	16	3	12636	101376	
Category 18	16	3	12636	152064	

HS-DSCH category	Maximum number of HS-DSCH codes per timeslot	Maximum number of HS-DSCH timeslots per TTI	Maximum number of HS-DSCH transport channel bits that can be received within an HS-DSCH TTI	Total number of soft channel bits	Supported modulations
Category 19	16	4	16856	67584	
Category 20	16	4	16856	135168	
Category 21	16	4	16856	202752	
Category 22	16	5	21076	84480	
Category 23	16	5	21076	168960	
Category 24	16	5	21076	253440	

If k is the signalled TFRI value then the corresponding HS-DSCH transport block size L_k is given by:

If k = 1..62

$$L_k = \lfloor L_{\min} p^{k-1} \rfloor$$

where

$p = \frac{6214}{5973}$ if the HS-DSCH physical layer category is between 1 and 3 inclusively,

$p = \frac{1292}{1228}$ if the HS-DSCH physical layer category is between 4 and 6 inclusively,

$p = \frac{1901}{1795}$ if the HS-DSCH physical layer category is between 7 and 9 inclusively,

$p = \frac{9445}{8877}$ if the HS-DSCH physical layer category is between 10 and 12 inclusively,

$p = \frac{2345}{2196}$ if the HS-DSCH physical layer category is between 13 and 15 inclusively,

$p = \frac{4053}{3802}$ if the HS-DSCH physical layer category is between 16 and 18 inclusively,

$p = \frac{9807}{9157}$ if the HS-DSCH physical layer category is between 19 and 21 inclusively,

$p = \frac{359}{334}$ if the HS-DSCH physical layer category is between 22 and 24 inclusively.

and

$$L_{\min} = 240$$

If k = 63 then,

L_k = 2788 if the HS-DSCH physical layer category is between 1 and 3 inclusively,

5600 if the HS-DSCH physical layer category is between 4 and 6 inclusively,

8416 if the HS-DSCH physical layer category is between 7 and 9 inclusively,

11226 if the HS-DSCH physical layer category is between 10 and 12 inclusively,

14043 if the HS-DSCH physical layer category is between 13 and 15 inclusively,

12636 if the HS-DSCH physical layer category is between 16 and 18 inclusively,

16856 if the HS-DSCH physical layer category is between 19 and 21 inclusively,

21075 if the HS-DSCH physical layer category is between 22 and 24 inclusively.

If k=0, L_k indicates NULL and shall not be used to signal a transport block size in the TFRI.

Transport block sizes calculated by this formula shall equal the values indicated in the following tables: –

Table 18.1.5.1b.2: HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [1, 3]

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	434	32	817	48	1540
1	240	17	451	33	851	49	1602
2	249	18	470	34	885	50	1667
3	259	19	489	35	921	51	1734
4	270	20	508	36	958	52	1804
5	281	21	529	37	996	53	1877
6	292	22	550	38	1037	54	1952
7	304	23	572	39	1078	55	2031
8	316	24	596	40	1122	56	2113
9	329	25	620	41	1167	57	2198
10	342	26	645	42	1214	58	2287
11	356	27	671	43	1263	59	2380
12	370	28	698	44	1314	60	2476
13	385	29	726	45	1367	61	2575
14	401	30	755	46	1423	62	2679
15	417	31	786	47	1480	63	2788

Table 18.1.5.1b.3: HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [4, 6]

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	514	32	1159	48	2613
1	240	17	541	33	1219	49	2749
2	252	18	569	34	1283	50	2893

3	265	19	598	35	1350	51	3043
4	279	20	630	36	1420	52	3202
5	294	21	662	37	1494	53	3369
6	309	22	697	38	1572	54	3544
7	325	23	733	39	1654	55	3729
8	342	24	772	40	1740	56	3924
9	360	25	812	41	1831	57	4128
10	379	26	854	42	1926	58	4343
11	398	27	899	43	2027	59	4570
12	419	28	946	44	2132	60	4808
13	441	29	995	45	2244	61	5058
14	464	30	1047	46	2361	62	5322
15	488	31	1101	47	2484	63	5600

Table 18.1.5.1b.4: HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [7, 9]

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	567	32	1421	48	3559
1	240	17	601	33	1505	49	3769
2	254	18	636	34	1594	50	3991
3	269	19	674	35	1688	51	4227
4	285	20	713	36	1787	52	4477
5	301	21	756	37	1893	53	4741
6	319	22	800	38	2005	54	5021
7	338	23	848	39	2123	55	5318
8	358	24	898	40	2249	56	5632
9	379	25	951	41	2383	57	5964
10	402	26	1007	42	2522	58	6317
11	425	27	1066	43	2671	59	6690
12	451	28	1129	44	2829	60	7085
13	477	29	1196	45	2996	61	7503
14	505	30	1267	46	3173	62	7946
15	535	31	1341	47	3360	63	8416

Table 18.1.5.1b.5: HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [10, 12]

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	608	32	1641	48	4427
1	240	17	647	33	1746	49	4711
2	255	18	688	34	1858	50	5012
3	271	19	732	35	1977	51	5333
4	289	20	779	36	2103	52	5674
5	307	21	829	37	2238	53	6037
6	327	22	882	38	2381	54	6424
7	348	23	939	39	2533	55	6835
8	370	24	999	40	2695	56	7272
9	394	25	1063	41	2868	57	7737
10	419	26	1131	42	3051	58	8232
11	446	27	1203	43	3247	59	8759
12	474	28	1280	44	3455	60	9320
13	505	29	1362	45	3676	61	9916
14	537	30	1449	46	3911	62	10550
15	571	31	1542	47	4161	63	11226

Table 18.1.5.1b.6: HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [13,15]

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	642	32	1836	48	5250
1	240	17	686	33	1961	49	5606
2	256	18	732	34	2094	50	5987
3	273	19	782	35	2236	51	6393
4	292	20	835	36	2388	52	6827
5	312	21	892	37	2550	53	7290
6	333	22	952	38	2723	54	7785
7	355	23	1017	39	2908	55	8313
8	380	24	1086	40	3105	56	8877
9	405	25	1160	41	3316	57	9479
10	433	26	1238	42	3541	58	10123

11	462	27	1322	43	3781	59	10809
12	494	28	1412	44	4037	60	11543
13	527	29	1508	45	4311	61	12326
14	563	30	1610	46	4604	62	13162
15	601	31	1719	47	4916	63	14056

Table 18.1.5.1b.7: HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [16,18]

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	626	32	1741	48	4843
1	240	17	667	33	1856	49	5163
2	255	18	711	34	1978	50	5503
3	272	19	758	35	2109	51	5867
4	290	20	808	36	2248	52	6254
5	309	21	861	37	2397	53	6667
6	330	22	918	38	2555	54	7107
7	352	23	979	39	2724	55	7576
8	375	24	1044	40	2904	56	8077
9	400	25	1113	41	3095	57	8610
10	426	26	1186	42	3300	58	9178
11	454	27	1264	43	3518	59	9784
12	484	28	1348	44	3750	60	10430
13	516	29	1437	45	3998	61	11119
14	550	30	1532	46	4261	62	11853
15	587	31	1633	47	4543	63	12636

Table 18.1.5.1b.8: HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [19,21]

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	671	32	2011	48	6025
1	240	17	719	33	2154	49	6453
2	257	18	770	34	2307	50	6911
3	275	19	824	35	2470	51	7402
4	294	20	883	36	2646	52	7927

5	315	21	945	37	2833	53	8490
6	338	22	1013	38	3035	54	9093
7	362	23	1085	39	3250	55	9738
8	387	24	1162	40	3481	56	10429
9	415	25	1244	41	3728	57	11170
10	444	26	1332	42	3993	58	11962
11	476	27	1427	43	4276	59	12812
12	510	28	1528	44	4580	60	13721
13	546	29	1637	45	4905	61	14695
14	585	30	1753	46	5253	62	15738
15	626	31	1878	47	5626	63	16856

Table 18.1.5.1b.9: HSDPA Transport Block Sizes for 1.28 Mcps TDD, for HS-DSCH physical layer category [22,24]

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	16	708	32	2249	48	7137
1	240	17	761	33	2417	49	7672
2	257	18	818	34	2598	50	8246
3	277	19	879	35	2792	51	8863
4	298	20	945	36	3001	52	9527
5	320	21	1016	37	3226	53	10240
6	344	22	1092	38	3468	54	11006
7	370	23	1174	39	3727	55	11830
8	397	24	1262	40	4006	56	12715
9	427	25	1356	41	4306	57	13667
10	459	26	1458	42	4628	58	14690
11	493	27	1567	43	4975	59	15790
12	530	28	1685	44	5347	60	16972
13	570	29	1811	45	5748	61	18242
14	613	30	1946	46	6178	62	19608
15	659	31	2092	47	6640	63	21076

Reference(s)

3GPP TS 25.321, 9.2.3.1 and Annex A

18.1.5.1b.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.6.1.

18.1.5.1b.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

Uplink TFS:

	TFI	RB5 (16 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)
1	16	4	512	128	336	UL_TFC1	UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 312
	17	6	512	256					
	18	8	512	512					
	19	4	512	128					
	20	6	512	256					
	21	8	512	512					
	22	4	512	128					
	23	6	512	256					
	24	8	512	512					
2	16	4	512	128	656	UL_TFC2	UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632
	17	6	512	256					
	18	8	512	512					
	19	4	512	128					
	20	6	512	256					
	21	8	512	512					
	22	4	512	128					
	23	6	512	256					
	24	8	512	512					
	10	4	512	128					

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.

18.1.5.1b.4 Test requirements

See 14.1.3.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE transmitted transport format shall be

   - for sub-test 1: TF1 (1x336).

3. At step 18 and for each TFRC test point:

If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

18.1.5.2 Interactive or background / UL:16 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5)

18.1.5.2.1 Conformance requirement

See clause 18.1.5.1.1.

18.1.5.2.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.6.2.

18.1.5.2.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

Uplink TFS:

	TFI	RB5 (16 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)
1	1	4	512	128	336	UL_TFC1	UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 312
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					
	14	6	512	256					
	15	8	512	512					
2	1	4	512	128	656	UL_TFC2	UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					
	14	6	512	256					
	15	8	512	512					

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.

18.1.5.2.4 Test requirements

See 14.1.3.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE transmitted transport format shall be

   - for sub-test 1: TF1 (1x336).

   - for sub-test 2: TF2 (2x336).

3. At step 18 and for each TFRC test point:

If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

18.1.5.2a Interactive or background / UL:16(multiframe) DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH(multiframe) (REL-5)

18.1.5.2a.1 Conformance requirement

See clause 18.1.5.1.1.

18.1.5.2a.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.6.2a.

18.1.5.2a.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

Uplink TFS:

	TFI	RB5 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)
1	1	4	512	128	336	UL_TFC1	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					
	14	6	512	256					
	15	8	512	512					
2	1	4	512	128	656	UL_TFC2	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					
	14	6	512	256					
	15	8	512	512					
3	1	4	512	128	336	UL_TFC3	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					
	14	6	512	256					
	15	8	512	512					
4	1	4	512	128	656	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					

	14	6	512	256					
	15	8	512	512					

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.

18.1.5.2a.4 Test requirements

See 14.1.3.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE transmitted transport format shall be

   - for sub-test 1: TF1 (1x336).
   - for sub-test 2: TF2 (2x336).
   - for sub-test 3: TF3 (3x336).
   - for sub-test 4: TF4 (4x336).

3. At step 18 and for each TFRC test point:

If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

18.1.5.3 Interactive or background / UL:32 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5)

18.1.5.3.1 Conformance requirement

See clause 18.1.5.1.1.

18.1.5.3.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.6.3.

18.1.5.3.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

Uplink TFS:

	TFI	RB5 (16 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)
1	1	4	512	128	336	UL_TFC1	UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 312
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					
	14	6	512	256					
	15	8	512	512					
2	1	4	512	128	656	UL_TFC2	UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					
	14	6	512	256					
	15	8	512	512					

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.

18.1.5.3.4 Test requirements

See 14.1.3.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE transmitted transport format shall be

   - for sub-test 1: TF1 (1x336).
   - for sub-test 2: TF2 (2x336).

3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

18.1.5.3a Interactive or background / UL:32(multiframe) DL: [max bit rate depending on UE category] / PS RAB +UL:3.4 DL:3.4 kbps SRBs for DCCH(multiframe) (REL-5)

18.1.5.3a.1 Conformance requirement

See clause 18.1.5.1.1.

18.1.5.3a.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.6.3a.

18.1.5.3a.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)
1	1	4	512	128	336	UL_TFC1	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					
	14	6	512	256					
	15	8	512	512					
2	1	4	512	128	656	UL_TFC2	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					
	14	6	512	256					
	15	8	512	512					
3	1	4	512	128	336	UL_TFC3	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1272
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					
	14	6	512	256					
	15	8	512	512					
4	1	4	512	128	656	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					

	14	6	512	256					
	15	8	512	512					

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.

18.1.5.3a.4 Test requirements

See 14.1.3.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE transmitted transport format shall be

   - for sub-test 1: TF1 (1x336).
   - for sub-test 2: TF2 (2x336).
   - for sub-test 3: TF3 (4x336).
   - for sub-test 4: TF4 (8x336).

3. At step 18 and for each TFRC test point:

If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

18.1.5.4 Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5)

18.1.5.4.1 Conformance requirement

See 18.1.5.1.1

18.1.5.4.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.6.4.

18.1.5.4.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

Uplink TFS:

	TFI	RB5 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)
1	1	4	512	128	336	UL_TFC1	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					
	14	6	512	256					
	15	8	512	512					
2	1	4	512	128	656	UL_TFC2	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					
	14	6	512	256					
	15	8	512	512					
3	1	4	512	128	336	UL_TFC3	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					
	14	6	512	256					
	15	8	512	512					
4	1	4	512	128	656	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					

	14	6	512	256					
	15	8	512	512					

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.

18.1.5.4.4 Test requirements

See 14.1.3.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE transmitted transport format shall be

   - for sub-test 1: TF1 (1x336).
   - for sub-test 2: TF2 (2x336).
   - for sub-test 3: TF3 (3x336).
   - for sub-test 4: TF4 (4x336).

3. At step 18 and for each TFRC test point:

If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

18.1.5.5 Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5)

18.1.5.5.1 Conformance requirement

See 18.1.5.1.1.

18.1.5.5.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.6.5.

18.1.5.5.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)
1	1	4	512	128	336	UL_TFC1	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					
	14	6	512	256					
	15	8	512	512					
2	1	4	512	128	656	UL_TFC2	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					
	14	6	512	256					
	15	8	512	512					
3	1	4	512	128	336	UL_TFC3	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1272
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					
	14	6	512	256					
	15	8	512	512					
4	1	4	512	128	656	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					

	14	6	512	256					
	15	8	512	512					

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.

18.1.5.5.4 Test requirements

See 14.1.3.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE transmitted transport format shall be

   - for sub-test 1: TF1 (1x336).
   - for sub-test 2: TF2 (2x336).
   - for sub-test 3: TF3 (4x336).
   - for sub-test 4: TF4 (8x336).

3. At step 18 and for each TFRC test point:

If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

18.1.5.6 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5)

18.1.5.6.1 Conformance requirement

See 18.1.5.1.1.

18.1.5.6.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.6.6.

18.1.5.6.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (32 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Speech and Interactive Background radio bearer. As the Interactive Background UL:32 kbps radio bearer (RB8) has the highest number of transport formats (4 excluding TF0) then 4 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF4 for RB8 and for the different speech transport formats are: UL_TFC4 for TF1, UL_TFC8 for TF2, UL_TFC11 for TF3 and UL_TFC13 for TF4.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	2	512	256	336	DL_TFC1	UL_TFC4	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	6	512	256							
	7	6	1536	512							
	8	6	1536	512							
	9	6	2047	512							
	10	6	2047	512							
	11	3	512	256							
	12	6	512	256							
2	1	2	256	256	656	DL_TFC2	UL_TFC8	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC8, UL_TFC15, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	6	256	256							
	7	6	512	512							

	8	6	512	512							
	9	6	1024	512							
	10	6	1024	1024							
	11	3	256	256							
	12	6	256	256							
3	1	8	512	256	336	DL_TFC2	UL_TFC11	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC11, UL_TFC15, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: 81 RB6: 103 RB7: 60 RB8: See note 4
	2	8	512	256							
	3	8	512	256							
	4	8	512	256							
	5	8	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	8	2047	1024							
	11	8	512	256							
	12	8	512	256							
4	1	8	256	256	656	DL_TFC1	UL_TFC13	DL_TFC0, DL_TFC3,	UL_TFC0, UL_TFC1,	RB5: 39 RB6: 103	RB5: 39 RB6: No data

	2	8	256	256							
	3	8	256	256							
	4	8	256	256							
	5	8	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	8	1024	1024							
	11	8	256	256							
	12	8	256	256							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC15 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB8 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

18.1.5.6.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 18 and for each TFRC test point:

If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

18.1.5.7 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5)

18.1.5.7.1 Conformance requirement

See 18.1.5.1.1.

18.1.5.7.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.6.7.

18.1.5.7.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20ms)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Speech and Interactive Background radio bearer. As the Interactive Background UL:64 kbps radio bearer (RB8) has the highest number of transport formats (4 excluding TF0) then 4 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF4 for RB8 and for the different speech transport formats are: UL_TFC4 for TF1, UL_TFC8 for TF2, UL_TFC11 for TF3 and UL_TFC13 for TF4.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	2	512	256	336	DL_TFC1	UL_TFC4	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	6	512	256							
	7	6	1536	512							
	8	6	1536	512							
	9	6	2047	512							
	10	6	2047	512							
	11	3	512	256							
	12	6	512	256							
2	1	2	256	256	656	DL_TFC2	UL_TFC8	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC8, UL_TFC15, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	6	256	256							
	7	6	512	512							

	8	6	512	512							
	9	6	1024	512							
	10	6	1024	1024							
	11	3	256	256							
	12	6	256	256							
3	1	8	512	256	336	DL_TFC2	UL_TFC11	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC11, UL_TFC15, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: 81 RB6: 103 RB7: 60 RB8: See note 4
	2	8	512	256							
	3	8	512	256							
	4	8	512	256							
	5	8	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	8	2047	1024							
	11	8	512	256							
	12	8	512	256							
4	1	8	256	256	656	DL_TFC1	UL_TFC13	DL_TFC0, DL_TFC3,	UL_TFC0, UL_TFC1,	RB5: 39 RB6: 103	RB5: 39 RB6: No data

	2	8	256	256							
	3	8	256	256							
	4	8	256	256							
	5	8	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	8	1024	1024							
	11	8	256	256							
	12	8	256	256							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC15 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB8 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

18.1.5.6.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 18 and for each TFRC test point:

If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

18.1.5.8 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.5.8.1 Conformance requirement

See 18.5.1.1.

18.1.5.8.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.6.8.

18.1.5.8.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv. 64 kbps)
Uplink RLC TM RLC Segmentation indication Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard	 FALSE 100ms
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

Uplink TFS:

	TFI	**RB5 (Conv. 64 kbps)**	**RB6 (I/B 64 kbps)**	**DCCH**
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF0, TF1, TF0)
UL_TFC3	(TF1, TF1, TF0)
UL_TFC4	(TF0, TF2, TF0)
UL_TFC5	(TF1, TF2, TF0)
UL_TFC6	(TF0, TF3, TF0)
UL_TFC7	(TF1, TF3, TF0)
UL_TFC8	(TF0, TF4, TF0)
UL_TFC9	(TF1, TF4, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF1, TF0, TF1)
UL_TFC12	(TF0, TF1, TF1)
UL_TFC13	(TF1, TF1, TF1)
UL_TFC14	(TF0, TF2, TF1)
UL_TFC15	(TF1, TF2, TF1)
UL_TFC16	(TF0, TF3, TF1)
UL_TFC17	(TF1, TF3, TF1)
UL_TFC18	(TF0, TF4, TF1)
UL_TFC19	(TF1, TF4, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	4x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Conversational CS and Interactive Background PS radio bearer. As the Interactive Background UL:64 kbps radio bearer (RB6) has the highest number of transport formats (4 excluding TF0) then 4 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF4 for RB6 and for TF1 for RB5 are: UL_TFC3 for TF1, UL_TFC5 for TF2, UL_TFC7 for TF3 and UL_TFC9 for TF4.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	2	512	256	336	DL_TFC1	UL_TFC3	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC10, UL_TFC13	RB5: 640 RB6: 312	RB5: 4x640 RB6: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	6	512	256							
	7	6	1536	512							
	8	6	1536	512							
	9	6	2047	512							
	10	6	2047	512							
	11	3	512	256							
	12	6	512	256							
2	1	2	256	256	656	DL_TFC1	UL_TFC5	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC10, UL_TFC15	RB5: 640 RB6: 632	RB5: 4x640 RB6: See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	6	256	256							
	7	6	512	512							
	8	6	512	512							
	9	6	1024	512							
	10	6	1024	1024							
	11	3	256	256							
	12	6	256	256							
3	1	8	512	256	336	DL_TFC1	UL_TFC7	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC7, UL_TFC10, UL_TFC17	RB5: 640 RB6: 952	RB5: 4x640 RB6: See note 4
	2	8	512	256							
	3	8	512	256							
	4	8	512	256							
	5	8	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	8	2047	1024							
	11	8	512	256							
	12	8	512	256							
4	1	8	256	256	656	DL_TFC1	UL_TFC9	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC9, UL_TFC10, UL_TFC19	RB5: 640 RB6: 1272	RB5: 4x640 RB6: See note 4
	2	8	256	256							
	3	8	256	256							
	4	8	256	256							
	5	8	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
	9	8	1024	512							
	10	8	1024	1024							
	11	8	256	256							
	12	8	256	256							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, and UL_TFC10 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.

18.1.5.8.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

18.1.5.9 Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5)

18.1.5.9.1 Conformance requirement

See 18.1.5.1.1

18.1.5.9.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.6.9.

18.1.5.9.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

Uplink TFS:

	TFI	RB5 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x340	0x148
	TF1, bits	1x340	1x148
	TF2, bits	2x340	N/A
	TF3, bits	3x340	N/A
	TF4, bits	4x340	N/A

NOTE: TB size concerns to TS 34.108, clause 6.10.2.4.1.57

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)
1	1	4	512	128	336	UL_TFC1	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					
	14	6	512	256					
	15	8	512	512					
2	1	4	512	128	656	UL_TFC2	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					
	14	6	512	256					
	15	8	512	512					
3	1	4	512	128	336	UL_TFC3	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					
	14	6	512	256					
	15	8	512	512					
4	1	4	512	128	656	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272
	2	6	512	256					
	3	8	512	512					
	4	4	512	128					
	5	6	512	256					
	6	8	512	512					
	7	4	512	128					
	8	6	512	256					
	9	8	512	512					
	10	4	512	128					
	11	6	512	256					
	12	8	512	512					
	13	4	512	128					

	14	6	512	256					
	15	8	512	512					

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.

18.1.5.9.4 Test requirements

See 14.1.3.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE transmitted transport format shall be

   - for sub-test 1: TF1 (1x340).
   - for sub-test 2: TF2 (2x340).
   - for sub-test 3: TF3 (3x340).
   - for sub-test 4: TF4 (4x340).

3. At step 18 and for each TFRC test point:

If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

18.1.5.10 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:384 DL:[max bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5)

18.1.5.10.1 Conformance requirement

See 18.1.5.1.1.

18.1.5.10.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.6.13.

18.1.5.10.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (384 kbps, 20ms)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A
	TF5, bits	N/A	N/A	N/A	8x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF5, TF0)
UL_TFC16	(TF1, TF0, TF0, TF5, TF0)
UL_TFC17	(TF2, TF1, TF1, TF5, TF0)
UL_TFC18	(TF0, TF0, TF0, TF0, TF1)
UL_TFC19	(TF1, TF0, TF0, TF0, TF1)
UL_TFC20	(TF2, TF1, TF1, TF0, TF1)
UL_TFC21	(TF0, TF0, TF0, TF1, TF1)
UL_TFC22	(TF1, TF0, TF0, TF1, TF1)
UL_TFC23	(TF2, TF1, TF1, TF1, TF1)
UL_TFC24	(TF0, TF0, TF0, TF2, TF1)
UL_TFC25	(TF1, TF0, TF0, TF2, TF1)
UL_TFC26	(TF2, TF1, TF1, TF2, TF1)
UL_TFC27	(TF0, TF0, TF0, TF3, TF1)
UL_TFC28	(TF1, TF0, TF0, TF3, TF1)
UL_TFC29	(TF2, TF1, TF1, TF3, TF1)
UL_TFC30	(TF0, TF0, TF0, TF4, TF1)
UL_TFC31	(TF1, TF0, TF0, TF4, TF1)
UL_TFC32	(TF2, TF1, TF1, TF4, TF1)
UL_TFC33	(TF0, TF0, TF0, TF5, TF1)
UL_TFC34	(TF1, TF0, TF0, TF5, TF1)
UL_TFC35	(TF2, TF1, TF1, TF5, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Speech and Interactive Background radio bearer. As the Interactive Background UL:384 kbps radio bearer (RB8) has the highest number of transport formats (5 excluding TF0) then 5 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF5 for RB8 and for the different speech transport formats are: UL_TFC4 for TF1, UL_TFC8 for TF2, UL_TFC11 for TF3 UL_TFC13 for TF4 and UL_TFC17 for TF5.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	2	512	256	336	DL_TFC1	UL_TFC4	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC18	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC18, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	6	512	256							
	7	6	1536	512							
	8	6	1536	512							
	9	6	2047	512							
	10	6	2047	512							
	11	3	512	256							
	12	6	512	256							
2	1	2	256	256	656	DL_TFC2	UL_TFC8	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC18	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC8, UL_TFC18, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	6	256	256							
	7	6	512	512							

	8	6	512	512							
	9	6	1024	512							
	10	6	1024	1024							
	11	3	256	256							
	12	6	256	256							
3	1	8	512	256	336	DL_TFC2	UL_TFC11	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC18	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC11, UL_TFC18, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: 81 RB6: 103 RB7: 60 RB8: See note 4
	2	8	512	256							
	3	8	512	256							
	4	8	512	256							
	5	8	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	8	2047	1024							
	11	8	512	256							
	12	8	512	256							
4	1	8	256	256	656	DL_TFC1	UL_TFC13	DL_TFC0, DL_TFC3,	UL_TFC0, UL_TFC1,	RB5: 39 RB6: 103	RB5: 39 RB6: No data

	2	8	256	256							
	3	8	256	256							
	4	8	256	256							
	5	8	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	8	1024	1024							
	11	8	256	256							
	12	8	256	256							
5	1	8	256	256	656	DL_TFC2	UL_TFC17	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC18	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC17, UL_TFC18, UL_TFC35	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: See note 4
	2	8	256	256							
	3	8	256	256							
	4	8	256	256							
	5	8	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	8	1024	1024							
	11	8	256	256							
	12	8	256	256							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC18 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB8 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

18.1.5.10.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 18 and for each TFRC test point:
If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

18.1.5.11 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5)

18.1.5.11.1 Conformance requirement

See 18.1.5.1.1.

18.1.5.11.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.6.10.

18.1.5.11.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 + RB9 (64 kbps, 20ms)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x340	0x148
	TF1, bits	1x39	1x103	1x60	1x340	1x148
	TF2, bits	1x81	N/A	N/A	2x340	N/A
	TF3, bits	N/A	N/A	N/A	3x340	N/A
	TF4, bits	N/A	N/A	N/A	4x340	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Speech and Interactive Background radio bearer. As the Interactive Background UL:64 kbps radio bearer (RB8) has the highest number of transport formats (4 excluding TF0) then 4 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF4 for RB8 and for the different speech transport formats are: UL_TFC4 for TF1, UL_TFC8 for TF2, UL_TFC11 for TF3 and UL_TFC13 for TF4.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	2	512	256	336	DL_TFC1	UL_TFC4	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8 +RB9:312	RB5: 39 RB6: No data RB7: No data RB8 ,RB9: See note 4,
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	6	512	256							
	7	6	1536	512							
	8	6	1536	512							
	9	6	2047	512							
	10	6	2047	512							
	11	3	512	256							
	12	6	512	256							
2	1	2	256	256	656	DL_TFC2	UL_TFC8	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC8, UL_TFC15, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8+RB9: 632	RB5: 81 RB6: 103 RB7: 60 RB8 ,RB9: See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	6	256	256							
	7	6	512	512							

	8	6	512	512							
	9	6	1024	512							
	10	6	1024	1024							
	11	3	256	256							
	12	6	256	256							
3	1	8	512	256	336	DL_TFC2	UL_TFC11	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC11, UL_TFC15, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8+RB9: 952	RB5: 81 RB6: 103 RB7: 60 RB8 ,RB9: See note 4
	2	8	512	256							
	3	8	512	256							
	4	8	512	256							
	5	8	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	8	2047	1024							
	11	8	512	256							
	12	8	512	256							
4	1	8	256	256	656	DL_TFC1	UL_TFC13	DL_TFC0, DL_TFC3, UL_TFC0	UL_TFC0, UL_TFC1, UL_TFC2	RB5: 39 RB6: 103 RB7: 60	RB5: 39 RB6: No data RB7: No data

	2	8	256	256							
	3	8	256	256							
	4	8	256	256							
	5	8	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	8	1024	1024							
	11	8	256	256							
	12	8	256	256							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC15 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB8,RB9 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.and for each subtest .

18.1.5.11.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 18 and for each TFRC test point:
If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

18.1.5.12 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / UL:64 DL: [max bit rate depending on UE category] / PS RAB + Interactive or background / UL:8 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5)

18.1.5.12.1 Conformance requirement

See 18.1.5.1.1.

18.1.5.12.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.6.16.

18.1.5.12.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps tti 20ms)	RB9 (8 kbps tti 40ms)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, RB9, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1, TF0)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1, TF0)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1, TF0)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1, TF0)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1, TF0)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1, TF0)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1, TF0)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1, TF0)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1, TF0)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1, TF0)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1, TF0)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1, TF0)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1, TF0)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1, TF0)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1, TF0)
UL_TFC30	(TF0, TF0, TF0, TF0, TF0, TF1)
UL_TFC31	(TF1, TF0, TF0, TF0, TF0, TF1)
UL_TFC32	(TF2, TF1, TF1, TF0, TF0, TF1)
UL_TFC33	(TF0, TF0, TF0, TF1, TF0, TF1)
UL_TFC34	(TF1, TF0, TF0, TF1, TF0, TF1)
UL_TFC35	(TF2, TF1, TF1, TF1, TF0, TF1)
UL_TFC36	(TF0, TF0, TF0, TF2, TF0, TF1)
UL_TFC37	(TF1, TF0, TF0, TF2, TF0, TF1)
UL_TFC38	(TF2, TF1, TF1, TF2, TF0, TF1)
UL_TFC39	(TF0, TF0, TF0, TF3, TF0, TF1)

UL_TFC40	(TF1, TF0, TF0, TF3, TF0, TF1)
UL_TFC41	(TF2, TF1, TF1, TF3, TF0, TF1)
UL_TFC42	(TF0, TF0, TF0, TF4, TF0, TF1)
UL_TFC43	(TF1, TF0, TF0, TF4, TF0, TF1)
UL_TFC44	(TF2, TF1, TF1, TF4, TF0, TF1)
UL_TFC45	(TF0, TF0, TF0, TF0, TF1, TF1)
UL_TFC46	(TF1, TF0, TF0, TF0, TF1, TF1)
UL_TFC47	(TF2, TF1, TF1, TF0, TF1, TF1)
UL_TFC48	(TF0, TF0, TF0, TF1, TF1, TF1)
UL_TFC49	(TF1, TF0, TF0, TF1, TF1, TF1)
UL_TFC50	(TF2, TF1, TF1, TF1, TF1, TF1)
UL_TFC51	(TF0, TF0, TF0, TF2, TF1, TF1)
UL_TFC52	(TF1, TF0, TF0, TF2, TF1, TF1)
UL_TFC53	(TF2, TF1, TF1, TF2, TF1, TF1)
UL_TFC54	(TF0, TF0, TF0, TF3, TF1, TF1)
UL_TFC55	(TF1, TF0, TF0, TF3, TF1, TF1)
UL_TFC56	(TF2, TF1, TF1, TF3, TF1, TF1)
UL_TFC57	(TF0, TF0, TF0, TF4, TF1, TF1)
UL_TFC58	(TF1, TF0, TF0, TF4, TF1, TF1)
UL_TFC59	(TF2, TF1, TF1, TF4, TF1, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Speech and Interactive Background radio bearer. As the Interactive Background UL:32 kbps radio bearer (RB8) has the highest number of transport formats (4 excluding TF0) then 4 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF4 for RB8 and for the different speech transport formats are: UL_TFC19 for TF1, UL_TFC23 for TF2, UL_TFC26 for TF3 and UL_TFC58 for TF4.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	2	512	256	336	DL_TFC1	UL_TFC19	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9:312	RB5: 39 RB6: No data RB7: No data RB8,RB9: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	6	512	256							
	7	6	1536	512							
	8	6	1536	512							
	9	6	2047	512							
	10	6	2047	512							
	11	3	512	256							
	12	6	512	256							
2	1	2	256	256	656	DL_TFC2	UL_TFC23	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC8, UL_TFC15, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632 RB9:312	RB5: 81 RB6: 103 RB7: 60 RB8,RB9: See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	6	256	256							
	7	6	512	512							

	8	6	512	512							
	9	6	1024	512							
	10	6	1024	1024							
	11	3	256	256							
	12	6	256	256							
3	1	8	512	256	336	DL_TFC2	UL_TFC26	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC11, UL_TFC15, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 952 RB9:312	RB5: 81 RB6: 103 RB7: 60 RB8,RB9: See note 4
	2	8	512	256							
	3	8	512	256							
	4	8	512	256							
	5	8	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	8	2047	1024							
	11	8	512	256							
	12	8	512	256							
4	1	8	256	256	656	DL_TFC1	UL_TFC58	DL_TFC0, DL_TFC3,	UL_TFC0, UL_TFC1,	RB5: 39 RB6: 103	RB5: 39 RB6: No data

	2	8	256	256							
	3	8	256	256							
	4	8	256	256							
	5	8	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	8	1024	1024							
	11	8	256	256							
	12	8	256	256							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC15 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB8 ,RB9 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

18.1.5.12.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 18 and for each TFRC test point:
If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

18.1.5.13 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / UL:16 DL: [max bit rate depending on UE category] / PS RAB + Interactive or background / UL:8 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5)

18.1.5.13.1 Conformance requirement

See 18.1.5.1.1.

18.1.5.13.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.6.14.

18.1.5.13.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (16 kbps tti 40ms)	RB9 (8 kbps tti 40ms)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8,RB9 DCCH)
UL_TFC0	(TF0,TF0,TF0,TF0,TF0,TF0)
UL_TFC1	(TF1,TF0,TF0,TF0,TF0,TF0)
UL_TFC2	(TF2,TF1,TF1,TF0,TF0,TF0)
UL_TFC3	(TF0,TF0,TF0,TF1,TF0,TF0)
UL_TFC4	(TF1,TF0,TF0,TF1,TF0,TF0)
UL_TFC5	(TF2,TF1,TF1,TF1,TF0,TF0)
UL_TFC6	(TF0,TF0,TF0,TF2,TF0,TF0)
UL_TFC7	(TF1,TF0,TF0,TF2,TF0,TF0)
UL_TFC8	(TF2,TF1,TF1,TF2,TF0,TF0)
UL_TFC9	(TF0,TF0,TF0,TF0,TF1,TF0)
UL_TFC10	(TF1,TF0,TF0,TF0,TF1,TF0)
UL_TFC11	(TF2,TF1,TF1,TF0,TF1,TF0)
UL_TFC12	(TF0,TF0,TF0,TF1,TF1,TF0)
UL_TFC13	(TF1,TF0,TF0,TF1,TF1,TF0)
UL_TFC14	(TF2,TF1,TF1,TF1,TF1,TF0)
UL_TFC15	(TF0,TF0,TF0,TF2,TF1,TF0)
UL_TFC16	(TF1,TF0,TF0,TF2,TF1,TF0)
UL_TFC17	(TF2,TF1,TF1,TF2,TF1,TF0)
UL_TFC18	(TF0,TF0,TF0,TF0,TF0,TF1)
UL_TFC19	(TF1,TF0,TF0,TF0,TF0,TF1)
UL_TFC20	(TF2,TF1,TF1,TF0,TF0,TF1)
UL_TFC21	(TF0,TF0,TF0,TF1,TF0,TF1)
UL_TFC22	(TF1,TF0,TF0,TF1,TF0,TF1)
UL_TFC23	(TF2,TF1,TF1,TF1,TF0,TF1)
UL_TFC24	(TF0,TF0,TF0,TF2,TF0,TF1)
UL_TFC25	(TF1,TF0,TF0,TF2,TF0,TF1)
UL_TFC26	(TF2,TF1,TF1,TF2,TF0,TF1)
UL_TFC27	(TF0,TF0,TF0,TF0,TF1,TF1)
UL_TFC28	(TF1,TF0,TF0,TF0,TF1,TF1)
UL_TFC29	(TF2,TF1,TF1,TF0,TF1,TF1)
UL_TFC30	(TF0,TF0,TF0,TF1,TF1,TF1)
UL_TFC31	(TF1,TF0,TF0,TF1,TF1,TF1)
UL_TFC32	(TF2,TF1,TF1,TF1,TF1,TF1)
UL_TFC33	(TF0,TF0,TF0,TF2,TF1,TF1)
UL_TFC34	(TF1,TF0,TF0,TF2,TF1,TF1)
UL_TFC35	(TF2,TF1,TF1,TF2,TF1,TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Speech and Interactive Background radio bearer. As the Interactive Background UL:16 kbps radio bearer (RB8) has the highest number of transport formats (2 excluding TF0) and RB 5,6,7 then 2 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF2 for RB8 and for the different speech transport formats are: UL_TFC13 for TF1, UL_TFC17 for TF2.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	2	512	256	336	DL_TFC1	UL_TFC13	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC9, UL_TFC13	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9:312	RB5: 39 RB6: No data RB7: No data RB8,RB9: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	6	512	256							
	7	6	1536	512							
	8	6	1536	512							
	9	6	2047	512							
	10	6	2047	512							
	11	3	512	256							
	12	6	512	256							
2	1	2	256	256	656	DL_TFC2	UL_TFC17	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC8, UL_TFC9, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 632 RB9:312	RB5: 81 RB6: 103 RB7: 60 RB8,RB9: See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	6	256	256							
	7	6	512	512							

	8	6	512	512							
	9	6	1024	512							
	10	6	1024	1024							
	11	3	256	256							
	12	6	256	256							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC9 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB8 ,RB9 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

18.1.5.13.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 18 and for each TFRC test point:

If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

18.1.5.14 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / UL:32 DL: [max bit rate depending on UE category] / PS RAB + Interactive or background / UL:8 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5)

18.1.5.14.1 Conformance requirement

See 18.1.5.1.1.

18.1.5.14.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.6.15.

18.1.5.14.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (32 kbps tti 40ms)	RB9 (8 kbps tti 40ms)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A	N/A
	TF3 bits	N/A	N/A	N/A	3x336	N/A	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, RB9, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1, TF0)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1, TF0)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1, TF0)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1, TF0)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1, TF0)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1, TF0)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1, TF0)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1, TF0)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1, TF0)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1, TF0)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1, TF0)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1, TF0)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1, TF0)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1, TF0)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1, TF0)
UL_TFC30	(TF0, TF0, TF0, TF0, TF0, TF1)
UL_TFC31	(TF1, TF0, TF0, TF0, TF0, TF1)
UL_TFC32	(TF2, TF1, TF1, TF0, TF0, TF1)
UL_TFC33	(TF0, TF0, TF0, TF1, TF0, TF1)
UL_TFC34	(TF1, TF0, TF0, TF1, TF0, TF1)
UL_TFC35	(TF2, TF1, TF1, TF1, TF0, TF1)
UL_TFC36	(TF0, TF0, TF0, TF2, TF0, TF1)
UL_TFC37	(TF1, TF0, TF0, TF2, TF0, TF1)
UL_TFC38	(TF2, TF1, TF1, TF2, TF0, TF1)
UL_TFC39	(TF0, TF0, TF0, TF3, TF0, TF1)
UL_TFC40	(TF1, TF0, TF0, TF3, TF0, TF1)
UL_TFC41	(TF2, TF1, TF1, TF3, TF0, TF1)
UL_TFC42	(TF0, TF0, TF0, TF4, TF0, TF1)
UL_TFC43	(TF1, TF0, TF0, TF4, TF0, TF1)
UL_TFC44	(TF2, TF1, TF1, TF4, TF0, TF1)
UL_TFC45	(TF0, TF0, TF0, TF0, TF1, TF1)
UL_TFC46	(TF1, TF0, TF0, TF0, TF1, TF1)
UL_TFC47	(TF2, TF1, TF1, TF0, TF1, TF1)
UL_TFC48	(TF0, TF0, TF0, TF1, TF1, TF1)
UL_TFC49	(TF1, TF0, TF0, TF1, TF1, TF1)
UL_TFC50	(TF2, TF1, TF1, TF1, TF1, TF1)
UL_TFC51	(TF0, TF0, TF0, TF2, TF1, TF1)
UL_TFC52	(TF1, TF0, TF0, TF2, TF1, TF1)
UL_TFC53	(TF2, TF1, TF1, TF2, TF1, TF1)
UL_TFC54	(TF0, TF0, TF0, TF3, TF1, TF1)
UL_TFC55	(TF1, TF0, TF0, TF3, TF1, TF1)
UL_TFC56	(TF2, TF1, TF1, TF3, TF1, TF1)
UL_TFC57	(TF0, TF0, TF0, TF4, TF1, TF1)
UL_TFC58	(TF1, TF0, TF0, TF4, TF1, TF1)
UL_TFC59	(TF2, TF1, TF1, TF4, TF1, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Speech and Interactive Background radio bearer. As the Interactive Background UL:32 kbps radio bearer (RB8) has the highest number of transport formats (4 excluding TF0) then 4 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF4 for RB8 and for the different speech transport formats are: UL_TFC19 for TF1, UL_TFC23 for TF2, UL_TFC26 for TF3 and UL_TFC58 for TF4.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	2	512	256	336	DL_TFC1	UL_TFC19	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9:312	RB5: 39 RB6: No data RB7: No data RB8,RB9: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	6	512	256							
	7	6	1536	512							
	8	6	1536	512							
	9	6	2047	512							
	10	6	2047	512							
	11	3	512	256							
	12	6	512	256							
2	1	2	256	256	656	DL_TFC2	UL_TFC23	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC8, UL_TFC15, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632 RB9:312	RB5: 81 RB6: 103 RB7: 60 RB8,RB9: See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	6	256	256							
	7	6	512	512							

	8	6	512	512							
	9	6	1024	512							
	10	6	1024	1024							
	11	3	256	256							
	12	6	256	256							
3	1	8	512	256	336	DL_TFC2	UL_TFC26	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC11, UL_TFC15, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 952 RB9:312	RB5: 81 RB6: 103 RB7: 60 RB8,RB9: See note 4
	2	8	512	256							
	3	8	512	256							
	4	8	512	256							
	5	8	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	8	2047	1024							
	11	8	512	256							
	12	8	512	256							
4	1	8	256	256	656	DL_TFC1	UL_TFC58	DL_TFC0, DL_TFC3,	UL_TFC0, UL_TFC1,	RB5: 39 RB6: 103	RB5: 39 RB6: No data

	2	8	256	256							
	3	8	256	256							
	4	8	256	256							
	5	8	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							
	10	8	1024	1024							
	11	8	256	256							
	12	8	256	256							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC15 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB8 ,RB9 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

18.1.5.14.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 18 and for each TFRC test point:

If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

18.1.5.15 Streaming / UL:64 DL: [max bit rate depending on UE category] / PS RAB + Interactive or background / UL:8 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5)

18.1.5.15.1 Conformance requirement

See 18.1.5.1.1.

18.1.5.15.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.6.17.

18.1.5.15.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

Uplink TFS:

	TFI	RB5 (64 kbps tti 20ms)	RB6 (8 kbps tti 40ms)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF0, TF0, TF1)
UL_TFC3	(TF0, TF1, TF1)
UL_TFC4	(TF1, TF0, TF0)
UL_TFC5	(TF1, TF1, TF0)
UL_TFC6	(TF1, TF0, TF1)
UL_TFC7	(TF1, TF1, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink Interactive Background and Streaming radio bearer..

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	2	512	256	656	N/A	UL_TFC1	DL_TFC0, UL_TFC0, UL_TFC2, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 632 RB6: 312	RB5,RB6: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	6	512	256							
	7	6	1536	512							
	8	6	1536	512							
	9	6	2047	512							
	10	6	2047	512							
	11	3	512	256							
	12	6	512	256							
2	1	2	256	256	656	N/A	UL_TFC4	DL_TFC0, UL_TFC0, UL_TFC2, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC4, UL_TFC6	RB5: 632 RB6: 312	RB5,RB6: See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	6	256	256							
	7	6	512	512							
	8	6	512	512							
	9	6	1024	512							

	10	6	1024	1024							
	11	3	256	256							
	12	6	256	256							
3	1	8	512	256	656	N/A	UL_TFC5	DL_TFC0, UL_TFC0, UL_TFC2, UL_TFC7	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632 RB6: 312	RB5,RB6: See note 4
	2	8	512	256							
	3	8	512	256							
	4	8	512	256							
	5	8	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	8	2047	1024							
	11	8	512	256							
	12	8	512	256							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC2,are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB5 ,RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

18.1.5.15.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 18 and for each TFRC test point:
If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

18.1.5.16 Streaming / UL:32 DL: [max bit rate depending on UE category] / PS RAB + Interactive or background / UL:8 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5)

18.1.5.16.1 Conformance requirement

See 18.1.5.1.1.

18.1.5.16.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.6.11.

18.1.5.16.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

Uplink TFS:

	TFI	RB5 (32 kbps tti 20ms)	RB6 (8 kbps tti 40ms)	DCCH
TFS	TF0, bits	0x336	0x336	0x148
	TF1, bits	1x336	1x336	1x148
	TF2, bits	2x336	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0,TF0,TF0)
UL_TFC1	(TF1,TF0,TF0)
UL_TFC2	(TF2,TF0,TF0)
UL_TFC3	(TF0,TF1,TF0)
UL_TFC4	(TF1,TF1,TF0)
UL_TFC5	(TF2,TF1,TF0)
UL_TFC6	(TF0,TF0,TF1)
UL_TFC7	(TF1,TF0,TF1)
UL_TFC8	(TF2,TF0,TF1)
UL_TFC9	(TF0,TF1,TF1)
UL_TFC10	(TF1,TF1,TF1)
UL_TFC11	(TF2,TF1,TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink Interactive Background and Streaming radio bearer..

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	2	512	256	336	N/A	UL_TFC1	DL_TFC0, UL_TFC0, UL_TFC1, UL_TFC7	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC7	RB5: 312 RB6: 312	RB5,RB6: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	6	512	256							
	7	6	1536	512							
	8	6	1536	512							
	9	6	2047	512							
	10	6	2047	512							
	11	3	512	256							
	12	6	512	256							
2	1	2	256	256	656	N/A	UL_TFC2	DL_TFC0, UL_TFC0, UL_TFC8	UL_TFC0, UL_TFC2, UL_TFC8	RB5: 312 RB6: 312	RB5,RB6: See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	6	256	256							
	7	6	512	512							
	8	6	512	512							
	9	6	1024	512							

	10	6	1024	1024							
	11	3	256	256							
	12	6	256	256							
3	1	8	512	256	336	N/A	UL_TFC3	DL_TFC0, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC2, UL_TFC3, UL_TFC9 ,	RB5: 312 RB6: 312	RB5,RB6: See note 4
	2	8	512	256							
	3	8	512	256							
	4	8	512	256							
	5	8	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	8	2047	1024							
	11	8	512	256							
	12	8	512	256							
4	1	8	512	256	656	N/A	UL_TFC4	DL_TFC0, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC4, UL_TFC10	RB5: 312 RB6: 312	RB5,RB6: See note 4
	2	8	512	256							
	3	8	512	256							
	4	8	512	256							
	5	8	512	256							
	6	8	512	256							

	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	8	2047	1024							
	11	8	512	256							
	12	8	512	256							
4	1	8	512	256	656	N/A	UL_TFC5	DL_TFC0, UL_TFC0, UL_TFC11	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC11	RB5: 312 RB6: 312	RB5,RB6: See note 4
	2	8	512	256							
	3	8	512	256							
	4	8	512	256							
	5	8	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	8	2047	1024							
	11	8	512	256							
	12	8	512	256							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC2are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB5 ,RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

18.1.5.16.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 18 and for each TFRC test point:

If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

18.1.5.17 Streaming / UL:16 DL: [max bit rate depending on UE category] / PS RAB + Interactive or background / UL:8 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (REL-5)

18.1.5.17.1 Conformance requirement

See 18.1.5.1.1.

18.1.5.17.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.6.12.

18.1.5.17.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

Uplink TFS:

	TFI	RB5 (16 kbps tti 20ms)	RB6 (8 kbps tti 40ms)	DCCH
TFS	TF0, bits	0x336	0x336	0x148
	TF1, bits	1x336	1x336	1x148

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF0, TF0, TF1)
UL_TFC3	(TF0, TF1, TF1)
UL_TFC4	(TF1, TF0, TF0)
UL_TFC5	(TF1, TF1, TF0)
UL_TFC6	(TF1, TF0, TF1)
UL_TFC7	(TF1, TF1, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink Interactive Background and Streaming radio bearer.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	2	512	256	336	N/A	UL_TFC1	DL_TFC0, UL_TFC0, UL_TFC2, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 312 RB6: 312	RB5,RB6: See note 4
	2	2	512	256							
	3	3	512	256							
	4	3	512	256							
	5	6	512	256							
	6	6	512	256							
	7	6	1536	512							
	8	6	1536	512							
	9	6	2047	512							
	10	6	2047	512							
	11	3	512	256							
	12	6	512	256							
2	1	2	256	256	336	N/A	UL_TFC4	DL_TFC0, UL_TFC0, UL_TFC2, UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC4, UL_TFC6	RB5:312 RB6: 312	RB5,RB6: See note 4
	2	2	256	256							
	3	3	256	256							
	4	3	256	256							
	5	6	256	256							
	6	6	256	256							
	7	6	512	512							
	8	6	512	512							
	9	6	1024	512							

	10	6	1024	1024							
	11	3	256	256							
	12	6	256	256							
3	1	8	512	256	336	N/A	UL_TFC5	DL_TFC0, UL_TFC0, UL_TFC2, UL_TFC7	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 312 RB6: 312	RB5,RB6: See note 4
	2	8	512	256							
	3	8	512	256							
	4	8	512	256							
	5	8	512	256							
	6	8	512	256							
	7	8	1536	512							
	8	8	1536	512							
	9	8	2047	512							
	10	8	2047	1024							
	11	8	512	256							
	12	8	512	256							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC2,are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB5 ,RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

18.1.5.17.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 18 and for each TFRC test point:
If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

18.1.6 Combinations on DPCH, HS-PDSCH and E-DPDCH

18.1.6.1 Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH on DCH

18.1.6.1.1 Conformance requirement

The UE shall be able to establish the UTRAN requested radio bearers within the UE's signalled radio access capabilities.

The UE shall correctly transfer user data from peer to peer RLC entities according to the requested radio bearer configuration.

Reference(s)

3GPP TS 25.331, clause 8.2.1

3GPP TS 25.2xx series (Physical Layer)

3GPP TS 25.321 (MAC)

3GPP TS 25.322 (RLC)

18.1.6.1.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.7.2:

1. To verify that the UE is able to establish the radio bearer combination.

2. To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

18.1.6.1.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)				
			Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	TFRI
1	4	512	336	370	1	QPSK	12
2	6	512	336	370	1	QPSK	12
3	8	512	336	370	1	QPSK	12
4	4	512	336	360	1	QPSK	9
5	6	512	336	360	1	QPSK	9
6	8	512	336	360	1	QPSK	9
7	4	1536	336	358	1	QPSK	8
8	6	1536	336	358	1	QPSK	8
9	8	2047	336	358	1	QPSK	8
10	4	2047	336	370	1	QPSK	8
11	6	1024	336	370	1	QPSK	8
12	8	1024	336	370	1	QPSK	8

NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI, i.e. such that the MAC-hs transport block size is bigger than the maximum MAC-d PDU size under test + MAC-hs header size (21 bits). See 14.1.3.3 (MAC-d PDU size=336) for recommended TFRC values for different transport block size.

The generic test procedure in 14.1.4.1 is run for each sub-test. Testing of UE supporting UE E-DCH physical layer category 6 shall be performed in accordance to test parameters, sub-tests and test points for UE HS-DSCH physical layer category 6. Testing of UE supporting UE HS-DSCH physical layer category 13 to 15 shall be performed in accordance to test parameters, sub-tests and test points for UE HS-DSCH physical layer category 10.

Sub-tests:

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL RLC SDU size (note 2)	Test data size (note 3)
1	1 to 6	5ms, Table 0	4	312	312

NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.
NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.

18.1.6.1.4 Test requirements

See 14.1.4.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink.

18.1.6.1a Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH on DCH/ UL 16QAM

18.1.6.1a.1 Conformance requirement

The UE shall be able to establish the UTRAN requested radio bearers within the UE's signalled radio access capabilities.

The UE shall correctly transfer user data from peer to peer RLC entities according to the requested radio bearer configuration.

Reference(s)

3GPP TS 25.331, clause 8.2.1

3GPP TS 25.2xx series (Physical Layer)

3GPP TS 25.321 (MAC)

3GPP TS 25.322 (RLC)

18.1.6.1a.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.7.2:

1. To verify that the UE is able to establish the radio bearer combination.

2. To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

18.1.6.1a.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
6	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)				
			Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	TFRI
1	4	512	336	370	1	QPSK	12
2	6	512	336	370	1	QPSK	12
3	8	512	336	370	1	QPSK	12
4	4	512	336	360	1	QPSK	9
5	6	512	336	360	1	QPSK	9
6	8	512	336	360	1	QPSK	9
7	4	1536	336	358	1	QPSK	8
8	6	1536	336	358	1	QPSK	8
9	8	2047	336	358	1	QPSK	8
10	4	2047	336	370	1	QPSK	8
11	6	1024	336	370	1	QPSK	8
12	8	1024	336	370	1	QPSK	8
NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI, i.e. such that the MAC-hs transport block size is bigger than the maximum MAC-d PDU size under test + MAC-hs header size (21 bits). See 14.1.3.3 (MAC-d PDU size=336) for recommended TFRC values for different transport block size.							

The generic test procedure in 14.1.4.1 is run for each sub-test. Testing of UE supporting UE HS-DSCH physical layer category 13 to 15 shall be performed in accordance to test parameters, sub-tests and test points for UE HS-DSCH physical layer category 10.

Sub-tests:

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL RLC SDU size (note 2 &4)	Test data size (note 3)
1	6	5ms, Table 0	8	7992	312
NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI. NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested. NOTE 4: The UL RLC SDU size is calculated as 25*320-8= 7992, such that TB size 8455 corresponding to E-TFCI 103 will be selected. With PLnon-max = 0.84, [(8455+24[CRC]) *3 [TC]]= 25437 bits. 25437* PLnon-max =21367 , this guarantees as per algorithm in 25.222 clause 4.8.4.1,16QAM to be selected [$2\times M_2+2\times M_4$]					

18.1.6.1a.4 Test requirements

See 14.1.4.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE shall return a RLC SDU with first 312 bits equal to the content of the DL RLC SDU sent by the SS.

18.1.6.1b Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (MIMO)

18.1.6.1b.1 Conformance requirement

See 18.1.6.1.1.

18.1.6.1b.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.6.4 for the QPSK, 16QAM and MIMO case using the downlink enhanced Layer 2 configuration with Flexible RLC and MAC-ehs .

18.1.6.1b.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-8 IE "HS-DSCH physical layer category extension". This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The following parameters are specific for this test case:

Parameter	Value	Comments
Radio bearer	TS 34.108, clause 6.11.5.4.6.4 using downlink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs).	

The generic test procedure in 18.1.1.7 is run for each sub-test for test execution 1 and 2.

Execution counter	Downlink Modulation Scheme (M1) MIMO data flow#1	Downlink Modulation Scheme (M2) MIMO data flow#2	MIMO
1	QPSK	QPSK	Yes
2	16QAM	16QAM	Yes
3	16QAM	QPSK	Yes

Uplink TFS:

	TFI	RB5 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)
1	25	12	2047	512	Flexible	UL_TFC1	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312
	26	12	2047	512					
	27	12	2047	512					
2	25	12	1024	1024	Flexible	UL_TFC2	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632
	26	12	1024	1024					
	27	12	1024	1024					
3	25	16	2047	1024	Flexible	UL_TFC3	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952
	26	16	2047	1024					
	27	16	2047	1024					
4	25	16	1024	1024	Flexible	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272
	26	16	1024	1024					
	27	16	1024	1024					

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.

18.1.6.1b.4 Test requirements

See 18.1.1.7 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE transmitted transport format shall be

   - for sub-test 1: TF1 (1x336).
   - for sub-test 2: TF2 (2x336).
   - for sub-test 3: TF3 (3x336).
   - for sub-test 4: TF4 (4x336)

3. At step 18 and for each TFRC test point:
The UE shall for each radio bearer return the equal number RLC SDUs as sent by the SS in downlink. If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return RLC SDUs where the SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

NOTE: The generic test procedure as specified in 18.1.1.7 sends either 2 SDU or 8 SDUs depending on the transport block size under tests. For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.1.6.1c Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (64QAM+MIMO)

18.1.6.1c.1 Conformance requirement

See 18.1.6.1.1.

18.1.6.1c.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.6.4 for the 64QAM and MIMO case using the downlink enhanced Layer 2 configuration with Flexible RLC and MAC-ehs .

18.1.6.1c.3 Method of test

NOTE: The reference to UE Categories refers to the UE capability as signalled in the Rel-8 IE "HS-DSCH physical layer category extension". This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The following parameters are specific for this test case:

Parameter	Value	Comments
Radio bearer	TS 34.108, clause 6.11.5.4.6.4 using downlink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs).	
MAC-ehs receiver window size	16	
RLC Transmission window size	See sub-test table	
RLC Receiving window size	See sub-test table	

The generic test procedure in 18.1.1.7 is run for each sub-test for test execution 1 and 2.

Execution counter	Downlink Modulation Scheme (M1) MIMO data flow#1	Downlink Modulation Scheme (M2) MIMO data flow#2	MIMO
1	64QAM	QPSK	Yes
2	64QAM	16QAM	Yes
3	64QAM	64QAM	Yes

Uplink TFS:

	TFI	RB5 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	UE Category	RLC Receiving window size (note 1)	RLC Transmission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test dat size (bit (note 4)
1	28,29 and 30	2047	1024	Flexible	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272	See note

NOTE 1: The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return one complete UL RLC SDU per UL TTI.
NOTE 4: The test data size and number of DL RLC SDUs for RB5 is dependent on the actual TFRC test point, see the generic test procedure in 18.1.1.7.

18.1.6.1c.4 Test requirements

See 18.1.1.7 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE transmitted transport format shall be

   - for sub-test 1: TF4 (4x336)

3. At step 18 and for each TFRC test point:
The UE shall for each radio bearer return the equal number RLC SDUs as sent by the SS in downlink. If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return RLC SDUs where the SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

NOTE: The generic test procedure as specified in 18.1.1.7 sends either 2 SDU or 8 SDUs depending on the transport block size under tests.

18.1.6.2 Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:[max bit rate depending on UE category and TTI] DL:3.4 kbps SRBs for DCCH on E-DCH and DL DCH

18.1.6.2.1 Conformance requirement

See 18.1.6.1.1.

18.1.6.2.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.7.3:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

18.1.6.2.3 Method of test

See 18.1.6.1.3.

18.1.6.2.4 Test requirements

See 18.1.6.1.4.

18.1.6.3 Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH

18.1.6.3.1 Conformance requirement

See 18.1.6.1.1.

18.1.6.3.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.7.4:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

18.1.6.3.3 Method of test

See 18.1.6.1.3.

18.1.6.3.4 Test requirements

See 18.1.6.1.4.

18.1.6.3a Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] with Flexible RLC, MAC-ehs and MAC-i/is / PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH with MAC-ehs and MAC-i/is

18.1.6.3a.1 Conformance requirement

See 18.1.6.1.1.

18.1.6.3a.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.7.3 and for the case when Flexible RLC and MAC-i/is is configured:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

18.1.6.3a.3 Method of test

NOTE: The reference to E-DCH Category refers to the UE capability as signalled in the Rel-7 IE "E-DCH physical layer category". All UEs supporting E-DCH should signal a category between 1 and 6 for this IE even if the UE physical capability category is above 6.

NOTE: The reference to HS-DSCH Categories refers to the UE capability as signalled in the Rel-7 IE "HS-DSCH physical layer category extension". This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The following parameters are specific for this test case:

Parameter	Value
Radio bearer	TS 34.108, clause 6.11.5.4.7.3 using downlink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs) and uplink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-i/is) and using downlink Alt 2 (Fixed RLC and MAC-ehs) and uplink Alt 2 (Fixed RLC and MAC-i/is) for the SRB#1 to SRB#4.
MAC-ehs receiver window size	16
HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)				
			Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	TFRI
1	4	512	336	368	1	QPSK	12
2	6	512	336	368	1	QPSK	12
3	8	512	336	368	1	QPSK	12
4	4	512	336	360	1	QPSK	9
5	6	512	336	360	1	QPSK	9
6	8	512	336	360	1	QPSK	9
7	4	1536	336	368	1	QPSK	9
8	6	1536	336	368	1	QPSK	9
9	8	1536	336	368	1	QPSK	9
10	4	2047	336	376	1	QPSK	9
11	6	2047	336	376	1	QPSK	9
12	8	2047	336	376	1	QPSK	9
13	4	2560	336	392	1	QPSK	9
14	6	2560	336	392	1	QPSK	9
15	8	2560	336	392	1	QPSK	9
16	4	2047	336	384	1	QPSK	9
17	6	2047	336	384	1	QPSK	9
18	8	2047	336	384	1	QPSK	9
19	4	3072	336	360	1	QPSK	8
20	6	3072	336	360	1	QPSK	8
21	8	3072	336	360	1	QPSK	8
22	4	3584	336	376	1	QPSK	8
23	6	3584	336	376	1	QPSK	8
24	8	3584	336	376	1	QPSK	8

NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI considering all sub-tests. i.e. such that the MAC-ehs transport block size is bigger than the "Minimum TBS" that equals maximum MAC-d PDU size under test + the MAC-ehs header size (24 bits).

The generic test procedure in 18.1.1.6 is run for each sub-test.

Sub-tests:

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL MAC-d PDU size under test	DL MAC-d PDU size under test	UL RLC SDU size (note 2)	Test data size (note 3)
1	1 to 6	5ms	4	Flexible	Flexible	320	320

NOTE 1: E-DCH TTI and E-TFCI table according to TS 25.321 Annex BC.1.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size is set to UL RLC payload size. This will enable the UE to return the data within one UL TTI ("Use special value of HE field" is configured).
NOTE 3: The test data size is for DTCH mapped to E-DCH is selected according to the MAC-d PDU size to be tested = DL RLC payload size for the MAC-d PDU size.

18.1.6.3a.4 Test requirements

See 14.1.4.1b for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink.

18.1.6.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.6.4.1 Conformance requirement

See 18.1.6.1.1.

18.1.6.4.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.7.5:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH in combination with the possible TFCI of the conversional speech radio bearer.

18.1.6.4.3 Method of test

The following parameters are specific for this test case:

Uplink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Parameter	Value
MAC-hs receiver window size	16
HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)				
			Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	TFRI
1	4	512	336	370	1	QPSK	12
2	6	512	336	370	1	QPSK	12
3	8	512	336	370	1	QPSK	12
4	4	512	336	360	1	QPSK	9
5	6	512	336	360	1	QPSK	9
6	8	512	336	360	1	QPSK	9
7	4	1536	336	358	1	QPSK	8
8	6	1536	336	358	1	QPSK	8
9	8	2047	336	358	1	QPSK	8
10	4	2047	336	370	1	QPSK	8
11	6	1024	336	370	1	QPSK	8
12	8	1024	336	370	1	QPSK	8
NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI, i.e. such that the MAC-hs transport block size is bigger than the maximum MAC-d PDU size under test + MAC-hs header size (21 bits). See 14.1.3.3 (MAC-d PDU size=336) for recommended TFRC values for different transport block size.							

The generic test procedure in 14.1.4.1 is run for each sub-test.

Sub-tests:

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	DCH				UL RLC SDU size (note 3)	Test data size (note 4)
				DL TFCS Under test	UL TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)		
1	1 to 6	5ms, Table 0	4	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
2	1 to 6	5ms, Table 0	4	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312

NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.
NOTE 4: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.

18.1.6.4.4 Test requirements

See 14.1.4.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the sub-test.

3. At step 18 and for each radio bearer where test data is sent in downlink the UE shall return a RLC SDU with same content as sent in downlink. For radio bearers where no data is sent in downlink then no data shall be received in uplink.

18.1.6.5 Streaming or interactive or background / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB + Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:[max bit rate depending on UE category and TTI] DL:3.4 kbps SRBs for DCCH on E-DCH and DL DCH

18.1.6.5.1 Conformance requirement

See 18.1.6.1.1.

18.1.6.5.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.7.7:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

18.1.6.5.3 Method of test

The first Streaming or background or interactive / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB is referred to as RB5 and the second Streaming or interactive or background UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB is referred to RB6.

The following parameters are specific for this test case and RB5 and RB6:

Parameter	Value
MAC-hs receiver window size	16
HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)				
			Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	TFRI
1	4	512	336	370	1	QPSK	12
2	6	512	336	370	1	QPSK	12
3	8	512	336	370	1	QPSK	12
4	4	512	336	360	1	QPSK	9
5	6	512	336	360	1	QPSK	9
6	8	512	336	360	1	QPSK	9
7	4	1536	336	358	1	QPSK	8
8	6	1536	336	358	1	QPSK	8
9	8	2047	336	358	1	QPSK	8
10	4	2047	336	370	1	QPSK	8
11	6	1024	336	370	1	QPSK	8
12	8	1024	336	370	1	QPSK	8
NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI, i.e. such that the MAC-hs transport block size is bigger than the maximum MAC-d PDU size under test + MAC-hs header size (21 bits). See 14.1.3.3 (MAC-d PDU size=336) for recommended TFRC values for different transport block size.							

The generic test procedure in 14.1.4.1 is run for each sub-test.

Sub-tests:

Sub-test	E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL RLC SDU size (note 2)	Test data size (note 2)
1	1 to 6	5ms, Table 0	4	RB5:312 RB6:312	RB5:312 RB6:312
NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI. NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.					

18.1.6.5.4 Test requirements

See 14.1.4.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE shall return a RLC SDU on RB5 and RB6 with same content as sent in downlink.

18.1.6.6 Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.6.6.1 Conformance requirement

See 18.1.6.1.1.

18.1.6.6.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.7.8.

18.1.6.6.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

UL parameters:

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

Downlink TFS:

	TFI	RB5 (384 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all downlink Interactive Background and Streaming radio bearer.

Sub-test	Downlink TFCS Under test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 3)
1	DL_TFC1	1 to 6	5ms, Table 0	4	RB5: 312	RB5: 312
2	DL_TFC2	1 to 6	5ms, Table 0	4	RB5: 632	RB5: 632
3	DL_TFC3	1 to 6	5ms, Table 0	4	RB5: 1912	RB5: 1272
4	DL_TFC4	1 to 6	5ms, Table 0	4	RB5: 2552	RB5: 2552
5	DL_TFC5	1 to 6	5ms, Table 0	4	RB5: 3832	RB5: 3832

NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.
NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.

18.1.6.6.4 Test requirements

See 14.1.4.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink.

18.1.6.7 Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.6.7.1 Conformance requirement

See 18.1.6.1.1.

18.1.6.7.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.7.9.

18.1.6.7.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

UL parameters:

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

Downlink TFS:

	TFI	RB5 (128 kbps, 20ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all downlink Interactive Background and Streaming radio bearer.

Sub-test	Downlink TFCS Under test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 3)
1	DL_TFC1	1 to 6	5ms, Table 0	4	RB5: 312	RB5: 312
2	DL_TFC2	1 to 6	5ms, Table 0	4	RB5: 632	RB5: 632
3	DL_TFC3	1 to 6	5ms, Table 0	4	RB5: 1912	RB5: 1272
4	DL_TFC4	1 to 6	5ms, Table 0	4	RB5: 2552	RB5: 2552

NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.
NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.

18.1.6.7.4 Test requirements

See 14.1.4.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink.

18.1.6.8 Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.6.8.1 Conformance requirement

See 18.1.6.1.1.

18.1.6.8.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.7.10.

18.1.6.8..3Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

UL parameters:

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

Downlink TFS:

	TFI	RB5 (64 kbps, 20ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all downlink Interactive Background and Streaming radio bearer.

Sub-test	Downlink TFCS Under test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 3)
1	DL_TFC1	1 to 6	5ms, Table 0	4	RB5: 312	RB5: 312
2	DL_TFC2	1 to 6	5ms, Table 0	4	RB5: 632	RB5: 632
3	DL_TFC3	1 to 6	5ms, Table 0	4	RB5: 952	RB5: 952
4	DL_TFC4	1 to 6	5ms, Table 0	4	RB5: 1272	RB5: 1272

NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.
NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.

18.1.6.8.4 Test requirements

See 14.1.4.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink.

18.1.6.9 Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 32 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.6.9.1 Conformance requirement

See 18.1.6.1.1.

18.1.6.9.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause . 6.11.5.4.7.11

18.1.6.9..3Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

UL parameters:

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

Downlink TFS:

	TFI	RB5 (64 kbps, 20ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)
DL_TFC5	(TF2, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all downlink Interactive Background and Streaming radio bearer.

Sub-test	Downlink TFCS Under test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 3)
1	DL_TFC1	1 to 6	5ms, Table 0	4	RB5: 312	RB5: 312
2	DL_TFC2	1 to 6	5ms, Table 0	4	RB5: 632	RB5: 632

NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.
NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.

18.1.6.9.4 Test requirements

See 14.1.4.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink.

18.1.6.10 Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 64 kbps / PS RAB + Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.6.10.1 Conformance requirement

See 18.1.6.1.1.

18.1.6.10.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.7.12 .

18.1.6.10..3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

UL parameters:

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

Downlink TFS:

	TFI	RB5 +RB6 (64 kbps, 20ms)	DCCH
TFS	TF0, bits	0x340	0x148
	TF1, bits	1x340	1x148
	TF2, bits	2x340	N/A
	TF3, bits	3x340	N/A
	TF4, bits	4x340	N/A

Downlink TFCS:

TFCI	(RB5+RB6, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3,TF0
DL_TFC4	(TF4,TF0)
DL_TFC5	(TF0,TF1)
DL_TFC6	(TF1,TF1)
DL_TFC7	(TF2,TF1)
DL_TFC8	(TF3,TF1)
DL_TFC9	(TF4,TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all downlink Interactive Background and Streaming radio bearer.

Sub-test	Downlink TFCS Under test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 3)
1	DL_TFC1	1 to 6	5ms, Table 0	4	RB5: 312	RB5: 312
2	DL_TFC2	1 to 6	5ms, Table 0	4	RB5: 632	RB5: 632
3	DL_TFC3	1 to 6	5ms, Table 0	4	RB5: 952	RB5: 952
4	DL_TFC4	1 to 6	5ms, Table 0	4	RB5: 1272	RB5: 1272

NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.
NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.

18.1.6.10.4 Test requirements

See 14.1.4.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink.

18.1.6.11 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.6.11.1 Conformance requirement

See 18.1.6.1.1.

18.1.6.11.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.7.13.

18.1.6.11.3 Method of test

UL parameters:

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

Uplink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (384 kbps, 10 ms)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A
	TF5, bits	N/A	N/A	N/A	12x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF5, TF0)
DL_TFC16	(TF1, TF0, TF0, TF5, TF0)
DL_TFC17	(TF2, TF1, TF1, TF5, TF0)
DL_TFC18	(TF0, TF0, TF0, TF0, TF1)
DL_TFC19	(TF1, TF0, TF0, TF0, TF1)
DL_TFC20	(TF2, TF1, TF1, TF0, TF1)
DL_TFC21	(TF0, TF0, TF0, TF1, TF1)
DL_TFC22	(TF1, TF0, TF0, TF1, TF1)
DL_TFC23	(TF2, TF1, TF1, TF1, TF1)
DL_TFC24	(TF0, TF0, TF0, TF2, TF1)
DL_TFC25	(TF1, TF0, TF0, TF2, TF1)
DL_TFC26	(TF2, TF1, TF1, TF2, TF1)
DL_TFC27	(TF0, TF0, TF0, TF3, TF1)
DL_TFC28	(TF1, TF0, TF0, TF3, TF1)
DL_TFC29	(TF2, TF1, TF1, TF3, TF1)
DL_TFC30	(TF0, TF0, TF0, TF4, TF1)
DL_TFC31	(TF1, TF0, TF0, TF4, TF1)
DL_TFC32	(TF2, TF1, TF1, TF4, TF1)
DL_TFC33	(TF0, TF0, TF0, TF5, TF1)
DL_TFC34	(TF1, TF0, TF0, TF5, TF1)
DL_TFC35	(TF2, TF1, TF1, TF5, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 3)
1	DL_TFC1, DL_TFC19	1 to 6	5ms, Table 0	4	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC20	1 to 6	5ms, Table 0	4	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC21	1 to 6	5ms, Table 0	4	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4, DL_TFC22	1 to 6	5ms, Table 0	4	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5, DL_TFC23	1 to 6	5ms, Table 0	4	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC6, DL_TFC24	1 to 6	5ms, Table 0	4	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 632
7	DL_TFC7, DL_TFC25	1 to 6	5ms, Table 0	4	RB5: 39 RB6: 103 RB7: 60 RB8: 632 (note 3)	RB5: 39 RB6: No data RB7: No data RB8: 632
8	DL_TFC8, DL_TFC26	1 to 6	5ms, Table 0	4	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632
9	DL_TFC9, DL_TFC27	1 to 6	5ms, Table 0	4	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 1272
10	DL_TFC10, DL_TFC28	1 to 6	5ms, Table 0	4	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 1272
11	DL_TFC11, DL_TFC29	1 to 6	5ms, Table 0	4	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 1272
12	DL_TFC12, DL_TFC30	1 to 6	5ms, Table 0	4	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: No data RB6: No data RB7: No data RB8: 2552
13	DL_TFC13, DL_TFC31	1 to 6	5ms, Table 0	4	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: 2552
14	DL_TFC14, DL_TFC32	1 to 6	5ms, Table 0	4	RB5: 81 RB6: 103 RB7: 60 RB8: 2552	RB5: 81 RB6: 103 RB7: 60 RB8: 2552
15	DL_TFC15, DL_TFC33	1 to 6	5ms, Table 0	4	RB5: 39 RB6: 103 RB7: 60 RB8: 3832	RB5: No data RB6: No data RB7: No data RB8: 3832
16	DL_TFC16, DL_TFC34	1 to 6	5ms, Table 0	4	RB5: 39 RB6: 103 RB7: 60 RB8: 3832	RB5: 39 RB6: No data RB7: No data RB8: 3832
17	DL_TFC17, DL_TFC35	1 to 6	5ms, Table 0	4	RB5: 81 RB6: 103 RB7: 60 RB8: 3832	RB5: 81 RB6: 103 RB7: 60 RB8: 3832

NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.
NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.

18.1.6.11.4 Test requirements

See 14.1.4.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink.

18.1.6.12 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.6.12.1 Conformance requirement

See 18.1.6.1.1.

18.1.6.12.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.7.14.

18.1.6.12.3 Method of test

UL parameters for E-DCH:

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF2, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 3)
1	DL_TFC1, DL_TFC16	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC1, UL_TFC3	RB5: 39 RB6: 103 RB7: 60 RB8: 312
2	DL_TFC2, DL_TFC17	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC2, UL_TFC3	RB5: 81 RB6: 103 RB7: 60 RB8: 312
3	DL_TFC3, DL_TFC18	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3	RB5: 39 RB6: 103 RB7: 60 RB8: 312
4	DL_TFC4, DL_TFC19	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC1, UL_TFC3	RB5: 39 RB6: 103 RB7: 60 RB8: 312
5	DL_TFC5, DL_TFC20	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC6, DL_TFC21	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC1	RB5: 39 RB6: 103 RB7: 60 RB8: 632
7	DL_TFC7, DL_TFC22	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC1, UL_TFC3	RB5: 39 RB6: 103 RB7: 60 RB8: 632
8	DL_TFC8, DL_TFC23	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 632
9	DL_TFC9, DL_TFC24	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3	RB5: 39 RB6: 103 RB7: 60 RB8: 952
10	DL_TFC10, DL_TFC25	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC1, UL_TFC3	RB5: 39 RB6: 103 RB7: 60 RB8: 952 RB9: 952
11	DL_TFC11, DL_TFC26	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 952
12	DL_TFC12, DL_TFC27	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3	RB5: 39 RB6: 103 RB7: 60 RB8: 1272
13	DL_TFC13, DL_TFC28	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC1, UL_TFC3	RB5: 39 RB6: 103 RB7: 60 RB8: 1272
14	DL_TFC14, DL_TFC29	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 1272

NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.
NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.

18.1.6.12.4 Test requirements

See 14.1.4.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink.

18.1.6.13 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 64 kbps / PS RAB + Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.6.13.1 Conformance requirement

See 18.1.6.1.1.

18.1.6.13.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.7.15.

18.1.6.13.3 Method of test

UL parameters for E-DCH:

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 + RB9 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x340	0x148
	TF1, bits	1x39	1x103	1x60	1x340	1x148
	TF2, bits	1x81	N/A	N/A	2x340	N/A
	TF3, bits	N/A	N/A	N/A	3x340	N/A
	TF4, bits	N/A	N/A	N/A	4x340	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8 + RB9, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF2, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 3)
1	DL_TFC1, DL_TFC16	1 to 6	5ms, Table 0	4	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312	RB5: 39 RB6: No data RB7: No data RB8: No data RB9: No data
2	DL_TFC2, DL_TFC17	1 to 6	5ms, Table 0	4	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data RB9: No data
3	DL_TFC3, DL_TFC18	1 to 6	5ms, Table 0	4	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312	RB5: No data RB6: No data RB7: No data RB8: 312 RB9: No data
4	DL_TFC4, DL_TFC19	1 to 6	5ms, Table 0	4	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312	RB5: 39 RB6: No data RB7: No data RB8: 312 RB9: No data
5	DL_TFC5, DL_TFC20	1 to 6	5ms, Table 0	4	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: No data
6	DL_TFC6, DL_TFC21	1 to 6	5ms, Table 0	4	RB5: 39 RB6: 103 RB7: 60 RB8: 632 RB9: 632	RB5: No data RB6: No data RB7: No data RB8: 632 RB9: No data
7	DL_TFC7, DL_TFC22	1 to 6	5ms, Table 0	4	RB5: 39 RB6: 103 RB7: 60 RB8: 632 RB9: 632	RB5: 39 RB6: No data RB7: No data RB8: 632 RB9: No data
8	DL_TFC8, DL_TFC23	1 to 6	5ms, Table 0	4	RB5: 81 RB6: 103 RB7: 60 RB8: 632 RB9: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632 RB9: No data
9	DL_TFC9, DL_TFC24	1 to 6	5ms, Table 0	4	RB5: 39 RB6: 103 RB7: 60 RB8: 952 RB9: 952	RB5: No data RB6: No data RB7: No data RB8: 952 RB9: No data
10	DL_TFC10, DL_TFC25	1 to 6	5ms, Table 0	4	RB5: 39 RB6: 103 RB7: 60 RB8: 952 RB9: 952	RB5: 39 RB6: No data RB7: No data RB8: 952 RB9: No data
11	DL_TFC11, DL_TFC26	1 to 6	5ms, Table 0	4	RB5: 81 RB6: 103 RB7: 60 RB8: 952 RB9: 952	RB5: 81 RB6: 103 RB7: 60 RB8: 952 RB9: No data
12	DL_TFC12, DL_TFC27	1 to 6	5ms, Table 0	4	RB5: 39 RB6: 103 RB7: 60 RB8: 1272 RB9: 1272	RB5: No data RB6: No data RB7: No data RB8: 1272 RB9: No data
13	DL_TFC13, DL_TFC28	1 to 6	5ms, Table 0	4	RB5: 39 RB6: 103 RB7: 60 RB8: 1272 RB9: 1272	RB5: 39 RB6: No data RB7: No data RB8: 1272 RB9: No data
14	DL_TFC14, DL_TFC29	1 to 6	5ms, Table 0	4	RB5: 81 RB6: 103 RB7: 60 RB8: 1272 RB9: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 1272 RB9: No data

15	DL_TFC14, DL_TFC29	1 to 6	5ms, Table 0	4	RB5: 81 RB6: 103 RB7: 60 RB8: 1272 RB9: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: No data RB9: 1272
NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI. NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.						

18.1.6.13.4 Test requirements

See 14.1.4.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink

18.1.6.14 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / UL: [max bit rate depending on UE category and TTI] DL: 64 kbps / PS RAB + Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.6.14.1 Conformance requirement

See 18.1.6.1.1.

18.1.6.14.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.7.16.

18.1.6.14.3 Method of test

UL parameters for E-DCH:

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps s, 20ms TTI)	RB9 (8kbps, 40ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, RB9, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0, TF0)
DL_TFC15	(TF0, TF0, TF0, TF0, TF1, TF0)
DL_TFC16	(TF1, TF0, TF0, TF0, TF1, TF0)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1, TF0)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1, TF0)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1, TF0)
DL_TFC20	(TF2, TF1, TF1, TF1, TF1, TF0)
DL_TFC21	(TF0, TF0, TF0, TF2, TF1, TF0)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1, TF0)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1, TF0)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1, TF0)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1, TF0)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1, TF0)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1, TF0)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1, TF0)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1, TF0)
DL_TFC30	(TF0, TF0, TF0, TF0, TF0, TF1)
DL_TFC31	(TF1, TF0, TF0, TF0, TF0, TF1)
DL_TFC32	(TF2, TF1, TF1, TF0, TF0, TF1)
DL_TFC33	(TF0, TF0, TF0, TF1, TF0, TF1)
DL_TFC34	(TF1, TF0, TF0, TF1, TF0, TF1)
DL_TFC35	(TF2, TF1, TF1, TF1, TF0, TF1)
DL_TFC36	(TF0, TF0, TF0, TF2, TF0, TF1)
DL_TFC37	(TF1, TF0, TF0, TF2, TF0, TF1)
DL_TFC38	(TF2, TF1, TF1, TF2, TF0, TF1)
DL_TFC39	(TF0, TF0, TF0, TF3, TF0, TF1)
DL_TFC40	(TF1, TF0, TF0, TF3, TF0, TF1)
DL_TFC41	(TF2, TF1, TF1, TF3, TF0, TF1)
DL_TFC42	(TF0, TF0, TF0, TF4, TF0, TF1)
DL_TFC43	(TF1, TF0, TF0, TF4, TF0, TF1)
DL_TFC44	(TF2, TF1, TF1, TF4, TF0, TF1)
DL_TFC45	(TF0, TF0, TF0, TF0, TF1, TF1)
DL_TFC46	(TF1, TF0, TF0, TF0, TF1, TF1)
DL_TFC47	(TF2, TF1, TF1, TF0, TF1, TF1)
DL_TFC48	(TF0, TF0, TF0, TF1, TF1, TF1)
DL_TFC49	(TF1, TF0, TF0, TF1, TF1, TF1)
DL_TFC50	(TF2, TF1, TF1, TF1, TF1, TF1)
DL_TFC51	(TF0, TF0, TF0, TF2, TF1, TF1)
DL_TFC52	(TF1, TF0, TF0, TF2, TF1, TF1)
DL_TFC53	(TF2, TF1, TF1, TF2, TF1, TF1)
DL_TFC54	(TF0, TF0, TF0, TF3, TF1, TF1)
DL_TFC55	(TF1, TF0, TF0, TF3, TF1, TF1)
DL_TFC56	(TF2, TF1, TF1, TF3, TF1, TF1)
DL_TFC57	(TF0, TF0, TF0, TF4, TF1, TF1)
DL_TFC58	(TF1, TF0, TF0, TF4, TF1, TF1)
DL_TFC59	(TF2, TF1, TF1, TF4, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 3)
1	DL_TFC1, DL_TFC31	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC1, UL_TFC3	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB8: 312
2	DL_TFC2, DL_TFC32	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC2, UL_TFC3	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB8: 312
3	DL_TFC3, DL_TFC33	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312
4	DL_TFC4, DL_TFC34	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC1, UL_TFC3	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312
5	DL_TFC5, DL_TFC35	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312
6	DL_TFC6, DL_TFC36	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312
7	DL_TFC7, DL_TFC37	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC1, UL_TFC3	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312
8	DL_TFC8, DL_TFC38	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312
9	DL_TFC9, DL_TFC39	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312
10	DL_TFC10, DL_TFC40	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC1, UL_TFC3	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312
11	DL_TFC11, DL_TFC41	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312
12	DL_TFC12, DL_TFC42	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312
13	DL_TFC13, DL_TFC43	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC1, UL_TFC3	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312
14	DL_TFC14, DL_TFC44	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 632 RB9: 312

15	DL_TFC15, DL_TFC45	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312
16	DL_TFC16, DL_TFC46	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC1	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312
17	DL_TFC17, DL_TFC47	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312
18	DL_TFC18, DL_TFC48	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312
19	DL_TFC19, DL_TFC49	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC1	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312
20	DL_TFC20, DL_TFC50	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312
21	DL_TFC21, DL_TFC51	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312
22	DL_TFC22, DL_TFC52	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC1	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312
23	DL_TFC23, DL_TFC53	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312
24	DL_TFC24, DL_TFC54	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312
25	DL_TFC25, DL_TFC55	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC1	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312
26	DL_TFC26, DL_TFC56	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312
27	DL_TFC27, DL_TFC57	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312
28	DL_TFC28, DL_TFC58	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC1	RB5: 39 RB6: 103 RB7: 60 RB8: 312 RB9: 312
29	DL_TFC29, DL_TFC59	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312

NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.
NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.

18.1.6.14.4 Test requirements

See 14.1.4.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink.

18.1.6.15 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / UL: [max bit rate depending on UE category and TTI] DL: 32 kbps / PS RAB + Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.6.15.1 Conformance requirement

See 18.1.6.1.1.

18.1.6.15.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.7.17.

18.1.6.15.3 Method of test

UL parameters for E-DCH:

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (32 kbps s, 40ms TTI)	RB9 (8kbps, 40ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A	N/A
	TF3,its	N/A	N/A	N/A	3x336	N/A	N/A
	TF4,its	N/A	N/A	N/A	4x336	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8,RB9 DCCH)
DL_TFC0	(TF0,TF0,TF0,TF0,TF0,TF0)
DL_TFC1	(TF1,TF0,TF0,TF0,TF0,TF0)
DL_TFC2	(TF2,TF1,TF1,TF0,TF0,TF0)
DL_TFC3	(TF0,TF0,TF0,TF1,TF0,TF0)
DL_TFC4	(TF1,TF0,TF0,TF1,TF0,TF0)
DL_TFC5	(TF2,TF1,TF1,TF1,TF0,TF0)
DL_TFC6	(TF0,TF0,TF0,TF2,TF0,TF0)
DL_TFC7	(TF1,TF0,TF0,TF2,TF0,TF0)
DL_TFC8	(TF2,TF1,TF1,TF2,TF0,TF0)
DL_TFC9	(TF0,TF0,TF0,TF0,TF1,TF0)
DL_TFC10	(TF1,TF0,TF0,TF0,TF1,TF0)
DL_TFC11	(TF2,TF1,TF1,TF0,TF1,TF0)
DL_TFC12	(TF0,TF0,TF0,TF1,TF1,TF0)
DL_TFC13	(TF1,TF0,TF0,TF1,TF1,TF0)
DL_TFC14	(TF2,TF1,TF1,TF1,TF1,TF0)
DL_TFC15	(TF0,TF0,TF0,TF2,TF1,TF0)
DL_TFC16	(TF1,TF0,TF0,TF2,TF1,TF0)
DL_TFC17	(TF2,TF1,TF1,TF2,TF1,TF0)
DL_TFC18	(TF0,TF0,TF0,TF0,TF0,TF1)
DL_TFC19	(TF1,TF0,TF0,TF0,TF0,TF1)
DL_TFC20	(TF2,TF1,TF1,TF0,TF0,TF1)
DL_TFC21	(TF0,TF0,TF0,TF1,TF0,TF1)
DL_TFC22	(TF1,TF0,TF0,TF1,TF0,TF1)
DL_TFC23	(TF2,TF1,TF1,TF1,TF0,TF1)
DL_TFC24	(TF0,TF0,TF0,TF2,TF0,TF1)
DL_TFC25	(TF1,TF0,TF0,TF2,TF0,TF1)
DL_TFC26	(TF2,TF1,TF1,TF2,TF0,TF1)
DL_TFC27	(TF0,TF0,TF0,TF0,TF1,TF1)
DL_TFC28	(TF1,TF0,TF0,TF0,TF1,TF1)
DL_TFC29	(TF2,TF1,TF1,TF0,TF1,TF1)
DL_TFC30	(TF0,TF0,TF0,TF1,TF1,TF1)
DL_TFC31	(TF1,TF0,TF0,TF1,TF1,TF1)
DL_TFC32	(TF2,TF1,TF1,TF1,TF1,TF1)
DL_TFC33	(TF0,TF0,TF0,TF2,TF1,TF1)
DL_TFC34	(TF1,TF0,TF0,TF2,TF1,TF1)
DL_TFC35	(TF2,TF1,TF1,TF2,TF1,TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 3)
1	DL_TFC1, DL_TFC18	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC1, UL_TFC3	RB5: 39 RB6: No data RB7: No data RB8: No data RB9: No data
2	DL_TFC2, DL_TFC19	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC2, UL_TFC3	RB5: 81 RB6: 103 RB7: 60 RB8: No data RB9: No data
3	DL_TFC3, DL_TFC20	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3	RB5: No data RB6: No data RB7: No data RB8: 312 RB9: No data
4	DL_TFC4, DL_TFC21	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC1, UL_TFC3	RB5: 39 RB6: No data RB7: No data RB8: 312 RB9: No data
5	DL_TFC5, DL_TFC22	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: No data
6	DL_TFC6, DL_TFC23	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3	RB5: No data RB6: No data RB7: No data RB8: 312 RB9: No data
7	DL_TFC7, DL_TFC24	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC1, UL_TFC3	RB5: 39 RB6: No data RB7: No data RB8: 312 RB9: No data
8	DL_TFC8, DL_TFC25	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: No data
9	DL_TFC9, DL_TFC26	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3	RB5: No data RB6: No data RB7: No data RB8: No data RB9: 312
10	DL_TFC10, DL_TFC27	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC1, UL_TFC3	RB5: 39 RB6: No data RB7: No data RB8: No data RB9: 312
11	DL_TFC11, DL_TFC28	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: No data RB9: 312
12	DL_TFC12, DL_TFC29	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3	RB5: No data RB6: No data RB7: No data RB8: 312 RB9: 312
13	DL_TFC13, DL_TFC30	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC1, UL_TFC3	RB5: 39 RB6: No data RB7: No data RB8: 312 RB9: 312
14	DL_TFC14, DL_TFC31	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312

15	DL_TFC15, DL_TFC32	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3	RB5: No data RB6: No data RB7: No data RB8: 632 RB9: 312
16	DL_TFC16, DL_TFC33	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC1	RB5: 39 RB6: No data RB7: No data RB8: 312 RB9: 312
17	DL_TFC17, DL_TFC35	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312
NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI. NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.						

18.1.6.15.4 Test requirements

See 14.1.4.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink

18.1.6.16 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming / UL: [max bit rate depending on UE category and TTI] DL: 16 kbps / PS RAB + Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.6.16.1 Conformance requirement

See 18.1.6.1.1.

18.1.6.16.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.7.18.

18.1.6.16.3 Method of test

UL parameters for E-DCH:

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (16 kbps tti 40ms)	RB9 (8 kbps tti 40ms)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8,RB9 DCCH)
DL_TFC0	(TF0,TF0,TF0,TF0,TF0,TF0)
DL_TFC1	(TF1,TF0,TF0,TF0,TF0,TF0)
DL_TFC2	(TF2,TF1,TF1,TF0,TF0,TF0)
DL_TFC3	(TF0,TF0,TF0,TF1,TF0,TF0)
DL_TFC4	(TF1,TF0,TF0,TF1,TF0,TF0)
DL_TFC5	(TF2,TF1,TF1,TF1,TF0,TF0)
DL_TFC6	(TF0,TF0,TF0,TF2,TF0,TF0)
DL_TFC7	(TF1,TF0,TF0,TF2,TF0,TF0)
DL_TFC8	(TF2,TF1,TF1,TF2,TF0,TF0)
DL_TFC9	(TF0,TF0,TF0,TF0,TF1,TF0)
DL_TFC10	(TF1,TF0,TF0,TF0,TF1,TF0)
DL_TFC11	(TF2,TF1,TF1,TF0,TF1,TF0)
DL_TFC12	(TF0,TF0,TF0,TF1,TF1,TF0)
DL_TFC13	(TF1,TF0,TF0,TF1,TF1,TF0)
DL_TFC14	(TF2,TF1,TF1,TF1,TF1,TF0)
DL_TFC15	(TF0,TF0,TF0,TF2,TF1,TF0)
DL_TFC16	(TF1,TF0,TF0,TF2,TF1,TF0)
DL_TFC17	(TF2,TF1,TF1,TF2,TF1,TF0)
DL_TFC18	(TF0,TF0,TF0,TF0,TF0,TF1)
DL_TFC19	(TF1,TF0,TF0,TF0,TF0,TF1)
DL_TFC20	(TF2,TF1,TF1,TF0,TF0,TF1)
DL_TFC21	(TF0,TF0,TF0,TF1,TF0,TF1)
DL_TFC22	(TF1,TF0,TF0,TF1,TF0,TF1)
DL_TFC23	(TF2,TF1,TF1,TF1,TF0,TF1)
DL_TFC24	(TF0,TF0,TF0,TF2,TF0,TF1)
DL_TFC25	(TF1,TF0,TF0,TF2,TF0,TF1)
DL_TFC26	(TF2,TF1,TF1,TF2,TF0,TF1)
DL_TFC27	(TF0,TF0,TF0,TF0,TF1,TF1)
DL_TFC28	(TF1,TF0,TF0,TF0,TF1,TF1)
DL_TFC29	(TF2,TF1,TF1,TF0,TF1,TF1)
DL_TFC30	(TF0,TF0,TF0,TF1,TF1,TF1)
DL_TFC31	(TF1,TF0,TF0,TF1,TF1,TF1)
DL_TFC32	(TF2,TF1,TF1,TF1,TF1,TF1)
DL_TFC33	(TF0,TF0,TF0,TF2,TF1,TF1)
DL_TFC34	(TF1,TF0,TF0,TF2,TF1,TF1)
DL_TFC35	(TF2,TF1,TF1,TF2,TF1,TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 3)
1	DL_TFC1, DL_TFC18	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC1, UL_TFC3	RB5: 39 RB6: No data RB7: No data RB8: No data RB9: No data
2	DL_TFC2, DL_TFC19	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC2, UL_TFC3	RB5: 81 RB6: 103 RB7: 60 RB8: No data RB9: No data
3	DL_TFC3, DL_TFC20	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3	RB5: No data RB6: No data RB7: No data RB8: 312 RB9: No data
4	DL_TFC4, DL_TFC21	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC1, UL_TFC3	RB5: 39 RB6: No data RB7: No data RB8: 312 RB9: No data
5	DL_TFC5, DL_TFC22	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: No data
6	DL_TFC6, DL_TFC23	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3	RB5: No data RB6: No data RB7: No data RB8: 312 RB9: No data
7	DL_TFC7, DL_TFC24	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC1, UL_TFC3	RB5: 39 RB6: No data RB7: No data RB8: 312 RB9: No data
8	DL_TFC8, DL_TFC25	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: No data
9	DL_TFC9, DL_TFC26	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3	RB5: No data RB6: No data RB7: No data RB8: No data RB9: 312
10	DL_TFC10, DL_TFC27	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC1, UL_TFC3	RB5: 39 RB6: No data RB7: No data RB8: No data RB9: 312
11	DL_TFC11, DL_TFC28	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: No data RB9: 312
12	DL_TFC12, DL_TFC29	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3	RB5: No data RB6: No data RB7: No data RB8: 312 RB9: 312
13	DL_TFC13, DL_TFC30	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC1, UL_TFC3	RB5: 39 RB6: No data RB7: No data RB8: 312 RB9: 312
14	DL_TFC14, DL_TFC31	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312

15	DL_TFC15, DL_TFC32	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3	RB5: No data RB6: No data RB7: No data RB8: 632 RB9: 312
16	DL_TFC16, DL_TFC33	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC1	RB5: 39 RB6: No data RB7: No data RB8: 312 RB9: 312
17	DL_TFC17, DL_TFC35	1 to 6	5ms, Table 0	4	UL_TFC0, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 312 RB9: 312
NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI. NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.						

18.1.6.16.4 Test requirements

See 14.1.4.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink.

18.1.6.17 Streaming / UL: [max bit rate depending on UE category and TTI] DL: 64 kbps / PS RAB + Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.6.17.1 Conformance requirement

See 18.1.6.1.1.

18.1.6.17.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.7.19.

18.1.6.17.3 Method of test

UL parameters for E-DCH:

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

Downlink TFS:

	TFI	RB5 (64 kbps TTI 40ms)	RB6 (8 kbps TTI 40ms))	DCCH
TFS	TF0, bits	0x656	0x336	0x148
	TF1, bits	1x656	1x336	1x148
	TF2, bits	2x656	N/A	N/A
	TF3, bits	4x656	N/A	N/A

Downlink TFCS:

TFCI	(RB5,RB6 DCCH)
DL_TFC0	(TF0,TF0,TF0)
DL_TFC1	(TF1,TF0,TF0)
DL_TFC2	(TF2,TF0,TF0)
DL_TFC3	(TF3,TF0,TF0)
DL_TFC4	(TF0,TF1,TF0)
DL_TFC5	(TF2,TF1,TF0)
DL_TFC6	(TF2,TF1,TF0)
DL_TFC7	(TF3,TF1,TF0),
DL_TFC8	(TF0,TF0,TF1)
DL_TFC9	(TF1,TF0,TF1)
DL_TFC10	(TF2,TF0,TF1
DL_TFC11	(TF3,TF0,TF1)
DL_TFC12	(TF0,TF1,TF1)
DL_TFC13	(TF1,TF1,TF1)
DL_TFC14	(TF2,TF1,TF1),
DL_TFC15	(TF3,TF1,TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 3)
1	DL_TFC1, DL_TFC9	1 to 6	5ms, Table 0	4	RB5: 640 RB6: No data	RB5: 640 RB6: No data
2	DL_TFC2, DL_TFC10	1 to 6	5ms, Table 0	4	RB5: 1296 RB6: No data	RB5: 1296 RB6: No data
3	DL_TFC3, DL_TFC11	1 to 6	5ms, Table 0	4	RB5: 2608 RB6: No data	RB5: 2608 RB6: No data
4	DL_TFC4, DL_TFC12	1 to 6	5ms, Table 0	4	RB5: No data RB6: 312	RB5: No data RB6: 312
5	DL_TFC13	1 to 6	5ms, Table 0	4	RB5: 640 RB6: 312	RB5: 640 RB6: 312
6	DL_TFC6	1 to 6	5ms, Table 0	4	RB5: 1296 RB6: 312	RB5: 1296 RB6: 312
7	DL_TFC7	1 to 6	5ms, Table 0	4	RB5: 2608 RB6: 312	RB5: 2608 RB6: 312
NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI. NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.						

18.1.6.17.4 Test requirements

See 14.1.4.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink

18.1.6.18 Streaming / UL: [max bit rate depending on UE category and TTI] DL: 32 kbps / PS RAB + Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.6.18.1 Conformance requirement

See 18.1.6.1.1.

18.1.6.18.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.7.20.

18.1.6.18.3 Method of test

UL parameters for E-DCH:

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

Downlink TFS:

	TFI	RB5 (32 kbps TTI 20ms)	RB6 (8 kbps TTI 40ms))	DCCH
TFS	TF0, bits	0x336	0x336	0x148
	TF1, bits	1x336	1x336	1x148
	TF2, bits	2x336	N/A	N/A

Downlink TFCS:

TFCI	(RB5,RB6 DCCH)
DL_TFC0	(TF0, TF0,TF0)
DL_TFC1	(TF1, TF0,TF0)
DL_TFC2	(TF2, TF0,TF0)
DL_TFC3	(TF0, TF1,TF0)
DL_TFC4	(TF1, TF1,TF0)
DL_TFC5	(TF2, TF1,TF0)
DL_TFC6	(TF0, TF0,TF1)
DL_TFC7	(TF1, TF0,TF1)
DL_TFC8	(TF2, TF0,TF1)
DL_TFC9	(TF0, TF1,TF1)
DL_TFC10	(TF1, TF1,TF1)
DL_TFC11	(TF2, TF1,TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 3)
1	DL_TFC1, DL_TFC7	1 to 6	5ms, Table 0	4	RB5: 312 RB6: No data	RB5: 312 RB6: No data
2	DL_TFC2, DL_TFC8	1 to 6	5ms, Table 0	4	RB5: 312 RB6: No data	RB5: 632 RB6: No data
3	DL_TFC3, DL_TFC9	1 to 6	5ms, Table 0	4	RB5: No data RB6: 312	RB5: No data RB6: 312
4	DL_TFC4 DL_TFC11	1 to 6	5ms, Table 0	4	RB5: 312 RB6: 312	RB5: 612 RB6: 312

NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.
NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.

18.1.6.18.4 Test requirements

See 14.1.4.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink

18.1.6.19 Streaming / UL: [max bit rate depending on UE category and TTI] DL: 16 kbps / PS RAB + Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: 8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.1.6.19.1 Conformance requirement

See 18.1.6.1.1.

18.1.6.19.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.7.21.

18.1.6.19.3 Method of test

UL parameters for E-DCH:

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

Downlink TFS:

	TFI	RB5 (16 kbps TTI 20ms)	RB6 (8 kbps TTI 40ms))	DCCH
TFS	TF0, bits	0x336	0x336	0x148
	TF1, bits	1x336	1x336	1x148

Downlink TFCS:

TFCI	(RB5,RB6 DCCH)
DL_TFC0	(TF0, TF0,TF0)
DL_TFC1	(TF1, TF0,TF0)
DL_TFC2	(TF0, TF1,TF0)
DL_TFC3	(TF1, TF1,TF0)
DL_TFC4	(TF0, TF0,TF1)
DL_TFC5	(TF1, TF0,TF1)
DL_TFC6	(TF0, TF1,TF1)
DL_TFC7	(TF1, TF1,TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 3)
1	DL_TFC1, DL_TFC5	1 to 6	5ms, Table 0	4	RB5: 312 RB6: No data	RB5: 312 RB6: No data
2	DL_TFC2, DL_TFC6	1 to 6	5ms, Table 0	4	RB5: No data RB6:312	RB5: No data RB6: 312
3	DL_TFC3, DL_TFC7	1 to 6	5ms, Table 0	4	RB5: 312 RB6: 312	RB5: 312 RB6: 312

NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.
NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.

18.1.6.19.4 Test requirements

See 14.1.4.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink

18.1.6.20 Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH for enhanced uplink/downlink in CELL_FACH

18.1.6.20.1 Conformance requirement

Conformance requirement

See 18.1.6.1

18.1.6.20.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.7.4:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to common E-DCH in CELL_FACH.

18.1.6.20.3 Method of test

NOTE 1: The reference to E-DCH Category refers to the UE capability as signalled in the Rel-7 IE "E-DCH physical layer category". All UEs supporting E-DCH should signal a category between 1 and 6 for this IE even if the UE physical capability category is above 6.

NOTE 2: The reference to HS-DSCH Categories refers to the UE capability as signalled in the Rel-7 IE "HS-DSCH physical layer category extension". This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The following parameters are specific for this test case:

Parameter	Value
Radio bearer	TS 34.108, clause 6.11.5.4.7.4 using downlink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs) and uplink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-i/is) and using downlink Alt 2 (Fixed RLC and MAC-ehs) and uplink Alt 2 (Fixed RLC and MAC-i/is) for the SRB#1 to SRB#4.
MAC-ehs receiver window size	16
HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)				
			Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	TFRI
1	4	512	336	370	1	QPSK	12
2	6	512	336	370	1	QPSK	12
3	8	512	336	370	1	QPSK	12
4	4	512	336	360	1	QPSK	9
5	6	512	336	360	1	QPSK	9
6	8	512	336	360	1	QPSK	9
7	4	1536	336	358	1	QPSK	8
8	6	1536	336	358	1	QPSK	8
9	8	2047	336	358	1	QPSK	8
10	4	2047	336	370	1	QPSK	8
11	6	1024	336	370	1	QPSK	8
12	8	1024	336	370	1	QPSK	8
NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI, i.e. such that the MAC-hs transport block size is bigger than the maximum MAC-d PDU size under test + MAC-hs header size (21 bits). See 14.1.3.3 (MAC-d PDU size=336) for recommended TFRC values for different transport block size.							

The generic test procedure in 18.1.1.9 is run for each sub-test.

Sub-tests:

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL MAC-d PDU size under test	DL MAC-d PDU size under test	UL RLC SDU size (note 2)	Test data size (note 3)
1	1 to 6	5ms	4	Flexible	Flexible	320	320
NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size is set to UL RLC payload size. This will enable the UE to return the data within one UL TTI ("Use special value of HE field" is configured). NOTE 3: The test data size is for DTCH mapped to E-DCH is selected according to the MAC-d PDU size to be tested = DL RLC payload size for the MAC-d PDU size.							

18.1.6.20.4 Test requirements

See 14.1.5.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink.

18.1.6.20a Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on common E-DCH and HS-DSCH for enhanced CELL_FACH with DRX configured

18.1.6.20a.1 Conformance requirement

Conformance requirement

See 18.1.6.1

18.1.6.20a.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.7.4:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer corresponding to Enhanced DRX reception pattern by UE when transport channel is mapped to common E-DCH in CELL_FACH.

18.1.6.20a.3 Method of test

NOTE: The reference to E-DCH Category refers to the UE capability as signalled in the Rel-6 IE "E-DCH physical layer category". All UEs supporting E-DCH should signal a category between 1 and 6 for this IE even if the UE physical capability category is above 6.

NOTE: The reference to HS-DSCH Categories refers to the UE capability as signalled in the Rel-7 IE "HS-DSCH physical layer category extension". This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The following parameters are specific for this test case:

Parameter	Value
Radio bearer	TS 34.108, clause 6.11.5.4.7.4 using downlink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs) and uplink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-i/is) and using downlink Alt 2 (Fixed RLC and MAC-ehs) and uplink Alt 2 (Fixed RLC and MAC-i/is) for the SRB#1 to SRB#4.
MAC-ehs receiver window size	16
HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)				
			Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	TFRI
1	4	512	336	370	1	QPSK	12
2	6	512	336	370	1	QPSK	12
3	8	512	336	370	1	QPSK	12
4	4	512	336	360	1	QPSK	9
5	6	512	336	360	1	QPSK	9
6	8	512	336	360	1	QPSK	9
7	4	1536	336	358	1	QPSK	8
8	6	1536	336	358	1	QPSK	8
9	8	2047	336	358	1	QPSK	8
10	4	2047	336	370	1	QPSK	8
11	6	1024	336	370	1	QPSK	8
12	8	1024	336	370	1	QPSK	8
NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI, i.e. such that the MAC-hs transport block size is bigger than the maximum MAC-d PDU size under test + MAC-hs header size (21 bits). See 14.1.3.3 (MAC-d PDU size=336) for recommended TFRC values for different transport block size.							

The generic test procedure in 18.1.1.9 is run for each sub-test.

Sub-tests:

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL MAC-d PDU size under test	DL MAC-d PDU size under test	UL RLC SDU size (note 2)	Test data size (note 3)
1	1 to 6	5ms	4	Flexible	Flexible	320	320
NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size is set to UL RLC payload size. This will enable the UE to return the data within one UL TTI ("Use special value of HE field" is configured). NOTE 3: The test data size is for DTCH mapped to E-DCH is selected according to the MAC-d PDU size to be tested = DL RLC payload size for the MAC-d PDU size.							

Specific Message Contents

Use the default parameter values for the system information block 5 with the same type specified in clause

6.1.1 of TS 34.108 for common E-DCH and HS-DSCH reception in CELL_FACH, with the following exceptions

Information Element	Value/remark
HS-DSCH DRX in CELL_FACH Information 1.28 Mcps TDD	
-T321	200ms
- DRX cycle$_{FACH}$	4
- Rx burst$_{FACH}$	1

18.1.6.20a.4 Test requirements

See 14.1.5.1 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink.

18.1.6.21 Conversational / unknown or speech / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps with Flexible RLC and MAC-ehs / PS RAB + Streaming or Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] with Fixed RLC and MAC-ehs / PS RAB + UL:[max bit rate depending on UE category and TTI] DL: :[max bit rate depending on UE category] SRBs for DCCH on E-DCH and SRBs with Fixed RLC and MAC-ehs on HS-DSCH / UL: QPSK and DL: QPSK

18.1.6.21.1 Conformance requirement

See 18.1.6.1.1.

18.1.6.21.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.7.22 for the case for the QPSK and non-MIMO case using the downlink enhanced Layer 2 configuration with MAC-ehs and Fixed and Flexible RLC configured:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

18.1.6.21.3 Method of test

NOTE: The reference to E-DCH Category refers to the UE capability as signalled in the Rel-6 IE "E-DCH physical layer category". All UEs supporting E-DCH should signal a category between 1 and 6 for this IE even if the UE physical capability category is above 6.

NOTE: The reference to HS-DSCH Categories refers to the UE capability as signalled in the Rel-7 IE "HS-DSCH physical layer category extension". This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The Conversational / unknown or speech / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB is referred to as RB5 and the Streaming or interactive or background UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB is referred to RB6

The following parameters are specific for this test case and RB5 and RB6:

Parameter	Value
Radio bearer	TS 34.108, clause 6.11.5.4.7.22 using downlink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs) for RB5; using downlink MAC-d flow parameters according to Alt 2 (Fixed RLC and MAC-ehs) for RB6; and using Alt 2 (Fixed RLC and MAC-ehs) for the SRB#1 to SRB#4.
MAC-ehs receiver window size	16
Alternative E-bit interpretation	TRUE
RB5: HS-DSCH MAC-d PDU size	See sub-test table
RB6: HS-DSCH MAC-d PDU size	336
RB5: DL UM RLC LI size	7

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)				
			Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	TFRI
1	4	512	336	368	1	QPSK	12
2	6	512	336	368	1	QPSK	12
3	8	512	336	368	1	QPSK	12
4	4	512	336	360	1	QPSK	9
5	6	512	336	360	1	QPSK	9
6	8	512	336	360	1	QPSK	9
7	4	1536	336	368	1	QPSK	9
8	6	1536	336	368	1	QPSK	9
9	8	1536	336	368	1	QPSK	9
10	4	2047	336	376	1	QPSK	9
11	6	2047	336	376	1	QPSK	9
12	8	2047	336	376	1	QPSK	9
13	4	2560	336	392	1	QPSK	9
14	6	2560	336	392	1	QPSK	9
15	8	2560	336	392	1	QPSK	9
16	4	2047	336	384	1	QPSK	9
17	6	2047	336	384	1	QPSK	9
18	8	2047	336	384	1	QPSK	9
19	4	3072	336	360	1	QPSK	8
20	6	3072	336	360	1	QPSK	8
21	8	3072	336	360	1	QPSK	8
22	4	3584	336	376	1	QPSK	8
23	6	3584	336	376	1	QPSK	8
24	8	3584	336	376	1	QPSK	8

NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI considering all sub-tests. i.e. such that the MAC-ehs transport block size is bigger than the “Minimum TBS” that equals maximum MAC-d PDU size under test + the MAC-ehs header size (24 bits).

The generic test procedure in 18.1.1.6 is run for each sub-test.

Sub-tests:

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL MAC-d PDU size under test	DL MAC-d PDU size under test	UL RLC SDU size (note 2)	Test data size (note 3)
1	1 to 6	5ms	4	RB5:96 RB6:336	RB5:Flexible RB6:336	RB5:80 RB6:312	RB5:96 RB6:312
2	1 to 6	5ms	4	RB5:112 RB6:336	RB5:Flexible RB6:336	RB5:96 RB6:312	RB5:96 RB6:312
3	1 to 6	5ms	4	RB5:144 RB6:336	RB5:Flexible RB6:336	RB5:128 RB6:312	RB5:128 RB6:312
4	1 to 6	5ms	4	RB5:160 RB6:336	RB5:Flexible RB6:336	RB5:144 RB6:312	RB5:144 RB6:312
5	1 to 6	5ms	4	RB5:176 RB6:336	RB5:Flexible RB6:336	RB5:160 RB6:312	RB5:160 RB6:312
6	1 to 6	5ms	4	RB5:192 RB6:336	RB5:Flexible RB6:336	RB5:176 RB6:312	RB5:176 RB6:312
7	1 to 6	5ms	4	RB5:208 RB6:336	RB5:Flexible RB6:336	RB5:192 RB6:312	RB5:208 RB6:312
8	1 to 6	5ms	4	RB5:224 RB6:336	RB5:Flexible RB6:336	RB5:208 RB6:312	RB5:208 RB6:312
9	1 to 6	5ms	4	RB5:288 RB6:336	RB5:Flexible RB6:336	RB5:272 RB6:312	RB5:280 RB6:312
10	1 to 6	5ms	4	RB5:296 RB6:336	RB5:Flexible RB6:336	RB5:280 RB6:312	RB5:280 RB6:312
11	1 to 6	5ms	4	RB5:312 RB6:336	RB5:Flexible RB6:336	RB5:296 RB6:312	RB5:328 RB6:312
12	1 to 6	5ms	4	RB5:344 RB6:336	RB5:Flexible RB6:336	RB5:328 RB6:312	RB5:328 RB6:312

NOTE 1: E-DCH TTI and E-TFCI table according to TS 25.321 Annex BC.1.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size is set to UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit). This will enable the UE to return the data within one UL TTI.
NOTE 3: The test data size is for DTCH mapped to E-DCH is selected according to the MAC-d PDU size to be tested = DL RLC payload size for the MAC-d PDU size minus 8 bits (size of 7 bit length indicator and expansion bit).

18.1.6.21.4 Test requirements

See 14.1.4.1a for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE shall return a RLC SDU on RB5 and RB6 with same content as sent in downlink. For the case the returned UL RLC SDU size under test is smaller than the sent DL RLC SDU size then the payload of the received UL RLC SDU shall have the same content as the first N bits of the DL RLC SDU payload, where N equals the payload size of the UL RLC SDU.

18.1.6.22 Conversational / unknown or speech / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps with Flexible RLC, MAC-ehs and MAC-i/is / PS RAB + Streaming or Interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] with Fixed RLC, MAC-ehs and MAC-i/is / PS RAB + UL:[max bit rate depending on UE category and TTI] DL: :[max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH with MAC-ehs and MAC-i/is / UL: QPSK and DL: QPSK

18.1.6.22.1 Conformance requirement

See 18.1.6.1.1.

18.1.6.22.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.11.5.4.7.22 for the case QPSK and non-MIMO case when MAC-ehs and MAC-i/is and the mix of Fixed and Flexible RLC is configured:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

18.1.6.22.3 Method of test

NOTE: The reference to E-DCH Category refers to the UE capability as signalled in the Rel-6 IE "E-DCH physical layer category". All UEs supporting E-DCH should signal a category between 1 and 6 for this IE even if the UE physical capability category is above 6.

NOTE: The reference to HS-DSCH Categories refers to the UE capability as signalled in the Rel-7 IE "HS-DSCH physical layer category extension". This IE corresponds to the HS-DSCH category supported by the UE when MAC-ehs is configured.

The Conversational / unknown or speech / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB is referred to as RB5 and the Streaming or interactive or background UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB is referred to RB6

The following parameters are specific for this test case and RB5 and RB6:

Parameter	Value
Radio bearer	TS 34.108, clause 6.11.5.4.7.22 using downlink MAC-d flow parameters according to Alt 3 (Flexible RLC and MAC-ehs) and uplink MAC-d flow parameters according to Alt 2 (Flexible RLC and MAC-i/is) for RB5; using downlink MAC-d flow parameters according to Alt 2 (Fixed RLC and MAC-ehs) and uplink MAC-d flow parameters according to Alt 2 (Fixed RLC and MAC-i/is) for RB6; and using downlink Alt 2 (Fixed RLC and MAC-ehs) and uplink Alt 2 (Fixed RLC and MAC-i/is) for the SRB#1 to SRB#4.
MAC-ehs receiver window size	16
RB5: Alternative E-bit interpretation	TRUE
RB5: HS-DSCH MAC-d PDU size	See sub-test table
RB6: HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)				
			Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	TFRI
1	4	512	336	368	1	QPSK	12
2	6	512	336	368	1	QPSK	12
3	8	512	336	368	1	QPSK	12
4	4	512	336	360	1	QPSK	9
5	6	512	336	360	1	QPSK	9
6	8	512	336	360	1	QPSK	9
7	4	1536	336	368	1	QPSK	9
8	6	1536	336	368	1	QPSK	9
9	8	1536	336	368	1	QPSK	9
10	4	2047	336	376	1	QPSK	9
11	6	2047	336	376	1	QPSK	9
12	8	2047	336	376	1	QPSK	9
13	4	2560	336	392	1	QPSK	9
14	6	2560	336	392	1	QPSK	9
15	8	2560	336	392	1	QPSK	9
16	4	2047	336	384	1	QPSK	9
17	6	2047	336	384	1	QPSK	9
18	8	2047	336	384	1	QPSK	9
19	4	3072	336	360	1	QPSK	8
20	6	3072	336	360	1	QPSK	8
21	8	3072	336	360	1	QPSK	8
22	4	3584	336	376	1	QPSK	8
23	6	3584	336	376	1	QPSK	8
24	8	3584	336	376	1	QPSK	8

NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI considering all sub-tests. i.e. such that the MAC-ehs transport block size is bigger than the “Minimum TBS” that equals maximum MAC-d PDU size under test + the MAC-ehs header size (24 bits).

The generic test procedure in 18.1.1.6 is run for each sub-test.

Sub-tests:

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL MAC-d PDU size under test	DL MAC-d PDU size under test	UL RLC SDU size (note 2)	Test data size (note 3)
1	1 to 6	5ms	4	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:88 RB6:320	RB5:104 RB6:320
2	1 to 6	5ms	4	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:104 RB6:320	RB5:104 RB6:320
3	1 to 6	5ms	4	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:136 RB6:320	RB5:136 RB6:320
4	1 to 6	5ms	4	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:152 RB6:320	RB5:152 RB6:320
5	1 to 6	5ms	4	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:168 RB6:320	RB5:168 RB6:320
6	1 to 6	5ms	4	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:184 RB6:320	RB5:184 RB6:320
7	1 to 6	5ms	4	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:200 RB6:320	RB5:216 RB6:320
8	1 to 6	5ms	4	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:216 RB6:320	RB5:216 RB6:320
9	1 to 6	5ms	4	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:280 RB6:320	RB5:288 RB6:320
10	1 to 6	5ms	4	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:288 RB6:320	RB5:288 RB6:320
11	1 to 6	5ms	4	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:304 RB6:320	RB5:336 RB6:320
12	1 to 6	5ms	4	RB5:Flexible RB6:336	RB5:Flexible RB6:336	RB5:336 RB6:320	RB5:336 RB6:320

NOTE 1: E-DCH TTI and E-TFCI table according to TS 25.321 Annex BC.1.

NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size is set to UL RLC payload size to be tested.. This will enable the UE to return the data within one UL TTI ("Alternative E-bit interpretation" is configured for RB5 (UM) and "Use special value of HE field" is configured for RB6 (AM)). The selected UL RLC SDU sizes for the flexible case (RB5) are the same as specified for the UL fixed case (Alt 1) of the reference radio bearer configuration in TS 34.108, clause 6.11.5.4.7.22 (88, 104, 136, 152, 168, 184, 200, 216, 280, 288, 304 and 336).

NOTE 3: The test data size is for DTCH mapped to E-DCH is selected according to the MAC-d PDU size to be tested = DL RLC payload size for the MAC-d PDU size. The selected DL test data sizes for RB5 are the same as specified for the DL fixed case (Alt 2) of the reference radio bearer configuration in TS 34.108, clause 6.11.5.4.7.22 (104, 136, 152, 168, 184, 216, 288 and 336).

18.1.6.22.4 Test requirements

See 14.1.4.1b for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 18 the UE shall return a RLC SDU on RB5 and RB6 with same content as sent in downlink. For the case the returned UL RLC SDU size under test is smaller than the sent DL RLC SDU size then the payload of the received UL RLC SDU shall have the same content as the first N bits of the DL RLC SDU payload, where N equals the payload size of the UL RLC SDU.

18.2 Radio Bearer Tests for 3.84 Mcps TDD option

18.2.1 General information for radio bearer tests (3.84 Mcps TDD)

The purpose of these radio bearer test cases is to test properly the Reference Radio Bearer configurations included in TS34.108 [9], clause 6.10.3 for 3.84 Mcps TDD option.

The applicability of radio bearer tests is dependent on the UE uplink and downlink radio access capabilities and UE support tele- and bearer-services.

For radio bearer combinations which are representative to multiple traffic classes, such as “Interactive or Background”, “Streaming or Interactive or Background” etc, then it is only required to execute the radio bearer test procedure once using one of the applicable traffic class for the UE under test.

NOTE: As the purpose of the radio bearer test cases is to functionally verify that the UE is able to establish the radio bearer combination, and to verify correct data transfer using the different transport formats, then the necessary test coverage is achieved by performing the radio bearer test procedure once for one of the applicable traffic classes.

18.2.1.1 Generic radio bearer test procedure for Single RB configuration

See 14.1.1 for test procedure

18.2.1.2 Generic test procedure for testing multi-RB configuration and simultaneous signalling

See 14.1.2 for test procedure

18.2.1.2a Generic test procedure for testing multi-RB combinations and simultaneous signalling in case of DSCH

This procedure is used to test multiple radio bearer combinations where PS data goes on the DSCH. This procedure is also used to verify simultaneous transmission and reception of user data and signalling data.

18.2.1.2a.1 Initial conditions

UE in idle mode

18.2.1.2a.2 Test procedure

a) The SS establish the reference radio bearer configuration as specified in TS 34.108, clause 6.10 for the actual radio bearer test. For the case when the reference radio bearer configuration includes radio bearers for both CS and PS domain then the radio bearer setup procedure has to be performed once per domain. The first radio bearer setup procedure shall perform configuration of the physical channel for the radio bearer combination under test as well as the transport channels for the CS radio bearer(s), also the transport format combination set for only CS radio bearers has to be provided. The second radio bearer procedure shall perform the configuration for the transport channel for the PS radio bearers.

b) The SS limits the UE allowed uplink transport format combinations according to the "Restricted UL TFCIs", as specified for the sub-test of the actual radio bearer test, using the RRC transport format combination control procedure. Here first time only the TFCs for the data on CS RAB and the data on PS RAB are restricted.

c) The SS closes the test loop using UE test loop mode 1 and setting the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test. See note 1.

d) The SS transmits test data on all radio bearers under test. The number of RLC SDUs to transmit every TTI and the size "Test data size" is specified for each sub-test of the actual radio bearer test. See note 2.

e) The SS checks that UE has looped back the data on the CS and PS Radio bearer.

f) The SS opens the UE test loop.

g) SS uses the RRC transport format combination control procedure. And now restricts the TFCs for the data on CS RAB and the data on PS RAB and also on SRB.

h) The SS closes the test loop using UE test loop mode 1 and setting the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test. See note 2.

i) SS transmit data on the CS RAB a MEASUREMENT CONTROL message requesting periodic reporting with a period of T2.

j) SS transmits the data on PS RAB.

k) SS waits the time equal to 2 times T2

l) SS checks that, for all radio bearers under test, the content of the received RLC SDUs have the correct content and is received having the correct transport format. See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loop back of RLC SDUs.

m) The SS opens the UE test loop.

n) (Void)

o) Steps b) to m) are repeated for all sub-tests

p) The SS may optionally release the radio bearer.

q) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: Selection of UL RLC SDU size parameter:
For the case when the reference radio bearer configuration under test uses RLC transparent mode in downlink and is not configured for segmented operation then the radio bearer test case shall set the UL RLC SDU size equal to the UL RLC PDU size. See [7] TS 25.322 for details regarding UE operation in RLC transparent mode. Selection of UL RLC SDU size for the different radio bearers under test should be such that the UE returns data in sub-sequent TTIs without causing the UE transmission buffer to become full. To achieve this the UL RLC SDU size shall be set to UL TF payload size under test, minus the size of length indicator and expansion bit, and divided by the ratio between downlink and uplink TTI. E.g. for a AM radio bearer having the uplink RLC payload size equal to 320, the downlink TTI equal to 10 ms, and the uplink TTI equal to 20 ms, then for the transport format 4x336 (TF payload size = 4x320=1280 bits) the UL RLC SDU size parameter should be set to 632 bits (=1280bits/(20ms/10ms)- 8 bits).

NOTE 2: Selection of test data size:
For the case when the reference radio bearer configuration under test uses RLC transparent mode in downlink and is not configured for segmented operation then the radio bearer test case shall use a DL RLC SDU size (defined by the "Test data size" parameter) equal to the DL RLC PDU size. See [7] TS 25.322 for details regarding UE operation in RLC transparent mode. In case the reference radio bearer configuration under test does not use RLC transparent mode in downlink, the DL RLC SDU size/ test data size shall be set equal to the payload size of the DL TF under test minus the size of the length indicator and the expansion bit.

NOTE 3: The restricted set of TFCIs shall contain all possible TFCI that could happen in a sub-test. The actual TTI of the different radio bearers and signalling radio bearers as well as the possible UE processing delays shall be taken into consideration. The restricted set of TFCIs must comply with the minimum set of TFCIs as specified in TS 25.331, clause 8.6.5.2.

Expected sequence

CS paging procedure

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
2	<--		PAGING TYPE 1 (PCCH)	Paging (CS domain, TMSI)
3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
4	<--		RRC CONNECTION SETUP (CCCH)	RRC
5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6	-->		PAGING RESPONSE (DCCH)	RR
6a	<--		AUTHENTICATION REQUEST	
6b	-->		AUTHENTICATION RESPONSE	
6c	<--		SECURITY MODE COMMAND	
6d	-->		SECURITY MODE COMPLETE	

PS paging procedure

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
2	<--		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
4	<--		RRC CONNECTION SETUP (CCCH)	RRC
5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6a	-->		SERVICE REQUEST (DCCH)	GMM
6b	<--		SECURITY MODE COMMAND	RRC see note 1
6c	-->		SECURITY MODE COMPLETE	RRC see note 1

NOTE 1 In addition to activate integrity protection Step 6b and Step 6c are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.

Expected sequence for DSCH multi RAB test cases.

Step	Direction		Message	Comments
	UE	SS		
1..6	<-- -->		Paging	Use the CS paging procedure for testing of CS and combined CS/PS reference radio bearer configurations. Use the PS paging procedure for testing of PS reference radio bearer configurations.
7	<--		ACTIVATE RB TEST MODE (DCCH)	TC
8	-->		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
Case A: CS or PS radio bearers only				
A9	←		RADIO BEARER SETUP (DCCH)	RRC
A10	→		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
Case B: CS + PS radio bearers				
B9	←		RADIO BEARER SETUP (DCCH)	RRC CS radio bearer(s) are configured
B10	→		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
B10a	←		SECURITY MODE COMMAND	See NOTE
B10b	→		SECURITY MODE COMPLETE	RRC
B10c	←		RADIO BEARER SETUP (DCCH)	RRC PS radio bearer(s) are configured
B10c	→		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
11	<--		TRANSPORT FORMAT COMBINATION CONTROL (DCCH)	RRC Transport format combinations are limited to "Restricted UL TFCIs", as specified for the sub-test. Here the UL TFS are restricted to test the simultaneous data on CS and PS RAB.
12	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
13	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
14a	<--		Test data (DTCH 1) and Test data on DTCH 2	SS Sends the data on the CS RAB (DPCH).SS Sends the data on the PS RAB .(PDSCH) (NOTE 1)
14b	→		Test data (DTCH 1) + Test Data (DTCH 2)	SS Receives the data on CS RAB, PS RAB
14c	<--		OPEN UE TEST LOOP (DCCH)	TC
14d	-->		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
15a	<--		TRANSPORT FORMAT COMBINATION CONTROL (DCCH)	RRC Transport format combinations is limited to "Restricted UL TFCIs", as specified for the sub-test Here the UL TFS are restricted to test the simultaneous data on CS and PS RAB and SRB

Step	Direction		Message	Comments
	UE	SS		
15b	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
15c	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
15d	<--		Test data (DTCH 1) and Test data on DTCH 2	SS Sends the data on the CS RAB (DPCH). SS Sends the data on the PS RAB. (PDSCH) (NOTE 1)
15e	←		MEASUREMENT CONTROL (DCCH)	SS sends a MEASUREMENT CONTROL message simultaneously to the test data requesting periodic reporting at interval T2 (NOTE 1)
15f	--> -->		Test data (DTCH 1) + Test Data (DTCH 2) MEASUREMENT REPORT (DCCH)	SS Receives the data on CS RAB, PS RAB and the Measurement Control Report. SS Shall get at least on measurement Control report message (NOTE 1)
16	<--		OPEN UE TEST LOOP (DCCH)	TC
17	-->		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
18			Repeat steps 11 to 17 for every sub-test.	
19			RB RELEASE (DCCH)	RRC Optional step
20	<--		DEACTIVATE RB TEST MODE (DCCH)	TC Optional step
21	-->		DEACTIVATE RB TEST MODE COMPLETE (DCCH)	TC Optional step
NOTE: For case B (CS+PS radio bearers) the second security mode procedure is needed to enable testing of ciphering on the PS radio bearers. For the CS domain the security mode procedure is performed as part of the CS paging procedure.				

NOTE 1:

Here using the test steps 11 to 14d, the simultaneous data on the CS and PS RAB can be tested.

And using the steps 15a to 15f, the simultaneous data on CS RAB, PS RAB and SRB can be tested.

For testing the simultaneous data on CS RAB, PS RAB and SRB, following procedure is used.

First data on the CS RAB is sent. Then in the next step Measurement Control message is sent.

In the Downlink the restricted transport format combination will be (1 1), that SS MAC has to send the data on CS RAB and the measurement control message on SRB simultaneously.

Here it is assumed that, since the transport format combination (1, 0) (that is send only data) will not be available in the DL, the MAC has to wait until it gets something to transmit on the SRB.

Then data on the PS RAB is sent.

With this on the UE UL Side, the data will be available on both CS and PS RAB and also on the SRB. With this the transport format combination (1,1, 1) that is simultaneous data on RAB and SRB can be tested in the uplink.

Specific message contents

RADIO BEARER SETUP message: AM or UM (Packet to CELL_DCH from CELL_DCH in PS))

Information Element	Value/remark
New DSCH-RNTI	0000 0000 0000 0010B
RRC State indicator	CELL_DCH
RAB information for setup	
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- Logical channel identity	Not Present
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	19
- Logical channel identity	1
Added or Reconfigured TrCH information list	1 DCH added, 1 DCH reconfigured
DL Transport channel information common for all transport channel	
- SCCPCH TFCS	Not Present
- CHOICE mode	TDD
- Individual DL CCTrCH information	This number is of which of multiple CCTrCHs as indicated in TS34.108 clause 6.10.3.4 Parameter Set
- DL TFCS Identity	TFCS ID 1 or 2
- Shared Channel Indicator	FALSE
- CHOICE DL parameters	Independent
- DL TFCS	
- CHOICE TFCI signalling	Split
- Split Type	Normal
- TFCI Field 1 information	
- CHOICE TFCS representation	Complete reconfiguration
- TFCS complete reconfigure	
- CHOICE CTFC Size	
- CTFC information	This IE is repeated for TFC numbers and reference to TS34.108 clause 6.10.3.4
- CTFC	Reference to TS34.108 clause 6.10.3.4 Parameter Set
- Power offset information	Not present
Deleted TrCH information list	Not Present
Added or Reconfigured TrCH information list	
- Added or Reconfigured DL TrCH information	
- Downlink transport channel type	DSCH
- DL Transport channel identity	19
- CHOICE DL parameters	Explicit
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to TS34.108 clause 6.10.3.4 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to TS34.108 clause 6.10.3.4 Parameter Set
- Semi-static Transport Format information	
- Transmission time interval	Reference to TS34.108 clause 6.10.3.4 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6.10.3.4 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6.10.3.4 Parameter Set
- Rate matching attribute	Reference to TS34.108 clause 6.10.3.4 Parameter Set
- CRC size	Reference to TS34.108 clause 6.10.3.4 Parameter Set
- DCH quality target	Not Present
- Downlink transport channel type	DCH
- DL Transport channel identity	10
- CHOICE DL parameters	Same as UL
- Uplink transport channel type	DCH

Information Element	Value/remark
- UL TrCH identity	5
- DCH quality target	
- BLER Quality value	-2.0
CHOICE channel requirement	Uplink DPCH info
- Uplink DPCH power control info	
- CHOICE Mode	TDD
- CHOICE TDD Option	3.84 Mcps TDD
- UL target SIR	Not Present
-CHOICE UL OL PC info	Broadcast UL OL PC info (NULL)
- CHOICE mode	TDD
- Uplink Timing Advance Control	Not Present
- UL CCTrCH List	1 or 2 Reference to TS34.108 clause 6.10.3.4 Parameter Set
- TFCS ID	1 or 2
- UL target SIR	0.0
- Timing info	
- Activation time	Now
- Duration	Infinite
- Common timeslot info	
- 2nd interleaver mode	Frame
- TFCI coding	Reference to TS34.108 clause 6.10.3.4 Parameter Set
- Puncturing limit	Reference to TS34.108 clause 6.10.3.4 Parameter Set
- Repetition period	Reference to TS34.108 clause 6.10.3.4 Parameter Set
- Repetition length	Reference to TS34.108 clause 6.10.3.4 Parameter Set
- Uplink DPCH timeslots and codes	
- Dynamic SF usage	FALSE
- First Individual timeslot info	
- Timeslot number	
- CHOICE TDD option	3.84 Mcps TDD
- Timeslot number	(0..14)
- TFCI existence	TRUE
- Midamble Shift and burst type	
- Choice TDD option	3.84 Mcps TDD
- Choice Burst Type	Reference to TS34.108 clause 6.10.3.4 Parameter Set
- Midamble Allocation Mode	Default midamble
- Midamble Configuration	3 or 4 based on burst type
- CHOICE TDD option	3.84 Mcps TDD (no data)
- First timeslot Code List	1..2
- Channelisation Code	Reference to TS34.108 clause 6.10.3.4 Parameter Set
- CHOICE more timeslots	Reference to TS34.108 clause 6.10.3.4 Parameter Set
- UL CCTrCH List to Remove	If this test has only 1 CCTrCH Reference to TS34.108 clause 6.10.3.4 Parameter Set. If 2 CCTrCH then “Not Present”
- TFCS ID	2
CHOICE Mode	TDD (no data)
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indicator	Maintain
- CFN-targetSFN frame offset	Not Present
- Downlink DPCH power control information	
- CHOICE Mode	TDD
- TPC Step Size	1
- MAC-d HFN initial value	Bit String(24)
- CHOICE Mode	TDD (no data)
- CHOICE Mode	TDD (no data)
- CHOICE TDD option	3.84 Mcps (no data)
- Default DPCH Offset Value	Not Present
Downlink information for each radio link list	
- Downlink information for each radio link	
- Choice mode	TDD
- Primary CCPCH info	
- CHOICE Mode	TDD
- CHOICE TDD option	3.84 Mcps
- CHOICE SyncCase	Sync Case 1
- Timeslot	PCCPCH timeslot (0..14)
- Cell parameters ID	Same as cell (0..127)
- SCTD indicator	FALSE

Information Element	Value/remark
- Downlink DPCH info for each RL	
- CHOICE Mode	TDD
- DL CCTrCH List	1 or 2 Reference to TS34.108 clause 6.10.3.4 Parameter Set
- TFCS ID	1 or 2
- Timing info	
- Activation time	Now
- Duration	Infinite
- Common timeslot info	
- 2nd interleaver mode	Frame
- TFCI coding	Reference to TS34.108 clause 6.10.3.4 Parameter Set
- Puncturing limit	Reference to TS34.108 clause 6.10.3.4 Parameter Set
- Repetition period	Reference to TS34.108 clause 6.10.3.4 Parameter Set
- Repetition length	Reference to TS34.108 clause 6.10.3.4 Parameter Set
- Downlink DPCH timeslots and codes	
- First Individual timeslot info	
- Timeslot number	
- CHOICE TDD option	3.84 Mcps TDD
- Timeslot number	(0..14)
- TFCI existence	TRUE
- Midamble Shift and burst type	
- Choice TDD option	3.84 Mcps TDD
- Choice Burst Type	Reference to TS34.108 clause 6.10.3.4 Parameter Set
- Midamble Allocation Mode	Default midamble
- Midamble Configuration	3 or 4 based on burst type
- CHOICE TDD option	3.84 Mcps TDD (no data)
- First timeslot channelisation codes	
- CHOICE codes representation	Bitmap
- Channelisation codes bitmap	Bit string(16) Reference to TS34.108 clause 6.10.3.4 Parameter Set
- CHOICE more timeslots	Reference to TS34.108 clause 6.10.3.4 Parameter Set
- UL CCTrCH TPC List	1 or 2 Reference to TS34.108 clause 6.10.3.4 Parameter Set
- UL TPC TFCS Identity	
- TFCS ID	1 or 2
- Shared Channel Indicator	FALSE
- UL CCTrCH List to Remove	If this test has only 1 CCTrCH Reference to TS34.108 clause 6.10.3.4 Parameter Set. If 2 CCTrCH then “Not Present”
- TFCS ID	2
- SCCPCH information for FACH	Not Present

18.2.1.3 Generic test procedure for testing Single Speech Radio Bearers on USCH/DSCH channels and multiple radio configuration signalling on RACH/FACH

This procedure is used to test single speech only PS radio bearer on DSCH and USCH and multiple configuration signal bearers on RACH/FACH

18.2.1.3.1 Initial conditions

UE in idle mode

Test procedure

a) The SS establish the reference radio bearer configuration as specified in TS 34.108, clause 6.10 for the actual radio bearer test.

b) The SS limits the UE allowed uplink transport format combinations according to the "Restricted UL TFCIs", as specified for the sub-test of the actual radio bearer test, using the RRC transport format combination control procedure.

c) The SS closes the test loop using UE test loop mode 1 and setting the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test. See note 1.

d) The SS transmits test data on all radio bearers under test. The number of RLC SDUs to transmit every TTI and the size "Test data size" is specified for each sub-test of the actual radio bearer test. See note 2.

e) The SS checks that, for all radio bearers under test, the content of the received RLC SDU has the correct content and is received having the correct transport format.

f) The SS opens the UE test loop.

g) SS uses the RRC transport format combination control procedure. And now restricts the TFCs for the data on CS RAB and the data on PS RAB and also on SRB.

h) The SS closes the test loop using UE test loop mode 1 and setting the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test. See note 2.

i) SS transmit data on the CS RAB a MEASUREMENT CONTROL message requesting periodic reporting with a period of T2.

j) SS transmits the data on PS RAB.

k) SS waits the time equal to 2 times T2

l) SS checks that, for all radio bearers under test, the content of the received RLC SDUs have the correct content and is received having the correct transport format. See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loop back of RLC SDUs.

m) The SS opens the UE test loop.

n) (Void)

o) Steps b) to m) are repeated for all sub-tests

p) The SS may optionally release the radio bearer.

q) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: Selection of UL RLC SDU size parameter:
For the case when the reference radio bearer configuration under test uses RLC transparent mode in downlink and is not configured for segmented operation then the radio bearer test case shall set the UL RLC SDU size equal to the UL RLC PDU size. See [7] TS 25.322 for details regarding UE operation in RLC transparent mode. Selection of UL RLC SDU size for the different radio bearers under test should be such that the UE returns data in sub-sequent TTIs without causing the UE transmission buffer to become full. To achieve this the UL RLC SDU size shall be set to UL TF payload size under test, minus the size of length indicator and expansion bit, and divided by the ratio between downlink and uplink TTI. E.g. for a AM radio bearer having the uplink RLC payload size equal to 320, the downlink TTI equal to 10 ms, and the uplink TTI equal to 20 ms, then for the transport format 4x336 (TF payload size = 4x320=1280 bits) the UL RLC SDU size parameter should be set to 632 bits (=1280bits/(20ms/10ms)- 8 bits).

NOTE 2: Selection of test data size:
For the case when the reference radio bearer configuration under test uses RLC transparent mode in downlink and is not configured for segmented operation then the radio bearer test case shall use a DL RLC SDU size (defined by the "Test data size" parameter) equal to the DL RLC PDU size. See [7] TS 25.322 for details regarding UE operation in RLC transparent mode. In case the reference radio bearer configuration under test does not use RLC transparent mode in downlink, the DL RLC SDU size/ test data size shall be set equal to the payload size of the DL TF under test minus the size of the length indicator and the expansion bit.

NOTE 3: The restricted set of TFCIs shall contain all possible TFCI that could happen in a sub-test. The actual TTI of the different radio bearers and signalling radio bearers as well as the possible UE processing delays shall be taken into consideration. The restricted set of TFCIs must comply with the minimum set of TFCIs as specified in TS 25.331, clause 8.6.5.2.

Expected sequence

PS paging procedure

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
2	<--		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
4	<--		RRC CONNECTION SETUP (CCCH)	RRC
5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6a	-->		SERVICE REQUEST (DCCH)	GMM
6b	<--		SECURITY MODE COMMAND	RRC see note 1
6c	-->		SECURITY MODE COMPLETE	RRC see note 1

NOTE 1 In addition to activate integrity protection Step 6b and Step 6c are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.

Expected sequence for DSCH multi RAB test cases.

Step	Direction		Message	Comments
	UE	SS		
1..6	<-- -->		Paging	Use the CS paging procedure for testing of CS and combined CS/PS reference radio bearer configurations. Use the PS paging procedure for testing of PS reference radio bearer configurations.
7	<--		ACTIVATE RB TEST MODE (DCCH)	TC
8	-->		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
9	<--		RADIO BEARER SETUP (DCCH)	RRC
10	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
CASE A: If DTCH on FACH/RACH				
A10a	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
A10b	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
A10c	<--		Test data (DTCH)	SS Sends the data on the FACH
A10d	-->		Test data (DTCH)	SS Receives the data on RACH
A10e			Repeat steps 10c to 10d for every RACH/FACH sub-test	
A10f	<--		OPEN UE TEST LOOP (DCCH)	TC
A10g	-->		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
A10h	<--		PHYSICAL SHARED CHANNEL ALLOCATION (SHCCH)	This message is used by UTRAN to assign physical resources to USCH/DSCH transport channels in TDD, for temporary usage by the UE. UM on SHCCH
A10i	-->		PUSCH CAPACITY REQUEST (SHCCH)	Confirm establishment of PUSCH and PDSCH channels
CASE B: If No DTCH on FACH/RACH				
B10a	<--		PHYSICAL SHARED CHANNEL ALLOCATION (SHCCH)	This message is used by UTRAN to assign physical resources to USCH/DSCH transport channels in TDD, for temporary usage by the UE. UM on SHCCH
B10b	-->		PUSCH CAPACITY REQUEST (SHCCH)	Confirm establishment of PUSCH and PDSCH channels
11	<--		TRANSPORT FORMAT COMBINATION CONTROL (DCCH)	RRC Transport format combinations is limited to "Restricted UL TFCIs", as specified for the sub-test Here the UL TFS are restricted to test the simultaneous data on CS and PS RAB.
12	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
13	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
14	<--		Test data (DTCH)	SS Sends the data on the PS RAB .(PDSCH) (NOTE 1)
15	-->		Test data (DTCH)	SS Receives the data on PS RAB

Step	Direction		Message	Comments
	UE	SS		
16	<--		OPEN UE TEST LOOP (DCCH)	TC
17	-->		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
18			Repeat steps 11 to 17 for every Shared Ch sub-test	
19			RB RELEASE (DCCH)	RRC Optional step
20	<--		DEACTIVATE RB TEST MODE (DCCH)	TC Optional step
21	-->		DEACTIVATE RB TEST MODE COMPLETE (DCCH)	TC Optional step

18.2.1.4 General information interoperability radio bearer tests for HS-DSCH

18.2.1.4.1 HS-DSCH radio bearer test parameters

In the radio bearer tests on radio bearers mapped on HS-DSCH, the following UE specific parameters should be used.

Table 18.2.1.4.1.1: 3.84Mcps TDD HS-DSCH physical layer and RLC and MAC-hs parameters for 3.84Mcps TDD HS-DSCH physical layer categories

HS-DSCH category	Maximum number of HS-DSCH codes per timeslot	Maximum number of HS-DSCH timeslots per TTI	Maximum number of HS-DSCH transport channel bits that can be received within an HS-DSCH TTI	Total number of soft channel bits	Maximum number of AM RLC entities	Minimum total RLC AM and MAC-hs buffer size [kBytes]
Category 1	16	2	12000	52992	6	50
Category 2	16	12	12000	52992	6	50
Category 3	16	4	24000	105984	6	50
Category 4	16	12	24000	105984	6	50
Category 5	16	6	36000	158976	6	100
Category 6	16	12	36000	158976	6	100
Category 7	16	12	53000	211968	6	150
Category 8	16	12	73000	264960	8	150
Category 9	16	12	102000	317952	8	200

18.2.1.4.2 Selecting TFRC test points

18.2.1.4.2.1 Principle

The principle for selecting TFRC test points is the same as specified for FDD in section 14.1.3.2.1 except the following:

a) A total of 3 HARQ processes are assumed.

b) Burst type 1 is assumed when calculating the number of physical channel bits (N_{phy_bits}) so that 1 HS-DSCH code in 1 TS carries 244bits for QPSK and 488bits for 16QAM.

c) The number of HS-DSCH codes allocated in the HS-SCCH is termed N_{codes} and the number of TS allocated in the HS-SCCH is termed $N_{TS\ and\ thus}$ the code rate is determined by:

$$Coding\_rate = (TB_{size} + N_{CRC}) / (N_{codes} * N_{TS} * N_{phy\_bits})$$

d) The number of MAC-d PDUs, N_PDU can be incremented until N_PDU is 318.

e) The HS-SCCH signalling is such that it is only possible to allocate resources in a rectangular fashion; i.e. 21 resource units can be allocated by 3 SF16 codes over 7 timeslots. However it is not possible to make an allocation of 3 SF16 codes in TS2 and 2 SF16 codes in TS3

Note that the number of codes allocated, N_{codes}, and the number of TS, N_{TS}, allocated in the HS-SCCH are used in the tables in sections 18.2.1.4.3 and 18.2.1.4.4.

18.2.1.4.3 TFRC test points for MAC-d PDU size=336

Table 18.2.1.4.3.1: TFRC test points for UE category 1 for MAC-d PDU size=336, 3.84Mcps TDD

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	$N_{codes}*N_{TS}$ allocated in HS-SCCH	TFRI	Comments
1	357	QPSK	4	126	
1	357	16QAM	2	126	
2	693	QPSK	8	171	
2	693	16QAM	4	171	
3	1029	QPSK	12	198	
3	1029	16QAM	6	198	
4	1365	QPSK	16	217	
4	1365	16QAM	8	217	
5	1701	QPSK	20	232	
5	1701	16QAM	10	232	
6	2037	QPSK	24	244	
6	2037	16QAM	12	244	
7	2373	QPSK	28	255	
7	2373	16QAM	14	255	
8	2709	QPSK	32	264	
8	2709	16QAM	16	264	
9	3045	QPSK	32	272	
9	3045	16QAM	18	272	
10	3381	QPSK	32	279	
10	3381	16QAM	20	279	
11	3717	QPSK	32	285	
11	3717	16QAM	22	285	
12	4053	QPSK	32	291	
12	4053	16QAM	24	291	
13	4389	QPSK	32	297	
13	4389	16QAM	26	297	
14	4725	QPSK	32	302	
14	4725	16QAM	28	302	
15	5061	QPSK	32	306	
15	5061	16QAM	30	306	
16	5397	QPSK	32	311	
16	5397	16QAM	32	311	
17	5733	QPSK	32	315	
17	5733	16QAM	32	315	
18	6069	QPSK	32	320	
18	6069	16QAM	32	319	
19	6405	QPSK	32	323	
19	6405	16QAM	32	323	
20	6741	QPSK	32	326	
20	6741	16QAM	32	326	
21	7077	QPSK	32	329	
21	7077	16QAM	32	329	
22	7413	QPSK	32	332	
22	7413	16QAM	32	332	
23	7749	16QAM	32	336	
24	8085	16QAM	32	338	
25	8421	16QAM	32	341	

26	8757	16QAM	32	344	
27	9093	16QAM	32	346	
28	9429	16QAM	32	349	
29	9765	16QAM	32	351	
30	10101	16QAM	32	354	
31	10437	16QAM	32	356	
32	10773	16QAM	32	358	
33	11109	16QAM	32	360	
34	11445	16QAM	32	362	
35	11781	16QAM	32	364	

Table 18.2.1.4.3.2: TFRC test points for UE category 2 for MAC-d PDU size=336, 3.84Mcps TDD

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	357	QPSK	4	126	
1	357	16QAM	2	126	
2	693	QPSK	8	171	
2	693	16QAM	4	171	
3	1029	QPSK	12	198	
3	1029	16QAM	6	198	
4	1365	QPSK	16	217	
4	1365	16QAM	8	217	
5	1701	QPSK	21	232	
5	1701	16QAM	10	232	
6	2037	QPSK	25	244	
6	2037	16QAM	12	244	
7	2373	QPSK	28	255	
7	2373	16QAM	14	255	
8	2709	QPSK	33	264	
8	2709	16QAM	16	264	
9	3045	QPSK	36	272	
9	3045	16QAM	18	272	
10	3381	QPSK	40	279	
10	3381	16QAM	20	279	
11	3717	QPSK	45	285	
11	3717	16QAM	22	285	
12	4053	QPSK	50	291	
12	4053	16QAM	25	291	
13	4389	QPSK	54	297	
13	4389	16QAM	27	297	
14	4725	QPSK	56	302	
14	4725	16QAM	28	302	
15	5061	QPSK	60	306	
15	5061	16QAM	30	306	
16	5397	QPSK	66	311	
16	5397	16QAM	33	311	
17	5733	QPSK	70	315	
17	5733	16QAM	35	315	
18	6069	QPSK	72	319	
18	6069	16QAM	36	319	
19	6405	QPSK	72	323	
19	6405	16QAM	36	323	
20	6741	QPSK	72	326	
20	6741	16QAM	36	326	
21	7077	QPSK	72	329	
21	7077	16QAM	36	329	
22	7413	QPSK	72	332	
22	7413	16QAM	36	332	
23	7749	QPSK	72	336	
23	7749	16QAM	36	336	
24	8085	QPSK	72	338	
24	8085	16QAM	36	338	

25	8421	QPSK	72	341	
25	8421	16QAM	36	341	
26	8757	QPSK	72	344	
26	8757	16QAM	36	344	
27	9093	QPSK	72	346	
27	9093	16QAM	36	346	
28	9429	QPSK	72	349	
28	9429	16QAM	36	349	
29	9765	QPSK	72	351	
29	9765	16QAM	36	351	
30	10101	QPSK	72	354	
30	10101	16QAM	36	354	
31	10437	QPSK	72	356	
31	10437	16QAM	36	356	
32	10773	QPSK	72	358	
32	10773	16QAM	36	358	
33	11109	QPSK	72	360	
33	11109	16QAM	36	360	
34	11445	QPSK	72	362	
34	11445	16QAM	36	362	
35	11781	QPSK	72	364	
35	11781	16QAM	36	364	

Table 18.2.1.4.3.3: TFRC test points for UE category 3 for MAC-d PDU size=336, 3.84Mcps TDD

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	357	QPSK	4	126	
1	357	16QAM	2	126	
2	693	QPSK	8	171	
2	693	16QAM	4	171	
3	1029	QPSK	12	198	
3	1029	16QAM	6	198	
4	1365	QPSK	16	217	
4	1365	16QAM	8	217	
5	1701	QPSK	21	232	
5	1701	16QAM	10	232	
6	2037	QPSK	24	244	
6	2037	16QAM	12	244	
7	2373	QPSK	28	255	
7	2373	16QAM	14	255	
8	2709	QPSK	33	264	
8	2709	16QAM	16	264	
9	3045	QPSK	36	272	
9	3045	16QAM	18	272	
10	3381	QPSK	40	279	
10	3381	16QAM	20	279	
11	3717	QPSK	45	285	
11	3717	16QAM	22	285	
12	4053	QPSK	48	291	
12	4053	16QAM	24	291	
13	4389	QPSK	52	297	
13	4389	16QAM	27	297	
14	4725	QPSK	56	302	
14	4725	16QAM	28	302	
15	5061	QPSK	60	306	
15	5061	16QAM	30	306	
16	5397	QPSK	64	311	
16	5397	16QAM	33	311	
17	5733	QPSK	64	315	
17	5733	16QAM	33	315	
18	6069	QPSK	64	319	
18	6069	16QAM	36	319	
19	6405	QPSK	64	323	
19	6405	16QAM	39	323	
20	6741	QPSK	64	326	
20	6741	16QAM	40	326	
21	7077	QPSK	64	329	
21	7077	16QAM	42	329	
22	7413	QPSK	64	332	
22	7413	16QAM	45	332	
23	7749	QPSK	64	336	
23	7749	16QAM	48	336	
24	8085	QPSK	64	338	
24	8085	16QAM	48	338	

25	8421	QPSK	64	341	
25	8421	16QAM	52	341	
26	8757	QPSK	64	344	
26	8757	16QAM	52	344	
27	9093	QPSK	64	346	
27	9093	16QAM	56	346	
28	9429	QPSK	64	349	
28	9429	16QAM	56	349	
29	9765	QPSK	64	351	
29	9765	16QAM	60	351	
30	10101	QPSK	64	354	
30	10101	16QAM	60	354	
31	10437	QPSK	64	356	
31	10437	16QAM	64	356	
32	10773	QPSK	64	358	
32	10773	16QAM	64	358	
33	11109	QPSK	64	360	
33	11109	16QAM	64	360	
34	11445	QPSK	64	362	
34	11445	16QAM	64	362	
35	11781	QPSK	64	364	
35	11781	16QAM	64	364	
36	12117	QPSK	64	367	
36	12117	16QAM	64	366	
37	12453	QPSK	64	368	
37	12453	16QAM	64	368	
38	12789	QPSK	64	370	
38	12789	16QAM	64	370	
39	13125	QPSK	64	371	
39	13125	16QAM	64	371	
40	13461	QPSK	64	373	
40	13461	16QAM	64	373	
41	13797	QPSK	64	375	
41	13797	16QAM	64	375	
42	14133	QPSK	64	377	
42	14133	16QAM	64	377	
43	14469	QPSK	64	378	
43	14469	16QAM	64	378	
44	14805	QPSK	64	380	
44	14805	16QAM	64	380	
45	15141	QPSK	64	381	
45	15141	16QAM	64	381	
46	15477	16QAM	64	383	
47	15813	16QAM	64	384	
48	16149	16QAM	64	386	
49	16485	16QAM	64	387	
50	16821	16QAM	64	388	
51	17157	16QAM	64	390	
52	17493	16QAM	64	391	
53	17829	16QAM	64	392	
54	18165	16QAM	64	394	
55	18501	16QAM	64	395	
56	18837	16QAM	64	396	

57	19173	16QAM	64	397	
58	19509	16QAM	64	398	
59	19845	16QAM	64	400	
60	20181	16QAM	64	401	
61	20517	16QAM	64	402	
62	20853	16QAM	64	403	
63	21189	16QAM	64	404	
64	21525	16QAM	64	405	
65	21861	16QAM	64	406	
66	22197	16QAM	64	407	
67	22533	16QAM	64	408	
68	22869	16QAM	64	409	
69	23205	16QAM	64	410	
70	23541	16QAM	64	411	
71	23877	16QAM	64	412	

Table 18.2.1.4.3.4: TFRC test points for UE category 4 for MAC-d PDU size=336, 3.84Mcps TDD

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	357	QPSK	4	126	
1	357	16QAM	2	126	
2	693	QPSK	8	171	
2	693	16QAM	4	171	
3	1029	QPSK	12	198	
3	1029	16QAM	6	198	
4	1365	QPSK	16	217	
4	1365	16QAM	8	217	
5	1701	QPSK	21	232	
5	1701	16QAM	10	232	
6	2037	QPSK	25	244	
6	2037	16QAM	12	244	
7	2373	QPSK	28	255	
7	2373	16QAM	14	255	
8	2709	QPSK	33	264	
8	2709	16QAM	16	264	
9	3045	QPSK	36	272	
9	3045	16QAM	18	272	
10	3381	QPSK	40	279	
10	3381	16QAM	20	279	
11	3717	QPSK	45	285	
11	3717	16QAM	22	285	
12	4053	QPSK	50	291	
12	4053	16QAM	25	291	
13	4389	QPSK	54	297	
13	4389	16QAM	27	297	
14	4725	QPSK	56	302	
14	4725	16QAM	28	302	
15	5061	QPSK	60	306	
15	5061	16QAM	30	306	
16	5397	QPSK	66	311	
16	5397	16QAM	33	311	
17	5733	QPSK	70	315	
17	5733	16QAM	35	315	
18	6069	QPSK	75	319	
18	6069	16QAM	36	319	
19	6405	QPSK	78	323	
19	6405	16QAM	39	323	
20	6741	QPSK	81	326	
20	6741	16QAM	40	326	
21	7077	QPSK	84	329	
21	7077	16QAM	42	329	
22	7413	QPSK	91	332	
22	7413	16QAM	45	332	
23	7749	QPSK	96	336	
23	7749	16QAM	48	336	
24	8085	QPSK	99	338	
24	8085	16QAM	49	338	

25	8421	QPSK	104	341	
25	8421	16QAM	52	341	
26	8757	QPSK	108	344	
26	8757	16QAM	54	344	
27	9093	QPSK	112	346	
27	9093	16QAM	56	346	
28	9429	QPSK	117	349	
28	9429	16QAM	56	349	
29	9765	QPSK	120	351	
29	9765	16QAM	60	351	
30	10101	QPSK	121	354	
30	10101	16QAM	60	354	
31	10437	QPSK	128	356	
31	10437	16QAM	64	356	
32	10773	QPSK	132	358	
32	10773	16QAM	66	358	
33	11109	QPSK	135	360	
33	11109	16QAM	66	360	
34	11445	QPSK	140	362	
34	11445	16QAM	70	362	
35	11781	QPSK	144	364	
35	11781	16QAM	72	364	
36	12117	QPSK	144	366	
36	12117	16QAM	72	366	
37	12453	QPSK	144	368	
37	12453	16QAM	72	368	
38	12789	QPSK	144	370	
38	12789	16QAM	72	370	
39	13125	QPSK	144	371	
39	13125	16QAM	72	371	
40	13461	QPSK	144	373	
40	13461	16QAM	72	373	
41	13797	QPSK	144	375	
41	13797	16QAM	72	375	
42	14133	QPSK	144	377	
42	14133	16QAM	72	377	
43	14469	QPSK	144	378	
43	14469	16QAM	72	378	
44	14805	QPSK	144	380	
44	14805	16QAM	72	380	
45	15141	QPSK	144	381	
45	15141	16QAM	72	381	
46	15477	QPSK	144	383	
46	15477	16QAM	72	383	
47	15813	QPSK	144	384	
47	15813	16QAM	72	384	
48	16149	QPSK	144	386	
48	16149	16QAM	72	386	
49	16485	QPSK	144	387	
49	16485	16QAM	72	387	
50	16821	QPSK	144	388	
50	16821	16QAM	72	388	
51	17157	QPSK	144	390	

51	17157	16QAM	72	390	
52	17493	QPSK	144	391	
52	17493	16QAM	72	391	
53	17829	QPSK	144	392	
53	17829	16QAM	72	392	
54	18165	QPSK	144	394	
54	18165	16QAM	72	394	
55	18501	QPSK	144	395	
55	18501	16QAM	72	395	
56	18837	QPSK	144	396	
56	18837	16QAM	72	396	
57	19173	QPSK	144	397	
57	19173	16QAM	72	397	
58	19509	QPSK	144	398	
58	19509	16QAM	72	398	
59	19845	QPSK	144	400	
59	19845	16QAM	72	400	
60	20181	QPSK	144	401	
60	20181	16QAM	72	401	
61	20517	QPSK	144	402	
61	20517	16QAM	72	402	
62	20853	QPSK	144	403	
62	20853	16QAM	72	403	
63	21189	QPSK	144	404	
63	21189	16QAM	72	404	
64	21525	QPSK	144	405	
64	21525	16QAM	72	405	
65	21861	QPSK	144	406	
65	21861	16QAM	72	406	
66	22197	QPSK	144	407	
66	22197	16QAM	72	407	
67	22533	QPSK	144	408	
67	22533	16QAM	72	408	
68	22869	QPSK	144	409	
68	22869	16QAM	72	409	
69	23205	QPSK	144	410	
69	23205	16QAM	72	410	
70	23541	QPSK	144	411	
70	23541	16QAM	72	411	
71	23877	QPSK	144	412	
71	23877	16QAM	72	412	

Table 18.2.1.4.3.5: TFRC test points for UE category 5 for MAC-d PDU size=336, 3.84Mcps TDD

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	357	QPSK	4	126	
1	357	16QAM	2	126	
2	693	QPSK	8	171	
2	693	16QAM	4	171	
3	1029	QPSK	12	198	
3	1029	16QAM	6	198	
4	1365	QPSK	16	217	
4	1365	16QAM	8	217	
5	1701	QPSK	21	232	
5	1701	16QAM	10	232	
6	2037	QPSK	25	244	
6	2037	16QAM	12	244	
7	2373	QPSK	28	255	
7	2373	16QAM	14	255	
8	2709	QPSK	33	264	
8	2709	16QAM	16	264	
9	3045	QPSK	36	272	
9	3045	16QAM	18	272	
10	3381	QPSK	40	279	
10	3381	16QAM	20	279	
11	3717	QPSK	45	285	
11	3717	16QAM	22	285	
12	4053	QPSK	50	291	
12	4053	16QAM	25	291	
13	4389	QPSK	54	297	
13	4389	16QAM	27	297	
14	4725	QPSK	56	302	
14	4725	16QAM	28	302	
15	5061	QPSK	60	306	
15	5061	16QAM	30	306	
16	5397	QPSK	66	311	
16	5397	16QAM	33	311	
17	5733	QPSK	70	315	
17	5733	16QAM	35	315	
18	6069	QPSK	75	319	
18	6069	16QAM	36	319	
19	6405	QPSK	78	323	
19	6405	16QAM	39	323	
20	6741	QPSK	80	326	
20	6741	16QAM	40	326	
21	7077	QPSK	84	329	
21	7077	16QAM	42	329	
22	7413	QPSK	90	332	
22	7413	16QAM	45	332	
23	7749	QPSK	96	336	
23	7749	16QAM	48	336	
24	8085	QPSK	96	338	
24	8085	16QAM	48	338	

25	8421	QPSK	96	341	
25	8421	16QAM	52	341	
26	8757	QPSK	96	344	
26	8757	16QAM	54	344	
27	9093	QPSK	96	346	
27	9093	16QAM	56	346	
28	9429	QPSK	96	349	
28	9429	16QAM	56	349	
29	9765	QPSK	96	351	
29	9765	16QAM	60	351	
30	10101	QPSK	96	354	
30	10101	16QAM	60	354	
31	10437	QPSK	96	356	
31	10437	16QAM	64	356	
32	10773	QPSK	96	358	
32	10773	16QAM	66	358	
33	11109	QPSK	96	360	
33	11109	16QAM	66	360	
34	11445	QPSK	96	362	
34	11445	16QAM	70	362	
35	11781	QPSK	96	364	
35	11781	16QAM	72	364	
36	12117	QPSK	96	366	
36	12117	16QAM	75	366	
37	12453	QPSK	96	368	
37	12453	16QAM	75	368	
38	12789	QPSK	96	370	
38	12789	16QAM	78	370	
39	13125	QPSK	96	371	
39	13125	16QAM	80	371	
40	13461	QPSK	96	373	
40	13461	16QAM	80	373	
41	13797	QPSK	96	375	
41	13797	16QAM	84	375	
42	14133	QPSK	96	377	
42	14133	16QAM	84	377	
43	14469	QPSK	96	378	
43	14469	16QAM	84	378	
44	14805	QPSK	96	380	
44	14805	16QAM	90	380	
45	15141	QPSK	96	381	
45	15141	16QAM	90	381	
46	15477	QPSK	96	383	
46	15477	16QAM	96	383	
47	15813	QPSK	96	384	
47	15813	16QAM	96	384	
48	16149	QPSK	96	386	
48	16149	16QAM	96	386	
49	16485	QPSK	96	387	
49	16485	16QAM	96	387	
50	16821	QPSK	96	388	
50	16821	16QAM	96	388	
51	17157	QPSK	96	390	

51	17157	16QAM	96	390	
52	17493	QPSK	96	391	
52	17493	16QAM	96	391	
53	17829	QPSK	96	392	
53	17829	16QAM	96	392	
54	18165	QPSK	96	395	
54	18165	16QAM	96	394	
55	18501	QPSK	96	395	
55	18501	16QAM	96	395	
56	18837	QPSK	96	396	
56	18837	16QAM	96	396	
57	19173	QPSK	96	397	
57	19173	16QAM	96	397	
58	19509	QPSK	96	398	
58	19509	16QAM	96	398	
59	19845	QPSK	96	400	
59	19845	16QAM	96	400	
60	20181	QPSK	96	401	
60	20181	16QAM	96	401	
61	20517	QPSK	96	402	
61	20517	16QAM	96	402	
62	20853	QPSK	96	403	
62	20853	16QAM	96	403	
63	21189	QPSK	96	404	
63	21189	16QAM	96	404	
64	21525	QPSK	96	405	
64	21525	16QAM	96	405	
65	21861	QPSK	96	406	
65	21861	16QAM	96	406	
66	22197	QPSK	96	407	
66	22197	16QAM	96	407	
67	22533	QPSK	96	408	
67	22533	16QAM	96	408	
68	22869	QPSK	96	409	
68	22869	16QAM	96	409	
69	23205	QPSK	96	410	
69	23205	16QAM	96	410	
70	23541	16QAM	96	411	
71	23877	16QAM	96	412	
72	24213	16QAM	96	413	
73	24549	16QAM	96	414	
74	24885	16QAM	96	415	
75	25221	16QAM	96	416	
76	25557	16QAM	96	417	
77	25893	16QAM	96	418	
78	26229	16QAM	96	419	
79	26565	16QAM	96	420	
80	26901	16QAM	96	420	
81	27237	16QAM	96	421	
82	27573	16QAM	96	422	
83	27909	16QAM	96	423	
84	28245	16QAM	96	424	
85	28581	16QAM	96	425	

86	28917	16QAM	96	425	
87	29253	16QAM	96	426	
88	29589	16QAM	96	427	
89	29925	16QAM	96	428	
90	30261	16QAM	96	428	
91	30597	16QAM	96	429	
92	30933	16QAM	96	430	
93	31269	16QAM	96	431	
94	31605	16QAM	96	431	
95	31941	16QAM	96	432	
96	32277	16QAM	96	433	
97	32613	16QAM	96	434	
98	32949	16QAM	96	434	
99	33285	16QAM	96	435	
100	33621	16QAM	96	436	
101	33957	16QAM	96	436	
102	34293	16QAM	96	437	
103	34629	16QAM	96	438	
104	34965	16QAM	96	438	
105	35301	16QAM	96	439	
106	35637	16QAM	96	442	
107	35973	16QAM	96	442	

Table 18.2.1.4.3.6: TFRC test points for UE category 6 for MAC-d PDU size=336, 3.84Mcps TDD

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	357	QPSK	4	126	
1	357	16QAM	2	126	
2	693	QPSK	8	171	
2	693	16QAM	4	171	
3	1029	QPSK	12	198	
3	1029	16QAM	6	198	
4	1365	QPSK	16	217	
4	1365	16QAM	8	217	
5	1701	QPSK	21	232	
5	1701	16QAM	10	232	
6	2037	QPSK	25	244	
6	2037	16QAM	12	244	
7	2373	QPSK	28	255	
7	2373	16QAM	14	255	
8	2709	QPSK	33	264	
8	2709	16QAM	16	264	
9	3045	QPSK	36	272	
9	3045	16QAM	18	272	
10	3381	QPSK	40	279	
10	3381	16QAM	20	279	
11	3717	QPSK	45	285	
11	3717	16QAM	22	285	
12	4053	QPSK	50	291	
12	4053	16QAM	25	291	
13	4389	QPSK	54	297	
13	4389	16QAM	27	297	
14	4725	QPSK	56	302	
14	4725	16QAM	28	302	
15	5061	QPSK	60	306	
15	5061	16QAM	30	306	
16	5397	QPSK	66	311	
16	5397	16QAM	33	311	
17	5733	QPSK	70	315	
17	5733	16QAM	35	315	
18	6069	QPSK	75	319	
18	6069	16QAM	36	319	
19	6405	QPSK	78	323	
19	6405	16QAM	39	323	
20	6741	QPSK	81	326	
20	6741	16QAM	40	326	
21	7077	QPSK	84	329	
21	7077	16QAM	42	329	
22	7413	QPSK	91	332	
22	7413	16QAM	45	332	
23	7749	QPSK	96	336	
23	7749	16QAM	48	336	
24	8085	QPSK	99	338	
24	8085	16QAM	49	338	

25	8421	QPSK	104	341	
25	8421	16QAM	52	341	
26	8757	QPSK	108	344	
26	8757	16QAM	54	344	
27	9093	QPSK	112	346	
27	9093	16QAM	56	346	
28	9429	QPSK	117	349	
28	9429	16QAM	56	349	
29	9765	QPSK	120	351	
29	9765	16QAM	60	351	
30	10101	QPSK	121	354	
30	10101	16QAM	60	354	
31	10437	QPSK	128	356	
31	10437	16QAM	64	356	
32	10773	QPSK	132	358	
32	10773	16QAM	66	358	
33	11109	QPSK	135	360	
33	11109	16QAM	66	360	
34	11445	QPSK	140	362	
34	11445	16QAM	70	362	
35	11781	QPSK	144	364	
35	11781	16QAM	72	364	
36	12117	QPSK	150	366	
36	12117	16QAM	75	366	
37	12453	QPSK	154	368	
37	12453	16QAM	77	368	
38	12789	QPSK	156	370	
38	12789	16QAM	78	370	
39	13125	QPSK	160	371	
39	13125	16QAM	80	371	
40	13461	QPSK	165	373	
40	13461	16QAM	81	373	
41	13797	QPSK	168	375	
41	13797	16QAM	84	375	
42	14133	QPSK	176	377	
42	14133	16QAM	88	377	
43	14469	QPSK	176	378	
43	14469	16QAM	88	378	
44	14805	QPSK	180	380	
44	14805	16QAM	91	380	
45	15141	QPSK	180	381	
45	15141	16QAM	91	381	
46	15477	QPSK	192	383	
46	15477	16QAM	96	383	
47	15813	QPSK	192	384	
47	15813	16QAM	96	384	
48	16149	QPSK	192	386	
48	16149	16QAM	100	386	
49	16485	QPSK	192	387	
49	16485	16QAM	100	387	
50	16821	QPSK	192	388	
50	16821	16QAM	100	388	
51	17157	QPSK	192	390	

51	17157	16QAM	105	390	
52	17493	QPSK	192	391	
52	17493	16QAM	108	391	
53	17829	QPSK	192	392	
53	17829	16QAM	108	392	*
54	18165	QPSK	192	394	*
54	18165	16QAM	108	394	
55	18501	QPSK	192	395	
55	18501	16QAM	108	395	
56	18837	QPSK	192	396	
56	18837	16QAM	108	396	
57	19173	QPSK	192	397	
57	19173	16QAM	108	397	
58	19509	QPSK	192	398	
58	19509	16QAM	108	398	
59	19845	QPSK	192	400	
59	19845	16QAM	108	400	
60	20181	QPSK	192	401	
60	20181	16QAM	108	401	
61	20517	QPSK	192	402	
61	20517	16QAM	108	402	
62	20853	QPSK	192	403	
62	20853	16QAM	108	403	
63	21189	QPSK	192	404	
63	21189	16QAM	108	404	
64	21525	QPSK	192	405	
64	21525	16QAM	108	405	
65	21861	QPSK	192	406	
65	21861	16QAM	108	406	
66	22197	QPSK	192	407	
66	22197	16QAM	108	407	
67	22533	QPSK	192	408	
67	22533	16QAM	108	408	
68	22869	QPSK	192	409	
68	22869	16QAM	108	409	
69	23205	QPSK	192	410	
69	23205	16QAM	108	410	
70	23541	QPSK	192	411	
70	23541	16QAM	108	411	
71	23877	QPSK	192	412	
71	23877	16QAM	108	412	
72	24213	QPSK	192	413	
72	24213	16QAM	108	413	
73	24549	QPSK	192	414	
73	24549	16QAM	108	414	
74	24885	QPSK	192	415	
74	24885	16QAM	108	415	
75	25221	QPSK	192	416	
75	25221	16QAM	108	416	
76	25557	QPSK	192	417	
76	25557	16QAM	108	417	
77	25893	QPSK	192	418	
77	25893	16QAM	108	418	

78	26229	QPSK	192	419	
78	26229	16QAM	108	419	
79	26565	QPSK	192	420	
79	26565	16QAM	108	420	
80	26901	QPSK	192	420	
80	26901	16QAM	108	420	
81	27237	QPSK	192	421	
81	27237	16QAM	108	421	
82	27573	QPSK	192	422	
82	27573	16QAM	108	422	
83	27909	QPSK	192	423	
83	27909	16QAM	108	423	
84	28245	QPSK	192	424	
84	28245	16QAM	108	424	
85	28581	QPSK	192	425	
85	28581	16QAM	108	425	
86	28917	QPSK	192	425	
86	28917	16QAM	108	425	
87	29253	QPSK	192	426	
87	29253	16QAM	108	426	
88	29589	QPSK	192	427	
88	29589	16QAM	108	427	
89	29925	QPSK	192	428	
89	29925	16QAM	108	428	
90	30261	QPSK	192	428	
90	30261	16QAM	108	428	
91	30597	QPSK	192	429	
91	30597	16QAM	108	429	
92	30933	QPSK	192	430	
92	30933	16QAM	108	430	
93	31269	QPSK	192	431	
93	31269	16QAM	108	431	
94	31605	QPSK	192	431	
94	31605	16QAM	108	431	
95	31941	QPSK	192	432	
95	31941	16QAM	108	432	
96	32277	QPSK	192	433	
96	32277	16QAM	108	433	
97	32613	QPSK	192	434	
97	32613	16QAM	108	434	
98	32949	QPSK	192	434	
98	32949	16QAM	108	434	
99	33285	QPSK	192	435	
99	33285	16QAM	108	435	
100	33621	QPSK	192	436	
100	33621	16QAM	108	436	
101	33957	QPSK	192	436	
101	33957	16QAM	108	436	
102	34293	QPSK	192	437	
102	34293	16QAM	108	437	
103	34629	QPSK	192	438	
103	34629	16QAM	108	438	
104	34965	QPSK	192	438	

104	34965	16QAM	108	438	
105	35301	QPSK	192	439	
105	35301	16QAM	108	439	
106	35637	QPSK	192	442	
106	35637	16QAM	108	440	
107	35973	QPSK	192	442	
107	35973	16QAM	108	440	

Table 18.2.1.4.3.7: TFRC test points for UE category 7 for MAC-d PDU size=336, 3.84Mcps TDD

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	357	QPSK	4	126	
1	357	16QAM	2	126	
2	693	QPSK	8	171	
2	693	16QAM	4	171	
3	1029	QPSK	12	198	
3	1029	16QAM	6	198	
4	1365	QPSK	16	217	
4	1365	16QAM	8	217	
5	1701	QPSK	21	232	
5	1701	16QAM	10	232	
6	2037	QPSK	25	244	
6	2037	16QAM	12	244	
7	2373	QPSK	28	255	
7	2373	16QAM	14	255	
8	2709	QPSK	33	264	
8	2709	16QAM	16	264	
9	3045	QPSK	36	272	
9	3045	16QAM	18	272	
10	3381	QPSK	40	279	
10	3381	16QAM	20	279	
11	3717	QPSK	45	285	
11	3717	16QAM	22	285	
12	4053	QPSK	50	291	
12	4053	16QAM	25	291	
13	4389	QPSK	54	297	
13	4389	16QAM	27	297	
14	4725	QPSK	56	302	
14	4725	16QAM	28	302	
15	5061	QPSK	60	306	
15	5061	16QAM	30	306	
16	5397	QPSK	66	311	
16	5397	16QAM	33	311	
17	5733	QPSK	70	315	
17	5733	16QAM	35	315	
18	6069	QPSK	75	319	
18	6069	16QAM	36	319	
19	6405	QPSK	78	323	
19	6405	16QAM	39	323	
20	6741	QPSK	81	326	
20	6741	16QAM	40	326	
21	7077	QPSK	84	329	
21	7077	16QAM	42	329	
22	7413	QPSK	91	332	
22	7413	16QAM	45	332	
23	7749	QPSK	96	336	
23	7749	16QAM	48	336	
24	8085	QPSK	99	338	
24	8085	16QAM	49	338	

25	8421	QPSK	104	341	
25	8421	16QAM	52	341	
26	8757	QPSK	108	344	
26	8757	16QAM	54	344	
27	9093	QPSK	112	346	
27	9093	16QAM	56	346	
28	9429	QPSK	117	349	
28	9429	16QAM	56	349	
29	9765	QPSK	120	351	
29	9765	16QAM	60	351	
30	10101	QPSK	121	354	
30	10101	16QAM	60	354	
31	10437	QPSK	128	356	
31	10437	16QAM	64	356	
32	10773	QPSK	132	358	
32	10773	16QAM	66	358	
33	11109	QPSK	135	360	
33	11109	16QAM	66	360	
34	11445	QPSK	140	362	
34	11445	16QAM	70	362	
35	11781	QPSK	144	364	
35	11781	16QAM	72	364	
36	12117	QPSK	150	366	
36	12117	16QAM	75	366	
37	12453	QPSK	154	368	
37	12453	16QAM	77	368	
38	12789	QPSK	156	370	
38	12789	16QAM	78	370	
39	13125	QPSK	160	371	
39	13125	16QAM	80	371	
40	13461	QPSK	165	373	
40	13461	16QAM	81	373	
41	13797	QPSK	168	375	
41	13797	16QAM	84	375	
42	14133	QPSK	176	377	
42	14133	16QAM	88	377	
43	14469	QPSK	176	378	
43	14469	16QAM	88	378	
44	14805	QPSK	180	380	
44	14805	16QAM	91	380	
45	15141	QPSK	180	381	
45	15141	16QAM	91	381	
46	15477	QPSK	192	383	
46	15477	16QAM	96	383	
47	15813	QPSK	192	384	
47	15813	16QAM	96	384	
48	16149	QPSK	192	386	
48	16149	16QAM	100	386	
49	16485	QPSK	192	387	
49	16485	16QAM	100	387	
50	16821	QPSK	192	388	
50	16821	16QAM	100	388	
51	17157	QPSK	192	390	

51	17157	16QAM	105	390	
52	17493	QPSK	192	391	
52	17493	16QAM	108	391	
53	17829	QPSK	192	392	
53	17829	16QAM	108	392	
54	18165	QPSK	192	394	
54	18165	16QAM	112	394	
55	18501	QPSK	192	395	
55	18501	16QAM	112	395	
56	18837	QPSK	192	396	
56	18837	16QAM	112	396	
57	19173	QPSK	192	397	
57	19173	16QAM	117	397	
58	19509	QPSK	192	398	
58	19509	16QAM	120	398	
59	19845	QPSK	192	400	
59	19845	16QAM	121	400	
60	20181	QPSK	192	401	
60	20181	16QAM	121	401	
61	20517	QPSK	192	402	
61	20517	16QAM	126	402	
62	20853	QPSK	192	403	
62	20853	16QAM	128	403	
63	21189	QPSK	192	404	
63	21189	16QAM	130	404	
64	21525	QPSK	192	405	
64	21525	16QAM	132	405	
65	21861	QPSK	192	406	
65	21861	16QAM	132	406	
66	22197	QPSK	192	407	
66	22197	16QAM	135	407	
67	22533	QPSK	192	408	
67	22533	16QAM	135	408	
68	22869	QPSK	192	409	
68	22869	16QAM	140	409	
69	23205	QPSK	192	410	
69	23205	16QAM	143	410	
70	23541	QPSK	192	411	
70	23541	16QAM	144	411	
71	23877	QPSK	192	412	
71	23877	16QAM	144	412	
72	24213	QPSK	192	413	
72	24213	16QAM	144	413	
73	24549	QPSK	192	414	
73	24549	16QAM	144	414	
74	24885	QPSK	192	415	
74	24885	16QAM	144	415	
75	25221	QPSK	192	416	
75	25221	16QAM	144	416	
76	25557	QPSK	192	417	
76	25557	16QAM	144	417	
77	25893	QPSK	192	418	
77	25893	16QAM	144	418	

78	26229	QPSK	192	419	
78	26229	16QAM	144	419	
79	26565	QPSK	192	420	
79	26565	16QAM	144	420	
80	26901	QPSK	192	420	
80	26901	16QAM	144	420	
81	27237	QPSK	192	421	
81	27237	16QAM	144	421	
82	27573	QPSK	192	422	
82	27573	16QAM	144	422	
83	27909	QPSK	192	423	
83	27909	16QAM	144	423	
84	28245	QPSK	192	424	
84	28245	16QAM	144	424	
85	28581	QPSK	192	425	
85	28581	16QAM	144	425	
86	28917	QPSK	192	425	
86	28917	16QAM	144	425	
87	29253	QPSK	192	426	
87	29253	16QAM	144	426	
88	29589	QPSK	192	427	
88	29589	16QAM	144	427	
89	29925	QPSK	192	428	
89	29925	16QAM	144	428	
90	30261	QPSK	192	428	
90	30261	16QAM	144	428	
91	30597	QPSK	192	429	
91	30597	16QAM	144	429	
92	30933	QPSK	192	430	
92	30933	16QAM	144	430	
93	31269	QPSK	192	431	
93	31269	16QAM	144	431	
94	31605	QPSK	192	431	
94	31605	16QAM	144	431	
95	31941	QPSK	192	432	
95	31941	16QAM	144	432	
96	32277	QPSK	192	433	
96	32277	16QAM	144	433	
97	32613	QPSK	192	434	
97	32613	16QAM	144	434	
98	32949	QPSK	192	434	
98	32949	16QAM	144	434	
99	33285	QPSK	192	435	
99	33285	16QAM	144	435	
100	33621	QPSK	192	436	
100	33621	16QAM	144	436	
101	33957	QPSK	192	436	
101	33957	16QAM	144	436	
102	34293	QPSK	192	437	
102	34293	16QAM	144	437	
103	34629	QPSK	192	438	
103	34629	16QAM	144	438	
104	34965	QPSK	192	438	

104	34965	16QAM	144	438	
105	35301	QPSK	192	439	
105	35301	16QAM	144	439	
106	35637	QPSK	192	442	
106	35637	16QAM	144	440	
107	35973	QPSK	192	442	
107	35973	16QAM	144	440	
108	36309	QPSK	192	442	
108	36309	16QAM	144	441	
109	36645	QPSK	192	442	
109	36645	16QAM	144	441	
110	36981	QPSK	192	442	
110	36981	16QAM	144	442	
111	37317	QPSK	192	443	
111	37317	16QAM	144	443	
112	37653	QPSK	192	443	
112	37653	16QAM	144	443	
113	37989	QPSK	192	444	
113	37989	16QAM	144	444	
114	38325	QPSK	192	445	
114	38325	16QAM	144	445	
115	38661	QPSK	192	445	
115	38661	16QAM	144	445	
116	38997	QPSK	192	446	
116	38997	16QAM	144	446	
117	39333	QPSK	192	446	
117	39333	16QAM	144	446	
118	39669	QPSK	192	447	
118	39669	16QAM	144	447	
119	40005	QPSK	192	447	
119	40005	16QAM	144	447	
120	40341	QPSK	192	448	
120	40341	16QAM	144	448	
121	40677	QPSK	192	449	
121	40677	16QAM	144	449	
122	41013	QPSK	192	449	
122	41013	16QAM	144	449	
123	41349	QPSK	192	450	
123	41349	16QAM	144	450	
124	41685	QPSK	192	450	
124	41685	16QAM	144	450	
125	42021	QPSK	192	451	
125	42021	16QAM	144	451	
126	42357	QPSK	192	451	
126	42357	16QAM	144	451	
127	42693	QPSK	192	452	
127	42693	16QAM	144	452	
128	43029	QPSK	192	452	
128	43029	16QAM	144	452	
129	43372	QPSK	192	453	
129	43372	16QAM	144	453	
130	43708	QPSK	192	454	
130	43708	16QAM	144	454	

131	44044	QPSK	192	454	
131	44044	16QAM	144	454	
132	44380	QPSK	192	455	
132	44380	16QAM	144	455	
133	44716	QPSK	192	455	
133	44716	16QAM	144	455	
134	45052	QPSK	192	456	
134	45052	16QAM	144	456	
135	45388	QPSK	192	456	
135	45388	16QAM	144	456	
136	45724	QPSK	192	457	
136	45724	16QAM	144	457	
137	46060	QPSK	192	457	
137	46060	16QAM	144	457	
138	46396	16QAM	144	458	
139	46732	16QAM	144	458	
140	47068	16QAM	144	459	
141	47404	16QAM	144	459	
142	47740	16QAM	144	460	
143	48076	16QAM	144	460	
144	48412	16QAM	144	460	
145	48748	16QAM	144	461	
146	49084	16QAM	144	461	
147	49420	16QAM	144	462	
148	49756	16QAM	144	462	
149	50092	16QAM	144	463	
150	50428	16QAM	144	463	
151	50764	16QAM	144	464	
152	51100	16QAM	144	464	
153	51436	16QAM	144	465	
154	51772	16QAM	144	465	
155	52108	16QAM	144	465	
156	52444	16QAM	144	466	
157	52780	16QAM	144	466	

Table 18.2.1.4.3.8: TFRC test points for UE category 8 for MAC-d PDU size=336, 3.84Mcps TDD

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	357	QPSK	4	126	
1	357	16QAM	2	126	
2	693	QPSK	8	171	
2	693	16QAM	4	171	
3	1029	QPSK	12	198	
3	1029	16QAM	6	198	
4	1365	QPSK	16	217	
4	1365	16QAM	8	217	
5	1701	QPSK	21	232	
5	1701	16QAM	10	232	
6	2037	QPSK	25	244	
6	2037	16QAM	12	244	
7	2373	QPSK	28	255	
7	2373	16QAM	14	255	
8	2709	QPSK	33	264	
8	2709	16QAM	16	264	
9	3045	QPSK	36	272	
9	3045	16QAM	18	272	
10	3381	QPSK	40	279	
10	3381	16QAM	20	279	
11	3717	QPSK	45	285	
11	3717	16QAM	22	285	
12	4053	QPSK	50	291	
12	4053	16QAM	25	291	
13	4389	QPSK	54	297	
13	4389	16QAM	27	297	
14	4725	QPSK	56	302	
14	4725	16QAM	28	302	
15	5061	QPSK	60	306	
15	5061	16QAM	30	306	
16	5397	QPSK	66	311	
16	5397	16QAM	33	311	
17	5733	QPSK	70	315	
17	5733	16QAM	35	315	
18	6069	QPSK	75	319	
18	6069	16QAM	36	319	
19	6405	QPSK	78	323	
19	6405	16QAM	39	323	
20	6741	QPSK	81	326	
20	6741	16QAM	40	326	
21	7077	QPSK	84	329	
21	7077	16QAM	42	329	
22	7413	QPSK	91	332	
22	7413	16QAM	45	332	
23	7749	QPSK	96	336	
23	7749	16QAM	48	336	
24	8085	QPSK	99	338	
24	8085	16QAM	49	338	

25	8421	QPSK	104	341	
25	8421	16QAM	52	341	
26	8757	QPSK	108	344	
26	8757	16QAM	54	344	
27	9093	QPSK	112	346	
27	9093	16QAM	56	346	
28	9429	QPSK	117	349	
28	9429	16QAM	56	349	
29	9765	QPSK	120	351	
29	9765	16QAM	60	351	
30	10101	QPSK	121	354	
30	10101	16QAM	60	354	
31	10437	QPSK	128	356	
31	10437	16QAM	64	356	
32	10773	QPSK	132	358	
32	10773	16QAM	66	358	
33	11109	QPSK	135	360	
33	11109	16QAM	66	360	
34	11445	QPSK	140	362	
34	11445	16QAM	70	362	
35	11781	QPSK	144	364	
35	11781	16QAM	72	364	
36	12117	QPSK	150	366	
36	12117	16QAM	75	366	
37	12453	QPSK	154	368	
37	12453	16QAM	77	368	
38	12789	QPSK	156	370	
38	12789	16QAM	78	370	
39	13125	QPSK	160	371	
39	13125	16QAM	80	371	
40	13461	QPSK	165	373	
40	13461	16QAM	81	373	
41	13797	QPSK	168	375	
41	13797	16QAM	84	375	
42	14133	QPSK	176	377	
42	14133	16QAM	88	377	
43	14469	QPSK	176	378	
43	14469	16QAM	88	378	
44	14805	QPSK	180	380	
44	14805	16QAM	91	380	
45	15141	QPSK	180	381	
45	15141	16QAM	91	381	
46	15477	QPSK	192	383	
46	15477	16QAM	96	383	
47	15813	QPSK	192	384	
47	15813	16QAM	96	384	
48	16149	QPSK	192	386	
48	16149	16QAM	100	386	
49	16485	QPSK	192	387	
49	16485	16QAM	100	387	
50	16821	QPSK	192	388	
50	16821	16QAM	100	388	
51	17157	QPSK	192	390	

51	17157	16QAM	105	390	
52	17493	QPSK	192	391	
52	17493	16QAM	108	391	
53	17829	QPSK	192	392	
53	17829	16QAM	108	392	
54	18165	QPSK	192	394	
54	18165	16QAM	112	394	
55	18501	QPSK	192	395	
55	18501	16QAM	112	395	
56	18837	QPSK	192	396	
56	18837	16QAM	112	396	
57	19173	QPSK	192	397	
57	19173	16QAM	117	397	
58	19509	QPSK	192	398	
58	19509	16QAM	120	398	
59	19845	QPSK	192	400	
59	19845	16QAM	121	400	
60	20181	QPSK	192	401	
60	20181	16QAM	121	401	
61	20517	QPSK	192	402	
61	20517	16QAM	126	402	
62	20853	QPSK	192	403	
62	20853	16QAM	128	403	
63	21189	QPSK	192	404	
63	21189	16QAM	130	404	
64	21525	QPSK	192	405	
64	21525	16QAM	132	405	
65	21861	QPSK	192	406	
65	21861	16QAM	132	406	
66	22197	QPSK	192	407	
66	22197	16QAM	135	407	
67	22533	QPSK	192	408	
67	22533	16QAM	135	408	
68	22869	QPSK	192	409	
68	22869	16QAM	140	409	
69	23205	QPSK	192	410	
69	23205	16QAM	143	410	
70	23541	QPSK	192	411	
70	23541	16QAM	144	411	
71	23877	QPSK	192	412	
71	23877	16QAM	144	412	
72	24213	QPSK	192	413	
72	24213	16QAM	144	413	
73	24549	QPSK	192	414	
73	24549	16QAM	150	414	
74	24885	QPSK	192	415	
74	24885	16QAM	154	415	
75	25221	QPSK	192	416	
75	25221	16QAM	156	416	
76	25557	QPSK	192	417	
76	25557	16QAM	156	417	
77	25893	QPSK	192	418	
77	25893	16QAM	160	418	

78	26229	QPSK	192	419	
78	26229	16QAM	160	419	
79	26565	QPSK	192	420	
79	26565	16QAM	165	420	
80	26901	QPSK	192	420	
80	26901	16QAM	165	420	
81	27237	QPSK	192	421	
81	27237	16QAM	168	421	
82	27573	QPSK	192	422	
82	27573	16QAM	168	422	
83	27909	QPSK	192	423	
83	27909	16QAM	168	423	
84	28245	QPSK	192	424	
84	28245	16QAM	168	424	
85	28581	QPSK	192	425	
85	28581	16QAM	176	425	
86	28917	QPSK	192	425	
86	28917	16QAM	176	425	
87	29253	QPSK	192	426	
87	29253	16QAM	180	426	
88	29589	QPSK	192	427	
88	29589	16QAM	180	427	
89	29925	QPSK	192	428	
89	29925	16QAM	180	428	
90	30261	QPSK	192	428	
90	30261	16QAM	180	428	
91	30597	QPSK	192	429	
91	30597	16QAM	180	429	
92	30933	QPSK	192	430	
92	30933	16QAM	180	430	
93	31269	QPSK	192	431	
93	31269	16QAM	180	431	
94	31605	QPSK	192	431	
94	31605	16QAM	180	431	
95	31941	QPSK	192	432	
95	31941	16QAM	180	432	
96	32277	QPSK	192	433	
96	32277	16QAM	180	433	
97	32613	QPSK	192	434	
97	32613	16QAM	180	434	
98	32949	QPSK	192	434	
98	32949	16QAM	180	434	
99	33285	QPSK	192	435	
99	33285	16QAM	180	435	
100	33621	QPSK	192	436	
100	33621	16QAM	180	436	
101	33957	QPSK	192	436	
101	33957	16QAM	180	436	
102	34293	QPSK	192	437	
102	34293	16QAM	180	437	
103	34629	QPSK	192	438	
103	34629	16QAM	180	438	
104	34965	QPSK	192	438	

104	34965	16QAM	180	438	
105	35301	QPSK	192	439	
105	35301	16QAM	180	439	
106	35637	QPSK	192	442	
106	35637	16QAM	180	440	
107	35973	QPSK	192	442	
107	35973	16QAM	180	440	
108	36309	QPSK	192	442	
108	36309	16QAM	180	441	
109	36645	QPSK	192	442	
109	36645	16QAM	180	441	
110	36981	QPSK	192	442	
110	36981	16QAM	180	442	
111	37317	QPSK	192	443	
111	37317	16QAM	180	443	
112	37653	QPSK	192	443	
112	37653	16QAM	180	443	
113	37989	QPSK	192	444	
113	37989	16QAM	180	444	
114	38325	QPSK	192	445	
114	38325	16QAM	180	445	
115	38661	QPSK	192	445	
115	38661	16QAM	180	445	
116	38997	QPSK	192	446	
116	38997	16QAM	180	446	
117	39333	QPSK	192	446	
117	39333	16QAM	180	446	
118	39669	QPSK	192	447	
118	39669	16QAM	180	447	
119	40005	QPSK	192	447	
119	40005	16QAM	180	447	
120	40341	QPSK	192	448	
120	40341	16QAM	180	448	
121	40677	QPSK	192	449	
121	40677	16QAM	180	449	
122	41013	QPSK	192	449	
122	41013	16QAM	180	449	
123	41349	QPSK	192	450	
123	41349	16QAM	180	450	
124	41685	QPSK	192	450	
124	41685	16QAM	180	450	
125	42021	QPSK	192	451	
125	42021	16QAM	180	451	
126	42357	QPSK	192	451	
126	42357	16QAM	180	451	
127	42693	QPSK	192	452	
127	42693	16QAM	180	452	
128	43029	QPSK	192	452	
128	43029	16QAM	180	452	
129	43372	QPSK	192	453	
129	43372	16QAM	180	453	
130	43708	QPSK	192	454	
130	43708	16QAM	180	454	

131	44044	QPSK	192	454	
131	44044	16QAM	180	454	
132	44380	QPSK	192	455	
132	44380	16QAM	180	455	
133	44716	QPSK	192	455	
133	44716	16QAM	180	455	
134	45052	QPSK	192	456	
134	45052	16QAM	180	456	
135	45388	QPSK	192	456	
135	45388	16QAM	180	456	
136	45724	QPSK	192	457	
136	45724	16QAM	180	457	
137	46060	QPSK	192	457	
137	46060	16QAM	180	457	
138	46396	16QAM	180	458	
139	46732	16QAM	180	458	
140	47068	16QAM	180	459	
141	47404	16QAM	180	459	
142	47740	16QAM	180	460	
143	48076	16QAM	180	460	
144	48412	16QAM	180	460	
145	48748	16QAM	180	461	
146	49084	16QAM	180	461	
147	49420	16QAM	180	462	
148	49756	16QAM	180	462	
149	50092	16QAM	180	463	
150	50428	16QAM	180	463	
151	50764	16QAM	180	464	
152	51100	16QAM	180	464	
153	51436	16QAM	180	465	
154	51772	16QAM	180	465	
155	52108	16QAM	180	465	
156	52444	16QAM	180	466	
157	52780	16QAM	180	466	
158	53116	16QAM	180	467	
159	53452	16QAM	180	467	
160	53788	16QAM	180	468	
161	54124	16QAM	180	468	
162	54460	16QAM	180	469	
163	54796	16QAM	180	469	
164	55132	16QAM	180	469	
165	55468	16QAM	180	470	
166	55804	16QAM	180	470	
167	56140	16QAM	180	471	
168	56476	16QAM	180	471	
169	56812	16QAM	180	471	
170	57148	16QAM	180	472	
171	57484	16QAM	180	472	
172	57820	16QAM	180	473	
173	58156	16QAM	180	473	
174	58492	16QAM	180	473	
175	58828	16QAM	180	474	
176	59164	16QAM	180	474	

177	59500	16QAM	180	475	
178	59836	16QAM	180	475	
179	60172	16QAM	180	475	
180	60508	16QAM	180	476	
181	60844	16QAM	180	476	
182	61180	16QAM	180	476	
183	61516	16QAM	180	477	
184	61852	16QAM	180	477	
185	62188	16QAM	180	478	
186	62524	16QAM	180	478	
187	62860	16QAM	180	478	
188	63196	16QAM	180	479	
189	63532	16QAM	180	479	
190	63868	16QAM	180	479	
191	64204	16QAM	180	480	
192	64540	16QAM	180	480	
193	64876	16QAM	180	480	
194	65212	16QAM	180	481	
195	65548	16QAM	180	481	
196	65884	16QAM	180	481	
197	66220	16QAM	180	482	
198	66556	16QAM	180	482	
199	66892	16QAM	180	483	
200	67228	16QAM	180	483	
201	67564	16QAM	180	483	
202	67900	16QAM	180	484	
203	68236	16QAM	180	484	
204	68572	16QAM	180	484	
205	68908	16QAM	180	485	
206	69244	16QAM	180	485	
207	69580	16QAM	180	485	
208	69916	16QAM	180	486	
209	70252	16QAM	180	486	
210	70588	16QAM	180	486	
211	70924	16QAM	180	487	
212	71260	16QAM	180	487	
213	71596	16QAM	180	487	
214	71932	16QAM	180	487	
215	72268	16QAM	180	489	
216	72604	16QAM	180	489	
217	72940	16QAM	180	489	

Table 18.2.1.4.3.9: TFRC test points for UE category 9 for MAC-d PDU size=336, 3.84Mcps TDD

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	357	QPSK	126	4	
1	357	16QAM	126	2	
2	693	QPSK	171	8	
2	693	16QAM	171	4	
3	1029	QPSK	198	12	
3	1029	16QAM	198	6	
4	1365	QPSK	217	16	
4	1365	16QAM	217	8	
5	1701	QPSK	232	21	
5	1701	16QAM	232	10	
6	2037	QPSK	244	25	
6	2037	16QAM	244	12	
7	2373	QPSK	255	28	
7	2373	16QAM	255	14	
8	2709	QPSK	264	33	
8	2709	16QAM	264	16	
9	3045	QPSK	272	36	
9	3045	16QAM	272	18	
10	3381	QPSK	279	40	
10	3381	16QAM	279	20	
11	3717	QPSK	285	45	
11	3717	16QAM	285	22	
12	4053	QPSK	291	50	
12	4053	16QAM	291	25	
13	4389	QPSK	297	54	
13	4389	16QAM	297	27	
14	4725	QPSK	302	56	
14	4725	16QAM	302	28	
15	5061	QPSK	306	60	
15	5061	16QAM	306	30	
16	5397	QPSK	311	66	
16	5397	16QAM	311	33	
17	5733	QPSK	315	70	
17	5733	16QAM	315	35	
18	6069	QPSK	319	75	
18	6069	16QAM	319	36	
19	6405	QPSK	323	78	
19	6405	16QAM	323	39	
20	6741	QPSK	326	81	
20	6741	16QAM	326	40	
21	7077	QPSK	329	84	
21	7077	16QAM	329	42	
22	7413	QPSK	332	91	
22	7413	16QAM	332	45	
23	7749	QPSK	336	96	
23	7749	16QAM	336	48	
24	8085	QPSK	338	99	
24	8085	16QAM	338	49	

25	8421	QPSK	341	104	
25	8421	16QAM	341	52	
26	8757	QPSK	344	108	
26	8757	16QAM	344	54	
27	9093	QPSK	346	112	
27	9093	16QAM	346	56	
28	9429	QPSK	349	117	
28	9429	16QAM	349	56	
29	9765	QPSK	351	120	
29	9765	16QAM	351	60	
30	10101	QPSK	354	121	
30	10101	16QAM	354	60	
31	10437	QPSK	356	128	
31	10437	16QAM	356	64	
32	10773	QPSK	358	132	
32	10773	16QAM	358	66	
33	11109	QPSK	360	135	
33	11109	16QAM	360	66	
34	11445	QPSK	362	140	
34	11445	16QAM	362	70	
35	11781	QPSK	364	144	
35	11781	16QAM	364	72	
36	12117	QPSK	366	150	
36	12117	16QAM	366	75	
37	12453	QPSK	368	154	
37	12453	16QAM	368	77	
38	12789	QPSK	370	156	
38	12789	16QAM	370	78	
39	13125	QPSK	371	160	
39	13125	16QAM	371	80	
40	13461	QPSK	373	165	
40	13461	16QAM	373	81	
41	13797	QPSK	375	168	
41	13797	16QAM	375	84	
42	14133	QPSK	377	176	
42	14133	16QAM	377	88	
43	14469	QPSK	378	176	
43	14469	16QAM	378	88	
44	14805	QPSK	380	180	
44	14805	16QAM	380	91	
45	15141	QPSK	381	180	
45	15141	16QAM	381	91	
46	15477	QPSK	383	192	
46	15477	16QAM	383	96	
47	15813	QPSK	384	192	
47	15813	16QAM	384	96	
48	16149	QPSK	386	192	
48	16149	16QAM	386	100	
49	16485	QPSK	387	192	
49	16485	16QAM	387	100	
50	16821	QPSK	388	192	
50	16821	16QAM	388	100	
51	17157	QPSK	390	192	

51	17157	16QAM	390	105	
52	17493	QPSK	391	192	
52	17493	16QAM	391	108	
53	17829	QPSK	392	192	
53	17829	16QAM	392	108	
54	18165	QPSK	394	192	
54	18165	16QAM	394	112	
55	18501	QPSK	395	192	
55	18501	16QAM	395	112	
56	18837	QPSK	396	192	
56	18837	16QAM	396	112	
57	19173	QPSK	397	192	
57	19173	16QAM	397	117	
58	19509	QPSK	398	192	
58	19509	16QAM	398	120	
59	19845	QPSK	400	192	
59	19845	16QAM	400	121	
60	20181	QPSK	401	192	
60	20181	16QAM	401	121	
61	20517	QPSK	402	192	
61	20517	16QAM	402	126	
62	20853	QPSK	403	192	
62	20853	16QAM	403	128	
63	21189	QPSK	404	192	
63	21189	16QAM	404	130	
64	21525	QPSK	405	192	
64	21525	16QAM	405	132	
65	21861	QPSK	406	192	
65	21861	16QAM	406	132	
66	22197	QPSK	407	192	
66	22197	16QAM	407	135	
67	22533	QPSK	408	192	
67	22533	16QAM	408	135	
68	22869	QPSK	409	192	
68	22869	16QAM	409	140	
69	23205	QPSK	410	192	
69	23205	16QAM	410	143	
70	23541	QPSK	411	192	
70	23541	16QAM	411	144	
71	23877	QPSK	412	192	
71	23877	16QAM	412	144	
72	24213	QPSK	413	192	
72	24213	16QAM	413	144	
73	24549	QPSK	414	192	
73	24549	16QAM	414	150	
74	24885	QPSK	415	192	
74	24885	16QAM	415	154	
75	25221	QPSK	416	192	
75	25221	16QAM	416	156	
76	25557	QPSK	417	192	
76	25557	16QAM	417	156	
77	25893	QPSK	418	192	
77	25893	16QAM	418	160	

78	26229	QPSK	419	192	
78	26229	16QAM	419	160	
79	26565	QPSK	420	192	
79	26565	16QAM	420	165	
80	26901	QPSK	420	192	
80	26901	16QAM	420	165	
81	27237	QPSK	421	192	
81	27237	16QAM	421	168	
82	27573	QPSK	422	192	
82	27573	16QAM	422	168	
83	27909	QPSK	423	192	
83	27909	16QAM	423	168	
84	28245	QPSK	424	192	
84	28245	16QAM	424	168	
85	28581	QPSK	425	192	
85	28581	16QAM	425	176	
86	28917	QPSK	425	192	
86	28917	16QAM	425	176	
87	29253	QPSK	426	192	
87	29253	16QAM	426	180	
88	29589	QPSK	427	192	
88	29589	16QAM	427	180	
89	29925	QPSK	428	192	
89	29925	16QAM	428	180	
90	30261	QPSK	428	192	
90	30261	16QAM	428	180	
91	30597	QPSK	429	192	
91	30597	16QAM	429	180	
92	30933	QPSK	430	192	
92	30933	16QAM	430	180	
93	31269	QPSK	431	192	
93	31269	16QAM	431	192	
94	31605	QPSK	431	192	
94	31605	16QAM	431	192	
95	31941	QPSK	432	192	
95	31941	16QAM	432	192	
96	32277	QPSK	433	192	
96	32277	16QAM	433	192	
97	32613	QPSK	434	192	
97	32613	16QAM	434	192	
98	32949	QPSK	434	192	
98	32949	16QAM	434	192	
99	33285	QPSK	435	192	
99	33285	16QAM	435	192	
100	33621	QPSK	436	192	
100	33621	16QAM	436	192	
101	33957	QPSK	436	192	
101	33957	16QAM	436	192	
102	34293	QPSK	437	192	
102	34293	16QAM	437	192	
103	34629	QPSK	438	192	
103	34629	16QAM	438	192	
104	34965	QPSK	438	192	

104	34965	16QAM	438	192	
105	35301	QPSK	439	192	
105	35301	16QAM	439	192	
106	35637	QPSK	442	192	
106	35637	16QAM	440	192	
107	35973	QPSK	442	192	
107	35973	16QAM	440	192	
108	36309	QPSK	442	192	
108	36309	16QAM	441	192	
109	36645	QPSK	442	192	
109	36645	16QAM	441	192	
110	36981	QPSK	442	192	
110	36981	16QAM	442	192	
111	37317	QPSK	443	192	
111	37317	16QAM	443	192	
112	37653	QPSK	443	192	
112	37653	16QAM	443	192	
113	37989	QPSK	444	192	
113	37989	16QAM	444	192	
114	38325	QPSK	445	192	
114	38325	16QAM	445	192	
115	38661	QPSK	445	192	
115	38661	16QAM	445	192	
116	38997	QPSK	446	192	
116	38997	16QAM	446	192	
117	39333	QPSK	446	192	
117	39333	16QAM	446	192	
118	39669	QPSK	447	192	
118	39669	16QAM	447	192	
119	40005	QPSK	447	192	
119	40005	16QAM	447	192	
120	40341	QPSK	448	192	
120	40341	16QAM	448	192	
121	40677	QPSK	449	192	
121	40677	16QAM	449	192	
122	41013	QPSK	449	192	
122	41013	16QAM	449	192	
123	41349	QPSK	450	192	
123	41349	16QAM	450	192	
124	41685	QPSK	450	192	
124	41685	16QAM	450	192	
125	42021	QPSK	451	192	
125	42021	16QAM	451	192	
126	42357	QPSK	451	192	
126	42357	16QAM	451	192	
127	42693	QPSK	452	192	
127	42693	16QAM	452	192	
128	43029	QPSK	452	192	
128	43029	16QAM	452	192	
129	43372	QPSK	453	192	
129	43372	16QAM	453	192	
130	43708	QPSK	454	192	
130	43708	16QAM	454	192	

131	44044	QPSK	454	192	
131	44044	16QAM	454	192	
132	44380	QPSK	455	192	
132	44380	16QAM	455	192	
133	44716	QPSK	455	192	
133	44716	16QAM	455	192	
134	45052	QPSK	456	192	
134	45052	16QAM	456	192	
135	45388	QPSK	456	192	
135	45388	16QAM	456	192	
136	45724	QPSK	457	192	
136	45724	16QAM	457	192	
137	46060	QPSK	457	192	
137	46060	16QAM	457	192	
138	46396	16QAM	458	192	
139	46732	16QAM	458	192	
140	47068	16QAM	459	192	
141	47404	16QAM	459	192	
142	47740	16QAM	460	192	
143	48076	16QAM	460	192	
144	48412	16QAM	460	192	
145	48748	16QAM	461	192	
146	49084	16QAM	461	192	
147	49420	16QAM	462	192	
148	49756	16QAM	462	192	
149	50092	16QAM	463	192	
150	50428	16QAM	463	192	
151	50764	16QAM	464	192	
152	51100	16QAM	464	192	
153	51436	16QAM	465	192	
154	51772	16QAM	465	192	
155	52108	16QAM	465	192	
156	52444	16QAM	466	192	
157	52780	16QAM	466	192	
158	53116	16QAM	467	192	
159	53452	16QAM	467	192	
160	53788	16QAM	468	192	
161	54124	16QAM	468	192	
162	54460	16QAM	469	192	
163	54796	16QAM	469	192	
164	55132	16QAM	469	192	
165	55468	16QAM	470	192	
166	55804	16QAM	470	192	
167	56140	16QAM	471	192	
168	56476	16QAM	471	192	
169	56812	16QAM	471	192	
170	57148	16QAM	472	192	
171	57484	16QAM	472	192	
172	57820	16QAM	473	192	
173	58156	16QAM	473	192	
174	58492	16QAM	473	192	
175	58828	16QAM	474	192	
176	59164	16QAM	474	192	

177	59500	16QAM	475	192	
178	59836	16QAM	475	192	
179	60172	16QAM	475	192	
180	60508	16QAM	476	192	
181	60844	16QAM	476	192	
182	61180	16QAM	476	192	
183	61516	16QAM	477	192	
184	61852	16QAM	477	192	
185	62188	16QAM	478	192	
186	62524	16QAM	478	192	
187	62860	16QAM	478	192	
188	63196	16QAM	479	192	
189	63532	16QAM	479	192	
190	63868	16QAM	479	192	
191	64204	16QAM	480	192	
192	64540	16QAM	480	192	
193	64876	16QAM	480	192	
194	65212	16QAM	481	192	
195	65548	16QAM	481	192	
196	65884	16QAM	481	192	
197	66220	16QAM	482	192	
198	66556	16QAM	482	192	
199	66892	16QAM	483	192	
200	67228	16QAM	483	192	
201	67564	16QAM	483	192	
202	67900	16QAM	484	192	
203	68236	16QAM	484	192	
204	68572	16QAM	484	192	
205	68908	16QAM	485	192	
206	69244	16QAM	485	192	
207	69580	16QAM	485	192	
208	69916	16QAM	486	192	
209	70252	16QAM	486	192	
210	70588	16QAM	486	192	
211	70924	16QAM	487	192	
212	71260	16QAM	487	192	
213	71596	16QAM	487	192	
214	71932	16QAM	487	192	
215	72268	16QAM	489	192	
216	72604	16QAM	489	192	
217	72940	16QAM	489	192	
218	73276	16QAM	489	192	
219	73612	16QAM	489	192	
220	73948	16QAM	489	192	
221	74284	16QAM	490	192	
222	74620	16QAM	490	192	
223	74956	16QAM	490	192	
224	75292	16QAM	491	192	
225	75628	16QAM	491	192	
226	75964	16QAM	491	192	
227	76300	16QAM	492	192	
228	76636	16QAM	492	192	
229	76972	16QAM	492	192	

230	77308	16QAM	492	192	
231	77644	16QAM	494	192	
232	77980	16QAM	494	192	
233	78316	16QAM	494	192	
234	78652	16QAM	494	192	
235	78988	16QAM	494	192	
236	79324	16QAM	494	192	
237	79660	16QAM	494	192	
238	79996	16QAM	495	192	
239	80332	16QAM	495	192	
240	80668	16QAM	495	192	
241	81004	16QAM	497	192	
242	81340	16QAM	497	192	
243	81676	16QAM	497	192	
244	82012	16QAM	497	192	
245	82348	16QAM	497	192	
246	82684	16QAM	497	192	
247	83020	16QAM	497	192	
248	83356	16QAM	498	192	
249	83692	16QAM	498	192	
250	84028	16QAM	498	192	
251	84364	16QAM	498	192	
252	84700	16QAM	499	192	
253	85036	16QAM	499	192	
254	85372	16QAM	499	192	
255	85708	16QAM	499	192	
256	86044	16QAM	500	192	
257	86387	16QAM	500	192	
258	86723	16QAM	500	192	
259	87059	16QAM	501	192	
260	87395	16QAM	501	192	
261	87731	16QAM	501	192	
262	88067	16QAM	501	192	
263	88403	16QAM	502	192	
264	88739	16QAM	502	192	
265	89075	16QAM	502	192	
266	89411	16QAM	502	192	
267	89747	16QAM	503	192	
268	90083	16QAM	503	192	
269	90419	16QAM	503	192	
270	90755	16QAM	503	192	
271	91091	16QAM	504	192	
272	91427	16QAM	504	192	
273	91763	16QAM	504	192	
274	92099	16QAM	504	192	
275	92435	16QAM	505	192	
276	92771	16QAM	505	192	
277	93107	16QAM	505	192	
278	93443	16QAM	505	192	

18.2.1.4.4 TFRC test points for MAC-d PDU size=656

Table 18.2.1.4.4.1: TFRC test points for UE category 1 for MAC-d PDU size=656, 3.84Mcps TDD

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	677	QPSK	8	169	
1	677	16QAM	4	169	
2	1333	QPSK	16	215	
2	1333	16QAM	8	215	
3	1989	QPSK	24	243	
3	1989	16QAM	12	243	
4	2645	QPSK	32	262	
4	2645	16QAM	16	262	
5	3301	QPSK	32	277	
5	3301	16QAM	20	277	
6	3957	QPSK	32	290	
6	3957	16QAM	24	290	
7	4613	QPSK	32	300	
7	4613	16QAM	28	300	
8	5269	QPSK	32	309	
8	5269	16QAM	32	309	
9	5925	QPSK	32	317	
9	5925	16QAM	32	317	
10	6581	QPSK	32	324	
10	6581	16QAM	32	324	
11	7237	QPSK	32	331	
11	7237	16QAM	32	331	
12	7893	16QAM	32	337	
13	8549	16QAM	32	342	
14	9205	16QAM	32	347	
15	9861	16QAM	32	352	
16	10517	16QAM	32	356	
17	11173	16QAM	32	360	
18	11829	16QAM	32	364	

Table 18.2.1.4.4.2: TFRC test points for UE category 2 for MAC-d PDU size=656, 3.84Mcps TDD

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	677	QPSK	8	169	
1	677	16QAM	4	169	
2	1333	QPSK	16	215	
2	1333	16QAM	8	215	
3	1989	QPSK	24	243	
3	1989	16QAM	12	243	
4	2645	QPSK	32	262	
4	2645	16QAM	16	262	
5	3301	QPSK	40	277	
5	3301	16QAM	20	277	
6	3957	QPSK	49	290	
6	3957	16QAM	24	290	
7	4613	QPSK	56	300	
7	4613	16QAM	28	300	
8	5269	QPSK	65	309	
8	5269	16QAM	32	309	
9	5925	QPSK	72	317	
9	5925	16QAM	36	317	
10	6581	QPSK	72	324	
10	6581	16QAM	36	324	
11	7237	QPSK	72	331	
11	7237	16QAM	36	331	
12	7893	QPSK	72	337	
12	7893	16QAM	36	337	
13	8549	QPSK	72	342	
13	8549	16QAM	36	342	
14	9205	QPSK	72	347	
14	9205	16QAM	36	347	
15	9861	QPSK	72	352	
15	9861	16QAM	36	352	
16	10517	QPSK	72	356	
16	10517	16QAM	36	356	
17	11173	QPSK	72	360	
17	11173	16QAM	36	360	
18	11829	QPSK	72	364	
18	11829	16QAM	36	364	

Table 18.2.1.4.4.3: TFRC test points for UE category 3 for MAC-d PDU size=656, 3.84Mcps TDD

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	677	QPSK	8	169	
1	677	16QAM	4	169	
2	1333	QPSK	16	215	
2	1333	16QAM	8	215	
3	1989	QPSK	24	243	
3	1989	16QAM	12	243	
4	2645	QPSK	32	262	
4	2645	16QAM	16	262	
5	3301	QPSK	40	277	
5	3301	16QAM	20	277	
6	3957	QPSK	48	290	
6	3957	16QAM	24	290	
7	4613	QPSK	56	300	
7	4613	16QAM	28	300	
8	5269	QPSK	64	309	
8	5269	16QAM	32	309	
9	5925	QPSK	64	317	
9	5925	16QAM	36	317	
10	6581	QPSK	64	324	
10	6581	16QAM	40	324	
11	7237	QPSK	64	331	
11	7237	16QAM	44	331	
12	7893	QPSK	64	337	
12	7893	16QAM	48	337	
13	8549	QPSK	64	342	
13	8549	16QAM	52	342	
14	9205	QPSK	64	347	
14	9205	16QAM	56	347	
15	9861	QPSK	64	352	
15	9861	16QAM	60	352	
16	10517	QPSK	64	356	
16	10517	16QAM	64	356	
17	11173	QPSK	64	360	
17	11173	16QAM	64	360	
18	11829	QPSK	64	364	
18	11829	16QAM	64	364	
19	12485	QPSK	64	368	
19	12485	16QAM	64	368	
20	13141	QPSK	64	372	
20	13141	16QAM	64	372	
21	13797	QPSK	64	375	
21	13797	16QAM	64	375	
22	14453	QPSK	64	378	
22	14453	16QAM	64	378	
23	15109	QPSK	64	381	
23	15109	16QAM	64	381	
24	15765	16QAM	64	384	
25	16421	16QAM	64	387	

26	17077	16QAM	64	389	
27	17733	16QAM	64	392	
28	18389	16QAM	64	394	
29	19045	16QAM	64	397	
30	19701	16QAM	64	399	
31	20357	16QAM	64	401	
32	21013	16QAM	64	404	
33	21669	16QAM	64	406	
34	22325	16QAM	64	408	
35	22981	16QAM	64	410	
36	23637	16QAM	64	412	

Table 18.2.1.4.4.4: TFRC test points for UE category 4 for MAC-d PDU size=656, 3.84Mcps TDD

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	677	QPSK	8	169	
1	677	16QAM	4	169	
2	1333	QPSK	16	215	
2	1333	16QAM	8	215	
3	1989	QPSK	24	243	
3	1989	16QAM	12	243	
4	2645	QPSK	32	262	
4	2645	16QAM	16	262	
5	3301	QPSK	40	277	
5	3301	16QAM	20	277	
6	3957	QPSK	49	290	
6	3957	16QAM	24	290	
7	4613	QPSK	56	300	
7	4613	16QAM	28	300	
8	5269	QPSK	65	309	
8	5269	16QAM	32	309	
9	5925	QPSK	72	317	
9	5925	16QAM	36	317	
10	6581	QPSK	81	324	
10	6581	16QAM	40	324	
11	7237	QPSK	88	331	
11	7237	16QAM	44	331	
12	7893	QPSK	98	337	
12	7893	16QAM	49	337	
13	8549	QPSK	105	342	
13	8549	16QAM	52	342	
14	9205	QPSK	112	347	
14	9205	16QAM	56	347	
15	9861	QPSK	121	352	
15	9861	16QAM	60	352	
16	10517	QPSK	128	356	
16	10517	16QAM	64	356	
17	11173	QPSK	135	360	
17	11173	16QAM	66	360	
18	11829	QPSK	144	364	
18	11829	16QAM	72	364	
19	12485	QPSK	144	368	
19	12485	16QAM	72	368	
20	13141	QPSK	144	372	
20	13141	16QAM	72	372	
21	13797	QPSK	144	375	
21	13797	16QAM	72	375	
22	14453	QPSK	144	378	
22	14453	16QAM	72	378	
23	15109	QPSK	144	381	
23	15109	16QAM	72	381	
24	15765	QPSK	144	384	
24	15765	16QAM	72	384	

25	16421	QPSK	144	387	
25	16421	16QAM	72	387	
26	17077	QPSK	144	389	
26	17077	16QAM	72	389	
27	17733	QPSK	144	392	
27	17733	16QAM	72	392	
28	18389	QPSK	144	394	
28	18389	16QAM	72	394	
29	19045	QPSK	144	397	
29	19045	16QAM	72	397	
30	19701	QPSK	144	399	
30	19701	16QAM	72	399	
31	20357	QPSK	144	401	
31	20357	16QAM	72	401	
32	21013	QPSK	144	404	
32	21013	16QAM	72	404	
33	21669	QPSK	144	406	
33	21669	16QAM	72	406	
34	22325	QPSK	144	408	
34	22325	16QAM	72	408	
35	22981	QPSK	144	410	
35	22981	16QAM	72	410	
36	23637	QPSK	144	412	
36	23637	16QAM	72	412	

Table 18.2.1.4.4.5: TFRC test points for UE category 5 for MAC-d PDU size=656, 3.84Mcps TDD

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	677	QPSK	8	169	
1	677	16QAM	4	169	
2	1333	QPSK	16	215	
2	1333	16QAM	8	215	
3	1989	QPSK	24	243	
3	1989	16QAM	12	243	
4	2645	QPSK	32	262	
4	2645	16QAM	16	262	
5	3301	QPSK	40	277	
5	3301	16QAM	20	277	
6	3957	QPSK	48	290	
6	3957	16QAM	24	290	
7	4613	QPSK	56	300	
7	4613	16QAM	28	300	
8	5269	QPSK	65	309	
8	5269	16QAM	32	309	
9	5925	QPSK	72	317	
9	5925	16QAM	36	317	
10	6581	QPSK	80	324	
10	6581	16QAM	40	324	
11	7237	QPSK	84	331	
11	7237	16QAM	44	331	
12	7893	QPSK	96	337	
12	7893	16QAM	48	337	
13	8549	QPSK	96	342	
13	8549	16QAM	52	342	
14	9205	QPSK	96	347	
14	9205	16QAM	56	347	
15	9861	QPSK	96	352	
15	9861	16QAM	60	352	
16	10517	QPSK	96	356	
16	10517	16QAM	64	356	
17	11173	QPSK	96	360	
17	11173	16QAM	66	360	
18	11829	QPSK	96	364	
18	11829	16QAM	72	364	
19	12485	QPSK	96	368	
19	12485	16QAM	75	368	
20	13141	QPSK	96	372	
20	13141	16QAM	80	372	
21	13797	QPSK	96	375	
21	13797	16QAM	84	375	
22	14453	QPSK	96	378	
22	14453	16QAM	84	378	
23	15109	QPSK	96	381	
23	15109	16QAM	90	381	
24	15765	QPSK	96	384	
24	15765	16QAM	96	384	

25	16421	QPSK	96	387	
25	16421	16QAM	96	387	
26	17077	QPSK	96	389	
26	17077	16QAM	96	389	
27	17733	QPSK	96	392	
27	17733	16QAM	96	392	
28	18389	QPSK	96	395	
28	18389	16QAM	96	394	
29	19045	QPSK	96	397	
29	19045	16QAM	96	397	
30	19701	QPSK	96	399	
30	19701	16QAM	96	399	
31	20357	QPSK	96	401	
31	20357	16QAM	96	401	
32	21013	QPSK	96	404	
32	21013	16QAM	96	404	
33	21669	QPSK	96	406	
33	21669	16QAM	96	406	
34	22325	QPSK	96	408	
34	22325	16QAM	96	408	
35	22981	QPSK	96	410	
35	22981	16QAM	96	410	
36	23637	16QAM	96	412	
37	24293	16QAM	96	413	
38	24949	16QAM	96	415	
39	25605	16QAM	96	417	
40	26261	16QAM	96	419	
41	26917	16QAM	96	420	
42	27573	16QAM	96	422	
43	28229	16QAM	96	424	
44	28885	16QAM	96	425	
45	29541	16QAM	96	427	
46	30197	16QAM	96	428	
47	30853	16QAM	96	430	
48	31509	16QAM	96	431	
49	32165	16QAM	96	433	
50	32821	16QAM	96	434	
51	33477	16QAM	96	435	
52	34133	16QAM	96	437	
53	34789	16QAM	96	438	
54	35445	16QAM	96	439	

Table 18.2.1.4.4.6: TFRC test points for UE category 6 for MAC-d PDU size=656, 3.84Mcps TDD

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	677	QPSK	8	169	
1	677	16QAM	4	169	
2	1333	QPSK	16	215	
2	1333	16QAM	8	215	
3	1989	QPSK	24	243	
3	1989	16QAM	12	243	
4	2645	QPSK	32	262	
4	2645	16QAM	16	262	
5	3301	QPSK	40	277	
5	3301	16QAM	20	277	
6	3957	QPSK	49	290	
6	3957	16QAM	24	290	
7	4613	QPSK	56	300	
7	4613	16QAM	28	300	
8	5269	QPSK	65	309	
8	5269	16QAM	32	309	
9	5925	QPSK	72	317	
9	5925	16QAM	36	317	
10	6581	QPSK	81	324	
10	6581	16QAM	40	324	
11	7237	QPSK	88	331	
11	7237	16QAM	44	331	
12	7893	QPSK	98	337	
12	7893	16QAM	49	337	
13	8549	QPSK	105	342	
13	8549	16QAM	52	342	
14	9205	QPSK	112	347	
14	9205	16QAM	56	347	
15	9861	QPSK	121	352	
15	9861	16QAM	60	352	
16	10517	QPSK	128	356	
16	10517	16QAM	64	356	
17	11173	QPSK	135	360	
17	11173	16QAM	66	360	
18	11829	QPSK	144	364	
18	11829	16QAM	72	364	
19	12485	QPSK	154	368	
19	12485	16QAM	77	368	
20	13141	QPSK	160	372	
20	13141	16QAM	81	372	
21	13797	QPSK	168	375	
21	13797	16QAM	84	375	
22	14453	QPSK	176	378	
22	14453	16QAM	88	378	
23	15109	QPSK	180	381	
23	15109	16QAM	91	381	
24	15765	QPSK	192	384	
24	15765	16QAM	96	384	

25	16421	QPSK	192	387	
25	16421	16QAM	100	387	
26	17077	QPSK	192	389	
26	17077	16QAM	105	389	
27	17733	QPSK	192	392	
27	17733	16QAM	108	392	
28	18389	QPSK	192	394	
28	18389	16QAM	108	394	
29	19045	QPSK	192	397	
29	19045	16QAM	108	397	
30	19701	QPSK	192	399	
30	19701	16QAM	108	399	
31	20357	QPSK	192	401	
31	20357	16QAM	108	401	
32	21013	QPSK	192	404	
32	21013	16QAM	108	404	
33	21669	QPSK	192	406	
33	21669	16QAM	108	406	
34	22325	QPSK	192	408	
34	22325	16QAM	108	408	
35	22981	QPSK	192	410	
35	22981	16QAM	108	410	
36	23637	QPSK	192	412	
36	23637	16QAM	108	412	
37	24293	QPSK	192	413	
37	24293	16QAM	108	413	
38	24949	QPSK	192	415	
38	24949	16QAM	108	415	
39	25605	QPSK	192	417	
39	25605	16QAM	108	417	
40	26261	QPSK	192	419	
40	26261	16QAM	108	419	
41	26917	QPSK	192	420	
41	26917	16QAM	108	420	
42	27573	QPSK	192	422	
42	27573	16QAM	108	422	
43	28229	QPSK	192	424	
43	28229	16QAM	108	424	
44	28885	QPSK	192	425	
44	28885	16QAM	108	425	
45	29541	QPSK	192	427	
45	29541	16QAM	108	427	
46	30197	QPSK	192	428	
46	30197	16QAM	108	428	
47	30853	QPSK	192	430	
47	30853	16QAM	108	430	
48	31509	QPSK	192	431	
48	31509	16QAM	108	431	
49	32165	QPSK	192	433	
49	32165	16QAM	108	433	
50	32821	QPSK	192	434	
50	32821	16QAM	108	434	
51	33477	QPSK	192	435	

51	33477	16QAM	108	435	
52	34133	QPSK	192	437	
52	34133	16QAM	108	437	
53	34789	QPSK	192	438	
53	34789	16QAM	108	438	
54	35445	QPSK	192	439	
54	35445	16QAM	108	439	

Table 18.2.1.4.4.7: TFRC test points for UE category 7 for MAC-d PDU size=656, 3.84Mcps TDD

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	677	QPSK	8	169	
1	677	16QAM	4	169	
2	1333	QPSK	16	215	
2	1333	16QAM	8	215	
3	1989	QPSK	24	243	
3	1989	16QAM	12	243	
4	2645	QPSK	32	262	
4	2645	16QAM	16	262	
5	3301	QPSK	40	277	
5	3301	16QAM	20	277	
6	3957	QPSK	49	290	
6	3957	16QAM	24	290	
7	4613	QPSK	56	300	
7	4613	16QAM	28	300	
8	5269	QPSK	65	309	
8	5269	16QAM	32	309	
9	5925	QPSK	72	317	
9	5925	16QAM	36	317	
10	6581	QPSK	81	324	
10	6581	16QAM	40	324	
11	7237	QPSK	88	331	
11	7237	16QAM	44	331	
12	7893	QPSK	98	337	
12	7893	16QAM	49	337	
13	8549	QPSK	105	342	
13	8549	16QAM	52	342	
14	9205	QPSK	112	347	
14	9205	16QAM	56	347	
15	9861	QPSK	121	352	
15	9861	16QAM	60	352	
16	10517	QPSK	128	356	
16	10517	16QAM	64	356	
17	11173	QPSK	135	360	
17	11173	16QAM	66	360	
18	11829	QPSK	144	364	
18	11829	16QAM	72	364	
19	12485	QPSK	154	368	
19	12485	16QAM	77	368	
20	13141	QPSK	160	372	
20	13141	16QAM	81	372	
21	13797	QPSK	168	375	
21	13797	16QAM	84	375	
22	14453	QPSK	176	378	
22	14453	16QAM	88	378	
23	15109	QPSK	180	381	
23	15109	16QAM	91	381	
24	15765	QPSK	192	384	
24	15765	16QAM	96	384	
25	16421	QPSK	192	387	
25	16421	16QAM	100	387	

26	17077	QPSK	192	389	
26	17077	16QAM	105	389	
27	17733	QPSK	192	392	
27	17733	16QAM	108	392	
28	18389	QPSK	192	394	
28	18389	16QAM	112	394	
29	19045	QPSK	192	397	
29	19045	16QAM	117	397	
30	19701	QPSK	192	399	
30	19701	16QAM	121	399	
31	20357	QPSK	192	401	
31	20357	16QAM	121	401	
32	21013	QPSK	192	404	
32	21013	16QAM	130	404	
33	21669	QPSK	192	406	
33	21669	16QAM	132	406	
34	22325	QPSK	192	408	
34	22325	16QAM	135	408	
35	22981	QPSK	192	410	
35	22981	16QAM	143	410	
36	23637	QPSK	192	412	
36	23637	16QAM	144	412	
37	24293	QPSK	192	413	
37	24293	16QAM	144	413	
38	24949	QPSK	192	415	
38	24949	16QAM	144	415	
39	25605	QPSK	192	417	
39	25605	16QAM	144	417	
40	26261	QPSK	192	419	
40	26261	16QAM	144	419	
41	26917	QPSK	192	420	
41	26917	16QAM	144	420	
42	27573	QPSK	192	422	
42	27573	16QAM	144	422	
43	28229	QPSK	192	424	
43	28229	16QAM	144	424	
44	28885	QPSK	192	425	
44	28885	16QAM	144	425	
45	29541	QPSK	192	427	
45	29541	16QAM	144	427	
46	30197	QPSK	192	428	
46	30197	16QAM	144	428	
47	30853	QPSK	192	430	
47	30853	16QAM	144	430	
48	31509	QPSK	192	431	
48	31509	16QAM	144	431	
49	32165	QPSK	192	433	
49	32165	16QAM	144	433	
50	32821	QPSK	192	434	
50	32821	16QAM	144	434	
51	33477	QPSK	192	435	
51	33477	16QAM	144	435	
52	34133	QPSK	192	437	
52	34133	16QAM	144	437	
53	34789	QPSK	192	438	

53	34789	16QAM	144	438	
54	35445	QPSK	192	439	
54	35445	16QAM	144	439	
55	36101	QPSK	192	442	
55	36101	16QAM	144	440	
56	36757	QPSK	192	442	
56	36757	16QAM	144	442	
57	37413	QPSK	192	443	
57	37413	16QAM	144	443	
58	38069	QPSK	192	444	
58	38069	16QAM	144	444	
59	38725	QPSK	192	445	
59	38725	16QAM	144	445	
60	39381	QPSK	192	446	
60	39381	16QAM	144	446	
61	40037	QPSK	192	448	
61	40037	16QAM	144	448	
62	40693	QPSK	192	449	
62	40693	16QAM	144	449	
63	41349	QPSK	192	450	
63	41349	16QAM	144	450	
64	42005	QPSK	192	451	
64	42005	16QAM	144	451	
65	42661	QPSK	192	452	
65	42661	16QAM	144	452	
66	43317	QPSK	192	453	
66	43317	16QAM	144	453	
67	43973	QPSK	192	454	
67	43973	16QAM	144	454	
68	44629	QPSK	192	455	
68	44629	16QAM	144	455	
69	45285	QPSK	192	456	
69	45285	16QAM	144	456	
70	45941	QPSK	192	457	
70	45941	16QAM	144	457	
71	46597	16QAM	144	458	
72	47253	16QAM	144	459	
73	47909	16QAM	144	460	
74	48565	16QAM	144	461	
75	49221	16QAM	144	462	
76	49877	16QAM	144	463	
77	50533	16QAM	144	463	
78	51189	16QAM	144	464	
79	51845	16QAM	144	465	
80	52501	16QAM	144	466	

Table 18.2.1.4.4.8: TFRC test points for UE category 8 for MAC-d PDU size=656, 3.84Mcps TDD

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	677	QPSK	8	169	
1	677	16QAM	4	169	
2	1333	QPSK	16	215	
2	1333	16QAM	8	215	
3	1989	QPSK	24	243	
3	1989	16QAM	12	243	
4	2645	QPSK	32	262	
4	2645	16QAM	16	262	
5	3301	QPSK	40	277	
5	3301	16QAM	20	277	
6	3957	QPSK	49	290	
6	3957	16QAM	24	290	
7	4613	QPSK	56	300	
7	4613	16QAM	28	300	
8	5269	QPSK	65	309	
8	5269	16QAM	32	309	
9	5925	QPSK	72	317	
9	5925	16QAM	36	317	
10	6581	QPSK	81	324	
10	6581	16QAM	40	324	
11	7237	QPSK	88	331	
11	7237	16QAM	44	331	
12	7893	QPSK	98	337	
12	7893	16QAM	49	337	
13	8549	QPSK	105	342	
13	8549	16QAM	52	342	
14	9205	QPSK	112	347	
14	9205	16QAM	56	347	
15	9861	QPSK	121	352	
15	9861	16QAM	60	352	
16	10517	QPSK	128	356	
16	10517	16QAM	64	356	
17	11173	QPSK	135	360	
17	11173	16QAM	66	360	
18	11829	QPSK	144	364	
18	11829	16QAM	72	364	
19	12485	QPSK	154	368	
19	12485	16QAM	77	368	
20	13141	QPSK	160	372	
20	13141	16QAM	81	372	
21	13797	QPSK	168	375	
21	13797	16QAM	84	375	
22	14453	QPSK	176	378	
22	14453	16QAM	88	378	
23	15109	QPSK	180	381	
23	15109	16QAM	91	381	
24	15765	QPSK	192	384	
24	15765	16QAM	96	384	
25	16421	QPSK	192	387	
25	16421	16QAM	100	387	

26	17077	QPSK	192	389	
26	17077	16QAM	105	389	
27	17733	QPSK	192	392	
27	17733	16QAM	108	392	
28	18389	QPSK	192	394	
28	18389	16QAM	112	394	
29	19045	QPSK	192	397	
29	19045	16QAM	117	397	
30	19701	QPSK	192	399	
30	19701	16QAM	121	399	
31	20357	QPSK	192	401	
31	20357	16QAM	121	401	
32	21013	QPSK	192	404	
32	21013	16QAM	130	404	
33	21669	QPSK	192	406	
33	21669	16QAM	132	406	
34	22325	QPSK	192	408	
34	22325	16QAM	135	408	
35	22981	QPSK	192	410	
35	22981	16QAM	143	410	
36	23637	QPSK	192	412	
36	23637	16QAM	144	412	
37	24293	QPSK	192	413	
37	24293	16QAM	144	413	
38	24949	QPSK	192	415	
38	24949	16QAM	154	415	
39	25605	QPSK	192	417	
39	25605	16QAM	156	417	
40	26261	QPSK	192	419	
40	26261	16QAM	160	419	
41	26917	QPSK	192	420	
41	26917	16QAM	165	420	
42	27573	QPSK	192	422	
42	27573	16QAM	168	422	
43	28229	QPSK	192	424	
43	28229	16QAM	168	424	
44	28885	QPSK	192	425	
44	28885	16QAM	176	425	
45	29541	QPSK	192	427	
45	29541	16QAM	180	427	
46	30197	QPSK	192	428	
46	30197	16QAM	180	428	
47	30853	QPSK	192	430	
47	30853	16QAM	180	430	
48	31509	QPSK	192	431	
48	31509	16QAM	180	431	
49	32165	QPSK	192	433	
49	32165	16QAM	180	433	
50	32821	QPSK	192	434	
50	32821	16QAM	180	434	
51	33477	QPSK	192	435	
51	33477	16QAM	180	435	
52	34133	QPSK	192	437	
52	34133	16QAM	180	437	
53	34789	QPSK	192	438	

53	34789	16QAM	180	438	
54	35445	QPSK	192	439	
54	35445	16QAM	180	439	
55	36101	QPSK	192	442	
55	36101	16QAM	180	440	
56	36757	QPSK	192	442	
56	36757	16QAM	180	442	
57	37413	QPSK	192	443	
57	37413	16QAM	180	443	
58	38069	QPSK	192	444	
58	38069	16QAM	180	444	
59	38725	QPSK	192	445	
59	38725	16QAM	180	445	
60	39381	QPSK	192	446	
60	39381	16QAM	180	446	
61	40037	QPSK	192	448	
61	40037	16QAM	180	448	
62	40693	QPSK	192	449	
62	40693	16QAM	180	449	
63	41349	QPSK	192	450	
63	41349	16QAM	180	450	
64	42005	QPSK	192	451	
64	42005	16QAM	180	451	
65	42661	QPSK	192	452	
65	42661	16QAM	180	452	
66	43317	QPSK	192	453	
66	43317	16QAM	180	453	
67	43973	QPSK	192	454	
67	43973	16QAM	180	454	
68	44629	QPSK	192	455	
68	44629	16QAM	180	455	
69	45285	QPSK	192	456	
69	45285	16QAM	180	456	
70	45941	QPSK	192	457	
70	45941	16QAM	180	457	
71	46597	16QAM	180	458	
72	47253	16QAM	180	459	
73	47909	16QAM	180	460	
74	48565	16QAM	180	461	
75	49221	16QAM	180	462	
76	49877	16QAM	180	463	
77	50533	16QAM	180	463	
78	51189	16QAM	180	464	
79	51845	16QAM	180	465	
80	52501	16QAM	180	466	
81	53157	16QAM	180	467	
82	53813	16QAM	180	468	
83	54469	16QAM	180	469	
84	55125	16QAM	180	469	
85	55781	16QAM	180	470	
86	56437	16QAM	180	471	
87	57093	16QAM	180	472	
88	57749	16QAM	180	473	
89	58405	16QAM	180	473	
90	59061	16QAM	180	474	

91	59717	16QAM	180	475	
92	60373	16QAM	180	476	
93	61029	16QAM	180	476	
94	61685	16QAM	180	477	
95	62341	16QAM	180	478	
96	62997	16QAM	180	478	
97	63653	16QAM	180	479	
98	64309	16QAM	180	480	
99	64965	16QAM	180	481	
100	65621	16QAM	180	481	
101	66277	16QAM	180	482	
102	66933	16QAM	180	483	
103	67589	16QAM	180	483	
104	68245	16QAM	180	484	
105	68901	16QAM	180	485	
106	69557	16QAM	180	485	
107	70213	16QAM	180	486	
108	70869	16QAM	180	486	
109	71525	16QAM	180	487	
110	72181	16QAM	180	489	
111	72837	16QAM	180	489	

Table 18.2.1.4.4.9: TFRC test points for UE category 9 for MAC-d PDU size=656, 3.84Mcps TDD

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	677	QPSK	8	169	
1	677	16QAM	4	169	
2	1333	QPSK	16	215	
2	1333	16QAM	8	215	
3	1989	QPSK	24	243	
3	1989	16QAM	12	243	
4	2645	QPSK	32	262	
4	2645	16QAM	16	262	
5	3301	QPSK	40	277	
5	3301	16QAM	20	277	
6	3957	QPSK	49	290	
6	3957	16QAM	24	290	
7	4613	QPSK	56	300	
7	4613	16QAM	28	300	
8	5269	QPSK	65	309	
8	5269	16QAM	32	309	
9	5925	QPSK	72	317	
9	5925	16QAM	36	317	
10	6581	QPSK	81	324	
10	6581	16QAM	40	324	
11	7237	QPSK	88	331	
11	7237	16QAM	44	331	
12	7893	QPSK	98	337	
12	7893	16QAM	49	337	
13	8549	QPSK	105	342	
13	8549	16QAM	52	342	
14	9205	QPSK	112	347	
14	9205	16QAM	56	347	
15	9861	QPSK	121	352	
15	9861	16QAM	60	352	
16	10517	QPSK	128	356	
16	10517	16QAM	64	356	
17	11173	QPSK	135	360	
17	11173	16QAM	66	360	
18	11829	QPSK	144	364	
18	11829	16QAM	72	364	
19	12485	QPSK	154	368	
19	12485	16QAM	77	368	
20	13141	QPSK	160	372	
20	13141	16QAM	81	372	
21	13797	QPSK	168	375	
21	13797	16QAM	84	375	
22	14453	QPSK	176	378	
22	14453	16QAM	88	378	
23	15109	QPSK	180	381	
23	15109	16QAM	91	381	
24	15765	QPSK	192	384	
24	15765	16QAM	96	384	
25	16421	QPSK	192	387	
25	16421	16QAM	100	387	

26	17077	QPSK	192	389	
26	17077	16QAM	105	389	
27	17733	QPSK	192	392	
27	17733	16QAM	108	392	
28	18389	QPSK	192	394	
28	18389	16QAM	112	394	
29	19045	QPSK	192	397	
29	19045	16QAM	117	397	
30	19701	QPSK	192	399	
30	19701	16QAM	121	399	
31	20357	QPSK	192	401	
31	20357	16QAM	121	401	
32	21013	QPSK	192	404	
32	21013	16QAM	130	404	
33	21669	QPSK	192	406	
33	21669	16QAM	132	406	
34	22325	QPSK	192	408	
34	22325	16QAM	135	408	
35	22981	QPSK	192	410	
35	22981	16QAM	143	410	
36	23637	QPSK	192	412	
36	23637	16QAM	144	412	
37	24293	QPSK	192	413	
37	24293	16QAM	144	413	
38	24949	QPSK	192	415	
38	24949	16QAM	154	415	
39	25605	QPSK	192	417	
39	25605	16QAM	156	417	
40	26261	QPSK	192	419	
40	26261	16QAM	160	419	
41	26917	QPSK	192	420	
41	26917	16QAM	165	420	
42	27573	QPSK	192	422	
42	27573	16QAM	168	422	
43	28229	QPSK	192	424	
43	28229	16QAM	168	424	
44	28885	QPSK	192	425	
44	28885	16QAM	176	425	
45	29541	QPSK	192	427	
45	29541	16QAM	180	427	
46	30197	QPSK	192	428	
46	30197	16QAM	180	428	
47	30853	QPSK	192	430	
47	30853	16QAM	180	430	
48	31509	QPSK	192	431	
48	31509	16QAM	192	431	
49	32165	QPSK	192	433	
49	32165	16QAM	192	433	
50	32821	QPSK	192	434	
50	32821	16QAM	192	434	
51	33477	QPSK	192	435	
51	33477	16QAM	192	435	
52	34133	QPSK	192	437	
52	34133	16QAM	192	437	
53	34789	QPSK	192	438	

53	34789	16QAM	192	438	
54	35445	QPSK	192	439	
54	35445	16QAM	192	439	
55	36101	QPSK	192	442	
55	36101	16QAM	192	440	
56	36757	QPSK	192	442	
56	36757	16QAM	192	442	
57	37413	QPSK	192	443	
57	37413	16QAM	192	443	
58	38069	QPSK	192	444	
58	38069	16QAM	192	444	
59	38725	QPSK	192	445	
59	38725	16QAM	192	445	
60	39381	QPSK	192	446	
60	39381	16QAM	192	446	
61	40037	QPSK	192	448	
61	40037	16QAM	192	448	
62	40693	QPSK	192	449	
62	40693	16QAM	192	449	
63	41349	QPSK	192	450	
63	41349	16QAM	192	450	
64	42005	QPSK	192	451	
64	42005	16QAM	192	451	
65	42661	QPSK	192	452	
65	42661	16QAM	192	452	
66	43317	QPSK	192	453	
66	43317	16QAM	192	453	
67	43973	QPSK	192	454	
67	43973	16QAM	192	454	
68	44629	QPSK	192	455	
68	44629	16QAM	192	455	
69	45285	QPSK	192	456	
69	45285	16QAM	192	456	
70	45941	QPSK	192	457	
70	45941	16QAM	192	457	
71	46597	16QAM	192	458	
71	47253	16QAM	192	459	
72	47909	16QAM	192	460	
72	48565	16QAM	192	461	
73	49221	16QAM	192	462	
73	49877	16QAM	192	463	
74	50533	16QAM	192	463	
74	51189	16QAM	192	464	
75	51845	16QAM	192	465	
75	52501	16QAM	192	466	
76	53157	16QAM	192	467	
76	53813	16QAM	192	468	
77	54469	16QAM	192	469	
77	55125	16QAM	192	469	
78	55781	16QAM	192	470	
78	56437	16QAM	192	471	
79	57093	16QAM	192	472	
79	57749	16QAM	192	473	
80	58405	16QAM	192	473	
80	59061	16QAM	192	474	

81	59717	16QAM	192	475	
81	60373	16QAM	192	476	
82	61029	16QAM	192	476	
82	61685	16QAM	192	477	
83	62341	16QAM	192	478	
83	62997	16QAM	192	478	
84	63653	16QAM	192	479	
84	64309	16QAM	192	480	
85	64965	16QAM	192	481	
85	65621	16QAM	192	481	
86	66277	16QAM	192	482	
86	66933	16QAM	192	483	
87	67589	16QAM	192	483	
87	68245	16QAM	192	484	
88	68901	16QAM	192	485	
88	69557	16QAM	192	485	
89	70213	16QAM	192	486	
89	70869	16QAM	192	486	
90	71525	16QAM	192	487	
90	72181	16QAM	192	489	
91	72837	16QAM	192	489	
91	73493	16QAM	192	489	
92	74149	16QAM	192	490	
92	74805	16QAM	192	490	
93	75461	16QAM	192	491	
93	76117	16QAM	192	491	
94	76773	16QAM	192	492	
94	77429	16QAM	192	494	
95	78085	16QAM	192	494	
95	78741	16QAM	192	494	
96	79397	16QAM	192	494	
96	80053	16QAM	192	495	
97	80709	16QAM	192	495	
97	81365	16QAM	192	497	
98	82021	16QAM	192	497	
98	82677	16QAM	192	497	
99	83333	16QAM	192	498	
99	83989	16QAM	192	498	
100	84652	16QAM	192	499	
100	85308	16QAM	192	499	
101	85964	16QAM	192	500	
101	86620	16QAM	192	500	
102	87276	16QAM	192	501	
102	87932	16QAM	192	501	
103	88588	16QAM	192	502	
103	89244	16QAM	192	502	
104	89900	16QAM	192	503	
104	90556	16QAM	192	503	
105	91212	16QAM	192	504	
105	91868	16QAM	192	504	
106	92524	16QAM	192	505	
106	93180	16QAM	192	505	

18.2.1.5 Generic test procedure for radio bearers on MTCH

See 14.1.5 for test procedure

18.2.1.6 Generic test procedure for radio bearers on MBSFN MTCH

18.2.1.6.1 Initial conditions

System Simulator:

- 1 MBMS MBSFN Cell 31 with default parameters.

  In addition to broadcasting System Information, MCCH messages are transmitted by the SS using MBMS configuration C1 and Default1 MCCH scheduling (No ongoing service). See subclause 11.1 of TS 34.108.

- 1 unicast carrier Cell 1 with default parameters.

User Equipment:

- On the unicast carrier cell the UE is in registered Idle Mode on PS (state 3) if the UE only supports PS domain or registered Idle Mode on CS/PS (state 7) if the UE supports both CS and PS domains, as specified in clause 7.2.2 of TS 34.108.

- The UE is in MBSFN Idle mode with one activated service as specified in clause 7.6.4 of TS 34.108. The UE has selected the broadcast service to be provided by the SS on the MBSFN cell (included in MBMS_ACTIVATED_SERVICES variable).

18.2.1.6.2 Test procedure

a) The SS sends CLOSE UE TEST LOOP via the unicast carrier cell, requesting activation of Test Loop Mode 3 specifying the MBSFN MBMS short transmission identity of the MTCH for the activated service

b) The SS notifies on MCCH about the start of an MBMS session and waits for the UE to activate MTCH reception at the specified activation time.

c) At the specified activation time the UE establishes the p-t-m radio bearer and closes the UE test loop. The UE sends CLOSE UE TEST LOOP COMPLETE..

d) The SS broadcasts 10 RLC SDUs on the MTCH configured on the concerned MBMS radio bearer. The MBMS data is broadcast using RLC SDU size and transport format as specified for sub-test 1.

e) The SS retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The SS checks that the UE has received at least one RLC SDU.

f) Repeat steps g) and h) for the remaining sub-tests.

g) The SS broadcast 10 RLC SDUs on the MTCH configured on the concerned MBMS radio bearer. The MBMS data is broadcasted using RLC SDU size and transport format as specified for the sub-test under test.

h) The SS retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The SS checks that the UE has received at least one RLC SDU of the MBMS data sent in step g).

i) The SS deactivates the UE test loop mode 3.

NOTE 1: For a UE in UE test loop mode 3 the RLC SDU counter value is only reset upon reception of the CLOSE UE TEST LOOP message configuring UE test loop mode 3. To enable the SS to measure the number of received RLC SDUs for the different sub-tests the SS needs to record the reported values for each sub-test and perform the checking of the reported value relative to the previously reported value.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
1	←		U	ACTIVATE RB TEST MODE	
2	→		U	ACTIVATE RB TEST MODE COMPLETE	
3	←		U	CLOSE UE TEST LOOP	Loop back mode 3 on MTCH for the activated service.
4	←		M	MBMS MCCH Message Configuration C4	Includes the service activated at UE in the modified services list for one modification period.
5	←		M	MBMS MCCH Message Configuration C2	No modified services. One ongoing service corresponding to that activated at the UE.
6	→		U	CLOSE UE TEST LOOP COMPLETE	The UE establishes the MTCH according to the activation time and closes the test loop.
7		SS	M		The SS transmits 10 RLC SDUs on the MTCH. The MBMS data is broadcast using RLC SDU size and transport format as specified for sub-test 1.
8	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
9	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC PDUs is greater than zero and records the value.
10		SS			The SS repeats steps 10 to 12 for the remaining sub-tests (sub-test 2 etc.).
11		SS	M		The SS transmits 10 RLC SDUs on the MTCH. The MBMS data is broadcast using RLC SDU size and transport format as specified for the current sub-test under test.
12	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
13	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC PDUs is greater than the recorded value from the previous sub-test. The SS records the reported value.
14	←		U	OPEN UE TEST LOOP	
15	→		U	OPEN UE TEST LOOP COMPLETE	
16	←		U	DEACTIVATE RB TEST MODE	
17	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific Message Contents

MBMS MODIFIED SERVICES INFORMATION (Step 4)

Information Element	Value/remark
Message type	
Modified service list	
- MBMS Transmission identity	
- MBMS Service ID	1
- MBMS Session ID	1
- MBMS required UE action	Acquire PTM RB info
MBMS p-t-m activation time	SS shall choose a value which is sufficiently far ahead for the UE to establish the MTCH

UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE (Steps 9)

Information Element	Value/remark
RLC SDU Counter Value	Check that the number is greater than zero

UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE (Steps 13)

Information Element	Value/remark
RLC SDU Counter Value	Check that the number is greater than the value reported at the previous sub-test.

18.2.1.7 General information for interoperability radio bearer tests for E-DCH and HS-DSCH combinations

18.2.1.7.1 Generic test procedure for HS-DSCH and E-DCH radio bearer combinations

This procedure is used to test E-DCH radio bearer combinations. The procedure is run once for each sub-test of the actual E-DCH radio bearer test case.

Definition of test variables:

N_{TS} The number of HS-DSCH timeslots as specified by the sub-test. This parameter is dependent on the UE capability.

N_{codes} The number of HS-DSCH codes (1..16) as specified by the sub-test. This parameter is not dependent on UE capability, all UEs can support 16 HS-DSCH codes.

M The type of modulation scheme (QPSK, 16QAM) as specified by the sub-test.

N_{PDUs} The number of MAC-d PDUs for the DTCH(s) mapped on HS-DSCH as specified by the sub-test.

H_{ID} The HARQ process identifier (0..3) as specified by the sub-test.

18.2.1.7.1.1 Initial conditions

UE in idle mode

18.2.1.7.1.2 Test procedure

a) The SS establish the reference radio bearer configuration as specified in TS 34.108, clause 6.10 for the actual radio bearer test. For the case when the reference radio bearer configuration includes radio bearers for both CS and PS domain then the radio bearer setup procedure has to be performed once per domain. The first radio bearer setup procedure shall perform configuration of the physical channel for the radio bearer combination under test as well as the transport channels for the CS radio bearer(s). The second radio bearer procedure shall perform the configuration for the transport channel for the PS radio bearers . The Physical channel configuration shall be done for both CS and PS radio bearers combined. Here the transport format combination set for both CS and PS radio bearers shall be provided. See note 1 and note 3.

b) For DTCH mapped to DCH in uplink the SS limits the UE allowed uplink transport format combinations according to the "Restricted UL TFCIs", as specified for the sub-test of the actual radio bearer test, using the RRC transport format combination control procedure. See note 2.

c) The SS closes the test loop using UE test loop mode 1 and set the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test.

d) The SS issues an absolute grant that allows the UE to send at maximum bit rate.

e) The SS sets the HS-DSCH TFRC test point as specified for the sub-test (N_{PDUs} , *M*, *Ncodes*, N_{TS} and *TFRI*).

f) The SS sets H_{ID} to the number of HARQ processes specified for the sub-test.

h) The SS transmits, for each DTCH mapped to HS-DSCH, a DL RLC SDUs having the size equal the to the “Test data size” as specified for the sub-test concatenated into a MAC-hs PDU using the selected TFRC and H_{ID}. If the radio bearer combination under test includes downlink DTCHs mapped to DCH then the SS transmits, for all DTCHs mapped to DCH, one or more RLC SDUs having the size equal to the "Test data size" as specified for the sub-test.

i) The SS checks that the content of the UE returned RLC SDUs have the correct content and are received having the correct transport format. See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loopback of RLC SDUs.

j) The SS opens the UE test loop.

l) The SS release the radio bearer. See note 4.

m) Steps a) to l) are repeated for all sub-tests. See note 5.

n) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The SS configures the physical channel parameters according to the actual UE category under test. The number of soft channel bits per HARQ process is split equally among the number of HARQ processes configured for the actual sub-test - i.e. “Total number of soft channel bits” for the UE category according to table 18.2.1.4.1.1 divided by the number of HARQ processes under test. The number of reordering queues are 1 for single HS-DSCH radio bearer configurations. The MAC-hs window size, RLC Transmission window size and RLC Receiving window size shall be configured as specified for the actual sub-test.

NOTE 2: The restricted set of uplink TFCIs shall contain all possible TFCI that could happen in a sub-test. The actual TTI of the different radio bearers and signalling radio bearers as well as the possible UE processing delays shall be taken into consideration. The restricted set of TFCIs must comply with the minimum set of TFCIs as specified in TS 25.331, clause 8.6.5.2.

NOTE 3: The MAC-hs window size and RLC Receiver and transmitter window sizes need to be chosen such that the UE capability for “Minimum total RLC AM and MAC-hs buffer size” is not exceeded for the UE category under test.

NOTE 4: The Secondary scrambling code in the RADIO BEARER RELEASE message is set to the same value used in the RADIO BEARER SETUP MESSAGE.

NOTE 5: CS radio bearer is setup once during the first sub-test.

Expected sequence (repeated for each sub-test, see note 3)

Step	Direction		Message	Comments
	UE	SS		
Case A: PS radio bearers only				
A1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
A2	<--		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
A3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
A4	<--		RRC CONNECTION SETUP (CCCH)	RRC
A5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
A6	-->		SERVICE REQUEST (DCCH)	GMM
A7	<--		SECURITY MODE COMMAND	RRC see note 1
A8	-->		SECURITY MODE COMPLETE	RRC see note 1
A9	<--		ACTIVATE RB TEST MODE (DCCH)	TC
A10	-->		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
A11	<--		RADIO BEARER SETUP (DCCH)	RRC . PS radio bearer(s) are configured. For the PS radio bearer(s) the 'pdcp info' IE shall be omitted.
A12	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
End of branch for Case A				
Case B: CS + PS radio bearers				
B1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
B2	<--		PAGING TYPE 1 (PCCH)	Paging (CS domain, TMSI)
B3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
B4	<--		RRC CONNECTION SETUP (CCCH)	RRC
B5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
B6	-->		PAGING RESPONSE (DCCH)	RR
B6a	<--		AUTHENTICATION REQUEST	
B6b	-->		AUTHENTICATION RESPONSE	
B7	<--		SECURITY MODE COMMAND	
B8	-->		SECURITY MODE COMPLETE	
B9	<--		PAGING TYPE 2 (DCCH)	TMSI (GSM-MAP)/ P-TMSI
B9a	-->		SERVICE REQUEST (DCCH)	GMM
B9b	<--		SECURITY MODE COMMAND	RRC See note 2
B9c	-->		SECURITY MODE COMPLETE	RRC
B10	<--		ACTIVATE RB TEST MODE (DCCH)	TC
B10a	-->		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
B11	<--		RADIO BEARER SETUP (DCCH)	RRC CS radio bearer(s) are configured
B12	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
B12a	<--		RADIO BEARER SETUP (DCCH)	RRC PS radio bearer(s) are configured. For the PS radio bearer the 'pdcp info' IE shall be omitted.
B12b	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
B12c	<--		TRANSPORT FORMAT COMBINATION CONTROL (DCCH)	RRC Transport format combinations is limited to "Restricted UL TFCIs", as specified for the sub-test
End of branch for Case B				
13			Void	
14	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
15	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC

Step	Direction		Message	Comments
	UE	SS		
16	SS			The SS sets the HS-DSCH TFRC test point (N_{PDUs} , M, Ncodes, N_{TS} and TFRI). and the number of HARQ processes as specified for the sub-test.
17	<--		DOWNLINK MAC-hs PDU (HS-DSCH#1) … DOWNLINK MAC-hs PDU (HS-DSCH#N) DL RLC SDU (DL DCH#1) … DL RLC SDU (DL DCH#M)	For each DTCH mapped on HS-DSCH the SS sends test data. For each DTCH mapped on DCH the SS sends test data using the downlink transport format combination under test.
18	-->		UPLINK RLC SDUs	The SS checks, for each DTCH, that the content and transport format of the received UL RLC SDUs are correct.
19	<--		OPEN UE TEST LOOP (DCCH)	TC
20	-->		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
21			RB RELEASE	RRC
22	<--		DEACTIVATE RB TEST MODE	TC Optional step
23	-->		DEACTIVATE RB TEST MODE COMPLETE	TC Optional step

NOTE 1 In addition to activate integrity protection Step 6 and Step 7 are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.

NOTE 2 For case B (CS+PS radio bearers) the second security mode procedure is needed to enable testing of ciphering on the PS radio bearers.

NOTE 3 For case A (PS radio bearers) steps A1 to A10 will be executed once during first sub-test. For case B (CS+PS radio bearers) steps B1 to B12 will be executed once during first sub-test.

18.2.2 Combinations on DPCH

18.2.2.1 Stand-alone UL:1.7 DL:1.7 kbps SRBs for DCCH

Test to verify establishment and signalling of stand-alone signalling reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.1.

The test case is performed by running test case 9.4.1 (Location updating / accepted) using the stand-alone signalling reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.1.

18.2.2.1a Stand-alone UL:1.7 DL:1.7 kbps SRBs for DCCH (multiframe)

Test to verify establishment and signalling of stand-alone signalling reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.1a.

The test case is performed by running test case 9.4.1 (Location updating / accepted) using the stand-alone signalling reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.1a.

18.2.2.2 Stand-alone UL:3.4 DL:3.4 kbps SRBs for DCCH

Test to verify establishment and signalling of stand-alone signalling reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.2.

The test case is performed by running test case 9.4.1 (Location updating / accepted) using the stand-alone signalling reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.2.

18.2.2.3 Stand-alone UL:13.6 DL:13.6 kbps SRBs for DCCH

Implicitly tested.

NOTE The stand-alone UL:13.6 DL:13.6 kbps SRBs for DCCH in TS 34.108, clause 6.10.3.4.1.3 is the default signalling radio bearer used in the generic setup procedure as specified in TS 34.108 clause 7.

18.2.2.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.2.4.1 Conformance requirement

The UE shall be able to establish the UTRAN requested radio bearers within the UE's signalled radio access capabilities.

The UE shall correctly transfer user data from peer to peer RLC entities according to the requested radio bearer configuration.

Reference(s)

3GPP TS 25.331, clause 8.2.1

3GPP TS 25.2xx series (Physical Layer)

3GPP TS 25.321 (MAC)

3GPP TS 25.322 (RLC)

18.2.2.4.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.4.

18.2.2.4.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 103 bits RB7: 60 bits	RB5: 39 bits RB6: No data RB7: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 81 bits RB6: 103 bits RB7: 60 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.1 for test procedure.

18.2.2.4.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x81); RB6/TF1 (1x103); and RB7/TF1 (1x60).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 or RB7.
   - for sub-test 2: an RLC SDU on each of RB5, RB6 and RB7 having the same content as sent by SS

18.2.2.4a Conversational / speech / UL:(12.2 7.95 5.9 4.75) DL:(12.2 7.95 5.9 4.75) kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

18.2.2.4a.1 Conformance requirement

See clause 18.2.2.4.1.

18.2.2.4a.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.4a.

18.2.2.4a.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x148
	TF1, bits	1x39	1x53	1x60	1x148
	TF2, bits	1x42	1x63	N/A	N/A
	TF3, bits	1x55	1x84	N/A	N/A
	TF4, bits	1x75	1x103	N/A	N/A
	TF5, bits	1x81	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7,DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0, TF0)
UL_TFC3	(TF3, TF2, TF0, TF0)
UL_TFC4	(TF4, TF3, TF0, TF0)
UL_TFC5	(TF5, TF4, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF0, TF1)
UL_TFC8	(TF2, TF1, TF0, TF1)
UL_TFC9	(TF3, TF2, TF0, TF1)
UL_TFC10	(TF4, TF3, TF0, TF1)
UL_TFC11	(TF5, TF4, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x148
	TF1, bits	1x39	1x53	1x60	1x148
	TF2, bits	1x42	1x63	N/A	N/A
	TF3, bits	1x55	1x84	N/A	N/A
	TF4, bits	1x75	1x103	N/A	N/A
	TF5, bits	1x81	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0, TF0)
DL_TFC3	(TF3, TF2, TF0, TF0)
DL_TFC4	(TF4, TF3, TF0, TF0)
DL_TFC5	(TF5, TF4, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF1)
DL_TFC7	(TF1, TF0, TF0, TF1)
DL_TFC8	(TF2, TF1, TF0, TF1)
DL_TFC9	(TF3, TF2, TF0, TF1)
DL_TFC10	(TF4, TF3, TF0, TF1)
DL_TFC11	(TF5, TF4, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 39 bits RB6: 103 bits RB7: 60 bits	RB5: 39 bits RB6: No data RB7: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC8	RB5: 42 bits RB6: 53 bits RB7: 60 bits	RB5: 42 bits RB6: 53 bits RB7: No data
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC9	RB5: 55 bits RB6: 63 bits RB7: 60 bits	RB5: 55 bits RB6: 63 bits RB7: No data
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC10	RB5: 75 bits RB6: 84 bits RB7: 60 bits	RB5: 75 bits RB6: 84 bits RB7: No data
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 81 bits RB6: 103 bits RB7: 60 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5 and UL_TFC6 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.

See clause 18.2.1.1 for test procedure.

18.2.2.4a.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x42) and RB6/TF1 (1x53)
   - for sub-test 3: RB5/TF3 (1x55) and RB6/TF2 (1x63)
   - for sub-test 4: RB5/TF4 (1x75) and RB6/TF3 (1x84)
   - for sub-test 5: RB5/TF5 (1x81), RB6/TF4 (1x103) and RB7/TF1 (1x60)

3. At step 15 the UE shall return

   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 or RB7.

   - for sub-test 2,3 and 4: an RLC SDU on RB5 and RB6 having the same content as sent by SS; and no data shall be received on RB7.

   - for sub-test 5: an RLC SDU on each of RB5, RB6 and RB7 having the same content as sent by SS.

18.2.2.5 Conversational / speech / UL:10.2 DL:10.2 kbps / CS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

18.2.2.5.1 Conformance requirement

See clause 18.2.2.4.1.

18.2.2.5.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.5.

18.2.2.5.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x65(alt. 1x0)	0x99	0x40	0x148
	TF1, bits	1x39	1x99	1x40	1x148
	TF2, bits	1x65	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7,DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x65(alt. 1x0)	0x99	0x40	0x148
	TF1, bits	1x39	1x99	1x40	1x148
	TF2, bits	1x65	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 99 bits RB7: 40 bits	RB5: 39 bits RB6: No data RB7: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 65 bits RB6: 99 bits RB7: 40 bits	RB5: 65 bits RB6: 99 bits RB7: 40 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.2.1.1 for test procedure.

18.2.2.5.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x65); RB6/TF1 (1x99); and RB7/TF1 (1x40).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 or RB7.
   - for sub-test 2: an RLC SDU on each of RB5, RB6 and RB7 having the same content as sent by SS.

18.2.2.5a Conversational / speech / UL:(10.2, 6.7, 5.9, 4.75) DL:(10.2, 6.7, 5.9, 4.75) kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

18.2.2.5a.1 Conformance requirement

See clause 18.2.2.4.1.

18.2.2.5a.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.5a.

18.2.2.5a.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x65(alt. 1x0)	0x99	0x40	0x148
	TF1, bits	1x39	1x53	1x40	1x148
	TF2, bits	1x42	1x63	N/A	N/A
	TF3, bits	1x55	1x76	N/A	N/A
	TF4, bits	1x58	1x99	N/A	N/A
	TF5, bits	1x65	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7,DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0, TF0)
UL_TFC3	(TF3, TF2, TF0, TF0)
UL_TFC4	(TF4, TF3, TF0, TF0)
UL_TFC5	(TF5, TF4, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF0, TF1)
UL_TFC8	(TF2, TF1, TF0, TF1)
UL_TFC9	(TF3, TF2, TF0, TF1)
UL_TFC10	(TF4, TF3, TF0, TF1)
UL_TFC11	(TF5, TF4, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x65(alt. 1x0)	0x99	0x40	0x148
	TF1, bits	1x39	1x53	1x40	1x148
	TF2, bits	1x42	1x63	N/A	N/A
	TF3, bits	1x55	1x76	N/A	N/A
	TF4, bits	1x58	1x99	N/A	N/A
	TF5, bits	1x65	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0, TF0)
DL_TFC3	(TF3, TF2, TF0, TF0)
DL_TFC4	(TF4, TF3, TF0, TF0)
DL_TFC5	(TF5, TF4, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF1)
DL_TFC7	(TF1, TF0, TF0, TF1)
DL_TFC8	(TF2, TF1, TF0, TF1)
DL_TFC9	(TF3, TF2, TF0, TF1)
DL_TFC10	(TF4, TF3, TF0, TF1)
DL_TFC11	(TF5, TF4, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 39 bits RB6: 99 bits RB7: 40 bits	RB5: 39 bits RB6: No data RB7: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC8	RB5: 42 bits RB6: 53 bits RB7: 40 bits	RB5: 42 bits RB6: 53 bits RB7: No data
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC9	RB5: 55 bits RB6: 63 bits RB7: 40 bits	RB5: 55 bits RB6: 63 bits RB7: No data
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC10	RB5: 58 bits RB6: 76 bits RB7: 40 bits	RB5: 58 bits RB6: 76 bits RB7: No data
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 65 bits RB6: 99 bits RB7: 40 bits	RB5: 65 bits RB6: 99 bits RB7: 40 bits

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5 and UL_TFC6 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.

See clause 18.2.1.1 for test procedure.

18.2.2.5a.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x42) and RB6/TF1 (1x53)
   - for sub-test 3: RB5/TF3 (1x55) and RB6/TF2 (1x63)
   - for sub-test 4: RB5/TF4 (1x58) and RB6/TF3 (1x76)
   - for sub-test 5: RB5/TF5 (1x65), RB6/TF4 (1x99) and RB7/TF1 (1x40)

3. At step 15 the UE shall return

   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by the SS; and no data shall be received on RB6 or RB7.

   - for sub-test 2, 3 and 4: an RLC SDU on RB5 and RB6 having the same content as sent by the SS; and no data shall be received on RB7.

   - for sub-test 5: an RLC SDU on each of RB5, RB6 and RB7 having the same content as sent by the SS.

18.2.2.6 Conversational / speech / UL:7.95 DL:7.95 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.2.6.1 Conformance requirement

See clause 18.2.2.4.1.

18.2.2.6.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.6.

18.2.2.6.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x75(alt. 1x0)	0x84	0x148
	TF1, bits	1x39	1x84	1x148
	TF2, bits	1x75	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0)
UL_TFC3	(TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x75(alt. 1x0)	0x84	0x148
	TF1, bits	1x39	1x84	1x148
	TF2, bits	1x75	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0)
DL_TFC3	(TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 84 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 75 bits RB6: 84 bits	RB5: 75 bits RB6: 84 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.2.1.1 for test procedure.

.

18.2.2.6.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x75) and RB6/TF1 (1x84).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
   - for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS.

18.2.2.7 Conversational / speech / UL:7.4 DL:7.4 kbps / CS RAB+ UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.2.7.1 Conformance requirement

See clause 18.2.2.4.1.

18.2.2.7.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.7.

18.2.2.7.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x61 (alt. 1x0)	0x87	0x148
	TF1, bits	1x39	1x87	1x148
	TF2, bits	1x61	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0)
UL_TFC3	(TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x61 (alt. 1x0)	0x87	0x148
	TF1, bits	1x39	1x87	1x148
	TF2, bits	1x61	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0)
DL_TFC3	(TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 87 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 61 bits RB6: 87 bits	RB5: 61 bits RB6: 87 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.2.1.1 for test procedure.

18.2.2.7.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x61) and RB6/TF1 (1x87).

3. At step 15 the UE shall return

   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.

   - for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS

18.2.2.7a Conversational / speech / UL:(7.4, 6.7, 5.9, 4.75) DL:(7.4, 6.7, 5.9, 4.75) kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

18.2.2.7a.1 Conformance requirement

See clause 18.2.2.4.1.

18.2.2.7a.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.7a.

18.2.2.7a.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x61(alt. 1x0)	0x87	0x148
	TF1, bits	1x39	1x53	1x148
	TF2, bits	1x42	1x63	N/A
	TF3, bits	1x55	1x76	N/A
	TF4, bits	1x58	1x87	N/A
	TF5, bits	1x61	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7,DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0)
UL_TFC3	(TF3, TF2, TF0)
UL_TFC4	(TF4, TF3, TF0)
UL_TFC5	(TF5, TF4, TF0)
UL_TFC6	(TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF1)
UL_TFC8	(TF2, TF1, TF1)
UL_TFC9	(TF3, TF2, TF1)
UL_TFC10	(TF4, TF3, TF1)
UL_TFC11	(TF5, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x61 (alt. 1x0)	0x87	0x148
	TF1, bits	1x39	1x53	1x148
	TF2, bits	1x42	1x63	N/A
	TF3, bits	1x55	1x76	N/A
	TF4, bits	1x58	1x87	N/A
	TF5, bits	1x61	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0)
DL_TFC3	(TF3, TF2, TF0)
DL_TFC4	(TF4, TF3, TF0)
DL_TFC5	(TF5, TF4, TF0)
DL_TFC6	(TF0, TF0, TF1)
DL_TFC7	(TF1, TF0, TF1)
DL_TFC8	(TF2, TF1, TF1)
DL_TFC9	(TF3, TF2, TF1)
DL_TFC10	(TF4, TF3, TF1)
DL_TFC11	(TF5, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 39 bits RB6: 87 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC8	RB5: 42 bits RB6: 53 bits	RB5: 42 bits RB6: 53 bits
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC9	RB5: 55 bits RB6: 63 bits	RB5: 55 bits RB6: 63 bits
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC10	RB5: 58 bits RB6: 76 bits	RB5: 58 bits RB6: 76 bits
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 61 bits RB6: 87 bits	RB5: 61 bits RB6: 87 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5 and UL_TFC6 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.2.1.1 for test procedure.

18.2.2.7a.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x42) and RB6/TF1 (1x53)
   - for sub-test 3: RB5/TF3 (1x55) and RB6/TF2 (1x63)
   - for sub-test 4: RB5/TF4 (1x58) and RB6/TF3 (1x76)
   - for sub-test 5: RB5/TF5 (1x61) and RB6/TF4 (1x87)
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by the SS; and no data shall be received on RB6.
   - for sub-test 2 to 5: an RLC SDU on RB5 and RB6 having the same content as sent by the SS.

18.2.2.8 Conversational / speech / UL:6.7 DL:6.7 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.2.8.1 Conformance requirement

See clause 18.2.2.4.1.

18.2.2.8.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.8.

18.2.2.8.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x58(alt. 1x0)	0x76	0x148
	TF1, bits	1x39	1x76	1x148
	TF2, bits	1x58	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0)
UL_TFC3	(TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x58(alt. 1x0)	0x76	0x148
	TF1, bits	1x39	1x76	1x148
	TF2, bits	1x58	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0)
DL_TFC3	(TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 76 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 58 bits RB6: 76 bits	RB5: 58 bits RB6: 76 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.2.1.1 for test procedure.

18.2.2.8.4 Test requirements

See clause 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x58) and RB6/TF1 (1x76).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
   - for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS

18.2.2.9 Conversational / speech / UL:5.9 DL:5.9 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.2.9.1 Conformance requirement

See clause 18.2.2.4.1.

18.2.2.9.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.9.

18.2.2.9.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x55(alt. 1x0)	0x63	0x148
	TF1, bits	1x39	1x63	1x148
	TF2, bits	1x55	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0)
UL_TFC3	(TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x55 (alt. 1x0)	0x63	0x148
	TF1, bits	1x39	1x63	1x148
	TF2, bits	1x55	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0)
DL_TFC3	(TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 63 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 55 bits RB6: 63 bits	RB5: 55 bits RB6: 63 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.2.1.1 for test procedure.

18.2.2.9.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x55) and RB6/TF1 (1x63).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
   - for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS

18.2.2.10 Conversational / speech / UL:5.15 DL:5.15 kbps / CS RAB + UL:1.7 DL:1.7 kbps SRBs for DCCH

18.2.2.10.1 Conformance requirement

See clause 18.2.2.4.1.

18.2.2.10.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.10.

18.2.2.10.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x49 (alt. 1x0)	0x54	0x148
	TF1, bits	1x39	1x54	1x148
	TF2, bits	1x49	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0)
UL_TFC3	(TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x49 (alt. 1x0)	0x54	0x148
	TF1, bits	1x39	1x54	1x148
	TF2, bits	1x49	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0)
DL_TFC3	(TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 54 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 49 bits RB6: 54 bits	RB5: 49 bits RB6: 54 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.2.1.1 for test procedure.

18.2.2.10.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x49) and RB6/TF1 (1x54).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
   - for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS

18.2.2.11 Conversational / speech / UL:4.75 DL:4.75 kbps / CS RAB + UL:1.7 DL:1.7 kbps SRBs for DCCH

18.2.2.11.1 Conformance requirement

See clause 18.2.2.4.1.

18.2.2.11.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.11.

18.2.2.11.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x49(alt.1x0)	0x53	0x148
	TF1, bits	1x39	1x53	1x148
	TF2, bits	1x42	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0)
UL_TFC3	(TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0X42 (alt.1x0)	0x53	0x148
	TF1, bits	1x39	1x53	1x148
	TF2, bits	1x42	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0)
DL_TFC3	(TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 53 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 42 bits RB6: 53 bits	RB5: 42 bits RB6: 53 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.2.1.1 for test procedure.

18.2.2.11.4 Test requirements

See clause 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x42) and RB6/TF1 (1x53).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
   - for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS

18.2.2.12 Conversational / unknown / UL:28.8 DL:28.8 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.2.12.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.12.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.12.

18.2.2.12.3 Method of test

Uplink RLC TM RLC Segmentation indication	FALSE
Downlink RLC TM RLC Segmentation indication	FALSE

Uplink TFS:

	TFI	RB5 (28.8 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

		RB5 (28.8 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 576	RB5: 576
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC2 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.2.1.1 for test procedure.

18.2.2.12.4 Test requirements

See clause 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x576).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS.

18.2.2.13 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.2.13.1 Conformance requirement

See clause 18.2.2.4.1.

18.2.2.13.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.13.

18.2.2.13.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	2x640	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	2x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 640	RB5: 2x640
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC2 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.2.1.1 for test procedure.

18.2.2.13.4 Test requirements

See clause 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (2x640).
3. At step 15 the UE shall return
   - for sub-test 1: two RLC SDUs on RB5 having the same content as sent by SS.

18.2.2.14 Conversational / unknown / UL:32 DL:32 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.2.14.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.14.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.14.

18.2.2.14.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC TM RLC Segmentation indication	FALSE
Downlink RLC TM RLC Segmentation indication	FALSE

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	1x640	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	1x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 640	RB5: 640
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC2 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.1 for test procedure.

18.2.2.14.4 Test requirements

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x640).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS.

18.2.2.15 Streaming / unknown / UL:14.4/DL:14.4 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.2.15.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.15.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.15.

18.2.2.15.3 Method of test

Uplink TFS:

	TFI	RB5 (14.4 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (14.4 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 576	RB5: 576
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC2 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.1 for test procedure.

18.2.2.15.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x576).

3. At step 15 the UE shall return

   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS.

18.2.2.16 Streaming / unknown / UL:28.8/DL:28.8 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.2.16.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.16.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.16.

18.2.2.16.3 Method of test

Uplink TFS:

	TFI	RB5 (28.8 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

		RB5 (28.8 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 576	RB5: 576
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC2 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.1 for test procedure.

18.2.2.16.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x576).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS.

18.2.2.17 Streaming / unknown / UL:57.6/DL:57.6 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.2.17.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.17.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.17.

18.2.2.17.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

Uplink TFS:

	TFI	RB5 (57.6 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148
	TF2, bits	2x576	N/A
	TF3, bits	3x576	N/A
	TF4, bits	4x576	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (57.6 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148
	TF2, bits	2x576	N/A
	TF3, bits	3x576	N/A
	TF4, bits	4x576	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5,	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 576	RB5: 576
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 576	RB5: 2x576
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 576	RB5: 3x576
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 576	RB5: 4x576
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.1 for test procedure.

18.2.2.17.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x576).
   - for sub-test 2: RB5/TF2 (2x576) or RB5/TF1 (1x576).
   - for sub-test 3: RB5/TF3 (3x576) or RB5/TF1 (1x576).
   - for sub-test 4: RB5/TF4 (4x576) or RB5/TF1 (1x576).
3. At step 15 the UE shall return
   - for sub-test 1: one RLC SDU on RB5 having the same content as sent by SS.
   - for sub-test 2: two RLC SDU on RB5 having the same content as sent by SS.
   - for sub-test 3: three RLC SDU on RB5 having the same content as sent by SS.
   - for sub-test 4: four RLC SDU on RB5 having the same content as sent by SS.

18.2.2.18 Void

18.2.2.19 Void

18.2.2.20 Void

18.2.2.21 Void

18.2.2.22 Void

18.2.2.23 Interactive or background / UL:32 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.2.23.1 Interactive or background / UL:32 DL:8 kbps / PS RAB / (Payload size 320)

18.2.2.23.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.23.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.23 for uplink payload size 320 case.

18.2.2.23.1.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

	TFI	RB5 (8 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 312	RB5: 312
2	DL_TFC1	UL_TFC2	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632	RB5: 632
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.1 for test procedure.

18.2.2.23.1.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
3. At step 15 the UE shall return
   - for sub-test 1 and 2: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.2.2.23.2 Interactive or background / UL:32 DL:8 kbps / PS RAB / Payload size 128

18.2.2.23.2.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.23.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.23 for the uplink payload size 128 case.

18.2.2.23.2.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	5x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

	TFI	RB5 (8 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 376	RB5: 312
2	DL_TFC1	UL_TFC2	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632	RB5: 312
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.1 for test procedure.

18.2.2.23.2.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x144).

- for sub-test 2: RB5/TF2 (5x144).

3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.

- for sub-test 2: an RLC SDU on RB5 having the same content as 2 times plus 8 lsb's of the DL RLC SDU sent by the SS.

18.2.2.23a Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

18.2.2.23a.1 Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 40 ms TTI

18.2.2.23a.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.23a.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.23a, for the uplink 40 ms TT case.

18.2.2.23a.1.3 Method of test

See 18.2.1.1 for test procedure.

Uplink TFS:

	TFI	RB5 (8 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148

Uplink TFCS:

TFCI	(8 kbps RAB, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

		RB5 (8 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148

Downlink TFCS:

TFCI	(8 kbps RAB, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2,	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 312	RB5: 312
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC2 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).						

18.2.2.23a.1.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.2.2.23a.2 Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 80 ms TTI

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.23a, for the uplink 80 ms TTI case.

See test case 18.2.2.23.2 for test procedure and test requirement.

18.2.2.23b Interactive or background / UL:16 DL:16 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

18.2.2.23b.1 Interactive or background / UL:16 DL:16 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload size 320.

18.2.2.23b.1.1 Conformance requirement

See clause 18.2.2.4.1.

18.2.2.23b.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.23b, for the uplink payload size 320 case.

18.2.2.23b.1.3 Method of test

Uplink TFS:

	TFI	RB5 (16 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)
DL_TFC5	(TF2, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, UL_TFC0 DL_TFC3,UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, UL_TFC0 DL_TFC3 ,UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632	RB5: 632

NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC3 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).

See 18.2.1.1 for test procedure.

18.2.2.23b.1.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send a RADIO BEARER SETUP COMPLETE message.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336) or RB5/TF1 (1x336).
3. At step 15 the UE shall return
   - for sub-test 1 and 2: an RLC SDU on RB5 having the same content as sent by the SS.

18.2.2.23b.2 Interactive or background / UL:16 DL:16 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload size 128.

18.2.2.23b.2.1 Conformance requirement

See clause 18.2.2.4.1.

18.2.2.23b.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.23b, for the uplink payload size 128 case.

18.2.2.23b.2.3 Method of test

Uplink TFS:

	TFI	RB5 (16 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	5x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)
DL_TFC5	(TF2, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, UL_TFC0 DL_TFC3,UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 376	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, UL_TFC0 DL_TFC3 ,UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632	RB5: 632

NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC3 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).

See 18.2.1.1 for test procedure.

18.2.2.23b.2.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send a RADIO BEARER SETUP COMPLETE message.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x144).
   - for sub-test 2: RB5/TF2 (5x144).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 having the same content as sent by the SS.

18.2.2.23c Interactive or background / UL:32 DL:32 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

18.2.2.23c.1 Interactive or background / UL:32 DL:32 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload size 320.

18.2.2.23c.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.23c.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.23c the uplink payload size 320 case.

18.2.2.23c.1.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, UL_TFC0 DL_TFC5,UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, UL_TFC0 DL_TFC5 ,UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, UL_TFC0 DL_TFC5 ,UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952	RB5: 952
4	DL_TFC4	UL_TFC4	DL_TFC0, UL_TFC0 DL_TFC5 ,UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272	RB5: 1272
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. For RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).						

See 18.2.1.1 for test procedure.

18.2.2.23c.1.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send a RADIO BEARER SETUP COMPLETE message.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336) or RB5/TF1 (1x336).
   - for sub-test 3: RB5/TF3 (3x336) or RB5/TF1 (1x336).
   - for sub-test 4: RB5/TF4 (4x336) or RB5/TF1 (1x336).
3. At step 15 the UE shall return
   - for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.2.2.23c.2 Interactive or background / UL:32 DL:32 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload size 128.

18.2.2.23c.2.1 Conformance requirement

See clause 18.2.2.4.1.

18.2.2.23c.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.23c, for the uplink payload size 128 case.

18.2.2.23c.2.3 Method of test

Uplink TFS:

	TFI	RB5 (16 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	5x144	N/A
	TF3, bits	7x144	N/A
	TF4, bits	10x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, UL_TFC0 DL_TFC5,UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 376	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, UL_TFC0 DL_TFC5 ,UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, UL_TFC0 DL_TFC5 ,UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1784	RB5: 952
4	DL_TFC4	UL_TFC4	DL_TFC0, UL_TFC0 DL_TFC5 ,UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272	RB5: 1272

NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
For RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).

See 18.2.1.1 for test procedure.

18.2.2.23c.2.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send a RADIO BEARER SETUP COMPLETE message.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x144).
   - for sub-test 2: RB5/TF2 (5x144).
   - for sub-test 3: RB5/TF2 (7x144).
   - for sub-test 4: RB5/TF2 (10x144).

3. At step 15 the UE shall return

   - for sub for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 having the same content as sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 832 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 4: an RLC SDU on RB5 having the same content as sent by the SS.

18.2.2.23d Interactive or background / UL:32 DL:32 kbps / PS RAB (20 ms TTI) + UL:3.4 DL:3.4 kbps SRBs for DCCH.

18.2.2.23d.1 Interactive or background / UL:32 DL:32 kbps / PS RAB (20 ms TTI) + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload size 320.

18.2.2.23d.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.23d.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.23d, for the uplink payload size of 320 case.

18.2.2.23d.1.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)
DL_TFC5	(TF2, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, UL_TFC0 DL_TFC3,UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, UL_TFC0 DL_TFC3 ,UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632	RB5: 632

NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC3 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
For RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).

See 18.2.1.1 for test procedure.

18.2.2.23d.1.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send a RADIO BEARER SETUP COMPLETE message.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
3. At step 15 the UE shall return
   - for sub-test 1 to 2: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.2.2.23d.2 Interactive or background / UL:32 DL:32 kbps / PS RAB (20 ms TTI) + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload size 128.

18.2.2.23d.2.1 Conformance requirement

See clause 18.2.2.4.1.

18.2.2.23d.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.23d, for the uplink payload size 128 case.

18.2.2.23d.2.3 Method of test

Uplink TFS:

	TFI	RB5 (16 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	5x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)
DL_TFC5	(TF2, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, UL_TFC0 DL_TFC3,UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 376	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, UL_TFC0 DL_TFC3 ,UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632	RB5: 632

NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC3 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).

See 18.2.1.1 for test procedure.

18.2.2.23d.2.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send a RADIO BEARER SETUP COMPLETE message.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x144).
   - for sub-test 2: RB5/TF2 (5x144).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 having the same content as sent by the SS.

18.2.2.24 Void

18.2.2.25 Interactive or background / UL:32 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.2.25.1 Interactive or background / UL:32 DL: 64 kbps / PS RAB / Payload size 320

18.2.2.25.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.25.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.25 for the uplink payload size of 320 case.

18.2.2.25.1.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 952	RB5: 952
4	DL_TFC4	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 1272	RB5: 1272
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.1 for test procedure.

18.2.2.25.1.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1 and 3: RB5/TF1 (1x336).
   - for sub-test 2 and 4: RB5/TF1 (2x336).

3. At step 15 the UE shall return
   - for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.2.2.25.2 Interactive or background / UL:32 DL: 64 kbps / PS RAB / Payload 128

18.2.2.25.2.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.25.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.25 for the uplink payload 128 case.

18.2.2.25.2.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	5x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 376	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 1016	RB5: 952
4	DL_TFC4	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 1272	RB5: 1272
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.1 for test procedure.

18.2.2.25.2.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x144).
   - for sub-test 2: RB5/TF2 (5x144).
   - for sub-test 3: RB5/TF1 (1x144).
   - for sub-test 4: RB5/TF2 (5x144).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.2.2.26 Interactive or background / UL:64 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.2.26.1 Interactive or background / UL:64 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload 320, Physical Configuration 1

18.2.2.26.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.26.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.26 for the uplink payload 320 case with physical configuration 1.

18.2.2.26.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

		Physical Configuration 1
DPCH Uplink	Midamble	512 chips
	Codes and time slots	SF16 x 1 code x 1 time slot + SF4 x 1 code x 1 time slot
	Max. Number of data bits/radio frame	1148 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	0.48 (alt. 0.44)

Downlink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952	RB5: 952
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272	RB5: 1272

NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 18.2.1.1 for test procedure.

18.2.2.26.1.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336) or RB5/TF1 (1x336).
   - for sub-test 3: RB5/TF3 (3x336) or RB5/TF1 (1x336).
   - for sub-test 4: RB5/TF4 (4x336) or RB5/TF1 (1x336).
3. At step 15 the UE shall return
   - for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.2.2.26.2 Interactive or background / UL:64 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload 128, Physical Configuration 2

18.2.2.26.2.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.26.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.26 for the uplink payload 128 case with physical configuration 2.

18.2.2.26.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	3x144	N/A
	TF3, bits	7x144	N/A
	TF4, bits	10x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 2
	Midamble	512 chips
	Codes and time slots	SF2 x 1 code x 1 time slot + SF4 x 1 code x 1 time slot
	Max. Number of data bits/radio frame	2784 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	1

Downlink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 376	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 760	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1784	RB5: 952
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272	RB5: 1272

NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 18.2.1.1 for test procedure.

18.2.2.26.2.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x144).
   - for sub-test 2: RB5/TF2 (3x144).
   - for sub-test 3: RB5/TF3 (7x144).
   - for sub-test 4: RB5/TF4 (10x144).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 having the same content as 1 times plus 128 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 832 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.2.2.27 Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.2.27.1 Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload 320, Physical Configuration 1

18.2.2.27.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.27.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.27 for the uplink payload 320 case with physical configuration 1.

18.2.2.27.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 1
	Midamble	512 chips
	Codes and time slots	SF16 x 1 code x 1 time slot + SF4 x 1 code x 1 time slot
	Max. Number of data bits/radio frame	1148 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	0.48 (alt. 0.44)

Downlink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Downlink		Physical Configuration 1
	Midamble	256 chips
	Codes and time slots	SF16 x 8 codes x 1 time slot
	Max. Number of data bits/radio frame	2192 bits
	TFCI code word	16 bits
	Puncturing limit	0.48

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552

NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 18.2.1.1 for test procedure.

18.2.2.27.1.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336) or RB5/TF1 (1x336).
   - for sub-test 3: RB5/TF3 (3x336) or RB5/TF1 (1x336).
   - for sub-test 4: RB5/TF4 (4x336) or RB5/TF1 (1x336).
3. At step 15 the UE shall return
   - for sub-test 1, 2 and 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 640 lsb's of the DL RLC SDU sent by the SS.

18.2.2.27.2 Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload 128, Physical Configuration 2

18.2.2.27.2.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.27.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.27 for the uplink payload 128 case with physical configuration 2.

18.2.2.27.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	3x144	N/A
	TF3, bits	7x144	N/A
	TF4, bits	10x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 2
	Midamble	512 chips
	Codes and time slots	SF2 x 1 code x 1 time slot + SF4 x 1 code x 1 time slot
	Max. Number of data bits/radio frame	2784 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	1

Downlink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Downlink		Physical Configuration 2
	Midamble	256 chips
	Codes and time slots	SF16 x 4 codes x 2 time slots + SF16 x 3 codes x 2 time slots
	Max. Number of data bits/radio frame	3848 bits
	TFCI code word	16 bits
	Puncturing limit	0.84

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 376	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 760	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1784	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552

NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 18.2.1.1 for test procedure.

18.2.2.27.2.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x144).
   - for sub-test 2: RB5/TF2 (3x144).
   - for sub-test 3: RB5/TF3 (7x144).
   - for sub-test 4: RB5/TF4 (10x144).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 having the same content as 1 times plus 128 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 512 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.2.2.28 Interactive or background / UL:128 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.2.28.1 Interactive or background / UL:128 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload 320, Physical Configuration 1

18.2.2.28.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.28.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.28 for the uplink payload 320 case with physical configuration 1.

18.2.2.28.1.3 Method of test

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 1
	Midamble	256 chips
	Codes and time slots	SF2 x 1 code x 1 timeslot
	Max. Number of data bits/radio frame	2064 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	0.44 (alt. 0.40)

Downlink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Downlink		Physical Configuration 1
	Midamble	256 chips
	Codes and time slots	SF16 x 8 codes x 1 time slot
	Max. Number of data bits/radio frame	2192 bits
	TFCI code word	16 bits
	Puncturing limit	0.48

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1272	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.1 for test procedure.

18.2.2.28.1.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (4x336).
   - for sub-test 4: RB5/TF4 (8x336).
3. At step 15 the UE shall return
   - for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.2.2.28.2 Interactive or background / UL:128 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload 128, Physical Configuration 2

18.2.2.28.2.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.28.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.28 for the uplink payload 128 case with physical configuration 2.

18.2.2.28.2.3 Method of test

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	7x144	N/A
	TF3, bits	14x144	N/A
	TF4, bits	20x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 2
	Midamble	256 chips
	Codes and time slots	SF2 x 1 code x 2 timeslots + SF4 x 1 code x 1 time slot
	Max. Number of data bits/radio frame	5376 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	1

Downlink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Downlink		Physical Configuration 2
	Midamble	256 chips
	Codes and time slots	SF16 x 4 codes x 2 time slots + SF16 x 3 codes x 2 time slots
	Max. Number of data bits/radio frame	3848 bits
	TFCI code word	16 bits
	Puncturing limit	0.84

Sub-tests:

Sub-test	**Downlink TFCS Under test**	**Uplink TFCS Under test**	**Implicitly tested**	**Restricted UL TFCIs** (note 1)	**UL RLC SDU size (bits)** (note 2)	**Test data size (bits)** (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 376	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 888	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1784	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.1 for test procedure.

18.2.2.28.2.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x144).
   - for sub-test 2: RB5/TF2 (7x144).
   - for sub-test 3: RB5/TF3 (14x144).
   - for sub-test 4: RB5/TF4 (20x144).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 having the same content as 1 times plus 256 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 512 lsb's of the DL RLC SDU sent by the SS.

- for sub-test 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.2.2.29 Interactive or background / UL:64 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

18.2.2.29.1 Interactive or background / UL:64 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH / Payload 320

18.2.2.29.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.29.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.29 for the uplink payload 320 case with physical configuration 1.

18.2.2.29.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 1
	Midamble	512 chips
	Codes and time slots	SF16 x 1 code x 1 time slot + SF4 x 1 code x 1 time slot
	Max. Number of data bits/radio frame	1148 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	0.48 (alt. 0.44)

Downlink TFS:

	TFI	RB5 (144 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	9x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 2872	RB5: 2872

NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 18.2.1.1 for test procedure.

18.2.2.29.1.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336) or RB5/TF1 (1x336).
   - for sub-test 3: RB5/TF3 (3x336) or RB5/TF1 (1x336).
   - for sub-test 4: RB5/TF4 (4x336) or RB5/TF1 (1x336).
   - for sub-test 5: RB5/TF3 (3x336) or RB5/TF1 (1x336).
3. At step 15 the UE shall return
   - for sub-test 1, 2, 4 and 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 640 lsb's of the DL RLC SDU sent by the SS.

18.2.2.29.2 Interactive or background / UL:64 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH / Payload 128, Physical Configuration 2

18.2.2.29.2.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.29.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.29 for the uplink payload 128 case with physical configuration 2.

18.2.2.29.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	3x144	N/A
	TF3, bits	7x144	N/A
	TF4, bits	10x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 2
	Midamble	512 chips
	Codes and time slots	SF2 x 1 code x 1 time slot + SF4 x 1 code x 1 time slot
	Max. Number of data bits/radio frame	2784 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	1

Downlink TFS:

	TFI	**RB5 (144 kbps)**	**DCCH**
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	9x336	N/A

Downlink TFCS:

TFCI	**(RB5, DCCH)**
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 376	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 760	RB5: 632
3	DL_TFC3	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 3576	RB5: 2872

NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 18.2.1.1 for test procedure.

18.2.2.29.2.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x144).
   - for sub-test 2: RB5/TF2 (3x144).
   - for sub-test 3: RB5/TF4 (10x144).
   - for sub-test 4: RB5/TF4 (10x144).
   - for sub-test 5: RB5/TF3 (7x144).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 having the same content as 1 times plus 128 lsb's of the DL RLC SDU sent by the SS.

- for sub-test 3 and 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
- for sub-test 5: an RLC SDU on RB5 having the same content as 1 times plus 712 lsb's of the DL RLC SDU sent by the SS.

18.2.2.30 Interactive or background / UL:144 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

18.2.2.30.1 Interactive or background / UL:144 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH / Payload 320, TTI 20 ms

18.2.2.30.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.30.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.30 for the uplink payload 320, TTI 20 ms case.

18.2.2.30.1.3 Method of test

Uplink TFS:

	TFI	RB5 (144 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	9x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF0, TF1)
UL_TFC7	(TF1, TF1)
UL_TFC8	(TF2, TF1)
UL_TFC9	(TF3, TF1)
UL_TFC10	(TF4, TF1)
UL_TFC11	(TF5, TF1)

Downlink TFS:

	TFI	RB5 (144 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	9x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 1272	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 2872	RB5: 2872
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC6 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.1 for test procedure.

18.2.2.30.1.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (4x336).

- for sub-test 4: RB5/TF4 (8x336).
- for sub-test 5: RB5/TF5 (9x336).

3. At step 15 the UE shall return
   - for sub-test 1 to 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.2.2.30.2 Interactive or background / UL:144 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH / Payload 128, TTI 40 ms

18.2.2.30.2.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.30.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.30 for the uplink payload 128, TTI 40 ms case.

18.2.2.30.2.3 Method of test

Uplink TFS:

	TFI	RB5 (144 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	10x144	N/A
	TF3, bits	20x144	N/A
	TF4, bits	30x144	N/A
	TF5, bits	45x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF0, TF1)
UL_TFC7	(TF1, TF1)
UL_TFC8	(TF2, TF1)
UL_TFC9	(TF3, TF1)
UL_TFC10	(TF4, TF1)
UL_TFC11	(TF5, TF1)

Downlink TFS:

	TFI	RB5 (144 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	9x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7	RB5: 376	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 1272	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 2552	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 3832	RB5: 2552
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 5752	RB5: 2872
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC6 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.1 for test procedure.

18.2.2.30.2.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x144).
   - for sub-test 2: RB5/TF2 (10x144).
   - for sub-test 3: RB5/TF3 (20x144).

- for sub-test 4: RB5/TF4 (30x144).
- for sub-test 5: RB5/TF5 (45x144).

3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 having the same content as 1 times plus 640 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 1280 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 4: an RLC SDU on RB5 having the same content as 1 times plus 1280 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 5: an RLC SDU on RB5 having the same content as 1 times plus 2880 lsb's of the DL RLC SDU sent by the SS.

18.2.2.31 Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

18.2.2.31.1 Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH/ Payload 320, 10 ms TTI Down Link, Physical Configuration 1

18.2.2.31.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.31.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.31 for the uplink payload 320, the downlink 10 ms TTI, and physical configuration 1 case.

18.2.2.31.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 1
	Midamble	512 chips
	Codes and time slots	SF16 x 1 code x 1 time slot + SF4 x 1 code x 1 time slot
	Max. Number of data bits/radio frame	1148 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	0.48 (alt. 0.44)

Downlink TFS:

	TFI	RB5 (256 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552

NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 18.2.1.1 for test procedure.

18.2.2.31.1.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336) or RB5/TF1 (1x336).
   - for sub-test 3: RB5/TF3 (3x336) or RB5/TF1 (1x336).
   - for sub-test 4: RB5/TF4 (4x336) or RB5/TF1 (1x336).
3. At step 15 the UE shall return
   - for sub-test 1, 2 and 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 640 lsb's of the DL RLC SDU sent by the SS.

18.2.2.31.2 Interactive or background / UL:64 DL:256 kbps / PS RAB / Payload 128, 20 ms TTI Down Link, Physical Configuration 2

18.2.2.31.2.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.31.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.31 for the uplink payload 128, the downlink 20 ms TTI, and physical configuration 2 case.

18.2.2.31.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	3x144	N/A
	TF3, bits	7x144	N/A
	TF4, bits	10x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 2
	Midamble	512 chips
	Codes and time slots	SF2 x 1 code x 1 time slot + SF4 x 1 code x 1 time slot
	Max. Number of data bits/radio frame	2784 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	1

Downlink TFS:

	TFI	RB5 (256 kbps, 20ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF0, TF1)
DL_TFC8	(TF1, TF1)
DL_TFC9	(TF2, TF1)
DL_TFC10	(TF3, TF1)
DL_TFC11	(TF4, TF1)
DL_TFC12	(TF5, TF1)
DL_TFC13	(TF6, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 376	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 760	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1784	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 3832	RB5: 3832
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.1 for test procedure.

18.2.2.31.2.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x144).
   - for sub-test 2: RB5/TF2 (3x144).
   - for sub-test 3: RB5/TF3 (7x144).
   - for sub-test 4 to 6: RB5/TF4 (10x144).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 having the same content as 1 times plus 128 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 512 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 4 to 6: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.2.2.32 Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

18.2.2.32.1 Interactive or background / UL:64 DL:384 kbps / PS RAB / Payload 320, 10 ms TTI Down Link, Physical Configuration 1

18.2.2.32.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.32.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.32 for the uplink payload 320, the downlink 10 ms TTI, and physical configuration 1 case.

18.2.2.32.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 1
	Midamble	512 chips
	Codes and time slots	SF16 x 1 code x 1 time slot + SF4 x 1 code x 1 time slot
	Max. Number of data bits/radio frame	1148 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	0.48 (alt. 0.44)

Downlink TFS:

	TFI	RB5 (384 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Physical channel parameters

DPCH Downlink		Physical Configuration 1
	Midamble	256 chips
	Codes and time slots	SF16 x 8 codes x 3 time slots
	Max. Number of data bits/radio frame	6608 bits
	TFCI code word	16 bits
	Puncturing Limit	0.48

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 1)	Test data size (bits) (note 1)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 3832	RB5: 3832

NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 18.2.1.1 for test procedure.

18.2.2.32.1.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336) or RB5/TF1 (1x336).
   - for sub-test 3: RB5/TF3 (3x336) or RB5/TF1 (1x336).
   - for sub-test 4 and 5: RB5/TF4 (4x336) or RB5/TF1 (1x336).
3. At step 15 the UE shall return
   - for sub-test 1, 2, 4 and 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 640 lsb's of the DL RLC SDU sent by the SS.

18.2.2.32.2 Interactive or background / UL:64 DL:384 kbps / PS RAB / Payload 128, 20 ms TTI Down Link, Physical Configuration 2

18.2.2.32.2.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.32.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.32 for the uplink payload 128, the downlink 20 ms TTI, and physical configuration 2 case.

18.2.2.32.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	3x144	N/A
	TF3, bits	7x144	N/A
	TF4, bits	10x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 2
	Midamble	512 chips
	Codes and time slots	SF2 x 1 code x 1 time slot + SF4 x 1 code x 1 time slot
	Max. Number of data bits/radio frame	2784 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	1

Downlink TFS:

	TFI	RB5 (384 kbps, 20ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A
	TF7, bits	20x336	N/A
	TF8, bits	24x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF0, TF1)
DL_TFC10	(TF1, TF1)
DL_TFC11	(TF2, TF1)
DL_TFC12	(TF3, TF1)
DL_TFC13	(TF4, TF1)
DL_TFC14	(TF5, TF1)
DL_TFC15	(TF6, TF1)
DL_TFC16	(TF7, TF1)
DL_TFC17	(TF8, TF1)

Physical channel parameters

DPCH Downlink		Physical Configuration 2
	Midamble	256 chips
	Codes and time slots	SF16 x 6 codes x 4 time slots + SF16 x 4 codes x 1 time slot (alt. SF1 x 1 code x 3 time slots)
	Max. Number of data bits/radio frame	7712 bits (alt. 13232 bits)
	TFCI code word	16 bits
	Puncturing Limit	0.60 (alt. 1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 376	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 760	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1784	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 3832	RB5: 3832
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC9, , UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 6392	RB5: 6392
8	DL_TFC8	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 7672	RB5: 7672
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.1 for test procedure.

18.2.2.32.2.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x144).
   - for sub-test 2: RB5/TF2 (3x144).
   - for sub-test 3: RB5/TF3 (7x144).
   - for sub-test 4 to 8: RB5/TF4 (10x144).
3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
- for sub-test 2: an RLC SDU on RB5 having the same content as 1 times plus 128 lsb's of the DL RLC SDU sent by the SS.
- for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 512 lsb's of the DL RLC SDU sent by the SS.
- for sub-test 4 to 8: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.2.2.33 Interactive or background / UL:128 DL:384 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

18.2.2.33.1 Interactive or background / UL:128 DL:384 kbps / PS RAB / Payload 320, 10 ms TTI Down Link, Physical Configuration 1

18.2.2.33.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.33.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.33 for the uplink payload 320, the downlink 10 ms TTI, and physical configuration 1 case.

18.2.2.33.1.3 Method of test

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 1
	Midamble	256 chips
	Codes and time slots	SF2 x 1 code x 1 timeslot
	Max. Number of data bits/radio frame	2064 bits
	TFCI code word	16 bits

	TPC	2 bits
	Puncturing Limit	0.44 (alt. 0.40)

Downlink TFS:

	TFI	RB5 (384 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Physical channel parameters

DPCH Downlink		Physical Configuration 1
	Midamble	256 chips
	Codes and time slots	SF16 x 8 codes x 3 time slots
	Max. Number of data bits/radio frame	6608 bits
	TFCI code word	16 bits
	Puncturing Limit	0.48

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1272	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 3832	RB5: 3832
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC5 are part of minimum set of TFCIs. NOTE2 : See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.2.1.1 for test procedure.

18.2.2.33.1.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (4x336).
   - for sub-test 4 and 5: RB5/TF4 (8x336).
3. At step 15 the UE shall return
   - for sub-test 1 to 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.2.2.33.2 Interactive or background / UL:128 DL:384 kbps / PS RAB / Payload 128, 20 ms TTI Down Link, Physical Configuration 2

18.2.2.33.2.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.33.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.33 for the uplink payload 128, the downlink 20 ms TTI, and physical configuration 2 case.

18.2.2.33.2.3 Method of test

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	7x144	N/A
	TF3, bits	14x144	N/A
	TF4, bits	20x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 2
	Midamble	256 chips
	Codes and time slots	SF2 x 1 code x 2 timeslots + SF4 x 1 code x 1 time slot
	Max. Number of data bits/radio frame	5376 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	1

Downlink TFS:

	TFI	RB5 (384 kbps, 20ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A
	TF7, bits	20x336	N/A
	TF8, bits	24x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF0, TF1)
DL_TFC10	(TF1, TF1)
DL_TFC11	(TF2, TF1)
DL_TFC12	(TF3, TF1)
DL_TFC13	(TF4, TF1)
DL_TFC14	(TF5, TF1)
DL_TFC15	(TF6, TF1)
DL_TFC16	(TF7, TF1)
DL_TFC17	(TF8, TF1)

Physical channel parameters

DPCH Downlink		Physical Configuration 2
	Midamble	256 chips
	Codes and time slots	SF16 x 6 codes x 4 time slots + SF16 x 4 codes x 1 time slot (alt. SF1 x 1 code x 3 time slots)
	Max. Number of data bits/radio frame	7712 bits (alt. 13232 bits)
	TFCI code word	16 bits
	Puncturing Limit	0.60 (alt. 1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 376	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 888	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1784	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5,	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 3832
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 7672	RB5: 6392
8	DL_TFC8	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4 UL_TFC5, UL_TFC9	RB5: 7672	RB5: 7672

NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

See 18.2.1.1 for test procedure.

18.2.2.33.2.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x144).
   - for sub-test 2: RB5/TF2 (7x144).
   - for sub-test 3: RB5/TF3 (14x144).

- for sub-test 4 to 8: RB5/TF4 (20x144).

3. At step 15 the UE shall return

   - for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 having the same content as 1 times plus 256 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 512 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 4, 6, and 8: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 5: an RLC SDU on RB5 having the same content as 1 times plus 1280 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 7: an RLC SDU on RB5 having the same content as 1 times plus 1280 lsb's of the DL RLC SDU sent by the SS.

18.2.2.34 Interactive or background / UL:384 DL:384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.2.34.1 Interactive or background / UL:384 DL:384 kbps / PS RAB / 10 ms TTI, Physical Configuration 1

18.2.2.34.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.34.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.34 for the 10 ms TTI, physical configuration 1 case.

18.2.2.34.1.3 Method of test

Uplink TFS:

	TFI	RB5 (384 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF0, TF1)
UL_TFC7	(TF1, TF1)
UL_TFC8	(TF2, TF1)
UL_TFC9	(TF3, TF1)
UL_TFC10	(TF4, TF1)
UL_TFC11	(TF5, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 1
	Midamble	256 chips
	Codes and time slots	SF2 x 1 code x 3 time slots
	Max. Number of data bits/radio frame	6480 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	0.48

Downlink TFS:

	TFI	RB5 (384 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Physical channel parameters

DPCH Downlink		Physical Configuration 1
	Midamble	256 chips
	Codes and time slots	SF16 x 8 codes x 3 time slots
	Max. Number of data bits/radio frame	6608 bits
	TFCI code word	16 bits
	Puncturing Limit	0.48

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 1272	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 3832	RB5: 3832
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC6 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.1 for test procedure.

18.2.2.34.1.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (4x336).
   - for sub-test 4: RB5/TF4 (8x336).
   - for sub-test 5: RB5/TF4 (12x336).

3. At step 15 the UE shall return

   - for sub-test 1 to 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.2.2.34.2 Interactive or background / UL:384 DL:384 kbps / PS RAB / 20 ms TTI, Physical Configuration 2

18.2.2.34.2.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.34.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.34. for the 20 ms TTI, physical configuration 2 case

18.2.2.34.2.3 Method of test

Uplink TFS:

	TFI	RB5 (384 kbps, 20ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A
	TF7, bits	20x336	N/A
	TF8, bits	24x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF6, TF0)
UL_TFC7	(TF7, TF0)
UL_TFC8	(TF8, TF0)
UL_TFC9	(TF0, TF1)
UL_TFC10	(TF1, TF1)
UL_TFC11	(TF2, TF1)
UL_TFC12	(TF3, TF1)
UL_TFC13	(TF4, TF1)
UL_TFC14	(TF5, TF1)
UL_TFC15	(TF6, TF1)
UL_TFC16	(TF7, TF1)
UL_TFC17	(TF8, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 2
	Midamble	256 chips
	Codes and time slots	SF2 x 1 code x 5 timeslots + SF4 x 1 code x 2 timeslots (alt. {SF2 x 1 code + SF4 x 1 code} x 4 timeslots)

	Max. Number of data bits/radio frame	13104 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	1

Downlink TFS:

	TFI	RB5 (384 kbps, 20ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A
	TF7, bits	20x336	N/A
	TF8, bits	24x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF0, TF1)
DL_TFC10	(TF1, TF1)
DL_TFC11	(TF2, TF1)
DL_TFC12	(TF3, TF1)
DL_TFC13	(TF4, TF1)
DL_TFC14	(TF5, TF1)
DL_TFC15	(TF6, TF1)
DL_TFC16	(TF7, TF1)
DL_TFC17	(TF8, TF1)

Physical channel parameters

DPCH Downlink		Physical Configuration 2
	Midamble	256 chips
	Codes and time slots	SF16 x 6 codes x 4 time slots + SF16 x 4 codes x 1 time slot (alt. SF1 x 1 code x 3 time slots)
	Max. Number of data bits/radio frame	7712 bits (alt. 13232 bits)
	TFCI code word	16 bits
	Puncturing Limit	0.60 (alt. 1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC10	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC9, UL_TFC11	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC9, UL_TFC12	RB5: 1272	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC9, UL_TFC13	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC9, UL_TFC14	RB5: 3832	RB5: 3832
6	DL_TFC6	UL_TFC6	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC9, UL_TFC15	RB5: 5112	RB5: 5112
7	DL_TFC7	UL_TFC7	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC7, UL_TFC9, UL_TFC16	RB5: 6392	RB5: 6392
8	DL_TFC8	UL_TFC8	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC8, UL_TFC9, UL_TFC17	RB5: 7672	RB5: 7672
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC9 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.1 for test procedure.

18.2.2.34.2.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (4x336).
   - for sub-test 4: RB5/TF4 (8x336).
   - for sub-test 5: RB5/TF5 (12x336).

- for sub-test 6: RB5/TF6 (16x336).
- for sub-test 7: RB5/TF7 (20x336).
- for sub-test 8: RB5/TF8 (24x336).

3. At step 15 the UE shall return
   - for sub-test 1 to 8: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.2.2.35 Interactive or background / UL:64 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.2.35.1 Interactive or background / UL:64 DL:2048 kbps / PS RAB / Payload 320, 10 ms TTI Down Link, Physical Configuration 1

18.2.2.35.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.35.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.35 for the uplink payload 320, the downlink 10 ms TTI, and physical configuration 1 case.

18.2.2.35.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (2048 kbps, 10ms)	DCCH
TFS	TF0, bits	0x656	0x148
	TF1, bits	1x656	1x148
	TF2, bits	2x656	N/A
	TF3, bits	4x656	N/A
	TF4, bits	8x656	N/A
	TF5, bits	12x656	N/A
	TF6, bits	16x656	N/A
	TF7, bits	20x656	N/A
	TF8, bits	24x656	N/A
	TF9, bits	28x656	N/A
	TF10, bits	31x656	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF9, TF0)
DL_TFC10	(TF10, TF0)
DL_TFC11	(TF0, TF1)
DL_TFC12	(TF1, TF1)
DL_TFC13	(TF2, TF1)
DL_TFC14	(TF3, TF1)
DL_TFC15	(TF4, TF1)
DL_TFC16	(TF5, TF1)
DL_TFC17	(TF6, TF1)
DL_TFC18	(TF7, TF1)
DL_TFC19	(TF8, TF1)
DL_TFC20	(TF9, TF1)
DL_TFC21	(TF10, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 1
	Midamble	256 chips
	Codes and time slots	SF2 x 1 code x 3 time slots
	Max. Number of data bits/radio frame	6480 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	0.48

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 632	RB5: 632
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 1272	RB5: 1272
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 2872	RB5: 2552
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 7672	RB5: 7672
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 10232	RB5: 10232
7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 12792	RB5: 12792
8	DL_TFC8	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 15352	RB5: 15352
9	DL_TFC9	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 17912	RB5: 17912
10	DL_TFC10	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 20472	RB5: 20472

NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

See 18.2.1.1 for test procedure.

18.2.2.35.1.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (3x336).
   - for sub-test 4 to 10: RB5/TF4 (4x336).
3. At step 15 the UE shall return
   - for sub-test 1, 2, and 4 to 10: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 320 lsb's of the DL RLC SDU sent by the SS.

18.2.2.35.2 Interactive or background / UL:64 DL:2048 kbps / PS RAB / Payload 128, 20 ms TTI Down Link, Physical Configuration 2

18.2.2.35.2.1 Conformance requirement

See 18.2.2.4.1.

18.2.2.35.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.1.35 for the uplink payload 128, the downlink 20 ms TTI, and physical configuration 2 case.

18.2.2.35.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	3x144	N/A
	TF3, bits	7x144	N/A
	TF4, bits	10x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (2048 kbps, 10ms)	DCCH
TFS	TF0, bits	0x656	0x148
	TF1, bits	1x656	1x148
	TF2, bits	2x656	N/A
	TF3, bits	4x656	N/A
	TF4, bits	8x656	N/A
	TF5, bits	12x656	N/A
	TF6, bits	16x656	N/A
	TF7, bits	20x656	N/A
	TF8, bits	24x656	N/A
	TF9, bits	28x656	N/A
	TF10, bits	32x656	N/A
	TF11, bits	36x656	N/A
	TF12, bits	40x656	N/A
	TF13, bits	44x656	N/A
	TF14, bits	48x656	N/A
	TF15, bits	52x656	N/A
	TF16, bits	56x656	N/A
	TF17, bits	60x656	N/A
	TF18, bits	64x656	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF9, TF0)
DL_TFC10	(TF10, TF0)
DL_TFC11	(TF11, TF0)
DL_TFC12	(TF12, TF0)
DL_TFC13	(TF13, TF0)
DL_TFC14	(TF14, TF0)
DL_TFC15	(TF15, TF0)
DL_TFC16	(TF16, TF0)
DL_TFC17	(TF17, TF0)
DL_TFC18	(TF18, TF0)
DL_TFC19	(TF0, TF1)
DL_TFC20	(TF1, TF1)
DL_TFC21	(TF2, TF1)
DL_TFC22	(TF3, TF1)
DL_TFC23	(TF4, TF1)
DL_TFC24	(TF5, TF1)
DL_TFC25	(TF6, TF1)
DL_TFC26	(TF7, TF1)
DL_TFC27	(TF8, TF1)
DL_TFC28	(TF9, TF1)
DL_TFC29	(TF10, TF1)
DL_TFC30	(TF11, TF1)
DL_TFC31	(TF12, TF1)
DL_TFC32	(TF13, TF1)
DL_TFC33	(TF14, TF1)
DL_TFC34	(TF15, TF1)

TFCI	(RB5, DCCH)
DL_TFC35	(TF16, TF1)
DL_TFC36	(TF17, TF1)
DL_TFC37	(TF18, TF1)

Physical channel parameters

DPCH Downlink		Physical Configuration 2
	Midamble	256 chips
	Codes and time slots	SF16 x 13 codes x 4 time slots + SF16 x 12 codes x 7 time slot
	Max. Number of data bits/radio frame	37520 bits (alt. 37504)
	TFCI code word	16 bits (alt. 32 bits)
	Puncturing limit	0.56

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 632	RB5: 632
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 1536	RB5: 1272
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 2688	RB5: 2552
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 7672	RB5: 7672
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 10232	RB5: 10232
7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 12792	RB5: 12792
8	DL_TFC8	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 15352	RB5: 15352

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
9	DL_TFC9	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 17912	RB5: 17912
10	DL_TFC10	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 20472	RB5: 20472
11	DL_TFC11	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 23032	RB5: 23032
12	DL_TFC12	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 25592	RB5: 25592
13	DL_TFC13	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4 UL_TFC5, UL_TFC9	RB5: 28152	RB5: 28152
14	DL_TFC14	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 30712	RB5: 30712
15	DL_TFC15	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 33272	RB5: 33272
16	DL_TFC16	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 35832	RB5: 35832
17	DL_TFC17	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4 UL_TFC5, UL_TFC9	RB5: 38392	RB5: 38392
18	DL_TFC18	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 40952	RB5: 40952

NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

See 18.2.1.1 for test procedure.

18.2.2.35.2.4 Test requirements

See 18.2.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x144).
   - for sub-test 2: RB5/TF2 (3x144).
   - for sub-test 3: RB5/TF3 (7x144).
   - for sub-test 4 to 18: RB5/TF4 (10x144).
3. At step 15 the UE shall return
   - for sub-test 1, and 4 to 18: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 having the same content as 1 times plus 264 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 136 lsb's of the DL RLC SDU sent by the SS.

18.2.2.36 Void

18.2.2.37 Void

18.2.3 Combinations on PDSCH, SCCPCH, PUSCH and PRACH

18.2.3.1 Interactive or background / UL: 64 DL: 256 kbps / PS RAB + UL: 3.4/16.8 DL: 3.4/33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.1.1 Interactive or background / UL: 64(payload 320) DL: 256 kbps (10 ms TTI) / PS RAB + UL: 3.4/16.8 DL: 3.4/33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.1.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.1.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.10.3.4.2.1. for the uplink payload of 320 bits and downlink 10 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB, 16.8 kbps SHCCH and the 3.4 kbps DCCH. The Interactive/Background PS RAB on the USCH has a 320 bit Payload Size.
- The RACH channel can carry combinations of the signalling Radio Bearer for 16.8 kbps CCCH, DCCH, and SHCCH excluding or including an Interactive/Background 12.8 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 256 kbps PS RAB, the 16 kbps SHCCH and the 3.4 kbps DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI.
- The FACH can carry combinations of the signalling Radio Bearer for 33.6 kbps CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 32 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.3.1.1.3 Method of test

The contents of the System Information Block type 5 are specified in clause 8.1.2.2 with the following modifications.

- PUSCH system information	
- PUSCH Identity	1
- PUSCH info	
- TFCS ID	1
- Common timeslot info	
- 2nd interleaving mode	Frame
- TFCI coding	16
- Puncturing Limit	0.40
- Repetition period	1
- Repetition length	1
- PUSCH timeslots and codes	
- Dynamic SF usage	FALSE
- First timeslot Code List	1
- Channelisation Code	As required by individual test below
- CHOISE more timeslots	As required by individual test below
- USCH TFS	As required by individual test below
- USCH TFCS	As required by individual test below

Uplink TFS for the 64 kbps USCH:

	TFI	DTCH	SHCCH (SRB#5)	DCCH (SRB#1 – SRB#4)
TFS	TF0, bits	0x337	0x169	0x149
	TF1, bits	1x337	1x169	1x149
	TF2, bits	2x337	N/A	N/A
	TF3, bits	3x337	N/A	N/A
	TF4, bits	4x337	N/A	N/A

Uplink TFCS for the 64 kbps USCH:

TFCI	(DTCH, SHCCH, DCCH)
UL_USCH_TFC0	(TF0, TF0, TF0)
UL_USCH_TFC1	(TF1, TF0, TF0)
UL_USCH_TFC2	(TF2, TF0, TF0)
UL_USCH_TFC3	(TF3, TF0, TF0)
UL_USCH_TFC4	(TF4, TF0, TF0)
UL_USCH_TFC5	(TF0, TF1, TF0)
UL_USCH_TFC6	(TF1, TF1, TF0)
UL_USCH_TFC7	(TF2, TF1, TF0)
UL_USCH_TFC8	(TF3, TF1, TF0)
UL_USCH_TFC9	(TF4, TF1, TF0)
UL_USCH_TFC10	(TF0, TF0, TF1)
UL_USCH_TFC11	(TF1, TF0, TF1)
UL_USCH_TFC12	(TF2, TF0, TF1)
UL_USCH_TFC13	(TF3, TF0, TF1)
UL_USCH_TFC14	(TF4, TF0, TF1)
UL_USCH_TFC15	(TF0, TF1, TF1)
UL_USCH_TFC16	(TF1, TF1, TF1)
UL_USCH_TFC17	(TF2, TF1, TF1)
UL_USCH_TFC18	(TF3, TF1, TF1)
UL_USCH_TFC19	(TF4, TF1, TF1)

Uplink TFS for the RACH without DTCH:

	TFI	CCCH (SRB#0)	DCCH (SRB#1 – SRB#5)	SHCCH (SRB#5)
TFS	TF0, bits	1x170	1x170	1x170

Uplink TFCS for the RACH without DTCH:

TFCI	(CCCH, DCCH, SHCCH)
UL_RACH_TFC0	(TF0)

Uplink TFS for the RACH with DTCH:

	TFI	DTCH (20 ms TTI)	CCCH (SRB#0)	DCCH (SRB#1 – SRB#4)	SHCCH (SRB#5)
TFS	TF0, bits	1x170	1x170	1x170	1x170

Uplink TFCS for the RACH with DTCH:

TFCI	(DTCH, CCCH, DCCH, SHCCH)
UL_RACH_DTCH_ TFC0	(TF0)

Downlink TFS for 256 kbps DSCH:

	TFI	DTCH(256kbps)	SHCCH SRB#5	DCCH SRB#1-#4
TFS	TF0, bits	0x337	0x169	0x149
	TF1, bits	1x337	1x169	1x149
	TF2, bits	2x337	N/A	N/A
	TF3, bits	4x337	N/A	N/A
	TF4, bits	8x337	N/A	N/A

Downlink TFCS for the 256 kbps DSCH:

TFCI	DTCH, SHCCH, DCCH
DL_DSCH_TFC0	(TF0, TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0, TF0),
DL_DSCH_TFC2	(TF2, TF0, TF0),
DL_DSCH_TFC3	(TF3, TF0, TF0),
DL_DSCH_TFC4	(TF4, TF0, TF0),
DL_DSCH_TFC5	(TF0, TF1, TF0),
DL_DSCH_TFC6	(TF1, TF1, TF0),
DL_DSCH_TFC7	(TF2, TF1, TF0),
DL_DSCH_TFC8	(TF3, TF1, TF0),
DL_DSCH_TFC9	(TF4, TF1, TF0),
DL_DSCH_TFC10	(TF0, TF0, TF1),
DL_DSCH_TFC11	(TF1, TF0, TF1),
DL_DSCH_TFC12	(TF2, TF0, TF1),
DL_DSCH_TFC13	(TF3, TF0, TF1),
DL_DSCH_TFC14	(TF4, TF0, TF1),
DL_DSCH_TFC15	(TF0, TF1, TF1),
DL_DSCH_TFC16	(TF1, TF1, TF1),
DL_DSCH_TFC17	(TF2, TF1, TF1),
DL_DSCH_TFC18	(TF3, TF1, TF1),
DL_DSCH_TFC19	(TF4, TF1, TF1)

Downlink TFS for FACH without DTCH:

	TFI	CCCH/DCCH/SHCCH/BCCH
TFS	TF0, bits	0x171
	TF1, bits	1x171
	TF2, bits	2x171
	TF3, bits	3x171
	TF4 ,bits	4x171

Downlink TFCS for FACH without DTCH:

TFCI	CCCH/DCCH/SHCCH/BCCH
DL_FACH_TFC0	TF0
DL_ FACH_TFC1	TF1
DL_ FACH_TFC2	TF2
DL_ FACH_TFC3	TF3
DL_ FACH_TFC4	TF4

Downlink TFS for FACH with DTCH:

	TFI	DTCH/CCCH/DCCH/SHCCH/BCCH
TFS	TF0, bits	0x171
	TF1, bits	1x171
	TF2, bits	2x171
	TF3, bits	1x363
	TF4 ,bits	3x171
	TF5, bits	4x171
	TF6, bits	2x363

Downlink TFCS for FACH with DTCH:

TFCI	DTCH/CCCH/DCCH/SHCCH/BCCH
DL_ FACH_TFC0_DTCH	TF0
DL_ FACH_TFC1_DTCH	TF1
DL_ FACH_TFC2_DTCH	TF2
DL_ FACH_TFC3_DTCH	TF3
DL_ FACH_TFC4_DTCH	TF4
DL_ FACH_TFC5_DTCH	TF5
DL_ FACH_TFC6_DTCH	TF6

Sub-tests for RACH/FACH:

See Section 18.2.6.1

Sub-tests – USCH & DSCH:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 312	DTCH: 312
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 632	DTCH: 632
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 1912	DTCH: 1272
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 2552	DTCH: 2552

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10, UL_TFC11, and UL_TFC15 are part of the minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
DTCH: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

See 18.2.1.3 for test procedure.

18.2.3.1.1.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x337).
   - for sub-test 2: DTCH/TF2 (2x337).
   - for sub-test 3: DTCH/TF3 (3x337).
   - for sub-test 4: DTCH/TF4 (4x337).
4. At step 15 the UE shall return
   - for sub-test 1, 2, and 4: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

- for sub-test 3: an RLC SDU on DTCH having the first 1272 bits equal to the content as the DL RLC SDU sent by the SS in the downlink.

18.2.3.1.2 Interactive or background / UL: 64(145 bit TBS – 20 ms TTI) DL: 256 kbps (337 bit TBS – 10 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.1.2.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.1.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.10.3.4.2.1 for the downlink 10 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB, SHCCH and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 64 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 256 kbps PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 256 kbps UL PS RAB channel has a 145 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 256 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.3.1.2.3 Method of test

Uplink TFS for the 64 kbps USCH – 145 bit TBS & 20 ms TTI:

	TFI	DTCH	SHCCH (SRB#5)	DCCH (SRB#1 – SRB#4)
TFS	TF0, bits	0x145	0x169	0x149
	TF1, bits	1x145	1x169	1x149
	TF2, bits	3x145	N/A	N/A
	TF3, bits	7x145	N/A	N/A
	TF4, bits	10x145	N/A	N/A

Uplink TFCS for the 64 kbps USCH – 145 bit TBS & 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.2.3.1.1.3

Uplink TFCS for the RACH without DTCH:

See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.2.3.1.1.3

Uplink TFCS for the RACH with DTCH:

See corresponding table in 18.2.3.1.1.3

Downlink TFS for 256 kbps DSCH – 10 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFCS for 256 kbps DSCH - 10 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Sub-test for RACH/FACH – 20 ms TT1:

See Section 18.2.6.1

Sub-tests – USCH (337 bit TBS & 20 ms TTI) & DSCH (337 bit TBS & 10 ms TTI):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 376 (128x1)x3 - 8	DTCH: 312 (320 x 1) - 8
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15,	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 760 (128x3)x2 - 8	DTCH: 632 (320 x 2) - 8
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15,	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 1784 (7x128) x 2 - 8	DTCH: 1272 (4 x 320) - 8
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 2552 (10x128) x 2 - 8	DTCH: 2552 (8 x 320) - 8

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
DTCH: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

See 18.2.1.3 for test procedure.

18.2.3.1.2.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x145).
   - for sub-test 2: DTCH/TF2 (3x145).
   - for sub-test 3: DTCH/TF3 (7x145).
   - for sub-test 4: DTCH/TF4 (10x145).
4. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on DTCH having the first 312 bits equal to the content of the DL RLC SDU sent by the SS.
- for sub-test 2: an RLC SDU on DTCH having the first 632 bits equal to the content of the DL RLC SDU sent by the SS.
- for sub-test 3: an RLC SDU on DTCH having the first 1272 bits equal to the content of the DL RLC SDU sent by the SS.
- for sub-test 4: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS

18.2.3.1.3 Interactive or background / UL: 64(337 bit TBS – 20 ms TTI) DL: 256 kbps (337 bit TBS – 20 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.1.3.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.1.3.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.10.3.4.2.1 for the downlink 20 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB, SHCCH and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 64 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the 256 kbps Interactive/Background PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 20 ms TTI. The Interactive/Background 256 kbps UL PS RAB channel has a 337 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 256 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.3.1.3.3 Method of test

Uplink TFS for the 64 kbps USCH – 337 bit TBS & 20 ms TTI:

See corresponding table in Section 18.2.3.1.1.3

Uplink TFS for the 64 kbps USCH – 337 bit TBS & 20 ms TTI:

See corresponding table in Section 18.2.3.1.1.3

Uplink TFS for the RACH without DTCH:

See corresponding table in Section 18.2.3.1.1.3

Uplink TFCS for the RACH without DTCH:

See corresponding table in Section 18.2.3.1.1.3

Uplink TFS for the RACH with DTCH:

See corresponding table in Section 18.2.3.1.1.3

Uplink TFCS for the RACH with DTCH:

See corresponding table in Section 18.2.3.1.1.3

Downlink TFS for 256 kbps DSCH – 337 bit TBS & 20 ms TTI:

	TFI	DTCH(256kbps)	SHCCH SRB#5	DCCH SRB#1-#4
TFS	TF0, bits	0x337	0x169	0x149
	TF1, bits	1x337	1x169	1x149
	TF2, bits	2x337	N/A	N/A
	TF3, bits	4x337	N/A	N/A
	TF4, bits	8x337	N/A	N/A
	TF5, bits	12x337	N/A	N/A
	TF6, bits	16x337	N/A	N/A

Downlink TFS for 256 kbps DSCH – 337 bit TBS & 20 ms TTI:

TFCI	DTCH, SHCCH, DCCH
DL_DSCH_TFC0	(TF0, TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0, TF0),
DL_DSCH_TFC2	(TF2, TF0, TF0),
DL_DSCH_TFC3	(TF3, TF0, TF0),
DL_DSCH_TFC4	(TF4, TF0, TF0),
DL_DSCH_TFC5	(TF5, TF0, TF0),
DL_DSCH_TFC6	(TF6, TF0, TF0),
DL_DSCH_TFC7	(TF0, TF1, TF0),
DL_DSCH_TFC8	(TF1, TF1, TF0),
DL_DSCH_TFC9	(TF2, TF1, TF0),
DL_DSCH_TFC10	(TF3, TF1, TF0),
DL_DSCH_TFC11	(TF4, TF1, TF0),
DL_DSCH_TFC12	(TF5, TF1, TF0),
DL_DSCH_TFC13	(TF6, TF1, TF0),
DL_DSCH_TFC14	(TF0, TF0, TF1),
DL_DSCH_TFC15	(TF1, TF0, TF1),
DL_DSCH_TFC16	(TF2, TF0, TF1),
DL_DSCH_TFC17	(TF3, TF0, TF1),
DL_DSCH_TFC18	(TF4, TF0, TF1),
DL_DSCH_TFC19	(TF5, TF0, TF1),
DL_DSCH_TFC20	(TF6, TF0, TF1),
DL_DSCH_TFC21	(TF0, TF1, TF1),
DL_DSCH_TFC22	(TF1, TF1, TF1),
DL_DSCH_TFC23	(TF2, TF1, TF1),
DL_DSCH_TFC24	(TF3, TF1, TF1),
DL_DSCH_TFC25	(TF4, TF1, TF1),
DL_DSCH_TFC26	(TF5, TF1, TF1),
DL_DSCH_TFC27	(TF6, TF1, TF1)

Downlink TFS for FACH without DTCH – 20 ms TTI:

See corresponding table in Section 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

See corresponding table in Section 18.2.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in Section 18.2.3.1.1.3

Downlink TFCS for FACH with DTCH – 20 ms TTI:

See corresponding table in Section 18.2.3.1.1.3

Sub-tests for RACH/FACH – 20 ms TTI:

See Section 18.2.6.1

Sub-tests for DSCH/USCH – 20 ms TTI & UL TBS (337 bit) and DL TBS (337 bit):

Sub-tests – USCH (337 bit TBS & 20 ms TTI) & DSCH (337 bit TBS & 20 ms TTI):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 312 (1 x 320) - 8	DTCH: 312 (1 x 320) - 8
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 632 (2 x 320) - 8	DTCH: 632 (1 x 320) - 8
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 1912 (3 x 320) - 8	DTCH: 1272 (4 x 320) - 8
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 2552 (4 x 320) x 2 - 8	DTCH: 2552 (8 x 320) - 8
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 3832 (4 x 320) x 3 - 8	DTCH: 3832 (12 x 320) - 8
6	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 5112 (4 x 320) x 4 - 8	DTCH: 5112 (16 x 320) - 8

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

See 18.2.1.3 for test procedure.

18.2.3.2.3.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x337).
   - for sub-test 2: DTCH/TF2 (2x337).
   - for sub-test 3: DTCH/TF3 (3x337).
   - for sub-test 4, 5, and 6: DTCH/TF4 (4x337).
4. At step 15 the UE shall return
   - for sub-test 1, 2, 4, 5, and 6: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on DTCH having the first 1272 bits equal content as the DL RLC SDU sent by the SS.

18.2.3.1.4 Interactive or background / UL: 64(145 bit TBS – 20 ms TTI) DL: 256 kbps (337 bit TBS – 20 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH 64 kbps + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.1.4.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.1.4.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.10.3.4.2.1 for the downlink 20 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB, SHCCH and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 64 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the 256 kbps Interactive/Background PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 20 ms TTI. The Interactive/Background 256 kbps UL PS RAB channel has a 145 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 256 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.3.1.4.3 Method of test

Uplink TFS for the 64 kbps USCH – 145 bit TBS & 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Uplink TFCS for the 64 kbps USCH – 145 bit TBS & 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.2.3.1.1.3

Uplink TFCS for the RACH without DTCH:

See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.2.3.1.1.3

Uplink TFCS for the RACH with DTCH:

See corresponding table in 18.2.3.1.1.3

Downlink TFS for 256 kbps DSCH – 20 ms TTI:

See corresponding table in 18.2.3.1.3.2

Downlink TFCS for the 256 kbps DSCH – 20 ms TTI:

See corresponding table in 18.2.3.1.3.2

Downlink TFS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Sub-test for RACH/FACH – 20 ms TT1:

See Section 18.2.6.1

Sub-tests – USCH (145 bit TBS & 20 ms TTI) & DSCH (337 bit TBS & 10 ms TTI):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 376 (128 x 1)x3 - 8	DTCH: 312
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 760 (128 x 3) x 2 - 8	DTCH: 632
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 1784 (7x128) x 2 - 8	DTCH: 1272
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19,	DTCH: 2552 (10x128) x 2 - 8	DTCH: 2552
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 3832 (10x128) x 3 - 8	DTCH: 3832 (12 x 320) - 8
6	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 5112 (10x128) x 4 - 8	DTCH: 5112 (16 x 320) - 8

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

See 18.2.1.3 for test procedure.

18.2.3.1.4.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST.
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x145).
   - for sub-test 2: DTCH/TF2 (3x145).
   - for sub-test 3: DTCH/TF3 (7x145).
   - for sub-test 4, 5 and 6: DTCH/TF4 (10x145).
4. At step 15 the UE shall return
   - for sub-test 4 to 6: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 1: an RLC SDU on DTCH having the first 312 bits equal content as the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on DTCH having the first 632 bits equal content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on DTCH having the first 1272 bits equal content as the DL RLC SDU sent by the SS.

18.2.3.2 Interactive or background / UL: 64 DL: 384 kbps / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.2.1 Interactive or background / UL: 64(337 bit TBS – 20 ms TTI) DL: 384 kbps (337 bit TBS – 10 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.2.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.2.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.10.3.4.2.2 for the downlink 10 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB, SHCCH and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 64 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 384 kbps PS RAB, the SHCCH and the DCC. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 384 kbps UL PS RAB channel has a 337 bit Transport Block Size (TBS).

- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 384 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.3.2.1.3 Method of Test

Uplink TFS for the 64 kbps USCH – 337 bit TBS & 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Uplink TFS for the 64 kbps USCH – 337 bit TBS & 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.2.3.1.1.3

Downlink TFS for 384 kbps DSCH – 337 bit TBS & 10 ms TTI:

	TFI	**DTCH(384 kbps)**	**SHCCH SRB#5**	**DCCH SRB#1-#4**
TFS	TF0, bits	0x337	0x169	0x149
	TF1, bits	1x337	1x169	1x149
	TF2, bits	2x337	N/A	N/A
	TF3, bits	4x337	N/A	N/A
	TF4, bits	8x337	N/A	N/A
	TF5, bits	12x337	N/A	N/A

Downlink TFS for 384 kbps DSCH – 337 bit TBS & 10 ms TTI:

TFCI	**DTCH,SHCCH,DCCH**
DL_DSCH_TFC0	(TF0, TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0, TF0),
DL_DSCH_TFC2	(TF2, TF0, TF0),
DL_DSCH_TFC3	(TF3, TF0, TF0),
DL_DSCH_TFC4	(TF4, TF0, TF0),
DL_DSCH_TFC5	(TF5, TF0, TF0),
DL_DSCH_TFC6	(TF0, TF1, TF0),
DL_DSCH_TFC7	(TF1, TF1, TF0),
DL_DSCH_TFC8	(TF2, TF1, TF0),
DL_DSCH_TFC9	(TF3, TF1, TF0),
DL_DSCH_TFC10	(TF4, TF1, TF0),
DL_DSCH_TFC11	(TF5, TF1, TF0),
DL_DSCH_TFC12	(TF0, TF0, TF1),
DL_DSCH_TFC13	(TF1, TF0, TF1),
DL_DSCH_TFC14	(TF2, TF0, TF1),
DL_DSCH_TFC15	(TF3, TF0, TF1),
DL_DSCH_TFC16	(TF4, TF0, TF1),
DL_DSCH_TFC17	(TF5, TF0, TF1),
DL_DSCH_TFC18	(TF0, TF1, TF1),
DL_DSCH_TFC19	(TF1, TF1, TF1),
DL_DSCH_TFC20	(TF2, TF1, TF1),
DL_DSCH_TFC21	(TF3, TF1, TF1),
DL_DSCH_TFC22	(TF4, TF1, TF1)
DL_DSCH_TFC23	(TF5, TF1, TF1)

Downlink TFS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Sub-tests for RACH/FACH – 20 ms TTI:

See Section 18.2.6.1

Sub-tests – USCH (337 bit TBS & 20 ms TTI) & DSCH (337 bit TBS & 10 ms TTI):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 312 (1x320)x1 - 8	DTCH: 312
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15,	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 632 (2x320)x1 - 8	DTCH: 632
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 1912 (3 x 320) x 2 - 8	DTCH: 1272
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 2552 (4 x 320) x 2 - 8	DTCH: 2552
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	RB5: 3832 (4 x 320) x 3 - 8	RB5: 3832
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. . RB5: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.2.1.3 for test procedure.

18.2.3.2.1.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x337).

- for sub-test 2: DTCH /TF2 (2x337).
- for sub-test 3: DTCH /TF3 (3x337).
- for sub-test 4 and 5: DTCH /TF4 (4x337)

4. At step 15 the UE shall return
   - for sub-test 1, 2, 4, 5: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the first 1272 bits equal to the content of the DL RLC SDU sent by the SS

18.2.3.2.2 Interactive or background / UL: 64(145 bit TBS – 20 ms TTI) DL: 384 kbps / PS RAB/10 ms TTI/145 bits TBS (337 bit TBS – 10 ms TTI) + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.2.2.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.2.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.10.3.4.2.2 for the downlink 10 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB, SHCCH, and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 64 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 384 kbps PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 256 kbps UL PS RAB channel has a 145 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 384 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.3.2.2.3 Method of test

Uplink TFS for the 64 kbps USCH – Transport Block Size 145 bits:

See corresponding table in 18.2.3.1.1.3

U plink TFCS for the 64 kbps USCH – Transport Block Size 145 bits:

See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.2.3.1.1.3

Downlink TFS for the 384 kbps DSCH – 10 ms TTI:

See corresponding table in 18.2.3.2.1.3

Downlink TFCS for the 384 kbps DSCH - 10 ms TTI:

See corresponding table in 18.2.3.2.1.3

Downlink TFS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Sub-tests for RACH/FACH – 20 ms TTI:

See Section 18.2.6.1

Sub-tests for USCH/DSCH – 10 ms TTI & UL 145 bit TBS and DL 337 bit TBS:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 376 (1x128)x3 - 8	DTCH: 312
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 760 (3x128)x2 - 8	DTCH: 632
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 1784 (7x128)x2 - 8	DTCH: 1272
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 2552 (10x128)x2 - 8	DTCH: 2552
5	DL_DSCH_TFC5	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	RB5: 3832 (3x128)x10 - 8	RB5: 3832

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. .
RB5: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

See 18.2.1.3 for test procedure.

18.2.3.2.2.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x145).
   - for sub-test 2: DTCH /TF2 (3x145).
   - for sub-test 3: DTCH /TF3 (7x145).
   - for sub-test 4: RB5/TF4 (10x145)

4. At step 15 the UE shall return

   - for sub-test 1: an RLC SDU on RB5 having the first 312 bits equal to the content of the DL RLC SDU sent by the SS
   - for sub-test 2: an RLC SDU on RB5 having the first 632 bits equal to the content of the DL RLC SDU sent by the SS
   - for sub-test 3: an RLC SDU on RB5 having the first 1272 bits equal to the content of the DL RLC SDU sent by the SS
   - for sub-tests 4, 5: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

18.2.3.2.3 Interactive or background / UL: 64 (337 bit TBS – 20 ms TTI) DL: 384 kbps (337 bit TBS – 20 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.2.3.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.2.3.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.10.3.4.2.2 for the downlink 20 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB, SHCCH and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 64 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 384 kbps PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 256 kbps UL PS RAB channel has a 337 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 384 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.3.2.3.3 Method of Test

See 18.2.1.3 for test procedure

Uplink TFS for the 64 kbps USCH – Transport Block Size 337 bits:

See corresponding table in 18.2.3.1.1.3

Uplink TFCS for the 64 kbps USCH – Transport Block Size 337 bits:

See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.2.3.1.1.3

Downlink TFS for the 384 kbps DSCH – 20 ms TTI:

	TFI	DTCH(384 kbps)	SHCCH SRB#5	DCCH SRB#1-#4
TFS	TF0, bits	0x337	0x169	0x149
	TF1, bits	1x337	1x169	1x149
	TF2, bits	2x337	N/A	N/A
	TF3, bits	4x337	N/A	N/A
	TF4, bits	8x337	N/A	N/A
	TF5, bits	12x337	N/A	N/A
	TF6, bits	16x337	N/A	N/A
	TF7, bits	20x337	N/A	N/A
	TF8, bits	24x337	N/A	N/A

Downlink TFCS for the 384 kbps DSCH - 20 ms TTI:

TFCI	DTCH
DL_DSCH_TFC0	(TF0, TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0, TF0),
DL_DSCH_TFC2	(TF2, TF0, TF0),
DL_DSCH_TFC3	(TF3, TF0, TF0),
DL_DSCH_TFC4	(TF4, TF0, TF0),
DL_DSCH_TFC5	(TF5, TF0, TF0),
DL_DSCH_TFC6	(TF6, TF0, TF0),
DL_DSCH_TFC7	(TF7, TF0, TF0),
DL_DSCH_TFC8	(TF8, TF0, TF0),
DL_DSCH_TFC9	(TF0, TF1, TF0),
DL_DSCH_TFC10	(TF1, TF1, TF0),
DL_DSCH_TFC11	(TF2, TF1, TF0),
DL_DSCH_TFC12	(TF3, TF1, TF0),
DL_DSCH_TFC13	(TF4, TF1, TF0),
DL_DSCH_TFC14	(TF5, TF1, TF0),
DL_DSCH_TFC15	(TF6, TF1, TF0),
DL_DSCH_TFC16	(TF7, TF1, TF0),
DL_DSCH_TFC17	(TF8, TF1, TF0),
DL_DSCH_TFC18	(TF0, TF0, TF1),
DL_DSCH_TFC19	(TF1, TF0, TF1),
DL_DSCH_TFC20	(TF2, TF0, TF1),
DL_DSCH_TFC21	(TF3, TF0, TF1),
DL_DSCH_TFC22	(TF4, TF0, TF1),
DL_DSCH_TFC23	(TF5, TF0, TF1),
DL_DSCH_TFC24	(TF6, TF0, TF1),
DL_DSCH_TFC25	(TF7, TF0, TF1),
DL_DSCH_TFC26	(TF8, TF0, TF1),
DL_DSCH_TFC27	(TF0, TF1, TF1),
DL_DSCH_TFC28	(TF1, TF1, TF1),
DL_DSCH_TFC29	(TF2, TF1, TF1),
DL_DSCH_TFC30	(TF3, TF1, TF1),
DL_DSCH_TFC31	(TF4, TF1, TF1),
DL_DSCH_TFC32	(TF5, TF1, TF1),
DL_DSCH_TFC33	(TF6, TF1, TF1)
DL_DSCH_TFC34	(TF7, TF1, TF1)
DL_DSCH_TFC35	(TF8, TF1, TF1)

Downlink TFS for FACH without DTCH:

See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Sub-tests for RACH/FACH – 20 ms TTI:

See Section 18.2.6.1

Sub-tests for DSCH/USCH – 20 ms TTI & UL TBS (337 bit) and DL TBS (337 bit):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC9 DL_DSCH_TFC18 DL_DSCH_TFC27 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10 UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6 UL_USCH_TFC10 UL_USCH_TFC11 UL_USCH_TFC15 UL_USCH_TFC16	DTCH: 312	DTCH: 312
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC9 DL_DSCH_TFC18 DL_DSCH_TFC27 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10 UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7 UL_USCH_TFC10 UL_USCH_TFC12 UL_USCH_TFC15 UL_USCH_TFC17	RB5: 632	RB5: 632
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC9 DL_DSCH_TFC18 DL_DSCH_TFC27 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10 UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8 UL_USCH_TFC10 UL_USCH_TFC13 UL_USCH_TFC15 UL_USCH_TFC18	RB5: 1912 (3x320) x 2 - 8	RB5: 1272
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9 DL_DSCH_TFC18 DL_DSCH_TFC27 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10 UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_USCH_TFC10 UL_USCH_TFC14 UL_USCH_TFC15 UL_USCH_TFC19	RB5: 2552	RB5: 2552
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9 DL_DSCH_TFC18 DL_DSCH_TFC27 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10 UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_USCH_TFC10 UL_USCH_TFC14 UL_USCH_TFC15 UL_USCH_TFC19	RB5: 3832	RB5: 3832
6	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9 DL_DSCH_TFC18 DL_DSCH_TFC27 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10 UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_USCH_TFC10 UL_USCH_TFC14 UL_USCH_TFC15 UL_USCH_TFC19	RB5: 5112	RB5: 5112
7	DL_DSCH_TFC7	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, DL_DSCH_TFC18, DL_DSCH_TFC27, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	RB5: 6392	RB5: 6392

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
8	DL_DSCH_TFC8	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	RB5: 6392	RB5: 6392
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. . RB5: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.2.1.3 for test procedure.

18.2.3.2.1.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x337).
   - for sub-test 2: DTCH /TF2 (2x337).
   - for sub-test 3: DTCH /TF3 (3x337).
   - for sub-test 4, 5, 6, 7, and 8: DTCH /TF4 (4x337)
4. At step 15 the UE shall return
   - for sub-test 1, 2, 4, 5, 7 and 8: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the first 1272 bits equal to the content of the DL RLC SDU sent by the SS

18.2.3.2.4 Interactive or background / UL: 64 (145 bit TBS – 20 ms TTI) DL: 384 kbps (337 bit TBS – 20 ms TTI) / PS RAB+ UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.2.4.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.2.4.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.10.3.4.2.1 for the downlink 20 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB, SHCCH and the DCCH.

- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 64 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the 384 kbps Interactive/Background PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 20 ms TTI. The Interactive/Background 384 kbps UL PS RAB channel has a 145 bit Transport Block Size (TBS).

- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 384 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.3.2.4.3 Method of test

Uplink TFCS for the 64 kbps USCH – Transport Block Size 145 bits:

See corresponding table in 18.2.3.1.1.3

Uplink TFCS for the 64 kbps USCH – Transport Block Size 145 bits:

See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.2.3.1.1.3

Uplink TFCS for the RACH without DTCH:

See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.2.3.1.1.3

Uplink TFCS for the RACH with DTCH:

See corresponding table in 18.2.3.1.1.3

Downlink TFS for the 384 kbps DSCH – 20 ms TTI:

See corresponding table in 18.2.3.1.3.2

Downlink TFCS for the 384 kbps DSCH - 20 ms TTI:

See corresponding table in 18.2.3.1.3.2

Downlink TFS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Sub-test for RACH/FACH – 20 ms TT1:

See Section 18.2.6.1

Sub-tests for DSCH/USCH – 20 ms TTI & UL TBS (145 bit) and DL TBS (337 bit):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 376 (1x128)x3 - 8	DTCH: 312
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 760 (3x128)x2 - 8	DTCH: 632
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 1784 (7x128)x2 - 8	DTCH: 1272
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 2552 (10x128)x2 - 8	DTCH: 2552
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 3832 (10x128)x3 - 8	DTCH: 3832
6	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 5112 (10x128)x4 - 8	DTCH: 5112
7	DL_DSCH_TFC7	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 6392 (10x128)x5 - 8	DTCH: 6392

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
8	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 7672 (10x128)x6 - 8	DTCH: 7672
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.2.1.3 for test procedure.

18.2.3.2.4.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x145).
   - for sub-test 2: DTCH/TF2 (3x145).
   - for sub-test 3: DTCH/TF3 (7x145).
   - for sub-test 4, 5, 6, 7, and 8: DTCH/TF4 (10x145).
4. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on DTCH having the first 312 bits equal content as the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on DTCH having the first 632 bits equal content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on DTCH having the first 1272 bits equal content as the DL RLC SDU sent by the SS.
   - for sub-test 4,5,6,7 and 8: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

18.2.3.3 Interactive or background / UL: 64 DL: 2048 kbps/ PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.3.1 Interactive or background / UL: 64 (337 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 10 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.3.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.3.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.10.3.4.2.3 for the downlink 10 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB, SHCCH and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 64 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 2048 kbps PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 2048 kbps UL PS RAB channel has a 337 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 2048 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.3.3.1.3 Method of test

Uplink TFS for the 64 kbps USCH – Transport Block Size 337 bits:

- See corresponding table in 18.2.3.1.1.3

Uplink TFCS for the 64 kbps USCH – Transport Block Size 337 bits:

- See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH without DTCH:

- See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH with DTCH:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for 2048 kbps DSCH – 10 ms TTI:

	TFI	DTCH(2048 kbps)	SHCCH SRB#5	DCCH SRB#1-#4
TFS	TF0, bits	0x657	0x169	0x149
	TF1, bits	1x657	1x169	1x149
	TF2, bits	2x657	N/A	N/A
	TF3, bits	4x657	N/A	N/A
	TF4, bits	8x657	N/A	N/A
	TF5, bits	12x657	N/A	N/A
	TF6, bits	16x657	N/A	N/A
	TF7, bits	20x657	N/A	N/A
	TF8, bits	24x657	N/A	N/A
	TF9, bits	28x657	N/A	N/A
	TF10, bits	30x657	N/A	N/A

Downlink TFCS for 2048 kbps DSCH - 10 ms TTI:

TFCI	DTCH,SHCCH,DCCH
DL_DSCH_TFC0	(TF0, TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0, TF0),
DL_DSCH_TFC2	(TF2, TF0, TF0),
DL_DSCH_TFC3	(TF3, TF0, TF0),
DL_DSCH_TFC4	(TF4, TF0, TF0),
DL_DSCH_TFC5	(TF5, TF0, TF0),
DL_DSCH_TFC6	(TF6, TF0, TF0),
DL_DSCH_TFC7	(TF7, TF0, TF0),
DL_DSCH_TFC8	(TF8, TF0, TF0),
DL_DSCH_TFC9	(TF9, TF0, TF0),
DL_DSCH_TFC10	(TF10, TF0, TF0),
DL_DSCH_TFC11	(TF0, TF1, TF0),
DL_DSCH_TFC12	(TF1, TF1, TF0),
DL_DSCH_TFC13	(TF2, TF1, TF0),
DL_DSCH_TFC14	(TF3, TF1, TF0),
DL_DSCH_TFC15	(TF4, TF1, TF0),
DL_DSCH_TFC16	(TF5, TF1, TF0),
DL_DSCH_TFC17	(TF6, TF1, TF0),
DL_DSCH_TFC18	(TF7, TF1, TF0),
DL_DSCH_TFC19	(TF8, TF1, TF0),
DL_DSCH_TFC20	(TF9, TF1, TF0),
DL_DSCH_TFC21	(TF0, TF0, TF1),
DL_DSCH_TFC22	(TF1, TF0, TF1),
DL_DSCH_TFC23	(TF2, TF0, TF1),
DL_DSCH_TFC24	(TF3, TF0, TF1),
DL_DSCH_TFC25	(TF4, TF0, TF1),
DL_DSCH_TFC26	(TF5, TF0, TF1),
DL_DSCH_TFC27	(TF6, TF0, TF1),
DL_DSCH_TFC28	(TF7, TF0, TF1),
DL_DSCH_TFC29	(TF8, TF0, TF1),
DL_DSCH_TFC30	(TF9, TF0, TF1),
DL_DSCH_TFC31	(TF0, TF1, TF1),
DL_DSCH_TFC32	(TF1, TF1, TF1),
DL_DSCH_TFC33	(TF2, TF1, TF1),
DL_DSCH_TFC34	(TF3, TF1, TF1),
DL_DSCH_TFC35	(TF4, TF1, TF1),
DL_DSCH_TFC36	(TF5, TF1, TF1),
DL_DSCH_TFC37	(TF6, TF1, TF1),
DL_DSCH_TFC38	(TF7, TF1, TF1),
DL_DSCH_TFC39	(TF8, TF1, TF1),
DL_DSCH_TFC40	(TF9, TF1, TF1),

Downlink TFS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Sub-test for RACH/FACH – 20 ms TT1:

See Section 18.2.6.1

Sub-tests for DSCH/USCH – 10 ms TTI & UL TBS (337 bit) and DL TBS (657 bit):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 632 (320 x1) x 2 - 8	RB5: 632
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 1272 (320 x2) x2 - 8	DTCH: 1272
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 2872 (320 x3) x3 - 8	DTCH: 2552
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 5112 (320 x4) x4 - 8	DTCH: 5112
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 7672 (320 x4) x6 - 8	DTCH: 7672
6	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 10232 (320 x4) x8 - 8	DTCH: 10232
7	DL_DSCH_TFC7	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15,	DTCH: 12792 (320 x4) x10 - 8	DTCH: 12792

				UL_USCH_TFC19		
8	DL_DSCH_TFC8	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 15352 (320 x4) x12 - 8	DTCH: 15352
9	DL_DSCH_TFC9	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 17912 (320 x4) x14 - 8	DTCH: 17912
10	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 20472 (320 x4) x16 - 8	DTCH: 20472
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. DTCH: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.2.1.3 for test procedure.

18.2.3.3.1.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x337).
   - for sub-test 2: DTCH/TF2 (2x337).
   - for sub-test 3: DTCH/TF3 (3x337).
   - for sub-test 4 to 10: DTCH/TF4 (4x337)
3. At step 15 the UE shall return
   - for sub-test 1, 2, 4 to 10: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on DTCH having the first 2552 bits equal to the content of the DL RLC SDU sent by the SS.

18.2.3.3.2 Interactive or background / UL: 64(145 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 10 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.3.2.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.3.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.10.3.4.2.2 for the downlink 10 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB, SHCCH and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 64 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 384 kbps PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 256 kbps UL PS RAB channel has a 145 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 384 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.3.2.3.3 Method of test

Uplink TFS for the 64 kbps USCH – Transport Block Size 145 bits:

See corresponding table in 18.2.3.1.1.3

U plink TFCS for the 64 kbps USCH – Transport Block Size 145 bits:

See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.2.3.1.1.3

Downlink TFS for DSCH – 10 ms TTI:

See corresponding table in 18.2.3.3.1.3

Downlink TFCS for DSCH - 10 ms TTI:

See corresponding table in 18.2.3.3.1.3

Downlink TFS for FACH without DTCH:

See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Sub-tests for RACH/FACH – 20 ms TTI:

See Section 18.2.6.1

Sub-tests for DSCH/USCH – 10 ms TTI & UL TBS (145 bit) and DL TBS (657 bit):

Sub - test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 632 (128 x1) x5 - 8	RB5: 632
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 1528 (128 x3) x4 - 8	DTCH: 1272
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18,	DTCH: 2680 (128 x7) x3 - 8	DTCH: 2552
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 5112 (128 x10) x4 - 8	DTCH: 5112
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_SCH_TFC19	DTCH: 7672 (128 x10) x6- 8	DTCH: 7672
6	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 10232 (128 x10) x8- 8	DTCH: 10232
7	DL_DSCH_TFC7	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 12792 (128 x10)x10- 8	DTCH: 12792

8	DL_DSCH_TFC8	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 15352 (128 x10)x12-8	DTCH: 15352
9	DL_DSCH_TFC9	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 17912 (128 x10)x14-8	DTCH: 17912
10	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 20472 (128 x10)x16-8	DTCH: 20472
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. DTCH: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.2.1.3 for test procedure.

18.2.3.2.3.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x145).
   - for sub-test 2: DTCH /TF2 (3x145).
   - for sub-test 3: DTCH /TF3 (7x145).
   - for sub-test 4 to 10: DTCH /TF4 (10x145)
4. At step 15 the UE shall return
   - for sub-test 1, 4, 5, 6, 7, 8, 9, and 10: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 having the first 1272 bits equal to the content of the DL RLC SDU sent by the SS
   - for sub-test 3: an RLC SDU on RB5 having the first 2552 bits equal to the content of the DL RLC SDU sent by the SS

18.2.3.3.3 Interactive or background / UL: 64 (337 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 20 ms TTI) / PS RAB+ UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.3.3.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.3.3.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.10.3.4.2.3 for the downlink 20 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB, SHCCH and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 64 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 2048 kbps PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 2048 kbps UL PS RAB channel has a 337 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 2048 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.3.3.3.3 Method of test

Uplink TFS for the USCH – Transport Block Size 337 bits:

See corresponding table in 18.2.3.1.1.3

Uplink TFCS for the USCH – Transport Block Size 337 bits:

See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.2.3.1.1.3

Downlink TFS for 2048 kbps DSCH – 20 ms TTI:

	TFI	DTCH(2048 kbps)	SHCCH SRB#5	DCCH SRB#1-#4
TFS	TF0, bits	0x657	0x169	0x149
	TF1, bits	1x657	1x169	1x149
	TF2, bits	2x657	N/A	N/A
	TF3, bits	4x657	N/A	N/A
	TF4, bits	8x657	N/A	N/A
	TF5, bits	12x657	N/A	N/A
	TF6, bits	16x657	N/A	N/A
	TF7, bits	20x657	N/A	N/A
	TF8, bits	24x657	N/A	N/A
	TF9, bits	28x657	N/A	N/A
	TF10, bits	32x657	N/A	N/A
	TF11, bits	36x657	N/A	N/A
	TF12, bits	40x657	N/A	N/A
	TF13, bits	44x657	N/A	N/A
	TF14, bits	48x657	N/A	N/A
	TF15, bits	52x657	N/A	N/A
	TF16, bits	56x657	N/A	N/A
	TF17, bits	60x657	N/A	N/A
	TF18, bits	64x657	N/A	N/A

Downlink TFCS for 2048 kbps DSCH - 20 ms TTI:

TFCI	DTCH,SHCCH,DCCH
DL_DSCH_TFC0	(TF0, TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0, TF0),
DL_DSCH_TFC2	(TF2, TF0, TF0),
DL_DSCH_TFC3	(TF3, TF0, TF0),
DL_DSCH_TFC4	(TF4, TF0, TF0),
DL_DSCH_TFC5	(TF5, TF0, TF0),
DL_DSCH_TFC6	(TF6, TF0, TF0),
DL_DSCH_TFC7	(TF7, TF0, TF0),
DL_DSCH_TFC8	(TF8, TF0, TF0),
DL_DSCH_TFC9	(TF9, TF0, TF0),
DL_DSCH_TFC10	(TF10, TF0, TF0),
DL_DSCH_TFC11	(TF11, TF0, TF0),
DL_DSCH_TFC12	(TF12, TF0, TF0),
DL_DSCH_TFC13	(TF13, TF0, TF0),
DL_DSCH_TFC14	(TF14, TF0, TF0),
DL_DSCH_TFC15	(TF15, TF0, TF0),
DL_DSCH_TFC16	(TF16, TF0, TF0),
DL_DSCH_TFC17	(TF17, TF0, TF0),
DL_DSCH_TFC18	(TF18, TF0, TF0),
DL_DSCH_TFC19	(TF0, TF1, TF0),
DL_DSCH_TFC20	(TF1, TF1, TF0),
DL_DSCH_TFC21	(TF2, TF1, TF0),
DL_DSCH_TFC22	(TF3, TF1, TF0),
DL_DSCH_TFC23	(TF4, TF1, TF0),
DL_DSCH_TFC24	(TF5, TF1, TF0),
DL_DSCH_TFC25	(TF6, TF1, TF0),
DL_DSCH_TFC26	(TF7, TF1, TF0),
DL_DSCH_TFC27	(TF8, TF1, TF0),
DL_DSCH_TFC28	(TF9, TF1, TF0),
DL_DSCH_TFC29	(TF10, TF1, TF0),
DL_DSCH_TFC30	(TF11, TF1, TF0),
DL_DSCH_TFC31	(TF12, TF1, TF0),
DL_DSCH_TFC32	(TF13, TF1, TF0),
DL_DSCH_TFC33	(TF14, TF1, TF0),
DL_DSCH_TFC34	(TF15, TF1, TF0),
DL_DSCH_TFC35	(TF16, TF1, TF0),
DL_DSCH_TFC36	(TF17, TF1, TF0),
DL_DSCH_TFC37	(TF18, TF1, TF0),
DL_DSCH_TFC38	(TF0, TF0, TF1),
DL_DSCH_TFC39	(TF1, TF0, TF1),
DL_DSCH_TFC40	(TF2, TF0, TF1),
DL_DSCH_TFC41	(TF3, TF0, TF1),
DL_DSCH_TFC42	(TF4, TF0, TF1),
DL_DSCH_TFC43	(TF5, TF0, TF1),
DL_DSCH_TFC44	(TF6, TF0, TF1),
DL_DSCH_TFC45	(TF7, TF0, TF1),
DL_DSCH_TFC46	(TF8, TF0, TF1),
DL_DSCH_TFC47	(TF9, TF0, TF1),
DL_DSCH_TFC48	(TF10, TF0, TF1),
DL_DSCH_TFC49	(TF11, TF0, TF1),
DL_DSCH_TFC50	(TF12, TF0, TF1),
DL_DSCH_TFC51	(TF13, TF0, TF1),
DL_DSCH_TFC52	(TF14, TF0, TF1),
DL_DSCH_TFC53	(TF15, TF0, TF1),
DL_DSCH_TFC54	(TF16, TF0, TF1),
DL_DSCH_TFC55	(TF17, TF0, TF1),
DL_DSCH_TFC56	(TF18, TF0, TF1),
DL_DSCH_TFC57	(TF0, TF1, TF1),
DL_DSCH_TFC58	(TF1, TF1, TF1),
DL_DSCH_TFC59	(TF2, TF1, TF1),
DL_DSCH_TFC61	(TF3, TF1, TF1),

DL_DSCH_TFC62	(TF4, TF1, TF1),
DL_DSCH_TFC63	(TF5, TF1, TF1),
DL_DSCH_TFC64	(TF6, TF1, TF1),
DL_DSCH_TFC65	(TF7, TF1, TF1),
DL_DSCH_TFC66	(TF8, TF1, TF1),
DL_DSCH_TFC67	(TF9, TF1, TF1),
DL_DSCH_TFC68	(TF10, TF1, TF1),
DL_DSCH_TFC69	(TF11, TF1, TF1),
DL_DSCH_TFC70	(TF12, TF1, TF1),
DL_DSCH_TFC71	(TF13, TF1, TF1),
DL_DSCH_TFC72	(TF14, TF1, TF1),
DL_DSCH_TFC73	(TF16, TF1, TF1),
DL_DSCH_TFC74	(TF17, TF1, TF1),
DL_DSCH_TFC75	(TF18, TF1, TF1),

Downlink TFS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Sub-test for RACH/FACH – 20 ms TT1:

See Section 18.2.6.1

Sub-tests for DSCH/USCH – 20 ms TTI & UL TBS (337 bit) and DL TBS (657 bit):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 632 (320 x1) x2 - 8	DTCH: 632
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 1272 (320 x2) x2 - 8	DTCH: 1272
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 2872 (320 x3) x3 - 8	DTCH: 2552
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 5112 (320 x4) x4 - 8	DTCH: 5112
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 7672 (320 x4) x6 - 8	DTCH: 7672
6	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 10232 (320 x4) x8 - 8	DTCH: 10232
7	DL_DSCH_TFC7	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 12792 (320 x4) x10 - 8	DTCH: 12792

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
8	DL_DSCH_TFC8	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 15352 (320 x4) x12 - 8	DTCH: 15352
9	DL_DSCH_TFC9	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 17912 (320 x4) x14 - 8	DTCH: 17912
10	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 20472 (320 x4) x16 - 8	DTCH: 20472
11	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 23032 (320 x4) x18 - 8	DTCH: 23032
12	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 25592 (320 x4) x20 - 8	DTCH: 25592
13	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 28152 (320 x4) x22 - 8	DTCH: 28152
14	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 30712 (320 x4) x24 - 8	DTCH: 30712

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
15	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 33272 (320 x4) x26 - 8	DTCH: 33272
16	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 35832 (320 x4) x28 - 8	DTCH: 35832
17	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 38392 (320 x4) x30 - 8	DTCH: 38392
18	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 40952 (320 x4) x32 - 8	DTCH: 40952

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs

NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
DTCH: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

See 18.2.1.3 for test procedure.

18.2.3.3.3.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x337).
   - for sub-test 2: DTCH/TF2 (2x337).
   - for sub-test 3: DTCH/TF3 (3x337).
   - for sub-tests 4 to 18: DTCH/TF4 (4x337).
3. At step 15 the UE shall return

- for sub-test 1 to 18: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

18.2.3.3.4 Interactive or background / UL: 64(145 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 20 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.3.4.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.3.4.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.10.3.4.2.2 for the downlink 20 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB, SHCCH and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 64 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 2048 kbps PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 20 ms TTI. The Interactive/Background 2048 kbps UL PS RAB channel has a 145 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 2048 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.3.3.4.3 Method of test

Uplink TFS for the 64 kbps USCH – Transport Block Size 145 bits:

See corresponding table in 18.2.3.1.1.3

Uplink TFCS for the 64 kbps USCH – Transport Block Size 145 bits:

See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.2.3.1.1.3

Downlink TFS for 2048 kbps DSCH – 20 ms TTI:

See corresponding table in 18.2.3.3.3.3

Downlink TFCS for 2048 kbps DSCH – 20 ms TTI:

See corresponding table in 18.2.3.3.3.3

Downlink TFS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Sub-test for RACH/FACH – 20 ms TT1:

See Section 18.2.6.1

Sub-tests for DSCH/USCH – 20 ms TTI & UL TBS (145 bit) and DL TBS (657 bit):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 632 (128 x1) x5 - 8	DTCH: 632
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 1528 (128 x3) x4 - 8	DTCH: 1272
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 2680 (128 x7) x3 - 8	DTCH: 2552
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 5112 (128 x10) x4 - 8	DTCH: 5112
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 7672 (128 x10) x6-8	DTCH: 7672
6	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 10232 (128x10) x8 - 8	DTCH: 10232
7	DL_DSCH_TFC7	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 12792 (128 x10)x10-8	DTCH: 12792

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
8	DL_DSCH_TFC8	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 15352 (128 x10)x12-8	DTCH: 15352
9	DL_DSCH_TFC9	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 17912 (128 x10)x14-8	DTCH: 17912
10	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 20472 (128 x10)x16-8	DTCH: 20472
11	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 23032 (320 x4) x18 - 8	DTCH: 23032
12	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 25592 (128 x10) x20 - 8	DTCH: 25592
13	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 28152 (128 x10) x22 - 8	DTCH: 28152
14	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 30712 (128 x10) x24 - 8	DTCH: 30712

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
15	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 33272 (128 x10) x26 - 8	DTCH: 33272
16	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 35832 (128 x10) x28 - 8	DTCH: 35832
17	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 38392 (128 x10) x30 - 8	DTCH: 38392
18	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 40952 (128 x10) x32 - 8	DTCH: 40952

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
DTCH: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

See 18.2.1.3 for test procedure.

18.2.3.3.4.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x145).
   - for sub-test 2: DTCH/TF2 (3x145).
   - for sub-test 3: DTCH/TF3 (7x145).
   - for sub-tests 4 to 18: DTCH/TF4 (10x145).
4. At step 15 the UE shall return

- for sub-test 4 to 18: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.
- for sub-test 2: an RLC SDU on DTCH having the first 1272 bits equal to the contents as the DL RLC SDU sent by the SS.
- for sub-test 3: an RLC SDU on DTCH having the first 2552 bits equal to the contents as the DL RLC SDU sent by the SS.

18.2.3.4 Interactive or background / UL: 384 DL: 2048 kbps / PS RAB + UL: 3.4 DL: 16.8 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.4.1 Interactive or background / UL: 384 DL (337 bit TBS – 20 ms TTI): 2048 kbps (657 bit TBS – 10 ms TTI) / PS RAB+ UL: 3.4 DL: 16.8 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.4.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.4.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.10.3.4.2.4 for the downlink 10 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 384 kbps UL PS RAB, SHCCH and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 384 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 2048 kbps PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 384 kbps UL PS RAB channel has a 337 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 384 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.3.4.1.3 Method of test

Uplink TFS for the 384 kbps USCH – Transport Block Size 337 bits:

	TFI	DTCH	SHCCH (SRB#5)	DCCH (SRB#1 – SRB#4)
TFS	TF0, bits	0x337	0x169	0x149
	TF1, bits	1x337	1x169	1x149
	TF2, bits	2x337	N/A	N/A
	TF3, bits	4x337	N/A	N/A
	TF4, bits	8x337	N/A	N/A
	TF5, bits	12x337	N/A	N/A
	TF6, bits	16x337	N/A	N/A
	TF7, bits	20x337	N/A	N/A
	TF8, bits	24x337	N/A	N/A

Uplink TFCS for the 384 kbps USCH – Transport Block size 337 bits:

TFCI	(DTCH, SHCCH, DCCH)
UL_USCH_TFC0	(TF0, TF0, TF0),
UL_USCH_TFC1	(TF1, TF0, TF0),
UL_USCH_TFC2	(TF2, TF0, TF0),
UL_USCH_TFC3	(TF3, TF0, TF0),
UL_USCH_TFC4	(TF4, TF0, TF0),
UL_USCH_TFC5	(TF5, TF0, TF0),
UL_USCH_TFC6	(TF6, TF0, TF0),
UL_USCH_TFC7	(TF7, TF0, TF0),
UL_USCH_TFC8	(TF8, TF0, TF0),
UL_USCH_TFC9	(TF0, TF1, TF0),
UL_USCH_TFC10	(TF1, TF1, TF0),
UL_USCH_TFC11	(TF2, TF1, TF0),
UL_USCH_TFC12	(TF3, TF1, TF0),
UL_USCH_TFC13	(TF4, TF1, TF0),
UL_USCH_TFC14	(TF5, TF1, TF0),
UL_USCH_TFC15	(TF6, TF1, TF0),
UL_USCH_TFC16	(TF7, TF1, TF0),
UL_USCH_TFC17	(TF8, TF1, TF0),
UL_USCH_TFC18	(TF0, TF0, TF1),
UL_USCH_TFC19	(TF1, TF0, TF1),
UL_USCH_TFC20	(TF2, TF0, TF1),
UL_USCH_TFC21	(TF3, TF0, TF1),
UL_USCH_TFC22	(TF4, TF0, TF1),
UL_USCH_TFC23	(TF5, TF0, TF1),
UL_USCH_TFC24	(TF6, TF0, TF1),
UL_USCH_TFC25	(TF7, TF0, TF1),
UL_USCH_TFC26	(TF8, TF0, TF1),
UL_USCH_TFC27	(TF0, TF1, TF1),
UL_USCH_TFC28	(TF1, TF1, TF1),
UL_USCH_TFC29	(TF2, TF1, TF1),
UL_USCH_TFC30	(TF3, TF1, TF1),
UL_USCH_TFC31	(TF4, TF1, TF1),
UL_USCH_TFC32	(TF5, TF1, TF1),
UL_USCH_TFC33	(TF6, TF1, TF1),
UL_USCH_TFC34	(TF7, TF1, TF1),
UL_USCH_TFC35	(TF8, TF1, TF1),

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.2.3.1.1.2

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.2.3.1.1.2

Downlink TFS for 2048 kbps DSCH – 10 ms TTI:

See corresponding table in 18.2.3.3.1.3

Downlink TFCS for 2048 kbps DSCH - 10 ms TTI

See corresponding table in 18.2.3.3.1.3

Downlink TFS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Sub-test for RACH/FACH – 20 ms TT1:

See Section 18.2.6.1

Sub-tests for DSCH/USCH – 10 ms TTI & UL TBS (337 bit) and DL TBS (337 bit):

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH _TFC1	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC18, UL_USCH_TFC19, UL_USCH_TFC27, UL_USCH_TFC28	DTCH: 312 (320 x1) x2 - 8	DTCH: 632
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC2, UL_USCH_TFC9, UL_USCH_TFC11, UL_USCH_TFC18, UL_USCH_TFC20, UL_USCH_TFC27, UL_USCH_TFC29	DTCH: 1272 (320 x2) x2 - 8	DTCH: 1272
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC3, UL_USCH_TFC9, UL_USCH_TFC12, UL_USCH_TFC18, UL_USCH_TFC21, UL_USCH_TFC27, UL_USCH_TFC30	DTCH: 2552 (320 x4) x2 - 8	DTCH: 2552
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 5112 (320 x8) x2 - 8	DTCH: 5112
5	DL_DSCH_TFC5	UL_USCH_TFC5	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 7672 (320 x12) x2 - 8	DTCH: 7672
6	DL_DSCH_TFC6	UL_USCH_TFC6	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC14, UL_USCH_TFC18, UL_USCH_TFC23, UL_USCH_TFC27, UL_USCH_TFC32	DTCH: 10232 (320 x16) x2 - 8	DTCH:10232
7	DL_DSCH_TFC7	UL_USCH_TFC7	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 12792 (320 x20) x2 - 8	DTCH: 12792
8	DL_DSCH_TFC8	UL_USCH_TFC8	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC7, UL_USCH_TFC9, UL_USCH_TFC16, UL_USCH_TFC18, UL_USCH_TFC25, UL_USCH_TFC27, UL_USCH_TFC34	DTCH: 15352 (320 x24) x2 - 8	DTCH: 1 5352

9	DL_DSCH_TFC9	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 17912 (320 x8) x7 - 8	DTCH: 17912
10	DL_DSCH_TFC10	UL_USCH_TFC7	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 19192 (320 x20) x3 - 8	DTCH: 19192
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC18 and UL_TFC27 are part of the minimum set of TFCIs NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

18.2.3.4.1.4 Test requirements

See 18.1.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST.
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x337).
   - for sub-test 2: DTCH/TF2 (2x337).
   - for sub-test 3: DTCH/TF3 (4x337).
   - for sub-test 4: DTCH/TF3 (8x337).
   - for sub-test 5: DTCH/TF4 (12x337)
   - for sub-test 6: DTCH/TF4 (16x337)
   - for sub-test 7: DTCH/TF4 (20x337)
   - for sub-test 8: DTCH/TF4 (24x337)
   - for sub-test 9: DTCH/TF4 (8x337)
   - for sub-test 10: DTCH/TF4 (20x337).
4. At step 15 the UE shall return

   - for sub-test 1 to 10: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

18.2.3.4.2 Interactive or background / UL: 384(145 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 10 ms TTI) / PS RAB + UL: 3.4 DL: 16.8 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.4.2.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.4.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.10.3.4.2.4 for the downlink 10 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 384 kbps UL PS RAB, SHCCH and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 384 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 2048 kbps PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 384 kbps UL PS RAB channel has a 145 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 384 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.3.4.1.3 Method of test

Uplink TFS for the 384 kbps USCH – Transport Block Size 145 bits:

	TFI	**DTCH**	**SHCCH (SRB#5)**	**DCCH (SRB#1 – SRB#4)**
TFS	TF0, bits	0x145	0x169	0x149
	TF1, bits	1x145	1x169	1x149
	TF2, bits	3x145	N/A	N/A
	TF3, bits	7x145	N/A	N/A
	TF4, bits	10x145	N/A	N/A
	TF5, bits	20x145	N/A	N/A
	TF6, bits	30x145	N/A	N/A
	TF7, bits	40x145	N/A	N/A
	TF8, bits	60x145	N/A	N/A

Uplink TFCS for the 384 kbps USCH – Transport Block size 145 bits:

See corresponding table in 18.2.3.4.1.2

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.2.3.1.1.2

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.2.3.1.1.2

Downlink TFS for 2048 kbps DSCH – 10 ms TTI:

See corresponding table in 18.2.3.3.1.3

Downlink TFCS for 2048 kbps DSCH - 10 ms TTI

See corresponding table in 18.2.3.3.1.3

Downlink TFS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Sub-test for RACH/FACH – 20 ms TT1:

See Section 18.2.6.1

Sub-tests for DSCH/USCH – 10 ms TTI & UL TBS (337 bit) and DL TBS (337 bit):

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH _TFC1	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC18, UL_USCH_TFC19, UL_USCH_TFC27, UL_USCH_TFC28	DTCH: 632 (128 x1) x5 - 8	DTCH: 632
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC2, UL_USCH_TFC9, UL_USCH_TFC11, UL_USCH_TFC18, UL_USCH_TFC20, UL_USCH_TFC27, UL_USCH_TFC29	DTCH: 1272 (128x5) x2- 8	DTCH: 1272
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC3, UL_USCH_TFC9, UL_USCH_TFC12, UL_USCH_TFC18, UL_USCH_TFC21, UL_USCH_TFC27, UL_USCH_TFC30	DTCH: 2552 (128 x10) x2 - 8	DTCH: 2552
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 5112 (128 x20) x2 - 8	DTCH: 5112
5	DL_DSCH_TFC5	UL_USCH_TFC5	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 7672 (128 x30) x2 - 8	DTCH: 7672
6	DL_DSCH_TFC6	UL_USCH_TFC6	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC14, UL_USCH_TFC18, UL_USCH_TFC23, UL_USCH_TFC27, UL_USCH_TFC32	DTCH: 10232 (128 x40) x2 - 8	DTCH:10232
7	DL_DSCH_TFC7	UL_USCH_TFC7	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 12792 (128 x50) x2 - 8	DTCH: 12792
8	DL_DSCH_TFC8	UL_USCH_TFC8	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC7, UL_USCH_TFC9, UL_USCH_TFC16, UL_USCH_TFC18, UL_USCH_TFC25, UL_USCH_TFC27, UL_USCH_TFC34	DTCH: 15352 (128 x60) x2 - 8	DTCH: 15352

9	DL_DSCH_TFC9	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 17912 (128 x20) x7 - 8	DTCH: 17912
10	DL_DSCH_TFC10	UL_USCH_TFC7	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 19192 (128 x50) x3 - 8	DTCH: 19192
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC18 and UL_TFC27 are part of the minimum set of TFCIs NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

18.2.3.4.1.4 Test requirements

See 18.1.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x145).
   - for sub-test 2: DTCH/TF2 (5x145).
   - for sub-test 3: DTCH/TF3 (10x145).
   - for sub-test 4: DTCH/TF3 (20x145).
   - for sub-test 5: DTCH/TF4 (30x145)
   - for sub-test 6: DTCH/TF4 (40x145).
   - for sub-test 7: DTCH/TF4 (50x145).
   - for sub-test 8: DTCH/TF4 (60x145).
   - for sub-test 9: DTCH/TF4 (20x145).
   - for sub-test 10: DTCH/TF4 (50x145).
4. At step 15 the UE shall return

   - for sub-test 1 to 10: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

18.2.3.4.3 Interactive or background / UL: 384 (337 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 20 ms TTI) / PS RAB + UL: 3.4 DL: 16.8 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.4.3.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.4.3.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.10.3.4.2.4 for the downlink 20 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 384 kbps UL PS RAB, SHCCH and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 384 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 2048 kbps PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 384 kbps UL PS RAB channel has a 337 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 384 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.3.4.3.3 Method of test

Uplink TFS for the 384 kbps USCH – Transport Block Size 337 bits:

- See corresponding table in 18.2..3.3.3.2

Uplink TFCS for the 384 kbps USCH – Transport Block size 337 bits:

- See corresponding table in 18.2.3.3.3.2

Uplink TFS for the RACH without DTCH:

- See corresponding table in 18.2.3.1.1.2

Uplink TFS for the RACH with DTCH:

- See corresponding table in 18.2.3.1.1.2

Downlink TFS for 2048 kbps DSCH – 20 ms TTI:

- See corresponding table in 18.2.3.3.1.3

Downlink TFCS for 2048 kbps DSCH – 20 ms TTI

- See corresponding table in 18.2.3.3.1.3

Downlink TFS for FACH without DTCH – 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH with DTCH – 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Sub-test for RACH/FACH – 20 ms TT1:

- See Section 18.2.6.1

Sub-tests for DSCH/USCH – 10 ms TTI & UL TBS (337 bit) and DL TBS (337 bit):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC18, UL_USCH_TFC19, UL_USCH_TFC27, UL_USCH_TFC28	DTCH: 632 (320 x1) x2 - 8	DTCH: 632
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC9, UL_USCH_TFC11, UL_USCH_TFC18, UL_USCH_TFC20, UL_USCH_TFC27, UL_USCH_TFC29	DTCH: 1272 (320 x2) x2 - 8	DTCH: 1272
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC9, UL_USCH_TFC12, UL_USCH_TFC18, UL_USCH_TFC21, UL_USCH_TFC27, UL_USCH_TFC30	DTCH: 2872 (320 x4) x2 - 8	DTCH: 2552
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 5112 (320 x8) x2 - 8	DTCH: 5112
5	DL_DSCH_TFC5	UL_USCH_TFC5	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC14, UL_USCH_TFC18, UL_USCH_TFC23, UL_USCH_TFC27, UL_USCH_TFC32	DTCH: 7672 (320 x12) x2 - 8	DTCH: 7672
6	DL_DSCH_TFC6	UL_USCH_TFC6	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 10232 (320 x16) x2 - 8	DTCH: 10232
7	DL_DSCH_TFC7	UL_USCH_TFC7	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC7, UL_USCH_TFC9, UL_USCH_TFC16, UL_USCH_TFC18, UL_USCH_TFC25, UL_USCH_TFC27, UL_USCH_TFC34	DTCH: 12792 (320 x20) x2 - 8	DTCH: 12792

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
8	DL_DSCH_TFC8	UL_USCH_TFC8	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC8, UL_USCH_TFC9, UL_USCH_TFC17, UL_USCH_TFC18, UL_USCH_TFC26, UL_USCH_TFC27, UL_USCH_TFC35	DTCH: 15352 (320 x24) x2 - 8	DTCH: 15352
9	DL_DSCH_TFC9	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 17912 (320 x8) x7- 8	DTCH: 17912
10	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 20472 (320 x8) x8- 8	DTCH: 20472
11	DL_DSCH_TFC10	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC9, UL_USCH_TFC12, UL_USCH_TFC18, UL_USCH_TFC21, UL_USCH_TFC27, UL_USCH_TFC30	DTCH: 23032 (320 x4) x18 - 8	DTCH: 23032
12	DL_DSCH_TFC10	UL_USCH_TFC6	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 25592 (320 x16) x5 - 8	DTCH: 25592
13	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 28152 (320 x8) x11 - 8	DTCH: 28152
14	DL_DSCH_TFC10	UL_USCH_TFC8	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 20472 (320 x24) x4 - 8	DTCH: 30712
15	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 33272 (320 x8) x13 - 8	DTCH: 33272

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
16	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 20472 (320 x4) x28 - 8	DTCH: 35832
17	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 38392 (320 x8) x14 - 8	DTCH: 38392
18	DL_DSCH_TFC10	UL_USCH_TFC8	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 40952 (320 x24) x8-8	DTCH: 40952
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. DTCH: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

18.2.3.4.3.4 Test requirements

See 18.1.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST.
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x337).
   - for sub-test 2: DTCH/TF2 (2x337).
   - for sub-test 3: DTCH/TF3 (4x337).
   - for sub-test 4: DTCH/TF3 (8x337).
   - for sub-test 5: DTCH/TF4 (12x337)
   - for sub-test 6: DTCH/TF5 (16x337)
   - for sub-test 7: DTCH/TF6 (20x337)
   - for sub-test 8: DTCH/TF8 (24x337)
   - for sub-test 9 to 13: DTCH/TF4 (8x337)
   - for sub-test 11: DTCH/TF3 (4x337)
   - for sub-test 12: DTCH/TF6 (16x337)
   - for sub-test 13: DTCH/TF4 (8x337)
   - for sub-test 14: DTCH/TF8 (24x337)

- for sub-test 15 to 17: DTCH/TF4 (8x337)
- for sub-test 18: DTCH/TF8 (24x337)

4. At step 15 the UE shall return

   - for sub-test 1 to 18: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

18.2.3.4.4 Interactive or background / UL: 384(145 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 20 ms TTI) / PS RAB + UL: 3.4 DL: 16.8 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.4.4.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.4.4.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.10.3.4.2.4 for the downlink 20 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 384 kbps UL PS RAB, SHCCH and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 384 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 2048 kbps PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 384 kbps UL PS RAB channel has a 145 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 384 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.3.4.4.3 Method of test

Uplink TFS for the 384 kbps USCH – Transport Block Size 337 bits:

See corresponding table in 18.2..3.3.3.2

Uplink TFCS for the 384 kbps USCH – Transport Block size 337 bits:

See corresponding table in 18.2.3.3.3.2

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.2.3.1.1.2

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.2.3.1.1.2

Downlink TFS for 2048 kbps DSCH – 20 ms TTI:

See corresponding table in 18.2.3.3.1.3

Downlink TFCS for 2048 kbps DSCH – 20 ms TTI

See corresponding table in 18.2.3.3.1.3

Downlink TFS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.2.3.1.1.3

Sub-test for RACH/FACH – 20 ms TT1:

See Section 18.2.6.1

Sub-tests for DSCH/USCH – 10 ms TTI & UL 145 bit TBS and DL 337 bit TBS:

Sub -test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC18, UL_USCH_TFC19 UL_USCH_TFC27, UL_USCH_TFC28	DTCH: 632 (128x1) x4 - 8	DTCH: 632
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC9, UL_USCH_TFC11, UL_USCH_TFC18, UL_USCH_TFC20 UL_USCH_TFC27, UL_USCH_TFC29	DTCH: 1272 (128x5) x2 - 8	DTCH: 1272
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC9, UL_USCH_TFC12, UL_USCH_TFC18, UL_USCH_TFC21 UL_USCH_TFC27, UL_USCH_TFC30	DTCH: 2872 (128x10) x2 - 8	DTCH: 2552
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 5112 (128x20) x2 - 8	DTCH: 5112
5	DL_DSCH_TFC5	UL_USCH_TFC5	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC14 UL_USCH_TFC18, UL_USCH_TFC23, UL_USCH_TFC27, UL_USCH_TFC32	DTCH: 7672 (128x30) x2 - 8	DTCH: 7672
6	DL_DSCH_TFC6	UL_USCH_TFC6	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 10232 (128x40) x2 - 8	DTCH: 10232
7	DL_DSCH_TFC7	UL_USCH_TFC7	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC7, UL_USCH_TFC9, UL_USCH_TFC16 UL_USCH_TFC18, UL_USCH_TFC25, UL_USCH_TFC27, UL_USCH_TFC34	DTCH: 12792 (128x50) x2 - 8	DTCH: 12792

Sub -test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
8	DL_DSCH_TFC8	UL_USCH_TFC8	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC8, UL_USCH_TFC9, UL_USCH_TFC17, UL_USCH_TFC18, UL_USCH_TFC26, UL_USCH_TFC27, UL_USCH_TFC35	DTCH: 15352 (128x60) x2 - 8	DTCH: 15352
9	DL_DSCH_TFC9	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 17912 (128x20) x7- 8	DTCH: 17912
10	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 20472 (128x20) x8- 8	DTCH: 20472
11	DL_DSCH_TFC10	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC9, UL_USCH_TFC12, UL_USCH_TFC18, UL_USCH_TFC21, UL_USCH_TFC27, UL_USCH_TFC30	DTCH: 23032 (128x10) x18 - 8	DTCH: 23032
12	DL_DSCH_TFC10	UL_USCH_TFC6	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 25592 (128x40) x5 - 8	DTCH: 25592
13	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 28152 (128x20) x11 - 8	DTCH: 28152
14	DL_DSCH_TFC10	UL_USCH_TFC8	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15 UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 30712 (128x60) x4 - 8	DTCH: 30712
15	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 33272 (128x20) x13 - 8	DTCH: 33272

Sub -test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
16	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 35832 (128x20) x14 - 8	DTCH: 35832
17	DL_DSCH_TFC10	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 38392 (128x10) x30 - 8	DTCH: 38392
18	DL_DSCH_TFC10	UL_USCH_TFC6	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 40952 (128x40) x8- 8	DTCH: 40952
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. DTCH: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

18.2.3.4.3.4 Test requirements

See 18.1.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST.
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x128).
   - for sub-test 2: DTCH/TF2 (5x128).
   - for sub-test 3: DTCH/TF3 (10x128).
   - for sub-test 4: DTCH/TF4 (20x128).
   - for sub-test 5: DTCH/TF5 (30x128)
   - for sub-test 6: DTCH/TF6 (40x128)
   - for sub-test 7: DTCH/TF7 (50x128)
   - for sub-test 8: DTCH/TF8 (60x128)
   - for sub-test 9 to 13: DTCH/TF4 (20x128)
   - for sub-test 14: DTCH/TF8 (60x128)
   - for sub-test 15 to 16: DTCH/TF4 (8x128)
   - for sub-test 17: DTCH/TF3(10x128)
   - for sub-test 18: DTCH/TF6 (40x128)

4. At step 15 the UE shall return

   - for sub-test 1 to 18: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

18.2.4 Combinations on PDSCH, SCCPCH, DPCH, PUSCH and PRACH

18.2.4.1 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 DL: 256 kbps / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.1.1 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 kbps (320 bit payload – 20 ms TTI) DL: 256 kbps (320 bit payload – 10 ms TTI) / PS RAB/ + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.1.1.1 Conformance requirement

See 18.2.2.4.1

18.2.4.1.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for three UL transport channels (USCH, RACH, and DCH) and three DL transport channels (DSCH, FACH, and DCH) as specified in TS 34.108, clause 6.10.3.4.3.1. Test is designed for the downlink shared channel (DSCH) 10 ms TTI case and 320 bit payload for the Interactive/Background PS RAB.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB and 16.8 kbps SHCCH. The Interactive/Background 64 kbps PS RAB on the USCH has a 320 bit payload and 20 ms TTI.
- The RACH channel can carry combinations of the 16.8 kbps signalling Radio Bearers for CCCH and SHCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH.

On the DL

- The DSCH can carry combinations of the Interactive/Background 256 kbps PS RAB and the 16.8 kbps SHCCH. The Interactive/Background 256 kbps PS RAB on the DSCH has a 320 bit payload and 10 ms TTI.
- The FACH can carry combinations of the signalling 33.6 kbps Radio Bearer for CCCH, BCCH and SCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH

To be able to test the downlink radio bearer on the DSCH and the DCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.4.1.1.3 Method of test

Uplink TFS for DCH:

	TFI	RAB Subflow#1 DTCH	RAB Subflow#2 DTCH	RAB Subflow#3 DTCH	SRB#1-SRB#4 DCCH
TFS	TF0, bits	0x81(alt. 1x0) (note)	0x103	0x60	0x148 (alt. 1x0) (note)
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Uplink TFCS for DCH:

TFCI	(Subflow#1, Subflow#2, Subflow#3, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC_3 are part of the minimum set of TFCIs. NOTE 2: In case TB size zero is configured for any transport channel, the first TFC is required; it is optional otherwise.	

Uplink TFS for USCH – 320 bit payload& 20 ms TTI:

	TFI	RAB DTCH	SRB SHCCH
TFS	TF0, bits	0x337	0x169
	TF1, bits	1x337	1x169
	TF2, bits	2x337	N/A
	TF3, bits	3x337	N/A
	TF4, bits	4x337	N/A

Uplink TFCS for USCH – 320 bit payload& 20 ms TTI:

TFCI	(RAB, SHCCH)
UL_USCH_TFC0	(TF0, TF0)
UL_USCH_TFC1	(TF1, TF0)
UL_USCH_TFC2	(TF2, TF0)
UL_USCH_TFC3	(TF3, TF1)
UL_USCH_TFC4	(TF4, TF1)
UL_USCH_TFC5	(TF0, TF1)
UL_USCH_TFC6	(TF1, TF1)
UL_USCH_TFC7	(TF2, TF1)
UL_USCH_TFC8	(TF3, TF1)
UL_USCH_TFC9	(TF4, TF1)
NOTE: UL_USCH_TFC0, UL_USCH_TFC1 and UL_USCH_TFC5 are part of the minimum set of TCIs	

TFS for RACH:

	TFI	SRB#0 & SRB#5 CCCH, SHCCH
TFS	TF0, bits	1x170

Downlink TFS for DCH:

		RAB subflow #1 DTCH	RAB subflow #2 DTCH	RAB subflow #3 DTCH	SRB#1-SRB#4 DCCH
TFS	TF0, bits	0x81 (alt. 1x0) (note)	0x103	0x60	0x148 (alt. 1x0) (note)
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Downlink TFCS for DCH:

TFCI	DTCH(RAB Subflow#1 – RAB subflow#3), DCCH
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS for DSCH – 320 bit payload& 10 ms TTI:

		DTCH RAB Subflow#4	SHCCH
TFS	TF0, bits	0x337	0x169
	TF1, bits	1x337	1x169
	TF2, bits	2x337	N/A
	TF3, bits	4x337	N/A
	TF4, bits	8x337	N/A

Downlink TFCS for DSCH – 320 bit payload& 10 ms TTI:

TFCI	256 kbps RAB DTCH & SHCCH
DL_DSCH_TFC0	(TF0, TF0)
DL_DSCH_TFC1	(TF1, TF0)
DL_DSCH_TFC2	(TF2, TF0)
DL_DSCH_TFC3	(TF3, TF0)
DL_DSCH_TFC4	(TF4, TF0)
DL_DSCH_TFC5	(TF0, TF1)
DL_DSCH_TFC6	(TF1, TF1)
DL_DSCH_TFC7	(TF2, TF1)
DL_DSCH_TFC8	(TF3, TF1)
DL_DSCH_TFC9	(TF4, TF1)

Downlink TFS for FACH – 32 kbps:

		CCCH/SHCCH/BCCH
TFS	TF0, bits	0x171
	TF1, bits	1x171
	TF2, bits	2x171
	TF3, bits	3x171(alt. N/A)
	TF4, bits	4x171(alt. N/A)

Downlink TFCS for FACH– 32 kbps:

TFCI	CCCH/SHCCH/BCCH
DL_FACH_TFC0	(TF0)
DL_FACH_TFC1	(TF1)
DL_FACH_TFC2	(TF2)
DL_FACH_TFC3	(TF3)
DL_FACH_TFC4	(TF4)
	ALT
DL_FACH_TFC0	(TF0,)
DL_FACH_TFC1	(TF1)
DL_FACH_TFC2	(TF2)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:312 (1x320) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:632	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:632 (2x320) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3,	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1912 (3x320) x 2 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:1272 (4x320) - 8

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1912	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2552	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:2552 (8x320) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: UL_USCH_TFC0 UL_USCH_TFC1 and UL_USCH_TFC5 are part o f the minimum TFCIs NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.3 for test procedure.

18.2.4.1.1.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be:
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x337)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1(1x337)
   - for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (2x337)
   - for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (2x337)
   - for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (3x337)
   - for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (3x337)
   - for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)

- for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)

4. At step 15 the UE shall return

   - for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.

   - for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS

   - for sub-test 3, 5, and 9: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS

   - for sub-test 4, 6, and 10: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS

   - for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

   - for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

18.2.4.1.2 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(128 bit payload - 20 ms TTI) DL: 256 kbps (320 bit payload – 10 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.1.2.1 Conformance requirement

See 18.2.2.4.1

18.2.4.1.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for three UL transport channels (USCH , RACH , and DCH) and three DL transport channels (DSCH , FACH, and DCH) as specified in TS 34.108, clause 6.10.3.4.3.1. Test is designed for the downlink shared channel (DSCH) 10 ms TTI case and 145 bit payload for the Interactive/Background PS RAB.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB and 16.8 kbps SHCCH. The Interactive/Background 64 kbps PS RAB on the USCH has a 145 bit payload and 20 ms TTI.

- The RACH channel can carry combinations of the 16.8 kbps signalling Radio Bearers for CCCH and SHCCH.

- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH.

On the DL

- The DSCH can carry combinations of the Interactive/Background 256 kbps PS RAB and the 16.8 kbps SHCCH. The Interactive/Background 256 kbps PS RAB on the DSCH has a 320 bit payload and 10 ms TTI. (TBS).

- The FACH can carry combinations of the signalling 33.6 kbps Radio Bearer for CCCH, BCCH and SCCH.

- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH

To be able to test the downlink radio bearer on the DSCH and the DCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.4.1.2.3 Method of test

Uplink TFS for DCH:

See comparable table in 18.2.4.1.1.3

Uplink TFCS for DCH:

See comparable table in 18.2.4.1.1.3

Uplink TFS for USCH – 145 bit payload & 20 ms TTI:

	TFI	RAB DTCH	SRB SHCCH
TFS	TF0, bits	0x145	0x169
	TF1, bits	1x145	1x169
	TF2, bits	3x145	N/A
	TF3, bits	7x145	N/A
	TF4, bits	10x145	N/A

Uplink TFCS for USCH – 145 bit payload & 20 ms TTI:

See comparable table in 18.2.4.1.1.3

TFS for RACH:

See comparable table in 18.2.4.1.1.3

Downlink TFS for DCH:

See comparable table in 18.2.4.1.1.3

Downlink TFCS for DCH:

See comparable table in 18.2.4.1.1.3

Downlink TFS for DSCH – 320 bit payload& 10 ms TTI:

See comparable table in 18.2.4.1.1.3

Downlink TFCS for DSCH – 320 bit payload& 10 ms TTI:

See comparable table in 18.2.4.1.1.3

Downlink TFS for FACH – 32 kbps:

See comparable table in 18.2.4.1.1.3

Downlink TFCS for FACH– 32 kbps:

See comparable table in 18.2.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0 UL_USCH_TFC1 UL_USCH_TFC5 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:128	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:128	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:376 (128 x 1)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:312
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:376 (128 x 1)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:760 (128 x 3)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:632
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:760 (128 x 3)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC3, UL_TFC0, UL_TFC3,	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1784 (7x128) x 2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:1272

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1784 (7x128) x 2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (10x128)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:2552
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (10x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: UL_USCH_TFC0 UL_USCH_TFC1 and UL_USCH_TFC5 are part o f the minimum TFCIs NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.3 for test procedure.

18.2.4.1.2.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1(1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1(1x145)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1(1x60); Subflow#4/TF1(1x145)
   - for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2(3x145)
   - for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1(1x60);Subflow#4/TF2(3x145)
   - for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3(7x145)
   - for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1(1x60); Subflow#4/TF3(7x145)
   - for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4(10x145)
   - for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1(1x60); Subflow#4/TF4(10x145)

4. At step 15 the UE shall return

   - for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.

   - for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as the RLC SDU sent by SS

   - for sub-test 3: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 312 bits equal to the content as sent by SS

   - for sub-test 4: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 312 bits equal to the content as sent by SS

   - for sub-test 5: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 632 bits equal to the content as sent by SS

   - for sub-test 6: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 632 bits equal to the content as sent by SS

   - for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

   - for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

   - for sub-test 9: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS

   - for sub-test 10: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as the RLC SDU as sent by SS

18.2.4.1.3 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(320 bit payload – 20 ms TTI) DL: 256 kbps (320 bit payload – 20 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.1.3.1 Conformance requirement

See 18.2.2.4.1

18.2.4.1.3.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for three UL transport channels (USCH , RACH , and DCH) and three DL transport channels (DSCH , FACH, and DCH) as specified in TS 34.108, clause 6.10.3.4.3.1. Test is designed for the downlink shared channel (DSCH) 20 ms TTI case and 320 bit payload for the Interactive/Background PS RAB.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB and 16.8 kbps SHCCH. The Interactive/Background 64 kbps PS RAB on the USCH has a 320 bit payload and 20 ms TTI.

- The RACH channel can carry combinations of the 16.8 kbps signalling Radio Bearers for CCCH and SHCCH.

- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH.

On the DL

- The DSCH can carry combinations of the Interactive/Background 256 kbps PS RAB and the 16.8 kbps SHCCH. The Interactive/Background 256 kbps PS RAB on the DSCH has a 320 bit payload and 20 ms TTI.
- The FACH can carry combinations of the signalling 33.6 kbps Radio Bearer for CCCH, BCCH and SCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH

To be able to test the downlink radio bearer on the DSCH and the DCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.4.1.3.3 Method of test

Uplink TFS for DCH:

See comparable table in 18.2.4.1.1.3

Uplink TFCS for DCH:

See comparable table in 18.2.4.1.1.3

Uplink TFS for USCH – 320 bit payload& 20 ms TTI:

See comparable table in 18.2.4.1.1.3

Uplink TFCS for USCH – 320 bit payload& 20 ms TTI:

See comparable table in 18.2.4.1.1.3

TFS for RACH:

See comparable table in 18.2.4.1.1.3

Downlink TFS for DCH:

See comparable table in 18.2.4.1.1.3

Downlink TFCS for DCH:

See comparable table in 18.2.4.1.1.3

Downlink TFS for DSCH - 320 bit payload& 20 ms TTI:

		DTCH RAB Subflow#4	**SHCCH**
TFS	TF0, bits	0x337	0x169
	TF1, bits	1x337	1x169
	TF2, bits	2x337	N/A
	TF3, bits	4x337	N/A
	TF4, bits	8x337	N/A
	TF5, bits	12x337	N/A
	TF6, bits	16x337	N/A

Downlink TFCS for DSCH – 320 bit payload& 20 ms TTI:

TFCI	256 kbps RAB DTCH & SHCCH
DL_DSCH_TFC0	(TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0),
DL_DSCH_TFC2	(TF2, TF0),
DL_DSCH_TFC3	(TF3, TF0),
DL_DSCH_TFC4	(TF4, TF0),
DL_DSCH_TFC5	(TF5, TF0),
DL_DSCH_TFC6	(TF6, TF0),
DL_DSCH_TFC7	(TF0, TF1),
DL_DSCH_TFC8	(TF1, TF1),
DL_DSCH_TFC9	(TF2, TF1),
DL_DSCH_TFC10	(TF3, TF1),
DL_DSCH_TFC11	(TF4, TF1),
DL_DSCH_TFC12	(TF5, TF1),
DL_DSCH_TFC13	(TF6, TF1)

Downlink TFS for FACH – 32 kbps:

See comparable table in 18.2.4.1.1.3

Downlink TFCS for FACH– 32 kbps:

See comparable table in 18.2.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:312
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:632	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:632
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1912 (3x320) x 2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:1272

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1912	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2552	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:2552
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (4x320)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:3832 (12x320) -8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (4x320)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (12x320) -8
13	DL_TFC1, DL_DSCH_TFC6	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (4 x 320)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:5112 (16x320) -8
14	DL_TFC2, DL_DSCH_TFC6	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (4 x 320)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (16x320) -8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.3 for test procedure.

18.2.4.1.3.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x337)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1 (1x337)
   - for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (2x337)
   - for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (2x337)
   - for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (3x337)
   - for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (3x337)
   - for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
   - for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)
   - for sub-test 11: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
   - for sub-test 12: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1(1x60); Subflow#4/TF4 (4x337)
   - for sub-test 13: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
   - for sub-test 14: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)
4. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.
   - for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS
   - for sub-test 3, 5, and 9: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS
   - for sub-test 4, 6, and 10: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS
   - for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

- for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

18.2.4.1.4 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(128 bit payload - 20 ms TTI) DL: 256 kbps (320 bit payload – 20 ms TTI)/ PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.1.4.1 Conformance requirement

See 18.2.2.4.1

18.2.4.1.4.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for three UL transport channels (USCH , RACH , and DCH) and three DL transport channels (DSCH , FACH, and DCH) as specified in TS 34.108, clause 6.10.3.4.3.1. Test is designed for the downlink shared channel (DSCH) 20 ms TTI case and 145 bit payload for the Interactive/Background PS RAB.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB and 16.8 kbps SHCCH. The Interactive/Background 64 kbps PS RAB on the USCH has a 145 bit payload and 20 ms TTI.
- The RACH channel can carry combinations of the 16.8 kbps signalling Radio Bearers for CCCH and SHCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH.

On the DL

- The DSCH can carry combinations of the Interactive/Background 256 kbps PS RAB and the 16.8 kbps SHCCH. The Interactive/Background 256 kbps PS RAB on the DSCH has a 320 bit payload and 20 ms TTI. (TBS).
- The FACH can carry combinations of the signalling 33.6 kbps Radio Bearer for CCCH, BCCH and SCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH

To be able to test the downlink radio bearer on the DSCH and the DCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.4.1.4.3 Method of test

Uplink TFS for DCH:

See comparable table in 18.2.4.1.1.3

Uplink TFCS for DCH:

See comparable table in 18.2.4.1.1.3

Uplink TFS for USCH – 145 bit payload & 20 ms TTI:

See comparable table in 18.2.4.1.1.3

Uplink TFCS for USCH – 145 bit payload & 20 ms TTI:

See comparable table in 18.2.4.1.1.3

TFS for RACH:

See comparable table in 18.2.4.1.1.3

Downlink TFS for DCH:

See comparable table in 18.2.4.1.1.3

Downlink TFCS for DCH:

See comparable table in 18.2.4.1.1.3

Downlink TFS for DSCH – 320 bit payload& 20 ms TTI:

See comparable table in 18.2.4.1.3.3

Downlink TFCS for DSCH - 320 bit payload& 20 ms TTI:

See comparable table in 18.2.4.1.3.3

Downlink TFS for FACH – 32 kbps:

See comparable table in 18.2.4.1.1.3

Downlink TFCS for FACH– 32 kbps:

See comparable table in 18.2.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0 UL_USCH_TFC1 UL_USCH_TFC5 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:376 (128 x 1)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:312
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:376	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:760 (128 x 3)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:632
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:760 (128 x 3)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5 DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1784 (7x128) x 2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:1272

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1784 (7x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (10x128)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:2552
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (10x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (10x128)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:3832 (12x320) - 8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (10x128)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (12x320) - 8
13	DL_TFC1, DL_DSCH_TFC6	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (10x128)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:5112 (16x320) - 8
14	DL_TFC2, DL_DSCH_TFC6	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (10x128)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (16x320) - 8

NOTE 1:	UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs.
NOTE 2:	UL_USCH_TFC0 UL_USCH_TFC1 and UL_USCH_TFC5 are part o f the minimum TFCIs
NOTE 3:	See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.

See 18.2.1.3 for test procedure.

18.2.4.1.4.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x145)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1 (1x145)
   - for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2(2x337)
   - for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (3x145)
   - for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF2 (3x337)
   - for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (7x145)
   - for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)
   - for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x145)
   - for sub-test 11: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)
   - for sub-test 12: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (10x145)
   - for sub-test 13: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)
   - for sub-test 14: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (10x145)
4. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.
   - for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS
   - for sub-test 3, 5, and 9: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS
   - for sub-test 4, 6, and 10: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS

- for sub-test 7,9,11,13: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

- for sub-test 8,10,12,14: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

18.2.4.2 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 DL: 384 kbps / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH+ DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.2.1 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 (320 bit payload – 20 ms TTI) DL: 384 kbps (320 bit payload – 10 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.2.1.1 Conformance requirement

See 18.2.2.4.1

18.2.4.2.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for three UL transport channels (USCH, RACH, and DCH) and three DL transport channels (DSCH , FACH, and DCH) as specified in TS 34.108, clause 6.10.3.4.3.2. Test is designed for the downlink shared channel (DSCH) 10 ms TTI case and 320 bit payload for the Interactive/Background PS RAB.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB and 16.8 kbps SHCCH. The Interactive/Background 64 kbps PS RAB on the USCH has a 320 bit payload and 20 ms TTI.

- The RACH channel can carry combinations of the 16.8 kbps signalling Radio Bearers for CCCH and SHCCH.

- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH.

On the DL

- The DSCH can carry combinations of the Interactive/Background 256 kbps PS RAB and the 16.8 kbps SHCCH. The Interactive/Background 256 kbps PS RAB on the DSCH has a 320 bit payload and 10 ms TTI.

- The FACH can carry combinations of the signalling 33.6 kbps Radio Bearer for CCCH, BCCH and SCCH.

- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH

To be able to test the downlink radio bearer on the DSCH and the DCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.4.2.1.3 Method of test

Uplink TFS for DCH:

See comparable table in 18.2.4.1.1.3

Uplink TFCS for DCH:

See comparable table in 18.2.4.1.1.3

Uplink TFS for USCH – 320 bit payload& 20 ms TTI:

See comparable table in 18.2.4.1.1.3

Uplink TFCS for USCH – 320 bit payload& 20 ms TTI:

See comparable table in 18.2.4.1.1.3

TFS for RACH:

See comparable table in 18.2.4.1.1.3

Downlink TFS for DCH:

See comparable table in 18.2.4.1.1.3

Downlink TFCS for DCH:

See comparable table in 18.2.4.1.1.3

Downlink TFS for DSCH – 320 bit payload& 10 ms TTI:

		DTCH RAB Subflow#4	SHCCH
TFS	TF0, bits	0x337	0x169
	TF1, bits	1x337	1x169
	TF2, bits	2x337	N/A
	TF3, bits	4x337	N/A
	TF4, bits	8x337	N/A
	TF4, bits	12x337	N/A

Downlink TFCS for DSCH – 320 bit payload& 10 ms TTI:

TFCI	384 kbps RAB DTCH & SHCCH
DL_DSCH_TFC0	(TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0),
DL_DSCH_TFC2	(TF2, TF0),
DL_DSCH_TFC3	(TF3, TF0),
DL_DSCH_TFC4	(TF4, TF0),
DL_DSCH_TFC5	(TF5, TF0),
DL_DSCH_TFC6	(TF0, TF1),
DL_DSCH_TFC7	(TF1, TF1),
DL_DSCH_TFC8	(TF2, TF1),
DL_DSCH_TFC9	(TF3, TF1),
DL_DSCH_TFC10	(TF4, TF1),
DL_DSCH_TFC11	(TF5, TF1)

Downlink TFS for FACH – 32 kbps:

See comparable table in 18.2.4.1.1.3

Downlink TFCS for FACH– 32 kbps:

See comparable table in 18.2.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:312 (1x320) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:632	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:632 (2x320) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3,	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1912 (3x320) x 2 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:1272 (4x320) - 8

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1912	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (4x320) x 2 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:2552 (8x320) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (4x320)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:3832 (12x320)-8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (4x320)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (12x320)-8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.3 for test procedure.

18.2.4.2.1.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x337)

- for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1(1x337)
- for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (2x337)
- for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (2x337)
- for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (3x337)
- for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (3x337)
- for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
- for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)
- for sub-test 11: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
- for sub-test 12: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)

4. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.
   - for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS
   - for sub-test 3, 5, 9 and 11: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS
   - for sub-test 4, 6, 10 and 12: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS
   - for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS
   - for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

18.2.4.2.2 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 (128 bit payload - 20 ms TTI) DL: 384 kbps (320 bit payload – 10 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.2.2.1 Conformance requirement

See 18.2.2.4.1

18.2.4.2.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for three UL transport channels (USCH , RACH , and DCH) and three DL transport channels (DSCH, FACH, and DCH) as specified in TS 34.108, clause 6.10.3.4.3.2. Test is designed for the downlink shared channel (DSCH) 10 ms TTI case and 320 bit payload for the Interactive/Background PS RAB.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB and 16.8 kbps SHCCH. The Interactive/Background 64 kbps PS RAB on the USCH has a 145 bit payload and 20 ms TTI.
- The RACH channel can carry combinations of the 16.8 kbps signalling Radio Bearers for CCCH and SHCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH.

On the DL

- The DSCH can carry combinations of the Interactive/Background 256 kbps PS RAB and the 16.8 kbps SHCCH. The Interactive/Background 384 kbps PS RAB on the DSCH has a 320 bit payload and 10 ms TTI. (TBS).
- The FACH can carry combinations of the signalling 33.6 kbps Radio Bearer for CCCH, BCCH, and SCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH

To be able to test the downlink radio bearer on the DSCH and the DCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.4.2.2.3 Method of test

Uplink TFS for DCH:

See comparable table in 18.2.4.1.1.3

Uplink TFCS for DCH:

See comparable table in 18.2.4.1.1.3

Uplink TFS for USCH – 145 bit payload & 20 ms TTI:

See comparable table in 18.2.4.1.1.3

Uplink TFCS for USCH – 145 bit payload & 20 ms TTI:

See comparable table in 18.2.4.1.1.3

TFS for RACH:

See comparable table in 18.2.4.1.1.3

Downlink TFS for DCH:

See comparable table in 18.2.4.1.1.3

Downlink TFCS for DCH:

See comparable table in 18.2.4.1.1.3

Downlink TFS for DSCH – 10 ms TTI:

See comparable table in 18.2.4.2.1.3

Downlink TFS for FACH – 32 kbps:

See comparable table in 18.2.4.1.1.3

Downlink TFCS for FACH– 32 kbps:

See comparable table in 18.2.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:376 (1x128)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:312 (1x320) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#4:376 (1x128)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:760 (3x128)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:632 (2x320) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:760 (3x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1784 (7x128)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:1272 (4x320) - 8

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#4:1784 (7x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (10x128)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:2552 (8x320) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (10x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (10x128)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:3832 (12x320)-8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (10x128)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (12x320)-8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: UL_USCH_TFC0 UL_USCH_TFC1 and UL_USCH_TFC5 are part o f the minimum TFCIs NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.3 for test procedure.

18.2.4.2.2.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)

- for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x145)
- for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1 (1x145)
- for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (3x128)
- for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (3x128)
- for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (7x128)
- for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (7x128)
- for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x128)
- for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x128)
- for sub-test 11: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x128)
- for sub-test 12: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x128)

4. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.
- for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS
- for sub-test 3: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 312 bits equal to content sent by SS
- for sub-test 4: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 312 bits equal to content sent by SS
- for sub-test 5: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 632 bits equal to content sent by SS
- for sub-test 6: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 632 bits equal to content sent by SS
- for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS
- for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS
- for sub-test 9: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same contents equal to content sent by SS
- for sub-test 10: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same contents equal to content sent by SS

18.2.4.2.3 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(320 bit payload – 20 ms TTI) DL: 384 kbps (320 bit payload – 20 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.2.3.1 Conformance requirement

See 18.2.2.4.1

18.2.4.2.3.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for three UL transport channels (USCH , RACH , and DCH) and three DL transport channels (DSCH, FACH, and DCH) as specified in TS 34.108, clause 6.10.3.4.3.2. Test is designed for the downlink shared channel (DSCH) 20 ms TTI case and 320 bit payload for the Interactive/Background PS RAB.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB and 16.8 kbps SHCCH. The Interactive/Background 64 kbps PS RAB on the USCH has a 320 bit payload and 20 ms TTI.
- The RACH channel can carry combinations of the 16.8 kbps signalling Radio Bearers for CCCH and SHCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH.

On the DL

- The DSCH can carry combinations of the Interactive/Background 384 kbps PS RAB and the 16.8 kbps SHCCH. The Interactive/Background 384 kbps PS RAB on the DSCH has a 320 bit payload and 20 ms TTI.
- The FACH can carry combinations of the signalling 33.6 kbps Radio Bearer for CCCH, BCCH and SCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH

To be able to test the downlink radio bearer on the DSCH and the DCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.4.2.3.3 Method of test

Uplink TFS for DCH:

See comparable table in 18.2.4.1.1.3

Uplink TFCS for DCH:

See comparable table in 18.2.4.1.1.3

Uplink TFS for USCH - 320 bit payload& 20 ms TTI:

See comparable table in 18.2.4.1.1.3

Uplink TFCS for USCH - 320 bit payload& 20 ms TTI:

See comparable table in 18.2.4.1.1.3

TFS for RACH:

See comparable table in 18.2.4.1.1.3

Downlink TFS for DCH:

See comparable table in 18.2.4.1.1.3

Downlink TFCS for DCH:

See comparable table in 18.2.4.1.1.3

Downlink TFS for DSCH - 320 bit payload& 20 ms TTI:

		DTCH RAB Subflow#4	SHCCH
TFS	TF0, bits	0x337	0x169
	TF1, bits	1x337	1x169
	TF2, bits	2x337	N/A
	TF3, bits	4x337	N/A
	TF4, bits	8x337	N/A
	TF5, bits	12x337	N/A
	TF6, bits	16x337	N/A
	TF7, bits	20x337	N/A
	TF8, bits	24x337	N/A

Downlink TFCS for DSCH – - 320 bit payload & 20 ms TTI:

TFCI	384 kbps RAB DTCH & SHCCH
DL_DSCH_TFC0	(TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0),
DL_DSCH_TFC2	(TF2, TF0),
DL_DSCH_TFC3	(TF3, TF0),
DL_DSCH_TFC4	(TF4, TF0),
DL_DSCH_TFC5	(TF5, TF0),
DL_DSCH_TFC6	(TF6, TF0),
DL_DSCH_TFC7	(TF7, TF0),
DL_DSCH_TFC8	(TF8, TF0),
DL_DSCH_TFC9	(TF0, TF1),
DL_DSCH_TFC10	(TF1, TF1),
DL_DSCH_TFC11	(TF2, TF1),
DL_DSCH_TFC12	(TF3, TF1),
DL_DSCH_TFC13	(TF4, TF1),
DL_DSCH_TFC14	(TF5, TF1),
DL_DSCH_TFC15	(TF6, TF1),
DL_DSCH_TFC16	(TF7, TF1),
DL_DSCH_TFC17	(TF8, TF1)

Downlink TFS for FACH – 32 kbps:

See comparable table in 18.2.4.1.1.3

Downlink TFCS for FACH – 32 kbps:

See comparable table in 18.2.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0 UL_USCH_TFC1 UL_USCH_TFC5 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:312 (1x320) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0 DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:632	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:632 (2x320) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1912 (3x320)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:1272 (4x320) - 8

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1912	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (4x320)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:2552 (8x320) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (4x320)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:3832 (12x320) - 8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (4x320)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (12x320) - 8
13	DL_TFC1, DL_DSCH_TFC6	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (4x320)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:5112 (16x320) - 8
14	DL_TFC2, DL_DSCH_TFC6	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (4x320)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (16x320) - 8

15	DL_TFC1, DL_DSCH_TFC7	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:6392 (4x320)x5 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:6392 (20x320) - 8
16	DL_TFC2, DL_DSCH_TFC7	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:6392 (4x320)x5 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:6392 (20x320) - 8
17	DL_TFC1, DL_DSCH_TFC8	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (4x320)x6 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:7672 (24x320) - 8
18	DL_TFC2, DL_DSCH_TFC8	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (4x320)x6 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (24x320) - 8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.3 for test procedure.

18.2.4.2.3.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x337)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1 (1x337)
   - for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (2x337)
   - for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (2x337)

- for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (3x337)
- for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (3x337)
- for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
- for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)
- for sub-test 1,13,15,and 17: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
- for sub-test 12,14,16,18: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)

4. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.
   - for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS
   - for sub-test 3, 5, 9 and 11: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS
   - for sub-test 4, 6, 10 and 12: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS
   - for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS
   - for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS
   - for sub-test 9,11,13,15 and 17: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS
   - for sub-test 8,10,12,14,16 and 18: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

18.2.4.2.4 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(128 bit payload - 20 ms TTI) DL: 384 kbps (320 bit payload – 20 ms TTI)/ PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.2.4.1 Conformance requirement

See 18.2.2.4.1

18.2.4.2.4.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for three UL transport channels (USCH , RACH , and DCH) and three DL transport channels (DSCH, FACH, and DCH) as specified in TS 34.108, clause 6.10.3.4.3.2. Test is designed for the downlink shared channel (DSCH) 20 ms TTI case and 320 bit payload for the Interactive/Background PS RAB.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB and 16.8 kbps SHCCH. The Interactive/Background 64 kbps PS RAB on the USCH has a 145 bit payload and 20 ms TTI.
- The RACH channel can carry combinations of the 16.8 kbps signalling Radio Bearers for CCCH and SHCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH.

On the DL

- The DSCH can carry combinations of the Interactive/Background 384 kbps PS RAB and the 16.8 kbps SHCCH. The Interactive/Background 384 kbps PS RAB on the DSCH has a 320 bit payload and 20 ms TTI. (TBS).
- The FACH can carry combinations of the signalling 33.6 kbps Radio Bearer for CCCH, BCCH and SCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH

To be able to test the downlink radio bearer on the DSCH and the DCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.4.2.4.3 Method of test

Uplink TFS for DCH:

See comparable table in 18.2.4.1.1.3

Uplink TFCS for DCH:

See comparable table in 18.2.4.1.1.3

Uplink TFS for USCH:

See comparable table in 18.2.4.1.1.3

Uplink TFCS for USCH:

See comparable table in 18.2.4.1.1.3

TFS for RACH:

See comparable table in 18.2.4.1.1.3

Downlink TFS for DCH:

See comparable table in 18.2.4.1.1.3

Downlink TFCS for DCH:

See comparable table in 18.2.4.1.1.3

Downlink TFS for DSCH – 320 bit payload& 20 ms TTI:

See comparable table in 18.2.4.2.3.1

Downlink TFCS for DSCH – 320 bit payload& 20 ms TTI:

See comparable table in 18.2.4.2.3.1

Downlink TFS for FACH – 32 kbps:

See comparable table in 18.2.4.1.1.3

Downlink TFCS for FACH– 32 kbps:

See comparable table in 18.2.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0 UL_USCH_TFC1 UL_USCH_TFC5 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:376 (1x128)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:312 (1x320) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:376 (1x128)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:760 (3x128)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:632 (2x320) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:760 (3x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1784 (7x128)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:1272 (4x320) - 8

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1784 (7x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (10x128)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:2552 (8x320) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (10x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (10x128)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:3832 (12x320) - 8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (10x128)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (12x320)-8
13	DL_TFC1, DL_DSCH_TFC6	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (10x128)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:5112 (16x320) - 8
14	DL_TFC2, DL_DSCH_TFC6	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (10x128)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (16x320) - 8

15	DL_TFC1, DL_DSCH_TFC7	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:6392 (10x128)x6 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:6392 (20x320) - 8
16	DL_TFC2, DL_DSCH_TFC7	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:6392 (10x128) 6 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:6392 (20x320) - 8
17	DL_TFC1, DL_DSCH_TFC8	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (10x128)x7 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:7672 (24x320)-8
18	DL_TFC2, DL_DSCH_TFC8	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (10x128)x7 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (24x320) - 8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: UL_USCH_TFC0 UL_USCH_TFC1 and UL_USCH_TFC5 are part o f the minimum TFCIs NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.3 for test procedure.

18.2.4.2.4.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x145)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1(1x145)
   - for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (3x128)
   - for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (3x128)

- for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (7x128)
- for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (7x128)
- for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x128)
- for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x128)
- for sub-test 11,13,15, and 17: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x128)
- for sub-test 12,14,16, and 18: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x128)

4. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.
   - for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS
   - for sub-test 3, 5, 9 and 1,13, 15 and 17: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS
   - for sub-test 4, 6, 10,12, 14 16 and 18: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS
   - for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS
   - for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

18.2.4.3 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 DL: 2048 kbps / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.3.1 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(320 bit payload – 20 ms TTI) DL: 2048 kbps (640 bit payload - 10 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.3.1.1 Conformance requirement

See 18.2.2.4.1

18.2.4.3.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for three UL transport channels (USCH, RACH, and DCH) and three DL transport channels (DSCH, FACH, and DCH) as specified in TS 34.108, clause 6.10.3.4.3.3. Test is designed for the downlink shared channel (DSCH) 10 ms TTI case and 640 bit payload for the Interactive/Background PS RAB.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB and 16.8 kbps SHCCH. The Interactive/Background 64 kbps PS RAB on the USCH has a 320 bit payload and 20 ms TTI.

- The RACH channel can carry combinations of the 16.8 kbps signalling Radio Bearers for CCCH and SHCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH.

On the DL

- The DSCH can carry combinations of the Interactive/Background 2048 kbps PS RAB and the 16.8 kbps SHCCH. The Interactive/Background 2048 kbps PS RAB on the DSCH has a 640 bit payload and 10 ms TTI.
- The FACH can carry combinations of the signalling 33.6 kbps Radio Bearer for CCCH, BCCH and SCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH

To be able to test the downlink radio bearer on the DSCH and the DCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.4.3.1.3 Method of test

Uplink TFS for DCH:

See comparable table in 18.2.4.1.1.3

Uplink TFCS for DCH:

See comparable table in 18.2.4.1.1.3

Uplink TFS for USCH – 320 bit payload& 20 ms TTI:

See comparable table in 18.2.4.1.1.3

Uplink TFCS for USCH – 320 bit payload& 20 ms TTI:

See comparable table in 18.2.4.1.1.3

TFS for RACH:

See comparable table in 18.2.4.1.1.3

Downlink TFS for DCH:

See comparable table in 18.2.4.1.1.3

Downlink TFCS for DCH:

See comparable table in 18.2.4.1.1.3

Downlink TFS for DSCH – 640 bit payload & 10 ms TTI:

		DTCH RAB Subflow#4	**SHCCH**
TFS	TF0, bits	0x657	0x169
	TF1, bits	1x657	1x169
	TF2, bits	2x657	N/A
	TF3, bits	4x657	N/A
	TF4, bits	8x657	N/A
	TF5, bits	12x657	N/A
	TF6, bits	16x657	N/A
	TF7, bits	20x657	N/A
	TF8, bits	24x657	N/A
	TF9, bits	28x657	N/A
	TF10,bits	30x657	N/A

Downlink TFCS for DSCH – 640 bit payload & 10 ms TTI:

TFCI	2048 kbps RAB DTCH & SHCCH
DL_DSCH_TFC0	(TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0),
DL_DSCH_TFC2	(TF2, TF0),
DL_DSCH_TFC3	(TF3, TF0),
DL_DSCH_TFC4	(TF4, TF0),
DL_DSCH_TFC5	(TF5, TF0),
DL_DSCH_TFC6	(TF6, TF0)
DL_DSCH_TFC7	(TF7, TF0),
DL_DSCH_TFC8	(TF8, TF0),
DL_DSCH_TFC9	(TF9, TF0),
DL_DSCH_TFC10	(TF10, TF0),
DL_DSCH_TFC11	(TF0, TF1),
DL_DSCH_TFC12	(TF1, TF1),
DL_DSCH_TFC13	(TF2, TF1),
DL_DSCH_TFC14	(TF3, TF1),
DL_DSCH_TFC15	(TF4, TF1),
DL_DSCH_TFC16	(TF5, TF1),
DL_DSCH_TFC17	(TF6, TF1),
DL_DSCH_TFC18	(TF7, TF1),
DL_DSCH_TFC19	(TF8, TF1),
DL_DSCH_TFC20	(TF9, TF1)

Downlink TFS for FACH – 32 kbps:

See comparable table in 18.2.4.1.1.3

Downlink TFCS for FACH– 32 kbps:

See comparable table in 18.2.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5 DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:632 (320x1)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:632 (1x640) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632 (320x1)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632 (1x640) - 8
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1272 (320x2)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:1272 (2x640) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272 (320x2)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272 (2x640) - 8
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2872 (3x320)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:2552 (4x640) - 8

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2872 (3x320)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (4x640) - 8
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (4x320)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:5112 (8x640) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (4x320)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (8x640) - 8
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (4x320)x6 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:7672 (12x640) - 8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (4x320)x6 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (12x640) - 8
13	DL_TFC1, DL_DSCH_TFC6	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:10228 (4x320)x8 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:10228 (16x640) - 8
14	DL_TFC2, DL_DSCH_TFC6	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:10228 (4x320)x8 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:10228 (16x640) - 8

15	DL_TFC1, DL_DSCH_TFC7	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:12792 (4x320)x10 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:12792 (20x640) - 8
16	DL_TFC2, DL_DSCH_TFC7	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:12792 (4x320)x10 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:12792 (20x640) - 8
17	DL_TFC1, DL_DSCH_TFC8	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:15352 (4x320)x12 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:15352 (24x640) - 8
18	DL_TFC2, DL_DSCH_TFC8	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:15352 (4x320)x12 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:15352 (24x640) - 8
19	DL_TFC1, DL_DSCH_TFC9	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:17912 (4x320)x14 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:17912 (28x640) - 8
20	DL_TFC2, DL_DSCH_TFC9	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:17912 (4x320)x14 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:17912 (28x640) - 8
21	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:19192 (4x320)x15 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:19192 (30x640) - 8

22	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:19192 (4x320)x15 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:19192 (30x640) - 8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.3 for test procedure.

18.2.4.3.1.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x337)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1 (1x337)
   - for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (2x337)
   - for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (2x337)
   - for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (3x337)
   - for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (3x337)
   - for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
   - for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)
   - for sub-test 11: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
   - for sub-test 12: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)
   - for sub-test 13,15,17,19,21: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
   - for sub-test 14,16,18,20,22: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)
4. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.
   - for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS

- for sub-test 3, 5, 9,11,13,15,17,19 and 21: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS

- for sub-test 4, 6, 10, 12, 14, 16,18, 20, 22: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS

- for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 2552 bits equal to the content as sent by SS

- for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 2552 bits equal to the content as sent by SS

18.2.4.3.2 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 (128 bit payload - 20 ms TTI) DL: 2048 kbps (640 bit payload - 10 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.3.2.1 Conformance requirement

See 18.2.2.4.1

18.2.4.3.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for three UL transport channels (USCH , RACH , and DCH) and three DL transport channels (DSCH, FACH, and DCH) as specified in TS 34.108, clause 6.10.3.4.3.3. Test is designed for the downlink shared channel (DSCH) 10 ms TTI case and 640 bit payload for the Interactive/Background PS RAB.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB and 16.8 kbps SHCCH. The Interactive/Background 64 kbps PS RAB on the USCH has a 145 bit payload and 20 ms TTI.

- The RACH channel can carry combinations of the 16.8 kbps signalling Radio Bearers for CCCH and SHCCH.

- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH.

On the DL

- The DSCH can carry combinations of the Interactive/Background 2048 kbps PS RAB and the 16.8 kbps SHCCH. The Interactive/Background 2048 kbps PS RAB on the DSCH has a 640 bit payload and 10 ms TTI. (TBS).

- The FACH can carry combinations of the signalling 33.6 kbps Radio Bearer for CCCH, BCCH and SCCH.

- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH

To be able to test the downlink radio bearer on the DSCH and the DCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.4.3.2.3 Method of test

Uplink TFS for DCH:

See comparable table in 18.2.4.1.1.3

Uplink TFCS for DCH:

See comparable table in 18.2.4.1.1.3

Uplink TFS for USCH - 145 bit payload & 20 ms TTI:

See comparable table in 18.2.4.1.2.3

Uplink TFCS for USCH – 145 bit payload & 20 ms TTI:

See comparable table in 18.2.4.1.1.3

TFS for RACH:

See comparable table in 18.2.4.1.1.3

Downlink TFS for DCH:

See comparable table in 18.2.4.1.1.3

Downlink TFCS for DCH:

See comparable table in 18.2.4.1.1.3

Downlink TFS for DSCH – 10 ms TTI:

See comparable table in 18.2.4.3.1.3

Downlink TFCS for DSCH – 10 ms TTI:

See comparable table in 18.2.4.3.1.3

Downlink TFS for FACH – 32 kbps:

See comparable table in 18.2.4.1.1.3

Downlink TFCS for FACH– 32 kbps:

See comparable table in 18.2.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:128	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:128	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:632 (128x1)x5 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:632 (1x640) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0 UL_USCH_TFC1 UL_USCH_TFC5 UL_USCH_TFC6 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632 (128x1)x5 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632 (1x640) - 8
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1528 (128x3)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:1272 (2x640) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1528 (128x3)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272 (2x640) - 8
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2680 (128x7)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:2552 (4x640) - 8

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2680 (128x7)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (4x640) - 8
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (128x10)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:5112 (8x640) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (128x10)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (8x640) - 8
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (128x10)x6 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:7672 (12x640) - 8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 128(x10)x6 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (12x640) - 8
13	DL_TFC1, DL_DSCH_TFC6	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:10232 (128x10)x8 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:10232 (16x640) - 8
14	DL_TFC2, DL_DSCH_TFC6	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4: 10232 (128x10)x8 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:10232 (16x640) - 8

15	DL_TFC1, DL_DSCH_TFC7	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:12792 (128x10)x10 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:12792 (20x640) - 8
16	DL_TFC2, DL_DSCH_TFC7	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:12792 (128x10)x10 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:12792 (20x640) - 8
17	DL_TFC1, DL_DSCH_TFC8	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:15352 (128x10)x12 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:15352 (24x640) - 8
18	DL_TFC2, DL_DSCH_TFC8	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:15352 (128x10)x12 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:15352 (24x640) - 8
19	DL_TFC1, DL_DSCH_TFC9	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:17912 (128x10)x14 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:17912 (28x640) - 8
20	DL_TFC2, DL_DSCH_TFC9	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:17912 (128x10)x14 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:17912 (28x640) - 8
21	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:19192 (128x10)x15 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:19192 (30x640) - 8

22	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:19192 (128x10)x15 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:19192 (30x640) - 8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.3 for test procedure.

18.2.4.3.2.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1(1x145)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1 (1x145)
   - for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (3x145)
   - for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (3x145)
   - for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (7x145)
   - for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (7x145)
   - for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)
   - for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x145)
   - for sub-test 11: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)
   - for sub-test 12: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x145)
   - for sub-test 13,15,17,19,21: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)
   - for sub-test 14,16,18,20,22: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x145)
4. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.
   - for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS

- for sub-test 3, 9,11,13,15,17,19 and 21: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS

- for sub-test 4, 10, 12, 14, 16,18, 20, 22: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS

- for sub-test 5: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

- for sub-test 6: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

- for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 2552 bits equal to the content as sent by SS

- for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 2552 bits equal to the content as sent by SS

18.2.4.3.3 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(320 bit payload – 20 ms TTI) DL: 2048 kbps (640 bit payload - 20 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.3.3.1 Conformance requirement

See 18.2.2.4.1

18.2.4.3.3.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for three UL transport channels (USCH, RACH, and DCH) and three DL transport channels (DSCH, FACH, and DCH) as specified in TS 34.108, clause 6.10.3.4.3.3. Test is designed for the downlink shared channel (DSCH) 20 ms TTI case and 640 bit payload for the Interactive/Background PS RAB.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB and 16.8 kbps SHCCH. The Interactive/Background 64 kbps UL PS RAB channel has a 337 bit Transport Block Size (TBS).

- The RACH channel can carry combinations of the 16.8 kbps signalling Radio Bearers for CCCH and SHCCH.

- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH.

On the DL

- The DSCH can carry combinations of the Interactive/Background 2048 kbps PS RAB and the 16.8 kbps SHCCH. The Interactive/Background PS RAB on the DSCH has a 20 ms TTI. The Interactive/Background 2048 kbps DL PS RAB channel has a 657 bit Transport Block Size (TBS).

- The FACH can carry combinations of the signalling 33.6 kbps Radio Bearer for CCCH, BCCH and SCCH.

- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH

To be able to test the downlink radio bearer on the DSCH and the DCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.4.3.3.3 Method of test

Uplink TFS for DCH:

See comparable table in 18.2.4.1.1.3

Uplink TFCS for DCH:

See comparable table in 18.2.4.1.1.3

Uplink TFS for USCH:

See comparable table in 18.2.4.1.1.3

Uplink TFCS for USCH:

See comparable table in 18.2.4.1.1.3

TFS for RACH:

See comparable table in 18.2.4.1.1.3

Downlink TFS for DCH:

See comparable table in 18.2.4.1.1.3

Downlink TFCS for DCH:

See comparable table in 18.2.4.1.1.3

Downlink TFS for DSCH – 20 ms TTI:

		DTCH RAB Subflow#4	SHCCH
TFS	TF0, bits	0x657	0x169
	TF1, bits	1x657	1x169
	TF2, bits	2x657	N/A
	TF3, bits	4x657	N/A
	TF4, bits	8x657	N/A
	TF5, bits	12x657	N/A
	TF6, bits	16x657	N/A
	TF7, bits	20x657	N/A
	TF8, bits	24x657	N/A
	TF9, bits	28x657	N/A
	TF10,bits	32x657	N/A
	TF11,bits	36x657	N/A
	TF12,bits	40x657	N/A
	TF13,bits	44x657	N/A
	TF14,bits	48x657	N/A
	TF15,bits	52x657	N/A
	TF16,bits	56x657	N/A
	TF17,bits	60x657	N/A
	TF17,bits	64x657	N/A

Downlink TFCS for DSCH –20 ms TTI:

TFCI	2048 kbps RAB DTCH & SHCCH
DL_DSCH_TFC0	(TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0),
DL_DSCH_TFC2	(TF2, TF0),
DL_DSCH_TFC3	(TF3, TF0),
DL_DSCH_TFC4	(TF4, TF0),
DL_DSCH_TFC5	(TF5, TF0),
DL_DSCH_TFC6	(TF6, TF0)
DL_DSCH_TFC7	(TF7, TF0),
DL_DSCH_TFC8	(TF8, TF0),
DL_DSCH_TFC9	(TF9, TF0),
DL_DSCH_TFC10	(TF10, TF0),
DL_DSCH_TFC11	(TF11, TF0),
DL_DSCH_TFC12	(TF12, TF0),
DL_DSCH_TFC13	(TF13, TF0),
DL_DSCH_TFC14	(TF14, TF0),
DL_DSCH_TFC15	(TF15, TF0),
DL_DSCH_TFC16	(TF16, TF0),
DL_DSCH_TFC17	(TF17, TF0),
DL_DSCH_TFC18	(TF18, TF0),
DL_DSCH_TFC19	(TF0, TF1),
DL_DSCH_TFC20	(TF1, TF1),
DL_DSCH_TFC21	(TF2, TF1),
DL_DSCH_TFC22	(TF3, TF1),
DL_DSCH_TFC23	(TF4, TF1),
DL_DSCH_TFC24	(TF5, TF1),
DL_DSCH_TFC25	(TF6, TF1),
DL_DSCH_TFC26	(TF7, TF1),
DL_DSCH_TFC27	(TF8, TF1),
DL_DSCH_TFC28	(TF9, TF1)
DL_DSCH_TFC29	(TF10, TF1),
DL_DSCH_TFC30	(TF11, TF1),
DL_DSCH_TFC31	(TF12, TF1),
DL_DSCH_TFC32	(TF13, TF1),
DL_DSCH_TFC33	(TF14, TF1),
DL_DSCH_TFC34	(TF15, TF1),
DL_DSCH_TFC35	(TF16, TF1),
DL_DSCH_TFC36	(TF17, TF1),
DL_DSCH_TFC37	(TF17, TF1),

Downlink TFS for FACH – 32 kbps:

See comparable table in 18.2.4.1.1.3

Downlink TFCS for FACH– 32 kbps:

See comparable table in 18.2.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5 DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5 DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:632 (320x1)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:632 (1x640) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632 (320x1)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632 (1x640) - 8
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1272 (320x2)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:1272 (2x640) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272 (320x2)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272 (2x640) - 8
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3,	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2872 (3x320) x 3 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:2552 (4x640) - 8

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2872 (3x320) x 3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (4x640) - 8
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (4x320) x 4 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:5112 (8x640) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (4x320) x 4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (8x640) - 8
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (4x320)x6 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:7672 (12x640) - 8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (4x320)x6 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (12x640) - 8
13	DL_TFC1, DL_DSCH_TFC6	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:10228 (4x320)x8 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:10228 (16x640) - 8
14	DL_TFC2, DL_DSCH_TFC6	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:10228 (4x320)x8 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:10228 (16x640) - 8

15	DL_TFC1, DL_DSCH_TFC7	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:12792 (4x320)x10 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:12792 (20x640) - 8
16	DL_TFC2, DL_DSCH_TFC7	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:12792 (4x320)x10 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:12792 (20x640) - 8
17	DL_TFC1, DL_DSCH_TFC8	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:15352 (4x320)x12 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:15352 (24x640) - 8
18	DL_TFC2, DL_DSCH_TFC8	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:15352 (4x320)x12 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:15352 (24x640) - 8
19	DL_TFC1, DL_DSCH_TFC9	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:17912 (4x320)x14 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:17912 (28x640) - 8
20	DL_TFC2, DL_DSCH_TFC9	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:17912 (4x320)x14 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:17912 (28x640) - 8
21	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subfl#4: 20472 (4x320)x16 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:20472 (32x640) - 8

22	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subfl#4: 20472 (4x320)x16 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:20472 (32x640) - 8
23	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subfl#4: 23032 (4x320)x18 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:23032 (36x640) - 8
24	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subfl#4: 23032 (4x320)x18 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:23032 (36x640) - 8
25	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subfl#4: 25592 (4x320)x20 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:25592 (40x640) - 8
26	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subfl#4: 25592 (4x320)x20 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:25592 (40x640) - 8
27	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subfl#4: 28152 (4x320)x22 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:28152 (44x640) - 8
28	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:28152 (4x320)x22 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:28152 (44x640) - 8

29	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:30712 (4x320)x24 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:30712 (48x640) - 8
30	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:30712 (4x320)x24 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:30712 (48x640) - 8
31	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:33272 (4x320)x26 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:33272 (52x640) - 8
32	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:33272 (4x320)x26 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:33272 (52x640) - 8
33	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:35832 (4x320)x28 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:35832 (56x640) - 8
34	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:35832 (4x320)x28 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:35832 (56x640) - 8
35	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:38392 (4x320)x30 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:38392 (60x640) - 8

36	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:38392 (4x320)x30 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:38392 (60x640) - 8
37	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:40952 (4x320)x32 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:40952 (64x640) - 8
38	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:40952 (4x320)x32 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:40952 (64x640) - 8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.3 for test procedure.

18.2.4.3.3.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x337)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1 (1x337)
   - for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (2x337)
   - for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (2x337)
   - for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (3x337)
   - for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (3x337)
   - for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
   - for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)
   - for sub-test 11: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)

- for sub-test 12: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)

- for sub-test 13,15,17,19,21,23,25,27,29,31,33,35, and 37: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)

- for sub-test 14,16,18,20,22,24,26,28,30,32,34,36,and 38: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)

4. At step 15 the UE shall return

   - for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.

   - for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS

   - for sub-test 3, 5, 9,11,13,15,17,19,21,23,25,27,29,31,33,35, and 37: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS

   - for sub-test 4, 6, 10, 12, 14, 16,18, 20, 22,24,26,28,30,32,34,36, and 38: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS

   - for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 2552 bits equal to the content as sent by SS

   - for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 2552 bits equal to the content as sent by SS

18.2.4.3.4 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(128 bit payload - 20 ms TTI) DL: 2048 kbps (640 bit payload - 20 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.3.3.1 Conformance requirement

See 18.2.2.4.1

18.2.4.3.3.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for three UL transport channels (USCH , RACH , and DCH) and three DL transport channels (DSCH, FACH, and DCH) as specified in TS 34.108, clause 6.10.3.4.3.3. Test is designed for the downlink shared channel (DSCH) 20 ms TTI case and 640 bit payload for the Interactive/Background PS RAB.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB and 16.8 kbps SHCCH. The Interactive/Background 64 kbps PS RAB on the USCH has a 145 bit payload and 20 ms TTI.

- The RACH channel can carry combinations of the 16.8 kbps signalling Radio Bearers for CCCH and SHCCH.

- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH.

On the DL

- The DSCH can carry combinations of the Interactive/Background 2048 kbps PS RAB and the 16.8 kbps SHCCH. The Interactive/Background PS RAB on the DSCH has a 20 ms TTI. The Interactive/Background 2048 kbps PS RAB on the DSCH has a 640 bit payload and 20 ms TTI. (TBS).

- The FACH can carry combinations of the signalling 33.6 kbps Radio Bearer for CCCH, BCCH and SCCH.

- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH

To be able to test the downlink radio bearer on the DSCH and the DCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.2.4.3.3.3 Method of test

Uplink TFS for DCH:

See comparable table in 18.2.4.1.1.3

Uplink TFCS for DCH:

See comparable table in 18.2.4.1.1.3

Uplink TFS for USCH:

See comparable table in 18.2.4.1.1.3

Uplink TFCS for USCH:

See comparable table in 18.2.4.1.1.3

TFS for RACH:

See comparable table in 18.2.4.1.1.3

Downlink TFS for DCH:

See comparable table in 18.2.4.1.1.3

Downlink TFCS for DCH:

See comparable table in 18.2.4.1.1.3

Downlink TFS for DSCH – 640 bit payload & 20 ms TTI:

See comparable table in 18.2.4.3.3.3

Downlink TFCS for DSCH – 640 bit payload & 20 ms TTI:

See comparable table in 18.2.4.3.3.3

Downlink TFS for FACH – 32 kbps:

See comparable table in 18.2.4.1.1.3

Downlink TFCS for FACH– 32 kbps:

See comparable table in 18.2.4.1.1.3

Sub-tests – USCH:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:128	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:128	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:632 (128x1)x5 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:632 (1x640) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0 DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632 (128x1)x5 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632 (1x640) - 8
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1528 (128x3)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:1272 (2x640) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1528 (128x3)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272 (2x640) - 8
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2680 (128x7) x 3 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:2552 (4x640) - 8

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2680 (128x7) x 3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (4x640) - 8
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (10x128)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:5112 (8x640) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (10x128)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (8x640) - 8
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (10x128)x6 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:7672 (12x640) - 8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (10x128)x6 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (12x640) - 8
13	DL_TFC1, DL_DSCH_TFC6	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:10228 (10x128)x8 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:10228 (16x640) - 8
14	DL_TFC2, DL_DSCH_TFC6	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:10228 (10x128)x8 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:10228 (16x640) - 8

15	DL_TFC1, DL_DSCH_TFC7	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:12792 (10x1280)x10 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:12792 (20x640) - 8
16	DL_TFC2, DL_DSCH_TFC7	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:12792 (10x128)x10 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:12792 (20x640) - 8
17	DL_TFC1, DL_DSCH_TFC8	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:15352 (10x128)x12 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:15352 (24x640) - 8
18	DL_TFC2, DL_DSCH_TFC8	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:15352 (10x128)x12 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:15352 (24x640) - 8
19	DL_TFC1, DL_DSCH_TFC9	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:17912 (10x128)x14 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:17912 (28x640) - 8
20	DL_TFC2, DL_DSCH_TFC9	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:17912 (10x128)x14 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:17912 (28x640) - 8
21	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subfl#4: 20472 (10x128)x16 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:20472 (32x640) - 8

22	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:20472 (10x128)x16 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:20472 (32x640) - 8
23	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:23032 (10x128)x18 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:23032 (36x640) - 8
24	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:23032 (10x128)x18 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:23032 (36x640) - 8
25	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:25592 (10x128)x20 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:25592 (40x640) - 8
26	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subfl#4: 25592 (10x128)x20 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:25592 (40x640) - 8
27	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subfl#4: 28152 (10x128)x22 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:28152 (44x640) - 8
28	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:28152 (10x128)x22 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:28152 (44x640) - 8

29	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:30712 (10x128)x24 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:30712 (48x640) - 8
30	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:30712 (10x128)x24 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:30712 (48x640) - 8
31	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:33272 (10x128)x26 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:33272 (52x640) - 8
32	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:33272 (10x128)x26 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:33272 (52x640) - 8
33	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:35832 (10x128)x28 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:35832 (56x640) - 8
34	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:35832 (10x128)x28 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:35832 (56x640) - 8
35	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:38392 (10x128)x30 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:38392 (60x640) - 8

36	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:38392 (10x128)x30 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:38392 (60x640) - 8
37	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:40952 (10x128)x32 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:40952 (64x640) - 8
38	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:40952 (10x128)x32 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:40952 (64x640) - 8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.3 for test procedure.

18.2.4.3.3.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1(1x145)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1(1x145)
   - for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (3x145)
   - for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2(3x145)
   - for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (7x145)
   - for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (7x145)
   - for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)
   - for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x145)
   - for sub-test 11: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)

- for sub-test 12: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x145)
- for sub-test 13,15,17,19,21,23,2,5,27,29,31,33,35 and 37: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)
- for sub-test 14,16,18,20,22,24,26,28,30,32,34,36 and 38: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x145)

4. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.
   - for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS
   - for sub-test 3, 9,11,13,15,17,19,21,23,25,27,29,31,33,35 and 37: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS
   - for sub-test 4, 10, 12, 14, 16,18, 20, 22,24,26,28,30,32,34,36 and 38: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS
   - for sub-test 5: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS
   - for sub-test 6: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS
   - for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 2552 bits equal to the content as sent by SS
   - for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 2552 bits equal to the content as sent by SS

18.2.5 Combinations on SCCPCH

18.2.5.1 Stand-alone signalling RB for PCCH

18.2.5.1.1 Stand-alone signalling RB for PCCH at 12 kbps

18.2.5.1.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.5.1.1.2 Test Purpose

To verify establishment and data transfer of Paging 1 message which comprises IE "BCCH Modification Information", with the "Value Tag" different from the "MIB Value Tag" of the current Master Information Block. This test is specified in TS 34.108, clause 6.10.3.4.4.1. The SCCPCH carries the PCH at 12 kbps.

18.2.5.1.1.3 Method of Test

The contents of the System Information Block type 5 are specified in clause 8.1.2.2.

Downlink TFS for PCCH:

		SRBs
TFS	TF0, bits	0x240
	TF1, bits	1x240

Downlink TFCS for PCCH:

TFCI	(SRB)
DL_TFC0	(TF0)
DL_TFC1	(TF1)

Sub-test:

See 18.2.1.1 for test procedure.

18.2.5.1.1.4 Test Requirements

See 18.2.1.1 for definition of step 6

1. At step 6 the UE transmitted PAGING RESPONSE (DCCH) received at the SS shall complete the test and end gracefully.

18.2.5.1.2 Stand-alone signalling RB for PCCH at 8 kbps

18.2.5.1.2.1 Conformance requirement

See 18.2.2.4.1.

18.2.5.1.2.2 Test Purpose

To verify establishment and data transfer of Paging 1 message which comprises IE "BCCH Modification Information", with the "Value Tag" different from the "MIB Value Tag" of the current Master Information Block. This test specified in TS 34.108, clause 6.10.3.4.4.1. The SCCPCH carries the PCH at 8 kbps.

18.2.5.1.2.3 Method of Test

The contents of the System Information Block type 5 is specified in clause 8.1.2.2.

Downlink TFS for PCCH:

		SRBs
TFS	TF0, bits	0x80
	TF1, bits	1x80
	TF2, bits	2x80

Downlink TFCS:

TFCI	(SRB)
DL_TFC0	(TF0)
DL_TFC1	(TF1)
DL_TFC2	(TF2)

Sub-tests:

See 18.2.1.1 for test procedure.

18.2.5.1.2.4 Test Requirements

See 18.2.1.1 for definition of step 6

1. At step 6 the UE transmitted PAGING RESPONSE (DCCH) received at the SS shall complete the test and end gracefully.

18.2.5.2 Interactive/Background PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.4.2.

This radio bearer configuration is tested with three different SYSTEM INFORMATION (BCCH) configurations:

1. The contents of System Information Block type 5 and 6 as specified in TS 34.108, clause 6.1.1(TDD FFS).

   Two SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and the second SCCPCH carries the FACH for Interactive/Background PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH.

   This configuration is verified in test case 18.2.5.2.1.

2. The contents of System Information Block type 5 as specified in TS 34.108, clause 6.1.3 (TDD FFS).

   Three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and both the second and third SCCPCHs carry the FACH for Interactive/Background PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH.

   This configuration is verified in test case 18.2.5.2.2.

3. The contents of System Information Block type 5 and 6 as specified in TS 34.108, clause 6.1.2 (TDD FFS).

   Three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH. The second SCCPCH carries the FACH for CTCH (Cell Broadcast Service) and the FACH for SRBs on CCCH/ BCCH for idle mode UEs. The third SCCPCH carries the FACH for Interactive/Background PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH for connected mode UEs.

   This configuration is verified in test case 18.2.5.2.3.

18.2.5.2.1 One SCCPCH: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

18.2.5.2.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.5.2.1.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.10.3.4.4.2 and 6.10.3.4.5.2 for the case when two SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and the second SCCPCH carries the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.10.3.4.5.2(Interactive/Background 12.8 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

18.2.5.2.1.3 Method of Test

The contents of System Information Block type 5 and 6 shall be as specified in TS 34.108, clause 6.1.1 (TDD FFS).

Uplink TFS:

	TFI	RB7+SRB (12.8 kbps on RACH)
TFS	TF0, bits	1 x 170

Uplink TFCS:

TFCI	RB7+SRB
UL_TFC0	TF0

Downlink TFS for SCCPCH#2:

	TFI	RB7 (32 kbps)	SRBs
TFS	TF0, bits	0x363	0x171
	TF1, bits	1x363	1x171
	TF2, bits	2x363	2x171
	TF3, bits	N/A	3x171
	TF4, bits	N/A	4x171

Downlink TFCS for SCCPCH#2:

TFCI	(RB7,SRB)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF0, TF1)
DL_TFC2	(TF0, TF2)
DL_TFC3	(TF0, TF3)
DL_TFC4	(TF0, TF4)
DL_TFC5	(TF1, TF0)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF1, TF2)
DL_TFC8	(TF2, TF0)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC7	UL_TFC0	DL_TFC0	UL_TFC0	RB7: 376 bits	RB7: 312 bits
2	DL_TFC8	UL_TFC0	DL_TFC0	UL_TFC0	RB7: 632 bits	RB7: 632 bits

NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB7: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 18.2.1.1 for test procedure.

18.2.5.2.1.4 Test Requirements

See 18.2.1.1 for definition of step 15

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB7 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.

- for sub-test 2: an RLC SDU on RB7 having the same content as the DL RLC SDU sent by the SS.

18.2.5.2.2 Two SCCPCHs: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

18.2.5.2.2.1 Conformance requirement

See 18.2.2.4.1.

18.2.5.2.2.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.10.3.4.4.2 and 6.10.3.4.5.2 for the case when three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and both the second and third SCCPCHs carry the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.10.3.4.5.2 (Interactive/Background 12.8 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

18.2.5.2.2.3 Method of Test

The contents of System Information Block type 5 shall be as specified in TS 34.108, clause 6.1.3 (TDD FFS).

Uplink TFS:

	TFI	**RB7+SRB (12.8 kbps on RACH)**
TFS	TF0, bits	1x170

Uplink TFCS:

TFCI	**RB7+SRB**
UL_TFC0	TF0

Downlink TFS (for SCCPCH#2 & SCCPCH#3):

	TFI	**RB7 (32 kbps)**	**SRBs**
TFS	TF0, bits	0x363	0x171
	TF1, bits	1x363	1x171
	TF2, bits	2x363	2x171
	TF3,bits	N/A	3x171
	TF4,bits	N/A	4x171

Downlink TFCS (for SCCPCH#2 & SCCPCH#3):

TFCI	**(RB7,SRB)**
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF0, TF1)
DL_TFC2	(TF0, TF2)
DL_TFC3	(TF0, TF3)
DL_TFC4	(TF0, TF4)
DL_TFC5	(TF1, TF0)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF1, TF2)
DL_TFC8	(TF2, TF0)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC7	UL_TFC0	DL_TFC0	UL_TFC0	RB7: 376 bits	RB7: 312 bits
2	DL_TFC8	UL_TFC0	DL_TFC0	UL_TFC0	RB7: 632 bits	RB7: 632 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB7: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.						

See 18.2.1.1 for test procedure.

18.2.5.2.2.4 Test Requirements

See 18.2.1.1 for definition of step 15

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB7 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB7 having the same content as the DL RLC SDU sent by the SS.

18.2.5.2.3 One SCCPCH/connected mode: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

18.2.5.2.3.1 Conformance requirement

See 18.2.2.4.1.

18.2.5.2.3.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.10.3.4.4.2 and 6.10.3.4.5.2 for the case when three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH. The second SCCPCH carries the FACH for CTCH (Cell Broadcast Service) and the FACH for SRBs on CCCH/ BCCH for idle mode UEs. The third SCCPCH carries the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH for connected mode UEs.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.10.3.4.5.2 (Interactive/Background 12.8 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

18.2.5.2.3.3 Method of Test

The contents of System Information Block type 5 and 6 shall be as specified in TS 34.108, clause 6.1.2 (TDD FFS).

Uplink TFS:

	TFI	RB7+SRB (12.8 kbps on RACH)
TFS	TF0, bits	1 x 170

Uplink TFCS:

TFCI	RB7+SRB
UL_TFC0	TF0

Downlink TFS for SCCPCH#3:

	TFI	RB7 (32 kbps)	SRBs
TFS	TF0, bits	0x363	0x171
	TF1, bits	1x363	1x171
	TF2, bits	2x363	2x171
	TF3,bits	N/A	3x171
	TF4,bits	N/A	4x171

Downlink TFCS for SCCPCH#3:

TFCI	(SRB, RB7)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF0, TF1)
DL_TFC2	(TF0, TF2)
DL_TFC3	(TF0, TF3)
DL_TFC4	(TF0, TF4)
DL_TFC5	(TF1,TF0)
DL_TFC6	(TF1,TF2)
DL_TFC7	(TF1,TF3)
DL_TFC8	(TF2,TF0)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC7	UL_TFC0	DL_TFC0	UL_TFC0	RB7: 376 bits	RB7: 312 bits
2	DL_TFC8	UL_TFC0	DL_TFC0	UL_TFC0	RB7: 632 bits	RB7: 632 bits

NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB7: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 18.2.1.1 for test procedure.

18.2.5.2.3.4 Test Requirements

See 18.2.1.1 for definition of step 15

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB7 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB7 having the same content as the DL RLC SDU sent by the SS.

18.2.5.2a Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.4.2a.

This radio bearer configuration is tested with three different SYSTEM INFORMATION (BCCH) configurations:

1. The contents of System Information Block type 5 shall be as per the message specific content below.

   Two SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and the second SCCPCH carries the FACH for two Interactive/Background 32 kbps PS RABs and the FACH for SRBs on CCCH/ DCCH/ BCCH.

   This configuration is verified in test case 18.2.5.2a.1.

2. The contents of System Information Block type 5 as specified in TS 34.108, clause 6.1.3.

   Three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and both the second and third SCCPCHs carry the FACH for two Interactive/Background 32 kbps PS RABs and the FACH for SRBs on CCCH/ DCCH/ BCCH.

   This configuration is verified in test case 18.2.5.2a.2.

3. The contents of System Information Block type 5 and 6 as specified in TS 34.108, clause 6.1.2.

   Three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH. The second SCCPCH carries the FACH for CTCH (Cell Broadcast Service) and the FACH for SRBs on CCCH/ BCCH for idle mode UEs. The third SCCPCH carries the FACH for two Interactive/Background 32 kbps PS RABs and the FACH for SRBs on CCCH/ DCCH/ BCCH for connected mode UEs.

   This configuration is verified in test case 18.2.5.2a.3.

Specific Message Content for Radio Bearer Setup message to be used for these test cases:

Use the RADIO BEARER SETUP message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
- RAB information for setup	
- RAB info	(AM DTCH for PS domain)
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	useT315
- RB information to setup	
- RB identity	20
- PDCP Info	Not Present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- Logical channel identity	7
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	6
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH

Information Element	Value/remark
- DL DCH Transport channel identity - DL DSCH Transport channel identity - Logical channel identity	Not Present Not Present 7
- RAB identity	0000 0110B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	useT315
- RB information to setup	
- RB identity	24
- PDCP info	Not Present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- Logical channel identity	10
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	6
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	10
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	10
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH

Information Element	Value/remark
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	10

18.2.5.2a.1 One SCCPCH: Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

18.2.5.2a.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.5.2a.1.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.4.2a and 6.10.3.4.5.3 for the case when two SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and the second SCCPCH carries the FACH for two Interactive/Background 32 kbps PS RABs and the FACH for SRBs on CCCH/ DCCH/ BCCH.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.10.3.4.5.3.1 (Interactive/Background 12.8 kbps PS RAB + Interactive/Background 12.8 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

18.2.5.2a.1.3 Method of Test

The contents of System Information Block type 5 per the specific message content below.

See 18.2.1.1 for test procedure.

NOTE The test procedure for single radio bearer configurations is used as there are no uplink transport format combinations for simultaneous data transmission on the PS radio bearers, nor any transport format combination for simultaneous data transmission and signalling.

Uplink TFS:

	TFI	RB7+RB8+SRB (2x12.8 kbps on RACH)
TFS	TF0, bits	1x170

Uplink TFCS:

TFCI	RB7 + RB8
UL_TFC0	TF0

Downlink TFS for SCCPCH#2:

	TFI	RB7 + RB8 (2x32 kbps)	SRBs
TFS	TF0, bits	0x363	0x171
	TF1, bits	1x363	1x171
	TF2, bits	2x363	2x171
	TF3, bits	N/A	3x171
	TF4, bits	N/A	4x171

Downlink TFCS for SCCPCH #2:

TFCI	(RB7+RB8, SRB)
DL_TFC0	(TF0,TF0)
DL_TFC1	(TF0,TF1)
DL_TFC2	(TF0,TF2)
DL_TFC3	(TF0,TF3)
DL_TFC4	(TF0,TF4)
DL_TFC5	(TF1,TF0)
DL_TFC6	(TF1,TF1)
DL_TFC7	(TF1,TF2)
DL_TFC8	(TF2,TF0)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC7	UL_TFC0	DL_TFC0	UL_TFC0	RB7: 376 bits RB8: 376 bits	RB7: 312 bits RB8: No Data
2	DL_TFC8	UL_TFC0	DL_TFC0	UL_TFC0	RB7: 632 bits RB8: 632 bits	RB7: No Data RB8: 632 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB7: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.						

Specific Message Contents

Use the default parameter values for the system information block 5 with the same type specified in clause

6.1.1 of TS 34.108, with the following exceptions

Information Element	Value/remark
- SIB6 indicator	FALSE

See 18.2.1.1 for test procedure.

18.2.5.2.3.4 Test Requirements

See 18.2.1.1 for definition of step 15

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB7 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB8 having the same content as the DL RLC SDU sent by the SS.

18.2.5.2a.2 Two SCCPCHs: Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

18.2.5.2a.2. 1 Conformance requirement

See 18.2.2.4.1.

18.2.5.2a.2. 2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.10.3.4.4.2a and 6.10.3.4.5.3 for the case when three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and both the second and third SCCPCHs carry the FACH for two Interactive/Background 32 kbps PS RABs and the FACH for SRBs on CCCH/ DCCH/ BCCH.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.10.3.4.5.3.1 (Interactive/Background 12.8 kbps PS RAB + Interactive/Background 12.8 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

18.2.5.2a.2.1.3 Method of Test

The contents of System Information Block type 5 shall be as specified in TS 34.108, clause 6.1.3.

See 18.2.1.1 for test procedure.

NOTE The test procedure for single radio bearer configurations is used as there are no uplink transport format combinations for simultaneous data transmission on the PS radio bearers, nor any transport format combination for simultaneous data transmission and signalling.

Uplink TFS:

	TFI	**RB7 + RB8 (2x12.8 kbps on RACH)**
TFS	TF0, bits	1x170

Uplink TFCS:

TFCI	**RB7 + RB8**
UL_TFC0	TF0

Downlink TFS:

	TFI	**RB7 + RB8 (2x32 kbps)**	**SRBs**
TFS	TF0, bits	0x363	0x171
	TF1, bits	1x363	1x171
	TF2, bits	2x363	2x171
	TF3, bits	N/A	3x171
	TF4, bits	N/A	4x171

Downlink TFCS for SCCPCH#2 & #3:

TFCI	**(SRB, RB7+RB8)**
DL_TFC0	(TF0,TF0)
DL_TFC1	(TF0,TF1)
DL_TFC2	(TF0,TF2)
DL_TFC3	(TF0,TF3)
DL_TFC4	(TF0,TF4)
DL_TFC5	(TF1,TF0)
DL_TFC6	(TF1,TF1)
DL_TFC7	(TF1,TF2)
DL_TFC8	(TF2,TF0)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC7	UL_TFC0	DL_TFC0	UL_TFC0	RB7: 376 bits RB8: 376 bits	RB7: 312 bits RB8: No Data
2	DL_TFC8	UL_TFC0	DL_TFC0	UL_TFC0	RB7: 632 bits RB8: 632 bits	RB7: No Data RB8: 632 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB7: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.						

See 18.2.1.1 for test procedure.

18.2.5.2.3.4 Test Requirements

See 18.2.1.1 for definition of step 15

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB7 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB8 having the same content as the DL RLC SDU sent by the SS.

18.2.5.2a.3 One SCCPCH/connected mode: Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

18.2.5.2a.3.1 Conformance requirement

See 18.2.2.4.1.

18.2.5.2a.3. 2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.10.2.4.3.2 and 6.10.2.4.4.2 for the case when three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH. The second SCCPCH carries the FACH for CTCH (Cell Broadcast Service) and the FACH for SRBs on CCCH/ BCCH for idle mode UEs. The third SCCPCH carries the FACH for two Interactive/Background 32 kbps PS RABs and the FACH for SRBs on CCCH/ DCCH/ BCCH for connected mode UEs.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.10.2.4.4.2 (Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

18.2.5.2a.3.1.3 Method of Test

The contents of System Information Block type 5 and 6 shall be as specified in TS 34.108, clause 6.1.2.

See 18.2.1.1 for test procedure.

NOTE The test procedure for single radio bearer configurations is used as there are no uplink transport format combinations for simultaneous data transmission on the PS radio bearers, nor any transport format combination for simultaneous data transmission and signalling.

Uplink TFS:

	TFI	RB7+RB8+SRB (2x12.8 kbps on RACH)
TFS	TF0, bits	1x170

Uplink TFCS:

TFCI	RB7 + RB8
UL_TFC0	TF0

Downlink TFS for SCCPCH #3:

	TFI	RB7 + RB8 (2x32 kbps)	SRBs
TFS	TF0, bits	0x363	0x171
	TF1, bits	1x363	1x171
	TF2, bits	2x363	2x171
	TF3, bits	N/A	3x171
	TF4, bits	N/A	4x171

Downlink TFCS for third SCCPCH:

TFCI	(SRB, RB7+RB8)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF0,TF1)
DL_TFC2	(TF0,TF2)
DL_TFC3	(TF0,TF3)
DL_TFC4	(TF0,TF4)
DL_TFC5	(TF1,TF0)
DL_TFC6	(TF1,TF1)
DL_TFC7	(TF1,TF2)
DL_TFC8	(TF2,TF0)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC7	UL_TFC0	DL_TFC0	UL_TFC0	RB7: 376 bits RB8: 376 bits	RB7: 312 bits RB8: No Data
2	DL_TFC8	UL_TFC0	DL_TFC0	UL_TFC0	RB7: 632 bits RB8: 632 bits	RB7: No Data RB8: 632 bits

NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB7: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 18.2.1.1 for test procedure.

18.2.5.2.3.4 Test Requirements

See 18.2.1.1 for definition of step 15

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB7 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
- for sub-test 2: an RLC SDU on RB8 having the same content as the DL RLC SDU sent by the SS.

18.2.5.2b SRBs for CCCH + SRB for DCCH + SRB for BCCH

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.4.2b.

This radio bearer configuration is tested with one SYSTEM INFORMATION (BCCH) configuration:

1. The contents of System Information Block type 5 and 6 as specified in TS 34.108, clause 6.1.1 (TDD FSS).

   Two SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and the second SCCPCH carries the FACH for SRBs on CCCH/ DCCH/ BCCH.

18.2.5.2b.1 Conformance requirement

See 18.2.2.4.1.

18.2.5.2b.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.4.2b and 6.10.3.4.5.1 for the case when one SCCPCH is used in this SYSTEM INFORMATION configuration. The SCCPCH carries the FACH for SRBs on CCCH/ DCCH/ BCCH.

18.2.5.2b.3 Method of Test

The contents of System Information Block type 5 and 6 shall be as specified in TS 34.108, clause 6.1.1(TDD FSS).

See 18.2.1.1 for test procedure.

NOTE The test procedure for single radio bearer configurations is used as there are no uplink transport format combinations for simultaneous data transmission on the PS radio bearers, nor any transport format combination for simultaneous data transmission and signalling.

Uplink TFS:

	TFI	**SRB**
TFS	TF0, bits	1x170

Uplink TFCS:

TFCI	**SRB**
UL_TFC0	TF0

Downlink TFS for SCCPCH:

	TFI	**SRBs**
TFS	TF0, bits	0x171
	TF1, bits	1x171
	TF2, bits	2x171
	TF3, bits	3x171
	TF4, bits	4x171

Downlink TFCS for SCCPCH:

TFCI	(SRB)
DL_TFC0	(TF0)
DL_TFC1	(TF1)
DL_TFC2	(TF2)
DL_TFC3	(TF3)
DL_TFC4	(TF4)

18.2.5.2b.4 Test Requirements

See 18.2.1.1 for definition of step 6

1. At step 6 the UE transmitted PAGING RESPONSE (DCCH) received at the SS shall complete the test and end gracefully.

18.2.5.3 Interactive/Background RAB + SRBs for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH

18.2.5.3.1 Interactive/Background 32 kbps RAB + SRBs for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH

18.2.5.3.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.5.3.1.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.10.3.4.4.3 and 6.10.3.4.5.2 for the case when one SCCPCH is used in this SYSTEM INFORMATION (BCCH) configuration. The SCCPCH carries the PCH, the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.10.3.4.5.2 (Interactive/Background - 12.2 kbps) PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

18.2.5.3.1.3 Method of Test

The contents of System Information Block type 5 and 6 shall be as specified in TS 34.108, clause 6.1.0b.

Uplink TFS:

	TFI	RB8 (12.8 kbps on RACH)
TFS	TF0, bits	1x170

Uplink TFCS:

TFCI	RB8
UL_TFC0	TF0

Downlink TFS:

	TFI	RB8 (32 kbps)	PCCH	SRBs
TFS	TF0, bits	0x363	0x240	0x171
	TF1, bits	1x363	1x240	1x171
	TF2, bits	2x363	N/A	2x171
	TF3, bits	N/A	N/A	3x171
	TF4, bits	N/A	N/A	4x171

Downlink TFCS:

TFCI	(RB8, PCCH, SRB)
DL_TFC0	(TF0, TF0, TF0),
DL_TFC1	(TF0, TF0, TF1),
DL_TFC2	(TF0, TF0, TF2),
DL_TFC3	(TF0, TF0, TF3),
DL_TFC4	(TF0, TF0, TF4),
DL_TFC5	(TF0, TF1, TF0),
DL_TFC6	(TF0, TF1, TF1),
DL_TFC7	(TF0, TF1, TF2),
DL_TFC8	(TF0, TF1, TF3),
DL_TFC9	(TF0, TF1, TF4),
DL_TFC10	(TF1, TF0, TF0),
DL_TFC11	(TF1, TF0, TF1),
DL_TFC12	(TF1, TF0, TF2),
DL_TFC13	(TF1, TF0, TF3),
DL_TFC14	(TF1, TF0, TF4),
DL_TFC15	(TF1, TF1, TF0),
DL_TFC16	(TF1, TF1, TF1),
DL_TFC17	(TF1, TF1, TF2),
DL_TFC18	(TF1, TF1, TF3),
DL_TFC19	(TF1, TF1, TF4),
DL_TFC20	(TF2, TF0, TF0),
DL_TFC21	(TF2, TF0, TF1),
DL_TFC22	(TF2, TF0, TF2),
DL_TFC23	(TF2, TF0, TF3),
DL_TFC24	(TF2, TF0, TF4),
DL_TFC25	(TF2, TF1, TF0),
DL_TFC26	(TF2, TF1, TF1),
DL_TFC27	(TF2, TF1, TF2),
DL_TFC28	(TF2, TF1, TF3),
DL_TFC29	(TF2, TF1, TF4)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC20	UL_TFC1	DL_TFC0, UL_TFC0	UL_TFC0	RB8:632 bits	RB8: 632 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit).						

See 18.2.1.1 for test procedure.

18.2.5.3.1.4 Test requirements

See 18.2.1.1 for definition of step 15

1. At step 15 the UE shall return an RLC SDU on RB8 having the same content as sent by SS

18.2.5.3.2 Interactive/Background 16 kbps RAB + SRBs for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH

18.2.5.3.2.1 Conformance requirement

See 18.2.2.4.1.

18.2.5.3.2.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.10.3.4.4.3 and 6.10.3.4.5.2 for the case when one SCCPCH is used in this SYSTEM INFORMATION (BCCH) configuration. The SCCPCH carries the PCH, the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.10.3.4.5.2 (Interactive/Background - 12.2 kbps) PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

18.2.5.3.2.3 Method of Test

The contents of System Information Block type 5 and 6 shall be as specified in TS 34.108, clause 6.1.0b.

Uplink TFS:

	TFI	**RB8 (12.8 kbps on RACH)**
TFS	TF0, bits	1x170

Uplink TFCS:

TFCI	**RB8**
UL_TFC0	TF0

Downlink TFS:

	TFI	**RB8 (32 kbps)**	**PCCH**	**SRBs**
TFS	TF0, bits	0x363	0x80	0x171
	TF1, bits	1x363	1x80	1x171
	TF2, bits	N/A	2x80	2x171

Downlink TFCS:

TFCI	**(SRB, PCCH,RB8)**
DL_TFC0	(TF0, TF0, TF0),
DL_TFC1	(TF0, TF0, TF1),
DL_TFC2	(TF0, TF0, TF2),
DL_TFC3	(TF0, TF1, TF0),
DL_TFC4	(TF0, TF1, TF1),
DL_TFC5	(TF0, TF2, TF0),
DL_TFC6	(TF0, TF2, TF1),
DL_TFC7	(TF1, TF0, TF0)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC7	UL_TFC0	DL_TFC0, UL_TFC0	UL_TFC0	RB8: 376 bits	RB8: 312 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.						

See 18.2.1.1 for test procedure.

18.2.5.3.2.4 Test requirements

See 18.2.1.1 for definition of step 15

1. At step 15 the UE shall return an RLC SDU on RB7 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.

18.2.5.3a SRBs for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH

18.2.5.3a.1 SRBs for PCCH at 12 kbps + SRB for CCCH + SRB for DCCH + SRB for BCCH at 32 kbps

18.2.5.3a.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.5.3a.1.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause for the case when one SCCPCH is used in this SYSTEM INFORMATION (BCCH) configuration. The SCCPCH carries the PCH at 12 kbps and the FACH for SRBs on CCCH/ DCCH/ BCCH at 32 kbps.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.10.3.4.5.1 (SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

18.2.5.3a.1.3 Method of Test

The contents of System Information Block type 5 and 6 shall be as specified in TS 34.108, clause 6.1.0b.

Uplink TFS:

	TFI	SRB
TFS	TF0, bits	1x170

Uplink TFCS:

TFCI	SRB
UL_TFC0	TF0

Downlink TFS:

	TFI	PCCH	SRBs
TFS	TF0, bits	0x240	0x171
	TF1, bits	1x240	1x171
	TF2, bits	N/A	2x171
	TF3,bits	N/A	3x171
	TF4,bits	N/A	4x171

Downlink TFCS:

TFCI	(PCCH, SRB)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF0, TF1)
DL_TFC2	(TF0, TF2)
DL_TFC3	(TF0, TF3)
DL_TFC4	(TF0, TF4)
DL_TFC5	(TF1, TF0)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF1, TF2)
DL_TFC8	(TF1, TF3)
DL_TFC9	(TF1, TF4)

Sub-tests:

See 18.2.1.1 for test procedure.

18.2.5.3a.1.4 Test requirements

See 18.2.1.1 for definition of step 6x

1. At step 6x the UE transmitted SECURITY MODE COMPLETE (DCCH) received at the SS shall complete the test and end gracefully.

18.2.5.3a.2 SRBs for PCCH at 8 kbps kbps + SRB for CCCH + SRB for DCCH + SRB for BCCH at 16 kbps

18.2.5.3a.2.1 Conformance requirement

See 18.2.2.4.1.

18.2.5.3a.2.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause for the case when one SCCPCH is used in this SYSTEM INFORMATION (BCCH) configuration. The SCCPCH carries the PCH at 8 kbps and the FACH for SRBs on CCCH/ DCCH/ BCCH at 16 kbps.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.10.3.4.5.1 (SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

18.2.5.3a.2.3 Method of Test

The contents of System Information Block type 5 and 6 shall be as specified in TS 34.108, clause 6.1.0b.

Uplink TFS:

	TFI	SRB
TFS	TF0, bits	1x170

Uplink TFCS:

TFCI	SRB
UL_TFC0	TF0

Downlink TFS:

	TFI	PCCH	SRBs
TFS	TF0, bits	0x80	0x171
	TF1, bits	1x80	1x171
	TF2, bits	2x80	2x171

Downlink TFCS:

TFCI	(PCCH, SRB)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF0, TF1)
DL_TFC2	(TF0, TF2)
DL_TFC3	(TF1, TF0)
DL_TFC4	(TF1, TF1)
DL_TFC5	(TF2, TF0)
DL_TFC6	(TF2, TF1)

Sub-tests:

See 18.2.1.1 for test procedure.

18.2.5.3a.2.4 Test requirements

See 18.2.1.1 for definition of step 6x

1. At step 6x the UE transmitted SECURITY MODE COMPLETE (DCCH) received at the SS shall complete the test and end gracefully.

18.2.5.4 RB for CTCH + SRB for CCCH +SRB for BCCH.

18.2.5.4.1 Definition and applicability

Applicable only for a UE supporting Cell Broadcast Services (CBS) as a type of Broadcast/Multicast Services.

It shall be possible to indicate the reception of certain CBS message contents carried with certain activated CG message types in a clear way on UE side.

18.2.5.4.2 Conformance Requirement

See 18.2.2.4.1 and 7.4.2.1.2.

18.2.5.4.3 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.4.4 for the case when three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH. The second SCCPCH carries the FACH for CTCH (Cell Broadcast Service) and the FACH for SRBs on CCCH/ BCCH for idle mode UEs. The third SCCPCH carries the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH for connected mode UEs.

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.10.3.4.4.3. Data transfer on CTCH is tested similar to testing BMC for a UE in idle mode as specified in TS 34.123-1, clause 7.4.2, data transfer on CCCH is tested by establishing a RRC connection.

18.2.5.4.4 Method of Test

Initial conditions:

The contents of System Information Block type 5 and 6 shall be as specified in TS 34.108, clause 6.1.2.

The UE is RRC idle mode, the BMC entity is established.

The CB message ID stored on the SIM shall be known for this test (parameter for CBS PDUs). The CBS data type shall be allocated and activated in the UE.

Related ICS/IXIT Statement(s):

As in clause 7.4.2.1.4

Uplink TFS:

	TFI	RB7+SRB (32 kbps on RACH)
TFS	TF0, bits	1x170

Uplink TFCS:

TFCI	RB7+SRB
UL_TFC0	TF0

Downlink TFS:

	TFI	RB7 (16 kbps on CTCH)	SRBs
TFS	TF0, bits	0x163	0x171
	TF1, bits	1x163	1x171
	TF2, bits	2x163	2x171

Downlink TFCS:

TFCI	(RB7, SRB)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF0, TF1)
DL_TFC2	(TF0, TF2)
DL_TFC3	(TF1, TF0)
DL_TFC4	(TF1, TF1)
DL_TFC5	(TF2, TF0)

Test Procedure:

a) The UE in RRC Idle mode is triggered to wait for the next system information. The UE is activated to receive CBS messages.

b) The UE and the SS have configured their RLC, MAC, and PHYs layers with all CB related system information.

c) The SS sends the CVS message containing an activated CGS message type according to CB-Data 1 to the UE; this shall be repeated for CPREP times (indicated by the parameter "repetition period").

d) The UE indicates in an unambiguous way, that this message was received.

e) Steps 1a → 1d in the Expected sequence are followed by the steps 2 – 6 of the test procedure according to clause 18.2.1.1.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1a	←		SYSTEM INFORMATION	
1b				The SS waits for about 10 s to make sure, that the UE is configured to receive CBS data
1c	←		BMC CBS Message	Activated CBS message with CB Data 1 message content as described by the manufacturer. This message shall be repeated "CPREP" times, Parameter: - Message_ID, - Serial-No, - Data coding scheme, - CB-Data 1,
1d				After having received the BMC CBS message the UE shall indicate the reception of CB Data 1 in a clear way.

18.2.5.4.5 Test Requirements

At step 1d in the table above, the UE shall store and decode a received activated CBS message.

At step 5 of the test procedure according to clause 18.2.1.1 the RRC Connection shall be established.

18.2.5.5 64.8kbps RB for MTCH with 80 ms TTI

18.2.5.5.1 Conformance Requirement

The UE shall correctly receive user data on the MTCH from the peer to peer RLC entity according to the configured MTCH.

Reference(s)

3GPP TS 25.2xx series (Physical Layer)

3GPP TS 25.321 (MAC)

3GPP TS 25.322 (RLC)

3GPP TS 25.331 (RRC)

18.2.5.5.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.4.5.

18.2.5.5.3 Method of Test

See 14.1.5 for test procedure.

Downlink TFS:

	TFI	RB for MTCH (64.8 kbps)
TFS	TF0, bits	0x665
	TF1, bits	1x665
	TF2, bits	2x665
	TF3, bits	3x665
	TF4, bits	4x665
	TF5, bits	5x665
	TF6, bits	6x665
	TF7, bits	7x665
	TF8, bits	8x665

Downlink TFCS:

TFCI	RB for MTCH (64.8 kbps)
DL_TFC0	(TF0)
DL_TFC1	(TF1)
DL_TFC2	(TF2)
DL_TFC3	(TF3)
DL_TFC4	(TF4)
DL_TFC5	(TF5)
DL_TFC6	(TF6)
DL_TFC7	(TF7)
DL_TFC8	(TF8)

Sub-tests:

Sub-test	Downlink TFCS Under test	Implicitly tested	Test data size (bits) (note 1)
1	DL_TFC1	DL_TFC0	640
2	DL_TFC2	DL_TFC0	1288
3	DL_TFC3	DL_TFC0	1936
4	DL_TFC4	DL_TFC0	2584
5	DL_TFC5	DL_TFC0	3232
6	DL_TFC6	DL_TFC0	3880
7	DL_TFC7	DL_TFC0	4528
8	DL_TFC8	DL_TFC0	5176
NOTE 1: Test data size (=DL SDU size) has been set to the N*payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks in the transport format combination under test.			

18.2.5.5.4 Test Requirements

See 14.1.5 for definition of steps 8 and 12.

1. For the first sub-test: At step 8 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.

2. For the second and following sub-tests: At step 12 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

NOTE For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the generic test procedure in section 14.1.5 runs through all sub-tests without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at the previous sub-test.

18.2.5.6 129.6 kbps RB for MTCH with 80 ms TTI

18.2.5.6.1 Conformance Requirement

See 18.2.5.5.1.

18.2.5.6.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.4.6.

18.2.5.6.3 Method of Test

See 14.1.5 for test procedure.

Downlink TFS:

	TFI	**RB for MTCH (129.6 kbps kbps)**
TFS	TF0, bits	0x664
	TF1, bits	1x664
	TF2, bits	2x664
	TF3, bits	3x664
	TF4, bits	4x664
	TF5, bits	5x664
	TF6, bits	6x664
	TF7, bits	7x664
	TF8, bits	8x664
	TF9, bits	9x664
	TF10, bits	10x664
	TF11, bits	11x664
	TF12, bits	12x664
	TF13, bits	13x664
	TF14, bits	14x664
	TF15, bits	15x664
	TF16, bits	16x664

Downlink TFCS:

TFCI	**RB for MTCH (129.6 kbps)**
DL_TFC0	(TF0)
DL_TFC1	(TF1)
DL_TFC2	(TF2)
DL_TFC3	(TF3)
DL_TFC4	(TF4)
DL_TFC5	(TF5)
DL_TFC6	(TF6)
DL_TFC7	(TF7)
DL_TFC8	(TF8)
DL_TFC9	(TF9)
DL_TFC10	(TF10)
DL_TFC11	(TF11)
DL_TFC12	(TF12)
DL_TFC13	(TF13)
DL_TFC14	(TF14)
DL_TFC15	(TF15)
DL_TFC16	(TF16)

Sub-tests:

Sub-test	Downlink TFCS Under test	Implicitly tested	Test data size (bits) (note 1)
1	DL_TFC1	DL_TFC0	640
2	DL_TFC2	DL_TFC0	1288
3	DL_TFC3	DL_TFC0	1936
4	DL_TFC4	DL_TFC0	2584
5	DL_TFC5	DL_TFC0	3232
6	DL_TFC6	DL_TFC0	3880
7	DL_TFC7	DL_TFC0	4528
8	DL_TFC8	DL_TFC0	5176
9	DL_TFC9	DL_TFC0	5824
10	DL_TFC10	DL_TFC0	6472
11	DL_TFC11	DL_TFC0	7120
12	DL_TFC12	DL_TFC0	7768
13	DL_TFC13	DL_TFC0	8416
14	DL_TFC14	DL_TFC0	9064
15	DL_TFC15	DL_TFC0	9712
16	DL_TFC16	DL_TFC0	10360
NOTE 1: Test data size (=DL SDU size) has been set to the N*payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks in the transport format combination under test.			

18.2.5.6.4 Test Requirements

See 14.1.5 for definition of steps 8 and 12.

1. For the first sub-test: At step 8 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.

2. For the second and following sub-tests: At step 12 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

NOTE For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the generic test procedure in section 14.1.5 runs through all sub-tests without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at the previous sub-test.

18.2.5.7 259.2 kbps RB for MTCH with 40 ms TTI

18.2.5.7.1 Conformance Requirement

See 18.2.5.5.1.

18.2.5.7.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.4.7.

18.2.5.7.3 Method of Test

See 14.1.5 for test procedure.

Downlink TFS:

	TFI	RB for MTCH (259.2 kbps)
TFS	TF0, bits	0x665
	TF1, bits	1x665
	TF2, bits	2x665
	TF3, bits	3x665
	TF4, bits	4x665
	TF5, bits	5x665
	TF6, bits	6x665
	TF7, bits	7x665
	TF8, bits	8x665
	TF9, bits	9x665
	TF10, bits	10x665
	TF11, bits	11x665
	TF12, bits	12x665
	TF13, bits	13x665
	TF14, bits	14x665
	TF15, bits	15x665
	TF16, bits	16x665

Downlink TFCS:

TFCI	RB for MTCH (259.2 kbps)
DL_TFC0	(TF0)
DL_TFC1	(TF1)
DL_TFC2	(TF2)
DL_TFC3	(TF3)
DL_TFC4	(TF4)
DL_TFC5	(TF5)
DL_TFC6	(TF6)
DL_TFC7	(TF7)
DL_TFC8	(TF8)
DL_TFC9	(TF9)
DL_TFC10	(TF10)
DL_TFC11	(TF11)
DL_TFC12	(TF12)
DL_TFC13	(TF13)
DL_TFC14	(TF14)
DL_TFC15	(TF15)
DL_TFC16	(TF16)

Sub-tests:

Sub-test	Downlink TFCS Under test	Implicitly tested	Test data size (bits) (note 1)
1	DL_TFC1	DL_TFC0	640
2	DL_TFC2	DL_TFC0	1288
3	DL_TFC3	DL_TFC0	1936
4	DL_TFC4	DL_TFC0	2584
5	DL_TFC5	DL_TFC0	3232
6	DL_TFC6	DL_TFC0	3880
7	DL_TFC7	DL_TFC0	4528
8	DL_TFC8	DL_TFC0	5176
9	DL_TFC9	DL_TFC0	5824
10	DL_TFC10	DL_TFC0	6472
11	DL_TFC11	DL_TFC0	7120
12	DL_TFC12	DL_TFC0	7768
13	DL_TFC13	DL_TFC0	8416
14	DL_TFC14	DL_TFC0	9064
15	DL_TFC15	DL_TFC0	9712
16	DL_TFC16	DL_TFC0	10360
NOTE 1: Test data size (=DL SDU size) has been set to the N*payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks in the transport format combination under test.			

18.2.5.7.4 Test Requirements

See 14.1.5 for definition of steps 8 and 12.

1. For the first sub-test: At step 8 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.

2. For the second and following sub-tests: At step 12 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

NOTE For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the generic test procedure in section 14.1.5 runs through all sub-tests without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at the previous sub-test.

18.2.5.8 124.4kbps RB for MBSFN MTCH with 80 ms TTI

18.2.5.8.1 Conformance Requirement

The UE shall correctly receive user data on the MTCH from the peer to peer RLC entity according to the configured MTCH.

Reference(s)

3GPP TS 25.2xx series (Physical Layer)

3GPP TS 25.321 (MAC)

3GPP TS 25.322 (RLC)

3GPP TS 25.331 (RRC)

18.2.5.8.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.4.9.

18.2.5.8.3 Method of Test

See subclause 18.2.1.6 for test procedure.

Downlink TFS:

	TFI	RB for MTCH (124.4 kbps)
TFS	TF0, bits	0x4993
	TF1, bits	1x4993
	TF2, bits	2x4993

Downlink TFCS:

TFCI	RB for MTCH (124.4 kbps)
DL_TFC0	(TF0)
DL_TFC1	(TF1)
DL_TFC2	(TF2)

Sub-tests:

Sub-test	Downlink TFCS Under test	Implicitly tested	Test data size (bits) (note 1)
1	DL_TFC1	DL_TFC0	4960
2	DL_TFC2	DL_TFC0	9936
NOTE 1: Test data size (=DL SDU size) has been set to the N*payload size of the DL TF under test minus 16 bits (size of 15 bit length indicator and expansion bit), where N is the number of transport blocks in the transport format combination under test.			

18.2.5.8.4 Test Requirements

See subclause 18.2.1.6 for definition of steps 9 and 13.

1. For the first sub-test: At step 9 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.

2. For the second and following sub-tests: At step 13 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

NOTE For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the generic test procedure in section 18.2.1.6 runs through all sub-tests without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at the previous sub-test.

18.2.5.9 320.4kbps RB for MBSFN MTCH with 80 ms TTI

18.2.5.9.1 Conformance Requirement

See 18.2.5.8.1.

18.2.5.9.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.4.10.

18.2.5.9.3 Method of Test

See subclause 18.2.1.6 for test procedure.

Downlink TFS:

	TFI	RB for MTCH (320.4 kbps)
TFS	TF0, bits	0x4289
	TF1, bits	1x4289
	TF2, bits	6x4289

Downlink TFCS:

TFCI	RB for MTCH (320.4 kbps)
DL_TFC0	(TF0)
DL_TFC1	(TF1)
DL_TFC2	(TF2)

Sub-tests:

Sub-test	Downlink TFCS Under test	Implicitly tested	Test data size (bits) (note 1)
1	DL_TFC1	DL_TFC0	4256
2	DL_TFC2	DL_TFC0	25616
NOTE 1: Test data size (=DL SDU size) has been set to the N*payload size of the DL TF under test minus 16 bits (size of 15 bit length indicator and expansion bit), where N is the number of transport blocks in the transport format combination under test.			

18.2.5.9.4 Test Requirements

See subclause 18.2.1.6 for definition of steps 9 and 13.

1. For the first sub-test: At step 9 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.
2. For the second and following sub-tests: At step 13 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

NOTE For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the generic test procedure in section 18.2.1.6 runs through all sub-tests without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at the previous sub-test.

18.2.5.10 497.6kbps RB for MBSFN MTCH with 80 ms TTI

18.2.5.10.1 Conformance Requirement

See 18.2.5.8.1.

18.2.5.10.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.4.11.

18.2.5.10.3 Method of Test

See subclause 18.2.1.6 for test procedure.

Downlink TFS:

	TFI	RB for MTCH (497.6 kbps)
TFS	TF0, bits	0x4993
	TF1, bits	1x4993
	TF2, bits	8x4993

Downlink TFCS:

TFCI	RB for MTCH (497.6 kbps)
DL_TFC0	(TF0)
DL_TFC1	(TF1)
DL_TFC2	(TF2)

Sub-tests:

Sub-test	Downlink TFCS Under test	Implicitly tested	Test data size (bits) (note 1)
1	DL_TFC1	DL_TFC0	4960
2	DL_TFC2	DL_TFC0	39792
NOTE 1: Test data size (=DL SDU size) has been set to the N*payload size of the DL TF under test minus 16 bits (size of 15 bit length indicator and expansion bit), where N is the number of transport blocks in the transport format combination under test.			

18.2.5.10.4 Test Requirements

See subclause 18.2.1.6 for definition of steps 9 and 13.

1. For the first sub-test: At step 9 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.

2. For the second and following sub-tests: At step 13 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

NOTE For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the generic test procedure in section 18.2.1.6 runs through all sub-tests without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at the previous sub-test.

18.2.5a Combinations on SCCPCH type 2

18.2.5a.1 124.4kbps RB for MBSFN MTCH with 80 ms TTI

18.2.5a.1.1 Conformance Requirement

The UE shall correctly receive user data on the MTCH from the peer to peer RLC entity according to the configured MTCH.

Reference(s)

3GPP TS 25.2xx series (Physical Layer)

3GPP TS 25.321 (MAC)

3GPP TS 25.322 (RLC)

3GPP TS 25.331 (RRC)

18.2.5a.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.7.2.2.1.

18.2.5a.1.3 Method of Test

See subclause 18.2.1.6 for test procedure.

Downlink TFS:

	TFI	RB for MTCH (124.4 kbps)
TFS	TF0, bits	0x4992
	TF1, bits	1x4992
	TF2, bits	2x4992

Downlink TFCS:

TFCI	RB for MTCH (124.4 kbps)
DL_TFC0	(TF0)
DL_TFC1	(TF1)
DL_TFC2	(TF2)

Sub-tests:

Sub-test	Downlink TFCS Under test	Implicitly tested	Test data size (bits) (note 1)
1	DL_TFC1	DL_TFC0	4960
2	DL_TFC2	DL_TFC0	9936
NOTE 1: Test data size (=DL SDU size) has been set to the N*payload size of the DL TF under test minus 16 bits (size of 15 bit length indicator and expansion bit), where N is the number of transport blocks in the transport format combination under test.			

18.2.5a.1.4 Test Requirements

See subclause 18.2.1.6 for definition of steps 9 and 13.

1. For the first sub-test: At step 9 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.

2. For the second and following sub-tests: At step 13 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

NOTE: For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the generic test procedure in section 18.2.1.6 runs through all sub-tests without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at the previous sub-test.

18.2.5a.2 320.4kbps RB for MBSFN MTCH with 80 ms TTI

18.2.5a.2.1 Conformance Requirement

See 18.2.5a.1.1.

18.2.5a.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.7.2.2.2.

18.2.5a.2.3 Method of Test

See subclause 18.2.1.6 for test procedure.

Downlink TFS:

	TFI	RB for MTCH (320.4 kbps)
TFS	TF0, bits	0x4288
	TF1, bits	1x4288
	TF2, bits	2x4288
	TF3, bits	3x4288
	TF4, bits	4x4288
	TF5, bits	5x4288
	TF6, bits	6x4288

Downlink TFCS:

TFCI	RB for MTCH (320.4 kbps)
DL_TFC0	(TF0)
DL_TFC1	(TF1)
DL_TFC2	(TF2)
DL_TFC3	(TF3)
DL_TFC4	(TF4)
DL_TFC5	(TF5)
DL_TFC6	(TF6)

Sub-tests:

Sub-test	Downlink TFCS Under test	Implicitly tested	Test data size (bits) (note 1)
1	DL_TFC1	DL_TFC0	4256
2	DL_TFC2	DL_TFC0	
3	DL_TFC3	DL_TFC0	
4	DL_TFC4	DL_TFC0	
5	DL_TFC5	DL_TFC0	
6	DL_TFC6	DL_TFC0	25616
NOTE 1: Test data size (=DL SDU size) has been set to the N*payload size of the DL TF under test minus 16 bits (size of 15 bit length indicator and expansion bit), where N is the number of transport blocks in the transport format combination under test.			

18.2.5a.2.4 Test Requirements

See subclause 18.2.1.6 for definition of steps 9 and 13.

1. For the first sub-test: At step 9 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.

2. For the second and following sub-tests: At step 13 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

NOTE For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the generic test procedure in section 18.2.1.6 runs through all sub-tests without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at the previous sub-test.

18.2.5a.3 497.6kbps RB for MBSFN MTCH with 80 ms TTI

18.2.5a.3.1 Conformance Requirement

See 18.2.5a.1.1

18.2.5a.3.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.7.2.2.3.

18.2.5a.3.3 Method of Test

See subclause 18.2.1.6 for test procedure.

Downlink TFS:

	TFI	RB for MTCH (497.6 kbps)
TFS	TF0, bits	0x4992
	TF1, bits	1x4992
	TF2, bits	2x4992
	TF3, bits	3x4992
	TF4, bits	4x4992
	TF5, bits	5x4992
	TF6, bits	6x4992
	TF7, bits	7x4992
	TF8, bits	8x4992

Downlink TFCS:

TFCI	RB for MTCH (497.6 kbps)
DL_TFC0	(TF0)
DL_TFC1	(TF1)
DL_TFC2	(TF2)
DL_TFC3	(TF3)
DL_TFC4	(TF4)
DL_TFC5	(TF5)
DL_TFC6	(TF6)
DL_TFC7	(TF7)
DL_TFC8	(TF8)

Sub-tests:

Sub-test	Downlink TFCS Under test	Implicitly tested	Test data size (bits) (note 1)
1	DL_TFC1	DL_TFC0	4960
2	DL_TFC2	DL_TFC0	
3	DL_TFC3	DL_TFC0	
4	DL_TFC4	DL_TFC0	
5	DL_TFC5	DL_TFC0	
6	DL_TFC6	DL_TFC0	
7	DL_TFC7	DL_TFC0	
8	DL_TFC8	DL_TFC0	39792
NOTE 1: Test data size (=DL SDU size) has been set to the N*payload size of the DL TF under test minus 16 bits (size of 15 bit length indicator and expansion bit), where N is the number of transport blocks in the transport format combination under test.			

18.2.5a.3.4 Test Requirements

See subclause 18.2.1.6 for definition of steps 9 and 13.

1. For the first sub-test: At step 9 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.

2. For the second and following sub-tests: At step 13 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

NOTE: For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the generic test procedure in section 18.2.1.6 runs through all sub-tests without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at the previous sub-test.

18.2.6 Combinations on PRACH

18.2.6.1 SRB for CCCH + SRB for DCCH

The reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.5.1 is implicitly tested by the test cases 18.2.5.2b.1.

18.2.6.2 Interactive/Background 12.8 kbps PS RAB + SRB for CCCH + SRB for DCCH

The reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.5.2 is implicitly tested by the test cases 18.2.5.2.1, 18.2.5.2.2, 18.2.5.2.3 and 18.2.5.3.

18.2.6.3 Interactive/Background 12.8 kbps PS RAB + Interactive/Background 12.8 kbps PS RAB + SRB for CCCH + SRB for DCCH

The reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.5.3 is implicitly tested by the test cases 18.2.5.2a.1, 18.2.5.2a.2 and 18.2.5.2a.3.

18.2.7 Combinations on DPCH and HS-PDSCH

18.2.7.1 Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.7.1.1 Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB, UL 336bit block size

18.2.7.1.1.1 Conformance requirement

For HS-DSCH the transport block size is derived from the value signalled on the HS-SCCH. The mapping between the TFRI value and the transport block size for each mode is specified below:

Let k be the signalled TFRI value, then the corresponding HS-DSCH transport block size L_k is given by :

If k=1..510

$$L_k = \lfloor L_{\min} p^k \rfloor$$

$$p = \frac{8313}{8192}$$

$$L_{\min} = 57$$

If k = 511

L_k = 102000

If k=0, L_k indicates NULL and shall not be used to signal a transport block size in the TFRI.

Transport block sizes calculated by this formula shall equal the values indicated in Table 18.2.7.1.1.1.1

Table 18.2.7.1.1.1.1: HSDPA Transport Block Sizes for 3.84 Mcps TDD

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	128	372	256	2432	384	15890
1	57	129	377	257	2468	385	16124
2	58	130	383	258	2504	386	16362
3	59	131	389	259	2541	387	16604
4	60	132	394	260	2579	388	16849
5	61	133	400	261	2617	389	17098
6	62	134	406	262	2656	390	17351
7	63	135	412	263	2695	391	17607
8	64	136	418	264	2735	392	17867
9	65	137	424	265	2775	393	18131
10	66	138	431	266	2816	394	18399
11	66	139	437	267	2858	395	18671
12	67	140	443	268	2900	396	18946
13	68	141	450	269	2943	397	19226
14	69	142	457	270	2986	398	19510
15	71	143	463	271	3030	399	19798
16	72	144	470	272	3075	400	9.0.01
17	73	145	477	273	3121	401	20388
18	74	146	484	274	3167	402	20689
19	75	147	491	275	3213	403	20994

20	76	148	499	276	3261	404	21304
21	77	149	506	277	3309	405	21619
22	78	150	514	278	3358	406	21938
23	79	151	521	279	3408	407	22263
24	81	152	529	280	3458	408	22591
25	82	153	537	281	3509	409	22925
26	83	154	545	282	3561	410	23264
27	84	155	553	283	3613	411	23607
28	85	156	561	284	3667	412	23956
29	87	157	569	285	3721	413	24310
30	88	158	578	286	3776	414	24669
31	89	159	586	287	3832	415	25033
32	91	160	595	288	3888	416	25403
33	92	161	604	289	3946	417	25778
34	93	162	613	290	4004	418	26159
35	95	163	622	291	4063	419	26545
36	96	164	631	292	4123	420	26938
37	98	165	640	293	4184	421	27335
38	99	166	650	294	4246	422	27739
39	100	167	659	295	4309	423	28149
40	102	168	669	296	4372	424	28565
41	103	169	679	297	4437	425	28987
42	105	170	689	298	4502	426	29415
43	107	171	699	299	4569	427	29849
44	108	172	709	300	4636	428	30290
45	110	173	720	301	4705	429	30738
46	111	174	730	302	4774	430	31192
47	113	175	741	303	4845	431	31652
48	115	176	752	304	4916	432	32120
49	116	177	763	305	4989	433	32594
50	118	178	775	306	5063	434	33076
51	120	179	786	307	5138	435	33564
52	122	180	798	308	5213	436	34060
53	123	181	809	309	5290	437	34563
54	125	182	821	310	5369	438	35074
55	127	183	834	311	5448	439	35592
56	129	184	846	312	5528	440	36117
57	131	185	858	313	5610	441	36651
58	133	186	871	314	5693	442	37192
59	135	187	884	315	5777	443	37742
60	137	188	897	316	5862	444	38299
61	139	189	910	317	5949	445	38865
62	141	190	924	318	6037	446	39439
63	143	191	937	319	6126	447	40021
64	145	192	951	320	6217	448	40613
65	147	193	965	321	6308	449	41212
66	150	194	980	322	6402	450	41821
67	152	195	994	323	6496	451	42439
68	154	196	1009	324	6592	452	43066
69	156	197	1024	325	6689	453	43702

70	159	198	1039	326	6788	454	44347
71	161	199	1054	327	6889	455	45002
72	163	200	1070	328	6990	456	45667
73	166	201	1085	329	7094	457	46342
74	168	202	1101	330	7198	458	47026
75	171	203	1118	331	7305	459	47721
76	173	204	1134	332	7413	460	48426
77	176	205	1151	333	7522	461	49141
78	178	206	1168	334	7633	462	49867
79	181	207	1185	335	7746	463	50603
80	184	208	1203	336	7860	464	51351
81	186	209	1221	337	7976	465	52109
82	189	210	1239	338	8094	466	52879
83	192	211	1257	339	8214	467	53660
84	195	212	1276	340	8335	468	54453
85	198	213	1294	341	8458	469	55257
86	201	214	1313	342	8583	470	56073
87	204	215	1333	343	8710	471	56901
88	207	216	1353	344	8839	472	57742
89	210	217	1373	345	8969	473	58595
90	213	218	1393	346	9102	474	59460
91	216	219	1413	347	9236	475	60338
92	219	220	1434	348	9373	476	61230
93	222	221	1456	349	9511	477	62134
94	226	222	1477	350	9652	478	63052
95	229	223	1499	351	9794	479	63983
96	232	224	1521	352	9939	480	64928
97	236	225	1543	353	10086	481	65887
98	239	226	1566	354	10235	482	66860
99	243	227	1589	355	10386	483	67848
100	246	228	1613	356	10539	484	68850
101	250	229	1637	357	10695	485	69867
102	254	230	1661	358	10853	486	70899
103	258	231	1685	359	11013	487	71946
104	261	232	1710	360	11176	488	73009
105	265	233	1736	361	11341	489	74087
106	269	234	1761	362	11508	490	75182
107	273	235	1787	363	11678	491	76292
108	277	236	1814	364	11851	492	77419
109	281	237	1840	365	12026	493	78563
110	285	238	1868	366	12204	494	79723
111	290	239	1895	367	12384	495	80901
112	294	240	1923	368	12567	496	82095
113	298	241	1952	369	12752	497	83308
114	303	242	1981	370	12941	498	84539
115	307	243	2010	371	13132	499	85787
116	312	244	2039	372	13326	500	87054
117	316	245	2070	373	13523	501	88340
118	321	246	2100	374	13722	502	89645
119	326	247	2131	375	13925	503	90969

120	331	248	2163	376	14131	504	92313
121	336	249	2195	377	14340	505	93676
122	340	250	2227	378	14551	506	95060
123	346	251	2260	379	14766	507	96464
124	351	252	2293	380	14984	508	97889
125	356	253	2327	381	15206	509	99335
126	361	254	2362	382	15430	510	100802
127	366	255	2397	383	15658	511	102000

Reference(s)

3GPP TS 25.321 Section 9.2.3.2

18.2.7.1.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.6.1 for the UL 336 bit block size case.

18.2.7.1.1.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)
1	1	3	512	128	336	UL_TFC1	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312
	2	3	512	128					
	3	3	512	128					
	4	3	512	128					
	5	3	512	256					
	6	3	512	256					
	7	3	1536	512					
	8	3	1536	512					
	9	3	2047	512					
2	1	3	256	128	656	UL_TFC2	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632
	2	3	256	128					
	3	3	256	128					
	4	3	256	128					
	5	3	256	256					
	6	3	256	256					
	7	3	512	512					
	8	3	512	512					
	9	3	1024	512					
3	1	3	512	256	336	UL_TFC3	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952
	2	3	512	256					
	3	3	512	256					
	4	3	512	256					
	5	3	512	256					
	6	3	512	256					
	7	3	1536	512					
	8	3	1536	512					
	9	3	2047	512					
4	1	8	256	256	656	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272
	2	8	256	256					
	3	8	256	256					
	4	8	256	256					
	5	8	256	256					
	6	8	256	256					
	7	8	512	512					
	8	8	512	512					
	9	8	1024	512					

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.

18.2.7.1.1.4 Test requirements

See 14.1.3.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE transmitted transport format shall be
   - for sub-test 1: TF1 (1x336).

- for sub-test 2: TF2 (2x336).
- for sub-test 3: TF3 (3x336).
- for sub-test 4: TF4 (4x336).

3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.2.7.1.2 Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB, UL 144bit block size

18.2.7.1.2.1 Conformance requirement

See 18.2.7.1.1.1

18.2.7.1.2.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.6.1 for the UL 144 bit block size case.

18.2.7.1.2.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	3x144	N/A
	TF3, bits	7x144	N/A
	TF4, bits	10x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)
1	1	3	512	128	336	UL_TFC1	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 120
	2	3	512	128					
	3	3	512	128					
	4	3	512	128					
	5	3	512	256					
	6	3	512	256					
	7	3	1536	512					
	8	3	1536	512					
	9	3	2047	512					
2	1	3	256	128	656	UL_TFC2	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 376
	2	3	256	128					
	3	3	256	128					
	4	3	256	128					
	5	3	256	256					
	6	3	256	256					
	7	3	512	512					
	8	3	512	512					
	9	3	1024	512					
3	1	3	512	256	336	UL_TFC3	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 888
	2	3	512	256					
	3	3	512	256					
	4	3	512	256					
	5	3	512	256					
	6	3	512	256					
	7	3	1536	512					
	8	3	1536	512					
	9	3	2047	512					
4	1	8	256	256	656	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272
	2	8	256	256					
	3	8	256	256					
	4	8	256	256					
	5	8	256	256					
	6	8	256	256					
	7	8	512	512					
	8	8	512	512					
	9	8	1024	512					

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.

18.2.7.1.2.4 Test requirements

See 14.1.3.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE transmitted transport format shall be
   - for sub-test 1: TF1 (1x144).

- for sub-test 2: TF2 (3x144).
- for sub-test 3: TF3 (7x144).
- for sub-test 4: TF4 (10x144).

3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.2.7.2 Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.7.2.1 Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB, UL 336bit block size

18.2.7.2.1.1 Conformance requirement

See 18.2.7.1.1.1.

18.2.7.2.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.6.2 for the UL 336 bit block size case.

18.2.7.2.1.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)
1	1	3	512	128	336	UL_TFC1	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312
	2	3	512	128					
	3	3	512	128					
	4	3	512	128					
	5	3	512	256					
	6	3	512	256					
	7	3	1536	512					
	8	3	1536	512					
	9	3	2047	512					
2	1	3	256	128	656	UL_TFC2	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632
	2	3	256	128					
	3	3	256	128					
	4	3	256	128					
	5	3	256	256					
	6	3	256	256					
	7	3	512	512					
	8	3	512	512					
	9	3	1024	512					
3	1	3	512	256	336	UL_TFC3	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1272
	2	3	512	256					
	3	3	512	256					
	4	3	512	256					
	5	3	512	256					
	6	3	512	256					
	7	3	1536	512					
	8	3	1536	512					
	9	3	2047	512					
4	1	8	256	256	656	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552
	2	8	256	256					
	3	8	256	256					
	4	8	256	256					
	5	8	256	256					
	6	8	256	256					
	7	8	512	512					
	8	8	512	512					
	9	8	1024	512					

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.

18.2.7.2.1.4 Test requirements

See 14.1.3.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE transmitted transport format shall be
   - for sub-test 1: TF1 (1x336).

- for sub-test 2: TF2 (2x336).
- for sub-test 3: TF3 (4x336).
- for sub-test 4: TF4 (8x336).

3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.2.7.2.2 Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB, UL 144bit block size

18.2.7.2.2.1 Conformance requirement

See 18.2.7.1.1.1.

18.2.7.2.2.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.6.2 for the UL 144 bit block size case.

18.2.7.2.2.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	7x144	N/A
	TF3, bits	14x144	N/A
	TF4, bits	20x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)
1	1	3	512	128	336	UL_TFC1	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 120
	2	3	512	128					
	3	3	512	128					
	4	3	512	128					
	5	3	512	256					
	6	3	512	256					
	7	3	1536	512					
	8	3	1536	512					
	9	3	2047	512					
2	1	3	256	128	656	UL_TFC2	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 888
	2	3	256	128					
	3	3	256	128					
	4	3	256	128					
	5	3	256	256					
	6	3	256	256					
	7	3	512	512					
	8	3	512	512					
	9	3	1024	512					
3	1	3	512	256	336	UL_TFC3	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1784
	2	3	512	256					
	3	3	512	256					
	4	3	512	256					
	5	3	512	256					
	6	3	512	256					
	7	3	1536	512					
	8	3	1536	512					
	9	3	2047	512					
4	1	8	256	256	656	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552
	2	8	256	256					
	3	8	256	256					
	4	8	256	256					
	5	8	256	256					
	6	8	256	256					
	7	8	512	512					
	8	8	512	512					
	9	8	1024	512					

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.

18.2.7.2.2.4 Test requirements

See 14.1.3.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE transmitted transport format shall be
   - for sub-test 1: TF1 (1x144).

- for sub-test 2: TF2 (7x144).
- for sub-test 3: TF3 (14x144).
- for sub-test 4: TF4 (20x144).

3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.2.7.3 Interactive or background / UL:384 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.7.3.1 Conformance requirement

See 18.2.7.1.1.1.

18.2.7.3.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.6.3.

18.2.7.3.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (384 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF0, TF1)
UL_TFC7	(TF1, TF1)
UL_TFC8	(TF2, TF1)
UL_TFC9	(TF3, TF1)
UL_TFC10	(TF4, TF1)
UL_TFC11	(TF5, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)
1	1	3	512	128	336	UL_TFC1	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7	RB5: 312
	2	3	512	128					
	3	3	512	128					
	4	3	512	128					
	5	3	512	256					
	6	3	512	256					
	7	3	1536	512					
	8	3	1536	512					
	9	3	2047	512					
2	1	3	256	128	656	UL_TFC2	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 632
	2	3	256	128					
	3	3	256	128					
	4	3	256	128					
	5	3	256	256					
	6	3	256	256					
	7	3	512	512					
	8	3	512	512					
	9	3	1024	512					
3	1	3	512	256	336	UL_TFC3	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 1272
	2	3	512	256					
	3	3	512	256					
	4	3	512	256					
	5	3	512	256					
	6	3	512	256					
	7	3	1536	512					
	8	3	1536	512					
	9	3	2047	512					
4	1	8	256	256	656	UL_TFC4	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 2552
	2	8	256	256					
	3	8	256	256					
	4	8	256	256					
	5	8	256	256					
	6	8	256	256					
	7	8	512	512					
	8	8	512	512					
	9	8	1024	512					
5	1	8	256	256	656	UL_TFC5	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 3832
	2	8	256	256					
	3	8	256	256					
	4	8	256	256					
	5	8	256	256					
	6	8	256	256					
	7	8	512	512					
	8	8	512	512					
	9	8	1024	512					

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.

18.2.7.3.4 Test requirements

See 14.1.3.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE transmitted transport format shall be
   - for sub-test 1: TF1 (1x336).
   - for sub-test 2: TF2 (2x336).
   - for sub-test 3: TF3 (4x336).
   - for sub-test 4: TF4 (8x336).
   - for sub-test 5: TF5 (12x336).
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.2.7.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.7.4.1 Conformance requirement

See 18.2.7.1.1.1.

18.2.7.4.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.6.4.

18.2.7.4.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (384 kbps, 10 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A
	TF5, bits	N/A	N/A	N/A	12x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF5, TF0)
UL_TFC16	(TF1, TF0, TF0, TF5, TF0)
UL_TFC17	(TF2, TF1, TF1, TF5, TF0)
UL_TFC18	(TF0, TF0, TF0, TF0, TF1)
UL_TFC19	(TF1, TF0, TF0, TF0, TF1)
UL_TFC20	(TF2, TF1, TF1, TF0, TF1)
UL_TFC21	(TF0, TF0, TF0, TF1, TF1)
UL_TFC22	(TF1, TF0, TF0, TF1, TF1)
UL_TFC23	(TF2, TF1, TF1, TF1, TF1)
UL_TFC24	(TF0, TF0, TF0, TF2, TF1)
UL_TFC25	(TF1, TF0, TF0, TF2, TF1)
UL_TFC26	(TF2, TF1, TF1, TF2, TF1)
UL_TFC27	(TF0, TF0, TF0, TF3, TF1)
UL_TFC28	(TF1, TF0, TF0, TF3, TF1)
UL_TFC29	(TF2, TF1, TF1, TF3, TF1)
UL_TFC30	(TF0, TF0, TF0, TF4, TF1)
UL_TFC31	(TF1, TF0, TF0, TF4, TF1)
UL_TFC32	(TF2, TF1, TF1, TF4, TF1)
UL_TFC33	(TF0, TF0, TF0, TF5, TF1)
UL_TFC34	(TF1, TF0, TF0, TF5, TF1)
UL_TFC35	(TF2, TF1, TF1, TF5, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Speech and Interactive Background radio bearer. As the Interactive Background UL:384 kbps radio bearer (RB8) has the highest number of transport formats (5 for TTI=10 ms and excluding TF0) then 5 sub-tests has been defined. The selected UL TFCI to achieve test coverage of TF1 to TF5 for RB8 and for the different speech transport formats are: UL_TFC4 for TF1, UL_TFC8 for TF2, UL_TFC11 for TF3, UL_TFC13 for TF4 and UL_TFC17 for TF5.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	3	512	256	336	DL_TFC1	UL_TFC4	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC18	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC18, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: See note 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
2	1	3	256	256	656	DL_TFC2	UL_TFC8	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC18	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC8, UL_TFC18, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: See note 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
3	1	3	512	256	336	DL_TFC2	UL_TFC11	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC18	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC11, UL_TFC18, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: See note 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
4	1	3	256	256	656	DL_TFC1	UL_TFC13	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC18	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC18, UL_TFC31	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: See note 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
5	1	3	256	256	656	DL_TFC2	UL_TFC17	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC18	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC17, UL_TFC18, UL_TFC35	RB5: 81 RB6: 103 RB7: 60 RB8: 3832	RB5: 81 RB6: 103 RB7: 60 RB8: See note 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC18 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB8 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

18.2.7.4.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.2.7.5 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL: 64 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.7.5.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL: 64 DL:[Bit rate depending on the UE category] / PS RAB, UL 336bit block size

18.2.7.5.1.1 Conformance requirement

See 18.2.7.1.1.1.

18.2.7.5.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.6.5 for the UL 336 bit block size case.

18.2.7.5.1.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Speech and Interactive Background radio bearer. As the Interactive Background UL:64 kbps radio bearer (RB8) has the highest number of transport formats (4 excluding TF0) then 4 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF4 for RB8 and for the different speech transport formats are: UL_TFC4 for TF1, UL_TFC8 for TF2, UL_TFC11 for TF3 and UL_TFC13 for TF4.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	3	512	128	336	DL_TFC1	UL_TFC4	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: See note 4
	2	3	512	128							
	3	3	512	128							
	4	3	512	128							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
2	1	3	256	128	656	DL_TFC2	UL_TFC8	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC8, UL_TFC15, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: See note 4
	2	3	256	128							
	3	3	256	128							
	4	3	256	128							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
3	1	3	512	256	336	DL_TFC2	UL_TFC11	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC11, UL_TFC15, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: 81 RB6: 103 RB7: 60 RB8: See note 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
4	1	8	256	256	656	DL_TFC1	UL_TFC13	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: See note 4
	2	8	256	256							
	3	8	256	256							
	4	8	256	256							
	5	8	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC15 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB8 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

18.2.7.5.1.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.2.7.5.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL: 64 DL:[Bit rate depending on the UE category] / PS RAB, UL 144bit block size

18.2.7.5.2.1 Conformance requirement

See 18.2.7.1.1.1.

18.2.7.5.2.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.6.5 for the UL 144 bit block size case.

18.2.7.5.2.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x144	0x148
	TF1, bits	1x39	1x103	1x60	1x144	1x148
	TF2, bits	1x81	N/A	N/A	3x144	N/A
	TF3, bits	N/A	N/A	N/A	7x144	N/A
	TF4, bits	N/A	N/A	N/A	10x144	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Speech and Interactive Background radio bearer. As the Interactive Background UL:64 kbps radio bearer (RB8) has the highest number of transport formats (4 excluding TF0) then 4 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF4 for RB8 and for the different speech transport formats are: UL_TFC4 for TF1, UL_TFC8 for TF2, UL_TFC11 for TF3 and UL_TFC13 for TF4.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	3	512	128	336	DL_TFC1	UL_TFC4	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 120	RB5: 39 RB6: No data RB7: No data RB8: See note 4
	2	3	512	128							
	3	3	512	128							
	4	3	512	128							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
2	1	3	256	128	656	DL_TFC2	UL_TFC8	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC8, UL_TFC15, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 376	RB5: 81 RB6: 103 RB7: 60 RB8: See note 4
	2	3	256	128							
	3	3	256	128							
	4	3	256	128							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
3	1	3	512	256	336	DL_TFC2	UL_TFC11	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC11, UL_TFC15, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 888	RB5: 81 RB6: 103 RB7: 60 RB8: See note 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
4	1	8	256	256	656	DL_TFC1	UL_TFC13	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: See note 4
	2	8	256	256							
	3	8	256	256							
	4	8	256	256							
	5	8	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC15 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB8 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

18.2.7.5.2.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.2.7.6 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.7.6.1 Conformance requirement

See 18.2.7.1.1.1.

18.2.7.6.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.6.6.

18.2.7.6.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv. 64 kbps)
Uplink RLC	
TM RLC	
Segmentation indication	FALSE
Transmission RLC discard	
CHOICE *SDU Discard Mode*	
Timer based no explicit	
Timer_discard	100ms
Downlink RLC	
TM RLC	
Segmentation indication	FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 384 kbps, 10 ms TTI)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	4x336	N/A
	TF4, bits	N/A	8x336	N/A
	TF5, bits	N/A	12x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0,TF0,TF0)
UL_TFC1	(TF1,TF0,TF0)
UL_TFC2	(TF0,TF1,TF0)
UL_TFC3	(TF1,TF1,TF0)
UL_TFC4	(TF0,TF2,TF0)
UL_TFC5	(TF1,TF2,TF0)
UL_TFC6	(TF0,TF3,TF0)
UL_TFC7	(TF1,TF3,TF0)
UL_TFC8	(TF0,TF4,TF0)
UL_TFC9	(TF1,TF4,TF0)
UL_TFC10	(TF0,TF5,TF0)
UL_TFC11	(TF1,TF5,TF0)
UL_TFC12	(TF0,TF0,TF1)
UL_TFC13	(TF1,TF0,TF1)
UL_TFC14	(TF0,TF1,TF1)
UL_TFC15	(TF1,TF1,TF1)
UL_TFC16	(TF0,TF2,TF1)
UL_TFC17	(TF1,TF2,TF1)
UL_TFC18	(TF0,TF3,TF1)
UL_TFC19	(TF1,TF3,TF1)
UL_TFC20	(TF0,TF4,TF1)
UL_TFC21	(TF1,TF4,TF1)
UL_TFC22	(TF0,TF5,TF1)
UL_TFC23	(TF1,TF5,TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	4x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Conversational CS and Interactive Background PS radio bearer. As the Interactive Background UL:384 kbps radio bearer (RB6) has the highest number of transport formats (5 for TTI=10 ms and excluding TF0) then 5 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF5 for RB6 and for TF1 for RB5 are: UL_TFC3 for TF1, UL_TFC5 for TF2, UL_TFC7 for TF3, UL_TFC9 for TF4 and UL_TFC11 for TF5.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	3	512	256	336	DL_TFC1	UL_TFC3	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15	RB5: 640 RB6: 312	RB5: 4x640 RB6: See note 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
2	1	3	256	256	656	DL_TFC1	UL_TFC5	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC12, UL_TFC17	RB5: 640 RB6: 632	RB5: 4x640 RB6: See note 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
3	1	3	512	256	336	DL_TFC1	UL_TFC7	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC7, UL_TFC12, UL_TFC19	RB5: 640 RB6: 1272	RB5: 4x640 RB6: See note 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
4	1	3	256	256	656	DL_TFC1	UL_TFC9	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC9, UL_TFC12, UL_TFC21	RB5: 640 RB6: 2552	RB5: 4x640 RB6: See note 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
5	1	3	256	256	656	DL_TFC1	UL_TFC11	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC11, UL_TFC12, UL_TFC23	RB5: 640 RB6: 3832	RB5: 4x640 RB6: See note 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, and UL_TFC12 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

18.2.7.6.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.2.7.7 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.7.7.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB, UL 336bit block size

18.2.7.7.1.1 Conformance requirement

See 18.2.7.1.1.1.

18.2.7.7.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.6.7 for the UL 336 bit block size case.

18.2.7.7.1.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv. 64 kbps)
Uplink RLC TM RLC Segmentation indication Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard	 FALSE 100ms
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	**RB5 (Conv. 64 kbps)**	**RB6 (I/B 64 kbps)**	**DCCH**
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

Uplink TFCS:

TFCI	**(RB5, RB6, DCCH)**
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF0, TF1, TF0)
UL_TFC3	(TF1, TF1, TF0)
UL_TFC4	(TF0, TF2, TF0)
UL_TFC5	(TF1, TF2, TF0)
UL_TFC6	(TF0, TF3, TF0)
UL_TFC7	(TF1, TF3, TF0)
UL_TFC8	(TF0, TF4, TF0)
UL_TFC9	(TF1, TF4, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF1, TF0, TF1)
UL_TFC12	(TF0, TF1, TF1)
UL_TFC13	(TF1, TF1, TF1)
UL_TFC14	(TF0, TF2, TF1)
UL_TFC15	(TF1, TF2, TF1)
UL_TFC16	(TF0, TF3, TF1)
UL_TFC17	(TF1, TF3, TF1)
UL_TFC18	(TF0, TF4, TF1)
UL_TFC19	(TF1, TF4, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	4x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Conversational CS and Interactive Background PS radio bearer. As the Interactive Background UL:64 kbps radio bearer (RB6) has the highest number of transport formats (4 excluding TF0) then 4 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF4 for RB6 and for TF1 for RB5 are: UL_TFC3 for TF1, UL_TFC5 for TF2, UL_TFC7 for TF3 and UL_TFC9 for TF4.

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Conversational CS and Interactive Background PS radio bearer. As the Interactive Background UL:64 kbps radio bearer (RB6) has the highest number of transport formats (4 excluding TF0) then 4 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF4 for RB6 and for TF1 for RB5 are: UL_TFC3 for TF1, UL_TFC5 for TF2, UL_TFC7 for TF3 and UL_TFC9 for TF4.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	3	512	128	336	DL_TFC1	UL_TFC3	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC10, UL_TFC13	RB5: 640 RB6: 312	RB5: 4x640 RB6: See note 4
	2	3	512	128							
	3	3	512	128							
	4	3	512	128							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
2	1	3	256	128	656	DL_TFC1	UL_TFC5	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC10, UL_TFC15	RB5: 640 RB6: 632	RB5: 4x640 RB6: See note 4
	2	3	256	128							
	3	3	256	128							
	4	3	256	128							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
3	1	3	512	256	336	DL_TFC1	UL_TFC7	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC7, UL_TFC10, UL_TFC17	RB5: 640 RB6: 952	RB5: 4x640 RB6: See note 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
4	1	3	256	256	656	DL_TFC1	UL_TFC9	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC9, UL_TFC10, UL_TFC19	RB5: 640 RB6: 1272	RB5: 4x640 RB6: See note 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, and UL_TFC10 are part of minimum set of TFCIs. NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI. NOTE 4: The test data size for RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.											

18.2.7.7.1.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.2.7.7.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB, UL 144bit block size

18.2.7.7.2.1 Conformance requirement

See 18.2.7.1.1.1.

18.2.7.7.2.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.6.7 for the UL 144 bit block size case.

18.2.7.7.2.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv. 64 kbps)
Uplink RLC	
TM RLC	
Segmentation indication	FALSE
Transmission RLC discard	
CHOICE *SDU Discard Mode*	
Timer based no explicit	
Timer_discard	100ms
Downlink RLC	
TM RLC	
Segmentation indication	FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 64 kbps)	DCCH
TFS	TF0, bits	0x640	0x144	0x148
	TF1, bits	4x640	1x144	1x148
	TF2, bits	N/A	3x144	N/A
	TF3, bits	N/A	7x144	N/A
	TF4, bits	N/A	10x144	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF0, TF1, TF0)
UL_TFC3	(TF1, TF1, TF0)
UL_TFC4	(TF0, TF2, TF0)
UL_TFC5	(TF1, TF2, TF0)
UL_TFC6	(TF0, TF3, TF0)
UL_TFC7	(TF1, TF3, TF0)
UL_TFC8	(TF0, TF4, TF0)
UL_TFC9	(TF1, TF4, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF1, TF0, TF1)
UL_TFC12	(TF0, TF1, TF1)
UL_TFC13	(TF1, TF1, TF1)
UL_TFC14	(TF0, TF2, TF1)
UL_TFC15	(TF1, TF2, TF1)
UL_TFC16	(TF0, TF3, TF1)
UL_TFC17	(TF1, TF3, TF1)
UL_TFC18	(TF0, TF4, TF1)
UL_TFC19	(TF1, TF4, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	4x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Conversational CS and Interactive Background PS radio bearer. As the Interactive Background UL:64 kbps radio bearer (RB6) has the highest number of transport formats (4 excluding TF0) then 4 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF4 for RB6 and for TF1 for RB5 are: UL_TFC3 for TF1, UL_TFC5 for TF2, UL_TFC7 for TF3 and UL_TFC9 for TF4.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	3	512	128	336	DL_TFC1	UL_TFC3	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC10, UL_TFC13	RB5: 640 RB6: 120	RB5: 4x640 RB6: See note 4
	2	3	512	128							
	3	3	512	128							
	4	3	512	128							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
2	1	3	256	128	656	DL_TFC1	UL_TFC5	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC10, UL_TFC15	RB5: 640 RB6: 376	RB5: 4x640 RB6: See note 4
	2	3	256	128							
	3	3	256	128							
	4	3	256	128							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
3	1	3	512	256	336	DL_TFC1	UL_TFC7	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC7, UL_TFC10, UL_TFC17	RB5: 640 RB6: 888	RB5: 4x640 RB6: See note 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
4	1	3	256	256	656	DL_TFC1	UL_TFC9	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC9, UL_TFC10, UL_TFC19	RB5: 640 RB6: 1272	RB5: 4x640 RB6: See note 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, and UL_TFC10 are part of minimum set of TFCIs. NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI. NOTE 4: The test data size for RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.											

18.2.7.7.2.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.2.7.8 Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.7.8.1 Conformance requirement

See 18.2.7.1.1.1.

18.2.7.8.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.6.8.

18.2.7.8.3 Method of test

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	**RB6 (I/B 384 kbps)**	**RB6 (I/B 384 kbps)**	**DCCH**
TFS	TF0, bits	0x340	0x340	0x148
	TF1, bits	1x340	1x340	1x148
	TF2, bits	2x340	2x340	N/A
	TF3, bits	4x340	4x340	N/A
	TF4, bits	8x340	8x340	N/A
	TF5, bits	12x340	12x340	N/A

Uplink TFCS:

TFCI	(RB5 + RB6, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF0, TF1)
UL_TFC7	(TF1, TF1)
UL_TFC8	(TF2, TF1)
UL_TFC9	(TF3, TF1)
UL_TFC10	(TF4, TF1)
UL_TFC11	(TF5, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the 2 x Interactive Background PS radio bearer. As the 2 x Interactive Background UL:384 kbps radio bearer (RB5+RB6) have 5 transport formats then 5 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF5 for RB5+RB6 are: UL_TFC1 for TF1, UL_TFC2 for TF2, UL_TFC3 for TF3, UL_TFC4 for TF4 and UL_TFC5 for TF5.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	3	512	256	336	N/A	UL_TFC1	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7	RB5: 312 RB6: 312	See note 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
2	1	3	256	256	656	N/A	UL_TFC2	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 632 RB6: 632	See note 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
3	1	3	512	256	336	N/A	UL_TFC3	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 1272 RB6: 1272	See note 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
4	1	3	256	256	656	N/A	UL_TFC4	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 2552 RB6: 2552	See note 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
5	1	3	256	256	656	N/A	UL_TFC5	UL_TFC0,	UL_TFC0,	RB5: 3832	See note 4

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
	2	3	256	256				UL_TFC6	UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC11	RB6: 3832	
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC6 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5 and RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB5 and RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

18.2.7.8.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.2.7.9 Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.7.9.1 Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB, UL 340bit block size

18.2.7.9.1.1 Conformance requirement

See 18.2.7.1.1.1.

18.2.7.9.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.6.9 for the UL 340 bit block size case.

18.2.7.9.1.3 Method of test

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	RB5 + RB6 (64 kbps RAB, 20 ms TTI)	DCCH
TFS	TF0, bits	0x340	0x148
	TF1, bits	1x340	1x148
	TF2, bits	2x340	N/A
	TF3, bits	3x340	N/A
	TF4, bits	4x340	N/A

Uplink TFCS:

TFCI	(RB5 + RB6, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the 2 x Interactive Background PS radio bearer. As the 2 x Interactive Background UL:64 kbps radio bearer (RB5+RB6) has 4 transport formats then 4 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF4 for RB5+RB6 are: UL_TFC1 for TF1, UL_TFC2 for TF2, UL_TFC3 for TF3 and UL_TFC4 for TF4.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	3	512	128	336	N/A	UL_TFC1	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312 RB6: 312	See note 4
	2	3	512	128							
	3	3	512	128							
	4	3	512	128							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
2	1	3	256	128	656	N/A	UL_TFC2	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632 RB6: 632	See note 4
	2	3	256	128							
	3	3	256	128							
	4	3	256	128							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
3	1	3	512	256	336	N/A	UL_TFC3	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952 RB6: 952	See note 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
4	1	3	256	256	656	N/A	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272 RB6: 1272	See note 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, and UL_TFC10 are part of minimum set of TFCIs. NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI. NOTE 4: The test data size for RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.											

18.2.7.9.1.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.2.7.9.1 Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB, UL 148bit block size

18.2.7.9.1.1 Conformance requirement

See 18.2.7.1.1.1.

18.2.7.9.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.6.9 for the UL 148 bit block size case.

18.2.7.9.1.3 Method of test

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	**RB5 + RB6 (64 kbps RAB, 20 ms TTI)**	**DCCH**
TFS	TF0, bits	0x148	0x148
	TF1, bits	1x148	1x148
	TF2, bits	3x148	N/A
	TF3, bits	7x148	N/A
	TF4, bits	10x148	N/A

Uplink TFCS:

TFCI	(RB5 + RB6, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the 2 x Interactive Background PS radio bearer. As the 2 x Interactive Background UL:64 kbps radio bearer (RB5+RB6) has 4 transport formats then 4 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF4 for RB5+RB6 are: UL_TFC1 for TF1, UL_TFC2 for TF2, UL_TFC3 for TF3 and UL_TFC4 for TF4.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	3	512	128	336	N/A	UL_TFC1	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 120 RB6: 120	See note 4
	2	3	512	128							
	3	3	512	128							
	4	3	512	128							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
2	1	3	256	128	656	N/A	UL_TFC2	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 376 RB6: 376	See note 4
	2	3	256	128							
	3	3	256	128							
	4	3	256	128							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
3	1	3	512	256	336	N/A	UL_TFC3	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 888 RB6: 888	See note 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
4	1	3	256	256	656	N/A	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272 RB6: 1272	See note 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, and UL_TFC10 are part of minimum set of TFCIs. NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI. NOTE 4: The test data size for RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.											

18.2.7.9.1.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.2.7.10 Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] kbps / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.7.10.1 Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] kbps / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB, UL 336bit block size

18.2.7.10.1.1 Conformance requirement

See 18.2.7.1.1.1.

18.2.7.10.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.6.10 for the UL 336 bit block size case.

18.2.7.10.1.3 Method of test

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	**RB5 (Streaming 128 kbps, 20ms)**	**RB6 (I/B 128 kbps, 20ms)**	**DCCH**
TFS	TF0, bits	0x656	0x336	0x148
	TF1, bits	1x656	1x336	1x148
	TF2, bits	2x656	2x336	N/A
	TF3, bits	4x656	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Uplink TFCS:

TFCI	(RB5 + RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)-
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF0, TF0)
UL_TFC3	(TF3, TF0, TF0)
UL_TFC4	(TF0, TF1, TF0)
UL_TFC5	(TF1, TF1, TF0)
UL_TFC6	(TF2, TF1, TF0)
UL_TFC7	(TF3, TF1, TF0)
UL_TFC8	(TF0, TF2, TF0)
UL_TFC9	(TF1, TF2, TF0)
UL_TFC10	(TF2, TF2, TF0)
UL_TFC11	(TF3, TF2, TF0)
UL_TFC12	(TF0, TF3, TF0)
UL_TFC13	(TF1, TF3, TF0)
UL_TFC14	(TF2, TF3, TF0)
UL_TFC15	(TF3, TF3, TF0)
UL_TFC16	(TF0, TF4, TF0)
UL_TFC17	(TF1, TF4, TF0)
UL_TFC18	(TF2, TF4, TF0)
UL_TFC19	(TF3, TF4, TF0)
UL_TFC20	(TF0, TF0, TF1)
UL_TFC21	(TF1, TF0, TF1)
UL_TFC22	(TF2, TF0, TF1)
UL_TFC23	(TF3, TF0, TF1)
UL_TFC24	(TF0, TF1, TF1)
UL_TFC25	(TF1, TF1, TF1)
UL_TFC26	(TF2, TF1, TF1)
UL_TFC27	(TF3, TF1, TF1)
UL_TFC28	(TF0, TF2, TF1)
UL_TFC29	(TF1, TF2, TF1)
UL_TFC30	(TF2, TF2, TF1)
UL_TFC31	(TF3, TF2, TF1)
UL_TFC32	(TF0, TF3, TF1)
UL_TFC33	(TF1, TF3, TF1)
UL_TFC34	(TF2, TF3, TF1)
UL_TFC35	(TF3, TF3, TF1)
UL_TFC36	(TF0, TF4, TF1)
UL_TFC37	(TF1, TF4, TF1)
UL_TFC38	(TF2, TF4, TF1)
UL_TFC39	(TF3, TF4, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Streaming + Interactive Background PS radio bearer. The Streaming UL:128 kbps + Interactive Background UL:128 kbps radio bearer (RB5+RB6) have 40 transport format combinations. As the transport formats where RB5, RB6 or DCCH has no data (TF0 for RB5, RB6 or DCCH) is considered as implicitly tested when the transport format combinations with data is tested then no specific sub-tests for those transport format combinations have been specified. The selected UL TFCI to achieve test coverage of TF1 to TF3 for RB5 and TF1 to TF4 for RB6 are: UL_TFC5 to UL_TFC7, UL_TFC9 to UL_TFC11, UL_TFC13 to UL_TFC15 and UL_TFC17 to UL_TFC19.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	3	512	128	336	N/A	UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC20, UL_TFC21	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC25	RB5: 632 RB6: 312	See note 4
	2	3	512	128							
	3	3	512	128							
	4	3	512	128							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
2	1	3	256	128	656	N/A	UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC6, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC26	RB5: 1272 RB6: 312	See note 4
	2	3	256	128							
	3	3	256	128							
	4	3	256	128							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
3	1	3	512	256	336	N/A	UL_TFC7	UL_TFC0, UL_TFC3, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC7, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC27	RB5: 2552 RB6: 312	See note 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
4	1	3	256	256	656	N/A	UL_TFC9	UL_TFC0, UL_TFC8, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC9, UL_TFC20, UL_TFC21, UL_TFC24,	RB5: 632 RB6: 632	See note 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
	9	3	1024	512					UL_TFC29		
5	1	3	512	256	656	N/A	UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC8, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC8, UL_TFC10, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC30	RB5: 1272 RB6: 632	See note 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
6	1	3	256	256	656	N/A	UL_TFC11	UL_TFC0, UL_TFC3, UL_TFC8, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC8, UL_TFC11, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC31	RB5: 2552 RB6: 632	See note 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
7	1	3	512	256	656	N/A	UL_TFC13	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC12, UL_TFC13, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC33	RB5: 632 RB6: 1272	See note 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
8	1	3	256	256	656	N/A	UL_TFC14	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC12, UL_TFC14, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC34	RB5: 1272 RB6: 1272	See note 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
9	1	3	512	256	656	N/A	UL_TFC15	UL_TFC0, UL_TFC3, UL_TFC12, UL_TFC4,	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4,	RB5: 2552 RB6: 1272	See note 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
	5	3	512	256				UL_TFC20, UL_TFC6	UL_TFC12, UL_TFC15, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC35		
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
10	1	3	256	256	656	N/A	UL_TFC17	UL_TFC0, UL_TFC1, UL_TFC16, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC16, UL_TFC17, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC37	RB5: 632 RB6: 2552	See note 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
11	1	3	512	256	656	N/A	UL_TFC18	UL_TFC0, UL_TFC8, UL_TFC16, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC16, UL_TFC18, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC38	RB5: 1272 RB6: 2552	See note 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
12	1	3	256	256	656	N/A	UL_TFC19	UL_TFC0, UL_TFC3, UL_TFC16, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC16, UL_TFC19, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC39	RB5: 2552 RB6: 2552	See note 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.

NOTE 2: UL_TFC0, UL_TFC1, UL_TFC4 and UL_TFC20 are part of minimum set of TFCIs. Also the transport format combinations UL_TFC21 and UL_TFC24 using TF1 on either RB5 or RB6 and TF1 on DCCH has been included in the allowed TFCs as those could happen during the sub-test.

NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5 and RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.

NOTE 4: The test data size for RB5 and RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

18.2.7.10.1.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.2.7.10.2 Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] kbps / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB, UL 144bit block size

18.2.7.10.2.1 Conformance requirement

See 18.2.7.1.1.1.

18.2.7.10.2.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.6.10 for the UL 144 bit block size case.

18.2.7.10.2.3 Method of test

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	**RB5 (Streaming 128 kbps, 20ms)**	**RB6 (I/B 128 kbps, 20ms)**	**DCCH**
TFS	TF0, bits	0x656	0x144	0x148
	TF1, bits	1x656	1x144	1x148
	TF2, bits	2x656	7x144	N/A
	TF3, bits	4x656	14x144	N/A
	TF4, bits	N/A	20x144	N/A

Uplink TFCS:

TFCI	(RB5 + RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)-
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF0, TF0)
UL_TFC3	(TF3, TF0, TF0)
UL_TFC4	(TF0, TF1, TF0)
UL_TFC5	(TF1, TF1, TF0)
UL_TFC6	(TF2, TF1, TF0)
UL_TFC7	(TF3, TF1, TF0)
UL_TFC8	(TF0, TF2, TF0)
UL_TFC9	(TF1, TF2, TF0)
UL_TFC10	(TF2, TF2, TF0)
UL_TFC11	(TF3, TF2, TF0)
UL_TFC12	(TF0, TF3, TF0)
UL_TFC13	(TF1, TF3, TF0)
UL_TFC14	(TF2, TF3, TF0)
UL_TFC15	(TF3, TF3, TF0)
UL_TFC16	(TF0, TF4, TF0)
UL_TFC17	(TF1, TF4, TF0)
UL_TFC18	(TF2, TF4, TF0)
UL_TFC19	(TF3, TF4, TF0)
UL_TFC20	(TF0, TF0, TF1)
UL_TFC21	(TF1, TF0, TF1)
UL_TFC22	(TF2, TF0, TF1)
UL_TFC23	(TF3, TF0, TF1)
UL_TFC24	(TF0, TF1, TF1)
UL_TFC25	(TF1, TF1, TF1)
UL_TFC26	(TF2, TF1, TF1)
UL_TFC27	(TF3, TF1, TF1)
UL_TFC28	(TF0, TF2, TF1)
UL_TFC29	(TF1, TF2, TF1)
UL_TFC30	(TF2, TF2, TF1)
UL_TFC31	(TF3, TF2, TF1)
UL_TFC32	(TF0, TF3, TF1)
UL_TFC33	(TF1, TF3, TF1)
UL_TFC34	(TF2, TF3, TF1)
UL_TFC35	(TF3, TF3, TF1)
UL_TFC36	(TF0, TF4, TF1)
UL_TFC37	(TF1, TF4, TF1)
UL_TFC38	(TF2, TF4, TF1)
UL_TFC39	(TF3, TF4, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Streaming + Interactive Background PS radio bearer. The Streaming UL:128 kbps + Interactive Background UL:128 kbps radio bearer (RB5+RB6) have 40 transport format combinations. As the transport formats where RB5, RB6 or DCCH has no data (TF0 for RB5, RB6 or DCCH) is considered as implicitly tested when the transport format combinations with data is tested then no specific sub-tests for those transport format combinations have been specified. The selected UL TFCI to achieve test coverage of TF1 to TF3 for RB5 and TF1 to TF4 for RB6 are: UL_TFC5 to UL_TFC7, UL_TFC9 to UL_TFC11, UL_TFC13 to UL_TFC15 and UL_TFC17 to UL_TFC19.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
1	1	3	512	128	336	N/A	UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC20, UL_TFC21	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC25	RB5: 632 RB6: 120	See note 4
	2	3	512	128							
	3	3	512	128							
	4	3	512	128							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
2	1	3	256	128	656	N/A	UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC6, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC26	RB5: 1272 RB6: 120	See note 4
	2	3	256	128							
	3	3	256	128							
	4	3	256	128							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
3	1	3	512	256	336	N/A	UL_TFC7	UL_TFC0, UL_TFC3, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC7, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC27	RB5: 2552 RB6: 120	See note 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
4	1	3	256	256	656	N/A	UL_TFC9	UL_TFC0, UL_TFC8, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC9, UL_TFC20, UL_TFC21, UL_TFC24,	RB5: 632 RB6: 888	See note 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
	9	3	1024	512					UL_TFC29		
5	1	3	512	256	656	N/A	UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC8, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC8, UL_TFC10, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC30	RB5: 1272 RB6: 888	See note 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
6	1	3	256	256	656	N/A	UL_TFC11	UL_TFC0, UL_TFC3, UL_TFC8, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC8, UL_TFC11, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC31	RB5: 2552 RB6: 888	See note 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
7	1	3	512	256	656	N/A	UL_TFC13	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC12, UL_TFC13, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC33	RB5: 632 RB6: 1784	See note 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
8	1	3	256	256	656	N/A	UL_TFC14	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC12, UL_TFC14, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC34	RB5: 1272 RB6: 1784	See note 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
9	1	3	512	256	656	N/A	UL_TFC15	UL_TFC0, UL_TFC3, UL_TFC12, UL_TFC4,	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4,	RB5: 2552 RB6: 1784	See note 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)	Test data size (bits) (note 4)
	5	3	512	256				UL_TFC20, UL_TFC6	UL_TFC12, UL_TFC15, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC35		
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
10	1	3	256	256	656	N/A	UL_TFC17	UL_TFC0, UL_TFC1, UL_TFC16, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC16, UL_TFC17, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC37	RB5: 632 RB6: 2552	See note 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
11	1	3	512	256	656	N/A	UL_TFC18	UL_TFC0, UL_TFC8, UL_TFC16, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC16, UL_TFC18, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC38	RB5: 1272 RB6: 2552	See note 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
12	1	3	256	256	656	N/A	UL_TFC19	UL_TFC0, UL_TFC3, UL_TFC16, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC16, UL_TFC19, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC39	RB5: 2552 RB6: 2552	See note 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.

NOTE 2: UL_TFC0, UL_TFC1, UL_TFC4 and UL_TFC20 are part of minimum set of TFCIs. Also the transport format combinations UL_TFC21 and UL_TFC24 using TF1 on either RB5 or RB6 and TF1 on DCCH has been included in the allowed TFCs as those could happen during the sub-test.

NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5 and RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.

NOTE 4: The test data size for RB5 and RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

18.2.7.10.2.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.2.8 Combinations on DPCH, HS-DSCH and E-PUCH

18.2.8.1 Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH on DCH

18.2.8.1.1 Conformance requirement

The UE shall be able to establish the UTRAN requested radio bearers within the UE's signalled radio access capabilities.

The UE shall correctly transfer user data from peer to peer RLC entities according to the requested radio bearer configuration.

Reference(s)

3GPP TS 25.331, clause 8.2.1

3GPP TS 25.2xx series (Physical Layer)

3GPP TS 25.321 (MAC)

3GPP TS 25.322 (RLC)

18.2.8.1.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.7.1:

1. To verify that the UE is able to establish the radio bearer combination.
2. To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

18.2.8.1.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	1536
5	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)					
			Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	Number HS-DSCH timeslots	TFRI
1	2	512	336	357	1	QPSK	1	126
2	2	512	336	357	1	QPSK	1	126
3	3	512	336	357	1	QPSK	1	126
4	3	512	336	357	1	QPSK	1	126
5	3	512	336	357	1	QPSK	1	126
6	3	512	336	357	1	QPSK	1	126
7	3	1536	336	357	1	QPSK	1	126
8	3	1536	336	357	1	QPSK	1	126
9	3	2047	336	357	1	QPSK	1	126
NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI, i.e. such that the MAC-hs transport block size is bigger than the maximum MAC-d PDU size under test + MAC-hs header size (21 bits). See 18.2.7.1.1 (MAC-d PDU size=336) for recommended TFRC values for different transport block size.								

The generic test procedure in 18.2.1.5 is run for each sub-test.

Sub-tests:

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL RLC SDU size (note 2)	Test data size (note 3)
1	1 to 5	10ms, Table 0	4	312	312
NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI. NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.					

18.2.8.1.4 Test requirements

See 18.2.1.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink.

18.2.8.2 Void

18.2.8.3 Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH

18.2.8.3.1 Conformance requirement

See 18.2.8.1.1.

18.2.8.3.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.7.3:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

18.2.8.3.3 Method of test

See 18.2.8.1.3.

18.2.8.3.4 Test requirements

See 18.2.8.1.4.

18.2.8.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.2.8.4.1 Conformance requirement

See 18.2.8.1.1.

18.2.8.4.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.7.4:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH in combination with the possible TFCI of the conversional speech radio bearer.

18.2.8.4.3 Method of test

The following parameters are specific for this test case:

Uplink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Parameter	Value
MAC-hs receiver window size	16
HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)					
			Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	Number HS-DSCH timeslots	TFRI
1	2	512	336	357	1	QPSK	1	126
2	2	512	336	357	1	QPSK	1	126
3	3	512	336	357	1	QPSK	1	126
4	3	512	336	357	1	QPSK	1	126
5	3	512	336	357	1	QPSK	1	126
6	3	512	336	357	1	QPSK	1	126
7	3	1536	336	357	1	QPSK	1	126
8	3	1536	336	357	1	QPSK	1	126
9	3	2047	336	357	1	QPSK	1	126
NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI, i.e. such that the MAC-hs transport block size is bigger than the maximum MAC-d PDU size under test + MAC-hs header size (21 bits). See 18.2.7.1.1 (MAC-d PDU size=336) for recommended TFRC values for different transport block size.								

The generic test procedure in 18.2.1.5 is run for each sub-test.

Sub-tests:

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	DCH				UL RLC SDU size (note 3)	Test data size (note 4)
				DL TFCS Under test	UL TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 2)		
1	1 to 5	10ms, Table 0	4	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
2	1 to 5	10ms, Table 0	4	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312

NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.
NOTE 4: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.

18.2.8.4.4 Test requirements

See 18.2.1.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the sub-test.
3. At step 18 and for each radio bearer where test data is sent in downlink the UE shall return a RLC SDU with same content as sent in downlink. For radio bearers where no data is sent in downlink then no data shall be received in uplink.

18.2.8.5 Streaming or interactive or background / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB + Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:[max bit rate depending on UE category and TTI] DL:3.4 kbps SRBs for DCCH on E-DCH and DL DCH

18.2.8.5.1 Conformance requirement

See 18.2.8.1.1.

18.2.8.5.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.7.5:

1. To verify that the UE is able to establish the radio bearer combination.
2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

18.2.8.5.3 Method of test

The first Streaming or background or interactive / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB is referred to as RB5 and the second Streaming or interactive or background UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB is referred to RB6.

The following parameters are specific for this test case and RB5 and RB6:

Parameter	Value
MAC-hs receiver window size	16
HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (note 1)					
			Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	Number HS-DSCH timeslots	TFRI
1	2	512	336	357	1	QPSK	1	126
2	2	512	336	357	1	QPSK	1	126
3	3	512	336	357	1	QPSK	1	126
4	3	512	336	357	1	QPSK	1	126
5	3	512	336	357	1	QPSK	1	126
6	3	512	336	357	1	QPSK	1	126
7	3	1536	336	357	1	QPSK	1	126
8	3	1536	336	357	1	QPSK	1	126
9	3	2047	336	357	1	QPSK	1	126
NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI, i.e. such that the MAC-hs transport block size is bigger than the maximum MAC-d PDU size under test + MAC-hs header size (21 bits). See 18.2.7.1.1 (MAC-d PDU size=336) for recommended TFRC values for different transport block size.								

The generic test procedure in 18.2.1.5 is run for each sub-test.

Sub-tests:

Sub-test	E-DCH Category	E-DPDCH TTI and E-TFCI Table (note 1)	E-DPDCH Number of HARQ processes	UL RLC SDU size (note 2)	Test data size (note 2)
1	1 to 5	10ms, Table 0	4	RB5:312 RB6:312	RB5:312 RB6:312
NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI. NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.					

18.2.8.5.4 Test requirements

See 18.2.1.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE shall return a RLC SDU on RB5 and RB6 with same content as sent in downlink.

18.3 Radio Bearer Tests for 7.68 Mcps TDD option

3GPP TS 34.123-1 version 10.3.1 Release 10

18.3.1 General information for radio bearer tests (7.68 Mcps TDD)

The purpose of these radio bearer test cases is to test properly the Reference Radio Bearer configurations included in TS34.108 [9], clause 6.11.6 for 7.68 Mcps TDD option.

The applicability of radio bearer tests is dependent on the UE uplink and downlink radio access capabilities and UE support tele- and bearer-services.

For radio bearer combinations which are representative to multiple traffic classes, such as “Interactive or Background”, “Streaming or Interactive or Background” etc, then it is only required to execute the radio bearer test procedure once using one of the applicable traffic class for the UE under test.

NOTE: As the purpose of the radio bearer test cases is to functionally verify that the UE is able to establish the radio bearer combination, and to verify correct data transfer using the different transport formats, then the necessary test coverage is achieved by performing the radio bearer test procedure once for one of the applicable traffic classes.

18.3.1.1 Generic radio bearer test procedure for Single RB configuration

See 14.1.1 for test procedure

18.3.1.2 Generic test procedure for testing multi-RB configuration and simultaneous signalling

See 14.1.2 for test procedure

18.3.1.2a Generic test procedure for testing multi-RB combinations and simultaneous signalling in case of DSCH

This procedure is used to test multiple radio bearer combinations where PS data goes on the DSCH. This procedure is also used to verify simultaneous transmission and reception of user data and signalling data.

18.3.1.2a.1 Initial conditions

UE in idle mode

18.3.1.2a.2 Test procedure

a) The SS establish the reference radio bearer configuration as specified in TS 34.108, clause 6.11.6 for the actual radio bearer test. For the case when the reference radio bearer configuration includes radio bearers for both CS and PS domain then the radio bearer setup procedure has to be performed once per domain. The first radio bearer setup procedure shall perform configuration of the physical channel for the radio bearer combination under test as well as the transport channels for the CS radio bearer(s), also the transport format combination set for only CS radio bearers has to be provided. The second radio bearer procedure shall perform the configuration for the transport channel for the PS radio bearers.

b) The SS limits the UE allowed uplink transport format combinations according to the "Restricted UL TFCIs", as specified for the sub-test of the actual radio bearer test, using the RRC transport format combination control procedure. Here first time only the TFCs for the data on CS RAB and the data on PS RAB are restricted.

c) The SS closes the test loop using UE test loop mode 1 and setting the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test. See note 1.

d) The SS transmits test data on all radio bearers under test. The number of RLC SDUs to transmit every TTI and the size "Test data size" is specified for each sub-test of the actual radio bearer test. See note 2.

e) The SS checks that UE has looped back the data on the CS and PS Radio bearer.

f) The SS opens the UE test loop.

g) SS uses the RRC transport format combination control procedure. And now restricts the TFCs for the data on CS RAB and the data on PS RAB and also on SRB.

h) The SS closes the test loop using UE test loop mode 1 and setting the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test. See note 2.

i) SS transmit data on the CS RAB a MEASUREMENT CONTROL message requesting periodic reporting with a period of T2.

j) SS transmits the data on PS RAB.

k) SS waits the time equal to 2 times T2

l) SS checks that, for all radio bearers under test, the content of the received RLC SDUs have the correct content and is received having the correct transport format. See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loop back of RLC SDUs.

m) The SS opens the UE test loop.

n) (Void)

o) Steps b) to m) are repeated for all sub-tests

p) The SS may optionally release the radio bearer.

q) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: Selection of UL RLC SDU size parameter:
For the case when the reference radio bearer configuration under test uses RLC transparent mode in downlink and is not configured for segmented operation then the radio bearer test case shall set the UL RLC SDU size equal to the UL RLC PDU size. See [7] TS 25.322 for details regarding UE operation in RLC transparent mode. Selection of UL RLC SDU size for the different radio bearers under test should be such that the UE returns data in sub-sequent TTIs without causing the UE transmission buffer to become full. To achieve this the UL RLC SDU size shall be set to UL TF payload size under test, minus the size of length indicator and expansion bit, and divided by the ratio between downlink and uplink TTI. E.g. for a AM radio bearer having the uplink RLC payload size equal to 320, the downlink TTI equal to 10 ms, and the uplink TTI equal to 20 ms, then for the transport format 4x336 (TF payload size = 4x320=1280 bits) the UL RLC SDU size parameter should be set to 632 bits (=1280bits/(20ms/10ms)- 8 bits).

NOTE 2: Selection of test data size:
For the case when the reference radio bearer configuration under test uses RLC transparent mode in downlink and is not configured for segmented operation then the radio bearer test case shall use a DL RLC SDU size (defined by the "Test data size" parameter) equal to the DL RLC PDU size. See [7] TS 25.322 for details regarding UE operation in RLC transparent mode. In case the reference radio bearer configuration under test does not use RLC transparent mode in downlink, the DL RLC SDU size/ test data size shall be set equal to the payload size of the DL TF under test minus the size of the length indicator and the expansion bit.

NOTE 3: The restricted set of TFCIs shall contain all possible TFCI that could happen in a sub-test. The actual TTI of the different radio bearers and signalling radio bearers as well as the possible UE processing delays shall be taken into consideration. The restricted set of TFCIs must comply with the minimum set of TFCIs as specified in TS 25.331, clause 8.6.5.2.

Expected sequence

3GPP TS 34.123-1 version 10.3.1 Release 10

CS paging procedure

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
2	<--		PAGING TYPE 1 (PCCH)	Paging (CS domain, TMSI)
3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
4	<--		RRC CONNECTION SETUP (CCCH)	RRC
5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6	-->		PAGING RESPONSE (DCCH)	RR
6a	<--		AUTHENTICATION REQUEST	
6b	-->		AUTHENTICATION RESPONSE	
6c	<--		SECURITY MODE COMMAND	
6d	-->		SECURITY MODE COMPLETE	

PS paging procedure

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
2	<--		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
4	<--		RRC CONNECTION SETUP (CCCH)	RRC
5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6a	-->		SERVICE REQUEST (DCCH)	GMM
6b	<--		SECURITY MODE COMMAND	RRC see note 1
6c	-->		SECURITY MODE COMPLETE	RRC see note 1

NOTE 1 In addition to activate integrity protection Step 6b and Step 6c are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.

Expected sequence for DSCH multi RAB test cases.

Step	Direction	Message	Comments
3GPP TS 34.123-1 version 10.3.1 Release 10			
	UE **SS**		
1..6	<-- -->	Paging	Use the CS paging procedure for testing of CS and combined CS/PS reference radio bearer configurations. Use the PS paging procedure for testing of PS reference radio bearer configurations.
7	<--	ACTIVATE RB TEST MODE (DCCH)	TC
8	-->	ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
Case A: CS or PS radio bearers only			
A9	←	RADIO BEARER SETUP (DCCH)	RRC
A10	→	RADIO BEARER SETUP COMPLETE (DCCH)	RRC
Case B: CS + PS radio bearers			
B9	←	RADIO BEARER SETUP (DCCH)	RRC CS radio bearer(s) are configured
B10	→	RADIO BEARER SETUP COMPLETE (DCCH)	RRC
B10a	←	SECURITY MODE COMMAND	See Note
B10b	→	SECURITY MODE COMPLETE	RRC
B10c	←	RADIO BEARER SETUP (DCCH)	RRC PS radio bearer(s) are configured
B10c	→	RADIO BEARER SETUP COMPLETE (DCCH)	RRC
11	<--	TRANSPORT FORMAT COMBINATION CONTROL (DCCH)	RRC Transport format combinations are limited to "Restricted UL TFCIs", as specified for the sub-test. Here the UL TFS are restricted to test the simultaneous data on CS and PS RAB.
12	<--	CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
13	-->	CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
14a	<--	Test data (DTCH 1) and Test data on DTCH 2	SS Sends the data on the CS RAB (DPCH).SS Sends the data on the PS RAB .(PDSCH) (NOTE 1)
14b	→	Test data (DTCH 1) + Test Data (DTCH 2)	SS Receives the data on CS RAB, PS RAB
14c	<--	OPEN UE TEST LOOP (DCCH)	TC
14d	-->	OPEN UE TEST LOOP COMPLETE (DCCH)	TC
15a	<--	TRANSPORT FORMAT COMBINATION CONTROL (DCCH)	RRC Transport format combinations is limited to "Restricted UL TFCIs", as specified for the sub-test Here the UL TFS are restricted to test the simultaneous data on CS and PS RAB and SRB

Step	Direction		Message	Comments
	UE	SS		

3GPP TS 34.123-1 version 10.3.1 Release 10

15b	<--	CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
15c	-->	CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
15d	<--	Test data (DTCH 1) and Test data on DTCH 2	SS Sends the data on the CS RAB (DPCH). SS Sends the data on the PS RAB. (PDSCH) (NOTE 1)
15e	←	MEASUREMENT CONTROL (DCCH)	SS sends a MEASUREMENT CONTROL message simultaneously to the test data requesting periodic reporting at interval T2 (NOTE 1)
15f	--> -->	Test data (DTCH 1) + Test Data (DTCH 2) MEASUREMENT REPORT (DCCH)	SS Receives the data on CS RAB, PS RAB and the Measurement Control Report. SS Shall get at least on measurement Control report message (NOTE 1)
16	<--	OPEN UE TEST LOOP (DCCH)	TC
17	-->	OPEN UE TEST LOOP COMPLETE (DCCH)	TC
18		Repeat steps 11 to 17 for every sub-test.	
19		RB RELEASE (DCCH)	RRC Optional step
20	<--	DEACTIVATE RB TEST MODE (DCCH)	TC Optional step
21	-->	DEACTIVATE RB TEST MODE COMPLETE (DCCH)	TC Optional step
NOTE.	For case B (CS+PS radio bearers) the second security mode procedure is needed to enable testing of ciphering on the PS radio bearers. For the CS domain the security mode procedure is performed as part of the CS paging procedure.		

NOTE 1:

Here using the test steps 11 to 14d, the simultaneous data on the CS and PS RAB can be tested.

And using the steps 15a to 15f, the simultaneous data on CS RAB, PS RAB and SRB can be tested.

For testing the simultaneous data on CS RAB, PS RAB and SRB, following procedure is used.

First data on the CS RAB is sent. Then in the next step Measurement Control message is sent.

In the Downlink the restricted transport format combination will be (1 1), that SS MAC has to send the data on CS RAB and the measurement control message on SRB simultaneously.

Here it is assumed that, since the transport format combination (1, 0) (that is send only data) will not be available in the DL, the MAC has to wait until it gets something to transmit on the SRB.

Then data on the PS RAB is sent.

With this on the UE UL Side, the data will be available on both CS and PS RAB and also on the SRB. With this the transport format combination (1,1, 1) that is simultaneous data on RAB and SRB can be tested in the uplink.

Specific message contents

3GPP TS 34.123-1 version 10.3.1 Release 10

RADIO BEARER SETUP message: AM or UM (Packet to CELL_DCH from CELL_DCH in PS))

Information Element	Value/remark
New DSCH-RNTI	0000 0000 0000 0010B
RRC State indicator	CELL_DCH
RAB information for setup	
- RB mapping info	
- Information for each multiplexing option	1 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- Logical channel identity	Not Present
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DSCH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	19
- Logical channel identity	1
Added or Reconfigured TrCH information list	1 DCH added, 1 DCH reconfigured
DL Transport channel information common for all transport channel	
- SCCPCH TFCS	Not Present
- CHOICE mode	TDD
- Individual DL CCTrCH information	This number is of which of multiple CCTrCHs as indicated in TS34.108 clause 6.11.6.4 Parameter Set
- DL TFCS Identity	TFCS ID 1 or 2
- Shared Channel Indicator	FALSE
- CHOICE DL parameters	Independent
- DL TFCS	
- CHOICE TFCI signalling	Split
- Split Type	Normal
- TFCI Field 1 information	
- CHOICE TFCS representation	Complete reconfiguration
- TFCS complete reconfigure	
- CHOICE CTFC Size	
- CTFC information	This IE is repeated for TFC numbers and reference to TS34.108 clause 6.11.3.4
- CTFC	Reference to TS34.108 clause 6.11.6.4 Parameter Set
- Power offset information	Not present
Deleted TrCH information list	Not Present
Added or Reconfigured TrCH information list	
- Added or Reconfigured DL TrCH information	
- Downlink transport channel type	DSCH
- DL Transport channel identity	19
- CHOICE DL parameters	Explicit
- TFS	
- CHOICE Transport channel type	Dedicated transport channels
- Dynamic Transport format information	
- RLC Size	Reference to TS34.108 clause 6.11.6.4 Parameter Set
- Number of TBs and TTI List	(This IE is repeated for TFI number.)
- Transmission Time Interval	Not Present
- Number of Transport blocks	Reference to TS34.108 clause 6.11.6.4 Parameter Set
- Semi-static Transport Format information	
- Transmission time interval	Reference to TS34.108 clause 6.11.6.4 Parameter Set
- Type of channel coding	Reference to TS34.108 clause 6.11.6.4 Parameter Set
- Coding Rate	Reference to TS34.108 clause 6.11.6.4 Parameter Set
- Rate matching attribute	Reference to TS34.108 clause 6.11.6.4 Parameter Set
- CRC size	Reference to TS34.108 clause 6.11.6.4 Parameter Set
- DCH quality target	Not Present
- Downlink transport channel type	DCH

Information Element	Value/remark
- DL Transport channel identity	10
- CHOICE DL parameters	Same as UL
- Uplink transport channel type	DCH
3GPP TS 34.123-1 version 10.3.1 Release 10	
- UL TrCH identity	5
- DCH quality target	
- BLER Quality value	-2.0
CHOICE channel requirement	Uplink DPCH info
- Uplink DPCH power control info	
- CHOICE Mode	TDD
- UL target SIR	Not Present
-CHOICE UL OL PC info	Broadcast UL OL PC info (NULL)
- CHOICE mode	TDD
- Uplink Timing Advance Control	Not Present
- UL CCTrCH List	1 or 2 Reference to TS34.108 clause 6.11.6.4 Parameter Set
- TFCS ID	1 or 2
- UL target SIR	0dB
- Timing info	
- Activation time	Now
- Duration	Infinite
- Common timeslot info	
- 2nd interleaver mode	Frame
- TFCI coding	Reference to TS34.108 clause 6.11.6.4 Parameter Set
- Puncturing limit	Reference to TS34.108 clause 6.11.6.4 Parameter Set
- Repetition period	Reference to TS34.108 clause 6.11.6.4 Parameter Set
- Repetition length	Reference to TS34.108 clause 6.11.6.4 Parameter Set
- CHOICE TDD option	7.68 Mcps TDD
- Uplink DPCH timeslots and codes VHCR	
- Dynamic SF usage	FALSE
- First Individual timeslot info	
- Timeslot number	
- Timeslot number	(0..14)
- TFCI existence	TRUE
- Midamble Shift and burst type	
- Choice TDD option	7.68 Mcps TDD
- Choice Burst Type	Reference to TS34.108 clause 6.11.6.4 Parameter Set
- Midamble Allocation Mode	Default midamble
- Midamble Configuration	3 or 4 based on burst type
- CHOICE TDD option	7.68 Mcps TDD (no data)
- First timeslot Code List	1..2
- Channelisation Code	Reference to TS34.108 clause 6.11.6.4 Parameter Set
- CHOICE more timeslots	Reference to TS34.108 clause 6.11.6.4 Parameter Set
- UL CCTrCH List to Remove	If this test has only 1 CCTrCH Reference to TS34.108 clause 6.11.6.4 Parameter Set. If 2 CCTrCH then “Not Present”
- TFCS ID	2
CHOICE Mode	TDD (no data)
Downlink information common for all radio links	
- CHOICE DPCH info	Downlink DPCH info common for all RL
- Timing indicator	Maintain
- CFN-targetSFN frame offset	Not Present
- Downlink DPCH power control information	
- CHOICE Mode	TDD
- TPC Step Size	1
- MAC-d HFN initial value	Bit String(24)
- CHOICE Mode	TDD (no data)
- CHOICE Mode	TDD (no data)
- CHOICE TDD option	7.68 Mcps (no data)
- Default DPCH Offset Value	Not Present
Downlink information for each radio link list	
- Downlink information for each radio link	
- Choice mode	7.68 Mcps TDD
- Primary CCPCH info	
- CHOICE Mode	TDD
- CHOICE TDD option	7.68 Mcps TDD
- CHOICE SyncCase	Sync Case 1

Information Element	Value/remark
- Timeslot	PCCPCH timeslot (0..14)
- Cell parameters ID	Same as cell (0..127)
- SCTD indicator	FALSE

- Downlink DPCH info for each RL	
- CHOICE Mode	TDD
- DL CCTrCH List	1 or 2 Reference to TS34.108 clause 6.11.6.4 Parameter Set
- TFCS ID	1 or 2
- Timing info	
- Activation time	Now
- Duration	Infinite
- Common timeslot info	
- 2nd interleaver mode	Frame
- TFCI coding	Reference to TS34.108 clause 6.11.6.4 Parameter Set
- Puncturing limit	Reference to TS34.108 clause 6.11.6.4 Parameter Set
- Repetition period	Reference to TS34.108 clause 6.11.6.4 Parameter Set
- Repetition length	Reference to TS34.108 clause 6.11.6.4 Parameter Set
- Downlink DPCH timeslots and codes VHCR	
- First Individual timeslot info	
- Timeslot number	
- Timeslot number	(0..14)
- TFCI existence	TRUE
- Midamble Shift and burst type	
- Choice TDD option	7.68 Mcps TDD
- Choice Burst Type	Reference to TS34.108 clause 6.11.6.4 Parameter Set
- Midamble Allocation Mode	Default midamble
- Midamble Configuration	3 or 4 based on burst type
- CHOICE TDD option	7.68 Mcps TDD (no data)
- First timeslot channelisation codes VHCR	
- CHOICE codes representation	Bitmap
- Channelisation codes bitmap	Bit string(16) Reference to TS34.108 clause 6.11.6.4 Parameter Set
- CHOICE more timeslots	Reference to TS34.108 clause 6.11.6.4 Parameter Set
- UL CCTrCH TPC List	1 or 2 Reference to TS34.108 clause 6.11.6.4 Parameter Set
- UL TPC TFCS Identity	
- TFCS ID	1 or 2
- Shared Channel Indicator	FALSE
- UL CCTrCH List to Remove	If this test has only 1 CCTrCH Reference to TS34.108 clause 6.11.6.4 Parameter Set. If 2 CCTrCH then “Not Present”
- TFCS ID	2
- SCCPCH information for FACH	Not Present

18.3.1.3 Generic test procedure for testing Single Speech Radio Bearers on USCH/DSCH channels and multiple radio configuration signalling on RACH/FACH

This procedure is used to test single speech only PS radio bearer on DSCH and USCH and multiple configuration signal bearers on RACH/FACH

18.3.1.3.1 Initial conditions

UE in idle mode

18.3.1.3.2 Test procedure

a) The SS establish the reference radio bearer configuration as specified in TS 34.108, clause 6.10 for the actual radio bearer test.

b) The SS limits the UE allowed uplink transport format combinations according to the "Restricted UL TFCIs", as specified for the sub-test of the actual radio bearer test, using the RRC transport format combination control procedure.

c) The SS closes the test loop using UE test loop mode 1 and setting the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test. See note 1.

d) The SS transmits test data on all radio bearers under test. The number of RLC SDUs to transmit every TTI and the size "Test data size" is specified for each sub-test of the actual radio bearer test. See note 2.

e) The SS checks that, for all radio bearers under test, the content of the received RLC SDU has the correct content and is received having the correct transport format.

f) The SS opens the UE test loop.

g) SS uses the RRC transport format combination control procedure. And now restricts the TFCs for the data on CS RAB and the data on PS RAB and also on SRB.

h) The SS closes the test loop using UE test loop mode 1 and setting the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test. See note 2.

i) SS transmit data on the CS RAB a MEASUREMENT CONTROL message requesting periodic reporting with a period of T2.

j) SS transmits the data on PS RAB.

k) SS waits the time equal to 2 times T2

l) SS checks that, for all radio bearers under test, the content of the received RLC SDUs have the correct content and is received having the correct transport format. See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loop back of RLC SDUs.

m) The SS opens the UE test loop.

n) (Void)

o) Steps b) to m) are repeated for all sub-tests

p) The SS may optionally release the radio bearer.

q) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: Selection of UL RLC SDU size parameter:
For the case when the reference radio bearer configuration under test uses RLC transparent mode in downlink and is not configured for segmented operation then the radio bearer test case shall set the UL RLC SDU size equal to the UL RLC PDU size. See [7] TS 25.322 for details regarding UE operation in RLC transparent mode. Selection of UL RLC SDU size for the different radio bearers under test should be such that the UE returns data in sub-sequent TTIs without causing the UE transmission buffer to become full. To achieve this the UL RLC SDU size shall be set to UL TF payload size under test, minus the size of length indicator and expansion bit, and divided by the ratio between downlink and uplink TTI. E.g. for a AM radio bearer having the uplink RLC payload size equal to 320, the downlink TTI equal to 10 ms, and the uplink TTI equal to 20 ms, then for the transport format 4x336 (TF payload size = 4x320=1280 bits) the UL RLC SDU size parameter should be set to 632 bits (=1280bits/(20ms/10ms)- 8 bits).

NOTE 2: Selection of test data size:
For the case when the reference radio bearer configuration under test uses RLC transparent mode in downlink and is not configured for segmented operation then the radio bearer test case shall use a DL RLC SDU size (defined by the "Test data size" parameter) equal to the DL RLC PDU size. See [7] TS 25.322 for details regarding UE operation in RLC transparent mode. In case the reference radio bearer configuration under test does not use RLC transparent mode in downlink, the DL RLC SDU size/ test data size shall be set equal to the payload size of the DL TF under test minus the size of the length indicator and the expansion bit.

NOTE 3: The restricted set of TFCIs shall contain all possible TFCI that could happen in a sub-test. The actual TTI of the different radio bearers and signalling radio bearers as well as the possible UE processing delays shall be taken into consideration. The restricted set of TFCIs must comply with the minimum set of

3GPP TS 34.123-1 version 10.3.1 Release 10

TFCIs as specified in TS 25.331, clause 8.6.5.2.

Expected sequence

PS paging procedure

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
2	<--		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
4	<--		RRC CONNECTION SETUP (CCCH)	RRC
5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6a	-->		SERVICE REQUEST (DCCH)	GMM
6b	<--		SECURITY MODE COMMAND	RRC see note 1
6c	-->		SECURITY MODE COMPLETE	RRC see note 1

NOTE 1 In addition to activate integrity protection Step 6b and Step 6c are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.

Expected sequence for DSCH multi RAB test cases.

Step	Direction	Message	Comments
3GPP TS 34.123-1 version 10.3.1 Release 10			
	UE **SS**		
1..6	<-- -->	Paging	Use the CS paging procedure for testing of CS and combined CS/PS reference radio bearer configurations. Use the PS paging procedure for testing of PS reference radio bearer configurations.
7	<--	ACTIVATE RB TEST MODE (DCCH)	TC
8	-->	ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
9	<--	RADIO BEARER SETUP (DCCH)	RRC
10	-->	RADIO BEARER SETUP COMPLETE (DCCH)	RRC
CASE A: If DTCH on FACH/RACH			
A10a	<--	CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
A10b	-->	CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
A10c	<--	Test data (DTCH)	SS Sends the data on the FACH
A10d	-->	Test data (DTCH)	SS Receives the data on RACH
A10e		Repeat steps 10c to 10d for every RACH/FACH sub-test	
A10f	<--	OPEN UE TEST LOOP (DCCH)	TC
A10g	-->	OPEN UE TEST LOOP COMPLETE (DCCH)	TC
A10h	<--	PHYSICAL SHARED CHANNEL ALLOCATION (SHCCH)	This message is used by UTRAN to assign physical resources to USCH/DSCH transport channels in TDD, for temporary usage by the UE. UM on SHCCH
A10i	-->	PUSCH CAPACITY REQUEST (SHCCH)	Confirm establishment of PUSCH and PDSCH channels
CASE B: If No DTCH on FACH/RACH			
B10a	<--	PHYSICAL SHARED CHANNEL ALLOCATION (SHCCH)	This message is used by UTRAN to assign physical resources to USCH/DSCH transport channels in TDD, for temporary usage by the UE. UM on SHCCH
B10b	-->	PUSCH CAPACITY REQUEST (SHCCH)	Confirm establishment of PUSCH and PDSCH channels
11	<--	TRANSPORT FORMAT COMBINATION CONTROL (DCCH)	RRC Transport format combinations is limited to "Restricted UL TFCIs", as specified for the sub-test Here the UL TFS are restricted to test the simultaneous data on CS and PS RAB.
12	<--	CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
13	-->	CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
14	<--	Test data (DTCH)	SS Sends the data on the PS RAB .(PDSCH) (NOTE 1)
15	-->	Test data (DTCH)	SS Receives the data on PS RAB
16	<--	OPEN UE TEST LOOP (DCCH)	TC
17	-->	OPEN UE TEST LOOP COMPLETE (DCCH)	TC
18		Repeat steps 11 to 17 for every Shared Ch sub-test	
19		RB RELEASE (DCCH)	RRC Optional step
20	<--	DEACTIVATE RB TEST MODE (DCCH)	TC Optional step

Step	Direction		Message	Comments
	UE	SS		

3GPP TS 34.123-1 version 10.3.1 Release 10

21	-->	DEACTIVATE RB TEST MODE COMPLETE (DCCH)	TC Optional step

18.3.1.4 General information interoperability radio bearer tests for HS-DSCH

18.3.1.4.1 HS-DSCH radio bearer test parameters

In the radio bearer tests on radio bearers mapped on HS-DSCH, the following UE specific parameters should be used.

Table 18.3.1.4.1.1: 7.68Mcps TDD HS-DSCH physical layer and RLC and MAC-hs parameters for 7.68Mcps TDD HS-DSCH physical layer categories

HS-DSCH category	Maximum number of HS-DSCH codes per timeslot	Maximum number of HS-DSCH timeslots per TTI	Maximum number of HS-DSCH transport channel bits that can be received within an HS-DSCH TTI	Total number of soft channel bits	Maximum number of AM RLC entities	Minimum total RLC AM and MAC-hs buffer size [kBytes]
Category 1	32	1	12000	52992	6	50
Category 2	32	12	12000	52992	6	50
Category 3	32	2	24000	105984	6	50
Category 4	32	12	24000	105984	6	50
Category 5	32	3	36000	158976	6	100
Category 6	32	12	36000	158976	6	100
Category 7	32	4	53000	211968	6	150
Category 8	32	12	53000	211968	6	150
Category 9	32	5	73000	264960	8	150
Category 10	32	12	73000	264960	8	150
Category 11	32	8	106000	423936	8	200
Category 12	32	12	106000	423936	8	200
Category 13	32	12	204000	635904	8	400

18.3.1.4.2 Selecting TFRC test points

18.3.1.4.2.1 Principle

The principle for selecting TFRC test points is the same as specified for FDD in section 14.1.3.2.1 except the following:

a) A total of 3 HARQ processes are assumed.

b) Burst type 1 is assumed when calculating the number of physical channel bits (N_{phy_bits}) so that 1 HS-DSCH code in 1 TS carries 244bits for QPSK and 488bits for 16QAM.

c) The number of HS-DSCH codes allocated in the HS-SCCH is termed N_{codes} and the number of TS allocated in the HS-SCCH is termed N_{TS} and thus the code rate is determined by:

$$Coding\_rate = (TB_{size} + N_{CRC}) / (N_{codes} * N_{TS} * N_{phy\_bits})$$

d) The number of MAC-d PDUs, N_PDU can be incremented until N_PDU is 318.

e) The HS-SCCH signalling is such that it is only possible to allocate resources in a rectangular fashion; i.e. 21 resource units can be allocated by 3 SF32 codes over 7 timeslots. However it is not possible to make an allocation of 3 SF32 codes in TS2 and 2 SF32 codes in TS3

Note that the number of codes allocated, N_{codes}, and the number of TS, N_{TS}, allocated in the HS-SCCH are used in the tables in sections 18.3.1.4.3 and 18.3.1.4.4.

18.3.1.4.3 TFRC test points for MAC-d PDU size=336

3GPP TS 34.123-1 version 10.3.1 Release 10

Table 18.3.1.4.3.1: TFRC test points for UE category 1 for MAC-d PDU size=336, 7.68Mcps TDD

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	$N_{codes}*N_{TS}$ allocated in HS-SCCH	TFRI	Comments
1	357	QPSK	4	115	
1	357	16 QAM	2	115	
2	693	QPSK	8	156	
2	693	16 QAM	4	156	
3	1029	QPSK	12	181	
3	1029	16 QAM	6	181	
4	1365	QPSK	16	199	
4	1365	16 QAM	8	199	
5	1701	QPSK	21	213	
5	1701	16 QAM	10	213	
6	2037	QPSK	25	224	
6	2037	16 QAM	12	224	
7	2373	QPSK	29	233	
7	2373	16 QAM	14	233	
8	2709	QPSK	32	242	
8	2709	16 QAM	16	242	
9	3045	QPSK	32	249	
9	3045	16 QAM	18	249	
10	3381	QPSK	32	255	
10	3381	16 QAM	20	255	
11	3717	QPSK	32	261	
11	3717	16 QAM	22	261	
12	4053	QPSK	32	267	
12	4053	16 QAM	25	267	
13	4389	QPSK	32	272	
13	4389	16 QAM	27	272	
14	4725	QPSK	32	276	
14	4725	16 QAM	29	276	
15	5061	QPSK	32	281	
15	5061	16 QAM	31	281	
16	5397	QPSK	32	285	
16	5397	16 QAM	32	285	
17	5733	QPSK	32	288	
17	5733	16 QAM	32	288	
18	6069	QPSK	32	293	
18	6069	16 QAM	32	292	
19	6405	QPSK	32	295	
19	6405	16 QAM	32	295	
20	6741	QPSK	32	300	
20	6741	16 QAM	32	299	
21	7077	QPSK	32	302	
21	7077	16 QAM	32	302	
22	7413	QPSK	32	304	
22	7413	16 QAM	32	304	

23	7749	QPSK	32	307	
23	7749	16 QAM	32	307	
24	8085	16 QAM	32	310	

3GPP TS 34.123-1 version 10.3.1 Release 10

25	8421	16 QAM	32	312	
26	8757	16 QAM	32	315	
27	9093	16 QAM	32	317	
28	9429	16 QAM	32	319	
29	9765	16 QAM	32	322	
30	10101	16 QAM	32	324	
31	10437	16 QAM	32	326	
32	10773	16 QAM	32	328	
33	11109	16 QAM	32	330	
34	11445	16 QAM	32	332	
35	11781	16 QAM	32	333	

Table 18.3.1.4.3.2: TFRC test points for UE category 2 for MAC-d PDU size=336, 7.68Mcps TDD

3GPP TS 34.123-1 version 10.3.1 Release 10

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	357	QPSK	4	115	
1	357	16 QAM	4	115	
2	693	QPSK	8	156	
2	693	16 QAM	8	156	
3	1029	QPSK	12	181	
3	1029	16 QAM	12	181	
4	1365	QPSK	16	199	
4	1365	16 QAM	16	199	
5	1701	QPSK	21	213	
5	1701	16 QAM	21	213	
6	2037	QPSK	25	224	
6	2037	16 QAM	25	224	
7	2373	QPSK	29	233	
7	2373	16 QAM	29	233	
8	2709	QPSK	33	242	
8	2709	16 QAM	33	242	
9	3045	QPSK	36	249	
9	3045	16 QAM	36	249	
10	3381	QPSK	40	255	
10	3381	16 QAM	40	255	
11	3717	QPSK	45	261	
11	3717	16 QAM	45	261	
12	4053	QPSK	50	267	
12	4053	16 QAM	50	267	
13	4389	QPSK	54	272	
13	4389	16 QAM	54	272	
14	4725	QPSK	58	276	
14	4725	16 QAM	58	276	
15	5061	QPSK	63	281	
15	5061	16 QAM	63	281	
16	5397	QPSK	66	285	
16	5397	16 QAM	66	285	
17	5733	QPSK	70	288	
17	5733	16 QAM	70	288	
18	6069	QPSK	72	292	
18	6069	16 QAM	72	292	
19	6405	QPSK	72	295	
19	6405	16 QAM	72	295	
20	6741	QPSK	72	299	
20	6741	16 QAM	72	299	
21	7077	QPSK	72	302	
21	7077	16 QAM	72	302	
22	7413	QPSK	72	304	
22	7413	16 QAM	72	304	
23	7749	QPSK	72	307	
23	7749	16 QAM	72	307	

24	8085	QPSK	72	310	
24	8085	16 QAM	72	310	
25	8421	QPSK	72	312	

3GPP TS 34.123-1 version 10.3.1 Release 10

25	8421	16 QAM	72	312	
26	8757	QPSK	72	315	
26	8757	16 QAM	72	315	
27	9093	QPSK	72	317	
27	9093	16 QAM	72	317	
28	9429	QPSK	72	319	
28	9429	16 QAM	72	319	
29	9765	QPSK	72	322	
29	9765	16 QAM	72	322	
30	10101	QPSK	72	324	
30	10101	16 QAM	72	324	
31	10437	QPSK	72	326	
31	10437	16 QAM	72	326	
32	10773	QPSK	72	328	
32	10773	16 QAM	72	328	
33	11109	QPSK	72	330	
33	11109	16 QAM	72	330	
34	11445	QPSK	72	332	
34	11445	16 QAM	72	332	
35	11781	QPSK	72	333	
35	11781	16 QAM	72	333	

Table 18.3.1.4.3.3: TFRC test points for UE category 3 for MAC-d PDU size=336, 7.68Mcps TDD

3GPP TS 34.123-1 version 10.3.1 Release 10

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	357	QPSK	4	115	
1	357	16 QAM	2	115	
2	693	QPSK	8	156	
2	693	16 QAM	4	156	
3	1029	QPSK	12	181	
3	1029	16 QAM	6	181	
4	1365	QPSK	16	199	
4	1365	16 QAM	8	199	
5	1701	QPSK	21	213	
5	1701	16 QAM	10	213	
6	2037	QPSK	25	224	
6	2037	16 QAM	12	224	
7	2373	QPSK	29	233	
7	2373	16 QAM	14	233	
8	2709	QPSK	32	242	
8	2709	16 QAM	16	242	
9	3045	QPSK	36	249	
9	3045	16 QAM	18	249	
10	3381	QPSK	40	255	
10	3381	16 QAM	20	255	
11	3717	QPSK	44	261	
11	3717	16 QAM	22	261	
12	4053	QPSK	50	267	
12	4053	16 QAM	25	267	
13	4389	QPSK	54	272	
13	4389	16 QAM	27	272	
14	4725	QPSK	58	276	
14	4725	16 QAM	29	276	
15	5061	QPSK	62	281	
15	5061	16 QAM	31	281	
16	5397	QPSK	64	285	
16	5397	16 QAM	32	285	
17	5733	QPSK	64	288	
17	5733	16 QAM	34	288	
18	6069	QPSK	64	292	
18	6069	16 QAM	36	292	
19	6405	QPSK	64	295	
19	6405	16 QAM	38	295	
20	6741	QPSK	64	299	
20	6741	16 QAM	42	299	
21	7077	QPSK	64	302	
21	7077	16 QAM	44	302	
22	7413	QPSK	64	304	
22	7413	16 QAM	44	304	
23	7749	QPSK	64	307	
23	7749	16 QAM	46	307	

24	8085	QPSK	64	310	
24	8085	16 QAM	50	310	
25	8421	QPSK	64	312	

3GPP TS 34.123-1 version 10.3.1 Release 10

25	8421	16 QAM	50	312	
26	8757	QPSK	64	315	
26	8757	16 QAM	54	315	
27	9093	QPSK	64	317	
27	9093	16 QAM	56	317	
28	9429	QPSK	64	319	
28	9429	16 QAM	58	319	
29	9765	QPSK	64	322	
29	9765	16 QAM	60	322	
30	10101	QPSK	64	324	
30	10101	16 QAM	62	324	
31	10437	QPSK	64	326	
31	10437	16 QAM	64	326	
32	10773	QPSK	64	328	
32	10773	16 QAM	64	328	
33	11109	QPSK	64	330	
33	11109	16 QAM	64	330	
34	11445	QPSK	64	332	
34	11445	16 QAM	64	332	
35	11781	QPSK	64	333	
35	11781	16 QAM	64	333	
36	12117	QPSK	64	336	
36	12117	16 QAM	64	335	
37	12453	QPSK	64	337	
37	12453	16 QAM	64	337	
38	12789	QPSK	64	339	
38	12789	16 QAM	64	339	
39	13125	QPSK	64	340	
39	13125	16 QAM	64	340	
40	13461	QPSK	64	343	
40	13461	16 QAM	64	342	
41	13797	QPSK	64	343	
41	13797	16 QAM	64	343	
42	14133	QPSK	64	345	
42	14133	16 QAM	64	345	
43	14469	QPSK	64	346	
43	14469	16 QAM	64	346	
44	14805	QPSK	64	348	
44	14805	16 QAM	64	348	
45	15141	QPSK	64	349	
45	15141	16 QAM	64	349	
46	15477	QPSK	64	350	
46	15477	16 QAM	64	350	
47	15813	16 QAM	64	352	
48	16149	16 QAM	64	353	
49	16485	16 QAM	64	354	
50	16821	16 QAM	64	356	
51	17157	16 QAM	64	357	
52	17493	16 QAM	64	358	

53	17829	16 QAM	64	359	
54	18165	16 QAM	64	360	
55	18501	16 QAM	64	362	

3GPP TS 34.123-1 version 10.3.1 Release 10

56	18837	16 QAM	64	363	
57	19173	16 QAM	64	364	
58	19509	16 QAM	64	365	
59	19845	16 QAM	64	366	
60	20181	16 QAM	64	367	
61	20517	16 QAM	64	368	
62	20853	16 QAM	64	369	
63	21189	16 QAM	64	370	
64	21525	16 QAM	64	371	
65	21861	16 QAM	64	372	
66	22197	16 QAM	64	373	
67	22533	16 QAM	64	374	
68	22869	16 QAM	64	375	
69	23205	16 QAM	64	376	
70	23541	16 QAM	64	377	
71	23877	16 QAM	64	380	

Table 18.3.1.4.3.4: TFRC test points for UE category 4 for MAC-d PDU size=336, 7.68Mcps TDD

3GPP TS 34.123-1 version 10.3.1 Release 10

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	357	QPSK	4	115	
1	357	16 QAM	2	115	
2	693	QPSK	8	156	
2	693	16 QAM	4	156	
3	1029	QPSK	12	181	
3	1029	16 QAM	6	181	
4	1365	QPSK	16	199	
4	1365	16 QAM	8	199	
5	1701	QPSK	21	213	
5	1701	16 QAM	10	213	
6	2037	QPSK	25	224	
6	2037	16 QAM	12	224	
7	2373	QPSK	29	233	
7	2373	16 QAM	14	233	
8	2709	QPSK	33	242	
8	2709	16 QAM	16	242	
9	3045	QPSK	36	249	
9	3045	16 QAM	18	249	
10	3381	QPSK	40	255	
10	3381	16 QAM	20	255	
11	3717	QPSK	45	261	
11	3717	16 QAM	22	261	
12	4053	QPSK	50	267	
12	4053	16 QAM	25	267	
13	4389	QPSK	54	272	
13	4389	16 QAM	27	272	
14	4725	QPSK	58	276	
14	4725	16 QAM	29	276	
15	5061	QPSK	63	281	
15	5061	16 QAM	31	281	
16	5397	QPSK	66	285	
16	5397	16 QAM	33	285	
17	5733	QPSK	70	288	
17	5733	16 QAM	35	288	
18	6069	QPSK	75	292	
18	6069	16 QAM	36	292	
19	6405	QPSK	78	295	
19	6405	16 QAM	39	295	
20	6741	QPSK	84	299	
20	6741	16 QAM	42	299	
21	7077	QPSK	88	302	
21	7077	16 QAM	44	302	
22	7413	QPSK	91	304	
22	7413	16 QAM	45	304	
23	7749	QPSK	95	307	
23	7749	16 QAM	46	307	

24	8085	QPSK	100	310	
24	8085	16 QAM	50	310	
25	8421	QPSK	102	312	

3GPP TS 34.123-1 version 10.3.1 Release 10

25	8421	16 QAM	51	312	
26	8757	QPSK	108	315	
26	8757	16 QAM	54	315	
27	9093	QPSK	112	317	
27	9093	16 QAM	56	317	
28	9429	QPSK	116	319	
28	9429	16 QAM	58	319	
29	9765	QPSK	121	322	
29	9765	16 QAM	60	322	
30	10101	QPSK	125	324	
30	10101	16 QAM	62	324	
31	10437	QPSK	128	326	
31	10437	16 QAM	64	326	
32	10773	QPSK	133	328	
32	10773	16 QAM	66	328	
33	11109	QPSK	138	330	
33	11109	16 QAM	69	330	
34	11445	QPSK	140	332	
34	11445	16 QAM	70	332	
35	11781	QPSK	144	333	
35	11781	16 QAM	72	333	
36	12117	QPSK	144	335	
36	12117	16 QAM	72	335	
37	12453	QPSK	144	337	
37	12453	16 QAM	72	337	
38	12789	QPSK	144	339	
38	12789	16 QAM	72	339	
39	13125	QPSK	144	340	
39	13125	16 QAM	72	340	
40	13461	QPSK	144	342	
40	13461	16 QAM	72	342	
41	13797	QPSK	144	343	
41	13797	16 QAM	72	343	
42	14133	QPSK	144	345	
42	14133	16 QAM	72	345	
43	14469	QPSK	144	346	
43	14469	16 QAM	72	346	
44	14805	QPSK	144	348	
44	14805	16 QAM	72	348	
45	15141	QPSK	144	349	
45	15141	16 QAM	72	349	
46	15477	QPSK	144	350	
46	15477	16 QAM	72	350	
47	15813	QPSK	144	352	
47	15813	16 QAM	72	352	
48	16149	QPSK	144	353	
48	16149	16 QAM	72	353	
49	16485	QPSK	144	354	
49	16485	16 QAM	72	354	

50	16821	QPSK	144	356	
50	16821	16 QAM	72	356	
51	17157	QPSK	144	357	

3GPP TS 34.123-1 version 10.3.1 Release 10

51	17157	16 QAM	72	357	
52	17493	QPSK	144	358	
52	17493	16 QAM	72	358	
53	17829	QPSK	144	359	
53	17829	16 QAM	72	359	
54	18165	QPSK	144	360	
54	18165	16 QAM	72	360	
55	18501	QPSK	144	362	
55	18501	16 QAM	72	362	
56	18837	QPSK	144	363	
56	18837	16 QAM	72	363	
57	19173	QPSK	144	364	
57	19173	16 QAM	72	364	
58	19509	QPSK	144	365	
58	19509	16 QAM	72	365	
59	19845	QPSK	144	366	
59	19845	16 QAM	72	366	
60	20181	QPSK	144	367	
60	20181	16 QAM	72	367	
61	20517	QPSK	144	368	
61	20517	16 QAM	72	368	
62	20853	QPSK	144	369	
62	20853	16 QAM	72	369	
63	21189	QPSK	144	370	
63	21189	16 QAM	72	370	
64	21525	QPSK	144	371	
64	21525	16 QAM	72	371	
65	21861	QPSK	144	372	
65	21861	16 QAM	72	372	
66	22197	QPSK	144	373	
66	22197	16 QAM	72	373	
67	22533	QPSK	144	374	
67	22533	16 QAM	72	374	
68	22869	QPSK	144	375	
68	22869	16 QAM	72	375	
69	23205	QPSK	144	376	
69	23205	16 QAM	72	376	
70	23541	QPSK	144	377	
70	23541	16 QAM	72	377	
71	23877	QPSK	144	378	
71	23877	16 QAM	72	378	

Table 18.3.1.4.3.5: TFRC test points for UE category 5 for MAC-d PDU size=336, 7.68Mcps TDD

3GPP TS 34.123-1 version 10.3.1 Release 10

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	357	QPSK	4	115	
1	357	16 QAM	2	115	
2	693	QPSK	8	156	
2	693	16 QAM	4	156	
3	1029	QPSK	12	181	
3	1029	16 QAM	6	181	
4	1365	QPSK	16	199	
4	1365	16 QAM	8	199	
5	1701	QPSK	21	213	
5	1701	16 QAM	10	213	
6	2037	QPSK	25	224	
6	2037	16 QAM	12	224	
7	2373	QPSK	29	233	
7	2373	16 QAM	14	233	
8	2709	QPSK	33	242	
8	2709	16 QAM	16	242	
9	3045	QPSK	36	249	
9	3045	16 QAM	18	249	
10	3381	QPSK	40	255	
10	3381	16 QAM	20	255	
11	3717	QPSK	45	261	
11	3717	16 QAM	22	261	
12	4053	QPSK	50	267	
12	4053	16 QAM	25	267	
13	4389	QPSK	54	272	
13	4389	16 QAM	27	272	
14	4725	QPSK	58	276	
14	4725	16 QAM	29	276	
15	5061	QPSK	63	281	
15	5061	16 QAM	31	281	
16	5397	QPSK	66	285	
16	5397	16 QAM	33	285	
17	5733	QPSK	69	288	
17	5733	16 QAM	34	288	
18	6069	QPSK	75	292	
18	6069	16 QAM	36	292	
19	6405	QPSK	78	295	
19	6405	16 QAM	39	295	
20	6741	QPSK	84	299	
20	6741	16 QAM	42	299	
21	7077	QPSK	87	302	
21	7077	16 QAM	44	302	
22	7413	QPSK	90	304	
22	7413	16 QAM	45	304	
23	7749	QPSK	93	307	
23	7749	16 QAM	46	307	

24	8085	QPSK	96	310	
24	8085	16 QAM	50	310	
25	8421	QPSK	96	312	

3GPP TS 34.123-1 version 10.3.1 Release 10

25	8421	16 QAM	51	312	
26	8757	QPSK	96	315	
26	8757	16 QAM	54	315	
27	9093	QPSK	96	317	
27	9093	16 QAM	56	317	
28	9429	QPSK	96	319	
28	9429	16 QAM	58	319	
29	9765	QPSK	96	322	
29	9765	16 QAM	60	322	
30	10101	QPSK	96	324	
30	10101	16 QAM	62	324	
31	10437	QPSK	96	326	
31	10437	16 QAM	64	326	
32	10773	QPSK	96	328	
32	10773	16 QAM	66	328	
33	11109	QPSK	96	330	
33	11109	16 QAM	69	330	
34	11445	QPSK	96	332	
34	11445	16 QAM	69	332	
35	11781	QPSK	96	333	
35	11781	16 QAM	72	333	
36	12117	QPSK	96	335	
36	12117	16 QAM	72	335	
37	12453	QPSK	96	337	
37	12453	16 QAM	75	337	
38	12789	QPSK	96	339	
38	12789	16 QAM	78	339	
39	13125	QPSK	96	340	
39	13125	16 QAM	81	340	
40	13461	QPSK	96	342	
40	13461	16 QAM	81	342	
41	13797	QPSK	96	343	
41	13797	16 QAM	84	343	
42	14133	QPSK	96	345	
42	14133	16 QAM	87	345	
43	14469	QPSK	96	346	
43	14469	16 QAM	87	346	
44	14805	QPSK	96	348	
44	14805	16 QAM	90	348	
45	15141	QPSK	96	349	
45	15141	16 QAM	93	349	
46	15477	QPSK	96	350	
46	15477	16 QAM	93	350	
47	15813	QPSK	96	352	
47	15813	16 QAM	96	352	
48	16149	QPSK	96	353	
48	16149	16 QAM	96	353	
49	16485	QPSK	96	354	
49	16485	16 QAM	96	354	

50	16821	QPSK	96	356	
50	16821	16 QAM	96	356	
51	17157	QPSK	96	357	

3GPP TS 34.123-1 version 10.3.1 Release 10

51	17157	16 QAM	96	357	
52	17493	QPSK	96	358	
52	17493	16 QAM	96	358	
53	17829	QPSK	96	359	
53	17829	16 QAM	96	359	
54	18165	QPSK	96	362	
54	18165	16 QAM	96	360	
55	18501	QPSK	96	362	
55	18501	16 QAM	96	362	
56	18837	QPSK	96	363	
56	18837	16 QAM	96	363	
57	19173	QPSK	96	364	
57	19173	16 QAM	96	364	
58	19509	QPSK	96	365	
58	19509	16 QAM	96	365	
59	19845	QPSK	96	366	
59	19845	16 QAM	96	366	
60	20181	QPSK	96	367	
60	20181	16 QAM	96	367	
61	20517	QPSK	96	368	
61	20517	16 QAM	96	368	
62	20853	QPSK	96	369	
62	20853	16 QAM	96	369	
63	21189	QPSK	96	371	
63	21189	16 QAM	96	370	
64	21525	QPSK	96	371	
64	21525	16 QAM	96	371	
65	21861	QPSK	96	372	
65	21861	16 QAM	96	372	
66	22197	QPSK	96	373	
66	22197	16 QAM	96	373	
67	22533	QPSK	96	374	
67	22533	16 QAM	96	374	
68	22869	QPSK	96	375	
68	22869	16 QAM	96	375	
69	23205	16 QAM	96	376	
70	23541	16 QAM	96	377	
71	23877	16 QAM	96	378	
72	24213	16 QAM	96	378	
73	24549	16 QAM	96	379	
74	24885	16 QAM	96	380	
75	25221	16 QAM	96	381	
76	25557	16 QAM	96	382	
77	25893	16 QAM	96	383	
78	26229	16 QAM	96	383	
79	26565	16 QAM	96	384	
80	26901	16 QAM	96	385	
81	27237	16 QAM	96	386	
82	27573	16 QAM	96	386	

83	27909	16 QAM	96	387	
84	28245	16 QAM	96	388	
85	28581	16 QAM	96	389	

3GPP TS 34.123-1 version 10.3.1 Release 10

86	28917	16 QAM	96	389	
87	29253	16 QAM	96	390	
88	29589	16 QAM	96	391	
89	29925	16 QAM	96	392	
90	30261	16 QAM	96	392	
91	30597	16 QAM	96	393	
92	30933	16 QAM	96	394	
93	31269	16 QAM	96	394	
94	31605	16 QAM	96	395	
95	31941	16 QAM	96	396	
96	32277	16 QAM	96	396	
97	32613	16 QAM	96	397	
98	32949	16 QAM	96	398	
99	33285	16 QAM	96	398	
100	33621	16 QAM	96	399	
101	33957	16 QAM	96	399	
102	34293	16 QAM	96	400	
103	34629	16 QAM	96	401	
104	34965	16 QAM	96	401	
105	35301	16 QAM	96	402	
106	35637	16 QAM	96	405	
107	35973	16 QAM	96	405	

Table 18.3.1.4.3.6: TFRC test points for UE category 6 for MAC-d PDU size=336, 3.84Mcps TDD

3GPP TS 34.123-1 version 10.3.1 Release 10

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	357	QPSK	4	115	
1	357	16 QAM	2	115	
2	693	QPSK	8	156	
2	693	16 QAM	4	156	
3	1029	QPSK	12	181	
3	1029	16 QAM	6	181	
4	1365	QPSK	16	199	
4	1365	16 QAM	8	199	
5	1701	QPSK	21	213	
5	1701	16 QAM	10	213	
6	2037	QPSK	25	224	
6	2037	16 QAM	12	224	
7	2373	QPSK	29	233	
7	2373	16 QAM	14	233	
8	2709	QPSK	33	242	
8	2709	16 QAM	16	242	
9	3045	QPSK	36	249	
9	3045	16 QAM	18	249	
10	3381	QPSK	40	255	
10	3381	16 QAM	20	255	
11	3717	QPSK	45	261	
11	3717	16 QAM	22	261	
12	4053	QPSK	50	267	
12	4053	16 QAM	25	267	
13	4389	QPSK	54	272	
13	4389	16 QAM	27	272	
14	4725	QPSK	58	276	
14	4725	16 QAM	29	276	
15	5061	QPSK	63	281	
15	5061	16 QAM	31	281	
16	5397	QPSK	66	285	
16	5397	16 QAM	33	285	
17	5733	QPSK	70	288	
17	5733	16 QAM	35	288	
18	6069	QPSK	75	292	
18	6069	16 QAM	36	292	
19	6405	QPSK	78	295	
19	6405	16 QAM	39	295	
20	6741	QPSK	84	299	
20	6741	16 QAM	42	299	
21	7077	QPSK	88	302	
21	7077	16 QAM	44	302	
22	7413	QPSK	91	304	
22	7413	16 QAM	45	304	
23	7749	QPSK	95	307	
23	7749	16 QAM	46	307	

24	8085	QPSK	100	310	
24	8085	16 QAM	50	310	
25	8421	QPSK	102	312	

3GPP TS 34.123-1 version 10.3.1 Release 10

25	8421	16 QAM	51	312	
26	8757	QPSK	108	315	
26	8757	16 QAM	54	315	
27	9093	QPSK	112	317	
27	9093	16 QAM	56	317	
28	9429	QPSK	116	319	
28	9429	16 QAM	58	319	
29	9765	QPSK	121	322	
29	9765	16 QAM	60	322	
30	10101	QPSK	125	324	
30	10101	16 QAM	62	324	
31	10437	QPSK	128	326	
31	10437	16 QAM	64	326	
32	10773	QPSK	133	328	
32	10773	16 QAM	66	328	
33	11109	QPSK	138	330	
33	11109	16 QAM	69	330	
34	11445	QPSK	140	332	
34	11445	16 QAM	70	332	
35	11781	QPSK	145	333	
35	11781	16 QAM	72	333	
36	12117	QPSK	147	335	
36	12117	16 QAM	72	335	
37	12453	QPSK	154	337	
37	12453	16 QAM	77	337	
38	12789	QPSK	156	339	
38	12789	16 QAM	78	339	
39	13125	QPSK	162	340	
39	13125	16 QAM	81	340	
40	13461	QPSK	165	342	
40	13461	16 QAM	81	342	
41	13797	QPSK	170	343	
41	13797	16 QAM	85	343	
42	14133	QPSK	176	345	
42	14133	16 QAM	88	345	
43	14469	QPSK	176	346	
43	14469	16 QAM	88	346	
44	14805	QPSK	184	348	
44	14805	16 QAM	92	348	
45	15141	QPSK	187	349	
45	15141	16 QAM	93	349	
46	15477	QPSK	190	350	
46	15477	16 QAM	95	350	
47	15813	QPSK	196	352	
47	15813	16 QAM	98	352	
48	16149	QPSK	200	353	
48	16149	16 QAM	100	353	
49	16485	QPSK	203	354	
49	16485	16 QAM	100	354	

50	16821	QPSK	209	356	
50	16821	16 QAM	104	356	
51	17157	QPSK	210	357	

3GPP TS 34.123-1 version 10.3.1 Release 10

51	17157	16 QAM	105	357	
52	17493	QPSK	216	358	
52	17493	16 QAM	108	358	
53	17829	QPSK	217	359	
53	17829	16 QAM	108	359	*
54	18165	QPSK	217	360	*
54	18165	16 QAM	108	360	
55	18501	QPSK	217	362	
55	18501	16 QAM	108	362	
56	18837	QPSK	217	363	
56	18837	16 QAM	108	363	
57	19173	QPSK	217	364	
57	19173	16 QAM	108	364	
58	19509	QPSK	217	365	
58	19509	16 QAM	108	365	
59	19845	QPSK	217	366	
59	19845	16 QAM	108	366	
60	20181	QPSK	217	367	
60	20181	16 QAM	108	367	
61	20517	QPSK	217	368	
61	20517	16 QAM	108	368	
62	20853	QPSK	217	369	
62	20853	16 QAM	108	369	
63	21189	QPSK	217	370	
63	21189	16 QAM	108	370	
64	21525	QPSK	217	371	
64	21525	16 QAM	108	371	
65	21861	QPSK	217	372	
65	21861	16 QAM	108	372	
66	22197	QPSK	217	373	
66	22197	16 QAM	108	373	
67	22533	QPSK	217	374	
67	22533	16 QAM	108	374	
68	22869	QPSK	217	375	
68	22869	16 QAM	108	375	
69	23205	QPSK	217	376	
69	23205	16 QAM	108	376	
70	23541	QPSK	217	377	
70	23541	16 QAM	108	377	
71	23877	QPSK	217	378	
71	23877	16 QAM	108	378	
72	24213	QPSK	217	378	
72	24213	16 QAM	108	378	
73	24549	QPSK	217	379	
73	24549	16 QAM	108	379	
74	24885	QPSK	217	380	
74	24885	16 QAM	108	380	
75	25221	QPSK	217	381	
75	25221	16 QAM	108	381	

76	25557	QPSK	217	382	
76	25557	16 QAM	108	382	
77	25893	QPSK	217	383	

3GPP TS 34.123-1 version 10.3.1 Release 10

77	25893	16 QAM	108	383	
78	26229	QPSK	217	383	
78	26229	16 QAM	108	383	
79	26565	QPSK	217	384	
79	26565	16 QAM	108	384	
80	26901	QPSK	217	385	
80	26901	16 QAM	108	385	
81	27237	QPSK	217	386	
81	27237	16 QAM	108	386	
82	27573	QPSK	217	386	
82	27573	16 QAM	108	386	
83	27909	QPSK	217	387	
83	27909	16 QAM	108	387	
84	28245	QPSK	217	388	
84	28245	16 QAM	108	388	
85	28581	QPSK	217	389	
85	28581	16 QAM	108	389	
86	28917	QPSK	217	389	
86	28917	16 QAM	108	389	
87	29253	QPSK	217	390	
87	29253	16 QAM	108	390	
88	29589	QPSK	217	391	
88	29589	16 QAM	108	391	
89	29925	QPSK	217	392	
89	29925	16 QAM	108	392	
90	30261	QPSK	217	392	
90	30261	16 QAM	108	392	
91	30597	QPSK	217	393	
91	30597	16 QAM	108	393	
92	30933	QPSK	217	394	
92	30933	16 QAM	108	394	
93	31269	QPSK	217	394	
93	31269	16 QAM	108	394	
94	31605	QPSK	217	395	
94	31605	16 QAM	108	395	
95	31941	QPSK	217	396	
95	31941	16 QAM	108	396	
96	32277	QPSK	217	396	
96	32277	16 QAM	108	396	
97	32613	QPSK	217	397	
97	32613	16 QAM	108	397	
98	32949	QPSK	217	398	
98	32949	16 QAM	108	398	
99	33285	QPSK	217	398	
99	33285	16 QAM	108	398	
100	33621	QPSK	217	399	
100	33621	16 QAM	108	399	
101	33957	QPSK	217	399	
101	33957	16 QAM	108	399	

102	34293	QPSK	217	400	
102	34293	16 QAM	108	400	
103	34629	QPSK	217	401	

3GPP TS 34.123-1 version 10.3.1 Release 10

103	34629	16 QAM	108	401	
104	34965	QPSK	217	401	
104	34965	16 QAM	108	401	
105	35301	QPSK	217	402	
105	35301	16 QAM	108	402	
106	35637	QPSK	217	403	
106	35637	16 QAM	108	403	
107	35973	QPSK	217	403	
107	35973	16 QAM	108	403	

Table 18.3.1.4.3.7: TFRC test points for UE category 7 for MAC-d PDU size=336, 7.68Mcps TDD

3GPP TS 34.123-1 version 10.3.1 Release 10

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	357	QPSK	4	115	
1	357	16 QAM	2	115	
2	693	QPSK	8	156	
2	693	16 QAM	4	156	
3	1029	QPSK	12	181	
3	1029	16 QAM	6	181	
4	1365	QPSK	16	199	
4	1365	16 QAM	8	199	
5	1701	QPSK	21	213	
5	1701	16 QAM	10	213	
6	2037	QPSK	25	224	
6	2037	16 QAM	12	224	
7	2373	QPSK	29	233	
7	2373	16 QAM	14	233	
8	2709	QPSK	33	242	
8	2709	16 QAM	16	242	
9	3045	QPSK	36	249	
9	3045	16 QAM	18	249	
10	3381	QPSK	40	255	
10	3381	16 QAM	20	255	
11	3717	QPSK	45	261	
11	3717	16 QAM	22	261	
12	4053	QPSK	50	267	
12	4053	16 QAM	25	267	
13	4389	QPSK	54	272	
13	4389	16 QAM	27	272	
14	4725	QPSK	58	276	
14	4725	16 QAM	29	276	
15	5061	QPSK	63	281	
15	5061	16 QAM	31	281	
16	5397	QPSK	66	285	
16	5397	16 QAM	33	285	
17	5733	QPSK	69	288	
17	5733	16 QAM	34	288	
18	6069	QPSK	75	292	
18	6069	16 QAM	36	292	
19	6405	QPSK	78	295	
19	6405	16 QAM	39	295	
20	6741	QPSK	84	299	
20	6741	16 QAM	42	299	
21	7077	QPSK	88	302	
21	7077	16 QAM	44	302	
22	7413	QPSK	90	304	
22	7413	16 QAM	45	304	
23	7749	QPSK	93	307	
23	7749	16 QAM	46	307	

24	8085	QPSK	100	310	
24	8085	16 QAM	50	310	
25	8421	QPSK	100	312	

3GPP TS 34.123-1 version 10.3.1 Release 10

25	8421	16 QAM	51	312	
26	8757	QPSK	108	315	
26	8757	16 QAM	54	315	
27	9093	QPSK	112	317	
27	9093	16 QAM	56	317	
28	9429	QPSK	116	319	
28	9429	16 QAM	58	319	
29	9765	QPSK	120	322	
29	9765	16 QAM	60	322	
30	10101	QPSK	124	324	
30	10101	16 QAM	62	324	
31	10437	QPSK	128	326	
31	10437	16 QAM	64	326	
32	10773	QPSK	128	328	
32	10773	16 QAM	66	328	
33	11109	QPSK	128	330	
33	11109	16 QAM	69	330	
34	11445	QPSK	128	332	
34	11445	16 QAM	69	332	
35	11781	QPSK	128	333	
35	11781	16 QAM	72	333	
36	12117	QPSK	128	335	
36	12117	16 QAM	72	335	
37	12453	QPSK	128	337	
37	12453	16 QAM	76	337	
38	12789	QPSK	128	339	
38	12789	16 QAM	78	339	
39	13125	QPSK	128	340	
39	13125	16 QAM	81	340	
40	13461	QPSK	128	342	
40	13461	16 QAM	81	342	
41	13797	QPSK	128	343	
41	13797	16 QAM	84	343	
42	14133	QPSK	128	345	
42	14133	16 QAM	88	345	
43	14469	QPSK	128	346	
43	14469	16 QAM	88	346	
44	14805	QPSK	128	348	
44	14805	16 QAM	92	348	
45	15141	QPSK	128	349	
45	15141	16 QAM	93	349	
46	15477	QPSK	128	350	
46	15477	16 QAM	93	350	
47	15813	QPSK	128	352	
47	15813	16 QAM	96	352	
48	16149	QPSK	128	353	
48	16149	16 QAM	100	353	
49	16485	QPSK	128	354	
49	16485	16 QAM	100	354	

50	16821	QPSK	128	356	
50	16821	16 QAM	104	356	
51	17157	QPSK	128	357	

3GPP TS 34.123-1 version 10.3.1 Release 10

51	17157	16 QAM	104	357	
52	17493	QPSK	128	358	
52	17493	16 QAM	108	358	
53	17829	QPSK	128	359	
53	17829	16 QAM	108	359	
54	18165	QPSK	128	360	
54	18165	16 QAM	108	360	
55	18501	QPSK	128	362	
55	18501	16 QAM	112	362	
56	18837	QPSK	128	363	
56	18837	16 QAM	116	363	
57	19173	QPSK	128	364	
57	19173	16 QAM	116	364	
58	19509	QPSK	128	365	
58	19509	16 QAM	120	365	
59	19845	QPSK	128	366	
59	19845	16 QAM	120	366	
60	20181	QPSK	128	367	
60	20181	16 QAM	124	367	
61	20517	QPSK	128	368	
61	20517	16 QAM	124	368	
62	20853	QPSK	128	369	
62	20853	16 QAM	128	369	
63	21189	QPSK	128	370	
63	21189	16 QAM	128	370	
64	21525	QPSK	128	371	
64	21525	16 QAM	128	371	
65	21861	QPSK	128	372	
65	21861	16 QAM	128	372	
66	22197	QPSK	128	373	
66	22197	16 QAM	128	373	
67	22533	QPSK	128	374	
67	22533	16 QAM	128	374	
68	22869	QPSK	128	375	
68	22869	16 QAM	128	375	
69	23205	QPSK	128	376	
69	23205	16 QAM	128	376	
70	23541	QPSK	128	377	
70	23541	16 QAM	128	377	
71	23877	QPSK	128	380	
71	23877	16 QAM	128	378	
72	24213	QPSK	128	380	
72	24213	16 QAM	128	378	
73	24549	QPSK	128	380	
73	24549	16 QAM	128	379	
74	24885	QPSK	128	380	
74	24885	16 QAM	128	380	
75	25221	QPSK	128	381	
75	25221	16 QAM	128	381	

76	25557	QPSK	128	382	
76	25557	16 QAM	128	382	
77	25893	QPSK	128	383	

3GPP TS 34.123-1 version 10.3.1 Release 10

77	25893	16 QAM	128	383	
78	26229	QPSK	128	383	
78	26229	16 QAM	128	383	
79	26565	QPSK	128	384	
79	26565	16 QAM	128	384	
80	26901	QPSK	128	385	
80	26901	16 QAM	128	385	
81	27237	QPSK	128	386	
81	27237	16 QAM	128	386	
82	27573	QPSK	128	386	
82	27573	16 QAM	128	386	
83	27909	QPSK	128	387	
83	27909	16 QAM	128	387	
84	28245	QPSK	128	389	
84	28245	16 QAM	128	388	
85	28581	QPSK	128	389	
85	28581	16 QAM	128	389	
86	28917	QPSK	128	389	
86	28917	16 QAM	128	389	
87	29253	QPSK	128	390	
87	29253	16 QAM	128	390	
88	29589	QPSK	128	391	
88	29589	16 QAM	128	391	
89	29925	QPSK	128	392	
89	29925	16 QAM	128	392	
90	30261	QPSK	128	392	
90	30261	16 QAM	128	392	
91	30597	QPSK	128	393	
91	30597	16 QAM	128	393	
92	30933	16 QAM	128	394	
93	31269	16 QAM	128	394	
94	31605	16 QAM	128	395	
95	31941	16 QAM	128	396	
96	32277	16 QAM	128	396	
97	32613	16 QAM	128	397	
98	32949	16 QAM	128	398	
99	33285	16 QAM	128	398	
100	33621	16 QAM	128	399	
101	33957	16 QAM	128	399	
102	34293	16 QAM	128	400	
103	34629	16 QAM	128	401	
104	34965	16 QAM	128	401	
105	35301	16 QAM	128	402	
106	35637	16 QAM	128	403	
107	35973	16 QAM	128	403	
108	36309	16 QAM	128	404	
109	36645	16 QAM	128	404	
110	36981	16 QAM	128	405	
111	37317	16 QAM	128	405	

112	37653	16 QAM	128	406	
113	37989	16 QAM	128	406	
114	38325	16 QAM	128	407	

3GPP TS 34.123-1 version 10.3.1 Release 10

115	38661	16 QAM	128	408	
116	38997	16 QAM	128	408	
117	39333	16 QAM	128	409	
118	39669	16 QAM	128	409	
119	40005	16 QAM	128	410	
120	40341	16 QAM	128	410	
121	40677	16 QAM	128	411	
122	41013	16 QAM	128	411	
123	41349	16 QAM	128	412	
124	41685	16 QAM	128	412	
125	42021	16 QAM	128	413	
126	42357	16 QAM	128	413	
127	42693	16 QAM	128	414	
128	43029	16 QAM	128	414	
129	43372	16 QAM	128	415	
130	43708	16 QAM	128	415	
131	44044	16 QAM	128	416	
132	44380	16 QAM	128	416	
133	44716	16 QAM	128	417	
134	45052	16 QAM	128	417	
135	45388	16 QAM	128	418	
136	45724	16 QAM	128	418	
137	46060	16 QAM	128	419	
138	46396	16 QAM	128	419	
139	46732	16 QAM	128	419	
140	47068	16 QAM	128	420	
141	47404	16 QAM	128	420	
142	47740	16 QAM	128	423	
143	48076	16 QAM	128	423	
144	48412	16 QAM	128	423	
145	48748	16 QAM	128	423	
146	49084	16 QAM	128	423	
147	49420	16 QAM	128	423	
148	49756	16 QAM	128	423	
149	50092	16 QAM	128	424	
150	50428	16 QAM	128	424	
151	50764	16 QAM	128	425	
152	51100	16 QAM	128	425	
153	51436	16 QAM	128	425	
154	51772	16 QAM	128	427	
155	52108	16 QAM	128	427	
156	52444	16 QAM	128	427	
157	52780	16 QAM	128	427	

Table 18.3.1.4.3.8: TFRC test points for UE category 8 for MAC-d PDU size=336, 7.68Mcps TDD

3GPP TS 34.123-1 version 10.3.1 Release 10

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	357	QPSK	4	115	
1	357	16 QAM	2	115	
2	693	QPSK	8	156	
2	693	16 QAM	4	156	
3	1029	QPSK	12	181	
3	1029	16 QAM	6	181	
4	1365	QPSK	16	199	
4	1365	16 QAM	8	199	
5	1701	QPSK	21	213	
5	1701	16 QAM	10	213	
6	2037	QPSK	25	224	
6	2037	16 QAM	12	224	
7	2373	QPSK	29	233	
7	2373	16 QAM	14	233	
8	2709	QPSK	33	242	
8	2709	16 QAM	16	242	
9	3045	QPSK	36	249	
9	3045	16 QAM	18	249	
10	3381	QPSK	40	255	
10	3381	16 QAM	20	255	
11	3717	QPSK	45	261	
11	3717	16 QAM	22	261	
12	4053	QPSK	50	267	
12	4053	16 QAM	25	267	
13	4389	QPSK	54	272	
13	4389	16 QAM	27	272	
14	4725	QPSK	58	276	
14	4725	16 QAM	29	276	
15	5061	QPSK	63	281	
15	5061	16 QAM	31	281	
16	5397	QPSK	66	285	
16	5397	16 QAM	33	285	
17	5733	QPSK	70	288	
17	5733	16 QAM	35	288	
18	6069	QPSK	75	292	
18	6069	16 QAM	36	292	
19	6405	QPSK	78	295	
19	6405	16 QAM	39	295	
20	6741	QPSK	84	299	
20	6741	16 QAM	42	299	
21	7077	QPSK	88	302	
21	7077	16 QAM	44	302	
22	7413	QPSK	91	304	
22	7413	16 QAM	45	304	
23	7749	QPSK	95	307	
23	7749	16 QAM	46	307	

24	8085	QPSK	100	310	
24	8085	16 QAM	50	310	
25	8421	QPSK	102	312	

3GPP TS 34.123-1 version 10.3.1 Release 10

25	8421	16 QAM	51	312	
26	8757	QPSK	108	315	
26	8757	16 QAM	54	315	
27	9093	QPSK	112	317	
27	9093	16 QAM	56	317	
28	9429	QPSK	116	319	
28	9429	16 QAM	58	319	
29	9765	QPSK	121	322	
29	9765	16 QAM	60	322	
30	10101	QPSK	125	324	
30	10101	16 QAM	62	324	
31	10437	QPSK	128	326	
31	10437	16 QAM	64	326	
32	10773	QPSK	133	328	
32	10773	16 QAM	66	328	
33	11109	QPSK	138	330	
33	11109	16 QAM	69	330	
34	11445	QPSK	140	332	
34	11445	16 QAM	70	332	
35	11781	QPSK	145	333	
35	11781	16 QAM	72	333	
36	12117	QPSK	147	335	
36	12117	16 QAM	72	335	
37	12453	QPSK	154	337	
37	12453	16 QAM	77	337	
38	12789	QPSK	156	339	
38	12789	16 QAM	78	339	
39	13125	QPSK	162	340	
39	13125	16 QAM	81	340	
40	13461	QPSK	165	342	
40	13461	16 QAM	81	342	
41	13797	QPSK	170	343	
41	13797	16 QAM	85	343	
42	14133	QPSK	176	345	
42	14133	16 QAM	88	345	
43	14469	QPSK	176	346	
43	14469	16 QAM	88	346	
44	14805	QPSK	184	348	
44	14805	16 QAM	92	348	
45	15141	QPSK	187	349	
45	15141	16 QAM	93	349	
46	15477	QPSK	190	350	
46	15477	16 QAM	95	350	
47	15813	QPSK	196	352	
47	15813	16 QAM	98	352	
48	16149	QPSK	200	353	
48	16149	16 QAM	100	353	
49	16485	QPSK	203	354	
49	16485	16 QAM	100	354	

50	16821	QPSK	209	356	
50	16821	16 QAM	104	356	
51	17157	QPSK	210	357	

3GPP TS 34.123-1 version 10.3.1 Release 10

51	17157	16 QAM	105	357	
52	17493	QPSK	216	358	
52	17493	16 QAM	108	358	
53	17829	QPSK	220	359	
53	17829	16 QAM	110	359	
54	18165	QPSK	220	360	
54	18165	16 QAM	110	360	
55	18501	QPSK	231	362	
55	18501	16 QAM	115	362	
56	18837	QPSK	234	363	
56	18837	16 QAM	117	363	
57	19173	QPSK	234	364	
57	19173	16 QAM	119	364	
58	19509	QPSK	242	365	
58	19509	16 QAM	121	365	
59	19845	QPSK	243	366	
59	19845	16 QAM	121	366	
60	20181	QPSK	250	367	
60	20181	16 QAM	125	367	
61	20517	QPSK	253	368	
61	20517	16 QAM	126	368	
62	20853	QPSK	256	369	
62	20853	16 QAM	128	369	
63	21189	QPSK	261	370	
63	21189	16 QAM	130	370	
64	21525	QPSK	264	371	
64	21525	16 QAM	133	371	
65	21861	QPSK	270	372	
65	21861	16 QAM	135	372	
66	22197	QPSK	275	373	
66	22197	16 QAM	136	373	
67	22533	QPSK	280	374	
67	22533	16 QAM	140	374	
68	22869	QPSK	280	375	
68	22869	16 QAM	140	375	
69	23205	QPSK	288	376	
69	23205	16 QAM	144	376	
70	23541	QPSK	289	377	
70	23541	16 QAM	144	377	
71	23877	QPSK	289	378	
71	23877	16 QAM	144	378	
72	24213	QPSK	289	378	
72	24213	16 QAM	144	378	
73	24549	QPSK	289	379	
73	24549	16 QAM	144	379	
74	24885	QPSK	289	380	
74	24885	16 QAM	144	380	
75	25221	QPSK	289	381	
75	25221	16 QAM	144	381	

76	25557	QPSK	289	382	
76	25557	16 QAM	144	382	
77	25893	QPSK	289	383	

3GPP TS 34.123-1 version 10.3.1 Release 10

77	25893	16 QAM	144	383	
78	26229	QPSK	289	383	
78	26229	16 QAM	144	383	
79	26565	QPSK	289	384	
79	26565	16 QAM	144	384	
80	26901	QPSK	289	385	
80	26901	16 QAM	144	385	
81	27237	QPSK	289	386	
81	27237	16 QAM	144	386	
82	27573	QPSK	289	386	
82	27573	16 QAM	144	386	
83	27909	QPSK	289	387	
83	27909	16 QAM	144	387	
84	28245	QPSK	289	388	
84	28245	16 QAM	144	388	
85	28581	QPSK	289	389	
85	28581	16 QAM	144	389	
86	28917	QPSK	289	389	
86	28917	16 QAM	144	389	
87	29253	QPSK	289	390	
87	29253	16 QAM	144	390	
88	29589	QPSK	289	391	
88	29589	16 QAM	144	391	
89	29925	QPSK	289	392	
89	29925	16 QAM	144	392	
90	30261	QPSK	289	392	
90	30261	16 QAM	144	392	
91	30597	QPSK	289	393	
91	30597	16 QAM	144	393	
92	30933	QPSK	289	394	
92	30933	16 QAM	144	394	
93	31269	QPSK	289	394	
93	31269	16 QAM	144	394	
94	31605	QPSK	289	395	
94	31605	16 QAM	144	395	
95	31941	QPSK	289	396	
95	31941	16 QAM	144	396	
96	32277	QPSK	289	396	
96	32277	16 QAM	144	396	
97	32613	QPSK	289	397	
97	32613	16 QAM	144	397	
98	32949	QPSK	289	398	
98	32949	16 QAM	144	398	
99	33285	QPSK	289	398	
99	33285	16 QAM	144	398	
100	33621	QPSK	289	399	
100	33621	16 QAM	144	399	
101	33957	QPSK	289	399	
101	33957	16 QAM	144	399	

102	34293	QPSK	289	400	
102	34293	16 QAM	144	400	
103	34629	QPSK	289	401	

3GPP TS 34.123-1 version 10.3.1 Release 10

103	34629	16 QAM	144	401	
104	34965	QPSK	289	401	
104	34965	16 QAM	144	401	
105	35301	QPSK	289	402	
105	35301	16 QAM	144	402	
106	35637	QPSK	289	403	
106	35637	16 QAM	144	403	
107	35973	QPSK	289	403	
107	35973	16 QAM	144	403	
108	36309	QPSK	289	404	
108	36309	16 QAM	144	404	
109	36645	QPSK	289	404	
109	36645	16 QAM	144	404	
110	36981	QPSK	289	405	
110	36981	16 QAM	144	405	
111	37317	QPSK	289	405	
111	37317	16 QAM	144	405	
112	37653	QPSK	289	406	
112	37653	16 QAM	144	406	
113	37989	QPSK	289	406	
113	37989	16 QAM	144	406	
114	38325	QPSK	289	407	
114	38325	16 QAM	144	407	
115	38661	QPSK	289	408	
115	38661	16 QAM	144	408	
116	38997	QPSK	289	408	
116	38997	16 QAM	144	408	
117	39333	QPSK	289	409	
117	39333	16 QAM	144	409	
118	39669	QPSK	289	409	
118	39669	16 QAM	144	409	
119	40005	QPSK	289	410	
119	40005	16 QAM	144	410	
120	40341	QPSK	289	410	
120	40341	16 QAM	144	410	
121	40677	QPSK	289	411	
121	40677	16 QAM	144	411	
122	41013	QPSK	289	411	
122	41013	16 QAM	144	411	
123	41349	QPSK	289	412	
123	41349	16 QAM	144	412	
124	41685	QPSK	289	412	
124	41685	16 QAM	144	412	
125	42021	QPSK	289	413	
125	42021	16 QAM	144	413	
126	42357	QPSK	289	413	
126	42357	16 QAM	144	413	
127	42693	QPSK	289	414	
127	42693	16 QAM	144	414	

128	43029	QPSK	289	414	
128	43029	16 QAM	144	414	
129	43372	QPSK	289	415	

3GPP TS 34.123-1 version 10.3.1 Release 10

129	43372	16 QAM	144	415	
130	43708	QPSK	289	415	
130	43708	16 QAM	144	415	
131	44044	QPSK	289	416	
131	44044	16 QAM	144	416	
132	44380	QPSK	289	416	
132	44380	16 QAM	144	416	
133	44716	QPSK	289	417	
133	44716	16 QAM	144	417	
134	45052	QPSK	289	417	
134	45052	16 QAM	144	417	
135	45388	QPSK	289	418	
135	45388	16 QAM	144	418	
136	45724	QPSK	289	418	
136	45724	16 QAM	144	418	
137	46060	QPSK	289	419	
137	46060	16 QAM	144	419	
138	46396	QPSK	289	419	
138	46396	16 QAM	144	419	
139	46732	QPSK	289	419	
139	46732	16 QAM	144	419	
140	47068	QPSK	289	420	
140	47068	16 QAM	144	420	
141	47404	QPSK	289	420	
141	47404	16 QAM	144	420	
142	47740	QPSK	289	421	
142	47740	16 QAM	144	421	
143	48076	QPSK	289	421	
143	48076	16 QAM	144	421	
144	48412	QPSK	289	422	
144	48412	16 QAM	144	422	
145	48748	QPSK	289	422	
145	48748	16 QAM	144	422	
146	49084	QPSK	289	422	
146	49084	16 QAM	144	422	
147	49420	QPSK	289	423	
147	49420	16 QAM	144	423	
148	49756	QPSK	289	423	
148	49756	16 QAM	144	423	
149	50092	QPSK	289	424	
149	50092	16 QAM	144	424	
150	50428	QPSK	289	424	
150	50428	16 QAM	144	424	
151	50764	QPSK	289	425	
151	50764	16 QAM	144	425	
152	51100	QPSK	289	425	
152	51100	16 QAM	144	425	
153	51436	QPSK	289	425	
153	51436	16 QAM	144	425	

154	51772	QPSK	289	426	
154	51772	16 QAM	144	426	
155	52108	QPSK	289	426	

3GPP TS 34.123-1 version 10.3.1 Release 10

155	52108	16 QAM	144	426	
156	52444	QPSK	289	427	
156	52444	16 QAM	144	427	
157	52780	QPSK	289	427	
157	52780	16 QAM	144	427	

Table 18.3.1.4.3.9: TFRC test points for UE category 9 for MAC-d PDU size=336, 7.68Mcps TDD

3GPP TS 34.123-1 version 10.3.1 Release 10

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	357	QPSK	4	115	
1	357	16 QAM	2	115	
2	693	QPSK	8	156	
2	693	16 QAM	4	156	
3	1029	QPSK	12	181	
3	1029	16 QAM	6	181	
4	1365	QPSK	16	199	
4	1365	16 QAM	8	199	
5	1701	QPSK	21	213	
5	1701	16 QAM	10	213	
6	2037	QPSK	25	224	
6	2037	16 QAM	12	224	
7	2373	QPSK	29	233	
7	2373	16 QAM	14	233	
8	2709	QPSK	33	242	
8	2709	16 QAM	16	242	
9	3045	QPSK	36	249	
9	3045	16 QAM	18	249	
10	3381	QPSK	40	255	
10	3381	16 QAM	20	255	
11	3717	QPSK	45	261	
11	3717	16 QAM	22	261	
12	4053	QPSK	50	267	
12	4053	16 QAM	25	267	
13	4389	QPSK	54	272	
13	4389	16 QAM	27	272	
14	4725	QPSK	58	276	
14	4725	16 QAM	29	276	
15	5061	QPSK	63	281	
15	5061	16 QAM	31	281	
16	5397	QPSK	66	285	
16	5397	16 QAM	33	285	
17	5733	QPSK	70	288	
17	5733	16 QAM	35	288	
18	6069	QPSK	75	292	
18	6069	16 QAM	36	292	
19	6405	QPSK	78	295	
19	6405	16 QAM	39	295	
20	6741	QPSK	84	299	
20	6741	16 QAM	42	299	
21	7077	QPSK	88	302	
21	7077	16 QAM	44	302	
22	7413	QPSK	90	304	
22	7413	16 QAM	45	304	
23	7749	QPSK	95	307	
23	7749	16 QAM	46	307	

24	8085	QPSK	100	310	
24	8085	16 QAM	50	310	
25	8421	QPSK	100	312	

3GPP TS 34.123-1 version 10.3.1 Release 10

25	8421	16 QAM	51	312	
26	8757	QPSK	108	315	
26	8757	16 QAM	54	315	
27	9093	QPSK	112	317	
27	9093	16 QAM	56	317	
28	9429	QPSK	116	319	
28	9429	16 QAM	58	319	
29	9765	QPSK	120	322	
29	9765	16 QAM	60	322	
30	10101	QPSK	125	324	
30	10101	16 QAM	62	324	
31	10437	QPSK	128	326	
31	10437	16 QAM	64	326	
32	10773	QPSK	130	328	
32	10773	16 QAM	66	328	
33	11109	QPSK	135	330	
33	11109	16 QAM	69	330	
34	11445	QPSK	140	332	
34	11445	16 QAM	70	332	
35	11781	QPSK	145	333	
35	11781	16 QAM	72	333	
36	12117	QPSK	145	335	
36	12117	16 QAM	72	335	
37	12453	QPSK	150	337	
37	12453	16 QAM	76	337	
38	12789	QPSK	155	339	
38	12789	16 QAM	78	339	
39	13125	QPSK	160	340	
39	13125	16 QAM	81	340	
40	13461	QPSK	160	342	
40	13461	16 QAM	81	342	
41	13797	QPSK	160	343	
41	13797	16 QAM	85	343	
42	14133	QPSK	160	345	
42	14133	16 QAM	88	345	
43	14469	QPSK	160	346	
43	14469	16 QAM	88	346	
44	14805	QPSK	160	348	
44	14805	16 QAM	92	348	
45	15141	QPSK	160	349	
45	15141	16 QAM	93	349	
46	15477	QPSK	160	350	
46	15477	16 QAM	95	350	
47	15813	QPSK	160	352	
47	15813	16 QAM	96	352	
48	16149	QPSK	160	353	
48	16149	16 QAM	100	353	
49	16485	QPSK	160	354	
49	16485	16 QAM	100	354	

50	16821	QPSK	160	356	
50	16821	16 QAM	104	356	
51	17157	QPSK	160	357	

3GPP TS 34.123-1 version 10.3.1 Release 10

51	17157	16 QAM	105	357	
52	17493	QPSK	160	358	
52	17493	16 QAM	108	358	
53	17829	QPSK	160	359	
53	17829	16 QAM	110	359	
54	18165	QPSK	160	360	
54	18165	16 QAM	110	360	
55	18501	QPSK	160	362	
55	18501	16 QAM	115	362	
56	18837	QPSK	160	363	
56	18837	16 QAM	116	363	
57	19173	QPSK	160	364	
57	19173	16 QAM	116	364	
58	19509	QPSK	160	365	
58	19509	16 QAM	120	365	
59	19845	QPSK	160	366	
59	19845	16 QAM	120	366	
60	20181	QPSK	160	367	
60	20181	16 QAM	125	367	
61	20517	QPSK	160	368	
61	20517	16 QAM	125	368	
62	20853	QPSK	160	369	
62	20853	16 QAM	128	369	
63	21189	QPSK	160	370	
63	21189	16 QAM	130	370	
64	21525	QPSK	160	371	
64	21525	16 QAM	130	371	
65	21861	QPSK	160	372	
65	21861	16 QAM	135	372	
66	22197	QPSK	160	373	
66	22197	16 QAM	135	373	
67	22533	QPSK	160	374	
67	22533	16 QAM	140	374	
68	22869	QPSK	160	375	
68	22869	16 QAM	140	375	
69	23205	QPSK	160	376	
69	23205	16 QAM	140	376	
70	23541	QPSK	160	377	
70	23541	16 QAM	145	377	
71	23877	QPSK	160	378	
71	23877	16 QAM	145	378	
72	24213	QPSK	160	378	
72	24213	16 QAM	145	378	
73	24549	QPSK	160	379	
73	24549	16 QAM	150	379	
74	24885	QPSK	160	380	
74	24885	16 QAM	150	380	
75	25221	QPSK	160	381	
75	25221	16 QAM	155	381	

76	25557	QPSK	160	382	
76	25557	16 QAM	155	382	
77	25893	QPSK	160	383	

3GPP TS 34.123-1 version 10.3.1 Release 10

77	25893	16 QAM	160	383	
78	26229	QPSK	160	383	
78	26229	16 QAM	160	383	
79	26565	QPSK	160	384	
79	26565	16 QAM	160	384	
80	26901	QPSK	160	385	
80	26901	16 QAM	160	385	
81	27237	QPSK	160	386	
81	27237	16 QAM	160	386	
82	27573	QPSK	160	386	
82	27573	16 QAM	160	386	
83	27909	QPSK	160	387	
83	27909	16 QAM	160	387	
84	28245	QPSK	160	388	
84	28245	16 QAM	160	388	
85	28581	QPSK	160	389	
85	28581	16 QAM	160	389	
86	28917	QPSK	160	389	
86	28917	16 QAM	160	389	
87	29253	QPSK	160	390	
87	29253	16 QAM	160	390	
88	29589	QPSK	160	391	
88	29589	16 QAM	160	391	
89	29925	QPSK	160	393	
89	29925	16 QAM	160	392	
90	30261	QPSK	160	393	
90	30261	16 QAM	160	392	
91	30597	QPSK	160	393	
91	30597	16 QAM	160	393	
92	30933	QPSK	160	394	
92	30933	16 QAM	160	394	
93	31269	QPSK	160	394	
93	31269	16 QAM	160	394	
94	31605	QPSK	160	395	
94	31605	16 QAM	160	395	
95	31941	QPSK	160	396	
95	31941	16 QAM	160	396	
96	32277	QPSK	160	396	
96	32277	16 QAM	160	396	
97	32613	QPSK	160	397	
97	32613	16 QAM	160	397	
98	32949	QPSK	160	398	
98	32949	16 QAM	160	398	
99	33285	QPSK	160	398	
99	33285	16 QAM	160	398	
100	33621	QPSK	160	399	
100	33621	16 QAM	160	399	
101	33957	QPSK	160	399	
101	33957	16 QAM	160	399	

102	34293	QPSK	160	400	
102	34293	16 QAM	160	400	
103	34629	QPSK	160	401	

3GPP TS 34.123-1 version 10.3.1 Release 10

103	34629	16 QAM	160	401	
104	34965	QPSK	160	401	
104	34965	16 QAM	160	401	
105	35301	QPSK	160	403	
105	35301	16 QAM	160	402	
106	35637	QPSK	160	403	
106	35637	16 QAM	160	403	
107	35973	QPSK	160	403	
107	35973	16 QAM	160	403	
108	36309	QPSK	160	404	
108	36309	16 QAM	160	404	
109	36645	QPSK	160	404	
109	36645	16 QAM	160	404	
110	36981	QPSK	160	405	
110	36981	16 QAM	160	405	
111	37317	QPSK	160	405	
111	37317	16 QAM	160	405	
112	37653	QPSK	160	406	
112	37653	16 QAM	160	406	
113	37989	QPSK	160	406	
113	37989	16 QAM	160	406	
114	38325	QPSK	160	407	
114	38325	16 QAM	160	407	
115	38661	16 QAM	160	408	
116	38997	16 QAM	160	408	
117	39333	16 QAM	160	409	
118	39669	16 QAM	160	409	
119	40005	16 QAM	160	410	
120	40341	16 QAM	160	410	
121	40677	16 QAM	160	411	
122	41013	16 QAM	160	411	
123	41349	16 QAM	160	412	
124	41685	16 QAM	160	412	
125	42021	16 QAM	160	413	
126	42357	16 QAM	160	413	
127	42693	16 QAM	160	414	
128	43029	16 QAM	160	414	
129	43372	16 QAM	160	415	
130	43708	16 QAM	160	415	
131	44044	16 QAM	160	416	
132	44380	16 QAM	160	416	
133	44716	16 QAM	160	417	
134	45052	16 QAM	160	417	
135	45388	16 QAM	160	418	
136	45724	16 QAM	160	418	
137	46060	16 QAM	160	419	
138	46396	16 QAM	160	419	
139	46732	16 QAM	160	419	
140	47068	16 QAM	160	420	

141	47404	16 QAM	160	420	
142	47740	16 QAM	160	421	
143	48076	16 QAM	160	421	

3GPP TS 34.123-1 version 10.3.1 Release 10

144	48412	16 QAM	160	422	
145	48748	16 QAM	160	422	
146	49084	16 QAM	160	422	
147	49420	16 QAM	160	423	
148	49756	16 QAM	160	423	
149	50092	16 QAM	160	424	
150	50428	16 QAM	160	424	
151	50764	16 QAM	160	425	
152	51100	16 QAM	160	425	
153	51436	16 QAM	160	425	
154	51772	16 QAM	160	426	
155	52108	16 QAM	160	426	
156	52444	16 QAM	160	427	
157	52780	16 QAM	160	427	
158	53116	16 QAM	160	427	
159	53452	16 QAM	160	428	
160	53788	16 QAM	160	428	
161	54124	16 QAM	160	429	
162	54460	16 QAM	160	429	
163	54796	16 QAM	160	429	
164	55132	16 QAM	160	430	
165	55468	16 QAM	160	430	
166	55804	16 QAM	160	431	
167	56140	16 QAM	160	431	
168	56476	16 QAM	160	431	
169	56812	16 QAM	160	432	
170	57148	16 QAM	160	432	
171	57484	16 QAM	160	432	
172	57820	16 QAM	160	433	
173	58156	16 QAM	160	433	
174	58492	16 QAM	160	433	
175	58828	16 QAM	160	434	
176	59164	16 QAM	160	434	
177	59500	16 QAM	160	437	
178	59836	16 QAM	160	437	
179	60172	16 QAM	160	437	
180	60508	16 QAM	160	437	
181	60844	16 QAM	160	437	
182	61180	16 QAM	160	437	
183	61516	16 QAM	160	437	
184	61852	16 QAM	160	437	
185	62188	16 QAM	160	437	
186	62524	16 QAM	160	438	
187	62860	16 QAM	160	438	
188	63196	16 QAM	160	438	
189	63532	16 QAM	160	439	
190	63868	16 QAM	160	439	
191	64204	16 QAM	160	439	
192	64540	16 QAM	160	441	

193	64876	16 QAM	160	441	
194	65212	16 QAM	160	441	
195	65548	16 QAM	160	441	

3GPP TS 34.123-1 version 10.3.1 Release 10

196	65884	16 QAM	160	441	
197	66220	16 QAM	160	441	
198	66556	16 QAM	160	442	
199	66892	16 QAM	160	442	
200	67228	16 QAM	160	442	
201	67564	16 QAM	160	442	
202	67900	16 QAM	160	443	
203	68236	16 QAM	160	443	
204	68572	16 QAM	160	443	
205	68908	16 QAM	160	444	
206	69244	16 QAM	160	444	
207	69580	16 QAM	160	444	
208	69916	16 QAM	160	445	
209	70252	16 QAM	160	445	
210	70588	16 QAM	160	445	
211	70924	16 QAM	160	445	
212	71260	16 QAM	160	446	
213	71596	16 QAM	160	446	
214	71932	16 QAM	160	446	
215	72268	16 QAM	160	447	
216	72604	16 QAM	160	447	
217	72940	16 QAM	160	447	

Table 18.3.1.4.3.10: TFRC test points for UE category 10 for MAC-d PDU size=336, 7.68Mcps TDD

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	357	QPSK	4	115	
1	357	16 QAM	2	115	
2	693	QPSK	8	156	
2	693	16 QAM	4	156	
3	1029	QPSK	12	181	
3	1029	16 QAM	6	181	
4	1365	QPSK	16	199	
4	1365	16 QAM	8	199	
5	1701	QPSK	21	213	
5	1701	16 QAM	10	213	
6	2037	QPSK	25	224	
6	2037	16 QAM	12	224	
7	2373	QPSK	29	233	
7	2373	16 QAM	14	233	
8	2709	QPSK	33	242	
8	2709	16 QAM	16	242	
9	3045	QPSK	36	249	
9	3045	16 QAM	18	249	
10	3381	QPSK	40	255	
10	3381	16 QAM	20	255	

11	3717	QPSK	45	261	
11	3717	16 QAM	22	261	
12	4053	QPSK	50	267	

3GPP TS 34.123-1 version 10.3.1 Release 10

12	4053	16 QAM	25	267	
13	4389	QPSK	54	272	
13	4389	16 QAM	27	272	
14	4725	QPSK	58	276	
14	4725	16 QAM	29	276	
15	5061	QPSK	63	281	
15	5061	16 QAM	31	281	
16	5397	QPSK	66	285	
16	5397	16 QAM	33	285	
17	5733	QPSK	70	288	
17	5733	16 QAM	35	288	
18	6069	QPSK	75	292	
18	6069	16 QAM	36	292	
19	6405	QPSK	78	295	
19	6405	16 QAM	39	295	
20	6741	QPSK	84	299	
20	6741	16 QAM	42	299	
21	7077	QPSK	88	302	
21	7077	16 QAM	44	302	
22	7413	QPSK	91	304	
22	7413	16 QAM	45	304	
23	7749	QPSK	95	307	
23	7749	16 QAM	46	307	
24	8085	QPSK	100	310	
24	8085	16 QAM	50	310	
25	8421	QPSK	102	312	
25	8421	16 QAM	51	312	
26	8757	QPSK	108	315	
26	8757	16 QAM	54	315	
27	9093	QPSK	112	317	
27	9093	16 QAM	56	317	
28	9429	QPSK	116	319	
28	9429	16 QAM	58	319	
29	9765	QPSK	121	322	
29	9765	16 QAM	60	322	
30	10101	QPSK	125	324	
30	10101	16 QAM	62	324	
31	10437	QPSK	128	326	
31	10437	16 QAM	64	326	
32	10773	QPSK	133	328	
32	10773	16 QAM	66	328	
33	11109	QPSK	138	330	
33	11109	16 QAM	69	330	
34	11445	QPSK	140	332	
34	11445	16 QAM	70	332	
35	11781	QPSK	145	333	
35	11781	16 QAM	72	333	
36	12117	QPSK	147	335	
36	12117	16 QAM	72	335	

37	12453	QPSK	154	337	
37	12453	16 QAM	77	337	
38	12789	QPSK	156	339	

38	12789	16 QAM	78	339	
39	13125	QPSK	162	340	
39	13125	16 QAM	81	340	
40	13461	QPSK	165	342	
40	13461	16 QAM	81	342	
41	13797	QPSK	170	343	
41	13797	16 QAM	85	343	
42	14133	QPSK	176	345	
42	14133	16 QAM	88	345	
43	14469	QPSK	176	346	
43	14469	16 QAM	88	346	
44	14805	QPSK	184	348	
44	14805	16 QAM	92	348	
45	15141	QPSK	187	349	
45	15141	16 QAM	93	349	
46	15477	QPSK	190	350	
46	15477	16 QAM	95	350	
47	15813	QPSK	196	352	
47	15813	16 QAM	98	352	
48	16149	QPSK	200	353	
48	16149	16 QAM	100	353	
49	16485	QPSK	203	354	
49	16485	16 QAM	100	354	
50	16821	QPSK	209	356	
50	16821	16 QAM	104	356	
51	17157	QPSK	210	357	
51	17157	16 QAM	105	357	
52	17493	QPSK	216	358	
52	17493	16 QAM	108	358	
53	17829	QPSK	220	359	
53	17829	16 QAM	110	359	
54	18165	QPSK	220	360	
54	18165	16 QAM	110	360	
55	18501	QPSK	231	362	
55	18501	16 QAM	115	362	
56	18837	QPSK	234	363	
56	18837	16 QAM	117	363	
57	19173	QPSK	234	364	
57	19173	16 QAM	119	364	
58	19509	QPSK	242	365	
58	19509	16 QAM	121	365	
59	19845	QPSK	243	366	
59	19845	16 QAM	121	366	
60	20181	QPSK	250	367	
60	20181	16 QAM	125	367	
61	20517	QPSK	253	368	
61	20517	16 QAM	126	368	
62	20853	QPSK	256	369	
62	20853	16 QAM	128	369	

63	21189	QPSK	261	370	
63	21189	16 QAM	130	370	
64	21525	QPSK	264	371	

3GPP TS 34.123-1 version 10.3.1 Release 10

64	21525	16 QAM	133	371	
65	21861	QPSK	270	372	
65	21861	16 QAM	135	372	
66	22197	QPSK	275	373	
66	22197	16 QAM	136	373	
67	22533	QPSK	280	374	
67	22533	16 QAM	140	374	
68	22869	QPSK	280	375	
68	22869	16 QAM	140	375	
69	23205	QPSK	288	376	
69	23205	16 QAM	144	376	
70	23541	QPSK	290	377	
70	23541	16 QAM	145	377	
71	23877	QPSK	297	378	
71	23877	16 QAM	147	378	
72	24213	QPSK	297	378	
72	24213	16 QAM	147	378	
73	24549	QPSK	300	379	
73	24549	16 QAM	150	379	
74	24885	QPSK	308	380	
74	24885	16 QAM	154	380	
75	25221	QPSK	312	381	
75	25221	16 QAM	156	381	
76	25557	QPSK	312	382	
76	25557	16 QAM	156	382	
77	25893	QPSK	320	383	
77	25893	16 QAM	161	383	
78	26229	QPSK	320	383	
78	26229	16 QAM	161	383	
79	26565	QPSK	324	384	
79	26565	16 QAM	162	384	
80	26901	QPSK	330	385	
80	26901	16 QAM	165	385	
81	27237	QPSK	336	386	
81	27237	16 QAM	168	386	
82	27573	QPSK	336	386	
82	27573	16 QAM	168	386	
83	27909	QPSK	341	387	
83	27909	16 QAM	171	387	
84	28245	QPSK	348	388	
84	28245	16 QAM	175	388	
85	28581	QPSK	352	389	
85	28581	16 QAM	176	389	
86	28917	QPSK	352	389	
86	28917	16 QAM	176	389	
87	29253	QPSK	360	390	
87	29253	16 QAM	180	390	
88	29589	QPSK	360	391	
88	29589	16 QAM	180	391	

89	29925	QPSK	361	392	
89	29925	16 QAM	180	392	
90	30261	QPSK	361	392	

90	30261	16 QAM	180	392	
91	30597	QPSK	361	393	
91	30597	16 QAM	180	393	
92	30933	QPSK	361	394	
92	30933	16 QAM	180	394	
93	31269	QPSK	361	394	
93	31269	16 QAM	180	394	
94	31605	QPSK	361	395	
94	31605	16 QAM	180	395	
95	31941	QPSK	361	396	
95	31941	16 QAM	180	396	
96	32277	QPSK	361	396	
96	32277	16 QAM	180	396	
97	32613	QPSK	361	397	
97	32613	16 QAM	180	397	
98	32949	QPSK	361	398	
98	32949	16 QAM	180	398	
99	33285	QPSK	361	398	
99	33285	16 QAM	180	398	
100	33621	QPSK	361	399	
100	33621	16 QAM	180	399	
101	33957	QPSK	361	399	
101	33957	16 QAM	180	399	
102	34293	QPSK	361	400	
102	34293	16 QAM	180	400	
103	34629	QPSK	361	401	
103	34629	16 QAM	180	401	
104	34965	QPSK	361	401	
104	34965	16 QAM	180	401	
105	35301	QPSK	361	402	
105	35301	16 QAM	180	402	
106	35637	QPSK	361	403	
106	35637	16 QAM	180	403	
107	35973	QPSK	361	403	
107	35973	16 QAM	180	403	
108	36309	QPSK	361	404	
108	36309	16 QAM	180	404	
109	36645	QPSK	361	404	
109	36645	16 QAM	180	404	
110	36981	QPSK	361	405	
110	36981	16 QAM	180	405	
111	37317	QPSK	361	405	
111	37317	16 QAM	180	405	
112	37653	QPSK	361	406	
112	37653	16 QAM	180	406	
113	37989	QPSK	361	406	
113	37989	16 QAM	180	406	
114	38325	QPSK	361	407	
114	38325	16 QAM	180	407	

115	38661	QPSK	361	408	
115	38661	16 QAM	180	408	
116	38997	QPSK	361	408	

3GPP TS 34.123-1 version 10.3.1 Release 10

116	38997	16 QAM	180	408	
117	39333	QPSK	361	409	
117	39333	16 QAM	180	409	
118	39669	QPSK	361	409	
118	39669	16 QAM	180	409	
119	40005	QPSK	361	410	
119	40005	16 QAM	180	410	
120	40341	QPSK	361	410	
120	40341	16 QAM	180	410	
121	40677	QPSK	361	411	
121	40677	16 QAM	180	411	
122	41013	QPSK	361	411	
122	41013	16 QAM	180	411	
123	41349	QPSK	361	412	
123	41349	16 QAM	180	412	
124	41685	QPSK	361	412	
124	41685	16 QAM	180	412	
125	42021	QPSK	361	413	
125	42021	16 QAM	180	413	
126	42357	QPSK	361	413	
126	42357	16 QAM	180	413	
127	42693	QPSK	361	414	
127	42693	16 QAM	180	414	
128	43029	QPSK	361	414	
128	43029	16 QAM	180	414	
129	43372	QPSK	361	415	
129	43372	16 QAM	180	415	
130	43708	QPSK	361	415	
130	43708	16 QAM	180	415	
131	44044	QPSK	361	416	
131	44044	16 QAM	180	416	
132	44380	QPSK	361	416	
132	44380	16 QAM	180	416	
133	44716	QPSK	361	417	
133	44716	16 QAM	180	417	
134	45052	QPSK	361	417	
134	45052	16 QAM	180	417	
135	45388	QPSK	361	418	
135	45388	16 QAM	180	418	
136	45724	QPSK	361	418	
136	45724	16 QAM	180	418	
137	46060	QPSK	361	419	
137	46060	16 QAM	180	419	
138	46396	QPSK	361	419	
138	46396	16 QAM	180	419	
139	46732	QPSK	361	419	
139	46732	16 QAM	180	419	
140	47068	QPSK	361	420	
140	47068	16 QAM	180	420	

141	47404	QPSK	361	420	
141	47404	16 QAM	180	420	
142	47740	QPSK	361	421	

3GPP TS 34.123-1 version 10.3.1 Release 10

142	47740	16 QAM	180	421	
143	48076	QPSK	361	421	
143	48076	16 QAM	180	421	
144	48412	QPSK	361	422	
144	48412	16 QAM	180	422	
145	48748	QPSK	361	422	
145	48748	16 QAM	180	422	
146	49084	QPSK	361	422	
146	49084	16 QAM	180	422	
147	49420	QPSK	361	423	
147	49420	16 QAM	180	423	
148	49756	QPSK	361	423	
148	49756	16 QAM	180	423	
149	50092	QPSK	361	424	
149	50092	16 QAM	180	424	
150	50428	QPSK	361	424	
150	50428	16 QAM	180	424	
151	50764	QPSK	361	425	
151	50764	16 QAM	180	425	
152	51100	QPSK	361	425	
152	51100	16 QAM	180	425	
153	51436	QPSK	361	425	
153	51436	16 QAM	180	425	
154	51772	QPSK	361	426	
154	51772	16 QAM	180	426	
155	52108	QPSK	361	426	
155	52108	16 QAM	180	426	
156	52444	QPSK	361	427	
156	52444	16 QAM	180	427	
157	52780	QPSK	361	427	
157	52780	16 QAM	180	427	
158	53116	QPSK	361	427	
158	53116	16 QAM	180	427	
159	53452	QPSK	361	428	
159	53452	16 QAM	180	428	
160	53788	QPSK	361	428	
160	53788	16 QAM	180	428	
161	54124	QPSK	361	429	
161	54124	16 QAM	180	429	
162	54460	QPSK	361	429	
162	54460	16 QAM	180	429	
163	54796	QPSK	361	429	
163	54796	16 QAM	180	429	
164	55132	QPSK	361	430	
164	55132	16 QAM	180	430	
165	55468	QPSK	361	430	
165	55468	16 QAM	180	430	
166	55804	QPSK	361	431	
166	55804	16 QAM	180	431	

167	56140	QPSK	361	431	
167	56140	16 QAM	180	431	
168	56476	QPSK	361	431	

168	56476	16 QAM	180	431	
169	56812	QPSK	361	432	
169	56812	16 QAM	180	432	
170	57148	QPSK	361	432	
170	57148	16 QAM	180	432	
171	57484	QPSK	361	432	
171	57484	16 QAM	180	432	
172	57820	QPSK	361	433	
172	57820	16 QAM	180	433	
173	58156	QPSK	361	433	
173	58156	16 QAM	180	433	
174	58492	QPSK	361	433	
174	58492	16 QAM	180	433	
175	58828	QPSK	361	434	
175	58828	16 QAM	180	434	
176	59164	QPSK	361	434	
176	59164	16 QAM	180	434	
177	59500	QPSK	361	435	
177	59500	16 QAM	180	435	
178	59836	QPSK	361	435	
178	59836	16 QAM	180	435	
179	60172	QPSK	361	435	
179	60172	16 QAM	180	435	
180	60508	QPSK	361	436	
180	60508	16 QAM	180	436	
181	60844	QPSK	361	436	
181	60844	16 QAM	180	436	
182	61180	QPSK	361	436	
182	61180	16 QAM	180	436	
183	61516	QPSK	361	437	
183	61516	16 QAM	180	437	
184	61852	QPSK	361	437	
184	61852	16 QAM	180	437	
185	62188	QPSK	361	437	
185	62188	16 QAM	180	437	
186	62524	QPSK	361	438	
186	62524	16 QAM	180	438	
187	62860	QPSK	361	438	
187	62860	16 QAM	180	438	
188	63196	QPSK	361	438	
188	63196	16 QAM	180	438	
189	63532	QPSK	361	439	
189	63532	16 QAM	180	439	
190	63868	QPSK	361	439	
190	63868	16 QAM	180	439	
191	64204	QPSK	361	439	
191	64204	16 QAM	180	439	
192	64540	QPSK	361	440	
192	64540	16 QAM	180	440	

193	64876	QPSK	361	440	
193	64876	16 QAM	180	440	
194	65212	QPSK	361	440	

194	65212	16 QAM	180	440	
195	65548	QPSK	361	441	
195	65548	16 QAM	180	441	
196	65884	QPSK	361	441	
196	65884	16 QAM	180	441	
197	66220	QPSK	361	441	
197	66220	16 QAM	180	441	
198	66556	QPSK	361	442	
198	66556	16 QAM	180	442	
199	66892	QPSK	361	442	
199	66892	16 QAM	180	442	
200	67228	QPSK	361	442	
200	67228	16 QAM	180	442	
201	67564	QPSK	361	442	
201	67564	16 QAM	180	442	
202	67900	QPSK	361	443	
202	67900	16 QAM	180	443	
203	68236	QPSK	361	443	
203	68236	16 QAM	180	443	
204	68572	QPSK	361	443	
204	68572	16 QAM	180	443	
205	68908	QPSK	361	444	
205	68908	16 QAM	180	444	
206	69244	QPSK	361	444	
206	69244	16 QAM	180	444	
207	69580	QPSK	361	444	
207	69580	16 QAM	180	444	
208	69916	QPSK	361	445	
208	69916	16 QAM	180	445	
209	70252	QPSK	361	445	
209	70252	16 QAM	180	445	
210	70588	QPSK	361	445	
210	70588	16 QAM	180	445	
211	70924	QPSK	361	445	
211	70924	16 QAM	180	445	
212	71260	QPSK	361	446	
212	71260	16 QAM	180	446	
213	71596	QPSK	361	446	
213	71596	16 QAM	180	446	
214	71932	QPSK	361	446	
214	71932	16 QAM	180	446	
215	72268	QPSK	361	448	
215	72268	16 QAM	180	447	
216	72604	QPSK	361	448	
216	72604	16 QAM	180	447	
217	72940	QPSK	361	448	
217	72940	16 QAM	180	447	

Table 18.3.1.4.3.10: TFRC test points for UE category 11 for MAC-d PDU size=336, 7.68Mcps TDD

3GPP TS 34.123-1 version 10.3.1 Release 10

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	357	QPSK	4	115	
1	357	16 QAM	2	115	
2	693	QPSK	8	156	
2	693	16 QAM	4	156	
3	1029	QPSK	12	181	
3	1029	16 QAM	6	181	
4	1365	QPSK	16	199	
4	1365	16 QAM	8	199	
5	1701	QPSK	21	213	
5	1701	16 QAM	10	213	
6	2037	QPSK	25	224	
6	2037	16 QAM	12	224	
7	2373	QPSK	29	233	
7	2373	16 QAM	14	233	
8	2709	QPSK	33	242	
8	2709	16 QAM	16	242	
9	3045	QPSK	36	249	
9	3045	16 QAM	18	249	
10	3381	QPSK	40	255	
10	3381	16 QAM	20	255	
11	3717	QPSK	45	261	
11	3717	16 QAM	22	261	
12	4053	QPSK	50	267	
12	4053	16 QAM	25	267	
13	4389	QPSK	54	272	
13	4389	16 QAM	27	272	
14	4725	QPSK	58	276	
14	4725	16 QAM	29	276	
15	5061	QPSK	63	281	
15	5061	16 QAM	31	281	
16	5397	QPSK	66	285	
16	5397	16 QAM	33	285	
17	5733	QPSK	70	288	
17	5733	16 QAM	35	288	
18	6069	QPSK	75	292	
18	6069	16 QAM	36	292	
19	6405	QPSK	78	295	
19	6405	16 QAM	39	295	
20	6741	QPSK	84	299	
20	6741	16 QAM	42	299	
21	7077	QPSK	88	302	
21	7077	16 QAM	44	302	
22	7413	QPSK	91	304	
22	7413	16 QAM	45	304	
23	7749	QPSK	95	307	
23	7749	16 QAM	46	307	

24	8085	QPSK	100	310	
24	8085	16 QAM	50	310	
25	8421	QPSK	102	312	

3GPP TS 34.123-1 version 10.3.1 Release 10

25	8421	16 QAM	51	312	
26	8757	QPSK	108	315	
26	8757	16 QAM	54	315	
27	9093	QPSK	112	317	
27	9093	16 QAM	56	317	
28	9429	QPSK	116	319	
28	9429	16 QAM	58	319	
29	9765	QPSK	120	322	
29	9765	16 QAM	60	322	
30	10101	QPSK	125	324	
30	10101	16 QAM	62	324	
31	10437	QPSK	128	326	
31	10437	16 QAM	64	326	
32	10773	QPSK	133	328	
32	10773	16 QAM	66	328	
33	11109	QPSK	138	330	
33	11109	16 QAM	69	330	
34	11445	QPSK	140	332	
34	11445	16 QAM	70	332	
35	11781	QPSK	145	333	
35	11781	16 QAM	72	333	
36	12117	QPSK	147	335	
36	12117	16 QAM	72	335	
37	12453	QPSK	154	337	
37	12453	16 QAM	77	337	
38	12789	QPSK	156	339	
38	12789	16 QAM	78	339	
39	13125	QPSK	162	340	
39	13125	16 QAM	81	340	
40	13461	QPSK	162	342	
40	13461	16 QAM	81	342	
41	13797	QPSK	168	343	
41	13797	16 QAM	85	343	
42	14133	QPSK	176	345	
42	14133	16 QAM	88	345	
43	14469	QPSK	176	346	
43	14469	16 QAM	88	346	
44	14805	QPSK	184	348	
44	14805	16 QAM	92	348	
45	15141	QPSK	186	349	
45	15141	16 QAM	93	349	
46	15477	QPSK	189	350	
46	15477	16 QAM	95	350	
47	15813	QPSK	196	352	
47	15813	16 QAM	98	352	
48	16149	QPSK	200	353	
48	16149	16 QAM	100	353	
49	16485	QPSK	203	354	
49	16485	16 QAM	100	354	

50	16821	QPSK	208	356	
50	16821	16 QAM	104	356	
51	17157	QPSK	210	357	

3GPP TS 34.123-1 version 10.3.1 Release 10

51	17157	16 QAM	105	357	
52	17493	QPSK	216	358	
52	17493	16 QAM	108	358	
53	17829	QPSK	217	359	
53	17829	16 QAM	110	359	
54	18165	QPSK	217	360	
54	18165	16 QAM	110	360	
55	18501	QPSK	224	362	
55	18501	16 QAM	115	362	
56	18837	QPSK	232	363	
56	18837	16 QAM	116	363	
57	19173	QPSK	232	364	
57	19173	16 QAM	119	364	
58	19509	QPSK	240	365	
58	19509	16 QAM	120	365	
59	19845	QPSK	240	366	
59	19845	16 QAM	120	366	
60	20181	QPSK	248	367	
60	20181	16 QAM	125	367	
61	20517	QPSK	248	368	
61	20517	16 QAM	126	368	
62	20853	QPSK	256	369	
62	20853	16 QAM	128	369	
63	21189	QPSK	256	370	
63	21189	16 QAM	130	370	
64	21525	QPSK	256	371	
64	21525	16 QAM	133	371	
65	21861	QPSK	256	372	
65	21861	16 QAM	135	372	
66	22197	QPSK	256	373	
66	22197	16 QAM	136	373	
67	22533	QPSK	256	374	
67	22533	16 QAM	140	374	
68	22869	QPSK	256	375	
68	22869	16 QAM	140	375	
69	23205	QPSK	256	376	
69	23205	16 QAM	144	376	
70	23541	QPSK	256	377	
70	23541	16 QAM	145	377	
71	23877	QPSK	256	378	
71	23877	16 QAM	147	378	
72	24213	QPSK	256	378	
72	24213	16 QAM	147	378	
73	24549	QPSK	256	379	
73	24549	16 QAM	150	379	
74	24885	QPSK	256	380	
74	24885	16 QAM	154	380	
75	25221	QPSK	256	381	
75	25221	16 QAM	156	381	

76	25557	QPSK	256	382	
76	25557	16 QAM	156	382	
77	25893	QPSK	256	383	

3GPP TS 34.123-1 version 10.3.1 Release 10

77	25893	16 QAM	161	383	
78	26229	QPSK	256	383	
78	26229	16 QAM	161	383	
79	26565	QPSK	256	384	
79	26565	16 QAM	162	384	
80	26901	QPSK	256	385	
80	26901	16 QAM	162	385	
81	27237	QPSK	256	386	
81	27237	16 QAM	168	386	
82	27573	QPSK	256	386	
82	27573	16 QAM	168	386	
83	27909	QPSK	256	387	
83	27909	16 QAM	168	387	
84	28245	QPSK	256	388	
84	28245	16 QAM	175	388	
85	28581	QPSK	256	389	
85	28581	16 QAM	176	389	
86	28917	QPSK	256	389	
86	28917	16 QAM	176	389	
87	29253	QPSK	256	390	
87	29253	16 QAM	180	390	
88	29589	QPSK	256	391	
88	29589	16 QAM	182	391	
89	29925	QPSK	256	392	
89	29925	16 QAM	186	392	
90	30261	QPSK	256	392	
90	30261	16 QAM	186	392	
91	30597	QPSK	256	393	
91	30597	16 QAM	189	393	
92	30933	QPSK	256	394	
92	30933	16 QAM	192	394	
93	31269	QPSK	256	394	
93	31269	16 QAM	192	394	
94	31605	QPSK	256	395	
94	31605	16 QAM	196	395	
95	31941	QPSK	256	396	
95	31941	16 QAM	196	396	
96	32277	QPSK	256	396	
96	32277	16 QAM	196	396	
97	32613	QPSK	256	397	
97	32613	16 QAM	200	397	
98	32949	QPSK	256	398	
98	32949	16 QAM	203	398	
99	33285	QPSK	256	398	
99	33285	16 QAM	203	398	
100	33621	QPSK	256	399	
100	33621	16 QAM	208	399	
101	33957	QPSK	256	399	
101	33957	16 QAM	208	399	

102	34293	QPSK	256	400	
102	34293	16 QAM	210	400	
103	34629	QPSK	256	401	

3GPP TS 34.123-1 version 10.3.1 Release 10

103	34629	16 QAM	210	401	
104	34965	QPSK	256	401	
104	34965	16 QAM	210	401	
105	35301	QPSK	256	402	
105	35301	16 QAM	217	402	
106	35637	QPSK	256	403	
106	35637	16 QAM	217	403	
107	35973	QPSK	256	403	
107	35973	16 QAM	217	403	
108	36309	QPSK	256	404	
108	36309	16 QAM	224	404	
109	36645	QPSK	256	404	
109	36645	16 QAM	224	404	
110	36981	QPSK	256	405	
110	36981	16 QAM	224	405	
111	37317	QPSK	256	405	
111	37317	16 QAM	224	405	
112	37653	QPSK	256	406	
112	37653	16 QAM	232	406	
113	37989	QPSK	256	406	
113	37989	16 QAM	232	406	
114	38325	QPSK	256	407	
114	38325	16 QAM	232	407	
115	38661	QPSK	256	408	
115	38661	16 QAM	240	408	
116	38997	QPSK	256	408	
116	38997	16 QAM	240	408	
117	39333	QPSK	256	409	
117	39333	16 QAM	240	409	
118	39669	QPSK	256	409	
118	39669	16 QAM	240	409	
119	40005	QPSK	256	410	
119	40005	16 QAM	248	410	
120	40341	QPSK	256	410	
120	40341	16 QAM	248	410	
121	40677	QPSK	256	411	
121	40677	16 QAM	248	411	
122	41013	QPSK	256	411	
122	41013	16 QAM	248	411	
123	41349	QPSK	256	412	
123	41349	16 QAM	256	412	
124	41685	QPSK	256	412	
124	41685	16 QAM	256	412	
125	42021	QPSK	256	413	
125	42021	16 QAM	256	413	
126	42357	QPSK	256	413	
126	42357	16 QAM	256	413	
127	42693	QPSK	256	414	
127	42693	16 QAM	256	414	

128	43029	QPSK	256	414	
128	43029	16 QAM	256	414	
129	43372	QPSK	256	415	

3GPP TS 34.123-1 version 10.3.1 Release 10

129	43372	16 QAM	256	415	
130	43708	QPSK	256	415	
130	43708	16 QAM	256	415	
131	44044	QPSK	256	416	
131	44044	16 QAM	256	416	
132	44380	QPSK	256	416	
132	44380	16 QAM	256	416	
133	44716	QPSK	256	417	
133	44716	16 QAM	256	417	
134	45052	QPSK	256	417	
134	45052	16 QAM	256	417	
135	45388	QPSK	256	418	
135	45388	16 QAM	256	418	
136	45724	QPSK	256	418	
136	45724	16 QAM	256	418	
137	46060	QPSK	256	419	
137	46060	16 QAM	256	419	
138	46396	QPSK	256	419	
138	46396	16 QAM	256	419	
139	46732	QPSK	256	419	
139	46732	16 QAM	256	419	
140	47068	QPSK	256	420	
140	47068	16 QAM	256	420	
141	47404	QPSK	256	420	
141	47404	16 QAM	256	420	
142	47740	QPSK	256	423	
142	47740	16 QAM	256	421	
143	48076	QPSK	256	423	
143	48076	16 QAM	256	421	
144	48412	QPSK	256	423	
144	48412	16 QAM	256	422	
145	48748	QPSK	256	423	
145	48748	16 QAM	256	422	
146	49084	QPSK	256	423	
146	49084	16 QAM	256	422	
147	49420	QPSK	256	423	
147	49420	16 QAM	256	423	
148	49756	QPSK	256	423	
148	49756	16 QAM	256	423	
149	50092	QPSK	256	424	
149	50092	16 QAM	256	424	
150	50428	QPSK	256	424	
150	50428	16 QAM	256	424	
151	50764	QPSK	256	425	
151	50764	16 QAM	256	425	
152	51100	QPSK	256	425	
152	51100	16 QAM	256	425	
153	51436	QPSK	256	425	
153	51436	16 QAM	256	425	

154	51772	QPSK	256	427	
154	51772	16 QAM	256	426	
155	52108	QPSK	256	427	

3GPP TS 34.123-1 version 10.3.1 Release 10

155	52108	16 QAM	256	426	
156	52444	QPSK	256	427	
156	52444	16 QAM	256	427	
157	52780	QPSK	256	427	
157	52780	16 QAM	256	427	
158	53116	QPSK	256	427	
158	53116	16 QAM	256	427	
159	53452	QPSK	256	428	
159	53452	16 QAM	256	428	
160	53788	QPSK	256	428	
160	53788	16 QAM	256	428	
161	54124	QPSK	256	429	
161	54124	16 QAM	256	429	
162	54460	QPSK	256	429	
162	54460	16 QAM	256	429	
163	54796	QPSK	256	429	
163	54796	16 QAM	256	429	
164	55132	QPSK	256	430	
164	55132	16 QAM	256	430	
165	55468	QPSK	256	430	
165	55468	16 QAM	256	430	
166	55804	QPSK	256	431	
166	55804	16 QAM	256	431	
167	56140	QPSK	256	431	
167	56140	16 QAM	256	431	
168	56476	QPSK	256	431	
168	56476	16 QAM	256	431	
169	56812	QPSK	256	432	
169	56812	16 QAM	256	432	
170	57148	QPSK	256	432	
170	57148	16 QAM	256	432	
171	57484	QPSK	256	432	
171	57484	16 QAM	256	432	
172	57820	QPSK	256	433	
172	57820	16 QAM	256	433	
173	58156	QPSK	256	433	
173	58156	16 QAM	256	433	
174	58492	QPSK	256	433	
174	58492	16 QAM	256	433	
175	58828	QPSK	256	434	
175	58828	16 QAM	256	434	
176	59164	QPSK	256	434	
176	59164	16 QAM	256	434	
177	59500	QPSK	256	435	
177	59500	16 QAM	256	435	
178	59836	QPSK	256	435	
178	59836	16 QAM	256	435	
179	60172	QPSK	256	435	
179	60172	16 QAM	256	435	

180	60508	QPSK	256	436	
180	60508	16 QAM	256	436	
181	60844	QPSK	256	436	

181	60844	16 QAM	256	436	
182	61180	QPSK	256	436	
182	61180	16 QAM	256	436	
183	61516	QPSK	256	437	
183	61516	16 QAM	256	437	
184	61852	QPSK	256	437	
184	61852	16 QAM	256	437	
185	62188	QPSK	256	437	
185	62188	16 QAM	256	437	
186	62524	16 QAM	256	438	
187	62860	16 QAM	256	438	
188	63196	16 QAM	256	438	
189	63532	16 QAM	256	439	
190	63868	16 QAM	256	439	
191	64204	16 QAM	256	439	
192	64540	16 QAM	256	440	
193	64876	16 QAM	256	440	
194	65212	16 QAM	256	440	
195	65548	16 QAM	256	441	
196	65884	16 QAM	256	441	
197	66220	16 QAM	256	441	
198	66556	16 QAM	256	442	
199	66892	16 QAM	256	442	
200	67228	16 QAM	256	442	
201	67564	16 QAM	256	442	
202	67900	16 QAM	256	443	
203	68236	16 QAM	256	443	
204	68572	16 QAM	256	443	
205	68908	16 QAM	256	444	
206	69244	16 QAM	256	444	
207	69580	16 QAM	256	444	
208	69916	16 QAM	256	445	
209	70252	16 QAM	256	445	
210	70588	16 QAM	256	445	
211	70924	16 QAM	256	445	
212	71260	16 QAM	256	446	
213	71596	16 QAM	256	446	
214	71932	16 QAM	256	446	
215	72268	16 QAM	256	447	
216	72604	16 QAM	256	447	
217	72940	16 QAM	256	447	
218	73276	16 QAM	256	448	
219	73612	16 QAM	256	448	
220	73948	16 QAM	256	448	
221	74284	16 QAM	256	448	
222	74620	16 QAM	256	449	
223	74956	16 QAM	256	449	
224	75292	16 QAM	256	449	
225	75628	16 QAM	256	449	

226	75964	16 QAM	256	450	
227	76300	16 QAM	256	450	
228	76636	16 QAM	256	450	

229	76972	16 QAM	256	451	
230	77308	16 QAM	256	451	
231	77644	16 QAM	256	451	
232	77980	16 QAM	256	451	
233	78316	16 QAM	256	452	
234	78652	16 QAM	256	452	
235	78988	16 QAM	256	452	
236	79324	16 QAM	256	452	
237	79660	16 QAM	256	453	
238	79996	16 QAM	256	453	
239	80332	16 QAM	256	453	
240	80668	16 QAM	256	454	
241	81004	16 QAM	256	454	
242	81340	16 QAM	256	454	
243	81676	16 QAM	256	454	
244	82012	16 QAM	256	455	
245	82348	16 QAM	256	455	
246	82684	16 QAM	256	455	
247	83020	16 QAM	256	455	
248	83356	16 QAM	256	456	
249	83692	16 QAM	256	456	
250	84028	16 QAM	256	456	
251	84364	16 QAM	256	456	
252	84700	16 QAM	256	457	
253	85036	16 QAM	256	457	
254	85372	16 QAM	256	457	
255	85708	16 QAM	256	457	
256	86044	16 QAM	256	458	
257	86387	16 QAM	256	458	
258	86723	16 QAM	256	458	
259	87059	16 QAM	256	458	
260	87395	16 QAM	256	459	
261	87731	16 QAM	256	459	
262	88067	16 QAM	256	459	
263	88403	16 QAM	256	459	
264	88739	16 QAM	256	459	
265	89075	16 QAM	256	460	
266	89411	16 QAM	256	460	
267	89747	16 QAM	256	460	
268	90083	16 QAM	256	460	
269	90419	16 QAM	256	461	
270	90755	16 QAM	256	461	
271	91091	16 QAM	256	461	
272	91427	16 QAM	256	461	
273	91763	16 QAM	256	462	
274	92099	16 QAM	256	462	
275	92435	16 QAM	256	462	
276	92771	16 QAM	256	462	
277	93107	16 QAM	256	462	

278	93443	16 QAM	256	463	
279	93779	16 QAM	256	463	
280	94115	16 QAM	256	463	

281	94451	16 QAM	256	463	
282	94787	16 QAM	256	464	
283	95123	16 QAM	256	464	
284	95459	16 QAM	256	464	
285	95795	16 QAM	256	464	
286	96131	16 QAM	256	464	
287	96467	16 QAM	256	466	
288	96803	16 QAM	256	466	
289	97139	16 QAM	256	466	
290	97475	16 QAM	256	466	
291	97811	16 QAM	256	466	
292	98147	16 QAM	256	466	
293	98483	16 QAM	256	466	
294	98819	16 QAM	256	466	
295	99155	16 QAM	256	466	
296	99491	16 QAM	256	467	
297	99827	16 QAM	256	467	
298	100163	16 QAM	256	467	
299	100499	16 QAM	256	467	
300	100835	16 QAM	256	467	
301	101171	16 QAM	256	468	
302	101507	16 QAM	256	468	
303	101843	16 QAM	256	468	
304	102179	16 QAM	256	468	
305	102515	16 QAM	256	468	
306	102851	16 QAM	256	469	
307	103187	16 QAM	256	469	
308	103523	16 QAM	256	469	
309	103859	16 QAM	256	469	
310	104195	16 QAM	256	469	
311	104531	16 QAM	256	470	
312	104867	16 QAM	256	470	
313	105203	16 QAM	256	470	
314	105539	16 QAM	256	470	
315	105875	16 QAM	256	470	

Table 18.3.1.4.3.10: TFRC test points for UE category 12 for MAC-d PDU size=336, 7.68Mcps TDD

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	357	QPSK	4	115	
1	357	16 QAM	2	115	
2	693	QPSK	8	156	
2	693	16 QAM	4	156	
3	1029	QPSK	12	181	
3	1029	16 QAM	6	181	
4	1365	QPSK	16	199	

4	1365	16 QAM	8	199	
5	1701	QPSK	21	213	
5	1701	16 QAM	10	213	

3GPP TS 34.123-1 version 10.3.1 Release 10

6	2037	QPSK	25	224	
6	2037	16 QAM	12	224	
7	2373	QPSK	29	233	
7	2373	16 QAM	14	233	
8	2709	QPSK	33	242	
8	2709	16 QAM	16	242	
9	3045	QPSK	36	249	
9	3045	16 QAM	18	249	
10	3381	QPSK	40	255	
10	3381	16 QAM	20	255	
11	3717	QPSK	45	261	
11	3717	16 QAM	22	261	
12	4053	QPSK	50	267	
12	4053	16 QAM	25	267	
13	4389	QPSK	54	272	
13	4389	16 QAM	27	272	
14	4725	QPSK	58	276	
14	4725	16 QAM	29	276	
15	5061	QPSK	63	281	
15	5061	16 QAM	31	281	
16	5397	QPSK	66	285	
16	5397	16 QAM	33	285	
17	5733	QPSK	70	288	
17	5733	16 QAM	35	288	
18	6069	QPSK	75	292	
18	6069	16 QAM	36	292	
19	6405	QPSK	78	295	
19	6405	16 QAM	39	295	
20	6741	QPSK	84	299	
20	6741	16 QAM	42	299	
21	7077	QPSK	88	302	
21	7077	16 QAM	44	302	
22	7413	QPSK	91	304	
22	7413	16 QAM	45	304	
23	7749	QPSK	95	307	
23	7749	16 QAM	46	307	
24	8085	QPSK	100	310	
24	8085	16 QAM	50	310	
25	8421	QPSK	102	312	
25	8421	16 QAM	51	312	
26	8757	QPSK	108	315	
26	8757	16 QAM	54	315	
27	9093	QPSK	112	317	
27	9093	16 QAM	56	317	
28	9429	QPSK	116	319	
28	9429	16 QAM	58	319	
29	9765	QPSK	121	322	
29	9765	16 QAM	60	322	
30	10101	QPSK	125	324	

30	10101	16 QAM	62	324	
31	10437	QPSK	128	326	
31	10437	16 QAM	64	326	

3GPP TS 34.123-1 version 10.3.1 Release 10

32	10773	QPSK	133	328	
32	10773	16 QAM	66	328	
33	11109	QPSK	138	330	
33	11109	16 QAM	69	330	
34	11445	QPSK	140	332	
34	11445	16 QAM	70	332	
35	11781	QPSK	145	333	
35	11781	16 QAM	72	333	
36	12117	QPSK	147	335	
36	12117	16 QAM	72	335	
37	12453	QPSK	154	337	
37	12453	16 QAM	77	337	
38	12789	QPSK	156	339	
38	12789	16 QAM	78	339	
39	13125	QPSK	162	340	
39	13125	16 QAM	81	340	
40	13461	QPSK	165	342	
40	13461	16 QAM	81	342	
41	13797	QPSK	170	343	
41	13797	16 QAM	85	343	
42	14133	QPSK	176	345	
42	14133	16 QAM	88	345	
43	14469	QPSK	176	346	
43	14469	16 QAM	88	346	
44	14805	QPSK	184	348	
44	14805	16 QAM	92	348	
45	15141	QPSK	187	349	
45	15141	16 QAM	93	349	
46	15477	QPSK	190	350	
46	15477	16 QAM	95	350	
47	15813	QPSK	196	352	
47	15813	16 QAM	98	352	
48	16149	QPSK	200	353	
48	16149	16 QAM	100	353	
49	16485	QPSK	203	354	
49	16485	16 QAM	100	354	
50	16821	QPSK	209	356	
50	16821	16 QAM	104	356	
51	17157	QPSK	210	357	
51	17157	16 QAM	105	357	
52	17493	QPSK	216	358	
52	17493	16 QAM	108	358	
53	17829	QPSK	220	359	
53	17829	16 QAM	110	359	
54	18165	QPSK	220	360	
54	18165	16 QAM	110	360	
55	18501	QPSK	231	362	
55	18501	16 QAM	115	362	
56	18837	QPSK	234	363	

56	18837	16 QAM	117	363	
57	19173	QPSK	234	364	
57	19173	16 QAM	119	364	

3GPP TS 34.123-1 version 10.3.1 Release 10

58	19509	QPSK	242	365	
58	19509	16 QAM	121	365	
59	19845	QPSK	243	366	
59	19845	16 QAM	121	366	
60	20181	QPSK	250	367	
60	20181	16 QAM	125	367	
61	20517	QPSK	253	368	
61	20517	16 QAM	126	368	
62	20853	QPSK	256	369	
62	20853	16 QAM	128	369	
63	21189	QPSK	261	370	
63	21189	16 QAM	130	370	
64	21525	QPSK	264	371	
64	21525	16 QAM	133	371	
65	21861	QPSK	270	372	
65	21861	16 QAM	135	372	
66	22197	QPSK	275	373	
66	22197	16 QAM	136	373	
67	22533	QPSK	280	374	
67	22533	16 QAM	140	374	
68	22869	QPSK	280	375	
68	22869	16 QAM	140	375	
69	23205	QPSK	288	376	
69	23205	16 QAM	144	376	
70	23541	QPSK	290	377	
70	23541	16 QAM	145	377	
71	23877	QPSK	297	378	
71	23877	16 QAM	147	378	
72	24213	QPSK	297	378	
72	24213	16 QAM	147	378	
73	24549	QPSK	300	379	
73	24549	16 QAM	150	379	
74	24885	QPSK	308	380	
74	24885	16 QAM	154	380	
75	25221	QPSK	312	381	
75	25221	16 QAM	156	381	
76	25557	QPSK	312	382	
76	25557	16 QAM	156	382	
77	25893	QPSK	320	383	
77	25893	16 QAM	161	383	
78	26229	QPSK	320	383	
78	26229	16 QAM	161	383	
79	26565	QPSK	324	384	
79	26565	16 QAM	162	384	
80	26901	QPSK	330	385	
80	26901	16 QAM	165	385	
81	27237	QPSK	336	386	
81	27237	16 QAM	168	386	
82	27573	QPSK	336	386	

82	27573	16 QAM	168	386	
83	27909	QPSK	341	387	
83	27909	16 QAM	171	387	

3GPP TS 34.123-1 version 10.3.1 Release 10

84	28245	QPSK	348	388	
84	28245	16 QAM	175	388	
85	28581	QPSK	352	389	
85	28581	16 QAM	176	389	
86	28917	QPSK	352	389	
86	28917	16 QAM	176	389	
87	29253	QPSK	360	390	
87	29253	16 QAM	180	390	
88	29589	QPSK	360	391	
88	29589	16 QAM	182	391	
89	29925	QPSK	372	392	
89	29925	16 QAM	186	392	
90	30261	QPSK	372	392	
90	30261	16 QAM	186	392	
91	30597	QPSK	372	393	
91	30597	16 QAM	189	393	
92	30933	QPSK	384	394	
92	30933	16 QAM	192	394	
93	31269	QPSK	384	394	
93	31269	16 QAM	192	394	
94	31605	QPSK	384	395	
94	31605	16 QAM	196	395	
95	31941	QPSK	384	396	
95	31941	16 QAM	198	396	
96	32277	QPSK	384	396	
96	32277	16 QAM	198	396	
97	32613	QPSK	384	397	
97	32613	16 QAM	200	397	
98	32949	QPSK	384	398	
98	32949	16 QAM	204	398	
99	33285	QPSK	384	398	
99	33285	16 QAM	204	398	
100	33621	QPSK	384	399	
100	33621	16 QAM	208	399	
101	33957	QPSK	384	399	
101	33957	16 QAM	208	399	
102	34293	QPSK	384	400	
102	34293	16 QAM	210	400	
103	34629	QPSK	384	401	
103	34629	16 QAM	210	401	
104	34965	QPSK	384	401	
104	34965	16 QAM	210	401	
105	35301	QPSK	384	402	
105	35301	16 QAM	217	402	
106	35637	QPSK	384	403	
106	35637	16 QAM	220	403	
107	35973	QPSK	384	403	
107	35973	16 QAM	220	403	
108	36309	QPSK	384	404	

108	36309	16 QAM	225	404	
109	36645	QPSK	384	404	
109	36645	16 QAM	225	404	

3GPP TS 34.123-1 version 10.3.1 Release 10

110	36981	QPSK	384	405	
110	36981	16 QAM	230	405	
111	37317	QPSK	384	405	
111	37317	16 QAM	230	405	
112	37653	QPSK	384	406	
112	37653	16 QAM	232	406	
113	37989	QPSK	384	406	
113	37989	16 QAM	232	406	
114	38325	QPSK	384	407	
114	38325	16 QAM	234	407	
115	38661	QPSK	384	408	
115	38661	16 QAM	240	408	
116	38997	QPSK	384	408	
116	38997	16 QAM	240	408	
117	39333	QPSK	384	409	
117	39333	16 QAM	243	409	
118	39669	QPSK	384	409	
118	39669	16 QAM	243	409	
119	40005	QPSK	384	410	
119	40005	16 QAM	248	410	
120	40341	QPSK	384	410	
120	40341	16 QAM	248	410	
121	40677	QPSK	384	411	
121	40677	16 QAM	253	411	
122	41013	QPSK	384	411	
122	41013	16 QAM	253	411	
123	41349	QPSK	384	412	
123	41349	16 QAM	256	412	
124	41685	QPSK	384	412	
124	41685	16 QAM	256	412	
125	42021	QPSK	384	413	
125	42021	16 QAM	261	413	
126	42357	QPSK	384	413	
126	42357	16 QAM	261	413	
127	42693	QPSK	384	414	
127	42693	16 QAM	264	414	
128	43029	QPSK	384	414	
128	43029	16 QAM	264	414	
129	43372	QPSK	384	415	
129	43372	16 QAM	270	415	
130	43708	QPSK	384	415	
130	43708	16 QAM	270	415	
131	44044	QPSK	384	416	
131	44044	16 QAM	270	416	
132	44380	QPSK	384	416	
132	44380	16 QAM	270	416	
133	44716	QPSK	384	417	
133	44716	16 QAM	276	417	
134	45052	QPSK	384	417	

134	45052	16 QAM	276	417	
135	45388	QPSK	384	418	
135	45388	16 QAM	280	418	

3GPP TS 34.123-1 version 10.3.1 Release 10

136	45724	QPSK	384	418	
136	45724	16 QAM	280	418	
137	46060	QPSK	384	419	
137	46060	16 QAM	286	419	
138	46396	QPSK	384	419	
138	46396	16 QAM	286	419	
139	46732	QPSK	384	419	
139	46732	16 QAM	286	419	
140	47068	QPSK	384	420	
140	47068	16 QAM	289	420	
141	47404	QPSK	384	420	
141	47404	16 QAM	289	420	
142	47740	QPSK	384	421	
142	47740	16 QAM	289	421	
143	48076	QPSK	384	421	
143	48076	16 QAM	289	421	
144	48412	QPSK	384	422	
144	48412	16 QAM	289	422	
145	48748	QPSK	384	422	
145	48748	16 QAM	289	422	
146	49084	QPSK	384	422	
146	49084	16 QAM	289	422	
147	49420	QPSK	384	423	
147	49420	16 QAM	289	423	
148	49756	QPSK	384	423	
148	49756	16 QAM	289	423	
149	50092	QPSK	384	424	
149	50092	16 QAM	289	424	
150	50428	QPSK	384	424	
150	50428	16 QAM	289	424	
151	50764	QPSK	384	425	
151	50764	16 QAM	289	425	
152	51100	QPSK	384	425	
152	51100	16 QAM	289	425	
153	51436	QPSK	384	425	
153	51436	16 QAM	289	425	
154	51772	QPSK	384	426	
154	51772	16 QAM	289	426	
155	52108	QPSK	384	426	
155	52108	16 QAM	289	426	
156	52444	QPSK	384	427	
156	52444	16 QAM	289	427	
157	52780	QPSK	384	427	
157	52780	16 QAM	289	427	
158	53116	QPSK	384	427	
158	53116	16 QAM	289	427	
159	53452	QPSK	384	428	
159	53452	16 QAM	289	428	
160	53788	QPSK	384	428	

160	53788	16 QAM	289	428	
161	54124	QPSK	384	429	
161	54124	16 QAM	289	429	

3GPP TS 34.123-1 version 10.3.1 Release 10

162	54460	QPSK	384	429	
162	54460	16 QAM	289	429	
163	54796	QPSK	384	429	
163	54796	16 QAM	289	429	
164	55132	QPSK	384	430	
164	55132	16 QAM	289	430	
165	55468	QPSK	384	430	
165	55468	16 QAM	289	430	
166	55804	QPSK	384	431	
166	55804	16 QAM	289	431	
167	56140	QPSK	384	431	
167	56140	16 QAM	289	431	
168	56476	QPSK	384	431	
168	56476	16 QAM	289	431	
169	56812	QPSK	384	432	
169	56812	16 QAM	289	432	
170	57148	QPSK	384	432	
170	57148	16 QAM	289	432	
171	57484	QPSK	384	432	
171	57484	16 QAM	289	432	
172	57820	QPSK	384	433	
172	57820	16 QAM	289	433	
173	58156	QPSK	384	433	
173	58156	16 QAM	289	433	
174	58492	QPSK	384	433	
174	58492	16 QAM	289	433	
175	58828	QPSK	384	434	
175	58828	16 QAM	289	434	
176	59164	QPSK	384	434	
176	59164	16 QAM	289	434	
177	59500	QPSK	384	435	
177	59500	16 QAM	289	435	
178	59836	QPSK	384	435	
178	59836	16 QAM	289	435	
179	60172	QPSK	384	435	
179	60172	16 QAM	289	435	
180	60508	QPSK	384	436	
180	60508	16 QAM	289	436	
181	60844	QPSK	384	436	
181	60844	16 QAM	289	436	
182	61180	QPSK	384	436	
182	61180	16 QAM	289	436	
183	61516	QPSK	384	437	
183	61516	16 QAM	289	437	
184	61852	QPSK	384	437	
184	61852	16 QAM	289	437	
185	62188	QPSK	384	437	
185	62188	16 QAM	289	437	
186	62524	QPSK	384	438	

186	62524	16 QAM	289	438	
187	62860	QPSK	384	438	
187	62860	16 QAM	289	438	

188	63196	QPSK	384	438	
188	63196	16 QAM	289	438	
189	63532	QPSK	384	439	
189	63532	16 QAM	289	439	
190	63868	QPSK	384	439	
190	63868	16 QAM	289	439	
191	64204	QPSK	384	439	
191	64204	16 QAM	289	439	
192	64540	QPSK	384	440	
192	64540	16 QAM	289	440	
193	64876	QPSK	384	440	
193	64876	16 QAM	289	440	
194	65212	QPSK	384	440	
194	65212	16 QAM	289	440	
195	65548	QPSK	384	441	
195	65548	16 QAM	289	441	
196	65884	QPSK	384	441	
196	65884	16 QAM	289	441	
197	66220	QPSK	384	441	
197	66220	16 QAM	289	441	
198	66556	QPSK	384	442	
198	66556	16 QAM	289	442	
199	66892	QPSK	384	442	
199	66892	16 QAM	289	442	
200	67228	QPSK	384	442	
200	67228	16 QAM	289	442	
201	67564	QPSK	384	442	
201	67564	16 QAM	289	442	
202	67900	QPSK	384	443	
202	67900	16 QAM	289	443	
203	68236	QPSK	384	443	
203	68236	16 QAM	289	443	
204	68572	QPSK	384	443	
204	68572	16 QAM	289	443	
205	68908	QPSK	384	444	
205	68908	16 QAM	289	444	
206	69244	QPSK	384	444	
206	69244	16 QAM	289	444	
207	69580	QPSK	384	444	
207	69580	16 QAM	289	444	
208	69916	QPSK	384	445	
208	69916	16 QAM	289	445	
209	70252	QPSK	384	445	
209	70252	16 QAM	289	445	
210	70588	QPSK	384	445	
210	70588	16 QAM	289	445	
211	70924	QPSK	384	445	
211	70924	16 QAM	289	445	
212	71260	QPSK	384	446	

212	71260	16 QAM	289	446	
213	71596	QPSK	384	446	
213	71596	16 QAM	289	446	

3GPP TS 34.123-1 version 10.3.1 Release 10

214	71932	QPSK	384	446	
214	71932	16 QAM	289	446	
215	72268	QPSK	384	448	
215	72268	16 QAM	289	447	
216	72604	QPSK	384	448	
216	72604	16 QAM	289	447	
217	72940	QPSK	384	448	
217	72940	16 QAM	289	447	
218	73276	QPSK	384	448	
218	73276	16 QAM	289	448	
219	73612	QPSK	384	448	
219	73612	16 QAM	289	448	
220	73948	QPSK	384	448	
220	73948	16 QAM	289	448	
221	74284	QPSK	384	448	
221	74284	16 QAM	289	448	
222	74620	QPSK	384	449	
222	74620	16 QAM	289	449	
223	74956	QPSK	384	449	
223	74956	16 QAM	289	449	
224	75292	QPSK	384	449	
224	75292	16 QAM	289	449	
225	75628	QPSK	384	449	
225	75628	16 QAM	289	449	
226	75964	QPSK	384	450	
226	75964	16 QAM	289	450	
227	76300	QPSK	384	450	
227	76300	16 QAM	289	450	
228	76636	QPSK	384	450	
228	76636	16 QAM	289	450	
229	76972	QPSK	384	451	
229	76972	16 QAM	289	451	
230	77308	QPSK	384	451	
230	77308	16 QAM	289	451	
231	77644	QPSK	384	451	
231	77644	16 QAM	289	451	
232	77980	QPSK	384	451	
232	77980	16 QAM	289	451	
233	78316	QPSK	384	452	
233	78316	16 QAM	289	452	
234	78652	QPSK	384	452	
234	78652	16 QAM	289	452	
235	78988	QPSK	384	452	
235	78988	16 QAM	289	452	
236	79324	QPSK	384	452	
236	79324	16 QAM	289	452	
237	79660	QPSK	384	453	
237	79660	16 QAM	289	453	
238	79996	QPSK	384	453	

238	79996	16 QAM	289	453	
239	80332	QPSK	384	453	
239	80332	16 QAM	289	453	

240	80668	QPSK	384	455	
240	80668	16 QAM	289	454	
241	81004	QPSK	384	455	
241	81004	16 QAM	289	454	
242	81340	QPSK	384	455	
242	81340	16 QAM	289	454	
243	81676	QPSK	384	455	
243	81676	16 QAM	289	454	
244	82012	QPSK	384	455	
244	82012	16 QAM	289	455	
245	82348	QPSK	384	455	
245	82348	16 QAM	289	455	
246	82684	QPSK	384	455	
246	82684	16 QAM	289	455	
247	83020	QPSK	384	455	
247	83020	16 QAM	289	455	
248	83356	QPSK	384	456	
248	83356	16 QAM	289	456	
249	83692	QPSK	384	456	
249	83692	16 QAM	289	456	
250	84028	QPSK	384	456	
250	84028	16 QAM	289	456	
251	84364	QPSK	384	456	
251	84364	16 QAM	289	456	
252	84700	QPSK	384	457	
252	84700	16 QAM	289	457	
253	85036	QPSK	384	457	
253	85036	16 QAM	289	457	
254	85372	QPSK	384	457	
254	85372	16 QAM	289	457	
255	85708	QPSK	384	457	
255	85708	16 QAM	289	457	
256	86044	QPSK	384	458	
256	86044	16 QAM	289	458	
257	86387	QPSK	384	458	
257	86387	16 QAM	289	458	
258	86723	QPSK	384	458	
258	86723	16 QAM	289	458	
259	87059	QPSK	384	458	
259	87059	16 QAM	289	458	
260	87395	QPSK	384	459	
260	87395	16 QAM	289	459	
261	87731	QPSK	384	459	
261	87731	16 QAM	289	459	
262	88067	QPSK	384	459	
262	88067	16 QAM	289	459	
263	88403	QPSK	384	459	
263	88403	16 QAM	289	459	
264	88739	QPSK	384	459	

264	88739	16 QAM	289	459	
265	89075	QPSK	384	460	
265	89075	16 QAM	289	460	

266	89411	QPSK	384	460	
266	89411	16 QAM	289	460	
267	89747	QPSK	384	460	
267	89747	16 QAM	289	460	
268	90083	QPSK	384	460	
268	90083	16 QAM	289	460	
269	90419	QPSK	384	461	
269	90419	16 QAM	289	461	
270	90755	QPSK	384	461	
270	90755	16 QAM	289	461	
271	91091	QPSK	384	461	
271	91091	16 QAM	289	461	
272	91427	QPSK	384	461	
272	91427	16 QAM	289	461	
273	91763	QPSK	384	462	
273	91763	16 QAM	289	462	
274	92099	QPSK	384	462	
274	92099	16 QAM	289	462	
275	92435	QPSK	384	462	
275	92435	16 QAM	289	462	
276	92771	QPSK	384	462	
276	92771	16 QAM	289	462	
277	93107	QPSK	384	462	
277	93107	16 QAM	289	462	
278	93443	16 QAM	289	463	
279	93779	16 QAM	289	463	
280	94115	16 QAM	289	463	
281	94451	16 QAM	289	463	
282	94787	16 QAM	289	464	
283	95123	16 QAM	289	464	
284	95459	16 QAM	289	464	
285	95795	16 QAM	289	464	
286	96131	16 QAM	289	464	
287	96467	16 QAM	289	465	
288	96803	16 QAM	289	465	
289	97139	16 QAM	289	465	
290	97475	16 QAM	289	465	
291	97811	16 QAM	289	466	
292	98147	16 QAM	289	466	
293	98483	16 QAM	289	466	
294	98819	16 QAM	289	466	
295	99155	16 QAM	289	466	
296	99491	16 QAM	289	467	
297	99827	16 QAM	289	467	
298	100163	16 QAM	289	467	
299	100499	16 QAM	289	467	
300	100835	16 QAM	289	467	
301	101171	16 QAM	289	468	
302	101507	16 QAM	289	468	

303	101843	16 QAM	289	468	
304	102179	16 QAM	289	468	
305	102515	16 QAM	289	468	

306	102851	16 QAM	289	469	
307	103187	16 QAM	289	469	
308	103523	16 QAM	289	469	
309	103859	16 QAM	289	469	
310	104195	16 QAM	289	469	
311	104531	16 QAM	289	470	
312	104867	16 QAM	289	470	
313	105203	16 QAM	289	470	
314	105539	16 QAM	289	470	
315	105875	16 QAM	289	470	

Table 18.3.1.4.3.10: TFRC test points for UE category 13 for MAC-d PDU size=336, 7.68Mcps TDD

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	357	QPSK	4	115	
1	357	16 QAM	2	115	
2	693	QPSK	8	156	
2	693	16 QAM	4	156	
3	1029	QPSK	12	181	
3	1029	16 QAM	6	181	
4	1365	QPSK	16	199	
4	1365	16 QAM	8	199	
5	1701	QPSK	21	213	
5	1701	16 QAM	10	213	
6	2037	QPSK	25	224	
6	2037	16 QAM	12	224	
7	2373	QPSK	29	233	
7	2373	16 QAM	14	233	
8	2709	QPSK	33	242	
8	2709	16 QAM	16	242	
9	3045	QPSK	36	249	
9	3045	16 QAM	18	249	
10	3381	QPSK	40	255	
10	3381	16 QAM	20	255	
11	3717	QPSK	45	261	
11	3717	16 QAM	22	261	
12	4053	QPSK	50	267	
12	4053	16 QAM	25	267	
13	4389	QPSK	54	272	
13	4389	16 QAM	27	272	
14	4725	QPSK	58	276	
14	4725	16 QAM	29	276	
15	5061	QPSK	63	281	
15	5061	16 QAM	31	281	
16	5397	QPSK	66	285	
16	5397	16 QAM	33	285	

17	5733	QPSK	70	288	
17	5733	16 QAM	35	288	
18	6069	QPSK	75	292	

3GPP TS 34.123-1 version 10.3.1 Release 10

18	6069	16 QAM	36	292	
19	6405	QPSK	78	295	
19	6405	16 QAM	39	295	
20	6741	QPSK	84	299	
20	6741	16 QAM	42	299	
21	7077	QPSK	88	302	
21	7077	16 QAM	44	302	
22	7413	QPSK	91	304	
22	7413	16 QAM	45	304	
23	7749	QPSK	95	307	
23	7749	16 QAM	46	307	
24	8085	QPSK	100	310	
24	8085	16 QAM	50	310	
25	8421	QPSK	102	312	
25	8421	16 QAM	51	312	
26	8757	QPSK	108	315	
26	8757	16 QAM	54	315	
27	9093	QPSK	112	317	
27	9093	16 QAM	56	317	
28	9429	QPSK	116	319	
28	9429	16 QAM	58	319	
29	9765	QPSK	121	322	
29	9765	16 QAM	60	322	
30	10101	QPSK	125	324	
30	10101	16 QAM	62	324	
31	10437	QPSK	128	326	
31	10437	16 QAM	64	326	
32	10773	QPSK	133	328	
32	10773	16 QAM	66	328	
33	11109	QPSK	138	330	
33	11109	16 QAM	69	330	
34	11445	QPSK	140	332	
34	11445	16 QAM	70	332	
35	11781	QPSK	145	333	
35	11781	16 QAM	72	333	
36	12117	QPSK	147	335	
36	12117	16 QAM	72	335	
37	12453	QPSK	154	337	
37	12453	16 QAM	77	337	
38	12789	QPSK	156	339	
38	12789	16 QAM	78	339	
39	13125	QPSK	162	340	
39	13125	16 QAM	81	340	
40	13461	QPSK	165	342	
40	13461	16 QAM	81	342	
41	13797	QPSK	170	343	
41	13797	16 QAM	85	343	
42	14133	QPSK	176	345	
42	14133	16 QAM	88	345	

43	14469	QPSK	176	346	
43	14469	16 QAM	88	346	
44	14805	QPSK	184	348	

3GPP TS 34.123-1 version 10.3.1 Release 10

44	14805	16 QAM	92	348	
45	15141	QPSK	187	349	
45	15141	16 QAM	93	349	
46	15477	QPSK	190	350	
46	15477	16 QAM	95	350	
47	15813	QPSK	196	352	
47	15813	16 QAM	98	352	
48	16149	QPSK	200	353	
48	16149	16 QAM	100	353	
49	16485	QPSK	203	354	
49	16485	16 QAM	100	354	
50	16821	QPSK	209	356	
50	16821	16 QAM	104	356	
51	17157	QPSK	210	357	
51	17157	16 QAM	105	357	
52	17493	QPSK	216	358	
52	17493	16 QAM	108	358	
53	17829	QPSK	220	359	
53	17829	16 QAM	110	359	
54	18165	QPSK	220	360	
54	18165	16 QAM	110	360	
55	18501	QPSK	231	362	
55	18501	16 QAM	115	362	
56	18837	QPSK	234	363	
56	18837	16 QAM	117	363	
57	19173	QPSK	234	364	
57	19173	16 QAM	119	364	
58	19509	QPSK	242	365	
58	19509	16 QAM	121	365	
59	19845	QPSK	243	366	
59	19845	16 QAM	121	366	
60	20181	QPSK	250	367	
60	20181	16 QAM	125	367	
61	20517	QPSK	253	368	
61	20517	16 QAM	126	368	
62	20853	QPSK	256	369	
62	20853	16 QAM	128	369	
63	21189	QPSK	261	370	
63	21189	16 QAM	130	370	
64	21525	QPSK	264	371	
64	21525	16 QAM	133	371	
65	21861	QPSK	270	372	
65	21861	16 QAM	135	372	
66	22197	QPSK	275	373	
66	22197	16 QAM	136	373	
67	22533	QPSK	280	374	
67	22533	16 QAM	140	374	
68	22869	QPSK	280	375	
68	22869	16 QAM	140	375	

69	23205	QPSK	288	376	
69	23205	16 QAM	144	376	
70	23541	QPSK	290	377	

70	23541	16 QAM	145	377	
71	23877	QPSK	297	378	
71	23877	16 QAM	147	378	
72	24213	QPSK	297	378	
72	24213	16 QAM	147	378	
73	24549	QPSK	300	379	
73	24549	16 QAM	150	379	
74	24885	QPSK	308	380	
74	24885	16 QAM	154	380	
75	25221	QPSK	312	381	
75	25221	16 QAM	156	381	
76	25557	QPSK	312	382	
76	25557	16 QAM	156	382	
77	25893	QPSK	320	383	
77	25893	16 QAM	161	383	
78	26229	QPSK	320	383	
78	26229	16 QAM	161	383	
79	26565	QPSK	324	384	
79	26565	16 QAM	162	384	
80	26901	QPSK	330	385	
80	26901	16 QAM	165	385	
81	27237	QPSK	336	386	
81	27237	16 QAM	168	386	
82	27573	QPSK	336	386	
82	27573	16 QAM	168	386	
83	27909	QPSK	341	387	
83	27909	16 QAM	171	387	
84	28245	QPSK	348	388	
84	28245	16 QAM	175	388	
85	28581	QPSK	352	389	
85	28581	16 QAM	176	389	
86	28917	QPSK	352	389	
86	28917	16 QAM	176	389	
87	29253	QPSK	360	390	
87	29253	16 QAM	180	390	
88	29589	QPSK	360	391	
88	29589	16 QAM	182	391	
89	29925	QPSK	372	392	
89	29925	16 QAM	186	392	
90	30261	QPSK	372	392	
90	30261	16 QAM	186	392	
91	30597	QPSK	372	393	
91	30597	16 QAM	189	393	
92	30933	QPSK	384	394	
92	30933	16 QAM	192	394	
93	31269	QPSK	384	394	
93	31269	16 QAM	192	394	
94	31605	QPSK	384	395	
94	31605	16 QAM	196	395	

95	31941	QPSK	384	396	
95	31941	16 QAM	198	396	
96	32277	QPSK	384	396	

3GPP TS 34.123-1 version 10.3.1 Release 10

96	32277	16 QAM	198	396	
97	32613	QPSK	384	397	
97	32613	16 QAM	200	397	
98	32949	QPSK	384	398	
98	32949	16 QAM	204	398	
99	33285	QPSK	384	398	
99	33285	16 QAM	204	398	
100	33621	QPSK	384	399	
100	33621	16 QAM	208	399	
101	33957	QPSK	384	399	
101	33957	16 QAM	208	399	
102	34293	QPSK	384	400	
102	34293	16 QAM	210	400	
103	34629	QPSK	384	401	
103	34629	16 QAM	210	401	
104	34965	QPSK	384	401	
104	34965	16 QAM	210	401	
105	35301	QPSK	384	402	
105	35301	16 QAM	217	402	
106	35637	QPSK	384	403	
106	35637	16 QAM	220	403	
107	35973	QPSK	384	403	
107	35973	16 QAM	220	403	
108	36309	QPSK	384	404	
108	36309	16 QAM	225	404	
109	36645	QPSK	384	404	
109	36645	16 QAM	225	404	
110	36981	QPSK	384	405	
110	36981	16 QAM	230	405	
111	37317	QPSK	384	405	
111	37317	16 QAM	230	405	
112	37653	QPSK	384	406	
112	37653	16 QAM	232	406	
113	37989	QPSK	384	406	
113	37989	16 QAM	232	406	
114	38325	QPSK	384	407	
114	38325	16 QAM	234	407	
115	38661	QPSK	384	408	
115	38661	16 QAM	240	408	
116	38997	QPSK	384	408	
116	38997	16 QAM	240	408	
117	39333	QPSK	384	409	
117	39333	16 QAM	243	409	
118	39669	QPSK	384	409	
118	39669	16 QAM	243	409	
119	40005	QPSK	384	410	
119	40005	16 QAM	248	410	
120	40341	QPSK	384	410	
120	40341	16 QAM	248	410	

121	40677	QPSK	384	411	
121	40677	16 QAM	253	411	
122	41013	QPSK	384	411	

3GPP TS 34.123-1 version 10.3.1 Release 10

122	41013	16 QAM	253	411	
123	41349	QPSK	384	412	
123	41349	16 QAM	256	412	
124	41685	QPSK	384	412	
124	41685	16 QAM	256	412	
125	42021	QPSK	384	413	
125	42021	16 QAM	261	413	
126	42357	QPSK	384	413	
126	42357	16 QAM	261	413	
127	42693	QPSK	384	414	
127	42693	16 QAM	264	414	
128	43029	QPSK	384	414	
128	43029	16 QAM	264	414	
129	43372	QPSK	384	415	
129	43372	16 QAM	270	415	
130	43708	QPSK	384	415	
130	43708	16 QAM	270	415	
131	44044	QPSK	384	416	
131	44044	16 QAM	270	416	
132	44380	QPSK	384	416	
132	44380	16 QAM	270	416	
133	44716	QPSK	384	417	
133	44716	16 QAM	276	417	
134	45052	QPSK	384	417	
134	45052	16 QAM	276	417	
135	45388	QPSK	384	418	
135	45388	16 QAM	280	418	
136	45724	QPSK	384	418	
136	45724	16 QAM	280	418	
137	46060	QPSK	384	419	
137	46060	16 QAM	286	419	
138	46396	QPSK	384	419	
138	46396	16 QAM	286	419	
139	46732	QPSK	384	419	
139	46732	16 QAM	286	419	
140	47068	QPSK	384	420	
140	47068	16 QAM	290	420	
141	47404	QPSK	384	420	
141	47404	16 QAM	290	420	
142	47740	QPSK	384	421	
142	47740	16 QAM	297	421	
143	48076	QPSK	384	421	
143	48076	16 QAM	297	421	
144	48412	QPSK	384	422	
144	48412	16 QAM	300	422	
145	48748	QPSK	384	422	
145	48748	16 QAM	300	422	
146	49084	QPSK	384	422	
146	49084	16 QAM	300	422	

147	49420	QPSK	384	423	
147	49420	16 QAM	300	423	
148	49756	QPSK	384	423	

3GPP TS 34.123-1 version 10.3.1 Release 10

148	49756	16 QAM	300	423	
149	50092	QPSK	384	424	
149	50092	16 QAM	310	424	
150	50428	QPSK	384	424	
150	50428	16 QAM	310	424	
151	50764	QPSK	384	425	
151	50764	16 QAM	312	425	
152	51100	QPSK	384	425	
152	51100	16 QAM	312	425	
153	51436	QPSK	384	425	
153	51436	16 QAM	312	425	
154	51772	QPSK	384	426	
154	51772	16 QAM	320	426	
155	52108	QPSK	384	426	
155	52108	16 QAM	320	426	
156	52444	QPSK	384	427	
156	52444	16 QAM	324	427	
157	52780	QPSK	384	427	
157	52780	16 QAM	324	427	
158	53116	QPSK	384	427	
158	53116	16 QAM	324	427	
159	53452	QPSK	384	428	
159	53452	16 QAM	330	428	
160	53788	QPSK	384	428	
160	53788	16 QAM	330	428	
161	54124	QPSK	384	429	
161	54124	16 QAM	336	429	
162	54460	QPSK	384	429	
162	54460	16 QAM	336	429	
163	54796	QPSK	384	429	
163	54796	16 QAM	336	429	
164	55132	QPSK	384	430	
164	55132	16 QAM	341	430	
165	55468	QPSK	384	430	
165	55468	16 QAM	341	430	
166	55804	QPSK	384	431	
166	55804	16 QAM	348	431	
167	56140	QPSK	384	431	
167	56140	16 QAM	348	431	
168	56476	QPSK	384	431	
168	56476	16 QAM	348	431	
169	56812	QPSK	384	432	
169	56812	16 QAM	352	432	
170	57148	QPSK	384	432	
170	57148	16 QAM	352	432	
171	57484	QPSK	384	432	
171	57484	16 QAM	352	432	
172	57820	QPSK	384	433	
172	57820	16 QAM	360	433	

173	58156	QPSK	384	433	
173	58156	16 QAM	360	433	
174	58492	QPSK	384	433	

174	58492	16 QAM	360	433	
175	58828	QPSK	384	434	
175	58828	16 QAM	360	434	
176	59164	QPSK	384	434	
176	59164	16 QAM	360	434	
177	59500	QPSK	384	435	
177	59500	16 QAM	360	435	
178	59836	QPSK	384	435	
178	59836	16 QAM	360	435	
179	60172	QPSK	384	435	
179	60172	16 QAM	360	435	
180	60508	QPSK	384	436	
180	60508	16 QAM	372	436	
181	60844	QPSK	384	436	
181	60844	16 QAM	372	436	
182	61180	QPSK	384	436	
182	61180	16 QAM	372	436	
183	61516	QPSK	384	437	
183	61516	16 QAM	384	437	
184	61852	QPSK	384	437	
184	61852	16 QAM	384	437	
185	62188	QPSK	384	437	
185	62188	16 QAM	384	437	
186	62524	QPSK	384	438	
186	62524	16 QAM	384	438	
187	62860	QPSK	384	438	
187	62860	16 QAM	384	438	
188	63196	QPSK	384	438	
188	63196	16 QAM	384	438	
189	63532	QPSK	384	439	
189	63532	16 QAM	384	439	
190	63868	QPSK	384	439	
190	63868	16 QAM	384	439	
191	64204	QPSK	384	439	
191	64204	16 QAM	384	439	
192	64540	QPSK	384	440	
192	64540	16 QAM	384	440	
193	64876	QPSK	384	440	
193	64876	16 QAM	384	440	
194	65212	QPSK	384	440	
194	65212	16 QAM	384	440	
195	65548	QPSK	384	441	
195	65548	16 QAM	384	441	
196	65884	QPSK	384	441	
196	65884	16 QAM	384	441	
197	66220	QPSK	384	441	
197	66220	16 QAM	384	441	
198	66556	QPSK	384	442	
198	66556	16 QAM	384	442	

199	66892	QPSK	384	442	
199	66892	16 QAM	384	442	
200	67228	QPSK	384	442	

200	67228	16 QAM	384	442	
201	67564	QPSK	384	442	
201	67564	16 QAM	384	442	
202	67900	QPSK	384	443	
202	67900	16 QAM	384	443	
203	68236	QPSK	384	443	
203	68236	16 QAM	384	443	
204	68572	QPSK	384	443	
204	68572	16 QAM	384	443	
205	68908	QPSK	384	444	
205	68908	16 QAM	384	444	
206	69244	QPSK	384	444	
206	69244	16 QAM	384	444	
207	69580	QPSK	384	444	
207	69580	16 QAM	384	444	
208	69916	QPSK	384	445	
208	69916	16 QAM	384	445	
209	70252	QPSK	384	445	
209	70252	16 QAM	384	445	
210	70588	QPSK	384	445	
210	70588	16 QAM	384	445	
211	70924	QPSK	384	445	
211	70924	16 QAM	384	445	
212	71260	QPSK	384	446	
212	71260	16 QAM	384	446	
213	71596	QPSK	384	446	
213	71596	16 QAM	384	446	
214	71932	QPSK	384	446	
214	71932	16 QAM	384	446	
215	72268	QPSK	384	448	
215	72268	16 QAM	384	447	
216	72604	QPSK	384	448	
216	72604	16 QAM	384	447	
217	72940	QPSK	384	448	
217	72940	16 QAM	384	447	
218	73276	QPSK	384	448	
218	73276	16 QAM	384	448	
219	73612	QPSK	384	448	
219	73612	16 QAM	384	448	
220	73948	QPSK	384	448	
220	73948	16 QAM	384	448	
221	74284	QPSK	384	448	
221	74284	16 QAM	384	448	
222	74620	QPSK	384	449	
222	74620	16 QAM	384	449	
223	74956	QPSK	384	449	
223	74956	16 QAM	384	449	
224	75292	QPSK	384	449	
224	75292	16 QAM	384	449	

225	75628	QPSK	384	449	
225	75628	16 QAM	384	449	
226	75964	QPSK	384	450	

226	75964	16 QAM	384	450	
227	76300	QPSK	384	450	
227	76300	16 QAM	384	450	
228	76636	QPSK	384	450	
228	76636	16 QAM	384	450	
229	76972	QPSK	384	451	
229	76972	16 QAM	384	451	
230	77308	QPSK	384	451	
230	77308	16 QAM	384	451	
231	77644	QPSK	384	451	
231	77644	16 QAM	384	451	
232	77980	QPSK	384	451	
232	77980	16 QAM	384	451	
233	78316	QPSK	384	452	
233	78316	16 QAM	384	452	
234	78652	QPSK	384	452	
234	78652	16 QAM	384	452	
235	78988	QPSK	384	452	
235	78988	16 QAM	384	452	
236	79324	QPSK	384	452	
236	79324	16 QAM	384	452	
237	79660	QPSK	384	453	
237	79660	16 QAM	384	453	
238	79996	QPSK	384	453	
238	79996	16 QAM	384	453	
239	80332	QPSK	384	453	
239	80332	16 QAM	384	453	
240	80668	QPSK	384	455	
240	80668	16 QAM	384	454	
241	81004	QPSK	384	455	
241	81004	16 QAM	384	454	
242	81340	QPSK	384	455	
242	81340	16 QAM	384	454	
243	81676	QPSK	384	455	
243	81676	16 QAM	384	454	
244	82012	QPSK	384	455	
244	82012	16 QAM	384	455	
245	82348	QPSK	384	455	
245	82348	16 QAM	384	455	
246	82684	QPSK	384	455	
246	82684	16 QAM	384	455	
247	83020	QPSK	384	455	
247	83020	16 QAM	384	455	
248	83356	QPSK	384	456	
248	83356	16 QAM	384	456	
249	83692	QPSK	384	456	
249	83692	16 QAM	384	456	
250	84028	QPSK	384	456	
250	84028	16 QAM	384	456	

251	84364	QPSK	384	456	
251	84364	16 QAM	384	456	
252	84700	QPSK	384	457	

252	84700	16 QAM	384	457	
253	85036	QPSK	384	457	
253	85036	16 QAM	384	457	
254	85372	QPSK	384	457	
254	85372	16 QAM	384	457	
255	85708	QPSK	384	457	
255	85708	16 QAM	384	457	
256	86044	QPSK	384	458	
256	86044	16 QAM	384	458	
257	86387	QPSK	384	458	
257	86387	16 QAM	384	458	
258	86723	QPSK	384	458	
258	86723	16 QAM	384	458	
259	87059	QPSK	384	458	
259	87059	16 QAM	384	458	
260	87395	QPSK	384	459	
260	87395	16 QAM	384	459	
261	87731	QPSK	384	459	
261	87731	16 QAM	384	459	
262	88067	QPSK	384	459	
262	88067	16 QAM	384	459	
263	88403	QPSK	384	459	
263	88403	16 QAM	384	459	
264	88739	QPSK	384	459	
264	88739	16 QAM	384	459	
265	89075	QPSK	384	460	
265	89075	16 QAM	384	460	
266	89411	QPSK	384	460	
266	89411	16 QAM	384	460	
267	89747	QPSK	384	460	
267	89747	16 QAM	384	460	
268	90083	QPSK	384	460	
268	90083	16 QAM	384	460	
269	90419	QPSK	384	461	
269	90419	16 QAM	384	461	
270	90755	QPSK	384	461	
270	90755	16 QAM	384	461	
271	91091	QPSK	384	461	
271	91091	16 QAM	384	461	
272	91427	QPSK	384	461	
272	91427	16 QAM	384	461	
273	91763	QPSK	384	462	
273	91763	16 QAM	384	462	
274	92099	QPSK	384	462	
274	92099	16 QAM	384	462	
275	92435	QPSK	384	462	
275	92435	16 QAM	384	462	
276	92771	QPSK	384	462	
276	92771	16 QAM	384	462	

277	93107	QPSK	384	462	
277	93107	16 QAM	384	462	
278	93443	16 QAM	384	463	

279	93779	16 QAM	384	463	
280	94115	16 QAM	384	463	
281	94451	16 QAM	384	463	
282	94787	16 QAM	384	464	
283	95123	16 QAM	384	464	
284	95459	16 QAM	384	464	
285	95795	16 QAM	384	464	
286	96131	16 QAM	384	464	
287	96467	16 QAM	384	465	
288	96803	16 QAM	384	465	
289	97139	16 QAM	384	465	
290	97475	16 QAM	384	465	
291	97811	16 QAM	384	466	
292	98147	16 QAM	384	466	
293	98483	16 QAM	384	466	
294	98819	16 QAM	384	466	
295	99155	16 QAM	384	466	
296	99491	16 QAM	384	467	
297	99827	16 QAM	384	467	
298	100163	16 QAM	384	467	
299	100499	16 QAM	384	467	
300	100835	16 QAM	384	467	
301	101171	16 QAM	384	468	
302	101507	16 QAM	384	468	
303	101843	16 QAM	384	468	
304	102179	16 QAM	384	468	
305	102515	16 QAM	384	468	
306	102851	16 QAM	384	469	
307	103187	16 QAM	384	469	
308	103523	16 QAM	384	469	
309	103859	16 QAM	384	469	
310	104195	16 QAM	384	469	
311	104531	16 QAM	384	470	
312	104867	16 QAM	384	470	
313	105203	16 QAM	384	470	
314	105539	16 QAM	384	470	
315	105875	16 QAM	384	470	
316	106211	16 QAM	384	471	
317	106547	16 QAM	384	471	
318	106883	16 QAM	384	471	
319	107219	16 QAM	384	471	
320	107555	16 QAM	384	471	
321	107891	16 QAM	384	472	
322	108227	16 QAM	384	472	
323	108563	16 QAM	384	472	
324	108899	16 QAM	384	472	
325	109235	16 QAM	384	472	
326	109571	16 QAM	384	473	
327	109907	16 QAM	384	473	

328	110243	16 QAM	384	473	
329	110579	16 QAM	384	473	
330	110915	16 QAM	384	473	

3GPP TS 34.123-1 version 10.3.1 Release 10

331	111251	16 QAM	384	474	
332	111587	16 QAM	384	474	
333	111923	16 QAM	384	474	
334	112259	16 QAM	384	474	
335	112595	16 QAM	384	474	
336	112931	16 QAM	384	475	
337	113267	16 QAM	384	475	
338	113603	16 QAM	384	475	
339	113939	16 QAM	384	475	
340	114275	16 QAM	384	475	
341	114611	16 QAM	384	475	
342	114947	16 QAM	384	476	
343	115283	16 QAM	384	476	
344	115619	16 QAM	384	476	
345	115955	16 QAM	384	476	
346	116291	16 QAM	384	476	
347	116627	16 QAM	384	477	
348	116963	16 QAM	384	477	
349	117299	16 QAM	384	477	
350	117635	16 QAM	384	477	
351	117971	16 QAM	384	477	
352	118307	16 QAM	384	477	
353	118643	16 QAM	384	478	
354	118979	16 QAM	384	478	
355	119315	16 QAM	384	478	
356	119651	16 QAM	384	478	
357	119987	16 QAM	384	478	
358	120323	16 QAM	384	478	
359	120659	16 QAM	384	479	
360	120995	16 QAM	384	479	
361	121331	16 QAM	384	479	
362	121667	16 QAM	384	479	
363	122003	16 QAM	384	479	
364	122339	16 QAM	384	480	
365	122675	16 QAM	384	480	
366	123011	16 QAM	384	480	
367	123347	16 QAM	384	480	
368	123683	16 QAM	384	480	
369	124019	16 QAM	384	480	
370	124355	16 QAM	384	481	
371	124691	16 QAM	384	481	
372	125027	16 QAM	384	481	
373	125363	16 QAM	384	481	
374	125699	16 QAM	384	481	
375	126035	16 QAM	384	481	
376	126371	16 QAM	384	482	
377	126707	16 QAM	384	482	
378	127043	16 QAM	384	482	
379	127379	16 QAM	384	482	

380	127715	16 QAM	384	482	
381	128051	16 QAM	384	482	
382	128387	16 QAM	384	483	

3GPP TS 34.123-1 version 10.3.1 Release 10

383	128723	16 QAM	384	483	
384	129059	16 QAM	384	483	
385	129402	16 QAM	384	483	
386	129738	16 QAM	384	483	
387	130074	16 QAM	384	483	
388	130410	16 QAM	384	484	
389	130746	16 QAM	384	484	
390	131082	16 QAM	384	484	
391	131418	16 QAM	384	484	
392	131754	16 QAM	384	484	
393	132090	16 QAM	384	484	
394	132426	16 QAM	384	484	
395	132762	16 QAM	384	485	
396	133098	16 QAM	384	485	
397	133434	16 QAM	384	485	
398	133770	16 QAM	384	485	
399	134106	16 QAM	384	485	
400	134442	16 QAM	384	485	
401	134778	16 QAM	384	486	
402	135114	16 QAM	384	486	
403	135450	16 QAM	384	486	
404	135786	16 QAM	384	486	
405	136122	16 QAM	384	486	
406	136458	16 QAM	384	486	
407	136794	16 QAM	384	486	
408	137130	16 QAM	384	487	
409	137466	16 QAM	384	487	
410	137802	16 QAM	384	487	
411	138138	16 QAM	384	487	
412	138474	16 QAM	384	487	
413	138810	16 QAM	384	487	
414	139146	16 QAM	384	488	
415	139482	16 QAM	384	488	
416	139818	16 QAM	384	488	
417	140154	16 QAM	384	488	
418	140490	16 QAM	384	488	
419	140826	16 QAM	384	488	
420	141162	16 QAM	384	488	
421	141498	16 QAM	384	489	
422	141834	16 QAM	384	489	
423	142170	16 QAM	384	489	
424	142506	16 QAM	384	489	
425	142842	16 QAM	384	489	
426	143178	16 QAM	384	489	
427	143514	16 QAM	384	489	
428	143850	16 QAM	384	491	
429	144186	16 QAM	384	491	
430	144522	16 QAM	384	491	
431	144858	16 QAM	384	491	

432	145194	16 QAM	384	491	
433	145530	16 QAM	384	491	
434	145866	16 QAM	384	491	

435	146202	16 QAM	384	491	
436	146538	16 QAM	384	491	
437	146874	16 QAM	384	491	
438	147210	16 QAM	384	491	
439	147546	16 QAM	384	491	
440	147882	16 QAM	384	491	
441	148218	16 QAM	384	492	
442	148554	16 QAM	384	492	
443	148890	16 QAM	384	492	
444	149226	16 QAM	384	492	
445	149562	16 QAM	384	492	
446	149898	16 QAM	384	492	
447	150234	16 QAM	384	492	
448	150570	16 QAM	384	492	
449	150906	16 QAM	384	493	
450	151242	16 QAM	384	493	
451	151578	16 QAM	384	493	
452	151914	16 QAM	384	493	
453	152250	16 QAM	384	493	
454	152586	16 QAM	384	493	
455	152922	16 QAM	384	493	
456	153258	16 QAM	384	494	
457	153594	16 QAM	384	494	
458	153930	16 QAM	384	494	
459	154266	16 QAM	384	494	
460	154602	16 QAM	384	494	
461	154938	16 QAM	384	494	
462	155274	16 QAM	384	494	
463	155610	16 QAM	384	495	
464	155946	16 QAM	384	495	
465	156282	16 QAM	384	495	
466	156618	16 QAM	384	495	
467	156954	16 QAM	384	495	
468	157290	16 QAM	384	495	
469	157626	16 QAM	384	495	
470	157962	16 QAM	384	495	
471	158298	16 QAM	384	496	
472	158634	16 QAM	384	496	
473	158970	16 QAM	384	496	
474	159306	16 QAM	384	496	
475	159642	16 QAM	384	496	
476	159978	16 QAM	384	496	
477	160314	16 QAM	384	496	
478	160650	16 QAM	384	497	
479	160986	16 QAM	384	497	
480	161322	16 QAM	384	497	
481	161658	16 QAM	384	497	
482	161994	16 QAM	384	497	
483	162330	16 QAM	384	497	

484	162666	16 QAM	384	497	
485	163002	16 QAM	384	497	
486	163338	16 QAM	384	498	

487	163674	16 QAM	384	498	
488	164010	16 QAM	384	498	
489	164346	16 QAM	384	498	
490	164682	16 QAM	384	498	
491	165018	16 QAM	384	498	
492	165354	16 QAM	384	498	
493	165690	16 QAM	384	498	
494	166026	16 QAM	384	499	
495	166362	16 QAM	384	499	
496	166698	16 QAM	384	499	
497	167034	16 QAM	384	499	
498	167370	16 QAM	384	499	
499	167706	16 QAM	384	499	
500	168042	16 QAM	384	499	
501	168378	16 QAM	384	499	
502	168714	16 QAM	384	501	
503	169050	16 QAM	384	501	
504	169386	16 QAM	384	501	
505	169722	16 QAM	384	501	
506	170058	16 QAM	384	501	
507	170394	16 QAM	384	501	
508	170730	16 QAM	384	501	
509	171066	16 QAM	384	501	
510	171402	16 QAM	384	501	
511	171738	16 QAM	384	501	
512	172074	16 QAM	384	501	
513	172417	16 QAM	384	501	
514	172753	16 QAM	384	501	
515	173089	16 QAM	384	501	
516	173425	16 QAM	384	501	
517	173761	16 QAM	384	501	
518	174097	16 QAM	384	502	
519	174433	16 QAM	384	502	
520	174769	16 QAM	384	502	
521	175105	16 QAM	384	502	
522	175441	16 QAM	384	502	
523	175777	16 QAM	384	502	
524	176113	16 QAM	384	502	
525	176449	16 QAM	384	502	
526	176785	16 QAM	384	503	
527	177121	16 QAM	384	503	
528	177457	16 QAM	384	503	
529	177793	16 QAM	384	503	
530	178129	16 QAM	384	503	
531	178465	16 QAM	384	503	
532	178801	16 QAM	384	503	
533	179137	16 QAM	384	503	
534	179473	16 QAM	384	503	
535	179809	16 QAM	384	504	

536	180145	16 QAM	384	504	
537	180481	16 QAM	384	504	
538	180817	16 QAM	384	504	

539	181153	16 QAM	384	504	
540	181489	16 QAM	384	504	
541	181825	16 QAM	384	504	
542	182161	16 QAM	384	504	
543	182497	16 QAM	384	504	
544	182833	16 QAM	384	505	
545	183169	16 QAM	384	505	
546	183505	16 QAM	384	505	
547	183841	16 QAM	384	505	
548	184177	16 QAM	384	505	
549	184513	16 QAM	384	505	
550	184849	16 QAM	384	505	
551	185185	16 QAM	384	505	

18.3.1.4.4 TFRC test points for MAC-d PDU size=656

3GPP TS 34.123-1 version 10.3.1 Release 10

Table 18.3.1.4.4.1: TFRC test points for UE category 1 for MAC-d PDU size=656, 7.68Mcps TDD

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	677	QPSK	8	155	
1	677	16 QAM	4	155	
2	1333	QPSK	16	197	
2	1333	16 QAM	8	197	
3	1989	QPSK	24	222	
3	1989	16 QAM	12	222	
4	2645	QPSK	32	240	
4	2645	16 QAM	16	240	
5	3301	QPSK	32	254	
5	3301	16 QAM	20	254	
6	3957	QPSK	32	265	
6	3957	16 QAM	24	265	
7	4613	QPSK	32	275	
7	4613	16 QAM	28	275	
8	5269	QPSK	32	283	
8	5269	16 QAM	32	283	
9	5925	QPSK	32	290	
9	5925	16 QAM	32	290	
10	6581	QPSK	32	297	
10	6581	16 QAM	32	297	
11	7237	QPSK	32	303	
11	7237	16 QAM	32	303	
12	7893	16 QAM	32	308	
13	8549	16 QAM	32	313	
14	9205	16 QAM	32	318	
15	9861	16 QAM	32	322	
16	10517	16 QAM	32	326	
17	11173	16 QAM	32	330	
18	11829	16 QAM	32	334	

Table 18.3.1.4.4.2: TFRC test points for UE category 2 for MAC-d PDU size=656, 7.68Mcps TDD

3GPP TS 34.123-1 version 10.3.1 Release 10

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	677	QPSK	8	155	
1	677	16 QAM	4	155	
2	1333	QPSK	16	197	
2	1333	16 QAM	8	197	
3	1989	QPSK	24	222	
3	1989	16 QAM	12	222	
4	2645	QPSK	32	240	
4	2645	16 QAM	16	240	
5	3301	QPSK	40	254	
5	3301	16 QAM	20	254	
6	3957	QPSK	48	265	
6	3957	16 QAM	24	265	
7	4613	QPSK	57	275	
7	4613	16 QAM	28	275	
8	5269	QPSK	65	283	
8	5269	16 QAM	32	283	
9	5925	QPSK	72	290	
9	5925	16 QAM	36	290	
10	6581	QPSK	72	297	
10	6581	16 QAM	36	297	
11	7237	QPSK	72	303	
11	7237	16 QAM	36	303	
12	7893	QPSK	72	308	
12	7893	16 QAM	36	308	
13	8549	QPSK	72	313	
13	8549	16 QAM	36	313	
14	9205	QPSK	72	318	
14	9205	16 QAM	36	318	
15	9861	QPSK	72	322	
15	9861	16 QAM	36	322	
16	10517	QPSK	72	326	
16	10517	16 QAM	36	326	
17	11173	QPSK	72	330	
17	11173	16 QAM	36	330	
18	11829	QPSK	72	334	
18	11829	16 QAM	36	334	

Table 18.3.1.4.4.3: TFRC test points for UE category 3 for MAC-d PDU size=656, 7.68Mcps TDD

3GPP TS 34.123-1 version 10.3.1 Release 10

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	677	QPSK	8	155	
1	677	16 QAM	4	155	
2	1333	QPSK	16	197	
2	1333	16 QAM	8	197	
3	1989	QPSK	24	222	
3	1989	16 QAM	12	222	
4	2645	QPSK	32	240	
4	2645	16 QAM	16	240	
5	3301	QPSK	40	254	
5	3301	16 QAM	20	254	
6	3957	QPSK	48	265	
6	3957	16 QAM	24	265	
7	4613	QPSK	56	275	
7	4613	16 QAM	28	275	
8	5269	QPSK	64	283	
8	5269	16 QAM	32	283	
9	5925	QPSK	64	290	
9	5925	16 QAM	36	290	
10	6581	QPSK	64	297	
10	6581	16 QAM	40	297	
11	7237	QPSK	64	303	
11	7237	16 QAM	44	303	
12	7893	QPSK	64	308	
12	7893	16 QAM	48	308	
13	8549	QPSK	64	313	
13	8549	16 QAM	52	313	
14	9205	QPSK	64	318	
14	9205	16 QAM	56	318	
15	9861	QPSK	64	322	
15	9861	16 QAM	60	322	
16	10517	QPSK	64	326	
16	10517	16 QAM	64	326	
17	11173	QPSK	64	330	
17	11173	16 QAM	64	330	
18	11829	QPSK	64	334	
18	11829	16 QAM	64	334	
19	12485	QPSK	64	337	
19	12485	16 QAM	64	337	
20	13141	QPSK	64	340	
20	13141	16 QAM	64	340	
21	13797	QPSK	64	343	
21	13797	16 QAM	64	343	
22	14453	QPSK	64	346	
22	14453	16 QAM	64	346	
23	15109	QPSK	64	349	
23	15109	16 QAM	64	349	

24	15765	16 QAM	64	352	
25	16421	16 QAM	64	354	
26	17077	16 QAM	64	357	

3GPP TS 34.123-1 version 10.3.1 Release 10

27	17733	16 QAM	64	359	
28	18389	16 QAM	64	361	
29	19045	16 QAM	64	363	
30	19701	16 QAM	64	365	
31	20357	16 QAM	64	368	
32	21013	16 QAM	64	370	
33	21669	16 QAM	64	371	
34	22325	16 QAM	64	373	
35	22981	16 QAM	64	375	
36	23637	16 QAM	64	377	

Table 18.3.1.4.4.4: TFRC test points for UE category 4 for MAC-d PDU size=656, 7.68Mcps TDD

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	677	QPSK	8	155	
1	677	16 QAM	4	155	
2	1333	QPSK	16	197	
2	1333	16 QAM	8	197	
3	1989	QPSK	24	222	
3	1989	16 QAM	12	222	
4	2645	QPSK	32	240	
4	2645	16 QAM	16	240	
5	3301	QPSK	40	254	
5	3301	16 QAM	20	254	
6	3957	QPSK	48	265	
6	3957	16 QAM	24	265	
7	4613	QPSK	57	275	
7	4613	16 QAM	28	275	
8	5269	QPSK	65	283	
8	5269	16 QAM	32	283	
9	5925	QPSK	72	290	
9	5925	16 QAM	36	290	
10	6581	QPSK	81	297	
10	6581	16 QAM	40	297	
11	7237	QPSK	88	303	
11	7237	16 QAM	44	303	
12	7893	QPSK	96	308	
12	7893	16 QAM	48	308	
13	8549	QPSK	105	313	
13	8549	16 QAM	52	313	
14	9205	QPSK	114	318	
14	9205	16 QAM	57	318	
15	9861	QPSK	121	322	
15	9861	16 QAM	60	322	
16	10517	QPSK	128	326	
16	10517	16 QAM	64	326	
17	11173	QPSK	138	330	
17	11173	16 QAM	69	330	
18	11829	QPSK	144	334	
18	11829	16 QAM	72	334	
19	12485	QPSK	144	337	
19	12485	16 QAM	72	337	
20	13141	QPSK	144	340	
20	13141	16 QAM	72	340	
21	13797	QPSK	144	343	
21	13797	16 QAM	72	343	
22	14453	QPSK	144	346	
22	14453	16 QAM	72	346	
23	15109	QPSK	144	349	
23	15109	16 QAM	72	349	

24	15765	QPSK	144	352	
24	15765	16 QAM	72	352	
25	16421	QPSK	144	354	

3GPP TS 34.123-1 version 10.3.1 Release 10

25	16421	16 QAM	72	354	
26	17077	QPSK	144	357	
26	17077	16 QAM	72	357	
27	17733	QPSK	144	359	
27	17733	16 QAM	72	359	
28	18389	QPSK	144	361	
28	18389	16 QAM	72	361	
29	19045	QPSK	144	363	
29	19045	16 QAM	72	363	
30	19701	QPSK	144	365	
30	19701	16 QAM	72	365	
31	20357	QPSK	144	368	
31	20357	16 QAM	72	368	
32	21013	QPSK	144	370	
32	21013	16 QAM	72	370	
33	21669	QPSK	144	371	
33	21669	16 QAM	72	371	
34	22325	QPSK	144	373	
34	22325	16 QAM	72	373	
35	22981	QPSK	144	375	
35	22981	16 QAM	72	375	
36	23637	QPSK	144	377	
36	23637	16 QAM	72	377	

Table 18.3.1.4.4.5: TFRC test points for UE category 5 for MAC-d PDU size=656, 7.68Mcps TDD

3GPP TS 34.123-1 version 10.3.1 Release 10

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	677	QPSK	8	155	
1	677	16 QAM	4	155	
2	1333	QPSK	16	197	
2	1333	16 QAM	8	197	
3	1989	QPSK	24	222	
3	1989	16 QAM	12	222	
4	2645	QPSK	32	240	
4	2645	16 QAM	16	240	
5	3301	QPSK	40	254	
5	3301	16 QAM	20	254	
6	3957	QPSK	48	265	
6	3957	16 QAM	24	265	
7	4613	QPSK	57	275	
7	4613	16 QAM	28	275	
8	5269	QPSK	64	283	
8	5269	16 QAM	32	283	
9	5925	QPSK	72	290	
9	5925	16 QAM	36	290	
10	6581	QPSK	81	297	
10	6581	16 QAM	40	297	
11	7237	QPSK	87	303	
11	7237	16 QAM	44	303	
12	7893	QPSK	96	308	
12	7893	16 QAM	48	308	
13	8549	QPSK	96	313	
13	8549	16 QAM	52	313	
14	9205	QPSK	96	318	
14	9205	16 QAM	57	318	
15	9861	QPSK	96	322	
15	9861	16 QAM	60	322	
16	10517	QPSK	96	326	
16	10517	16 QAM	64	326	
17	11173	QPSK	96	330	
17	11173	16 QAM	69	330	
18	11829	QPSK	96	334	
18	11829	16 QAM	72	334	
19	12485	QPSK	96	337	
19	12485	16 QAM	75	337	
20	13141	QPSK	96	340	
20	13141	16 QAM	81	340	
21	13797	QPSK	96	343	
21	13797	16 QAM	84	343	
22	14453	QPSK	96	346	
22	14453	16 QAM	87	346	
23	15109	QPSK	96	349	
23	15109	16 QAM	93	349	

24	15765	QPSK	96	352	
24	15765	16 QAM	96	352	
25	16421	QPSK	96	354	

3GPP TS 34.123-1 version 10.3.1 Release 10

25	16421	16 QAM	96	354	
26	17077	QPSK	96	357	
26	17077	16 QAM	96	357	
27	17733	QPSK	96	359	
27	17733	16 QAM	96	359	
28	18389	QPSK	96	362	
28	18389	16 QAM	96	361	
29	19045	QPSK	96	363	
29	19045	16 QAM	96	363	
30	19701	QPSK	96	365	
30	19701	16 QAM	96	365	
31	20357	QPSK	96	368	
31	20357	16 QAM	96	368	
32	21013	QPSK	96	371	
32	21013	16 QAM	96	370	
33	21669	QPSK	96	371	
33	21669	16 QAM	96	371	
34	22325	QPSK	96	373	
34	22325	16 QAM	96	373	
35	22981	QPSK	96	375	
35	22981	16 QAM	96	375	
36	23637	16 QAM	96	377	
37	24293	16 QAM	96	379	
38	24949	16 QAM	96	380	
39	25605	16 QAM	96	382	
40	26261	16 QAM	96	383	
41	26917	16 QAM	96	385	
42	27573	16 QAM	96	386	
43	28229	16 QAM	96	388	
44	28885	16 QAM	96	389	
45	29541	16 QAM	96	391	
46	30197	16 QAM	96	392	
47	30853	16 QAM	96	394	
48	31509	16 QAM	96	395	
49	32165	16 QAM	96	396	
50	32821	16 QAM	96	397	
51	33477	16 QAM	96	399	
52	34133	16 QAM	96	400	
53	34789	16 QAM	96	401	
54	35445	16 QAM	96	402	

Table 18.3.1.4.4.6: TFRC test points for UE category 6 for MAC-d PDU size=656, 7.68Mcps TDD

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	677	QPSK	8	155	
1	677	16 QAM	4	155	
2	1333	QPSK	16	197	
2	1333	16 QAM	8	197	
3	1989	QPSK	24	222	
3	1989	16 QAM	12	222	
4	2645	QPSK	32	240	
4	2645	16 QAM	16	240	
5	3301	QPSK	40	254	
5	3301	16 QAM	20	254	
6	3957	QPSK	48	265	
6	3957	16 QAM	24	265	
7	4613	QPSK	57	275	
7	4613	16 QAM	28	275	
8	5269	QPSK	65	283	
8	5269	16 QAM	32	283	
9	5925	QPSK	72	290	
9	5925	16 QAM	36	290	
10	6581	QPSK	81	297	
10	6581	16 QAM	40	297	
11	7237	QPSK	88	303	
11	7237	16 QAM	44	303	
12	7893	QPSK	96	308	
12	7893	16 QAM	48	308	
13	8549	QPSK	105	313	
13	8549	16 QAM	52	313	
14	9205	QPSK	114	318	
14	9205	16 QAM	57	318	
15	9861	QPSK	121	322	
15	9861	16 QAM	60	322	
16	10517	QPSK	128	326	
16	10517	16 QAM	64	326	
17	11173	QPSK	138	330	
17	11173	16 QAM	69	330	
18	11829	QPSK	147	334	
18	11829	16 QAM	72	334	
19	12485	QPSK	154	337	
19	12485	16 QAM	77	337	
20	13141	QPSK	162	340	
20	13141	16 QAM	81	340	
21	13797	QPSK	170	343	
21	13797	16 QAM	85	343	
22	14453	QPSK	176	346	
22	14453	16 QAM	88	346	
23	15109	QPSK	187	349	
23	15109	16 QAM	93	349	

24	15765	QPSK	196	352	
24	15765	16 QAM	98	352	
25	16421	QPSK	203	354	

3GPP TS 34.123-1 version 10.3.1 Release 10

25	16421	16 QAM	100	354	
26	17077	QPSK	210	357	
26	17077	16 QAM	105	357	
27	17733	QPSK	217	359	
27	17733	16 QAM	108	359	
28	18389	QPSK	217	361	
28	18389	16 QAM	108	361	
29	19045	QPSK	217	363	
29	19045	16 QAM	108	363	
30	19701	QPSK	217	365	
30	19701	16 QAM	108	365	
31	20357	QPSK	217	368	
31	20357	16 QAM	108	368	
32	21013	QPSK	217	370	
32	21013	16 QAM	108	370	
33	21669	QPSK	217	371	
33	21669	16 QAM	108	371	
34	22325	QPSK	217	373	
34	22325	16 QAM	108	373	
35	22981	QPSK	217	375	
35	22981	16 QAM	108	375	
36	23637	QPSK	217	377	
36	23637	16 QAM	108	377	
37	24293	QPSK	217	379	
37	24293	16 QAM	108	379	
38	24949	QPSK	217	380	
38	24949	16 QAM	108	380	
39	25605	QPSK	217	382	
39	25605	16 QAM	108	382	
40	26261	QPSK	217	383	
40	26261	16 QAM	108	383	
41	26917	QPSK	217	385	
41	26917	16 QAM	108	385	
42	27573	QPSK	217	386	
42	27573	16 QAM	108	386	
43	28229	QPSK	217	388	
43	28229	16 QAM	108	388	
44	28885	QPSK	217	389	
44	28885	16 QAM	108	389	
45	29541	QPSK	217	391	
45	29541	16 QAM	108	391	
46	30197	QPSK	217	392	
46	30197	16 QAM	108	392	
47	30853	QPSK	217	394	
47	30853	16 QAM	108	394	
48	31509	QPSK	217	395	
48	31509	16 QAM	108	395	
49	32165	QPSK	217	396	
49	32165	16 QAM	108	396	

50	32821	QPSK	217	397	
50	32821	16 QAM	108	397	
51	33477	QPSK	217	399	

3GPP TS 34.123-1 version 10.3.1 Release 10

51	33477	16 QAM	108	399	
52	34133	QPSK	217	400	
52	34133	16 QAM	108	400	
53	34789	QPSK	217	401	
53	34789	16 QAM	108	401	
54	35445	QPSK	217	402	
54	35445	16 QAM	108	402	

Table 18.3.1.4.4.7: TFRC test points for UE category 7 for MAC-d PDU size=656, 7.68Mcps TDD

3GPP TS 34.123-1 version 10.3.1 Release 10

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	677	QPSK	8	155	
1	677	16 QAM	4	155	
2	1333	QPSK	16	197	
2	1333	16 QAM	8	197	
3	1989	QPSK	24	222	
3	1989	16 QAM	12	222	
4	2645	QPSK	32	240	
4	2645	16 QAM	16	240	
5	3301	QPSK	40	254	
5	3301	16 QAM	20	254	
6	3957	QPSK	48	265	
6	3957	16 QAM	24	265	
7	4613	QPSK	57	275	
7	4613	16 QAM	28	275	
8	5269	QPSK	64	283	
8	5269	16 QAM	32	283	
9	5925	QPSK	72	290	
9	5925	16 QAM	36	290	
10	6581	QPSK	81	297	
10	6581	16 QAM	40	297	
11	7237	QPSK	88	303	
11	7237	16 QAM	44	303	
12	7893	QPSK	96	308	
12	7893	16 QAM	48	308	
13	8549	QPSK	104	313	
13	8549	16 QAM	52	313	
14	9205	QPSK	112	318	
14	9205	16 QAM	57	318	
15	9861	QPSK	120	322	
15	9861	16 QAM	60	322	
16	10517	QPSK	128	326	
16	10517	16 QAM	64	326	
17	11173	QPSK	128	330	
17	11173	16 QAM	69	330	
18	11829	QPSK	128	334	
18	11829	16 QAM	72	334	
19	12485	QPSK	128	337	
19	12485	16 QAM	76	337	
20	13141	QPSK	128	340	
20	13141	16 QAM	81	340	
21	13797	QPSK	128	343	
21	13797	16 QAM	84	343	
22	14453	QPSK	128	346	
22	14453	16 QAM	88	346	
23	15109	QPSK	128	349	
23	15109	16 QAM	93	349	
24	15765	QPSK	128	352	

24	15765	16 QAM	96	352	
25	16421	QPSK	128	354	
25	16421	16 QAM	100	354	

3GPP TS 34.123-1 version 10.3.1 Release 10

26	17077	QPSK	128	357	
26	17077	16 QAM	104	357	
27	17733	QPSK	128	359	
27	17733	16 QAM	108	359	
28	18389	QPSK	128	361	
28	18389	16 QAM	112	361	
29	19045	QPSK	128	363	
29	19045	16 QAM	116	363	
30	19701	QPSK	128	365	
30	19701	16 QAM	120	365	
31	20357	QPSK	128	368	
31	20357	16 QAM	124	368	
32	21013	QPSK	128	370	
32	21013	16 QAM	128	370	
33	21669	QPSK	128	371	
33	21669	16 QAM	128	371	
34	22325	QPSK	128	373	
34	22325	16 QAM	128	373	
35	22981	QPSK	128	375	
35	22981	16 QAM	128	375	
36	23637	QPSK	128	377	
36	23637	16 QAM	128	377	
37	24293	QPSK	128	380	
37	24293	16 QAM	128	379	
38	24949	QPSK	128	380	
38	24949	16 QAM	128	380	
39	25605	QPSK	128	382	
39	25605	16 QAM	128	382	
40	26261	QPSK	128	383	
40	26261	16 QAM	128	383	
41	26917	QPSK	128	385	
41	26917	16 QAM	128	385	
42	27573	QPSK	128	386	
42	27573	16 QAM	128	386	
43	28229	QPSK	128	389	
43	28229	16 QAM	128	388	
44	28885	QPSK	128	389	
44	28885	16 QAM	128	389	
45	29541	QPSK	128	391	
45	29541	16 QAM	128	391	
46	30197	QPSK	128	392	
46	30197	16 QAM	128	392	
47	30853	16 QAM	128	394	
48	31509	16 QAM	128	395	
49	32165	16 QAM	128	396	
50	32821	16 QAM	128	397	
51	33477	16 QAM	128	399	
52	34133	16 QAM	128	400	
53	34789	16 QAM	128	401	
54	35445	16 QAM	128	402	
55	36101	16 QAM	128	403	

56	36757	16 QAM	128	404	
57	37413	16 QAM	128	406	
58	38069	16 QAM	128	407	

3GPP TS 34.123-1 version 10.3.1 Release 10

59	38725	16 QAM	128	408	
60	39381	16 QAM	128	409	
61	40037	16 QAM	128	410	
62	40693	16 QAM	128	411	
63	41349	16 QAM	128	412	
64	42005	16 QAM	128	413	
65	42661	16 QAM	128	414	
66	43317	16 QAM	128	415	
67	43973	16 QAM	128	416	
68	44629	16 QAM	128	417	
69	45285	16 QAM	128	417	
70	45941	16 QAM	128	418	
71	46597	16 QAM	128	419	
72	47253	16 QAM	128	420	
73	47909	16 QAM	128	423	
74	48565	16 QAM	128	423	
75	49221	16 QAM	128	423	
76	49877	16 QAM	128	423	
77	50533	16 QAM	128	424	
78	51189	16 QAM	128	425	
79	51845	16 QAM	128	427	
80	52501	16 QAM	128	427	

Table 18.3.1.4.4.8: TFRC test points for UE category 8 for MAC-d PDU size=656, 7.68Mcps TDD

3GPP TS 34.123-1 version 10.3.1 Release 10

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	677	QPSK	8	155	
1	677	16 QAM	4	155	
2	1333	QPSK	16	197	
2	1333	16 QAM	8	197	
3	1989	QPSK	24	222	
3	1989	16 QAM	12	222	
4	2645	QPSK	32	240	
4	2645	16 QAM	16	240	
5	3301	QPSK	40	254	
5	3301	16 QAM	20	254	
6	3957	QPSK	48	265	
6	3957	16 QAM	24	265	
7	4613	QPSK	57	275	
7	4613	16 QAM	28	275	
8	5269	QPSK	65	283	
8	5269	16 QAM	32	283	
9	5925	QPSK	72	290	
9	5925	16 QAM	36	290	
10	6581	QPSK	81	297	
10	6581	16 QAM	40	297	
11	7237	QPSK	88	303	
11	7237	16 QAM	44	303	
12	7893	QPSK	96	308	
12	7893	16 QAM	48	308	
13	8549	QPSK	105	313	
13	8549	16 QAM	52	313	
14	9205	QPSK	114	318	
14	9205	16 QAM	57	318	
15	9861	QPSK	121	322	
15	9861	16 QAM	60	322	
16	10517	QPSK	128	326	
16	10517	16 QAM	64	326	
17	11173	QPSK	138	330	
17	11173	16 QAM	69	330	
18	11829	QPSK	147	334	
18	11829	16 QAM	72	334	
19	12485	QPSK	154	337	
19	12485	16 QAM	77	337	
20	13141	QPSK	162	340	
20	13141	16 QAM	81	340	
21	13797	QPSK	170	343	
21	13797	16 QAM	85	343	
22	14453	QPSK	176	346	
22	14453	16 QAM	88	346	
23	15109	QPSK	187	349	
23	15109	16 QAM	93	349	
24	15765	QPSK	196	352	

24	15765	16 QAM	98	352	
25	16421	QPSK	203	354	
25	16421	16 QAM	100	354	

3GPP TS 34.123-1 version 10.3.1 Release 10

26	17077	QPSK	210	357	
26	17077	16 QAM	105	357	
27	17733	QPSK	220	359	
27	17733	16 QAM	110	359	
28	18389	QPSK	225	361	
28	18389	16 QAM	112	361	
29	19045	QPSK	234	363	
29	19045	16 QAM	117	363	
30	19701	QPSK	242	365	
30	19701	16 QAM	121	365	
31	20357	QPSK	253	368	
31	20357	16 QAM	126	368	
32	21013	QPSK	261	370	
32	21013	16 QAM	130	370	
33	21669	QPSK	264	371	
33	21669	16 QAM	133	371	
34	22325	QPSK	275	373	
34	22325	16 QAM	136	373	
35	22981	QPSK	280	375	
35	22981	16 QAM	140	375	
36	23637	QPSK	289	377	
36	23637	16 QAM	144	377	
37	24293	QPSK	289	379	
37	24293	16 QAM	144	379	
38	24949	QPSK	289	380	
38	24949	16 QAM	144	380	
39	25605	QPSK	289	382	
39	25605	16 QAM	144	382	
40	26261	QPSK	289	383	
40	26261	16 QAM	144	383	
41	26917	QPSK	289	385	
41	26917	16 QAM	144	385	
42	27573	QPSK	289	386	
42	27573	16 QAM	144	386	
43	28229	QPSK	289	388	
43	28229	16 QAM	144	388	
44	28885	QPSK	289	389	
44	28885	16 QAM	144	389	
45	29541	QPSK	289	391	
45	29541	16 QAM	144	391	
46	30197	QPSK	289	392	
46	30197	16 QAM	144	392	
47	30853	QPSK	289	394	
47	30853	16 QAM	144	394	
48	31509	QPSK	289	395	
48	31509	16 QAM	144	395	
49	32165	QPSK	289	396	
49	32165	16 QAM	144	396	
50	32821	QPSK	289	397	
50	32821	16 QAM	144	397	
51	33477	QPSK	289	399	

51	33477	16 QAM	144	399	
52	34133	QPSK	289	400	
52	34133	16 QAM	144	400	

3GPP TS 34.123-1 version 10.3.1 Release 10

53	34789	QPSK	289	401	
53	34789	16 QAM	144	401	
54	35445	QPSK	289	402	
54	35445	16 QAM	144	402	
55	36101	QPSK	289	403	
55	36101	16 QAM	144	403	
56	36757	QPSK	289	404	
56	36757	16 QAM	144	404	
57	37413	QPSK	289	406	
57	37413	16 QAM	144	406	
58	38069	QPSK	289	407	
58	38069	16 QAM	144	407	
59	38725	QPSK	289	408	
59	38725	16 QAM	144	408	
60	39381	QPSK	289	409	
60	39381	16 QAM	144	409	
61	40037	QPSK	289	410	
61	40037	16 QAM	144	410	
62	40693	QPSK	289	411	
62	40693	16 QAM	144	411	
63	41349	QPSK	289	412	
63	41349	16 QAM	144	412	
64	42005	QPSK	289	413	
64	42005	16 QAM	144	413	
65	42661	QPSK	289	414	
65	42661	16 QAM	144	414	
66	43317	QPSK	289	415	
66	43317	16 QAM	144	415	
67	43973	QPSK	289	416	
67	43973	16 QAM	144	416	
68	44629	QPSK	289	417	
68	44629	16 QAM	144	417	
69	45285	QPSK	289	417	
69	45285	16 QAM	144	417	
70	45941	QPSK	289	418	
70	45941	16 QAM	144	418	
71	46597	QPSK	289	419	
71	46597	16 QAM	144	419	
72	47253	QPSK	289	420	
72	47253	16 QAM	144	420	
73	47909	QPSK	289	421	
73	47909	16 QAM	144	421	
74	48565	QPSK	289	422	
74	48565	16 QAM	144	422	
75	49221	QPSK	289	423	
75	49221	16 QAM	144	423	
76	49877	QPSK	289	423	
76	49877	16 QAM	144	423	
77	50533	QPSK	289	424	
77	50533	16 QAM	144	424	
78	51189	QPSK	289	425	

78	51189	16 QAM	144	425	
79	51845	QPSK	289	426	
79	51845	16 QAM	144	426	

80	52501	QPSK	289	427	
80	52501	16 QAM	144	427	

Table 18.3.1.4.4.9: TFRC test points for UE category 9 for MAC-d PDU size=656, 7.68Mcps TDD

3GPP TS 34.123-1 version 10.3.1 Release 10

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	677	QPSK	8	155	
1	677	16 QAM	4	155	
2	1333	QPSK	16	197	
2	1333	16 QAM	8	197	
3	1989	QPSK	24	222	
3	1989	16 QAM	12	222	
4	2645	QPSK	32	240	
4	2645	16 QAM	16	240	
5	3301	QPSK	40	254	
5	3301	16 QAM	20	254	
6	3957	QPSK	48	265	
6	3957	16 QAM	24	265	
7	4613	QPSK	57	275	
7	4613	16 QAM	28	275	
8	5269	QPSK	65	283	
8	5269	16 QAM	32	283	
9	5925	QPSK	72	290	
9	5925	16 QAM	36	290	
10	6581	QPSK	81	297	
10	6581	16 QAM	40	297	
11	7237	QPSK	88	303	
11	7237	16 QAM	44	303	
12	7893	QPSK	96	308	
12	7893	16 QAM	48	308	
13	8549	QPSK	105	313	
13	8549	16 QAM	52	313	
14	9205	QPSK	112	318	
14	9205	16 QAM	57	318	
15	9861	QPSK	120	322	
15	9861	16 QAM	60	322	
16	10517	QPSK	128	326	
16	10517	16 QAM	64	326	
17	11173	QPSK	135	330	
17	11173	16 QAM	69	330	
18	11829	QPSK	145	334	
18	11829	16 QAM	72	334	
19	12485	QPSK	150	337	
19	12485	16 QAM	76	337	
20	13141	QPSK	160	340	
20	13141	16 QAM	81	340	
21	13797	QPSK	160	343	
21	13797	16 QAM	85	343	
22	14453	QPSK	160	346	
22	14453	16 QAM	88	346	
23	15109	QPSK	160	349	
23	15109	16 QAM	93	349	
24	15765	QPSK	160	352	

24	15765	16 QAM	96	352	
25	16421	QPSK	160	354	
25	16421	16 QAM	100	354	

3GPP TS 34.123-1 version 10.3.1 Release 10

26	17077	QPSK	160	357	
26	17077	16 QAM	105	357	
27	17733	QPSK	160	359	
27	17733	16 QAM	110	359	
28	18389	QPSK	160	361	
28	18389	16 QAM	112	361	
29	19045	QPSK	160	363	
29	19045	16 QAM	116	363	
30	19701	QPSK	160	365	
30	19701	16 QAM	120	365	
31	20357	QPSK	160	368	
31	20357	16 QAM	125	368	
32	21013	QPSK	160	370	
32	21013	16 QAM	130	370	
33	21669	QPSK	160	371	
33	21669	16 QAM	130	371	
34	22325	QPSK	160	373	
34	22325	16 QAM	135	373	
35	22981	QPSK	160	375	
35	22981	16 QAM	140	375	
36	23637	QPSK	160	377	
36	23637	16 QAM	145	377	
37	24293	QPSK	160	379	
37	24293	16 QAM	150	379	
38	24949	QPSK	160	380	
38	24949	16 QAM	150	380	
39	25605	QPSK	160	382	
39	25605	16 QAM	155	382	
40	26261	QPSK	160	383	
40	26261	16 QAM	160	383	
41	26917	QPSK	160	385	
41	26917	16 QAM	160	385	
42	27573	QPSK	160	386	
42	27573	16 QAM	160	386	
43	28229	QPSK	160	388	
43	28229	16 QAM	160	388	
44	28885	QPSK	160	389	
44	28885	16 QAM	160	389	
45	29541	QPSK	160	391	
45	29541	16 QAM	160	391	
46	30197	QPSK	160	393	
46	30197	16 QAM	160	392	
47	30853	QPSK	160	394	
47	30853	16 QAM	160	394	
48	31509	QPSK	160	395	
48	31509	16 QAM	160	395	
49	32165	QPSK	160	396	
49	32165	16 QAM	160	396	
50	32821	QPSK	160	397	
50	32821	16 QAM	160	397	
51	33477	QPSK	160	399	

51	33477	16 QAM	160	399	
52	34133	QPSK	160	400	
52	34133	16 QAM	160	400	

3GPP TS 34.123-1 version 10.3.1 Release 10

53	34789	QPSK	160	401	
53	34789	16 QAM	160	401	
54	35445	QPSK	160	403	
54	35445	16 QAM	160	402	
55	36101	QPSK	160	403	
55	36101	16 QAM	160	403	
56	36757	QPSK	160	404	
56	36757	16 QAM	160	404	
57	37413	QPSK	160	406	
57	37413	16 QAM	160	406	
58	38069	QPSK	160	407	
58	38069	16 QAM	160	407	
59	38725	16 QAM	160	408	
60	39381	16 QAM	160	409	
61	40037	16 QAM	160	410	
62	40693	16 QAM	160	411	
63	41349	16 QAM	160	412	
64	42005	16 QAM	160	413	
65	42661	16 QAM	160	414	
66	43317	16 QAM	160	415	
67	43973	16 QAM	160	416	
68	44629	16 QAM	160	417	
69	45285	16 QAM	160	417	
70	45941	16 QAM	160	418	
71	46597	16 QAM	160	419	
72	47253	16 QAM	160	420	
73	47909	16 QAM	160	421	
74	48565	16 QAM	160	422	
75	49221	16 QAM	160	423	
76	49877	16 QAM	160	423	
77	50533	16 QAM	160	424	
78	51189	16 QAM	160	425	
79	51845	16 QAM	160	426	
80	52501	16 QAM	160	427	
81	53157	16 QAM	160	427	
82	53813	16 QAM	160	428	
83	54469	16 QAM	160	429	
84	55125	16 QAM	160	430	
85	55781	16 QAM	160	430	
86	56437	16 QAM	160	431	
87	57093	16 QAM	160	432	
88	57749	16 QAM	160	433	
89	58405	16 QAM	160	433	
90	59061	16 QAM	160	434	
91	59717	16 QAM	160	437	
92	60373	16 QAM	160	437	
93	61029	16 QAM	160	437	
94	61685	16 QAM	160	437	
95	62341	16 QAM	160	437	
96	62997	16 QAM	160	438	
97	63653	16 QAM	160	439	

98	64309	16 QAM	160	439	
99	64965	16 QAM	160	441	
100	65621	16 QAM	160	441	

3GPP TS 34.123-1 version 10.3.1 Release 10

101	66277	16 QAM	160	441	
102	66933	16 QAM	160	442	
103	67589	16 QAM	160	442	
104	68245	16 QAM	160	443	
105	68901	16 QAM	160	444	
106	69557	16 QAM	160	444	
107	70213	16 QAM	160	445	
108	70869	16 QAM	160	445	
109	71525	16 QAM	160	446	
110	72181	16 QAM	160	447	
111	72837	16 QAM	160	447	

Table 18.3.1.4.4.10: TFRC test points for UE category 10 for MAC-d PDU size=656, 7.68Mcps TDD

3GPP TS 34.123-1 version 10.3.1 Release 10

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	677	QPSK	8	155	
1	677	16 QAM	4	155	
2	1333	QPSK	16	197	
2	1333	16 QAM	8	197	
3	1989	QPSK	24	222	
3	1989	16 QAM	12	222	
4	2645	QPSK	32	240	
4	2645	16 QAM	16	240	
5	3301	QPSK	40	254	
5	3301	16 QAM	20	254	
6	3957	QPSK	48	265	
6	3957	16 QAM	24	265	
7	4613	QPSK	57	275	
7	4613	16 QAM	28	275	
8	5269	QPSK	65	283	
8	5269	16 QAM	32	283	
9	5925	QPSK	72	290	
9	5925	16 QAM	36	290	
10	6581	QPSK	81	297	
10	6581	16 QAM	40	297	
11	7237	QPSK	88	303	
11	7237	16 QAM	44	303	
12	7893	QPSK	96	308	
12	7893	16 QAM	48	308	
13	8549	QPSK	105	313	
13	8549	16 QAM	52	313	
14	9205	QPSK	114	318	
14	9205	16 QAM	57	318	
15	9861	QPSK	121	322	
15	9861	16 QAM	60	322	
16	10517	QPSK	128	326	
16	10517	16 QAM	64	326	
17	11173	QPSK	138	330	
17	11173	16 QAM	69	330	
18	11829	QPSK	147	334	
18	11829	16 QAM	72	334	
19	12485	QPSK	154	337	
19	12485	16 QAM	77	337	
20	13141	QPSK	162	340	
20	13141	16 QAM	81	340	
21	13797	QPSK	170	343	
21	13797	16 QAM	85	343	
22	14453	QPSK	176	346	
22	14453	16 QAM	88	346	
23	15109	QPSK	187	349	
23	15109	16 QAM	93	349	
24	15765	QPSK	196	352	

24	15765	16 QAM	98	352	
25	16421	QPSK	203	354	
25	16421	16 QAM	100	354	

3GPP TS 34.123-1 version 10.3.1 Release 10

26	17077	QPSK	210	357	
26	17077	16 QAM	105	357	
27	17733	QPSK	220	359	
27	17733	16 QAM	110	359	
28	18389	QPSK	225	361	
28	18389	16 QAM	112	361	
29	19045	QPSK	234	363	
29	19045	16 QAM	117	363	
30	19701	QPSK	242	365	
30	19701	16 QAM	121	365	
31	20357	QPSK	253	368	
31	20357	16 QAM	126	368	
32	21013	QPSK	261	370	
32	21013	16 QAM	130	370	
33	21669	QPSK	264	371	
33	21669	16 QAM	133	371	
34	22325	QPSK	275	373	
34	22325	16 QAM	136	373	
35	22981	QPSK	280	375	
35	22981	16 QAM	140	375	
36	23637	QPSK	290	377	
36	23637	16 QAM	145	377	
37	24293	QPSK	300	379	
37	24293	16 QAM	150	379	
38	24949	QPSK	308	380	
38	24949	16 QAM	154	380	
39	25605	QPSK	312	382	
39	25605	16 QAM	156	382	
40	26261	QPSK	320	383	
40	26261	16 QAM	161	383	
41	26917	QPSK	330	385	
41	26917	16 QAM	165	385	
42	27573	QPSK	336	386	
42	27573	16 QAM	168	386	
43	28229	QPSK	348	388	
43	28229	16 QAM	175	388	
44	28885	QPSK	352	389	
44	28885	16 QAM	176	389	
45	29541	QPSK	360	391	
45	29541	16 QAM	180	391	
46	30197	QPSK	361	392	
46	30197	16 QAM	180	392	
47	30853	QPSK	361	394	
47	30853	16 QAM	180	394	
48	31509	QPSK	361	395	
48	31509	16 QAM	180	395	
49	32165	QPSK	361	396	
49	32165	16 QAM	180	396	
50	32821	QPSK	361	397	
50	32821	16 QAM	180	397	
51	33477	QPSK	361	399	

51	33477	16 QAM	180	399	
52	34133	QPSK	361	400	
52	34133	16 QAM	180	400	

3GPP TS 34.123-1 version 10.3.1 Release 10

53	34789	QPSK	361	401	
53	34789	16 QAM	180	401	
54	35445	QPSK	361	402	
54	35445	16 QAM	180	402	
55	36101	QPSK	361	403	
55	36101	16 QAM	180	403	
56	36757	QPSK	361	404	
56	36757	16 QAM	180	404	
57	37413	QPSK	361	406	
57	37413	16 QAM	180	406	
58	38069	QPSK	361	407	
58	38069	16 QAM	180	407	
59	38725	QPSK	361	408	
59	38725	16 QAM	180	408	
60	39381	QPSK	361	409	
60	39381	16 QAM	180	409	
61	40037	QPSK	361	410	
61	40037	16 QAM	180	410	
62	40693	QPSK	361	411	
62	40693	16 QAM	180	411	
63	41349	QPSK	361	412	
63	41349	16 QAM	180	412	
64	42005	QPSK	361	413	
64	42005	16 QAM	180	413	
65	42661	QPSK	361	414	
65	42661	16 QAM	180	414	
66	43317	QPSK	361	415	
66	43317	16 QAM	180	415	
67	43973	QPSK	361	416	
67	43973	16 QAM	180	416	
68	44629	QPSK	361	417	
68	44629	16 QAM	180	417	
69	45285	QPSK	361	417	
69	45285	16 QAM	180	417	
70	45941	QPSK	361	418	
70	45941	16 QAM	180	418	
71	46597	QPSK	361	419	
71	46597	16 QAM	180	419	
72	47253	QPSK	361	420	
72	47253	16 QAM	180	420	
73	47909	QPSK	361	421	
73	47909	16 QAM	180	421	
74	48565	QPSK	361	422	
74	48565	16 QAM	180	422	
75	49221	QPSK	361	423	
75	49221	16 QAM	180	423	
76	49877	QPSK	361	423	
76	49877	16 QAM	180	423	
77	50533	QPSK	361	424	
77	50533	16 QAM	180	424	
78	51189	QPSK	361	425	

78	51189	16 QAM	180	425	
79	51845	QPSK	361	426	
79	51845	16 QAM	180	426	

3GPP TS 34.123-1 version 10.3.1 Release 10

80	52501	QPSK	361	427	
80	52501	16 QAM	180	427	
81	53157	QPSK	361	427	
81	53157	16 QAM	180	427	
82	53813	QPSK	361	428	
82	53813	16 QAM	180	428	
83	54469	QPSK	361	429	
83	54469	16 QAM	180	429	
84	55125	QPSK	361	430	
84	55125	16 QAM	180	430	
85	55781	QPSK	361	430	
85	55781	16 QAM	180	430	
86	56437	QPSK	361	431	
86	56437	16 QAM	180	431	
87	57093	QPSK	361	432	
87	57093	16 QAM	180	432	
88	57749	QPSK	361	433	
88	57749	16 QAM	180	433	
89	58405	QPSK	361	433	
89	58405	16 QAM	180	433	
90	59061	QPSK	361	434	
90	59061	16 QAM	180	434	
91	59717	QPSK	361	435	
91	59717	16 QAM	180	435	
92	60373	QPSK	361	435	
92	60373	16 QAM	180	435	
93	61029	QPSK	361	436	
93	61029	16 QAM	180	436	
94	61685	QPSK	361	437	
94	61685	16 QAM	180	437	
95	62341	QPSK	361	437	
95	62341	16 QAM	180	437	
96	62997	QPSK	361	438	
96	62997	16 QAM	180	438	
97	63653	QPSK	361	439	
97	63653	16 QAM	180	439	
98	64309	QPSK	361	439	
98	64309	16 QAM	180	439	
99	64965	QPSK	361	440	
99	64965	16 QAM	180	440	
100	65621	QPSK	361	441	
100	65621	16 QAM	180	441	
101	66277	QPSK	361	441	
101	66277	16 QAM	180	441	
102	66933	QPSK	361	442	
102	66933	16 QAM	180	442	
103	67589	QPSK	361	442	
103	67589	16 QAM	180	442	
104	68245	QPSK	361	443	
104	68245	16 QAM	180	443	
105	68901	QPSK	361	444	

105	68901	16 QAM	180	444	
106	69557	QPSK	361	444	
106	69557	16 QAM	180	444	

107	70213	QPSK	361	445	
107	70213	16 QAM	180	445	
108	70869	QPSK	361	445	
108	70869	16 QAM	180	445	
109	71525	QPSK	361	446	
109	71525	16 QAM	180	446	
110	72181	QPSK	361	448	
110	72181	16 QAM	180	447	
111	72837	QPSK	361	448	
111	72837	16 QAM	180	447	

Table 18.3.1.4.4.11: TFRC test points for UE category 11 for MAC-d PDU size=656, 7.68Mcps TDD

3GPP TS 34.123-1 version 10.3.1 Release 10

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	677	QPSK	8	155	
1	677	16 QAM	4	155	
2	1333	QPSK	16	197	
2	1333	16 QAM	8	197	
3	1989	QPSK	24	222	
3	1989	16 QAM	12	222	
4	2645	QPSK	32	240	
4	2645	16 QAM	16	240	
5	3301	QPSK	40	254	
5	3301	16 QAM	20	254	
6	3957	QPSK	48	265	
6	3957	16 QAM	24	265	
7	4613	QPSK	57	275	
7	4613	16 QAM	28	275	
8	5269	QPSK	65	283	
8	5269	16 QAM	32	283	
9	5925	QPSK	72	290	
9	5925	16 QAM	36	290	
10	6581	QPSK	81	297	
10	6581	16 QAM	40	297	
11	7237	QPSK	88	303	
11	7237	16 QAM	44	303	
12	7893	QPSK	96	308	
12	7893	16 QAM	48	308	
13	8549	QPSK	105	313	
13	8549	16 QAM	52	313	
14	9205	QPSK	114	318	
14	9205	16 QAM	57	318	
15	9861	QPSK	120	322	
15	9861	16 QAM	60	322	
16	10517	QPSK	128	326	
16	10517	16 QAM	64	326	
17	11173	QPSK	138	330	
17	11173	16 QAM	69	330	
18	11829	QPSK	147	334	
18	11829	16 QAM	72	334	
19	12485	QPSK	154	337	
19	12485	16 QAM	77	337	
20	13141	QPSK	162	340	
20	13141	16 QAM	81	340	
21	13797	QPSK	168	343	
21	13797	16 QAM	85	343	
22	14453	QPSK	176	346	
22	14453	16 QAM	88	346	
23	15109	QPSK	186	349	
23	15109	16 QAM	93	349	
24	15765	QPSK	196	352	

24	15765	16 QAM	98	352	
25	16421	QPSK	203	354	
25	16421	16 QAM	100	354	

3GPP TS 34.123-1 version 10.3.1 Release 10

26	17077	QPSK	210	357	
26	17077	16 QAM	105	357	
27	17733	QPSK	217	359	
27	17733	16 QAM	110	359	
28	18389	QPSK	224	361	
28	18389	16 QAM	112	361	
29	19045	QPSK	232	363	
29	19045	16 QAM	116	363	
30	19701	QPSK	240	365	
30	19701	16 QAM	120	365	
31	20357	QPSK	248	368	
31	20357	16 QAM	126	368	
32	21013	QPSK	256	370	
32	21013	16 QAM	130	370	
33	21669	QPSK	256	371	
33	21669	16 QAM	133	371	
34	22325	QPSK	256	373	
34	22325	16 QAM	136	373	
35	22981	QPSK	256	375	
35	22981	16 QAM	140	375	
36	23637	QPSK	256	377	
36	23637	16 QAM	145	377	
37	24293	QPSK	256	379	
37	24293	16 QAM	150	379	
38	24949	QPSK	256	380	
38	24949	16 QAM	154	380	
39	25605	QPSK	256	382	
39	25605	16 QAM	156	382	
40	26261	QPSK	256	383	
40	26261	16 QAM	161	383	
41	26917	QPSK	256	385	
41	26917	16 QAM	162	385	
42	27573	QPSK	256	386	
42	27573	16 QAM	168	386	
43	28229	QPSK	256	388	
43	28229	16 QAM	175	388	
44	28885	QPSK	256	389	
44	28885	16 QAM	176	389	
45	29541	QPSK	256	391	
45	29541	16 QAM	182	391	
46	30197	QPSK	256	392	
46	30197	16 QAM	186	392	
47	30853	QPSK	256	394	
47	30853	16 QAM	192	394	
48	31509	QPSK	256	395	
48	31509	16 QAM	196	395	
49	32165	QPSK	256	396	
49	32165	16 QAM	196	396	
50	32821	QPSK	256	397	
50	32821	16 QAM	200	397	
51	33477	QPSK	256	399	

51	33477	16 QAM	208	399	
52	34133	QPSK	256	400	
52	34133	16 QAM	210	400	

3GPP TS 34.123-1 version 10.3.1 Release 10

53	34789	QPSK	256	401	
53	34789	16 QAM	210	401	
54	35445	QPSK	256	402	
54	35445	16 QAM	217	402	
55	36101	QPSK	256	403	
55	36101	16 QAM	217	403	
56	36757	QPSK	256	404	
56	36757	16 QAM	224	404	
57	37413	QPSK	256	406	
57	37413	16 QAM	232	406	
58	38069	QPSK	256	407	
58	38069	16 QAM	232	407	
59	38725	QPSK	256	408	
59	38725	16 QAM	240	408	
60	39381	QPSK	256	409	
60	39381	16 QAM	240	409	
61	40037	QPSK	256	410	
61	40037	16 QAM	248	410	
62	40693	QPSK	256	411	
62	40693	16 QAM	248	411	
63	41349	QPSK	256	412	
63	41349	16 QAM	256	412	
64	42005	QPSK	256	413	
64	42005	16 QAM	256	413	
65	42661	QPSK	256	414	
65	42661	16 QAM	256	414	
66	43317	QPSK	256	415	
66	43317	16 QAM	256	415	
67	43973	QPSK	256	416	
67	43973	16 QAM	256	416	
68	44629	QPSK	256	417	
68	44629	16 QAM	256	417	
69	45285	QPSK	256	417	
69	45285	16 QAM	256	417	
70	45941	QPSK	256	418	
70	45941	16 QAM	256	418	
71	46597	QPSK	256	419	
71	46597	16 QAM	256	419	
72	47253	QPSK	256	420	
72	47253	16 QAM	256	420	
73	47909	QPSK	256	423	
73	47909	16 QAM	256	421	
74	48565	QPSK	256	423	
74	48565	16 QAM	256	422	
75	49221	QPSK	256	423	
75	49221	16 QAM	256	423	
76	49877	QPSK	256	423	
76	49877	16 QAM	256	423	
77	50533	QPSK	256	424	
77	50533	16 QAM	256	424	
78	51189	QPSK	256	425	

78	51189	16 QAM	256	425	
79	51845	QPSK	256	427	
79	51845	16 QAM	256	426	

3GPP TS 34.123-1 version 10.3.1 Release 10

80	52501	QPSK	256	427	
80	52501	16 QAM	256	427	
81	53157	QPSK	256	427	
81	53157	16 QAM	256	427	
82	53813	QPSK	256	428	
82	53813	16 QAM	256	428	
83	54469	QPSK	256	429	
83	54469	16 QAM	256	429	
84	55125	QPSK	256	430	
84	55125	16 QAM	256	430	
85	55781	QPSK	256	430	
85	55781	16 QAM	256	430	
86	56437	QPSK	256	431	
86	56437	16 QAM	256	431	
87	57093	QPSK	256	432	
87	57093	16 QAM	256	432	
88	57749	QPSK	256	433	
88	57749	16 QAM	256	433	
89	58405	QPSK	256	433	
89	58405	16 QAM	256	433	
90	59061	QPSK	256	434	
90	59061	16 QAM	256	434	
91	59717	QPSK	256	435	
91	59717	16 QAM	256	435	
92	60373	QPSK	256	435	
92	60373	16 QAM	256	435	
93	61029	QPSK	256	436	
93	61029	16 QAM	256	436	
94	61685	QPSK	256	437	
94	61685	16 QAM	256	437	
95	62341	QPSK	256	437	
95	62341	16 QAM	256	437	
96	62997	QPSK	256	438	
96	63653	16 QAM	256	439	
97	64309	QPSK	256	439	
97	64965	16 QAM	256	440	
98	65621	QPSK	256	441	
98	66277	16 QAM	256	441	
99	66933	QPSK	256	442	
99	67589	16 QAM	256	442	
100	68245	QPSK	256	443	
100	68901	16 QAM	256	444	
101	69557	QPSK	256	444	
101	70213	16 QAM	256	445	
102	70869	QPSK	256	445	
102	71525	16 QAM	256	446	
103	72181	QPSK	256	447	
103	72837	16 QAM	256	447	
104	73493	QPSK	256	448	
104	74149	16 QAM	256	448	
105	74805	QPSK	256	449	

105	75461	16 QAM	256	449	
106	76117	QPSK	256	450	
106	76773	16 QAM	256	450	

3GPP TS 34.123-1 version 10.3.1 Release 10

107	77429	QPSK	256	451	
107	78085	16 QAM	256	451	
108	78741	QPSK	256	452	
108	79397	16 QAM	256	453	
109	80053	QPSK	256	453	
109	80709	16 QAM	256	454	
110	81365	QPSK	256	454	
110	82021	16 QAM	256	455	
111	82677	QPSK	256	455	
111	83333	16 QAM	256	456	
112	83989	QPSK	256	456	
112	84652	16 QAM	256	457	
113	85308	QPSK	256	457	
113	85964	16 QAM	256	457	
114	86620	QPSK	256	458	
114	87276	16 QAM	256	458	
115	87932	QPSK	256	459	
115	88588	16 QAM	256	459	
116	89244	QPSK	256	460	
116	89900	16 QAM	256	460	
117	90556	QPSK	256	461	
117	91212	16 QAM	256	461	
118	91868	QPSK	256	462	
118	92524	16 QAM	256	462	
119	93180	QPSK	256	463	
119	93836	16 QAM	256	463	
120	94492	QPSK	256	463	
120	95148	16 QAM	256	464	
121	95804	QPSK	256	464	
121	96460	16 QAM	256	466	
122	97116	QPSK	256	466	
122	97772	16 QAM	256	466	
123	98428	QPSK	256	466	
123	99084	16 QAM	256	466	
124	99740	QPSK	256	467	
124	100396	16 QAM	256	467	
125	101052	QPSK	256	468	
125	101708	16 QAM	256	468	
126	102364	QPSK	256	468	
126	103020	16 QAM	256	469	
127	103676	QPSK	256	469	
127	104332	16 QAM	256	470	
128	104988	QPSK	256	470	
128	105644	16 QAM	256	470	

Table 18.3.1.4.4.12: TFRC test points for UE category 12 for MAC-d PDU size=656, 7.68Mcps TDD

3GPP TS 34.123-1 version 10.3.1 Release 10

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	677	QPSK	8	155	
1	677	16 QAM	4	155	
2	1333	QPSK	16	197	
2	1333	16 QAM	8	197	
3	1989	QPSK	24	222	
3	1989	16 QAM	12	222	
4	2645	QPSK	32	240	
4	2645	16 QAM	16	240	
5	3301	QPSK	40	254	
5	3301	16 QAM	20	254	
6	3957	QPSK	48	265	
6	3957	16 QAM	24	265	
7	4613	QPSK	57	275	
7	4613	16 QAM	28	275	
8	5269	QPSK	65	283	
8	5269	16 QAM	32	283	
9	5925	QPSK	72	290	
9	5925	16 QAM	36	290	
10	6581	QPSK	81	297	
10	6581	16 QAM	40	297	
11	7237	QPSK	88	303	
11	7237	16 QAM	44	303	
12	7893	QPSK	96	308	
12	7893	16 QAM	48	308	
13	8549	QPSK	105	313	
13	8549	16 QAM	52	313	
14	9205	QPSK	114	318	
14	9205	16 QAM	57	318	
15	9861	QPSK	121	322	
15	9861	16 QAM	60	322	
16	10517	QPSK	128	326	
16	10517	16 QAM	64	326	
17	11173	QPSK	138	330	
17	11173	16 QAM	69	330	
18	11829	QPSK	147	334	
18	11829	16 QAM	72	334	
19	12485	QPSK	154	337	
19	12485	16 QAM	77	337	
20	13141	QPSK	162	340	
20	13141	16 QAM	81	340	
21	13797	QPSK	170	343	
21	13797	16 QAM	85	343	
22	14453	QPSK	176	346	
22	14453	16 QAM	88	346	
23	15109	QPSK	187	349	
23	15109	16 QAM	93	349	
24	15765	QPSK	196	352	

24	15765	16 QAM	98	352	
25	16421	QPSK	203	354	
25	16421	16 QAM	100	354	

3GPP TS 34.123-1 version 10.3.1 Release 10

26	17077	QPSK	210	357	
26	17077	16 QAM	105	357	
27	17733	QPSK	220	359	
27	17733	16 QAM	110	359	
28	18389	QPSK	225	361	
28	18389	16 QAM	112	361	
29	19045	QPSK	234	363	
29	19045	16 QAM	117	363	
30	19701	QPSK	242	365	
30	19701	16 QAM	121	365	
31	20357	QPSK	253	368	
31	20357	16 QAM	126	368	
32	21013	QPSK	261	370	
32	21013	16 QAM	130	370	
33	21669	QPSK	264	371	
33	21669	16 QAM	133	371	
34	22325	QPSK	275	373	
34	22325	16 QAM	136	373	
35	22981	QPSK	280	375	
35	22981	16 QAM	140	375	
36	23637	QPSK	290	377	
36	23637	16 QAM	145	377	
37	24293	QPSK	300	379	
37	24293	16 QAM	150	379	
38	24949	QPSK	308	380	
38	24949	16 QAM	154	380	
39	25605	QPSK	312	382	
39	25605	16 QAM	156	382	
40	26261	QPSK	320	383	
40	26261	16 QAM	161	383	
41	26917	QPSK	330	385	
41	26917	16 QAM	165	385	
42	27573	QPSK	336	386	
42	27573	16 QAM	168	386	
43	28229	QPSK	348	388	
43	28229	16 QAM	175	388	
44	28885	QPSK	352	389	
44	28885	16 QAM	176	389	
45	29541	QPSK	360	391	
45	29541	16 QAM	182	391	
46	30197	QPSK	372	392	
46	30197	16 QAM	186	392	
47	30853	QPSK	384	394	
47	30853	16 QAM	192	394	
48	31509	QPSK	384	395	
48	31509	16 QAM	196	395	
49	32165	QPSK	384	396	
49	32165	16 QAM	198	396	
50	32821	QPSK	384	397	
50	32821	16 QAM	200	397	
51	33477	QPSK	384	399	

51	33477	16 QAM	208	399	
52	34133	QPSK	384	400	
52	34133	16 QAM	210	400	

3GPP TS 34.123-1 version 10.3.1 Release 10

53	34789	QPSK	384	401	
53	34789	16 QAM	210	401	
54	35445	QPSK	384	402	
54	35445	16 QAM	217	402	
55	36101	QPSK	384	403	
55	36101	16 QAM	220	403	
56	36757	QPSK	384	404	
56	36757	16 QAM	225	404	
57	37413	QPSK	384	406	
57	37413	16 QAM	232	406	
58	38069	QPSK	384	407	
58	38069	16 QAM	234	407	
59	38725	QPSK	384	408	
59	38725	16 QAM	240	408	
60	39381	QPSK	384	409	
60	39381	16 QAM	243	409	
61	40037	QPSK	384	410	
61	40037	16 QAM	248	410	
62	40693	QPSK	384	411	
62	40693	16 QAM	253	411	
63	41349	QPSK	384	412	
63	41349	16 QAM	256	412	
64	42005	QPSK	384	413	
64	42005	16 QAM	261	413	
65	42661	QPSK	384	414	
65	42661	16 QAM	264	414	
66	43317	QPSK	384	415	
66	43317	16 QAM	270	415	
67	43973	QPSK	384	416	
67	43973	16 QAM	270	416	
68	44629	QPSK	384	417	
68	44629	16 QAM	276	417	
69	45285	QPSK	384	417	
69	45285	16 QAM	276	417	
70	45941	QPSK	384	418	
70	45941	16 QAM	280	418	
71	46597	QPSK	384	419	
71	46597	16 QAM	286	419	
72	47253	QPSK	384	420	
72	47253	16 QAM	289	420	
73	47909	QPSK	384	421	
73	47909	16 QAM	289	421	
74	48565	QPSK	384	422	
74	48565	16 QAM	289	422	
75	49221	QPSK	384	423	
75	49221	16 QAM	289	423	
76	49877	QPSK	384	423	
76	49877	16 QAM	289	423	
77	50533	QPSK	384	424	
77	50533	16 QAM	289	424	
78	51189	QPSK	384	425	

78	51189	16 QAM	289	425	
79	51845	QPSK	384	426	
79	51845	16 QAM	289	426	

3GPP TS 34.123-1 version 10.3.1 Release 10

80	52501	QPSK	384	427	
80	52501	16 QAM	289	427	
81	53157	QPSK	384	427	
81	53157	16 QAM	289	427	
82	53813	QPSK	384	428	
82	53813	16 QAM	289	428	
83	54469	QPSK	384	429	
83	54469	16 QAM	289	429	
84	55125	QPSK	384	430	
84	55125	16 QAM	289	430	
85	55781	QPSK	384	430	
85	55781	16 QAM	289	430	
86	56437	QPSK	384	431	
86	56437	16 QAM	289	431	
87	57093	QPSK	384	432	
87	57093	16 QAM	289	432	
88	57749	QPSK	384	433	
88	57749	16 QAM	289	433	
89	58405	QPSK	384	433	
89	58405	16 QAM	289	433	
90	59061	QPSK	384	434	
90	59061	16 QAM	289	434	
91	59717	QPSK	384	435	
91	59717	16 QAM	289	435	
92	60373	QPSK	384	435	
92	60373	16 QAM	289	435	
93	61029	QPSK	384	436	
93	61029	16 QAM	289	436	
94	61685	QPSK	384	437	
94	61685	16 QAM	289	437	
95	62341	QPSK	384	437	
95	62341	16 QAM	289	437	
96	62997	QPSK	384	438	
96	62997	16 QAM	289	438	
97	63653	QPSK	384	439	
97	63653	16 QAM	289	439	
98	64309	QPSK	384	439	
98	64309	16 QAM	289	439	
99	64965	QPSK	384	440	
99	64965	16 QAM	289	440	
100	65621	QPSK	384	441	
100	65621	16 QAM	289	441	
101	66277	QPSK	384	441	
101	66277	16 QAM	289	441	
102	66933	QPSK	384	442	
102	66933	16 QAM	289	442	
103	67589	QPSK	384	442	
103	67589	16 QAM	289	442	
104	68245	QPSK	384	443	
104	68245	16 QAM	289	443	
105	68901	QPSK	384	444	

105	68901	16 QAM	289	444	
106	69557	QPSK	384	444	
106	69557	16 QAM	289	444	

107	70213	QPSK	384	445	
107	70213	16 QAM	289	445	
108	70869	QPSK	384	445	
108	70869	16 QAM	289	445	
109	71525	QPSK	384	446	
109	71525	16 QAM	289	446	
110	72181	QPSK	384	448	
110	72181	16 QAM	289	447	
111	72837	QPSK	384	448	
111	72837	16 QAM	289	447	
112	73493	QPSK	384	448	
112	73493	16 QAM	289	448	
113	74149	QPSK	384	448	
113	74149	16 QAM	289	448	
114	74805	QPSK	384	449	
114	74805	16 QAM	289	449	
115	75461	QPSK	384	449	
115	75461	16 QAM	289	449	
116	76117	QPSK	384	450	
116	76117	16 QAM	289	450	
117	76773	QPSK	384	450	
117	76773	16 QAM	289	450	
118	77429	QPSK	384	451	
118	77429	16 QAM	289	451	
119	78085	QPSK	384	451	
119	78085	16 QAM	289	451	
120	78741	QPSK	384	452	
120	78741	16 QAM	289	452	
121	79397	QPSK	384	453	
121	79397	16 QAM	289	453	
122	80053	QPSK	384	453	
122	80053	16 QAM	289	453	
123	80709	QPSK	384	455	
123	80709	16 QAM	289	454	
124	81365	QPSK	384	455	
124	81365	16 QAM	289	454	
125	82021	QPSK	384	455	
125	82021	16 QAM	289	455	
126	82677	QPSK	384	455	
126	82677	16 QAM	289	455	
127	83333	QPSK	384	456	
127	83333	16 QAM	289	456	
128	83989	QPSK	384	456	
128	83989	16 QAM	289	456	
129	84652	QPSK	384	457	
129	84652	16 QAM	289	457	
130	85308	QPSK	384	457	
130	85308	16 QAM	289	457	
131	85964	QPSK	384	457	
131	85964	16 QAM	289	457	
132	86620	QPSK	384	458	

132	86620	16 QAM	289	458	
133	87276	QPSK	384	458	
133	87276	16 QAM	289	458	

134	87932	QPSK	384	459	
134	87932	16 QAM	289	459	
135	88588	QPSK	384	459	
135	88588	16 QAM	289	459	
136	89244	QPSK	384	460	
136	89244	16 QAM	289	460	
137	89900	QPSK	384	460	
137	89900	16 QAM	289	460	
138	90556	QPSK	384	461	
138	90556	16 QAM	289	461	
139	91212	QPSK	384	461	
139	91212	16 QAM	289	461	
140	91868	QPSK	384	462	
140	91868	16 QAM	289	462	
141	92524	QPSK	384	462	
141	92524	16 QAM	289	462	
142	93180	QPSK	289	463	
142	93836	16 QAM	289	463	
143	94492	QPSK	289	463	
143	95148	16 QAM	289	464	
144	95804	QPSK	289	464	
144	96460	16 QAM	289	465	
145	97116	QPSK	289	465	
145	97772	16 QAM	289	466	
146	98428	QPSK	289	466	
146	99084	16 QAM	289	466	
147	99740	QPSK	289	467	
147	100396	16 QAM	289	467	
148	101052	QPSK	289	468	
148	101708	16 QAM	289	468	
149	102364	QPSK	289	468	
149	103020	16 QAM	289	469	
150	103676	QPSK	289	469	
150	104332	16 QAM	289	470	
151	104988	QPSK	289	470	
151	105644	16 QAM	289	470	

Table 18.3.1.4.4.13: TFRC test points for UE category 13 for MAC-d PDU size=656, 7.68Mcps TDD

3GPP TS 34.123-1 version 10.3.1 Release 10

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of resource units	TFRI	Comments
1	677	QPSK	8	155	
1	677	16 QAM	4	155	
2	1333	QPSK	16	197	
2	1333	16 QAM	8	197	
3	1989	QPSK	24	222	
3	1989	16 QAM	12	222	
4	2645	QPSK	32	240	
4	2645	16 QAM	16	240	
5	3301	QPSK	40	254	
5	3301	16 QAM	20	254	
6	3957	QPSK	48	265	
6	3957	16 QAM	24	265	
7	4613	QPSK	57	275	
7	4613	16 QAM	28	275	
8	5269	QPSK	65	283	
8	5269	16 QAM	32	283	
9	5925	QPSK	72	290	
9	5925	16 QAM	36	290	
10	6581	QPSK	81	297	
10	6581	16 QAM	40	297	
11	7237	QPSK	88	303	
11	7237	16 QAM	44	303	
12	7893	QPSK	96	308	
12	7893	16 QAM	48	308	
13	8549	QPSK	105	313	
13	8549	16 QAM	52	313	
14	9205	QPSK	114	318	
14	9205	16 QAM	57	318	
15	9861	QPSK	121	322	
15	9861	16 QAM	60	322	
16	10517	QPSK	128	326	
16	10517	16 QAM	64	326	
17	11173	QPSK	138	330	
17	11173	16 QAM	69	330	
18	11829	QPSK	147	334	
18	11829	16 QAM	72	334	
19	12485	QPSK	154	337	
19	12485	16 QAM	77	337	
20	13141	QPSK	162	340	
20	13141	16 QAM	81	340	
21	13797	QPSK	170	343	
21	13797	16 QAM	85	343	
22	14453	QPSK	176	346	
22	14453	16 QAM	88	346	
23	15109	QPSK	187	349	
23	15109	16 QAM	93	349	
24	15765	QPSK	196	352	

24	15765	16 QAM	98	352	
25	16421	QPSK	203	354	
25	16421	16 QAM	100	354	

3GPP TS 34.123-1 version 10.3.1 Release 10

26	17077	QPSK	210	357	
26	17077	16 QAM	105	357	
27	17733	QPSK	220	359	
27	17733	16 QAM	110	359	
28	18389	QPSK	225	361	
28	18389	16 QAM	112	361	
29	19045	QPSK	234	363	
29	19045	16 QAM	117	363	
30	19701	QPSK	242	365	
30	19701	16 QAM	121	365	
31	20357	QPSK	253	368	
31	20357	16 QAM	126	368	
32	21013	QPSK	261	370	
32	21013	16 QAM	130	370	
33	21669	QPSK	264	371	
33	21669	16 QAM	133	371	
34	22325	QPSK	275	373	
34	22325	16 QAM	136	373	
35	22981	QPSK	280	375	
35	22981	16 QAM	140	375	
36	23637	QPSK	290	377	
36	23637	16 QAM	145	377	
37	24293	QPSK	300	379	
37	24293	16 QAM	150	379	
38	24949	QPSK	308	380	
38	24949	16 QAM	154	380	
39	25605	QPSK	312	382	
39	25605	16 QAM	156	382	
40	26261	QPSK	320	383	
40	26261	16 QAM	161	383	
41	26917	QPSK	330	385	
41	26917	16 QAM	165	385	
42	27573	QPSK	336	386	
42	27573	16 QAM	168	386	
43	28229	QPSK	348	388	
43	28229	16 QAM	175	388	
44	28885	QPSK	352	389	
44	28885	16 QAM	176	389	
45	29541	QPSK	360	391	
45	29541	16 QAM	182	391	
46	30197	QPSK	372	392	
46	30197	16 QAM	186	392	
47	30853	QPSK	384	394	
47	30853	16 QAM	192	394	
48	31509	QPSK	384	395	
48	31509	16 QAM	196	395	
49	32165	QPSK	384	396	
49	32165	16 QAM	198	396	
50	32821	QPSK	384	397	
50	32821	16 QAM	200	397	
51	33477	QPSK	384	399	

51	33477	16 QAM	208	399	
52	34133	QPSK	384	400	
52	34133	16 QAM	210	400	

3GPP TS 34.123-1 version 10.3.1 Release 10

53	34789	QPSK	384	401	
53	34789	16 QAM	210	401	
54	35445	QPSK	384	402	
54	35445	16 QAM	217	402	
55	36101	QPSK	384	403	
55	36101	16 QAM	220	403	
56	36757	QPSK	384	404	
56	36757	16 QAM	225	404	
57	37413	QPSK	384	406	
57	37413	16 QAM	232	406	
58	38069	QPSK	384	407	
58	38069	16 QAM	234	407	
59	38725	QPSK	384	408	
59	38725	16 QAM	240	408	
60	39381	QPSK	384	409	
60	39381	16 QAM	243	409	
61	40037	QPSK	384	410	
61	40037	16 QAM	248	410	
62	40693	QPSK	384	411	
62	40693	16 QAM	253	411	
63	41349	QPSK	384	412	
63	41349	16 QAM	256	412	
64	42005	QPSK	384	413	
64	42005	16 QAM	261	413	
65	42661	QPSK	384	414	
65	42661	16 QAM	264	414	
66	43317	QPSK	384	415	
66	43317	16 QAM	270	415	
67	43973	QPSK	384	416	
67	43973	16 QAM	270	416	
68	44629	QPSK	384	417	
68	44629	16 QAM	276	417	
69	45285	QPSK	384	417	
69	45285	16 QAM	276	417	
70	45941	QPSK	384	418	
70	45941	16 QAM	280	418	
71	46597	QPSK	384	419	
71	46597	16 QAM	286	419	
72	47253	QPSK	384	420	
72	47253	16 QAM	290	420	
73	47909	QPSK	384	421	
73	47909	16 QAM	297	421	
74	48565	QPSK	384	422	
74	48565	16 QAM	300	422	
75	49221	QPSK	384	423	
75	49221	16 QAM	300	423	
76	49877	QPSK	384	423	
76	49877	16 QAM	300	423	
77	50533	QPSK	384	424	
77	50533	16 QAM	310	424	
78	51189	QPSK	384	425	

78	51189	16 QAM	312	425	
79	51845	QPSK	384	426	
79	51845	16 QAM	320	426	

3GPP TS 34.123-1 version 10.3.1 Release 10

80	52501	QPSK	384	427	
80	52501	16 QAM	324	427	
81	53157	QPSK	384	427	
81	53157	16 QAM	324	427	
82	53813	QPSK	384	428	
82	53813	16 QAM	330	428	
83	54469	QPSK	384	429	
83	54469	16 QAM	336	429	
84	55125	QPSK	384	430	
84	55125	16 QAM	341	430	
85	55781	QPSK	384	430	
85	55781	16 QAM	341	430	
86	56437	QPSK	384	431	
86	56437	16 QAM	348	431	
87	57093	QPSK	384	432	
87	57093	16 QAM	352	432	
88	57749	QPSK	384	433	
88	57749	16 QAM	360	433	
89	58405	QPSK	384	433	
89	58405	16 QAM	360	433	
90	59061	QPSK	384	434	
90	59061	16 QAM	360	434	
91	59717	QPSK	384	435	
91	59717	16 QAM	360	435	
92	60373	QPSK	384	435	
92	60373	16 QAM	360	435	
93	61029	QPSK	384	436	
93	61029	16 QAM	372	436	
94	61685	QPSK	384	437	
94	61685	16 QAM	384	437	
95	62341	QPSK	384	437	
95	62341	16 QAM	384	437	
96	62997	QPSK	384	438	
96	62997	16 QAM	384	438	
97	63653	QPSK	384	439	
97	63653	16 QAM	384	439	
98	64309	QPSK	384	439	
98	64309	16 QAM	384	439	
99	64965	QPSK	384	440	
99	64965	16 QAM	384	440	
100	65621	QPSK	384	441	
100	65621	16 QAM	384	441	
101	66277	QPSK	384	441	
101	66277	16 QAM	384	441	
102	66933	QPSK	384	442	
102	66933	16 QAM	384	442	
103	67589	QPSK	384	442	
103	67589	16 QAM	384	442	
104	68245	QPSK	384	443	
104	68245	16 QAM	384	443	
105	68901	QPSK	384	444	

105	68901	16 QAM	384	444	
106	69557	QPSK	384	444	
106	69557	16 QAM	384	444	

107	70213	QPSK	384	445	
107	70213	16 QAM	384	445	
108	70869	QPSK	384	445	
108	70869	16 QAM	384	445	
109	71525	QPSK	384	446	
109	71525	16 QAM	384	446	
110	72181	QPSK	384	448	
110	72181	16 QAM	384	447	
111	72837	QPSK	384	448	
111	72837	16 QAM	384	447	
112	73493	QPSK	384	448	
112	73493	16 QAM	384	448	
113	74149	QPSK	384	448	
113	74149	16 QAM	384	448	
114	74805	QPSK	384	449	
114	74805	16 QAM	384	449	
115	75461	QPSK	384	449	
115	75461	16 QAM	384	449	
116	76117	QPSK	384	450	
116	76117	16 QAM	384	450	
117	76773	QPSK	384	450	
117	76773	16 QAM	384	450	
118	77429	QPSK	384	451	
118	77429	16 QAM	384	451	
119	78085	QPSK	384	451	
119	78085	16 QAM	384	451	
120	78741	QPSK	384	452	
120	78741	16 QAM	384	452	
121	79397	QPSK	384	453	
121	79397	16 QAM	384	453	
122	80053	QPSK	384	453	
122	80053	16 QAM	384	453	
123	80709	QPSK	384	455	
123	80709	16 QAM	384	454	
124	81365	QPSK	384	455	
124	81365	16 QAM	384	454	
125	82021	QPSK	384	455	
125	82021	16 QAM	384	455	
126	82677	QPSK	384	455	
126	82677	16 QAM	384	455	
127	83333	QPSK	384	456	
127	83333	16 QAM	384	456	
128	83989	QPSK	384	456	
128	83989	16 QAM	384	456	
129	84652	QPSK	384	457	
129	84652	16 QAM	384	457	
130	85308	QPSK	384	457	
130	85308	16 QAM	384	457	
131	85964	QPSK	384	457	
131	85964	16 QAM	384	457	
132	86620	QPSK	384	458	

132	86620	16 QAM	384	458	
133	87276	QPSK	384	458	
133	87276	16 QAM	384	458	

3GPP TS 34.123-1 version 10.3.1 Release 10

134	87932	QPSK	384	459	
134	87932	16 QAM	384	459	
135	88588	QPSK	384	459	
135	88588	16 QAM	384	459	
136	89244	QPSK	384	460	
136	89244	16 QAM	384	460	
137	89900	QPSK	384	460	
137	89900	16 QAM	384	460	
138	90556	QPSK	384	461	
138	90556	16 QAM	384	461	
139	91212	QPSK	384	461	
139	91212	16 QAM	384	461	
140	91868	QPSK	384	462	
140	91868	16 QAM	384	462	
141	92524	QPSK	384	462	
141	92524	16 QAM	384	462	
142	93180	16 QAM	384	463	
143	93836	16 QAM	384	463	
144	94492	16 QAM	384	463	
145	95148	16 QAM	384	464	
146	95804	16 QAM	384	464	
147	96460	16 QAM	384	465	
148	97116	16 QAM	384	465	
149	97772	16 QAM	384	466	
150	98428	16 QAM	384	466	
151	99084	16 QAM	384	466	
152	99740	16 QAM	384	467	
153	100396	16 QAM	384	467	
154	101052	16 QAM	384	468	
155	101708	16 QAM	384	468	
156	102364	16 QAM	384	468	
157	103020	16 QAM	384	469	
158	103676	16 QAM	384	469	
159	104332	16 QAM	384	470	
160	104988	16 QAM	384	470	
161	105644	16 QAM	384	470	
162	106300	16 QAM	384	471	
163	106956	16 QAM	384	471	
164	107612	16 QAM	384	472	
165	108268	16 QAM	384	472	
166	108924	16 QAM	384	472	
167	109580	16 QAM	384	473	
168	110236	16 QAM	384	473	
169	110892	16 QAM	384	473	
170	111548	16 QAM	384	474	
171	112204	16 QAM	384	474	
172	112860	16 QAM	384	474	
173	113516	16 QAM	384	475	
174	114172	16 QAM	384	475	
175	114828	16 QAM	384	476	
176	115484	16 QAM	384	476	

177	116140	16 QAM	384	476	
178	116796	16 QAM	384	477	
179	117452	16 QAM	384	477	

3GPP TS 34.123-1 version 10.3.1 Release 10

180	118108	16 QAM	384	477	
181	118764	16 QAM	384	478	
182	119420	16 QAM	384	478	
183	120076	16 QAM	384	478	
184	120732	16 QAM	384	479	
185	121388	16 QAM	384	479	
186	122044	16 QAM	384	479	
187	122700	16 QAM	384	480	
188	123356	16 QAM	384	480	
189	124012	16 QAM	384	480	
190	124668	16 QAM	384	481	
191	125324	16 QAM	384	481	
192	125980	16 QAM	384	481	
193	126636	16 QAM	384	482	
194	127292	16 QAM	384	482	
195	127948	16 QAM	384	482	
196	128604	16 QAM	384	483	
197	129260	16 QAM	384	483	
198	129916	16 QAM	384	483	
199	130572	16 QAM	384	484	
200	131228	16 QAM	384	484	
201	131884	16 QAM	384	484	
202	132540	16 QAM	384	485	
203	133196	16 QAM	384	485	
204	133852	16 QAM	384	485	
205	134508	16 QAM	384	485	
206	135164	16 QAM	384	486	
207	135820	16 QAM	384	486	
208	136476	16 QAM	384	486	
209	137132	16 QAM	384	487	
210	137788	16 QAM	384	487	
211	138444	16 QAM	384	487	
212	139100	16 QAM	384	488	
213	139756	16 QAM	384	488	
214	140412	16 QAM	384	488	
215	141068	16 QAM	384	488	
216	141724	16 QAM	384	489	
217	142380	16 QAM	384	489	
218	143036	16 QAM	384	489	
219	143692	16 QAM	384	491	
220	144348	16 QAM	384	491	
221	145004	16 QAM	384	491	
222	145660	16 QAM	384	491	
223	146316	16 QAM	384	491	
224	146972	16 QAM	384	491	
225	147628	16 QAM	384	491	
226	148284	16 QAM	384	492	
227	148940	16 QAM	384	492	
228	149596	16 QAM	384	492	
229	150252	16 QAM	384	492	
230	150908	16 QAM	384	493	

231	151564	16 QAM	384	493	
232	152220	16 QAM	384	493	
233	152876	16 QAM	384	493	

3GPP TS 34.123-1 version 10.3.1 Release 10

234	153532	16 QAM	384	494	
235	154188	16 QAM	384	494	
236	154844	16 QAM	384	494	
237	155500	16 QAM	384	495	
238	156156	16 QAM	384	495	
239	156812	16 QAM	384	495	
240	157468	16 QAM	384	495	
241	158124	16 QAM	384	496	
242	158780	16 QAM	384	496	
243	159436	16 QAM	384	496	
244	160092	16 QAM	384	496	
245	160748	16 QAM	384	497	
246	161404	16 QAM	384	497	
247	162060	16 QAM	384	497	
248	162716	16 QAM	384	497	
249	163372	16 QAM	384	498	
250	164028	16 QAM	384	498	
251	164684	16 QAM	384	498	
252	165340	16 QAM	384	498	
253	165996	16 QAM	384	499	
254	166652	16 QAM	384	499	
255	167308	16 QAM	384	499	
256	167964	16 QAM	384	499	
257	168627	16 QAM	384	501	
258	169283	16 QAM	384	501	
259	169939	16 QAM	384	501	
260	170595	16 QAM	384	501	
261	171251	16 QAM	384	501	
262	171907	16 QAM	384	501	
263	172563	16 QAM	384	501	
264	173219	16 QAM	384	501	
265	173875	16 QAM	384	501	
266	174531	16 QAM	384	502	
267	175187	16 QAM	384	502	
268	175843	16 QAM	384	502	
269	176499	16 QAM	384	502	
270	177155	16 QAM	384	503	
271	177811	16 QAM	384	503	
272	178467	16 QAM	384	503	
273	179123	16 QAM	384	503	
274	179779	16 QAM	384	504	
275	180435	16 QAM	384	504	
276	181091	16 QAM	384	504	
277	181747	16 QAM	384	504	
278	182403	16 QAM	384	504	
279	183059	16 QAM	384	505	
280	183715	16 QAM	384	505	
281	184371	16 QAM	384	505	
282	185027	16 QAM	384	505	

18.3.1.5 Generic test procedure radio bearers on MTCH

See 14.1.5 for test procedure

3GPP TS 34.123-1 version 10.3.1 Release 10

18.3.1.6 Generic test procedure for radio bearers on MBSFN MTCH

18.3.1.6.1 Initial conditions

System Simulator:

- 1 MBMS MBSFN Cell 31 with default parameters.

  In addition to broadcasting System Information, MCCH messages are transmitted by the SS using MBMS configuration C1 and Default1 MCCH scheduling (No ongoing service). See subclause 11.1 of TS 34.108.

- 1 unicast carrier Cell 1 with default parameters.

User Equipment:

- On the unicast carrier cell the UE is in registered Idle Mode on PS (state 3) if the UE only supports PS domain or registered Idle Mode on CS/PS (state 7) if the UE supports both CS and PS domains, as specified in clause 7.2.2 of TS 34.108.

- The UE is in MBSFN Idle mode with one activated service as specified in clause 7.6.4 of TS 34.108. The UE has selected the broadcast service to be provided by the SS on the MBSFN cell (included in MBMS_ACTIVATED_SERVICES variable).

18.3.1.6.2 Test procedure

a) The SS sends CLOSE UE TEST LOOP via the unicast carrier cell, requesting activation of Test Loop Mode 3 specifying the MBSFN MBMS short transmission identity of the MTCH for the activated service

b) The SS notifies on MCCH about the start of an MBMS session and waits for the UE to activate MTCH reception at the specified activation time.

c) At the specified activation time the UE establishes the p-t-m radio bearer and closes the UE test loop. The UE sends CLOSE UE TEST LOOP COMPLETE..

d) The SS broadcasts 10 RLC SDUs on the MTCH configured on the concerned MBMS radio bearer. The MBMS data is broadcast using RLC SDU size and transport format as specified for sub-test 1.

e) The SS retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The SS checks that the UE has received at least one RLC SDU.

f) Repeat steps g) and h) for the remaining sub-tests.

g) The SS broadcast 10 RLC SDUs on the MTCH configured on the concerned MBMS radio bearer. The MBMS data is broadcasted using RLC SDU size and transport format as specified for the sub-test under test.

h) The SS retrieves the number of RLC SDUs on MTCH counted by the UE by sending the UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST message. The SS checks that the UE has received at least one RLC SDU of the MBMS data sent in step g).

i) The SS deactivates the UE test loop mode 3.

NOTE 1: For a UE in UE test loop mode 3 the RLC SDU counter value is only reset upon reception of the CLOSE UE TEST LOOP message configuring UE test loop mode 3. To enable the SS to measure the number of received RLC SDUs for the different sub-tests the SS needs to record the reported values for each sub-test and perform the checking of the reported value relative to the previously reported value.

Expected sequence

Step	Direction		Carrier	Message	Comment
	UE	SS			
3GPP TS 34.123-1 version 10.3.1 Release 10					
1	←		U	ACTIVATE RB TEST MODE	
2	→		U	ACTIVATE RB TEST MODE COMPLETE	
3	←		U	CLOSE UE TEST LOOP	Loop back mode 3 on MTCH for the activated service.
4	←		M	MBMS MCCH Message Configuration C4	Includes the service activated at UE in the modified services list for one modification period.
5	←		M	MBMS MCCH Message Configuration C2	No modified services. One ongoing service corresponding to that activated at the UE.
6	→		U	CLOSE UE TEST LOOP COMPLETE	The UE establishes the MTCH according to the activation time and closes the test loop.
7	SS		M		The SS transmits 10 RLC SDUs on the MTCH. The MBMS data is broadcast using RLC SDU size and transport format as specified for sub-test 1.
8	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	.
9	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC PDUs is greater than zero and records the value.
10	SS				The SS repeats steps 10 to 12 for the remaining sub-tests (sub-test 2 etc.).
11	SS		M		The SS transmits 10 RLC SDUs on the MTCH. The MBMS data is broadcast using RLC SDU size and transport format as specified for the current sub-test under test.
12	←		U	UE TEST LOOP MODE 3 RLC SDU COUNTER REQUEST	
13	→		U	UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE	The SS checks that the number of reported RLC PDUs is greater than the recorded value from the previous sub-test. The SS records the reported value.
14	←		U	OPEN UE TEST LOOP	
15	→		U	OPEN UE TEST LOOP COMPLETE	
16	←		U	DEACTIVATE RB TEST MODE	
17	→		U	DEACTIVATE RB TEST MODE COMPLETE	

Specific Message Contents

MBMS MODIFIED SERVICES INFORMATION (Step 4)

Information Element	Value/remark
Message type	
Modified service list	
- MBMS Transmission identity	
- MBMS Service ID	1
- MBMS Session ID	1
- MBMS required UE action	Acquire PTM RB info
MBMS p-t-m activation time	SS shall choose a value which is sufficiently far ahead for the UE to establish the MTCH

UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE (Steps 9)

Information Element	Value/remark
RLC SDU Counter Value	Check that the number is greater than zero

3GPP TS 34.123-1 version 10.3.1 Release 10

UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE (Steps 13)

Information Element	Value/remark
RLC SDU Counter Value	Check that the number is greater than the value reported at the previous sub-test.

18.3.1.7 General information for interoperability radio bearer tests for E-DCH and HS-DSCH combinations

18.3.1.7.1 Generic test procedure for HS-DSCH and E-DCH radio bearer combinations

This procedure is used to test E-DCH radio bearer combinations. The procedure is run once for each sub-test of the actual E-DCH radio bearer test case.

Definition of test variables:

$N_{\underline{TS}}$	The number of HS-DSCH timeslots as specified by the sub-test. This parameter is dependent on the UE capability.
$N_{\underline{codes}}$	The number of HS-DSCH codes (1..32) as specified by the sub-test. This parameter is not dependent on UE capability, all UEs can support 32 HS-DSCH codes.
M	The type of modulation scheme (QPSK, 16QAM) as specified by the sub-test.
N_{PDUs}	The number of MAC-d PDUs for the DTCH(s) mapped on HS-DSCH as specified by the sub-test.
$H_{\underline{ID}}$	The HARQ process identifier (0..3) as specified by the sub-test.

18.3.1.7.1.1 Initial conditions

UE in idle mode

18.3.1.7.1.2 Test procedure

a) The SS establish the reference radio bearer configuration as specified in TS 34.108, clause 6.11 for the actual radio bearer test. For the case when the reference radio bearer configuration includes radio bearers for both CS and PS domain then the radio bearer setup procedure has to be performed once per domain. The first radio bearer setup procedure shall perform configuration of the physical channel for the radio bearer combination under test as well as the transport channels for the CS radio bearer(s). The second radio bearer procedure shall perform the configuration for the transport channel for the PS radio bearers . The Physical channel configuration shall be done for both CS and PS radio bearers combined. Here the transport format combination set for both CS and PS radio bearers shall be provided. See note 1 and note 3.

b) For DTCH mapped to DCH in uplink the SS limits the UE allowed uplink transport format combinations according to the "Restricted UL TFCIs", as specified for the sub-test of the actual radio bearer test, using the RRC transport format combination control procedure. See note 2.

c) The SS closes the test loop using UE test loop mode 1 and set the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test.

d) The SS issues an absolute grant that allows the UE to send at maximum bit rate.

e) The SS sets the HS-DSCH TFRC test point as specified for the sub-test (N_{PDUs} , M, $N\underline{codes}$, $N_{\underline{TS}}$ and $TFRI$).

f) The SS sets $H_{\underline{ID}}$ to the number of HARQ processes specified for the sub-test.

h) The SS transmits, for each DTCH mapped to HS-DSCH, a DL RLC SDUs having the size equal the to the “Test data size” as specified for the sub-test concatenated into a MAC-hs PDU using the selected TFRC and H_{ID}. If the radio bearer combination under test includes downlink DTCHs mapped to DCH then the SS transmits, for all DTCHs mapped to DCH, one or more RLC SDUs having the size equal to the "Test data size" as specified for the sub-test.

3GPP TS 34.123-1 version 10.3.1 Release 10

i) The SS checks that the content of the UE returned RLC SDUs have the correct content and are received having the correct transport format. See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loopback of RLC SDUs.

j) The SS opens the UE test loop.

l) The SS release the radio bearer. See note 4.

m) Steps a) to l) are repeated for all sub-tests. See note 5.

n) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The SS configures the physical channel parameters according to the actual UE category under test. The number of soft channel bits per HARQ process is split equally among the number of HARQ processes configured for the actual sub-test - i.e. “Total number of soft channel bits” for the UE category according to table 18.3.1.4.1.1 divided by the number of HARQ processes under test. The number of reordering queues are 1 for single HS-DSCH radio bearer configurations. The MAC-hs window size, RLC Transmission window size and RLC Receiving window size shall be configured as specified for the actual sub-test.

NOTE 2: The restricted set of uplink TFCIs shall contain all possible TFCI that could happen in a sub-test. The actual TTI of the different radio bearers and signalling radio bearers as well as the possible UE processing delays shall be taken into consideration. The restricted set of TFCIs must comply with the minimum set of TFCIs as specified in TS 25.331, clause 8.6.5.2.

NOTE 3: The MAC-hs window size and RLC Receiver and transmitter window sizes need to be chosen such that the UE capability for “Minimum total RLC AM and MAC-hs buffer size” is not exceeded for the UE category under test.

NOTE 4: The Secondary scrambling code in the RADIO BEARER RELEASE message is set to the same value used in the RADIO BEARER SETUP MESSAGE.

NOTE 5: CS radio bearer is setup once during the first sub-test.

Expected sequence (repeated for each sub-test, see note 3)

Step	Direction		Message	Comments
	UE	SS		
Case A: PS radio bearers only				
A1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
A2	<--		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
A3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
A4	<--		RRC CONNECTION SETUP (CCCH)	RRC
A5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
A6	-->		SERVICE REQUEST (DCCH)	GMM
A7	<--		SECURITY MODE COMMAND	RRC see note 1
A8	-->		SECURITY MODE COMPLETE	RRC see note 1
A9	<--		ACTIVATE RB TEST MODE (DCCH)	TC
A10	-->		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
A11	<--		RADIO BEARER SETUP (DCCH)	RRC PS radio bearer(s) are configured. For the PS radio bearer(s) the 'pdcp info' IE shall be omitted.
A12	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
End of branch for Case A				
Case B: CS + PS radio bearers				
B1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
B2	<--		PAGING TYPE 1 (PCCH)	Paging (CS domain, TMSI)
B3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
B4	<--		RRC CONNECTION SETUP (CCCH)	RRC
B5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
B6	-->		PAGING RESPONSE (DCCH)	RR
B6a	<--		AUTHENTICATION REQUEST	
B6b	-->		AUTHENTICATION RESPONSE	
B7	<--		SECURITY MODE COMMAND	
B8	-->		SECURITY MODE COMPLETE	
B9	<--		PAGING TYPE 2 (DCCH)	TMSI (GSM-MAP)/ P-TMSI
B9a	-->		SERVICE REQUEST (DCCH)	GMM
B9b	<--		SECURITY MODE COMMAND	RRC See note 2
B9c	-->		SECURITY MODE COMPLETE	RRC
B10	<--		ACTIVATE RB TEST MODE (DCCH)	TC
B10a	-->		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
B11	<--		RADIO BEARER SETUP (DCCH)	RRC CS radio bearer(s) are configured
B12	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
B12a	<--		RADIO BEARER SETUP (DCCH)	RRC PS radio bearer(s) are configured. For the PS radio bearer the 'pdcp info' IE shall be omitted.
B12b	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
B12c	<--		TRANSPORT FORMAT COMBINATION CONTROL (DCCH)	RRC Transport format combinations is limited to "Restricted UL TFCIs", as specified for the sub-test
End of branch for Case B				
13			Void	
14	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
15	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
16	SS			The SS sets the HS-DSCH TFRC test point (N_{PDUs} , M, Ncodes, N_{TS} and TFRI). and the number of HARQ processes as specified for the sub-test.

Step	Direction		Message	Comments
	UE	SS		

3GPP TS 34.123-1 version 10.3.1 Release 10

17	<--	DOWNLINK MAC-hs PDU (HS-DSCH#1) … DOWNLINK MAC-hs PDU (HS-DSCH#N) DL RLC SDU (DL DCH#1) … DL RLC SDU (DL DCH#M)	For each DTCH mapped on HS-DSCH the SS sends test data. For each DTCH mapped on DCH the SS sends test data using the downlink transport format combination under test.
18	-->	UPLINK RLC SDUs	The SS checks, for each DTCH, that the content and transport format of the received UL RLC SDUs are correct.
19	<--	OPEN UE TEST LOOP (DCCH)	TC
20	-->	OPEN UE TEST LOOP COMPLETE (DCCH)	TC
21		RB RELEASE	RRC
22	<--	DEACTIVATE RB TEST MODE	TC Optional step
23	-->	DEACTIVATE RB TEST MODE COMPLETE	TC Optional step

NOTE 1 In addition to activate integrity protection Step 6 and Step 7 are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.

NOTE 2 For case B (CS+PS radio bearers) the second security mode procedure is needed to enable testing of ciphering on the PS radio bearers.

NOTE 3 For case A (PS radio bearers) steps A1 to A10 will be executed once during first sub-test. For case B (CS+PS radio bearers) steps B1 to B12 will be executed once during first sub-test.

18.3.2 Combinations on DPCH

18.3.2.1 Stand-alone UL:1.7 DL:1.7 kbps SRBs for DCCH

Test to verify establishment and signalling of stand-alone signalling reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.1.

The test case is performed by running test case 9.4.1 (Location updating / accepted) using the stand-alone signalling reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.1.

18.3.2.1a Stand-alone UL:1.7 DL:1.7 kbps SRBs for DCCH (multiframe)

Test to verify establishment and signalling of stand-alone signalling reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.1a.

The test case is performed by running test case 9.4.1 (Location updating / accepted) using the stand-alone signalling reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.1a.

18.3.2.2 Stand-alone UL:3.4 DL:3.4 kbps SRBs for DCCH

Test to verify establishment and signalling of stand-alone signalling reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.2.

The test case is performed by running test case 9.4.1 (Location updating / accepted) using the stand-alone signalling reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.2.

18.3.2.3 Stand-alone UL:13.6 DL:13.6 kbps SRBs for DCCH

Implicitly tested.

NOTE The stand-alone UL:13.6 DL:13.6 kbps SRBs for DCCH in TS 34.108, clause 6.11.6.4.1.3 is the default signalling radio bearer used in the generic setup procedure as specified in TS 34.108 clause 7.

18.3.2.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.2.4.1 Conformance requirement

The UE shall be able to establish the UTRAN requested radio bearers within the UE's signalled radio access capabilities.

The UE shall correctly transfer user data from peer to peer RLC entities according to the requested radio bearer configuration.

Reference(s)

3GPP TS 25.331, clause 8.2.1

3GPP TS 25.2xx series (Physical Layer)

3GPP TS 25.321 (MAC)

3GPP TS 25.322 (RLC)

18.3.2.4.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.4.

18.3.2.4.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)

3GPP TS 34.123-1 version 10.3.1 Release 10

DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 103 bits RB7: 60 bits	RB5: 39 bits RB6: No data RB7: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 81 bits RB6: 103 bits RB7: 60 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.1 for test procedure.

18.3.2.4.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x81); RB6/TF1 (1x103); and RB7/TF1 (1x60).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 or RB7.
   - for sub-test 2: an RLC SDU on each of RB5, RB6 and RB7 having the same content as sent by SS

18.3.2.4a Conversational / speech / UL:(12.2 7.95 5.9 4.75) DL:(12.2 7.95 5.9 4.75) kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

18.3.2.4a.1 Conformance requirement

See clause 18.3.2.4.1.

18.3.2.4a.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.4a.

18.3.2.4a.3 Method of test

Uplink TFS:

3GPP TS 34.123-1 version 10.3.1 Release 10

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x148
	TF1, bits	1x39	1x53	1x60	1x148
	TF2, bits	1x42	1x63	N/A	N/A
	TF3, bits	1x55	1x84	N/A	N/A
	TF4, bits	1x75	1x103	N/A	N/A
	TF5, bits	1x81	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7,DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0, TF0)
UL_TFC3	(TF3, TF2, TF0, TF0)
UL_TFC4	(TF4, TF3, TF0, TF0)
UL_TFC5	(TF5, TF4, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF0, TF1)
UL_TFC8	(TF2, TF1, TF0, TF1)
UL_TFC9	(TF3, TF2, TF0, TF1)
UL_TFC10	(TF4, TF3, TF0, TF1)
UL_TFC11	(TF5, TF4, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x81(alt. 1x0)	0x103	0x60	0x148
	TF1, bits	1x39	1x53	1x60	1x148
	TF2, bits	1x42	1x63	N/A	N/A
	TF3, bits	1x55	1x84	N/A	N/A
	TF4, bits	1x75	1x103	N/A	N/A
	TF5, bits	1x81	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0, TF0)
DL_TFC3	(TF3, TF2, TF0, TF0)
DL_TFC4	(TF4, TF3, TF0, TF0)
DL_TFC5	(TF5, TF4, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF1)
DL_TFC7	(TF1, TF0, TF0, TF1)
DL_TFC8	(TF2, TF1, TF0, TF1)
DL_TFC9	(TF3, TF2, TF0, TF1)
DL_TFC10	(TF4, TF3, TF0, TF1)
DL_TFC11	(TF5, TF4, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
3GPP TS 34.123-1 version 10.3.1 Release 10						
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 39 bits RB6: 103 bits RB7: 60 bits	RB5: 39 bits RB6: No data RB7: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC8	RB5: 42 bits RB6: 53 bits RB7: 60 bits	RB5: 42 bits RB6: 53 bits RB7: No data
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC9	RB5: 55 bits RB6: 63 bits RB7: 60 bits	RB5: 55 bits RB6: 63 bits RB7: No data
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC10	RB5: 75 bits RB6: 84 bits RB7: 60 bits	RB5: 75 bits RB6: 84 bits RB7: No data
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 81 bits RB6: 103 bits RB7: 60 bits	RB5: 81 bits RB6: 103 bits RB7: 60 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5 and UL_TFC6 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.3.1.1 for test procedure.

18.3.2.4a.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x42) and RB6/TF1 (1x53)
   - for sub-test 3: RB5/TF3 (1x55) and RB6/TF2 (1x63)
   - for sub-test 4: RB5/TF4 (1x75) and RB6/TF3 (1x84)

- for sub-test 5: RB5/TF5 (1x81), RB6/TF4 (1x103) and RB7/TF1 (1x60)

3. At step 15 the UE shall return

3GPP TS 34.123-1 version 10.3.1 Release 10

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 or RB7.
- for sub-test 2,3 and 4: an RLC SDU on RB5 and RB6 having the same content as sent by SS; and no data shall be received on RB7.
- for sub-test 5: an RLC SDU on each of RB5, RB6 and RB7 having the same content as sent by SS.

18.3.2.5 Conversational / speech / UL:10.2 DL:10.2 kbps / CS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

18.3.2.5.1 Conformance requirement

See clause 18.3.2.4.1.

18.3.2.5.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.5.

18.3.2.5.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x65(alt. 1x0)	0x99	0x40	0x148
	TF1, bits	1x39	1x99	1x40	1x148
	TF2, bits	1x65	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7,DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x65(alt. 1x0)	0x99	0x40	0x148
	TF1, bits	1x39	1x99	1x40	1x148
	TF2, bits	1x65	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)

3GPP TS 34.123-1 version 10.3.1 Release 10

DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 99 bits RB7: 40 bits	RB5: 39 bits RB6: No data RB7: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 65 bits RB6: 99 bits RB7: 40 bits	RB5: 65 bits RB6: 99 bits RB7: 40 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.3.1.1 for test procedure.

18.3.2.5.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x65); RB6/TF1 (1x99); and RB7/TF1 (1x40).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 or RB7.
   - for sub-test 2: an RLC SDU on each of RB5, RB6 and RB7 having the same content as sent by SS.

18.3.2.5a Conversational / speech / UL:(10.2, 6.7, 5.9, 4.75) DL:(10.2, 6.7, 5.9, 4.75) kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

18.3.2.5a.1 Conformance requirement

See clause 18.3.2.4.1.

18.3.2.5a.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.5a.

18.3.2.5a.3 Method of test

Uplink TFS:

3GPP TS 34.123-1 version 10.3.1 Release 10

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x65(alt. 1x0)	0x99	0x40	0x148
	TF1, bits	1x39	1x53	1x40	1x148
	TF2, bits	1x42	1x63	N/A	N/A
	TF3, bits	1x55	1x76	N/A	N/A
	TF4, bits	1x58	1x99	N/A	N/A
	TF5, bits	1x65	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7,DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0, TF0)
UL_TFC3	(TF3, TF2, TF0, TF0)
UL_TFC4	(TF4, TF3, TF0, TF0)
UL_TFC5	(TF5, TF4, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF0, TF1)
UL_TFC8	(TF2, TF1, TF0, TF1)
UL_TFC9	(TF3, TF2, TF0, TF1)
UL_TFC10	(TF4, TF3, TF0, TF1)
UL_TFC11	(TF5, TF4, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	0x65(alt. 1x0)	0x99	0x40	0x148
	TF1, bits	1x39	1x53	1x40	1x148
	TF2, bits	1x42	1x63	N/A	N/A
	TF3, bits	1x55	1x76	N/A	N/A
	TF4, bits	1x58	1x99	N/A	N/A
	TF5, bits	1x65	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0, TF0)
DL_TFC3	(TF3, TF2, TF0, TF0)
DL_TFC4	(TF4, TF3, TF0, TF0)
DL_TFC5	(TF5, TF4, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF1)
DL_TFC7	(TF1, TF0, TF0, TF1)
DL_TFC8	(TF2, TF1, TF0, TF1)
DL_TFC9	(TF3, TF2, TF0, TF1)
DL_TFC10	(TF4, TF3, TF0, TF1)
DL_TFC11	(TF5, TF4, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
3GPP TS 34.123-1 version 10.3.1 Release 10						
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 39 bits RB6: 99 bits RB7: 40 bits	RB5: 39 bits RB6: No data RB7: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC8	RB5: 42 bits RB6: 53 bits RB7: 40 bits	RB5: 42 bits RB6: 53 bits RB7: No data
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC9	RB5: 55 bits RB6: 63 bits RB7: 40 bits	RB5: 55 bits RB6: 63 bits RB7: No data
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC10	RB5: 58 bits RB6: 76 bits RB7: 40 bits	RB5: 58 bits RB6: 76 bits RB7: No data
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 65 bits RB6: 99 bits RB7: 40 bits	RB5: 65 bits RB6: 99 bits RB7: 40 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5 and UL_TFC6 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.3.1.1 for test procedure.

18.3.2.5a.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x42) and RB6/TF1 (1x53)
   - for sub-test 3: RB5/TF3 (1x55) and RB6/TF2 (1x63)
   - for sub-test 4: RB5/TF4 (1x58) and RB6/TF3 (1x76)

- for sub-test 5: RB5/TF5 (1x65), RB6/TF4 (1x99) and RB7/TF1 (1x40)

3. At step 15 the UE shall return

3GPP TS 34.123-1 version 10.3.1 Release 10

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by the SS; and no data shall be received on RB6 or RB7.

- for sub-test 2, 3 and 4: an RLC SDU on RB5 and RB6 having the same content as sent by the SS; and no data shall be received on RB7.

- for sub-test 5: an RLC SDU on each of RB5, RB6 and RB7 having the same content as sent by the SS.

18.3.2.6 Conversational / speech / UL:7.95 DL:7.95 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.2.6.1 Conformance requirement

See clause 18.3.2.4.1.

18.3.2.6.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.6.

18.3.2.6.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x75(alt. 1x0)	0x84	0x148
	TF1, bits	1x39	1x84	1x148
	TF2, bits	1x75	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0)
UL_TFC3	(TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x75(alt. 1x0)	0x84	0x148
	TF1, bits	1x39	1x84	1x148
	TF2, bits	1x75	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)

3GPP TS 34.123-1 version 10.3.1 Release 10

DL_TFC2	(TF2, TF1, TF0)
DL_TFC3	(TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 84 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 75 bits RB6: 84 bits	RB5: 75 bits RB6: 84 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.3.1.1 for test procedure.

.

18.3.2.6.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x75) and RB6/TF1 (1x84).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
   - for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS.

18.3.2.7 Conversational / speech / UL:7.4 DL:7.4 kbps / CS RAB+ UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.2.7.1 Conformance requirement

See clause 18.3.2.4.1.

18.3.2.7.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.7.

18.3.2.7.3 Method of test

Uplink TFS:

3GPP TS 34.123-1 version 10.3.1 Release 10

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x61 (alt. 1x0)	0x87	0x148
	TF1, bits	1x39	1x87	1x148
	TF2, bits	1x61	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0)
UL_TFC3	(TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x61 (alt. 1x0)	0x87	0x148
	TF1, bits	1x39	1x87	1x148
	TF2, bits	1x61	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0)
DL_TFC3	(TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 87 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 61 bits RB6: 87 bits	RB5: 61 bits RB6: 87 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.3.1.1 for test procedure.

18.3.2.7.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

3GPP TS 34.123-1 version 10.3.1 Release 10

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x61) and RB6/TF1 (1x87).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
   - for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS

18.3.2.7a Conversational / speech / UL:(7.4, 6.7, 5.9, 4.75) DL:(7.4, 6.7, 5.9, 4.75) kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

18.3.2.7a.1 Conformance requirement

See clause 18.3.2.4.1.

18.3.2.7a.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.7a.

18.3.2.7a.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x61(alt. 1x0)	0x87	0x148
	TF1, bits	1x39	1x53	1x148
	TF2, bits	1x42	1x63	N/A
	TF3, bits	1x55	1x76	N/A
	TF4, bits	1x58	1x87	N/A
	TF5, bits	1x61	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7,DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0)
UL_TFC3	(TF3, TF2, TF0)
UL_TFC4	(TF4, TF3, TF0)
UL_TFC5	(TF5, TF4, TF0)
UL_TFC6	(TF0, TF0, TF1)
UL_TFC7	(TF1, TF0, TF1)
UL_TFC8	(TF2, TF1, TF1)
UL_TFC9	(TF3, TF2, TF1)
UL_TFC10	(TF4, TF3, TF1)
UL_TFC11	(TF5, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x61 (alt. 1x0)	0x87	0x148

	TF1, bits	1x39	1x53	1x148
	TF2, bits	1x42	1x63	N/A
	TF3, bits	1x55	1x76	N/A
	TF4, bits	1x58	1x87	N/A
	TF5, bits	1x61	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0)
DL_TFC3	(TF3, TF2, TF0)
DL_TFC4	(TF4, TF3, TF0)
DL_TFC5	(TF5, TF4, TF0)
DL_TFC6	(TF0, TF0, TF1)
DL_TFC7	(TF1, TF0, TF1)
DL_TFC8	(TF2, TF1, TF1)
DL_TFC9	(TF3, TF2, TF1)
DL_TFC10	(TF4, TF3, TF1)
DL_TFC11	(TF5, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
3GPP TS 34.123-1 version 10.3.1 Release 10						
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 39 bits RB6: 87 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC8	RB5: 42 bits RB6: 53 bits	RB5: 42 bits RB6: 53 bits
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC9	RB5: 55 bits RB6: 63 bits	RB5: 55 bits RB6: 63 bits
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC10	RB5: 58 bits RB6: 76 bits	RB5: 58 bits RB6: 76 bits
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 61 bits RB6: 87 bits	RB5: 61 bits RB6: 87 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5 and UL_TFC6 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.3.1.1 for test procedure.

18.3.2.7a.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x42) and RB6/TF1 (1x53)
   - for sub-test 3: RB5/TF3 (1x55) and RB6/TF2 (1x63)
   - for sub-test 4: RB5/TF4 (1x58) and RB6/TF3 (1x76)

- for sub-test 5: RB5/TF5 (1x61) and RB6/TF4 (1x87)

3. At step 15 the UE shall return

3GPP TS 34.123-1 version 10.3.1 Release 10

- for sub-test 1: an RLC SDU on RB5 having the same content as sent by the SS; and no data shall be received on RB6.

- for sub-test 2 to 5: an RLC SDU on RB5 and RB6 having the same content as sent by the SS.

18.3.2.8 Conversational / speech / UL:6.7 DL:6.7 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.2.8.1 Conformance requirement

See clause 18.3.2.4.1.

18.3.2.8.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.8.

18.3.2.8.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x58(alt. 1x0)	0x76	0x148
	TF1, bits	1x39	1x76	1x148
	TF2, bits	1x58	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0)
UL_TFC3	(TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x58(alt. 1x0)	0x76	0x148
	TF1, bits	1x39	1x76	1x148
	TF2, bits	1x58	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0)
DL_TFC3	(TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1)

Sub-tests:

3GPP TS 34.123-1 version 10.3.1 Release 10

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 76 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 58 bits RB6: 76 bits	RB5: 58 bits RB6: 76 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.3.1.1 for test procedure.

18.3.2.8.4 Test requirements

See clause 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x58) and RB6/TF1 (1x76).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
   - for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS

18.3.2.9 Conversational / speech / UL:5.9 DL:5.9 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.2.9.1 Conformance requirement

See clause 18.3.2.4.1.

18.3.2.9.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.9.

18.3.2.9.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x55(alt. 1x0)	0x63	0x148

3GPP TS 34.123-1 version 10.3.1 Release 10

	TF1, bits	1x39	1x63	1x148
	TF2, bits	1x55	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0)
UL_TFC3	(TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x55 (alt. 1x0)	0x63	0x148
	TF1, bits	1x39	1x63	1x148
	TF2, bits	1x55	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0)
DL_TFC3	(TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 63 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 55 bits RB6: 63 bits	RB5: 55 bits RB6: 63 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.3.1.1 for test procedure.

18.3.2.9.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be

 for sub-test 1: RB5/TF1 (1x39).

- for sub-test 2: RB5/TF2 (1x55) and RB6/TF1 (1x63).

3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
   - for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS

18.3.2.10 Conversational / speech / UL:5.15 DL:5.15 kbps / CS RAB + UL:1.7 DL:1.7 kbps SRBs for DCCH

18.3.2.10.1 Conformance requirement

See clause 18.3.2.4.1.

18.3.2.10.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.10.

18.3.2.10.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x49 (alt. 1x0)	0x54	0x148
	TF1, bits	1x39	1x54	1x148
	TF2, bits	1x49	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0)
UL_TFC3	(TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x49 (alt. 1x0)	0x54	0x148
	TF1, bits	1x39	1x54	1x148
	TF2, bits	1x49	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)

DL_TFC2	(TF2, TF1, TF0)
DL_TFC3	(TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 54 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 49 bits RB6: 54 bits	RB5: 49 bits RB6: 54 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.3.1.1 for test procedure.

18.3.2.10.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x49) and RB6/TF1 (1x54).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
   - for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS

18.3.2.11 Conversational / speech / UL:4.75 DL:4.75 kbps / CS RAB + UL:1.7 DL:1.7 kbps SRBs for DCCH

18.3.2.11.1 Conformance requirement

See clause 18.3.2.4.1.

18.3.2.11.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.11.

18.3.2.11.3 Method of test

Uplink TFS:

3GPP TS 34.123-1 version 10.3.1 Release 10

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x49(alt.1x0)	0x53	0x148
	TF1, bits	1x39	1x53	1x148
	TF2, bits	1x42	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0)
UL_TFC3	(TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0X42 (alt.1x0)	0x53	0x148
	TF1, bits	1x39	1x53	1x148
	TF2, bits	1x42	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0)
DL_TFC3	(TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 bits RB6: 53 bits	RB5: 39 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5,	RB5: 42 bits RB6: 53 bits	RB5: 42 bits RB6: 53 bits
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.3.1.1 for test procedure.

18.3.2.11.4 Test requirements

See clause 18.3.1.1 for definition of step 10 and step 15.

3GPP TS 34.123-1 version 10.3.1 Release 10

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x39).
   - for sub-test 2: RB5/TF2 (1x42) and RB6/TF1 (1x53).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
   - for sub-test 2: an RLC SDU on each of RB5 and RB6 having the same content as sent by SS

18.3.2.12 Conversational / unknown / UL:28.8 DL:28.8 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.2.12.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.12.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.12.

18.3.2.12.3 Method of test

Uplink RLC TM RLC Segmentation indication	FALSE
Downlink RLC TM RLC Segmentation indication	FALSE

Uplink TFS:

	TFI	RB5 (28.8 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

		RB5 (28.8 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148

3GPP TS 34.123-1 version 10.3.1 Release 10

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 576	RB5: 576
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC2 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.3.1.1 for test procedure.

18.3.2.12.4 Test requirements

See clause 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x576).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS.

18.3.2.13 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.2.13.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 20ms TTI

18.3.2.13.1.1 Conformance requirement

See clause 18.3.2.4.1.

18.3.2.13.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.13.

18.3.2.13.1.3 Method of test

3GPP TS 34.123-1 version 10.3.1 Release 10

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	2x640	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	2x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
3GPP TS 34.123-1 version 10.3.1 Release 10						
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 640	RB5: 2x640
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC2 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.3.1.1 for test procedure.

18.3.2.13.1.4 Test requirements

See clause 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (2x640).
3. At step 15 the UE shall return
   - for sub-test 1: two RLC SDUs on RB5 having the same content as sent by SS.

18.3.2.13.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 40ms TTI

18.3.2.13.2.1 Conformance requirement

See clause 18.3.2.4.1.

18.3.2.13.2.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.13.

18.3.2.13.2.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	4x640	1x148

3GPP TS 34.123-1 version 10.3.1 Release 10

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	4x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 640	RB5: 4x640
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC2 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 18.3.1.1 for test procedure.

18.3.2.13.2.4 Test requirements

See clause 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (4x640).
3. At step 15 the UE shall return
   - for sub-test 1: four RLC SDUs on RB5 having the same content as sent by SS.

18.3.2.14 Conversational / unknown / UL:32 DL:32 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

3GPP TS 34.123-1 version 10.3.1 Release 10

18.3.2.14.1 Conversational / unknown / UL:32 DL:32 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 20ms TTI

18.3.2.14.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.14.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.14.

18.3.2.14.1.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC TM RLC Segmentation indication	 FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	1x640	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	1x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

3GPP TS 34.123-1 version 10.3.1 Release 10

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 640	RB5: 640
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC2 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.1 for test procedure.

18.3.2.14.1.4 Test requirements

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x640).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS.

18.3.2.14.1 Conversational / unknown / UL:32 DL:32 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 40ms TTI

18.3.2.14.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.14.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.14.

18.3.2.14.1.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC TM RLC Segmentation indication	 FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	2x640	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)

3GPP TS 34.123-1 version 10.3.1 Release 10

UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	2x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 640	RB5: 2x640
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC2 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.1 for test procedure.

18.3.2.14.1.4 Test requirements

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (2x640).
3. At step 15 the UE shall return
   - for sub-test 1: two RLC SDUs on RB5 having the same content as sent by SS.

18.3.2.15 Streaming / unknown / UL:14.4/DL:14.4 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.2.15.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.15.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.15.

3GPP TS 34.123-1 version 10.3.1 Release 10

18.3.2.15.3 Method of test

Uplink TFS:

	TFI	RB5 (14.4 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

	TFI	RB5 (14.4 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 576	RB5: 576
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC2 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.1 for test procedure.

18.3.2.15.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x576).

3. At step 15 the UE shall return

   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS.

18.3.2.16 Streaming / unknown / UL:28.8/DL:28.8 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.2.16.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.16.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.16.

18.3.2.16.3 Method of test

Uplink TFS:

	TFI	RB5 (28.8 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

		RB5 (28.8 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
3GPP TS 34.123-1 version 10.3.1 Release 10						
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 576	RB5: 576
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC2 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.1 for test procedure.

18.3.2.16.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x576).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS.

18.3.2.17 Streaming / unknown / UL:57.6/DL:57.6 kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.2.17.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.17.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.17.

18.3.2.17.3 Method of test

Initial Conditions

The following RLC Info parameter values shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

Uplink TFS:

	TFI	RB5 (57.6 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148
	TF2, bits	2x576	N/A
	TF3, bits	3x576	N/A
	TF4, bits	4x576	N/A

3GPP TS 34.123-1 version 10.3.1 Release 10

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (57.6 kbps)	DCCH
TFS	TF0, bits	0x576	0x148
	TF1, bits	1x576	1x148
	TF2, bits	2x576	N/A
	TF3, bits	3x576	N/A
	TF4, bits	4x576	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
3GPP TS 34.123-1 version 10.3.1 Release 10						
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5,	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 576	RB5: 576
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 576	RB5: 2x576
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 576	RB5: 3x576
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 576	RB5: 4x576
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.1 for test procedure.

18.3.2.17.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x576).
   - for sub-test 2: RB5/TF2 (2x576) or RB5/TF1 (1x576).
   - for sub-test 3: RB5/TF3 (3x576) or RB5/TF1 (1x576).
   - for sub-test 4: RB5/TF4 (4x576) or RB5/TF1 (1x576).
3. At step 15 the UE shall return
   - for sub-test 1: one RLC SDU on RB5 having the same content as sent by SS.
   - for sub-test 2: two RLC SDU on RB5 having the same content as sent by SS.
   - for sub-test 3: three RLC SDU on RB5 having the same content as sent by SS.
   - for sub-test 4: four RLC SDU on RB5 having the same content as sent by SS.

18.3.2.18 Void

18.3.2.19 Void

18.3.2.20 Void

18.3.2.21 Void

18.3.2.22 Void

18.3.2.23 Interactive or background / UL:32 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.2.23.1 Interactive or background / UL:32 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / (PS RAB payload size 320)

18.3.2.23.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.23.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.23 for uplink payload size 320 case.

18.3.2.23.1.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

	TFI	RB5 (8 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)

3GPP TS 34.123-1 version 10.3.1 Release 10

DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 312	RB5: 312
2	DL_TFC1	UL_TFC2	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632	RB5: 632
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.1 for test procedure.

18.3.2.23.1.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
3. At step 15 the UE shall return
   - for sub-test 1 and 2: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.3.2.23.2 Interactive or background / UL:32 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / (PS RAB payload size 128)

18.3.2.23.2.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.23.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.23 for the uplink payload size 128 case.

18.3.2.23.2.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x144	0x148

3GPP TS 34.123-1 version 10.3.1 Release 10

	TF1, bits	1x144	1x148
	TF2, bits	5x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

	TFI	RB5 (8 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 376	RB5: 312
2	DL_TFC1	UL_TFC2	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632	RB5: 312
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.1 for test procedure.

18.3.2.23.2.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x144).

- for sub-test 2: RB5/TF2 (5x144).

3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.

- for sub-test 2: an RLC SDU on RB5 having the same content as 2 times plus 8 lsb's of the DL RLC SDU sent by the SS.

18.3.2.23a Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

18.3.2.23a.1 Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 40 ms TTI

18.3.2.23a.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.23a.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.23a, for the uplink 40 ms TT case.

18.3.2.23a.1.3 Method of test

See 18.3.1.1 for test procedure.

Uplink TFS:

	TFI	RB5 (8 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148

Uplink TFCS:

TFCI	(8 kbps RAB, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF0, TF1)
UL_TFC3	(TF1, TF1)

Downlink TFS:

		RB5 (8 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148

Downlink TFCS:

TFCI	(8 kbps RAB, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

3GPP TS 34.123-1 version 10.3.1 Release 10

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC2,	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 312	RB5: 312
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC2 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).						

18.3.2.23a.1.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.3.2.23a.2 Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / 80 ms TTI

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.23a, for the uplink 80 ms TTI case.

See test case 18.3.2.23.2 for test procedure and test requirement.

18.3.2.23b Interactive or background / UL:16 DL:16 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

18.3.2.23b.1 Interactive or background / UL:16 DL:16 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload size 320.

18.3.2.23b.1.1 Conformance requirement

See clause 18.3.2.4.1.

18.3.2.23b.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.23b, for the uplink payload size 320 case.

18.3.2.23b.1.3 Method of test

Uplink TFS:

	TFI	RB5 (16 kbps)	DCCH
TFS	TF0, bits	0x336	0x148

3GPP TS 34.123-1 version 10.3.1 Release 10

	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)
DL_TFC5	(TF2, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, UL_TFC0 DL_TFC3,UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, UL_TFC0 DL_TFC3 ,UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632	RB5: 632

NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC3 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).

See 18.3.1.1 for test procedure.

18.3.2.23b.1.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send a RADIO BEARER SETUP COMPLETE message.
2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336) or RB5/TF1 (1x336).

3. At step 15 the UE shall return
   - for sub-test 1 and 2: an RLC SDU on RB5 having the same content as sent by the SS.

18.3.2.23b.2 Interactive or background / UL:16 DL:16 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload size 128.

18.3.2.23b.2.1 Conformance requirement

See clause 18.3.2.4.1.

18.3.2.23b.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.23b, for the uplink payload size 128 case.

18.3.2.23b.2.3 Method of test

Uplink TFS:

	TFI	RB5 (16 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	5x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)

3GPP TS 34.123-1 version 10.3.1 Release 10

DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)
DL_TFC5	(TF2, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, UL_TFC0 DL_TFC3,UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 376	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, UL_TFC0 DL_TFC3 ,UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632	RB5: 632

NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC3 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).

See 18.3.1.1 for test procedure.

18.3.2.23b.2.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send a RADIO BEARER SETUP COMPLETE message.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x144).
   - for sub-test 2: RB5/TF2 (5x144).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 having the same content as sent by the SS.

18.3.2.23c Interactive or background / UL:32 DL:32 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

18.3.2.23c.1 Interactive or background / UL:32 DL:32 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload size 320.

18.3.2.23c.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.23c.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.23c the uplink payload size 320 case.

18.3.2.23c.1.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
3GPP TS 34.123-1 version 10.3.1 Release 10						
1	DL_TFC1	UL_TFC1	DL_TFC0, UL_TFC0 DL_TFC5,UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, UL_TFC0 DL_TFC5 ,UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, UL_TFC0 DL_TFC5 ,UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952	RB5: 952
4	DL_TFC4	UL_TFC4	DL_TFC0, UL_TFC0 DL_TFC5 ,UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272	RB5: 1272
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. For RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).						

See 18.3.1.1 for test procedure.

18.3.2.23c.1.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send a RADIO BEARER SETUP COMPLETE message.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336) or RB5/TF1 (1x336).
   - for sub-test 3: RB5/TF3 (3x336) or RB5/TF1 (1x336).
   - for sub-test 4: RB5/TF4 (4x336) or RB5/TF1 (1x336).
3. At step 15 the UE shall return
   - for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.3.2.23c.2 Interactive or background / UL:32 DL:32 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload size 128.

18.3.2.23c.2.1 Conformance requirement

See clause 18.3.2.4.1.

18.3.2.23c.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.23c, for the uplink payload size 128 case.

18.3.2.23c.2.3 Method of test

Uplink TFS:

3GPP TS 34.123-1 version 10.3.1 Release 10

	TFI	RB5 (16 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	5x144	N/A
	TF3, bits	7x144	N/A
	TF4, bits	10x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
3GPP TS 34.123-1 version 10.3.1 Release 10						
1	DL_TFC1	UL_TFC1	DL_TFC0, UL_TFC0 DL_TFC5,UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 376	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, UL_TFC0 DL_TFC5 ,UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, UL_TFC0 DL_TFC5 ,UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1784	RB5: 952
4	DL_TFC4	UL_TFC4	DL_TFC0, UL_TFC0 DL_TFC5 ,UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272	RB5: 1272

NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
For RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).

See 18.3.1.1 for test procedure.

18.3.2.23c.2.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send a RADIO BEARER SETUP COMPLETE message.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x144).
   - for sub-test 2: RB5/TF2 (5x144).
   - for sub-test 3: RB5/TF2 (7x144).
   - for sub-test 4: RB5/TF2 (10x144).

3. At step 15 the UE shall return

- for sub for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
- for sub-test 2: an RLC SDU on RB5 having the same content as sent by the SS.
- for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 832 lsb's of the DL RLC SDU sent by the SS.
- for sub-test 4: an RLC SDU on RB5 having the same content as sent by the SS.

18.3.2.23d Interactive or background / UL:32 DL:32 kbps / PS RAB (20 ms TTI) + UL:3.4 DL:3.4 kbps SRBs for DCCH.

18.3.2.23d.1 Interactive or background / UL:32 DL:32 kbps / PS RAB (20 ms TTI) + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload size 320.

18.3.2.23d.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.23d.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.23d, for the uplink payload size of 320 case.

18.3.2.23d.1.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)

3GPP TS 34.123-1 version 10.3.1 Release 10

DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)
DL_TFC5	(TF2, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, UL_TFC0 DL_TFC3,UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, UL_TFC0 DL_TFC3 ,UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632	RB5: 632

NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC3 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
For RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).

See 18.3.1.1 for test procedure.

18.3.2.23d.1.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send a RADIO BEARER SETUP COMPLETE message.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
3. At step 15 the UE shall return
   - for sub-test 1 to 2: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.3.2.23d.2 Interactive or background / UL:32 DL:32 kbps / PS RAB (20 ms TTI) + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload size 128.

18.3.2.23d.2.1 Conformance requirement

See clause 18.3.2.4.1.

18.3.2.23d.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.23d, for the uplink payload size 128 case.

18.3.2.23d.2.3 Method of test

Uplink TFS:

3GPP TS 34.123-1 version 10.3.1 Release 10

	TFI	RB5 (16 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	5x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)
DL_TFC5	(TF2, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, UL_TFC0 DL_TFC3,UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 376	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, UL_TFC0 DL_TFC3 ,UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632	RB5: 632

NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC3 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).

See 18.3.1.1 for test procedure.

18.3.2.23d.2.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

3GPP TS 34.123-1 version 10.3.1 Release 10

1. At step 10 the UE shall send a RADIO BEARER SETUP COMPLETE message.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x144).
   - for sub-test 2: RB5/TF2 (5x144).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 having the same content as sent by the SS.

18.3.2.24 Void

18.3.2.25 Interactive or background / UL:32 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.2.25.1 Interactive or background / UL:32 DL: 64 kbps / PS RAB+ UL:3.4 DL:3.4 kbps SRBs for DCCH / (PS RAB payload size 320)

18.3.2.25.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.25.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.25 for the uplink payload size of 320 case.

18.3.2.25.1.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps)	DCCH			
TFS	TF0, bits	0x336	0x148			
				TF1, bits	1x336	1x148
				TF2, bits	2x336	N/A
				TF3, bits	3x336	N/A
				TF4, bits	4x336	N/A

3GPP TS 34.123-1 version 10.3.1 Release 10

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3	RB5: 952	RB5: 952
4	DL_TFC4	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 1272	RB5: 1272
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.1 for test procedure.

18.3.2.25.1.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1 and 3: RB5/TF1 (1x336).
   - for sub-test 2 and 4: RB5/TF1 (2x336).

3. At step 15 the UE shall return

   - for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.3.2.25.2 Interactive or background / UL:32 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / (PS RAB payload 128)

18.3.2.25.2.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.25.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.25 for the uplink payload 128 case.

18.3.2.25.2.3 Method of test

Uplink TFS:

	TFI	RB5 (32 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	5x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF0, TF1)
UL_TFC4	(TF1, TF1)
UL_TFC5	(TF2, TF1)

Downlink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)

3GPP TS 34.123-1 version 10.3.1 Release 10

DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 376	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4	RB5: 1016	RB5: 952
4	DL_TFC4	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 1272	RB5: 1272
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.1 for test procedure.

18.3.2.25.2.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x144).
   - for sub-test 2: RB5/TF2 (5x144).
   - for sub-test 3: RB5/TF1 (1x144).
   - for sub-test 4: RB5/TF2 (5x144).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

- for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.

- for sub-test 4: an RLC SDU on RB5 having the same content as the

3GPP TS 34.123-1 version 10.3.1 Release 10DL RLC SDU sent by the SS.

18.3.2.26 Interactive or background / UL:64 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.2.26.1 Interactive or background / UL:64 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload 320, Physical Configuration 1

18.3.2.26.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.26.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.26 for the uplink payload 320 case with physical configuration 1.

18.3.2.26.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 1
	Midamble	512 chips
	Codes and time slots	SF16 x 1 code x 1 time slot + SF4 x 1 code x 1 time slot
	Max. Number of data bits/radio frame	1148 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	0.48 (alt. 0.44)

Downlink TFS:

TFI	RB5 (64 kbps)	DCCH		
TFS	TF0, bits	0x336	0x148	
	TF1, bits	1x336	1x148	
	TF2, bits	2x336	N/A	
	TF3, bits	3x336	N/A	
	TF4, bits	4x336	N/A	

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952	RB5: 952
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272	RB5: 1272

NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 18.3.1.1 for test procedure.

18.3.2.26.1.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be

 for sub-test 1: RB5/TF1 (1x336).

- for sub-test 2: RB5/TF2 (2x336) or RB5/TF1 (1x336).
- for sub-test 3: RB5/TF3 (3x336) or RB5/TF1 (1x336).
- for sub-test 4: RB5/TF4 (4x336) or RB5/TF1 (1x336).

3. At step 15 the UE shall return
   - for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.3.2.26.2 Interactive or background / UL:64 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload 128, Physical Configuration 2

18.3.2.26.2.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.26.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.26 for the uplink payload 128 case with physical configuration 2.

18.3.2.26.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	3x144	N/A
	TF3, bits	7x144	N/A
	TF4, bits	10x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 2
	Midamble	512 chips
	Codes and time slots	SF2 x 1 code x 1 time slot + SF4 x 1 code x 1 time slot

3GPP TS 34.123-1 version 10.3.1 Release 10

	Max. Number of data bits/radio frame	2784 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	1

Downlink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
3GPP TS 34.123-1 version 10.3.1 Release 10						
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 376	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 760	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1784	RB5: 952
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272	RB5: 1272
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.						

See 18.3.1.1 for test procedure.

18.3.2.26.2.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x144).
   - for sub-test 2: RB5/TF2 (3x144).
   - for sub-test 3: RB5/TF3 (7x144).
   - for sub-test 4: RB5/TF4 (10x144).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 having the same content as 1 times plus 128 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 832 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.3.2.27 Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

3GPP TS 34.123-1 version 10.3.1 Release 10

18.3.2.27.1 Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload 320, Physical Configuration 1

18.3.2.27.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.27.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.27 for the uplink payload 320 case with physical configuration 1.

18.3.2.27.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

		Physical Configuration 1
DPCH Uplink	Midamble	512 chips
	Codes and time slots	SF16 x 1 code x 1 time slot + SF4 x 1 code x 1 time slot
	Max. Number of data bits/radio frame	1148 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	0.48 (alt. 0.44)

Downlink TFS:

TFI	RB5 (128 kbps)	DCCH			
3GPP TS 34.123-1 version 10.3.1 Release 10					
		TFS	TF0, bits	0x336	0x148
			TF1, bits	1x336	1x148
			TF2, bits	2x336	N/A
			TF3, bits	4x336	N/A
			TF4, bits	8x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Downlink		Physical Configuration 1
	Midamble	256 chips
	Codes and time slots	SF16 x 8 codes x 1 time slot
	Max. Number of data bits/radio frame	2192 bits
	TFCI code word	16 bits
	Puncturing limit	0.48

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
3GPP TS 34.123-1 version 10.3.1 Release 10						
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.						

See 18.3.1.1 for test procedure.

18.3.2.27.1.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336) or RB5/TF1 (1x336).
   - for sub-test 3: RB5/TF3 (3x336) or RB5/TF1 (1x336).
   - for sub-test 4: RB5/TF4 (4x336) or RB5/TF1 (1x336).
3. At step 15 the UE shall return
   - for sub-test 1, 2 and 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 640 lsb's of the DL RLC SDU sent by the SS.

18.3.2.27.2 Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload 128, Physical Configuration 2

18.3.2.27.2.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.27.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.27 for the uplink payload 128 case with physical

configuration 2.

18.3.2.27.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	3x144	N/A
	TF3, bits	7x144	N/A
	TF4, bits	10x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 2
	Midamble	512 chips
	Codes and time slots	SF2 x 1 code x 1 time slot + SF4 x 1 code x 1 time slot
	Max. Number of data bits/radio frame	2784 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	1

Downlink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)

3GPP TS 34.123-1 version 10.3.1 Release 10

DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Downlink		Physical Configuration 2
	Midamble	256 chips
	Codes and time slots	SF16 x 4 codes x 2 time slots + SF16 x 3 codes x 2 time slots
	Max. Number of data bits/radio frame	3848 bits
	TFCI code word	16 bits
	Puncturing limit	0.84

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 376	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 760	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1784	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552

NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 18.3.1.1 for test procedure.

18.3.2.27.2.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be

 for sub-test 1: RB5/TF1 (1x144).

- for sub-test 2: RB5/TF2 (3x144).
- for sub-test 3: RB5/TF3 (7x144).
- for sub-test 4: RB5/TF4 (10x144).

3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 having the same content as 1 times plus 128 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 512 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.3.2.28 Interactive or background / UL:128 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.2.28.1 Interactive or background / UL:128 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload 320, Physical Configuration 1

18.3.2.28.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.28.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.28 for the uplink payload 320 case with physical configuration 1.

18.3.2.28.1.3 Method of test

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)

UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 1
	Midamble	256 chips
	Codes and time slots	SF2 x 1 code x 1 timeslot
	Max. Number of data bits/radio frame	2064 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	0.44 (alt. 0.40)

Downlink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Downlink		Physical Configuration 1
	Midamble	256 chips
	Codes and time slots	SF16 x 8 codes x 1 time slot
	Max. Number of data bits/radio frame	2192 bits
	TFCI code word	16 bits
	Puncturing limit	0.48

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
3GPP TS 34.123-1 version 10.3.1 Release 10						
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1272	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.1 for test procedure.

18.3.2.28.1.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (4x336).
   - for sub-test 4: RB5/TF4 (8x336).
3. At step 15 the UE shall return
   - for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.3.2.28.2 Interactive or background / UL:128 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH / Payload 128, Physical Configuration 2

18.3.2.28.2.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.28.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.28 for the uplink payload 128 case with physical configuration 2.

18.3.2.28.2.3 Method of test

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	7x144	N/A
	TF3, bits	14x144	N/A
	TF4, bits	20x144	N/A

3GPP TS 34.123-1 version 10.3.1 Release 10

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 2
	Midamble	256 chips
	Codes and time slots	SF2 x 1 code x 2 timeslots + SF4 x 1 code x 1 time slot
	Max. Number of data bits/radio frame	5376 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	1

Downlink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Downlink		Physical Configuration 2
	Midamble	256 chips

3GPP TS 34.123-1 version 10.3.1 Release 10

	Codes and time slots	SF16 x 4 codes x 2 time slots + SF16 x 3 codes x 2 time slots
	Max. Number of data bits/radio frame	3848 bits
	TFCI code word	16 bits
	Puncturing limit	0.84

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 376	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 888	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1784	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.1 for test procedure.

18.3.2.28.2.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x144).
   - for sub-test 2: RB5/TF2 (7x144).
   - for sub-test 3: RB5/TF3 (14x144).
   - for sub-test 4: RB5/TF4 (20x144).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 having the same content as 1 times plus 256 lsb's of the DL RLC SDU sent by the SS.

- for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 512 lsb's of the DL RLC SDU sent by the SS.

- for sub-test 4: an RLC SDU on RB5 having the same content as the

3GPP TS 34.123-1 version 10.3.1 Release 10DL RLC SDU sent by the SS.

18.3.2.29 Interactive or background / UL:64 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

18.3.2.29.1 Interactive or background / UL:64 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH / Payload 320, Physical Configuration 1

18.3.2.29.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.29.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.29 for the uplink payload 320 case with physical configuration 1.

18.3.2.29.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

		Physical Configuration 1
DPCH Uplink	Midamble	512 chips
	Codes and time slots	SF16 x 1 code x 1 time slot + SF4 x 1 code x 1 time slot
	Max. Number of data bits/radio frame	1148 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	0.48 (alt. 0.44)

Downlink TFS:

	TFI	RB5 (144 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	9x336	N/A

3GPP TS 34.123-1 version 10.3.1 Release 10

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 2872	RB5: 2872

NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 18.3.1.1 for test procedure.

18.3.2.29.1.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

3GPP TS 34.123-1 version 10.3.1 Release 10

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336) or RB5/TF1 (1x336).
   - for sub-test 3: RB5/TF3 (3x336) or RB5/TF1 (1x336).
   - for sub-test 4: RB5/TF4 (4x336) or RB5/TF1 (1x336).
   - for sub-test 5: RB5/TF3 (3x336) or RB5/TF1 (1x336).
3. At step 15 the UE shall return
   - for sub-test 1, 2, 4 and 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 640 lsb's of the DL RLC SDU sent by the SS.

18.3.2.29.2 Interactive or background / UL:64 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH / Payload 128, Physical Configuration 2

18.3.2.29.2.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.29.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.29 for the uplink payload 128 case with physical configuration 2.

18.3.2.29.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	3x144	N/A
	TF3, bits	7x144	N/A
	TF4, bits	10x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)

UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 2
	Midamble	512 chips
	Codes and time slots	SF2 x 1 code x 1 time slot + SF4 x 1 code x 1 time slot
	Max. Number of data bits/radio frame	2784 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	1

Downlink TFS:

	TFI	RB5 (144 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	9x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
3GPP TS 34.123-1 version 10.3.1 Release 10						
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 376	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 760	RB5: 632
3	DL_TFC3	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 3576	RB5: 2872

NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 18.3.1.1 for test procedure.

18.3.2.29.2.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x144).
   - for sub-test 2: RB5/TF2 (3x144).
   - for sub-test 3: RB5/TF4 (10x144).
   - for sub-test 4: RB5/TF4 (10x144).
   - for sub-test 5: RB5/TF3 (7x144).
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 having the same content as 1 times plus 128 lsb's of the DL RLC SDU sent by the SS.

- for sub-test 3 and 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
- for sub-test 5: an RLC SDU on RB5 having the same content as 1 times plus 712 lsb's of the DL RLC SDU sent by the SS.

3GPP TS 34.123-1 version 10.3.1 Release 10

18.3.2.30 Interactive or background / UL:144 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

18.3.2.30.1 Interactive or background / UL:144 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH / Payload 320, TTI 20 ms

18.3.2.30.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.30.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.30 for the uplink payload 320, TTI 20 ms case.

18.3.2.30.1.3 Method of test

Uplink TFS:

	TFI	RB5 (144 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	9x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF0, TF1)
UL_TFC7	(TF1, TF1)
UL_TFC8	(TF2, TF1)
UL_TFC9	(TF3, TF1)
UL_TFC10	(TF4, TF1)
UL_TFC11	(TF5, TF1)

Downlink TFS:

	TFI	RB5 (144 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	9x336	N/A

3GPP TS 34.123-1 version 10.3.1 Release 10

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 1272	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 2872	RB5: 2872
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC6 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.1 for test procedure.

18.3.2.30.1.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336).
- for sub-test 3: RB5/TF3 (4x336).
- for sub-test 4: RB5/TF4 (8x336).
- for sub-test 5: RB5/TF5 (9x336).

3. At step 15 the UE shall return
   - for sub-test 1 to 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.3.2.30.2 Interactive or background / UL:144 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH / Payload 128, TTI 40 ms

18.3.2.30.2.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.30.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.30 for the uplink payload 128, TTI 40 ms case.

18.3.2.30.2.3 Method of test

Uplink TFS:

	TFI	RB5 (144 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	10x144	N/A
	TF3, bits	20x144	N/A
	TF4, bits	30x144	N/A
	TF5, bits	45x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF0, TF1)
UL_TFC7	(TF1, TF1)
UL_TFC8	(TF2, TF1)
UL_TFC9	(TF3, TF1)
UL_TFC10	(TF4, TF1)
UL_TFC11	(TF5, TF1)

Downlink TFS:

	TFI	RB5 (144 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	9x336	N/A

3GPP TS 34.123-1 version 10.3.1 Release 10

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7	RB5: 376	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 1272	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 2552	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 3832	RB5: 2552
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 5752	RB5: 2872
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC6 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.1 for test procedure.

18.3.2.30.2.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x144).
- for sub-test 2: RB5/TF2 (10x144).
- for sub-test 3: RB5/TF3 (20x144).
- for sub-test 4: RB5/TF4 (30x144).
- for sub-test 5: RB5/TF5 (45x144).

3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 having the same content as 1 times plus 640 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 1280 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 4: an RLC SDU on RB5 having the same content as 1 times plus 1280 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 5: an RLC SDU on RB5 having the same content as 1 times plus 2880 lsb's of the DL RLC SDU sent by the SS.

18.3.2.31 Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

18.3.2.31.1 Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH/ Payload 320, 10 ms TTI Down Link, Physical Configuration 1

18.3.2.31.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.31.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.31 for the uplink payload 320, the downlink 10 ms TTI, and physical configuration 1 case.

18.3.2.31.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)

UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 1
	Midamble	512 chips
	Codes and time slots	SF16 x 1 code x 1 time slot + SF4 x 1 code x 1 time slot
	Max. Number of data bits/radio frame	1148 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	0.48 (alt. 0.44)

Downlink TFS:

	TFI	RB5 (256 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
3GPP TS 34.123-1 version 10.3.1 Release 10						
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552

NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 18.3.1.1 for test procedure.

18.3.2.31.1.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336) or RB5/TF1 (1x336).
   - for sub-test 3: RB5/TF3 (3x336) or RB5/TF1 (1x336).
   - for sub-test 4: RB5/TF4 (4x336) or RB5/TF1 (1x336).
3. At step 15 the UE shall return
   - for sub-test 1, 2 and 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 640 lsb's of the DL RLC SDU sent by the SS.

18.3.2.31.2 Interactive or background / UL:64 DL:256 kbps / PS RAB / Payload 128, 20 ms TTI Down Link, Physical Configuration 2

18.3.2.31.2.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.31.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.31 for the uplink payload 128, the downlink 20 ms TTI, **3GPP TS 34.123-1 version 10.3.1 Release 10**and physical configuration 2 case.

18.3.2.31.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	3x144	N/A
	TF3, bits	7x144	N/A
	TF4, bits	10x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 2
	Midamble	512 chips
	Codes and time slots	SF2 x 1 code x 1 time slot + SF4 x 1 code x 1 time slot
	Max. Number of data bits/radio frame	2784 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	1

Downlink TFS:

	TFI	RB5 (256 kbps, 20ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)

DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF0, TF1)
DL_TFC8	(TF1, TF1)
DL_TFC9	(TF2, TF1)
DL_TFC10	(TF3, TF1)
DL_TFC11	(TF4, TF1)
DL_TFC12	(TF5, TF1)
DL_TFC13	(TF6, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 376	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 760	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1784	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 3832	RB5: 3832
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC7, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.1 for test procedure.

18.3.2.31.2.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15 the UE transmitted transport format shall be

   - for sub-test 1: RB5/TF1 (1x144).

   - for sub-test 2: RB5/TF2 (3x144).
   - for sub-test 3: RB5/TF3 (7x144).
   - for sub-test 4 to 6: RB5/TF4 (10x144).

3. At step 15 the UE shall return

   - for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 having the same content as 1 times plus 128 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 512 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 4 to 6: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.3.2.32 Interactive or background / UL:64 DL:384 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

18.3.2.32.1 Interactive or background / UL:64 DL:384 kbps / PS RAB / Payload 320, 10 ms TTI Down Link, Physical Configuration 1

18.3.2.32.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.32.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.32 for the uplink payload 320, the downlink 10 ms TTI, and physical configuration 1 case.

18.3.2.32.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)

UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 1
	Midamble	512 chips
	Codes and time slots	SF16 x 1 code x 1 time slot + SF4 x 1 code x 1 time slot
	Max. Number of data bits/radio frame	1148 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	0.48 (alt. 0.44)

Downlink TFS:

	TFI	RB5 (384 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Physical channel parameters

DPCH Downlink		Physical Configuration 1
	Midamble	256 chips
	Codes and time slots	SF16 x 8 codes x 3 time slots

3GPP TS 34.123-1 version 10.3.1 Release 10

	Max. Number of data bits/radio frame	6608 bits
	TFCI code word	16 bits
	Puncturing Limit	0.48

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 1)	Test data size (bits) (note 1)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 3832	RB5: 3832

NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 18.3.1.1 for test procedure.

18.3.2.32.1.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336) or RB5/TF1 (1x336).
   - for sub-test 3: RB5/TF3 (3x336) or RB5/TF1 (1x336).
   - for sub-test 4 and 5: RB5/TF4 (4x336) or RB5/TF1 (1x336).

3. At step 15 the UE shall return

   - for sub-test 1, 2, 4 and 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

3GPP TS 34.123-1 version 10.3.1 Release 10 - for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 640 lsb's of the DL RLC SDU sent by the SS.

18.3.2.32.2 Interactive or background / UL:64 DL:384 kbps / PS RAB / Payload 128, 20 ms TTI Down Link, Physical Configuration 2

18.3.2.32.2.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.32.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.32 for the uplink payload 128, the downlink 20 ms TTI, and physical configuration 2 case.

18.3.2.32.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	3x144	N/A
	TF3, bits	7x144	N/A
	TF4, bits	10x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

		Physical Configuration 2
DPCH Uplink	Midamble	512 chips
	Codes and time slots	SF2 x 1 code x 1 time slot + SF4 x 1 code x 1 time slot
	Max. Number of data bits/radio frame	2784 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	1

Downlink TFS:

	TFI	RB5 (384 kbps, 20ms)	DCCH		
TFS	TF0, bits	0x336	0x148		
			TF1, bits	1x336	1x148
			TF2, bits	2x336	N/A
			TF3, bits	4x336	N/A
			TF4, bits	8x336	N/A
			TF5, bits	12x336	N/A
			TF6, bits	16x336	N/A
			TF7, bits	20x336	N/A
			TF8, bits	24x336	N/A

3GPP TS 34.123-1 version 10.3.1 Release 10

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF0, TF1)
DL_TFC10	(TF1, TF1)
DL_TFC11	(TF2, TF1)
DL_TFC12	(TF3, TF1)
DL_TFC13	(TF4, TF1)
DL_TFC14	(TF5, TF1)
DL_TFC15	(TF6, TF1)
DL_TFC16	(TF7, TF1)
DL_TFC17	(TF8, TF1)

Physical channel parameters

DPCH Downlink		Physical Configuration 2
	Midamble	256 chips
	Codes and time slots	SF16 x 6 codes x 4 time slots + SF16 x 4 codes x 1 time slot (alt. SF1 x 1 code x 3 time slots)
	Max. Number of data bits/radio frame	7712 bits (alt. 13232 bits)
	TFCI code word	16 bits
	Puncturing Limit	0.60 (alt. 1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
3GPP TS 34.123-1 version 10.3.1 Release 10						
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 376	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 760	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1784	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 3832	RB5: 3832
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC9, , UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 6392	RB5: 6392
8	DL_TFC8	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 7672	RB5: 7672
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.1 for test procedure.

18.3.2.32.2.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x144).
   - for sub-test 2: RB5/TF2 (3x144).
   - for sub-test 3: RB5/TF3 (7x144).
   - for sub-test 4 to 8: RB5/TF4 (10x144).
3. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.

- for sub-test 2: an RLC SDU on RB5 having the same content as 1 times plus 128 lsb's of the DL RLC SDU

3GPP TS 34.123-1 version 10.3.1 Release 10sent by the SS.

- for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 512 lsb's of the DL RLC SDU sent by the SS.

- for sub-test 4 to 8: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.3.2.33 Interactive or background / UL:128 DL:384 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

18.3.2.33.1 Interactive or background / UL:128 DL:384 kbps / PS RAB / Payload 320, 10 ms TTI Down Link, Physical Configuration 1

18.3.2.33.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.33.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.33 for the uplink payload 320, the downlink 10 ms TTI, and physical configuration 1 case.

18.3.2.33.1.3 Method of test

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 1
	Midamble	256 chips
	Codes and time slots	SF2 x 1 code x 1 timeslot
	Max. Number of data bits/radio frame	2064 bits
	TFCI code word	16 bits

	TPC	2 bits
	Puncturing Limit	0.44 (alt. 0.40)

3GPP TS 34.123-1 version 10.3.1 Release 10 Downlink TFS:

	TFI	RB5 (384 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Physical channel parameters

DPCH Downlink		Physical Configuration 1
	Midamble	256 chips
	Codes and time slots	SF16 x 8 codes x 3 time slots
	Max. Number of data bits/radio frame	6608 bits
	TFCI code word	16 bits
	Puncturing Limit	0.48

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
3GPP TS 34.123-1 version 10.3.1 Release 10						
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1272	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 3832	RB5: 3832
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC5 are part of minimum set of TFCIs. NOTE2 : See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.3.1.1 for test procedure.

18.3.2.33.1.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (4x336).
   - for sub-test 4 and 5: RB5/TF4 (8x336).
3. At step 15 the UE shall return
   - for sub-test 1 to 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.3.2.33.2 Interactive or background / UL:128 DL:384 kbps / PS RAB / Payload 128, 20 ms TTI Down Link, Physical Configuration 2

18.3.2.33.2.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.33.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.33 for the uplink payload 128, the downlink 20 ms TTI, and
3GPP TS 34.123-1 version 10.3.1 Release 10physical configuration 2 case.

18.3.2.33.2.3 Method of test

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	7x144	N/A
	TF3, bits	14x144	N/A
	TF4, bits	20x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 2
	Midamble	256 chips
	Codes and time slots	SF2 x 1 code x 2 timeslots + SF4 x 1 code x 1 time slot
	Max. Number of data bits/radio frame	5376 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	1

Downlink TFS:

	TFI	RB5 (384 kbps, 20ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A
	TF7, bits	20x336	N/A
	TF8, bits	24x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)

3GPP TS 34.123-1 version 10.3.1 Release 10

DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF0, TF1)
DL_TFC10	(TF1, TF1)
DL_TFC11	(TF2, TF1)
DL_TFC12	(TF3, TF1)
DL_TFC13	(TF4, TF1)
DL_TFC14	(TF5, TF1)
DL_TFC15	(TF6, TF1)
DL_TFC16	(TF7, TF1)
DL_TFC17	(TF8, TF1)

Physical channel parameters

DPCH Downlink		Physical Configuration 2
	Midamble	256 chips
	Codes and time slots	SF16 x 6 codes x 4 time slots + SF16 x 4 codes x 1 time slot (alt. SF1 x 1 code x 3 time slots)
	Max. Number of data bits/radio frame	7712 bits (alt. 13232 bits)
	TFCI code word	16 bits
	Puncturing Limit	0.60 (alt. 1)

Sub-tests:

3GPP TS 34.123-1 version 10.3.1 Release 10

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 376	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 888	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1784	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5,	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 3832
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 7672	RB5: 6392
8	DL_TFC8	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4 UL_TFC5, UL_TFC9	RB5: 7672	RB5: 7672

NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

See 18.3.1.1 for test procedure.

18.3.2.33.2.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x144).

- for sub-test 2: RB5/TF2 (7x144).
- for sub-test 3: RB5/TF3 (14x144).

3GPP TS 34.123-1 version 10.3.1 Release 10

- for sub-test 4 to 8: RB5/TF4 (20x144).

3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 having the same content as 1 times plus 256 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 512 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 4, 6, and 8: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 5: an RLC SDU on RB5 having the same content as 1 times plus 1280 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 7: an RLC SDU on RB5 having the same content as 1 times plus 1280 lsb's of the DL RLC SDU sent by the SS.

18.3.2.34 Interactive or background / UL:384 DL:384 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.2.34.1 Interactive or background / UL:384 DL:384 kbps / PS RAB / 10 ms TTI, Physical Configuration 1

18.3.2.34.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.34.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.34 for the 10 ms TTI, physical configuration 1 case.

18.3.2.34.1.3 Method of test

Uplink TFS:

	TFI	RB5 (384 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)

UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF0, TF1)
UL_TFC7	(TF1, TF1)
UL_TFC8	(TF2, TF1)
UL_TFC9	(TF3, TF1)
UL_TFC10	(TF4, TF1)
UL_TFC11	(TF5, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 1
	Midamble	256 chips
	Codes and time slots	SF2 x 1 code x 3 time slots
	Max. Number of data bits/radio frame	6480 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	0.48

Downlink TFS:

	TFI	RB5 (384 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Physical channel parameters

DPCH Downlink		Physical Configuration 1
	Midamble	256 chips
	Codes and time slots	SF16 x 8 codes x 3 time slots

3GPP TS 34.123-1 version 10.3.1 Release 10

	Max. Number of data bits/radio frame	6608 bits
	TFCI code word	16 bits
	Puncturing Limit	0.48

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 1272	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 3832	RB5: 3832
NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC6 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.1 for test procedure.

18.3.2.34.1.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (4x336).
   - for sub-test 4: RB5/TF4 (8x336).
   - for sub-test 5: RB5/TF4 (12x336).

3. At step 15 the UE shall return

   - for sub-test 1 to 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.3.2.34.2 Interactive or background / UL:384 DL:384 kbps / PS RAB / 20 ms TTI, Physical Configuration 2

18.3.2.34.2.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.34.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.34. for the 20 ms TTI, physical configuration 2 case

18.3.2.34.2.3 Method of test

Uplink TFS:

	TFI	RB5 (384 kbps, 20ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A
	TF7, bits	20x336	N/A
	TF8, bits	24x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF6, TF0)
UL_TFC7	(TF7, TF0)
UL_TFC8	(TF8, TF0)
UL_TFC9	(TF0, TF1)
UL_TFC10	(TF1, TF1)
UL_TFC11	(TF2, TF1)
UL_TFC12	(TF3, TF1)
UL_TFC13	(TF4, TF1)
UL_TFC14	(TF5, TF1)
UL_TFC15	(TF6, TF1)
UL_TFC16	(TF7, TF1)
UL_TFC17	(TF8, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 2
	Midamble	256 chips

	Codes and time slots	SF2 x 1 code x 5 timeslots + SF4 x 1 code x 2 timeslots (alt. {SF2 x 1 code + SF4 x 1 code} x 4 timeslots)

3GPP TS 34.123-1 version 10.3.1 Release 10

	Max. Number of data bits/radio frame	13104 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	1

Downlink TFS:

	TFI	RB5 (384 kbps, 20ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A
	TF6, bits	16x336	N/A
	TF7, bits	20x336	N/A
	TF8, bits	24x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF0, TF1)
DL_TFC10	(TF1, TF1)
DL_TFC11	(TF2, TF1)
DL_TFC12	(TF3, TF1)
DL_TFC13	(TF4, TF1)
DL_TFC14	(TF5, TF1)
DL_TFC15	(TF6, TF1)
DL_TFC16	(TF7, TF1)
DL_TFC17	(TF8, TF1)

Physical channel parameters

DPCH Downlink		Physical Configuration 2
	Midamble	256 chips
	Codes and time slots	SF16 x 6 codes x 4 time slots + SF16 x 4 codes x 1 time slot (alt. SF1 x 1 code x 3 time slots)
	Max. Number of data bits/radio frame	7712 bits (alt. 13232 bits)
	TFCI code word	16 bits
	Puncturing Limit	0.60 (alt. 1)

Sub-tests:

3GPP TS 34.123-1 version 10.3.1 Release 10

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC10	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC9, UL_TFC11	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC9, UL_TFC12	RB5: 1272	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC9, UL_TFC13	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC5	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC9, UL_TFC14	RB5: 3832	RB5: 3832
6	DL_TFC6	UL_TFC6	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC9, UL_TFC15	RB5: 5112	RB5: 5112
7	DL_TFC7	UL_TFC7	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC7, UL_TFC9, UL_TFC16	RB5: 6392	RB5: 6392
8	DL_TFC8	UL_TFC8	DL_TFC0, DL_TFC9, UL_TFC0, UL_TFC9	UL_TFC0, UL_TFC1, UL_TFC8, UL_TFC9, UL_TFC17	RB5: 7672	RB5: 7672
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC9 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.1 for test procedure.

18.3.2.34.2.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (4x336).

- for sub-test 4: RB5/TF4 (8x336).
- for sub-test 5: RB5/TF5 (12x336).

- for sub-test 6: RB5/TF6 (16x336).
- for sub-test 7: RB5/TF7 (20x336).
- for sub-test 8: RB5/TF8 (24x336).

3. At step 15 the UE shall return
   - for sub-test 1 to 8: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

18.3.2.35 Interactive or background / UL:64 DL:2048 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.2.35.1 Interactive or background / UL:64 DL:2048 kbps / PS RAB / Payload 320, 10 ms TTI Down Link, Physical Configuration 1

18.3.2.35.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.35.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.35 for the uplink payload 320, the downlink 10 ms TTI, and physical configuration 1 case.

18.3.2.35.1.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

3GPP TS 34.123-1 version 10.3.1 Release 10

	TFI	RB5 (2048 kbps, 10ms)	DCCH
TFS	TF0, bits	0x656	0x148
	TF1, bits	1x656	1x148
	TF2, bits	2x656	N/A
	TF3, bits	4x656	N/A
	TF4, bits	8x656	N/A
	TF5, bits	12x656	N/A
	TF6, bits	16x656	N/A
	TF7, bits	20x656	N/A
	TF8, bits	24x656	N/A
	TF9, bits	28x656	N/A
	TF10, bits	31x656	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF9, TF0)
DL_TFC10	(TF10, TF0)
DL_TFC11	(TF0, TF1)
DL_TFC12	(TF1, TF1)
DL_TFC13	(TF2, TF1)
DL_TFC14	(TF3, TF1)
DL_TFC15	(TF4, TF1)
DL_TFC16	(TF5, TF1)
DL_TFC17	(TF6, TF1)
DL_TFC18	(TF7, TF1)
DL_TFC19	(TF8, TF1)
DL_TFC20	(TF9, TF1)
DL_TFC21	(TF10, TF1)

Physical channel parameters

DPCH Uplink		Physical Configuration 1
	Midamble	256 chips
	Codes and time slots	SF2 x 1 code x 3 time slots
	Max. Number of data bits/radio frame	6480 bits
	TFCI code word	16 bits
	TPC	2 bits
	Puncturing Limit	0.48

Sub-tests:

3GPP TS 34.123-1 version 10.3.1 Release 10

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 632	RB5: 632
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 1272	RB5: 1272
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 2872	RB5: 2552
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 7672	RB5: 7672
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 10232	RB5: 10232
7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 12792	RB5: 12792
8	DL_TFC8	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 15352	RB5: 15352
9	DL_TFC9	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 17912	RB5: 17912
10	DL_TFC10	UL_TFC4	DL_TFC0, DL_TFC11, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 20472	RB5: 20472

NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

See 18.3.1.1 for test procedure.

18.3.2.35.1.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

3GPP TS 34.123-1 version 10.3.1 Release 10

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x336).
   - for sub-test 2: RB5/TF2 (2x336).
   - for sub-test 3: RB5/TF3 (3x336).
   - for sub-test 4 to 10: RB5/TF4 (4x336).
3. At step 15 the UE shall return
   - for sub-test 1, 2, and 4 to 10: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 320 lsb's of the DL RLC SDU sent by the SS.

18.3.2.35.2 Interactive or background / UL:64 DL:2048 kbps / PS RAB / Payload 128, 20 ms TTI Down Link, Physical Configuration 2

18.3.2.35.2.1 Conformance requirement

See 18.3.2.4.1.

18.3.2.35.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.1.35 for the uplink payload 128, the downlink 20 ms TTI, and physical configuration 2 case.

18.3.2.35.2.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	3x144	N/A
	TF3, bits	7x144	N/A
	TF4, bits	10x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)

3GPP TS 34.123-1 version 10.3.1 Release 10

UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (2048 kbps, 10ms)	DCCH
TFS	TF0, bits	0x656	0x148
	TF1, bits	1x656	1x148
	TF2, bits	2x656	N/A
	TF3, bits	4x656	N/A
	TF4, bits	8x656	N/A
	TF5, bits	12x656	N/A
	TF6, bits	16x656	N/A
	TF7, bits	20x656	N/A
	TF8, bits	24x656	N/A
	TF9, bits	28x656	N/A
	TF10, bits	32x656	N/A
	TF11, bits	36x656	N/A
	TF12, bits	40x656	N/A
	TF13, bits	44x656	N/A
	TF14, bits	48x656	N/A
	TF15, bits	52x656	N/A
	TF16, bits	56x656	N/A
	TF17, bits	60x656	N/A
	TF18, bits	64x656	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF6, TF0)
DL_TFC7	(TF7, TF0)
DL_TFC8	(TF8, TF0)
DL_TFC9	(TF9, TF0)
DL_TFC10	(TF10, TF0)
DL_TFC11	(TF11, TF0)
DL_TFC12	(TF12, TF0)
DL_TFC13	(TF13, TF0)
DL_TFC14	(TF14, TF0)
DL_TFC15	(TF15, TF0)
DL_TFC16	(TF16, TF0)
DL_TFC17	(TF17, TF0)
DL_TFC18	(TF18, TF0)
DL_TFC19	(TF0, TF1)
DL_TFC20	(TF1, TF1)

TFCI	(RB5, DCCH)
DL_TFC21	(TF2, TF1)
DL_TFC22	(TF3, TF1)

3GPP TS 34.123-1 version 10.3.1 Release 10

DL_TFC23	(TF4, TF1)
DL_TFC24	(TF5, TF1)
DL_TFC25	(TF6, TF1)
DL_TFC26	(TF7, TF1)
DL_TFC27	(TF8, TF1)
DL_TFC28	(TF9, TF1)
DL_TFC29	(TF10, TF1)
DL_TFC30	(TF11, TF1)
DL_TFC31	(TF12, TF1)
DL_TFC32	(TF13, TF1)
DL_TFC33	(TF14, TF1)
DL_TFC34	(TF15, TF1)
DL_TFC35	(TF16, TF1)
DL_TFC36	(TF17, TF1)
DL_TFC37	(TF18, TF1)

Physical channel parameters

DPCH Downlink		Physical Configuration 2
	Midamble	256 chips
	Codes and time slots	SF16 x 13 codes x 4 time slots + SF16 x 12 codes x 7 time slot
	Max. Number of data bits/radio frame	37520 bits (alt. 37504)
	TFCI code word	16 bits (alt. 32 bits)
	Puncturing limit	0.56

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 632	RB5: 632
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 1536	RB5: 1272
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 2688	RB5: 2552
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 5112	RB5: 5112
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 7672	RB5: 7672

3GPP TS 34.123-1 version 10.3.1 Release 10

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
6	DL_TFC6	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 10232	RB5: 10232
7	DL_TFC7	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 12792	RB5: 12792
8	DL_TFC8	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 15352	RB5: 15352
9	DL_TFC9	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 17912	RB5: 17912
10	DL_TFC10	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 20472	RB5: 20472
11	DL_TFC11	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 23032	RB5: 23032
12	DL_TFC12	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 25592	RB5: 25592
13	DL_TFC13	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4 UL_TFC5, UL_TFC9	RB5: 28152	RB5: 28152
14	DL_TFC14	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 30712	RB5: 30712
15	DL_TFC15	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 33272	RB5: 33272
16	DL_TFC16	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 35832	RB5: 35832

3GPP TS 34.123-1 version 10.3.1 Release 10

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
17	DL_TFC17	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4 UL_TFC5, UL_TFC9	RB5: 38392	RB5: 38392
18	DL_TFC18	UL_TFC4	DL_TFC0, DL_TFC19, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 40952	RB5: 40952
NOTE 1: UL_TFC0, UL_TFC1, and UL_TFC5 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.3.1.1 for test procedure.

18.3.2.35.2.4 Test requirements

See 18.3.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x144).
   - for sub-test 2: RB5/TF2 (3x144).
   - for sub-test 3: RB5/TF3 (7x144).
   - for sub-test 4 to 18: RB5/TF4 (10x144).
3. At step 15 the UE shall return
   - for sub-test 1, and 4 to 18: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 having the same content as 1 times plus 264 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the same content as 1 times plus 136 lsb's of the DL RLC SDU sent by the SS.

18.3.2.36 Void

18.3.2.37 Void

18.3.3 Combinations on PDSCH, SCCPCH, PUSCH and PRACH

18.3.3.1 Interactive or background / UL: 64 DL: 256 kbps / PS RAB + UL: 3.4/16.8 DL: 3.4/33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.3.3.1.1 Interactive or background / UL: 64(payload 320) DL: 256 kbps (10 ms TTI) / PS RAB + UL: 3.4/16.8 DL: 3.4/33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.3.3.1.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.3.1.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.11.6.4.2.1. for the uplink payload of 320 bits and downlink 10 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB, 16.8 kbps SHCCH and the 3.4 kbps DCCH. The Interactive/Background PS RAB on the USCH has a 320 bit Payload Size.
- The RACH channel can carry combinations of the signalling Radio Bearer for 16.8 kbps CCCH, DCCH, and SHCCH excluding or including an Interactive/Background 12.8 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 256 kbps PS RAB, the 16 kbps SHCCH and the 3.4 kbps DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI.
- The FACH can carry combinations of the signalling Radio Bearer for 33.6 kbps CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 32 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.3.1.1.3 Method of test

The contents of the System Information Block type 5 are specified in clause 8.1.2.2 with the following modifications.

- PUSCH system information	
- PUSCH Identity	1
- PUSCH info	
- TFCS ID	1
- Common timeslot info	
- 2nd interleaving mode	Frame
- TFCI coding	16
- Puncturing Limit	0.40
- Repetition period	1
- Repetition length	1
- PUSCH timeslots and codes	
- Dynamic SF usage	FALSE
- First timeslot Code List	1
- Channelisation Code	As required by individual test below
- CHOISE more timeslots	As required by individual test below
- USCH TFS	As required by individual test below
- USCH TFCS	As required by individual test below

Uplink TFS for the 64 kbps USCH:

	TFI	DTCH	SHCCH (SRB#5)	DCCH (SRB#1 – SRB#4)
TFS	TF0, bits	0x337	0x169	0x149
	TF1, bits	1x337	1x169	1x149
	TF2, bits	2x337	N/A	N/A
	TF3, bits	3x337	N/A	N/A
	TF4, bits	4x337	N/A	N/A

Uplink TFCS for the 64 kbps USCH:

TFCI	(DTCH, SHCCH, DCCH)
UL_USCH_TFC0	(TF0, TF0, TF0)
UL_USCH_TFC1	(TF1, TF0, TF0)
UL_USCH_TFC2	(TF2, TF0, TF0)
UL_USCH_TFC3	(TF3, TF0, TF0)
UL_USCH_TFC4	(TF4, TF0, TF0)
UL_USCH_TFC5	(TF0, TF1, TF0)
UL_USCH_TFC6	(TF1, TF1, TF0)
UL_USCH_TFC7	(TF2, TF1, TF0)
UL_USCH_TFC8	(TF3, TF1, TF0)
UL_USCH_TFC9	(TF4, TF1, TF0)
UL_USCH_TFC10	(TF0, TF0, TF1)
UL_USCH_TFC11	(TF1, TF0, TF1)
UL_USCH_TFC12	(TF2, TF0, TF1)
UL_USCH_TFC13	(TF3, TF0, TF1)
UL_USCH_TFC14	(TF4, TF0, TF1)
UL_USCH_TFC15	(TF0, TF1, TF1)
UL_USCH_TFC16	(TF1, TF1, TF1)
UL_USCH_TFC17	(TF2, TF1, TF1)
UL_USCH_TFC18	(TF3, TF1, TF1)
UL_USCH_TFC19	(TF4, TF1, TF1)

Uplink TFS for the RACH without DTCH:

	TFI	CCCH (SRB#0)	DCCH (SRB#1 – SRB#5)	SHCCH (SRB#5)
TFS	TF0, bits	1x170	1x170	1x170

Uplink TFCS for the RACH without DTCH:

TFCI	(CCCH, DCCH, SHCCH)
UL_RACH_TFC0	(TF0)

Uplink TFS for the RACH with DTCH:

	TFI	DTCH (20 ms TTI)	CCCH (SRB#0)	DCCH (SRB#1 – SRB#4)	SHCCH (SRB#5)
TFS	TF0, bits	1x170	1x170	1x170	1x170

Uplink TFCS for the RACH with DTCH:

TFCI	(DTCH, CCCH, DCCH, SHCCH)
UL_RACH_DTCH_ TFC0	(TF0)

Downlink TFS for 256 kbps DSCH:

	TFI	DTCH(256kbps)	SHCCH SRB#5	DCCH SRB#1-#4
TFS	TF0, bits	0x337	0x169	0x149
	TF1, bits	1x337	1x169	1x149
	TF2, bits	2x337	N/A	N/A
	TF3, bits	4x337	N/A	N/A
	TF4, bits	8x337	N/A	N/A

Downlink TFCS for the 256 kbps DSCH:

TFCI	DTCH, SHCCH, DCCH
DL_DSCH_TFC0	(TF0, TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0, TF0),
DL_DSCH_TFC2	(TF2, TF0, TF0),
DL_DSCH_TFC3	(TF3, TF0, TF0),
DL_DSCH_TFC4	(TF4, TF0, TF0),
DL_DSCH_TFC5	(TF0, TF1, TF0),
DL_DSCH_TFC6	(TF1, TF1, TF0),
DL_DSCH_TFC7	(TF2, TF1, TF0),
DL_DSCH_TFC8	(TF3, TF1, TF0),
DL_DSCH_TFC9	(TF4, TF1, TF0),
DL_DSCH_TFC10	(TF0, TF0, TF1),
DL_DSCH_TFC11	(TF1, TF0, TF1),
DL_DSCH_TFC12	(TF2, TF0, TF1),
DL_DSCH_TFC13	(TF3, TF0, TF1),
DL_DSCH_TFC14	(TF4, TF0, TF1),
DL_DSCH_TFC15	(TF0, TF1, TF1),
DL_DSCH_TFC16	(TF1, TF1, TF1),
DL_DSCH_TFC17	(TF2, TF1, TF1),
DL_DSCH_TFC18	(TF3, TF1, TF1),
DL_DSCH_TFC19	(TF4, TF1, TF1)

Downlink TFS for FACH without DTCH:

	TFI	CCCH/DCCH/SHCCH/BCCH
TFS	TF0, bits	0x171
	TF1, bits	1x171
	TF2, bits	2x171
	TF3, bits	3x171
	TF4 ,bits	4x171

Downlink TFCS for FACH without DTCH:

TFCI	CCCH/DCCH/SHCCH/BCCH
DL_FACH_TFC0	TF0
DL_ FACH_TFC1	TF1
DL_ FACH_TFC2	TF2
DL_ FACH_TFC3	TF3
DL_ FACH_TFC4	TF4

Downlink TFS for FACH with DTCH:

	TFI	DTCH/CCCH/DCCH/SHCCH/BCCH
TFS	TF0, bits	0x171
	TF1, bits	1x171
	TF2, bits	2x171
	TF3, bits	1x363
	TF4 ,bits	3x171
	TF5, bits	4x171
	TF6, bits	2x363

Downlink TFCS for FACH with DTCH:

TFCI	DTCH/CCCH/DCCH/SHCCH/BCCH
DL_FACH_TFC0_DTCH	TF0
DL_FACH_TFC1_DTCH	TF1
DL_FACH_TFC2_DTCH	TF2
DL_FACH_TFC3_DTCH	TF3
DL_FACH_TFC4_DTCH	TF4
DL_FACH_TFC5_DTCH	TF5
DL_FACH_TFC6_DTCH	TF6

Sub-tests for RACH/FACH:

See Section 18.3.6.1

Sub-tests – USCH & DSCH:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 312	DTCH: 312
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 632	DTCH: 632
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 1912	DTCH: 1272
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 2552	DTCH: 2552
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10, UL_TFC11, and UL_TFC15 are part of the minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. DTCH: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.3.1.3 for test procedure.

18.3.3.1.1.4 Test requirements

See 18.3.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x337).
   - for sub-test 2: DTCH/TF2 (2x337).
   - for sub-test 3: DTCH/TF3 (3x337).
   - for sub-test 4: DTCH/TF4 (4x337).
4. At step 15 the UE shall return
   - for sub-test 1, 2, and 4: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

- for sub-test 3: an RLC SDU on DTCH having the first 1272 bits equal to the content as the DL RLC SDU sent by the SS in the downlink.

18.3.3.1.2 Interactive or background / UL: 64(145 bit TBS – 20 ms TTI) DL: 256 kbps (337 bit TBS – 10 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.3.3.1.2.1 Conformance requirement

See 18.3.2.4.1.

18.3.3.1.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.11.6.4.2.1 for the downlink 10 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB, SHCCH and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 64 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 256 kbps PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 256 kbps UL PS RAB channel has a 145 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 256 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.3.1.2.3 Method of test

Uplink TFS for the 64 kbps USCH – 145 bit TBS & 20 ms TTI:

	TFI	DTCH	SHCCH (SRB#5)	DCCH (SRB#1 – SRB#4)
TFS	TF0, bits	0x145	0x169	0x149
	TF1, bits	1x145	1x169	1x149
	TF2, bits	3x145	N/A	N/A
	TF3, bits	7x145	N/A	N/A
	TF4, bits	10x145	N/A	N/A

Uplink TFCS for the 64 kbps USCH – 145 bit TBS & 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.3.3.1.1.3

Uplink TFCS for the RACH without DTCH:

See corresponding table in 18.3.3.1.1.3

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.3.3.1.1.3

Uplink TFCS for the RACH with DTCH:

See corresponding table in 18.3.3.1.1.3

Downlink TFS for 256 kbps DSCH – 10 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFCS for 256 kbps DSCH - 10 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFCS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Sub-test for RACH/FACH – 20 ms TT1:

See Section 18.3.6.1

Sub-tests – USCH (337 bit TBS & 20 ms TTI) & DSCH (337 bit TBS & 10 ms TTI):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 376 (128x1)x3 - 8	DTCH: 312 (320 x 1) - 8
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15,	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 760 (128x3)x2 - 8	DTCH: 632 (320 x 2) - 8
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15,	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 1784 (7x128) x 2 - 8	DTCH: 1272 (4 x 320) - 8
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 2552 (10x128) x 2 - 8	DTCH: 2552 (8 x 320) - 8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. DTCH: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.3.1.3 for test procedure.

18.3.3.1.2.4 Test requirements

See 18.3.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST

3. At step 15 the UE transmitted transport format shall be

   - for sub-test 1: DTCH/TF1 (1x145).
   - for sub-test 2: DTCH/TF2 (3x145).
   - for sub-test 3: DTCH/TF3 (7x145).
   - for sub-test 4: DTCH/TF4 (10x145).

4. At step 15 the UE shall return

   - for sub-test 1: an RLC SDU on DTCH having the first 312 bits equal to the content of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on DTCH having the first 632 bits equal to the content of the DL RLC SDU sent by the SS.

- for sub-test 3: an RLC SDU on DTCH having the first 1272 bits equal to the content of the DL RLC SDU sent by the SS.
- for sub-test 4: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS

18.3.3.1.3 Interactive or background / UL: 64(337 bit TBS – 20 ms TTI) DL: 256 kbps (337 bit TBS – 20 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.3.3.1.3.1 Conformance requirement

See 18.3.2.4.1.

18.3.3.1.3.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.11.6.4.2.1 for the downlink 20 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB, SHCCH and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 64 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the 256 kbps Interactive/Background PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 20 ms TTI. The Interactive/Background 256 kbps UL PS RAB channel has a 337 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 256 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.3.1.3.3 Method of test

Uplink TFS for the 64 kbps USCH – 337 bit TBS & 20 ms TTI:

See corresponding table in Section 18.3.3.1.1.3

Uplink TFS for the 64 kbps USCH – 337 bit TBS & 20 ms TTI:

See corresponding table in Section 18.3.3.1.1.3

Uplink TFS for the RACH without DTCH:

See corresponding table in Section 18.3.3.1.1.3

Uplink TFCS for the RACH without DTCH:

See corresponding table in Section 18.3.3.1.1.3

Uplink TFS for the RACH with DTCH:

See corresponding table in Section 18.3.3.1.1.3

Uplink TFCS for the RACH with DTCH:

See corresponding table in Section 18.3.3.1.1.3

Downlink TFS for 256 kbps DSCH – 337 bit TBS & 20 ms TTI:

	TFI	DTCH(256kbps)	SHCCH SRB#5	DCCH SRB#1-#4
TFS	TF0, bits	0x337	0x169	0x149
	TF1, bits	1x337	1x169	1x149
	TF2, bits	2x337	N/A	N/A
	TF3, bits	4x337	N/A	N/A
	TF4, bits	8x337	N/A	N/A
	TF5, bits	12x337	N/A	N/A
	TF6, bits	16x337	N/A	N/A

Downlink TFS for 256 kbps DSCH – 337 bit TBS & 20 ms TTI:

TFCI	DTCH, SHCCH, DCCH
DL_DSCH_TFC0	(TF0, TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0, TF0),
DL_DSCH_TFC2	(TF2, TF0, TF0),
DL_DSCH_TFC3	(TF3, TF0, TF0),
DL_DSCH_TFC4	(TF4, TF0, TF0),
DL_DSCH_TFC5	(TF5, TF0, TF0),
DL_DSCH_TFC6	(TF6, TF0, TF0),
DL_DSCH_TFC7	(TF0, TF1, TF0),
DL_DSCH_TFC8	(TF1, TF1, TF0),
DL_DSCH_TFC9	(TF2, TF1, TF0),
DL_DSCH_TFC10	(TF3, TF1, TF0),
DL_DSCH_TFC11	(TF4, TF1, TF0),
DL_DSCH_TFC12	(TF5, TF1, TF0),
DL_DSCH_TFC13	(TF6, TF1, TF0),
DL_DSCH_TFC14	(TF0, TF0, TF1),
DL_DSCH_TFC15	(TF1, TF0, TF1),
DL_DSCH_TFC16	(TF2, TF0, TF1),
DL_DSCH_TFC17	(TF3, TF0, TF1),
DL_DSCH_TFC18	(TF4, TF0, TF1),
DL_DSCH_TFC19	(TF5, TF0, TF1),
DL_DSCH_TFC20	(TF6, TF0, TF1),
DL_DSCH_TFC21	(TF0, TF1, TF1),
DL_DSCH_TFC22	(TF1, TF1, TF1),
DL_DSCH_TFC23	(TF2, TF1, TF1),
DL_DSCH_TFC24	(TF3, TF1, TF1),
DL_DSCH_TFC25	(TF4, TF1, TF1),
DL_DSCH_TFC26	(TF5, TF1, TF1),
DL_DSCH_TFC27	(TF6, TF1, TF1)

Downlink TFS for FACH without DTCH – 20 ms TTI:

See corresponding table in Section 18.3.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

See corresponding table in Section 18.3.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in Section 18.3.3.1.1.3

Downlink TFCS for FACH with DTCH – 20 ms TTI:

See corresponding table in Section 18.3.3.1.1.3

Sub-tests for RACH/FACH – 20 ms TTI:

See Section 18.3.6.1

Sub-tests for DSCH/USCH – 20 ms TTI & UL TBS (337 bit) and DL TBS (337 bit):

Sub-tests – USCH (337 bit TBS & 20 ms TTI) & DSCH (337 bit TBS & 20 ms TTI):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 312 (1 x 320) - 8	DTCH: 312 (1 x 320) - 8
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 632 (2 x 320) - 8	DTCH: 632 (1 x 320) - 8
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 1912 (3 x 320) - 8	DTCH: 1272 (4 x 320) - 8
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 2552 (4 x 320) x 2 - 8	DTCH: 2552 (8 x 320) - 8
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 3832 (4 x 320) x 3 - 8	DTCH: 3832 (12 x 320) - 8
6	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 5112 (4 x 320) x 4 - 8	DTCH: 5112 (16 x 320) - 8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.3.1.3 for test procedure.

18.3.3.2.3.4 Test requirements

See 18.3.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST

3. At step 15 the UE transmitted transport format shall be

   - for sub-test 1: DTCH/TF1 (1x337).
   - for sub-test 2: DTCH/TF2 (2x337).
   - for sub-test 3: DTCH/TF3 (3x337).
   - for sub-test 4, 5, and 6: DTCH/TF4 (4x337).

4. At step 15 the UE shall return

   - for sub-test 1, 2, 4, 5, and 6: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on DTCH having the first 1272 bits equal content as the DL RLC SDU sent by the SS.

18.3.3.1.4 Interactive or background / UL: 64(145 bit TBS – 20 ms TTI) DL: 256 kbps (337 bit TBS – 20 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH 64 kbps + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.3.3.1.4.1 Conformance requirement

See 18.3.2.4.1.

18.3.3.1.4.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.11.6.4.2.1 for the downlink 20 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB, SHCCH and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 64 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the 256 kbps Interactive/Background PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 20 ms TTI. The Interactive/Background 256 kbps UL PS RAB channel has a 145 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 256 kbps PS RAB.
- To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.3.1.4.3 Method of test

Uplink TFS for the 64 kbps USCH – 145 bit TBS & 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Uplink TFCS for the 64 kbps USCH – 145 bit TBS & 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.3.3.1.1.3

Uplink TFCS for the RACH without DTCH:

See corresponding table in 18.3.3.1.1.3

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.3.3.1.1.3

Uplink TFCS for the RACH with DTCH:

See corresponding table in 18.3.3.1.1.3

Downlink TFS for 256 kbps DSCH – 20 ms TTI:

See corresponding table in 18.3.3.1.3.2

Downlink TFCS for the 256 kbps DSCH – 20 ms TTI:

See corresponding table in 18.3.3.1.3.2

Downlink TFS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFCS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Sub-test for RACH/FACH – 20 ms TT1:

See Section 18.3.6.1

Sub-tests – USCH (145 bit TBS & 20 ms TTI) & DSCH (337 bit TBS & 10 ms TTI):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 376 (128 x 1)x3 - 8	DTCH: 312
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 760 (128 x 3) x 2 - 8	DTCH: 632
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 1784 (7x128) x 2 - 8	DTCH: 1272
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19,	DTCH: 2552 (10x128) x 2 - 8	DTCH: 2552
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 3832 (10x128) x 3 - 8	DTCH: 3832 (12 x 320) - 8
6	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 5112 (10x128) x 4 - 8	DTCH: 5112 (16 x 320) - 8

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

See 18.3.1.3 for test procedure.

18.3.3.1.4.4 Test requirements

See 18.3.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST.

3. At step 15 the UE transmitted transport format shall be

   - for sub-test 1: DTCH/TF1 (1x145).
   - for sub-test 2: DTCH/TF2 (3x145).
   - for sub-test 3: DTCH/TF3 (7x145).
   - for sub-test 4, 5 and 6: DTCH/TF4 (10x145).

4. At step 15 the UE shall return

   - for sub-test 4 to 6: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 1: an RLC SDU on DTCH having the first **312** bits equal content as the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on DTCH having the first **632** bits equal content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on DTCH having the first 1272 bits equal content as the DL RLC SDU sent by the SS.

18.3.3.2 Interactive or background / UL: 64 DL: 384 kbps / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.3.3.2.1 Interactive or background / UL: 64(337 bit TBS – 20 ms TTI) DL: 384 kbps (337 bit TBS – 10 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.3.3.2.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.3.2.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.11.6.4.2.2 for the downlink 10 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB, SHCCH and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 64 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 384 kbps PS RAB, the SHCCH and the DCC. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 384 kbps UL PS RAB channel has a 337 bit Transport Block Size (TBS).

- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 384 kbps PS RAB.

- To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.3.2.1.3 Method of Test

Uplink TFS for the 64 kbps USCH – 337 bit TBS & 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Uplink TFS for the 64 kbps USCH – 337 bit TBS & 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.3.3.1.1.3

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.3.3.1.1.3

Downlink TFS for 384 kbps DSCH – 337 bit TBS & 10 ms TTI:

	TFI	DTCH(384 kbps)	SHCCH SRB#5	DCCH SRB#1-#4
TFS	TF0, bits	0x337	0x169	0x149
	TF1, bits	1x337	1x169	1x149
	TF2, bits	2x337	N/A	N/A
	TF3, bits	4x337	N/A	N/A
	TF4, bits	8x337	N/A	N/A
	TF5, bits	12x337	N/A	N/A

Downlink TFS for 384 kbps DSCH – 337 bit TBS & 10 ms TTI:

TFCI	DTCH,SHCCH,DCCH
DL_DSCH_TFC0	(TF0, TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0, TF0),
DL_DSCH_TFC2	(TF2, TF0, TF0),
DL_DSCH_TFC3	(TF3, TF0, TF0),
DL_DSCH_TFC4	(TF4, TF0, TF0),
DL_DSCH_TFC5	(TF5, TF0, TF0),
DL_DSCH_TFC6	(TF0, TF1, TF0),
DL_DSCH_TFC7	(TF1, TF1, TF0),
DL_DSCH_TFC8	(TF2, TF1, TF0),
DL_DSCH_TFC9	(TF3, TF1, TF0),
DL_DSCH_TFC10	(TF4, TF1, TF0),
DL_DSCH_TFC11	(TF5, TF1, TF0),
DL_DSCH_TFC12	(TF0, TF0, TF1),
DL_DSCH_TFC13	(TF1, TF0, TF1),
DL_DSCH_TFC14	(TF2, TF0, TF1),
DL_DSCH_TFC15	(TF3, TF0, TF1),
DL_DSCH_TFC16	(TF4, TF0, TF1),
DL_DSCH_TFC17	(TF5, TF0, TF1),
DL_DSCH_TFC18	(TF0, TF1, TF1),
DL_DSCH_TFC19	(TF1, TF1, TF1),
DL_DSCH_TFC20	(TF2, TF1, TF1),
DL_DSCH_TFC21	(TF3, TF1, TF1),
DL_DSCH_TFC22	(TF4, TF1, TF1)
DL_DSCH_TFC23	(TF5, TF1, TF1)

Downlink TFS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Sub-tests for RACH/FACH – 20 ms TTI:

See Section 18.3.6.1

Sub-tests – USCH (337 bit TBS & 20 ms TTI) & DSCH (337 bit TBS & 10 ms TTI):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 312 (1x320)x1 - 8	DTCH: 312
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15,	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 632 (2x320)x1 - 8	DTCH: 632
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 1912 (3 x 320) x 2 - 8	DTCH: 1272
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 2552 (4 x 320) x 2 - 8	DTCH: 2552
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	RB5: 3832 (4 x 320) x 3 - 8	RB5: 3832
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. . RB5: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.3.1.3 for test procedure.

18.3.3.2.1.4 Test requirements

See 18.3.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x337).
   - for sub-test 2: DTCH /TF2 (2x337).
   - for sub-test 3: DTCH /TF3 (3x337).
   - for sub-test 4 and 5: DTCH /TF4 (4x337)
4. At step 15 the UE shall return
   - for sub-test 1, 2, 4, 5: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the first 1272 bits equal to the content of the DL RLC SDU sent by the SS

18.3.3.2.2 Interactive or background / UL: 64(145 bit TBS – 20 ms TTI) DL: 384 kbps / PS RAB/10 ms TTI/145 bits TBS (337 bit TBS – 10 ms TTI) + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.3.3.2.2.1 Conformance requirement

See 18.3.2.4.1.

18.3.3.2.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.11.6.4.2.2 for the downlink 10 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB, SHCCH, and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 64 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 384 kbps PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 256 kbps UL PS RAB channel has a 145 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 384 kbps PS RAB.
- To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.3.2.2.3 Method of test

Uplink TFS for the 64 kbps USCH – Transport Block Size 145 bits:

See corresponding table in 18.3.3.1.1.3

U plink TFCS for the 64 kbps USCH – Transport Block Size 145 bits:

See corresponding table in 18.3.3.1.1.3

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.3.3.1.1.3

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.3.3.1.1.3

Downlink TFS for the 384 kbps DSCH – 10 ms TTI:

See corresponding table in 18.3.3.2.1.3

Downlink TFCS for the 384 kbps DSCH - 10 ms TTI:

See corresponding table in 18.3.3.2.1.3

Downlink TFS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Sub-tests for RACH/FACH – 20 ms TTI:

See Section 18.3.6.1

Sub-tests for USCH/DSCH – 10 ms TTI & UL 145 bit TBS and DL 337 bit TBS:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 376 (1x128)x3 - 8	DTCH: 312
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 760 (3x128)x2 - 8	DTCH: 632
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 1784 (7x128)x2 - 8	DTCH: 1272
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 2552 (10x128)x2 - 8	DTCH: 2552
5	DL_DSCH_TFC5	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	RB5: 3832 (3x128)x10 - 8	RB5: 3832

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. .
RB5: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

See 18.3.1.3 for test procedure.

18.3.3.2.2.4 Test requirements

See 18.3.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x145).

- for sub-test 2: DTCH /TF2 (3x145).
- for sub-test 3: DTCH /TF3 (7x145).
- for sub-test 4: RB5/TF4 (10x145)

4. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the first 312 bits equal to the content of the DL RLC SDU sent by the SS
   - for sub-test 2: an RLC SDU on RB5 having the first 632 bits equal to the content of the DL RLC SDU sent by the SS
   - for sub-test 3: an RLC SDU on RB5 having the first 1272 bits equal to the content of the DL RLC SDU sent by the SS
   - for sub-tests 4, 5: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

18.3.3.2.3 Interactive or background / UL: 64 (337 bit TBS – 20 ms TTI) DL: 384 kbps (337 bit TBS – 20 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.3.3.2.3.1 Conformance requirement

See 18.3.2.4.1.

18.3.3.2.3.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.11.6.4.2.2 for the downlink 20 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB, SHCCH and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 64 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 384 kbps PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 256 kbps UL PS RAB channel has a 337 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 384 kbps PS RAB.
- To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.3.2.3.3 Method of Test

See 18.3.1.3 for test procedure

Uplink TFS for the 64 kbps USCH – Transport Block Size 337 bits:

See corresponding table in 18.3.3.1.1.3

Uplink TFCS for the 64 kbps USCH – Transport Block Size 337 bits:

See corresponding table in 18.3.3.1.1.3

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.3.3.1.1.3

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.3.3.1.1.3

Downlink TFS for the 384 kbps DSCH – 20 ms TTI:

	TFI	DTCH(384 kbps)	SHCCH SRB#5	DCCH SRB#1-#4
TFS	TF0, bits	0x337	0x169	0x149
	TF1, bits	1x337	1x169	1x149
	TF2, bits	2x337	N/A	N/A
	TF3, bits	4x337	N/A	N/A
	TF4, bits	8x337	N/A	N/A
	TF5, bits	12x337	N/A	N/A
	TF6, bits	16x337	N/A	N/A
	TF7, bits	20x337	N/A	N/A
	TF8, bits	24x337	N/A	N/A

Downlink TFCS for the 384 kbps DSCH - 20 ms TTI:

TFCI	DTCH
DL_DSCH_TFC0	(TF0, TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0, TF0),
DL_DSCH_TFC2	(TF2, TF0, TF0),
DL_DSCH_TFC3	(TF3, TF0, TF0),
DL_DSCH_TFC4	(TF4, TF0, TF0),
DL_DSCH_TFC5	(TF5, TF0, TF0),
DL_DSCH_TFC6	(TF6, TF0, TF0),
DL_DSCH_TFC7	(TF7, TF0, TF0),
DL_DSCH_TFC8	(TF8, TF0, TF0),
DL_DSCH_TFC9	(TF0, TF1, TF0),
DL_DSCH_TFC10	(TF1, TF1, TF0),
DL_DSCH_TFC11	(TF2, TF1, TF0),
DL_DSCH_TFC12	(TF3, TF1, TF0),
DL_DSCH_TFC13	(TF4, TF1, TF0),
DL_DSCH_TFC14	(TF5, TF1, TF0),
DL_DSCH_TFC15	(TF6, TF1, TF0),
DL_DSCH_TFC16	(TF7, TF1, TF0),
DL_DSCH_TFC17	(TF8, TF1, TF0),
DL_DSCH_TFC18	(TF0, TF0, TF1),
DL_DSCH_TFC19	(TF1, TF0, TF1),
DL_DSCH_TFC20	(TF2, TF0, TF1),
DL_DSCH_TFC21	(TF3, TF0, TF1),
DL_DSCH_TFC22	(TF4, TF0, TF1),
DL_DSCH_TFC23	(TF5, TF0, TF1),
DL_DSCH_TFC24	(TF6, TF0, TF1),
DL_DSCH_TFC25	(TF7, TF0, TF1),
DL_DSCH_TFC26	(TF8, TF0, TF1),
DL_DSCH_TFC27	(TF0, TF1, TF1),
DL_DSCH_TFC28	(TF1, TF1, TF1),
DL_DSCH_TFC29	(TF2, TF1, TF1),
DL_DSCH_TFC30	(TF3, TF1, TF1),
DL_DSCH_TFC31	(TF4, TF1, TF1),
DL_DSCH_TFC32	(TF5, TF1, TF1),
DL_DSCH_TFC33	(TF6, TF1, TF1)
DL_DSCH_TFC34	(TF7, TF1, TF1)
DL_DSCH_TFC35	(TF8, TF1, TF1)

Downlink TFS for FACH without DTCH:

See corresponding table in 18.3.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Sub-tests for RACH/FACH – 20 ms TTI:

See Section 18.3.6.1

Sub-tests for DSCH/USCH – 20 ms TTI & UL TBS (337 bit) and DL TBS (337 bit):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC9 DL_DSCH_TFC18 DL_DSCH_TFC27 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10 UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6 UL_USCH_TFC10 UL_USCH_TFC11 UL_USCH_TFC15 UL_USCH_TFC16	DTCH: 312	DTCH: 312
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC9 DL_DSCH_TFC18 DL_DSCH_TFC27 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10 UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7 UL_USCH_TFC10 UL_USCH_TFC12 UL_USCH_TFC15 UL_USCH_TFC17	RB5: 632	RB5: 632
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC9 DL_DSCH_TFC18 DL_DSCH_TFC27 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10 UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8 UL_USCH_TFC10 UL_USCH_TFC13 UL_USCH_TFC15 UL_USCH_TFC18	RB5: 1912 (3x320) x 2 - 8	RB5: 1272
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9 DL_DSCH_TFC18 DL_DSCH_TFC27 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10 UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_USCH_TFC10 UL_USCH_TFC14 UL_USCH_TFC15 UL_USCH_TFC19	RB5: 2552	RB5: 2552
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9 DL_DSCH_TFC18 DL_DSCH_TFC27 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10 UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_USCH_TFC10 UL_USCH_TFC14 UL_USCH_TFC15 UL_USCH_TFC19	RB5: 3832	RB5: 3832
6	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9 DL_DSCH_TFC18 DL_DSCH_TFC27 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10 UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_USCH_TFC10 UL_USCH_TFC14 UL_USCH_TFC15 UL_USCH_TFC19	RB5: 5112	RB5: 5112
7	DL_DSCH_TFC7	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, DL_DSCH_TFC18, DL_DSCH_TFC27, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	RB5: 6392	RB5: 6392

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
8	DL_DSCH_TFC8	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	RB5: 6392	RB5: 6392
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. . RB5: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.3.1.3 for test procedure.

18.3.3.2.1.4 Test requirements

See 18.3.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x337).
   - for sub-test 2: DTCH /TF2 (2x337).
   - for sub-test 3: DTCH /TF3 (3x337).
   - for sub-test 4, 5, 6, 7, and 8: DTCH /TF4 (4x337)
4. At step 15 the UE shall return
   - for sub-test 1, 2, 4, 5, 7 and 8: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the first 1272 bits equal to the content of the DL RLC SDU sent by the SS

18.3.3.2.4 Interactive or background / UL: 64 (145 bit TBS – 20 ms TTI) DL: 384 kbps (337 bit TBS – 20 ms TTI) / PS RAB+ UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.3.3.2.4.1 Conformance requirement

See 18.3.2.4.1.

18.3.3.2.4.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.11.6.4.2.1 for the downlink 20 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB, SHCCH and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 64 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the 384 kbps Interactive/Background PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 20 ms TTI. The Interactive/Background 384 kbps UL PS RAB channel has a 145 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 384 kbps PS RAB.
- To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.3.2.4.3 Method of test

Uplink TFCS for the 64 kbps USCH – Transport Block Size 145 bits:

See corresponding table in 18.3.3.1.1.3

Uplink TFCS for the 64 kbps USCH – Transport Block Size 145 bits:

See corresponding table in 18.3.3.1.1.3

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.3.3.1.1.3

Uplink TFCS for the RACH without DTCH:

See corresponding table in 18.3.3.1.1.3

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.3.3.1.1.3

Uplink TFCS for the RACH with DTCH:

See corresponding table in 18.3.3.1.1.3

Downlink TFS for the 384 kbps DSCH – 20 ms TTI:

See corresponding table in 18.3.3.1.3.2

Downlink TFCS for the 384 kbps DSCH - 20 ms TTI:

See corresponding table in 18.3.3.1.3.2

Downlink TFS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFCS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Sub-test for RACH/FACH – 20 ms TT1:

See Section 18.3.6.1

Sub-tests for DSCH/USCH – 20 ms TTI & UL TBS (145 bit) and DL TBS (337 bit):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 376 (1x128)x3 - 8	DTCH: 312
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 760 (3x128)x2 - 8	DTCH: 632
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 1784 (7x128)x2 - 8	DTCH: 1272
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 2552 (10x128)x2 - 8	DTCH: 2552
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 3832 (10x128)x3 - 8	DTCH: 3832
6	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 5112 (10x128)x4 - 8	DTCH: 5112
7	DL_DSCH_TFC7	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 6392 (10x128)x5 - 8	DTCH: 6392

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
8	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 7672 (10x128)x6 - 8	DTCH: 7672
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.3.1.3 for test procedure.

18.3.3.2.4.4 Test requirements

See 18.3.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x145).
   - for sub-test 2: DTCH/TF2 (3x145).
   - for sub-test 3: DTCH/TF3 (7x145).
   - for sub-test 4, 5, 6, 7, and 8: DTCH/TF4 (10x145).
4. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on DTCH having the first 312 bits equal content as the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on DTCH having the first 632 bits equal content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on DTCH having the first 1272 bits equal content as the DL RLC SDU sent by the SS.
   - for sub-test 4,5,6,7 and 8: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

18.3.3.3 Interactive or background / UL: 64 DL: 2048 kbps/ PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.3.3.3.1 Interactive or background / UL: 64 (337 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 10 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.3.3.3.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.3.3.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.11.6.4.2.3 for the downlink 10 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB, SHCCH and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 64 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 2048 kbps PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 2048 kbps UL PS RAB channel has a 337 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 2048 kbps PS RAB.
- To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.3.3.1.3 Method of test

Uplink TFS for the 64 kbps USCH – Transport Block Size 337 bits:

See corresponding table in 18.3.3.1.1.3

Uplink TFCS for the 64 kbps USCH – Transport Block Size 337 bits:

See corresponding table in 18.3.3.1.1.3

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.3.3.1.1.3

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.3.3.1.1.3

Downlink TFS for 2048 kbps DSCH – 10 ms TTI:

	TFI	DTCH(2048 kbps)	SHCCH SRB#5	DCCH SRB#1-#4
TFS	TF0, bits	0x657	0x169	0x149
	TF1, bits	1x657	1x169	1x149
	TF2, bits	2x657	N/A	N/A
	TF3, bits	4x657	N/A	N/A

	TF4, bits	8x657	N/A	N/A
	TF5, bits	12x657	N/A	N/A
	TF6, bits	16x657	N/A	N/A
	TF7, bits	20x657	N/A	N/A
	TF8, bits	24x657	N/A	N/A
	TF9, bits	28x657	N/A	N/A
	TF10, bits	30x657	N/A	N/A

Downlink TFCS for 2048 kbps DSCH - 10 ms TTI:

TFCI	DTCH,SHCCH,DCCH
DL_DSCH_TFC0	(TF0, TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0, TF0),
DL_DSCH_TFC2	(TF2, TF0, TF0),
DL_DSCH_TFC3	(TF3, TF0, TF0),
DL_DSCH_TFC4	(TF4, TF0, TF0),
DL_DSCH_TFC5	(TF5, TF0, TF0),
DL_DSCH_TFC6	(TF6, TF0, TF0),
DL_DSCH_TFC7	(TF7, TF0, TF0),
DL_DSCH_TFC8	(TF8, TF0, TF0),
DL_DSCH_TFC9	(TF9, TF0, TF0),
DL_DSCH_TFC10	(TF10, TF0, TF0),
DL_DSCH_TFC11	(TF0, TF1, TF0),
DL_DSCH_TFC12	(TF1, TF1, TF0),
DL_DSCH_TFC13	(TF2, TF1, TF0),
DL_DSCH_TFC14	(TF3, TF1, TF0),
DL_DSCH_TFC15	(TF4, TF1, TF0),
DL_DSCH_TFC16	(TF5, TF1, TF0),
DL_DSCH_TFC17	(TF6, TF1, TF0),
DL_DSCH_TFC18	(TF7, TF1, TF0),
DL_DSCH_TFC19	(TF8, TF1, TF0),
DL_DSCH_TFC20	(TF9, TF1, TF0),
DL_DSCH_TFC21	(TF0, TF0, TF1),
DL_DSCH_TFC22	(TF1, TF0, TF1),
DL_DSCH_TFC23	(TF2, TF0, TF1),
DL_DSCH_TFC24	(TF3, TF0, TF1),
DL_DSCH_TFC25	(TF4, TF0, TF1),
DL_DSCH_TFC26	(TF5, TF0, TF1),
DL_DSCH_TFC27	(TF6, TF0, TF1),
DL_DSCH_TFC28	(TF7, TF0, TF1),
DL_DSCH_TFC29	(TF8, TF0, TF1),
DL_DSCH_TFC30	(TF9, TF0, TF1),
DL_DSCH_TFC31	(TF0, TF1, TF1),
DL_DSCH_TFC32	(TF1, TF1, TF1),
DL_DSCH_TFC33	(TF2, TF1, TF1),
DL_DSCH_TFC34	(TF3, TF1, TF1),
DL_DSCH_TFC35	(TF4, TF1, TF1),
DL_DSCH_TFC36	(TF5, TF1, TF1),
DL_DSCH_TFC37	(TF6, TF1, TF1),
DL_DSCH_TFC38	(TF7, TF1, TF1),
DL_DSCH_TFC39	(TF8, TF1, TF1),
DL_DSCH_TFC40	(TF9, TF1, TF1),

Downlink TFS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFCS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Sub-test for RACH/FACH – 20 ms TT1:

See Section 18.3.6.1

Sub-tests for DSCH/USCH – 10 ms TTI & UL TBS (337 bit) and DL TBS (657 bit):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 632 (320 x1) x 2 - 8	RB5: 632
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 1272 (320 x2) x2 - 8	DTCH: 1272
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 2872 (320 x3) x3 - 8	DTCH: 2552
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 5112 (320 x4) x4 - 8	DTCH: 5112

5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 7672 (320 x4) x6 - 8	DTCH: 7672
6	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 10232 (320 x4) x8 - 8	DTCH: 10232
7	DL_DSCH_TFC7	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 12792 (320 x4) x10 - 8	DTCH: 12792
8	DL_DSCH_TFC8	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 15352 (320 x4) x12 - 8	DTCH: 15352
9	DL_DSCH_TFC9	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 17912 (320 x4) x14 - 8	DTCH: 17912

10	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 20472 (320 x4) x16 - 8	DTCH: 20472
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. DTCH: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.3.1.3 for test procedure.

18.3.3.3.1.4 Test requirements

See 18.3.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x337).
   - for sub-test 2: DTCH/TF2 (2x337).
   - for sub-test 3: DTCH/TF3 (3x337).
   - for sub-test 4 to 10: DTCH/TF4 (4x337)
3. At step 15 the UE shall return
   - for sub-test 1, 2, 4 to 10: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on DTCH having the first 2552 bits equal to the content of the DL RLC SDU sent by the SS.

18.3.3.3.2 Interactive or background / UL: 64(145 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 10 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.3.3.3.2.1 Conformance requirement

See 18.3.2.4.1.

18.3.3.3.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.11.6.4.2.2 for the downlink 10 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB, SHCCH and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 64 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 384 kbps PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 256 kbps UL PS RAB channel has a 145 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 384 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.3.2.3.3 Method of test

Uplink TFS for the 64 kbps USCH – Transport Block Size 145 bits:

See corresponding table in 18.3.3.1.1.3

U plink TFCS for the 64 kbps USCH – Transport Block Size 145 bits:

See corresponding table in 18.3.3.1.1.3

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.3.3.1.1.3

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.3.3.1.1.3

Downlink TFS for DSCH – 10 ms TTI:

See corresponding table in 18.3.3.3.1.3

Downlink TFCS for DSCH - 10 ms TTI:

See corresponding table in 18.3.3.3.1.3

Downlink TFS for FACH without DTCH:

See corresponding table in 18.3.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Sub-tests for RACH/FACH – 20 ms TTI:

See Section 18.3.6.1

Sub-tests for DSCH/USCH – 10 ms TTI & UL TBS (145 bit) and DL TBS (657 bit):

Sub - test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 632 (128 x1) x5 - 8	RB5: 632
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 1528 (128 x3) x4 - 8	DTCH: 1272
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18,	DTCH: 2680 (128 x7) x3 - 8	DTCH: 2552
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 5112 (128 x10) x4 - 8	DTCH: 5112
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_SCH_TFC19	DTCH: 7672 (128 x10) x6- 8	DTCH: 7672
6	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 10232 (128 x10) x8- 8	DTCH: 10232
7	DL_DSCH_TFC7	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 12792 (128 x10)x10- 8	DTCH: 12792
8	DL_DSCH_TFC8	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11,	UL_USCH_TFC0, UL_USCH_TFC1,	DTCH: 15352	DTCH: 15352

			DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	(128 x10)x12- 8	
9	DL_DSCH_TFC9	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 17912 (128 x10)x14- 8	DTCH: 17912
10	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 20472 (128 x10)x16- 8	DTCH: 20472
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. DTCH: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.3.1.3 for test procedure.

18.3.3.2.3.4 Test requirements

See 18.3.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x145).
   - for sub-test 2: DTCH /TF2 (3x145).
   - for sub-test 3: DTCH /TF3 (7x145).
   - for sub-test 4 to 10: DTCH /TF4 (10x145)
4. At step 15 the UE shall return
   - for sub-test 1, 4, 5, 6, 7, 8, 9, and 10: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB5 having the first 1272 bits equal to the content of the DL RLC SDU sent by the SS
   - for sub-test 3: an RLC SDU on RB5 having the first 2552 bits equal to the content of the DL RLC SDU sent by the SS

18.3.3.3.3 Interactive or background / UL: 64 (337 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 20 ms TTI) / PS RAB+ UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.3.3.3.3.1 Conformance requirement

See 18.3.2.4.1.

18.3.3.3.3.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.11.6.4.2.3 for the downlink 20 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB, SHCCH and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 64 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 2048 kbps PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 2048 kbps UL PS RAB channel has a 337 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 2048 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.3.3.3.3 Method of test

Uplink TFS for the USCH – Transport Block Size 337 bits:

See corresponding table in 18.3.3.1.1.3

Uplink TFCS for the USCH – Transport Block Size 337 bits:

See corresponding table in 18.3.3.1.1.3

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.3.3.1.1.3

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.3.3.1.1.3

Downlink TFS for 2048 kbps DSCH – 20 ms TTI:

	TFI	DTCH(2048 kbps)	SHCCH SRB#5	DCCH SRB#1-#4
TFS	TF0, bits	0x657	0x169	0x149
	TF1, bits	1x657	1x169	1x149
	TF2, bits	2x657	N/A	N/A
	TF3, bits	4x657	N/A	N/A
	TF4, bits	8x657	N/A	N/A
	TF5, bits	12x657	N/A	N/A
	TF6, bits	16x657	N/A	N/A
	TF7, bits	20x657	N/A	N/A
	TF8, bits	24x657	N/A	N/A
	TF9, bits	28x657	N/A	N/A
	TF10, bits	32x657	N/A	N/A
	TF11, bits	36x657	N/A	N/A
	TF12, bits	40x657	N/A	N/A
	TF13, bits	44x657	N/A	N/A
	TF14, bits	48x657	N/A	N/A
	TF15, bits	52x657	N/A	N/A
	TF16, bits	56x657	N/A	N/A
	TF17, bits	60x657	N/A	N/A
	TF18, bits	64x657	N/A	N/A

Downlink TFCS for 2048 kbps DSCH - 20 ms TTI:

TFCI	DTCH,SHCCH,DCCH
DL_DSCH_TFC0	(TF0, TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0, TF0),
DL_DSCH_TFC2	(TF2, TF0, TF0),
DL_DSCH_TFC3	(TF3, TF0, TF0),
DL_DSCH_TFC4	(TF4, TF0, TF0),
DL_DSCH_TFC5	(TF5, TF0, TF0),
DL_DSCH_TFC6	(TF6, TF0, TF0),
DL_DSCH_TFC7	(TF7, TF0, TF0),
DL_DSCH_TFC8	(TF8, TF0, TF0),
DL_DSCH_TFC9	(TF9, TF0, TF0),
DL_DSCH_TFC10	(TF10, TF0, TF0),
DL_DSCH_TFC11	(TF11, TF0, TF0),
DL_DSCH_TFC12	(TF12, TF0, TF0),
DL_DSCH_TFC13	(TF13, TF0, TF0),
DL_DSCH_TFC14	(TF14, TF0, TF0),
DL_DSCH_TFC15	(TF15, TF0, TF0),
DL_DSCH_TFC16	(TF16, TF0, TF0),
DL_DSCH_TFC17	(TF17, TF0, TF0),
DL_DSCH_TFC18	(TF18, TF0, TF0),
DL_DSCH_TFC19	(TF0, TF1, TF0),
DL_DSCH_TFC20	(TF1, TF1, TF0),
DL_DSCH_TFC21	(TF2, TF1, TF0),
DL_DSCH_TFC22	(TF3, TF1, TF0),
DL_DSCH_TFC23	(TF4, TF1, TF0),
DL_DSCH_TFC24	(TF5, TF1, TF0),
DL_DSCH_TFC25	(TF6, TF1, TF0),
DL_DSCH_TFC26	(TF7, TF1, TF0),
DL_DSCH_TFC27	(TF8, TF1, TF0),
DL_DSCH_TFC28	(TF9, TF1, TF0),
DL_DSCH_TFC29	(TF10, TF1, TF0),
DL_DSCH_TFC30	(TF11, TF1, TF0),
DL_DSCH_TFC31	(TF12, TF1, TF0),
DL_DSCH_TFC32	(TF13, TF1, TF0),
DL_DSCH_TFC33	(TF14, TF1, TF0),
DL_DSCH_TFC34	(TF15, TF1, TF0),
DL_DSCH_TFC35	(TF16, TF1, TF0),
DL_DSCH_TFC36	(TF17, TF1, TF0),
DL_DSCH_TFC37	(TF18, TF1, TF0),
DL_DSCH_TFC38	(TF0, TF0, TF1),
DL_DSCH_TFC39	(TF1, TF0, TF1),
DL_DSCH_TFC40	(TF2, TF0, TF1),
DL_DSCH_TFC41	(TF3, TF0, TF1),
DL_DSCH_TFC42	(TF4, TF0, TF1),
DL_DSCH_TFC43	(TF5, TF0, TF1),
DL_DSCH_TFC44	(TF6, TF0, TF1),
DL_DSCH_TFC45	(TF7, TF0, TF1),
DL_DSCH_TFC46	(TF8, TF0, TF1),
DL_DSCH_TFC47	(TF9, TF0, TF1),
DL_DSCH_TFC48	(TF10, TF0, TF1),
DL_DSCH_TFC49	(TF11, TF0, TF1),
DL_DSCH_TFC50	(TF12, TF0, TF1),
DL_DSCH_TFC51	(TF13, TF0, TF1),
DL_DSCH_TFC52	(TF14, TF0, TF1),
DL_DSCH_TFC53	(TF15, TF0, TF1),
DL_DSCH_TFC54	(TF16, TF0, TF1),
DL_DSCH_TFC55	(TF17, TF0, TF1),
DL_DSCH_TFC56	(TF18, TF0, TF1),
DL_DSCH_TFC57	(TF0, TF1, TF1),
DL_DSCH_TFC58	(TF1, TF1, TF1),
DL_DSCH_TFC59	(TF2, TF1, TF1),
DL_DSCH_TFC61	(TF3, TF1, TF1),
DL_DSCH_TFC62	(TF4, TF1, TF1),
DL_DSCH_TFC63	(TF5, TF1, TF1),

DL_DSCH_TFC64	(TF6, TF1, TF1),
DL_DSCH_TFC65	(TF7, TF1, TF1),
DL_DSCH_TFC66	(TF8, TF1, TF1),
DL_DSCH_TFC67	(TF9, TF1, TF1),
DL_DSCH_TFC68	(TF10, TF1, TF1),
DL_DSCH_TFC69	(TF11, TF1, TF1),
DL_DSCH_TFC70	(TF12, TF1, TF1),
DL_DSCH_TFC71	(TF13, TF1, TF1),
DL_DSCH_TFC72	(TF14, TF1, TF1),
DL_DSCH_TFC73	(TF16, TF1, TF1),
DL_DSCH_TFC74	(TF17, TF1, TF1),
DL_DSCH_TFC75	(TF18, TF1, TF1),

Downlink TFS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFCS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Sub-test for RACH/FACH – 20 ms TT1:

See Section 18.3.6.1

Sub-tests for DSCH/USCH – 20 ms TTI & UL TBS (337 bit) and DL TBS (657 bit):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 632 (320 x1) x2 - 8	DTCH: 632
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 1272 (320 x2) x2 - 8	DTCH: 1272
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 2872 (320 x3) x3 - 8	DTCH: 2552
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 5112 (320 x4) x4 - 8	DTCH: 5112
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 7672 (320 x4) x6 - 8	DTCH: 7672
6	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 10232 (320 x4) x8 - 8	DTCH: 10232
7	DL_DSCH_TFC7	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 12792 (320 x4) x10 - 8	DTCH: 12792
8	DL_DSCH_TFC8	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 15352 (320 x4) x12 - 8	DTCH: 15352

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
9	DL_DSCH_TFC9	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 17912 (320 x4) x14 - 8	DTCH: 17912
10	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 20472 (320 x4) x16 - 8	DTCH: 20472
11	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 23032 (320 x4) x18 - 8	DTCH: 23032
12	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 25592 (320 x4) x20 - 8	DTCH: 25592
13	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 28152 (320 x4) x22 - 8	DTCH: 28152
14	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 30712 (320 x4) x24 - 8	DTCH: 30712
15	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 33272 (320 x4) x26 - 8	DTCH: 33272
16	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 35832 (320 x4) x28 - 8	DTCH: 35832

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
17	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 38392 (320 x4) x30 - 8	DTCH: 38392
18	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 40952 (320 x4) x32 - 8	DTCH: 40952
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. DTCH: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.3.1.3 for test procedure.

18.3.3.3.3.4 Test requirements

See 18.3.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x337).
   - for sub-test 2: DTCH/TF2 (2x337).
   - for sub-test 3: DTCH/TF3 (3x337).
   - for sub-tests 4 to 18: DTCH/TF4 (4x337).
3. At step 15 the UE shall return
   - for sub-test 1 to 18: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

18.3.3.3.4 Interactive or background / UL: 64(145 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 20 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.3.3.3.4.1 Conformance requirement

See 18.3.2.4.1.

18.3.3.3.4.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.11.6.4.2.2 for the downlink 20 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB, SHCCH and the DCCH.

- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 64 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 2048 kbps PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 20 ms TTI. The Interactive/Background 2048 kbps UL PS RAB channel has a 145 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 2048 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.3.3.4.3 Method of test

Uplink TFS for the 64 kbps USCH – Transport Block Size 145 bits:

See corresponding table in 18.3.3.1.1.3

Uplink TFCS for the 64 kbps USCH – Transport Block Size 145 bits:

See corresponding table in 18.3.3.1.1.3

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.3.3.1.1.3

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.3.3.1.1.3

Downlink TFS for 2048 kbps DSCH – 20 ms TTI:

See corresponding table in 18.3.3.3.3.3

Downlink TFCS for 2048 kbps DSCH – 20 ms TTI:

See corresponding table in 18.3.3.3.3.3

Downlink TFS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFCS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Sub-test for RACH/FACH – 20 ms TT1:

See Section 18.3.6.1

Sub-tests for DSCH/USCH – 20 ms TTI & UL TBS (145 bit) and DL TBS (657 bit):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 632 (128 x1) x5 - 8	DTCH: 632
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 1528 (128 x3) x4 - 8	DTCH: 1272
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 2680 (128 x7) x3 - 8	DTCH: 2552
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 5112 (128 x10) x4 - 8	DTCH: 5112
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 7672 (128 x10) x6-8	DTCH: 7672
6	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 10232 (128x10) x8 - 8	DTCH: 10232
7	DL_DSCH_TFC7	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 12792 (128 x10)x10-8	DTCH: 12792
8	DL_DSCH_TFC8	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 15352 (128 x10)x12-8	DTCH: 15352

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
9	DL_DSCH_TFC9	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 17912 (128 x10)x14-8	DTCH: 17912
10	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 20472 (128 x10)x16-8	DTCH: 20472
11	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 23032 (320 x4) x18 - 8	DTCH: 23032
12	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 25592 (128 x10) x20 - 8	DTCH: 25592
13	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 28152 (128 x10) x22 - 8	DTCH: 28152
14	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 30712 (128 x10) x24 - 8	DTCH: 30712
15	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 33272 (128 x10) x26 - 8	DTCH: 33272
16	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 35832 (128 x10) x28 - 8	DTCH: 35832

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
17	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 38392 (128 x10) x30 - 8	DTCH: 38392
18	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 40952 (128 x10) x32 - 8	DTCH: 40952
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. DTCH: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.3.1.3 for test procedure.

18.3.3.3.4.4 Test requirements

See 18.3.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x145).
   - for sub-test 2: DTCH/TF2 (3x145).
   - for sub-test 3: DTCH/TF3 (7x145).
   - for sub-tests 4 to 18: DTCH/TF4 (10x145).
4. At step 15 the UE shall return
   - for sub-test 4 to 18: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on DTCH having the first 1272 bits equal to the contents as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on DTCH having the first 2552 bits equal to the contents as the DL RLC SDU sent by the SS.

18.3.3.4 Interactive or background / UL: 384 DL: 2048 kbps / PS RAB + UL: 3.4 DL: 16.8 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.3.3.4.1 Interactive or background / UL: 384 DL (337 bit TBS – 20 ms TTI): 2048 kbps (657 bit TBS – 10 ms TTI) / PS RAB+ UL: 3.4 DL: 16.8 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.3.3.4.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.3.4.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.11.6.4.2.4 for the downlink 10 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 384 kbps UL PS RAB, SHCCH and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 384 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 2048 kbps PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 384 kbps UL PS RAB channel has a 337 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 384 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.3.4.1.3 Method of test

Uplink TFS for the 384 kbps USCH – Transport Block Size 337 bits:

	TFI	**DTCH**	**SHCCH (SRB#5)**	**DCCH (SRB#1 – SRB#4)**
TFS	TF0, bits	0x337	0x169	0x149
	TF1, bits	1x337	1x169	1x149
	TF2, bits	2x337	N/A	N/A
	TF3, bits	4x337	N/A	N/A
	TF4, bits	8x337	N/A	N/A
	TF5, bits	12x337	N/A	N/A
	TF6, bits	16x337	N/A	N/A
	TF7, bits	20x337	N/A	N/A
	TF8, bits	24x337	N/A	N/A

Uplink TFCS for the 384 kbps USCH – Transport Block size 337 bits:

TFCI	(DTCH, SHCCH, DCCH)
UL_USCH_TFC0	(TF0, TF0, TF0),
UL_USCH_TFC1	(TF1, TF0, TF0),
UL_USCH_TFC2	(TF2, TF0, TF0),
UL_USCH_TFC3	(TF3, TF0, TF0),
UL_USCH_TFC4	(TF4, TF0, TF0),
UL_USCH_TFC5	(TF5, TF0, TF0),
UL_USCH_TFC6	(TF6, TF0, TF0),
UL_USCH_TFC7	(TF7, TF0, TF0),
UL_USCH_TFC8	(TF8, TF0, TF0),
UL_USCH_TFC9	(TF0, TF1, TF0),
UL_USCH_TFC10	(TF1, TF1, TF0),
UL_USCH_TFC11	(TF2, TF1, TF0),
UL_USCH_TFC12	(TF3, TF1, TF0),
UL_USCH_TFC13	(TF4, TF1, TF0),
UL_USCH_TFC14	(TF5, TF1, TF0),
UL_USCH_TFC15	(TF6, TF1, TF0),
UL_USCH_TFC16	(TF7, TF1, TF0),
UL_USCH_TFC17	(TF8, TF1, TF0),
UL_USCH_TFC18	(TF0, TF0, TF1),
UL_USCH_TFC19	(TF1, TF0, TF1),
UL_USCH_TFC20	(TF2, TF0, TF1),
UL_USCH_TFC21	(TF3, TF0, TF1),
UL_USCH_TFC22	(TF4, TF0, TF1),
UL_USCH_TFC23	(TF5, TF0, TF1),
UL_USCH_TFC24	(TF6, TF0, TF1),
UL_USCH_TFC25	(TF7, TF0, TF1),
UL_USCH_TFC26	(TF8, TF0, TF1),
UL_USCH_TFC27	(TF0, TF1, TF1),
UL_USCH_TFC28	(TF1, TF1, TF1),
UL_USCH_TFC29	(TF2, TF1, TF1),
UL_USCH_TFC30	(TF3, TF1, TF1),
UL_USCH_TFC31	(TF4, TF1, TF1),
UL_USCH_TFC32	(TF5, TF1, TF1),
UL_USCH_TFC33	(TF6, TF1, TF1),
UL_USCH_TFC34	(TF7, TF1, TF1),
UL_USCH_TFC35	(TF8, TF1, TF1),

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.3.3.1.1.2

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.3.3.1.1.2

Downlink TFS for 2048 kbps DSCH – 10 ms TTI:

See corresponding table in 18.3.3.3.1.3

Downlink TFCS for 2048 kbps DSCH - 10 ms TTI

See corresponding table in 18.3.3.3.1.3

Downlink TFS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFCS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Sub-test for RACH/FACH – 20 ms TT1:

See Section 18.3.6.1

Sub-tests for DSCH/USCH – 10 ms TTI & UL TBS (337 bit) and DL TBS (337 bit):

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
1	DL_DSCH_TFC1	UL_USCH _TFC1	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC18, UL_USCH_TFC19, UL_USCH_TFC27, UL_USCH_TFC28	DTCH: 312 (320 x1) x2 - 8	DTCH: 632
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC2, UL_USCH_TFC9, UL_USCH_TFC11, UL_USCH_TFC18, UL_USCH_TFC20, UL_USCH_TFC27, UL_USCH_TFC29	DTCH: 1272 (320 x2) x2 - 8	DTCH: 1272
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC3, UL_USCH_TFC9, UL_USCH_TFC12, UL_USCH_TFC18, UL_USCH_TFC21, UL_USCH_TFC27, UL_USCH_TFC30	DTCH: 2552 (320 x4) x2 - 8	DTCH: 2552
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 5112 (320 x8) x2 - 8	DTCH: 5112
5	DL_DSCH_TFC5	UL_USCH_TFC5	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 7672 (320 x12) x2 - 8	DTCH: 7672
6	DL_DSCH_TFC6	UL_USCH_TFC6	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC14, UL_USCH_TFC18, UL_USCH_TFC23, UL_USCH_TFC27, UL_USCH_TFC32	DTCH: 10232 (320 x16) x2 - 8	DTCH:10232
7	DL_DSCH_TFC7	UL_USCH_TFC7	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 12792 (320 x20) x2 - 8	DTCH: 12792
8	DL_DSCH_TFC8	UL_USCH_TFC8	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC7, UL_USCH_TFC9, UL_USCH_TFC16, UL_USCH_TFC18, UL_USCH_TFC25, UL_USCH_TFC27, UL_USCH_TFC34	DTCH: 15352 (320 x24) x2 - 8	DTCH: 1 5352
9	DL_DSCH_TFC9	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 17912 (320 x8) x7 - 8	DTCH: 17912

10	DL_DSCH_TFC10	UL_USCH_TFC7	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 19192 (320 x20) x3 - 8	DTCH: 19192
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC18 and UL_TFC27 are part of the minimum set of TFCIs NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

18.3.3.4.1.4 Test requirements

See 18.1.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST.
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x337).
   - for sub-test 2: DTCH/TF2 (2x337).
   - for sub-test 3: DTCH/TF3 (4x337).
   - for sub-test 4: DTCH/TF3 (8x337).
   - for sub-test 5: DTCH/TF4 (12x337)
   - for sub-test 6: DTCH/TF4 (16x337)
   - for sub-test 7: DTCH/TF4 (20x337)
   - for sub-test 8: DTCH/TF4 (24x337)
   - for sub-test 9: DTCH/TF4 (8x337)
   - for sub-test 10: DTCH/TF4 (20x337).
4. At step 15 the UE shall return
   - for sub-test 1 to 10: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

18.3.3.4.2 Interactive or background / UL: 384(145 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 10 ms TTI) / PS RAB + UL: 3.4 DL: 16.8 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.3.3.4.2.1 Conformance requirement

See 18.3.2.4.1.

18.3.3.4.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.11.6.4.2.4 for the downlink 10 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 384 kbps UL PS RAB, SHCCH and the DCCH.

- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 384 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 2048 kbps PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 384 kbps UL PS RAB channel has a 145 bit Transport Block Size (TBS).

- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 384 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.3.4.1.3 Method of test

Uplink TFS for the 384 kbps USCH – Transport Block Size 145 bits:

	TFI	DTCH	SHCCH (SRB#5)	DCCH (SRB#1 – SRB#4)
TFS	TF0, bits	0x145	0x169	0x149
	TF1, bits	1x145	1x169	1x149
	TF2, bits	3x145	N/A	N/A
	TF3, bits	7x145	N/A	N/A
	TF4, bits	10x145	N/A	N/A
	TF5, bits	20x145	N/A	N/A
	TF6, bits	30x145	N/A	N/A
	TF7, bits	40x145	N/A	N/A
	TF8, bits	60x145	N/A	N/A

Uplink TFCS for the 384 kbps USCH – Transport Block size 145 bits:

See corresponding table in 18.3.3.4.1.2

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.3.3.1.1.2

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.3.3.1.1.2

Downlink TFS for 2048 kbps DSCH – 10 ms TTI:

See corresponding table in 18.3.3.3.1.3

Downlink TFCS for 2048 kbps DSCH - 10 ms TTI

See corresponding table in 18.3.3.3.1.3

Downlink TFS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFCS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Sub-test for RACH/FACH – 20 ms TT1:

See Section 18.3.6.1

Sub-tests for DSCH/USCH – 10 ms TTI & UL TBS (337 bit) and DL TBS (337 bit):

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
1	DL_DSCH_TFC1	UL_USCH _TFC1	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC18, UL_USCH_TFC19, UL_USCH_TFC27, UL_USCH_TFC28	DTCH: 632 (128 x1) x5 - 8	DTCH: 632
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC2, UL_USCH_TFC9, UL_USCH_TFC11, UL_USCH_TFC18, UL_USCH_TFC20, UL_USCH_TFC27, UL_USCH_TFC29	DTCH: 1272 (128x5) x2- 8	DTCH: 1272
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC3, UL_USCH_TFC9, UL_USCH_TFC12, UL_USCH_TFC18, UL_USCH_TFC21, UL_USCH_TFC27, UL_USCH_TFC30	DTCH: 2552 (128 x10) x2 - 8	DTCH: 2552
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 5112 (128 x20) x2 - 8	DTCH: 5112
5	DL_DSCH_TFC5	UL_USCH_TFC5	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 7672 (128 x30) x2 - 8	DTCH: 7672
6	DL_DSCH_TFC6	UL_USCH_TFC6	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC14, UL_USCH_TFC18, UL_USCH_TFC23, UL_USCH_TFC27, UL_USCH_TFC32	DTCH: 10232 (128 x40) x2 - 8	DTCH:10232
7	DL_DSCH_TFC7	UL_USCH_TFC7	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 12792 (128 x50) x2 - 8	DTCH: 12792
8	DL_DSCH_TFC8	UL_USCH_TFC8	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC7, UL_USCH_TFC9, UL_USCH_TFC16, UL_USCH_TFC18, UL_USCH_TFC25, UL_USCH_TFC27, UL_USCH_TFC34	DTCH: 15352 (128 x60) x2 - 8	DTCH: 15352
9	DL_DSCH_TFC9	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 17912 (128 x20) x7 - 8	DTCH: 17912

10	DL_DSCH_TFC10	UL_USCH_TFC7	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 19192 (128 x50) x3 - 8	DTCH: 19192
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC18 and UL_TFC27 are part of the minimum set of TFCIs NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

18.3.3.4.1.4 Test requirements

See 18.1.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x145).
   - for sub-test 2: DTCH/TF2 (5x145).
   - for sub-test 3: DTCH/TF3 (10x145).
   - for sub-test 4: DTCH/TF3 (20x145).
   - for sub-test 5: DTCH/TF4 (30x145)
   - for sub-test 6: DTCH/TF4 (40x145).
   - for sub-test 7: DTCH/TF4 (50x145).
   - for sub-test 8: DTCH/TF4 (60x145).
   - for sub-test 9: DTCH/TF4 (20x145).
   - for sub-test 10: DTCH/TF4 (50x145).
4. At step 15 the UE shall return
   - for sub-test 1 to 10: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

18.3.3.4.3 Interactive or background / UL: 384 (337 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 20 ms TTI) / PS RAB + UL: 3.4 DL: 16.8 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.3.3.4.3.1 Conformance requirement

See 18.3.2.4.1.

18.3.3.4.3.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.11.6.4.2.4 for the downlink 20 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 384 kbps UL PS RAB, SHCCH and the DCCH.

- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 384 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 2048 kbps PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 384 kbps UL PS RAB channel has a 337 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 384 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.3.4.3.3 Method of test

Uplink TFS for the 384 kbps USCH – Transport Block Size 337 bits:

See corresponding table in 18.3..3.3.3.2

Uplink TFCS for the 384 kbps USCH – Transport Block size 337 bits:

See corresponding table in 18.3.3.3.3.2

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.3.3.1.1.2

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.3.3.1.1.2

Downlink TFS for 2048 kbps DSCH – 20 ms TTI:

See corresponding table in 18.3.3.3.1.3

Downlink TFCS for 2048 kbps DSCH – 20 ms TTI

See corresponding table in 18.3.3.3.1.3

Downlink TFS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFCS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Sub-test for RACH/FACH – 20 ms TT1:

See Section 18.3.6.1

Sub-tests for DSCH/USCH – 10 ms TTI & UL TBS (337 bit) and DL TBS (337 bit):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC18, UL_USCH_TFC19, UL_USCH_TFC27, UL_USCH_TFC28	DTCH: 632 (320 x1) x2 - 8	DTCH: 632
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC9, UL_USCH_TFC11, UL_USCH_TFC18, UL_USCH_TFC20, UL_USCH_TFC27, UL_USCH_TFC29	DTCH: 1272 (320 x2) x2 - 8	DTCH: 1272
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC9, UL_USCH_TFC12, UL_USCH_TFC18, UL_USCH_TFC21, UL_USCH_TFC27, UL_USCH_TFC30	DTCH: 2872 (320 x4) x2 - 8	DTCH: 2552
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 5112 (320 x8) x2 - 8	DTCH: 5112
5	DL_DSCH_TFC5	UL_USCH_TFC5	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC14, UL_USCH_TFC18, UL_USCH_TFC23, UL_USCH_TFC27, UL_USCH_TFC32	DTCH: 7672 (320 x12) x2 - 8	DTCH: 7672
6	DL_DSCH_TFC6	UL_USCH_TFC6	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 10232 (320 x16) x2 - 8	DTCH: 10232
7	DL_DSCH_TFC7	UL_USCH_TFC7	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC7, UL_USCH_TFC9, UL_USCH_TFC16, UL_USCH_TFC18, UL_USCH_TFC25, UL_USCH_TFC27, UL_USCH_TFC34	DTCH: 12792 (320 x20) x2 - 8	DTCH: 12792
8	DL_DSCH_TFC8	UL_USCH_TFC8	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC8, UL_USCH_TFC9, UL_USCH_TFC17, UL_USCH_TFC18, UL_USCH_TFC26, UL_USCH_TFC27, UL_USCH_TFC35	DTCH: 15352 (320 x24) x2 - 8	DTCH: 15352

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
9	DL_DSCH_TFC9	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 17912 (320 x8) x7- 8	DTCH: 17912
10	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 20472 (320 x8) x8- 8	DTCH: 20472
11	DL_DSCH_TFC10	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC9, UL_USCH_TFC12, UL_USCH_TFC18, UL_USCH_TFC21, UL_USCH_TFC27, UL_USCH_TFC30	DTCH: 23032 (320 x4) x18 - 8	DTCH: 23032
12	DL_DSCH_TFC10	UL_USCH_TFC6	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 25592 (320 x16) x5 - 8	DTCH: 25592
13	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 28152 (320 x8) x11 - 8	DTCH: 28152
14	DL_DSCH_TFC10	UL_USCH_TFC8	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 20472 (320 x24) x4 - 8	DTCH: 30712
15	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 33272 (320 x8) x13 - 8	DTCH: 33272
16	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 20472 (320 x4) x28 - 8	DTCH: 35832

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
17	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 38392 (320 x8) x14 - 8	DTCH: 38392
18	DL_DSCH_TFC10	UL_USCH_TFC8	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 40952 (320 x24) x8-8	DTCH: 40952
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. DTCH: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

18.3.3.4.3.4 Test requirements

See 18.1.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST.
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x337).
   - for sub-test 2: DTCH/TF2 (2x337).
   - for sub-test 3: DTCH/TF3 (4x337).
   - for sub-test 4: DTCH/TF3 (8x337).
   - for sub-test 5: DTCH/TF4 (12x337)
   - for sub-test 6: DTCH/TF5 (16x337)
   - for sub-test 7: DTCH/TF6 (20x337)
   - for sub-test 8: DTCH/TF8 (24x337)
   - for sub-test 9 to 13: DTCH/TF4 (8x337)
   - for sub-test 11: DTCH/TF3 (4x337)
   - for sub-test 12: DTCH/TF6 (16x337)
   - for sub-test 13: DTCH/TF4 (8x337)
   - for sub-test 14: DTCH/TF8 (24x337)
   - for sub-test 15 to 17: DTCH/TF4 (8x337)
   - for sub-test 18: DTCH/TF8 (24x337)
4. At step 15 the UE shall return
   - for sub-test 1 to 18: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

18.3.3.4.4 Interactive or background / UL: 384(145 bit TBS – 20 ms TTI) DL: 2048 kbps (657 bit TBS – 20 ms TTI) / PS RAB + UL: 3.4 DL: 16.8 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.3.3.4.4.1 Conformance requirement

See 18.3.2.4.1.

18.3.3.4.4.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for two UL transport channels (a RACH and a USCH) and two DL transport channels (DSCH and FACH) as specified in TS 34.108, clause 6.11.6.4.2.4 for the downlink 20 ms TTI case.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 384 kbps UL PS RAB, SHCCH and the DCCH.
- The RACH channel can carry combinations of the signalling Radio Bearer for CCCH, DCCH, and SHCCH *excluding or including* an Interactive/Background 384 kbps UL PS RAB.

On the DL

- The DSCH can carry combinations of the Interactive/Background 2048 kbps PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 384 kbps UL PS RAB channel has a 145 bit Transport Block Size (TBS).
- The FACH can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an Interactive/Background 384 kbps PS RAB.

To be able to test the downlink radio bearer on the DSCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.3.4.4.3 Method of test

Uplink TFS for the 384 kbps USCH – Transport Block Size 337 bits:

See corresponding table in 18.3..3.3.3.2

Uplink TFCS for the 384 kbps USCH – Transport Block size 337 bits:

See corresponding table in 18.3.3.3.3.2

Uplink TFS for the RACH without DTCH:

See corresponding table in 18.3.3.1.1.2

Uplink TFS for the RACH with DTCH:

See corresponding table in 18.3.3.1.1.2

Downlink TFS for 2048 kbps DSCH – 20 ms TTI:

See corresponding table in 18.3.3.3.1.3

Downlink TFCS for 2048 kbps DSCH – 20 ms TTI

See corresponding table in 18.3.3.3.1.3

Downlink TFS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFCS for FACH without DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Downlink TFCS for FACH with DTCH – 20 ms TTI:

See corresponding table in 18.3.3.1.1.3

Sub-test for RACH/FACH – 20 ms TT1:

See Section 18.3.6.1

Sub-tests for DSCH/USCH – 10 ms TTI & UL 145 bit TBS and DL 337 bit TBS:

Sub -test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC18, UL_USCH_TFC19 UL_USCH_TFC27, UL_USCH_TFC28	DTCH: 632 (128x1) x4 - 8	DTCH: 632
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC9, UL_USCH_TFC11, UL_USCH_TFC18, UL_USCH_TFC20 UL_USCH_TFC27, UL_USCH_TFC29	DTCH: 1272 (128x5) x2 - 8	DTCH: 1272
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC9, UL_USCH_TFC12, UL_USCH_TFC18, UL_USCH_TFC21 UL_USCH_TFC27, UL_USCH_TFC30	DTCH: 2872 (128x10) x2 - 8	DTCH: 2552
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 5112 (128x20) x2 - 8	DTCH: 5112
5	DL_DSCH_TFC5	UL_USCH_TFC5	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC14 UL_USCH_TFC18, UL_USCH_TFC23, UL_USCH_TFC27, UL_USCH_TFC32	DTCH: 7672 (128x30) x2 - 8	DTCH: 7672
6	DL_DSCH_TFC6	UL_USCH_TFC6	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 10232 (128x40) x2 - 8	DTCH: 10232
7	DL_DSCH_TFC7	UL_USCH_TFC7	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC7, UL_USCH_TFC9, UL_USCH_TFC16 UL_USCH_TFC18, UL_USCH_TFC25, UL_USCH_TFC27, UL_USCH_TFC34	DTCH: 12792 (128x50) x2 - 8	DTCH: 12792
8	DL_DSCH_TFC8	UL_USCH_TFC8	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC8, UL_USCH_TFC9, UL_USCH_TFC17, UL_USCH_TFC18, UL_USCH_TFC26, UL_USCH_TFC27, UL_USCH_TFC35	DTCH: 15352 (128x60) x2 - 8	DTCH: 15352

Sub -test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
9	DL_DSCH_TFC9	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 17912 (128x20) x7- 8	DTCH: 17912
10	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 20472 (128x20) x8- 8	DTCH: 20472
11	DL_DSCH_TFC10	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC9, UL_USCH_TFC12, UL_USCH_TFC18, UL_USCH_TFC21, UL_USCH_TFC27, UL_USCH_TFC30	DTCH: 23032 (128x10) x18 - 8	DTCH: 23032
12	DL_DSCH_TFC10	UL_USCH_TFC6	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 25592 (128x40) x5 - 8	DTCH: 25592
13	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 28152 (128x20) x11 - 8	DTCH: 28152
14	DL_DSCH_TFC10	UL_USCH_TFC8	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15 UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 30712 (128x60) x4 - 8	DTCH: 30712
15	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 33272 (128x20) x13 - 8	DTCH: 33272
16	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 35832 (128x20) x14 - 8	DTCH: 35832

Sub -test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (NOTE)	Test data size (bits) (NOTE)
17	DL_DSCH_TFC10	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 38392 (128x10) x30 - 8	DTCH: 38392
18	DL_DSCH_TFC10	UL_USCH_TFC6	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 40952 (128x40) x8- 8	DTCH: 40952
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. DTCH: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

18.3.3.4.3.4 Test requirements

See 18.1.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST.
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x128).
   - for sub-test 2: DTCH/TF2 (5x128).
   - for sub-test 3: DTCH/TF3 (10x128).
   - for sub-test 4: DTCH/TF4 (20x128).
   - for sub-test 5: DTCH/TF5 (30x128)
   - for sub-test 6: DTCH/TF6 (40x128)
   - for sub-test 7: DTCH/TF7 (50x128)
   - for sub-test 8: DTCH/TF8 (60x128)
   - for sub-test 9 to 13: DTCH/TF4 (20x128)
   - for sub-test 14: DTCH/TF8 (60x128)
   - for sub-test 15 to 16: DTCH/TF4 (8x128)
   - for sub-test 17: DTCH/TF3(10x128)
   - for sub-test 18: DTCH/TF6 (40x128)
4. At step 15 the UE shall return
   - for sub-test 1 to 18: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

18.3.4 Combinations on PDSCH, SCCPCH, DPCH, PUSCH and PRACH

18.3.4.1 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 DL: 256 kbps / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.3.4.1.1 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 kbps (320 bit payload – 20 ms TTI) DL: 256 kbps (320 bit payload – 10 ms TTI) / PS RAB/ + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.3.4.1.1.1 Conformance requirement

See 18.3.2.4.1

18.3.4.1.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for three UL transport channels (USCH, RACH, and DCH) and three DL transport channels (DSCH, FACH, and DCH) as specified in TS 34.108, clause 6.11.6.4.3.1. Test is designed for the downlink shared channel (DSCH) 10 ms TTI case and 320 bit payload for the Interactive/Background PS RAB.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB and 16.8 kbps SHCCH. The Interactive/Background 64 kbps PS RAB on the USCH has a 320 bit payload and 20 ms TTI.
- The RACH channel can carry combinations of the 16.8 kbps signalling Radio Bearers for CCCH and SHCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH.

On the DL

- The DSCH can carry combinations of the Interactive/Background 256 kbps PS RAB and the 16.8 kbps SHCCH. The Interactive/Background 256 kbps PS RAB on the DSCH has a 320 bit payload and 10 ms TTI.
- The FACH can carry combinations of the signalling 33.6 kbps Radio Bearer for CCCH, BCCH and SCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH

To be able to test the downlink radio bearer on the DSCH and the DCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.4.1.1.3 Method of test

Uplink TFS for DCH:

	TFI	RAB Subflow#1 DTCH	RAB Subflow#2 DTCH	RAB Subflow#3 DTCH	SRB#1-SRB#4 DCCH
TFS	TF0, bits	0x81(alt. 1x0) (NOTE)	0x103	0x60	0x148 (alt. 1x0) (NOTE)
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Uplink TFCS for DCH:

TFCI	(Subflow#1, Subflow#2, Subflow#3, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC_3 are part of the minimum set of TFCIs. NOTE 2: In case TB size zero is configured for any transport channel, the first TFC is required; it is optional otherwise.	

Uplink TFS for USCH – 320 bit payload& 20 ms TTI:

	TFI	RAB DTCH	SRB SHCCH
TFS	TF0, bits	0x337	0x169
	TF1, bits	1x337	1x169
	TF2, bits	2x337	N/A
	TF3, bits	3x337	N/A
	TF4, bits	4x337	N/A

Uplink TFCS for USCH – 320 bit payload& 20 ms TTI:

TFCI	(RAB, SHCCH)
UL_USCH_TFC0	(TF0, TF0)
UL_USCH_TFC1	(TF1, TF0)
UL_USCH_TFC2	(TF2, TF0)
UL_USCH_TFC3	(TF3, TF1)
UL_USCH_TFC4	(TF4, TF1)
UL_USCH_TFC5	(TF0, TF1)
UL_USCH_TFC6	(TF1, TF1)
UL_USCH_TFC7	(TF2, TF1)
UL_USCH_TFC8	(TF3, TF1)
UL_USCH_TFC9	(TF4, TF1)
NOTE: UL_USCH_TFC0, UL_USCH_TFC1 and UL_USCH_TFC5 are part of the minimum set of TCIs	

TFS for RACH:

	TFI	SRB#0 & SRB#5 CCCH, SHCCH
TFS	TF0, bits	1x170

Downlink TFS for DCH:

		RAB subflow #1 DTCH	RAB subflow #2 DTCH	RAB subflow #3 DTCH	SRB#1-SRB#4 DCCH
TFS	TF0, bits	0x81 (alt. 1x0) (NOTE)	0x103	0x60	0x148 (alt. 1x0) (NOTE)
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Downlink TFCS for DCH:

TFCI	DTCH(RAB Subflow#1 – RAB subflow#3), DCCH
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS for DSCH – 320 bit payload& 10 ms TTI:

		DTCH RAB Subflow#4	SHCCH
TFS	TF0, bits	0x337	0x169
	TF1, bits	1x337	1x169
	TF2, bits	2x337	N/A
	TF3, bits	4x337	N/A
	TF4, bits	8x337	N/A

Downlink TFCS for DSCH – 320 bit payload& 10 ms TTI:

TFCI	256 kbps RAB DTCH & SHCCH
DL_DSCH_TFC0	(TF0, TF0)
DL_DSCH_TFC1	(TF1, TF0)
DL_DSCH_TFC2	(TF2, TF0)
DL_DSCH_TFC3	(TF3, TF0)
DL_DSCH_TFC4	(TF4, TF0)
DL_DSCH_TFC5	(TF0, TF1)
DL_DSCH_TFC6	(TF1, TF1)
DL_DSCH_TFC7	(TF2, TF1)
DL_DSCH_TFC8	(TF3, TF1)
DL_DSCH_TFC9	(TF4, TF1)

Downlink TFS for FACH – 32 kbps:

		CCCH/SHCCH/BCCH
TFS	TF0, bits	0x171
	TF1, bits	1x171
	TF2, bits	2x171
	TF3, bits	3x171(alt. N/A)
	TF4, bits	4x171(alt. N/A)

Downlink TFCS for FACH– 32 kbps:

TFCI	CCCH/SHCCH/BCCH
DL_FACH_TFC0	(TF0)
DL_FACH_TFC1	(TF1)
DL_FACH_TFC2	(TF2)
DL_FACH_TFC3	(TF3)
DL_FACH_TFC4	(TF4)
	ALT
DL_FACH_TFC0	(TF0,)
DL_FACH_TFC1	(TF1)
DL_FACH_TFC2	(TF2)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 1)	UL RLC SDU size (NOTE 2)	Test data size (NOTE 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:312 (1x320) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:632	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:632 (2x320) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3,	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1912 (3x320) x 2 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:1272 (4x320) - 8

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1912	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2552	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:2552 (8x320) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: UL_USCH_TFC0 UL_USCH_TFC1 and UL_USCH_TFC5 are part o f the minimum TFCIs NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.3 for test procedure.

18.3.4.1.1.4 Test requirements

See 18.3.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be:
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x337)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1(1x337)
   - for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (2x337)
   - for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (2x337)
   - for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (3x337)
   - for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (3x337)
   - for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
   - for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)

4. At step 15 the UE shall return

   - for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.

   - for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS

   - for sub-test 3, 5, and 9: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS

   - for sub-test 4, 6, and 10: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS

   - for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

   - for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

18.3.4.1.2 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(128 bit payload - 20 ms TTI) DL: 256 kbps (320 bit payload – 10 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.3.4.1.2.1 Conformance requirement

See 18.3.2.4.1

18.3.4.1.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for three UL transport channels (USCH , RACH , and DCH) and three DL transport channels (DSCH , FACH, and DCH) as specified in TS 34.108, clause 6.11.6.4.3.1. Test is designed for the downlink shared channel (DSCH) 10 ms TTI case and 145 bit payload for the Interactive/Background PS RAB.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB and 16.8 kbps SHCCH. The Interactive/Background 64 kbps PS RAB on the USCH has a 145 bit payload and 20 ms TTI.

- The RACH channel can carry combinations of the 16.8 kbps signalling Radio Bearers for CCCH and SHCCH.

- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH.

On the DL

- The DSCH can carry combinations of the Interactive/Background 256 kbps PS RAB and the 16.8 kbps SHCCH. The Interactive/Background 256 kbps PS RAB on the DSCH has a 320 bit payload and 10 ms TTI. (TBS).

- The FACH can carry combinations of the signalling 33.6 kbps Radio Bearer for CCCH, BCCH and SCCH.

- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH

To be able to test the downlink radio bearer on the DSCH and the DCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.4.1.2.3 Method of test

Uplink TFS for DCH:

See comparable table in 18.3.4.1.1.3

Uplink TFCS for DCH:

See comparable table in 18.3.4.1.1.3

Uplink TFS for USCH – 145 bit payload & 20 ms TTI:

	TFI	RAB DTCH	SRB SHCCH
TFS	TF0, bits	0x145	0x169
	TF1, bits	1x145	1x169
	TF2, bits	3x145	N/A
	TF3, bits	7x145	N/A
	TF4, bits	10x145	N/A

Uplink TFCS for USCH – 145 bit payload & 20 ms TTI:

See comparable table in 18.3.4.1.1.3

TFS for RACH:

See comparable table in 18.3.4.1.1.3

Downlink TFS for DCH:

See comparable table in 18.3.4.1.1.3

Downlink TFCS for DCH:

See comparable table in 18.3.4.1.1.3

Downlink TFS for DSCH – 320 bit payload& 10 ms TTI:

See comparable table in 18.3.4.1.1.3

Downlink TFCS for DSCH – 320 bit payload& 10 ms TTI:

See comparable table in 18.3.4.1.1.3

Downlink TFS for FACH – 32 kbps:

See comparable table in 18.3.4.1.1.3

Downlink TFCS for FACH– 32 kbps:

See comparable table in 18.3.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 1)	UL RLC SDU size (NOTE 2)	Test data size (NOTE 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0 UL_USCH_TFC1 UL_USCH_TFC5 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:128	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:128	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:376 (128 x 1)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:312
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:376 (128 x 1)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:760 (128 x 3)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:632
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:760 (128 x 3)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC3, UL_TFC0, UL_TFC3,	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1784 (7x128) x 2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:1272

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1784 (7x128) x 2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (10x128)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:2552
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (10x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: UL_USCH_TFC0 UL_USCH_TFC1 and UL_USCH_TFC5 are part o f the minimum TFCIs NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.3 for test procedure.

18.3.4.1.2.4 Test requirements

See 18.3.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1(1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1(1x145)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1(1x60); Subflow#4/TF1(1x145)
   - for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2(3x145)
   - for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1(1x60);Subflow#4/TF2(3x145)
   - for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3(7x145)
   - for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1(1x60); Subflow#4/TF3(7x145)
   - for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4(10x145)

- for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1(1x60); Subflow#4/TF4(10x145)

4. At step 15 the UE shall return

   - for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.

   - for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as the RLC SDU sent by SS

   - for sub-test 3: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 312 bits equal to the content as sent by SS

   - for sub-test 4: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 312 bits equal to the content as sent by SS

   - for sub-test 5: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 632 bits equal to the content as sent by SS

   - for sub-test 6: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 632 bits equal to the content as sent by SS

   - for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

   - for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

   - for sub-test 9: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS

   - for sub-test 10: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as the RLC SDU as sent by SS

18.3.4.1.3 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(320 bit payload – 20 ms TTI) DL: 256 kbps (320 bit payload – 20 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.3.4.1.3.1 Conformance requirement

See 18.3.2.4.1

18.3.4.1.3.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for three UL transport channels (USCH , RACH , and DCH) and three DL transport channels (DSCH , FACH, and DCH) as specified in TS 34.108, clause 6.11.6.4.3.1. Test is designed for the downlink shared channel (DSCH) 20 ms TTI case and 320 bit payload for the Interactive/Background PS RAB.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB and 16.8 kbps SHCCH. The Interactive/Background 64 kbps PS RAB on the USCH has a 320 bit payload and 20 ms TTI.

- The RACH channel can carry combinations of the 16.8 kbps signalling Radio Bearers for CCCH and SHCCH.

- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH.

On the DL

- The DSCH can carry combinations of the Interactive/Background 256 kbps PS RAB and the 16.8 kbps SHCCH. The Interactive/Background 256 kbps PS RAB on the DSCH has a 320 bit payload and 20 ms TTI.
- The FACH can carry combinations of the signalling 33.6 kbps Radio Bearer for CCCH, BCCH and SCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH

To be able to test the downlink radio bearer on the DSCH and the DCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.4.1.3.3 Method of test

Uplink TFS for DCH:

See comparable table in 18.3.4.1.1.3

Uplink TFCS for DCH:

See comparable table in 18.3.4.1.1.3

Uplink TFS for USCH – 320 bit payload& 20 ms TTI:

See comparable table in 18.3.4.1.1.3

Uplink TFCS for USCH – 320 bit payload& 20 ms TTI:

See comparable table in 18.3.4.1.1.3

TFS for RACH:

See comparable table in 18.3.4.1.1.3

Downlink TFS for DCH:

See comparable table in 18.3.4.1.1.3

Downlink TFCS for DCH:

See comparable table in 18.3.4.1.1.3

Downlink TFS for DSCH - 320 bit payload& 20 ms TTI:

		DTCH RAB Subflow#4	**SHCCH**
TFS	TF0, bits	0x337	0x169
	TF1, bits	1x337	1x169
	TF2, bits	2x337	N/A
	TF3, bits	4x337	N/A
	TF4, bits	8x337	N/A
	TF5, bits	12x337	N/A
	TF6, bits	16x337	N/A

Downlink TFCS for DSCH – 320 bit payload& 20 ms TTI:

TFCI	256 kbps RAB DTCH & SHCCH
DL_DSCH_TFC0	(TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0),
DL_DSCH_TFC2	(TF2, TF0),
DL_DSCH_TFC3	(TF3, TF0),
DL_DSCH_TFC4	(TF4, TF0),
DL_DSCH_TFC5	(TF5, TF0),
DL_DSCH_TFC6	(TF6, TF0),
DL_DSCH_TFC7	(TF0, TF1),
DL_DSCH_TFC8	(TF1, TF1),
DL_DSCH_TFC9	(TF2, TF1),
DL_DSCH_TFC10	(TF3, TF1),
DL_DSCH_TFC11	(TF4, TF1),
DL_DSCH_TFC12	(TF5, TF1),
DL_DSCH_TFC13	(TF6, TF1)

Downlink TFS for FACH – 32 kbps:

See comparable table in 18.3.4.1.1.3

Downlink TFCS for FACH– 32 kbps:

See comparable table in 18.3.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 1)	UL RLC SDU size (NOTE 2)	Test data size (NOTE 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:312
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:632	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:632
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1912 (3x320) x 2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:1272

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1912	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2552	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:2552
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (4x320)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:3832 (12x320) -8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (4x320)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (12x320) -8
13	DL_TFC1, DL_DSCH_TFC6	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (4 x 320)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:5112 (16x320) -8
14	DL_TFC2, DL_DSCH_TFC6	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (4 x 320)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (16x320) -8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.3 for test procedure.

18.3.4.1.3.4 Test requirements

See 18.3.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x337)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1 (1x337)
   - for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (2x337)
   - for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (2x337)
   - for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (3x337)
   - for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (3x337)
   - for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
   - for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)
   - for sub-test 11: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
   - for sub-test 12: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1(1x60); Subflow#4/TF4 (4x337)
   - for sub-test 13: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
   - for sub-test 14: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)
4. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.
   - for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS
   - for sub-test 3, 5, and 9: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS
   - for sub-test 4, 6, and 10: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS
   - for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

- for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

18.3.4.1.4 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(128 bit payload - 20 ms TTI) DL: 256 kbps (320 bit payload – 20 ms TTI)/ PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.3.4.1.4.1 Conformance requirement

See 18.3.2.4.1

18.3.4.1.4.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for three UL transport channels (USCH , RACH , and DCH) and three DL transport channels (DSCH , FACH, and DCH) as specified in TS 34.108, clause 6.11.6.4.3.1. Test is designed for the downlink shared channel (DSCH) 20 ms TTI case and 145 bit payload for the Interactive/Background PS RAB.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB and 16.8 kbps SHCCH. The Interactive/Background 64 kbps PS RAB on the USCH has a 145 bit payload and 20 ms TTI.
- The RACH channel can carry combinations of the 16.8 kbps signalling Radio Bearers for CCCH and SHCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH.

On the DL

- The DSCH can carry combinations of the Interactive/Background 256 kbps PS RAB and the 16.8 kbps SHCCH. The Interactive/Background 256 kbps PS RAB on the DSCH has a 320 bit payload and 20 ms TTI. (TBS).
- The FACH can carry combinations of the signalling 33.6 kbps Radio Bearer for CCCH, BCCH and SCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH

To be able to test the downlink radio bearer on the DSCH and the DCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.4.1.4.3 Method of test

Uplink TFS for DCH:

See comparable table in 18.3.4.1.1.3

Uplink TFCS for DCH:

See comparable table in 18.3.4.1.1.3

Uplink TFS for USCH – 145 bit payload & 20 ms TTI:

See comparable table in 18.3.4.1.1.3

Uplink TFCS for USCH – 145 bit payload & 20 ms TTI:

See comparable table in 18.3.4.1.1.3

TFS for RACH:

See comparable table in 18.3.4.1.1.3

Downlink TFS for DCH:

See comparable table in 18.3.4.1.1.3

Downlink TFCS for DCH:

See comparable table in 18.3.4.1.1.3

Downlink TFS for DSCH – 320 bit payload& 20 ms TTI:

See comparable table in 18.3.4.1.3.3

Downlink TFCS for DSCH - 320 bit payload& 20 ms TTI:

See comparable table in 18.3.4.1.3.3

Downlink TFS for FACH – 32 kbps:

See comparable table in 18.3.4.1.1.3

Downlink TFCS for FACH– 32 kbps:

See comparable table in 18.3.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 1)	UL RLC SDU size (NOTE 2)	Test data size (NOTE 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0 UL_USCH_TFC1 UL_USCH_TFC5 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:376 (128 x 1)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:312
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:376	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:760 (128 x 3)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:632
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:760 (128 x 3)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5 DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1784 (7x128) x 2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:1272

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1784 (7x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (10x128)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:2552
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (10x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (10x128)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:3832 (12x320) - 8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (10x128)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (12x320) - 8
13	DL_TFC1, DL_DSCH_TFC6	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (10x128)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:5112 (16x320) - 8
14	DL_TFC2, DL_DSCH_TFC6	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (10x128)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (16x320) - 8

NOTE 1:	UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs.
NOTE 2:	UL_USCH_TFC0 UL_USCH_TFC1 and UL_USCH_TFC5 are part o f the minimum TFCIs
NOTE 3:	See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.

See 18.3.1.3 for test procedure.

18.3.4.1.4.4 Test requirements

See 18.3.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x145)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1 (1x145)
   - for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2(2x337)
   - for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (3x145)
   - for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF2 (3x337)
   - for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (7x145)
   - for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)
   - for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x145)
   - for sub-test 11: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)
   - for sub-test 12: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (10x145)
   - for sub-test 13: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)
   - for sub-test 14: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (10x145)
4. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.
   - for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS
   - for sub-test 3, 5, and 9: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS
   - for sub-test 4, 6, and 10: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS

- for sub-test 7,9,11,13: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

- for sub-test 8,10,12,14: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

18.3.4.2 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 DL: 384 kbps / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH+ DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.3.4.2.1 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 (320 bit payload – 20 ms TTI) DL: 384 kbps (320 bit payload – 10 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.3.4.2.1.1 Conformance requirement

See 18.3.2.4.1

18.3.4.2.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for three UL transport channels (USCH, RACH, and DCH) and three DL transport channels (DSCH , FACH, and DCH) as specified in TS 34.108, clause 6.11.6.4.3.2. Test is designed for the downlink shared channel (DSCH) 10 ms TTI case and 320 bit payload for the Interactive/Background PS RAB.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB and 16.8 kbps SHCCH. The Interactive/Background 64 kbps PS RAB on the USCH has a 320 bit payload and 20 ms TTI.

- The RACH channel can carry combinations of the 16.8 kbps signalling Radio Bearers for CCCH and SHCCH.

- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH.

On the DL

- The DSCH can carry combinations of the Interactive/Background 256 kbps PS RAB and the 16.8 kbps SHCCH. The Interactive/Background 256 kbps PS RAB on the DSCH has a 320 bit payload and 10 ms TTI.

- The FACH can carry combinations of the signalling 33.6 kbps Radio Bearer for CCCH, BCCH and SCCH.

- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH

To be able to test the downlink radio bearer on the DSCH and the DCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.4.2.1.3 Method of test

Uplink TFS for DCH:

See comparable table in 18.3.4.1.1.3

Uplink TFCS for DCH:

See comparable table in 18.3.4.1.1.3

Uplink TFS for USCH – 320 bit payload& 20 ms TTI:

See comparable table in 18.3.4.1.1.3

Uplink TFCS for USCH – 320 bit payload& 20 ms TTI:

See comparable table in 18.3.4.1.1.3

TFS for RACH:

See comparable table in 18.3.4.1.1.3

Downlink TFS for DCH:

See comparable table in 18.3.4.1.1.3

Downlink TFCS for DCH:

See comparable table in 18.3.4.1.1.3

Downlink TFS for DSCH – 320 bit payload& 10 ms TTI:

		DTCH RAB Subflow#4	SHCCH
TFS	TF0, bits	0x337	0x169
	TF1, bits	1x337	1x169
	TF2, bits	2x337	N/A
	TF3, bits	4x337	N/A
	TF4, bits	8x337	N/A
	TF4, bits	12x337	N/A

Downlink TFCS for DSCH – 320 bit payload& 10 ms TTI:

TFCI	384 kbps RAB DTCH & SHCCH
DL_DSCH_TFC0	(TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0),
DL_DSCH_TFC2	(TF2, TF0),
DL_DSCH_TFC3	(TF3, TF0),
DL_DSCH_TFC4	(TF4, TF0),
DL_DSCH_TFC5	(TF5, TF0),
DL_DSCH_TFC6	(TF0, TF1),
DL_DSCH_TFC7	(TF1, TF1),
DL_DSCH_TFC8	(TF2, TF1),
DL_DSCH_TFC9	(TF3, TF1),
DL_DSCH_TFC10	(TF4, TF1),
DL_DSCH_TFC11	(TF5, TF1)

Downlink TFS for FACH – 32 kbps:

See comparable table in 18.3.4.1.1.3

Downlink TFCS for FACH– 32 kbps:

See comparable table in 18.3.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 1)	UL RLC SDU size (NOTE 2)	Test data size (NOTE 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:312 (1x320) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:632	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:632 (2x320) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3,	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1912 (3x320) x 2 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:1272 (4x320) - 8

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1912	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (4x320) x 2 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:2552 (8x320) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (4x320)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:3832 (12x320)-8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (4x320)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (12x320)-8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.3 for test procedure.

18.3.4.2.1.4 Test requirements

See 18.3.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x337)

- for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1(1x337)
- for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (2x337)
- for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (2x337)
- for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (3x337)
- for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (3x337)
- for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
- for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)
- for sub-test 11: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
- for sub-test 12: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)

4. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.
   - for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS
   - for sub-test 3, 5, 9 and 11: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS
   - for sub-test 4, 6, 10 and 12: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS
   - for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS
   - for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

18.3.4.2.2 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 (128 bit payload - 20 ms TTI) DL: 384 kbps (320 bit payload – 10 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.3.4.2.2.1 Conformance requirement

See 18.3.2.4.1

18.3.4.2.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for three UL transport channels (USCH , RACH , and DCH) and three DL transport channels (DSCH, FACH, and DCH) as specified in TS 34.108, clause 6.11.6.4.3.2. Test is designed for the downlink shared channel (DSCH) 10 ms TTI case and 320 bit payload for the Interactive/Background PS RAB.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB and 16.8 kbps SHCCH. The Interactive/Background 64 kbps PS RAB on the USCH has a 145 bit payload and 20 ms TTI.
- The RACH channel can carry combinations of the 16.8 kbps signalling Radio Bearers for CCCH and SHCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH.

On the DL

- The DSCH can carry combinations of the Interactive/Background 256 kbps PS RAB and the 16.8 kbps SHCCH. The Interactive/Background 384 kbps PS RAB on the DSCH has a 320 bit payload and 10 ms TTI. (TBS).
- The FACH can carry combinations of the signalling 33.6 kbps Radio Bearer for CCCH, BCCH, and SCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH

To be able to test the downlink radio bearer on the DSCH and the DCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.4.2.2.3 Method of test

Uplink TFS for DCH:

See comparable table in 18.3.4.1.1.3

Uplink TFCS for DCH:

See comparable table in 18.3.4.1.1.3

Uplink TFS for USCH – 145 bit payload & 20 ms TTI:

See comparable table in 18.3.4.1.1.3

Uplink TFCS for USCH – 145 bit payload & 20 ms TTI:

See comparable table in 18.3.4.1.1.3

TFS for RACH:

See comparable table in 18.3.4.1.1.3

Downlink TFS for DCH:

See comparable table in 18.3.4.1.1.3

Downlink TFCS for DCH:

See comparable table in 18.3.4.1.1.3

Downlink TFS for DSCH – 10 ms TTI:

See comparable table in 18.3.4.2.1.3

Downlink TFS for FACH – 32 kbps:

See comparable table in 18.3.4.1.1.3

Downlink TFCS for FACH– 32 kbps:

See comparable table in 18.3.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 1)	UL RLC SDU size (NOTE 2)	Test data size (NOTE 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:376 (1x128)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:312 (1x320) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#4:376 (1x128)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:760 (3x128)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:632 (2x320) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:760 (3x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1784 (7x128)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:1272 (4x320) - 8

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#4:1784 (7x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (10x128)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:2552 (8x320) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (10x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (10x128)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:3832 (12x320)-8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (10x128)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (12x320)-8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: UL_USCH_TFC0 UL_USCH_TFC1 and UL_USCH_TFC5 are part o f the minimum TFCIs NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.3 for test procedure.

18.3.4.2.2.4 Test requirements

See 18.3.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)

- for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x145)
- for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1 (1x145)
- for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (3x128)
- for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (3x128)
- for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (7x128)
- for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (7x128)
- for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x128)
- for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x128)
- for sub-test 11: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x128)
- for sub-test 12: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x128)

4. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.
- for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS
- for sub-test 3: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 312 bits equal to content sent by SS
- for sub-test 4: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 312 bits equal to content sent by SS
- for sub-test 5: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 632 bits equal to content sent by SS
- for sub-test 6: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 632 bits equal to content sent by SS
- for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS
- for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS
- for sub-test 9: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same contents equal to content sent by SS
- for sub-test 10: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same contents equal to content sent by SS

18.3.4.2.3 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(320 bit payload – 20 ms TTI) DL: 384 kbps (320 bit payload – 20 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.3.4.2.3.1 Conformance requirement

See 18.3.2.4.1

18.3.4.2.3.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for three UL transport channels (USCH , RACH , and DCH) and three DL transport channels (DSCH, FACH, and DCH) as specified in TS 34.108, clause 6.11.6.4.3.2. Test is designed for the downlink shared channel (DSCH) 20 ms TTI case and 320 bit payload for the Interactive/Background PS RAB.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB and 16.8 kbps SHCCH. The Interactive/Background 64 kbps PS RAB on the USCH has a 320 bit payload and 20 ms TTI.
- The RACH channel can carry combinations of the 16.8 kbps signalling Radio Bearers for CCCH and SHCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH.

On the DL

- The DSCH can carry combinations of the Interactive/Background 384 kbps PS RAB and the 16.8 kbps SHCCH. The Interactive/Background 384 kbps PS RAB on the DSCH has a 320 bit payload and 20 ms TTI.
- he FACH can carry combinations of the signalling 33.6 kbps Radio Bearer for CCCH, BCCH and SCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH

To be able to test the downlink radio bearer on the DSCH and the DCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.4.2.3.3 Method of test

Uplink TFS for DCH:

See comparable table in 18.3.4.1.1.3

Uplink TFCS for DCH:

See comparable table in 18.3.4.1.1.3

Uplink TFS for USCH - 320 bit payload& 20 ms TTI:

See comparable table in 18.3.4.1.1.3

Uplink TFCS for USCH - 320 bit payload& 20 ms TTI:

See comparable table in 18.3.4.1.1.3

TFS for RACH:

See comparable table in 18.3.4.1.1.3

Downlink TFS for DCH:

See comparable table in 18.3.4.1.1.3

Downlink TFCS for DCH:

See comparable table in 18.3.4.1.1.3

Downlink TFS for DSCH - 320 bit payload& 20 ms TTI:

		DTCH RAB Subflow#4	SHCCH
TFS	TF0, bits	0x337	0x169
	TF1, bits	1x337	1x169
	TF2, bits	2x337	N/A
	TF3, bits	4x337	N/A
	TF4, bits	8x337	N/A
	TF5, bits	12x337	N/A
	TF6, bits	16x337	N/A
	TF7, bits	20x337	N/A
	TF8, bits	24x337	N/A

Downlink TFCS for DSCH – - 320 bit payload & 20 ms TTI:

TFCI	384 kbps RAB DTCH & SHCCH
DL_DSCH_TFC0	(TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0),
DL_DSCH_TFC2	(TF2, TF0),
DL_DSCH_TFC3	(TF3, TF0),
DL_DSCH_TFC4	(TF4, TF0),
DL_DSCH_TFC5	(TF5, TF0),
DL_DSCH_TFC6	(TF6, TF0),
DL_DSCH_TFC7	(TF7, TF0),
DL_DSCH_TFC8	(TF8, TF0),
DL_DSCH_TFC9	(TF0, TF1),
DL_DSCH_TFC10	(TF1, TF1),
DL_DSCH_TFC11	(TF2, TF1),
DL_DSCH_TFC12	(TF3, TF1),
DL_DSCH_TFC13	(TF4, TF1),
DL_DSCH_TFC14	(TF5, TF1),
DL_DSCH_TFC15	(TF6, TF1),
DL_DSCH_TFC16	(TF7, TF1),
DL_DSCH_TFC17	(TF8, TF1)

Downlink TFS for FACH – 32 kbps:

See comparable table in 18.3.4.1.1.3

Downlink TFCS for FACH – 32 kbps:

See comparable table in 18.3.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 1)	UL RLC SDU size (NOTE 2)	Test data size (NOTE 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0 UL_USCH_TFC1 UL_USCH_TFC5 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:312 (1x320) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0 DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:632	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:632 (2x320) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1912 (3x320)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:1272 (4x320) - 8

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1912	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (4x320)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:2552 (8x320) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (4x320)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:3832 (12x320) - 8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (4x320)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (12x320) - 8
13	DL_TFC1, DL_DSCH_TFC6	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (4x320)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:5112 (16x320) - 8
14	DL_TFC2, DL_DSCH_TFC6	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (4x320)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (16x320) - 8

15	DL_TFC1, DL_DSCH_TFC7	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:6392 (4x320)x5 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:6392 (20x320) - 8
16	DL_TFC2, DL_DSCH_TFC7	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:6392 (4x320)x5 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:6392 (20x320) - 8
17	DL_TFC1, DL_DSCH_TFC8	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (4x320)x6 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:7672 (24x320) - 8
18	DL_TFC2, DL_DSCH_TFC8	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (4x320)x6 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (24x320) - 8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.3 for test procedure.

18.3.4.2.3.4 Test requirements

See 18.3.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x337)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1 (1x337)
   - for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (2x337)
   - for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (2x337)

- for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (3x337)
- for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (3x337)
- for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
- for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)
- for sub-test 1,13,15,and 17: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
- for sub-test 12,14,16,18: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)

4. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.
   - for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS
   - for sub-test 3, 5, 9 and 11: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS
   - for sub-test 4, 6, 10 and 12: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS
   - for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS
   - for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS
   - for sub-test 9,11,13,15 and 17: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS
   - for sub-test 8,10,12,14,16 and 18: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

18.3.4.2.4 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(128 bit payload - 20 ms TTI) DL: 384 kbps (320 bit payload – 20 ms TTI)/ PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.3.4.2.4.1 Conformance requirement

See 18.3.2.4.1

18.3.4.2.4.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for three UL transport channels (USCH , RACH , and DCH) and three DL transport channels (DSCH, FACH, and DCH) as specified in TS 34.108, clause 6.11.6.4.3.2. Test is designed for the downlink shared channel (DSCH) 20 ms TTI case and 320 bit payload for the Interactive/Background PS RAB.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB and 16.8 kbps SHCCH. The Interactive/Background 64 kbps PS RAB on the USCH has a 145 bit payload and 20 ms TTI.
- The RACH channel can carry combinations of the 16.8 kbps signalling Radio Bearers for CCCH and SHCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH.

On the DL

- The DSCH can carry combinations of the Interactive/Background 384 kbps PS RAB and the 16.8 kbps SHCCH. The Interactive/Background 384 kbps PS RAB on the DSCH has a 320 bit payload and 20 ms TTI. (TBS).
- The FACH can carry combinations of the signalling 33.6 kbps Radio Bearer for CCCH, BCCH and SCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH

To be able to test the downlink radio bearer on the DSCH and the DCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.4.2.4.3 Method of test

Uplink TFS for DCH:

See comparable table in 18.3.4.1.1.3

Uplink TFCS for DCH:

See comparable table in 18.3.4.1.1.3

Uplink TFS for USCH:

See comparable table in 18.3.4.1.1.3

Uplink TFCS for USCH:

See comparable table in 18.3.4.1.1.3

TFS for RACH:

See comparable table in 18.3.4.1.1.3

Downlink TFS for DCH:

See comparable table in 18.3.4.1.1.3

Downlink TFCS for DCH:

See comparable table in 18.3.4.1.1.3

Downlink TFS for DSCH – 320 bit payload& 20 ms TTI:

See comparable table in 18.3.4.2.3.1

Downlink TFCS for DSCH – 320 bit payload& 20 ms TTI:

See comparable table in 18.3.4.2.3.1

Downlink TFS for FACH – 32 kbps:

See comparable table in 18.3.4.1.1.3

Downlink TFCS for FACH– 32 kbps:

See comparable table in 18.3.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 1)	UL RLC SDU size (NOTE 2)	Test data size (NOTE 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0 UL_USCH_TFC1 UL_USCH_TFC5 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:376 (1x128)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:312 (1x320) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:376 (1x128)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:760 (3x128)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:632 (2x320) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:760 (3x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1784 (7x128)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:1272 (4x320) - 8

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1784 (7x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (10x128)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:2552 (8x320) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (10x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (10x128)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:3832 (12x320) - 8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (10x128)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (12x320)-8
13	DL_TFC1, DL_DSCH_TFC6	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (10x128)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:5112 (16x320) - 8
14	DL_TFC2, DL_DSCH_TFC6	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (10x128)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (16x320) - 8

15	DL_TFC1, DL_DSCH_TFC7	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:6392 (10x128)x6 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:6392 (20x320) - 8
16	DL_TFC2, DL_DSCH_TFC7	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:6392 (10x128) 6 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:6392 (20x320) - 8
17	DL_TFC1, DL_DSCH_TFC8	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (10x128)x7 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:7672 (24x320)-8
18	DL_TFC2, DL_DSCH_TFC8	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (10x128)x7 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (24x320) - 8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: UL_USCH_TFC0 UL_USCH_TFC1 and UL_USCH_TFC5 are part o f the minimum TFCIs NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.3 for test procedure.

18.3.4.2.4.4 Test requirements

See 18.3.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x145)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1(1x145)
   - for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (3x128)
   - for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (3x128)

- for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (7x128)
- for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (7x128)
- for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x128)
- for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x128)
- for sub-test 11,13,15, and 17: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x128)
- for sub-test 12,14,16, and 18: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x128)

4. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.
   - for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS
   - for sub-test 3, 5, 9 and 1,13, 15 and 17: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS
   - for sub-test 4, 6, 10,12, 14 16 and 18: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS
   - for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS
   - for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

18.3.4.3 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 DL: 2048 kbps / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.3.4.3.1 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(320 bit payload – 20 ms TTI) DL: 2048 kbps (640 bit payload - 10 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.3.4.3.1.1 Conformance requirement

See 18.3.2.4.1

18.3.4.3.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for three UL transport channels (USCH, RACH, and DCH) and three DL transport channels (DSCH, FACH, and DCH) as specified in TS 34.108, clause 6.11.6.4.3.3. Test is designed for the downlink shared channel (DSCH) 10 ms TTI case and 640 bit payload for the Interactive/Background PS RAB.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB and 16.8 kbps SHCCH. The Interactive/Background 64 kbps PS RAB on the USCH has a 320 bit payload and 20 ms TTI.

- The RACH channel can carry combinations of the 16.8 kbps signalling Radio Bearers for CCCH and SHCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH.

On the DL

- The DSCH can carry combinations of the Interactive/Background 2048 kbps PS RAB and the 16.8 kbps SHCCH. The Interactive/Background 2048 kbps PS RAB on the DSCH has a 640 bit payload and 10 ms TTI.
- The FACH can carry combinations of the signalling 33.6 kbps Radio Bearer for CCCH, BCCH and SCCH.
- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH

To be able to test the downlink radio bearer on the DSCH and the DCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.4.3.1.3 Method of test

Uplink TFS for DCH:

See comparable table in 18.3.4.1.1.3

Uplink TFCS for DCH:

See comparable table in 18.3.4.1.1.3

Uplink TFS for USCH – 320 bit payload& 20 ms TTI:

See comparable table in 18.3.4.1.1.3

Uplink TFCS for USCH – 320 bit payload& 20 ms TTI:

See comparable table in 18.3.4.1.1.3

TFS for RACH:

See comparable table in 18.3.4.1.1.3

Downlink TFS for DCH:

See comparable table in 18.3.4.1.1.3

Downlink TFCS for DCH:

See comparable table in 18.3.4.1.1.3

Downlink TFS for DSCH – 640 bit payload & 10 ms TTI:

		DTCH RAB Subflow#4	**SHCCH**
TFS	TF0, bits	0x657	0x169
	TF1, bits	1x657	1x169
	TF2, bits	2x657	N/A
	TF3, bits	4x657	N/A
	TF4, bits	8x657	N/A
	TF5, bits	12x657	N/A
	TF6, bits	16x657	N/A
	TF7, bits	20x657	N/A
	TF8, bits	24x657	N/A
	TF9, bits	28x657	N/A
	TF10,bits	30x657	N/A

Downlink TFCS for DSCH – 640 bit payload & 10 ms TTI:

TFCI	2048 kbps RAB DTCH & SHCCH
DL_DSCH_TFC0	(TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0),
DL_DSCH_TFC2	(TF2, TF0),
DL_DSCH_TFC3	(TF3, TF0),
DL_DSCH_TFC4	(TF4, TF0),
DL_DSCH_TFC5	(TF5, TF0),
DL_DSCH_TFC6	(TF6, TF0)
DL_DSCH_TFC7	(TF7, TF0),
DL_DSCH_TFC8	(TF8, TF0),
DL_DSCH_TFC9	(TF9, TF0),
DL_DSCH_TFC10	(TF10, TF0),
DL_DSCH_TFC11	(TF0, TF1),
DL_DSCH_TFC12	(TF1, TF1),
DL_DSCH_TFC13	(TF2, TF1),
DL_DSCH_TFC14	(TF3, TF1),
DL_DSCH_TFC15	(TF4, TF1),
DL_DSCH_TFC16	(TF5, TF1),
DL_DSCH_TFC17	(TF6, TF1),
DL_DSCH_TFC18	(TF7, TF1),
DL_DSCH_TFC19	(TF8, TF1),
DL_DSCH_TFC20	(TF9, TF1)

Downlink TFS for FACH – 32 kbps:

See comparable table in 18.3.4.1.1.3

Downlink TFCS for FACH– 32 kbps:

See comparable table in 18.3.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 1)	UL RLC SDU size (NOTE 2)	Test data size (NOTE 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5 DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:632 (320x1)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:632 (1x640) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632 (320x1)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632 (1x640) - 8
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1272 (320x2)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:1272 (2x640) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272 (320x2)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272 (2x640) - 8
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2872 (3x320)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:2552 (4x640) - 8

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2872 (3x320)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (4x640) - 8
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (4x320)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:5112 (8x640) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (4x320)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (8x640) - 8
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (4x320)x6 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:7672 (12x640) - 8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (4x320)x6 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (12x640) - 8
13	DL_TFC1, DL_DSCH_TFC6	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:10228 (4x320)x8 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:10228 (16x640) - 8
14	DL_TFC2, DL_DSCH_TFC6	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:10228 (4x320)x8 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:10228 (16x640) - 8

15	DL_TFC1, DL_DSCH_TFC7	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:12792 (4x320)x10 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:12792 (20x640) - 8
16	DL_TFC2, DL_DSCH_TFC7	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:12792 (4x320)x10 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:12792 (20x640) - 8
17	DL_TFC1, DL_DSCH_TFC8	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:15352 (4x320)x12 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:15352 (24x640) - 8
18	DL_TFC2, DL_DSCH_TFC8	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:15352 (4x320)x12 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:15352 (24x640) - 8
19	DL_TFC1, DL_DSCH_TFC9	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:17912 (4x320)x14 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:17912 (28x640) - 8
20	DL_TFC2, DL_DSCH_TFC9	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:17912 (4x320)x14 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:17912 (28x640) - 8
21	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:19192 (4x320)x15 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:19192 (30x640) - 8

22	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:19192 (4x320)x15 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:19192 (30x640) - 8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.3 for test procedure.

18.3.4.3.1.4 Test requirements

See 18.3.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x337)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1 (1x337)
   - for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (2x337)
   - for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (2x337)
   - for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (3x337)
   - for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (3x337)
   - for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
   - for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)
   - for sub-test 11: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
   - for sub-test 12: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)
   - for sub-test 13,15,17,19,21: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
   - for sub-test 14,16,18,20,22: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)
4. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.
   - for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS

- for sub-test 3, 5, 9,11,13,15,17,19 and 21: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS

- for sub-test 4, 6, 10, 12, 14, 16,18, 20, 22: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS

- for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 2552 bits equal to the content as sent by SS

- for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 2552 bits equal to the content as sent by SS

18.3.4.3.2 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 (128 bit payload - 20 ms TTI) DL: 2048 kbps (640 bit payload - 10 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.3.4.3.2.1 Conformance requirement

See 18.3.2.4.1

18.3.4.3.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for three UL transport channels (USCH , RACH , and DCH) and three DL transport channels (DSCH, FACH, and DCH) as specified in TS 34.108, clause 6.11.6.4.3.3. Test is designed for the downlink shared channel (DSCH) 10 ms TTI case and 640 bit payload for the Interactive/Background PS RAB.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB and 16.8 kbps SHCCH. The Interactive/Background 64 kbps PS RAB on the USCH has a 145 bit payload and 20 ms TTI.

- The RACH channel can carry combinations of the 16.8 kbps signalling Radio Bearers for CCCH and SHCCH.

- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH.

On the DL

- The DSCH can carry combinations of the Interactive/Background 2048 kbps PS RAB and the 16.8 kbps SHCCH. The Interactive/Background 2048 kbps PS RAB on the DSCH has a 640 bit payload and 10 ms TTI. (TBS).

- The FACH can carry combinations of the signalling 33.6 kbps Radio Bearer for CCCH, BCCH and SCCH.

- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH

To be able to test the downlink radio bearer on the DSCH and the DCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.4.3.2.3 Method of test

Uplink TFS for DCH:

See comparable table in 18.3.4.1.1.3

Uplink TFCS for DCH:

See comparable table in 18.3.4.1.1.3

Uplink TFS for USCH - 145 bit payload & 20 ms TTI:

See comparable table in 18.3.4.1.2.3

Uplink TFCS for USCH – 145 bit payload & 20 ms TTI:

See comparable table in 18.3.4.1.1.3

TFS for RACH:

See comparable table in 18.3.4.1.1.3

Downlink TFS for DCH:

See comparable table in 18.3.4.1.1.3

Downlink TFCS for DCH:

See comparable table in 18.3.4.1.1.3

Downlink TFS for DSCH – 10 ms TTI:

See comparable table in 18.3.4.3.1.3

Downlink TFCS for DSCH – 10 ms TTI:

See comparable table in 18.3.4.3.1.3

Downlink TFS for FACH – 32 kbps:

See comparable table in 18.3.4.1.1.3

Downlink TFCS for FACH– 32 kbps:

See comparable table in 18.3.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 1)	UL RLC SDU size (NOTE 2)	Test data size (NOTE 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:128	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:128	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:632 (128x1)x5 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:632 (1x640) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0 UL_USCH_TFC1 UL_USCH_TFC5 UL_USCH_TFC6 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632 (128x1)x5 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632 (1x640) - 8
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1528 (128x3)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:1272 (2x640) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1528 (128x3)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272 (2x640) - 8
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2680 (128x7)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:2552 (4x640) - 8

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2680 (128x7)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (4x640) - 8
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (128x10)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:5112 (8x640) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (128x10)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (8x640) - 8
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (128x10)x6 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:7672 (12x640) - 8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 128(x10)x6 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (12x640) - 8
13	DL_TFC1, DL_DSCH_TFC6	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:10232 (128x10)x8 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:10232 (16x640) - 8
14	DL_TFC2, DL_DSCH_TFC6	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4: 10232 (128x10)x8 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:10232 (16x640) - 8

15	DL_TFC1, DL_DSCH_TFC7	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:12792 (128x10)x10 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:12792 (20x640) - 8
16	DL_TFC2, DL_DSCH_TFC7	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:12792 (128x10)x10 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:12792 (20x640) - 8
17	DL_TFC1, DL_DSCH_TFC8	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:15352 (128x10)x12 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:15352 (24x640) - 8
18	DL_TFC2, DL_DSCH_TFC8	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:15352 (128x10)x12 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:15352 (24x640) - 8
19	DL_TFC1, DL_DSCH_TFC9	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:17912 (128x10)x14 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:17912 (28x640) - 8
20	DL_TFC2, DL_DSCH_TFC9	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:17912 (128x10)x14 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:17912 (28x640) - 8
21	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:19192 (128x10)x15 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:19192 (30x640) - 8

22	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:19192 (128x10)x15 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:19192 (30x640) - 8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.3 for test procedure.

18.3.4.3.2.4 Test requirements

See 18.3.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1(1x145)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1 (1x145)
   - for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (3x145)
   - for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (3x145)
   - for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (7x145)
   - for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (7x145)
   - for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)
   - for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x145)
   - for sub-test 11: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)
   - for sub-test 12: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x145)
   - for sub-test 13,15,17,19,21: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)
   - for sub-test 14,16,18,20,22: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x145)
4. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.
   - for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS

- for sub-test 3, 9,11,13,15,17,19 and 21: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS

- for sub-test 4, 10, 12, 14, 16,18, 20, 22: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS

- for sub-test 5: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

- for sub-test 6: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

- for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 2552 bits equal to the content as sent by SS

- for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 2552 bits equal to the content as sent by SS

18.3.4.3.3 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(320 bit payload – 20 ms TTI) DL: 2048 kbps (640 bit payload - 20 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.3.4.3.3.1 Conformance requirement

See 18.3.2.4.1

18.3.4.3.3.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for three UL transport channels (USCH, RACH, and DCH) and three DL transport channels (DSCH, FACH, and DCH) as specified in TS 34.108, clause 6.11.6.4.3.3. Test is designed for the downlink shared channel (DSCH) 20 ms TTI case and 640 bit payload for the Interactive/Background PS RAB.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB and 16.8 kbps SHCCH. The Interactive/Background 64 kbps UL PS RAB channel has a 337 bit Transport Block Size (TBS).

- The RACH channel can carry combinations of the 16.8 kbps signalling Radio Bearers for CCCH and SHCCH.

- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH.

On the DL

- The DSCH can carry combinations of the Interactive/Background 2048 kbps PS RAB and the 16.8 kbps SHCCH. The Interactive/Background PS RAB on the DSCH has a 20 ms TTI. The Interactive/Background 2048 kbps DL PS RAB channel has a 657 bit Transport Block Size (TBS).

- The FACH can carry combinations of the signalling 33.6 kbps Radio Bearer for CCCH, BCCH and SCCH.

- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH

To be able to test the downlink radio bearer on the DSCH and the DCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.4.3.3.3 Method of test

Uplink TFS for DCH:

See comparable table in 18.3.4.1.1.3

Uplink TFCS for DCH:

See comparable table in 18.3.4.1.1.3

Uplink TFS for USCH:

See comparable table in 18.3.4.1.1.3

Uplink TFCS for USCH:

See comparable table in 18.3.4.1.1.3

TFS for RACH:

See comparable table in 18.3.4.1.1.3

Downlink TFS for DCH:

See comparable table in 18.3.4.1.1.3

Downlink TFCS for DCH:

See comparable table in 18.3.4.1.1.3

Downlink TFS for DSCH – 20 ms TTI:

		DTCH RAB Subflow#4	**SHCCH**
TFS	TF0, bits	0x657	0x169
	TF1, bits	1x657	1x169
	TF2, bits	2x657	N/A
	TF3, bits	4x657	N/A
	TF4, bits	8x657	N/A
	TF5, bits	12x657	N/A
	TF6, bits	16x657	N/A
	TF7, bits	20x657	N/A
	TF8, bits	24x657	N/A
	TF9, bits	28x657	N/A
	TF10,bits	32x657	N/A
	TF11,bits	36x657	N/A
	TF12,bits	40x657	N/A
	TF13,bits	44x657	N/A
	TF14,bits	48x657	N/A
	TF15,bits	52x657	N/A
	TF16,bits	56x657	N/A
	TF17,bits	60x657	N/A
	TF17,bits	64x657	N/A

Downlink TFCS for DSCH –20 ms TTI:

TFCI	2048 kbps RAB DTCH & SHCCH
DL_DSCH_TFC0	(TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0),
DL_DSCH_TFC2	(TF2, TF0),
DL_DSCH_TFC3	(TF3, TF0),
DL_DSCH_TFC4	(TF4, TF0),
DL_DSCH_TFC5	(TF5, TF0),
DL_DSCH_TFC6	(TF6, TF0)
DL_DSCH_TFC7	(TF7, TF0),
DL_DSCH_TFC8	(TF8, TF0),
DL_DSCH_TFC9	(TF9, TF0),
DL_DSCH_TFC10	(TF10, TF0),
DL_DSCH_TFC11	(TF11, TF0),
DL_DSCH_TFC12	(TF12, TF0),
DL_DSCH_TFC13	(TF13, TF0),
DL_DSCH_TFC14	(TF14, TF0),
DL_DSCH_TFC15	(TF15, TF0),
DL_DSCH_TFC16	(TF16, TF0),
DL_DSCH_TFC17	(TF17, TF0),
DL_DSCH_TFC18	(TF18, TF0),
DL_DSCH_TFC19	(TF0, TF1),
DL_DSCH_TFC20	(TF1, TF1),
DL_DSCH_TFC21	(TF2, TF1),
DL_DSCH_TFC22	(TF3, TF1),
DL_DSCH_TFC23	(TF4, TF1),
DL_DSCH_TFC24	(TF5, TF1),
DL_DSCH_TFC25	(TF6, TF1),
DL_DSCH_TFC26	(TF7, TF1),
DL_DSCH_TFC27	(TF8, TF1),
DL_DSCH_TFC28	(TF9, TF1)
DL_DSCH_TFC29	(TF10, TF1),
DL_DSCH_TFC30	(TF11, TF1),
DL_DSCH_TFC31	(TF12, TF1),
DL_DSCH_TFC32	(TF13, TF1),
DL_DSCH_TFC33	(TF14, TF1),
DL_DSCH_TFC34	(TF15, TF1),
DL_DSCH_TFC35	(TF16, TF1),
DL_DSCH_TFC36	(TF17, TF1),
DL_DSCH_TFC37	(TF17, TF1),

Downlink TFS for FACH – 32 kbps:

See comparable table in 18.3.4.1.1.3

Downlink TFCS for FACH– 32 kbps:

See comparable table in 18.3.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 1)	UL RLC SDU size (NOTE 2)	Test data size (NOTE 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5 DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5 DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:632 (320x1)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:632 (1x640) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632 (320x1)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632 (1x640) - 8
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1272 (320x2)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:1272 (2x640) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272 (320x2)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272 (2x640) - 8
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3,	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2872 (3x320) x 3 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:2552 (4x640) - 8

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2872 (3x320) x 3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (4x640) - 8
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (4x320) x 4 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:5112 (8x640) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (4x320) x 4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (8x640) - 8
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (4x320)x6 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:7672 (12x640) - 8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (4x320)x6 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (12x640) - 8
13	DL_TFC1, DL_DSCH_TFC6	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:10228 (4x320)x8 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:10228 (16x640) - 8
14	DL_TFC2, DL_DSCH_TFC6	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:10228 (4x320)x8 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:10228 (16x640) - 8

15	DL_TFC1, DL_DSCH_TFC7	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:12792 (4x320)x10 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:12792 (20x640) - 8
16	DL_TFC2, DL_DSCH_TFC7	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:12792 (4x320)x10 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:12792 (20x640) - 8
17	DL_TFC1, DL_DSCH_TFC8	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:15352 (4x320)x12 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:15352 (24x640) - 8
18	DL_TFC2, DL_DSCH_TFC8	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:15352 (4x320)x12 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:15352 (24x640) - 8
19	DL_TFC1, DL_DSCH_TFC9	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:17912 (4x320)x14 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:17912 (28x640) - 8
20	DL_TFC2, DL_DSCH_TFC9	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:17912 (4x320)x14 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:17912 (28x640) - 8
21	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subfl#4: 20472 (4x320)x16 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:20472 (32x640) - 8

22	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subfl#4: 20472 (4x320)x16 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:20472 (32x640) - 8
23	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subfl#4: 23032 (4x320)x18 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:23032 (36x640) - 8
24	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subfl#4: 23032 (4x320)x18 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:23032 (36x640) - 8
25	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subfl#4: 25592 (4x320)x20 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:25592 (40x640) - 8
26	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subfl#4: 25592 (4x320)x20 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:25592 (40x640) - 8
27	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subfl#4: 28152 (4x320)x22 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:28152 (44x640) - 8
28	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:28152 (4x320)x22 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:28152 (44x640) - 8

29	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:30712 (4x320)x24 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:30712 (48x640) - 8
30	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:30712 (4x320)x24 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:30712 (48x640) - 8
31	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:33272 (4x320)x26 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:33272 (52x640) - 8
32	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:33272 (4x320)x26 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:33272 (52x640) - 8
33	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:35832 (4x320)x28 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:35832 (56x640) - 8
34	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:35832 (4x320)x28 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:35832 (56x640) - 8
35	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:38392 (4x320)x30 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:38392 (60x640) - 8

36	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:38392 (4x320)x30 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:38392 (60x640) - 8
37	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:40952 (4x320)x32 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:40952 (64x640) - 8
38	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:40952 (4x320)x32 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:40952 (64x640) - 8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.3 for test procedure.

18.3.4.3.3.4 Test requirements

See 18.3.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x337)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1 (1x337)
   - for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (2x337)
   - for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (2x337)
   - for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (3x337)
   - for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (3x337)
   - for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
   - for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)
   - for sub-test 11: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)

- for sub-test 12: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)

- for sub-test 13,15,17,19,21,23,25,27,29,31,33,35, and 37: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)

- for sub-test 14,16,18,20,22,24,26,28,30,32,34,36,and 38: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)

4. At step 15 the UE shall return

   - for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.

   - for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS

   - for sub-test 3, 5, 9,11,13,15,17,19,21,23,25,27,29,31,33,35, and 37: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS

   - for sub-test 4, 6, 10, 12, 14, 16,18, 20, 22,24,26,28,30,32,34,36, and 38: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS

   - for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 2552 bits equal to the content as sent by SS

   - for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 2552 bits equal to the content as sent by SS

18.3.4.3.4 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(128 bit payload - 20 ms TTI) DL: 2048 kbps (640 bit payload - 20 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.3.4.3.3.1 Conformance requirement

See 18.3.2.4.1

18.3.4.3.3.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for three UL transport channels (USCH , RACH , and DCH) and three DL transport channels (DSCH, FACH, and DCH) as specified in TS 34.108, clause 6.11.6.4.3.3. Test is designed for the downlink shared channel (DSCH) 20 ms TTI case and 640 bit payload for the Interactive/Background PS RAB.

On the UL

- The USCH channel can carry combinations of the Interactive/Background 64 kbps UL PS RAB and 16.8 kbps SHCCH. The Interactive/Background 64 kbps PS RAB on the USCH has a 145 bit payload and 20 ms TTI.

- The RACH channel can carry combinations of the 16.8 kbps signalling Radio Bearers for CCCH and SHCCH.

- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH.

On the DL

- The DSCH can carry combinations of the Interactive/Background 2048 kbps PS RAB and the 16.8 kbps SHCCH. The Interactive/Background PS RAB on the DSCH has a 20 ms TTI. The Interactive/Background 2048 kbps PS RAB on the DSCH has a 640 bit payload and 20 ms TTI. (TBS).

- The FACH can carry combinations of the signalling 33.6 kbps Radio Bearer for CCCH, BCCH and SCCH.

- The DCH channel can carry combinations of the 12.2 kbps Conversational/Speech/CS and the 3.4 kbps DCCH

To be able to test the downlink radio bearer on the DSCH and the DCH, the UE loopback function is used on the uplink radio bearer on the USCH.

18.3.4.3.3.3 Method of test

Uplink TFS for DCH:

See comparable table in 18.3.4.1.1.3

Uplink TFCS for DCH:

See comparable table in 18.3.4.1.1.3

Uplink TFS for USCH:

See comparable table in 18.3.4.1.1.3

Uplink TFCS for USCH:

See comparable table in 18.3.4.1.1.3

TFS for RACH:

See comparable table in 18.3.4.1.1.3

Downlink TFS for DCH:

See comparable table in 18.3.4.1.1.3

Downlink TFCS for DCH:

See comparable table in 18.3.4.1.1.3

Downlink TFS for DSCH – 640 bit payload & 20 ms TTI:

See comparable table in 18.3.4.3.3.3

Downlink TFCS for DSCH – 640 bit payload & 20 ms TTI:

See comparable table in 18.3.4.3.3.3

Downlink TFS for FACH – 32 kbps:

See comparable table in 18.3.4.1.1.3

Downlink TFCS for FACH– 32 kbps:

See comparable table in 18.3.4.1.1.3

Sub-tests – USCH:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 1)	UL RLC SDU size (NOTE 2)	Test data size (NOTE 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:128	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:128	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:632 (128x1)x5 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:632 (1x640) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0 DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632 (128x1)x5 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632 (1x640) - 8
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1528 (128x3)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:1272 (2x640) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1528 (128x3)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272 (2x640) - 8
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2680 (128x7) x 3 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:2552 (4x640) - 8

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2680 (128x7) x 3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (4x640) - 8
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (10x128)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:5112 (8x640) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (10x128)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (8x640) - 8
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (10x128)x6 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:7672 (12x640) - 8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (10x128)x6 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (12x640) - 8
13	DL_TFC1, DL_DSCH_TFC6	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:10228 (10x128)x8 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:10228 (16x640) - 8
14	DL_TFC2, DL_DSCH_TFC6	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:10228 (10x128)x8 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:10228 (16x640) - 8

15	DL_TFC1, DL_DSCH_TFC7	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:12792 (10x1280)x10 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:12792 (20x640) - 8
16	DL_TFC2, DL_DSCH_TFC7	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:12792 (10x128)x10 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:12792 (20x640) - 8
17	DL_TFC1, DL_DSCH_TFC8	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:15352 (10x128)x12 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:15352 (24x640) - 8
18	DL_TFC2, DL_DSCH_TFC8	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:15352 (10x128)x12 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:15352 (24x640) - 8
19	DL_TFC1, DL_DSCH_TFC9	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:17912 (10x128)x14 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:17912 (28x640) - 8
20	DL_TFC2, DL_DSCH_TFC9	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:17912 (10x128)x14 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:17912 (28x640) - 8
21	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subfl#4: 20472 (10x128)x16 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:20472 (32x640) - 8

22	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:20472 (10x128)x16 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:20472 (32x640) - 8
23	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:23032 (10x128)x18 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:23032 (36x640) - 8
24	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:23032 (10x128)x18 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:23032 (36x640) - 8
25	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:25592 (10x128)x20 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:25592 (40x640) - 8
26	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subfl#4: 25592 (10x128)x20 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:25592 (40x640) - 8
27	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subfl#4: 28152 (10x128)x22 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:28152 (44x640) - 8
28	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:28152 (10x128)x22 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:28152 (44x640) - 8

29	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:30712 (10x128)x24 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:30712 (48x640) - 8
30	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:30712 (10x128)x24 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:30712 (48x640) - 8
31	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:33272 (10x128)x26 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:33272 (52x640) - 8
32	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:33272 (10x128)x26 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:33272 (52x640) - 8
33	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:35832 (10x128)x28 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:35832 (56x640) - 8
34	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:35832 (10x128)x28 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:35832 (56x640) - 8
35	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:38392 (10x128)x30 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:38392 (60x640) - 8

36	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:38392 (10x128)x30 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:38392 (60x640) - 8
37	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:40952 (10x128)x32 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:40952 (64x640) - 8
38	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:40952 (10x128)x32 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:40952 (64x640) - 8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.3.1.3 for test procedure.

18.3.4.3.3.4 Test requirements

See 18.3.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1(1x145)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1(1x145)
   - for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (3x145)
   - for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2(3x145)
   - for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (7x145)
   - for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (7x145)
   - for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)
   - for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x145)
   - for sub-test 11: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)

- for sub-test 12: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x145)
- for sub-test 13,15,17,19,21,23,2,5,27,29,31,33,35 and 37: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)
- for sub-test 14,16,18,20,22,24,26,28,30,32,34,36 and 38: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x145)

4. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.
   - for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS
   - for sub-test 3, 9,11,13,15,17,19,21,23,25,27,29,31,33,35 and 37: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS
   - for sub-test 4, 10, 12, 14, 16,18, 20, 22,24,26,28,30,32,34,36 and 38: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS
   - for sub-test 5: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS
   - for sub-test 6: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS
   - for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 2552 bits equal to the content as sent by SS
   - for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 2552 bits equal to the content as sent by SS

18.3.5 Combinations on SCCPCH

18.3.5.1 Stand-alone signalling RB for PCCH

18.3.5.1.1 Stand-alone signalling RB for PCCH at 12 kbps

18.3.5.1.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.5.1.1.2 Test Purpose

To verify establishment and data transfer of Paging 1 message which comprises IE "BCCH Modification Information", with the "Value Tag" different from the "MIB Value Tag" of the current Master Information Block. This test is specified in TS 34.108, clause 6.11.6.4.4.1. The SCCPCH carries the PCH at 12 kbps.

18.3.5.1.1.3 Method of Test

The contents of the System Information Block type 5 are specified in clause 8.1.2.2.

Downlink TFS for PCCH:

		SRBs
TFS	TF0, bits	0x240
	TF1, bits	1x240

Downlink TFCS for PCCH:

TFCI	(SRB)
DL_TFC0	(TF0)
DL_TFC1	(TF1)

Sub-test:

See 18.3.1.1 for test procedure.

18.3.5.1.1.4 Test Requirements

See 18.3.1.1 for definition of step 6

1. At step 6 the UE transmitted PAGING RESPONSE (DCCH) received at the SS shall complete the test and end gracefully.

18.3.5.1.2 Stand-alone signalling RB for PCCH at 8 kbps

18.3.5.1.2.1 Conformance requirement

See 18.3.2.4.1.

18.3.5.1.2.2 Test Purpose

To verify establishment and data transfer of Paging 1 message which comprises IE "BCCH Modification Information", with the "Value Tag" different from the "MIB Value Tag" of the current Master Information Block. This test specified in TS 34.108, clause 6.11.6.4.4.1. The SCCPCH carries the PCH at 8 kbps.

18.3.5.1.2.3 Method of Test

The contents of the System Information Block type 5 is specified in clause 8.1.2.2.

Downlink TFS for PCCH:

		SRBs
TFS	TF0, bits	0x80
	TF1, bits	1x80
	TF2, bits	2x80

Downlink TFCS:

TFCI	(SRB)
DL_TFC0	(TF0)
DL_TFC1	(TF1)
DL_TFC2	(TF2)

Sub-tests:

See 18.3.1.1 for test procedure.

18.3.5.1.2.4 Test Requirements

See 18.3.1.1 for definition of step 6

1. At step 6 the UE transmitted PAGING RESPONSE (DCCH) received at the SS shall complete the test and end gracefully.

18.3.5.2 Interactive/Background PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.4.2.

This radio bearer configuration is tested with three different SYSTEM INFORMATION (BCCH) configurations:

1. The contents of System Information Block type 5 and 6 as specified in TS 34.108, clause 6.1.1(TDD FFS).

   Two SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and the second SCCPCH carries the FACH for Interactive/Background PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH.

   This configuration is verified in test case 18.3.5.2.1.

2. The contents of System Information Block type 5 as specified in TS 34.108, clause 6.1.3 (TDD FFS).

   Three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and both the second and third SCCPCHs carry the FACH for Interactive/Background PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH.

   This configuration is verified in test case 18.3.5.2.2.

3. The contents of System Information Block type 5 and 6 as specified in TS 34.108, clause 6.1.2 (TDD FFS).

   Three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH. The second SCCPCH carries the FACH for CTCH (Cell Broadcast Service) and the FACH for SRBs on CCCH/ BCCH for idle mode UEs. The third SCCPCH carries the FACH for Interactive/Background PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH for connected mode UEs.

   This configuration is verified in test case 18.3.5.2.3.

18.3.5.2.1 One SCCPCH: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

18.3.5.2.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.5.2.1.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.11.6.4.4.2 and 6.11.6.4.5.2 for the case when two SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and the second SCCPCH carries the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.11.6.4.5.2(Interactive/Background 12.8 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

18.3.5.2.1.3 Method of Test

The contents of System Information Block type 5 and 6 shall be as specified in TS 34.108, clause 6.1.1 (TDD FFS).

Uplink TFS:

	TFI	RB7+SRB (12.8 kbps on RACH)
TFS	TF0, bits	1 x 170

Uplink TFCS:

TFCI	RB7+SRB
UL_TFC0	TF0

Downlink TFS for SCCPCH#2:

	TFI	RB7 (32 kbps)	SRBs
TFS	TF0, bits	0x363	0x171
	TF1, bits	1x363	1x171
	TF2, bits	2x363	2x171
	TF3, bits	N/A	3x171
	TF4, bits	N/A	4x171

Downlink TFCS for SCCPCH#2:

TFCI	(RB7,SRB)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF0, TF1)
DL_TFC2	(TF0, TF2)
DL_TFC3	(TF0, TF3)
DL_TFC4	(TF0, TF4)
DL_TFC5	(TF1, TF0)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF1, TF2)
DL_TFC8	(TF2, TF0)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (NOTE)	Test data size (NOTE)
1	DL_TFC7	UL_TFC0	DL_TFC0	UL_TFC0	RB7: 376 bits	RB7: 312 bits
2	DL_TFC8	UL_TFC0	DL_TFC0	UL_TFC0	RB7: 632 bits	RB7: 632 bits

NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB7: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 18.3.1.1 for test procedure.

18.3.5.2.1.4 Test Requirements

See 18.3.1.1 for definition of step 15

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB7 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.

- for sub-test 2: an RLC SDU on RB7 having the same content as the DL RLC SDU sent by the SS.

18.3.5.2.2 Two SCCPCHs: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

18.3.5.2.2.1 Conformance requirement

See 18.3.2.4.1.

18.3.5.2.2.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.11.6.4.4.2 and 6.11.6.4.5.2 for the case when three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and both the second and third SCCPCHs carry the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.11.6.4.5.2 (Interactive/Background 12.8 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

18.3.5.2.2.3 Method of Test

The contents of System Information Block type 5 shall be as specified in TS 34.108, clause 6.1.3 (TDD FFS).

Uplink TFS:

	TFI	**RB7+SRB (12.8 kbps on RACH)**
TFS	TF0, bits	1x170

Uplink TFCS:

TFCI	**RB7+SRB**
UL_TFC0	TF0

Downlink TFS (for SCCPCH#2 & SCCPCH#3):

	TFI	**RB7 (32 kbps)**	**SRBs**
TFS	TF0, bits	0x363	0x171
	TF1, bits	1x363	1x171
	TF2, bits	2x363	2x171
	TF3,bits	N/A	3x171
	TF4,bits	N/A	4x171

Downlink TFCS (for SCCPCH#2 & SCCPCH#3):

TFCI	**(RB7,SRB)**
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF0, TF1)
DL_TFC2	(TF0, TF2)
DL_TFC3	(TF0, TF3)
DL_TFC4	(TF0, TF4)
DL_TFC5	(TF1, TF0)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF1, TF2)
DL_TFC8	(TF2, TF0)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (NOTE)	Test data size (NOTE)
1	DL_TFC7	UL_TFC0	DL_TFC0	UL_TFC0	RB7: 376 bits	RB7: 312 bits
2	DL_TFC8	UL_TFC0	DL_TFC0	UL_TFC0	RB7: 632 bits	RB7: 632 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB7: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.						

See 18.3.1.1 for test procedure.

18.3.5.2.2.4 Test Requirements

See 18.3.1.1 for definition of step 15

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB7 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB7 having the same content as the DL RLC SDU sent by the SS.

18.3.5.2.3 One SCCPCH/connected mode: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

18.3.5.2.3.1 Conformance requirement

See 18.3.2.4.1.

18.3.5.2.3.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.11.6.4.4.2 and 6.11.6.4.5.2 for the case when three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH. The second SCCPCH carries the FACH for CTCH (Cell Broadcast Service) and the FACH for SRBs on CCCH/ BCCH for idle mode UEs. The third SCCPCH carries the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH for connected mode UEs.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.11.6.4.5.2 (Interactive/Background 12.8 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

18.3.5.2.3.3 Method of Test

The contents of System Information Block type 5 and 6 shall be as specified in TS 34.108, clause 6.1.2 (TDD FFS).

Uplink TFS:

	TFI	RB7+SRB (12.8 kbps on RACH)
TFS	TF0, bits	1 x 170

Uplink TFCS:

TFCI	RB7+SRB
UL_TFC0	TF0

Downlink TFS for SCCPCH#3:

	TFI	RB7 (32 kbps)	SRBs
TFS	TF0, bits	0x363	0x171
	TF1, bits	1x363	1x171
	TF2, bits	2x363	2x171
	TF3,bits	N/A	3x171
	TF4,bits	N/A	4x171

Downlink TFCS for SCCPCH#3:

TFCI	(SRB, RB7)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF0, TF1)
DL_TFC2	(TF0, TF2)
DL_TFC3	(TF0, TF3)
DL_TFC4	(TF0, TF4)
DL_TFC5	(TF1,TF0)
DL_TFC6	(TF1,TF2)
DL_TFC7	(TF1,TF3)
DL_TFC8	(TF2,TF0)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (NOTE)	Test data size (NOTE)
1	DL_TFC7	UL_TFC0	DL_TFC0	UL_TFC0	RB7: 376 bits	RB7: 312 bits
2	DL_TFC8	UL_TFC0	DL_TFC0	UL_TFC0	RB7: 632 bits	RB7: 632 bits

NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB7: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 18.3.1.1 for test procedure.

18.3.5.2.3.4 Test Requirements

See 18.3.1.1 for definition of step 15

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB7 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB7 having the same content as the DL RLC SDU sent by the SS.

18.3.5.2a Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.4.2a.

This radio bearer configuration is tested with three different SYSTEM INFORMATION (BCCH) configurations:

1. The contents of System Information Block type 5 shall be as per the message specific content below.

   Two SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and the second SCCPCH carries the FACH for two Interactive/Background 32 kbps PS RABs and the FACH for SRBs on CCCH/ DCCH/ BCCH.

   This configuration is verified in test case 18.3.5.2a.1.

2. The contents of System Information Block type 5 as specified in TS 34.108, clause 6.1.3.

   Three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and both the second and third SCCPCHs carry the FACH for two Interactive/Background 32 kbps PS RABs and the FACH for SRBs on CCCH/ DCCH/ BCCH.

   This configuration is verified in test case 18.3.5.2a.2.

3. The contents of System Information Block type 5 and 6 as specified in TS 34.108, clause 6.1.2.

   Three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH. The second SCCPCH carries the FACH for CTCH (Cell Broadcast Service) and the FACH for SRBs on CCCH/ BCCH for idle mode UEs. The third SCCPCH carries the FACH for two Interactive/Background 32 kbps PS RABs and the FACH for SRBs on CCCH/ DCCH/ BCCH for connected mode UEs.

   This configuration is verified in test case 18.3.5.2a.3.

Specific Message Content for Radio Bearer Setup message to be used for these test cases:

Use the RADIO BEARER SETUP message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
- RAB information for setup	
- RAB info	(AM DTCH for PS domain)
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	useT315
- RB information to setup	
- RB identity	20
- PDCP Info	Not Present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- Logical channel identity	7
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	6
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	

Information Element	Value/remark
- Number of downlink RLC logical channels - Downlink transport channel type - DL DCH Transport channel identity - DL DSCH Transport channel identity - Logical channel identity	1 FACH Not Present Not Present 7
- RAB identity	0000 0110B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	useT315
- RB information to setup	
- RB identity	24
- PDCP info	Not Present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- Logical channel identity	10
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	6
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	10
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	10
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1

Information Element	Value/remark
- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	10

18.3.5.2a.1 One SCCPCH: Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

18.3.5.2a.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.5.2a.1.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.4.2a and 6.11.6.4.5.3 for the case when two SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and the second SCCPCH carries the FACH for two Interactive/Background 32 kbps PS RABs and the FACH for SRBs on CCCH/ DCCH/ BCCH.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.11.6.4.5.3.1 (Interactive/Background 12.8 kbps PS RAB + Interactive/Background 12.8 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

18.3.5.2a.1.3 Method of Test

The contents of System Information Block type 5 per the specific message content below.

See 18.3.1.1 for test procedure.

NOTE: The test procedure for single radio bearer configurations is used as there are no uplink transport format combinations for simultaneous data transmission on the PS radio bearers, nor any transport format combination for simultaneous data transmission and signalling.

Uplink TFS:

	TFI	RB7+RB8+SRB (2x12.8 kbps on RACH)
TFS	TF0, bits	1x170

Uplink TFCS:

TFCI	RB7 + RB8
UL_TFC0	TF0

Downlink TFS for SCCPCH#2:

	TFI	RB7 + RB8 (2x32 kbps)	SRBs
TFS	TF0, bits	0x363	0x171
	TF1, bits	1x363	1x171
	TF2, bits	2x363	2x171
	TF3, bits	N/A	3x171
	TF4, bits	N/A	4x171

Downlink TFCS for SCCPCH #2:

TFCI	(RB7+RB8, SRB)
DL_TFC0	(TF0,TF0)
DL_TFC1	(TF0,TF1)
DL_TFC2	(TF0,TF2)
DL_TFC3	(TF0,TF3)
DL_TFC4	(TF0,TF4)
DL_TFC5	(TF1,TF0)
DL_TFC6	(TF1,TF1)
DL_TFC7	(TF1,TF2)
DL_TFC8	(TF2,TF0)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (NOTE)	Test data size (NOTE)
1	DL_TFC7	UL_TFC0	DL_TFC0	UL_TFC0	RB7: 376 bits RB8: 376 bits	RB7: 312 bits RB8: No Data
2	DL_TFC8	UL_TFC0	DL_TFC0	UL_TFC0	RB7: 632 bits RB8: 632 bits	RB7: No Data RB8: 632 bits

NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB7: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

Specific Message Contents

Use the default parameter values for the system information block 5 with the same type specified in clause 6.1.1 of TS 34.108, with the following exceptions

Information Element	Value/remark
- SIB6 indicator	FALSE

See 18.3.1.1 for test procedure.

18.3.5.2.3.4 Test Requirements

See 18.3.1.1 for definition of step 15

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB7 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB8 having the same content as the DL RLC SDU sent by the SS.

18.3.5.2a.2 Two SCCPCHs: Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

18.3.5.2a.2. 1 Conformance requirement

See 18.3.2.4.1.

18.3.5.2a.2. 2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.11.6.4.4.2a and 6.11.6.4.5.3 for the case when three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and both the second and third SCCPCHs carry the FACH for two Interactive/Background 32 kbps PS RABs and the FACH for SRBs on CCCH/ DCCH/ BCCH.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.11.6.4.5.3.1 (Interactive/Background 12.8 kbps PS RAB + Interactive/Background 12.8 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

18.3.5.2a.2.1.3 Method of Test

The contents of System Information Block type 5 shall be as specified in TS 34.108, clause 6.1.3.

See 18.3.1.1 for test procedure.

NOTE: The test procedure for single radio bearer configurations is used as there are no uplink transport format combinations for simultaneous data transmission on the PS radio bearers, nor any transport format combination for simultaneous data transmission and signalling.

Uplink TFS:

	TFI	**RB7 + RB8 (2x12.8 kbps on RACH)**
TFS	TF0, bits	1x170

Uplink TFCS:

TFCI	**RB7 + RB8**
UL_TFC0	TF0

Downlink TFS:

	TFI	**RB7 + RB8 (2x32 kbps)**	**SRBs**
TFS	TF0, bits	0x363	0x171
	TF1, bits	1x363	1x171
	TF2, bits	2x363	2x171
	TF3, bits	N/A	3x171
	TF4, bits	N/A	4x171

Downlink TFCS for SCCPCH#2 & #3:

TFCI	**(SRB, RB7+RB8)**
DL_TFC0	(TF0,TF0)
DL_TFC1	(TF0,TF1)
DL_TFC2	(TF0,TF2)
DL_TFC3	(TF0,TF3)
DL_TFC4	(TF0,TF4)
DL_TFC5	(TF1,TF0)
DL_TFC6	(TF1,TF1)
DL_TFC7	(TF1,TF2)
DL_TFC8	(TF2,TF0)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (NOTE)	Test data size (NOTE)
1	DL_TFC7	UL_TFC0	DL_TFC0	UL_TFC0	RB7: 376 bits RB8: 376 bits	RB7: 312 bits RB8: No Data
2	DL_TFC8	UL_TFC0	DL_TFC0	UL_TFC0	RB7: 632 bits RB8: 632 bits	RB7: No Data RB8: 632 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB7: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.						

See 18.3.1.1 for test procedure.

18.3.5.2.3.4 Test Requirements

See 18.3.1.1 for definition of step 15

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB7 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.
   - for sub-test 2: an RLC SDU on RB8 having the same content as the DL RLC SDU sent by the SS.

18.3.5.2a.3 One SCCPCH/connected mode: Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

18.3.5.2a.3.1 Conformance requirement

See 18.3.2.4.1.

18.3.5.2a.3. 2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.10.2.4.3.2 and 6.10.2.4.4.2 for the case when three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH. The second SCCPCH carries the FACH for CTCH (Cell Broadcast Service) and the FACH for SRBs on CCCH/ BCCH for idle mode UEs. The third SCCPCH carries the FACH for two Interactive/Background 32 kbps PS RABs and the FACH for SRBs on CCCH/ DCCH/ BCCH for connected mode UEs.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.10.2.4.4.2 (Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

18.3.5.2a.3.1.3 Method of Test

The contents of System Information Block type 5 and 6 shall be as specified in TS 34.108, clause 6.1.2.

See 18.3.1.1 for test procedure.

NOTE: The test procedure for single radio bearer configurations is used as there are no uplink transport format combinations for simultaneous data transmission on the PS radio bearers, nor any transport format combination for simultaneous data transmission and signalling.

Uplink TFS:

	TFI	RB7+RB8+SRB (2x12.8 kbps on RACH)
TFS	TF0, bits	1x170

Uplink TFCS:

TFCI	RB7 + RB8
UL_TFC0	TF0

Downlink TFS for SCCPCH #3:

	TFI	RB7 + RB8 (2x32 kbps)	SRBs
TFS	TF0, bits	0x363	0x171
	TF1, bits	1x363	1x171
	TF2, bits	2x363	2x171
	TF3, bits	N/A	3x171
	TF4, bits	N/A	4x171

Downlink TFCS for third SCCPCH:

TFCI	(SRB, RB7+RB8)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF0,TF1)
DL_TFC2	(TF0,TF2)
DL_TFC3	(TF0,TF3)
DL_TFC4	(TF0,TF4)
DL_TFC5	(TF1,TF0)
DL_TFC6	(TF1,TF1)
DL_TFC7	(TF1,TF2)
DL_TFC8	(TF2,TF0)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (NOTE)	Test data size (NOTE)
1	DL_TFC7	UL_TFC0	DL_TFC0	UL_TFC0	RB7: 376 bits RB8: 376 bits	RB7: 312 bits RB8: No Data
2	DL_TFC8	UL_TFC0	DL_TFC0	UL_TFC0	RB7: 632 bits RB8: 632 bits	RB7: No Data RB8: 632 bits

NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB7: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 18.3.1.1 for test procedure.

18.3.5.2.3.4 Test Requirements

See 18.3.1.1 for definition of step 15

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15 the UE shall return

   - for sub-test 1: an RLC SDU on RB7 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.

   - for sub-test 2: an RLC SDU on RB8 having the same content as the DL RLC SDU sent by the SS.

18.3.5.2b SRBs for CCCH + SRB for DCCH + SRB for BCCH

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.4.2b.

This radio bearer configuration is tested with one SYSTEM INFORMATION (BCCH) configuration:

1. The contents of System Information Block type 5 and 6 as specified in TS 34.108, clause 6.1.1 (TDD FSS).

   Two SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and the second SCCPCH carries the FACH for SRBs on CCCH/ DCCH/ BCCH.

18.3.5.2b.1 Conformance requirement

See 18.3.2.4.1.

18.3.5.2b.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.4.2b and 6.11.6.4.5.1 for the case when one SCCPCH is used in this SYSTEM INFORMATION configuration. The SCCPCH carries the FACH for SRBs on CCCH/ DCCH/ BCCH.

18.3.5.2b.3 Method of Test

The contents of System Information Block type 5 and 6 shall be as specified in TS 34.108, clause 6.1.1(TDD FSS).

See 18.3.1.1 for test procedure.

NOTE: The test procedure for single radio bearer configurations is used as there are no uplink transport format combinations for simultaneous data transmission on the PS radio bearers, nor any transport format combination for simultaneous data transmission and signalling.

Uplink TFS:

	TFI	**SRB**
TFS	TF0, bits	1x170

Uplink TFCS:

TFCI	**SRB**
UL_TFC0	TF0

Downlink TFS for SCCPCH:

	TFI	**SRBs**
TFS	TF0, bits	0x171
	TF1, bits	1x171
	TF2, bits	2x171
	TF3, bits	3x171
	TF4, bits	4x171

Downlink TFCS for SCCPCH:

TFCI	(SRB)
DL_TFC0	(TF0)
DL_TFC1	(TF1)
DL_TFC2	(TF2)
DL_TFC3	(TF3)
DL_TFC4	(TF4)

18.3.5.2b.4 Test Requirements

See 18.3.1.1 for definition of step 6

1. At step 6 the UE transmitted PAGING RESPONSE (DCCH) received at the SS shall complete the test and end gracefully.

18.3.5.3 Interactive/Background RAB + SRBs for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH

18.3.5.3.1 Interactive/Background 32 kbps RAB + SRBs for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH

18.3.5.3.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.5.3.1.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.11.6.4.4.3 and 6.11.6.4.5.2 for the case when one SCCPCH is used in this SYSTEM INFORMATION (BCCH) configuration. The SCCPCH carries the PCH, the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.11.6.4.5.2 (Interactive/Background - 12.2 kbps) PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

18.3.5.3.1.3 Method of Test

The contents of System Information Block type 5 and 6 shall be as specified in TS 34.108, clause 6.1.0b.

Uplink TFS:

	TFI	RB8 (12.8 kbps on RACH)
TFS	TF0, bits	1x170

Uplink TFCS:

TFCI	RB8
UL_TFC0	TF0

Downlink TFS:

	TFI	RB8 (32 kbps)	PCCH	SRBs
TFS	TF0, bits	0x363	0x240	0x171
	TF1, bits	1x363	1x240	1x171
	TF2, bits	2x363	N/A	2x171
	TF3, bits	N/A	N/A	3x171
	TF4, bits	N/A	N/A	4x171

Downlink TFCS:

TFCI	(RB8, PCCH, SRB)
DL_TFC0	(TF0, TF0, TF0),
DL_TFC1	(TF0, TF0, TF1),
DL_TFC2	(TF0, TF0, TF2),
DL_TFC3	(TF0, TF0, TF3),
DL_TFC4	(TF0, TF0, TF4),
DL_TFC5	(TF0, TF1, TF0),
DL_TFC6	(TF0, TF1, TF1),
DL_TFC7	(TF0, TF1, TF2),
DL_TFC8	(TF0, TF1, TF3),
DL_TFC9	(TF0, TF1, TF4),
DL_TFC10	(TF1, TF0, TF0),
DL_TFC11	(TF1, TF0, TF1),
DL_TFC12	(TF1, TF0, TF2),
DL_TFC13	(TF1, TF0, TF3),
DL_TFC14	(TF1, TF0, TF4),
DL_TFC15	(TF1, TF1, TF0),
DL_TFC16	(TF1, TF1, TF1),
DL_TFC17	(TF1, TF1, TF2),
DL_TFC18	(TF1, TF1, TF3),
DL_TFC19	(TF1, TF1, TF4),
DL_TFC20	(TF2, TF0, TF0),
DL_TFC21	(TF2, TF0, TF1),
DL_TFC22	(TF2, TF0, TF2),
DL_TFC23	(TF2, TF0, TF3),
DL_TFC24	(TF2, TF0, TF4),
DL_TFC25	(TF2, TF1, TF0),
DL_TFC26	(TF2, TF1, TF1),
DL_TFC27	(TF2, TF1, TF2),
DL_TFC28	(TF2, TF1, TF3),
DL_TFC29	(TF2, TF1, TF4)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (NOTE)	Test data size (NOTE)
1	DL_TFC20	UL_TFC1	DL_TFC0, UL_TFC0	UL_TFC0	RB8:632 bits	RB8: 632 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit).						

See 18.3.1.1 for test procedure.

18.3.5.3.1.4 Test requirements

See 18.3.1.1 for definition of step 15

1. At step 15 the UE shall return an RLC SDU on RB8 having the same content as sent by SS

18.3.5.3.2 Interactive/Background 16 kbps RAB + SRBs for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH

18.3.5.3.2.1 Conformance requirement

See 18.3.2.4.1.

18.3.5.3.2.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.11.6.4.4.3 and 6.11.6.4.5.2 for the case when one SCCPCH is used in this SYSTEM INFORMATION (BCCH) configuration. The SCCPCH carries the PCH, the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.11.6.4.5.2 (Interactive/Background - 12.2 kbps) PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

18.3.5.3.2.3 Method of Test

The contents of System Information Block type 5 and 6 shall be as specified in TS 34.108, clause 6.1.0b.

Uplink TFS:

	TFI	**RB8 (12.8 kbps on RACH)**
TFS	TF0, bits	1x170

Uplink TFCS:

TFCI	**RB8**
UL_TFC0	TF0

Downlink TFS:

	TFI	**RB8 (32 kbps)**	**PCCH**	**SRBs**
TFS	TF0, bits	0x363	0x80	0x171
	TF1, bits	1x363	1x80	1x171
	TF2, bits	N/A	2x80	2x171

Downlink TFCS:

TFCI	**(SRB, PCCH,RB8)**
DL_TFC0	(TF0, TF0, TF0),
DL_TFC1	(TF0, TF0, TF1),
DL_TFC2	(TF0, TF0, TF2),
DL_TFC3	(TF0, TF1, TF0),
DL_TFC4	(TF0, TF1, TF1),
DL_TFC5	(TF0, TF2, TF0),
DL_TFC6	(TF0, TF2, TF1),
DL_TFC7	(TF1, TF0, TF0)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (NOTE)	Test data size (NOTE)
1	DL_TFC7	UL_TFC0	DL_TFC0, UL_TFC0	UL_TFC0	RB8: 376 bits	RB8: 312 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size parameter has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.						

See 18.3.1.1 for test procedure.

18.3.5.3.2.4 Test requirements

See 18.3.1.1 for definition of step 15

1. At step 15 the UE shall return an RLC SDU on RB7 having the same content as 1 times plus 64 lsb's of the DL RLC SDU sent by the SS.

18.3.5.3a SRBs for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH

18.3.5.3a.1 SRBs for PCCH at 12 kbps + SRB for CCCH + SRB for DCCH + SRB for BCCH at 32 kbps

18.3.5.3a.1.1 Conformance requirement

See 18.3.2.4.1.

18.3.5.3a.1.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause for the case when one SCCPCH is used in this SYSTEM INFORMATION (BCCH) configuration. The SCCPCH carries the PCH at 12 kbps and the FACH for SRBs on CCCH/ DCCH/ BCCH at 32 kbps.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.11.6.4.5.1 (SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

18.3.5.3a.1.3 Method of Test

The contents of System Information Block type 5 and 6 shall be as specified in TS 34.108, clause 6.1.0b.

Uplink TFS:

	TFI	SRB
TFS	TF0, bits	1x170

Uplink TFCS:

TFCI	SRB
UL_TFC0	TF0

Downlink TFS:

	TFI	PCCH	SRBs
TFS	TF0, bits	0x240	0x171
	TF1, bits	1x240	1x171
	TF2, bits	N/A	2x171
	TF3,bits	N/A	3x171
	TF4,bits	N/A	4x171

Downlink TFCS:

TFCI	(PCCH, SRB)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF0, TF1)
DL_TFC2	(TF0, TF2)
DL_TFC3	(TF0, TF3)
DL_TFC4	(TF0, TF4)
DL_TFC5	(TF1, TF0)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF1, TF2)
DL_TFC8	(TF1, TF3)
DL_TFC9	(TF1, TF4)

Sub-tests:

See 18.3.1.1 for test procedure.

18.3.5.3a.1.4 Test requirements

See 18.3.1.1 for definition of step 6x

1. At step 6x the UE transmitted SECURITY MODE COMPLETE (DCCH) received at the SS shall complete the test and end gracefully.

18.3.5.3a.2 SRBs for PCCH at 8 kbps kbps + SRB for CCCH + SRB for DCCH + SRB for BCCH at 16 kbps

18.3.5.3a.2.1 Conformance requirement

See 18.3.2.4.1.

18.3.5.3a.2.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause for the case when one SCCPCH is used in this SYSTEM INFORMATION (BCCH) configuration. The SCCPCH carries the PCH at 8 kbps and the FACH for SRBs on CCCH/ DCCH/ BCCH at 16 kbps.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.11.6.4.5.1 (SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

18.3.5.3a.2.3 Method of Test

The contents of System Information Block type 5 and 6 shall be as specified in TS 34.108, clause 6.1.0b.

Uplink TFS:

	TFI	SRB
TFS	TF0, bits	1x170

Uplink TFCS:

TFCI	SRB
UL_TFC0	TF0

Downlink TFS:

	TFI	PCCH	SRBs
TFS	TF0, bits	0x80	0x171
	TF1, bits	1x80	1x171
	TF2, bits	2x80	2x171

Downlink TFCS:

TFCI	(PCCH, SRB)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF0, TF1)
DL_TFC2	(TF0, TF2)
DL_TFC3	(TF1, TF0)
DL_TFC4	(TF1, TF1)
DL_TFC5	(TF2, TF0)
DL_TFC6	(TF2, TF1)

Sub-tests:

See 18.3.1.1 for test procedure.

18.3.5.3a.2.4 Test requirements

See 18.3.1.1 for definition of step 6x

1. At step 6x the UE transmitted SECURITY MODE COMPLETE (DCCH) received at the SS shall complete the test and end gracefully.

18.3.5.4 RB for CTCH + SRB for CCCH +SRB for BCCH.

18.3.5.4.1 Definition and applicability

Applicable only for a UE supporting Cell Broadcast Services (CBS) as a type of Broadcast/Multicast Services.

It shall be possible to indicate the reception of certain CBS message contents carried with certain activated CG message types in a clear way on UE side.

18.3.5.4.2 Conformance Requirement

See 18.3.2.4.1 and 7.4.2.1.2.

18.3.5.4.3 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.4.4 for the case when three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH. The second SCCPCH carries the FACH for CTCH (Cell Broadcast Service) and the FACH for SRBs on CCCH/ BCCH for idle mode UEs. The third SCCPCH carries the FACH for Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH for connected mode UEs.

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.11.6.4.4.3. Data transfer on CTCH is tested similar to testing BMC for a UE in idle mode as specified in TS 34.123-1, clause 7.4.2, data transfer on CCCH is tested by establishing a RRC connection.

18.3.5.4.4 Method of Test

18.3.5.4.4.1 Initial conditions:

The contents of System Information Block type 5 and 6 shall be as specified in TS 34.108, clause 6.1.2.

The UE is RRC idle mode, the BMC entity is established.

The CB message ID stored on the SIM shall be known for this test (parameter for CBS PDUs). The CBS data type shall be allocated and activated in the UE.

Related ICS/IXIT Statement(s):

As in clause 7.4.2.1.4

Uplink TFS:

	TFI	RB7+SRB (32 kbps on RACH)
TFS	TF0, bits	1x170

Uplink TFCS:

TFCI	RB7+SRB
UL_TFC0	TF0

Downlink TFS:

	TFI	RB7 (16 kbps on CTCH)	SRBs
TFS	TF0, bits	0x163	0x171
	TF1, bits	1x163	1x171
	TF2, bits	2x163	2x171

Downlink TFCS:

TFCI	(RB7, SRB)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF0, TF1)
DL_TFC2	(TF0, TF2)
DL_TFC3	(TF1, TF0)
DL_TFC4	(TF1, TF1)
DL_TFC5	(TF2, TF0)

18.3.5.4.4.2 Test Procedure:

a) The UE in RRC Idle mode is triggered to wait for the next system information. The UE is activated to receive CBS messages.

b) The UE and the SS have configured their RLC, MAC, and PHYs layers with all CB related system information.

c) The SS sends the CVS message containing an activated CGS message type according to CB-Data 1 to the UE; this shall be repeated for CPREP times (indicated by the parameter "repetition period").

d) The UE indicates in an unambiguous way, that this message was received.

e) Steps 1a → 1d in the Expected sequence are followed by the steps 2 – 6 of the test procedure according to clause 18.3.1.1.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1a	←		SYSTEM INFORMATION	
1b				The SS waits for about 10 s to make sure, that the UE is configured to receive CBS data
1c	←		BMC CBS Message	Activated CBS message with CB Data 1 message content as described by the manufacturer. This message shall be repeated "CPREP" times, Parameter: - Message_ID, - Serial-No, - Data coding scheme, - CB-Data 1,
1d				After having received the BMC CBS message the UE shall indicate the reception of CB Data 1 in a clear way.

18.3.5.4.5 Test Requirements

At step 1d in the table above, the UE shall store and decode a received activated CBS message.

At step 5 of the test procedure according to clause 18.3.1.1 the RRC Connection shall be established.

18.3.5.5 64.8kbps RB for MTCH with 80 ms TTI

18.3.5.5.1 Conformance Requirement

The UE shall correctly receive user data on the MTCH from the peer to peer RLC entity according to the configured MTCH.

Reference(s)

3GPP TS 25.2xx series (Physical Layer)

3GPP TS 25.321 (MAC)

3GPP TS 25.322 (RLC)

3GPP TS 25.331 (RRC)

18.3.5.5.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.4.5.

18.3.5.5.3 Method of Test

See 14.1.5 for test procedure.

Downlink TFS:

	TFI	RB for MTCH (64.8 kbps)
TFS	TF0, bits	0x665
	TF1, bits	1x665
	TF2, bits	2x665
	TF3, bits	3x665
	TF4, bits	4x665
	TF5, bits	5x665
	TF6, bits	6x665
	TF7, bits	7x665
	TF8, bits	8x665

Downlink TFCS:

TFCI	RB for MTCH (64.8 kbps)
DL_TFC0	(TF0)
DL_TFC1	(TF1)
DL_TFC2	(TF2)
DL_TFC3	(TF3)
DL_TFC4	(TF4)
DL_TFC5	(TF5)
DL_TFC6	(TF6)
DL_TFC7	(TF7)
DL_TFC8	(TF8)

Sub-tests:

Sub-test	Downlink TFCS Under test	Implicitly tested	Test data size (bits) (NOTE 1)
1	DL_TFC1	DL_TFC0	640
2	DL_TFC2	DL_TFC0	1288
3	DL_TFC3	DL_TFC0	1936
4	DL_TFC4	DL_TFC0	2584
5	DL_TFC5	DL_TFC0	3232
6	DL_TFC6	DL_TFC0	3880
7	DL_TFC7	DL_TFC0	4528
8	DL_TFC8	DL_TFC0	5176
NOTE 1: Test data size (=DL SDU size) has been set to the N*payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks in the transport format combination under test.			

18.3.5.5.4 Test Requirements

See 14.1.5 for definition of steps 8 and 12.

1. For the first sub-test: At step 8 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.

2. For the second and following sub-tests: At step 12 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

NOTE: For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the generic test procedure in section 14.1.5 runs through all sub-tests without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at the previous sub-test.

18.3.5.6 129.6 kbps RB for MTCH with 80 ms TTI

18.3.5.6.1 Conformance Requirement

See 18.3.5.5.1.

18.3.5.6.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.4.6.

18.3.5.6.3 Method of Test

See 14.1.5 for test procedure.

Downlink TFS:

	TFI	RB for MTCH (129.6 kbps)
TFS	TF0, bits	0x664
	TF1, bits	1x664
	TF2, bits	2x664
	TF3, bits	3x664
	TF4, bits	4x664
	TF5, bits	5x664
	TF6, bits	6x664
	TF7, bits	7x664
	TF8, bits	8x664
	TF9, bits	9x664
	TF10, bits	10x664
	TF11, bits	11x664
	TF12, bits	12x664
	TF13, bits	13x664
	TF14, bits	14x664
	TF15, bits	15x664
	TF16, bits	16x664

Downlink TFCS:

TFCI	RB for MTCH (129.6 kbps)
DL_TFC0	(TF0)
DL_TFC1	(TF1)
DL_TFC2	(TF2)
DL_TFC3	(TF3)
DL_TFC4	(TF4)
DL_TFC5	(TF5)
DL_TFC6	(TF6)
DL_TFC7	(TF7)
DL_TFC8	(TF8)
DL_TFC9	(TF9)
DL_TFC10	(TF10)
DL_TFC11	(TF11)
DL_TFC12	(TF12)
DL_TFC13	(TF13)
DL_TFC14	(TF14)
DL_TFC15	(TF15)
DL_TFC16	(TF16)

Sub-tests:

Sub-test	Downlink TFCS Under test	Implicitly tested	Test data size (bits) (NOTE 1)
1	DL_TFC1	DL_TFC0	640
2	DL_TFC2	DL_TFC0	1288
3	DL_TFC3	DL_TFC0	1936
4	DL_TFC4	DL_TFC0	2584
5	DL_TFC5	DL_TFC0	3232
6	DL_TFC6	DL_TFC0	3880
7	DL_TFC7	DL_TFC0	4528
8	DL_TFC8	DL_TFC0	5176
9	DL_TFC9	DL_TFC0	5824
10	DL_TFC10	DL_TFC0	6472
11	DL_TFC11	DL_TFC0	7120
12	DL_TFC12	DL_TFC0	7768
13	DL_TFC13	DL_TFC0	8416
14	DL_TFC14	DL_TFC0	9064
15	DL_TFC15	DL_TFC0	9712
16	DL_TFC16	DL_TFC0	10360
NOTE 1: Test data size (=DL SDU size) has been set to the N*payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks in the transport format combination under test.			

18.3.5.6.4 Test Requirements

See 14.1.5 for definition of steps 8 and 12.

1. For the first sub-test: At step 8 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.

2. For the second and following sub-tests: At step 12 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

NOTE: For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the generic test procedure in section 14.1.5 runs through all sub-tests without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at the previous sub-test.

18.3.5.7 259.2 kbps RB for MTCH with 40 ms TTI

18.3.5.7.1 Conformance Requirement

See 18.3.5.5.1.

18.3.5.7.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.3.4.4.7.

18.3.5.7.3 Method of Test

See 14.1.5 for test procedure.

Downlink TFS:

	TFI	RB for MTCH (259.2 kbps)
TFS	TF0, bits	0x665
	TF1, bits	1x665
	TF2, bits	2x665
	TF3, bits	3x665
	TF4, bits	4x665
	TF5, bits	5x665
	TF6, bits	6x665
	TF7, bits	7x665
	TF8, bits	8x665
	TF9, bits	9x665
	TF10, bits	10x665
	TF11, bits	11x665
	TF12, bits	12x665
	TF13, bits	13x665
	TF14, bits	14x665
	TF15, bits	15x665
	TF16, bits	16x665

Downlink TFCS:

TFCI	RB for MTCH (259.2 kbps)
DL_TFC0	(TF0)
DL_TFC1	(TF1)
DL_TFC2	(TF2)
DL_TFC3	(TF3)
DL_TFC4	(TF4)
DL_TFC5	(TF5)
DL_TFC6	(TF6)
DL_TFC7	(TF7)
DL_TFC8	(TF8)
DL_TFC9	(TF9)
DL_TFC10	(TF10)
DL_TFC11	(TF11)
DL_TFC12	(TF12)
DL_TFC13	(TF13)
DL_TFC14	(TF14)
DL_TFC15	(TF15)
DL_TFC16	(TF16)

Sub-tests:

Sub-test	Downlink TFCS Under test	Implicitly tested	Test data size (bits) (NOTE 1)
1	DL_TFC1	DL_TFC0	640
2	DL_TFC2	DL_TFC0	1288
3	DL_TFC3	DL_TFC0	1936
4	DL_TFC4	DL_TFC0	2584
5	DL_TFC5	DL_TFC0	3232
6	DL_TFC6	DL_TFC0	3880
7	DL_TFC7	DL_TFC0	4528
8	DL_TFC8	DL_TFC0	5176
9	DL_TFC9	DL_TFC0	5824
10	DL_TFC10	DL_TFC0	6472
11	DL_TFC11	DL_TFC0	7120
12	DL_TFC12	DL_TFC0	7768
13	DL_TFC13	DL_TFC0	8416
14	DL_TFC14	DL_TFC0	9064
15	DL_TFC15	DL_TFC0	9712
16	DL_TFC16	DL_TFC0	10360
NOTE 1: Test data size (=DL SDU size) has been set to the N*payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks in the transport format combination under test.			

18.3.5.7.4 Test Requirements

See 14.1.5 for definition of steps 8 and 12.

1. For the first sub-test: At step 8 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.

2. For the second and following sub-tests: At step 12 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

NOTE: For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the generic test procedure in section 14.1.5 runs through all sub-tests without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at the previous sub-test.

18.3.5.8 124.4kbps RB for MBSFN MTCH with 80 ms TTI

18.3.5.8.1 Conformance Requirement

The UE shall correctly receive user data on the MTCH from the peer to peer RLC entity according to the configured MTCH.

Reference(s)

3GPP TS 25.2xx series (Physical Layer)

3GPP TS 25.321 (MAC)

3GPP TS 25.322 (RLC)

3GPP TS 25.331 (RRC)

18.3.5.8.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.4.9.

18.3.5.8.3 Method of Test

See subclause 18.3.1.6 for test procedure.

Downlink TFS:

	TFI	RB for MTCH (124.4 kbps)
TFS	TF0, bits	0x4993
	TF1, bits	1x4993
	TF2, bits	2x4993

Downlink TFCS:

TFCI	RB for MTCH (124.4 kbps)
DL_TFC0	(TF0)
DL_TFC1	(TF1)
DL_TFC2	(TF2)

Sub-tests:

Sub-test	Downlink TFCS Under test	Implicitly tested	Test data size (bits) (NOTE 1)
1	DL_TFC1	DL_TFC0	4960
2	DL_TFC2	DL_TFC0	9936
NOTE 1: Test data size (=DL SDU size) has been set to the N*payload size of the DL TF under test minus 16 bits (size of 15 bit length indicator and expansion bit), where N is the number of transport blocks in the transport format combination under test.			

18.3.5.8.4 Test Requirements

See subclause 18.3.1.6 for definition of steps 9 and 13.

1. For the first sub-test: At step 9 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.

2. For the second and following sub-tests: At step 13 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

NOTE: For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the generic test procedure in section 18.2.1.6 runs through all sub-tests without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at the previous sub-test.

18.3.5.9 320.4 kbps RB for MBSFN MTCH with 80 ms TTI

18.3.5.9.1 Conformance Requirement

See 18.3.5.8.1.

18.3.5.9.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.4.10.

18.3.5.9.3 Method of Test

See subclause 18.3.1.6 for test procedure.

Downlink TFS:

	TFI	RB for MTCH (320.4 kbps)
TFS	TF0, bits	0x4289
	TF1, bits	1x4289
	TF2, bits	6x4289

Downlink TFCS:

TFCI	RB for MTCH (320.4 kbps)
DL_TFC0	(TF0)
DL_TFC1	(TF1)
DL_TFC2	(TF2)

Sub-tests:

Sub-test	Downlink TFCS Under test	Implicitly tested	Test data size (bits) (NOTE 1)
1	DL_TFC1	DL_TFC0	4256
2	DL_TFC2	DL_TFC0	25616
NOTE 1: Test data size (=DL SDU size) has been set to the N*payload size of the DL TF under test minus 16 bits (size of 15 bit length indicator and expansion bit), where N is the number of transport blocks in the transport format combination under test.			

18.3.5.9.4 Test Requirements

See subclause 18.3.1.6 for definition of steps 9 and 13.

1. For the first sub-test: At step 9 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.
2. For the second and following sub-tests: At step 13 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

NOTE: For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the generic test procedure in section 18.2.1.6 runs through all sub-tests without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at the previous sub-test.

18.3.5.10 497.6 kbps RB for MBSFN MTCH with 80 ms TTI

18.3.5.10.1 Conformance Requirement

See 18.3.5.8.1.

18.3.5.10.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.4.11.

18.3.5.10.3 Method of Test

See subclause 18.3.1.6 for test procedure.

Downlink TFS:

	TFI	RB for MTCH (497.6 kbps)
TFS	TF0, bits	0x4993
	TF1, bits	1x4993
	TF2, bits	8x4993

Downlink TFCS:

TFCI	RB for MTCH (497.6 kbps)
DL_TFC0	(TF0)
DL_TFC1	(TF1)
DL_TFC2	(TF2)

Sub-tests:

Sub-test	Downlink TFCS Under test	Implicitly tested	Test data size (bits) (NOTE 1)
1	DL_TFC1	DL_TFC0	4960
2	DL_TFC2	DL_TFC0	39792
NOTE 1: Test data size (=DL SDU size) has been set to the N*payload size of the DL TF under test minus 16 bits (size of 15 bit length indicator and expansion bit), where N is the number of transport blocks in the transport format combination under test.			

18.3.5.10.4 Test Requirements

See subclause 18.3.1.6 for definition of steps 9 and 13.

1. For the first sub-test: At step 9 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than zero.
2. For the second and following sub-tests: At step 13 the UE shall send a UE TEST LOOP MODE 3 RLC SDU COUNTER RESPONSE with a RLC SDU counter value greater than the reported value at previous sub-test.

NOTE: For UE in UE test loop mode 3 then the RLC SDU counter value is only reset upon reception of CLOSE UE TEST LOOP message configuring UE test loop mode 3. As the generic test procedure in section 18.2.1.6 runs through all sub-tests without deactivating the UE test mode then the SS needs to check the reported counter value against the value reported at the previous sub-test.

18.3.6 Combinations on PRACH

18.3.6.1 SRB for CCCH + SRB for DCCH

The reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.5.1 is implicitly tested by the test cases 18.3.5.2b.1.

18.3.6.2 Interactive/Background 12.8 kbps PS RAB + SRB for CCCH + SRB for DCCH

The reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.5.2 is implicitly tested by the test cases 18.3.5.2.1, 18.3.5.2.2, 18.3.5.2.3 and 18.3.5.3.

18.3.6.3 Interactive/Background 12.8 kbps PS RAB + Interactive/Background 12.8 kbps PS RAB + SRB for CCCH + SRB for DCCH

The reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.5.3 is implicitly tested by the test cases 18.3.5.2a.1, 18.3.5.2a.2 and 18.3.5.2a.3.

18.3.7 Combinations on DPCH and HS-PDSCH

18.3.7.1 Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.7.1.1 Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB, UL 336bit block size

18.3.7.1.1.1 Conformance requirement

For HS-DSCH the transport block size is derived from the value signalled on the HS-SCCH. The mapping between the TFRI value and the transport block size for each mode is specified below:

Let k be the signalled TFRI value, then the corresponding HS-DSCH transport block size L_k is given by :

If k=1..510

$$L_k = \lfloor L_{\min} p^k \rfloor$$

$$p = \frac{33297}{32768}$$

$$L_{\min} = 57$$

If k = 511

$$L_k = 204000$$

If k=0, L_k indicates NULL and shall not be used to signal a transport block size in the TFRI.

Transport block sizes calculated by this formula shall equal the values indicated in Table 18.3.7.1.1.1.1

Table 18.3.7.1.1.1.1: HSDPA Transport Block Sizes for 7.68 Mcps TDD

TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]	TB index (k)	TB size [bits]
0	NULL	128	442	256	3438	384	26709
1	57	129	449	257	3494	385	27140
2	58	130	457	258	3550	386	27578
3	59	131	464	259	3607	387	28023
4	60	132	472	260	3666	388	28476
5	61	133	479	261	3725	389	28935
6	62	134	487	262	3785	390	29402
7	63	135	495	263	3846	391	29877
8	64	136	503	264	3908	392	30360
9	65	137	511	265	3971	393	30850
10	66	138	519	266	4035	394	31348
11	67	139	528	267	4101	395	31854
12	69	140	536	268	4167	396	32368
13	70	141	545	269	4234	397	32891
14	71	142	553	270	4302	398	33422
15	72	143	562	271	4372	399	33961
16	73	144	572	272	4443	400	34509
17	74	145	581	273	4514	401	35066
18	76	146	590	274	4587	402	35633
19	77	147	600	275	4661	403	36208
20	78	148	609	276	4736	404	36792
21	79	149	619	277	4813	405	37386
22	81	150	629	278	4891	406	37990
23	82	151	639	279	4970	407	38603
24	83	152	650	280	5050	408	39226
25	85	153	660	281	5131	409	39860
26	86	154	671	282	5214	410	40503
27	87	155	682	283	5298	411	41157
28	89	156	693	284	5384	412	41822
29	90	157	704	285	5471	413	42497
30	92	158	715	286	5559	414	43183
31	93	159	727	287	5649	415	43880
32	95	160	739	288	5740	416	44588
33	96	161	751	289	5833	417	45308
34	98	162	763	290	5927	418	46040
35	99	163	775	291	6023	419	46783
36	101	164	787	292	6120	420	47538
37	103	165	800	293	6219	421	48306
38	104	166	813	294	6319	422	49085
39	106	167	826	295	6421	423	49878
40	108	168	840	296	6525	424	50683
41	109	169	853	297	6630	425	51501
42	111	170	867	298	6737	426	52333
43	113	171	881	299	6846	427	53178
44	115	172	895	300	6957	428	54036
45	117	173	910	301	7069	429	54908
46	119	174	924	302	7183	430	55795
47	120	175	939	303	7299	431	56696
48	122	176	954	304	7417	432	57611
49	124	177	970	305	7537	433	58541
50	126	178	986	306	7658	434	59486
51	128	179	1001	307	7782	435	60446
52	131	180	1018	308	7908	436	61422
53	133	181	1034	309	8035	437	62414
54	135	182	1051	310	8165	438	63421
55	137	183	1068	311	8297	439	64445
56	139	184	1085	312	8431	440	65486
57	142	185	1103	313	8567	441	66543
58	144	186	1120	314	8705	442	67617
59	146	187	1138	315	8846	443	68709
60	148	188	1157	316	8988	444	69818
61	151	189	1175	317	9134	445	70945
62	153	190	1194	318	9281	446	72091

63	156	191	1214	319	9431	447	73254
64	158	192	1233	320	9583	448	74437
65	161	193	1253	321	9738	449	75639
66	164	194	1274	322	9895	450	76860
67	166	195	1294	323	10055	451	78101
68	169	196	1315	324	10217	452	79361
69	172	197	1336	325	10382	453	80643
70	174	198	1358	326	10550	454	81945
71	177	199	1380	327	10720	455	83267
72	180	200	1402	328	10893	456	84612
73	183	201	1425	329	11069	457	85978
74	186	202	1448	330	11248	458	87366
75	189	203	1471	331	11429	459	88776
76	192	204	1495	332	11614	460	90209
77	195	205	1519	333	11801	461	91666
78	198	206	1543	334	11992	462	93145
79	201	207	1568	335	12185	463	94649
80	205	208	1594	336	12382	464	96177
81	208	209	1619	337	12582	465	97730
82	211	210	1646	338	12785	466	99308
83	215	211	1672	339	12992	467	100911
84	218	212	1699	340	13201	468	102540
85	222	213	1727	341	13414	469	104195
86	225	214	1755	342	13631	470	105877
87	229	215	1783	343	13851	471	107587
88	233	216	1812	344	14075	472	109324
89	237	217	1841	345	14302	473	111088
90	240	218	1871	346	14533	474	112882
91	244	219	1901	347	14767	475	114704
92	248	220	1932	348	15006	476	116556
93	252	221	1963	349	15248	477	118438
94	256	222	1994	350	15494	478	120350
95	260	223	2027	351	15744	479	122293
96	265	224	2059	352	15999	480	124267
97	269	225	2093	353	16257	481	126273
98	273	226	2126	354	16519	482	128312
99	278	227	2161	355	16786	483	130383
100	282	228	2196	356	17057	484	132488
101	287	229	2231	357	17332	485	134627
102	291	230	2267	358	17612	486	136800
103	296	231	2304	359	17897	487	139009
104	301	232	2341	360	18185	488	141253
105	306	233	2379	361	18479	489	143533
106	311	234	2417	362	18777	490	145850
107	316	235	2456	363	19081	491	148205
108	321	236	2496	364	19389	492	150597
109	326	237	2536	365	19702	493	153029
110	331	238	2577	366	20020	494	155499
111	337	239	2619	367	20343	495	158010
112	342	240	2661	368	20671	496	160560
113	348	241	2704	369	21005	497	163152
114	353	242	2748	370	21344	498	165786
115	359	243	2792	371	21689	499	168463
116	365	244	2837	372	22039	500	171182
117	371	245	2883	373	22395	501	173946
118	377	246	2929	374	22756	502	176754
119	383	247	2977	375	23124	503	179608
120	389	248	3025	376	23497	504	182507
121	395	249	3074	377	23876	505	185454
122	402	250	3123	378	24262	506	188447
123	408	251	3174	379	24653	507	191490
124	415	252	3225	380	25051	508	194581
125	421	253	3277	381	25456	509	197722
126	428	254	3330	382	25867	510	200914
127	435	255	3384	383	26284	511	204000

Reference(s)

3GPP TS 25.321 Section 9.2.3.2a

18.3.7.1.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.6.1 for the UL 336 bit block size case.

18.3.7.1.1.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)
1	1	3	512	128	336	UL_TFC1	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312
	2	3	512	128					
	3	3	512	128					
	4	3	512	128					
	5	3	512	256					
	6	3	512	256					
	7	3	1536	512					
	8	3	1536	512					
	9	3	2047	512					
2	1	3	256	128	656	UL_TFC2	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632
	2	3	256	128					
	3	3	256	128					
	4	3	256	128					
	5	3	256	256					
	6	3	256	256					
	7	3	512	512					
	8	3	512	512					
	9	3	1024	512					
3	1	3	512	256	336	UL_TFC3	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952
	2	3	512	256					
	3	3	512	256					
	4	3	512	256					
	5	3	512	256					
	6	3	512	256					
	7	3	1536	512					
	8	3	1536	512					
	9	3	2047	512					
4	1	8	256	256	656	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272
	2	8	256	256					
	3	8	256	256					
	4	8	256	256					
	5	8	256	256					
	6	8	256	256					
	7	8	512	512					
	8	8	512	512					
	9	8	1024	512					

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.

18.3.7.1.1.4 Test requirements

See 14.1.3.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE transmitted transport format shall be
   - for sub-test 1: TF1 (1x336).

- for sub-test 2: TF2 (2x336).
- for sub-test 3: TF3 (3x336).
- for sub-test 4: TF4 (4x336).

3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.3.7.1.2 Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB, UL 144bit block size

18.3.7.1.2.1 Conformance requirement

See 18.3.7.1.1.1

18.3.7.1.2.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.6.1 for the UL 144 bit block size case.

18.3.7.1.2.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	3x144	N/A
	TF3, bits	7x144	N/A
	TF4, bits	10x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)
1	1	3	512	128	336	UL_TFC1	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 120
	2	3	512	128					
	3	3	512	128					
	4	3	512	128					
	5	3	512	256					
	6	3	512	256					
	7	3	1536	512					
	8	3	1536	512					
	9	3	2047	512					
2	1	3	256	128	656	UL_TFC2	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 376
	2	3	256	128					
	3	3	256	128					
	4	3	256	128					
	5	3	256	256					
	6	3	256	256					
	7	3	512	512					
	8	3	512	512					
	9	3	1024	512					
3	1	3	512	256	336	UL_TFC3	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 888
	2	3	512	256					
	3	3	512	256					
	4	3	512	256					
	5	3	512	256					
	6	3	512	256					
	7	3	1536	512					
	8	3	1536	512					
	9	3	2047	512					
4	1	8	256	256	656	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272
	2	8	256	256					
	3	8	256	256					
	4	8	256	256					
	5	8	256	256					
	6	8	256	256					
	7	8	512	512					
	8	8	512	512					
	9	8	1024	512					

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.

18.3.7.1.2.4 Test requirements

See 14.1.3.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE transmitted transport format shall be
   - for sub-test 1: TF1 (1x144).

- for sub-test 2: TF2 (3x144).
- for sub-test 3: TF3 (7x144).
- for sub-test 4: TF4 (10x144).

3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.3.7.2 Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.7.2.1 Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB, UL 336bit block size

18.3.7.2.1.1 Conformance requirement

See 18.3.7.1.1.1.

18.3.7.2.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.6.2 for the UL 336 bit block size case.

18.3.7.2.1.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)
1	1	3	512	128	336	UL_TFC1	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312
	2	3	512	128					
	3	3	512	128					
	4	3	512	128					
	5	3	512	256					
	6	3	512	256					
	7	3	1536	512					
	8	3	1536	512					
	9	3	2047	512					
2	1	3	256	128	656	UL_TFC2	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632
	2	3	256	128					
	3	3	256	128					
	4	3	256	128					
	5	3	256	256					
	6	3	256	256					
	7	3	512	512					
	8	3	512	512					
	9	3	1024	512					
3	1	3	512	256	336	UL_TFC3	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1272
	2	3	512	256					
	3	3	512	256					
	4	3	512	256					
	5	3	512	256					
	6	3	512	256					
	7	3	1536	512					
	8	3	1536	512					
	9	3	2047	512					
4	1	8	256	256	656	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552
	2	8	256	256					
	3	8	256	256					
	4	8	256	256					
	5	8	256	256					
	6	8	256	256					
	7	8	512	512					
	8	8	512	512					
	9	8	1024	512					

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.

18.3.7.2.1.4 Test requirements

See 14.1.3.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE transmitted transport format shall be
   - for sub-test 1: TF1 (1x336).

- for sub-test 2: TF2 (2x336).
- for sub-test 3: TF3 (4x336).
- for sub-test 4: TF4 (8x336).

3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.3.7.2.2 Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB, UL 144bit block size

18.3.7.2.2.1 Conformance requirement

See 18.3.7.1.1.1.

18.3.7.2.2.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.6.2 for the UL 144 bit block size case.

18.3.7.2.2.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (128 kbps)	DCCH
TFS	TF0, bits	0x144	0x148
	TF1, bits	1x144	1x148
	TF2, bits	7x144	N/A
	TF3, bits	14x144	N/A
	TF4, bits	20x144	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)
1	1	3	512	128	336	UL_TFC1	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 120
	2	3	512	128					
	3	3	512	128					
	4	3	512	128					
	5	3	512	256					
	6	3	512	256					
	7	3	1536	512					
	8	3	1536	512					
	9	3	2047	512					
2	1	3	256	128	656	UL_TFC2	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 888
	2	3	256	128					
	3	3	256	128					
	4	3	256	128					
	5	3	256	256					
	6	3	256	256					
	7	3	512	512					
	8	3	512	512					
	9	3	1024	512					
3	1	3	512	256	336	UL_TFC3	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1784
	2	3	512	256					
	3	3	512	256					
	4	3	512	256					
	5	3	512	256					
	6	3	512	256					
	7	3	1536	512					
	8	3	1536	512					
	9	3	2047	512					
4	1	8	256	256	656	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552
	2	8	256	256					
	3	8	256	256					
	4	8	256	256					
	5	8	256	256					
	6	8	256	256					
	7	8	512	512					
	8	8	512	512					
	9	8	1024	512					

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.

18.3.7.2.2.4 Test requirements

See 14.1.3.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE transmitted transport format shall be
   - for sub-test 1: TF1 (1x144).

- for sub-test 2: TF2 (7x144).
- for sub-test 3: TF3 (14x144).
- for sub-test 4: TF4 (20x144).

3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.3.7.3 Interactive or background / UL:384 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.7.3.1 Conformance requirement

See 18.3.7.1.1.1.

18.3.7.3.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.6.3.

18.3.7.3.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (384 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF0, TF1)
UL_TFC7	(TF1, TF1)
UL_TFC8	(TF2, TF1)
UL_TFC9	(TF3, TF1)
UL_TFC10	(TF4, TF1)
UL_TFC11	(TF5, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Transmission window size (NOTE 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)
1	1	3	512	128	336	UL_TFC1	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7	RB5: 312
	2	3	512	128					
	3	3	512	128					
	4	3	512	128					
	5	3	512	256					
	6	3	512	256					
	7	3	1536	512					
	8	3	1536	512					
	9	3	2047	512					
2	1	3	256	128	656	UL_TFC2	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 632
	2	3	256	128					
	3	3	256	128					
	4	3	256	128					
	5	3	256	256					
	6	3	256	256					
	7	3	512	512					
	8	3	512	512					
	9	3	1024	512					
3	1	3	512	256	336	UL_TFC3	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 1272
	2	3	512	256					
	3	3	512	256					
	4	3	512	256					
	5	3	512	256					
	6	3	512	256					
	7	3	1536	512					
	8	3	1536	512					
	9	3	2047	512					
4	1	8	256	256	656	UL_TFC4	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 2552
	2	8	256	256					
	3	8	256	256					
	4	8	256	256					
	5	8	256	256					
	6	8	256	256					
	7	8	512	512					
	8	8	512	512					
	9	8	1024	512					
5	1	8	256	256	656	UL_TFC5	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 3832
	2	8	256	256					
	3	8	256	256					
	4	8	256	256					
	5	8	256	256					
	6	8	256	256					
	7	8	512	512					
	8	8	512	512					
	9	8	1024	512					

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.

18.3.7.3.4 Test requirements

See 14.1.3.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE transmitted transport format shall be
   - for sub-test 1: TF1 (1x336).
   - for sub-test 2: TF2 (2x336).
   - for sub-test 3: TF3 (4x336).
   - for sub-test 4: TF4 (8x336).
   - for sub-test 5: TF5 (12x336).
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.3.7.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.7.4.1 Conformance requirement

See 18.3.7.1.1.1.

18.3.7.4.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.6.4.

18.3.7.4.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (384 kbps, 10 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	N/A
	TF5, bits	N/A	N/A	N/A	12x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF5, TF0)
UL_TFC16	(TF1, TF0, TF0, TF5, TF0)
UL_TFC17	(TF2, TF1, TF1, TF5, TF0)
UL_TFC18	(TF0, TF0, TF0, TF0, TF1)
UL_TFC19	(TF1, TF0, TF0, TF0, TF1)
UL_TFC20	(TF2, TF1, TF1, TF0, TF1)
UL_TFC21	(TF0, TF0, TF0, TF1, TF1)
UL_TFC22	(TF1, TF0, TF0, TF1, TF1)
UL_TFC23	(TF2, TF1, TF1, TF1, TF1)
UL_TFC24	(TF0, TF0, TF0, TF2, TF1)
UL_TFC25	(TF1, TF0, TF0, TF2, TF1)
UL_TFC26	(TF2, TF1, TF1, TF2, TF1)
UL_TFC27	(TF0, TF0, TF0, TF3, TF1)
UL_TFC28	(TF1, TF0, TF0, TF3, TF1)
UL_TFC29	(TF2, TF1, TF1, TF3, TF1)
UL_TFC30	(TF0, TF0, TF0, TF4, TF1)
UL_TFC31	(TF1, TF0, TF0, TF4, TF1)
UL_TFC32	(TF2, TF1, TF1, TF4, TF1)
UL_TFC33	(TF0, TF0, TF0, TF5, TF1)
UL_TFC34	(TF1, TF0, TF0, TF5, TF1)
UL_TFC35	(TF2, TF1, TF1, TF5, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Speech and Interactive Background radio bearer. As the Interactive Background UL:384 kbps radio bearer (RB8) has the highest number of transport formats (5 for TTI=10 ms and excluding TF0) then 5 sub-tests has been defined. The selected UL TFCI to achieve test coverage of TF1 to TF5 for RB8 and for the different speech transport formats are: UL_TFC4 for TF1, UL_TFC8 for TF2, UL_TFC11 for TF3, UL_TFC13 for TF4 and UL_TFC17 for TF5.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)	Test data size (bits) (NOTE 4)
1	1	3	512	256	336	DL_TFC1	UL_TFC4	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC18	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC18, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: See NOTE 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
2	1	3	256	256	656	DL_TFC2	UL_TFC8	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC18	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC8, UL_TFC18, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: See NOTE 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
3	1	3	512	256	336	DL_TFC2	UL_TFC11	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC18	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC11, UL_TFC18, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: See NOTE 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
4	1	3	256	256	656	DL_TFC1	UL_TFC13	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC18	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC18, UL_TFC31	RB5: 39 RB6: 103 RB7: 60 RB8: 2552	RB5: 39 RB6: No data RB7: No data RB8: See NOTE 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
5	1	3	256	256	656	DL_TFC2	UL_TFC17	DL_TFC0,	UL_TFC0,	RB5: 81	RB5: 81

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)	Test data size (bits) (NOTE 4)
	2	3	256	256				DL_TFC3, UL_TFC0, UL_TFC18	UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC17, UL_TFC18, UL_TFC35	RB6: 103 RB7: 60 RB8: 3832	RB6: 103 RB7: 60 RB8: See NOTE 4
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC18 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB8 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

18.3.7.4.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.3.7.5 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL: 64 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.7.5.1 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL: 64 DL:[Bit rate depending on the UE category] / PS RAB, UL 336bit block size

18.3.7.5.1.1 Conformance requirement

See 18.3.7.1.1.1.

18.3.7.5.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.6.5 for the UL 336 bit block size case.

18.3.7.5.1.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Speech and Interactive Background radio bearer. As the Interactive Background UL:64 kbps radio bearer (RB8) has the highest number of transport formats (4 excluding TF0) then 4 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF4 for RB8 and for the different speech transport formats are: UL_TFC4 for TF1, UL_TFC8 for TF2, UL_TFC11 for TF3 and UL_TFC13 for TF4.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)	Test data size (bits) (NOTE 4)
1	1	3	512	128	336	DL_TFC1	UL_TFC4	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: See NOTE 4
	2	3	512	128							
	3	3	512	128							
	4	3	512	128							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
2	1	3	256	128	656	DL_TFC2	UL_TFC8	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC8, UL_TFC15, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: See NOTE 4
	2	3	256	128							
	3	3	256	128							
	4	3	256	128							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
3	1	3	512	256	336	DL_TFC2	UL_TFC11	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC11, UL_TFC15, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: 81 RB6: 103 RB7: 60 RB8: See NOTE 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
4	1	8	256	256	656	DL_TFC1	UL_TFC13	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: See NOTE 4
	2	8	256	256							
	3	8	256	256							
	4	8	256	256							
	5	8	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC15 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB8 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

18.3.7.5.1.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.3.7.5.2 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL: 64 DL:[Bit rate depending on the UE category] / PS RAB, UL 144bit block size

18.3.7.5.2.1 Conformance requirement

See 18.3.7.1.1.1.

18.3.7.5.2.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.6.5 for the UL 144 bit block size case.

18.3.7.5.2.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x144	0x148
	TF1, bits	1x39	1x103	1x60	1x144	1x148
	TF2, bits	1x81	N/A	N/A	3x144	N/A
	TF3, bits	N/A	N/A	N/A	7x144	N/A
	TF4, bits	N/A	N/A	N/A	10x144	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Speech and Interactive Background radio bearer. As the Interactive Background UL:64 kbps radio bearer (RB8) has the highest number of transport formats (4 excluding TF0) then 4 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF4 for RB8 and for the different speech transport formats are: UL_TFC4 for TF1, UL_TFC8 for TF2, UL_TFC11 for TF3 and UL_TFC13 for TF4.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)	Test data size (bits) (NOTE 4)
1	1	3	512	128	336	DL_TFC1	UL_TFC4	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 120	RB5: 39 RB6: No data RB7: No data RB8: See NOTE 4
	2	3	512	128							
	3	3	512	128							
	4	3	512	128							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
2	1	3	256	128	656	DL_TFC2	UL_TFC8	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC8, UL_TFC15, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 376	RB5: 81 RB6: 103 RB7: 60 RB8: See NOTE 4
	2	3	256	128							
	3	3	256	128							
	4	3	256	128							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
3	1	3	512	256	336	DL_TFC2	UL_TFC11	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC11, UL_TFC15, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 888	RB5: 81 RB6: 103 RB7: 60 RB8: See NOTE 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
4	1	8	256	256	656	DL_TFC1	UL_TFC13	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC13, UL_TFC15, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: See NOTE 4
	2	8	256	256							
	3	8	256	256							
	4	8	256	256							
	5	8	256	256							
	6	8	256	256							
	7	8	512	512							
	8	8	512	512							
	9	8	1024	512							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 and UL_TFC15 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB8 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

18.3.7.5.2.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.3.7.6 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.7.6.1 Conformance requirement

See 18.3.7.1.1.1.

18.3.7.6.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.6.6.

18.3.7.6.3 Method of test

18.3.7.6.3.1 Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv. 64 kbps)
Uplink RLC	
TM RLC	
Segmentation indication	FALSE
Transmission RLC discard	
CHOICE *SDU Discard Mode*	
Timer based no explicit	
Timer_discard	100ms
Downlink RLC	
TM RLC	
Segmentation indication	FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 384 kbps, 10 ms TTI)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	4x336	N/A
	TF4, bits	N/A	8x336	N/A
	TF5, bits	N/A	12x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0,TF0,TF0)
UL_TFC1	(TF1,TF0,TF0)
UL_TFC2	(TF0,TF1,TF0)
UL_TFC3	(TF1,TF1,TF0)
UL_TFC4	(TF0,TF2,TF0)
UL_TFC5	(TF1,TF2,TF0)
UL_TFC6	(TF0,TF3,TF0)
UL_TFC7	(TF1,TF3,TF0)
UL_TFC8	(TF0,TF4,TF0)
UL_TFC9	(TF1,TF4,TF0)
UL_TFC10	(TF0,TF5,TF0)
UL_TFC11	(TF1,TF5,TF0)
UL_TFC12	(TF0,TF0,TF1)
UL_TFC13	(TF1,TF0,TF1)
UL_TFC14	(TF0,TF1,TF1)
UL_TFC15	(TF1,TF1,TF1)
UL_TFC16	(TF0,TF2,TF1)
UL_TFC17	(TF1,TF2,TF1)
UL_TFC18	(TF0,TF3,TF1)
UL_TFC19	(TF1,TF3,TF1)
UL_TFC20	(TF0,TF4,TF1)
UL_TFC21	(TF1,TF4,TF1)
UL_TFC22	(TF0,TF5,TF1)
UL_TFC23	(TF1,TF5,TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	4x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Conversational CS and Interactive Background PS radio bearer. As the Interactive Background UL:384 kbps radio bearer (RB6) has the highest number of transport formats (5 for TTI=10 ms and excluding TF0) then 5 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF5 for RB6 and for TF1 for RB5 are: UL_TFC3 for TF1, UL_TFC5 for TF2, UL_TFC7 for TF3, UL_TFC9 for TF4 and UL_TFC11 for TF5.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)	Test data size (bits) (NOTE 4)
1	1	3	512	256	336	DL_TFC1	UL_TFC3	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15	RB5: 640 RB6: 312	RB5: 4x640 RB6: See NOTE 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
2	1	3	256	256	656	DL_TFC1	UL_TFC5	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC12, UL_TFC17	RB5: 640 RB6: 632	RB5: 4x640 RB6: See NOTE 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
3	1	3	512	256	336	DL_TFC1	UL_TFC7	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC7, UL_TFC12, UL_TFC19	RB5: 640 RB6: 1272	RB5: 4x640 RB6: See NOTE 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
4	1	3	256	256	656	DL_TFC1	UL_TFC9	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC12	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC9, UL_TFC12, UL_TFC21	RB5: 640 RB6: 2552	RB5: 4x640 RB6: See NOTE 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
5	1	3	256	256	656	DL_TFC1	UL_TFC11	DL_TFC0,	UL_TFC0,	RB5: 640	RB5: 4x640

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)	Test data size (bits) (NOTE 4)
	2	3	256	256				DL_TFC2, UL_TFC0, UL_TFC12	UL_TFC1, UL_TFC2, UL_TFC11, UL_TFC12, UL_TFC23	RB6: 3832	RB6: See NOTE 4
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, and UL_TFC12 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

18.3.7.6.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.3.7.7 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.7.7.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB, UL 336bit block size

18.3.7.7.1.1 Conformance requirement

See 18.3.7.1.1.1.

18.3.7.7.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.6.7 for the UL 336 bit block size case.

18.3.7.7.1.3 Method of test

18.3.7.7.1.3 Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv. 64 kbps)
Uplink RLC TM RLC Segmentation indication Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard	 FALSE 100ms
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	**RB5 (Conv. 64 kbps)**	**RB6 (I/B 64 kbps)**	**DCCH**
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

Uplink TFCS:

TFCI	**(RB5, RB6, DCCH)**
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF0, TF1, TF0)
UL_TFC3	(TF1, TF1, TF0)
UL_TFC4	(TF0, TF2, TF0)
UL_TFC5	(TF1, TF2, TF0)
UL_TFC6	(TF0, TF3, TF0)
UL_TFC7	(TF1, TF3, TF0)
UL_TFC8	(TF0, TF4, TF0)
UL_TFC9	(TF1, TF4, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF1, TF0, TF1)
UL_TFC12	(TF0, TF1, TF1)
UL_TFC13	(TF1, TF1, TF1)
UL_TFC14	(TF0, TF2, TF1)
UL_TFC15	(TF1, TF2, TF1)
UL_TFC16	(TF0, TF3, TF1)
UL_TFC17	(TF1, TF3, TF1)
UL_TFC18	(TF0, TF4, TF1)
UL_TFC19	(TF1, TF4, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	4x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Conversational CS and Interactive Background PS radio bearer. As the Interactive Background UL:64 kbps radio bearer (RB6) has the highest number of transport formats (4 excluding TF0) then 4 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF4 for RB6 and for TF1 for RB5 are: UL_TFC3 for TF1, UL_TFC5 for TF2, UL_TFC7 for TF3 and UL_TFC9 for TF4.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)	Test data size (bits) (NOTE 4)
1	1	3	512	128	336	DL_TFC1	UL_TFC3	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC10, UL_TFC13	RB5: 640 RB6: 312	RB5: 4x640 RB6: See NOTE 4
	2	3	512	128							
	3	3	512	128							
	4	3	512	128							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
2	1	3	256	128	656	DL_TFC1	UL_TFC5	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC10, UL_TFC15	RB5: 640 RB6: 632	RB5: 4x640 RB6: See NOTE 4
	2	3	256	128							
	3	3	256	128							
	4	3	256	128							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
3	1	3	512	256	336	DL_TFC1	UL_TFC7	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC7, UL_TFC10, UL_TFC17	RB5: 640 RB6: 952	RB5: 4x640 RB6: See NOTE 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
4	1	3	256	256	656	DL_TFC1	UL_TFC9	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC9, UL_TFC10, UL_TFC19	RB5: 640 RB6: 1272	RB5: 4x640 RB6: See NOTE 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)	Test data size (bits) (NOTE 4)
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, and UL_TFC10 are part of minimum set of TFCIs. NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI. NOTE 4: The test data size for RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.											

18.3.7.7.1.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.3.7.7.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB, UL 144bit block size

18.3.7.7.2.1 Conformance requirement

See 18.3.7.1.1.1.

18.3.7.7.2.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.6.7 for the UL 144 bit block size case.

18.3.7.7.2.3 Method of test

18.3.7.7.2.3.1 Initial Conditions

The following RLC Info parameter values shall be set by the SS for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB (RB5):

	RB5 (Conv. 64 kbps)
Uplink RLC	
TM RLC	
Segmentation indication	FALSE
Transmission RLC discard	
CHOICE *SDU Discard Mode*	
Timer based no explicit	
Timer_discard	100ms
Downlink RLC	
TM RLC	
Segmentation indication	FALSE
NOTE: Timer based discard without explicit signalling is used in uplink to secure that the UE will be able to return data for the case when the UE test loop function will not deliver all the SDUs in one and the same TTI .	

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 64 kbps)	DCCH
TFS	TF0, bits	0x640	0x144	0x148
	TF1, bits	4x640	1x144	1x148
	TF2, bits	N/A	3x144	N/A
	TF3, bits	N/A	7x144	N/A
	TF4, bits	N/A	10x144	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF0, TF1, TF0)
UL_TFC3	(TF1, TF1, TF0)
UL_TFC4	(TF0, TF2, TF0)
UL_TFC5	(TF1, TF2, TF0)
UL_TFC6	(TF0, TF3, TF0)
UL_TFC7	(TF1, TF3, TF0)
UL_TFC8	(TF0, TF4, TF0)
UL_TFC9	(TF1, TF4, TF0)
UL_TFC10	(TF0, TF0, TF1)
UL_TFC11	(TF1, TF0, TF1)
UL_TFC12	(TF0, TF1, TF1)
UL_TFC13	(TF1, TF1, TF1)
UL_TFC14	(TF0, TF2, TF1)
UL_TFC15	(TF1, TF2, TF1)
UL_TFC16	(TF0, TF3, TF1)
UL_TFC17	(TF1, TF3, TF1)
UL_TFC18	(TF0, TF4, TF1)
UL_TFC19	(TF1, TF4, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	DCCH
TFS	TF0, bits	0x640	0x148
	TF1, bits	4x640	1x148

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)
DL_TFC3	(TF1, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Conversational CS and Interactive Background PS radio bearer. As the Interactive Background UL:64 kbps radio bearer (RB6) has the highest number of transport formats (4 excluding TF0) then 4 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF4 for RB6 and for TF1 for RB5 are: UL_TFC3 for TF1, UL_TFC5 for TF2, UL_TFC7 for TF3 and UL_TFC9 for TF4.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)	Test data size (bits) (NOTE 4)
1	1	3	512	128	336	DL_TFC1	UL_TFC3	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC10, UL_TFC13	RB5: 640 RB6: 120	RB5: 4x640 RB6: See NOTE 4
	2	3	512	128							
	3	3	512	128							
	4	3	512	128							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
2	1	3	256	128	656	DL_TFC1	UL_TFC5	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC10, UL_TFC15	RB5: 640 RB6: 376	RB5: 4x640 RB6: See NOTE 4
	2	3	256	128							
	3	3	256	128							
	4	3	256	128							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
3	1	3	512	256	336	DL_TFC1	UL_TFC7	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC7, UL_TFC10, UL_TFC17	RB5: 640 RB6: 888	RB5: 4x640 RB6: See NOTE 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
4	1	3	256	256	656	DL_TFC1	UL_TFC9	DL_TFC0, DL_TFC2, UL_TFC0, UL_TFC10	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC9, UL_TFC10, UL_TFC19	RB5: 640 RB6: 1272	RB5: 4x640 RB6: See NOTE 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)	Test data size (bits) (NOTE 4)
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, and UL_TFC10 are part of minimum set of TFCIs. NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI. NOTE 4: The test data size for RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.											

18.3.7.7.2.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.3.7.8 Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.7.8.1 Conformance requirement

See 18.3.7.1.1.1.

18.3.7.8.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.6.8.

18.3.7.8.3 Method of test

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	**RB6 (I/B 384 kbps)**	**RB6 (I/B 384 kbps)**	**DCCH**
TFS	TF0, bits	0x340	0x340	0x148
	TF1, bits	1x340	1x340	1x148
	TF2, bits	2x340	2x340	N/A
	TF3, bits	4x340	4x340	N/A
	TF4, bits	8x340	8x340	N/A
	TF5, bits	12x340	12x340	N/A

Uplink TFCS:

TFCI	(RB5 + RB6, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF0, TF1)
UL_TFC7	(TF1, TF1)
UL_TFC8	(TF2, TF1)
UL_TFC9	(TF3, TF1)
UL_TFC10	(TF4, TF1)
UL_TFC11	(TF5, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the 2 x Interactive Background PS radio bearer. As the 2 x Interactive Background UL:384 kbps radio bearer (RB5+RB6) have 5 transport formats then 5 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF5 for RB5+RB6 are: UL_TFC1 for TF1, UL_TFC2 for TF2, UL_TFC3 for TF3, UL_TFC4 for TF4 and UL_TFC5 for TF5.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)	Test data size (bits) (NOTE 4)
1	1	3	512	256	336	N/A	UL_TFC1	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7	RB5: 312 RB6: 312	See NOTE 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
2	1	3	256	256	656	N/A	UL_TFC2	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 632 RB6: 632	See NOTE 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
3	1	3	512	256	336	N/A	UL_TFC3	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 1272 RB6: 1272	See NOTE 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
4	1	3	256	256	656	N/A	UL_TFC4	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 2552 RB6: 2552	See NOTE 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
5	1	3	256	256	656	N/A	UL_TFC5	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1,	RB5: 3832 RB6: 3832	See NOTE 4
	2	3	256	256							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)	Test data size (bits) (NOTE 4)
	3	3	256	256					UL_TFC5, UL_TFC6, UL_TFC11		
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC6 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5 and RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.
NOTE 4: The test data size for RB5 and RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

18.3.7.8.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.3.7.9 Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.7.9.1 Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB, UL 340bit block size

18.3.7.9.1.1 Conformance requirement

See 18.3.7.1.1.1.

18.3.7.9.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.6.9 for the UL 340 bit block size case.

18.3.7.9.1.3 Method of test

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	RB5 + RB6 (64 kbps RAB, 20 ms TTI)	DCCH
TFS	TF0, bits	0x340	0x148
	TF1, bits	1x340	1x148
	TF2, bits	2x340	N/A
	TF3, bits	3x340	N/A
	TF4, bits	4x340	N/A

Uplink TFCS:

TFCI	(RB5 + RB6, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the 2 x Interactive Background PS radio bearer. As the 2 x Interactive Background UL:64 kbps radio bearer (RB5+RB6) has 4 transport formats then 4 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF4 for RB5+RB6 are: UL_TFC1 for TF1, UL_TFC2 for TF2, UL_TFC3 for TF3 and UL_TFC4 for TF4.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)	Test data size (bits) (NOTE 4)
1	1	3	512	128	336	N/A	UL_TFC1	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312 RB6: 312	See NOTE 4
	2	3	512	128							
	3	3	512	128							
	4	3	512	128							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
2	1	3	256	128	656	N/A	UL_TFC2	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632 RB6: 632	See NOTE 4
	2	3	256	128							
	3	3	256	128							
	4	3	256	128							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
3	1	3	512	256	336	N/A	UL_TFC3	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952 RB6: 952	See NOTE 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
4	1	3	256	256	656	N/A	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272 RB6: 1272	See NOTE 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)	Test data size (bits) (NOTE 4)
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, and UL_TFC10 are part of minimum set of TFCIs. NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI. NOTE 4: The test data size for RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.											

18.3.7.9.1.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.3.7.9.1 Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB + Interactive or background / UL:64 DL:[Bit rate depending on the UE category] / PS RAB, UL 148bit block size

18.3.7.9.1.1 Conformance requirement

See 18.3.7.1.1.1.

18.3.7.9.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.6.9 for the UL 148 bit block size case.

18.3.7.9.1.3 Method of test

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	**RB5 + RB6 (64 kbps RAB, 20 ms TTI)**	**DCCH**
TFS	TF0, bits	0x148	0x148
	TF1, bits	1x148	1x148
	TF2, bits	3x148	N/A
	TF3, bits	7x148	N/A
	TF4, bits	10x148	N/A

Uplink TFCS:

TFCI	(RB5 + RB6, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the 2 x Interactive Background PS radio bearer. As the 2 x Interactive Background UL:64 kbps radio bearer (RB5+RB6) has 4 transport formats then 4 sub-tests have been defined. The selected UL TFCI to achieve test coverage of TF1 to TF4 for RB5+RB6 are: UL_TFC1 for TF1, UL_TFC2 for TF2, UL_TFC3 for TF3 and UL_TFC4 for TF4.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)	Test data size (bits) (NOTE 4)
1	1	3	512	128	336	N/A	UL_TFC1	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 120 RB6: 120	See NOTE 4
	2	3	512	128							
	3	3	512	128							
	4	3	512	128							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
2	1	3	256	128	656	N/A	UL_TFC2	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 376 RB6: 376	See NOTE 4
	2	3	256	128							
	3	3	256	128							
	4	3	256	128							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
3	1	3	512	256	336	N/A	UL_TFC3	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 888 RB6: 888	See NOTE 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
4	1	3	256	256	656	N/A	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272 RB6: 1272	See NOTE 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)	Test data size (bits) (NOTE 4)
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2, and UL_TFC10 are part of minimum set of TFCIs. NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI. NOTE 4: The test data size for RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.											

18.3.7.9.1.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.3.7.10 Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] kbps / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.7.10.1 Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] kbps / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB, UL 336bit block size

18.3.7.10.1.1 Conformance requirement

See 18.3.7.1.1.1.

18.3.7.10.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.6.10 for the UL 336 bit block size case.

18.3.7.10.1.3 Method of test

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (Streaming 128 kbps, 20ms)	RB6 (I/B 128 kbps, 20ms)	DCCH
TFS	TF0, bits	0x656	0x336	0x148
	TF1, bits	1x656	1x336	1x148
	TF2, bits	2x656	2x336	N/A
	TF3, bits	4x656	4x336	N/A
	TF4, bits	N/A	8x336	N/A

Uplink TFCS:

TFCI	(RB5 + RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)-
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF0, TF0)
UL_TFC3	(TF3, TF0, TF0)
UL_TFC4	(TF0, TF1, TF0)
UL_TFC5	(TF1, TF1, TF0)
UL_TFC6	(TF2, TF1, TF0)
UL_TFC7	(TF3, TF1, TF0)
UL_TFC8	(TF0, TF2, TF0)
UL_TFC9	(TF1, TF2, TF0)
UL_TFC10	(TF2, TF2, TF0)
UL_TFC11	(TF3, TF2, TF0)
UL_TFC12	(TF0, TF3, TF0)
UL_TFC13	(TF1, TF3, TF0)
UL_TFC14	(TF2, TF3, TF0)
UL_TFC15	(TF3, TF3, TF0)
UL_TFC16	(TF0, TF4, TF0)
UL_TFC17	(TF1, TF4, TF0)
UL_TFC18	(TF2, TF4, TF0)
UL_TFC19	(TF3, TF4, TF0)
UL_TFC20	(TF0, TF0, TF1)
UL_TFC21	(TF1, TF0, TF1)
UL_TFC22	(TF2, TF0, TF1)
UL_TFC23	(TF3, TF0, TF1)
UL_TFC24	(TF0, TF1, TF1)
UL_TFC25	(TF1, TF1, TF1)
UL_TFC26	(TF2, TF1, TF1)
UL_TFC27	(TF3, TF1, TF1)
UL_TFC28	(TF0, TF2, TF1)
UL_TFC29	(TF1, TF2, TF1)
UL_TFC30	(TF2, TF2, TF1)
UL_TFC31	(TF3, TF2, TF1)
UL_TFC32	(TF0, TF3, TF1)
UL_TFC33	(TF1, TF3, TF1)
UL_TFC34	(TF2, TF3, TF1)
UL_TFC35	(TF3, TF3, TF1)
UL_TFC36	(TF0, TF4, TF1)
UL_TFC37	(TF1, TF4, TF1)
UL_TFC38	(TF2, TF4, TF1)
UL_TFC39	(TF3, TF4, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Streaming + Interactive Background PS radio bearer. The Streaming UL:128 kbps + Interactive Background UL:128 kbps radio bearer (RB5+RB6) have 40 transport format combinations. As the transport formats where RB5, RB6 or DCCH has no data (TF0 for RB5, RB6 or DCCH) is considered as implicitly tested when the transport format combinations with data is tested then no specific sub-tests for those transport format combinations have been specified. The selected UL TFCI to achieve test coverage of TF1 to TF3 for RB5 and TF1 to TF4 for RB6 are: UL_TFC5 to UL_TFC7, UL_TFC9 to UL_TFC11, UL_TFC13 to UL_TFC15 and UL_TFC17 to UL_TFC19.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)	Test data size (bits) (NOTE 4)
1	1	3	512	128	336	N/A	UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC20, UL_TFC21	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC25	RB5: 632 RB6: 312	See NOTE 4
	2	3	512	128							
	3	3	512	128							
	4	3	512	128							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
2	1	3	256	128	656	N/A	UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC6, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC26	RB5: 1272 RB6: 312	See NOTE 4
	2	3	256	128							
	3	3	256	128							
	4	3	256	128							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
3	1	3	512	256	336	N/A	UL_TFC7	UL_TFC0, UL_TFC3, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC7, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC27	RB5: 2552 RB6: 312	See NOTE 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
4	1	3	256	256	656	N/A	UL_TFC9	UL_TFC0, UL_TFC8, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC9, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC29	RB5: 632 RB6: 632	See NOTE 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)	Test data size (bits) (NOTE 4)
5	1	3	512	256	656	N/A	UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC8, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC8, UL_TFC10, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC30	RB5: 1272 RB6: 632	See NOTE 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
6	1	3	256	256	656	N/A	UL_TFC11	UL_TFC0, UL_TFC3, UL_TFC8, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC8, UL_TFC11, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC31	RB5: 2552 RB6: 632	See NOTE 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
7	1	3	512	256	656	N/A	UL_TFC13	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC12, UL_TFC13, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC33	RB5: 632 RB6: 1272	See NOTE 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
8	1	3	256	256	656	N/A	UL_TFC14	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC12, UL_TFC14, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC34	RB5: 1272 RB6: 1272	See NOTE 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
9	1	3	512	256	656	N/A	UL_TFC15	UL_TFC0, UL_TFC3, UL_TFC12, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC12, UL_TFC15, UL_TFC20, UL_TFC21,	RB5: 2552 RB6: 1272	See NOTE 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)	Test data size (bits) (NOTE 4)
	9	3	2047	512					UL_TFC24, UL_TFC35		
10	1	3	256	256	656	N/A	UL_TFC17	UL_TFC0, UL_TFC1, UL_TFC16, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC16, UL_TFC17, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC37	RB5: 632 RB6: 2552	See NOTE 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
11	1	3	512	256	656	N/A	UL_TFC18	UL_TFC0, UL_TFC8, UL_TFC16, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC16, UL_TFC18, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC38	RB5: 1272 RB6: 2552	See NOTE 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
12	1	3	256	256	656	N/A	UL_TFC19	UL_TFC0, UL_TFC3, UL_TFC16, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC16, UL_TFC19, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC39	RB5: 2552 RB6: 2552	See NOTE 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.

NOTE 2: UL_TFC0, UL_TFC1, UL_TFC4 and UL_TFC20 are part of minimum set of TFCIs. Also the transport format combinations UL_TFC21 and UL_TFC24 using TF1 on either RB5 or RB6 and TF1 on DCCH has been included in the allowed TFCs as those could happen during the sub-test.

NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5 and RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.

NOTE 4: The test data size for RB5 and RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

18.3.7.10.1.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.3.7.10.2 Streaming / unknown / UL:128 DL: [guaranteed 128, max bit rate depending on UE category] kbps / PS RAB + Interactive or background / UL:128 DL: [max bit rate depending on UE category] / PS RAB, UL 144bit block size

18.3.7.10.2.1 Conformance requirement

See 18.3.7.1.1.1.

18.3.7.10.2.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.6.10 for the UL 144 bit block size case.

18.3.7.10.2.3 Method of test

The generic test procedure in 14.1.3.5 is run for each sub-test.

Uplink TFS:

	TFI	**RB5 (Streaming 128 kbps, 20ms)**	**RB6 (I/B 128 kbps, 20ms)**	**DCCH**
TFS	TF0, bits	0x656	0x144	0x148
	TF1, bits	1x656	1x144	1x148
	TF2, bits	2x656	7x144	N/A
	TF3, bits	4x656	14x144	N/A
	TF4, bits	N/A	20x144	N/A

Uplink TFCS:

TFCI	(RB5 + RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)-
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF0, TF0)
UL_TFC3	(TF3, TF0, TF0)
UL_TFC4	(TF0, TF1, TF0)
UL_TFC5	(TF1, TF1, TF0)
UL_TFC6	(TF2, TF1, TF0)
UL_TFC7	(TF3, TF1, TF0)
UL_TFC8	(TF0, TF2, TF0)
UL_TFC9	(TF1, TF2, TF0)
UL_TFC10	(TF2, TF2, TF0)
UL_TFC11	(TF3, TF2, TF0)
UL_TFC12	(TF0, TF3, TF0)
UL_TFC13	(TF1, TF3, TF0)
UL_TFC14	(TF2, TF3, TF0)
UL_TFC15	(TF3, TF3, TF0)
UL_TFC16	(TF0, TF4, TF0)
UL_TFC17	(TF1, TF4, TF0)
UL_TFC18	(TF2, TF4, TF0)
UL_TFC19	(TF3, TF4, TF0)
UL_TFC20	(TF0, TF0, TF1)
UL_TFC21	(TF1, TF0, TF1)
UL_TFC22	(TF2, TF0, TF1)
UL_TFC23	(TF3, TF0, TF1)
UL_TFC24	(TF0, TF1, TF1)
UL_TFC25	(TF1, TF1, TF1)
UL_TFC26	(TF2, TF1, TF1)
UL_TFC27	(TF3, TF1, TF1)
UL_TFC28	(TF0, TF2, TF1)
UL_TFC29	(TF1, TF2, TF1)
UL_TFC30	(TF2, TF2, TF1)
UL_TFC31	(TF3, TF2, TF1)
UL_TFC32	(TF0, TF3, TF1)
UL_TFC33	(TF1, TF3, TF1)
UL_TFC34	(TF2, TF3, TF1)
UL_TFC35	(TF3, TF3, TF1)
UL_TFC36	(TF0, TF4, TF1)
UL_TFC37	(TF1, TF4, TF1)
UL_TFC38	(TF2, TF4, TF1)
UL_TFC39	(TF3, TF4, TF1)

Sub-tests:

The principle used to select sub-tests has been to cover all uplink and downlink TFS for the Streaming + Interactive Background PS radio bearer. The Streaming UL:128 kbps + Interactive Background UL:128 kbps radio bearer (RB5+RB6) have 40 transport format combinations. As the transport formats where RB5, RB6 or DCCH has no data (TF0 for RB5, RB6 or DCCH) is considered as implicitly tested when the transport format combinations with data is tested then no specific sub-tests for those transport format combinations have been specified. The selected UL TFCI to achieve test coverage of TF1 to TF3 for RB5 and TF1 to TF4 for RB6 are: UL_TFC5 to UL_TFC7, UL_TFC9 to UL_TFC11, UL_TFC13 to UL_TFC15 and UL_TFC17 to UL_TFC19.

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)	Test data size (bits) (NOTE 4)
1	1	3	512	128	336	N/A	UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC20, UL_TFC21	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC25	RB5: 632 RB6: 120	See NOTE 4
	2	3	512	128							
	3	3	512	128							
	4	3	512	128							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
2	1	3	256	128	656	N/A	UL_TFC6	UL_TFC0, UL_TFC2, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC6, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC26	RB5: 1272 RB6: 120	See NOTE 4
	2	3	256	128							
	3	3	256	128							
	4	3	256	128							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
3	1	3	512	256	336	N/A	UL_TFC7	UL_TFC0, UL_TFC3, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC7, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC27	RB5: 2552 RB6: 120	See NOTE 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
4	1	3	256	256	656	N/A	UL_TFC9	UL_TFC0, UL_TFC8, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC9, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC29	RB5: 632 RB6: 888	See NOTE 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)	Test data size (bits) (NOTE 4)
5	1	3	512	256	656	N/A	UL_TFC10	UL_TFC0, UL_TFC2, UL_TFC8, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC8, UL_TFC10, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC30	RB5: 1272 RB6: 888	See NOTE 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
6	1	3	256	256	656	N/A	UL_TFC11	UL_TFC0, UL_TFC3, UL_TFC8, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC8, UL_TFC11, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC31	RB5: 2552 RB6: 888	See NOTE 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
7	1	3	512	256	656	N/A	UL_TFC13	UL_TFC0, UL_TFC1, UL_TFC12, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC12, UL_TFC13, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC33	RB5: 632 RB6: 1784	See NOTE 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
8	1	3	256	256	656	N/A	UL_TFC14	UL_TFC0, UL_TFC2, UL_TFC12, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC12, UL_TFC14, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC34	RB5: 1272 RB6: 1784	See NOTE 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
9	1	3	512	256	656	N/A	UL_TFC15	UL_TFC0, UL_TFC3, UL_TFC12, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC12, UL_TFC15, UL_TFC20, UL_TFC21,	RB5: 2552 RB6: 1784	See NOTE 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							

Sub-tes	UE Category	Number of HARQ processes	RLC Receiving window size (NOTE 1)	RLC Trans-mission window size (NOTE 1)	MAC-d PDU size (bits)	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)	UL RLC SDU size (bits) (NOTE 3)	Test data size (bits) (NOTE 4)
	9	3	2047	512					UL_TFC24, UL_TFC35		
10	1	3	256	256	656	N/A	UL_TFC17	UL_TFC0, UL_TFC1, UL_TFC16, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC16, UL_TFC17, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC37	RB5: 632 RB6: 2552	See NOTE 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							
11	1	3	512	256	656	N/A	UL_TFC18	UL_TFC0, UL_TFC8, UL_TFC16, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC8, UL_TFC16, UL_TFC18, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC38	RB5: 1272 RB6: 2552	See NOTE 4
	2	3	512	256							
	3	3	512	256							
	4	3	512	256							
	5	3	512	256							
	6	3	512	256							
	7	3	1536	512							
	8	3	1536	512							
	9	3	2047	512							
12	1	3	256	256	656	N/A	UL_TFC19	UL_TFC0, UL_TFC3, UL_TFC16, UL_TFC4, UL_TFC20, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC16, UL_TFC19, UL_TFC20, UL_TFC21, UL_TFC24, UL_TFC39	RB5: 2552 RB6: 2552	See NOTE 4
	2	3	256	256							
	3	3	256	256							
	4	3	256	256							
	5	3	256	256							
	6	3	256	256							
	7	3	512	512							
	8	3	512	512							
	9	3	1024	512							

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.

NOTE 2: UL_TFC0, UL_TFC1, UL_TFC4 and UL_TFC20 are part of minimum set of TFCIs. Also the transport format combinations UL_TFC21 and UL_TFC24 using TF1 on either RB5 or RB6 and TF1 on DCCH has been included in the allowed TFCs as those could happen during the sub-test.

NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5 and RB6: The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will make the UE to return one RLC SDU per UL TTI.

NOTE 4: The test data size for RB5 and RB6 is dependent on the actual TFRC test point, see the generic test procedure in 14.1.3.5.

18.3.7.10.2.4 Test requirements

See 14.1.3.5 for definition of the referenced step numbers.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 18 and for each TFRC test point:

   If the downlink RLC SDU size is less than the configured UL RLC SDU for the actual sub-test then the UE shall return 4 RLC SDUs where the first bits of each SDU has the same content as the RLC SDUs sent by the SS in downlink. Otherwise the UE shall return 4 RLC SDUs where each SDU has the same content as the first bits of the RLC SDUs sent by the SS in downlink.

   NOTE: The generic test procedure as specified in 14.1.3.5.2 sends 4 SDUs of size (N_{PDUs} * MAC-d PDU payload size) / 4 minus 8 bits (size of 7 bit length indicator and expansion bit). For the case when the downlink SDU size is less than the configured UL SDU size then all data is returned otherwise the returned data is truncated.

18.3.8 Combinations on DPCH, HS-DSCH and E-PUCH

18.3.8.1 Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH on DCH

18.3.8.1.1 Conformance requirement

The UE shall be able to establish the UTRAN requested radio bearers within the UE's signalled radio access capabilities.

The UE shall correctly transfer user data from peer to peer RLC entities according to the requested radio bearer configuration.

Reference(s)

3GPP TS 25.331, clause 8.2.1

3GPP TS 25.2xx series (Physical Layer)

3GPP TS 25.321 (MAC)

3GPP TS 25.322 (RLC)

18.3.8.1.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.7.1:

1. To verify that the UE is able to establish the radio bearer combination.
2. To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

18.3.8.1.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	1536
5	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (NOTE 1)					
			Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	Number HS-DSCH timeslots	TFRI
1	2	512	336	357	1	QPSK	1	115
2	2	512	336	357	1	QPSK	1	115
3	3	512	336	357	1	QPSK	1	115
4	3	512	336	357	1	QPSK	1	115
5	3	512	336	357	1	QPSK	1	115
6	3	512	336	357	1	QPSK	1	115
7	3	1536	336	357	1	QPSK	1	115
8	3	1536	336	357	1	QPSK	1	115
9	3	1536	336	357	1	QPSK	1	115
10	3	1536	336	357	1	QPSK	1	115
11	3	2047	336	357	1	QPSK	1	115
12	3	2047	336	357	1	QPSK	1	115
13	3	2047	336	357	1	QPSK	1	115
NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI, i.e. such that the MAC-hs transport block size is bigger than the maximum MAC-d PDU size under test + MAC-hs header size (21 bits). See 18.3.7.1.1 (MAC-d PDU size=336) for recommended TFRC values for different transport block size.								

The generic test procedure in 18.3.1.5 is run for each sub-test.

Sub-tests:

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (NOTE 1)	E-DPDCH Number of HARQ processes	UL RLC SDU size (NOTE 2)	Test data size (NOTE 3)
1	1 to 7	10ms, Table 0	4	312	312
NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI. NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.					

18.3.8.1.4 Test requirements

See 18.2.1.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE shall return a RLC SDU with same content as sent in downlink.

18.3.8.3 Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] SRBs for DCCH on E-DCH and HS-DSCH

18.3.8.3.1 Conformance requirement

See 18.3.8.1.1.

18.3.8.3.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.7.3:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

18.3.8.3.3 Method of test

See 18.3.8.1.3.

18.3.8.3.4 Test requirements

See 18.3.8.1.4.

18.3.8.4 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

18.3.8.4.1 Conformance requirement

See 18.3.8.1.1.

18.3.8.4.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.7.4:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH in combination with the possible TFCI of the conversional speech radio bearer.

18.3.8.4.3 Method of test

The following parameters are specific for this test case:

Uplink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x148
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Parameter	Value
MAC-hs receiver window size	16
HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (NOTE 1)					
			Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	Number HS-DSCH timeslots	TFRI
1	2	512	336	357	1	QPSK	1	115
2	2	512	336	357	1	QPSK	1	115
3	3	512	336	357	1	QPSK	1	115
4	3	512	336	357	1	QPSK	1	115
5	3	512	336	357	1	QPSK	1	115
6	3	512	336	357	1	QPSK	1	115
7	3	1536	336	357	1	QPSK	1	115
8	3	1536	336	357	1	QPSK	1	115
9	3	1536	336	357	1	QPSK	1	115
10	3	1536	336	357	1	QPSK	1	115
11	3	2047	336	357	1	QPSK	1	115
12	3	2047	336	357	1	QPSK	1	115
13	3	2047	336	357	1	QPSK	1	115
NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI, i.e. such that the MAC-hs transport block size is bigger than the maximum MAC-d PDU size under test + MAC-hs header size (21 bits). See 18.3.7.1.1 (MAC-d PDU size=336) for recommended TFRC values for different transport block size.								

The generic test procedure in 18.3.1.5 is run for each sub-test.

Sub-tests:

Sub-test	Applicable E-DCH Category	E-DPDCH TTI and E-TFCI Table (NOTE 1)	E-DPDCH Number of HARQ processes	DCH				UL RLC SDU size (NOTE 3)	Test data size (NOTE 4)
				DL TFCS Under test	UL TFCS Under test	Implicitly tested	Restricted UL TFCIs (NOTE 2)		
1	1 to 7	10ms, Table 0	4	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
2	1 to 7	10ms, Table 0	4	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312

NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B.
NOTE 2: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI.
NOTE 4: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.

18.3.8.4.4 Test requirements

See 18.2.1.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At steps 17 to 20 the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the sub-test.
3. At step 18 and for each radio bearer where test data is sent in downlink the UE shall return a RLC SDU with same content as sent in downlink. For radio bearers where no data is sent in downlink then no data shall be received in uplink.

18.3.8.5 Streaming or interactive or background / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB + Streaming or interactive or background / UL: [max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] / PS RAB + UL:[max bit rate depending on UE category and TTI] DL:3.4 kbps SRBs for DCCH on E-DCH and DL DCH

18.3.8.5.1 Conformance requirement

See 18.3.8.1.1.

18.3.8.5.2 Test purpose

For the reference radio bearer configuration as specified in TS 34.108, clause 6.11.6.4.7.5:

1. To verify that the UE is able to establish the radio bearer combination.

2 To verify correct data transfer using all the possible MAC-d PDU sizes of the transport channel mapped to E-DCH.

18.3.8.5.3 Method of test

The first Streaming or background or interactive / UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB is referred to as RB5 and the second Streaming or interactive or background UL:[max bit rate depending on UE category and TTI] DL: [max bit rate depending on UE category] kbps / PS RAB is referred to RB6.

The following parameters are specific for this test case and RB5 and RB6:

Parameter	Value
MAC-hs receiver window size	16
HS-DSCH MAC-d PDU size	336

E-DCH Category	RLC Transmission window size
1	512
2	512
3	512
4	512
5	1536
6	1536

HS-DSCH Category	HS-PDSCH Number of HARQ processes	RLC Receiving window size	HS-PDSCH TFRC (NOTE 1)					
			Max MAC-d PDU size	Minimum TBS	Number of MAC-d PDUs	Modulation scheme	Number HS-DSCH timeslots	TFRI
1	2	512	336	357	1	QPSK	1	115
2	2	512	336	357	1	QPSK	1	115
3	3	512	336	357	1	QPSK	1	115
4	3	512	336	357	1	QPSK	1	115
5	3	512	336	357	1	QPSK	1	115
6	3	512	336	357	1	QPSK	1	115
7	3	1536	336	357	1	QPSK	1	115
8	3	1536	336	357	1	QPSK	1	115
9	3	1536	336	357	1	QPSK	1	115
10	3	1536	336	357	1	QPSK	1	115
11	3	2047	336	357	1	QPSK	1	115
12	3	2047	336	357	1	QPSK	1	115
13	3	2047	336	357	1	QPSK	1	115
NOTE 1: The HS-PDSCH TFRC should be selected to enable all test data on DTCH on HS-DSCH to be transmitted in one TTI, i.e. such that the MAC-hs transport block size is bigger than the maximum MAC-d PDU size under test + MAC-hs header size (21 bits). See 18.3.7.1.1 (MAC-d PDU size=336) for recommended TFRC values for different transport block size.								

The generic test procedure in 18.3.1.5 is run for each sub-test.

Sub-tests:

Sub-test	E-DCH Category	E-DPDCH TTI and E-TFCI Table (NOTE 1)	E-DPDCH Number of HARQ processes	UL RLC SDU size (NOTE 2)	Test data size (NOTE 2)
1	1 to 7	10ms, Table 0	4	RB5:312 RB6:312	RB5:312 RB6:312
NOTE 1: E-DPDCH TTI and E-TFCI table according to TS 25.321 Annex B. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. The UL RLC SDU size is set to N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return the data within one UL TTI. NOTE 3: The test data size is for DTCH mapped to E-DCH selected according to the MAC-d PDU size to be tested.					

18.3.8.5.4 Test requirements

See 18.2.1.5 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE shall return a RLC SDU on RB5 and RB6 with same content as sent in downlink.

Annex A (normative): Default RRC Message Contents

The default RRC message contents are provided in clause 9 of 3GPP TS 34.108 [9].

Annex B (informative):
Void

Annex C (normative): Generic Test Procedures to Check UE's State

This section described procedures to check the state of UE. These procedures will only be used in the final step of all RRC test cases. All procedures described in this section shall return an indication to the calling test entity whether or not the UE is in the designated state. In order to use these procedures, the test entity shall call for the test procedure in the test sequence. The test entity shall use the following syntax to call for the desire test procedure:

Call [test procedure index]

where the values of *test procedure index* are defined as:-

C.1 indicates generic test procedure to test that UE is in Idle Mode state.

C.2 indicates generic test procedure to test that UE is in CELL_FACH state.

C.3 indicates generic test procedure to test that UE is in CELL_DCH state.

C.4 indicates generic test procedure to test that UE is in CELL_PCH state.

C.5 indicates generic test procedure to test that UE is in URA_PCH state.

C.1 Verify that UE is in Idle Mode State

C.1.1 Conformance requirement

A UE in idle mode, CELL_PCH state or URA_PCH state shall receive the paging information for all its monitored paging occasions.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

If the UE is in idle mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a CN identity:

2> compare the IE "UE identity" with all of its allocated CN UE identities:

2> if one match is found:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "UE identity" and the IE "Paging cause" to the upper layers.

1> otherwise:

2> ignore that paging record.

In the UE, the initial direct transfer procedure shall be initiated, when the upper layers request establishment of a signalling connection. This request also includes a request for the transfer of a NAS message.

Upon initiation of the initial direct transfer procedure when the UE is in idle mode, the UE shall:

…

1> perform an RRC connection establishment procedure;

…

The UE shall initiate the procedure when upper layers in the UE requests the establishment of a signalling connection and the UE is in idle mode (no RRC connection exists...

Upon initiation of the procedure, the UE shall:

…

1> submit the RRC CONNECTION REQUEST message for transmission on the uplink CCCH;

…

C.1.2 Reference

3GPP TS 25.331 clause 8.1.2.3, 8.1.3.2 and 8.1.8.2.

C.1.3 Test purpose

To test the UE is in idle mode state by confirming that UE responds with RRC CONNECTION REQUEST message after SS pages UE using UE's CN domain identity.

Test Procedure

SS sends a PAGING TYPE 1 using CN domain identity. If UE is in idle mode state, UE shall respond with RRC CONNECTION REQUEST message. Then SS shall transmit RRC CONNECTION SETUP message to request UE to move to CELL_DCH or CELL_FACH. UE shall configure the dedicated channels (in Cell-DCH) or common channels (in Cell-FACH) and then transmit RRC CONNECTION SETUP COMPLETE message. UE shall then transmit INITIAL DIRECT TRANSFER message. Then SS transmit RRC CONNECTION RELEASE message to UE. UE shall transmit RRC CONNECTION RELEASE COMPLETE message to SS.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		←	PAGING TYPE 1 (PCCH)	Using CN domain identity as stored in the TEST USIM
2		→	RRC CONNECTION REQUEST (CCCH)	
3		←	RRC CONNECTION SETUP (CCCH)	Transit to CELL_DCH state or Cell_FACH state
4		→	RRC CONNECTION SETUP COMPLETE (DCCH)	
4a		→	MBMS MODIFICATION REQUEST	Note 1
5	UE			UE transmits RR (PAGING RESPONSE) Or GMM (Service Request)
6		←	RRC CONNECTION RELEASE (DCCH)	
7		→	RRC CONNECTION RELEASE COMPLETE (DCCH)	The UE shall enter idle state.
Note 1: This message is applicable only for MBMS Selected Services and shall be received at any point after receiving RRC CONNECTION SETUP COMPLETE message and before step 6.				

Specific message contents

MBMS MODIFICATION REQUEST (step 4a)

Information Element	Value/remark
MBMS preferred frequency request	Check that the IE is not present
MBMS RB list requested to be released	Check that the IE is not present
MBMS Selected Service Info	
- CHOICE Status	Some
- MBMS Selected Services Full	
- MBMS Selected Service ID	
- MBMS Service ID	MBMS service ID of the activated MBMS service
- CHOICE PLMN identity	Check to see that one of the below choice element is present
- SameAs-MIB	(no data)
- explicitPLMN_Id	Check to see if it is set to the same value as "PLMN ID" in the Master Information block transmitted for the current serving cell.

C.1.4 Test result

If the UE transmits a RRC CONNECTION REQUEST message in step 2, the UE is in idle mode state prior to the start of this test procedure, otherwise UE is not in idle mode state.

C.2 Verify that UE is in CELL_FACH State

C.2.1 Conformance requirement

The UE shall receive and act on an RRC CONNECTION RELEASE message in states CELL_DCH and CELL_FACH.

When the UE receives the first RRC CONNECTION RELEASE message; and

1> if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or

1> if the message is received on DCCH:

the UE shall:

1> in state CELL_FACH:

2> if the RRC CONNECTION RELEASE message was received on the DCCH:

3> set the IE "RRC transaction identifier" in the RRC CONNECTION RELEASE COMPLETE message to the value of "RRC transaction identifier" in the entry for the RRC CONNECTION RELEASE message in the table "Accepted transactions" in the variable TRANSACTIONS;

3> submit an RRC CONNECTION RELEASE COMPLETE message to the lower layers for transmission using AM RLC on the DCCH to the UTRAN.

3> when the successful transmission of the RRC CONNECTION RELEASE COMPLETE message has been confirmed by the lower layers:

4> release all its radio resources; and

4> indicate the release of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers; and

4> clear any entry for the RRC CONNECTION RELEASE message in the tables "Accepted transactions" and "Rejected transactions" in the variable TRANSACTIONS;

4> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

4> clear the variable ESTABLISHED_RABS;

4> pass the value of the IE "Release cause" received in the RRC CONNECTION RELEASE message to upper layers;

4> enter idle mode;

4> perform the actions specified in TS 25.331 subclause 8.5.2 when entering idle mode.

3> and the procedure ends.

C.2.2 Reference

3GPP TS 25.331 clause 8.1.4.3.

C.2.3 Test purpose

To test that the UE is in CELL_FACH state by confirming that UE transmits RRC CONNECTION RELEASE COMPLETE using AM RLC on the UL DCCH when it receives a RRC CONNECTION RELEASE sent by SS using UM RLC on the DL DCCH.

Test Procedure

SS sends an RRC CONNECTION RELEASE using UM RLC on the DL DCCH. UE shall respond with RRC CONNECTION RELEASE COMPLETE using AM RLC on the UL DCCH

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		RRC CONNECTION RELEASE (DCCH)	
2	→		RRC CONNECTION RELEASE COMPLETE (DCCH-AM)	The UE shall enter idle state.

Specific message contents

None.

C.2.4 Test result

If UE transmits a RRC CONNECTION RELEASE COMPLETE message using AM RLC in step 2, the UE is in CELL_FACH state prior to the start of this procedure, otherwise, the UE is not in CELL_FACH state.

C.3 Verify that UE is in CELL_DCH State

C.3.1 Conformance requirement

The UE shall receive and act on an RRC CONNECTION RELEASE message in states CELL_DCH and CELL_FACH.

When the UE receives the first RRC CONNECTION RELEASE message; and

1> if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or

1> if the message is received on DCCH:

the UE shall:

1> in state CELL_DCH:

2> initialise the counter V308 to zero;

2> set the IE "RRC transaction identifier" in the RRC CONNECTION RELEASE COMPLETE message to the value of "RRC transaction identifier" in the entry for the RRC CONNECTION RELEASE message in the table "Accepted transactions" in the variable TRANSACTIONS;

2> submit an RRC CONNECTION RELEASE COMPLETE message to the lower layers for transmission using UM RLC on the DCCH to the UTRAN;

2> if the IE "Rplmn information" is present:

3> the UE may:

4> store the IE on the ME together with the PLMN id for which it applies;

3> the UE may then:

4> utilise this information, typically indicating where a number of BCCH frequency ranges of a RAT may be expected to be found, during subsequent Rplmn selections of the indicated PLMN.

2> start timer T308 when the RRC CONNECTION RELEASE COMPLETE message is sent on the radio interface.

C.3.2 Reference

3GPP TS 25.331 clause 8.1.4.3.

C.3.3 Test purpose

To test that the UE is in CELL_DCH state by confirming that UE transmits RRC CONNECTION RELEASE COMPLETE using UM RLC on the UL DCCH when it receives a RRC CONNECTION RELEASE sent by SS using UM RLC on the DL DCCH.

Test Procedure

SS sends an RRC CONNECTION RELEASE using UM RLC on the DL DCCH. UE shall respond with RRC CONNECTION RELEASE COMPLETE using UM RLC on the UL DCCH.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		RRC CONNECTION RELEASE (DCCH)	
2	→		RRC CONNECTION RELEASE COMPLETE (DCCH-UM)	The UE shall enter idle state.

Specific message contents

None.

C.3.4 Test result

If UE transmits a RRC CONNECTION RELEASE COMPLETE message using UM RLC in step 2, the UE is in CELL_DCH state prior to the start of this procedure, otherwise, the UE is not in CELL_DCH state.

C.4 Verify that UE is in CELL_PCH State

C.4.1 Conformance requirement

A UE in URA_PCH state shall initiate the URA update procedure in the following cases:

1> URA reselection:

2> if the UE detects that the current URA assigned to the UE, stored in the variable URA_IDENTITY, is not present in the list of URA identities in system information block type 2

System information block	Area scope	UE mode/state when block is valid	UE mode/state when block is read	Scheduling information	Modification of system information	Additional comment
System information block type 2	Cell	URA_PCH	URA_PCH	Specified by the IE "Scheduling information"	Value tag	

…

A UE in idle mode, CELL_PCH state or URA_PCH state shall receive the paging information for all its monitored paging occasions. When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

If the UE is in connected mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a UTRAN identity and if this U-RNTI is the same as the U-RNTI allocated to the UE:

2> if the optional IE "CN originated page to connected mode UE" is included:

3> indicate reception of paging; and

3> forward the IE "CN domain identity", the IE "Paging cause" and the IE "Paging record type identifier" to the upper layers.

2> otherwise:

3> perform a cell update procedure with cause "paging response".

2> ignore any other remaining IE "Paging record" that may be present in the message.

1> otherwise:

2> ignore that paging record.

C.4.2 Reference

3GPP TS 25.331 clause 7.2.2, 8.3.1.2, 8.1.1.1.2.

C.4.3 Test purpose

To confirm that the UE does not read SIB 2 when it receives a PAGING TYPE 1 message that notifies the UE about the modification of the system information.

Subsequently, to confirm that the UE performs a cell update procedure after receiving a PAGING TYPE 1 message containing UE's UTRAN identity.

Test Procedure

Firstly, SS shall modify the URA identity in the SIB 2. Then SS shall transmit a PAGING TYPE 1 message to UE to notify UE of the modification of the system information. Then SS wait for x seconds to see if UE send any uplink messages. Next SS shall transmit a PAGING TYPE 1 message to page UE. UE shall transmit a CELL UPDATE message. When SS receives the CELL UPDATE message, SS sends RRC CONNECTION RELEASE message to UE on downlink CCCH.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		←	SYSTEM INFORMATION BLOCK TYPE 2	SS changes the URA identity to be different from the one stored in the UE.
2		←	PAGING TYPE 1	If UE replies to this message, the test fails. SS monitors the uplink activities for 15 s(See Note).
3		←	PAGING TYPE 1	This message contains the UTRAN identity of the UE.
4		→	CELL UPDATE	Check that the cell update cause is set to "paging response".
5		←	RRC CONNECTION RELEASE (CCCH)	

NOTE: The SS shall wait until UE can read all SIBs and can listen to the PCCH on the paging occasion.

SIB Repetition (1280 ms in TS34.108) * 2 + Maximum DRX cycle length(2^9 * 10 ms) * 2 = 2.56 + 10.24 < 15 s

Specific message contents

System Information Block type 2 (Step 1)

Information Element	Value/remark
- URA identity list - URA identity	 Set to a value different from the one store in the UE.

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type Paging record list BCCH modification info - MIB Value Tag - BCCH modification time	 Not Present A valid value (as defined in TS 25.331) that is different from the previous MIB. Not Present

PAGING TYPE 1 (Step 3)

Information Element	Value/remark
Message Type Paging record list - Paging record - CHOICE Used paging identity - U-RNTI - CN originated page to connected mode UE BCCH modification info	 UTRAN identity Same as the identity of the UE. Not Present Not Present

CELL UPDATE (Step 4)

Use the same message sub-type found in clause 9 of TS 34.108, with the exception of the following IEs:

Information Element	Value/remark
Cell Update Cause	Check to see if set to 'utran paging response'
Establishment cause	Checked to see if it is absent

RRC CONNECTION RELEASE (Step 5)

Use the same message sub-type found in clause 9 of TS 34.108.

C.4.4 Test result

After step 2, the UE shall not transmit URA UPDATE message to indicate to the SS of the change in the URA identity, otherwise the UE is not is CELL_PCH state.

After step 3, the UE shall transmit CELL UPDATE message with cell update cause set to “utran paging response” to SS, otherwise the UE is not is CELL_PCH state.

C.5 Verify that UE is in URA_PCH State

C.5.1 Conformance requirement

A UE in URA_PCH state shall initiate the URA update procedure in the following cases:

1> URA reselection:

2> if the UE detects that the current URA assigned to the UE, stored in the variable URA_IDENTITY, is not present in the list of URA identities in system information block type 2.

System information block	Area scope	UE mode/state when block is valid	UE mode/state when block is read	Scheduling information	Modification of system information	Additional comment
System information block type 2	Cell	URA_PCH	URA_PCH	Specified by the IE "Scheduling information"	Value tag	

C.5.2 Reference

3GPP TS 25.331 clause 7.2.2, 8.3.1.2, 8.1.1.1.2.

C.5.3 Test purpose

To confirm that the UE reads SIB 2 when it receives a PAGING TYPE 1 message that notifies the UE about the modification of the system information.

Test Procedure

Firstly, SS shall modify the URA identity in the SIB 2. Then SS shall transmit a PAGING TYPE 1 message to UE to notify UE of the modification of the system information. UE shall transmit a URA UPDATE message. When SS receives the URA UPDATE message, SS sends RRC CONNECTION RELEASE message to UE on downlink CCCH.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		←	SYSTEM INFORMATION BLOCK TYPE 2	SS changes the URA identity to be different from the one stored in the UE.
2		←	PAGING TYPE 1	
3		→	URA UPDATE	Check that the URA update cause is set to “change of URA”.
4		←	RRC CONNECTION RELEASE (CCCH)	

Specific message contents

System Information Block type 2 (Step 1)

Information Element	Value/remark
- URA identity list	
- URA identity	Set to a value different from the one store in the UE.

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
- MIB Value Tag	A valid value (as defined in TS 25.331) that is different from the previous MIB.
- BCCH modification time	Not Present

URA UPDATE (Step 3)

Use the same message sub-type found in clause 9 of TS 34.108, with the exception of the following IEs:

Information Element	Value/remark
URA Update Cause	Check to see if set to 'change of URA'

RRC CONNECTION RELEASE (Step 4)

Use the same message sub-type found in clause 9 of TS 34.108.

C.5.4 Test result

After step 2, the UE shall transmit URA UPDATE message with URA update cause set to “change of URA” to SS, otherwise the UE is not is URA_PCH state.

Annex D (normative): Generic procedure to use before and following inter-RAT handover/cell change order signalling test cases

Please note that the following procedures are applicable the default NMO in GERAN (NMO1) and UTRAN (NMO1).

D.1 Preamble for UTRAN to GERAN test cases

Before running inter-RAT test cases, radio conditions should be such that the mobile has to select the cell of the intended original RAT. The following steps should be used before running UTRAN to GERAN test cases.

GERAN cell is powered OFF. The default radio conditions for a suitable UTRAN cell (in a single cell environment) are used, as defined in 34.108 clause 6.1.5. This step is performed while the UE is still switched OFF.

UE is switched ON and performs registration and attach

1. The GSM cell is powered ON with an RF level such that the cell is suitable, using the RF conditions defined in 34.108 clause 6.1.7 for the suitable neighbour cell, so that the UE will not re-select the GSM cell.

D.2 Postamble to be used following for inter-RAT handover / cell change order test cases

The following procedure is used after inter-RAT handover or cell change order test cases (UTRAN to GERAN) in case the test needs to be performed multiple times in a loop.

D.2.1 UTRAN to GERAN handover in CS

These test cases are defined in 34.123-1 clause 8.3.7.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	-->		ROUTING AREA UPDATE REQUEST	GMM - Update type = 'RA updating'. This is only performed for GPRS Class A mobiles.
2	<--		ROUTING AREA UPDATE ACCEPT	GMM. This step only applies for GPRS Class A mobiles. P-TMSI is included.
3	-->		ROUTING AREA UPDATE COMPLETE	
4				The call is terminated. SS releases the RR connection.
5	-->		ROUTING AREA UPDATE REQUEST	GMM - "update type" = 'combined RA/LA updating' or 'combined RA/LA updating with IMSI attach'. This step is performed by both class A and B mobiles. Note: CS only mobiles will perform LAU procedure.
6	<--		ROUTING AREA UPDATE ACCEPT	GMM. P-TMSI is included.
7	-->		ROUTING AREA UPDATE COMPLETE	
8				SS releases the RR connection
9				UE is powered OFF

D.2.2 UTRAN to GERAN handover in CS+PS

These test cases are defined in 34.123-1 clause 8.3.7.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	-->		ROUTING AREA UPDATE REQUEST	GMM - Update type = 'RA updating'. This is only performed for GPRS Class A mobiles.
2	<--		ROUTING AREA UPDATE ACCEPT	GMM. P-TMSI is included
3	-->		ROUTING AREA UPDATE COMPLETE	
4				The call and the PS session are terminated. SS releases the RR connection.
5	-->		ROUTING AREA UPDATE REQUEST	GMM - "update type" = 'combined RA/LA updating' or 'combined RA/LA updating with IMSI attach'
6	<--		ROUTING AREA UPDATE ACCEPT	GMM. P-TMSI is included
7	-->		ROUTING AREA UPDATE COMPLETE	
8				SS releases the RR connection
9				UE is powered OFF

D.2.3 UTRAN to GERAN cell change in PS (in PMM-CONNECTED)

These test cases are defined in 34.123-1 clause 8.3.11.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	-->		ROUTING AREA UPDATE REQUEST	MM - "update type" = 'combined RA/LA updating' for class A or B mobiles, and 'RA updating' for class C mobiles. Follow-on request is made
2	<--		ROUTING AREA UPDATE ACCEPT	GMM. P-TMSI is included
3	-->		ROUTING AREA UPDATE COMPLETE	
4				UE is powered OFF

Annex E (informative): Change history

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
TP-08				Approval of the specification		2.0.0	3.0.0	
TP-09	TP-000135	001		Idle mode test cases	F	3.0.0	3.1.0	T1-000165
TP-09	TP-000135	002		Section 8, RRC Tests: RLCSize	C	3.0.0	3.1.0	T1-000169
TP-09	TP-000135	003		Section 8, RRC Tests: HFN	C	3.0.0	3.1.0	T1-000170
TP-09	TP-000135	004		Section 8, RRC Tests: RLCParam	C	3.0.0	3.1.0	T1-000171
TP-09	TP-000135	005		Section 8, RRC Tests: RBIdentity	C	3.0.0	3.1.0	T1-000172
TP-09	TP-000135	006		Section 8, RRC Tests: TrCHParam	C	3.0.0	3.1.0	T1-000173
TP-09	TP-000135	007		Section 8, RRC Tests: UECapability	C	3.0.0	3.1.0	T1-000174
TP-09	TP-000135	008		Section 8, RRC Tests: RBMapping	C	3.0.0	3.1.0	T1-000175
TP-09	TP-000135	009		Section 8, RRC Tests: PagingCause	C	3.0.0	3.1.0	T1-000176
TP-09	TP-000135	010		Section 8, RRC Tests: RRCConnRelease-TM	B	3.0.0	3.1.0	T1-000177
TP-09	TP-000135	011		Section 8, RRC Tests: SignallingRelease	B	3.0.0	3.1.0	T1-000178
TP-09	TP-000135	012		Section 8, RRC Tests: CipheringAndIntegrity	C	3.0.0	3.1.0	T1-000179
TP-09	TP-000135	013		Section 8, RRC Tests: Countercheck_rev	B	3.0.0	3.1.0	T1-000180
TP-09	TP-000135	014		Section 8, RRC Tests: RLCInfo	C	3.0.0	3.1.0	T1-000181
TP-09	TP-000135	015		Section 8, RRC Tests: CompressedMode	C	3.0.0	3.1.0	T1-000182
TP-09	TP-000135	016		Section 8, RRC Tests: SIB	F	3.0.0	3.1.0	T1-000183
TP-09	TP-000135	017		Section 8, RRC Tests: PhyCH	D	3.0.0	3.1.0	T1-000184
TP-09	TP-000135	018		Section 8, RRC Tests: Measurement	C	3.0.0	3.1.0	T1-000185
TP-09	TP-000135	019		Section 8, RRC Tests: FailureCases	C	3.0.0	3.1.0	T1-000186
TP-09	TP-000135	020		Section 8, RRC Tests: TFCS	C	3.0.0	3.1.0	T1-000187
TP-09	TP-000135	021		Section 8, RRC Tests: DPCHFrameOffset	C	3.0.0	3.1.0	T1-000188
TP-09	TP-000135	022		Section 8, RRC Tests: ReEstablishmentTimer	C	3.0.0	3.1.0	T1-000189
TP-09	TP-000135	023		Section 8, RRC Tests: InterFrequencyHardHandOver	F	3.0.0	3.1.0	T1-000206
TP-09	TP-000135	024		clause 12.4.1.5 "Routing area updating / abnormal cases / attempt counter check / miscellaneous reject causes"	C	3.0.0	3.1.0	T1-000211
TP-09	TP-000135	025		SM test cases	C	3.0.0	3.1.0	T1-000208
TP-09	TP-000135	026		MM: Authentication	F	3.0.0	3.1.0	T1-000207
TP-09	TP-000135	027		Update of radio bearer test cases (aligned to GSMA ISG version 1.3)	F	3.0.0	3.1.0	T1-000213
TP-09	TP-000135	028		MAC tests	B	3.0.0	3.1.0	T1-000218
TP-09	TP-000135	029		PDCP tests	B	3.0.0	3.1.0	T1-000166
TP-09	TP-000135	030		BMC tests	B	3.0.0	3.1.0	T1-000167
TP-09	TP-000135	031		RRC updates	F	3.0.0	3.1.0	T1-000168
TP-09	TP-000135	032		clause 12.6.1.2 "Authentication rejected"	F	3.0.0	3.1.0	T1-000210
TP-09	TP-000135	033		clause 12.6 "PS authentication and ciphering"	C	3.0.0	3.1.0	T1-000209
TP-10	TP-000218	034		Application of integrity mode protection to signalling message by default	F	3.1.0	3.2.0	T1-000297
TP-10	TP-000218	035		New test cases for CS intersystem handover	B	3.1.0	3.2.0	T1-000300
TP-10	TP-000218	036		CR to 34.123-1, Annex B, Mapping of test cases to core specification versions	D	3.1.0	3.2.0	T1-000319
TP-10	TP-000218	037		Application of ciphering during conformance testing and changes to integrity mode protection related messages	C	3.1.0	3.2.0	T1-000286
TP-10	TP-000218	038		Idle Mode test cases in chapter 6	F	3.1.0	3.2.0	T1-000288
TP-10	TP-000218	039		Update to RLC test cases	F	3.1.0	3.2.0	T1-000301
TP-10	TP-000218	040		Technical Corrections to RRC test cases in clause 8	F	3.1.0	3.2.0	T1-000292
TP-10	TP-000218	041		Updates to clause 8 and Annex A due to RAN2 core specifications modifications	C	3.1.0	3.2.0	T1-000293
TP-10	TP-000218	042		Editorial modification for CC test cases (Clause 10)	D	3.1.0	3.2.0	T1-000289
TP-10	TP-000218	043		Update of radio bearer test cases	F	3.1.0	3.2.0	T1-000290
TP-10	TP-000218	044		Update of Session Management test cases	B	3.1.0	3.2.0	T1-000298
TP-10	TP-000218	045		Modification to the “Authentication rejected by the UE” test case	F	3.1.0	3.2.0	T1-000308
TP-10	TP-000218	046		Update to 16. SMS test specification	F	3.1.0	3.2.0	T1-000309
TP-10	TP-000218	047		Correction to MM tests	D	3.1.0	3.2.0	T1-000310
TP-11	TP-010021	048		Idle mode test cases	F	3.2.0	3.3.0	T1-010076
TP-11	TP-010021	049		Updates to clause 8 of TS 34.123-1 version 3.2.0	F	3.2.0	3.3.0	T1-010106
TP-11	TP-010021	050		Update to GMM test case.	F	3.2.0	3.3.0	T1-010086
TP-11	TP-010021	051		Update to 16. SMS test specification	D	3.2.0	3.3.0	T1-010090
TP-11	TP-010021	052		Annex B: Update of versions of core specifications	F	3.2.0	3.3.0	T1-010091
TP-12	TP-010121	053		Idle mode tests	F	3.3.0	3.4.0	T1-010167

Meeting -1st- Level	Doc-1st- Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd- Level
TP-12	TP-010121	054		Clause 7.2: Update of RLC tests to 25.322 v3.5.0	F	3.3.0	3.4.0	T1-010170
TP-12	TP-010121	055		Corrections to Clause 7.2: RLC test case updates	F	3.3.0	3.4.0	T1-010171
TP-12	TP-010121	056		Corrections to clause 7.3 PDCP	F	3.3.0	3.4.0	T1-010173
TP-12	TP-010121	057		Corrections to clause 7.4 BMC	F	3.3.0	3.4.0	T1-010174
TP-12	TP-010121	058		7.1 Update to MAC test cases	F	3.3.0	3.4.0	T1-010175
TP-12	TP-010121	059		Modifications to the functional testing of CPCH related UE test cases	C	3.3.0	3.4.0	T1-010176
TP-12	TP-010121	060		Transmission RLC discard	F	3.3.0	3.4.0	T1-010178
TP-12	TP-010121	061		Updates to RRC test case	F	3.3.0	3.4.0	T1-010179
TP-12	TP-010121	062		Deletion of intersystem handover tests GERAN to UTRAN	F	3.3.0	3.4.0	T1-010181
TP-12	TP-010121	063		Corrections to CC test cases	F	3.3.0	3.4.0	T1-010183
TP-12	TP-010121	064		Corrections to Emergency call test cases	F	3.3.0	3.4.0	T1-010184
TP-12	TP-010121	065		Corrections to test of autocalling restrictions	F	3.3.0	3.4.0	T1-010185
TP-12	TP-010121	066		Corrections to call re-establishment tests in CC	F	3.3.0	3.4.0	T1-010187
TP-12	TP-010121	067		MM test case update	F	3.3.0	3.4.0	T1-010189
TP-12	TP-010121	068		CR to 34.123-1	F	3.3.0	3.4.0	T1-010193
TP-12	TP-010121	069		SMS Update	F	3.3.0	3.4.0	T1-010194
TP-12	TP-010121	070		SMS test specification	F	3.3.0	3.4.0	T1-010196
TP-12	TP-010121	071		Update to GMM test cases	F	3.3.0	3.4.0	T1-010235
TP-12	TP-010121	072		GMM service request test cases	F	3.3.0	3.4.0	T1-010236
TP-12	TP-010121	073		GMM authentication reject test cases	F	3.3.0	3.4.0	T1-010237
TP-12	TP-010121	074		Modifications to Clause 12 (GMM)	F	3.3.0	3.4.0	T1-010202
TP-12	TP-010121	075		Correction in test case 11.1, because of problems in core-specs	F	3.3.0	3.4.0	T1-010203
TP-12	TP-010121	076		Procedure and Expected Sequence Corrections to 11.1.2.	F	3.3.0	3.4.0	T1-010204
TP-12	TP-010121	077		Adding section for multi-layer functional testing	D	3.3.0	3.4.0	T1-010207
TP-12	TP-010121	078		Update of interoperability radio bearer test cases	F	3.3.0	3.4.0	T1-010208
TP-12	TP-010121	079		CR to TS 34.123-1 Update of Table B/1	D	3.3.0	3.4.0	T1-010217
TP-13	TP-010186	080		Parameters update and Editorial corrections in clauses 7.2.3.1, 7.2.3.2.1, 7.2.3.23, 7.2.3.24	F	3.4.0	3.5.0	T1-010292
TP-13	TP-010186	081		Corrections to Clause 13 General Tests	F	3.4.0	3.5.0	T1-010293
TP-13	TP-010186	082		Modification in "Method of Test" for RBS test cases in Clause 14	F	3.4.0	3.5.0	T1-010294
TP-13	TP-010186	083		Editorial modification for References	F	3.4.0	3.5.0	T1-010295
TP-13	TP-010186	084		Clause 7.3, PDCP tests	F	3.4.0	3.5.0	T1-010378
TP-13	TP-010186	085		Idle mode: Merge of T1S-010180 and 188	F	3.4.0	3.5.0	T1-010297
TP-13	TP-010186	086		clause 7.4 BMC: editorial correction	F	3.4.0	3.5.0	T1-010379
TP-13	TP-010186	087		Clause 7.1, MAC test cases	F	3.4.0	3.5.0	T1-010299
TP-13	TP-010186	088		Corrections to RLC test case 7.2.2.2	F	3.4.0	3.5.0	T1-010300
TP-13	TP-010186	089		Corrections to RLC test case 7.2.2.3	F	3.4.0	3.5.0	T1-010301
TP-13	TP-010186	090		Corrections to RLC test case 7.2.2.8	F	3.4.0	3.5.0	T1-010302
TP-13	TP-010186	091		Corrections to RLC test case 7.2.2.10	F	3.4.0	3.5.0	T1-010303
TP-13	TP-010186	092		Corrections to RLC test case 7.2.2.9	F	3.4.0	3.5.0	T1-010304
TP-13	TP-010186	093		Corrections to RLC test case 7.2.2.12	F	3.4.0	3.5.0	T1-010305
TP-13	TP-010186	094		Corrections to RLC test case 7.2.2.29	F	3.4.0	3.5.0	T1-010306
TP-13	TP-010186	095		Corrections to RLC test case 7.2.2.30	F	3.4.0	3.5.0	T1-010307
TP-13	TP-010186	096		Corrections to RLC test case 7.2.2.33	F	3.4.0	3.5.0	T1-010308
TP-13	TP-010186	097		Corrections to RLC test case 7.2.2.34	F	3.4.0	3.5.0	T1-010309
TP-13	TP-010186	098		Updates to clause 8 and Annex A	F	3.4.0	3.5.0	T1-010310
TP-13	TP-010186	099		RRC tests (section 8)	F	3.4.0	3.5.0	T1-010311
TP-13	TP-010186	100		InterSystemHandover tests (section 8.3.7)	F	3.4.0	3.5.0	T1-010312
TP-13	TP-010186	101		Update on Mobility Management	F	3.4.0	3.5.0	T1-010313
TP-13	TP-010186	102		Addition of a SM test case for UE in GSM	F	3.4.0	3.5.0	T1-010314
TP-13	TP-010186	103		Clause 12 "Elementary procedure for Packet Switched Mobility Management"(GMM)	F	3.4.0	3.5.0	T1-010315
TP-13	TP-010186	104		Update of radio bearer test cases	F	3.4.0	3.5.0	T1-010316
TP-13	TP-010186	105		SMS test specification	F	3.4.0	3.5.0	T1-010317
TP-13	TP-010186	106		RACH Test Procedures for 1.28 Mcps TDD (Rel-4)	F	3.4.0	4.0.0	T1-010318
TP-13	TP-010186	107		Corrections to RLC test case 7.2.2.14	F	3.4.0	3.5.0	T1-010319
TP-13	TP-010186	108		Corrections to RLC test case 7.2.2.7 and 7.2.2.13	F	3.4.0	3.5.0	T1-010320
TP-13	TP-010186	109		RLC acknowledge mode test cases 7.2.3.14 and 7.2.3.34	F	3.4.0	3.5.0	T1-010321
TP-13	TP-010186	110		Merging of Rel4 and R99 protocol test specifications	F	3.4.0	4.0.0	T1-010272
TP-13	TP-010189	112		Update of Annex B	F	3.4.0	3.5.0	----
TP-14	TP-010261	113		Clause 7.3: PDCP testing: additional configuration information	F	4.0.0	4.1.0	T1-010406
TP-14	TP-010261	114		Clause 7.4: BMC testing: update for BMC testing	F	4.0.0	4.1.0	T1-010407
TP-14	TP-010261	115		Clause 7.2: Update of UM and AM RLC test cases	F	4.0.0	4.1.0	T1-010408
TP-14	TP-010261	116		Idle mode tests (34.123-1)	F	4.0.0	4.1.0	T1-010409

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
TP-14	TP-010261	117		Removal of TBD Power Levels in section 6	F	4.0.0	4.1.0	T1-010410
TP-14	TP-010261	118		Idle Mode Test Parameters for Multi-mode environment (2G/3G) TDD	F	4.0.0	4.1.0	T1-010411
TP-14	TP-010261	119		Traffic Volume Measurement test cases (34.123-1 section 8.4)	F	4.0.0	4.1.0	T1-010412
TP-14	TP-010261	120		New interRAT test cases	F	4.0.0	4.1.0	T1-010413
TP-14	TP-010261	121		Corrections to Annex A	F	4.0.0	4.1.0	T1-010414
TP-14	TP-010261	122		Clause 12 Packet Switched Mobility Management	F	4.0.0	4.1.0	T1-010415
TP-14	TP-010261	123		Update to GMM test cases	F	4.0.0	4.1.0	T1-010416
TP-14	TP-010261	124		Update of interoperability radio bearer test cases for FDD.	F	4.0.0	4.1.0	T1-010417
TP-14	TP-010261	125		Update to SMS test specification	F	4.0.0	4.1.0	T1-010418
TP-14	TP-010261	126		Corrections to RRC test cases	F	4.0.0	4.1.0	T1-010419
TP-14	TP-010261	127		RRC Connection Management Procedure Tests for the TDD options	F	4.0.0	4.1.0	T1-010420
TP-14	TP-010261	128		Annex A Default RRC Message Contents for 1.28Mcps TDD Mode	F	4.0.0	4.1.0	T1-010421
TP-14	TP-010261	129		Radio Bearer Tests for 1.28 Mcps TDD Mode	F	4.0.0	4.1.0	T1-010422
TP-15	TP-020041	130		Correction to Annex A	F	4.1.0	4.2.0	T1-020037
TP-15	TP-020041	131		Update of Idle mode tests	F	4.1.0	4.2.0	T1-020038
TP-15	TP-020041	132		Update to GMM test cases	F	4.1.0	4.2.0	T1-020039
TP-15	TP-020041	133		Corrections to RRC test cases, 8.2.2 onwards	F	4.1.0	4.2.0	T1-020040
TP-15	TP-020041	134		Corrections to Annex A	F	4.1.0	4.2.0	T1-020041
TP-15	TP-020041	135		Clause 7.3, PDCP testing: Update	F	4.1.0	4.2.0	T1-020042
TP-15	TP-020041	136		Corrections to clause 8.1	F	4.1.0	4.2.0	T1-020043
TP-15	TP-020041	137		Correction to RRC test cases	F	4.1.0	4.2.0	T1-020044
TP-15	TP-020041	138		Corrections to Measurement test cases	F	4.1.0	4.2.0	T1-020045
TP-15	TP-020042	139		Additional test case for packet	F	4.1.0	4.2.0	T1-020046
TP-15	TP-020041	140		Changes to MAC conformance test 7.1.1.1	F	4.1.0	4.2.0	T1-020047
TP-15	TP-020041	141		Changes to MAC conformance test 7.1.1.2	F	4.1.0	4.2.0	T1-020048
TP-15	TP-020041	142		Changes to MAC conformance test 7.1.1.3	F	4.1.0	4.2.0	T1-020049
TP-15	TP-020041	143		Changes to MAC conformance test 7.1.1.4	F	4.1.0	4.2.0	T1-020050
TP-15	TP-020041	144		Changes to MAC conformance test 7.1.1.5	F	4.1.0	4.2.0	T1-020051
TP-15	TP-020041	145		Changes to MAC conformance test 7.1.1.8	F	4.1.0	4.2.0	T1-020052
TP-15	TP-020041	146		Changes to MAC conformance test 7.1.2.2.1	F	4.1.0	4.2.0	T1-020053
TP-15	TP-020041	147		Changes to MAC conformance test 7.1.2.4	F	4.1.0	4.2.0	T1-020054
TP-15	TP-020041	148		Changes to MAC conformance test 7.1.2.5	F	4.1.0	4.2.0	T1-020055
TP-15	TP-020041	149		Changes to MAC conformance test 7.1.3.1	F	4.1.0	4.2.0	T1-020056
TP-15	TP-020041	150		Changes to RLC conformance test 7.2.3.20	F	4.1.0	4.2.0	T1-020057
TP-15	TP-020041	151		Changes to RLC conformance test 7.2.3.25	F	4.1.0	4.2.0	T1-020058
TP-15	TP-020041	152		Modifications on Session Management test case 11.1.1.1	F	4.1.0	4.2.0	T1-020059
TP-15	TP-020041	153		Modifications on Session Management test case 11.1.2	F	4.1.0	4.2.0	T1-020060
TP-15	TP-020041	154		Section 8.1 Connection Management Procedure (TDD both modes)	F	4.1.0	4.2.0	T1-020061
TP-15	TP-020041	155		Modification on Session Management test case 11.1.3.2	F	4.1.0	4.2.0	T1-020062
TP-15	TP-020041	156		Modifications of MM test cases	F	4.1.0	4.2.0	T1-020063
TP-15	TP-020042	157		Update of RB test cases	F	4.1.0	4.2.0	T1-020064
TP-15	TP-020041	158		Section 8.2 Radio Bearer Control Procedure (TDD both modes)	F	4.1.0	4.2.0	T1-020065
TP-15	TP-020041	159		Correction of MAC conformance test 7.1.2.1.1	F	4.1.0	4.2.0	T1-020089
TP-15	TP-020041	160		Correction of MAC conformance test 7.1.2.3.1	F	4.1.0	4.2.0	T1-020090
TP-15	TP-020042	161		Additional Measurement Control and Report test cases	F	4.1.0	4.2.0	T1-020111
TP-15	TP-020042	162		Clause 8.4.1 Measurement Control and Report	F	4.1.0	4.2.0	T1-020112
TP-15	TP-020042	163		Additional test cases for inter-RAT measurements and UE internal measurements	F	4.1.0	4.2.0	T1-020113
TP-15	TP-020042	164		Addition of test case for Inter-RAT measurement, event 3C, in CELL_DCH state using sparse compressed mode pattern	F	4.1.0	4.2.0	T1-020114
TP-15	TP-020042	165		Clause 6.1.2.8 Cell reselection : Equivalent PLMN	F	4.1.0	4.2.0	T1-020115
TP-15	TP-020042	166		Additional test cases for shared networks	F	4.1.0	4.2.0	T1-020116
TP-15	TP-020042	167		Deletion of Equivalent PLMN list in UE	F	4.1.0	4.2.0	T1-020117
TP-15	TP-020042	168		ePLMN list storage at power off	F	4.1.0	4.2.0	T1-020118
TP-15	TP-020042	169		Interaction of ePLMNs and forbidden PLMNs	F	4.1.0	4.2.0	T1-020119
TP-15	TP-020042	170		PLMN interaction with Manual Mode	F	4.1.0	4.2.0	T1-020120
TP-15	TP-020042	171		Clause 8.3 HCS cell reselection	F	4.1.0	4.2.0	T1-020121
TP-15	TP-020042	172		Clause 8.3.7.13 Inter system handover from UTRAN/To GSM/ success / call under establishment	F	4.1.0	4.2.0	T1-020122

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
TP-15	TP-020042	173		Additional test cases for Physical Channel Reconfiguration from CELL_FACH to CELL_PCH or URA_PCH	F	4.1.0	4.2.0	T1-020123
TP-15	TP-020042	174		Additional test cases for Transport channel Reconfiguration from CELL_FACH to CELL_PCH or URA_PCH	F	4.1.0	4.2.0	T1-020124
TP-15	TP-020042	175		Additional test case for RRC connection establishment on another frequency	F	4.1.0	4.2.0	T1-020125
TP-15	TP-020042	176		Additional test case for UE response to changes of System Information data and structure	F	4.1.0	4.2.0	T1-020126
TP-16	TP-020143	177		Modifications of MM test cases	F	4.2.0	4.3.0	T1-020302
TP-16	TP-020143	178		Update to GMM test cases	F	4.2.0	4.3.0	T1-020303
TP-16	TP-020143	179		Correction to clause 8.3 except for Package 1 of TS34.123-1	F	4.2.0	4.3.0	T1-020304
TP-16	TP-020143	180		Update of L2/PDCP testing in alignment to March version 2002	F	4.2.0	4.3.0	T1-020305
TP-16	TP-020142	181		Correction to MAC conformance test 7.1.2.4a	F	4.2.0	4.3.0	T1-020306
TP-16	TP-020142	182		Correction to MAC conformance test 7.1.2.5	F	4.2.0	4.3.0	T1-020307
TP-16	TP-020142	183		Correction to MAC conformance test 7.1.2.1.1	F	4.2.0	4.3.0	T1-020308
TP-16	TP-020142	184		Correction to MAC conformance test 7.1.1.1	F	4.2.0	4.3.0	T1-020309
TP-16	TP-020142	185		General clarification of MAC testing conditions	F	4.2.0	4.3.0	T1-020310
TP-16	TP-020142	186		Correction to MAC conformance test 7.1.1.8	F	4.2.0	4.3.0	T1-020311
TP-16	TP-020142	187		Correction to MAC conformance test 7.1.1.5	F	4.2.0	4.3.0	T1-020312
TP-16	TP-020142	188		Correction to MAC conformance test 7.1.1.4	F	4.2.0	4.3.0	T1-020313
TP-16	TP-020142	189		Correction to MAC conformance test 7.1.1.3	F	4.2.0	4.3.0	T1-020314
TP-16	TP-020142	190		Correction to MAC conformance test 7.1.1.2	F	4.2.0	4.3.0	T1-020315
TP-16	TP-020142	191		Correction to test 7.2.3.12	F	4.2.0	4.3.0	T1-020316
TP-16	TP-020142	192		Correction to test 7.2.3.18	F	4.2.0	4.3.0	T1-020317
TP-16	TP-020142	193		Correction to test 7.2.3.4	D	4.2.0	4.3.0	T1-020318
TP-16	TP-020143	194		Correction to RLC test case 7.2.3.28	F	4.2.0	4.3.0	T1-020319
TP-16	TP-020142	195		Clause 6; Updates to test cases for idle mode operations	F	4.2.0	4.3.0	T1-020320
TP-16	TP-020142	196		Correction to clause 8.2 for Package 1 of TS34.123-1	F	4.2.0	4.3.0	T1-020321
TP-16	TP-020143	197		Clarification of messages sequences in MM test case 9.4.1.	F	4.2.0	4.3.0	T1-020322
TP-16	TP-020142	198		Correction to test cases 9.2.3 and 9.2.4	F	4.2.0	4.3.0	T1-020323
TP-16	TP-020143	199		Update to CC test cases	F	4.2.0	4.3.0	T1-020324
TP-16	TP-020143	200		Removal of TC9.5.3 MM connection / establishment in non-security mode	F	4.2.0	4.3.0	T1-020325
TP-16	TP-020142	201		Correction of layer 2 setting for TM RBs , segmentation indication	F	4.2.0	4.3.0	T1-020326
TP-16	TP-020142	202		Clause 14: Update of radio bearer test cases 14.2.39.x and 14.2.40 (introducing new RB test method)	F	4.2.0	4.3.0	T1-020327
TP-16	TP-020142	203		Clause 14; Update of stand-alone signalling radio bearer test cases	F	4.2.0	4.3.0	T1-020328
TP-16	TP-020143	204		Correction of abbreviations reference	F	4.2.0	4.3.0	T1-020329
TP-16	TP-020143	205		Correction to clause 8.2 except for Package 1 of TS34.123-1	F	4.2.0	4.3.0	T1-020330
TP-16	TP-020143	206		Correction to clause 8.4 except for Package 1 of TS34.123-1	F	4.2.0	4.3.0	T1-020331
TP-16	TP-020143	207		Correction to Annex A of TS 34.123-1	F	4.2.0	4.3.0	T1-020332
TP-16	TP-020143	208		Addition of generic test procedure to Annex C of TS 34.123-1	F	4.2.0	4.3.0	T1-020333
TP-16	TP-020143	209		Additional test cases according to T1S-020098 Hard Handover	F	4.2.0	4.3.0	T1-020334
TP-16	TP-020143	210		Additional test cases according to T1S-020099 State Transition	F	4.2.0	4.3.0	T1-020335
TP-16	TP-020143	211		New test case for Incompatible Simultaneous Security Reconfiguration	F	4.2.0	4.3.0	T1-020336
TP-16	TP-020143	212		New test case for Signalling Connection Release test case	F	4.2.0	4.3.0	T1-020337
TP-16	TP-020143	213		Interfrequency Measurement for Events 2B and 2E – Correction to 8.4.1.25	F	4.2.0	4.3.0	T1-020338
TP-16	TP-020143	214		Correction to HCS Cell Reselection tests	F	4.2.0	4.3.0	T1-020339
TP-16	TP-020143	215		Changes to radio bearer tests in clause 14.4 Combinations on SCCPCH	F	4.2.0	4.3.0	T1-020340
TP-16	TP-020142	216		Section 8.3.1 Connection Mobility Procedure TDD	F	4.2.0	4.3.0	T1-020341
TP-16	TP-020143	217		Test case for approved new bearers	F	4.2.0	4.3.0	T1-020342
TP-16	TP-020142	218		Correction to clause 8.4 for Package 1 of TS34.123-1	F	4.2.0	4.3.0	T1-020343

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
TP-16	TP-020142	219		Correction to clause 8.3 for Package 1 of TS34.123-1	F	4.2.0	4.3.0	T1-020344
TP-16	TP-020142	220		Correction to clause 8.1 for package 1 of TS34.123-1	F	4.2.0	4.3.0	T1-020345
TP-16	TP-020142	221		Corrections to GMM test cases	F	4.2.0	4.3.0	T1-020346
TP-16	TP-020142	222		Corrections to SM test cases	F	4.2.0	4.3.0	T1-020347
TP-16	TP-020143	223		CR to clause 3.1	F	4.2.0	4.3.0	T1-020348
TP-16	TP-020143	224		Correction to RLC conformance test 7.2.2.1	F	4.2.0	4.3.0	T1-020349
TP-16	TP-020142	225		Correction to RLC conformance test 7.2.2.3	F	4.2.0	4.3.0	T1-020350
TP-16	TP-020142	226		Correction to RLC conformance test 7.2.2.6	F	4.2.0	4.3.0	T1-020351
TP-16	TP-020142	227		Correction to RLC conformance test 7.2.2.7	F	4.2.0	4.3.0	T1-020352
TP-16	TP-020142	228		Correction to RLC conformance test 7.2.3.5	F	4.2.0	4.3.0	T1-020353
TP-16	TP-020142	229		Correction to RLC conformance test 7.2.3.13	F	4.2.0	4.3.0	T1-020354
TP-16	TP-020142	230		Correction to RLC conformance test 7.2.3.6	F	4.2.0	4.3.0	T1-020355
TP-16	TP-020142	231		Correction to RLC conformance test 7.2.3.12	F	4.2.0	4.3.0	T1-020356
TP-16	TP-020142	232		Correction to RLC conformance test 7.2.3.14	F	4.2.0	4.3.0	T1-020357
TP-16	TP-020142	233		Correction to RLC conformance test 7.2.3.16	F	4.2.0	4.3.0	T1-020358
TP-16	TP-020142	234		Correction to RLC conformance test 7.2.3.17	F	4.2.0	4.3.0	T1-020359
TP-16	TP-020142	235		Correction to RLC conformance test 7.2.3.19	F	4.2.0	4.3.0	T1-020360
TP-16	TP-020142	236		Correction to RLC conformance test 7.2.3.20	F	4.2.0	4.3.0	T1-020361
TP-16	TP-020142	237		Correction to RLC conformance test 7.2.3.23	F	4.2.0	4.3.0	T1-020362
TP-16	TP-020142	238		Correction to RLC conformance test 7.2.3.24	F	4.2.0	4.3.0	T1-020363
TP-16	TP-020142	239		Conformance test 7.2.3.15	F	4.2.0	4.3.0	T1-020364
TP-16	TP-020142	240		Clause 7.2.3.18 RLC test case	F	4.2.0	4.3.0	T1-020365
TP-16	TP-020143	241		Clause 7.2.3.29 RLC test case	F	4.2.0	4.3.0	T1-020366
TP-16	TP-020143	242		Clause 7.2.3.30 RLC test case	F	4.2.0	4.3.0	T1-020367
TP-16	TP-020143	243		Clause 7.2.3.31 RLC test case	F	4.2.0	4.3.0	T1-020368
TP-16	TP-020142	244		Correction to RLC conformance test 7.2.3.33	F	4.2.0	4.3.0	T1-020369
TP-16	TP-020143	245		Update of package 2: RB test cases according to new ref RB test method	F	4.2.0	4.3.0	T1-020414
TP-16	TP-020143	247		Update of clause 8.3.2 URA Update to be applicable to 3.84 Mcps TDD and 1.28 Mcps TDD	F	4.2.0	4.3.0	T1-020416
TP-16	TP-020143	248		New test for radio bearer	F	4.2.0	4.3.0	T1-020417
TP-16	TP-020143	249		Correction of conformance requirement in test case 11.1.4.3(34.123-1)	F	4.2.0	4.3.0	T1-020418
TP-16	TP-020143	250		Correction in test case 11.4.1 Error cases(34.123-1)	F	4.2.0	4.3.0	T1-020419
TP-16	TP-020142	251		Correction to MAC conformance test 7.1.1.2	F	4.2.0	4.3.0	T1-020410
TP-16	TP-020142	252		Correction to MAC conformance test 7.1.1.8	F	4.2.0	4.3.0	T1-020411
TP-16	TP-020142	253		Correction to RLC conformance test 7.2.3.34	F	4.2.0	4.3.0	T1-020412
TP-16	TP-020142	254		Correction to MAC conformance test 7.1.2.3.1	F	4.2.0	4.3.0	T1-020413
TP-16	TP-020164	255	1	Section 16.1.6 & 16.2.6: Addition of test of short message type 0 (CS/PS) Rel5	F	4.2.0	5.0.0	-
TP-16	TP-020145	256		Creation of 34.123-1 REL-5	F	4.2.0	5.0.0	T1-020404
				Correction of wrong heading in the specification	D	5.0.0	5.0.1	
TP-17	TP-020193	258	-	Corrections to Inter-frequency measurement test cases (8.4.1.24, 8.4.1.25, 8.4.1.26)	F	5.0.1	5.1.0	T1-020510
TP-17	TP-020193	259	-	Change to test case 8.4.1.31	F	5.0.1	5.1.0	T1-020511
TP-17	TP-020187	260	-	Corrections to clause 6.1.1.4 for Package 1 (Idle Mode)	F	5.0.1	5.1.0	T1-020512
TP-17	TP-020193	261	-	Corrections to clause 6.1.1.5 for Package 3 (Idle Mode)	F	5.0.1	5.1.0	T1-020513
TP-17	TP-020193	262	-	Corrections to clause 6.1.1.1 and 6.1.1.2 (Idle Mode)	F	5.0.1	5.1.0	T1-020514
TP-17	TP-020187	263	-	Addition of ITU Band 3 reference test frequencies to Table 6.3	F	5.0.1	5.1.0	T1-020515
TP-17	TP-020193	264	-	Correction to MAC clause 7.1.2.1	F	5.0.1	5.1.0	T1-020516
TP-17	TP-020187	265	-	Correction to MAC test cases 7.1.1.2 and 7.1.1.8	F	5.0.1	5.1.0	T1-020517
TP-17	TP-020187	266	-	Corrections to clause 7.2 for Package 1 test cases (RLC)	F	5.0.1	5.1.0	T1-020518
TP-17	TP-020187	267	-	Corrections to package1 test cases in clause 8.1 as T1S-020352rev1	F	5.0.1	5.1.0	T1-020519
TP-17	TP-020187	268	-	CR to package1 clause 8.2 of TS34.123-1	F	5.0.1	5.1.0	T1-020520
TP-17	TP-020187	269	-	Corrections to package 1 TCs in clause 8.4 of TS 34.123-1 as T1S-020355rev1	F	5.0.1	5.1.0	T1-020521
TP-17	TP-020187	270	-	Corrections to Clause 8.1.10 for Package 2 (System Information)	F	5.0.1	5.1.0	T1-020522
TP-17	TP-020187	271	-	Corrections to clause 8.3.7.1- 8.3.7.4 for Package 2 test cases (Inter System HO)	F	5.0.1	5.1.0	T1-020523
TP-17	TP-020193	272	-	Corrections to non-package1&2 clause 8.1	F	5.0.1	5.1.0	T1-020524
TP-17	TP-020193	273	-	CR to non-package1&2 clause 8.2 of TS34.123-1 (merging T1S-020469 and TC 8.2.6.21 and 8.2.6.22 of T1S-020407)	F	5.0.1	5.1.0	T1-020525

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
TP-17	TP-020187	274	-	Corrections to clause 6 for Package 2 (Idle Mode)	F	5.0.1	5.1.0	T1-020528
TP-17	TP-020187	275	-	Correction of package 2 test case in clause 8.3.1.4, SS cell update waiting timer	F	5.0.1	5.1.0	T1-020531
TP-17	TP-020187	276	-	Corrections to package1 test cases in clause 8.3	F	5.0.1	5.1.0	T1-020532
TP-17	TP-020187	277	-	CR to package2 clause 8.2 of TS34.123-1	F	5.0.1	5.1.0	T1-020533
TP-17	TP-020193	278	-	Corrections to non-package 1&2 TCs in clause 8.3 of TS 34.123-1	F	5.0.1	5.1.0	T1-020534
TP-17	TP-020193	279	-	Corrections to non-package 1&2 TCs in clause 8.4 of TS 34.123-1 (merging T1S-020458 and T1S-020363)	F	5.0.1	5.1.0	T1-020535
TP-17	TP-020193	280	-	Additional test case for timing re-initialised inter-frequency handover	F	5.0.1	5.1.0	T1-020536
TP-17	TP-020193	281	-	Corrections to reference compressed mode pattern	F	5.0.1	5.1.0	T1-020537
TP-17	TP-020193	282	-	Introduction of test cases for additional reference configuration on S-CCPCH and PRACH	F	5.0.1	5.1.0	T1-020542
TP-17	TP-020193	283	-	Removal of test cases for unidirectional streaming CS RABs above 64 kbps	F	5.0.1	5.1.0	T1-020543
TP-17	TP-020187	284	-	Clarification of package 1 and 2 RB test cases.	F	5.0.1	5.1.0	T1-020545
TP-17	TP-020187	285	-	Details of radio bearer tests in clause “14.4 Combinations on SCCPCH” and “14.5 Combinations on PRACH”	F	5.0.1	5.1.0	T1-020546
TP-17	TP-020193	286	-	Corrections to package 3 RB test cases 14.2.43.1, 14.2.49.1 and 14.2.51.1.	F	5.0.1	5.1.0	T1-020547
TP-17	TP-020193	287	-	Addition of details for package 3 RB test cases	F	5.0.1	5.1.0	T1-020548
TP-17	TP-020193	288	-	Corrections to package 3 RB test cases 14.2.5a and 14.2.7a.	F	5.0.1	5.1.0	T1-020549
TP-17	TP-020193	289	-	Update of radio bearer test cases as per new RB test method	F	5.0.1	5.1.0	T1-020550
TP-17	TP-020193	290	-	Correction for test case 14.2.38.2	F	5.0.1	5.1.0	T1-020551
TP-17	TP-020193	291	-	Interactive or background / UL:32 DL:32 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH (40ms TTI).	F	5.0.1	5.1.0	T1-020552
TP-17	TP-020193	292	-	New Tests for Radio Bearers 14.2.38d and 14.2.57.	F	5.0.1	5.1.0	T1-020553
TP-17	TP-020193	293	-	New tests for radio bearers 23a, 38a, 38b, 38e, 51a & 51b	F	5.0.1	5.1.0	T1-020554
TP-17	TP-020194	294	-	Clause 8, editorial changes to table format	D	5.0.1	5.1.0	T1-020555
TP-17	TP-020187	295	-	Corrections and modifications to clause 9 of Package 2 test cases (MM)	F	5.0.1	5.1.0	T1-020556
TP-17	TP-020187	296	-	Corrections to package 2 test cases in clause 8.3 (T1S-020494rev1)	F	5.0.1	5.1.0	T1-020557
TP-17	TP-020187	297	-	Corrections to package 2 TCs in clause 8.4 of TS 34.123-1 (T1S-020495rev1)	F	5.0.1	5.1.0	T1-020558
TP-17	TP-020193	298	-	Additional test cases in clause 8 of TS34.123-1 as T1S-020365rev1	F	5.0.1	5.1.0	T1-020559
TP-17	TP-020187	299	-	Update of Conformance requirement in test case 11.1.1.1	F	5.0.1	5.1.0	T1-020560
TP-17	TP-020193	300	-	Minor corrections and editorial modifications in clause 11.2 PDP context modification procedure	F	5.0.1	5.1.0	T1-020561
TP-17	TP-020193	301	-	Addition of ICS/IXIT statement in Secondary PDP context activation procedures	F	5.0.1	5.1.0	T1-020563
TP-17	TP-020193	302	-	Editorial corrections in test case 11.2.3.1.	F	5.0.1	5.1.0	T1-020564
TP-17	TP-020193	303	-	Test case 11.1.2: Correction in ‘Test procedure’	F	5.0.1	5.1.0	T1-020565
TP-17	TP-020187	304	-	Modifications and corrections of GMM test case	F	5.0.1	5.1.0	T1-020566
TP-17	TP-020193	305	-	Corrections to SMS test cases in clause 16.	F	5.0.1	5.1.0	T1-020567
TP-17	TP-020187	306	-	Clarifications in PDP Context deactivation test cases (revision of T1S020450)	F	5.0.1	5.1.0	T1-020568
TP-17	TP-020193	307	-	Update of clause 8.3 for TDD mode	F	5.0.1	5.1.0	T1-020579
TP-17	TP-020193	308	-	New tests for radio bearers 38c, 56 and 58	F	5.0.1	5.1.0	T1-020584
TP-17	TP-020193	309	-	CR to section 16.1.6 & 16.2.6: Addition of test of short message type 0 (CS/PS) R99 and REL-4	F	5.0.1	5.1.0	T1-020608
				Removal of revision marks and rename of history annex to 'annex D'		5.1.0	5.1.1	
TP-18	TP-020296	310	-	Correction to package 1 test case 7.2.3.22	F	5.1.1	5.2.0	T1-020659
TP-18	TP-020296	311	-	Correction to package 1 test case 7.2.3.23	F	5.1.1	5.2.0	T1-020660
TP-18	TP-020297	312	-	Update to Broadcast of System Information in test case 8.1.10	F	5.1.1	5.2.0	T1-020662
TP-18	TP-020297	313	-	Correction of package 2 test case for Inter System HO	F	5.1.1	5.2.0	T1-020663
TP-18	TP-020296	314	-	Corrections to generic setup procedure for radio bearer testing	F	5.1.1	5.2.0	T1-020664
TP-18	TP-020299	315	-	Addition of Integrity protection test case	F	5.1.1	5.2.0	T1-020666
TP-18	TP-020297	316	-	Corrections to package 2 MM test case 9.4.4	F	5.1.1	5.2.0	T1-020667

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
TP-18	TP-020296	317	-	Correction of package 1 test case 8.1.1.7	F	5.1.1	5.2.0	T1-020668
TP-18	TP-020299	318	-	Introduction of a new test case for the integrity protection of NAS signalling message	F	5.1.1	5.2.0	T1-020669
TP-18	TP-020296	319	-	Modifications to package 1 RLC Test Cases	F	5.1.1	5.2.0	T1-020685
TP-18	TP-020298	320	-	Corrections to title of radio bearer test cases 14.4.2a.1, 14.4.2a.2 and 14.4.2a.3	F	5.1.1	5.2.0	T1-020688
TP-18	TP-020296	321	-	Corrections to MAC Package 1 test cases 7.1.1.2, 7.1.1.3, 7.1.1.4,7.1.1.5 and 7.1.1.8	F	5.1.1	5.2.0	T1-020689
TP-18	TP-020299	322	-	Introduction of a new test case for the integrity protection of NAS signalling message	F	5.1.1	5.2.0	T1-020690
TP-18	TP-020296	323	-	General corrections for clause 6	F	5.1.1	5.2.0	T1-020691
TP-18	TP-020299	324	-	Addition of cell reselection test case to verify use of cell status and cell reservations	F	5.1.1	5.2.0	T1-020692
TP-18	TP-020297	325	-	Correction of package 2 test case on measurements (revision of T1S-020568)	F	5.1.1	5.2.0	T1-020697
TP-18	TP-020298	326	-	Correction of test case for timing re-initialised inter-frequency handover (revision of T1S-020569)	F	5.1.1	5.2.0	T1-020698
TP-18	TP-020298	327	-	Corrections to test cases 8.3.1.23, 8.3.1.24 and 8.3.2.13 (HCS Reselection)	F	5.1.1	5.2.0	T1-020699
TP-18	TP-020299	328	-	Correction to test case 9.3.2 Handling of IMSI shorter than the maximum length	F	5.1.1	5.2.0	T1-020700
TP-18	TP-020299	329	-	Correction to MM test 9.5.7.2	F	5.1.1	5.2.0	T1-020701
TP-18	TP-020299	330	-	Correction to the title of sub-clause 14.2.51b.2	F	5.1.1	5.2.0	T1-020703
TP-18	TP-020296	331	-	Correction to RLC P1 7.2.3.12 Correct use of Sequence Numbering	F	5.1.1	5.2.0	T1-020704
TP-18	TP-020296	332	-	Correction to package 1 test case 7.2.3.13 and 7.2.3.14	F	5.1.1	5.2.0	T1-020705
TP-18	TP-020296	333	-	Correction to P1 TC8.1.9 SIGNALLING CONNECTION RELEASE INDICATION test case as T1S020674rev1	F	5.1.1	5.2.0	T1-020706
TP-18	TP-020296	334	-	Corrections to package 1 & 2 idle mode test cases	F	5.1.1	5.2.0	T1-020707
TP-18	TP-020296	335	-	Correction to Package 1 test cases (revision of T1S-020677)	F	5.1.1	5.2.0	T1-020710
TP-18	TP-020297	336	-	Correction to cell configuration	F	5.1.1	5.2.0	T1-020713
TP-18	TP-020296	337	-	Clause 8.1 (Package 1) Rel-5: Correction from CRs approved in RP17meeting	F	5.1.1	5.2.0	T1-020784
TP-18	TP-020296	338	-	CR to Package 1 TC 8.4.1.1: Correction from CRs approved in RP17meeting and T1S020726/727 (revision to T1S020750, T1S020856)	F	5.1.1	5.2.0	T1-020786
TP-18	TP-020296	339	-	Clause 8.2 (Package 1) Rel-5: Correction from CRs approved in RP17meeting	F	5.1.1	5.2.0	T1-020787
TP-18	TP-020296	340	-	Clause 8.3 (Package 1) Rel-5: Correction from CRs approved in RP17meeting	F	5.1.1	5.2.0	T1-020788
TP-18	TP-020296	341	-	Clause 8.3 (Package 1) Rel-5: Correction from CRs approved in RP17meeting (Revision to T1S020737)	F	5.1.1	5.2.0	T1-020789
TP-18	TP-020296	342	-	Update to clause 10 Circuit Switched Call Control tests as revision of T1S-020584	F	5.1.1	5.2.0	T1-020790
TP-18	TP-020296	343	-	Editorial corrections in test cases 11.1.1.1, 11.3.2 (Package 1) and 11.1.1.2.1 (Package 3).	F	5.1.1	5.2.0	T1-020792
TP-18	TP-020296	344	-	Extension of 'Test purpose' in test case 11.3.1 (Package 1 test case).	F	5.1.1	5.2.0	T1-020793
TP-18	TP-020296	345	-	Modifications and corrections of GMM test cases	F	5.1.1	5.2.0	T1-020794
TP-18	TP-020297	346	-	Update to test cases 6.1.1.2, 6.1.1.5, 6.2.1.5 and 6.2.1.9, removal of test case 6.1.1.6	F	5.1.1	5.2.0	T1-020795
TP-18	TP-020297	347	-	Cell re-selection within RRC package 2 test case 8.2.2.18 on radio bearer reconfiguration (as T1S-020822rev1)	F	5.1.1	5.2.0	T1-020804
TP-18	TP-020297	348	-	Specification of package 2 TC 8.2.2.11 Unsupported UE configuration (as T1S-020773rev1)	F	5.1.1	5.2.0	T1-020805
TP-18	TP-020297	349	-	Corrections to package 2 test case 8.3.1.9 regarding timers	F	5.1.1	5.2.0	T1-020806
TP-18	TP-020297	350	-	Update to package 2 RRC test case 8.3.2.1 to use two cells	F	5.1.1	5.2.0	T1-020807
TP-18	TP-020297	351	-	Removal of the IE "New U-RNTI" in package 2 RRC test case 8.2.2.1	F	5.1.1	5.2.0	T1-020808
TP-18	TP-020297	352	-	Correction non-existing periodic RLC status timer value in package 2 and low priority RRC test cases	F	5.1.1	5.2.0	T1-020809
TP-18	TP-020297	353	-	Correction to Package 2 RRC test cases (T1S020729rev1, T1S020808rev1, T1S020825rev1, T1S020833rev1)	F	5.1.1	5.2.0	T1-020810
TP-18	TP-020297	354	-	Clause 8.2 (Package 2) Rel-5: Correction from CRs approved in RP17meeting (revision of T1S-020738)	F	5.1.1	5.2.0	T1-020811

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
TP-18	TP-020297	355	-	Clause 8.3 (Package 2) Rel-5: Correction from CRs approved in RP17meeting	F	5.1.1	5.2.0	T1-020812
TP-18	TP-020297	356	-	Corrections to Clause 8.4 Measurement Test Cases	F	5.1.1	5.2.0	T1-020813
TP-18	TP-020297	357	-	Update of Test procedure in test case 9.4.2.5 (Package 2)	F	5.1.1	5.2.0	T1-020814
TP-18	TP-020297	358	-	Clause 8.4 (Package 2) Rel-5: Correction from CRs approved in RP17meeting (revision to T1S020740)	F	5.1.1	5.2.0	T1-020816
TP-18	TP-020298	359	-	Corrections to package 3 idle mode test cases	F	5.1.1	5.2.0	T1-020820
TP-18	TP-020298	360	-	Corrections to package 3 RRC 8_1_x (Connection mgmt) as revision of T1S-020778.	F	5.1.1	5.2.0	T1-020821
TP-18	TP-020298	361	-	Corrections to package 3 RRC 8_2_x (Radio Bearer procedure) as revision of T1S-020779.	F	5.1.1	5.2.0	T1-020822
TP-18	TP-020298	362	-	Corrections to package 3 RRC 8_3_x (Connection mobility procedure) as revision of T1S-020780.	F	5.1.1	5.2.0	T1-020823
TP-18	TP-020298	363	-	Corrections to package 3 Inter-RAT measurement test cases	F	5.1.1	5.2.0	T1-020824
TP-18	TP-020296	364	-	Update to TC7.2.3.19(RLC PDU Continuous Transmission)	F	5.1.1	5.2.0	T1-020714
TP-18	TP-020299	365	-	Addition of test cases for RBs for conversational/speech service based on TS 34.108	F	5.1.1	5.2.0	T1-020676
TP-18	TP-020299	366	-	Addition of test cases for RBs for conversational/unknown service based on TS 34.108	F	5.1.1	5.2.0	T1-020677
TP-18	TP-020299	367	-	Editorial correction and update for the existed RB test cases	F	5.1.1	5.2.0	T1-020678
TP-18	TP-020298	368	-	Corrections and updates for Idle mode TCs (TDD) in a pure 3GPP environment	F	5.1.1	5.2.0	T1-020695
TP-18	TP-020297	369	-	Corrections and updates for Idle mode TCs (TDD) in a 2G/3G environment	F	5.1.1	5.2.0	T1-020696
TP-18	TP-020296	370	-	Corrections to 8.1.2 RRC Connection Establishment and 8.1.3 RRC Connection Release, TDD tests	F	5.1.1	5.2.0	T1-020825
TP-18	TP-020298	371	-	New TDD test cases for 8.2.1 Radio Bearer Establishment and 8.2.2 Radio Bearer Reconfiguration.	F	5.1.1	5.2.0	T1-020826
TP-18	TP-020299	372	-	Addition of test cases for RBs for symmetric streaming/unknown service based on TS 34.108	F	5.1.1	5.2.0	T1-020828
TP-18	TP-020299	373	-	Addition of test cases of for RBs for asymmetric streaming/unknown service based on TS 34.108	F	5.1.1	5.2.0	T1-020829
TP-18	TP-020299	374	-	Addition of some test cases of for RBs for interactive/background service based on TS 34.108	F	5.1.1	5.2.0	T1-020830
TP-18	TP-020299	375	-	Correction of General information for radio bearer tests (1.28 Mcps TDD)	F	5.1.1	5.2.0	T1-020831
TP-18	TP-020299	376	-	Idle mode test cases	F	5.1.1	5.2.0	T1-020833
TP-18	TP-020299	377	-	Correction to TC8.1.6.3 Measurement Report on INITIAL DIRECT TRANSFER message and UPLINK DIRECT TRANSFER message	F	5.1.1	5.2.0	T1-020834
TP-18	TP-020298	378	-	Correction to non-package 1&2 RRC test cases	F	5.1.1	5.2.0	T1-020836
TP-18	TP-020298	379	-	Clause 8.1 (Non-package1&2) Rel-5: Correction from CRs approved in RP17meeting	F	5.1.1	5.2.0	T1-020837
TP-18	TP-020298	380	-	Clause 8.4 (Non-package 1&2) Rel-5: Correction from CRs approved in RP17meeting	F	5.1.1	5.2.0	T1-020838
TP-18	TP-020298	381	-	Corrections to package 3 Measurement test cases as revision of T1S-020781.	F	5.1.1	5.2.0	T1-020864
TP-18	TP-020296	382	-	Corrections to radio bearer test cases in clause 14.2	F	5.1.1	5.2.0	T1-020840
TP-18	TP-020299	383	-	Conversational / speech / UL:(12.2 7.95 5.9 4.75) DL(12.2 7.95 5.9 4.75) kbps / CS RAB + Conversational / unknown / UL:64 DL:64 kbps / CS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH	F	5.1.1	5.2.0	T1-020842
TP-18	TP-020298	384	-	Correction to package 3 MM test case 9.4.7	F	5.1.1	5.2.0	T1-020845
TP-18	TP-020298	385	-	Correction to package 3 SM test case 11.1.1.2.1	F	5.1.1	5.2.0	T1-020846
TP-18	TP-020298	386	-	Correction to package 3 test case 16.1.2 SMS mobile originated	F	5.1.1	5.2.0	T1-020847
TP-18	TP-020298	387	-	Correction to package 3 test case 16.1.9 Multiple SMS mobile originated	F	5.1.1	5.2.0	T1-020848
TP-18	TP-020298	388	-	Correction to package 3 test case 16.2.1 SMS mobile terminated	F	5.1.1	5.2.0	T1-020849
TP-18	TP-020298	389	-	Correction to package 3 test case 16.2.2 SMS mobile originated	F	5.1.1	5.2.0	T1-020850
TP-18	TP-020299	390	-	Update of Conformance requirement in test case 11.3.3.1 (low priority test case)	F	5.1.1	5.2.0	T1-020851
TP-18	TP-020299	391	-	Updated PDCP conformance test cases, clause 7.3	F	5.1.1	5.2.0	T1-020852

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
TP-18	TP-020298	392	-	Test case for alternative RAB configuration agreed during T1/SIG #25	F	5.1.1	5.2.0	T1-020853
TP-18	TP-020298	393	-	Update to clause 13 Emergency call tests as revision of T1S-020759rev1	F	5.1.1	5.2.0	T1-020854
TP-18	TP-020299	394	-	Corrections to GCF “low priority” SMS test cases in 34.123-1, clause 16	F	5.1.1	5.2.0	T1-020857
TP-18	TP-020298	395	-	Correction to package 3 test case 16.2.10 Test of capabilities of simultaneously receiving an SM whilst sending an MO SM (as of T1S-020751rev1)	F	5.1.1	5.2.0	T1-020859
TP-18	TP-020298	396	-	Correction to package 3 test case 16.1.10 Test of capabilities of simultaneously receiving an SM whilst sending an MO SM (as of T1S-020797rev1)	F	5.1.1	5.2.0	T1-020860
TP-18	TP-020299	397	-	New GMM test cases for Service Request with Re-establishment of RABs (as of T1S-020829rev1)	F	5.1.1	5.2.0	T1-020861
TP-18	TP-020299	398	-	Proposed new test case on additional measurements list. As revision of T1S-020783.	F	5.1.1	5.2.0	T1-020862
TP-18	TP-020298	399	-	Addition of new test case for RRC Connection Release following network authentication failure requested by upper layers	F	5.1.1	5.2.0	T1-020863
TP-18	TP-020299	400	-	Clarification of expected sequence in test case 11.2.3.2 (low priority test case).	F	5.1.1	5.2.0	T1-020866
TP-18	TP-020298	401	-	Clause 8.2 (Non-package 1&2) Rel-5: Correction from CRs approved in RP17meeting (T1S020742rev1)	F	5.1.1	5.2.0	T1-020867
TP-18	TP-020299	402	-	Addition of test case for multi- RAB configurations	F	5.1.1	5.2.0	T1-020868
TP-18	TP-020299	403	-	Addition of test case for compressed mode	F	5.1.1	5.2.0	T1-020869
TP-18	TP-020299	404	-	CR to section 16.1.6a & 16.2.6a: Correction of Related ICS/IXIT Statements	F	5.1.1	5.2.0	T1-020855
TP-18	TP-020299	405	-	Interactive or background / UL:32 DL:32kbps / PS RAB (20 ms TTI) + UL:3.4 DL:3.4 kbps SRBs for DCCH	F	5.1.1	5.2.0	T1-020841
TP-18	TP-020298	406	-	Correction to package 3 test case 16.1.1 SMS mobile terminated (as of T1S-020791rev1)	F	5.1.1	5.2.0	T1-020858
TP-18	TP-020299	407	-	Proposed new test case in clause 8.2.6 as revision of T1S-020784.	F	5.1.1	5.2.0	T1-020870
TP-19	TP-030049	408	-	Corrections to GMM Package 1 test cases as T1S030012rev1	F	5.2.0	5.3.0	T1-030032
TP-19	TP-030048	409	-	Clause 8.3.1.1 Cell Update: cell reselection in CELL_FACH(Package1) as T1S0300015rev1	F	5.2.0	5.3.0	T1-030033
TP-19	TP-030047	410	-	Clause 7.2.3.24 Polling for status / Operation of timer Timer_Poll_Prohibit (Package 1)	F	5.2.0	5.3.0	T1-030034
TP-19	TP-030049	411	-	on Correction to package 4 GMM test case 12.6.1.3.3 Authentication Rejected by the UE / fraudulent network	F	5.2.0	5.3.0	T1-030038
TP-19	TP-030047	412	-	Corrections to package 4 idle mode test case 6.1.2.9	F	5.2.0	5.3.0	T1-030064
TP-19	TP-030047	413	-	Alignment of cell numbering for inter-RAT idle mode test case	F	5.2.0	5.3.0	T1-030065
TP-19	TP-030047	414	-	Correction to package 1 RLC test case 7.2.3.18	F	5.2.0	5.3.0	T1-030066
TP-19	TP-030047	415	-	Correction to low prio RLC test cases 7.2.2.11, 7.2.3.31 and 7.2.3.32	F	5.2.0	5.3.0	T1-030067
TP-19	TP-030047	416	-	Clause 7.2.3.21 Polling for status / Operation of Timer_Poll timer / Timer expiry (Package 1)	F	5.2.0	5.3.0	T1-030068
TP-19	TP-030047	417	-	Correction to low prio PDCP test cases 7.3.2.1.2, 7.3.2.2.2, 7.3.2.2.4 and 7.3.2.2.5	F	5.2.0	5.3.0	T1-030069
TP-19	TP-030048	418	-	Correction to package 1 RRC Test Case 8.1.1.1	F	5.2.0	5.3.0	T1-030070
TP-19	TP-030048	419	-	Correction to TS 34.123-1 Package1; Radio Bearer Establishment procedure	F	5.2.0	5.3.0	T1-030071
TP-19	TP-030048	420	-	Corrections to Package 1 RRC test cases	F	5.2.0	5.3.0	T1-030072
TP-19	TP-030048	421	-	Corrections to Package 2 RRC test cases	F	5.2.0	5.3.0	T1-030073
TP-19	TP-030048	422	-	Update to test cases 8.2.4.3 and 8.2.4.4(Package 2)	F	5.2.0	5.3.0	T1-030074
TP-19	TP-030048	423	-	Corrections to Early UE Specific Information in RRC Connection Request (Package 1)	F	5.2.0	5.3.0	T1-030075
TP-19	TP-030048	424	-	Corrections to package 2 test case 8.1.10.1	F	5.2.0	5.3.0	T1-030076
TP-19	TP-030048	425	-	Corrections to package 3 RRC test case 8.4.1.40	F	5.2.0	5.3.0	T1-030077
TP-19	TP-030048	426	-	Corrections to package 4 test cases on Inter system handover	F	5.2.0	5.3.0	T1-030078
TP-19	TP-030048	427	-	Corrections to package 4 test cases on RRC Direct transfer	F	5.2.0	5.3.0	T1-030079
TP-19	TP-030048	428	-	Correction to package 1 RRC Test Case 8.1.1.7	F	5.2.0	5.3.0	T1-030080
TP-19	TP-030048	429	-	Corrections to package 4 test cases on RRC connection establishment and release	F	5.2.0	5.3.0	T1-030081

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
TP-19	TP-030048	430	-	Corrections to package 4 test cases on Physical Channel Reconfiguration	F	5.2.0	5.3.0	T1-030082
TP-19	TP-030048	431	-	Corrections to package 4 test cases on RB establishment	F	5.2.0	5.3.0	T1-030083
TP-19	TP-030048	432	-	Corrections to package 4 test cases on TrCH reconfiguration	F	5.2.0	5.3.0	T1-030084
TP-19	TP-030048	433	-	Corrections to package 4 test cases on RRC Connection mobility	F	5.2.0	5.3.0	T1-030085
TP-19	TP-030048	434	-	New test cases for security	F	5.2.0	5.3.0	T1-030086
TP-19	TP-030048	435	-	Removal of low priority RRC test cases with state transition	F	5.2.0	5.3.0	T1-030087
TP-19	TP-030048	436	-	Corrections to clause 8.2.2.20	F	5.2.0	5.3.0	T1-030088
TP-19	TP-030048	437	-	Addition of re-run statements when it is failed in cell reselection	F	5.2.0	5.3.0	T1-030089
TP-19	TP-030048	438	-	Corrections to package 4 test cases on RB release	F	5.2.0	5.3.0	T1-030090
TP-19	TP-030048	439	-	Corrections to package 4 test cases on RB reconfiguration	F	5.2.0	5.3.0	T1-030091
TP-19	TP-030048	440	-	Corrections to package 4 test cases on Measurements	F	5.2.0	5.3.0	T1-030092
TP-19	TP-030048	441	-	Corrections to Low Priority RRC test cases	F	5.2.0	5.3.0	T1-030093
TP-19	TP-030048	442	-	Correction to clause 8.1.6.4 and 8.1.9a/b as T1S-020628rev1	F	5.2.0	5.3.0	T1-030094
TP-19	TP-030049	443	-	Corrections to package 4 test cases on CC	F	5.2.0	5.3.0	T1-030095
TP-19	TP-030049	444	-	Correction to Tables 10.1.3/2 and 10.1.3/4	F	5.2.0	5.3.0	T1-030096
TP-19	TP-030049	445	-	Corrections to package 4 test cases on MM	F	5.2.0	5.3.0	T1-030097
TP-19	TP-030049	446	-	Correction to low priority TC 12.4.3.2 Periodic routing area updating / accepted / T3312 default value	F	5.2.0	5.3.0	T1-030098
TP-19	TP-030049	447	-	Introduction of a new test case for a PSdetach procedure with the cause "PS services not allowed in this PLMN"	F	5.2.0	5.3.0	T1-030099
TP-19	TP-030049	448	-	Corrections to package 4 test cases on GMM as T1S030221rev1	F	5.2.0	5.3.0	T1-030100
TP-19	TP-030049	449	-	Corrections to package 1 GMM Test Cases	F	5.2.0	5.3.0	T1-030101
TP-19	TP-030049	450	-	Corrections to package 4 GMM test cases on RAB re-establishment	F	5.2.0	5.3.0	T1-030102
TP-19	TP-030048	451	-	Corrections to package 4 test cases on RRC Security	F	5.2.0	5.3.0	T1-030103
TP-19	TP-030049	452	-	Correction to Low Prio SM test case 11.2.3.2	F	5.2.0	5.3.0	T1-030104
TP-19	TP-030049	453	-	Maintenance of low priority test case 11.1.2 PDP context activation requested by the network, successful and unsuccessful	F	5.2.0	5.3.0	T1-030105
TP-19	TP-030049	454	-	Correction to package 3 test case 16.1.2 SMS mobile originated	F	5.2.0	5.3.0	T1-030106
TP-19	TP-030047	455	-	Corrections to generic setup procedure for radio bearer testing	F	5.2.0	5.3.0	T1-030108
TP-19	TP-030047	456	-	Corrections to add minimum set of TFCIs to package 1 RB test cases	F	5.2.0	5.3.0	T1-030109
TP-19	TP-030047	457	-	Corrections to add minimum set of TFCIs to package 2 RB test cases	F	5.2.0	5.3.0	T1-030110
TP-19	TP-030047	458	-	Corrections to add minimum set of TFCIs to package 3 RB test cases	F	5.2.0	5.3.0	T1-030111
TP-19	TP-030047	459	-	Generic procedure for radio bearer testing using the DSCH	F	5.2.0	5.3.0	T1-030112
TP-19	TP-030047	460	-	Prose for the MultiRAB DSCH Radio bearers test cases	F	5.2.0	5.3.0	T1-030113
TP-19	TP-030049	461	-	Update of Conformance requirement and Expected sequence in test case 11.1.1.2.1 (Package 3) as T1S030104rev1	F	5.2.0	5.3.0	T1-030114
TP-19	TP-030049	462	-	Update of Conformance requirement and Expected sequence in test case 11.1.1.2.2 (Package 4) as T1S030105rev1	F	5.2.0	5.3.0	T1-030115
TP-19	TP-030047	463	-	Inclusion of new test cases for intrafrequency Measurement Control and Report TDD	F	5.2.0	5.3.0	T1-030211
TP-19	TP-030047	464	-	Inclusion of test case for events 1H and 1I (TDD)	F	5.2.0	5.3.0	T1-030212
TP-19	TP-030047	465	-	Addition of test cases for RBs for Interactive or background service based on 34.108	F	5.2.0	5.3.0	T1-030214
TP-19	TP-030047	466	-	Addition of test cases for RBs for conversational/speech and interactive or background service based on 34.108	F	5.2.0	5.3.0	T1-030215
TP-19	TP-030047	467	-	Addition of test cases for RBs for conversational/speech and streaming/unknown or	F	5.2.0	5.3.0	T1-030216

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
				conversational/Unknown service based on 34.108				
TP-19	TP-030047	468	-	Addition of test cases for RBs for conversational/unknown and Interactive or background service based on 34.108	F	5.2.0	5.3.0	T1-030217
TP-19	TP-030047	469	-	Addition of test case for RB for Interactive or/background and streaming/unknown service and test case for RB for combinations on S-CCPCH based on 34.108	F	5.2.0	5.3.0	T1-030218
TP-19	TP-030049	470	-	Correction to GMM Package 2 test cases	F	5.2.0	5.3.0	T1-030236
TP-19	TP-030048	471	-	Correction to package 1 RRC Test Case 8.1.2.7	F	5.2.0	5.3.0	T1-030242
TP-20	TP-030102	472	-	Measurement Control and Report: Inter-frequency measurement for transitions (TDD)	F	5.3.0	5.4.0	T1-030510
TP-20	TP-030102	473	-	Corrections of Measurement Control and Report: Intra-frequency measurement for transitions (TDD)	F	5.3.0	5.4.0	T1-030511
TP-20	TP-030102	474	-	Update of Broadcast of system information test for TDD mode	F	5.3.0	5.4.0	T1-030512
TP-20	TP-030101	475	-	Measurement Control and Report: Cell forbidden to affect reporting range (FDD only)	F	5.3.0	5.4.0	T1-030513
TP-20	TP-030102	476	-	Measurement Control and Report: Traffic volume measurement for transitions, TDD update	F	5.3.0	5.4.0	T1-030514
TP-20	TP-030109	477	-	Correction to low prio RLC test case 7.2.3.32	F	5.3.0	5.4.0	T1-030519
TP-20	TP-030109	478	-	Correction to package 1 RLC test case 7.2.3.33	F	5.3.0	5.4.0	T1-030520
TP-20	TP-030109	479	-	Removal of RAB test cases associated with recently void RABs in 34.108	F	5.3.0	5.4.0	T1-030521
TP-20	TP-030102	480	-	Corrections to Package 3 RRC test cases (clause 8.1)	F	5.3.0	5.4.0	T1-030527
TP-20	TP-030102	481	-	Corrections to Package 4 RRC test cases (clause 8.2)	F	5.3.0	5.4.0	T1-030528
TP-20	TP-030109	482	-	Introduction of a new test case 9.2.5 Authentication Rejected by the UE / fraudulent network	F	5.3.0	5.4.0	T1-030529
TP-20	TP-030109	483	-	Correction to TC 9.3.2	F	5.3.0	5.4.0	T1-030533
TP-20	TP-030101	484	-	Update to clause 8 conformance requirements according to 25.331 CR1829 and CR1835 approved in RAN#19.	F	5.3.0	5.4.0	T1-030544
TP-20	TP-030102	485	-	Removal of package 4 and low priority redundant RRC Reconfiguration failure cases	F	5.3.0	5.4.0	T1-030546
TP-20	TP-030101	486	-	Usage of downlink CCCH vs DCCH for CELL UPDATE CONFIRM and URA UPDATE CONFIRM RRC messages	F	5.3.0	5.4.0	T1-030547
TP-20	TP-030102	487	-	Correction to package 4 RRC test case 8.2.1.4 according to 25.331 CR 1820	F	5.3.0	5.4.0	T1-030548
TP-20	TP-030101	488	-	Correction of RRC test cases according to 25331 CR1823	F	5.3.0	5.4.0	T1-030549
TP-20	TP-030102	489	-	Corrections to Package 3 RRC test cases (clause 8.3)	F	5.3.0	5.4.0	T1-030560
TP-20	TP-030102	490	-	Corrections to low priority RRC test cases (clause 8.2)	F	5.3.0	5.4.0	T1-030562
TP-20	TP-030102	491	-	Corrections to low priority RRC test cases (clause 8.3)	F	5.3.0	5.4.0	T1-030563
TP-20	TP-030101	492	-	Correction of RRC test cases according to 25331 CR1847	F	5.3.0	5.4.0	T1-030633
TP-20	TP-030102	493	-	Correction of package 4 RRC test cases 8.4.1.42 and 8.4.1.43 according to 25.331 CR1838	F	5.3.0	5.4.0	T1-030634
TP-20	TP-030109	494	-	Corrections to package 3 SMS test cases 16.1.9.1 and 16.1.9.2 (Multiple SMS mobile originated)	F	5.3.0	5.4.0	T1-030636
TP-20	TP-030101	496	-	Corrections to Package 2 RRC test case 8.4.1.7 (revision of T1-030646)	F	5.3.0	5.4.0	T1-030652
TP-20	TP-030101	497	-	Corrections to Package 2 RRC test cases (clause 8.4) (revision to T1-030559)	F	5.3.0	5.4.0	T1-030653
TP-20	TP-030102	498	-	Corrections to Package 3 RRC test cases (clause 8.4) (revision to T1-030561)	F	5.3.0	5.4.0	T1-030663
TP-20	TP-030101	499	-	Corrections to Package 2 RRC test cases 8.3.1.5 and 8.3.1.6	F	5.3.0	5.4.0	T1-030666
TP-20	TP-030109	500	-	Corrections to GMM P4 test case 12.9.6	F	5.3.0	5.4.0	T1-030668
TP-20	TP-030109	501	-	Modifications and corrections for GMM test cases	F	5.3.0	5.4.0	T1-030675
TP-20	TP-030101	502	-	Correction to Package 1 RRC test case 8.1.1.7 (Revision of T1-030570)	F	5.3.0	5.4.0	T1-030676
TP-20	TP-030109	503	-	Correction to package 2 idle mode test cases 6.2.1.7 and 6.2.1.8	F	5.3.0	5.4.0	T1-030683
TP-20	TP-030109	504	-	Correction to low priority idle mode test cases	F	5.3.0	5.4.0	T1-030684

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
				6.2.1.3 and 6.2.1.4				
TP-20	TP-030101	505	-	Corrections to Package 2 RRC test cases (clause 8.2) [revision to T1-030477]	F	5.3.0	5.4.0	T1-030690
TP-20	TP-030101	506	-	Corrections to Package 2 RRC test cases (clause 8.3) [revision to T1-030558]	F	5.3.0	5.4.0	T1-030694
TP-20	TP-030101	507	-	Correction to package 1 RRC test case 8.1.1.4	F	5.3.0	5.4.0	T1-030695
TP-20	TP-030101	508	-	Corrections to TC 8.3.2.3 (T1-030434rev1, T1-030481rev1)	F	5.3.0	5.4.0	T1-030696
TP-20	TP-030101	509	-	Corrections to Package 1 RRC test cases (clause 8.3)	F	5.3.0	5.4.0	T1-030697
TP-20	TP-030102	510	-	Corrections to low priority RRC test cases (clause 8.1) [revision to T1-030478]	F	5.3.0	5.4.0	T1-030702
TP-20	TP-030101	511	-	Correction of IE “Measurement Command” from “Modify” to “Setup” for TVM [revision to T1-030566]	F	5.3.0	5.4.0	T1-030704
TP-20	TP-030102	512	-	Removal of low-priority RRC test case 8.4.1.20 and 8.4.1.21	F	5.3.0	5.4.0	T1-030705
TP-20	TP-030102	513	-	Corrections to low priority test case 8.4.1.9 (Measurement)	F	5.3.0	5.4.0	T1-030706
TP-20	TP-030102	514	-	Corrections to low priority test case 8.1.6.3.	F	5.3.0	5.4.0	T1-030707
TP-20	TP-030102	515	-	Corrections to low priority test case 8.1.9a	F	5.3.0	5.4.0	T1-030708
TP-20	TP-030109	516	-	Correction to low priority test cases 9.4.3.2, 9.4.3.3 and 9.4.3.4 (Revision of T1-030572)	F	5.3.0	5.4.0	T1-030710
TP-20	TP-030102	517	-	URA identity for transition from CELL_FACH to URA_PCH	F	5.3.0	5.4.0	T1-030712
TP-20	TP-030109	518	-	Corrections to package 4 GMM test cases 12.4.1.4c and 12.4.1.4.d	F	5.3.0	5.4.0	T1-030713
TP-20	TP-030109	519	-	Modifications and corrections of GMM test case	F	5.3.0	5.4.0	T1-030717
TP-20	TP-030109	520	-	Correction to low priority test cases 14.2.34.1, 14.2.45, 14.2.46, 14.2.54 and to sections 14.1.1 and 14.1.2 (Revision of T1-030573)	F	5.3.0	5.4.0	T1-030718
TP-20	TP-030102	521	-	New RRC test cases for Inter-RAT cell reselection (PS) from UTRAN	B	5.3.0	5.4.0	T1-030719
TP-20	TP-030102	522	-	New RRC test cases for Inter-RAT cell change order from UTRAN	B	5.3.0	5.4.0	T1-030720
TP-20	TP-030101	523	-	Modification of RRC reconfiguration test cases due to updates to default messages as of T1-030714r1	F	5.3.0	5.4.0	T1-030723
TP-20	TP-030101	524	-	Corrections to Package 1 RRC test cases (clause 8.2) [revision to T1-030476, T1-030724]	F	5.3.0	5.4.0	T1-030726
TP-20	TP-030102	525	-	New test cases for radio link failure [revision to T1-030565, T1-030725]	F	5.3.0	5.4.0	T1-030727
TP-20	TP-030101	526	-	Correction to Package 1 RRC test cases 8.2.5.1, 8.3.4.3 (Revision of T1-030571 and T1-030681 and T1-030689)	F	5.3.0	5.4.0	T1-030730
TP-20	TP-030101	527	-	Corrections to Package 1 RRC Test Cases 8.2.1.8 and 8.2.1.9 (Revision of T1-030700 and T1-030698)	F	5.3.0	5.4.0	T1-030736
TP-20	TP-030140	529	-	Correction to clause 8.4.1.2 (Package 2 test case) (revision to T1-030564, T1-030664, T1-030701)	F	5.3.0	5.4.0	T1-030738
TP-20	TP-030140	528	1	Corrections to Package 1 RRC test cases (clause 8.4) [T1-030557rev1, T1-030682rev1]	F	5.3.0	5.4.0	T1-030889
TP-20	TP-030140	530	1	Modifications to Package 1 RRC measurement test cases	F	5.3.0	5.4.0	T1-030890
TP-21	TP-030192	531	-	Corrections and updates on 8.2.1 Radio Bearer Establishment for TDD mode	F	5.4.0	5.5.0	T1-030801
TP-21	TP-030192	532	-	Radio Bearer Reconfiguration from CELL_DCH to CELL_FACH test updated for TDD mode (clause 8.2.2.35), TS 34.123-1	F	5.4.0	5.5.0	T1-030802
TP-21	TP-030192	534	-	Correction to RLC testcases 7.2.3.21 and 7.2.3.22	F	5.4.0	5.5.0	T1-030895
TP-21	TP-030192	535	-	Inclusion of tests for combinations on SCCPCH for TDD 1.28 Mcps option	F	5.4.0	5.5.0	T1-030978
TP-21	TP-030192	536	-	Inclusion of test for 34.123-1 for combination on PRACH for TDD 1.28 Mcps option, Rel-4	F	5.4.0	5.5.0	T1-030979
TP-21	TP-030192	537	-	CR to TS 34.123-1 [REL-5] Package 4 GMM test cases 12.4.1.2 and 12.4.1.4d	F	5.4.0	5.5.0	T1-030989
TP-21	TP-030192	538	-	CR to TS 34.123-1 [REL-5] Package 1 RRC test cases in clause 8.1	F	5.4.0	5.5.0	T1-030991
TP-21	TP-030192	539	-	CR to TS 34.123-1 [REL-5] Low priority PDCP test case 7.3.3.1	F	5.4.0	5.5.0	T1-030993
TP-21	TP-030192	540	-	CR 34.123-1 Rel-5: Mobile identity field removed in TC 12.4.2.2	F	5.4.0	5.5.0	T1-031039
TP-21	TP-030192	541	-	CR to 34.123-1 REL-5; Removal of package 2 MAC	F	5.4.0	5.5.0	T1-031043

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
				test case 7.1.2.2.1				
TP-21	TP-030192	542	-	Corrections to Package 1 RRC test case 8.1.2.2	F	5.4.0	5.5.0	T1-031067
TP-21	TP-030192	543	-	Corrections to P2 MM test case 9.4.2.2/test 2	F	5.4.0	5.5.0	T1-031068
TP-21	TP-030192	544	-	CR to 34.123-1 REL-5; Corrections to package 4 and low priority RRC test cases on Unsupported configuration	F	5.4.0	5.5.0	T1-031074
TP-21	TP-030192	545	-	CR to TS 34.123-1 [REL-5] Package 2 MM test case 9.4.5.3 Location updating/ periodic normal/ test 2	F	5.4.0	5.5.0	T1-031078
TP-21	TP-030192	546	-	Corrections to 34.123-1 v5.4.0 Package 4 test case (8.2.3.11)	F	5.4.0	5.5.0	T1-031084
TP-21	TP-030192	547	-	Corrections to 34.123-1 v5.4.0 Package 4 test case (8.2.6.11)	F	5.4.0	5.5.0	T1-031085
TP-21	TP-030192	548	-	Corrections to 34.123-1 v5.4.0 Package 4 test case (8.2.6.12)	F	5.4.0	5.5.0	T1-031086
TP-21	TP-030192	549	-	Corrections to 34.123-1 v5.4.0 low priority test case (8.2.6.14)	F	5.4.0	5.5.0	T1-031089
TP-21	TP-030192	550	-	Corrections to 34.123-1 v5.4.0 low priority test case (8.3.1.23)	F	5.4.0	5.5.0	T1-031090
TP-21	TP-030192	551	-	Corrections to 34.123-1 v5.4.0 low priority test case (8.3.4.5)	F	5.4.0	5.5.0	T1-031091
TP-21	TP-030192	552	-	Correction to 34.123-1 v5.4.0 Low priority test case (8.4.1.22)	F	5.4.0	5.5.0	T1-031092
TP-21	TP-030192	553	-	Corrections to 34.123-1 v5.4.0 low priority test case (8.4.1.39)	F	5.4.0	5.5.0	T1-031093
TP-21	TP-030192	554	-	CR to 34.123-1 REL-5; Correction of Package 4 RRC test case 8.2.6.37	F	5.4.0	5.5.0	T1-031099
TP-21	TP-030192	555	-	Removal of test case 8.2.2.20	F	5.4.0	5.5.0	T1-031135
TP-21	TP-030192	556	-	CR to 34.123-1, Rel-5; correction to idle mode section according to RP-030289	F	5.4.0	5.5.0	T1-031143
TP-21	TP-030192	557	-	CR to 34.123-1, Rel-5; correction to package 1 RLC test case 7.2.3.18 according to RP-030292	F	5.4.0	5.5.0	T1-031144
TP-21	TP-030192	558	-	Correction to 34.123-1 v5.4.0 Package 1 test case (8.4.1.5) – Revision of T1-031080	F	5.4.0	5.5.0	T1-031147
TP-21	TP-030192	559	-	Corrections to 34.123-1 v5.4.0 Package 3 test case (8.4.1.24) – Revision of T1-031082	F	5.4.0	5.5.0	T1-031148
TP-21	TP-030192	560	-	Corrections to 34.123-1 v5.4.0 Package 4 test case (8.4.1.12) – Revision of T1-031088	F	5.4.0	5.5.0	T1-031149
TP-21	TP-030192	561	-	CR to TS 34.123-1 [REL-5] Package 4 RRC test cases: 8.1.3.5 and 8.3.1.15	F	5.4.0	5.5.0	T1-031161
TP-21	TP-030192	562	-	Corrections to 34.123-1 v5.4.0 Package 2 test cases (8.3.1.21 and 8.3.1.22) – Revision of T1-031081	F	5.4.0	5.5.0	T1-031180
TP-21	TP-030192	563	-	CR to TS 34.123-1 [REL-5] Low priority GMM test cases 12.2.2.8, 12.3.2.4 and 12.9.9	F	5.4.0	5.5.0	T1-031199
TP-21	TP-030192	564	-	Correction to 34.123-1, section 7.2.3.19 and 7.2.3.24	F	5.4.0	5.5.0	T1-031200
TP-21	TP-030192	565	-	Correction to GCF package 1 RLC testcases 7.2.3.26 and 7.2.3.27	F	5.4.0	5.5.0	T1-031201
TP-21	TP-030192	566	-	CR to TS 34.123-1 [REL-5] Package 1 RRC test cases 8.3.4.3 and 8.4.1.1	F	5.4.0	5.5.0	T1-031203
TP-21	TP-030192	567	-	CR to 34.123-1 REL-5; Periodical RLC STATUS PDU detection in RRC Radio Bearer Reconfiguration Package 2 and 3 test cases	F	5.4.0	5.5.0	T1-031204
TP-21	TP-030192	568	-	CR to TS 34.123-1 [REL-5] Package 2 RRC test case 8.2.2.19	F	5.4.0	5.5.0	T1-031209
TP-21	TP-030192	569	-	CR to 34-123-1, Rel-5; URA Identity in Cell Update Confirm and URA Update Confirm	F	5.4.0	5.5.0	T1-031210
TP-21	TP-030192	570	-	CR to 34.123-1 on Correction to C/T field value for test case 7.1.1.8	F	5.4.0	5.5.0	T1-031212
TP-21	TP-030192	571	-	CR to TS 34.123-1 [REL-5] Package 2 RRC test case 8.3.1.10 Cell Update: expiry of T307 timer after T305 expiry and being out of service area.	F	5.4.0	5.5.0	T1-031213
TP-21	TP-030192	572	-	CR to 34.123-1 REL-5; Correction to CC test cases 10.1.2.2.1 (package 4), 10.1.2.2.2 (package 3) and 10.1.2.9.2 (low prio)	F	5.4.0	5.5.0	T1-031214
TP-21	TP-030192	573	-	CR to TS 34.123-1 [REL-5] Package 2 GMM test case 12.4.2.2	F	5.4.0	5.5.0	T1-031216
TP-21	TP-030192	574	-	CR 34.123-1 Rel-5: TC 12.8 Ready Timer in use	F	5.4.0	5.5.0	T1-031218
TP-21	TP-030192	575	-	CR to 34.123-1 REL-5; Correction to package 1 GMM test case 12.3.1.2	F	5.4.0	5.5.0	T1-031244
TP-21	TP-030192	576	-	Corrections to low priority Multi RAB test cases	F	5.4.0	5.5.0	T1-031069
TP-21	TP-030192	577	-	Corrections to P3 Inter RAT measurement test case	F	5.4.0	5.5.0	T1-031219

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
				8.4.1.31				
TP-21	TP-030192	578	-	CR to 34.123-1 R5; Correction to Package 1 RRC test case 8.2.5.1	F	5.4.0	5.5.0	T1-031254
TP-21	TP-030192	579	-	CR to 34.123-1 REL-5; Correction to package 2 MAC test case 7.1.3.1	F	5.4.0	5.5.0	T1-031256
TP-21	TP-030192	580	-	Introduction of new test cases for a routing area updating procedure due to a change of DRX parameter IE	F	5.4.0	5.5.0	T1-031041
TP-21	TP-030192	581	-	CR 34.123-1 Rel-5: TC 9.4.2.3 doesn't correspond to conformance claim	F	5.4.0	5.5.0	T1-031037
TP-21	TP-030192	582	-	Corrections to 34.123-1 v5.4.0 low priority test case (8.2.3.26)	F	5.4.0	5.5.0	T1-031208
TP-21	TP-030192	583	-	CR 34.123-1 Rel-5: Automatic MO SMS repeat at TP layer	F	5.4.0	5.5.0	T1-031279
TP-22	TP-030282	602		New RRC test cases on Paging	F	5.5.0	5.6.0	T1-031390
TP-22	TP-030282	614		CR to 34.123-1 R5; Delay between activation and deactivation of compressed mode in package 4 test case 8.4.1.43	F	5.5.0	5.6.0	T1-031425
TP-22	TP-030282	617		CR 34.123-1 Rel-5: P3 TC 8.4.1.28 Measurement Control and Report: UE internal measurement for events 6F and 6G	F	5.5.0	5.6.0	T1-031442
TP-22	TP-030282	618		CR 34.123-1 Rel-5: Removal of P3 TC 10.1.3.3.3 Incoming call / U9 mobile terminating call confirmed / termination requested by the user	F	5.5.0	5.6.0	T1-031443
TP-22	TP-030282	619		General correction of CM TGD parameter	F	5.5.0	5.6.0	T1-031453
TP-22	TP-030282	624		Correction to GMM P2 test case 12.4.2.2	F	5.5.0	5.6.0	T1-031474
TP-22	TP-030282	625		Correction to GMM P4 test case 12.4.1.4c	F	5.5.0	5.6.0	T1-031475
TP-22	TP-030282	592	1	Maintenance of low priority test case 11.2.1 Network initiated PDP context modification	F	5.5.0	5.6.0	T1-031488
TP-22	TP-030282	628		Package 3 test case 8.3.2.11	F	5.5.0	5.6.0	T1-031494
TP-22	TP-030282	630		Low priority test cases 8.2.5.4	F	5.5.0	5.6.0	T1-031496
TP-22	TP-030282	632		Package 4 test case 8.2.1.26	F	5.5.0	5.6.0	T1-031498
TP-22	TP-030282	633		Package 4 test case 9.5.7.1	F	5.5.0	5.6.0	T1-031499
TP-22	TP-030282	634		Low priority test cases 8.2.3.26	F	5.5.0	5.6.0	T1-031500
TP-22	TP-030282	636		Low priority test cases 8.3.1.29 and 8.3.1.30	F	5.5.0	5.6.0	T1-031502
TP-22	TP-030282	637		Low priority test cases 8.3.1.26 and 8.3.1.28	F	5.5.0	5.6.0	T1-031503
TP-22	TP-030282	640		Editorial Correction to RRC test case 8.3.2.13	F	5.5.0	5.6.0	T1-031512
TP-22	TP-030282	644		Correction to clause 8.1.2.1 to match TTCN	F	5.5.0	5.6.0	T1-031525
TP-22	TP-030282	647		Correction to TC 8.4.1.5 (Package 1)	F	5.5.0	5.6.0	T1-031531
TP-22	TP-030282	622	1	Correction to RRC P1 test case 8.1.1.8	F	5.5.0	5.6.0	T1-031577
TP-22	TP-030282	642	1	Correction to GMM Low Priority test case 12.4.3.3	F	5.5.0	5.6.0	T1-031578
TP-22	TP-030282	631	1	Traffic volume measurement test cases	F	5.5.0	5.6.0	T1-031582
TP-22	TP-030282	635	1	Package 2 test case 8.4.1.14	F	5.5.0	5.6.0	T1-031583
TP-22	TP-030282	607	1	Corrections to RRC test cases affected by NAS timer T3317	F	5.5.0	5.6.0	T1-031587
TP-22	TP-030282	603	1	Removal of session management test cases on QoS negotiation (Package 3+4)	F	5.5.0	5.6.0	T1-031599
TP-22	TP-030282	638	1	Package 2 test case 8.4.1.7	F	5.5.0	5.6.0	T1-031630
TP-22	TP-030282	601	1	New RLC test case on reconfiguration of RLC parameters by upper layers	F	5.5.0	5.6.0	T1-031631
TP-22	TP-030282	604	1	Introduction of test cases on A-GPS positioning	F	5.5.0	5.6.0	T1-031632
TP-22	TP-030282	598	1	P2 Idle Mode 6.2.1.1	F	5.5.0	5.6.0	T1-031634
TP-22	TP-030282	608	1	Updates to 6.2 series test cases	F	5.5.0	5.6.0	T1-031635
TP-22	TP-030282	643	1	Correction to Package 1 test case 7.2.3.13.	F	5.5.0	5.6.0	T1-031638
TP-22	TP-030282	593	1	P2 Inter-system handover	F	5.5.0	5.6.0	T1-031640
TP-22	TP-030282	594	1	P4 Inter-system handover	F	5.5.0	5.6.0	T1-031641
TP-22	TP-030282	621	2	Modification to RRC TC 8.3.3.1 – Assign different C-RNTI in UTRAN MOBILITY INFORMATION	F	5.5.0	5.6.0	T1-031642
TP-22	TP-030282	609	1	Corrections and updates on 8.1 RRC Connection Management Procedure for TDD mode	F	5.5.0	5.6.0	T1-031646
TP-22	TP-030282	610	1	Corrections and updates on 8.1.6 RRC Connection Management Procedure for TDD mode, Direct Transfer	F	5.5.0	5.6.0	T1-031647

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
TP-22	TP-030282	611	1	Corrections and updates on 8.2.1 Radio Bearer control procedure, Radio Bearer Establishment for TDD mode	F	5.5.0	5.6.0	T1-031648
TP-22	TP-030282	612	1	Corrections and updates on 8.2.2 Radio Bearer control procedure, Radio Bearer Reconfiguration for TDD mode	F	5.5.0	5.6.0	T1-031649
TP-22	TP-030282	613	1	Correction of references for section 18, RAB testing of TDD 1.28 Mcps option	F	5.5.0	5.6.0	T1-031650
TP-22	TP-030282	626		CR for P1 test cases 8.3.4.1 and 8.4.1.1	F	5.5.0	5.6.0	T1-031655
TP-22	TP-030282	646	1	Removal of package 1 RRC test case 8.2.5.1 –NOT IMPLEMENTED-NOT AVAILABLE ON TIME-	F	5.5.0	5.6.0	T1-031656
TP-22	TP-030282	599	1	CR 34.123-1 Rel-5: 12.4.2.4 Combined routing area updating / rejected / PLMN not allowed	F	5.5.0	5.6.0	T1-031657
TP-22	TP-030282	584	1	Section 7.1.1: correction of coding of the Target Channel Type Field on FACH for TDD	F	5.5.0	5.6.0	T1-031667
TP-22	TP-030282	605	1	Removal of Low priority RRC Measurement test cases	F	5.5.0	5.6.0	T1-031668
TP-22	TP-030282	606	1	New RRC test case on soft handover for multiple radio links	F	5.5.0	5.6.0	T1-031672
TP-22	TP-030282	591	2	Clarifications in low priority test case 11.1.2 PDP context activation requested by the network, successful and unsuccessful	F	5.5.0	5.6.0	T1-031679
TP-22	TP-030282	600	3	CR 34.123-1 Rel-5: 12.4.2.5a Combined routing area updating / rejected / roaming not allowed in this location area	F	5.5.0	5.6.0	T1-031681
TP-22	TP-030282	595	1	CR on Package 1 SM test case 11.1.1.1 Attach initiated by context activation/QoS Offered by Network is the QoS Requested	F	5.5.0	5.6.0	T1-031682
TP-22	TP-030282	648		General Modification to clause 9 – MM test cases – to be run only in NMOII	F	5.5.0	5.6.0	T1-031683
TP-22	TP-030282	645	2	Correction to package 3 test case 14.2.51b	F	5.5.0	5.6.0	T1-031685
TP-22	TP-030282	623	2	Correction to RRC P2 test case 8.4.1.17	F	5.5.0	5.6.0	T1-031686
TP-22	TP-030282	629	2	Package 1 test case 8.1.2.2	F	5.5.0	5.6.0	T1-031688
TP-22	TP-030282	649		CR to P2 GMM TC 12.2.1.3	F	5.5.0	5.6.0	T1-031689
TP-22	TP-030282	596	1	CR on Package 1 SM test cases 11.3.1 PDP context deactivation initiated by the UE and 11.3.2 PDP context deactivation initiated by the UE	F	5.5.0	5.6.0	T1-031696
TP-22	TP-030282	616		Modification for GMM test cases	F	5.5.0	5.6.0	T1-031708
TP-22	TP-040040	260	-	Correction to RLC test case 7.2.3.35	F	5.6.0	5.7.0	T1-040065
TP-23	TP-040040	646	1	Removal of package 1 RRC test case 8.2.5.1	F	5.6.0	5.7.0	T1-031656
TP-23	TP-040040	652	2	Corrections to prose for test case 7.1.1.1	F	5.6.0	5.7.0	T1-040402
TP-23	TP-040040	653	1	Corrections to prose for test cases 8.1.1.4, 8.1.1.5 and 8.1.1.6	F	5.6.0	5.7.0	T1-040268
TP-23	TP-040040	654	1	Clarification of Clause 8.3.1.1	F	5.6.0	5.7.0	T1-040314
TP-23	TP-040040	655	1	Corrections to prose for RRC test case 8.3.1.22	F	5.6.0	5.7.0	T1-040315
TP-23	TP-040040	656	1	Correction to prose for test case 8.3.2.7	F	5.6.0	5.7.0	T1-040269
TP-23	TP-040040	658	-	Correction to Multi PLMN MM test cases.	F	5.6.0	5.7.0	T1-040043
TP-23	TP-040040	659	-	Correction to Multi PLMN GMM test cases.	F	5.6.0	5.7.0	T1-040044
TP-23	TP-040040	661	-	Corrections to Package 1 RLC AM test cases to align with TTCN implementation and correct test case 7.2.3.33 (Revision of T1-040096)	F	5.6.0	5.7.0	T1-040262
TP-23	TP-040040	662	-	Corrections to TMSI Status usage in GMM test cases	F	5.6.0	5.7.0	T1-040350
TP-23	TP-040040	663	-	Correction to Package 2 Inter-system handover testcase 8.3.7.4	F	5.6.0	5.7.0	T1-040054
TP-23	TP-040040	664	-	Introduction of new test cases for lossless SRNS relocation in L2/PDCP, clause 7.3	F	5.6.0	5.7.0	T1-040058
TP-23	TP-040040	665	-	Clarification of initial condition for 8.1.1.1	F	5.6.0	5.7.0	T1-040063
TP-23	TP-040040	666	-	Correction to RLC test case 7.2.3.19	F	5.6.0	5.7.0	T1-040064
TP-23	TP-040040	667	-	New HSDPA radio bearer test cases	B	5.6.0	5.7.0	T1-040074
TP-23	TP-040040	668	-	Corrections to package 2 test RRC tc 8_2_2_23-unclassified test RRC tc 8_1_3_6-unclassified test RRC tc 8_1_6_4-unclassified test RRC tc 8_2_6_36	D	5.6.0	5.7.0	T1-040082
TP-23	TP-040040	669	-	Correction to Unclassified tests RRC tc 8_3_1_29	F	5.6.0	5.7.0	T1-040085
TP-23	TP-040040	670	-	Correction to Unclassified tests RRC tc 8_3_7_10	F	5.6.0	5.7.0	T1-040086
TP-23	TP-040040	670	-	CR to 34.123-1 REL-5; Correction to Unclassified	F	5.6.0	5.7.0	T1-040086

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
				tests RRC tc 8_3_7_10				
TP-23	TP-040040	671	-	Correction to Unclassified tests RRC tc 8_3_1_18	F	5.6.0	5.7.0	T1-040089
TP-23	TP-040040	672	-	Correction to package 4 RRC test case 8.3.2.2	F	5.6.0	5.7.0	T1-040090
TP-23	TP-040040	673	-	Correction of a test step number given in the Test Requirement for Package 1 test case 12.9.2	F	5.6.0	5.7.0	T1-040101
TP-23	TP-040040	674	-	Corrections to P3 Cell Selection (HCS) test cases.	F	5.6.0	5.7.0	T1-040110
TP-23	TP-040040	675	-	Corrections to P1 RRC test cases 8.3.1.1 and 8.3.1.3	F	5.6.0	5.7.0	T1-040112
TP-23	TP-040040	677	-	Corrections to P2 RRC test case 8.3.1.4	F	5.6.0	5.7.0	T1-040113
TP-23	TP-040040	678	-	Correction to P2 RRC test case 8.3. 1.22	F	5.6.0	5.7.0	T1-040114
TP-23	TP-040040	679	-	Removal of low priority GMM test cases 12.4.1.1c and 12.4.2.3a	F	5.6.0	5.7.0	T1-040116
TP-23	TP-040040	680	-	Correction to 8.4.1.41 (P4)	F	5.6.0	5.7.0	T1-040127
TP-23	TP-040040	681	-	Correction to RRC P4 TC 8.4.1.41 due to RAN CR 2146.	F	5.6.0	5.7.0	T1-040132
TP-23	TP-040040	682	-	Correction to RRC P1 TC 8.1.1.7	F	5.6.0	5.7.0	T1-040135
TP-23	TP-040040	683	-	Correction to Package 2 idle mode test cases 6.2.2.2 and 6.2.2.3	F	5.6.0	5.7.0	T1-040159
TP-23	TP-040040	684	-	Correction to 7.2.3.21 (P1)	F	5.6.0	5.7.0	T1-040170
TP-23	TP-040040	685	-	Corrections to Package 2 MM Test Case 9.3.1	F	5.6.0	5.7.0	T1-040173
TP-23	TP-040040	686	-	Correction to Unclassified tests RRC test cases 8_2_6_6..	F	5.6.0	5.7.0	T1-040183
TP-23	TP-040040	687	-	Correction to low priority inter-RAT cell change order test cases 8.3.11.4 & 8.3.11.6. Merge of T1-040081 and T1-040115.	F	5.6.0	5.7.0	T1-040187
TP-23	TP-040040	688	-	Future compatibility of RRC critical extension testing (Not implementable)	F	5.6.0	5.7.0	T1-040236
TP-23	TP-040040	689	-	CR to 34.123-1 REL-5; Correction to Unclassified tests RRC tc 8_3_9_2	F	5.6.0	5.7.0	T1-040237
TP-23	TP-040040	690	-	CR to 34.123-1 REL-5; Correction to Unclassified tests RRC tc 8_3_9_4	F	5.6.0	5.7.0	T1-040238
TP-23	TP-040040	691	-	Correction to package 4 RRC test case 8.3.9.3	F	5.6.0	5.7.0	T1-040239
TP-23	TP-040040	692	-	Removal of 8.2.2.25 (P3) and correction to 8.2.2.10 (P2) for clarification	F	5.6.0	5.7.0	T1-040240
TP-23	TP-040040	693	-	Corrections of 8.2.1.26 (P4) (Revision of T1-040266)	F	5.6.0	5.7.0	T1-040241
TP-23	TP-040040	694	-	Correction to handling of EnteredParameter IE in package 1 test cases 8.1.1.1, 8.1.1.7, and 8.1.1.8; revision of T1-040060	F	5.6.0	5.7.0	T1-040242
TP-23	TP-040040	695	-	Corrections to TestCases 8.3.4.1 and 8.3.4.3	F	5.6.0	5.7.0	T1-040243
TP-23	TP-040040	696	-	Seamless SRNS relocation test cases for TS 34.123-1 v5.6.0 (Revision of T1-040129)	F	5.6.0	5.7.0	T1-040244
TP-23	TP-040040	697	-	Corrections to the Package 1 TestCase 8.1.2.2	F	5.6.0	5.7.0	T1-040245
TP-23	TP-040040	698	-	Correction to package 2 RRC test case 8.1.10.1	F	5.6.0	5.7.0	T1-040255
TP-23	TP-040040	699	-	Correction to P2 MAC test case 7.1.3.1	F	5.6.0	5.7.0	T1-040261
TP-23	TP-040040	700	-	Correction to GCF package 1 RLC testcases 7.2.3.26 and 7.2.3.27	F	5.6.0	5.7.0	T1-040264
TP-23	TP-040040	701	-	Correction to 8.4.1.30 (P3) – Revision of T1-040125	F	5.6.0	5.7.0	T1-040265
TP-23	TP-040040	702	-	Correction to 8.3.1.30 (Low priority) – Revision of T1-040128	F	5.6.0	5.7.0	T1-040267
TP-23	TP-040040	703	-	Correction to RRC low priority TC 8.2.6.29 revision of T1-040182.	F	5.6.0	5.7.0	T1-040274
TP-23	TP-040040	704	-	Correction to TestCase 8.1.2.3	F	5.6.0	5.7.0	T1-040300
TP-23	TP-040040	705	-	Corrections to TestCase 8.3.1.15	F	5.6.0	5.7.0	T1-040301
TP-23	TP-040040	706	-	Correction to TestCase 8.3.2.4	F	5.6.0	5.7.0	T1-040302
TP-23	TP-040040	707	-	Corrections to the testcase 8.2.2.35	F	5.6.0	5.7.0	T1-040303
TP-23	TP-040040	708	-	Corrections to the RRC Test cases 8.1.3.1, 8.1.3.2, 8.1.3.3, 8.1.3.4 & 8.1.3.5	F	5.6.0	5.7.0	T1-040304
TP-23	TP-040040	709	-	Correction to Package II MM test case 9.4.8	F	5.6.0	5.7.0	T1-040305
TP-23	TP-040040	710	-	Correction to handling of EnteredParameter IE in test cases 8.1.1.9, 8.3.1.5, and 8.3.1.6	F	5.6.0	5.7.0	T1-040306
TP-23	TP-040040	711	-	Modifications in clause 11.2	F	5.6.0	5.7.0	T1-040310
TP-23	TP-040040	712	-	Correction to RRC P4 TC 8.2.6.37	F	5.6.0	5.7.0	T1-040351
TP-23	TP-040040	713	-	Corrections to PDP context deactivation procedure test cases	F	5.6.0	5.7.0	T1-040353

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
TP-23	TP-040040	714	-	Modification to NAS TC 12.3.2.1 to prevent an optional ATTACH REQUEST during the RRC connection release procedure. (Revision of T1-040059 and T1-040235)	F	5.6.0	5.7.0	T1-040355
TP-23	TP-040040	715	-	Correction to GMM Package II test case 12.2.1.7	F	5.6.0	5.7.0	T1-040356
TP-23	TP-040040	716	-	Correction to package 4 test case 12.4.1.4b	F	5.6.0	5.7.0	T1-040359
TP-23	TP-040040	717	-	Correction to GMM test case 12.4.2.1	F	5.6.0	5.7.0	T1-040361
TP-23	TP-040040	718	-	Correction to GMM test case 12.9.4	F	5.6.0	5.7.0	T1-040362
TP-23	TP-040040	719	-	Correction to Package 1 GMM test case 12.3.1.2	F	5.6.0	5.7.0	T1-040363
TP-23	TP-040040	720	-	Correction to GMM test case 12.4.1.1a	F	5.6.0	5.7.0	T1-040364
TP-23	TP-040040	721	-	Correction to some of the GMM test cases to include CS registration	F	5.6.0	5.7.0	T1-040365
TP-23	TP-040040	722	-	Correction to some of the GMM test cases	F	5.6.0	5.7.0	T1-040394
TP-23	TP-040040	723	-	Corrections to add minimum set of TFCIs to RB test cases	F	5.6.0	5.7.0	T1-040396
TP-23	TP-040040	724	-	New HSDPA MAC test cases	F	5.6.0	5.7.0	T1-040398
TP-23	TP-040040	725	-	New HSDPA RRC test cases (as of T1-040072rev1)	F	5.6.0	5.7.0	T1-040399
TP-23	TP-040040	726	-	New SM test case for QoS extension for rates above 8640 kbps	F	5.6.0	5.7.0	T1-040400
TP-23	TP-040040	727	-	Splitting ISHO high data rate tests 8.3.7.2 and 8.3.7.3 (Revision of T1-040143 and T1-040357).	F	5.6.0	5.7.0	T1-040406
TP-23	TP-040040	728	-	New test case for approved I/B UL:64 DL:768 kbps PS RAB (TTI=20ms option) – Revision of T1-040108 and T1-040395	F	5.6.0	5.7.0	T1-040407
TP-23	TP-040040	729	-	Correction to package 2 GMM test case 12.6.1.2	F	5.6.0	5.7.0	T1-040410
TP-23	TP-040040	730	-	Correction to CC test case 10.1.2.4.11	F	5.6.0	5.7.0	T1-040415
TP-23	TP-040040	731	-	Add 1.28 Mcps TDD content in clause 8.2.4.29	F	5.6.0	5.7.0	T1-040375
TP-23	TP-040040	732	-	Add 1.28 Mcps TDD content of Physical channel reconfiguration test case	F	5.6.0	5.7.0	T1-040376
TP-23	TP-040040	733	-	Add 1.28 Mcps TDD content of Quality measurements clause 8.4.1.22	F	5.6.0	5.7.0	T1-040377
TP-23	TP-040040	734	-	Add 1.28 Mcps TDD content of Inter-frequency measurement for event 2A	F	5.6.0	5.7.0	T1-040378
TP-23	TP-040040	735	-	Add 1.28 Mcps TDD content for internal measurement for event 6A and 6B	F	5.6.0	5.7.0	T1-040381
TP-23	TP-040040	736	-	Add 1.28 Mcps TDD content for UE internal measurement t for event 6G	F	5.6.0	5.7.0	T1-040382
TP-23	TP-040040	737	-	Add 1.28 Mcps TDD content for UE internal measurement t for event 6F	B	5.6.0	5.7.0	T1-040383
TP-23	TP-040040	738	-	Add 1.28 Mcps TDD content for UE Traffic Volume measurement	F	5.6.0	5.7.0	T1-040384
TP-23	TP-040040	739	-	Add 1.28 Mcps TDD content for UE internal measurement, event 6c	F	5.6.0	5.7.0	T1-040385
TP-23	TP-040040	740	-	Add 1.28 Mcps TDD content for UE internal measurement, event 6d	F	5.6.0	5.7.0	T1-040386
TP-23	TP-040040	741	-	Add 1.28 Mcps TDD content for UE internal measurement, event 6e	F	5.6.0	5.7.0	T1-040387
TP-23	TP-040040	742	-	Add 1.28 Mcps TDD content for Intra-frequency measurement, event1H and 1I (TDD)	F	5.6.0	5.7.0	T1-040388
TP-23	TP-040040	743	-	Add 1.28 Mcps TDD content of Intra-frequency measurement for transition from idle mode to CELL_DCH state (TDD)	F	5.6.0	5.7.0	T1-040390
TP-23	TP-040040	744	-	Add 1.28 Mcps TDD content of Intra-frequency measurement transition from idle mode to CELL_FACH state (TDD)	F	5.6.0	5.7.0	T1-040391
TP-23	TP-040040	745	-	Add 1.28 Mcps TDD content of Intra-frequency measurement transition from CELL_DCH to CELL_FACH state (TDD)	F	5.6.0	5.7.0	T1-040392
TP-23	TP-040040	746	-	Correction to package 3 test cases 16.1.2 and 16.2.2package 3 test cases 16.1.2and 16.2.2	F	5.6.0	5.7.0	T1-040175
TP-23	TP-040040	747	-	Correction to package 2 GMM test case 12.4.2.2 package 2 GMM test case 12.4.2.2	F	5.6.0	5.7.0	T1-040176
TP-23	TP-040040	748	-	Corrections to SM QoS negotiation test cases negotiation test cases	F	5.6.0	5.7.0	T1-040366
TP-23	TP-040040	749	-	Correct editorial errors and reference point for PRACH and UpPCH for 1.28 Mcps TDD in section 7.1.2.4 of TS34.123-17.1.2.4: Correct for PRACH and UpPCH	F	5.6.0	5.7.0	T1-040374

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
TP-23	TP-040040	750	-	Add 1.28 Mcps TDD content of Inter-frequency measurement for event 2B and 2E	F	5.6.0	5.7.0	T1-040379
TP-23	TP-040040	751	-	Add 1.28 Mcps TDD content of Inter-frequency measurement for event 2D and 2F	F	5.6.0	5.7.0	T1-040380
TP-23	TP-040040	752	-	Adding of new test cases for events 1G for 1.28 Mcps TDD	B	5.6.0	5.7.0	T1-040389
TP-23	-	-	-	Adaptation of CR 688 in T1-040236 to 34.123-1 V.5.6.0 (was originally written against v.5.5.0) and editorial corrections on implementation of CRs in T1-040353, T1-040043, T1-040264, and T1-040314	-	5.7.0	5.7.1	-
TP-24	TP-040115	764	-	'Emergency call establishment' as one of the CM Service Type in 10.1.2.1.1	F	5.7.1	5.8.0	T1-040557
TP-24	TP-040115	810	-	Correction to Conformance Requirement for P3 CC NAS TCs regarding support for "Prolonged Clearing Procedure".	F	5.7.1	5.8.0	T1-040671
TP-24	TP-040115	838	-	Correction to Package 1 SM TC 11.3.1 RAB release location	F	5.7.1	5.8.0	T1-040962
TP-24	TP-040115	839	-	Correction to Package 1 SM TC 11.3.2 RAB release location	F	5.7.1	5.8.0	T1-040963
TP-24	TP-040115	851	-	Correction to low priority TC 11.1.2	F	5.7.1	5.8.0	T1-040980
TP-24	TP-040115	759	-	Correction to low priority GMM TC 12.4.1.5	F	5.7.1	5.8.0	T1-040527
TP-24	TP-040115	760	-	Correction to P4 GMM TCs 12.2.1.5d and 12.4.1.4d	F	5.7.1	5.8.0	T1-040528
TP-24	TP-040115	855	-	Correction to several GMM TCs to include equivalent PLMN IE	F	5.7.1	5.8.0	T1-040529
TP-24	TP-040115	831	-	CR 34.123-1 Rel-5: Corrections to MM test cases to include GMM procedures	F	5.7.1	5.8.0	T1-040949
TP-24	TP-040115	832	-	Correction to package 3 GMM test case 12.4.2.5a	F	5.7.1	5.8.0	T1-040950
TP-24	TP-040115	833	-	Modification for GMM test cases (P4 and low priority test cases)	F	5.7.1	5.8.0	T1-040951
TP-24	TP-040115	841	-	Correction to P4 GMM Test Case 12.4.1.1b	F	5.7.1	5.8.0	T1-040966
TP-24	TP-040115	768	-	Corrections to prose for test cases 8.1.1.4, 8.1.1.5 and 8.1.1.6	F	5.7.1	5.8.0	T1-040561
TP-24	TP-040115	769	-	Editorial correction for 14.2.11, 14.2.39.2	D	5.7.1	5.8.0	T1-040565
TP-24	TP-040115	773	-	Addition of test case for Interactive or background / UL:64 DL:768 kbps / 10 ms TTI	F	5.7.1	5.8.0	T1-040570
TP-24	TP-040115	830	-	Correction to low priority radio bearer test cases (minimum set of TFCS)	F	5.7.1	5.8.0	T1-040947
TP-24	TP-040115	843	-	Correction to Package III SMS Test Case 16.2.1 (Revision of T1-040548)	F	5.7.1	5.8.0	T1-040968
TP-24	TP-040115	844	-	CR 34.123-1 Rel-5: Correction to package 3 SMS test case 16.1.1	F	5.7.1	5.8.0	T1-040969
TP-24	TP-040115	835	-	CR to 34.123-1 Rel-5, New A-GPS test cases	F	5.7.1	5.8.0	T1-040955
TP-24	TP-040115	778	-	Correction to initial conditions of Idle Mode test case 6.2.1.6	F	5.7.1	5.8.0	T1-040585
TP-24	TP-040115	800	-	General corrections to section 6 of 34.123-1 (idle mode)	F	5.7.1	5.8.0	T1-040647
TP-24	TP-040115	823	-	Changes to test procedure of Idle Mode Cell Reselection test case 6.2.2.3 (Revision of T1-040587)	F	5.7.1	5.8.0	T1-040937
TP-24	TP-040115	845	-	Corrections to P2 PLMN and RAT selection test cases in Multi-mode environment (2G/3G case)	F	5.7.1	5.8.0	T1-040971
TP-24	TP-040115	755	-	Correction to HSDPA MAC-hs test cases	F	5.7.1	5.8.0	T1-040519
TP-24	TP-040115	756	-	New HSDPA MAC-hs reset test case	F	5.7.1	5.8.0	T1-040520
TP-24	TP-040115	758	-	Correction to HSDPA radio bearer test cases	F	5.7.1	5.8.0	T1-040521
TP-24	TP-040115	761	-	Correction to package 1 MAC testcase 7.1.2.3.1	F	5.7.1	5.8.0	T1-040549
TP-24	TP-040115	816	-	Correction to prose for test case 7.1.1.1	D	5.7.1	5.8.0	T1-040682
TP-24	TP-040115	824	-	Re-instatement of Test Requirements to meet the Test Purpose in 7.2.3.24 and 7.2.3.27 (Merged with T1-040550 and revised from T1-040918)	F	5.7.1	5.8.0	T1-040938
TP-24	TP-040115	837	-	CR 34.123-1 Rel-5: Correction to package 2 MAC test case 7.1.3.1	F	5.7.1	5.8.0	T1-040958
TP-24	TP-040115	780	-	Corrections to SRNS relocation PDCP test cases	F	5.7.1	5.8.0	T1-040973
TP-24	TP-040115	753	-	CR to TS 34.123-1 R5, Correction to low priority RRC TCs 8.1.8.3 and 8.2.1.13.	F	5.7.1	5.8.0	T1-040509
TP-24	TP-040115	754	-	CR to TS 34.123-1 R5, Correction to low priority RRC TCs TC 8.1.6.4, 8.1.9a and 8.1.9b.	F	5.7.1	5.8.0	T1-040513
TP-24	TP-040115	765	-	Correction to package 1 test case 8.1.2.9 for BCCH Modification Time in Paging Type 1 message	F	5.7.1	5.8.0	T1-040558

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
TP-24	TP-040115	766	-	Correction for RRC Transaction Identifier in test cases 8.1.5.1 and 8.1.5.4	F	5.7.1	5.8.0	T1-040559
TP-24	TP-040115	767	-	Editorial corrections for 8.3.1.1	D	5.7.1	5.8.0	T1-040560
TP-24	TP-040115	770	-	Future compatibility of RRC critical extension testing	F	5.7.1	5.8.0	T1-040566
TP-24	TP-040115	771	-	Editorial correction for 8.3.1.31	D	5.7.1	5.8.0	T1-040567
TP-24	TP-040115	772	-	Corrections in Specific Message Contents for clause 8.3.1.5.4 and 8.3.1.6.4	F	5.7.1	5.8.0	T1-040568
TP-24	TP-040115	774	-	CR to 34.123-1 Rel-5, Correction to package 4 RRC test case 8.2.2.35	F	5.7.1	5.8.0	T1-040575
TP-24	TP-040115	775	-	CR to 34.123-1 Rel-5, Correction to package 4 RRC test case 8.2.3.29	F	5.7.1	5.8.0	T1-040576
TP-24	TP-040115	776	-	CR to 34.123-1 Rel-5, Correction to package 2 RRC test case 8.3.1.22	F	5.7.1	5.8.0	T1-040577
TP-24	TP-040115	777	-	Correction to package 1 RRC test case 8.2.4.1a	F	5.7.1	5.8.0	T1-040581
TP-24	TP-040115	779	-	Changes to test procedure of Cell Reselection Case 8.3.9.3	F	5.7.1	5.8.0	T1-040589
TP-24	TP-040115	781	-	Correction to number of reported cells in RRC P2 test case 8.4.1.7	F	5.7.1	5.8.0	T1-040625
TP-24	TP-040115	782	-	Correction to Low Priority RRC Cell Change Order Test Cases	F	5.7.1	5.8.0	T1-040626
TP-24	TP-040115	783	-	Removal of 8.2.1.26 (P4)	F	5.7.1	5.8.0	T1-040627
TP-24	TP-040115	784	-	Correction to P4 RRC Cell Change Order Test Cases	F	5.7.1	5.8.0	T1-040628
TP-24	TP-040115	785	-	Correction to P3 HCS test case 8.3.2.13	F	5.7.1	5.8.0	T1-040629
TP-24	TP-040115	786	-	Correction to P2 RRC test case 8.2.4.4	F	5.7.1	5.8.0	T1-040630
TP-24	TP-040115	787	-	Corrections to P4 RRC UTRAN to GERAN Cell Reselection test cases	F	5.7.1	5.8.0	T1-040631
TP-24	TP-040115	788	-	Correction to Low Priority RRC Cell Reselection test cases	F	5.7.1	5.8.0	T1-040632
TP-24	TP-040115	789	-	Corrections to P2 RRC test case 8.3.2.4	F	5.7.1	5.8.0	T1-040633
TP-24	TP-040115	790	-	Corrections to P2 RRC test case 8.3.2.1	F	5.7.1	5.8.0	T1-040634
TP-24	TP-040115	791	-	Correction to P2 test case 8.4.1.18	F	5.7.1	5.8.0	T1-040635
TP-24	TP-040115	792	-	Correction to P3 Inter Rat Measurement test cases	F	5.7.1	5.8.0	T1-040637
TP-24	TP-040115	793	-	Errors correction in section 8.4.1.7A for TDD of TS34.123-1	F	5.7.1	5.8.0	T1-040639
TP-24	TP-040115	794	-	Errors correction in section 8.4.1.29 of TS34.123-1	F	5.7.1	5.8.0	T1-040640
TP-24	TP-040115	795	-	To add the description of "Primary CCPCH info" (for TDD) in 8.1.6.3.	F	5.7.1	5.8.0	T1-040641
TP-24	TP-040115	796	-	To add the description of "Primary CCPCH info" (for TDD) in 8.2.6.8.	F	5.7.1	5.8.0	T1-040642
TP-24	TP-040115	797	-	Errors correction in section 8.3.1.4.4of TS34.123-1	F	5.7.1	5.8.0	T1-040644
TP-24	TP-040115	798	-	Errors correction in section 8.4.1.2a of TS34.123-1	F	5.7.1	5.8.0	T1-040645
TP-24	TP-040115	799	-	Corrections to test case 8.2.1.27 (Low priority)	F	5.7.1	5.8.0	T1-040646
TP-24	TP-040115	801	-	Corrections in Security Mode Command for 8.1.7.1 and 8.1.7.2 test cases.	F	5.7.1	5.8.0	T1-040648
TP-24	TP-040115	802	-	CR to TS 34.123-1 R5, Correction to P1 RRC TC 8.4.1.1.	F	5.7.1	5.8.0	T1-040651
TP-24	TP-040115	803	-	Add HCR TDD content of Inter-frequency measurement for event 2A	F	5.7.1	5.8.0	T1-040658
TP-24	TP-040115	804	-	Add HCR TDD content of Inter-frequency measurement for event 2B and 2E	F	5.7.1	5.8.0	T1-040659
TP-24	TP-040115	805	-	Add HCR TDD content for UE internal measurement, event 6c	F	5.7.1	5.8.0	T1-040661
TP-24	TP-040115	806	-	Add HCR TDD content for UE internal measurement, event 6d	F	5.7.1	5.8.0	T1-040662
TP-24	TP-040115	807	-	Add HCR TDD content for UE internal measurement, event 6e	F	5.7.1	5.8.0	T1-040663
TP-24	TP-040115	808	-	Adding of new test cases for events 1G for HCR TDD	B	5.7.1	5.8.0	T1-040664
TP-24	TP-040115	809	-	Tests for HCR TDD RAB combinations	F	5.7.1	5.8.0	T1-040666
TP-24	TP-040115	811	-	Corrections to specific message contents of test case 8.1.2.9 to support CS Domain.	F	5.7.1	5.8.0	T1-040668
TP-24	TP-040115	812	-	Correction to RRC Package 2 TC 8.4.1.17 on Measurement Reporting Interval.	F	5.7.1	5.8.0	T1-040674
TP-24	TP-040115	813	-	Correction to 8.3.4.2 test case at Step 6 for Measurement Report Message	F	5.7.1	5.8.0	T1-040678
TP-24	TP-040115	814	-	Correction for RRC Transaction Identifier in test	F	5.7.1	5.8.0	T1-040680

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
				cases 8.1.6.1 and 8.1.6.2				
TP-24	TP-040115	815	-	Correction to New C-RNTI value at Step5 in 8.3.1.11 testcase.	F	5.7.1	5.8.0	T1-040681
TP-24	TP-040115	817	-	Editorial correction to 8.2.3.22 (Low Priority)	F	5.7.1	5.8.0	T1-040710
TP-24	TP-040115	757	-	Addition of new SRNS relocation (radio link failure) test cases	F	5.7.1	5.8.0	T1-040715
TP-24	TP-040115	819	-	CR to 34.123-1 Rel-5: Correction to package 3 RRC test case 8.4.1.26	F	5.7.1	5.8.0	T1-040731
TP-24	TP-040115	820	-	CR to 34.123-1 Rel-5: Correction to package 3 RRC test case 8.2.4.1a	F	5.7.1	5.8.0	T1-040732
TP-24	TP-040115	853	-	Correction to low priority TC 8.3.11.3	F	5.7.1	5.8.0	T1-040758
TP-24	TP-040115	822	-	Corrections to TC 8.3.1.30 (Low Priority)	F	5.7.1	5.8.0	T1-040919
TP-24	TP-040115	825	-	System Information Block type 1 modification for FACH to DCH:T312 set to 2 seconds in connected mode	F	5.7.1	5.8.0	T1-040941
TP-24	TP-040115	826	-	Corrections to Table 8.3.7-1 in relation to Package 2 test cases 8.3.7.x (Editorial Revision of T1-040669)	F	5.7.1	5.8.0	T1-040942
TP-24	TP-040115	827	-	Revisions to Package 3 measurement test cases 8.4.1.31 and 8.4.1.40 (Revision of T1-040665)	F	5.7.1	5.8.0	T1-040943
TP-24	TP-040115	828	-	Correction of test case description for test case 8.1.6.4	F	5.7.1	5.8.0	T1-040944
TP-24	TP-040115	829	-	CR to 34.123-1 Rel-5, Correction to package 4 RRC test cases 8.2.3.11, 8.2.6.11 and 8.2.6.12	F	5.7.1	5.8.0	T1-040945
TP-24	TP-040115	854	-	CR to 34.123-1 Rel 5: Correction to package 2 RRC test case 8.4.1.2	F	5.7.1	5.8.0	T1-040959
TP-24	TP-040115	840	-	Corrections to Package 2 test case 9.4.2.4 Procedure 2	F	5.7.1	5.8.0	T1-040964
TP-24	TP-040115	842	-	CR to 34.123-1 Rel-5, Corrections to HSDPA RRC test cases	F	5.7.1	5.8.0	T1-040967
TP-24	TP-040115	846	-	CR to 34.123-1 Rel-5, New HSDPA RRC test cases	F	5.7.1	5.8.0	T1-040974
TP-24	TP-040115	847	-	Corrections to Seamless SRNS relocation RRC test cases (Revision to T1-040712)	F	5.7.1	5.8.0	T1-040975
TP-24	TP-040115	848	-	New SRNS relocation test cases (Revision of T1-040714)	F	5.7.1	5.8.0	T1-040976
TP-24	TP-040115	852	-	Addition of 6 new Inter-RAT test cases.	F	5.7.1	5.8.0	T1-040977r1
TP-24	TP-040115	849	-	Add HCR TDD content of Inter-frequency measurement for event 2D and 2F	F	5.7.1	5.8.0	T1-040978
TP-24	TP-040115	850	-	Change to Test Requirement of Cell Reselection Case: 8.3.9.1(Revision of T1-040588)	F	5.7.1	5.8.0	T1-040979
TP-24	TP-040115	762	-	Correction to package 2 MM testcase 9.4.2.1 to align with TTCN implementation.	F	5.7.1	5.8.0	T1-040552
TP-24	TP-040115	763	-	Correction to package 2 MM testcase 9.4.4	D	5.7.1	5.8.0	T1-040553
TP-24	TP-040115	818	-	CR 34.123-1 Rel-5: Corrections to MM test cases to emergency call support and authentication procedures.	F	5.7.1	5.8.0	T1-040724
TP-24	TP-040115	821	-	Correction of Test Requirement in Package 2 test case 9.3.1	F	5.7.1	5.8.0	T1-040921
TP-24	TP-040115	834	-	CR 34.123-1 Rel-5: Correction to package 2 MM test case 9.4.8	F	5.7.1	5.8.0	T1-040954
TP-24	TP-040115	836	-	Correction to package 2 MM testcase 9.1 to align with TTCN implementation.(Revision of T1-040551)	F	5.7.1	5.8.0	T1-040956
TP-24	TP-040115	856	-	Correction to Package 2 test case 9.4.2.3	F	5.7.1	5.8.0	T1-040961r2
TP-25	TP-040160	853	-	Correction to package 3 RRC test case 8.2.4.1a	F	5.8.0	5.9.0	T1-041002
TP-25	TP-040160	854’	-	System Information Block type 1 modification for FACH to DCH:T312 set to 2 seconds in connected mode	F	5.8.0	5.9.0	T1-041004
TP-25	TP-040160	855	-	Correction to number of reported GSM cells in RRC P3 test case 8.4.1.36	F	5.8.0	5.9.0	T1-041012
TP-25	TP-040160	856	-	Correction to prose for Package 3 RRC test case 8.4.1.30	F	5.8.0	5.9.0	T1-041019
TP-25	TP-040160	857	-	Revisions to Package 3 measurement test cases 8.4.1.33 and 8.4.1.40	F	5.8.0	5.9.0	T1-041020
TP-25	TP-040160	858	-	Correction to Package 2 MM TC 9.4.9 – to remove EFLOCI, EFHPLMNwAcT and EFPLMNwAcT USIM field reference	F	5.8.0	5.9.0	T1-041021
TP-25	TP-040160	859	-	Correction to Package 2 GMM TC 12.6.1.2 to remove ICS reference from test step.	F	5.8.0	5.9.0	T1-041023
TP-25	TP-040160	860	-	Correction to UL and DL TFCS in Package 3 test case 14.2.38e.	F	5.8.0	5.9.0	T1-041024

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
TP-25	TP-040160	861	-	Correction to Conformance Requirement for P4 CC NAS TC 10.1.2.7.1 regarding support for “Prolonged Clearing Procedure”.	F	5.8.0	5.9.0	T1-041026
TP-25	TP-040160	862	-	Correction to Conformance Requirement for Low Priority CC NAS test cases regarding support for “Prolonged Clearing Procedure”.	F	5.8.0	5.9.0	T1-041027
TP-25	TP-040160	863	-	Clarification of the Generic Test Procedure in Clause 14.1.2 of the Radio Bearer Tests	F	5.8.0	5.9.0	T1-041032
TP-25	TP-040160	864	-	Editorial Correction to Package 3 Radio Bearer test case 14.2.49.1	F	5.8.0	5.9.0	T1-041033
TP-25	TP-040160	865	-	Removal of package 3 idle mode test case 6.1.2.7	F	5.8.0	5.9.0	T1-041042
TP-25	TP-040160	866	-	Corrections to 8.2.5.4 and 8.3.3.2	F	5.8.0	5.9.0	T1-041045
TP-25	TP-040160	867	-	Corrections to 8.1.9b	F	5.8.0	5.9.0	T1-041047
TP-25	TP-040160	945	-	Correction to TC 8.3.7.1, 8.3.7.2 and 8.3.7.2a	F	5.8.0	5. 9.0	T1-041051
TP-25	TP-040160	868	-	New MAC test case for TFC selection with extended TFCS.	F	5.8.0	5.9.0	T1-041052
TP-25	TP-040160	869	-	Correction to TC 8.3.7.8, 8.3.7.10 and 8.3.7.11	F	5.8.0	5.9.0	T1-041053
TP-25	TP-040160	870	-	Correction of PLMN values for Idle Mode test case.	F	5.8.0	5.9.0	T1-041062
TP-25	TP-040160	871	-	Corrections to GMM test cases	F	5.8.0	5.9.0	T1-041066
TP-25	TP-040160	872	-	Correction to Inter-system hard handover from UTRAN to GSM overview table	F	5.8.0	5.9.0	T1-041079
TP-25	TP-040160	873	-	CR to 34.123-1Rel-5: Correction of 7.1.1.1 for TDD	F	5.8.0	5.9.0	T1-041082
TP-25	TP-040160	874	-	CR to 34.123-1 Rel-5: Adding Specific Contents for TDD in 7.1.1.2	F	5.8.0	5.9.0	T1-041083
TP-25	TP-040160	875	-	CR to 34.123-1 Rel-5: Adding Specific Message Contents for 1.28 Mcps TDD in 8.1.2.7	F	5.8.0	5.9.0	T1-041085
TP-25	TP-040160	876	-	CR to 34.123-1 Rel-5: Adding Specific Message Contents for 1.28 Mcps TDD in 8.1.5.1	F	5.8.0	5.9.0	T1-041086
TP-25	TP-040160	877	-	CR to 34.123-1 Rel-5: Adding Specific Message Contents for 1.28 Mcps TDD in 8.2.2.1	F	5.8.0	5.9.0	T1-041087
TP-25	TP-040160	878	-	CR 34.123-1 Rel-5: Corrections to SMS test cases 16.2.1 and 16.2.2	F	5.8.0	5.9.0	T1-041101
TP-25	TP-040160	879	-	Editorial Change in package 1 testcase 7.1.1.8	D	5.8.0	5.9.0	T1-041116
TP-25	TP-040160	880	-	Correction to Package 1 testcase 7.1.2.3.1 for N300 IE sent in SIB1	F	5.8.0	5.9.0	T1-041117
TP-25	TP-040160	881	-	P-TMSI expected in step 5 in package 4 GMM testcase 12.9.8 is incorrect.	D	5.8.0	5.9.0	T1-041120
TP-25	TP-040160	882	-	Contradiction between test procedure and test requirement in Package 3 SMS testcase 16.1.1	F	5.8.0	5.9.0	T1-041121
TP-25	TP-040160	883	-	Correction in step 2 in package 2 MM testcase 9.4.2.1	F	5.8.0	5.9.0	T1-041122
TP-25	TP-040160	884	-	Modification in SIB5 content for package 2 testcase 14.4.2.1	F	5.8.0	5.9.0	T1-041125
TP-25	TP-040160	885	-	Changes to Initial Conditions of P4 Inter-RAT Cell Change Order from UTRAN test cases and Inter system cell reselection from UTRAN test cases.	F	5.8.0	5.9.0	T1-041129
TP-25	TP-040160	886	-	Correction to P1 MAC test 7.1.1.2	F	5.8.0	5.9.0	T1-041134
TP-25	TP-040160	887	-	New test preamble and postamble for inter-RAT handover/cell change test cases (revision of T1-040779)	F	5.8.0	5.9.0	T1-041145
TP-25	TP-040160	888	-	HSDPA Physical Channel Reconfiguration (Hard Handover)	F	5.8.0	5.9.0	T1-041146
TP-25	TP-040160	889	-	HSDPA Active Set Update in Soft Handover	F	5.8.0	5.9.0	T1-041147
TP-25	TP-040160	890	-	Correction to Package 1 RRC test cases 8.1.7.1 and 8.1.7.2	F	5.8.0	5.9.0	T1-041157
TP-25	TP-040160	891	-	Correction to GMM test cases 12.3.1.7 and 12.4.3.3 (Low Priority)	F	5.8.0	5.9.0	T1-041163
TP-25	TP-040160	892	-	Handling of PS support in step 3 in Package 2 MM testcase 9.4.8.	F	5.8.0	5.9.0	T1-041170
TP-25	TP-040160	893	-	Correction to Generic test procedure for testing multi-RB Combinations and Simultaneous Signalling	F	5.8.0	5.9.0	T1-041172
TP-25	TP-040160	894	-	Correction to generic test procedure for single HS-DSCH radio bearer configurations	F	5.8.0	5.9.0	T1-041198
TP-25	TP-040160	895	-	Correction to Package 1 GMM test case 12.9.1 to make step #9 void.	F	5.8.0	5.9.0	T1-041206
TP-25	TP-040160	896	-	Addition of Specific Message Content for Radio Bearer Setup message in P3 Radio Bearer test case 14.2.57	F	5.8.0	5.9.0	T1-041207

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
TP-25	TP-040160	897	-	Corrections to CELL_DCH to CELL/URA_PCH state transition inconsistency in RRC test cases (package 1, 2 and low priority)	F	5.8.0	5.9.0	T1-041211
TP-25	TP-040160	898	-	Corrections to GCF Package 2 MM test cases 9.2.2, 9.4.2.1, 9.4.2.2.1 and GCF Package 4 test case 9.5.7.1	F	5.8.0	5.9.0	T1-041216
TP-25	TP-040160	899	-	Corrections to approved RRC Package 1 TC 8.3.4.3	F	5.8.0	5.9.0	T1-041221
TP-25	TP-040160	900	-	Corrections to RRC Package 4 TC 8.2.6.38	F	5.8.0	5.9.0	T1-041222
TP-25	TP-040160	901	-	Corrections to approved RRC Package 2 TC 8.2.2.23	F	5.8.0	5.9.0	T1-041225
TP-25	TP-040160	902	-	Updated preambles used for PDCP testing	F	5.8.0	5.9.0	T1-041228
TP-25	TP-040160	903	-	Add HCR TDD content of Inter-frequency measurement for event 2A	F	5.8.0	5.9.0	T1-041233
TP-25	TP-040160	904	-	Add TDD content of Inter-frequency measurement for event 2D and 2F	F	5.8.0	5.9.0	T1-041234
TP-25	TP-040160	905	-	Add to HCR TDD baseline IEs statement	F	5.8.0	5.9.0	T1-041236
TP-25	TP-040160	906	-	Correct “time to trigger” for Measurement Report in Measurement Control Message	F	5.8.0	5.9.0	T1-041237
TP-25	TP-040160	907	-	Errors corrected in section 8.4.1.29 of TS34.123-1	F	5.8.0	5.9.0	T1-041238
TP-25	TP-040160	908	-	Add HCR TDD S-CCPCH & PRACH tests sections	F	5.8.0	5.9.0	T1-041240
TP-25	TP-040160	909	-	Correction to prose for Package 3 RRC test case 8.4.1.29	F	5.8.0	5.9.0	T1-041242
TP-25	TP-040160	910	-	Adding Specific Message Contents of SIB5 for 1.28 Mcps TDD in 8.1.1.4	F	5.8.0	5.9.0	T1-041245
TP-25	TP-040160	911	-	Adding Specific Message Contents for TDD 128 in 8.2.6.1	F	5.8.0	5.9.0	T1-041247
TP-25	TP-040160	912	-	Delay between CP-ACK and DISCONNECT in package 3 test case 16.1.1	F	5.8.0	5.9.0	T1-041249
TP-25	TP-040160	913	-	Correction to GCF P1 Test Case 8.1.2.2.	F	5.8.0	5.9.0	T1-041254
TP-25	TP-040160	914	-	Correction to low priority RRC test case 8.3.4.7	F	5.8.0	5.9.0	T1-041263
TP-25	TP-040160	915	-	Correction to low priority RRC test case 8.4.1.15	F	5.8.0	5.9.0	T1-041265
TP-25	TP-040160	916	-	Correction of the Measurement Report control timer in the Generic Test Procedure in Clause 14.1.2 and 14.1.2a of the Radio Bearer Tests.	F	5.8.0	5.9.0	T1-041269
TP-25	TP-040160	917	-	RoHC test case as part of PDCP conformance testing	B	5.8.0	5.9.0	T1-041270
TP-25	TP-040160	918	-	Correction to Package 2 test case 8.3.1.22	D	5.8.0	5.9.0	T1-041272
TP-25	TP-040160	919	-	Correction to Package 2 test case 8.2.4.3 & 8.2.4.4	F	5.8.0	5.9.0	T1-041274
TP-25	TP-040160	920	-	Correction to P1 MAC test 7.1.2.4a	F	5.8.0	5.9.0	T1-041276
TP-25	TP-040160	921	-	Correction to LP test case 8.2.3.27	F	5.8.0	5.9.0	T1-041277
TP-25	TP-040160	922	-	Correction to TC 8.2.6.39, 8.2.6.43, 8.2.6.44 and 8.3.3.3	F	5.8.0	5.9.0	T1-041278
TP-25	TP-040160	923	-	Correction to 8.3.9.X test cases	F	5.8.0	5.9.0	T1-041279
TP-25	TP-040160	852	-	Corrections to 8.4.1.8	F	5.8.0	5.9.0	T1-041280
TP-25	TP-040160	924	-	Correction to Low Priority RRC test 8.1.3.6	D	5.8.0	5.9.0	T1-041284
TP-25	TP-040160	925	-	Correction to Low Priority RRC test 8.3.2.5	F	5.8.0	5.9.0	T1-041285
TP-25	TP-040160	926	-	Correction to Low Priority RRC test 8.3.4.4	F	5.8.0	5.9.0	T1-041286
TP-25	TP-040160	927	-	Addition of new test cases for Physical Channel Reconfiguration (radio link failure in old configuration)	F	5.8.0	5.9.0	T1-041288
TP-25	TP-040160	928	-	Modify test cases 8.3.1.10 and 8.3.2.4 to allow dual mode UE time to camp on cell.	F	5.8.0	5.9.0	T1-041290
TP-25	TP-040160	929	-	New radio bearer test case for the support of Wideband AMR speech service	F	5.8.0	5.9.0	T1-041292
TP-25	TP-040160	930	-	Correction to low priority RRC test case 8.2.6.34	F	5.8.0	5.9.0	T1-041294
TP-25	TP-040160	931	-	Correction to low priority RRC test case 8.4.1.9	F	5.8.0	5.9.0	T1-041295
TP-25	TP-040160	932	-	Correction to P3 RRC test 8.4.1.39	F	5.8.0	5.9.0	T1-041296
TP-25	TP-040160	933	-	Update Package 2 test case 8.4.1.7	F	5.8.0	5.9.0	T1-041297
TP-25	TP-040160	934	-	New HSDPA RRC test cases	F	5.8.0	5.9.0	T1-041299
TP-25	TP-040160	935	-	HSDPA Inter-RAT Cell Change Order	F	5.8.0	5.9.0	T1-041300
TP-25	TP-040160	936	-	HSDPA Inter-RAT Handover Test Cases	F	5.8.0	5.9.0	T1-041412
TP-25	TP-040160	937	-	Correction to Package 2 MM TC 9.4.2.2.4.1 - to remove checking of CKSN, LAI and Mobile Identity IEs	F	5.8.0	5.9.0	T1-041413

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
TP-25	TP-040160	938	-	Changes done in step 20 in test procedure 2 for package 3 GMM testcase 12.4.2.5a	F	5.8.0	5.9.0	T1-041417
TP-25	TP-040160	939	-	Correction to GMM test case 12.4.1.4c procedure2	F	5.8.0	5.9.0	T1-041419
TP-25	TP-040160	940	-	Correction to GMM test case 12.4.2.4 (P3)	F	5.8.0	5.9.0	T1-041420
TP-25	TP-040160	941	-	Correction to low priority radio bearer test cases (minimum set of TFCS) for HCR TDD	F	5.8.0	5.9.0	T1-041429
TP-25	TP-040160	942	-	CR to 34.123-1 REL-5: New test cases for A-GPS	F	5.8.0	5.9.0	T1-041430
TP-25	TP-040160	943	-	Correction to prose for Package 2 IR_U test case 6.2.2.1	F	5.8.0	5.9.0	T1-041434
TP-25	TP-040160	944	-	Update to the Expected Sequences in the Generic Radio Bearer Test Procedures of clause 14.1.1 and 14.1.2 to align with the approved TTCN.	F	5.8.0	5.9.0	T1-041436
TP-25	TP-040160	949	-	Correction to several GMM test cases – Mode C/A change	F	5.8.0	5.9.0	T1-041437
TP-25	TP-040160	946	-	Update to the Generic Radio Bearer Test Procedures re: Use of Primary/Secondary Scrambling codes	F	5.8.0	5.9.0	T1-041438
TP-25	TP-040160	947	-	Addition of new Inter-RAT test case.	F	5.8.0	5.9.0	T1-041442r1
TP-25	TP-040160	948	-	Update to the Generic Radio Bearer Test Procedures re: RM Attribute values	F	5.8.0	5.9.0	T1-041468
TP-26	TP-040235	950	-	Corrections to RRC Package 2 TC 8.2.4.3	F	5.9.0	5.10.0	T1-041526
TP-26	TP-040235	951	-	CR to 34.123-1 Rel-5: Correction to SIBs 3 and 4 for 3 MM test cases and 9 GMM test cases for cell selection	F	5.9.0	5.10.0	T1-041528
TP-26	TP-040235	952	-	Clarification in test case 11.3.3.1.	F	5.9.0	5.10.0	T1-041538
TP-26	TP-040235	953	-	Corrections to low priority RRC TCs 8.2.3.21, 8.2.6.26 and 8.2.6.32	F	5.9.0	5.10.0	T1-041543
TP-26	TP-040235	954	-	Correction to Low Priority NAS test case 12.2.1.5a.Proc2	F	5.9.0	5.10.0	T1-041544
TP-26	TP-040235	955	-	Correction to contents of SIB 11 and Cell Update in testcase 8.4.1.3	F	5.9.0	5.10.0	T1-041545
TP-26	TP-040235	956	-	Revisions to Package 3 measurement test cases 8.4.1.34, 8.4.1.35 and 8.4.1.36	F	5.9.0	5.10.0	T1-041546
TP-26	TP-040235	957	-	Correction to package 4 RRC test case 8.1.12	F	5.9.0	5.10.0	T1-041547
TP-26	TP-040235	958	-	Corrections to package 4 ISHO test case 8.3.7.12	F	5.9.0	5.10.0	T1-041548
TP-26	TP-040235	959	-	Correction to Low Priority RRC Test case 8.4.1.6	F	5.9.0	5.10.0	T1-041554
TP-26	TP-040235	960	-	Correction to P2 Inter-RAT cell reselection test cases 6.2.2.1 and 6.2.2.2	F	5.9.0	5.10.0	T1-041560
TP-26	TP-040235	961	-	CR to 34.123-1Rel-5: Correction of 8_4_1_1A for TDD	F	5.9.0	5.10.0	T1-041569
TP-26	TP-040235	962	-	CR to 34.123-1Rel-5: Correction of 8_4_1_3A for TDD	F	5.9.0	5.10.0	T1-041570
TP-26	TP-040235	963	-	CR to 34.123-1Rel-5: Correction of 8_4_1_5A for TDD	F	5.9.0	5.10.0	T1-041571
TP-26	TP-040235	964	-	CR to 34.123-1Rel-5: Correction of 8_4_1_7A for TDD	F	5.9.0	5.10.0	T1-041572
TP-26	TP-040235	965	-	CR to 34.123-1 Rel-5; Modification of low priority test case 8.2.4.24 to increase test coverage	F	5.9.0	5.10.0	T1-041587
TP-26	TP-040235	966	-	CR to 34.123-1 Rel-5; New Rel-5 Measurement Test Case	B	5.9.0	5.10.0	T1-041588
TP-26	TP-040235	967	-	Correction to package 2 approved RAB test case 14.2.29	F	5.9.0	5.10.0	T1-041592
TP-26	TP-040235	968	-	Correction to MAC-hs test cases	F	5.9.0	5.10.0	T1-041593

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
TP-26	TP-040235	969	-	Correction to package 1 MAC approved test case 7.1.1.2	F	5.9.0	5.10.0	T1-041596
TP-26	TP-040235	970	-	Correction to package 2 RRC approved test case 8.3.1.22	F	5.9.0	5.10.0	T1-041597
TP-26	TP-040235	971	-	Add sections for tests on Shared Channels	F	5.9.0	5.10.0	T1-041602
TP-26	TP-040235	972	-	Add generic test procedure for tests Shared Channels	F	5.9.0	5.10.0	T1-041603
TP-26	TP-040235	973	-	Add to HCR TDD baseline IEs statement	F	5.9.0	5.10.0	T1-041604
TP-26	TP-040235	974	-	Add HCR to TDD IEs of Measurement report in 8.4.1.29.4	F	5.9.0	5.10.0	T1-041605
TP-26	TP-040235	975	-	CR to 34.123-1 R5: New test cases for A-GPS failure cases	F	5.9.0	5.10.0	T1-041610
TP-26	TP-040235	976	-	CR to 34.123-1 R5: Editorial corrections to A-GPS test cases	F	5.9.0	5.10.0	T1-041612
TP-26	TP-040235	977	-	CR to 34.123-1 R5: Corrections to A-GPS test cases	F	5.9.0	5.10.0	T1-041613
TP-26	TP-040235	978	-	Correction to low priority RRC test case 8.3.2.5	F	5.9.0	5.10.0	T1-041632
TP-26	TP-040235	979	-	Correction to package 2 GMM approved test case 12.4.2.2	F	5.9.0	5.10.0	T1-041634
TP-26	TP-040235	980	-	CR to 34.123-1 Rel-5: Correction to GCF Package 3 RRC test case 8.3.1.24	F	5.9.0	5.10.0	T1-041639
TP-26	TP-040235	981	-	CR to 34.123-1 Rel-5: Correction to GCF Package 4 RRC test case 8.2.2.4	F	5.9.0	5.10.0	T1-041640
TP-26	TP-040235	982	-	P-TMSI Change in RAU message (GPRS) for GCF Package 2 test case 12.8	F	5.9.0	5.10.0	T1-041656
TP-26	TP-040235	983	-	Correction of package 3 radio bearer test case 14.2.58	F	5.9.0	5.10.0	T1-041688
TP-26	TP-040235	984	-	Corrections to RB TCs 14.2.51a.1 (P3), 14.2.51a.2 (low-prio), 14.2.51b.1 (P3) and 14.2.51b.2 (low-prio)	F	5.9.0	5.10.0	T1-041691
TP-26	TP-040235	985	-	Addition of radio bearer test case for PS streaming and downlink rate up to 128 kbps	F	5.9.0	5.10.0	T1-041692
TP-26	TP-040235	986	-	CR to 34.123-1 Rel-5: Correction to prose for Package 2 MM test case 9.4.5.4.1 (Revision of T1-041527)	F	5.9.0	5.10.0	T1-041704
TP-26	TP-040235	987	-	Correction to Package 4 RRC test case 8.1.7.1d	F	5.9.0	5.10.0	T1-041705
TP-26	TP-040235	988	-	New HSDPA radio bearer test cases	F	5.9.0	5.10.0	T1-041733
TP-26	TP-040235	989	-	Correction to GMM test case 12.9.7a	F	5.9.0	5.10.0	T1-041739
TP-26	TP-040235	990	-	Corrections to RRC Package 4 test cases 8.4.1.42 & 8.4.1.43 (revision of T1-0401636)	F	5.9.0	5.10.0	T1-041760
TP-26	TP-040235	991	-	Correction to Package 1 measurement test case 8.4.1.5	F	5.9.0	5.10.0	T1-041783
TP-26	TP-040235	992	-	Correction to prose for Package 2 MM test case 9.4.2.1	F	5.9.0	5.10.0	T1-041784
TP-26	TP-040235	993	-	Corrections to MM Package 2 TC 9.4.9 revision of T1-041539.	F	5.9.0	5.10.0	T1-041787
TP-26	TP-040235	994	-	Correction to TC 8.2.4.1a	F	5.9.0	5.10.0	T1-041795

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
TP-26	TP-040235	995	-	Correction to TC 8.2.6.44	F	5.9.0	5.10.0	T1-041796
TP-26	TP-040235	996	-	Correction to Package 3 Idle Mode test case 6.1.1.7	F	5.9.0	5.10.0	T1-041807
TP-26	TP-040235	997	-	Correction to Package 4 test case 8.1.2.4	F	5.9.0	5.10.0	T1-041808
TP-26	TP-040235	998	-	Correction to Inter-RAT idle mode Package 2 test case 6.2.1.8	F	5.9.0	5.10.0	T1-041904
TP-26	TP-040235	999	-	CR to 34.123-1 Rel-5: Correction to Radio Bearer Setup used for RLC testing	F	5.9.0	5.10.0	T1-041906
TP-26	TP-040235	1000	-	Correction to Package 4 RRC test case 8.3.7.5	F	5.9.0	5.10.0	T1-041907
TP-26	TP-040235	1001	-	Correction to Package 4 RRC test case 8.1.3.9	F	5.9.0	5.10.0	T1-041908
TP-26	TP-040235	1002	-	Correction to Package 2 RRC test case 8.3.1.21	F	5.9.0	5.10.0	T1-041909
TP-26	TP-040235	1003	-	Correction to Package 3 RRC test case 8.3.2.11	F	5.9.0	5.10.0	T1-041910
TP-26	TP-040235	1004	-	Clarification in test case 11.2.2.2	F	5.9.0	5.10.0	T1-041911
TP-26	TP-040235	1005	-	Correction to Package 1 RRC test case 8.1.7.1b	F	5.9.0	5.10.0	T1-041912
TP-26	TP-040235	1006	-	CR to 34.123-1 Rel-5: Correction to GCF Package 3 RAB test cases 14.2.51b.1 & 14.2.38c (Revision of T1-041644)	F	5.9.0	5.10.0	T1-041913
TP-26	TP-040235	1007	-	Correction to prose for Package 4 RRC test case 8.1.7.1c	F	5.9.0	5.10.0	T1-041915
TP-26	TP-040235	1008	-	Correction to P1 RRC test case 8.4.1.1 (Revision of T1-041553)	F	5.9.0	5.10.0	T1-041916
TP-26	TP-040235	1009	-	CR to 34.123-1 Rel-5: Correction to prose for Package 3 MM test case 9.4.7 (revision of T1-041530)	F	5.9.0	5.10.0	T1-041917
TP-26	TP-040235	1010	-	More alignment of IE Names used in Clause 12 to the core specification	D	5.9.0	5.10.0	T1-041921
TP-26	TP-040235	1011	-	Correction to Approved GCF P4 NAS Test Case 12.9.7c	F	5.9.0	5.10.0	T1-041922
TP-26	TP-040235	1012	-	Corrections to high priority GMM test case 12.9.9	F	5.9.0	5.10.0	T1-041924
TP-26	TP-040235	1013	-	CR to 34.123-1 Rel-5: Correction to GCF Package 1 GMM test cases 12.9.1.(Revision of T1-041642)	F	5.9.0	5.10.0	T1-041925
TP-26	TP-040235	1014	-	Correction to GMM test cases in clause 12.9 (Revision of T1-041918)	F	5.9.0	5.10.0	T1-041928
TP-26	TP-040235	1015	-	CR to 34.123-1 Rel-5; Corrections to HSDPA RRC test cases (revision of T1-041755)	F	5.9.0	5.10.0	T1-041929
TP-26	TP-040235	1016	-	Correction to TC 12.9.8 (P4)	F	5.9.0	5.10.0	T1-041930
TP-26	TP-040235	1017	-	New HSDPA RRC test cases (intra-frequency) (revision of T1-041799)	F	5.9.0	5.10.0	T1-041934
TP-26	TP-040235	1018	-	New HSDPA RRC test cases (inter-frequency) (revision of T1-041800)	F	5.9.0	5.10.0	T1-041935
TP-26	TP-040235	1019	-	Updating 'Conformance requirement' in test case 11.1.4.1 and addition of lower layer signalling.	F	5.9.0	5.10.0	T1-041946
TP-26	TP-040235	1020	-	Addition of inter-RAT handover test case to 34.123-1 (Revision of T1-041582)	F	5.9.0	5.10.0	T1-041947
TP-26	TP-040235	1021	-	Correction to low priority RRC test case 8.2.6.34	F	5.9.0	5.10.0	T1-041949
TP-26	TP-040235	1022	-	Alignment of IE values used in Clause 12 to the core	F	5.9.0	5.10.0	T1-041950

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
				specification (Revision of T1-041561)				
TP-26	TP-040235	1023	-	Correction to GCF P3 Test Case 8.4.1.29	D	5.9.0	5.10.0	T1-041953
TP-26	TP-040235	1024	-	New test cases for Location updating / periodic search for HPLMN or higher priority PLMN when in VPLMN	F	5.9.0	5.10.0	T1-041954
TP-26	TP-040235	1025	-	Update of HSDPA radio bearer test cases 14.6.1 and 14.6.2	F	5.9.0	5.10.0	T1-041955
TP-26	TP-040235	1026	-	Correction to 14.1.2 (Revision of T1-041798)	F	5.9.0	5.10.0	T1-041956
TP-26	TP-040235	1027	-	CR to 34.123-1 R5: New test cases for A-GPS transfer to third party	F	5.9.0	5.10.0	T1-041957
TP-26	TP-040235	1028	-	CR to 34.123-1 R5: New test cases for A-GPS privacy options	F	5.9.0	5.10.0	T1-041958
TP-26	TP-040235	1029	-	CR to 34.123-1 R5: Assistance data for UE-assisted A-GPS	F	5.9.0	5.10.0	T1-041959
TP-26	TP-040235	1030	-	Update of radio bearer test case 14.2.62 for Wideband AMR	F	5.9.0	5.10.0	T1-041960
TP-26	TP-040235	1031	-	CR to 34.123-1 Rel-5; New HSDPA RRC test cases (revision of T1-041589)	B	5.9.0	5.10.0	T1-041961
TP-26	TP-040235	1032	-	New MAC-hs test case for transport format selection	F	5.9.0	5.10.0	T1-041962
TP-26	TP-040235	1033	-	Removal of optional 'Follow-on request pending' indicator in SM test case 11.1.1.1.	F	5.9.0	5.10.0	T1-041966
TP-26	TP-040235	1034	-	Removal of optional 'Follow-on request pending' indicator in SM test case 11.1.1.1a.	F	5.9.0	5.10.0	T1-041967
TP-26	TP-040235	1035	-	CR to 34.123-1 Rel-5: Correction to GCF Package 4 RRC test case 8.3.1.18	F	5.9.0	5.10.0	T1-041972
TP-26	TP-040235	1036	-	Correction to Package 2 IR_U test case 12.8	F	5.9.0	5.10.0	T1-041977
TP-26	TP-040235	1037	-	Correction to Package 2 testcase 8.4.1.7	F	5.9.0	5.10.0	T1-041902rev1
TP-26	TP-040235	1038	-	Modification of SIB5 content for package 4 testcase 14.4.2a.1 and Addition of Specific Message Content for Radio Bearer Setup message in section 14.4.2a.	F	5.9.0	5.10.0	T1-041512
TP-26	TP-040235	1039	-	CR to 34.123-1 Rel-5: Correction to GCF Package 3 RRC test case 8.3.2.13	F	5.9.0	5.10.0	T1-041637
TP-27	TP-050052	1040		Modification of SIB5 content for 18.2.5.2a.1 and Addition of Specific Message Content for Radio Bearer Setup message in section 18.2.5.2a.	F	5.10.0	5.11.0	T1-050294
TP-27	TP-050052	1041		Correction to Package 2 RRC test case 8.4.1.19 (Revison of T1-050046, T1-050291)	F	5.10.0	5.11.0	T1-050427
TP-27	TP-050052	1042		CR to 34.123-1 R5: New GMM test case for verification of follow-on request pending indicator.	F	5.10.0	5.11.0	T1-050446
TP-27	TP-050052	1043		Corrections to A-GPS test cases	F	5.10.0	5.11.0	T1-050174
TP-27	TP-050052	1044		Addition of GPS scenario and A-GPS assistance data to 34.123	F	5.10.0	5.11.0	T1-050457
TP-27	TP-050052	1045		Correction to Package 2 RRC test case 8.3.1.10	F	5.10.0	5.11.0	T1-050002
TP-27	TP-050052	1046		Correction to Package 4 NAS test case 12.4.1.4a	F	5.10.0	5.11.0	T1-050006
TP-27	TP-050052	1047		Correction to Package 4 NAS test case 12.4.1.4d Proc 1	F	5.10.0	5.11.0	T1-050007

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
TP-27	TP-050052	1048		Correction to Package 4 RRC test case 8.1.3.5	F	5.10.0	5.11.0	T1-050008
TP-27	TP-050052	1049		Correction to Package 1 RRC test case 8.3.4.3	F	5.10.0	5.11.0	T1-050010
TP-27	TP-050052	1050		Correction to Package 4 NAS test case 9.4.3.5	D	5.10.0	5.11.0	T1-050011
TP-27	TP-050052	1051		Correction to Package 1 RRC test case 8.4.1.1	F	5.10.0	5.11.0	T1-050015
TP-27	TP-050052	1052		Correction to Package 3 RRC test case 8.4.1.37	D	5.10.0	5.11.0	T1-050016
TP-27	TP-050052	1053		Correction to Package 3 RRC test case 8.1.2.10	D	5.10.0	5.11.0	T1-050017
TP-27	TP-050052	1054		Correction to GCF P4 RRC 8.3.1.18	F	5.10.0	5.11.0	T1-050022
TP-27	TP-050052	1055		Correction to Package 1 RRC test case 8.1.2.2	F	5.10.0	5.11.0	T1-050023
TP-27	TP-050052	1056		Correction to Package 4 RRC test case 8.4.1.26	F	5.10.0	5.11.0	T1-050024
TP-27	TP-050052	1057		Correction to default contents of System Information Block 3 and 4 for Idle Mode test cases	F	5.10.0	5.11.0	T1-050025
TP-27	TP-050052	1058		Correction to GCF P4 IR_U 8.3.7.5	F	5.10.0	5.11.0	T1-050030
TP-27	TP-050052	1059		Correction to Package 2 MultiRAT GMM test case 12.8	F	5.10.0	5.11.0	T1-050032
TP-27	TP-050052	1060		Correction to Package 4 RAB test case 14.4.2a	F	5.10.0	5.11.0	T1-050041
TP-27	TP-050052	1061		Correction to NAS GMM test cases 12.4.2.6.1 and 12.4.2.6.2 (GCF Work Item 12)	F	5.10.0	5.11.0	T1-050044
TP-27	TP-050052	1062		Correction to P3 RRC test cases 8.4.1.40	F	5.10.0	5.11.0	T1-050049
TP-27	TP-050052	1063		Correction of USIM HPLMN information in idle mode test cases	F	5.10.0	5.11.0	T1-050050
TP-27	TP-050052	1064		Correction of 'Test requirements' in high priority test case 14.2.32.2 (GCF WI -12) and in low priority test cases 14.2.31.1, 14.2.31.2, 14.2.35.1 and 14.2.35.2.	F	5.10.0	5.11.0	T1-050053
TP-27	TP-050052	1065		Corrections to GCF P3 test cases 14.2.51.1, 14.2.51a.1, 14.2.51b.1 and to low priority test cases 14.2.38d, 14.2.51a.2, 14.2.51b.2	F	5.10.0	5.11.0	T1-050054
TP-27	TP-050052	1066		Correction to RAB test case 14.2.34.1 (GCF Work Item 12)	F	5.10.0	5.11.0	T1-050058
TP-27	TP-050052	1067		CR to 34.123-1Rel-5: Correction of 8_4_1_2A for TDD	F	5.10.0	5.11.0	T1-050060
TP-27	TP-050052	1068		CR to 34.123-1Rel-5: Correction of 8_4_1_4A for TDD	F	5.10.0	5.11.0	T1-050061
TP-27	TP-050052	1069		CR to 34.123-1Rel-5: Correction of 8_4_1_6A for TDD	F	5.10.0	5.11.0	T1-050062
TP-27	TP-050052	1070		CR to 34.123-1Rel-5: Correction of 8_4_1_8A for TDD	F	5.10.0	5.11.0	T1-050063
TP-27	TP-050052	1071		Corrections to Package 4 RRC test case 8.1.2.3 & Package 1 RRC test case 8.1.2.9	F	5.10.0	5.11.0	T1-050071
TP-27	TP-050052	1072		Corrections to HSDPA RRC test cases 8.2.2.36, 8.2.2.37 & 8.2.2.38	F	5.10.0	5.11.0	T1-050074
TP-27	TP-050052	1073		Corrections to Package 4 GMM test case 12.9.7c	F	5.10.0	5.11.0	T1-050098
TP-27	TP-050052	1074		Editorial correction to P1 GMM test case 12.9.1	F	5.10.0	5.11.0	T1-050107
TP-27	TP-050052	1075		Correction to Package 2 MAC test case 7.1.3.1	F	5.10.0	5.11.0	T1-050127
TP-27	TP-050052	1076		Correction to Radio Bearer Setup used for RLC	F	5.10.0	5.11.0	T1-050128

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
				testing				
TP-27	TP-050052	1077		Correction to MAC test cases 7.1.3.2	F	5.10.0	5.11.0	T1-050136
TP-27	TP-050052	1078		Correction to MAC-hs test cases 7.1.5.2	F	5.10.0	5.11.0	T1-050137
TP-27	TP-050052	1079		Correction to GCF low priority RRC test cases	F	5.10.0	5.11.0	T1-050160
TP-27	TP-050052	1080		Correction to GCF high priority (WI-010) RRC test cases	F	5.10.0	5.11.0	T1-050161
TP-27	TP-050052	1081		Correction to GCF high priority (WI-12) RRC test cases	F	5.10.0	5.11.0	T1-050162
TP-27	TP-050052	1082		Correction to GCF high priority (WI-14) RRC test cases	F	5.10.0	5.11.0	T1-050163
TP-27	TP-050052	1083		Correction of 3rd party transfer A-GPS test cases	F	5.10.0	5.11.0	T1-050168
TP-27	TP-050052	1084		Correction of UE-assisted A-GPS test cases	F	5.10.0	5.11.0	T1-050170
TP-27	TP-050052	1085		Correction to Approved RRC Package 3 TC 8.4.1.33	F	5.10.0	5.11.0	T1-050193
TP-27	TP-050052	1086		CR to TS 34.123-1 v5.a.0 - Correction to Package 2 Test Case 6.2.2.2	F	5.10.0	5.11.0	T1-050203
TP-27	TP-050052	1087		CR to TS 34.123-1 v5.a.0 - Correction to Low-Priority Test Case TC 8.1.8.3	F	5.10.0	5.11.0	T1-050204
TP-27	TP-050052	1088		CR to TS 34.123-1 v5.a.0 - Editorial corrections to Package 4 test case 8.3.7.5 and Package 3 test case 8.4.1.31	F	5.10.0	5.11.0	T1-050206
TP-27	TP-050052	1089		Correction to 34.123, clause 6, idle mode test case 6.1.2.9	F	5.10.0	5.11.0	T1-050232
TP-27	TP-050052	1091		Correction to Package 2 RRC test case 8.1.10.1	F	5.10.0	5.11.0	T1-050272
TP-27	TP-050052	1092		Correction to RRC test case 8.1.1.10 (GCF Work Item 12)	F	5.10.0	5.11.0	T1-050273
TP-27	TP-050052	1093		Correction to NAS GMM test case 12.4.1.5 (GCF Work Item 12)	F	5.10.0	5.11.0	T1-050274
TP-27	TP-050052	1094		Correction to RRC test cases 8.1.2.11 and 8.2.1.24 (GCF Work Item 12)	F	5.10.0	5.11.0	T1-050275
TP-27	TP-050052	1095		Correction to Package 2 RRC test case 8.4.1.7	F	5.10.0	5.11.0	T1-050276
TP-27	TP-050052	1096		Correction to NAS MM test case 9.4.2.4 (GCF Work Item 12)	F	5.10.0	5.11.0	T1-050277
TP-27	TP-050052	1097		Correction to Package 2 Testcase 8.2.4.1	F	5.10.0	5.11.0	T1-050285
TP-27	TP-050052	1098		CR to 34.123-1 : Correction to P4 RRC test case 8.2.2.35	F	5.10.0	5.11.0	T1-050287
TP-27	TP-050052	1099		Correction to Package 2 RRC test case 8.4.1.23 (Revision T1-050009)	F	5.10.0	5.11.0	T1-050290
TP-27	TP-050052	1100		Correction to GCF priority 2 (WI-010) RRC test case 8.4.1.14	F	5.10.0	5.11.0	T1-050299
TP-27	TP-050052	1101		Correction to Approved RRC Package 3 TC 8.4.1.31	F	5.10.0	5.11.0	T1-050402
TP-27	TP-050052	1102		Deletion of postamble of switch-off UE and detach in GMM test cases.	F	5.10.0	5.11.0	T1-050405
TP-27	TP-050052	1103		Correction to Package 2 RRC test case 8.3.1.31 (Revision of T1-050004)	F	5.10.0	5.11.0	T1-050407
TP-27	TP-050052	1104		Correction to Package 4 Inter-system handover test	F	5.10.0	5.11.0	T1-050410

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
				case 8.3.7.12				
TP-27	TP-050052	1105		Correction to Package 1 RRC test case 8.4.1.5	F	5.10.0	5.11.0	T1-050411
TP-27	TP-050052	1106		CR to 34.123-1 Rel-5; Corrections to RRC test cases on seamless SRNS relocation (revision of T1-050084)	F	5.10.0	5.11.0	T1-050412
TP-27	TP-050052	1107		CR to 34.123-1 Rel-5; New RRC test case on seamless SRNS relocation using Radio Bearer Reconfiguration (revision of T1-050085)	B	5.10.0	5.11.0	T1-050413
TP-27	TP-050052	1108		CR to TS34.123-1; New RRC test cases for Radio Bearer Setup Procedure	F	5.10.0	5.11.0	T1-050414
TP-27	TP-050052	1109		Correction to WI-012 test case 8.1.6.3	F	5.10.0	5.11.0	T1-050415
TP-27	TP-050052	1110		CR to 34.123-1 Rel-5: Correction to P4 RRC test case 8.3.11.4	F	5.10.0	5.11.0	T1-050416
TP-27	TP-050052	1111		Correction to Package 4 NAS test cases 12.6.1.3.1 , 12.6.1.3.2 and 12.9.6	F	5.10.0	5.11.0	T1-050417
TP-27	TP-050052	1112		Corrections to HSDPA RRC test case 8.2.2.39 (revision of T1-050270)	F	5.10.0	5.11.0	T1-050421
TP-27	TP-050052	1113		Correction to HSDPA generic radio bearer test procedure	F	5.10.0	5.11.0	T1-050425
TP-27	TP-050052	1114		Addition of inter-RAT handover test case (UE supporting DTM) to 34.123-1	F	5.10.0	5.11.0	T1-050428
TP-27	TP-050052	1115		Correcting Initial Conditions of Inter-RAT 8.3.7. test cases	F	5.10.0	5.11.0	T1-050429
TP-27	TP-050052	1116		CR to TS34.123-1 Rel-5; Addition of new HSDPA test case (Revision of T1-050179, T1-050265)	F	5.10.0	5.11.0	T1-050430
TP-27	TP-050052	1117		CR to TS34.123-1 Rel-5; Correction to TC 8.2.4.36 (Revision of T1-050181, T1-050266)	F	5.10.0	5.11.0	T1-050431
TP-27	TP-050052	1118		Correction to GCF P4 IR_U 8.3.7.9 and 8.3.7.13 (Revision of T1-050031 & T1-050408)	F	5.10.0	5.11.0	T1-050432
TP-27	TP-050052	1119		Alignment of IE Names used in Clause 12 to the core specification (revision of T1-050021)	D	5.10.0	5.11.0	T1-050434
TP-27	TP-050052	1120		Correction to Package 4 NAS test case 12.4.1.4c Proc 2 (revision of T1-050040)	D	5.10.0	5.11.0	T1-050439
TP-27	TP-050052	1121		Corrections to Package 4 GMM test case 12.4.1.1b	F	5.10.0	5.11.0	T1-050440
TP-27	TP-050052	1122		Correction to NAS GMM test case 12.3.2.8 (GCF Work Item 12)	F	5.10.0	5.11.0	T1-050442
TP-27	TP-050052	1123		Correction to GMM clause	F	5.10.0	5.11.0	T1-050443
TP-27	TP-050052	1124		Correction to Package 4 NAS test case 12.9.3	F	5.10.0	5.11.0	T1-050447
TP-27	TP-050052	1125		Corrections to Package 4 GMM test case 12.2.1.6.2. (Revision of T1-050097 & T1-050228).	F	5.10.0	5.11.0	T1-050448
TP-27	TP-050052	1126		Correction to Package 4 test case 12.2.1.5d (Revision of T1-050021)	F	5.10.0	5.11.0	T1-050449
TP-27	TP-050052	1127		Correction to Package 3 RB test case 14.2.51a.1	F	5.10.0	5.11.0	T1-050453
TP-27	TP-050052	1128		Correction of A-GPS assistance data sets	F	5.10.0	5.11.0	T1-050454
TP-27	TP-050052	1129		CR to 34.123-1 Rel-5: Correction to P4 RRC test case 8.1.7.1d (Revision of T1-050249)	F	5.10.0	5.11.0	T1-050471r1

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
TP-27	TP-050052	1130		CR to TS34.123-1 Rel-5; Correction to HSDPA test cases (Revision of T1-050182)	F	5.10.0	5.11.0	T1-050459
TP-27	TP-050052	1131		Corrections to HSDPA RRC test cases 8.2.1.28 & 8.2.3.34 (revision of T1-050073)	F	5.10.0	5.11.0	T1-050463
TP-27	TP-050052	1132		CR to 34.123-1 Rel-5; New HSDPA RRC test cases (revision of T1-050267)	B	5.10.0	5.11.0	T1-050465
TP-27	TP-050052	1133		Corrections to HSDPA RRC test case 8.2.2.40 (revision of T1-050271)	F	5.10.0	5.11.0	T1-050466
TP-27	TP-050052	1134		Correction to MAC-hs test cases 7.1.5.6	F	5.10.0	5.11.0	T1-050470
TP-27	TP-050052	1135		CR to TS 34.123-1 v5.a.0 - Correction to GCF P3 Test Case 8.3.2.12	F	5.10.0	5.11.0	T1-050205r1
TP-27	TP-050052	1136		Generic test procedure for HS-DSCH multi-RB combinations	F	5.10.0	5.11.0	T1-050467r1
TP-27	TP-050052	1137		Addition of details to HSDPA radio bearer test case 14.6.3a (new), 14.6.4, 14.6.4a (new), 14.6.5 and 14.6.5a (new)	F	5.10.0	5.11.0	T1-050475
TP-27	TP-050052	1138		Addition of details to HSDPA radio bearer test case 14.6.3	F	5.10.0	5.11.0	T1-050468
				2005-04: Cosmetic tidy up of clause styles; splits clause 8 into four files for easier manipulation.		5.11.0	5.11.1	

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
RP-28	RP-050271	1139	-	Correction to Package 2 IR_U test case 6.2.2.1	F	5.11.1	5.12.0	R5-050636
RP-28	RP-050271	1140	-	CR to 34.123-1: Addition of test frequencies for Band V and VI for idle mode testing	F	5.11.1	5.12.0	R5-050748
RP-28	RP-050271	1141	-	Correction to GCF WI-10 Idle Mode Test Cases 6.1.1.7 and 6.1.2.8	F	5.11.1	5.12.0	R5-050791
RP-28	RP-050271	1142	-	FDD_Qmin values in cell reselection test cases 6.2.2.2 and 6.2.2.3	F	5.11.1	5.12.0	R5-050807
RP-28	RP-050271	1143	-	CR to 34.123-1 Rel-5; New cell reselection test case on HCS inter-frequency cell reselection	F	5.11.1	5.12.0	R5-050966
RP-28	RP-050271	1144	-	Correction to Package 2 RRC test case 8.1.10.1	F	5.11.1	5.12.0	R5-050504
RP-28	RP-050271	1145	-	Correction to RRC test case 8.1.1.9 (GCF Work Item 12)	F	5.11.1	5.12.0	R5-050523
RP-28	RP-050271	1146	-	Correcting initial conditions of Inter-RAT test cases 8.1.2.12 and 8.1.2.13	F	5.11.1	5.12.0	R5-050545
RP-28	RP-050271	1147	-	Corrections to P4 RRC test case 8.1.3.9	F	5.11.1	5.12.0	R5-050607
RP-28	RP-050271	1148	-	Correction to MIB, PLMN and Cell Value Tag Value Definition to 8.1	F	5.11.1	5.12.0	R5-050609
RP-28	RP-050271	1149	-	Addition of new Rel-5 RRC test cases to 34.123-1 for RRC Connection establishment using Default Radio Configurations	B	5.11.1	5.12.0	R5-050914
RP-28	RP-050271	1150	-	Correction to RRC test case 8.1.1.10 (GCF Work Item 12)	F	5.11.1	5.12.0	R5-050915
RP-28	RP-050271	1151	-	Correction to RRC Package 2 testcase 8.2.2.9	F	5.11.1	5.12.0	R5-050555
RP-28	RP-050271	1152	-	CR to 34.123-1 Rel-5; Correction to SRNS relocation test case 8.2.2.43	F	5.11.1	5.12.0	R5-050623
RP-28	RP-050271	1153	-	Correction to P4 RRC test case 8.2.6.38	F	5.11.1	5.12.0	R5-050637
RP-28	RP-050271	1154	-	Correction to Package 4 RRC test case 8.2.6.12	F	5.11.1	5.12.0	R5-050766
RP-28	RP-050271	1155	-	Correction to GCF WI-10 RRC Test Cases 8.2.4.10	F	5.11.1	5.12.0	R5-050789
RP-28	RP-050271	1156	-	Removal of TGPL2 from section 8.2	F	5.11.1	5.12.0	R5-050928
RP-28	RP-050271	1157	-	Correction of table number in Test 8.2.3.24	D	5.11.1	5.12.0	R5-050653
RP-28	RP-050271	1158	-	Correction to Package 2 RRC test case 8.3.1.21	F	5.11.1	5.12.0	R5-050505
RP-28	RP-050272	1159	-	Correction to Package 4 Inter system cell reselection test case 8.3.9.1	F	5.11.1	5.12.0	R5-050506
RP-28	RP-050272	1160	-	Correction to GCF WI-10 RRC Test Cases 8.3.1.3	D	5.11.1	5.12.0	R5-050589
RP-28	RP-050272	1161	-	Update of Table 8.3.7-1 in section 8.3.7	F	5.11.1	5.12.0	R5-050596
RP-28	RP-050272	1162	-	Correction to MIB, PLMN and Cell Value Tag Value Definition to 8.3	F	5.11.1	5.12.0	R5-050610
RP-28	RP-050272	1163	-	Correction to RRC test case 8.3.11.4 (WI-010)	F	5.11.1	5.12.0	R5-050612
RP-28	RP-050272	1164	-	Correction to GCF WI-010 test cases 8.3.1.10 and 8.3.2.4	F	5.11.1	5.12.0	R5-050635
RP-28	RP-050272	1165	-	CR to 34.123-1: Correction to GCF WI-012 RRC test case 8.3.1.30.	F	5.11.1	5.12.0	R5-050754
RP-28	RP-050272	1166	-	Correction to RRC test case 8.3.1.18 (WI-010)	F	5.11.1	5.12.0	R5-050784
RP-28	RP-050272	1167	-	Correction to RRC test cases 8.3.4.1, 8.3.4.2 (P1), 8.3.4.8 (WI-12), 8.3.4.4, 8.3.4.5 (Low priority)	F	5.11.1	5.12.0	R5-050790
RP-28	RP-050272	1168	-	Corrections to GCF WI-010 (P4) approved test case 8.3.7.5	F	5.11.1	5.12.0	R5-050800
RP-28	RP-050272	1169	-	Correction to GCF WI-10 RRC Test Cases 8.3.7.13	F	5.11.1	5.12.0	R5-050926
RP-28	RP-050272	1170	-	Removal of TGPL2 for section 8.3	F	5.11.1	5.12.0	R5-050927
RP-28	RP-050272	1171	-	Correction to RRC Package 4 testcase 8.3.1.18	F	5.11.1	5.12.0	R5-050930
RP-28	RP-050272	1172	-	Correction to Package 4 Inter-system handover test case 8.3.7.12	F	5.11.1	5.12.0	R5-050931
RP-28	RP-050272	1173	-	Correction to GCF WI-10 Inter-RAT Test Case 8.3.7.12	D	5.11.1	5.12.0	R5-050932
RP-28	RP-050272	1174	-	Correction to Package 3 RRC test case 8.3.2.13	F	5.11.1	5.12.0	R5-050937
RP-28	RP-050272	1175	-	Addition of new Rel-5 RRC test cases to 34.123-1 for Inter-RAT Network Assisted Cell Change	B	5.11.1	5.12.0	R5-050940
RP-28	RP-050272	1176	-	Addition of new Rel-5 test cases for CELL_FACH and CELL_PCH state specific handling of Treselection and Qhyst parameters in cell reselection to 34.123-1	B	5.11.1	5.12.0	R5-050942
RP-28	RP-050272	1177	-	Correction to Package 3 RRC test case 8.3.1.23	F	5.11.1	5.12.0	R5-050944
RP-28	RP-050272	1178	-	Correction to Package 3 RRC test case 8.3.1.24	F	5.11.1	5.12.0	R5-050945
RP-28	RP-050273	1179	-	CR to 34.123-1 Rel-5: Addition of SIB 12 contents to section 8.3.9	F	5.11.1	5.12.0	R5-050974

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
RP-28	RP-050273	1180	-	CR to 34.123-1 Rel-5: Correction to WI-010 P4 IR_U test case 8.3.9.1	F	5.11.1	5.12.0	R5-050978
RP-28	RP-050273	1181	-	CR to 34.123-1 Rel-5: Correction to WI-010 P4 IR_U test case 8.3.9.5	F	5.11.1	5.12.0	R5-050979
RP-28	RP-050273	1182	-	Correction to GCF WI-10 IR_U Test Cases 8.3.7.12 (approved)	F	5.11.1	5.12.0	R5-050934
RP-28	RP-050273	1183	-	Correction to MIB, PLMN and Cell Value Tag Value Definition to 8.4	F	5.11.1	5.12.0	R5-050611
RP-28	RP-050273	1184	-	CR to 34.123-1 Rel-5; Removal of Release 5 test case 8.4.1.46	F	5.11.1	5.12.0	R5-050624
RP-28	RP-050273	1185	-	Corrections to GCF WI-010 (P2) approved test case 8.4.1.7	F	5.11.1	5.12.0	R5-050634
RP-28	RP-050273	1186	-	Correction to Package 4 RRC test case 8.4.1.41	F	5.11.1	5.12.0	R5-050646
RP-28	RP-050273	1187	-	CR to 34.123-1: Correction to GCF WI-012 RRC test case 8.4.1.6.	F	5.11.1	5.12.0	R5-050753
RP-28	RP-050273	1188	-	Correction to GCF WI-10 RRC Test Cases 8.4.1.29	F	5.11.1	5.12.0	R5-050792
RP-28	RP-050273	1189	-	Correction to GCF WI-10 RRC Test Cases 8.4.1.25	F	5.11.1	5.12.0	R5-050794
RP-28	RP-050273	1190	-	Correction to GCF WI-10 Inter-RAT Test Cases 8.4.1.31, 8.4.1.33, 8.4.1.34, 8.4.1.35, 8.4.1.36, 8.4.1.40 (Revision of R5-050598)	F	5.11.1	5.12.0	R5-050795
RP-28	RP-050273	1191	-	Removal of TGPL2 from section 8.4	F	5.11.1	5.12.0	R5-050929
RP-28	RP-050273	1192	-	Correction to Package 3 RRC test case 8.4.1.37	F	5.11.1	5.12.0	R5-050935
RP-28	RP-050273	1193	-	Clarification of Cell 3 CPICH level for “Measurement Control and Report: Intra-frequency measurement for transition from CELL_DCH to CELL_FACH state (FDD)”, Test 8.4.1.5	F	5.11.1	5.12.0	R5-050642
RP-28	RP-050273	1194	-	Correction to NAS MM test case 9.4.2.4 (GCF Work Item 12)	F	5.11.1	5.12.0	R5-050524
RP-28	RP-050273	1195	-	Corrections to low priority MM test case 9.4.5.4.3	F	5.11.1	5.12.0	R5-050659
RP-28	RP-050273	1196	-	Correction to GCF WI-10 NAS Test Cases 9.2.2	F	5.11.1	5.12.0	R5-050936
RP-28	RP-050273	1197	-	Correction to GCF WI-12 MM Test Case 9.4.3.3	F	5.11.1	5.12.0	R5-050946
RP-28	RP-050273	1198	-	Correction to GCF WI-10 NAS Test Case 9.4.1	F	5.11.1	5.12.0	R5-050952
RP-28	RP-050274	1199	-	Correction to NAS GMM test case 12.3.2.7 (GCF Work Item 12)	F	5.11.1	5.12.0	R5-050509
RP-28	RP-050274	1200	-	Correction to NAS GMM test case 12.9.9 (GCF Work Item 12)	F	5.11.1	5.12.0	R5-050510
RP-28	RP-050274	1201	-	Correction to GCF WI-10 RRC Test Case 12.2.2.1	F	5.11.1	5.12.0	R5-050569
RP-28	RP-050274	1202	-	CR to 34.123-1 : Correction to WI-012 GMM test case 12.3.2.8 Proc1	F	5.11.1	5.12.0	R5-050755
RP-28	RP-050274	1203	-	Correction to Package 4 NAS test case 12.2.1.5d	F	5.11.1	5.12.0	R5-050780
RP-28	RP-050274	1204	-	Correction to GCF WI-10 NAS Test Cases 12.4.1.4d	F	5.11.1	5.12.0	R5-050797
RP-28	RP-050274	1205	-	Deletion of postamble of switch-off UE and detach in GMM test cases 12.3.x	F	5.11.1	5.12.0	R5-050805
RP-28	RP-050274	1206	-	CR to 34.123-1:Corrections to GCF WI-010 RAB TC 14.2.43.1 and GCF WI-012 RAB TC 14.2.43.2.	F	5.11.1	5.12.0	R5-050949
RP-28	RP-050274	1207	-	CR to 34.123-1:Correction to GCF WI-010 P3 RAB TC 14.2.58a	F	5.11.1	5.12.0	R5-050950
RP-28	RP-050274	1208	-	Correction to test requirement of radio bearer test cases for multi radio bearer combinations (Section 14)	F	5.11.1	5.12.0	R5-050520
RP-28	RP-050274	1209	-	Correction to GCF WI-10 SMS Test Cases 16.1.2, 16.1.9.1, 16.1.9.2 and 16.1.10	D	5.11.1	5.12.0	R5-050798
RP-28	RP-050274	1210	-	CR to 34.123-1 Rel-5: Correction to WI-010 SMS test cases 16.1.2, 16.1.10, 16.2.2 and 16.2.10	F	5.11.1	5.12.0	R5-050951
RP-28	RP-050274	1211	-	CR 34.123-1 Correction to A-GPS test case 17.2.4.10	F	5.11.1	5.12.0	R5-050706
RP-28	RP-050274	1212	-	CR 34.123-1 Correction to initial UE conditions for A-GPS MT-LR test cases	F	5.11.1	5.12.0	R5-050708
RP-28	RP-050274	1213	-	Clarifications and editorial changes to A-GPS test cases	F	5.11.1	5.12.0	R5-050968
RP-28	RP-050274	1214	-	Corrections to HSDPA radio bearer test cases	F	5.11.1	5.12.0	R5-050563
RP-28	RP-050274	1215	-	Correction to GCF WI-014 RRC HSDPA test case 8.2.1.27	F	5.11.1	5.12.0	R5-050601
RP-28	RP-050274	1216	-	Correction to GCF WI-014 RRC HSDPA test case 8.2.1.31	F	5.11.1	5.12.0	R5-050603
RP-28	RP-050274	1217	-	Correction to GCF WI-014 RRC HSDPA test case 8.2.4.36	F	5.11.1	5.12.0	R5-050605
RP-28	RP-050274	1218	-	CR to 34.123-1: Correction to GCF WI-014 RRC	F	5.11.1	5.12.0	R5-050711

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
				HSDPA test case 8.2.6.39a.				
RP-28	RP-050275	1219	-	CR to 34.123-1: Correction to GCF WI-014 RRC HSDPA test case 8.3.1.32.	F	5.11.1	5.12.0	R5-050712
RP-28	RP-050275	1220	-	CR to 34.123-1: Correction to GCF WI-014 RRC HSDPA test case 8.3.1.33.	F	5.11.1	5.12.0	R5-050713
RP-28	RP-050275	1221	-	CR to 34.123-1: Correction to GCF WI-014 RRC HSDPA test case 8.3.1.34.	F	5.11.1	5.12.0	R5-050714
RP-28	RP-050275	1222	-	CR to 34.123-1: Correction to GCF WI-014 RRC HSDPA test case 8.3.1.35.	F	5.11.1	5.12.0	R5-050715
RP-28	RP-050275	1223	-	CR to 34.123-1: Correction to GCF WI-014 RRC HSDPA test case 8.3.1.36.	F	5.11.1	5.12.0	R5-050716
RP-28	RP-050275	1224	-	CR to 34.123-1: Correction to GCF WI-014 RRC HSDPA test case 8.3.1.37.	F	5.11.1	5.12.0	R5-050717
RP-28	RP-050275	1225	-	Correction to GCF WI-014 RRC HSDPA test case 8.2.1.28	F	5.11.1	5.12.0	R5-050776
RP-28	RP-050275	1226	-	CR to 34.123-1Rel-5: Message Content Correction for TDD in 8.4.1.24	F	5.11.1	5.12.0	R5-050580
RP-28	RP-050275	1227	-	CR to 34.123-1Rel-5: Message Content Correction for TDD in 8.4.1.25	F	5.11.1	5.12.0	R5-050581
RP-28	RP-050275	1228	-	CR to 34.123-1Rel-5: Message Content Correction for TDD in 8.4.1.26	F	5.11.1	5.12.0	R5-050582
RP-28	RP-050275	1229	-	CR to 34.123-1Rel-5: To Delete Test Case 7.1.2.2.3 of LCR TDD	F	5.11.1	5.12.0	R5-050925
RP-28	RP-050275	1230	-	Correction of 8_4_1_2A for TDD	F	5.11.1	5.12.0	R5-050688
RP-28	RP-050275	1231	-	Correction to MAC test cases 7.1.3.2 to add HCR TDD	F	5.11.1	5.12.0	R5-050689
RP-28	RP-050275	1232	-	Correction to RRC test case 8.4.1.1A (TDD)	F	5.11.1	5.12.0	R5-050691
RP-28	RP-050275	1233	-	Correction to RRC test case 8.4.1.5A (TDD)	F	5.11.1	5.12.0	R5-050693
RP-28	RP-050275	1234	-	8.2.2.43 RRC test case on seamless SRNS relocation using Radio Bearer Reconfiguration add TDD content	B	5.11.1	5.12.0	R5-050694
RP-28	RP-050275	1235	-	Correction to 8.1.8.3 to add TDD to step 2	F	5.11.1	5.12.0	R5-050695
RP-28	RP-050275	1236	-	Add TDD to RRC test case 8.3.11.4	F	5.11.1	5.12.0	R5-050696
RP-28	RP-050275	1237	-	Correction to RAB test case 18.2.2.34.1	F	5.11.1	5.12.0	R5-050698
RP-28	RP-050275	1238	-	Correct RAB test case 18.2.5.2a Poll_SDU value (TDD)	F	5.11.1	5.12.0	R5-050699
RP-28	RP-050276	1239	-	Tests for HCR TDD RAB combinations #38 thru #61	F	5.11.1	5.12.0	R5-050700
RP-28	RP-050276	1240	-	Add TDD to RRC test case 8.4.1.33	F	5.11.1	5.12.0	R5-050957
RP-28	RP-050276	1241	-	Correction to Package 4 RRC test case 8.4.1.26 to change TDD content	F	5.11.1	5.12.0	R5-050958
RP-28	RP-050276	1242	-	Correction RRC test case 8.4.1.7A (TDD)	F	5.11.1	5.12.0	R5-050959
RP-28	RP-050276	1243	-	Correction to Package 4 Inter system cell reselection test case 8.3.9.3	F	5.11.1	5.12.0	R5-050954
RP-28	RP-050276	1244	-	Correction to GCF WI-014 MAC-HS test case 7.1.5.1	F	5.11.1	5.12.0	R5-050970
RP-28	RP-050276	1245	-	Correction to GCF WI-014 MAC-HS test case 7.1.5.4	F	5.11.1	5.12.0	R5-050971
RP-28	RP-050276	1246	-	Correction to GCF WI-014 MAC-HS test case 7.1.5.5	F	5.11.1	5.12.0	R5-050972
RP-28	RP-050276	1247	-	Correction to GCF WI-10 NAS Test Cases 12.2.1.2, 12.2.1.5a Proc 1, 12.2.1.5a Proc 2, 12.3.2.7, 12.4.1.2 and 12.6.1.2	F	5.11.1	5.12.0	R5-050985
RP-28	RP-050276	1248	-	CR to 34.123-1 Rel-5: Correction to WI-012 RLC test case 7.2.3.28	F	5.11.1	5.12.0	R5-050876
RP-28	RP-050276	1249	-	Corrections to WI-10 P4 approved GMM test case 12.2.1.5a Test Procedures 1 & 2	F	5.11.1	5.12.0	R5-050878
RP-29	RP-050519	1250	-	Feature Clean Up: Removal of DRAC from RRC section 8.1 of 34.123-1	F	5.12.0	6.0.0	R5-051313
RP-29	RP-050519	1251	-	Feature Clean Up: Removal of DRAC from RRC section 8.2 of 34.123-1	F	5.12.0	6.0.0	R5-051314
RP-29	RP-050519	1252	-	Feature Clean Up: Removal of DRAC from RRC section 8.3 of 34.123-1	F	5.12.0	6.0.0	R5-051315
RP-29	RP-050519	1253	-	Feature Clean Up: Removal of DRAC from RRC section 8.4 of 34.123-1	F	5.12.0	6.0.0	R5-051316
RP-29	RP-050519	1254	-	Feature Clean Up: Removal of DSCH (FDD mode) from 34.123-1 clause 7	F	5.12.0	6.0.0	R5-051347
RP-29	RP-050519	1255	-	Feature Clean Up: Removal of DSCH (FDD mode) from 34.123-1 clause 8.1	F	5.12.0	6.0.0	R5-051348
RP-29	RP-050519	1256	-	Feature Clean Up: Removal of DSCH (FDD mode)	F	5.12.0	6.0.0	R5-051349

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
				from 34.123-1 clause 8.2				
RP-29	RP-050519	1257	-	Feature Clean Up: Removal of DSCH (FDD mode) from 34.123-1 clause 8.3	F	5.12.0	6.0.0	R5-051350
RP-29	RP-050519	1258	-	Feature Clean Up: Removal of DSCH (FDD mode) from 34.123-1 clause 8.4	F	5.12.0	6.0.0	R5-051351
RP-29	RP-050519	1259	-	Feature Clean Up: Removal of DSCH (FDD mode) from 34.123-1 clause 14	F	5.12.0	6.0.0	R5-051352
RP-29	RP-050519	1260	-	Feature Clean Up: Removal of Observed time difference to GSM cell from 34.123-1 clause 8.3	F	5.12.0	6.0.0	R5-051354
RP-29	RP-050519	1261	-	Feature Clean Up: Removal of Observed time difference to GSM cell from 34.123-1 clause 8.4	F	5.12.0	6.0.0	R5-051355
RP-29	RP-050519	1262	-	Feature Clean Up: Removal of SSDT from 34.123-1 clause 8.1	F	5.12.0	6.0.0	R5-051357
RP-29	RP-050519	1263	-	Feature Clean Up: Removal of SSDT from 34.123-1 clause 8.2	F	5.12.0	6.0.0	R5-051358
RP-29	RP-050519	1264	-	Feature Clean Up: Removal of SSDT from 34.123-1 clause 8.3	F	5.12.0	6.0.0	R5-051359
RP-29	RP-050519	1265	-	Feature Clean Up: Removal of SSDT from 34.123-1 clause 8.4	F	5.12.0	6.0.0	R5-051360
RP-29	RP-050519	1266	-	Feature Clean Up: Removal of SSDT from 34.123-1 clause 14	F	5.12.0	6.0.0	R5-051361
RP-29	RP-050519	1267	-	Feature Clean Up: Removal of 80 ms TTI for DCH for all cases except when the UE supports SF512 from 34.123-1	F	5.12.0	6.0.0	R5-051380
RP-29	RP-050519	1268	-	Feature Clean Up: Removal of CPCH from MAC section 7.1	F	5.12.0	6.0.0	R5-051540
RP-29	RP-050519	1269	-	Feature Clean Up: Removal of CPCH from RRC section 8.2	F	5.12.0	6.0.0	R5-051541
RP-29	RP-050520	1270	-	Feature Clean Up: Removal of CPCH from RRC section 8.3	F	5.12.0	6.0.0	R5-051542
RP-29	RP-050514	1271	-	CR to 34.123-1Rel-5: Correction of testcase 8.2.1.4 for TDD	F	5.12.0	6.0.0	R5-051214
RP-29	RP-050514	1272	-	CR to 34.123-1Rel-5: Correction of testcase 8.2.2.4 for TDD	F	5.12.0	6.0.0	R5-051215
RP-29	RP-050514	1273	-	CR to 34.123-1Rel-5: Correction of testcase 8.2.6.6 for TDD	F	5.12.0	6.0.0	R5-051216
RP-29	RP-050520	1274	-	Correction of WI-10 TC 6.1.2.1 (TTCN approved)	F	5.12.0	6.0.0	R5-051039
RP-29	RP-050520	1275	-	Correction of WI-10 TC 6.1.2.8 (TTCN not approved)	F	5.12.0	6.0.0	R5-051040
RP-29	RP-050520	1276	-	Change test method for 6.2.2.2	F	5.12.0	6.0.0	R5-051303
RP-29	RP-050537	1277	-	Addition of new test case: 6.1.1.8 PLMN selection in shared network environment, Automatic mode	F	5.12.0	6.0.0	R5-051383
RP-29	RP-050537	1278	-	Addition of new test case: 6.2.1.10 Selection of PLMN and RAT in shared network environment, Automatic mode	F	5.12.0	6.0.0	R5-051382
RP-29	RP-050520	1279	-	Correction to WI-010 MAC test case 7.1.2.4a	F	5.12.0	6.0.0	R5-051310
RP-29	RP-050520	1280	-	Correction to Low Priority RRC test case 8.1.5.6	F	5.12.0	6.0.0	R5-051149
RP-29	RP-050520	1281	-	Correction to GCF WI-012 RRC test case 8.1.6.3	F	5.12.0	6.0.0	R5-051187
RP-29	RP-050537	1282	-	Addition of new test case: 8.1.1.11 Paging for Connection in idle mode (Shared Network environment)	F	5.12.0	6.0.0	R5-051374
RP-29	RP-050520	1283	-	Addition of a new Rel-5 RRC test case to 34.123-1 for Establishment Cause in Direct Transfer Procedure.	F	5.12.0	6.0.0	R5-051384
RP-29	RP-050520	1284	-	Correction to WI-10 RRC testcase 8.2.4.1	F	5.12.0	6.0.0	R5-051009
RP-29	RP-050520	1285	-	Correction to WI-12 RRC testcases 8.2.1.33 and 8.2.1.34	F	5.12.0	6.0.0	R5-051019
RP-29	RP-050520	1286	-	Correction to WI-10 RRC testcase 8.2.3.8	F	5.12.0	6.0.0	R5-051061
RP-29	RP-050520	1287	-	CR to 34.123-1: Correction to test case 8.2.6.29 (low priority)	F	5.12.0	6.0.0	R5-051105
RP-29	RP-050520	1288	-	Corrections to GCF WI-010 (P4) RRC test case 8.2.6.38	F	5.12.0	6.0.0	R5-051370
RP-29	RP-050520	1289	-	Correction to GCF WI-012 RRC test cases 8.2.6.39	F	5.12.0	6.0.0	R5-051376
RP-29	RP-050520	1290	-	Timing Reinitialized Handover & Radio Link Timing Adjustment	F	5.12.0	6.0.0	R5-051385
RP-29	RP-050520	1291	-	Correction to WI-10 RRC testcases 8.2.4.4 and 8.2.2.4	F	5.12.0	6.0.0	R5-051392
RP-29	RP-050520	1292	-	Correction to WI-10 RRC test cases 8.3.1.23, 8.3.1.24 and 8.3.2.13	F	5.12.0	6.0.0	R5-051005
RP-29	RP-050520	1293	-	Corrections to WI-10 test case 8.3.1.1	F	5.12.0	6.0.0	R5-051006

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
RP-29	RP-050520	1294	-	Correction to WI-12 RRC testcase 8.3.1.30	F	5.12.0	6.0.0	R5-051011
RP-29	RP-050520	1295	-	Correction to WI-10 RRC testcase 8.3.4.2	F	5.12.0	6.0.0	R5-051020
RP-29	RP-050521	1296	-	Correction to WI-10 InterRAT cell change order from UTRAN testcase 8.3.11.4	F	5.12.0	6.0.0	R5-051323
RP-29	RP-050521	1297	-	Invalid Fach Measurement Occasion and Ntti combinations used in WI10/2 Test Case 8.3.1.21, WI-13/1 Test Case 8.3.1.38.	F	5.12.0	6.0.0	R5-051333
RP-29	RP-050521	1298	-	Correction to WI-10 Inter-system hard handover from UTRAN to GSM testcase 8.3.7.5	F	5.12.0	6.0.0	R5-051386
RP-29	RP-050521	1299	-	Addition of a new Rel-5 RRC test case to 34.123-1 for Establishment Cause in Cell Update Procedure.	F	5.12.0	6.0.0	R5-051387
RP-29	RP-050521	1300	-	Correction to GCF high priority (WI-010) RRC test case 8.3.4.2	F	5.12.0	6.0.0	R5-051394
RP-29	RP-050521	1301	-	Correction to WI-10 RRC testcase 8.4.1.14	F	5.12.0	6.0.0	R5-051042
RP-29	RP-050521	1302	-	Correction to WI-10 RRC test cases 8.4.1.14 and 8.4.1.28	F	5.12.0	6.0.0	R5-051045
RP-29	RP-050521	1303	-	Corrections to GCF WI-010 (P4) RRC test case 8.4.1.42	F	5.12.0	6.0.0	R5-051199
RP-29	RP-050521	1304	-	Correction to GCF WI-010/2 RRC test case 8.4.1.23	F	5.12.0	6.0.0	R5-051255
RP-29	RP-050521	1305	-	Correction to WI-10 Inter-RAT measurement in CELL_DCH testcase 8.4.1.31	F	5.12.0	6.0.0	R5-051261
RP-29	RP-050521	1306	-	Corrections to WI-10 test case 8.4.1.5	F	5.12.0	6.0.0	R5-051388
RP-29	RP-050521	1307	-	Correction to GCF WI-10 RRC test case 8.4.1.2, 8.4.1.24, 8.4.1.25	F	5.12.0	6.0.0	R5-051389
RP-29	RP-050521	1308	-	Corrections to GCF WI-010 (P2) RRC test case 8.4.1.8	F	5.12.0	6.0.0	R5-051390
RP-29	RP-050521	1309	-	Addition of a new Rel-5 RRC test case to 34.123-1 for RRC event-triggered periodic measurements for Event 1B.	F	5.12.0	6.0.0	R5-051391
RP-29	RP-050521	1310	-	Invalid Fach Measurement Occasion and Ntti combinations used in WI-12/1 Test Case 8.4.1.6.	F	5.12.0	6.0.0	R5-051395
RP-29	RP-050521	1311	-	Correction to WI-10 RRC testcases 8.4.1.23 and 8.4.1.16	F	5.12.0	6.0.0	R5-051507
RP-29	RP-050521	1312	-	Correction to WI-12 MM testcase 9.4.2.4.4	F	5.12.0	6.0.0	R5-051341
RP-29	RP-050521	1313	-	Corrections to GCF WI-12 NAS Test Case 9.4.5.4.6	F	5.12.0	6.0.0	R5-051396
RP-29	RP-050521	1314	-	Correction required for WI-010 P2 NAS Testcase 9.4.2.3.	F	5.12.0	6.0.0	R5-051397
RP-29	RP-050521	1315	-	Correction to WI-010 GMM test case 12.4.1.4b	F	5.12.0	6.0.0	R5-051147
RP-29	RP-050522	1316	-	Corrections to GCF WI-10 NAS Test Case 12.4.1.4d Proc 2	F	5.12.0	6.0.0	R5-051284
RP-29	RP-050522	1317	-	Correction to GMM test case clause 12.4.1.4a (GCF WI-10) (Revision of R5-051145)	F	5.12.0	6.0.0	R5-051398
RP-29	RP-050522	1318	-	Correction to WI-12 test case 12.9.7a	F	5.12.0	6.0.0	R5-051399
RP-29	RP-050522	1319	-	Correction to NAS test cases 12.4.1.4c, 12.2.1.5d, 12.3.2.8	F	5.12.0	6.0.0	R5-051506
RP-29	RP-050522	1320	-	Correction to WI-10 and WI-12 MultiRAB test cases 14.238c, 14.2.38f, 14.2.40, 14.2.41, 14.2.43.1, 14.2.43.2, 14.2.51.1, 14.2.51b.1, 14.2.58, 14.2.58a	F	5.12.0	6.0.0	R5-051320
RP-29	RP-050522	1321	-	Correction to NB AMR Radio Bearer Test Cases	F	5.12.0	6.0.0	R5-051508
RP-29	RP-050522	1322	-	Editorial Corrections to A-GPS Test Cases 17.2.3.4 and 17.2.3.9	F	5.12.0	6.0.0	R5-051188
RP-29	RP-050522	1323	-	Correction to Message Type IE in Supplementary Services Messages for A-GPS Test Cases	F	5.12.0	6.0.0	R5-051189
RP-29	RP-050522	1324	-	Correction of WI-14 HSDPA test case 8.2.1.29	F	5.12.0	6.0.0	R5-051012
RP-29	RP-050522	1325	-	Correction of WI-14 HSDPA test case 8.2.1.31	F	5.12.0	6.0.0	R5-051013
RP-29	RP-050522	1326	-	Correction to WI-14 MAC-Hs test case 7.1.5.1 and 7.1.5.5	F	5.12.0	6.0.0	R5-051021
RP-29	RP-050522	1327	-	Correction to WI-14 HSDPA RRC testcase 8.3.1.32	F	5.12.0	6.0.0	R5-051023
RP-29	RP-050513	1328	-	Cor Correction to HSDPA RAB test cases (WI-014)	F	5.12.0	6.0.0	R5-051151
RP-29	RP-050513	1329	-	Correction to MAC-hs test case 7.1.5.2 (WI-014)	F	5.12.0	6.0.0	R5-051162
RP-29	RP-050522	1330	-	Correction of WI-14 HSDPA test case 8.2.1.27	F	5.12.0	6.0.0	R5-051167
RP-29	RP-050522	1331	-	Correction of WI-14 HSDPA test case 8.2.1.30	F	5.12.0	6.0.0	R5-051168
RP-29	RP-050522	1332	-	Correction of WI-14 HSDPA test case 8.2.2.40	F	5.12.0	6.0.0	R5-051172
RP-29	RP-050522	1333	-	Correction of WI-14 HSDPA test case 8.3.1.32	F	5.12.0	6.0.0	R5-051173
RP-29	RP-050522	1334	-	Correction of WI-14 HSDPA test case 8.3.1.33	F	5.12.0	6.0.0	R5-051174

Meeting -1st- Level	Doc-1st- Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd- Level
RP-29	RP-050522	1335	-	Correction of WI-14 HSDPA test case 8.3.1.34 (not approved)	F	5.12.0	6.0.0	R5-051175
RP-29	RP-050522	1336	-	Correction of WI14 HSDPA test case 8.3.1.35 (not approved)	F	5.12.0	6.0.0	R5-051176
RP-29	RP-050522	1337	-	Correction to GCF WI-014/1 RRC HSDPA test case 8.2.3.35	F	5.12.0	6.0.0	R5-051186
RP-29	RP-050523	1338	-	Correction to 8.2.1.28	F	5.12.0	6.0.0	R5-051253
RP-29	RP-050523	1339	-	Correction to 8.2.4.36	F	5.12.0	6.0.0	R5-051254
RP-29	RP-050523	1340	-	Correction of WI-14 HSDPA test case 8.2.2.38	F	5.12.0	6.0.0	R5-051328
RP-29	RP-050523	1341	-	Correction of WI-14 HSDPA test case 8.2.2.39 (non approved test case)	F	5.12.0	6.0.0	R5-051329
RP-29	RP-050523	1342	-	Correction to GCF WI-014/1 RRC HSDPA test cases 8.2.6.39a & 8.2.6.39b	F	5.12.0	6.0.0	R5-051336
RP-29	RP-050523	1343	-	Correction to WI-14 HSDPA RRC testcase 8.2.1.29	F	5.12.0	6.0.0	R5-051340
RP-29	RP-050523	1344	-	Editorial Correction to Test Case 8.2.1.29, 8.2.1.32 and 8.2.3.31	F	5.12.0	6.0.0	R5-051362
RP-29	RP-050523	1345	-	Correction to RRC Test Case 8.2.3.33, 8.2.6.39a and 8.2.6.39b	F	5.12.0	6.0.0	R5-051363
RP-29	RP-050523	1346	-	Correction to MAC Test Case 7.1.5.6	F	5.12.0	6.0.0	R5-051364
RP-29	RP-050523	1347	-	Correction to GCF WI-014/2 RRC HSDPA test case 8.2.3.34	F	5.12.0	6.0.0	R5-051377
RP-29	RP-050523	1348	-	Correction to RRC HSDPA WI-14 test case 8.2.2.36.	F	5.12.0	6.0.0	R5-051509
RP-29	RP-050523	1349	-	Correction of WI-14 HSDPA test case 8.2.1.32	F	5.12.0	6.0.0	R5-051511
RP-29	RP-050523	1350	-	Correction of WI-14 HSDPA test case 8.3.1.36 (not approved).	F	5.12.0	6.0.0	R5-051515
RP-29	RP-050523	1351	-	Correction of WI-14 HSDPA test case 8.3.1.37 (not approved)	F	5.12.0	6.0.0	R5-051516
RP-29	RP-050523	1352	-	Secondary scrambling code in RADIO BEARER RELEASE messages in HSDPA RAB test cases	F	5.12.0	6.0.0	R5-051517
RP-29	RP-050523	1353	-	Correction to GCF WI-014/2 RRC HSDPA test case 8.2.3.31	F	5.12.0	6.0.0	R5-051518
RP-29	RP-050523	1354	-	Correction to GCF WI-014/2 RRC HSDPA test case 8.2.3.32	F	5.12.0	6.0.0	R5-051519
RP-29	RP-050523	1355	-	Correction to WI-14 HSDPA RRC testcase 8.2.2.40	F	5.12.0	6.0.0	R5-051521
RP-29	RP-050523	1356	-	Correction to WI-14 MAC-HS test case 7.1.5.3	F	5.12.0	6.0.0	R5-051551
RP-29	RP-050523	1357	-	Correction to WI-14 HSDPA RRC testcases 8.2.6.39a, 8.2.6.39b and 8.2.6.40	F	5.12.0	6.0.0	R5-051552
RP-29	RP-050599	1358	-	Correction to Annexure C.4 and C.5	F	5.12.0	6.0.0	R5-051322
RP-29	RP-050599	1359	-	Replacement of the technical content of 34.123-1 Rel-5 by a pointer to Rel-6 document	F	5.12.0	6.0.0	R5-051585
RP-29	RP-050599	1360	-	Correction to idle WI-10 test case 6.2.2.3 (not approved)	F	5.12.0	6.0.0	R5-051587
RP-29	RP-050599	1361	-	New test case for Inter-frequency and Inter-RAT measurements	F	5.12.0	6.0.0	R5-051591
RP-29	RP-050599	1362	-	Correction to WI-13/1 Test Case 6.1.2.10	F	5.12.0	6.0.0	R5-051592
RP-29	RP-050533	1367	-	Correction to WI-10 Inter system cell reselection testcases 8.3.9.1, 8.3.9.3 and 8.3.9.5	F	5.12.0	6.0.0	-
RP-30	RP-050781	1368	-	Correction to WI 14/1 HSDPA RRC testcase 8.2.2.40	F	6.0.0	6.1.0	R5-051805
RP-30	RP-050781	1369	-	Correction to WI 14/2 HSDPA RRC testcase 8.2.6.41	F	6.0.0	6.1.0	R5-051806
RP-30	RP-050781	1370	-	Correction to WI 14 HSDPA RRC testcases 8.3.1.34 and 8.3.1.36	F	6.0.0	6.1.0	R5-051807
RP-30	RP-050781	1371	-	Correction to WI 14/1 HSDPA RRC testcase 8.2.1.32	F	6.0.0	6.1.0	R5-051808
RP-30	RP-050781	1372	-	Correction to WI 14 Inter-RAT cell change order from UTRAN testcase 8.3.11.10	F	6.0.0	6.1.0	R5-052130
RP-30	RP-050781	1373	-	Correction to WI 14 HSDPA RRC testcases 8.2.1.30, 8.2.2.39, 8.2.2.42, 8.2.3.32, 8.2.3.33, 8.2.6.41, 8.2.6.42, 8.2.6.46.	F	6.0.0	6.1.0	R5-052153
RP-30	RP-050781	1374	-	Correction to WI 14 HSDPA RRC testcase 8.3.1.33	F	6.0.0	6.1.0	R5-052154
RP-30	RP-050781	1375	-	Correction to WI 14/2 HSDPA RRC testcase 8.3.1.37	F	6.0.0	6.1.0	R5-051850
RP-30	RP-050781	1376	-	Correction to HSDPA generic radio bearer test procedure (section 14.1.3)	F	6.0.0	6.1.0	R5-051856
RP-30	RP-050781	1377	-	Correction to WI-14/1 HSDPA test case 7.1.5.5	F	6.0.0	6.1.0	R5-051947
RP-30	RP-050781	1378	-	Correction to WI-14/2 HSDPA test case 8.2.6.46	F	6.0.0	6.1.0	R5-051948

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
RP-30	RP-050781	1379	-	Corrections to WI-14 test case 8.3.7.14	F	6.0.0	6.1.0	R5-051952
RP-30	RP-050781	1380	-	Correction to Testcase 8.2.2.41	F	6.0.0	6.1.0	R5-051988
RP-30	RP-050781	1381	-	Correction to Radio Bearer Release Testcases (with HS-DSCH)	F	6.0.0	6.1.0	R5-051989
RP-30	RP-050781	1382	-	Correction to Testcase 8.3.4.9	F	6.0.0	6.1.0	R5-052071
RP-30	RP-050781	1383	-	Correction to Testcase 7.1.5.3	F	6.0.0	6.1.0	R5-052098
RP-30	RP-050781	1384	-	Correction to Testcase 7.1.5.4	F	6.0.0	6.1.0	R5-052099
RP-30	RP-050781	1385	-	Correction to Testcase 8.3.1.36	F	6.0.0	6.1.0	R5-052184
RP-30	RP-050781	1386	-	New radio bearer test cases for HSDPA WB AMR	F	6.0.0	6.1.0	R5-052052
RP-30	RP-050717	1387	-	New test case: (6.1.2.11 Cell reselection in shared network environment)	F	6.0.0	6.1.0	R5-051811
RP-30	RP-050717	1388	-	New RRC test case: 8.3.3.4 UTRAN Mobility Information: Shared Network	F	6.0.0	6.1.0	R5-052137
RP-30	RP-050716	1389	-	Addition of RADIO BEARER SETUP test case for EDCH	F	6.0.0	6.1.0	R5-052113
RP-30	RP-050716	1390	-	Addition of RADIO BEARER RELEASE test case for EDCH	F	6.0.0	6.1.0	R5-052166
RP-30	RP-050718	1391	-	CR to TS34.123-1; Adding a new test case for DSAC	F	6.0.0	6.1.0	R5-052161
RP-30	RP-050718	1392	-	Addition of new MM location updating test case for DSAC.	F	6.0.0	6.1.0	R5-052147
RP-30	RP-050718	1393	-	Addition of new MM connection test case for DSAC.	F	6.0.0	6.1.0	R5-052148
RP-30	RP-050718	1394	-	Introduction of new GMM test cases for Domain Specific Access Control in a network that operates in mode II.	F	6.0.0	6.1.0	R5-052180
RP-30	RP-050718	1395	-	Introduction of new GMM test cases for Domain Specific Access Control in a network that operates in mode I.	F	6.0.0	6.1.0	R5-052164
RP-30	RP-050777	1396	-	Change the System Information 11 (TDD) in 8.1.2.10.	F	6.0.0	6.1.0	R5-052063
RP-30	RP-050777	1397	-	Change the cell 1 power (TDD) at T1 and T2 in 8.3.1.21	F	6.0.0	6.1.0	R5-052064
RP-30	RP-050777	1398	-	Change Request to TC 8.3.1.22	F	6.0.0	6.1.0	R5-052065
RP-30	RP-050777	1399	-	Change the context of TRANSPORT CHANNEL RECONFIGURATION(TDD) in TC 8.2.4.1	F	6.0.0	6.1.0	R5-052066
RP-30	RP-050777	1400	-	Add the context of TRANSPORT CHANNEL RECONFIGURATION (TDD) in TC 8.2.4.1a, 8.2.4.3, 8.2.4.4, 8.2.4.10	F	6.0.0	6.1.0	R5-052067
RP-30	RP-050777	1401	-	Add P-CCPCH power for TDD in TC 8.3.11.6	F	6.0.0	6.1.0	R5-052068
RP-30	RP-050771	1402	-	Corrections to WI-10 test case 6.1.1.4	F	6.0.0	6.1.0	R5-052080
RP-30	RP-050771	1403	-	CR to 34.123-1: Correction to WI-010 (P2) test case 6.2.2.3	F	6.0.0	6.1.0	R5-052126
RP-30	RP-050771	1404	-	Editorial correction of missing generic test procedures to check UE's state according to Annex C.	F	6.0.0	6.1.0	R5-052127
RP-30	RP-050771	1405	-	Correction to WI 10 and WI 12 RRC testcases 8.1.2.4, 8.1.2.10, 8.1.2.11, 8.1.10.1	F	6.0.0	6.1.0	R5-052156
RP-30	RP-050771	1406	-	Correction to WI 10/4 RRC test case 8.1.3.9	F	6.0.0	6.1.0	R5-051830
RP-30	RP-050771	1407	-	Corrections to WI-10 test case 8.1.10.1	F	6.0.0	6.1.0	R5-052087
RP-30	RP-050771	1408	-	Correction of WI-12 InterRAT test cases 8.1.2.12 and 8.1.2.13	F	6.0.0	6.1.0	R5-051949
RP-30	RP-050777	1409	-	Correction to Testcase 8.1.2.14	F	6.0.0	6.1.0	R5-052168
RP-30	RP-050777	1410	-	Correction to Testcase 8.1.2.15	F	6.0.0	6.1.0	R5-052169
RP-30	RP-050771	1411	-	Correction to WI 10 and WI 12 RRC testcases 8.2.1.24, 8.2.1.34, 8.2.2.31, 8.2.2.43, 8.2.6.37, 8.2.6.38	F	6.0.0	6.1.0	R5-052151
RP-30	RP-050771	1412	-	Corrections to WI-10 test case 8.2.2.35	F	6.0.0	6.1.0	R5-052183
RP-30	RP-050771	1413	-	Correction to WI-010 RRC test case 8.2.6.37	F	6.0.0	6.1.0	R5-051916
RP-30	RP-050771	1414	-	Correction to WI-12 test case 8.2.6.44	F	6.0.0	6.1.0	R5-052075
RP-30	RP-050771	1415	-	Correction to WI 10/4 Inter-RAT cell change order from UTRAN testcase 8.3.11.4	F	6.0.0	6.1.0	R5-052129
RP-30	RP-050771	1416	-	Correction to WI 10/4 Inter-system Handover from UTRAN to GSM testcase 8.3.7.12	F	6.0.0	6.1.0	R5-052131
RP-30	RP-050771	1417	-	Corrections to WI-10 test case 8.3.1.21	F	6.0.0	6.1.0	R5-052082
RP-30	RP-050771	1418	-	Corrections to WI-10 test case 8.3.2.13	F	6.0.0	6.1.0	R5-052132

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
RP-30	RP-050777	1419	-	Correction to WI-013 test case 8.3.1.40	F	6.0.0	6.1.0	R5-051918
RP-30	RP-050771	1420	-	Correction of WI-10 InterRAT test cases 8.3.7.x	F	6.0.0	6.1.0	R5-051950
RP-30	RP-050771	1421	-	Corrections to WI-10 test case 8.3.1.18	F	6.0.0	6.1.0	R5-051951
RP-30	RP-050771	1422	-	Correction to WI-10/4 InterRAT test cases 8.3.11.1, 8.3.11.4	F	6.0.0	6.1.0	R5-051972
RP-30	RP-050777	1423	-	Correction to WI-13 InterRAT test cases 8.3.11.12, 8.3.11.13	F	6.0.0	6.1.0	R5-051973
RP-30	RP-050771	1424	-	Correction to WI-10/4 InterRAT test cases 8.3.9.1, 8.3.9.3, 8.3.9.5	F	6.0.0	6.1.0	R5-051975
RP-30	RP-050771	1425	-	Correction to WI-12 RRC test case 8.3.1.30	F	6.0.0	6.1.0	R5-052133
RP-30	RP-050772	1426	-	Correction to WI 10 and WI 12 RRC testcases 8.4.1.2, 8.4.1.6, 8.4.1.8, 8.4.1.25, 8.4.1.42, 8.4.1.43	F	6.0.0	6.1.0	R5-052152
RP-30	RP-050772	1427	-	Correction to WI 12 RRC testcase 8.4.1.6	F	6.0.0	6.1.0	R5-051829
RP-30	RP-050772	1428	-	Corrections to WI-12 test case 8.4.1.14	F	6.0.0	6.1.0	R5-052084
RP-30	RP-050772	1429	-	Corrections to WI-10 test case 8.4.1.3	F	6.0.0	6.1.0	R5-052085
RP-30	RP-050772	1430	-	Corrections to WI-10 test case 8.4.1.41	F	6.0.0	6.1.0	R5-051866
RP-30	RP-050772	1431	-	Corrections to WI-12 test case 8.4.1.6	F	6.0.0	6.1.0	R5-052134
RP-30	RP-050772	1432	-	Corrections to WI-10 test case 8.4.1.7	F	6.0.0	6.1.0	R5-051868
RP-30	RP-050772	1433	-	Correction to WI-10/3 InterRAT test cases 8.4.1.31, 8.4.1.33, 8.4.1.34, 8.4.1.35, 8.4.1.36, 8.4.1.40	F	6.0.0	6.1.0	R5-051969
RP-30	RP-050772	1434	-	Corrections to WI-010 test cases 8.4.1.33, 8.4.1.34, 8.4.1.35, 8.4.1.36, 8.4.1.37, 8.4.1.38, 8.4.1.39 and 8.4.1.40	F	6.0.0	6.1.0	R5-051984
RP-30	RP-050772	1435	-	Correction of RRC test cases 8.4.1.6 and 8.4.1.7	F	6.0.0	6.1.0	R5-052027
RP-30	RP-050772	1436	-	Correction of test case 8.4.1.8	F	6.0.0	6.1.0	R5-052058
RP-30	RP-050772	1437	-	Correction to MM section 9 to clarify test procedure for the PS registration in case of manual attach UE	F	6.0.0	6.1.0	R5-051804
RP-30	RP-050772	1438	-	Correction to WI 12 NAS test case 9.4.3.3	F	6.0.0	6.1.0	R5-052142
RP-30	RP-050772	1439	-	Correction of MM test case 9.4.2.4	F	6.0.0	6.1.0	R5-052076
RP-30	RP-050772	1440	-	Correction to WI 10 NAS test cases 12.9.12, 12.9.13 & 12.9.14	F	6.0.0	6.1.0	R5-051831
RP-30	RP-050772	1441	-	Correction to GMM test cases in clause12	F	6.0.0	6.1.0	R5-051870
RP-30	RP-050772	1442	-	Correction to WI-12 GMM test case 12.3.2.7	F	6.0.0	6.1.0	R5-052143
RP-30	RP-050772	1443	-	Correction to DPCCH Power Offset IE in RADIO BEARER SETUP message: AM or UM (Packet to CELL_DCH from CELL_DCH in PS).	F	6.0.0	6.1.0	R5-051822
RP-30	RP-050772	1444	-	Correction to WI 10/3 RB CTCH test case 14.4.4	F	6.0.0	6.1.0	R5-051842
RP-30	RP-050772	1445	-	Corrections to WI-12 test case 14.2.9	F	6.0.0	6.1.0	R5-051953
RP-30	RP-050772	1446	-	Corrections to low priority test cases 14.2.10 and 14.2.11	F	6.0.0	6.1.0	R5-051954
RP-30	RP-050776	1447	-	Addition of test case for multi-rate AMR-NB configuration using SRB#5	F	6.0.0	6.1.0	R5-052177
RP-30	RP-050772	1448	-	Correction to WI 12 Short message service cell broadcast test case 16.3	F	6.0.0	6.1.0	R5-052170
RP-30	RP-050771	1449	-	Corrections to GCF WI-15 test case 17.2.4.10	F	6.0.0	6.1.0	R5-052173
RP-30	RP-050781	1450	-	New radio bearer test cases for HSDPA streaming	F	6.0.0	6.1.0	R5-052051
RP-30	RP-050771	1451	-	Corrections to WI-10 NAS test case 9.4.5.4.1	F	6.0.0	6.1.0	R5-052157
RP-30	RP-050777	1452	-	Correction to GCF WI-10 RLC test cases 7.1.3.1, 7.2.2.2, 7.2.2.3, 7.2.2.4, 7.2.2.5, 7.2.2.6 and 7.2.2.7	F	6.0.0	6.1.0	R5-052207
RP-30	RP-050781	1453	-	Correction to RAB HSDPA generic procedure.	F	6.0.0	6.1.0	R5-052199
RP-31	RP-060145	1454	-	New test cases for MAC-es/e E-TFC selection	F	6.1.0	6.2.0	R5-060551
RP-31	RP-060156	1455	-	Correction to WI-12 GMM test case 12.3.2.8.1	F	6.1.0	6.2.0	R5-060562
RP-31	RP-060156	1456	-	Corrections to GCF WI-10 and 12 test case RRC Test Case 8.2.6.37, 8.2.6.38, 8.4.1.2, 8.4.1.6, 8.4.1.8, 8.4.1.24, 8.4.1.25, 8.4.1.42, 8.4.1.43	F	6.1.0	6.2.0	R5-060500
RP-31	RP-060156	1457	-	Corrections to GCF WI-010 RRC test case 8.4.1.23	F	6.1.0	6.2.0	R5-060398
RP-31	RP-060164	1458	-	Correction to Testcase 8.4.1.47	F	6.1.0	6.2.0	R5-060538
RP-31	RP-060145	1459	-	New test case for MAC-es/e transport block size selection	F	6.1.0	6.2.0	R5-060553
RP-31	RP-060145	1460	-	CR to 34.123-1;Adding new test cases for Enhanced Uplink	F	6.1.0	6.2.0	R5-060555
RP-31	RP-060145	1461	-	New test cases for MAC-es/e E-DCH retransmissions	F	6.1.0	6.2.0	R5-060552

Meeting -1st- Level	Doc-1st- Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd- Level
RP-31	RP-060145	1462	-	New test cases for MAC-es/e scheduling	F	6.1.0	6.2.0	R5-060550
RP-31	RP-060145	1463	-	New test cases for MAC-es/e multiplexing	F	6.1.0	6.2.0	R5-060549
RP-31	RP-060145	1464	-	New Radio Bearer Reconfiguration test cases for Enhanced uplink	F	6.1.0	6.2.0	R5-060374
RP-31	RP-060145	1465	-	Addition of a new FDD Enhanced Uplink Physical Channel Reconfiguration test case	F	6.1.0	6.2.0	R5-060372
RP-31	RP-060145	1466	-	Addition of two Cell Update test cases for FDD Enhanced Uplink testing	F	6.1.0	6.2.0	R5-060337
RP-31	RP-060145	1467	-	Addition of one test case about Physical Channel Reconfiguration for FDD Enhanced Uplink	F	6.1.0	6.2.0	R5-060548
RP-31	RP-060150	1468	-	New test case: 6.2.2.4 Cell reselection in multi-mode shared network environment	F	6.1.0	6.2.0	R5-060387
RP-31	RP-060150	1469	-	New test case: 6.2.1.11 Selection of PLMN and RAT in shared network environment, Manual mode	F	6.1.0	6.2.0	R5-060386
RP-31	RP-060150	1470	-	New test case: 6.1.1.9 PLMN selection in shared network environment, Manual Mode	F	6.1.0	6.2.0	R5-060385
RP-31	RP-060147	1471	-	Corrections to HSDPA RB test cases 14.6.8	F	6.1.0	6.2.0	R5-060369
RP-31	RP-060156	1472	-	Corrections to GCF WI-10 NAS test case 12.4.1.4c Proc 1	F	6.1.0	6.2.0	R5-060539
RP-31	RP-060156	1473	-	Correction of initial condition of TC 8.1.1.1 and TC 8.1.1.9 for CS domain	F	6.1.0	6.2.0	R5-060541
RP-31	RP-060150	1474	-	Correction of initial condition of TC 8.1.1.11 for CS domain	F	6.1.0	6.2.0	R5-060540
RP-31	RP-060147	1475	-	Correction to the HS-SCCH channelisation code used in the Radio Bearer control procedure test cases	F	6.1.0	6.2.0	R5-060325
RP-31	RP-060145	1476	-	Generic test procedure for E-DCH radio bearer testing	F	6.1.0	6.2.0	R5-060366
RP-31	RP-060145	1477	-	New E-DCH radio bearer test cases 14.7.5	F	6.1.0	6.2.0	R5-060330
RP-31	RP-060145	1478	-	New E-DCH radio bearer test cases 14.7.4	F	6.1.0	6.2.0	R5-060329
RP-31	RP-060145	1479	-	New EDCH Physical Channel Reconfiguration test case for transition from CELL_DCH to CELL_DCH: Success (with ongoing E-DCH transmission)	F	6.1.0	6.2.0	R5-060382
RP-31	RP-060145	1480	-	New E-DCH radio bearer test cases 14.7.1, 14.7.2 and 14.7.3	F	6.1.0	6.2.0	R5-060379
RP-31	RP-060156	1481	-	Corrections to GCF WI-10 RRC test case 8.3.2.13	F	6.1.0	6.2.0	R5-060397
RP-31	RP-060147	1482	-	Correction to GCF WI 14/2 Inter-system hard handover from UTRAN to GSM test case 8.3.7.14	F	6.1.0	6.2.0	R5-060228
RP-31	RP-060156	1483	-	Correction to GCF WI-012 MM test case 9.4.5.4.6	F	6.1.0	6.2.0	R5-060509
RP-31	RP-060156	1484	-	Correction to GCF WI 10/4 NAS test case 12.4.1.1b	F	6.1.0	6.2.0	R5-060080
RP-31	RP-060156	1485	-	Correction to RRC test cases 8.1.1.1, 8.1.1.9 and 8.1.1.11	F	6.1.0	6.2.0	R5-060504
RP-31	RP-060156	1486	-	Correction to approved WI-10 test case 8.3.7.5	F	6.1.0	6.2.0	R5-060209
RP-31	RP-060156	1487	-	Correction to approved WI-10 test case 8.4.1.31	F	6.1.0	6.2.0	R5-060208
RP-31	RP-060156	1488	-	Correction of WI-10 InterRAT test cases 6.2.X.X	F	6.1.0	6.2.0	R5-060051
RP-31	RP-060156	1489	-	CR to 34.123-1: Correction to WI-010 (P2) test case 6.2.2.3	F	6.1.0	6.2.0	R5-060009
RP-31	RP-060145	1490	-	New Physical Channel Reconfiguration test case for Enhanced uplink	F	6.1.0	6.2.0	R5-060376
RP-31	RP-060145	1491	-	Addition of two new FDD Enhanced Uplink Radio Bearer Reconfiguration test cases	F	6.1.0	6.2.0	R5-060371
RP-31	RP-060147	1492	-	Downlink compressed mode method when using HS-DSCH	F	6.1.0	6.2.0	R5-060503
RP-31	RP-060147	1493	-	Corrections to HSDPA RB test cases 14.6.6 and 14.6.7	F	6.1.0	6.2.0	R5-060169
RP-31	RP-060156	1494	-	Correction to testcase 14.2.58a and 14.2.51b.1	F	6.1.0	6.2.0	R5-060231
RP-31	RP-060156	1495	-	Correction to approved GMM test case 12.4.2.4	F	6.1.0	6.2.0	R5-060223
RP-31	RP-060156	1496	-	Correction to GCF WI-12/1 NAS test case 12.3.2.7	F	6.1.0	6.2.0	R5-060347
RP-31	RP-060156	1497	-	Corrections to GCF WI-10 test case 12.4.1.4c.1	F	6.1.0	6.2.0	R5-060067
RP-31	RP-060156	1498	-	Correction to approved MM test case 9.4.3.3	F	6.1.0	6.2.0	R5-060226
RP-31	RP-060156	1499	-	Correction to TC 9.4.5.4.1	F	6.1.0	6.2.0	R5-060136
RP-31	RP-060156	1500	-	Corrections to testcases 8.2.1.24 & 8.2.1.34	F	6.1.0	6.2.0	R5-060342
RP-31	RP-060156	1501	-	Correction to approved RRC test case 8.3.4.2	F	6.1.0	6.2.0	R5-060225
RP-31	RP-060157	1502	-	Correction to approved WI-10 test case 8.1.7.1d	F	6.1.0	6.2.0	R5-060204
RP-31	RP-060157	1503	-	Corrections to GCF WI-10 RRC test case 8.4.1.14	F	6.1.0	6.2.0	R5-060108

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
RP-31	RP-060157	1504	-	Corrections to GCF WI-12 RRC_ActSetUpdate test case 8.3.4.8	F	6.1.0	6.2.0	R5-060071
RP-31	RP-060157	1505	-	Correction of WI-10/3 Inter-RAT test case 8.4.1.31	F	6.1.0	6.2.0	R5-060068
RP-31	RP-060157	1506	-	Corrections to GCF WI-010 RRC test case 8.3.1.24	F	6.1.0	6.2.0	R5-060061
RP-31	RP-060157	1507	-	Corrections to GCF WI-010 RRC test case 8.3.1.18	F	6.1.0	6.2.0	R5-060060
RP-31	RP-060157	1508	-	Correction to WI-10/3 RRC testcase 8.4.1.36	F	6.1.0	6.2.0	R5-060052
RP-31	RP-060164	1509	-	Corrections to GCF WI-13/1 test case 8.3.1.40	F	6.1.0	6.2.0	R5-060346
RP-31	RP-060157	1510	-	Corrections to GCF WI-010/4 test case 8.3.11.4	F	6.1.0	6.2.0	R5-060345
RP-31	RP-060157	1511	-	Corrections to GCF WI-10/4 test case 8.3.7.12	F	6.1.0	6.2.0	R5-060344
RP-31	RP-060157	1512	-	Corrections to approved GCF WI-10 test case 7.1.2.4a	F	6.1.0	6.2.0	R5-060343
RP-31	RP-060157	1513	-	Corrections to GCF WI-10 test case 7.2.3.21 and 7.2.3.22	F	6.1.0	6.2.0	R5-060058
RP-31	RP-060157	1514	-	Corrections to GCF WI-10/1 Idle Mode test case 6.1.2.1	F	6.1.0	6.2.0	R5-060278
RP-31	RP-060157	1515	-	Correction to GCF WI-010 Idle Mode test case 6.1.1.4	F	6.1.0	6.2.0	R5-060199
RP-31	RP-060157	1516	-	Corrections to GCF WI-10/2 Idle Mode test case 6.1.2.8	F	6.1.0	6.2.0	R5-060050
RP-31	RP-060166	1517	-	CR to TS34.123-1; Correction to DSAC test cases at clause 12.	F	6.1.0	6.2.0	R5-060219
RP-31	RP-060166	1518	-	CR to TS34.123-1; Correction to the applicability in 9.4.3.6 and 9.5.9.	F	6.1.0	6.2.0	R5-060390
RP-31	RP-060166	1519	-	CR to TS34.123-1; Correction to RRC test case 8.1.2.16	F	6.1.0	6.2.0	R5-060217
RP-31	RP-060157	1520	-	Corrections to GCF WI-010/1 Idle Mode test case 6.1.2.2	F	6.1.0	6.2.0	R5-060134
RP-31	RP-060157	1521	-	Correction to GCF WI-010 HCS idle mode test cases 6.1.2.3, 6.1.2.4 and 6.1.2.5	F	6.1.0	6.2.0	R5-060120
RP-31	RP-060164	1522	-	Correction to GCF WI-013 HCS idle mode test case 6.1.2.10	F	6.1.0	6.2.0	R5-060121
RP-31	RP-060164	1523	-	Correction to GCF WI-013 RAB test case 14.2.62	F	6.1.0	6.2.0	R5-060076
RP-31	RP-060163	1524	-	Update of GCF WI-013 RB test case 14.2.4b	F	6.1.0	6.2.0	R5-060126
RP-31	RP-060150	1525	-	Removal of all references to TDD in 34.123-1	F	6.1.0	6.2.0	R5-060148
RP-31	RP-060150	1526	-	Corrections to broadcasted PLMN codes in idle mode tests (Network Sharing)	F	6.1.0	6.2.0	R5-060147
RP-31	RP-060147	1527	-	CR to TS34.123-1:New test case for HSDPA RAB combination with uplink 128 kpbs	F	6.1.0	6.2.0	R5-060300
RP-31	RP-060147	1528	-	Correction to testcase 14.6.5	F	6.1.0	6.2.0	R5-060361
RP-31	RP-060147	1529	-	Correction to Testcase 7.1.5.2	F	6.1.0	6.2.0	R5-060252
RP-31	RP-060147	1530	-	Corrections to testcases 8.2.3.33, 8.2.6.39a & 8.2.6.39b	F	6.1.0	6.2.0	R5-060232
RP-31	RP-060147	1531	-	Correction to GCF WI 14/2 Inter-RAT cell change order from UTRAN test case 8.3.11.10	F	6.1.0	6.2.0	R5-060227
RP-31	RP-060147	1532	-	Corrections to WI-14 HSDPA UL 64 kbps RAB test cases	F	6.1.0	6.2.0	R5-060207
RP-31	RP-060147	1533	-	Correction to WI-14 test case 8.3.11.10	F	6.1.0	6.2.0	R5-060205
RP-31	RP-060147	1534	-	Introduction of generic test procedure for testing of HSDPA radio bearers in combination with AMR using SRB#5 for TFC control	F	6.1.0	6.2.0	R5-060202
RP-31	RP-060147	1535	-	Correction to GCF WI 14/2 RRC testcase 8.2.3.33	F	6.1.0	6.2.0	R5-060334
RP-31	RP-060147	1536	-	Correction to GCF WI 14/2 RRC testcase 8.2.2.42	F	6.1.0	6.2.0	R5-060079
RP-31	RP-060147	1537	-	Correction to GCF WI 14/2 RRC test case 8.3.4.9	F	6.1.0	6.2.0	R5-060078
RP-31	RP-060157	1538	-	Addition of T309 timer value	F	6.1.0	6.2.0	R5-060567
RP-31	RP-060157	1539	-	Corrections to GCF WI-010 RRC test case 8.4.1.43	F	6.1.0	6.2.0	R5-060558
RP-31	RP-060157	1540	-	Corrections to GCF WI-12/1 InterRAT test case 8.4.1.48	F	6.1.0	6.2.0	R5-060559
-	-	-	-	File 34123-1-320_s13_s15.doc crashes MS Word2000 - repaired by ETSI MCC	-	6.2.0	6.2.1	-
RP-32	RP-060337	1541	-	Correction to the table 8.3.7-1 for GCF WI 14/2 Inter-system hard handover from UTRAN to GSM test case 8.3.7.14	F	6.2.1	6.3.0	R5-061030
RP-32	RP-060337	1542	-	Corrections to GCF WI-014 HSENH test case 8.2.6.39b	F	6.2.1	6.3.0	R5-061296
RP-32	RP-060337	1543	-	Correction to testcase 8.2.6.48	F	6.2.1	6.3.0	R5-061297
RP-32	RP-060337	1544	-	Corrections to WI-14 HSDPA UL 64 kbps RAB test	F	6.2.1	6.3.0	R5-061298

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
				cases				
RP-32	RP-060337	1545	-	Correction to the initial conditions for mac-hs testcases	F	6.2.1	6.3.0	R5-061301
RP-32	RP-060337	1546	-	Correction to the generic test procedure for HS-DSCH radio bearer combinations with AMR RB configurations using SRB#5 for TFC control	F	6.2.1	6.3.0	R5-061331
RP-32	RP-060337	1547	-	Correction to GCF WI-14 radio bearer test case 14.6.5	F	6.2.1	6.3.0	R5-061199
RP-32	RP-060337	1548	-	Correction to GCF WI-014 test case 7.1.5.6	F	6.2.1	6.3.0	R5-061394
RP-32	RP-060337	1549	-	Correction to GCF WI 14/2 RRC testcase 8.2.6.48	F	6.2.1	6.3.0	R5-061280
RP-32	RP-060338	1550	-	Contents addition for LCR TDD in 8.2.1.32	F	6.2.1	6.3.0	R5-061039
RP-32	RP-060338	1551	-	CR for 34.123-1:Addition of the test case of 8.2.1.27a for LCR TDD	F	6.2.1	6.3.0	R5-061055
RP-32	RP-060338	1552	-	CR for 34.123-1:Contents addition for LCR TDD in 8.2.1.28	F	6.2.1	6.3.0	R5-061056
RP-32	RP-060338	1553	-	CR for 34.123-1:Contents addition for LCR TDD in 8.2.2.36	F	6.2.1	6.3.0	R5-061057
RP-32	RP-060338	1554	-	CR for 34.123-1:Contents addition for LCR TDD in 8.2.2.37	F	6.2.1	6.3.0	R5-061058
RP-32	RP-060338	1555	-	CR for 34.123-1:Contents addition for LCR TDD in 8.2.2.38	F	6.2.1	6.3.0	R5-061059
RP-32	RP-060338	1556	-	CR for 34.123-1:Contents addition for LCR TDD in 8.2.2.41	F	6.2.1	6.3.0	R5-061060
RP-32	RP-060338	1557	-	CR for 34.123-1:Contents addition for LCR TDD in 8.2.3.30	F	6.2.1	6.3.0	R5-061292
RP-32	RP-060338	1558	-	CR for 34.123-1:Contents addition for LCR TDD in 8.2.3.31	F	6.2.1	6.3.0	R5-061062
RP-32	RP-060338	1559	-	CR for 34.123-1:Contents addition for LCR TDD in 8.2.3.35	F	6.2.1	6.3.0	R5-061063
RP-32	RP-060338	1560	-	CR for 34.123-1:Contents Addition for LCR TDD in 8.3.1.32	F	6.2.1	6.3.0	R5-061064
RP-32	RP-060338	1561	-	CR for 34.123-1:Contents Addition for LCR TDD in 8.3.1.35	F	6.2.1	6.3.0	R5-061065
RP-32	RP-060338	1562	-	CR for 34.123-1:Addition of test cases of the combinations on DPCH and HS-PDSCH for LCR TDD	F	6.2.1	6.3.0	R5-061066
RP-32	RP-060338	1563	-	Contents addition for LCR TDD in 8.2.1.31	F	6.2.1	6.3.0	R5-061154
RP-32	RP-060332	1564	-	New Enhanced Uplink RRC test case for Active Set Update With Serving Cell Change	F	6.2.1	6.3.0	R5-061351
RP-32	RP-060332	1565	-	Correction to Enhanced uplink RRC test case 8.2.6.51 on MAC-d flow multiplexing	F	6.2.1	6.3.0	R5-061304
RP-32	RP-060332	1566	-	New Radio Bearer Reconfiguration test cases for Enhanced uplink	F	6.2.1	6.3.0	R5-061382
RP-32	RP-060332	1567	-	Generalize E-DCH radio bearer names	F	6.2.1	6.3.0	R5-061159
RP-32	RP-060332	1568	-	Addition of details to E-DCH radio bearer test case 14.7.5	F	6.2.1	6.3.0	R5-061316
RP-32	RP-060332	1569	-	Introduction of test cases for conversational radio bearer combinations for E-DCH/HS-DSCH testing	F	6.2.1	6.3.0	R5-061317
RP-32	RP-060333	1570	-	Test case 7.1.6.2.1 for MAC-es/e scheduling	F	6.2.1	6.3.0	R5-061343
RP-32	RP-060333	1571	-	New MAC-es/e combined non-scheduled and scheduled transmissions test case	F	6.2.1	6.3.0	R5-061513
RP-32	RP-060333	1572	-	Correction to Enhanced Uplink DCH test case	F	6.2.1	6.3.0	R5-061306
RP-32	RP-060333	1573	-	New Mac-es/e test case de-activation and re-activation of HARQ processes	F	6.2.1	6.3.0	R5-061307
RP-32	RP-060333	1574	-	New Mac-es/e test case correct handling of absolute grants	F	6.2.1	6.3.0	R5-061308
RP-32	RP-060333	1575	-	New Mac-es/e test case correct handling of relative grants	F	6.2.1	6.3.0	R5-061309
RP-32	RP-060333	1576	-	E-HICH/E-RGCH and E-AGCH codes used in Physical Channel Reconfiguration test cases	F	6.2.1	6.3.0	R5-061247
RP-32	RP-060333	1577	-	Introduction of test case for WB-AMR RAB combination for E-DCH/HS-DSCH testing	F	6.2.1	6.3.0	R5-061340
RP-32	RP-060331	1578	-	Correction to GMM test cases in sub clause 12.4.2.11, 12.4.2.12	F	6.2.1	6.3.0	R5-061077
RP-32	RP-060322	1579	-	Corrections to GCF WI-010 RRC test cases 6.1.2.4 and 6.1.2.5 .	F	6.2.1	6.3.0	R5-061319
RP-32	RP-060329	1580	-	Corrections to GCF WI-013 Idle Mode test case 6.1.2.10	F	6.2.1	6.3.0	R5-061320
RP-32	RP-060322	1582	-	Correction to GCF WI 10/3 Idle mode testcase 6.1.2.6	F	6.2.1	6.3.0	R5-061378

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
RP-32	RP-060322	1583	-	Correction to GCF WI-10/2 InterRAT test case 6.2.2.1	F	6.2.1	6.3.0	R5-061099
RP-32	RP-060322	1584	-	Correction to GCF WI-10/2 InterRAT test case 6.2.2.2	F	6.2.1	6.3.0	R5-061102
RP-32	RP-060329	1585	-	Correction to GCF WI 13/1 RRC testcase 8.4.1.47	F	6.2.1	6.3.0	R5-061029
RP-32	RP-060323	1586	-	Corrections to GCF WI-010 RRC test case 8.4.1.25.	F	6.2.1	6.3.0	R5-061370
RP-32	RP-060329	1587	-	Correction to WI-13 RRC test case 8.4.1.47	F	6.2.1	6.3.0	R5-061071
RP-32	RP-060323	1588	-	Corrections to GCF WI 10 and WI 12 RRC test case 8.1.1.1 and 8.1.1.9	F	6.2.1	6.3.0	R5-061078
RP-32	RP-060323	1589	-	Correction to GCF WI 12/1 RRC testcase 8.2.6.44	F	6.2.1	6.3.0	R5-061323
RP-32	RP-060323	1590	-	Correction to GCF WI 12/1 RRC testcase 8.2.6.39	F	6.2.1	6.3.0	R5-061324
RP-32	RP-060323	1591	-	Editorial Corrections to GCF WI-10/3 InterRAT test case 8.4.1.33	F	6.2.1	6.3.0	R5-061122
RP-32	RP-060323	1592	-	Editorial correction to GCF WI-10/3 InterRAT test case 8.4.1.34	F	6.2.1	6.3.0	R5-061125
RP-32	RP-060323	1593	-	Editorial correction to GCF WI-10/3 InterRAT test case 8.4.1.35	F	6.2.1	6.3.0	R5-061127
RP-32	RP-060323	1594	-	Editorial correction to GCF WI-10/3 InterRAT test case 8.4.1.36	F	6.2.1	6.3.0	R5-061128
RP-32	RP-060323	1595	-	Editorial Correction to GCF WI-10/3 InterRAT test case 8.4.1.40	F	6.2.1	6.3.0	R5-061129
RP-32	RP-060323	1596	-	Editorial Correction to GCF WI-12/1 InterRAT test case 8.4.1.48	F	6.2.1	6.3.0	R5-061130
RP-32	RP-060323	1597	-	34.123-1 Section 8.1 - Corrections to the values for IE based on calculated ASN.1 value.	F	6.2.1	6.3.0	R5-061325
RP-32	RP-060323	1598	-	34.123-1 Section 8.2 - Corrections to the values for IE based on calculated ASN.1 value.	F	6.2.1	6.3.0	R5-061132
RP-32	RP-060323	1599	-	34.123-1 Section 8.3 - Corrections to the values for IE based on calculated ASN.1 value.	F	6.2.1	6.3.0	R5-061353
RP-32	RP-060323	1600	-	Corrections to values for IEs based on calculated ASN.1	F	6.2.1	6.3.0	R5-061326
RP-32	RP-060329	1601	-	Correction to testcase 8.4.1.47	F	6.2.1	6.3.0	R5-061327
RP-32	RP-060329	1602	-	Correction to GCF WI-13 Inter-RAT cell change order from UTRAN test case 8.3.11.12 and 8.3.11.13	F	6.2.1	6.3.0	R5-061371
RP-32	RP-060323	1603	-	Correction to WI-012 RRC test case 8.4.1.48	F	6.2.1	6.3.0	R5-061170
RP-32	RP-060323	1604	-	Correction to WI-12 RRC test case 8.3.1.30	F	6.2.1	6.3.0	R5-061302
RP-32	RP-060323	1605	-	Correction to GCF WI-12 test case 8.3.1.30	F	6.2.1	6.3.0	R5-061222
RP-32	RP-060323	1606	-	Correction to GCF WI-10 test case 8.4.1.35	F	6.2.1	6.3.0	R5-061239
RP-32	RP-060323	1607	-	Correction to testcase 9.4.3.3	F	6.2.1	6.3.0	R5-061360
RP-32	RP-060323	1608	-	Correction to approved GMM TC 12.4.1.4a	F	6.2.1	6.3.0	R5-061275
RP-32	RP-060324	1609	-	Correction to GCF WI-10 GMM test case 12.4.1.4b	F	6.2.1	6.3.0	R5-061137
RP-32	RP-060324	1610	-	Correction to approved GMM TC 12.9.7b	F	6.2.1	6.3.0	R5-061352
RP-32	RP-060324	1611	-	Correction to GCF WI-12 GMM test case 12.4.1.1b	F	6.2.1	6.3.0	R5-061328
RP-32	RP-060324	1612	-	Correction to testcase 14.2.40 and 14.2.41	F	6.2.1	6.3.0	R5-061329
RP-32	RP-060328	1613	-	Correction to the generic radio bearer test procedure for standalone AMR RB configurations using SRB#5 for TFC control	F	6.2.1	6.3.0	R5-061330
RP-33	RP-060568	1614	-	CR to 34.123-1: Contents Addition for LCR TDD in 8.2.1.30	F	6.3.0	6.4.0	R5-062073
RP-33	RP-060568	1615	-	CR to 34.123-1: Contents Addition for LCR TDD in 8.2.2.39	F	6.3.0	6.4.0	R5-062074
RP-33	RP-060568	1616	-	CR to 34.123-1: Contents Addition for LCR TDD in 8.2.2.42	F	6.3.0	6.4.0	R5-062075
RP-33	RP-060568	1617	-	CR to 34.123-1: Contents Addition for LCR TDD in 8.2.3.32	F	6.3.0	6.4.0	R5-062076
RP-33	RP-060568	1618	-	CR to 34.123-1: Contents Addition for LCR TDD in 8.3.1.33	F	6.3.0	6.4.0	R5-062078
RP-33	RP-060568	1619	-	CR to 34.123-1: Contents Addition for LCR TDD in 8.3.1.34	F	6.3.0	6.4.0	R5-062399
RP-33	RP-060568	1620	-	CR to 34.123-1: Contents Addition for LCR TDD in 8.3.1.36	F	6.3.0	6.4.0	R5-062080
RP-33	RP-060568	1621	-	CR to 34.123-1: Contents Addition for LCR TDD in 8.3.1.37	F	6.3.0	6.4.0	R5-062081
RP-33	RP-060568	1622	-	CR to 34.123-1: Addition of LCR TDD contents to testcase 8.2.1.29	F	6.3.0	6.4.0	R5-062500
RP-33	RP-060568	1623	-	CR to 34.123-1: Addition of TDD contents to	F	6.3.0	6.4.0	R5-062501

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
				testcase 8.2.1.32				
RP-33	RP-060568	1624	-	CR to 34.123-1: Addition of LCR TDD contents to testcase 8.2.2.40	F	6.3.0	6.4.0	R5-062502
RP-33	RP-060568	1625	-	CR to 34.123-1: Addition of LCR TDD contents to testcase 8.2.3.33	F	6.3.0	6.4.0	R5-062503
RP-33	RP-060568	1626	-	CR to 34.123-1: Addition of LCR TDD contents to testcase 8.2.3.34	F	6.3.0	6.4.0	R5-062114
RP-33	RP-060568	1627	-	CR to 34.123-1: Addition of LCR TDD contents to testcase 8.2.4.36	F	6.3.0	6.4.0	R5-062504
RP-33	RP-060568	1628	-	CR to 34.123-1: Addition of TDD part for testcase 8.2.6.42	F	6.3.0	6.4.0	R5-062505
RP-33	RP-060568	1629	-	CR to 34.123-1: Addition of LCR TDD contents to testcase 8.2.6.46	F	6.3.0	6.4.0	R5-062506
RP-33	RP-060568	1630	-	CR to 34.123-1: Addition of LCR TDD contents to testcase 8.2.6.49	F	6.3.0	6.4.0	R5-062507
RP-33	RP-060568	1631	-	CR to 34.123-1: Contents Addition for LCR TDD in 8.3.11.9, 8.3.11.10 and 8.3.7.14	F	6.3.0	6.4.0	R5-062508
RP-33	RP-060568	1632	-	CR to 34.123-1: New test case addition of 8.2.6.40a to LCR TDD	F	6.3.0	6.4.0	R5-062509
RP-33	RP-060566	1634	-	Addition of 3.84 Mcps TDD MAC-hs transport block size selection to HS-DSCH MAC-hs Tests	F	6.3.0	6.4.0	R5-062542
RP-33	RP-060566	1635	-	Addition of combinations on DPCH and HS-PDSCH for interoperability radio bearer tests for 3.84 Mcps TDD	F	6.3.0	6.4.0	R5-062384
RP-33	RP-060566	1636	-	Addition of test: Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialized hard handover to another frequency, serving HS-DSCH cell change) for 3.84 Mcps TDD	F	6.3.0	6.4.0	R5-062385
RP-33	RP-060566	1637	-	Addition of TFRC test points for HS-DSCH radio bearer testing in 3.84 Mcps	F	6.3.0	6.4.0	R5-062386
RP-33	RP-060566	1638	-	Update of test: Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (Hard handover to another frequency with timing re-initialised. Serving HS-DSCH cell change): Failure (Physical channel failure and reversion to old channel) to include 3.84 Mcps TDD	F	6.3.0	6.4.0	R5-062258
RP-33	RP-060566	1639	-	Update of test: Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Success (Start of HS-DSCH reception) to include 3.84Mcps TDD	F	6.3.0	6.4.0	R5-062261
RP-33	RP-060566	1640	-	Update of test: Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Start and stop of HS-DSCH reception) to include 3.84 Mcps TDD	F	6.3.0	6.4.0	R5-062262
RP-33	RP-060566	1641	-	Update of test: Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_FACH and from CELL_FACH to CELL_DCH: Success (start and stop of HS-DSCH reception) to include 3.84 Mcps TDD	F	6.3.0	6.4.0	R5-062263
RP-33	RP-060566	1642	-	Update of test: Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (stop of HS-DSCH reception) to include 3.84 Mcps TDD	F	6.3.0	6.4.0	R5-062265
RP-33	RP-060567	1643	-	Correction to the generic test procedure for HS-DSCH radio bearer combinations with AMR RB configurations using SRB#5 for TFC control	F	6.3.0	6.4.0	R5-062312
RP-33	RP-060567	1644	-	Corrections to HSDPA test case 8.2.6.39a	F	6.3.0	6.4.0	R5-062313
RP-33	RP-060567	1645	-	Corrections to HSDPA test case 8.2.6.39b	F	6.3.0	6.4.0	R5-062314
RP-33	RP-060567	1646	-	Correction to GCF WI-14 HSDPA Test Cases 8.3.1.35 and 8.3.1.37	F	6.3.0	6.4.0	R5-062294
RP-33	RP-060567	1647	-	Corrections to GCF WI-014 (HSDPA) RAB test case 14.6.4	F	6.3.0	6.4.0	R5-062170
RP-33	RP-060567	1648	-	Corrections to GCF WI-014 (HSDPA) RAB test case 14.6.4a	F	6.3.0	6.4.0	R5-062171
RP-33	RP-060567	1649	-	Correction to HS-SCCH code allocation	F	6.3.0	6.4.0	R5-062212
RP-33	RP-060567	1650	-	Corrections to GCF WI-014 MAC-HS test case 7.1.5.6	F	6.3.0	6.4.0	R5-062239
RP-33	RP-060567	1651	-	Enhancement of GCF WI-014 IRAT test case 8.3.7.14	F	6.3.0	6.4.0	R5-062316
RP-33	RP-060567	1652	-	Correction to GCF WI-014 test cases 8.3.11.9 and 8.3.11.10	F	6.3.0	6.4.0	R5-062303
RP-33	RP-060562	1653	-	Introduction of generic test procedure for AMR RB	F	6.3.0	6.4.0	R5-062317

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
				configurations using SRB#5 for TFC control in combination with HS-DSCH/E-DCH radio bearers				
RP-33	RP-060562	1654	-	Addition of details to E-DCH/WB AMR radio bearer test case 14.7.8	F	6.3.0	6.4.0	R5-062321
RP-33	RP-060562	1655	-	Correction to E-DCH radio bearer test case 14.7.4	F	6.3.0	6.4.0	R5-062296
RP-33	RP-060562	1656	-	Addition of details to radio bearer test cases 14.7.6	F	6.3.0	6.4.0	R5-062318
RP-33	RP-060562	1657	-	Addition of details to radio bearer test cases 14.7.7	F	6.3.0	6.4.0	R5-062319
RP-33	RP-060562	1658	-	Correction to E-DCH radio bearer test case 14.7.5	F	6.3.0	6.4.0	R5-062065
RP-33	RP-060562	1659	-	Correction to E-DCH radio bearer test case 14.7.1	F	6.3.0	6.4.0	R5-062066
RP-33	RP-060562	1660	-	Corrections to Enhanced uplink test case 8.2.6.51	F	6.3.0	6.4.0	R5-062326
RP-33	RP-060563	1661	-	Corrections to Enhanced uplink test case 8.3.4.10	F	6.3.0	6.4.0	R5-062354
RP-33	RP-060563	1662	-	New Mac-es/e test case on Correct handling of HARQ profile power offsets	F	6.3.0	6.4.0	R5-062514
RP-33	RP-060563	1663	-	New Mac-es/e test case on Correct handling of minimum set of E-TFCI	F	6.3.0	6.4.0	R5-062531
RP-33	RP-060563	1664	-	Correction to testcase 8.2.6.50	F	6.3.0	6.4.0	R5-062154
RP-33	RP-060563	1665	-	Correction to testcase 8.3.1.41	F	6.3.0	6.4.0	R5-062327
RP-33	RP-060563	1666	-	Corrections to MAC-E/Es test case 7.1.6.1.1	F	6.3.0	6.4.0	R5-062333
RP-33	RP-060563	1667	-	Corrections to MAC-E/Es test case 7.1.6.1.2	F	6.3.0	6.4.0	R5-062334
RP-33	RP-060563	1668	-	Corrections to MAC-E/Es test case 7.1.6.1.3	F	6.3.0	6.4.0	R5-062335
RP-33	RP-060563	1669	-	Corrections to MAC-E/Es test case 7.1.6.2.1	F	6.3.0	6.4.0	R5-062336
RP-33	RP-060563	1670	-	Corrections to MAC-E/Es test case 7.1.6.2.3	F	6.3.0	6.4.0	R5-062338
RP-33	RP-060563	1671	-	Corrections to MAC-E/Es test case 7.1.6.2.4	F	6.3.0	6.4.0	R5-062339
RP-33	RP-060563	1672	-	Corrections to MAC-E/Es test case 7.1.6.2.5	F	6.3.0	6.4.0	R5-062340
RP-33	RP-060563	1673	-	Corrections to MAC-E/Es test case 7.1.6.2.6	F	6.3.0	6.4.0	R5-062341
RP-33	RP-060563	1674	-	Corrections to MAC-E/Es test case 7.1.6.2.7	F	6.3.0	6.4.0	R5-062342
RP-33	RP-060563	1675	-	Corrections to MAC-E/Es test case 7.1.6.2.8	F	6.3.0	6.4.0	R5-062343
RP-33	RP-060563	1676	-	Corrections to MAC-E/Es test case 7.1.6.3.1	F	6.3.0	6.4.0	R5-062344
RP-33	RP-060563	1677	-	Corrections to MAC-E/Es test case 7.1.6.3.2	F	6.3.0	6.4.0	R5-062345
RP-33	RP-060563	1678	-	Corrections and extensions to MAC-E/Es test case 7.1.6.4.1	F	6.3.0	6.4.0	R5-062392
RP-33	RP-060563	1679	-	Corrections to MAC-E/Es test case 7.1.6.4.2	F	6.3.0	6.4.0	R5-062347
RP-33	RP-060563	1680	-	Correction TC 8.2.6.52: Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH: Success	F	6.3.0	6.4.0	R5-062329
RP-33	RP-060564	1681	-	Addition of a new E-DCH RRC test case to 34.123 for Hard Handover fallback with active E-DCH transmission	F	6.3.0	6.4.0	R5-062330
RP-33	RP-060564	1682	-	Addition of a new E-DCH RRC test case to 34.123 for Radio Link Failure during active E-DCH transmission	F	6.3.0	6.4.0	R5-062331
RP-33	RP-060564	1683	-	Addition of a new E-DCH RRC test case to 34.123 for Cell Change Order From UTRAN with stop of E-DCH transmission	F	6.3.0	6.4.0	R5-062379
RP-33	RP-060564	1684	-	Enhancement of GCF WI-025 MACes/e test case 7.1.6.2.2	F	6.3.0	6.4.0	R5-062378
RP-33	RP-060564	1685	-	New Mac-es/e test case on Correct handling of MAC-es/e reset	F	6.3.0	6.4.0	R5-062516
RP-33	RP-060560	1686	-	Correction to testcase 9.4.3.6 & 9.5.9	F	6.3.0	6.4.0	R5-062156
RP-33	RP-060560	1687	-	Correction to Idle mode test case 6.1.1.8 (Network Sharing)	F	6.3.0	6.4.0	R5-062523
RP-33	RP-060560	1688	-	Correction to Idle mode test case 6.1.1.9 (Network Sharing)	F	6.3.0	6.4.0	R5-062367
RP-33	RP-060550	1689	-	Correction to GCF WI-10 Inter-RAT Test Case 6.2.2.3	F	6.3.0	6.4.0	R5-062099
RP-33	RP-060550	1690	-	Correction to GCF WI-010 HCS idle mode test case 6.1.2.4	F	6.3.0	6.4.0	R5-062521
RP-33	RP-060550	1691	-	Correction to GCF WI-010 HCS idle mode test case 6.1.2.5	F	6.3.0	6.4.0	R5-062522
RP-33	RP-060550	1692	-	Correction to GCF WI 10/1 Idle mode test case 6.1.1.4	F	6.3.0	6.4.0	R5-062351
RP-33	RP-060560	1693	-	New test case: 6.2.2.5 Cell reselection using SIB18; UTRAN to GSM	F	6.3.0	6.4.0	R5-062519
RP-33	RP-060550	1694	-	Correction to 34.123-1 Section 6 : Defines the uplink UARFCN for test frequencies of Band IV	F	6.3.0	6.4.0	R5-062277

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
RP-33	RP-060550	1695	-	Correction to InterRAT Idle Mode frequency lists	F	6.3.0	6.4.0	R5-062310
RP-33	RP-060550	1696	-	Correction to GCF WI 10/1 MAC testcase 7.1.2.3.1	F	6.3.0	6.4.0	R5-062159
RP-33	RP-060550	1697	-	Correction to 34.123-1 Section 7: Inclusion of System Information Block Type 5bis	F	6.3.0	6.4.0	R5-062278
RP-33	RP-060560	1698	-	Frequency band extension for GSM 710, GSM 750 and T-GSM 810 bands in interRAT tests	F	6.3.0	6.4.0	R5-062394
RP-33	RP-060553	1699	-	Correction to GCF WI-13 Test Cases 8.3.1.38 and 8.3.1.39	F	6.3.0	6.4.0	R5-062095
RP-33	RP-060550	1700	-	Corrections to GCF WI-012 RRC test case 8.3.1.30	F	6.3.0	6.4.0	R5-062097
RP-33	RP-060550	1701	-	Corrections to GCF WI-010 RRC test case 8.3.1.10 and 8.3.2.4	F	6.3.0	6.4.0	R5-062098
RP-33	RP-060550	1702	-	Correction to GCF WI 10/2 RRC testcase 8.4.1.8	F	6.3.0	6.4.0	R5-062160
RP-33	RP-060550	1703	-	Correction to GCF WI-010/2 InterRAT test case 8.3.7.4	F	6.3.0	6.4.0	R5-062297
RP-33	RP-060550	1704	-	Correction to GCF WI-010/4 InterRAT test case 8.3.7.13	F	6.3.0	6.4.0	R5-062298
RP-33	RP-060550	1705	-	34.123-1 Section 8.1 - Corrections to the values for IE based on calculated ASN.1 value.	F	6.3.0	6.4.0	R5-062192
RP-33	RP-060550	1706	-	Correction to GCF WI-10 RRC Hard Handover Test Case 8.2.6.37	F	6.3.0	6.4.0	R5-062396
RP-33	RP-060550	1707	-	Correction to 34.123-1 Section 8.1: Inclusion of System Information Block Type 5bis	F	6.3.0	6.4.0	R5-062397
RP-33	RP-060550	1708	-	Correction to 34.123-1 Section 8.2: Inclusion of System Information Block Type 5bis	F	6.3.0	6.4.0	R5-062280
RP-33	RP-060550	1709	-	Corrections to GCF WI-12 test case 8.4.1.48	F	6.3.0	6.4.0	R5-062284
RP-33	RP-060550	1710	-	Correction to GCF WI-10 test Case 9.4.5.2	F	6.3.0	6.4.0	R5-062356
RP-33	RP-060550	1711	-	Correction to WI-012 GMM test case 12.3.2.8 Proc1	F	6.3.0	6.4.0	R5-062315
RP-33	RP-060551	1712	-	Correction to GCF WI-10 NAS Test Case 12.4.2.4	F	6.3.0	6.4.0	R5-062094
RP-33	RP-060551	1713	-	Correction to GCF WI 10 GMM testcase 12.9.7c	F	6.3.0	6.4.0	R5-062391
RP-33	RP-060551	1714	-	Correction to GCF WI-012/1 test case 12.3.2.7	F	6.3.0	6.4.0	R5-062191
RP-33	RP-060551	1715	-	Correction to 34.123-1 Section 14: Inclusion of System Information Block Type 5bis	F	6.3.0	6.4.0	R5-062281
RP-33	RP-060551	1716	-	CR to 34.123-1: Corrections to SMS TC 16.1.1 and 16.1.2	F	6.3.0	6.4.0	R5-062050
RP-34	RP-060732	1717	-	CR to 34.123-1: Correction test requirement for LCR TDD in 8.1.1.4, 8.1.1.5, 8.1.1.6.	F	6.4.0	6.5.0	R5-063293
RP-34	RP-060732	1718	-	Corrections to RRC test case 8.4.1.8A	F	6.4.0	6.5.0	R5-063273
RP-34	RP-060747	1719	-	Update of 8.2.1.30 to include HCR TDD	F	6.4.0	6.5.0	R5-063210
RP-34	RP-060747	1720	-	Update of 8.2.4.36 to include HCR TDD	F	6.4.0	6.5.0	R5-063212
RP-34	RP-060747	1721	-	Update of 8.2.6.39a to include HCR TDD	F	6.4.0	6.5.0	R5-063519
RP-34	RP-060747	1722	-	Update of 8.2.6.39b for HCR TDD	F	6.4.0	6.5.0	R5-063520
RP-34	RP-060747	1723	-	Update of 8.3.1.32 for HCR TDD	F	6.4.0	6.5.0	R5-063215
RP-34	RP-060747	1724	-	Update of 8.3.1.33 for HCR TDD	F	6.4.0	6.5.0	R5-063216
RP-34	RP-060743	1725	-	Correction to GCF WI 25 RRC test case 8.2.6.50	F	6.4.0	6.5.0	R5-063051
RP-34	RP-060743	1726	-	Corrections to Enhanced uplink RRC test case 8.2.2.45	F	6.4.0	6.5.0	R5-063081
RP-34	RP-060743	1727	-	Corrections to Enhanced uplink RRC test case 8.2.2.47	F	6.4.0	6.5.0	R5-063082
RP-34	RP-060744	1728	-	Corrections to Enhanced uplink RRC test case 8.2.2.49	F	6.4.0	6.5.0	R5-063083
RP-34	RP-060744	1729	-	Extension of Mac-es/e test case 7.1.6.2.6 to cover correct handling of Maximum_Serving_Grant and Non_Serving_RG_Timer	F	6.4.0	6.5.0	R5-063568
RP-34	RP-060744	1730	-	Update of conformance requirement for Mac-es/e test cases 7.1.6.2.5 and 7.1.6.2.7	F	6.4.0	6.5.0	R5-063138
RP-34	RP-060744	1731	-	Corrections to GCF WI-25/1 test case 7.1.6.1.1	F	6.4.0	6.5.0	R5-063309
RP-34	RP-060744	1732	-	Corrections to GCF WI-25/1 test case 7.1.6.4.1	F	6.4.0	6.5.0	R5-063310
RP-34	RP-060744	1733	-	Corrections to GCF WI-25/1 test case 8.2.2.46	F	6.4.0	6.5.0	R5-063311
RP-34	RP-060744	1734	-	Corrections to GCF WI-25/1 test case 8.2.2.48	F	6.4.0	6.5.0	R5-063312
RP-34	RP-060744	1735	-	Correction to testcase 8.2.6.52	F	6.4.0	6.5.0	R5-063361
RP-34	RP-060744	1736	-	Correction to GCF WI 25 MAC test case 7.1.6.2.7	F	6.4.0	6.5.0	R5-063202
RP-34	RP-060744	1737	-	Correction to GCF WI 25 MAC test case 7.1.6.2.4	F	6.4.0	6.5.0	R5-063333
RP-34	RP-060744	1738	-	Correction to E-DCH radio bearer test case 14.7.7	F	6.4.0	6.5.0	R5-063313

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
RP-34	RP-060744	1739	-	Deletion of EDCH test case 8.2.6.53	F	6.4.0	6.5.0	R5-063238
RP-34	RP-060744	1740	-	Correction to testcase 8.2.6.54	F	6.4.0	6.5.0	R5-063360
RP-34	RP-060744	1741	-	Correction to E-DCH radio bearer test case 7.1.6.4.2	F	6.4.0	6.5.0	R5-063322
RP-34	RP-060744	1742	-	Correction to E-DCH radio bearer test case 7.1.6.2.10	F	6.4.0	6.5.0	R5-063323
RP-34	RP-060742	1743	-	Addition of RoHC Performance TC 7.3.6.6: Compressor response to single lost packets in O-mode	F	6.4.0	6.5.0	R5-063131
RP-34	RP-060742	1744	-	Addition of RoHC Performance TC 7.3.6.2: Base test of ROHC RTP O-mode compressor	F	6.4.0	6.5.0	R5-063318
RP-34	RP-060742	1745	-	Addition of RoHC Performance TC 7.3.6.3 Base test of ROHC RTP R-mode compressor	F	6.4.0	6.5.0	R5-063554
RP-34	RP-060750	1746	-	New MBMS test case: Session start in CELL_FACH state	F	6.4.0	6.5.0	R5-063503
RP-34	RP-060750	1747	-	New MBMS test case: Session start in CELL_DCH state, MCCH notification	F	6.4.0	6.5.0	R5-063548
RP-34	RP-060750	1748	-	New MBMS test case: MBMS Session Start in CELL_DCH when entering into an MBMS cell	F	6.4.0	6.5.0	R5-063549
RP-34	RP-060750	1749	-	New MBMS test case: MBMS serving cell reselection in CELL_FACH state during ongoing session	F	6.4.0	6.5.0	R5-063506
RP-34	RP-060750	1750	-	New MBMS test case for Session stop – Frequency Layer Dispersion - no previous Frequency layer present (URA_PCH)	F	6.4.0	6.5.0	R5-063507
RP-34	RP-060750	1751	-	New MBMS test case for Session stop – Frequency Layer Dispersion - no previous Frequency layer present (CELL_FACH)	F	6.4.0	6.5.0	R5-063508
RP-34	RP-060750	1752	-	New MBMS test case for MTCH RLC duplicate avoidance and reordering	F	6.4.0	6.5.0	R5-063509
RP-34	RP-060750	1753	-	New MBMS test case for MCCH RLC Out Of Sequence Delivery handling	F	6.4.0	6.5.0	R5-063510
RP-34	RP-060750	1754	-	Addition of a MBMS Signalling test case: Service request procedure not accepted by the network	F	6.4.0	6.5.0	R5-063511
RP-34	RP-060750	1755	-	Addition of a MBMS Signalling test case: Service Request procedure collision with Routing Area Update	F	6.4.0	6.5.0	R5-063512
RP-34	RP-060750	1756	-	Addition of a MBMS Signalling test case: Test Network Feature Support IE	F	6.4.0	6.5.0	R5-063513
RP-34	RP-060750	1757	-	New MBMS Test Case - SERVICE REQUEST /counting / MBMS multicast service	F	6.4.0	6.5.0	R5-063531
RP-34	RP-060750	1758	-	New MBMS Test Case - SERVICE REQUEST / point to point RBs / MBMS multicast service	F	6.4.0	6.5.0	R5-063532
RP-34	RP-060750	1759	-	New MBMS test case – Service Request/Accepted/Handling of MBMS context status information	F	6.4.0	6.5.0	R5-063533
RP-34	RP-060750	1760	-	New MBMS test cases – MBMS Context Activation requested by the network, Successful procedure	F	6.4.0	6.5.0	R5-063534
RP-34	RP-060750	1761	-	Addition of TC 8.5.1.1: MBMS Session Start in Idle mode	F	6.4.0	6.5.0	R5-063535
RP-34	RP-060750	1762	-	Addition of TC 8.5.3.1: MBMS Session Start (FLC)/Session Stop (FLD) in Idle mode	F	6.4.0	6.5.0	R5-063536
RP-34	RP-060750	1763	-	Addition of TC 8.5.5.1: MBMS Counting in Idle Mode for Joined Services	F	6.4.0	6.5.0	R5-063537
RP-34	RP-060750	1764	-	Addition of TC 8.5.5.3: MBMS No Counting in CELL_DCH for Joined Services	F	6.4.0	6.5.0	R5-063538
RP-34	RP-060751	1765	-	Addition of TC 8.5.5.4: MBMS Counting in Cell_PCH for Selected Services	F	6.4.0	6.5.0	R5-063539
RP-34	RP-060751	1766	-	Addition of TC 11.6.1: MBMS Context deactivation requested by the network, Successful	F	6.4.0	6.5.0	R5-063540
RP-34	RP-060751	1767	-	Addition of TC 12.4.1.1d: Routing Area Updating/Accepted/Handling of MBMS context status information	F	6.4.0	6.5.0	R5-063541
RP-34	RP-060749	1768	-	Introduction of new interband test case 8.2.1.24a	F	6.4.0	6.5.0	R5-063514
RP-34	RP-060749	1769	-	Introduction of new interband test case 8.2.1.34a	F	6.4.0	6.5.0	R5-063515
RP-34	RP-060749	1770	-	Introduction of new interband test case 8.3.1.1a	F	6.4.0	6.5.0	R5-063555
RP-34	RP-060749	1771	-	Introduction of new interband test case 8.3.2.1a	F	6.4.0	6.5.0	R5-063320
RP-34	RP-060749	1772	-	Introduction of new interband test case 8.2.6.37b	F	6.4.0	6.5.0	R5-063517
RP-34	RP-060749	1773	-	Introduction of test case 6.1.2.1a Cell reselection for inter-band operation	F	6.4.0	6.5.0	R5-063256

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
RP-34	RP-060749	1774	-	Introduction of test case 6.1.2.10a HCS inter-frequency cell reselection for inter-band operation	F	6.4.0	6.5.0	R5-063257
RP-34	RP-060749	1775	-	Introduction of measurement test case 8.4.1.2B for Inter-Band FDD testing	F	6.4.0	6.5.0	R5-063305
RP-34	RP-060749	1776	-	Introduction of measurement test case 8.4.1.24A for Inter-Band FDD testing	F	6.4.0	6.5.0	R5-063306
RP-34	RP-060749	1777	-	Introduction of measurement test case 8.4.1.25A for Inter-Band FDD testing	F	6.4.0	6.5.0	R5-063307
RP-34	RP-060739	1778	-	Correction to GCF WI-24 DSAC Test Case 12.9.15	F	6.4.0	6.5.0	R5-063374
RP-34	RP-060739	1779	-	Correction to idle mode test case 6.1.1.9 (Network Sharing)	F	6.4.0	6.5.0	R5-063334
RP-34	RP-060732	1780	-	Correction to network sharing test case 6.2.1.11 Selection of PLMN and RAT in shared network environment, Manual Mode	F	6.4.0	6.5.0	R5-063168
RP-34	RP-060735	1781	-	Correction to GCF WI-14 InterRAT test case 8.3.7.14	F	6.4.0	6.5.0	R5-063501
RP-34	RP-060735	1782	-	Correction to test case 7.1.5.6	F	6.4.0	6.5.0	R5-063335
RP-34	RP-060735	1783	-	Corrections to GCF WI-14 test case 14.6.8	F	6.4.0	6.5.0	R5-063336
RP-34	RP-060735	1784	-	Corrections to GCF WI-14/1 test case 8.2.3.35	F	6.4.0	6.5.0	R5-063337
RP-34	RP-060735	1785	-	Correction to GCF WI 14/2 RRC test case 8.3.1.37	F	6.4.0	6.5.0	R5-063338
RP-34	RP-060732	1786	-	Correction to GCF WI-10 Idle Mode Test Case 6.1.2.4	F	6.4.0	6.5.0	R5-063074
RP-34	RP-060732	1787	-	Correction to GCF WI-10 Test Cases 6.2.1.1, 6.2.1.2, 6.2.1.3, 6.2.1.4, 6.2.1.6, 6.2.1.7, 6.2.1.8 and 6.2.1.10	F	6.4.0	6.5.0	R5-063348
RP-34	RP-060732	1788	-	Corrections to GCF WI-10/3 test case 6.1.2.6	F	6.4.0	6.5.0	R5-063349
RP-34	RP-060732	1789	-	Correction of test channels for idle mode testing	F	6.4.0	6.5.0	R5-063350
RP-34	RP-060732	1790	-	Correction to Idle mode test case 6.1.1.1 (low priority TC)	F	6.4.0	6.5.0	R5-063351
RP-34	RP-060732	1791	-	Addition of R99 Idle Mode Test Case 6.1.2.9a and 6.1.2.9b	F	6.4.0	6.5.0	R5-063579
RP-34	RP-060732	1792	-	Correction to GCF WI10/1 MAC testcase 7.1.2.4a	F	6.4.0	6.5.0	R5-063080
RP-34	RP-060732	1793	-	Correction to WI-010 test cases 7.1.1.2, 7.1.1.3, 7.1.1.4 and 7.1.1.8	F	6.4.0	6.5.0	R5-063380
RP-34	RP-060732	1794	-	Corrections to GCF WI-012 RRC test cases 8.2.6.39 and 8.2.6.44	F	6.4.0	6.5.0	R5-063316
RP-34	RP-060732	1795	-	Correction to WI-12/1 RRC test case 8.3.1.30	F	6.4.0	6.5.0	R5-063040
RP-34	RP-060732	1796	-	Correction to GCF WI 10/3 RRC testcase 8.1.10.1	F	6.4.0	6.5.0	R5-063049
RP-34	RP-060732	1797	-	Correction to GCF WI10/4 RRC testcase 8.2.6.38	F	6.4.0	6.5.0	R5-063050
RP-34	RP-060732	1798	-	Correction to GCF WI 10/3 RRC testcase 8.4.1.28	F	6.4.0	6.5.0	R5-063347
RP-34	RP-060841	1799	-	Correction to GCF WI 12 InterRAT test case 8.4.1.48	F	6.4.0	6.5.0	R5-063054
RP-34	RP-060841	1800	-	Correction to GCF WI-10 RRC Test Case 8.4.1.8	F	6.4.0	6.5.0	R5-063301
RP-34	RP-060841	1801	-	Correction to GCF Low Priority Test Case 8.3.1.28	F	6.4.0	6.5.0	R5-063352
RP-34	RP-060841	1802	-	Corrections to GCF WI-10/2 test case 8.3.1.9	F	6.4.0	6.5.0	R5-063353
RP-34	RP-060841	1803	-	Correction to RRC testcases 8.1.1.4, 8.1.1.5 and 8.1.1.6	F	6.4.0	6.5.0	R5-063354
RP-34	RP-060841	1804	-	Correction to RRC testcases 8.1.2.2 and 8.1.2.9	F	6.4.0	6.5.0	R5-063159
RP-34	RP-060841	1805	-	Correction to IRAT RRC TC 8.4.1.31	F	6.4.0	6.5.0	R5-063342
RP-34	RP-060841	1806	-	Corrections to WI-010 test cases 8.1.1.4, 8.1.1.5 and 8.1.1.6	F	6.4.0	6.5.0	R5-063355
RP-34	RP-060841	1807	-	Correction to WI-010 test case 8.1.2.4	F	6.4.0	6.5.0	R5-063265
RP-34	RP-060841	1808	-	Correction to GCF WI-10 RRC Test Case 8.4.1.25 and WI-12 RRC Test Case 8.4.1.48	F	6.4.0	6.5.0	R5-063302
RP-34	RP-060841	1809	-	Correction of GCF WI-010/2 MM test case 9.4.5.4.1	F	6.4.0	6.5.0	R5-063356
RP-34	RP-060841	1810	-	Correction to GCF WI-12 NAS Test Case 12.9.9	F	6.4.0	6.5.0	R5-063357
RP-34	RP-060841	1811	-	Correction to GMM IRAT TC 12.8	F	6.4.0	6.5.0	R5-063343
RP-34	RP-060841	1812	-	Correction to WI-010 test case 12.2.1.10	F	6.4.0	6.5.0	R5-063266
RP-34	RP-060841	1813	-	Correction to testcase 14.2.58	F	6.4.0	6.5.0	R5-063358
RP-34	RP-060841	1814	-	Editorial corrections to GCF WI-010/3 test case 14.2.43.1	F	6.4.0	6.5.0	R5-063359
RP-34	RP-060841	1815	-	Correction to SMS testcases 16.1.9.1 and 16.1.9.2	F	6.4.0	6.5.0	R5-063156
RP-34	RP-060841	1816	-	Correction to GCF WI-10 test case 6.1.2.1 and 6.1.2.9	F	6.4.0	6.5.0	R5-063163

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
RP-34	RP-060749	1817	-	Introduction of test case 8.1.2.10a for Inter-band testing	F	6.4.0	6.5.0	R5-063161
RP-35	RP-070104	1818	-	Addition of LCR TDD contents in testcase 8.4.1.31, 8.4.1.33, 8.4.1.44, 8.4.1.45 and 8.4.1.46	F	6.5.0	6.6.0	R5-070108
RP-35	RP-070104	1819	-	Change the Message Content of Testcase 8.1.5.1	F	6.5.0	6.6.0	R5-070354
RP-35	RP-070111	1820	-	Supplement to HS-DSCH radio bearer test parameters in TDD	F	6.5.0	6.6.0	R5-070355
RP-35	RP-070097	1821	-	Correction to GCF WI-25 MAC Test Case 7.1.6.4.2	F	6.5.0	6.6.0	R5-070042
RP-35	RP-070097	1822	-	Correction to GCF WI 25 MAC test cases 7.1.6.1.1, 7.1.6.1.2, 7.1.6.1.3, 7.1.6.2.1, 7.1.6.2.8, 7.1.6.2.9, 7.1.6.3.1, 7.1.6.4.1, 7.1.6.4.2	D	6.5.0	6.6.0	R5-070043
RP-35	RP-070097	1823	-	Correction to GCF WI 25 RRC test case 8.2.2.45	F	6.5.0	6.6.0	R5-070044
RP-35	RP-070097	1824	-	Correction to generic test procedure for HS-DSCH and E-DCH radio bearer combinations	F	6.5.0	6.6.0	R5-070479
RP-35	RP-070097	1825	-	Correction of RADIO BEARER RECONFIGURATION message used in E-DCH RRC TC 8.2.2.46 & 8.2.2.48	F	6.5.0	6.6.0	R5-070052
RP-35	RP-070097	1826	-	Correction of Generic test procedure for HS-DSCH & HS-DSCH / E-DCH radio bearer combinations in 14.1.3 & 14.1.4	F	6.5.0	6.6.0	R5-070053
RP-35	RP-070097	1827	-	TC-8.2.6.52 - IE “Uplink channel requirement” in Physical channel reconfiguration message is replaced with “Uplink DPCH info”.	F	6.5.0	6.6.0	R5-070403
RP-35	RP-070097	1828	-	Correction to E-DCH radio bearer test case 14.7.8	F	6.5.0	6.6.0	R5-070143
RP-35	RP-070097	1829	-	Addition of new test case for RRC connection establishment using the default configuration for HS-DSCH / E-DCH signalling bearers.	F	6.5.0	6.6.0	R5-070360
RP-35	RP-070097	1830	-	Introduction of test scenario for Stand-alone SRBs for DCCH on E-DCH and HS-DSCH	F	6.5.0	6.6.0	R5-070361
RP-35	RP-070097	1831	-	Correction to test case 14.7.4	F	6.5.0	6.6.0	R5-070362
RP-35	RP-070097	1832	-	Correction to GCF WI 25 HSUPA RAB test case 14.7.8	F	6.5.0	6.6.0	R5-070278
RP-35	RP-070097	1833	-	Corrections to GCF WI-25 test case 7.1.6.2.10	F	6.5.0	6.6.0	R5-070307
RP-35	RP-070097	1834	-	Correction to GCF WI 25 MAC test case 7.1.6.2.9	F	6.5.0	6.6.0	R5-070331
RP-35	RP-070097	1835	-	Correction to MAC test cases 7.1.6.2.2, 7.1.6.4.1, 7.1.6.4.2 and 7.1.6.4.3	F	6.5.0	6.6.0	R5-070470
RP-35	RP-070095	1836	-	Addition of RoHC Performance TC 7.3.6.5 Re-establishment of TS function after DTX in R-mode	F	6.5.0	6.6.0	R5-070363
RP-35	RP-070095	1837	-	Addition of RoHC Performance TC 7.3.6.7 Compressor response to single lost packets in R-mode	F	6.5.0	6.6.0	R5-070229
RP-35	RP-070095	1838	-	Addition of RoHC Performance TC 7.3.6.9 TS function during DTX with varying delta in R-mode	F	6.5.0	6.6.0	R5-070364
RP-35	RP-070095	1839	-	Addition of a new RoHC Performance Test Case.	F	6.5.0	6.6.0	R5-070365
RP-35	RP-070095	1840	-	Addition of RoHC Performance TC 7.3.6.8: TS function during DTX with varying delta in O-mode	F	6.5.0	6.6.0	R5-070366
RP-35	RP-070086	1841	-	Correction to MBMS GMM test case 12.9.18	F	6.5.0	6.6.0	R5-070069
RP-35	RP-070086	1842	-	Generic test procedure for MBMS radio bearer test cases	F	6.5.0	6.6.0	R5-070431
RP-35	RP-070086	1843	-	New MBMS radio bearer test cases	F	6.5.0	6.6.0	R5-070432
RP-35	RP-070086	1844	-	Corrections to MBMS RLC test cases	F	6.5.0	6.6.0	R5-070473
RP-35	RP-070086	1845	-	Corrections to MBMS test cases 8.5.3.5 and 8.5.3.6	F	6.5.0	6.6.0	R5-070475
RP-35	RP-070086	1846	-	New MBMS test case for Modification of the list of MBMS Selected Service whilst in Cell_PCH, URA_PCH & Cell_FACH	F	6.5.0	6.6.0	R5-070466
RP-35	RP-070086	1847	-	Correction to MBMS Test Cases 11.5.1, 11.5.2.1 and 11.5.2.2	F	6.5.0	6.6.0	R5-070436
RP-35	RP-070086	1848	-	New MBMS RRC Test Case: MBMS session Start at Notification via DCCH in CELL_DCH	F	6.5.0	6.6.0	R5-070465
RP-35	RP-070086	1849	-	New MBMS RRC Test Case: Transmission of the MBMS Selected Services Information when entering RRC connected mode	F	6.5.0	6.6.0	R5-070406
RP-35	RP-070086	1850	-	New MBMS RRC Test Case: MBMS Serving Cell Reselection in CELL_DCH during ongoing Session	F	6.5.0	6.6.0	R5-070437
RP-35	RP-070086	1851	-	New MBMS RRC Test Case: MBMS Serving Cell Reselection in CELL_PCH during ongoing Session	F	6.5.0	6.6.0	R5-070438
RP-35	RP-070086	1852	-	Correction of TC 8.5.1.1: MBMS Session Start in Idle mode	F	6.5.0	6.6.0	R5-070439

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
RP-35	RP-070086	1853	-	Addition of TC 8.5.1.2: MBMS session start at notification in CELL_PCH	F	6.5.0	6.6.0	R5-070440
RP-35	RP-070086	1854	-	Addition of TC 8.5.3.2: MBMS Session Start (Frequency Layer Convergence)/Session Stop (Frequency Layer Dispersion) in CELL_PCH	F	6.5.0	6.6.0	R5-070443
RP-35	RP-070086	1855	-	Addition of TC 8.5.1.6: MBMS session start at MCCH acquisition in CELL_DCH (for a MBMS service) when entering into an MBMS cell (UE capable of MBMS p-t-m reception in CELL_DCH)	F	6.5.0	6.6.0	R5-070441
RP-35	RP-070086	1856	-	Addition of TC 8.5.3.3: MBMS Session Start (Frequency Layer Convergence)/Session Stop (Frequency Layer Dispersion) in CELL_FACH	F	6.5.0	6.6.0	R5-070442
RP-35	RP-070086	1857	-	Addition of TC 8.5.5.5: P-t-p Request in Idle Mode	F	6.5.0	6.6.0	R5-070444
RP-35	RP-070087	1858	-	Addition of TC “MBMS Cell reselection - Idle mode - Frequency Layer Convergence – HCS Not Used”	F	6.5.0	6.6.0	R5-070457
RP-35	RP-070087	1859	-	Addition of TC 8.5.5.6: P-t-p Request in URA_PCH, CELL_PCH or CELL_FACH	F	6.5.0	6.6.0	R5-070445
RP-35	RP-070087	1860	-	Addition of TC 8.5.2.2: MBMS Session Stop at Notification, reception via MCCH	F	6.5.0	6.6.0	R5-070458
RP-35	RP-070087	1861	-	Addition of TC 8.5.3.4: MBMS session stop with frequency layer dispersion - no previous frequency layer available (Idle Mode)	F	6.5.0	6.6.0	R5-070480
RP-35	RP-070087	1862	-	Update of TC 8.5.5.1: MBMS Counting in Idle Mode to cover Selected services.	F	6.5.0	6.6.0	R5-070459
RP-35	RP-070087	1863	-	Update of TC 8.5.5.3: MBMS No Counting in CELL_DCH to cover Selected services.	F	6.5.0	6.6.0	R5-070280
RP-35	RP-070087	1864	-	Update of TC 8.5.5.4: MBMS Counting in CELL_PCH to cover Selected services.	F	6.5.0	6.6.0	R5-070281
RP-35	RP-070087	1865	-	Addition of TC 8.5.5.2: MBMS Counting in CELL_FACH	F	6.5.0	6.6.0	R5-070380
RP-35	RP-070087	1866	-	Update to MBMS test cases 11.6.1 and 11.7	F	6.5.0	6.6.0	R5-070396
RP-35	RP-070101	1867	-	Add a note in clause 6	F	6.5.0	6.6.0	R5-070058
RP-35	RP-070101	1868	-	Correction to GCF WI-10 Inter-RAT Test Case 6.2.2.3	F	6.5.0	6.6.0	R5-070082
RP-35	RP-070101	1869	-	Correction to WI-010 test case 7.1.1.3	F	6.5.0	6.6.0	R5-070288
RP-35	RP-070105	1870	-	Correction of RRC HSDPA test case 8.3.1.35	F	6.5.0	6.6.0	R5-070386
RP-35	RP-070105	1871	-	Correction of RRC test case 8.4.1.47	F	6.5.0	6.6.0	R5-070387
RP-35	RP-070105	1872	-	Correction of RRC test case 8.3.4.9	F	6.5.0	6.6.0	R5-070388
RP-35	RP-070105	1873	-	Correction to GCF WI 13/1 RRC test case 8.4.1.47	F	6.5.0	6.6.0	R5-070078
RP-35	RP-070101	1874	-	Correction to GCF WI 10 RRC test case 8.2.4.1	F	6.5.0	6.6.0	R5-070079
RP-35	RP-070101	1875	-	Correction to WI-10/3 RRC test case 8.4.1.29	F	6.5.0	6.6.0	R5-070373
RP-35	RP-070101	1876	-	Correction to RRC test case 8.4.1.14	F	6.5.0	6.6.0	R5-070085
RP-35	RP-070101	1877	-	Change in the phrase "Frequency band modification" to “Frequency modification” in RRC cases	F	6.5.0	6.6.0	R5-070086
RP-35	RP-070101	1878	-	Correction to GCF WI 10 RRC test case 8.1.2.2	F	6.5.0	6.6.0	R5-070089
RP-35	RP-070101	1879	-	Correction to GCF WI 10/4 Inter system cell reselection from UTRAN test case 8.3.9.1	F	6.5.0	6.6.0	R5-070090
RP-35	RP-070111	1880	-	Addition of new test case for Radio Bearer Establishment using Specification Mode = Preconfiguration	F	6.5.0	6.6.0	R5-070375
RP-35	RP-070101	1881	-	Update to test case 8.1.2.15 for Rel-6	F	6.5.0	6.6.0	R5-070477
RP-35	RP-070102	1882	-	Correction to RRC test case 8.2.6.37	F	6.5.0	6.6.0	R5-070377
RP-35	RP-070102	1883	-	Correction to test cases 8.4.1.2 and 8.4.1.24	F	6.5.0	6.6.0	R5-070376
RP-35	RP-070102	1884	-	Correction to GCF WI 10/2 RRC test case 8.1.10.1	F	6.5.0	6.6.0	R5-070277
RP-35	RP-070102	1885	-	Corrections to test cases in Section 8	F	6.5.0	6.6.0	R5-070378
RP-35	RP-070102	1886	-	Correction to GCF WI-10 RRC test case 8.4.1.28	F	6.5.0	6.6.0	R5-070332
RP-35	RP-070102	1887	-	Correction to GCF WI 10 MM test case 9.2.2	F	6.5.0	6.6.0	R5-070077
RP-35	RP-070102	1888	-	Corrections to GCF WI-10/4 test cases 9.4.3.5 and 9.5.7.1	F	6.5.0	6.6.0	R5-070402
RP-35	RP-070102	1889	-	Correction to GCF WI-012 test case 12.3.2.7	F	6.5.0	6.6.0	R5-070046
RP-35	RP-070102	1890	-	Correction of GMM test case 12.4.1.4b	F	6.5.0	6.6.0	R5-070064
RP-35	RP-070102	1891	-	Correction to GCF WI 10/4 GMM test case 12.9.13	F	6.5.0	6.6.0	R5-070068
RP-35	RP-070111	1892	-	Correction to GMM test cases in sub clause 12.4.2.11, 12.4.2.12	F	6.5.0	6.6.0	R5-070349
RP-35	RP-070102	1893	-	Correction to GCF WI-10 RAB Test Case 14.2.58	F	6.5.0	6.6.0	R5-070047

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
RP-35	RP-070105	1894	-	Correction to GCF WI-14 RAB Test Case 14.6.1a and 14.6.2	D	6.5.0	6.6.0	R5-070048
RP-35	RP-070105	1895	-	Correction to GCF WI 14/3 HSDPA test case 14.6.7	F	6.5.0	6.6.0	R5-070049
RP-35	RP-070105	1896	-	Correction to GCF WI13/1 RAB testcase 14.2.4b and 14.2.62	F	6.5.0	6.6.0	R5-070050
RP-35	RP-070105	1897	-	Correction to GCF WI 14/3 HSDPA test case 14.6.8	F	6.5.0	6.6.0	R5-070051
RP-35	RP-070105	1898	-	Correction to HSDPA radio bearer test case 14.6.8	F	6.5.0	6.6.0	R5-070142
RP-35	RP-070105	1899	-	Corrections to GCF WI-14 test case 14.6.8	F	6.5.0	6.6.0	R5-070287
RP-35	RP-070097	1900	-	Correction to GCF WI-25 test case 8.3.4.10	F	6.5.0	6.6.0	R5-070435
RP-35	RP-070095	1901	-	Addition of RoHC Performance TC 7.3.6.10: SRNS relocation for ROHC RTP O-mode compressor	F	6.5.0	6.6.0	R5-070248r1
RP-35	RP-070102	1902	-	Correction of SMS test case 16.1.2	F	6.5.0	6.6.0	R5-070478r1
RP-36	RP-070360	1903	-	Correction to MBMS Test Case 8.5.3.3	F	6.6.0	6.7.0	R5-071471
RP-36	RP-070344	1904	-	Correction to testcase 8.4.1.42.	F	6.6.0	6.7.0	R5-071494
RP-36	RP-070360	1905	-	Correction to MBMS Test Case 8.5.3.2	F	6.6.0	6.7.0	R5-071470
RP-36	RP-070360	1906	-	Corrections to MBMS RRC test cases	F	6.6.0	6.7.0	R5-071534
RP-36	RP-070350	1907	-	Correction to GCF WI-14 RAB Test Case 14.6.1 and 14.6.1a	F	6.6.0	6.7.0	R5-071037
RP-36	RP-070344	1908	-	Removal of GCF WI-10 Idle Mode Test Case 6.1.2.9	F	6.6.0	6.7.0	R5-071038
RP-36	RP-070344	1909	-	Correction to GCF WI-10 RRC Testcases 8.2.6.38 and 8.4.1.8	F	6.6.0	6.7.0	R5-071040
RP-36	RP-070357	1910	-	Correction of index of absolute grant for max bit rate	F	6.6.0	6.7.0	R5-071043
RP-36	RP-070357	1911	-	Correction to GCF WI-25 HSUPA Testcase 8.2.3.36	F	6.6.0	6.7.0	R5-071049
RP-36	RP-070344	1912	-	Correction to SMS test cases	F	6.6.0	6.7.0	R5-071050
RP-36	RP-070358	1913	-	Correction to GCF WI-25 HSUPA test case 8.3.1.41	F	6.6.0	6.7.0	R5-071076
RP-36	RP-070344	1914	-	Correction to GCF WI-10 RRC test case 8.2.6.37	F	6.6.0	6.7.0	R5-071077
RP-36	RP-070360	1915	-	Editorial corrections to section 8.5 text styles and missing clause	F	6.6.0	6.7.0	R5-071100
RP-36	RP-070367	1916	-	Addition of LCR TDD part of 8.5.1.1	F	6.6.0	6.7.0	R5-071108
RP-36	RP-070367	1917	-	Addition of LCR TDD part of 8.5.1.4	F	6.6.0	6.7.0	R5-071109
RP-36	RP-070367	1918	-	Addition of LCR TDD part of 8.5.1.5	F	6.6.0	6.7.0	R5-071110
RP-36	RP-070367	1919	-	Addition of LCR TDD part of 8.5.1.6	F	6.6.0	6.7.0	R5-071111
RP-36	RP-070367	1920	-	Addition of LCR TDD part of 8.5.3.4	F	6.6.0	6.7.0	R5-071112
RP-36	RP-070367	1921	-	Addition of LCR TDD part of 8.5.3.5	F	6.6.0	6.7.0	R5-071113
RP-36	RP-070367	1922	-	Addition of LCR TDD part of 8.5.3.6	F	6.6.0	6.7.0	R5-071114
RP-36	RP-070367	1923	-	Addition of LCR TDD part of 8.5.6.1	F	6.6.0	6.7.0	R5-071115
RP-36	RP-070367	1924	-	Addition of LCR TDD part of 8.5.6.2	F	6.6.0	6.7.0	R5-071116
RP-36	RP-070367	1925	-	Addition of LCR TDD part of 8.5.6.3	F	6.6.0	6.7.0	R5-071117
RP-36	RP-070367	1926	-	Addition of LCR TDD part of 8.5.6.5	F	6.6.0	6.7.0	R5-071118
RP-36	RP-070349	1927	-	Addition of LCR TDD part of 8.4.1.41	F	6.6.0	6.7.0	R5-071121
RP-36	RP-070345	1928	-	Correction to GCF Testcase 8.4.1.25	F	6.6.0	6.7.0	R5-071133
RP-36	RP-070345	1929	-	Correction to GCF WI 10 Inter system cell reselection from UTRAN test case 8.3.9.3	F	6.6.0	6.7.0	R5-071147
RP-36	RP-070350	1930	-	Correction to Generic radio bearer test procedure for standalone AMR RB configurations in 14.1.1a	F	6.6.0	6.7.0	R5-071152
RP-36	RP-070358	1931	-	Correction to GCF WI 25 EDCH RRC test case 8.1.2.17 and 8.1.2.18	F	6.6.0	6.7.0	R5-071154
RP-36	RP-070360	1932	-	“MBMS serving cell reselection” terminology	F	6.6.0	6.7.0	R5-071164
RP-36	RP-070345	1933	-	Correction to GCF WI-010 test case 6.1.2.6	F	6.6.0	6.7.0	R5-071170
RP-36	RP-070345	1934	-	Correction to low priority Radio Bearer Release test cases	F	6.6.0	6.7.0	R5-071172
RP-36	RP-070345	1935	-	Correction to low priority Physical Channel Reconfiguration test case 8.2.6.25	F	6.6.0	6.7.0	R5-071173
RP-36	RP-070356	1936	-	Introduction of FDD Mode Test frequencies for Operating Band X (Extended 1.7/2.1 GHz) in clause 6	F	6.6.0	6.7.0	R5-071175
RP-36	RP-070356	1937	-	Introduction of FDD Mode Test frequencies for Operating Band X (Extended 1.7/2.1 GHz) in clause 8	F	6.6.0	6.7.0	R5-071176
RP-36	RP-070345	1938	-	Correction to TC 6.1.1.7	F	6.6.0	6.7.0	R5-071185
RP-36	RP-070354	1939	-	Correction to TCs 6.1.1.9 and 6.2.1.11	F	6.6.0	6.7.0	R5-071186

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
RP-36	RP-070350	1940	-	Update of ROHC test cases 7.3.6.8, 7.3.6.9.	F	6.6.0	6.7.0	R5-071208
RP-36	RP-070351	1941	-	Update of ROHC test cases 7.3.6.2, 7.3.6.3, 7.3.6.4, 7.3.6.5 and 7.3.6.10.	F	6.6.0	6.7.0	R5-071209
RP-36	RP-070345	1942	-	Correction to testcase 8.2.6.37	F	6.6.0	6.7.0	R5-071259
RP-36	RP-070364	1943	-	Addition of 7.68Mcps TDD tests to measurement procedure tests	F	6.6.0	7.0.0	R5-071271
RP-36	RP-070364	1944	-	Addition of 7.68Mcps TDD tests to radio bearer establishment tests defined in 8.2.4, 8.2.5, 8.2.6 of 34-123	F	6.6.0	7.0.0	R5-071273
RP-36	RP-070364	1945	-	Addition of 7.68Mcps TDD tests to RRC connection management procedure tests (section 8.1)	F	6.6.0	7.0.0	R5-071275
RP-36	RP-070364	1946	-	Addition of 7.68Mcps TDD tests to RRC connection mobility procedure tests	F	6.6.0	7.0.0	R5-071276
RP-36	RP-070364	1947	-	Addition of MAC-hs transport block size selection test for 7.68Mcps TDD	F	6.6.0	7.0.0	R5-071282
RP-36	RP-070364	1948	-	Addition of radio bearer tests for 7.68Mcps TDD to 34.123-1	F	6.6.0	7.0.0	R5-071283
RP-36	RP-070351	1949	-	Correction of RRC test case 8.4.1.47	F	6.6.0	6.7.0	R5-071306
RP-36	RP-070351	1950	-	Correction to WI 14 HSDPA RRC testcase 8.2.2.42	F	6.6.0	6.7.0	R5-071307
RP-36	RP-070364	1951	-	Addition of 7.68Mcps TDD tests to radio bearer establishment tests defined in 8.2.1, 8.2.2, 8.2.3 of 34-123	F	6.6.0	7.0.0	R5-071311
RP-36	RP-070345	1952	-	Correction to GCF WI-10 RRC Testcase 8.4.1.14	F	6.6.0	6.7.0	R5-071314
RP-36	RP-070349	1953	-	Clarify a test condition to testcase 9.4.7	F	6.6.0	6.7.0	R5-071422
RP-36	RP-070351	1954	-	Modification of HS-DSCH TB size for LCR TDD	F	6.6.0	6.7.0	R5-071424
RP-36	RP-070358	1955	-	Correction of 8.3.4.10 modifying A12 to A13	F	6.6.0	6.7.0	R5-071430
RP-36	RP-070358	1956	-	Correction to GCF WI 25 EDCH MAC test case 7.1.6.2.2	F	6.6.0	6.7.0	R5-071431
RP-36	RP-070358	1957	-	Correction to testcase 7.1.6.4.3	F	6.6.0	6.7.0	R5-071432
RP-36	RP-070351	1958	-	Correction to GCF WI-14 MAC Test Case 7.1.5.2	F	6.6.0	6.7.0	R5-071451
RP-36	RP-070345	1959	-	Correction to GCF WI 10 RRC test case 8.4.1.42	F	6.6.0	6.7.0	R5-071452
RP-36	RP-070345	1960	-	Correction to Inter-band test case 8.3.2.1a	F	6.6.0	6.7.0	R5-071453
RP-36	RP-070345	1961	-	Correction to test case 8.3.9.1 for FDD II and FDD VIII	F	6.6.0	6.7.0	R5-071454
RP-36	RP-070345	1962	-	Correction to test case 12.4.1.4a	F	6.6.0	6.7.0	R5-071455
RP-36	RP-070345	1963	-	Corrections to Interoperability Radio Bearer Test case 14.4.1	F	6.6.0	6.7.0	R5-071456
RP-36	RP-070345	1964	-	Correction to the RRC testcase 8.3.11.4	F	6.6.0	6.7.0	R5-071463
RP-36	RP-070360	1965	-	Correction to MBMS Test Case 8.5.3.1.	F	6.6.0	6.7.0	R5-071472
RP-36	RP-070360	1966	-	Update of TC 8.5.5.3: MBMS No Counting in CELL_DCH	F	6.6.0	6.7.0	R5-071475
RP-36	RP-070360	1967	-	Update of TC 8.5.5.1: MBMS Counting in Idle Mode	F	6.6.0	6.7.0	R5-071476
RP-36	RP-070360	1968	-	Update of TC 8.5.5.2: MBMS Counting in CELL_FACH	F	6.6.0	6.7.0	R5-071477
RP-36	RP-070360	1969	-	Extension of MBMS test case 8.5.1.8	F	6.6.0	6.7.0	R5-071480
RP-36	RP-070360	1970	-	Update of TC 8.5.5.4: MBMS Counting in CELL_PCH	F	6.6.0	6.7.0	R5-071481
RP-36	RP-070360	1971	-	Addition of new MBMS Test Case 8.5.2.3	F	6.6.0	6.7.0	R5-071482
RP-36	RP-070360	1972	-	Correction to MBMS Test Case 8.5.6.1	F	6.6.0	6.7.0	R5-071483
RP-36	RP-070360	1973	-	Correction to MBMS test case 7.2.4.3	F	6.6.0	6.7.0	R5-071485
RP-36	RP-070345	1974	-	Correction to Inter-band test case 8.3.1.1a	F	6.6.0	6.7.0	R5-071491
RP-36	RP-070345	1975	-	Correction to testcase 8.4.1.2 and 8.4.1.6	F	6.6.0	6.7.0	R5-071492
RP-36	RP-070360	1976	-	Correction to MBMS RLC test case 7.2.4.2	F	6.6.0	6.7.0	R5-071504
RP-36	RP-070361	1977	-	Correction to MBMS NAS test cases	F	6.6.0	6.7.0	R5-071505
RP-36	RP-070361	1978	-	Correction to Generic test procedure for radio bearers on MTCH	F	6.6.0	6.7.0	R5-071506
RP-36	RP-070358	1979	-	Correction to Radio Bearer Establishment Test case 8.2.1.36	F	6.6.0	6.7.0	R5-071509
RP-36	RP-070345	1980	-	Correction to GCF WI 10 RRC test case 8.4.1.24	F	6.6.0	6.7.0	R5-071512
RP-36	RP-070345	1981	-	Correction to GCF WI-10 Inter-RAT test case 6.2.1.6	F	6.6.0	6.7.0	R5-071513
RP-36	RP-070361	1982	-	Correction to clause numbering of MBMS service request test cases	F	6.6.0	6.7.0	R5-071523
RP-36	RP-070354	1983	-	34.123-1 Pointer version 6.7.0	F	6.6.0	6.7.0	R5-071525

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
RP-36	RP-070358	1984	-	Addition of new E-DCH test case 8.4.1.49 for E-DCH measurement event 1J	F	6.6.0	6.7.0	R5-071527
RP-36	RP-070358	1985	-	Correction to GCF WI 25 EDCH MAC test case 7.1.6.2.1	F	6.6.0	6.7.0	R5-071533
RP-36	RP-070361	1986	-	Addition of new MBMS Test Case 8.5.6.4	F	6.6.0	6.7.0	R5-071539
RP-36	RP-070361	1987	-	Correction to MBMS Test Case 8.5.3.4	F	6.6.0	6.7.0	R5-071540
RP-36	RP-070345	1988	-	Improvement to test case 6.2.2.3	F	6.6.0	6.7.0	R5-071450r1
RP-36	RP-070345	1989	-	Correction to GCF WI 12 MAC test case 7.1.3.2	F	6.6.0	6.7.0	R5-071522
RP-36	RP-070351	1990	-	Addition of test scenario for Paging for notification of Synchronised BCCH modification in idle mode using BCCH modification time	F	6.6.0	6.7.0	R5-071537
RP-36	RP-070361	1991	-	Addition of new MBMS Test Case 8.5.2.1	F	6.6.0	6.7.0	R5-071550r1
RP-36	RP-070354	1992	-	Editorial corrections in the reference list	F	6.6.0	6.7.0	R5-071445
RP-37	RP-070609	1994	-	Addition of MTCH tests to radio bearer tests for 3.84 Mcps TDD	F	7.0.0	7.1.0	R5-072298
RP-37	RP-070609	1995	-	Generic test procedure for radio bearers on MTCH for 3.84 Mcps TDD	F	7.0.0	7.1.0	R5-072303
RP-37	RP-070609	1996	-	Generic test procedure for radio bearers on MTCH for 7.68 Mcps TDD	F	7.0.0	7.1.0	R5-072305
RP-37	RP-070601	1997	-	Correction to GCF WI 25 E-DCH RRC test case 8.2.3.36	F	7.0.0	7.1.0	R5-072121
RP-37	RP-070601	1998	-	Correction to GCF WI 25 E-DCH RRC test case 8.2.6.51	F	7.0.0	7.1.0	R5-072122
RP-37	RP-070601	1999	-	Correction to GCF WI-25 test case 7.1.6.2.1	F	7.0.0	7.1.0	R5-072188
RP-37	RP-070602	2000	-	Correction to Radio Bearer Setup test case 8.2.1.36	F	7.0.0	7.1.0	R5-072284
RP-37	RP-070604	2001	-	Correction of MBMS test case 12.4.1.1d	F	7.0.0	7.1.0	R5-072043
RP-37	RP-070604	2002	-	Corrections of MBMS test cases 12.9.16, 12.9.17, 12.9.18	F	7.0.0	7.1.0	R5-072044
RP-37	RP-070604	2003	-	MBMS RAB TC split for broadcast / multicast	F	7.0.0	7.1.0	R5-072046
RP-37	RP-070604	2004	-	MBMS RLC TC split for broadcast / multicast	F	7.0.0	7.1.0	R5-072063
RP-37	RP-070604	2005	-	Technical corrections to FLC/FLD TC in section 8.5.3	F	7.0.0	7.1.0	R5-072090
RP-37	RP-070604	2006	-	Technical correction to test case 7.2.4.2	F	7.0.0	7.1.0	R5-072094
RP-37	RP-070604	2007	-	Update of Test Case 8.5.2.2 and addition new Test Case 8.5.2.2m.	F	7.0.0	7.1.0	R5-072238
RP-37	RP-070604	2008	-	Movement of MBMS RRC test cases 8.5.5.5 and 8.5.5.6 to clause 8.5.1 and split of test case 8.5.5.6	F	7.0.0	7.1.0	R5-072248
RP-37	RP-070604	2009	-	Update of Test Case 8.5.1.3	F	7.0.0	7.1.0	R5-072485
RP-37	RP-070593	2010	-	Correction to WI-13 and WI-47 Idle Mode testcases 6.1.2.10 and 6.1.2.10a	F	7.0.0	7.1.0	R5-072032
RP-37	RP-070597	2011	-	Correction to testcase 6.2.2.4	F	7.0.0	7.1.0	R5-072345
RP-37	RP-070593	2012	-	Correction to GCF WI 14 MAC test case 7.1.5.2	F	7.0.0	7.1.0	R5-072120
RP-37	RP-070588	2013	-	Correction to testcase 7.1.3.2	F	7.0.0	7.1.0	R5-072285
RP-37	RP-070588	2014	-	Corrections to GCF WI-010 RRC test cases 8.3.1.22 and 8.3.2.12	F	7.0.0	7.1.0	R5-072033
RP-37	RP-070588	2015	-	Correction to GCF WI-47 RRC test case 8.3.1.1a	F	7.0.0	7.1.0	R5-072099
RP-37	RP-070588	2016	-	Correction to GCF WI 10 RRC test case 8.4.1.7	F	7.0.0	7.1.0	R5-072123
RP-37	RP-070588	2017	-	Correction to GCF WI-010 test case 8.4.1.42	F	7.0.0	7.1.0	R5-072165
RP-37	RP-070593	2018	-	Correction to GCF WI-014 test case 8.2.6.48	F	7.0.0	7.1.0	R5-072168
RP-37	RP-070588	2019	-	Correction to GCF WI 10 RRC test case 8.2.6.37	F	7.0.0	7.1.0	R5-072224
RP-37	RP-070588	2020	-	Correction to testcase 8.2.6.37	F	7.0.0	7.1.0	R5-072287
RP-37	RP-070588	2021	-	Correction of GCF WI-010 test case 6.1.2.4 (AP#35.05)	F	7.0.0	7.1.0	R5-072068
RP-37	RP-070588	2022	-	Correction to GCF WI-010 GMM test cases 12.2.1.5a Proc1, 12.4.1.4d Proc1, 12.4.2.5a Proc1 & 12.9.7b and GCF WI-012 GMM test case 12.3.2.7	F	7.0.0	7.1.0	R5-072035
RP-37	RP-070588	2023	-	Correction to GCF WI-15 AGPS test case 17.2.4.6	F	7.0.0	7.1.0	R5-072097
RP-37	RP-070588	2024	-	Correction to GCF WI-15 AGPS test case 17.2.4.7	F	7.0.0	7.1.0	R5-072098
RP-37	RP-070588	2025	-	Correction to GCF WI-15 AGPS test case 17.2.3.3	F	7.0.0	7.1.0	R5-072348
RP-37	RP-070588	2026	-	Correction to GCF WI-15 AGPS test case 17.2.3.8	F	7.0.0	7.1.0	R5-072349
RP-37	RP-070609	2027	-	Addition of MTCH tests to radio bearer tests for 7.68 Mcps TDD	F	7.0.0	7.1.0	R5-072483
RP-37	RP-070602	2028	-	Correction to testcase 8.2.2.49	F	7.0.0	7.1.0	R5-072456

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
RP-37	RP-070602	2029	-	Correction to testcase 8.3.1.42	F	7.0.0	7.1.0	R5-072457
RP-37	RP-070604	2030	-	Clarification on the use of compression in 8.5.1.4	F	7.0.0	7.1.0	R5-072473
RP-37	RP-070604	2031	-	Technical corrections and extension of controlling cell change TCs in section 8.5.6	F	7.0.0	7.1.0	R5-072474
RP-37	RP-070604	2032	-	Addition of new test case 8.5.2.4 (MBMS PTM Session Reconfiguration – MTCH data rate change)	F	7.0.0	7.1.0	R5-072475
RP-37	RP-070604	2033	-	Corrections to MBMS RRC test cases	F	7.0.0	7.1.0	R5-072476
RP-37	RP-070605	2034	-	New MBMS RRC test case: Testing of the Selected Services indication from the network whilst in CELL_DCH / MBMS Selected Service	F	7.0.0	7.1.0	R5-072477
RP-37	RP-070605	2035	-	Correction of Test Case 8.5.1.1 and addition new Test Case 8.5.1.1m.	F	7.0.0	7.1.0	R5-072488
RP-37	RP-070605	2036	-	Correction of Test Case 8.5.1.6.	F	7.0.0	7.1.0	R5-072490
RP-37	RP-070605	2037	-	Correction of Test Case 8.5.2.3 and addition new Test Case 8.5.2.3m.	F	7.0.0	7.1.0	R5-072493
RP-37	RP-070605	2038	-	Update of Test Cases from RRC section 8.5.5.	F	7.0.0	7.1.0	R5-072494
RP-37	RP-070605	2039	-	Addition of new MBMS test cases 8.5.5.7, 8.5.5.7m, 8.5.5.8 & 8.5.5.8m	F	7.0.0	7.1.0	R5-072463
RP-37	RP-070605	2040	-	Generic test procedure for New MBMS PTP HS radio bearer testing	F	7.0.0	7.1.0	R5-072498
RP-37	RP-070593	2042	-	Correction to the support statement of RoHC	F	7.0.0	7.1.0	R5-072487
RP-37	RP-070593	2043	-	Update to references for Robust Header Compression (RFC3095)	F	7.0.0	7.1.0	R5-072459
RP-37	RP-070593	2044	-	Update of Radio Bearer setup used in Rohc generic procedure.	F	7.0.0	7.1.0	R5-072528
RP-37	RP-070588	2045	-	Clarification of default value for the measurement tests	F	7.0.0	7.1.0	R5-072478
RP-37	RP-070588	2046	-	Correction to GCF WI-47 RRC test case 8.3.2.1a	F	7.0.0	7.1.0	R5-072461
RP-37	RP-070589	2047	-	Correction to GCF WI-010 MM test case 9.4.2.4	F	7.0.0	7.1.0	R5-072312
RP-37	RP-070593	2048	-	Correction to GCF WI-14 RAB Test Case 14.6.7	F	7.0.0	7.1.0	R5-072333
RP-37	RP-070600	2049	-	Editorial corrections to section 18.2 of 34.123-1	F	7.0.0	7.1.0	R5-072467
RP-37	RP-070600	2050	-	Editorial corrections to section 18.3 of 34.123-1	F	7.0.0	7.1.0	R5-072512
RP-37	RP-070611	2051	-	Generic test procedure for LCR TDD MBMS radio bearer test cases	F	7.0.0	7.1.0	R5-072536
RP-37	RP-070611	2052	-	New MBMS radio bearer test cases for LCR TDD	F	7.0.0	7.1.0	R5-072533
RP-37	RP-070605	2053	-	MBMS GMM TC split for broadcast / multicast	F	7.0.0	7.1.0	R5-072470
RP-37	RP-070605	2054	-	MBMS SM TC split for broadcast / multicast	F	7.0.0	7.1.0	R5-072503
RP-37	RP-070605	2055	-	MBMS RRC section 8 split for broadcast / multicast	F	7.0.0	7.1.0	R5-072554
RP-37	RP-070605	2056	-	Update of Test Case 8.5.1.2 and addition new Test Case 8.5.1.2m..	F	7.0.0	7.1.0	R5-072557
RP-37	RP-070605	2057	-	Correction of Test Case 8.5.2.1.	F	7.0.0	7.1.0	R5-072558
RP-37	RP-070605	2058	-	New MBMS PTP HS radio bearer test cases	F	7.0.0	7.1.0	R5-072523
RP-37	RP-070593	2059	-	New test case for radio bearer reconfiguration from speech to speech plus PS data with modification of downlink spreading factor	F	7.0.0	7.1.0	R5-072539
RP-37	RP-070589	2060	-	Clarification test step of test case 12.4.1.3	F	7.0.0	7.1.0	R5-072527
RP-37	RP-070589	2061	-	Correction of SMS testcases 16.2.1 and 16.2.2	F	7.0.0	7.1.0	R5-072462
RP-37	RP-070605	2062	-	Addition of new test case 8.5.1.9 (MBMS PTM Session Start at MCCH Notification in Idle)	F	7.0.0	7.1.0	R5-072562
RP-37	RP-070602	2063	-	Modification of applicability for F-DPCH test cases	F	7.0.0	7.1.0	R5-072500
RP-37	RP-070602	2064	-	Correction to E-DCH RAB test procedure	F	7.0.0	7.1.0	R5-072531
RP-37	RP-070589	2065	-	Correction to RRC test cases 8.2.6.39a, 8.2.6.39b, 8.2.6.51, 8.4.1.1 and 8.4.1.45	F	7.0.0	7.1.0	R5-072529
RP-37	RP-070593	2066	-	Correction to HSDPA RAB test procedure	F	7.0.0	7.1.0	R5-072530
RP-37	RP-070602	2067	-	Correction to GCF WI-025 HSUPA test cases 8.4.1.49	F	7.0.0	7.1.0	R5-072516
RP-37	RP-070602	2068	-	Modification of test case 8.2.2.49, to remove dependency on support of F-DPCH	F	7.0.0	7.1.0	R5-072537
RP-37	RP-070602	2069	-	Correction to RRC Test case 8.2.2.47 and addition of new Testcase 8.2.2.47a	F	7.0.0	7.1.0	R5-072552
RP-37	RP-070602	2070	-	Correction RRC Testcase 8.3.1.42 and addition of new Testcase 8.3.1.42a	F	7.0.0	7.1.0	R5-072551r1
RP-37	RP-070602	2071	-	Correction to GCF WI-25 EDCH RRC Test case 8.2.1.36 and addition of new test case 8.2.1.36a	F	7.0.0	7.1.0	R5-072556
RP-37	RP-070602	2072	-	Correction to GCF WI-25 EDCH RRC Test case	F	7.0.0	7.1.0	R5-072555

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
				8.2.2.44 and addition of new test case 8.2.2.44a				
RP-37	RP-070605	2073	-	Corrections of MBMS Session Management test cases	F	7.0.0	7.1.0	R5-072513r1
RP-37	RP-070600	2074	-	Production of 34.123-1 Rel-7 pointer version to point to Rel-8 of the spec	F	7.0.0	7.1.0	R5-072593
RP-37	RP-070599	2041	-	Introduction of Test frequencies for FDD Mode Operating Band XI (UMTS 1500)	F	7.0.0	8.0.0	R5-072458
RP-38	RP-070879	2075		Correction to some parameters of Both MEASUREMENT CONTROL(1.28Mcps TDD) and MEASUREMENT REPORT (1.28Mcps TDD) in 8.5.1.4	F	8.0.0	8.1.0	R5-073129
RP-38	RP-070879	2076		Correction to the parameter of PHYSICAL CHANNEL RECONFIGURATION (1.28McpsTDD) in 8.5.1.5	F	8.0.0	8.1.0	R5-073130
RP-38	RP-070879	2077		Correction of the test case 8.5.2.4 for LCR TDD	F	8.0.0	8.1.0	R5-073131
RP-38	RP-070879	2078		Addition of LCR TDD part of 8.5.3.3	F	8.0.0	8.1.0	R5-073132
RP-38	RP-070879	2079		Addition of LCR TDD part of 8.5.6.4	F	8.0.0	8.1.0	R5-073133
RP-38	RP-070879	2080		Correction to some parameters of PHYSICAL CHANNEL RECONFIGURATION (1.28Mcps TDD) in 8.5.6.5	F	8.0.0	8.1.0	R5-073134
RP-38	RP-070880	2081		Modification of section 8.5 of 34.123-1 to deal with 3.84Mcps and 7.68Mcps TDD	F	8.0.0	8.1.0	R5-073477
RP-38	RP-070887	2082		Addition of AM RLC test case for flexible RLC PDU sizes	F	8.0.0	8.1.0	R5-073301
RP-38	RP-070887	2083		Addition of new generic test procedure for radio bearer tests utilizing improved L2	F	8.0.0	8.1.0	R5-073455
RP-38	RP-070887	2084		New test case for MAC-ehs transport block size selection	F	8.0.0	8.1.0	R5-073407
RP-38	RP-070887	2085		Introduction of new MAC-ehs test cases	F	8.0.0	8.1.0	R5-073408
RP-38	RP-070887	2086		Introduction of new MAC-ehs test case	F	8.0.0	8.1.0	R5-073422
RP-38	RP-070885	2087		New CPC test case for physical channel reconfiguration with DTX_DRX_STATUS variable and corresponding actions	F	8.0.0	8.1.0	R5-073485
RP-38	RP-070885	2088		New CPC test case for physical channel reconfiguration with HS_SCCH_LESS_STATUS variable and corresponding actions.	F	8.0.0	8.1.0	R5-073486
RP-38	RP-070885	2089		New MAC test case for grant monitoring in discontinuous downlink reception operation	F	8.0.0	8.1.0	R5-073411
RP-38	RP-070885	2090		New CPC test case for RB establishment with start of DTX	F	8.0.0	8.1.0	R5-073410
RP-38	RP-070885	2091		New CPC test case for RB establishment with start of HS-SCCH less operation	F	8.0.0	8.1.0	R5-073409
RP-38	RP-070885	2092		MAC E-TFCI Selection for CPC	F	8.0.0	8.1.0	R5-073474
RP-38	RP-070885	2093		MAC HS-SCCH Less Operation for CPC	F	8.0.0	8.1.0	R5-073475
RP-38	RP-070872	2094		Add references of MBMS Relevant Specifications	F	8.0.0	8.1.0	R5-073309
RP-38	RP-070859	2095		Correction to GCF WI 10 Idle mode test case 6.1.1.4	F	8.0.0	8.1.0	R5-073196
RP-38	RP-070872	2096		Correction to GCF WI-24 Idle mode testcases 6.1.1.8 and 6.1.1.9	F	8.0.0	8.1.0	R5-073197
RP-38	RP-070869	2097		Correction to MAC-hs test case 7.1.5.5	F	8.0.0	8.1.0	R5-073166
RP-38	RP-070872	2098		Correction to GCF WI-25 HSUPA test case 8.3.4.10	F	8.0.0	8.1.0	R5-073416
RP-38	RP-070859	2099		Correction to GCF WI 10 RRC test case 8.3.1.22	F	8.0.0	8.1.0	R5-073057
RP-38	RP-070859	2100		Correction to GCF WI 10 RRC testcases 8.4.1.23 and 8.4.1.28	F	8.0.0	8.1.0	R5-073058
RP-38	RP-070872	2101		Correction to GCF WI-24 RRC testcase 8.1.1.11	F	8.0.0	8.1.0	R5-073095
RP-38	RP-070872	2102		Correction of Test Cases 8.5.2.2 and 8.5.2.2m	F	8.0.0	8.1.0	R5-073097
RP-38	RP-070872	2103		Correction of Test Cases 8.5.1.3 and 8.5.1.3m	F	8.0.0	8.1.0	R5-073098
RP-38	RP-070872	2104		Removal of Test Cases 8.5.1.6 and 8.5.1.6m	F	8.0.0	8.1.0	R5-073099
RP-38	RP-070872	2105		Update of Test Cases from RRC section 8.5.5.	F	8.0.0	8.1.0	R5-073100
RP-38	RP-070872	2106		Update of MBMS RRC test cases to add references to the RB Setup PtP message	F	8.0.0	8.1.0	R5-073417
RP-38	RP-070872	2107		Correction to INITIAL DIRECT TRANSFER message contents in MBMS test cases	F	8.0.0	8.1.0	R5-073415
RP-38	RP-070873	2108		Correction to specific message content for MBMS MODIFICATION REQUEST message	F	8.0.0	8.1.0	R5-073111
RP-38	RP-070859	2109		Correcting prose for WI-10 test case 8.2.3.29: removing multi call reference	F	8.0.0	8.1.0	R5-073115

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
RP-38	RP-070859	2110		Correcting prose for non GCF test case 8.4.1.43: removing multi call reference	F	8.0.0	8.1.0	R5-073116
RP-38	RP-070869	2111		Correction to RRC test case 8.2.2.50	F	8.0.0	8.1.0	R5-073163
RP-38	RP-070873	2112		Corrections to MBMS test Case 8.5.2.1	F	8.0.0	8.1.0	R5-073216
RP-38	RP-070873	2113		Corrections to MBMS test cases 8.5.5.7, 8.5.5.7m, 8.5.5.8 & 8.5.5.8m	F	8.0.0	8.1.0	R5-073217
RP-38	RP-070859	2114		Correction to WI-010 test case 8.3.1.31	F	8.0.0	8.1.0	R5-073405
RP-38	RP-070859	2115		Correction to testcase 8.1.10.1	F	8.0.0	8.1.0	R5-073426
RP-38	RP-070859	2116		Corrections to RRC testcases 8.2.6.37, 8.2.6.38, 8.2.6.48 & 8.4.1.42.	F	8.0.0	8.1.0	R5-073443
RP-38	RP-070873	2117		Correction to testcase 8.3.1.42a	F	8.0.0	8.1.0	R5-073427
RP-38	RP-070869	2118		Correction to the new WI-024 paging test case 8.1.1.6a	F	8.0.0	8.1.0	R5-073428
RP-38	RP-070859	2119		Correction to RRC test case 8.4.1.23	F	8.0.0	8.1.0	R5-073456
RP-38	RP-070873	2120		Correction to RRC test case 8.4.1.49	F	8.0.0	8.1.0	R5-073457
RP-38	RP-070873	2121		Corrections to MBMS FLC/FLD test cases	F	8.0.0	8.1.0	R5-073265
RP-38	RP-070873	2122		Corrections to MBMS controlling cell change test cases	F	8.0.0	8.1.0	R5-073266
RP-38	RP-070873	2123		Minor corrections to MBMS RRC sections	F	8.0.0	8.1.0	R5-073267
RP-38	RP-070860	2124		Correction to GCF WI-10 test case 8.4.1.31	F	8.0.0	8.1.0	R5-073299
RP-38	RP-070873	2125		Correction of Test Case 8.5.2.1	F	8.0.0	8.1.0	R5-073434
RP-38	RP-070860	2126		Correction to GCF WI-10 MM test case 9.4.2.4	F	8.0.0	8.1.0	R5-073051
RP-38	RP-070873	2127		Correction in DSAC testcase 9.5.9.	F	8.0.0	8.1.0	R5-073452
RP-38	RP-070860	2128		Clarification added to test case 9.5.2	F	8.0.0	8.1.0	R5-073453
RP-38	RP-070873	2129		Addition of optional test path for DSAC testcase 12.9.15.	F	8.0.0	8.1.0	R5-073451
RP-38	RP-070860	2130		Correction in GMM testcase 12.4.1.1b	F	8.0.0	8.1.0	R5-073432
RP-38	RP-070873	2131		Correction to MBMS RAB test case 14.4.5, 14.4.6 and 14.4.7	F	8.0.0	8.1.0	R5-073059
RP-38	RP-070860	2132		Correction to Generic Radio Bearer test procedure for Cell FACH test cases	F	8.0.0	8.1.0	R5-073186
RP-38	RP-070871	2133		Update of MBMS PTP HS radio bearer test cases	F	8.0.0	8.1.0	R5-073462r1
RP-38	RP-070873	2134		Addition of details for generic test procedure for MBMS PTP HS radio bearer test cases	F	8.0.0	8.1.0	R5-073461
RP-39	RP-080106	2135		Addition of MAC-es/e tests for 3.84Mcps and 7.68Mcps TDD to section 7 of 34.123-1	F	8.1.0	8.2.0	R5-080377
RP-39	RP-080106	2136		Update of Radio bearer control procedure tests to include E-DCH test for 3.84Mcps and 7.68Mcps TDD	F	8.1.0	8.2.0	R5-080596
RP-39	RP-080102	2137		New test case 8.1.2.1a addition to verify the UE supporting the features and operation of multi-frequency and UpPCH Shifting for LCR TDD.	F	8.1.0	8.2.0	R5-080193
RP-39	RP-080102	2138		New test case addition to verify the UE supporting the features and operation of multi-frequency and UpPCH Shifting for LCR TDD.	F	8.1.0	8.2.0	R5-080610
RP-39	RP-080102	2139		New test case addition to verify the UE supporting the features and operation of multi-frequency and UpPCH Shifting for LCR TDD.	F	8.1.0	8.2.0	R5-080195
RP-39	RP-080102	2140		New test case addition to verify the UE supporting the feature of UpPCH Shifting for LCR TDD.	F	8.1.0	8.2.0	R5-080196
RP-39	RP-080102	2141		NEW test case addition to verify the UE supporting the feature of UpPCH Shifting for LCR TDD.	F	8.1.0	8.2.0	R5-080197
RP-39	RP-080108	2142		New MAC Test Case for UL 16QAM	F	8.1.0	8.2.0	R5-080481
RP-39	RP-080108	2143		New Radio Bearer Test Cases for UL 16 QAM	F	8.1.0	8.2.0	R5-080593
RP-39	RP-080108	2144		Update of existing E-DCH radio bearer test cases in section 14.7 for Rel-7 UE HS_DSCH physical layer categories 13 to 18 and E-DCH category 7.	F	8.1.0	8.2.0	R5-080524
RP-39	RP-080107	2145		Addition of MAC-ehs TB size selection test case for 64QAM	F	8.1.0	8.2.0	R5-080260
RP-39	RP-080107	2146		New Rel-7 HSPA IB radio bearer test case for enhanced L2 and 64QAM	F	8.1.0	8.2.0	R5-080371
RP-39	RP-080107	2147		New Rel-7 HSPA streaming radio bearer test case for enhanced L2 and 64QAM	F	8.1.0	8.2.0	R5-080338
RP-39	RP-080109	2148		Addition of a new test case for DL Improved Layer2: Reconfiguration between fixed and flexible AM RLC, Serving HS-DSCH cell change between MAC-hs	F	8.1.0	8.2.0	R5-080605

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
				and MAC-ehs.				
RP-39	RP-080109	2149		Addition of generic test procedure for MAC-ehs TB size selection test cases	F	8.1.0	8.2.0	R5-080535
RP-39	RP-080109	2150		Addition of MAC-ehs TB size selection test case for QPSK and 16QAM	F	8.1.0	8.2.0	R5-080360
RP-39	RP-080109	2151		Update of RLC test case 7.2.3.36 for Flexible handling of RLC PDU sizes for AM RLC	F	8.1.0	8.2.0	R5-080509
RP-39	RP-080109	2152		Addition of RLC test case for Flexible handling of RLC PDU sizes for UM RLC in downlink	F	8.1.0	8.2.0	R5-080563
RP-39	RP-080109	2153		Correction to generic test procedure for Enhanced L2 radio bearer test cases	F	8.1.0	8.2.0	R5-080511
RP-39	RP-080109	2154		Update of existing HSDPA radio bearer test cases in section 14.6 for Rel-7 UE HS_DSCH physical layer categories 13 to 18.	F	8.1.0	8.2.0	R5-080330
RP-39	RP-080109	2155		New Rel-7 HSPA IB radio bearer test case for enhanced L2, QPSK and 16QAM	F	8.1.0	8.2.0	R5-080331
RP-39	RP-080109	2156		New Rel-7 HSPA streaming radio bearer test case for enhanced L2, QPSK and 16QAM	F	8.1.0	8.2.0	R5-080337
RP-39	RP-080109	2157		New Rel-7 HSPA conversational radio bearer test case using SRBs with flexible RLC	F	8.1.0	8.2.0	R5-080564
RP-39	RP-080111	2158		Addition of a new test case for CPC: CQI reporting in UL.	F	8.1.0	8.2.0	R5-080599
RP-39	RP-080111	2159		Addition of a new test case for CPC: UL DPCCH slot format #4	F	8.1.0	8.2.0	R5-080592
RP-39	RP-080111	2160		New CPC test case for Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (frequency modification, stop of discontinuous uplink transmission)	F	8.1.0	8.2.0	R5-080487
RP-39	RP-080111	2161		New CPC test case for Physical Channel Reconfiguration for transition from CELL_DCH to URA_PCH: Success (frequency modification, stop of discontinuous uplink transmission)	F	8.1.0	8.2.0	R5-080516
RP-39	RP-080111	2162		New CPC test case for Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (serving E-DCH cell change with discontinuous uplink transmission)	F	8.1.0	8.2.0	R5-080488
RP-39	RP-080111	2163		New CPC test case for Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialized hard handover to another frequency, Serving E-DCH cell change with discontinuous uplink transmission)	F	8.1.0	8.2.0	R5-080489
RP-39	RP-080111	2164		New CPC test case for Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Failure (Timing re-initialized hard handover, Serving E-DCH cell change with discontinuous uplink transmission, physical channel failure and reversion to old channel)	F	8.1.0	8.2.0	R5-080491
RP-39	RP-080111	2165		New CPC test case for Cell Update: Transition from URA_PCH to CELL_DCH: Success (start of discontinuous uplink transmission)	F	8.1.0	8.2.0	R5-080490
RP-39	RP-080111	2166		New CPC test case for Cell Update: Transition from CELL_PCH to CELL_DCH: Success (frequency modification, start of discontinuous uplink transmission)	F	8.1.0	8.2.0	R5-080492
RP-39	RP-080111	2167		New CPC test case for Cell Update: Radio Link Failure, with active discontinuous uplink transmission	F	8.1.0	8.2.0	R5-080493
RP-39	RP-080111	2168		New CPC test case for Inter-RAT Cell Change Order from UTRAN to GPRS/CELL_DCH/Success (stop of discontinuous uplink transmission)	F	8.1.0	8.2.0	R5-080517
RP-39	RP-080111	2169		Corrections to CPC RRC test cases	F	8.1.0	8.2.0	R5-080494
RP-39	RP-080111	2170		New CPC test case: RRC Connection Establishment for transition from Idle Mode to CELL_DCH: Success (start of discontinuous uplink transmission)	F	8.1.0	8.2.0	R5-080495
RP-39	RP-080111	2171		New CPC test case: Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (With active discontinuous uplink transmission)	F	8.1.0	8.2.0	R5-080514
RP-39	RP-080111	2172		New CPC test case: Radio Bearer Reconfiguration for transition from CELL_FACH to CELL_DCH and CELL_DCH to CELL_FACH: Success (start and stop of discontinuous uplink transmission)	F	8.1.0	8.2.0	R5-080496
RP-39	RP-080111	2173		New CPC test case: Radio Bearer Reconfiguration	F	8.1.0	8.2.0	R5-080497

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
				for transition from CELL_DCH to CELL_DCH: Success (hard handover to another frequency, start and stop of discontinuous uplink transmission)				
RP-39	RP-080111	2174		New CPC test case: Radio Bearer Reconfiguration for transition from CELL_FACH to CELL_DCH and CELL_DCH to CELL_FACH: Success (frequency modification, start and stop of discontinuous uplink transmission)	F	8.1.0	8.2.0	R5-080498
RP-39	RP-080111	2175		New CPC test case: Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Start and stop of discontinuous uplink transmission)	F	8.1.0	8.2.0	R5-080499
RP-39	RP-080112	2176		New CPC test case: Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_PCH: Success (stop of discontinuous uplink transmission)	F	8.1.0	8.2.0	R5-080500
RP-39	RP-080112	2177		New CPC test case: Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (hard handover to another frequency, start of discontinuous uplink transmission)	F	8.1.0	8.2.0	R5-080515
RP-39	RP-080112	2178		New CPC test case: Active set update in soft handover: Radio Link addition and serving HS-DSCH / E-DCH cell change, with discontinuous uplink transmission.	F	8.1.0	8.2.0	R5-080501
RP-39	RP-080105	2179		New Rel-7 HSPA IB radio bearer test case for enhanced L2 and MIMO	F	8.1.0	8.2.0	R5-080520
RP-39	RP-080105	2180		New Rel-7 HSPA streaming radio bearer test case for enhanced L2 and MIMO	F	8.1.0	8.2.0	R5-080339
RP-39	RP-080096	2181		Correction to GCF WI-24 Network Sharing Testcase 6.2.2.4	F	8.1.0	8.2.0	R5-080522
RP-39	RP-080096	2182		Correction to GCF WI 24 Idle Mode test cases 6.1.1.8 and 6.1.1.9	F	8.1.0	8.2.0	R5-080158
RP-39	RP-080096	2183		Correction to GCF WI 24 Idle Mode test case 6.1.2.11, 6.2.1.10 and 6.2.1.11	F	8.1.0	8.2.0	R5-080159
RP-39	RP-080096	2184		Correction to GCF WI 25 E-DCH MAC testcase 7.1.6.2.1	F	8.1.0	8.2.0	R5-080153
RP-39	RP-080093	2185		Corrections to RoHC performance test cases	F	8.1.0	8.2.0	R5-080551
RP-39	RP-080096	2186		Correction to testcase 7.1.6.4.1	F	8.1.0	8.2.0	R5-080267
RP-39	RP-080091	2187		Correction to 8.3.1.30	F	8.1.0	8.2.0	R5-080553
RP-39	RP-080096	2188		Correction in test case 8.2.3.36	F	8.1.0	8.2.0	R5-080038
RP-39	RP-080096	2189		Removal of RRC Test Case 8.2.1.37	F	8.1.0	8.2.0	R5-080055
RP-39	RP-080096	2190		Correction of Test Case 8.5.2.1	F	8.1.0	8.2.0	R5-080057
RP-39	RP-080096	2191		Correction of MBMS Test Cases	F	8.1.0	8.2.0	R5-080532
RP-39	RP-080096	2192		Correction to GCF WI-24 Network Sharing Testcase 8.3.3.4	F	8.1.0	8.2.0	R5-080528
RP-39	RP-080096	2193		Correction to GCF WI-25 test cases 8.3.1.42 and 8.3.1.42a	F	8.1.0	8.2.0	R5-080376
RP-39	RP-080096	2194		Correction to GCF WI 25 E-DCH RRC testcase 8.4.1.49	F	8.1.0	8.2.0	R5-080154
RP-39	RP-080096	2195		Correction to GCF WI 25 E-DCH RRC test case 8.2.6.51	F	8.1.0	8.2.0	R5-080155
RP-39	RP-080096	2196		Correction to GCF WI 25 E-DCH RRC test case 8.2.6.52	F	8.1.0	8.2.0	R5-080156
RP-39	RP-080091	2197		Correction to the GCF WI 10 RRC testcase 8.3.2.12	F	8.1.0	8.2.0	R5-080157
RP-39	RP-080096	2198		Corrections to GCF WI 49 MBMS RRC test cases 8.5.1.2 and 8.5.1.13	F	8.1.0	8.2.0	R5-080163
RP-39	RP-080096	2199		Corrections to GCF WI 49 MBMS RRC test case 8.5.1.12	F	8.1.0	8.2.0	R5-080164
RP-39	RP-080096	2200		Correction to GCF WI 49 MBMS RRC test case 8.5.1.4	F	8.1.0	8.2.0	R5-080165
RP-39	RP-080096	2201		Correction to MBMS RRC test case 8.5.2.2 and 8.5.2.2m	F	8.1.0	8.2.0	R5-080529
RP-39	RP-080096	2202		Removal of MBMS test cases 8.5.1.7 and 8.5.1.7m	F	8.1.0	8.2.0	R5-080178
RP-39	RP-080096	2203		Correction to GCF WI 49 MBMS RRC test case 8.5.3.2	F	8.1.0	8.2.0	R5-080229
RP-39	RP-080097	2204		Corrections to GCF WI 49 MBMS RRC test case 8.5.4.2	F	8.1.0	8.2.0	R5-080230
RP-39	RP-080097	2205		Corrections to GCF WI 49 MBMS RRC test case 8.5.4.3	F	8.1.0	8.2.0	R5-080232
RP-39	RP-080097	2206		Corrections to MBMS RRC test case 8.5.5.4 and	F	8.1.0	8.2.0	R5-080233

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
				8.5.5.4m				
RP-39	RP-080097	2207		Correction to MBMS test cases for INITIAL DIRECT TRANSFER message	F	8.1.0	8.2.0	R5-080234
RP-39	RP-080097	2208		Minor corrections to MBMS RRC test cases	F	8.1.0	8.2.0	R5-080290
RP-39	RP-080097	2209		Correction to MBMS test case 8.5.2.4	F	8.1.0	8.2.0	R5-080291
RP-39	RP-080097	2210		Correction to E-DCH test case 8.2.2.49	F	8.1.0	8.2.0	R5-080292
RP-39	RP-080091	2211		Correction to testcase 8.4.1.40	F	8.1.0	8.2.0	R5-080533
RP-39	RP-080097	2212		Correction of MEASUREMENT REPORT in GCF WI-25 HSUPA test case 8.3.4.10	F	8.1.0	8.2.0	R5-080308
RP-39	RP-080097	2213		Correction of Test Case 8.5.1.1	F	8.1.0	8.2.0	R5-080608
RP-39	RP-080097	2214		Correction in DSAC test case 9.4.3.6	F	8.1.0	8.2.0	R5-080035
RP-39	RP-080097	2215		Corrections to MBMS NAS test cases 11.8.2 and 11.8.2m	F	8.1.0	8.2.0	R5-080152
RP-39	RP-080091	2216		Correction to the GCF WI 10 GMM test case 12.4.1.4b	F	8.1.0	8.2.0	R5-080150
RP-39	RP-080097	2217		Corrections to MBMS GMM test cases 12.9.16, 12.9.16m, 12.9.17 and 12.9.17m	F	8.1.0	8.2.0	R5-080537
RP-39	RP-080091	2218		Correction in GMM testcase 12.9.9	F	8.1.0	8.2.0	R5-080609
RP-39	RP-080091	2219		Correction to test case 12.4.1.1b	F	8.1.0	8.2.0	R5-080538
RP-39	RP-080097	2220		Correction to generic test procedure for MBMS HS PTP radio bearer test cases	F	8.1.0	8.2.0	R5-080536
RP-39	RP-080091	2221		Addition of clearing of stored data in 17.2.3.9 and 17.2.4.3	F	8.1.0	8.2.0	R5-080539
RP-39	RP-080097	2222		Correction to generic C1 procedure to handle MBMS Modification Request message in case of MBMS Selected Service	F	8.1.0	8.2.0	R5-080540
RP-39	RP-080091	2223		Editorial correction to the procedure (C.1) for checking the UE in Idle mode state.	F	8.1.0	8.2.0	R5-080270
RP-39	RP-080091	2224		Correction to TestCase 6.2.2.3	F	8.1.0	8.2.0	R5-080606
RP-39	RP-080097	2225		Corrections to test case 7.1.6.2.6	F	8.1.0	8.2.0	R5-080594
RP-39	RP-080097	2226		Create a new test case 8.3.7.1a with A5/3 usage	F	8.1.0	8.2.0	R5-080581
RP-39	RP-080091	2227		Clarification of execution of radio bearer test cases in sections 14 and 18	F	8.1.0	8.2.0	R5-080550
RP-40	RP-080371	2228		Addition of section 7.1.6a.2.3 to provide test for scheduled transmissions in E-DCH MAC-ese for 3.84Mcps and 7.68Mcps TDD		8.2.0	8.3.0	R5-081376
RP-40	RP-080371	2229		Update of 7.1.6a.2.1 and addition of new test for the case where the scheduling delay timer expires in 7.1.6a.2.2		8.2.0	8.3.0	R5-081338
RP-40	RP-080371	2230		Correction to RRC test case 8.3.1.1		8.2.0	8.3.0	R5-081340
RP-40	RP-080377	2231		CR for 34.123-1:Contents addition for LCR TDD in 7.1.6.1.1		8.2.0	8.3.0	R5-081107
RP-40	RP-080377	2232		CR for 34.123-1:Contents addition for LCR TDD in 7.1.6.1.2		8.2.0	8.3.0	R5-081108
RP-40	RP-080377	2233		CR for 34.123-1:Contents addition for LCR TDD in 7.1.6.1.3		8.2.0	8.3.0	R5-081109
RP-40	RP-080377	2234		CR for 34.123-1:Contents addition for LCR TDD in 7.1.6.2.1		8.2.0	8.3.0	R5-081110
RP-40	RP-080377	2235		CR for 34.123-1:Contents addition for LCR TDD in 7.1.6.2.3		8.2.0	8.3.0	R5-081111
RP-40	RP-080377	2236		CR for 34.123-1:Contents addition for LCR TDD in 7.1.6.2.4		8.2.0	8.3.0	R5-081112
RP-40	RP-080377	2237		CR for 34.123-1:Contents addition for LCR TDD in 7.1.6.3.1		8.2.0	8.3.0	R5-081113
RP-40	RP-080377	2238		CR for 34.123-1:Contents addition for LCR TDD in 7.1.6.4.1		8.2.0	8.3.0	R5-081114
RP-40	RP-080377	2239		CR for 34.123-1:Contents addition for LCR TDD in 7.1.6.4.2		8.2.0	8.3.0	R5-081115
RP-40	RP-080377	2240		CR for 34.123-1:Contents addition of LCR TDD part of 8.3.1.41		8.2.0	8.3.0	R5-081161
RP-40	RP-080377	2241		CR for 34.123-1:Contents addition of LCR TDD part of 8.3.1.42		8.2.0	8.3.0	R5-081163
RP-40	RP-080377	2242		CR for 34.123-1:Contents addition of LCR TDD part of 8.3.1.43		8.2.0	8.3.0	R5-081164
RP-40	RP-080365	2243		New test case addition for verifying features multi-frequency and UpPCH shifting of LCR TDD: 8.2.2.11a		8.2.0	8.3.0	R5-081118
RP-40	RP-080365	2244		New test case addition for verifying features multi-		8.2.0	8.3.0	R5-081119

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
				frequency and UpPCH shifting of LCR TDD: 8.2.4.10a				
RP-40	RP-080365	2245		New test case addition for verifying features multi-frequency and UpPCH shifting of LCR TDD: 8.2.6.1a		8.2.0	8.3.0	R5-081120
RP-40	RP-080365	2246		New test case addition for verifying features multi-frequency and UpPCH shifting of LCR TDD: 8.3.1.3a		8.2.0	8.3.0	R5-081121
RP-40	RP-080365	2247		New test case addition for verifying features multi-frequency and UpPCH shifting of LCR TDD: 8.2.4.4a		8.2.0	8.3.0	R5-081122
RP-40	RP-080365	2248		New test case addition for verifying features multi-frequency and UpPCH shifting of LCR TDD: 8.2.6.9a		8.2.0	8.3.0	R5-081123
RP-40	RP-080378	2249		CR TS 34.123-1 LRPLMN selection		8.2.0	8.3.0	R5-081378
RP-40	RP-080378	2250		Addition of test case Presentation of additional information during PLMN selection: Manual mode		8.2.0	8.3.0	R5-081383
RP-40	RP-080374	2251		Enhanced CELL_FACH: New test case for RRC Connection Establishment for transition from Idle Mode to CELL_FACH: Success (Start of HS-DSCH Reception in CELL_FACH state)		8.2.0	8.3.0	R5-081385
RP-40	RP-080373	2253		Correction to Rel-7 MAC test case 7.1.5b.1		8.2.0	8.3.0	R5-081603
RP-40	RP-080373	2254		Correction to Rel-7 MAC test case 7.1.6.2.11		8.2.0	8.3.0	R5-081579
RP-40	RP-080373	2255		Correction to Rel-7 MAC test case 7.1.6.3.3		8.2.0	8.3.0	R5-081235
RP-40	RP-080373	2256		Correction to Rel-7 MAC test case 7.1.6.4.3		8.2.0	8.3.0	R5-081389
RP-40	RP-080373	2257		CPC: Corrections to RRC Connection Establishment test case 8.1.2.19		8.2.0	8.3.0	R5-081309
RP-40	RP-080373	2258		CPC: Corrections to Radio Bearer Establishment and Reconfiguration test cases in section 8.2.1.x – 8.2.3.x		8.2.0	8.3.0	R5-081605
RP-40	RP-080373	2259		CPC: Corrections to Physical Channel Reconfiguration test cases in section 8.2.6.x		8.2.0	8.3.0	R5-081399
RP-40	RP-080373	2260		CPC: Correction to Cell Update and Active Set Update test cases in sections 8.3.1.x and 8.3.4.11		8.2.0	8.3.0	R5-081312
RP-40	RP-080380	2261		Correction of Default PDCP Message Contents		8.2.0	8.3.0	R5-081391
RP-40	RP-080380	2262		Addition of a new test case for PDCP AMR Data PDU testing		8.2.0	8.3.0	R5-081392
RP-40	RP-080364	2263		Network sharing: Correction to test case 6.1.2.11		8.2.0	8.3.0	R5-081611
RP-40	RP-080363	2264		Correction to Idle mode test cases		8.2.0	8.3.0	R5-081395
RP-40	RP-080370	2265		Introduction of Operating Bands XII, XIII and XIV (UMTS700 MHz) in section 6		8.2.0	8.3.0	R5-081396
RP-40	RP-080365	2266		Correction to Rel-7 RLC UM test case 7.2.2.14		8.2.0	8.3.0	R5-081503
RP-40	RP-080365	2267		Correction to Rel-7 MAC test case 7.1.5a.1		8.2.0	8.3.0	R5-081226
RP-40	RP-080365	2268		Correction to Rel7 MAC test case 7.1.5a.2		8.2.0	8.3.0	R5-081227
RP-40	RP-080365	2269		Correction to Rel7 MAC test case 7.1.5a.3		8.2.0	8.3.0	R5-081228
RP-40	RP-080365	2270		Correction to Rel7 MAC test case 7.1.5a.4		8.2.0	8.3.0	R5-081229
RP-40	RP-080365	2271		Correction to Rel-7 MAC generic test procedure 7.1.5a.5.1		8.2.0	8.3.0	R5-081230
RP-40	RP-080430	2272		Correction to Rel-7 MAC test case 7.1.5a.5.2		8.2.0	8.3.0	R5-081231
RP-40	RP-080430	2273		Correction to Rel-7 MAC test case 7.1.5a.5.3		8.2.0	8.3.0	R5-081232
RP-40	RP-080430	2274		Correction to RLC AM test case 7.2.3.36		8.2.0	8.3.0	R5-081246
RP-40	RP-080364	2275		Correction to GCF WI-25 MACTestcase 7.1.6.2.6		8.2.0	8.3.0	R5-081504
RP-40	RP-080430	2276		Create a new test case 8.3.7.1b with UEA/2 and A5/3 usage		8.2.0	8.3.0	R5-081601
RP-40	RP-080363	2277		Correction to GCF WI-10 RRC Test Case 8.2.6.37		8.2.0	8.3.0	R5-081377
RP-40	RP-080429	2278		Correction to GCF WI-25 HSU Test case 8.2.6.51		8.2.0	8.3.0	R5-081210
RP-40	RP-080363	2279		Correction in test case 8.1.1.9		8.2.0	8.3.0	R5-081241
RP-40	RP-080427	2280		Correction to RRC testcase 8.2.2.50		8.2.0	8.3.0	R5-081305
RP-40	RP-080430	2281		UEA2/UIA2: New Security Mode Command test cases to verify new ciphering and integrity protection algorithms in Rel-7.		8.2.0	8.3.0	R5-081506
RP-40	RP-080430	2282		UEA2/UIA2: New Radio Bearer Reconfiguration test cases to verify new ciphering and integrity protection algorithms in Rel-7.		8.2.0	8.3.0	R5-081507
RP-40	RP-080429	2283		MBMS: corrections to RRC FLD test cases – removal of MBMS dispersion indicator.		8.2.0	8.3.0	R5-081317
RP-40	RP-080429	2284		MBMS: correction to test cases 8.5.2.2 and 8.5.4.1.		8.2.0	8.3.0	R5-081319
RP-40	RP-080363	2285		R99: Correction to test case 8.3.2.12		8.2.0	8.3.0	R5-081322

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
RP-40	RP-080429	2286		Correction to GCF WI 49 MBMS test case 8.5.2.2		8.2.0	8.3.0	R5-081326
RP-40	RP-080429	2287		Correction to GCF WI 49 MBMS test case 8.5.3.1		8.2.0	8.3.0	R5-081327
RP-40	RP-080429	2288		Correction to GCF WI 49 MBMS test case 8.5.6.1		8.2.0	8.3.0	R5-081334
RP-40	RP-080429	2289		Correction to GCF WI 49 MBMS test case 8.5.3.3		8.2.0	8.3.0	R5-081341
RP-40	RP-080363	2290		Correction of definition for UTRA RF Channel Number in RRC test cases		8.2.0	8.3.0	R5-081581
RP-40	RP-080429	2291		Corrections to MBMS RRC test cases 8.5.6.1, 8.5.6.2, 8.5.6.3 and 8.5.6.4		8.2.0	8.3.0	R5-081374
RP-40	RP-080429	2292		Correction to GCF WI 49 MBMS test case 8.5.3.6		8.2.0	8.3.0	R5-081518
RP-40	RP-080363	2293		Correction to GCF work item 10 InterRAT testcase 8.3.7.16		8.2.0	8.3.0	R5-081549
RP-40	RP-080427	2294		Correction in 8.2.x test cases		8.2.0	8.3.0	R5-081598
RP-40	RP-080427	2295		Editorial corrections to test cases 9.5.2 and 9.5.9		8.2.0	8.3.0	R5-081243
RP-40	RP-080429	2296		Corrections to MBMS NAS test cases 11.8.2 and 11.8.2m		8.2.0	8.3.0	R5-081511
RP-40	RP-080429	2297		Correction of generic test procedure for MBMS HS PtP radio bearer test cases		8.2.0	8.3.0	R5-081512
RP-40	RP-080429	2298		Correction of MBMS PtP RAB test cases 14.6.9 and 14.6.10		8.2.0	8.3.0	R5-081032
RP-40	RP-080430	2299		Update of RB test case 14.7.6b		8.2.0	8.3.0	R5-081198
RP-40	RP-080429	2300		Correction to GCF WI 25 E-DCH RAB test case 14.7.6		8.2.0	8.3.0	R5-081329
RP-40	RP-080429	2301		Correction to GCF WI 25 E-DCH RAB test case 14.7.7		8.2.0	8.3.0	R5-081332
RP-40	RP-080430	2302		Correction to RAB test case 14.7.6a and 14.7.6b		8.2.0	8.3.0	R5-081502
RP-40	RP-080428	2303		Corrections to timers in GPS Notification test cases		8.2.0	8.3.0	R5-081570
RP-40	RP-080363	2304		Corrections wrt clearing stored GPS assistance data in section 17		8.2.0	8.3.0	R5-081516
RP-40	RP-080363	2305		Various editorial corrections		8.2.0	8.3.0	R5-081520
RP-41	RP-080554	2306		Correction to CS+PS RRC 8.2.x test cases	F	8.3.0	8.4.0	R5-083045
RP-41	RP-080554	2307		Correction to CS+PS RRC 8.3.x test cases	F	8.3.0	8.4.0	R5-083046
RP-41	RP-080555	2308		Correction to CS+PS test cases in HSD ATS	F	8.3.0	8.4.0	R5-083047
RP-41	RP-080562	2309		Enhanced CELL_FACH: New test case for Cell Update: cell reselection in CELL_FACH (Reselection between cell not supporting HS-PDSCH in CELL_FACH and cell supporting HS-PDSCH is CELL_FACH)	F	8.3.0	8.4.0	R5-083062
RP-41	RP-080565	2310		CR for 34.123-1:Contents addition for LCR TDD in 8.2.6.50	F	8.3.0	8.4.0	R5-083066
RP-41	RP-080565	2311		CR for 34.123-1:Contents addition for LCR TDD in 8.2.6.51	F	8.3.0	8.4.0	R5-083067
RP-41	RP-080565	2312		CR for 34.123-1:Contents addition for LCR TDD in 8.2.6.54	F	8.3.0	8.4.0	R5-083068
RP-41	RP-080565	2313		CR for 34.123-1:Contents addition for LCR TDD in 8.3.4.10	F	8.3.0	8.4.0	R5-083069
RP-41	RP-080561	2314		CR for 34.123-1:Contents addition for LCR TDD in 8.3.11.14	F	8.3.0	8.4.0	R5-083070
RP-41	RP-080561	2315		Addition of combinations on DPCH, HS-DSCH and E-PUCH to radio bearer tests for 3.84Mcps TDD	F	8.3.0	8.4.0	R5-083076
RP-41	RP-080561	2316		Addition of combinations on DPCH, HS-DSCH and E-PUCH to radio bearer tests for 7.68Mcps TDD	F	8.3.0	8.4.0	R5-083077
RP-41	RP-080561	2317		Addition of generic information for radio bearer tests for E-DCH and HS-DSCH for 3.84Mcps TDD	F	8.3.0	8.4.0	R5-083078
RP-41	RP-080561	2318		Addition of generic information for radio bearer tests for E-DCH and HS-DSCH for 7.68Mcps TDD	F	8.3.0	8.4.0	R5-083079
RP-41	RP-080561	2319		Addition of new MAC tests for E-DCH operation of 3.84Mcps and 7.68Mcps TDD	F	8.3.0	8.4.0	R5-083080
RP-41	RP-080561	2320		Update of physical channel reconfiguration tests for E-DCH to include 3.84Mcps and 7.68Mcps TDD	F	8.3.0	8.4.0	R5-083081
RP-41	RP-080561	2321		Update of radio bearer reconfiguration tests for E-DCH to include 3.84Mcps and 7.68Mcps TDD	F	8.3.0	8.4.0	R5-083082
RP-41	RP-080558	2322		Update of RRC connection mobility procedure tests for E-DCH to include 3.84Mcps and 7.68Mcps TDD	F	8.3.0	8.4.0	R5-083083
RP-41	RP-080558	2323		Clarification to MAC transport block size selection test cases for HSDPA	F	8.3.0	8.4.0	R5-083084
RP-41	RP-080558	2324		Clarification to HSDPA RB test cases	F	8.3.0	8.4.0	R5-083086
RP-41	RP-08xxxx	2325		Clarification to E-DCH RB test cases	F	8.3.0	8.4.0	R5-083087

Meeting -1st- Level	Doc-1st- Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd- Level
RP-41	RP-080558	2326		Resubmission of email agreed CRs after RAN5#39	F	8.3.0	8.4.0	R5-083089
RP-41	RP--080740	2327		Clarification to MAC transport block size selection test cases for E-DCH	F	8.3.0	8.4.0	R5-083090
RP-41	RP-080558	2328		Correction to GCF WI 24 Network Sharing test case 6.2.1.11	F	8.3.0	8.4.0	R5-083191
RP-41	RP-080555	2329		Correction to Rel7 Improved L2 MAC-ehs test case 7.1.5a.4	F	8.3.0	8.4.0	R5-083206
RP-41	RP-080554	2330		Correction to GCF WI-014 HSD test case 8.2.6.48	F	8.3.0	8.4.0	R5-083207
RP-41	RP-080565	2331		Correction to GCF WI-010 test case 8.2.6.37 and 8.2.6.38	F	8.3.0	8.4.0	R5-083208
RP-41	RP-080565	2332		Contents addition for LCR TDD in 7.1.6.2.8	F	8.3.0	8.4.0	R5-083277
RP-41	RP-080565	2333		New testcase for LCR TDD E-DCH 7.1.6.2.9a	F	8.3.0	8.4.0	R5-083279
RP-41	RP-080565	2334		New testcase for LCR TDD E-DCH E-TFC 7.1.6.2.10a	F	8.3.0	8.4.0	R5-083280
RP-41	RP-080565	2335		New testcase for LCR TDD E-DCH 7.1.6.3.5	F	8.3.0	8.4.0	R5-083281
RP-41	RP-080565	2336		Contents addition for LCR TDD in 8.1.2.17	F	8.3.0	8.4.0	R5-083282
RP-41	RP-080565	2337		Contents addition for LCR TDD in 8.1.2.18	F	8.3.0	8.4.0	R5-083283
RP-41	RP-080565	2338		Contents addition for LCR TDD in 8.2.1.35	F	8.3.0	8.4.0	R5-083284
RP-41	RP-080565	2339		Contents addition for LCR TDD in 8.2.1.36	F	8.3.0	8.4.0	R5-083285
RP-41	RP-080565	2340		Contents addition for LCR TDD in 8.2.2.44	F	8.3.0	8.4.0	R5-083286
RP-41	RP-080565	2341		Contents addition for LCR TDD in 8.2.2.45	F	8.3.0	8.4.0	R5-083287
RP-41	RP-080565	2342		Contents addition for LCR TDD in 8.2.2.46	F	8.3.0	8.4.0	R5-083288
RP-41	RP-080565	2343		Contents addition for LCR TDD in 8.2.2.47	F	8.3.0	8.4.0	R5-083289
RP-41	RP-080565	2344		Contents addition for LCR TDD in 8.2.2.48	F	8.3.0	8.4.0	R5-083290
RP-41	RP-080565	2345		Contents addition for LCR TDD in 8.2.2.49	F	8.3.0	8.4.0	R5-083291
RP-41	RP-080565	2346		Contents addition for LCR TDD in 8.2.3.36	F	8.3.0	8.4.0	R5-083292
RP-41	RP-080565	2347		Addition of general information interoperability radio bearer tests for E-DCH and HS-DSCH combinations for LCR TDD in 18.1.1.4	F	8.3.0	8.4.0	R5-083293
RP-41	RP-080558	2348		5 New testcases for LCR TDD RAB	F	8.3.0	8.4.0	R5-083294
RP-41	RP-080558	2349		Introduction and test case addition 8.4.1.2a to verify the UE supporting the features and operation of multi-frequency and UpPCH Shifting for LCR TDD	F	8.3.0	8.4.0	R5-083295
RP-41	RP-080558	2350		Correction to CPC test case 8.2.2.53	F	8.3.0	8.4.0	R5-083346
RP-41	RP-080558	2351		Correction to enhanced L2 test case 8.2.2.57	F	8.3.0	8.4.0	R5-083353
RP-41	RP-080567	2352		Correction to Rel7 RAB test cases	F	8.3.0	8.4.0	R5-083356
RP-41	RP--080740	2353		New Radio Bearer test cases for CS-HSPA RABS	F	8.3.0	8.4.0	R5-083362
RP-41	RP-080568	2354		Correction to 8.3.1.42	F	8.3.0	8.4.0	R5-083401
RP-41	RP-080568	2355		Add generic RB test procedure for 3.84 Mcps TDD MBSFN	F	8.3.0	8.4.0	R5-083443
RP-41	RP-080568	2356		Add generic RB test procedure for 7.68 Mcps TDD MBSFN	F	8.3.0	8.4.0	R5-083446
RP-41	RP-080568	2357		Addition to clause 18.2.5 of test cases for MBSFN RABs for 3.84 Mcps TDD	F	8.3.0	8.4.0	R5-083448
RP-41	RP-080568	2358		Addition to clause 18.3.5 of test cases for MBSFN RABs for 7.68 Mcps TDD	F	8.3.0	8.4.0	R5-083450
RP-41	RP-080568	2359		MAC and RLC test cases for HCR and VHCR TDD MBSFN	F	8.3.0	8.4.0	R5-083451
RP-41	RP-080568	2360		Addition of MBSFN cluster selection test cases for 3.48 and 7.68 Mcps TDD	F	8.3.0	8.4.0	R5-083455
RP-41	RP-080561	2361		Addition of MBSFN RRC test cases for 3.84 and 7.68 Mcps TDD	F	8.3.0	8.4.0	R5-083456
RP-41	RP-080561	2362		Update of RRC connection establishment tests for E-DCH to include 3.84Mcps and 7.68Mcps TDD	F	8.3.0	8.4.0	R5-083457
RP-41	RP-080567	2363		Update of implementation and conformance statement to include E-DCH tests for 3.84Mcps TDD and 7.68Mcps TDD	F	8.3.0	8.4.0	R5-083458
RP-41	RP-080567	2364		Addition of new CS Voice over HSPA test case for transitions between CS over DCH and CS over HSPA	F	8.3.0	8.4.0	R5-083485
RP-41	RP-080558	2365		Update of PDCP test case 7.3.7.1	F	8.3.0	8.4.0	R5-083486
RP-41	RP-080567	2366		CPC: Corrections to Cell update test case 8.3.1.45	F	8.3.0	8.4.0	R5-083500
RP-41	RP-080566	2367		Correction to RLC AM test case 7.2.3.36	F	8.3.0	8.4.0	R5-083516
RP-41	RP-080566	2368		Addition of Common Test Sequence for PDCP	F	8.3.0	8.4.0	R5-083524

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
				Setup a UE terminated CS session in UM RLC				
RP-41	RP-080562	2369		New test case for Network Selection Enhancements: Exception in manual network selection mode when HPLMN is available at power-on (6.1.1.5)	F	8.3.0	8.4.0	R5-083535
RP-41	RP-080562	2370		NW selection mode at switch-on	F	8.3.0	8.4.0	R5-083536
RP-41	RP-080562	2371		Enhanced CELL_FACH: New test case for Measurement reporting when moving from CELL_PCH to CELL_FACH	F	8.3.0	8.4.0	R5-083538
RP-41	RP-080562	2372		Enhanced CELL_FACH: New test case for Reconfiguration between FACH/E-FACH	F	8.3.0	8.4.0	R5-083539
RP-41	RP--080740	2373		New test case for Enhanced CELL_FACH: Radio Bearer Reconfiguration for transition between E-DCH/FACH states with ongoing HS-DSCH reception	F	8.3.0	8.4.0	R5-083544
RP-41	RP-080558	2374		Addition of new Enhanced CELL_FACH test case for paging without HS-SCCH in CELL_PCH	F	8.3.0	8.4.0	R5-083545
RP-41	RP-080558	2375		Correction to WI-10 test case 6.2.2.3	F	8.3.0	8.4.0	R5-083564
RP-41	RP-080555	2376		Correction to GCF WI 25 HSUPA MAC test case 7.1.6.2.6	F	8.3.0	8.4.0	R5-083567
RP-41	RP-080555	2377		Correction to Rel7 Improved L2 MAC-ehs test case 7.1.5a.1 and 7.1.5a.2	F	8.3.0	8.4.0	R5-083568
RP-41	RP--080740	2378		Correction to Improved L2 Flexible RLC test case 7.2.3.36	F	8.3.0	8.4.0	R5-083569
RP-41	RP--080740	2379		Correction to test cases 8.3.1.34, 8.3.1.35, 8.3.1.36 and 8.3.1.37	F	8.3.0	8.4.0	R5-083570
RP-41	RP-080558	2380		Add two new interRAT TC from UEA2/UIA2 to GEA2 or GEA3	F	8.3.0	8.4.0	R5-083571
RP-41	RP-080558	2381		Correction to GCF WI 25 HSUPA test cases 8.3.1.42 and 8.3.1.42a	F	8.3.0	8.4.0	R5-083577
RP-41	RP-080558	2382		Correction to WI-49 MBMS test case 12.9.17	F	8.3.0	8.4.0	R5-083579
RP-41	RP-080558	2383		Correction to generic test procedure for Enhanced L2 radio bearer test cases	F	8.3.0	8.4.0	R5-083580
RP-41	RP-080566	2384		Correction to HSPA RB test cases 14.6.1d and 14.6.6c	F	8.3.0	8.4.0	R5-083581
RP-41	RP-080566	2385		Correction to 14.7.6b for mac-ehs header size, TBS and associated TFRI	F	8.3.0	8.4.0	R5-083582
RP-41	RP-080554	2386		Clarification to generic radio bearer test procedure regarding the use of octet aligned or bit aligned HS-DSCH Transport Block Size Table for FDD	F	8.3.0	8.4.0	R5-083590
RP-41	RP-080554	2387		Addition of new test case: Steering of Roaming	F	8.3.0	8.4.0	R5-083647
RP-41	RP-080555	2388		Addition of new test case: Displaying EHPLMNs in manual mode	F	8.3.0	8.4.0	R5-083648
RP-41	RP-080558	2389		CPC: Corrections to Physical Channel Reconfiguration test cases in section 8.2.6.x	F	8.3.0	8.4.0	R5-083660
RP-42	RP-080965	2390		Enhanced CELL_FACH: New test case for Reconfiguration between FACH/E-FACH	F	8.4.0	8.5.0	R5-083537
RP-42	RP-080952	2391		Correction to E-DCH TC 8.2.6.51 for 3.84Mcps and 7.68Mcps TDD	F	8.4.0	8.5.0	R5-085036
RP-42	RP-080954	2392		Correction to test case 8.2.6.52	F	8.4.0	8.5.0	R5-085038
RP-42	RP-080954	2393		Correction to testcases 8.5.1.2, 8.5.1.12, 8.5.1.13	F	8.4.0	8.5.0	R5-085062
RP-42	RP-080955	2394		Correction to GCF Rel7 Improved L2 test case 7.1.5a.4	F	8.4.0	8.5.0	R5-085069
RP-42	RP-080955	2395		Correction to Rel7 CPC test case 8.2.1.38	F	8.4.0	8.5.0	R5-085070
RP-42	RP-080955	2396		Correction to GCF Rel7 CPC test case 8.2.2.52	F	8.4.0	8.5.0	R5-085071
RP-42	RP-080955	2397		Correction of Rel-7 CPC test case 8.2.6.61	F	8.4.0	8.5.0	R5-085072
RP-42	RP-080955	2398		Correction of Rel-7 CPC test case 8.3.11.15	F	8.4.0	8.5.0	R5-085073
RP-42	RP-080952	2399		Correction to RRC connection establishment test case in section 8.1.2.10 for LCR TDD	F	8.4.0	8.5.0	R5-085128
RP-42	RP-080955	2400	1	New testcase 8.2.1.27b to verify the features and operation of multi-frequency and UpPCH Shifting for LCR TDD	F	8.4.0	8.5.0	R5-085134
RP-42	RP-080955	2401	1	New testcase 8.2.2.36a to verify the features and operation of multi-frequency and UpPCH Shifting for LCR TDD	F	8.4.0	8.5.0	R5-085135
RP-42	RP-080955	2402	1	New testcase 8.2.3.31a to verify the features and operation of multi-frequency and UpPCH Shifting for	F	8.4.0	8.5.0	R5-085136

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
				LCR TDD				
RP-42	RP-080955	2403	1	New testcase 8.3.1.1b to verify the features and operation of multi-frequency and UpPCH Shifting for LCR TDD	F	8.4.0	8.5.0	R5-085137
RP-42	RP-080955	2404	1	Modification of testcase 8.4.1.1a to verify the features and operation of multi-frequency and UpPCH Shifting for LCR TDD	F	8.4.0	8.5.0	R5-085138
RP-42	RP-080955	2405	1	New testcase 18.1.2.4a to verify the features and operation of multi-frequency and UpPCH Shifting for LCR TDD	F	8.4.0	8.5.0	R5-085139
RP-42	RP-080955	2406	1	New testcase 18.1.2.13.1a to verify the features and operation of multi-frequency and UpPCH Shifting for LCR TDD	F	8.4.0	8.5.0	R5-085140
RP-42	RP-080955	2407	1	New testcase 8.2.4.36a to verify the features and operation of multi-frequency and UpPCH Shifting for LCR TDD	F	8.4.0	8.5.0	R5-085141
RP-42	RP-080955	2408	1	New testcase 8.2.6.39c to verify the features and operation of multi-frequency and UpPCH Shifting for LCR TDD	F	8.4.0	8.5.0	R5-085142
RP-42	RP-080955	2409	1	New testcase 8.3.1.33a to verify the features and operation of multi-frequency and UpPCH Shifting for LCR TDD	F	8.4.0	8.5.0	R5-085143
RP-42	RP-080967	2410	3	New RLC test case for Flexible handling of RLC PDU sizes for UM RLC in uplink (7.2.2.15)	F	8.4.0	8.5.0	R5-085166
RP-42	RP-080955	2411		CR to 34.123-1: Contents addition for LCR TDD in 7.1.6.4.3	F	8.4.0	8.5.0	R5-085183
RP-42	RP-080952	2412		Correction to WI-10 test case 6.1.2.2	F	8.4.0	8.5.0	R5-085248
RP-42	RP-080956	2413		Correction to test case 7.1.6.3.3	F	8.4.0	8.5.0	R5-085285
RP-42	RP-080956	2414		Correction to UL DPCCH Slot Format for UL DTX/DRX Test cases	F	8.4.0	8.5.0	R5-085286
RP-42	RP-080956	2415		Correction to DTX-DRX Parameters for CPC test cases	F	8.4.0	8.5.0	R5-085287
RP-42	RP-080952	2416		Modification of cell powers in TC 8.3.4.8	F	8.4.0	8.5.0	R5-085288
RP-42	RP-080952	2417		Removal of PICS information USIM removal possible without powering down from NAS test cases 12.4.1.4b and 12.4.2.5b	F	8.4.0	8.5.0	R5-085289
RP-42	RP-080952	2418		Correction to GCF WI-24 MM testcase 9.4.8	F	8.4.0	8.5.0	R5-085298
RP-42	RP-080952	2419		Correction to MRAT Idle mode testcase 6.2.1.1, 6.2.1.6, 6.2.1.7 and 6.2.1.8	F	8.4.0	8.5.0	R5-085303
RP-42	RP-080953	2420		Correction to GCF WI-14 HSDPA RRC testcase 8.3.1.37	F	8.4.0	8.5.0	R5-085319
RP-42	RP-080952	2421		Inconsistent applicability concerning MT-LR test cases	F	8.4.0	8.5.0	R5-085332
RP-42	RP-080956	2422	2	Correction to TB test points and generic test procedure for Enhanced L2 radio bearer test cases	F	8.4.0	8.5.0	R5-085396
RP-42	RP-080967	2423		New RLC test case for Flexible handling of RLC PDU sizes for AM RLC in uplink (7.2.3.38)	F	8.4.0	8.5.0	R5-085423
RP-42	RP-080968	2424		Addition 1.28 Mcps TDD contents in 8.5.1.14 and 8.5.1.15	F	8.4.0	8.5.0	R5-085466
RP-42	RP-080952	2425		Correction to network selection enhancements test case 6.1.1.12	F	8.4.0	8.5.0	R5-085504
RP-42	RP-080965	2426		Enhanced CELL_FACH: New Test Case for UE Identification on HS-SCCH in CELL_FACH	F	8.4.0	8.5.0	R5-085505
RP-42	RP-080953	2427		Correction to No. of HARQ Process for HSDPA CAT 10 in RAB test cases	F	8.4.0	8.5.0	R5-085536
RP-42	RP-080953	2428		Corrections to HSDPA test case 11.1.1.1a	F	8.4.0	8.5.0	R5-085557
RP-43	RP-090205	2470	-	Correction of frequencies used in 6.1.1.14	F	8.5.0	8.6.0	R5-090058
RP-43	RP-090204	2429	-	Correction of WI-070 CPC test case 8.2.1.40	F	8.5.0	8.6.0	R5-090062
RP-43	RP-090204	2430	-	Correction of WI-070 CPC test case 8.2.6.61	F	8.5.0	8.6.0	R5-090063
RP-43	RP-090202	2431	-	Correction to testcase 8.5.2.2	F	8.5.0	8.6.0	R5-090121
RP-43	RP-090204	2432	-	Correction to GCF WI-070 test case 8.2.6.57	F	8.5.0	8.6.0	R5-090122

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
RP-43	RP-090204	2433	-	Corrections to CPC MAC test case 7.1.6.3.4	F	8.5.0	8.6.0	R5-090158
RP-43	RP-090204	2434	-	Correction to CPC MAC test case 7.1.6.2.11	F	8.5.0	8.6.0	R5-090159
RP-43	RP-090204	2435	-	Correction to testcase 8.1.2.19	F	8.5.0	8.6.0	R5-090169
RP-43	RP-090204	2436	1	Correction to CPC testcases in 8.2.1.x & 8.2.2.x series	F	8.5.0	8.6.0	R5-090170
RP-43	RP-090204	2437	-	Correction to CPC related testcases in 8.2.6.x series	F	8.5.0	8.6.0	R5-090171
RP-43	RP-090204	2438	-	Correction to CPC testcases 8.3.1.45, 8.3.1.46 & 8.3.4.11.	F	8.5.0	8.6.0	R5-090172
RP-43	RP-090204	2439	-	Update to Coding rate parameters when 64QAM is configured	F	8.5.0	8.6.0	R5-090173
RP-43	RP-090219	2440	-	New HSPA radio bearer test case for 1.28TDD 64QAM	F	8.5.0	8.6.0	R5-090250
RP-43	RP-090216	2441	-	Addition 1.28 Mcps TDD contents in 7.2.2a	F	8.5.0	8.6.0	R5-090320
RP-43	RP-090200	2442	-	Correction to GCF WI 10 RRC test cases 8.2.6.39 and 8.2.6.44	F	8.5.0	8.6.0	R5-090385
RP-43	RP-090204	2443	-	Correction to WI-70 Rel-7 CPC RRC testcase 8.3.1.44	F	8.5.0	8.6.0	R5-090425
RP-43	RP-090204	2444	-	Correction to WI-70 Rel-7 CPC RRC testcase 8.3.1.46	F	8.5.0	8.6.0	R5-090428
RP-43	RP-090215	2445	-	Correction to Improved L2 Test Case 7.2.2.15	F	8.5.0	8.6.0	R5-090446
RP-43	RP-090215	2446	-	Addition of a New Test Case for Improved L2 UL & Verification of support of MAC-i/is segmentation with correct usage of SS field	F	8.5.0	8.6.0	R5-090448
RP-43	RP-090204	2447	-	Correction to the test prose for CS over HSPA RRC test case 8.2.2.58	F	8.5.0	8.6.0	R5-090470
RP-43	RP-090204	2448	-	Correction to generic test procedure 14.1.4.1 to include CS RAB only case	F	8.5.0	8.6.0	R5-090473
RP-43	RP-090212	2449	-	Addition of New Radio Bearer test case for Enhanced CELL_FACH State	F	8.5.0	8.6.0	R5-090527
RP-43	RP-090216	2450	-	Addition 1.28 Mcps TDD contents in 7.1.1.9 and 7.1.1.10	F	8.5.0	8.6.0	R5-090538
RP-43	RP-090216	2451	-	Addition 1.28 Mcps TDD contents in 7.2.4.3s	F	8.5.0	8.6.0	R5-090539
RP-43	RP-090212	2452	-	Enhanced CELL_FACH: New Test Case for HARQ retransmissions without ACK/NACK signalling in CELL_FACH/CELL_PCH/URA_PCH	F	8.5.0	8.6.0	R5-090541
RP-43	RP-090200	2453	-	Correction to test cases in clause 12	F	8.5.0	8.6.0	R5-090544
RP-43	RP-090215	2454	-	Addition of a New Test Case for Improved L2 UL & MAC-i/is multiplexing (multiple PDUs from different LC in one TTI)	F	8.5.0	8.6.0	R5-090560
RP-43	RP-090215	2455	-	Addition of a New Test Case for Improved L2 UL & Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (with reconfiguration between fixed and flexible RLC, Serving E-DCH cell change between MAC-e/es and MAC-i/is)	F	8.5.0	8.6.0	R5-090561
RP-43	RP-090204	2456	-	Correction to generic test procedure for Enhanced L2 DL MAC-ehs transport block size selection test cases	F	8.5.0	8.6.0	R5-090573
RP-43	RP-090204	2457	-	Correction to GCF WI 68 MAC-ehs testcase 7.1.5a.4	F	8.5.0	8.6.0	R5-090574
RP-43	RP-090204	2458	-	A correction for the test requirement of 9.4.2.4 Location updating / rejected / roaming not allowed in this location area	F	8.5.0	8.6.0	R5-090575
RP-43	RP-090204	2459	-	A correction for test requirement of 9.4.4 Location updating / release / expiry of T3240	F	8.5.0	8.6.0	R5-090576
RP-43	RP-090204	2460	-	Editorial correction for 11.1.1.1 Attach initiated by context activation/QoS Offered by Network is the QoS Requested	F	8.5.0	8.6.0	R5-090577
RP-43	RP-090205	2461	-	Editorial correction for 11.1.1.1a Attach initiated by context activation/QoS Offered by Network is the QoS Requested/Correct handling of QoS extensions for rates above 8640 kbps	F	8.5.0	8.6.0	R5-090578
RP-43	RP-090277	2462	-	Correction to GCF Rel7 CPC test case 8.2.2.54	F	8.5.0	8.6.0	R5-090579
RP-43	RP-090205	2463	-	Correction for 12.2.1.5a PS attach / rejected / roaming not allowed in this location area	F	8.5.0	8.6.0	R5-090580

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
RP-43	RP-090205	2464	-	A correction for 12.2.2.1 Combined PS attach / PS and non-PS attach accepted	F	8.5.0	8.6.0	R5-090581
RP-43	RP-090205	2465	-	Correction to Enhanced L2 DL radio bearer test cases	F	8.5.0	8.6.0	R5-090582
RP-43	RP-090205	2466	-	Correction to RAB test case 14.7.9 and 14.7.10	F	8.5.0	8.6.0	R5-090583
RP-43	RP-090205	2467	-	Correction to TB test points for enhanced Layer 2	F	8.5.0	8.6.0	R5-090724
RP-43	RP-090217	2468	-	MBMS PTM Session Reconfiguration - Change of Activated Service / MBSFN mode	F	8.5.0	8.6.0	R5-090741
RP-43	RP-090217	2469	-	MBSFN Session Reconfiguration / Change of MBSFN Cluster frequency on notification via MCCH	F	8.5.0	8.6.0	R5-090742
RP-44	RP-090445	2470	-	Correction to test case 14.5.3	F	8.6.0	8.7.0	R5-092039
RP-44	RP-090430	2471	-	Correction to GCF WI-10 RLC test case 7.2.3.24	F	8.6.0	8.7.0	R5-092082
RP-44	RP-090433	2472	-	Correction to GCF WI-070 CPC RRC Testcase 8.2.2.54	F	8.6.0	8.7.0	R5-092083
RP-44	RP-090432	2473	-	Correction to GCF WI-025 RRC Testcase 8.2.6.52	F	8.6.0	8.7.0	R5-092084
RP-44	RP-090433	2474	-	Correction to GCF WI-070 CPC RRC Testcase 8.2.6.59	F	8.6.0	8.7.0	R5-092085
RP-44	RP-090443	2475	-	Addition of MBSFN IDLE test cases for LCR TDD MBSFN in 34.123-1	F	8.6.0	8.7.0	R5-092121
RP-44	RP-090443	2476	-	Addition of MBSFN RRC test cases for LCR TDD MBSFN in 34.123-1	F	8.6.0	8.7.0	R5-092122
RP-44	RP-090430	2477	-	Correction of naming errors for several LCR TDD test cases	F	8.6.0	8.7.0	R5-092125
RP-44	RP-090433	2478	-	Correction to RAB test cases 14.6.1c and 14.6.6b	F	8.6.0	8.7.0	R5-092157
RP-44	RP-090430	2479	-	Correction to GCF WI 10 RRC test case 8.3.2.12	F	8.6.0	8.7.0	R5-092212
RP-44	RP-090431	2480	-	Correction to No. of HARQ Processes for HSDPA RAB test cases 14.6.4 and 14.6.4a	F	8.6.0	8.7.0	R5-092226
RP-44	RP-090441	2481	-	Update TC 8.5.1.14 for MBSFN FDD	F	8.6.0	8.7.0	R5-092334
RP-44	RP-090441	2482	-	Update TC 8.5.1.15 for MBSFN FDD	F	8.6.0	8.7.0	R5-092335
RP-44	RP-090441	2483	-	Update 8.5.2.5 for MBSFN FDD	F	8.6.0	8.7.0	R5-092336
RP-44	RP-090441	2484	-	Update 8.5.7.1 for MBSFN FDD	F	8.6.0	8.7.0	R5-092338
RP-44	RP-090441	2485	-	Update 8.5.7.2 for MBSFN FDD	F	8.6.0	8.7.0	R5-092339
RP-44	RP-090441	2486	-	Update 8.5.7.3 for MBSFN FDD	F	8.6.0	8.7.0	R5-092340
RP-44	RP-090441	2487	-	Update 8.5.7.4 for MBSFN FDD	F	8.6.0	8.7.0	R5-092341
RP-44	RP-090446	2488	-	Correction to Improved L2 UL RLC test case 7.2.2.15	F	8.6.0	8.7.0	R5-092546
RP-44	RP-090446	2489	-	Correction to Improved L2 UL RLC test case 7.2.3.38	F	8.6.0	8.7.0	R5-092547
RP-44	RP-090433	2490	-	Improved test case coverage for WI-070 CPC test case 8.3.4.11	F	8.6.0	8.7.0	R5-092562
RP-44	RP-090433	2491	-	Correction to test case 8.2.2.58	F	8.6.0	8.7.0	R5-092563
RP-44	RP-090430	2492	-	Correction to test case 12.4.1.4d	F	8.6.0	8.7.0	R5-092564
RP-44	RP-090446	2493	-	Addition of a New Test Case for Improved L2 UL - RLC PDU Size Adaptation in Uplink	F	8.6.0	8.7.0	R5-092705
RP-44	RP-090445	2494	-	Correction to Enhanced CELL_FACH test case 7.1.5a.6	F	8.6.0	8.7.0	R5-092733
RP-44	RP-090432	2495	-	Correction to GCF WI-25 HSUPA test case 7.1.6.3.2	F	8.6.0	8.7.0	R5-092778
RP-44	RP-090598	2496	-	Addition of Test frequencies for Cells in FDD Mode Operating Band XIX (Extended UMTS 800)	F	8.6.0	8.7.0	R5-092744
RP-44	RP-090434	2497	-	Addition of new test case "Selection of RAT for HPLMN between frequency bands of different ITU regions in case of normal service: Manual mode"	F	8.6.0	8.7.0	R5-092771
RP-44	RP-090434	2498	4	Addition of new test case "Selection of RAT for OPLMN between frequency bands of different ITU regions in case of normal service: Automatic mode"	F	8.6.0	8.7.0	R5-092774

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
RP-44	RP-090434	2499	1	Addition of new test case "Selection of RAT for OPLMN between frequency bands of different ITU regions in case of limited service: Automatic mode"	F	8.6.0	8.7.0	R5-092775
RP-44	RP-090434	2500	1	Addition of new test case "Selection of RAT for OPLMN between frequency bands of different ITU regions in case of no service: Automatic mode"	F	8.6.0	8.7.0	R5-092776
RP-44	RP-090434	2501	-	Addition of frequencies to be used for Multi-Band Multi-RAT test cases	F	8.6.0	8.7.0	R5-092777
RP-44	RP-090433	2502	1	Corrections to MAC-es/e transport block size selection test cases (E-TFCI restrictions)	F	8.6.0	8.7.0	R5-092779
RP-45	RP-090804	2503	-	Addition of new RLC test case 7.2.4.2a for MBSFN FDD	F	8.7.0	8.8.0	R5-094097
RP-45	RP-090804	2504	-	Addition of new RLC test case 7.2.4.3a for MBSFN FDD	F	8.7.0	8.8.0	R5-094098
RP-45	RP-090800	2505	-	Update of generic radio bearer test procedure for HS-DSCH and combination of 64QAM and MIMO	F	8.7.0	8.8.0	R5-094150
RP-45	RP-090800	2506	-	Update of Generic test procedure for MAC-ehs transport block size selection testing for UE HS-DSCH physical layer categories 19 and 20	F	8.7.0	8.8.0	R5-094151
RP-45	RP-090803	2507	-	Addition of contents for LCR TDD MBSFN in 8.5.2.5	F	8.7.0	8.8.0	R5-094271
RP-45	RP-090803	2508	-	Addition of Generic test procedure for radio bearers and RAB test cases on MBSFN MTCH for LCR TDD MBSFN in 34.123-1	F	8.7.0	8.8.0	R5-094272
RP-45	RP-090791	2509	-	Correction to testcases 9.4.2.2.1, 9.4.2.2.2	F	8.7.0	8.8.0	R5-094296
RP-45	RP-090794	2510	-	Removal of Steering of Roaming Testcase 6.1.1.11	F	8.7.0	8.8.0	R5-094307
RP-45	RP-090804	2511	-	Update of TC 6.1.3.1 for MBSFN FDD	F	8.7.0	8.8.0	R5-094389
RP-45	RP-090791	2512	1	Correction to GCF WI-010 IR_U Testcase 8.3.9.5	F	8.7.0	8.8.0	R5-094393
RP-45	RP-090793	2513	-	Correction to HSUPA MAC testcase 7.1.6.2.2	F	8.7.0	8.8.0	R5-094434
RP-45	RP-090804	2514	-	Update of TC 6.1.3.2 for MBSFN FDD	F	8.7.0	8.8.0	R5-094444
RP-45	RP-090809	2515	-	Enhanced CELL_FACH: New Test Case for mapping of BCCH over HS-DSCH, use of BCCH specific HRNTI	F	8.7.0	8.8.0	R5-094448
RP-45	RP-090804	2516	-	Update of TC 6.1.3.3 for MBSFN FDD	F	8.7.0	8.8.0	R5-094449
RP-45	RP-090809	2517	-	Correction to test case 14.5.3	F	8.7.0	8.8.0	R5-094450
RP-45	RP-090804	2518	-	Update of TC 6.1.3.4 for MBSFN FDD	F	8.7.0	8.8.0	R5-094451
RP-45	RP-090809	2520	-	New Enh-UL for CELL_FACH test cases for terminating access is required when the E-DCH resource allocation expires and when uplink transmission ends for CCCH	F	8.7.0	8.8.0	R5-094460
RP-45	RP-090808	2521	-	Update of TC 6.1.3.5 for MBSFN FDD	F	8.7.0	8.8.0	R5-094466
RP-45	RP-090804	2522	-	Addition of 14.4.5n for MBSFN FDD	F	8.7.0	8.8.0	R5-094518
RP-45	RP-090804	2523	-	Addition of 14.4.6n for MBSFN FDD	F	8.7.0	8.8.0	R5-094519
RP-45	RP-090804	2524	-	Addition of 14.4.7n for MBSFN FDD	F	8.7.0	8.8.0	R5-094522
RP-45	RP-090804	2525	-	Corrections to GCF WI 25HSUPA MAC test case 7.1.6.2.6	F	8.7.0	8.8.0	R5-094569
RP-45	RP-090793	2526	-	Correction to the CPC testcase 8.2.3.37	F	8.7.0	8.8.0	R5-094574
RP-45	RP-090794	2527	-	Correction to GCF WI 70 CPC test case 8.2.6.58	F	8.7.0	8.8.0	R5-094583
RP-45	RP-090794	2528	-	Correction to CFG WI 25 HSUPA RRC test case 8.3.4.10	F	8.7.0	8.8.0	R5-094588
RP-45	RP-090793	2529	-	Correction to GCF WI 10 MRAT testcase 8.4.1.34	F	8.7.0	8.8.0	R5-094592
RP-45	RP-090791	2530	-	6.1.2.1b Cell Reselection for inter-band operation(TDD a-f band)	F	8.7.0	8.8.0	R5-094594
RP-45	RP-090794	2531	-	Correction the GCF WI 10 NAS test case 12.9.7a	F	8.7.0	8.8.0	R5-094600
RP-45	RP-090791	2532	-	Correction to the GCF WI 10 NAS test case 12.9.7b	F	8.7.0	8.8.0	R5-094603

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
RP-45	RP-090791	2533	-	Correction to GCF WI 101 RRC testcases 8.1.7.3, 8.1.7.3b, 8.1.7.3c, 8.1.7.3d, 8.1.7.4, 8.2.2.43b	F	8.7.0	8.8.0	R5-094604
RP-45	RP-090794	2534	-	Correction to WI 70 GCF CPC RRC test case 8.3.4.11	F	8.7.0	8.8.0	R5-094605
RP-45	RP-090794	2535	-	Correction to MM testcase 9.4.2.2	F	8.7.0	8.8.0	R5-094626
RP-45	RP-090791	2536	-	Addition of generic test procedure for HS-DSCH and E-DCH radio bearer combinations for Improved L2 UL	F	8.7.0	8.8.0	R5-094678
RP-45	RP-090799	2537	-	Addition to clause 18.2.5 of test cases for MBSFN RABs for 3.84 Mcps TDD	F	8.7.0	8.8.0	R5-094864
RP-45	RP-090812	2538	-	MAC test cases for 3.84 Mcps TDD MBSFN	F	8.7.0	8.8.0	R5-094865
RP-45	RP-090812	2539	-	Corrections to Enhanced CELL_FACH test cases	F	8.7.0	8.8.0	R5-094881
RP-45	RP-090809	2540	-	Correction to Improved L2 test cases 7.1.7.1 and 7.1.7.2	F	8.7.0	8.8.0	R5-094882
RP-45	RP-090799	2541	-	New Improved L2 UL MAC test case for correct handling of MAC-i/is header fields	F	8.7.0	8.8.0	R5-094883
RP-45	RP-090799	2542	-	Addition of a New Test Case for Enhanced UL in Cell_FACH - DTCH/DCCH transmission - implicit common E-DCH resource release with and without receiving E-AGCH	F	8.7.0	8.8.0	R5-094888
RP-45	RP-090808	2543	-	Consecutive transmission in case of MAC Inactivity Threshold 1	F	8.7.0	8.8.0	R5-095000
RP-45	RP-090794	2544	-	Addition of inter-band test method for the LCR TDD UE that supports both band A and band F in the TC 8.2.1.27b	F	8.7.0	8.8.0	R5-095011
RP-45	RP-090794	2545	-	Addition of inter-band operation test method for the LCR TDD UE that supports both band A and band F in TC 8.2.2.46	F	8.7.0	8.8.0	R5-095012
RP-45	RP-090794	2546	-	Corrections to MAC test case 7.1.6.3.2 and 7.1.6.3.2a	F	8.7.0	8.8.0	R5-095016
RP-45	RP-090793	2547	-	Addition of 14.1.5m for MBSFN FDD	F	8.7.0	8.8.0	R5-095018
RP-45	RP-090804	2548	-	New radio bearer test case 14.6.1e for combination of 64QAM and MIMO	F	8.7.0	8.8.0	R5-095019
RP-45	RP-090800	2549	-	New radio bearer test case 14.6.6d for combination of 64QAM and MIMO	F	8.7.0	8.8.0	R5-095020
RP-45	RP-090800	2550	-	Update of legacy Rel-7 radio bearer test cases for combination of 64QAM and MIMO	F	8.7.0	8.8.0	R5-095021
RP-45	RP-090800	2551	-	Intra-frequency cell reselection from a non-CSG cell to an allowed CSG cell	F	8.7.0	8.8.0	R5-095024
RP-45	RP-090806	2552	-	New Enh-UL for CELL_FACH test cases for configuring HS-DPCCH based on SIB5/SIBbis	F	8.7.0	8.8.0	R5-095025
RP-45	RP-090808	2553	-	Renumbering of cells for Multi-Band Multi-RAT test cases	F	8.7.0	8.8.0	R5-095031
RP-45	RP-090791	2554	-	Correction of Generic test procedure for MAC-ehs transport block size selection testing	F	8.7.0	8.8.0	R5-095039
RP-45	RP-090794	2555	-	Correction to GCF WI-068 Improved L2 RRC test case 8.2.2.57	F	8.7.0	8.8.0	R5-095042
RP-45	RP-090794	2556	-	New RRC test case: Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (activation and de-activation of 64QAM)	F	8.7.0	8.8.0	R5-095043
RP-45	RP-090794	2557	-	New RRC test case: Physical Channel Reconfiguration from CELL_DCH to CELL_DCH: Success (activation and de-activation of 64QAM)	F	8.7.0	8.8.0	R5-095044
RP-45	RP-090794	2558	-	New RRC test case: Active set update in soft handover: Radio Link addition/removal and serving HS-DSCH / E-DCH cell change, with activation/deactivation of 64QAM	F	8.7.0	8.8.0	R5-095045
RP-45	RP-090794	2559	-	New test case: Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Failure (MIMO activated, physical channel failure and reversion to old channel)	F	8.7.0	8.8.0	R5-095046
RP-45	RP-090794	2560	-	New test case: Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (HHO to another frequency, MIMO enabled)	F	8.7.0	8.8.0	R5-095047
RP-45	RP-090794	2561	-	New test case: Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (activation and deactivation of MIMO)	F	8.7.0	8.8.0	R5-095048
RP-45	RP-090794	2562	-	New Test Case: Physical channel reconfigurations	F	8.7.0	8.8.0	R5-095049

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
				for transition from CELL_DCH to CELL_DCH (activation and de-activation of UL 16QAM): Success				
RP-45	RP-090794	2563	-	New Test Case: Active set update in soft handover: Radio Link addition/removal (stop and start of UL 16QAM)	F	8.7.0	8.8.0	R5-095050
RP-45	RP-090794	2564	-	Correction to test points for 64QAM and MIMO radio bearer test cases in clause 14.1.3.4b.2	F	8.7.0	8.8.0	R5-095054
RP-45	RP-090794	2565	-	Correction to GCF WI-068 Enhanced L2 RAB Testcase 14.7.6b	F	8.7.0	8.8.0	R5-095055
RP-45	RP-090794	2566	-	Correction to HSDPA RAB testcases	F	8.7.0	8.8.0	R5-095060
RP-45	RP-090792	2567	-	Correction to testcases 6.1.1.10, 6.1.1.12, 6.1.1.13, 6.1.1.14, 6.1.1.15	F	8.7.0	8.8.0	R5-095079
RP-45	RP-090794	2568	-	Correction to the GCF WI 10 GMM test case 12.2.1.5d	F	8.7.0	8.8.0	R5-095156
RP-45	RP-090791	2569	-	New MAC-i/is test case for TBS selection and the UL QPSK case (7.1.7.4)	F	8.7.0	8.8.0	R5-095183
RP-45	RP-090799	2570	-	New MAC-i/is test case for TBS selection and the UL 16QAM case (7.1.7.5)	F	8.7.0	8.8.0	R5-095184
RP-45	RP-090799	2571	-	New radio bearer test case 14.7.3a for Improved L2 UL	F	8.7.0	8.8.0	R5-095185
RP-45	RP-090799	2572	-	New radio bearer test case 14.7.6c for Improved L2 UL	F	8.7.0	8.8.0	R5-095192
RP-45	RP-090799	2573	-	Addition of a New Test Case for combined PS attach rejected	F	8.7.0	8.8.0	R5-095194
RP-45	RP-090806	2574	-	Addition of a New Test Case for routing area updating request rejected	F	8.7.0	8.8.0	R5-095195
RP-45	RP-090806	2575	-	Addition of a New Test Case for service request rejected	F	8.7.0	8.8.0	R5-095196
RP-45	RP-090806	2576	-	Addition of a New Test Case for HNB manual CSG ID selection	F	8.7.0	8.8.0	R5-095197
RP-45	RP-090806	2577	-	Addition of new test case for UE in automatic network selection mode to select a suitable CSG cells	F	8.7.0	8.8.0	R5-095198
RP-45	RP-090806	2578	-	Addition of a New Test Case for HNB PS attach rejected	F	8.7.0	8.8.0	R5-095203
RP-45	RP-090806	2579	-	New test cases 8.1.2.21 - RRC Connection Establishment: Reject with Frequency Info set to the same/ different frequency band - Success case for registration	F	8.7.0	8.8.0	R5-095211
RP-45	RP-090791	2580	-	New test cases 8.1.2.22 - RRC Connection Establishment: Reject with Frequency Info set to the same/ a different frequency band - Unsuccessful case for registration	F	8.7.0	8.8.0	R5-095212
RP-45	RP-090791	2581	-	New test case 8.1.2.23 - RRC Connection Establishment: Reject with Frequency Info set to the same/ a different frequency band - Success case for call establishment	F	8.7.0	8.8.0	R5-095213
RP-45	RP-090791	2582	-	New test case 8.1.2.24 - RRC Connection Establishment: Reject with Frequency Info set to the same/ a different frequency band - Unsuccessful case for call establishment	F	8.7.0	8.8.0	R5-095214
RP-46	RP-091117	2583	-	Correction to test case 11.2.3.2	F	8.8.0	8.9.0	R5-095437
RP-46	RP-091115	2584	-	Correction to RRC testcase 8.1.10.1	F	8.8.0	8.9.0	R5-095633
RP-46	RP-091130	2585	-	Tests to verify Idle mode procedures for 3.84 Mcps TDD IMB UE	F	8.8.0	8.9.0	R5-095694
RP-46	RP-091130	2586	-	Tests to verify MBSFN specific procedures for 3.84 Mcps TDD IMB UEs	F	8.8.0	8.9.0	R5-095695
RP-46	RP-091124	2587	-	DC activation by HS-DSCH serving cell change from non-DC-HSDPA capable cell to DC-HSDPA capable cell.	F	8.8.0	8.9.0	R5-095744
RP-46	RP-091120	2588	-	New test case: Active set update in soft handover with simultaneous activation/deactivation of 64QAM and MIMO	F	8.8.0	8.9.0	R5-095748
RP-46	RP-091120	2589	-	New test case: Physical Channel Reconfiguration Failure (64QAM and MIMO activated, physical channel failure and reversion to old channel)	F	8.8.0	8.9.0	R5-095749
RP-46	RP-091120	2590	-	New test case: Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (HHO to another frequency, MIMO and 64QAM	F	8.8.0	8.9.0	R5-095752

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
				enabled)				
RP-46	RP-091127	2591	-	New Enh-UL for CELL_FACH test case for RACH procedure with both normal AIs and extended AIs (using E-AICH)	F	8.8.0	8.9.0	R5-095755
RP-46	RP-091115	2592	-	Removal of GPRS P-channels from GERAN Inter-RAT RRC test cases (8.3.9.3, 8.3.11.2 and 8.3.11.11)	F	8.8.0	8.9.0	R5-095798
RP-46	RP-091127	2593	-	Addition of a New Test Case for Enhanced UL in Cell_FACH - DTCH/DCCH transmission - explicit common E-DCH resource release by E-AGCH	F	8.8.0	8.9.0	R5-095842
RP-46	RP-091129	2594	-	Addition Conformance requirement in test case 7.1.5a.6 for LCR TDD	F	8.8.0	8.9.0	R5-095955
RP-46	RP-091129	2595	-	Addition contents of LCR TDD in MAC-ehs test cases	F	8.8.0	8.9.0	R5-095956
RP-46	RP-091115	2596	-	Correction to GCF WI 10 MRAT testcase 8.4.1.33	F	8.8.0	8.9.0	R5-095986
RP-46	RP-091116	2597	-	Correction to GCF WI 14 HSDPA testcase 8.2.2.42	F	8.8.0	8.9.0	R5-095994
RP-46	RP-091115	2598	-	Correction to WI 12, RRC testcases 8.2.6.39 and 8.2.6.44	F	8.8.0	8.9.0	R5-095995
RP-46	RP-091118	2599	-	Corrections to CPC testcase 8.1.2.19	F	8.8.0	8.9.0	R5-096004
RP-46	RP-091115	2600	-	Corrections to CPC testcase in section 8.2..1 & 8.2.2	F	8.8.0	8.9.0	R5-096007
RP-46	RP-091118	2601	-	Corrections to CPC testcase in section 8.2.6	F	8.8.0	8.9.0	R5-096010
RP-46	RP-091118	2602	-	Corrections to CPC testcase in section 8.3.1 & 8.3.4	F	8.8.0	8.9.0	R5-096012
RP-46	RP-091115	2603	-	Corrections to GCF priority GMM test cases for T3340 timer expiry at UE	F	8.8.0	8.9.0	R5-096057
RP-46	RP-091127	2604	-	Correction to section title 7.1.8 applicable to Enh UL in CELL_FACH MAC test cases	F	8.8.0	8.9.0	R5-096085
RP-46	RP-091124	2606	-	Update of generic radio bearer test procedure (14.1.3.5a) for Dual-Cell radio bearer testing.	F	8.8.0	8.9.0	R5-096126
RP-46	RP-091124	2606	-	.New radio bearar test case 14.6.1f for Dual-Cell.	F	8.8.0	8.9.0	R5-096127
RP-46	RP-091118	2607	-	Addition of new test case 6.2.2.3a for 1.28M TDD	F	8.8.0	8.9.0	R5-096140
RP-46	RP-091118	2608	-	Addition of new test case 6.2.2.2a for 1.28M TDD	F	8.8.0	8.9.0	R5-096141
RP-46	RP-091124	2609	-	New radio bearer test case 14.6.6e for Dual-Cell	F	8.8.0	8.9.0	R5-096148
RP-46	RP-091119	2610	-	Correction to Improved L2 UL Test cases 7.1.7.1 and 7.1.7.4	F	8.8.0	8.9.0	R5-096151
RP-46	RP-091119	2611	-	Correction to Improved L2 UL test case 7.2.3.38	F	8.8.0	8.9.0	R5-096152
RP-46	RP-091120	2612	-	New test case: Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (simultaneous activation and deactivation of 64QAM and MIMO)	F	8.8.0	8.9.0	R5-096154
RP-46	RP-091124	2613	-	DC deactivation by HS-DSCH - serving cell change from DC-HSDPA capable cell to non DC-HSDPA capable cell	F	8.8.0	8.9.0	R5-096155
RP-46	RP-091133	2615	-	Addition of a New Test Case for eCall - Registration of eCall only capable UE	F	8.8.0	8.9.0	R5-096174
RP-46	RP-091133	2616	-	Addition of a New Test Case for eCall - Test Call using eCall capable UE	F	8.8.0	8.9.0	R5-096175
RP-46	RP-091133	2617	-	Addition of a New Test Case for eCall - eCall using eCall capable UE with "eCall only subscription on USIM	F	8.8.0	8.9.0	R5-096176
RP-46	RP-091118	2618	-	Corrections to 64QAM testcase 8.2.6.62	F	8.8.0	8.9.0	R5-096187
RP-46	RP-091118	2619	-	Corrections to UL 16QAM testcase 8.2.6.64	F	8.8.0	8.9.0	R5-096188
RP-46	RP-091118	2620	-	Corrections to UL 16QAM testcase 8.3.4.12	F	8.8.0	8.9.0	R5-096189
RP-46	RP-091118	2621	-	Corrections to 64QAM testcase 8.3.4.13	F	8.8.0	8.9.0	R5-096190
RP-46	RP-091118	2622	-	Active set update in soft handover: Radio Link addition/removal and serving HS-DSCH / E-DCH cell change, with activation/deactivation of MIMO	F	8.8.0	8.9.0	R5-096198
RP-46	RP-091125	2623	-	Addition of a New Test Case for location updating request rejected	F	8.8.0	8.9.0	R5-096415

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
RP-46	RP-091125	2624	-	Addition of a New Test Case for Support of HNB - Inter frequency CSG Cell Reselection / UE is in Idle, Cell_PCH and URA_PCH states	F	8.8.0	8.9.0	R5-096419
RP-46	RP-091125	2625	-	Addition of a New Test Case for Support of HNB - Intra frequency CSG Cell Reselection / UE is in Idle, Cell_PCH and URA_PCH states	F	8.8.0	8.9.0	R5-096420
RP-46	RP-091130	2626	-	Tests to verify MCCH out of sequence handling for 3.84 Mcps TDD IMB UEs	F	8.8.0	8.9.0	R5-096473
RP-46	RP-091130	2627	-	Tests to verify the unacknowledged mode operation for 3.84 Mcps TDD IMB UEs	F	8.8.0	8.9.0	R5-096474
RP-46	RP-091120	2628	-	Correction of radio bearer test case 14.6.1e for combination 64QAM and MIMO.	F	8.8.0	8.9.0	R5-096498
RP-46	RP-091120	2629	-	Correction of radio bearer test case 14.6.6d for combination 64QAM and MIMO	F	8.8.0	8.9.0	R5-096499
RP-46	RP-091124	2630	-	New radio bearer test case 14.6.6f for Dual-Cell	F	8.8.0	8.9.0	R5-096500
RP-46	RP-091124	2631	-	New radio bearer test case 14.6.1g for Dual-Cell	F	8.8.0	8.9.0	R5-096501
RP-46	RP-091134	2632	-	Introduction of MAC test case for HS-DSCH SPS operation for 1.28Mcps TDD	F	8.8.0	8.9.0	R5-096677
RP-46	RP-091115	2633	1	Correction to test case 8.1.2.21	F	8.8.0	8.9.0	R5-096678
RP-46	RP-091115	2634	2	Correction to test case 8.1.2.22	F	8.8.0	8.9.0	R5-096679
RP-46	RP-091115	2635	1	Correction to test case 8.1.2.21a	F	8.8.0	8.9.0	R5-096686
RP-46	RP-091115	2636	1	Correction to test case 8.1.2.22a	F	8.8.0	8.9.0	R5-096687
RP-46	RP-091115	2637	-	Removal of test cases 8.1.2.23, 8.1.2.23a, 8.1.2.24, 8.1.2.24a	F	8.8.0	8.9.0	R5-096688
RP-46	RP-091125	2638	-	Addition of a New Test Case for combined routing area updating request rejected	F	8.8.0	8.9.0	R5-096690
RP-46	RP-091119	2639	1	Correction to ImprovedL2 radio bearer tc 14.7.3a	F	8.8.0	8.9.0	R5-096707
RP-46	RP-091119	2640	1	Correction to Improved L2 radio bearer tc 14.7.6c	F	8.8.0	8.9.0	R5-096708
RP-47	RP-100141	2641	-	Corrections to Improved L2UL tests 7.1.7.1 and 7.1.7.3	F	8.9.0	8.10.0	R5-100055
RP-47	RP-100182	2642	-	Addition of new WLAN interworking test case for Discovery of the Home Agent via DNS	F	8.9.0	8.10.0	R5-100065
RP-47	RP-100182	2643	-	Addition of new WLAN interworking test case for Registration of a new IPv6 CoA (Binding Update/Acknowledgment procedure in IPv6 network)	F	8.9.0	8.10.0	R5-100067
RP-47	RP-100182	2644	-	Addition of new WLAN interworking test case for Re-registration of IPv6 CoA	F	8.9.0	8.10.0	R5-100068
RP-47	RP-100182	2645	-	Addition of new WLAN interworking test case for Return to home link	F	8.9.0	8.10.0	R5-100069
RP-47	RP-100182	2646	-	Addition of new WLAN interworking test case for Dual-Stack Mobile IPv6 detach in IPv6 network	F	8.9.0	8.10.0	R5-100070
RP-47	RP-100180	2647	-	Addition of new test case 8.1.1.15	F	8.9.0	8.10.0	R5-100155
RP-47	RP-100140	2648	-	addition of new test case 8.1.2.10b	F	8.9.0	8.10.0	R5-100186
RP-47	RP-100140	2649	-	addition of new test case 8.2.1.24b	F	8.9.0	8.10.0	R5-100187
RP-47	RP-100140	2650	-	addition of new test case 8.2.1.34b	F	8.9.0	8.10.0	R5-100188
RP-47	RP-100140	2651	-	addition of new test case 8.2.6.37c	F	8.9.0	8.10.0	R5-100189
RP-47	RP-100140	2652	-	addition of new test case 7.1.5.6a	F	8.9.0	8.10.0	R5-100190
RP-47	RP-100140	2653	-	Correction for 8.2.1.27c	F	8.9.0	8.10.0	R5-100191
RP-47	RP-100140	2654	-	addition of new test case 8.2.1.27d	F	8.9.0	8.10.0	R5-100192
RP-47	RP-100140	2655	-	Addition of new test case 8.2.6.39d	F	8.9.0	8.10.0	R5-100193
RP-47	RP-100154	2656	-	CR to 34.123-1: Update of frequency definitions for extended UMTS1500 operating bands	F	8.9.0	8.10.0	R5-100254
RP-47	RP-100137	2657	-	Removing test case 'Selection and control of Power Level (1.28Mcps TDD option)' 7.1.2.1.3 from 34.123-1	F	8.9.0	8.10.0	R5-100338

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
RP-47	RP-100153	2658	-	Addition of LCR TDD contents in RLC test cases for Improved L2 testing	F	8.9.0	8.10.0	R5-100340
RP-47	RP-100151	2659	-	Addition of new test cases 8.2.2.59a and 8.2.2.60a for LCR TDD enhanced CELL_FACH	F	8.9.0	8.10.0	R5-100341
RP-47	RP-100137	2660	-	Addition of new test cases to cover more combinations for LCR TDD RAB	F	8.9.0	8.10.0	R5-100344
RP-47	RP-100140	2661	-	Addition of LCR TDD test case 8.4.1.48a	F	8.9.0	8.10.0	R5-100379
RP-47	RP-100158	2662	-	Introduction of RRC test case for MIMO of 1.28Mcps TDD	F	8.9.0	8.10.0	R5-100386
RP-47	RP-100157	2663	-	Introduction of RRC test case for CPC of 1.28Mcps TDD	F	8.9.0	8.10.0	R5-100387
RP-47	RP-100140	2665	-	Update of test case 8.2.6.37a for 1.28Mbps TDD	F	8.9.0	8.10.0	R5-100420
RP-47	RP-100140	2666	-	Addition of new test case 8.2.6.37c for 1.28M TDD	F	8.9.0	8.10.0	R5-100421
RP-47	RP-100182	2667	-	Addition of new WLAN interworking test case for Registration of a new IPv4 CoA	F	8.9.0	8.10.0	R5-100480
RP-47	RP-100182	2668	-	Addition of new WLAN interworking test case for Re-registration of IPv4 CoA	F	8.9.0	8.10.0	R5-100481
RP-47	RP-100182	2669	-	Addition of new WLAN interworking test case for Dual-Stack Mobile IPv6 detach in IPv4 network	F	8.9.0	8.10.0	R5-100482
RP-47	RP-100137	2670	-	Modification of CS paging cause to allow paging for terminating low priority signalling [for SMS]	F	8.9.0	8.10.0	R5-100503
RP-47	RP-100140	2671	-	Correction to Rel-7 Snow 3G testcase 8.1.7.3d	F	8.9.0	8.10.0	R5-100539
RP-47	RP-100140	2672	-	Correction toRel-7 CPC testcase 8.2.2.53	F	8.9.0	8.10.0	R5-100544
RP-47	RP-100140	2673	-	Correction toRel-7 CPC testcase 8.2.6.58	F	8.9.0	8.10.0	R5-100547
RP-47	RP-100140	2674	-	Correction to Rel-7 CPC test case 8.3.4.11	F	8.9.0	8.10.0	R5-100548
RP-47	RP-100149	2675	-	Correction to Dual Cell test cases 8.3.4.15 and 8.3.4.16	F	8.9.0	8.10.0	R5-100630
RP-47	RP-100150	2676	-	New Test Case to test Autonomous transitions from CELL_PCH to CELL_FACH	F	8.9.0	8.10.0	R5-100643
RP-47	RP-100150	2677	-	Interoperability Radio Bearer tests for Enhanced UL in CELL_FACH	F	8.9.0	8.10.0	R5-100644
RP-47	RP-100150	2678	-	Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_FACH (Enhanced UL/DL) Success	F	8.9.0	8.10.0	R5-100654
RP-47	RP-100150	2679	-	Radio Bearer Establishment for transition from CELL_FACH (Enhanced UL/DL) to CELL_DCH : Success	F	8.9.0	8.10.0	R5-100658
RP-47	RP-100139	2680	-	Correction to 14.7.x RAB test cases	F	8.9.0	8.10.0	R5-100697
RP-47	RP-100180	2681	-	Addition of new test case 8.1.1.13	F	8.9.0	8.10.0	R5-100779
RP-47	RP-100180	2682	-	Addition of new test case 8.1.1.16	F	8.9.0	8.10.0	R5-100780
RP-47	RP-100180	2683	-	Addition of new test case 8.1.1.17	F	8.9.0	8.10.0	R5-100781
RP-47	RP-100180	2684	1	Addition of new test case 8.1.1.18	F	8.9.0	8.10.0	R5-100782
RP-47	RP-100180	2685	-	Addition of new test case 8.1.1.19	F	8.9.0	8.10.0	R5-100783
RP-47	RP-100137	2686	-	Correction to the GCF WI 10 RRC testcases 8.3.1.23, 8.3.1.24 and 8.3.2.13	F	8.9.0	8.10.0	R5-100791
RP-47	RP-100151	2687	-	Addition of new mac test cases for LCR TDD enhanced CELL_FACH	F	8.9.0	8.10.0	R5-100792
RP-47	RP-100156	2688	-	Update of Test Case 13.3.1.1 - Registration of eCall only capable UE	F	8.9.0	8.10.0	R5-100793
RP-47	RP-100156	2689	-	Update of Test Case 13.3.1.2 for eCall - Test Call using eCall capable UE	F	8.9.0	8.10.0	R5-100794
RP-47	RP-100156	2690	-	Update of Test Case 13.3.1.3 for eCall - eCall using eCall capable UE with 'eCall only' subscription on USIM	F	8.9.0	8.10.0	R5-100795
RP-47	RP-100156	2691	-	Addition of a New Test Case for eCall - eCall using eCall capable UE with eCall and non eCall subscription on USIM	F	8.9.0	8.10.0	R5-100796
RP-47	RP-100156	2692	-	Addition of a New Test Case for eCall - eCall Inactivity State after T3242 expires	F	8.9.0	8.10.0	R5-100797

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
RP-47	RP-100156	2693	-	Addition of a New Test Case for eCall - eCall Automatic Activation	F	8.9.0	8.10.0	R5-100798
RP-47	RP-100156	2694	-	Addition of a New Test Case for eCall - Reconfiguration Call using eCall capable UE	F	8.9.0	8.10.0	R5-100799
RP-47	RP-100150	2695	-	Correction to Enhanced UL in CELL_FACH TCs	F	8.9.0	8.10.0	R5-101016
RP-47	RP-100150	2696	-	Generic test procedure for Enhanced UL in CELL_FACH	F	8.9.0	8.10.0	R5-101017
RP-47	RP-100140	2697	-	Update of test case 6.2.1.6	F	8.9.0	8.10.0	R5-101020
RP-47	RP-100140	2698	-	Correction to the GCF WI 10 Idle mode testcases 6.1.2.2	F	8.9.0	8.10.0	R5-101022
RP-47	RP-100141	2699	-	New test: PDCP Unrecoverable Error Detection	F	8.9.0	8.10.0	R5-101025
RP-47	RP-100141	2700	-	New test: Cell Update: Radio Link Failure, UM RLC Re-establishment	F	8.9.0	8.10.0	R5-101026
RP-47	RP-100140	2701	-	Extending the scope of test case 6.1.1.13	F	8.9.0	8.10.0	R5-101034
RP-47	RP-100137	2702	-	Disabling T3212 in GMM test cases 12.4.1.1b and 12.4.3.4 with NMO II	F	8.9.0	8.10.0	R5-101036
RP-47	RP-100150	2703	-	Addition of a New Test Case for Enhanced UL in Cell_FACH - DTCH/DCCH transmission - Implicit release with E-DCH transmission continuation backoff Timer Based	F	8.9.0	8.10.0	R5-101044
RP-47	RP-100140	2704	-	Correction for the test case 7.1.6.3.5	F	8.9.0	8.10.0	R5-101096
RP-47	RP-100140	2705	-	Correction to Rel-7 CPC test case 8.2.3.37	F	8.9.0	8.10.0	R5-101138
RP-47	RP-100180	2706	2	Introduction of a new ETWS test case 8.1.1.14	F	8.9.0	8.10.0	R5-101139
RP-47	RP-100179	2708	1	Addition of a New Test Case for UE initiated detach abnormal case	F	8.9.0	8.10.0	R5-101203
RP-47	RP-100150	2709	-	Default SIB5 contents for UEs supporting Enhanced UL/DL in CELL_FACH state	F	8.9.0	8.10.0	R5-100637
RP-47	-	-	-	Moved to v9.0.0 with no change	-	8.10.0	9.0.0	-
RP-48	RP-100517	2710	-	Correction of number of HARQ processes in Dual-Cell radio bearer test cases	F	9.0.0	9.1.0	R5-103150
RP-48	RP-100519	2711	-	Addition of a New Test Case for Enhanced UL in Cell_FACH - DTCH/DCCH transmission - Implicit release with E-DCH transmission continuation backoff Timer Based	F	9.0.0	9.1.0	R5-103153
RP-48	RP-100505	2712	-	Addition test condition and correction P-CCPCH RSCP in test cases 6.1.2.9a and 6.1.2.9b for LCR TDD	F	9.0.0	9.1.0	R5-103170
RP-48	RP-100522	2713	-	Addition LCR TDD contents in Improved L2 test case 7.1.7.1, 7.1.7.2 and 7.1.7.3	F	9.0.0	9.1.0	R5-103171
RP-48	RP-100520	2714	-	New Test Case to test Paging on HS-DSCH for notification of BCCH modification in CELL_PCH for LCR TDD	F	9.0.0	9.1.0	R5-103172
RP-48	RP-100520	2715	-	New Test Case to test Paging for Connection in connected mode (CELL_PCH) without legacy PCH configured for LCR TDD	F	9.0.0	9.1.0	R5-103173
RP-48	RP-100505	2716	-	Addition Specific Message Contents in test cases 8.1.2.14 and 8.1.2.15 for LCR TDD	F	9.0.0	9.1.0	R5-103174
RP-48	RP-100520	2717	-	New Test Case to test RRC Connection Establishment for transition from Idle Mode to CELL_FACH: Success (Start of E-DCH and HS-DSCH Reception) for LCR TDD	F	9.0.0	9.1.0	R5-103175
RP-48	RP-100522	2718	-	Addition LCR TDD contents in Improved L2 test case 8.2.2.57	F	9.0.0	9.1.0	R5-103176
RP-48	RP-100522	2719	-	Addition LCR TDD contents in Improved L2 test case 8.2.2.61	F	9.0.0	9.1.0	R5-103177
RP-48	RP-100520	2720	-	New Test Case to test Reselection between cell not supporting E-DCH and HS-DSCH in CELL_FACH and cell supporting E-DCH and HS-DSCH is CELL_FACH for LCR TDD	F	9.0.0	9.1.0	R5-103178
RP-48	RP-100522	2721	-	Addition Generic test procedure of Improved L2 for LCR TDD	F	9.0.0	9.1.0	R5-103179
RP-48	RP-100520	2722	-	Addition Generic test procedure of Enhanced CELL_FACH for LCR TDD	F	9.0.0	9.1.0	R5-103180
RP-48	RP-100522	2723	-	Addition new test case 7.1.5a.5.4 of MAC-ehs transport block size selection for LCR TDD in RLC	F	9.0.0	9.1.0	R5-103183

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
				test cases for Improved L2 testing				
RP-48	RP-100506	2724	-	Addition of new test case 6.2.2.1a for 1.28M TDD	F	9.0.0	9.1.0	R5-103198
RP-48	RP-100506	2725	-	Addition of new test case 6.2.2.5a for 1.28M TDD	F	9.0.0	9.1.0	R5-103199
RP-48	RP-100506	2726	-	Modification of 8.3.7.14	F	9.0.0	9.1.0	R5-103201
RP-48	RP-100506	2727	-	Modification of 8.3.7.16	F	9.0.0	9.1.0	R5-103202
RP-48	RP-100506	2728	-	Addition of new test case 8.3.9.1a for 1.28M TDD	F	9.0.0	9.1.0	R5-103203
RP-48	RP-100506	2729	-	Addition of new test case 8.3.9.2a for 1.28M TDD	F	9.0.0	9.1.0	R5-103204
RP-48	RP-100506	2730	-	Modification of test case 8.3.9.3 for 1.28M TDD	F	9.0.0	9.1.0	R5-103206
RP-48	RP-100506	2731	-	Addition of new test case 8.3.9.4a for 1.28M TDD	F	9.0.0	9.1.0	R5-103207
RP-48	RP-100506	2732	-	Addition of new test case 8.3.9.5a for 1.28M TDD	F	9.0.0	9.1.0	R5-103208
RP-48	RP-100506	2733	-	Modification of 8.3.9 for 1.28M TDD	F	9.0.0	9.1.0	R5-103209
RP-48	RP-100511	2734	-	Update LCR TDD test case 8.4.1.6a	F	9.0.0	9.1.0	R5-103262
RP-48	RP-100508	2735	-	Correction to GCF WI 70 Rel-7 CPC testcase 8.2.1.40	F	9.0.0	9.1.0	R5-103356
RP-48	RP-100508	2736	-	Correction to GCF WI 70 Rel-7 CPC testcase 8.3.4.11	F	9.0.0	9.1.0	R5-103357
RP-48	RP-100505	2737	-	Correction to SMS test case 16.1.1 and 16.1.2	F	9.0.0	9.1.0	R5-103386
RP-48	RP-100519	2738	-	Corrections to Enhanced UL in CELL_FACH test case 7.1.8.1	F	9.0.0	9.1.0	R5-103437
RP-48	RP-100519	2739	-	Radio Link Failure Test Case for EUL in CELL-FACH for DTCH/DCCH transmission	F	9.0.0	9.1.0	R5-103439
RP-48	RP-100519	2740	-	Correction and Extension of generic test procedure for Enhanced UL and DL in CELL_FACH	F	9.0.0	9.1.0	R5-103442
RP-48	RP-100519	2741	-	Interoperability Radio Bearer tests for Enhanced UL in CELL_FACH with DRX configured	F	9.0.0	9.1.0	R5-103443
RP-48	RP-100519	2742	-	New test case: Intra Frequency Cell Reselection in Enhanced UL in CELL_FACH with E-DRX	F	9.0.0	9.1.0	R5-103445
RP-48	RP-100519	2743	-	New test case: Inter Frequency Cell Reselection in Enhanced UL in CELL_FACH with DRX configured	F	9.0.0	9.1.0	R5-103446
RP-48	RP-100508	2744	-	Correction to testcase 8.2.2.57	F	9.0.0	9.1.0	R5-103489
RP-48	RP-100508	2745	-	Correction to Rel-7 CPC test case 8.3.1.45	F	9.0.0	9.1.0	R5-103491
RP-48	RP-100528	2746	-	Addition of new WLAN interworking test case for Discovery of the Home Agent address and Home Network Prefix during PDP context activation procedure	F	9.0.0	9.1.0	R5-103555
RP-48	RP-100528	2747	-	Addition of new WLAN interworking test case for Discovery of the Home Agent address and Home Network Prefix via IKEv2 during tunnel setup to PDG	F	9.0.0	9.1.0	R5-103556
RP-48	RP-100528	2748	-	Addition of new WLAN interworking test case for Security association establishment	F	9.0.0	9.1.0	R5-103558
RP-48	RP-100528	2749	-	Addition of new WLAN interworking test case for Initiation of protection of DSMIPv6 tunnel traffic by Home Agent	F	9.0.0	9.1.0	R5-103560
RP-48	RP-100517	2750	-	Update of TFRC test points (14.1.3.4b.2) for Dual-Cell radio bearer testing.	F	9.0.0	9.1.0	R5-103634
RP-48	RP-100517	2751	-	Addition of new Test Case 8.3.4.15a - Active set update: Dual Cell (DC) Activation by Serving Cell Change from non DC-HSDPA capable cell to DC-HSDPA capable cell with SRB mapped on DCH	F	9.0.0	9.1.0	R5-103635
RP-48	RP-100517	2752	-	Addition of new Test Case 8.3.4.16a - Active set update: Dual Cell (DC) Activation by Serving Cell Change from DC-HSDPA capable cell to non DC-HSDPA capable cell with SRB mapped on DCH	F	9.0.0	9.1.0	R5-103636
RP-48	RP-100519	2753	-	Correction to Enhanced UL in CELL_FACH TC 7.1.8.2	F	9.0.0	9.1.0	R5-103639
RP-48	RP-100519	2754	-	Correction to Enhanced UL in CELL_FACH TC 7.1.8.5	F	9.0.0	9.1.0	R5-103640

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
RP-48	RP-100519	2755	-	Corrections to Enhanced UL in CELL_FACH test case 7.1.8.6	F	9.0.0	9.1.0	R5-103641
RP-48	RP-100519	2756	-	Access fail test cases for EUL in CELL-FACH during initial access preamble	F	9.0.0	9.1.0	R5-103642
RP-48	RP-100519	2757	-	Cell reselection in CELL_FACH when common E-DCH resource is released	F	9.0.0	9.1.0	R5-103643
RP-48	RP-100519	2758	-	Traffic Volume Measurements for EUL in CELL-FACH	F	9.0.0	9.1.0	R5-103644
RP-48	RP-100525	2759	-	Remove Test Case 13.3.1.1 for eCall - Registration of eCall only capable UE	F	9.0.0	9.1.0	R5-103650
RP-48	RP-100525	2760	-	Update Test Case 13.3.1.2 for eCall	F	9.0.0	9.1.0	R5-103651
RP-48	RP-100525	2761	-	Update Test Case 13.3.1.4 for eCall	F	9.0.0	9.1.0	R5-103652
RP-48	RP-100525	2762	-	Update Test Case 13.3.1.5 for eCall	F	9.0.0	9.1.0	R5-103653
RP-48	RP-100525	2763	-	Update Test Case 13.3.1.6 for eCall	F	9.0.0	9.1.0	R5-103654
RP-48	RP-100525	2764	-	Update Test Case 13.3.1.7 for eCall	F	9.0.0	9.1.0	R5-103655
RP-48	RP-100525	2765	-	Addition of a New Test Case - Manually initiated eCall Location Updating using eCall only capable UE/Reject Cause codes: IMSI Unknown in HLR or Illegal MS or Illegal ME	F	9.0.0	9.1.0	R5-103656
RP-48	RP-100511	2766	-	Correction to MAC test case 7.1.7.2	F	9.0.0	9.1.0	R5-103660
RP-48	RP-100511	2767	-	Correction to MAC test case 7.1.7.3	F	9.0.0	9.1.0	R5-103661
RP-48	RP-100505	2768	-	Corrections to RRC testcase 8.2.6.37	F	9.0.0	9.1.0	R5-103662
RP-48	RP-100508	2769	-	Correction to GCF WI 68 Rel-7 Improved L2 DL testcase 14.6.6a	F	9.0.0	9.1.0	R5-103663
RP-48	RP-100505	2770	-	Correction to GCF WI-10 test case GCF WI-10 test case 8.1.2.9	F	9.0.0	9.1.0	R5-103664
RP-48	RP-100508	2771	-	Some editorial corrections	F	9.0.0	9.1.0	R5-103667
RP-48	RP-100508	2772	-	Add variant sub-clauses for some 7.68 Mcps TDD RAB test cases testing with different TTI values	F	9.0.0	9.1.0	R5-103684
RP-48	RP-100527	2773	-	Introduction of Radio Bearer test case for MIMO of 1.28Mcps TDD	F	9.0.0	9.1.0	R5-103687
RP-48	RP-100526	2774	-	Introduction of RRC test case of SPS operation for 1.28Mcps TDD	F	9.0.0	9.1.0	R5-103689
RP-48	RP-100526	2775	-	Introduction of RRC test case of Control Channel DRX operation for 1.28Mcps TDD	F	9.0.0	9.1.0	R5-103690
RP-48	RP-100508	2776	-	Addition of new test case 8.2.2.36b for 1.28M TDD	F	9.0.0	9.1.0	R5-103691
RP-48	RP-100508	2777	-	Addition of new test case 8.2.2.36c for 1.28M TDD	F	9.0.0	9.1.0	R5-103692
RP-48	RP-100508	2778	-	Addition of new test case 8.2.3.30a for 1.28M TDD	F	9.0.0	9.1.0	R5-103693
RP-48	RP-100508	2779	-	Addition of new test case 8.2.4.36b for 1.28M TDD	F	9.0.0	9.1.0	R5-103694
RP-48	RP-100508	2780	-	Addition of new test case 8.2.4.36c for 1.28M TDD	F	9.0.0	9.1.0	R5-103695
RP-48	RP-100506	2781	-	Modification of 8.2.2.4a	F	9.0.0	9.1.0	R5-103851
RP-48	RP-100525	2782	-	Update Test Case 13.3.1.3 for eCall	F	9.0.0	9.1.0	R5-103859
RP-48	RP-100517	2783	-	Clarification regarding the use of HARQ process identifier when Dual-Cell is supported in generic RB test procedure 14.1.3.5a	F	9.0.0	9.1.0	R5-103860
RP-48	RP-100511	2784	-	Addition of new TC for enhanced serving HS-DSCH cell change	F	9.0.0	9.1.0	R5-103864
RP-48	RP-100506	2785	-	Modification of 8.3.9.2	F	9.0.0	9.1.0	R5-103866
RP-48	RP-100505	2786	-	Adding EFPSLOCI to the Idle mode test cases	F	9.0.0	9.1.0	R5-103868
RP-49	RP-100810	2788	-	Correction to GCF WI-025 HSUPA testcase 7.1.6.4.2	F	9.1.0	9.2.0	R5-104123
RP-49	RP-100808	2789	-	Correction to GCF WI-010 MM test case 9.4.4	F	9.1.0	9.2.0	R5-104124
RP-49	RP-100810	2790	-	Correction to GCF WI-025 HSUPA test case 7.1.6.3.2	F	9.1.0	9.2.0	R5-104125

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
RP-49	RP-100811	2791	-	Correction to GCF WI-070 CPC testcase 8.3.4.11	F	9.1.0	9.2.0	R5-104126
RP-49	RP-100985	2792	-	Correction of ETWS test cases	F	9.1.0	9.2.0	R5-104171
RP-49	RP-100809	2793	-	Correction to test case 6.2.2.2a - Cell reselection if cell becomes barred or C10: GSM to UTRAN for 1.28 Mcps TDD	F	9.1.0	9.2.0	R5-104224
RP-49	RP-100809	2794	-	Correction to test case 6.2.2.3a - Cell reselection timings: GSM to UTRAN for 1.28 Mcps TDD	F	9.1.0	9.2.0	R5-104225
RP-49	RP-100809	2795	-	Correction to test case 8.4.1.31 - Measurement Control and Report Inter-RAT measurement in CELL_DCH state	F	9.1.0	9.2.0	R5-104226
RP-49	RP-100811	2796	-	Correction to RRC testcases (8.2.2.x series) to update mimo configuration.	F	9.1.0	9.2.0	R5-104322
RP-49	RP-100811	2797	-	Correction to RRC testcases (8.2.6.x series) to update mimo configuration.	F	9.1.0	9.2.0	R5-104323
RP-49	RP-100811	2798	-	Correction to RRC testcases (8.3.4.x series) to update mimo configuration.	F	9.1.0	9.2.0	R5-104324
RP-49	RP-100811	2799	-	Correction to RAB testcases to update mimo configuration.	F	9.1.0	9.2.0	R5-104325
RP-49	RP-100811	2800	-	Correction to generic test procedure for Mimo and Dual cell testcases.	F	9.1.0	9.2.0	R5-104326
RP-49	RP-100811	2801	-	Corrections to Enhanced Cell-FACH DL MAC testcases 7.1.5a.6 & 7.1.5a.7	F	9.1.0	9.2.0	R5-104327
RP-49	RP-100811	2802	-	Corrections to HS-SCCH Less testcases 8.2.1.39 & 8.2.6.56	F	9.1.0	9.2.0	R5-104328
RP-49	RP-100811	2803	-	Corrections to CPC testcases 8.2.6.61	F	9.1.0	9.2.0	R5-104329
RP-49	RP-100830	2804	-	Addition of new mac test case 7.1.7.6 for LCR TDD improved L2	F	9.1.0	9.2.0	R5-104360
RP-49	RP-100828	2805	-	Addition of new mac test case 7.1.8.10 for LCR TDD enhanced CELL_FACH	F	9.1.0	9.2.0	R5-104361
RP-49	RP-100828	2806	-	Addition of new mac test cases for LCR TDD enhanced CELL_FACH	F	9.1.0	9.2.0	R5-104362
RP-49	RP-100809	2807	-	Correction the contents of testcase 8.1.10.1 for LCR TDD in 34.123-1	F	9.1.0	9.2.0	R5-104363
RP-49	RP-100828	2808	-	Addition of new test cases 8.1.10.3 for LCR TDD enhanced CELL_FACH	F	9.1.0	9.2.0	R5-104364
RP-49	RP-100828	2809	-	Addition of conformance requirement and message contents in test case 8.4.1.18a for LCR TDD enhanced CELL_FACH	F	9.1.0	9.2.0	R5-104365
RP-49	RP-100809	2810	-	Addition of general information interoperability radio bearer tests for HS-DSCH for LCR TDD	F	9.1.0	9.2.0	R5-104366
RP-49	RP-100830	2811	-	Addition of new test cases 18.1.6.3a, 18.1.6.21 and 18.1.6.22 for LCR TDD improved L2	F	9.1.0	9.2.0	R5-104367
RP-49	RP-100828	2812	-	Addition of new test cases 18.1.6.20 and 18.1.6.20a for LCR TDD enhanced CELL_FACH	F	9.1.0	9.2.0	R5-104368
RP-49	RP-100833	2813	-	Addition of new WLAN interworking test case for Termination of protection of DSMIPv6 tunnel traffic by Home Agent	F	9.1.0	9.2.0	R5-104393
RP-49	RP-100833	2814	-	Update of WLAN interworking test cases	F	9.1.0	9.2.0	R5-104394
RP-49	RP-100833	2815	-	Removal of WLAN interworking test case 17.3.3	F	9.1.0	9.2.0	R5-104395
RP-49	RP-100822	2816	-	Removal of Test Case 13.3.1.8 for eCall	F	9.1.0	9.2.0	R5-104487
RP-49	RP-100832	2817	-	Introduction of Physical Channel Reconfiguration test case for CPC of 1.28Mcps TDD	F	9.1.0	9.2.0	R5-104526
RP-49	RP-100985	2818	-	Corrections to test case 7.1.8.3	F	9.1.0	9.2.0	R5-104554
RP-49	RP-100985	2819	-	Corrections to test case 7.1.8.1	F	9.1.0	9.2.0	R5-104555
RP-49	RP-100985	2820	-	Corrections to test case 7.1.8.4	F	9.1.0	9.2.0	R5-104556
RP-49	RP-100985	2821	-	Corrections to test case 7.1.8.5	F	9.1.0	9.2.0	R5-104557
RP-49	RP-100985	2822	-	Corrections to 8.3.4.x Dual Carrier HSDPA testcases	F	9.1.0	9.2.0	R5-104559
RP-49	RP-100811	2823	-	Corrections to test case 8.2.2.62 and 8.3.4.14	F	9.1.0	9.2.0	R5-104639
RP-49	RP-100811	2824	-	Correction to test case 6.1.1.13	F	9.1.0	9.2.0	R5-104648

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
RP-49	RP-100808	2825	-	Correction to test case 9.4.2.3	F	9.1.0	9.2.0	R5-104649
RP-49	RP-100811	2826	-	Correction to GCF WI-070 CPC testcase 7.1.6.2.11	F	9.1.0	9.2.0	R5-104682
RP-49	RP-100811	2844	-	Correction to GCF WI-010 MM test case 9.4.3.3	F	9.1.0	9.2.0	R5-104683
RP-49	RP-100985	2845	-	Correction to test case 8.2.2.51	F	9.1.0	9.2.0	R5-104684
RP-49	RP-100985	2827	-	Corrections to Enhanced Cell FACH DL testcases 8.2.2.60	F	9.1.0	9.2.0	R5-104687
RP-49	RP-100836	2828	-	Update to Test Case 8.3.4.15a	F	9.1.0	9.2.0	R5-104688
RP-49	RP-100836	2829	-	Update to Test Case 8.3.4.16a	F	9.1.0	9.2.0	R5-104689
RP-49	RP-100836	2830	-	New test case 17.2.6.2: MO-LR position estimate for UE-assisted A-GNSS	F	9.1.0	9.2.0	R5-104693
RP-49	RP-100836	2831	-	Default conditions for A-GNSS test cases	F	9.1.0	9.2.0	R5-104694
RP-49	RP-100836	2832	-	New test case 17.2.6.1: MO-LR position estimate for UE-based A-GNSS	F	9.1.0	9.2.0	R5-104695
RP-49	RP-100811	2833	-	New test case 17.2.5.1: NI-LR Emergency Call for UE-based A-GNSS	F	9.1.0	9.2.0	R5-104696
RP-49	RP-100809	2834	-	New test case 17.2.5.2: NI-LR Emergency Call for UE-assisted A-GNSS	F	9.1.0	9.2.0	R5-104697
RP-49	RP-100822	2835	-	Corrections to test case 8.2.2.60 and 8.2.2.65	F	9.1.0	9.2.0	R5-104772
RP-49	RP-100811	2836	-	Correction the contents of RAB testcases for LCR TDD in 34.123-1	F	9.1.0	9.2.0	R5-105019
RP-49	RP-100810	2837	-	Correction to Location area update type and RRC Connection cause for eCall test cases	F	9.1.0	9.2.0	R5-105020
RP-49	RP-100836	2838	-	Correction to WI 68 Rel-7 Improved L2 testcase 8.2.2.57	F	9.1.0	9.2.0	R5-105030
RP-49	RP-100836	2839	-	Corrections to test case 7.1.6.2.10	F	9.1.0	9.2.0	R5-105033
RP-49	RP-100836	2843	-	addition of 8.1.5.7 as audit of UE capabilities	F	9.1.0	9.2.0	R5-105051
RP-49	RP-100986	2840	-	New test case 17.2.6.3: MO-LR Position Estimate: UE-Based A-GNSS - Failure Not Enough Satellites	F	9.1.0	9.2.0	R5-105066
RP-49	RP-100808	2841	-	New test case 17.2.6.4: MO-LR Assistance Data: UE-Based or UE-Assisted A-GNSS - Success	F	9.1.0	9.2.0	R5-105067
RP-49	RP-100811	2842	-	New test case 17.2.6.5: MO-LR Assistance Data: UE-Based or UE-Assisted A-GNSS - Failure	F	9.1.0	9.2.0	R5-105068
RP-49	RP-100836	2846	-	New test case 17.2.7.2: MT-LR: UE-Based A-GNSS - Failure Not Enough Satellites	F	9.1.0	9.2.0	R5-105069
RP-49	RP-100822	2847	-	Addition of Test Case 13.3.1.9 for eCall - Measurement of start and finish of eCall PUSH/INITIATION sequence	F	9.1.0	9.2.0	R5-105021
RP-50	RP-101136	2848	-	Correction to GCF WI-025 HSUPA test case 7.1.6.3.2	F	9.2.0	9.3.0	R5-106060
RP-50	RP-101134	2849	-	Correction to GCF WI-010 GMM test case 12.2.1.11	F	9.2.0	9.3.0	R5-106061
RP-50	RP-101136	2850	-	Correction to GCF WI-024 testcase 6.2.1.11	F	9.2.0	9.3.0	R5-106115
RP-50	RP-101137	2851	-	Corrections to Enhanced Cell FACH RRC testcases 8.2.2.59 & 8.2.2.60	F	9.2.0	9.3.0	R5-106220
RP-50	RP-101137	2852	-	Correction to generic test procedure for Mimo and Dual cell testcases.	F	9.2.0	9.3.0	R5-106223
RP-50	RP-101137	2853	-	Correction to test points for Mimo test cases.	F	9.2.0	9.3.0	R5-106225
RP-50	RP-101147	2854	-	Correction of test case 8.1.5.7 audit of UE capability	F	9.2.0	9.3.0	R5-106230
RP-50	RP-101158	2855	-	Addition of new test case 8.1.2.X	F	9.2.0	9.3.0	R5-106261
RP-50	RP-101158	2856	-	Addition of new test case 12.2.2.X	F	9.2.0	9.3.0	R5-106264
RP-50	RP-101146	2857	-	Correction of ETWS test cases	F	9.2.0	9.3.0	R5-106285
RP-50	RP-101134	2858	-	Correction to clause 8.1.2	F	9.2.0	9.3.0	R5-106307
RP-50	RP-101134	2859	-	Adding missing clauses 7.1.2.1 and 8.3.10	F	9.2.0	9.3.0	R5-106308

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
RP-50	RP-101154	2860	-	Adding missing clause 17.2.7	F	9.2.0	9.3.0	R5-106309
RP-50	RP-101146	2861	-	Corrections to eCall Test Cases	F	9.2.0	9.3.0	R5-106339
RP-50	RP-101134	2862	-	Correction the parameters for LCR TDD two PRACH in 34.123-1 8.1.2.2	F	9.2.0	9.3.0	R5-106345
RP-50	RP-101134	2863	-	Correction the uplink data rate and TFS for RACH in 34.123-1 18.1.3.3	F	9.2.0	9.3.0	R5-106346
RP-50	RP-101137	2864	-	Correction the TFS for LCR TDD 128Kbps RAB in 34.123-1 18.1.6.7	F	9.2.0	9.3.0	R5-106347
RP-50	RP-101146	2865	-	Corrections to HNB Idle test cases	F	9.2.0	9.3.0	R5-106360
RP-50	RP-101146	2866	-	Correction to HNB Clause 12 GMM test cases	F	9.2.0	9.3.0	R5-106361
RP-50	RP-101146	2867	-	Addition of New TC for Inter-RAT Cell Reselection from GSM to a UTRA CSG cell	F	9.2.0	9.3.0	R5-106362
RP-50	RP-101159	2868	-	Manual CSG ID Selection across PLMNs	F	9.2.0	9.3.0	R5-106363
RP-50	RP-101159	2869	-	Inter-frequency Cell Reselection with Hybrid Cells	F	9.2.0	9.3.0	R5-106364
RP-50	RP-101159	2870	-	Cell Reselection with Hybrid Cells for non-member UEs	F	9.2.0	9.3.0	R5-106365
RP-50	RP-101146	2871	-	Removal of Test Case 13.3.1.9 for eCall	F	9.2.0	9.3.0	R5-106430
RP-50	RP-101146	2872	-	Corrections to the test cases 8.3.4.16a	F	9.2.0	9.3.0	R5-106460
RP-50	RP-101146	2873	-	Corrections to the test cases 7.1.8.3, 7.1.8.4, 7.1.8.6 and 7.1.8.8	F	9.2.0	9.3.0	R5-106462
RP-50	RP-101137	2875	-	Correction to Enhanced Cell FACH RRC testcase 8.1.10.2	F	9.2.0	9.3.0	R5-106538
RP-50	RP-101146	2876	-	Addition of a New Test Case for Support of HNB - Inter-frequency cell reselection from a non-CSG cell to an allowed CSG cell	F	9.2.0	9.3.0	R5-106539
RP-50	RP-101146	2877	-	Active Set Update in Soft Handover: Radio Link addition/removal and serving HS-DSCH/E-DCH cell change with activation/deactivation of MIMO with SRBs mapped on E-DCH/DCH	F	9.2.0	9.3.0	R5-106541
RP-50	RP-101146	2878	-	Active set update in soft handover: Radio Link addition/removal and serving HS-DSCH/E-DCH cell change, with activation/deactivation of 64QAM with SRBs mapped on E-DCH/DCH	F	9.2.0	9.3.0	R5-106542
RP-50	RP-101146	2879	-	New Test Case 8.2.6.62a - Physical Channel Reconfiguration from CELL_DCH to CELL_DCH: Success (activation and de-activation of 64QAM) with SRBs mapped on E-DCH/DCH	F	9.2.0	9.3.0	R5-106543
RP-50	RP-101146	2880	-	New Test Case 8.2.2.63a - Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH with SRBs on E-DCH/DCH : Success (activation and de-activation of 64QAM)	F	9.2.0	9.3.0	R5-106544
RP-50	RP-101135	2881	-	Correction to test case 8.3.7.14 for LCR TDD	F	9.2.0	9.3.0	R5-106546
RP-50	RP-101157	2882	-	Addition of inter-band operation test method for the LCR TDD UE that supports both band A and band F in TC 8.3.1.1c	F	9.2.0	9.3.0	R5-106650
RP-50	RP-101157	2883	-	Addition of inter-band operation test method for the LCR TDD UE that supports both band A and band F in TC 8.3.2.1b	F	9.2.0	9.3.0	R5-106651
RP-50	RP-101157	2884	-	Addition of inter-band operation test method for the LCR TDD UE that supports both band A and band F in TC 8.4.1.2c	F	9.2.0	9.3.0	R5-106652
RP-50	RP-101135	2885	-	Correction to test case 6.2.2.5a - Cell reselection using SIB18: UTRAN(1.28Mcps TDD) to GSM	F	9.2.0	9.3.0	R5-106654
RP-50	RP-101134	2887	-	Correction to GCF WI-010 NAS test case 12.2.1.4 Proc 2	F	9.2.0	9.3.0	R5-106671
RP-50	RP-101146	2888	-	Correction to Test case 8.2.2.61	F	9.2.0	9.3.0	R5-106672
RP-50	RP-101146	2889	-	Clarifications to 7.1.8.2 procedure: Activation of HS-DPCCH based on the received SIB5/SIB5bis information	F	9.2.0	9.3.0	R5-106673
RP-50	RP-101137	2890	-	Corrections to testcase 14.6.1d & 14.6.6c.	F	9.2.0	9.3.0	R5-106674
RP-50	RP-101159	2891	-	Inter-frequency inbound handover to UMTS CSG cell without reporting proximity indication	F	9.2.0	9.3.0	R5-106687

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
RP-50	RP-101159	2892	-	Inter-frequency inbound handover to UMTS CSG cell	F	9.2.0	9.3.0	R5-106688
RP-50	RP-101159	2893	-	Inter-frequency inbound handover to UMTS CSG cell with non-member UE	F	9.2.0	9.3.0	R5-106689
RP-50	RP-101146	2874	-	Removal of EFECC usage from eCall test cases	F	9.2.0	9.3.0	R5-106872
RP-50	RP-101135	2886	-	Correction to GCF WI-024 DSAC test case 12.2.1.12	F	9.2.0	9.3.0	R5-106874
RP-51	RP-110152	2894	-	Corrections to GCF WI-010 GMM Test Cases 12.4.1.4a & 12.6.1.3.3 & 12.2.1.4.2	F	9.3.0	9.4.0	R5-110191
RP-51	RP-110173	2895	-	Various corrections to A-GNSS test cases	F	9.3.0	9.4.0	R5-110269
RP-51	RP-110156	2896	-	Correction to Enhanced Cell FACH MAC testcase 7.1.5a.7	F	9.3.0	9.4.0	R5-110357
RP-51	RP-110156	2897	-	Correction to Enhanced Cell FACH RRC testcase 8.3.1.47	F	9.3.0	9.4.0	R5-110358
RP-51	RP-110156	2898	-	Correction to Enhanced Cell FACH RAB testcase Procedure	F	9.3.0	9.4.0	R5-110359
RP-51	RP-110156	2899	-	Correction to Enhanced Cell FACH RRC testcase 8.1.10.2	F	9.3.0	9.4.0	R5-110360
RP-51	RP-110156	2900	-	Corrections to 8.3.4.x testcases regarding F-DPCH Configuration	F	9.3.0	9.4.0	R5-110361
RP-51	RP-110156	2901	-	Correction to Rel-7 RRC MiMo testcases	F	9.3.0	9.4.0	R5-110362
RP-51	RP-110156	2902	-	Correction to CS Voice Over HSPA testcases 7.3.7.1 & 7.3.7.2	F	9.3.0	9.4.0	R5-110363
RP-51	RP-110156	2903	-	Correction to CS Voice Over HSPA testcases 8.3.1.48	F	9.3.0	9.4.0	R5-110364
RP-51	RP-110156	2904	-	New test case for Successful Secondary PDP Context Activation Procedure Initiated by the Network	F	9.3.0	9.4.0	R5-110488
RP-51	RP-110156	2905	-	New test case for Successful Secondary PDP Context Activation, Deactivation and Re-activation Initiated by the Network	F	9.3.0	9.4.0	R5-110489
RP-51	RP-110156	2906	-	New test case for Network initiated PDP context modification / Adding and deleting filters to TFT of a secondary PDP context	F	9.3.0	9.4.0	R5-110490
RP-51	RP-110156	2907	-	New test case for Network initiated PDP context modification / Adding filters to TFT of the primary PDP context	F	9.3.0	9.4.0	R5-110491
RP-51	RP-110156	2908	-	New test case for PDP context deactivation initiated by the network / secondary PDP context active / deactivation of primary PDP context	F	9.3.0	9.4.0	R5-110492
RP-51	RP-110154	2909	-	Correction of default value of Qsearch_I for LCR TDD	F	9.3.0	9.4.0	R5-110512
RP-51	RP-110165	2910	-	Corrections to PPAC GMM test case 12.2.2.10	F	9.3.0	9.4.0	R5-110565
RP-51	RP-110153	2911	-	Addition contents of LCR TDD in 34.123-1 7.1.2.4a	F	9.3.0	9.4.0	R5-110616
RP-51	RP-110153	2912	-	Correction to test case 8.3.7.5 for 1.28Mcps TDD	F	9.3.0	9.4.0	R5-110617
RP-51	RP-110153	2913	-	Correction Reporting cell status of 2D for LCR TDD in 34.123-1 8.4.1.26	F	9.3.0	9.4.0	R5-110618
RP-51	RP-110154	2914	-	Correction reference radio bearer configuration in 34.123-1 18.1.5.6	F	9.3.0	9.4.0	R5-110619
RP-51	RP-110156	2915	-	Correction to GCF WI-025 HSUPA RRC test case 8.3.1.41	F	9.3.0	9.4.0	R5-110625
RP-51	RP-110152	2916	-	Correction to RRC testcase 8.2.2.43 and 8.2.2.43a	F	9.3.0	9.4.0	R5-110668
RP-51	RP-110152	2917	-	Correction to GMM test case 12.3.2.1	F	9.3.0	9.4.0	R5-110669
RP-51	RP-110166	2918	-	Correction of 8.1.5.7 for auditing UE capabilities	F	9.3.0	9.4.0	R5-110670
RP-51	RP-110156	2919	-	Correction to Network selection enhancement test case 6.1.1.15	F	9.3.0	9.4.0	R5-110671
RP-51	RP-110152	2920	-	Correction to WI-12 MM test case 9.4.3.3	F	9.3.0	9.4.0	R5-110672
RP-51	RP-110152	2921	-	Corrections to GCF WI-010 GMM Test Cases 12.2.1.10, 12.4.1.4b, 12.4.1.4c, 12.4.1.4d, 12.4.3.4	F	9.3.0	9.4.0	R5-110675
RP-51	RP-110152	2922	-	Addition of new test case for Cell Broadcast Service DRX	F	9.3.0	9.4.0	R5-110676

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
RP-51	RP-110173	2923	-	New test case 17.2.7.1: MT-LR UE Based or UE-Assisted A-GNSS – Request for additional assistance data/Success	F	9.3.0	9.4.0	R5-110678
RP-51	RP-110165	2924	-	Corrections to GCF high priority Session Management test cases to cater for Rel-8 behaviour	F	9.3.0	9.4.0	R5-110680
RP-51	RP-110165	2925	-	Corrections to GCF high priority Packet Switched Mobility Management test cases to cater for Rel-8 behaviour	F	9.3.0	9.4.0	R5-110681
RP-51	RP-110152	2926	-	Correction to the GCF WI-010 Idle mode testcase 6.1.2.2	F	9.3.0	9.4.0	R5-110682
RP-51	RP-110156	2927	-	Correction to the CS over HSPA test case 8.3.1.48	F	9.3.0	9.4.0	R5-110683
RP-51	RP-110166	2928	-	Correction to TC 8.3.2.1a	F	9.3.0	9.4.0	R5-110684
RP-51	RP-110165	2929	-	Corrections to PPAC RRC test case 8.1.2.26	F	9.3.0	9.4.0	R5-110685
RP-51	RP-110165	2930	-	Update to test cases 8.1.1.13, 8.1.1.14, 8.1.1.15, 8.1.1.16, 8.1.1.17 and 8.1.1.18	F	9.3.0	9.4.0	R5-110688
RP-51	RP-110177	2931	-	New RRC test case for activation/deactivation of DC-HSDPA, MIMO and 16QAM for transition between CELL_FACH and CELL_DCH	F	9.3.0	9.4.0	R5-110696
RP-51	RP-110177	2932	-	New RRC test case for activation/deactivation of DC-HSDPA, MIMO and 64QAM for transition between CELL_FACH and CELL_DCH	F	9.3.0	9.4.0	R5-110697
RP-51	RP-110177	2933	-	New radio bearer test case 14.6.1h for Dual-Cell and MIMO	F	9.3.0	9.4.0	R5-110698
RP-51	RP-110177	2934	-	New radio bearer test case 14.6.1i for Dual-Cell and MIMO	F	9.3.0	9.4.0	R5-110699
RP-51	RP-110177	2935	-	New RRC test case for Dual Cell and MIMO activation by serving cell change	F	9.3.0	9.4.0	R5-110700
RP-51	RP-110177	2936	-	New RRC test case for Dual Cell and MIMO activation by serving cell change (SRB mapped on E-DCH/DCH)	F	9.3.0	9.4.0	R5-110701
RP-51	RP-110175	2938	-	Addition of inter-band operation test method for the LCR TDD UE that supports both band A and band F in TC 8.2.6.42a	F	9.3.0	9.4.0	R5-110784
RP-51	RP-110175	2939	-	Addition of inter-band operation test method for the LCR TDD UE that supports both band A and band F in TC 8.3.1.32a	F	9.3.0	9.4.0	R5-110785
RP-51	RP-110153	2940	-	Correction of Specific Message Content of Measurement Reports for LCR TDD	F	9.3.0	9.4.0	R5-110786
RP-51	RP-110165	2949	-	Addition of new Test Case 8.2.2.57a	F	9.3.0	9.4.0	R5-110823
RP-51	RP-110177	2950	-	New radio bearer test case 14.6.6g for Dual-Cell and MIMO	F	9.3.0	9.4.0	R5-110833
RP-51	RP-110177	2951	-	New radio bearer test case 14.6.6h for Dual-Cell and MIMO	F	9.3.0	9.4.0	R5-110834
RP-51	RP-110363	2944	-	Addition of new test case for Intra-frequency inbound handover to UMTS CSG cell without reporting proximity indication	F	9.3.0	9.4.0	R5-110870
RP-51	RP-110363	2946	-	Addition of a New TC for Intra-frequency measurements for UMTS CSG cell for non-member UE	F	9.3.0	9.4.0	R5-110871
RP-51	RP-110363	2947	-	Addition of a New TC for Intra-frequency inbound handover to UMTS hybrid cell	F	9.3.0	9.4.0	R5-110872
RP-51	RP-110363	2948	-	Addition of a New TC for Intra-frequency inbound handover to UMTS hybrid cell for non-member UE	F	9.3.0	9.4.0	R5-110873
RP-51	RP-110156	2937	-	Correction to Radio Bearer Test Procedure 14.1.3.5a	F	9.3.0	9.4.0	R5-110878
RP-52	RP-110641	2952	-	Correction to GCF WI-025 HSU test case 8.3.1.41	F	9.4.0	9.5.0	R5-112110
RP-52	RP-110638	2953	-	Correction to GCF WI-010 MAC test case 7.1.3.1	F	9.4.0	9.5.0	R5-112111
RP-52	RP-110638	2954	-	Correction to GCF WI-010 GMM test case 12.2.2.1	F	9.4.0	9.5.0	R5-112112
RP-52	RP-110652	2955	-	Corrections of UE capability test case 8.1.5.7	F	9.4.0	9.5.0	R5-112204
RP-52	RP-110661	2956	-	Addition of a new test case for multi-frequency operation for LCR TDD TC 8.2.1.35a	F	9.4.0	9.5.0	R5-112222
RP-52	RP-110661	2957	-	Addition of a new test case for multi-frequency operation for LCR TDD TC 8.2.1.36b	F	9.4.0	9.5.0	R5-112223

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
RP-52	RP-110661	2958	-	Addition of a new test case for multi-frequency operation for LCR TDD TC 8.2.2.45a	F	9.4.0	9.5.0	R5-112224
RP-52	RP-110661	2959	-	Addition of a new test case for multi-frequency operation for LCR TDD TC 8.2.2.47b	F	9.4.0	9.5.0	R5-112225
RP-52	RP-110661	2960	-	Addition of a new test case for multi-frequency operation for LCR TDD TC 8.2.3.36a	F	9.4.0	9.5.0	R5-112226
RP-52	RP-110661	2961	-	Addition of a new test case for multi-frequency operation for LCR TDD TC 8.2.6.54c	F	9.4.0	9.5.0	R5-112227
RP-52	RP-110661	2962	-	Addition of a new test case for multi-frequency operation for LCR TDD TC 8.3.1.41a	F	9.4.0	9.5.0	R5-112228
RP-52	RP-110661	2963	-	Addition of a new test case for multi-frequency operation for LCR TDD TC 8.3.1.42b	F	9.4.0	9.5.0	R5-112229
RP-52	RP-110661	2964	-	Addition of a new test case for LCR TDD TC7.1.6.2.12	F	9.4.0	9.5.0	R5-112264
RP-52	RP-110663	2965	-	Enhancement of generic radio bearer test procedure for combination of Dual-Cell and MIMO	F	9.4.0	9.5.0	R5-112364
RP-52	RP-110642	2966	-	Definition of packets and packet filters to 11.2.1a	F	9.4.0	9.5.0	R5-112443
RP-52	RP-110642	2967	-	Definition of packets and packet filters to 11.2.1b	F	9.4.0	9.5.0	R5-112445
RP-52	RP-110642	2968	-	Definition of packets and packet filters to 11.1.5.2	F	9.4.0	9.5.0	R5-112446
RP-52	RP-110642	2969	-	Correction to RRC test case 8.4.1.1	F	9.4.0	9.5.0	R5-112448
RP-52	RP-110642	2970	-	Correction to MAC CPC test case 7.1.6.2.11	F	9.4.0	9.5.0	R5-112451
RP-52	RP-110651	2971	-	Correction to RRC Enhanced Uplink in Cell FACH test case 8.2.2.65	F	9.4.0	9.5.0	R5-112453
RP-52	RP-110642	2972	-	Correction to MIMO Test Cases 8.2.6.54a, 8.2.6.63, 8.3.4.14, 14.6.1d and 14.6.6c	F	9.4.0	9.5.0	R5-112479
RP-52	RP-110651	2973	-	Clarification on the test requirement of Rel-8 HNB related test cases	F	9.4.0	9.5.0	R5-112535
RP-52	RP-110642	2974	-	New test case: 11.9.1 Routing of uplink packets	F	9.4.0	9.5.0	R5-112589
RP-52	RP-110651	2975	-	Correction to RRC MIMO test case 8.2.2.62	F	9.4.0	9.5.0	R5-112590
RP-52	RP-110664	2976	-	Update to idle mode test case for manual CSG ID selection across PLMNs	F	9.4.0	9.5.0	R5-112597
RP-52	RP-110664	2977	-	Clarification on the test requirement of Rel-9 HNB related test cases	F	9.4.0	9.5.0	R5-112699
RP-52	RP-110651	2978	-	Correction to the test procedure for transition from CELL_DCH to CELL_FACH (for LCR TDD)	F	9.4.0	9.5.0	R5-112708
RP-52	RP-110638	2979	-	Correction to test configuration for radio bearer test for DPCH UL:64 DL:64 kbps for LCR TDD	F	9.4.0	9.5.0	R5-112709
RP-52	RP-110664	2980	-	Addition of new R9 HNB test case for inter-frequency measurement for event 2B for CSG cells	F	9.4.0	9.5.0	R5-112715
RP-52	RP-110664	2981	-	Addition of new R9 HNB test case for inter-frequency measurement for event 2C for CSG cells	F	9.4.0	9.5.0	R5-112716
RP-53	R5-113142	2982	-	Addition of Notification and Verification test cases for A-GNSS	F	9.5.0	9.6.0	R5-113142
RP-53	R5-113145	2983	-	Transfer of A-GPS Assistance Data to TS 37.571-5	F	9.5.0	9.6.0	R5-113145
RP-53	R5-113172	2984	-	Various Corrections to A-GNSS Test Cases	F	9.5.0	9.6.0	R5-113172
RP-53	R5-113243	2985	-	Update of test case 16.3a	F	9.5.0	9.6.0	R5-113243
RP-53	R5-113245	2986	-	Correction ASC Available SYNC_UL codes of PRACH No.1 in TC 8.1.2.2 for LCR TDD	F	9.5.0	9.6.0	R5-113245
RP-53	R5-113246	2987	-	Correction the Measurement Reporting Mode of Mesurement Control command in TC 8.2.6.37a for LCR TDD	F	9.5.0	9.6.0	R5-113246
RP-53	R5-113307	2988	-	Correction to establishment cause in test cases 8.1.x	F	9.5.0	9.6.0	R5-113307
RP-53	R5-113330	2989	-	Corrections to TC 6.3.2.3 Inter-RAT reselection from GERAN to UTRA CSG cell	F	9.5.0	9.6.0	R5-113330
RP-53	R5-113339	2990	-	Modification of TC 8.2.6.51 for LCR TDD	F	9.5.0	9.6.0	R5-113339
RP-53	R5-113373	2991	-	Corrections to E-DCH CELL_FACH test case 7.1.8.6	F	9.5.0	9.6.0	R5-113373
RP-53	R5-113377	2992	-	Correction to TC 7.1.6.2.10a	F	9.5.0	9.6.0	R5-113377

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
RP-53	R5-113378	2993	-	Correction to TC 7.1.6.2.12	F	9.5.0	9.6.0	R5-113378
RP-53	R5-113379	2994	-	Correction to TC 7.1.6.4.1	F	9.5.0	9.6.0	R5-113379
RP-53	R5-113410	2995	-	Correction to RRC test case 8.2.2.68	F	9.5.0	9.6.0	R5-113410
RP-53	R5-113485	2996	-	Removal of RRC test case 8.3.4.19a (DC-HSDPA + MIMO)	F	9.5.0	9.6.0	R5-113485
RP-53	R5-113491	2997	-	Correction of test case 8.3.9.3 for 1.28Mcps TDD: SsearchRAT value and P-CCPCH RSCP	F	9.5.0	9.6.0	R5-113491
RP-53	R5-113523	2999	-	Addition of new test case 13.4.1	F	9.5.0	9.6.0	R5-113523
RP-53	R5-113525	3000	-	Addition of new test case 13.4.2	F	9.5.0	9.6.0	R5-113525
RP-53	R5-113526	3001	-	Addition of new test case 13.4.3	F	9.5.0	9.6.0	R5-113526
RP-53	R5-113546	3002	-	Corrections to test points for DC-HSDPA testcases	F	9.5.0	9.6.0	R5-113546
RP-53	R5-113591	3003	-	Correction to test case 6.1.1.10	F	9.5.0	9.6.0	R5-113591
RP-53	R5-113611	3004	-	Correction to RRC Enhanced FACH Uplink test case 8.3.1.50	F	9.5.0	9.6.0	R5-113611
RP-53	R5-113643	3005	-	Correction to establishment cause in test cases 11.x	F	9.5.0	9.6.0	R5-113643
RP-53	R5-113644	3006	-	Correction to PPAC RRC testcase 8.1.2.26	F	9.5.0	9.6.0	R5-113644
RP-53	R5-113645	3007	-	Correction to PPAC NAS testcase 12.2.2.10	F	9.5.0	9.6.0	R5-113645
RP-53	R5-113646	3008	-	Correction to test case 11.9.1	F	9.5.0	9.6.0	R5-113646
RP-53	R5-113647	3009	-	Correction to GCF WI-118 MIMO RRC TC 8.3.4.14.	F	9.5.0	9.6.0	R5-113647
RP-53	R5-113649	3010	-	Addition of a new test case 8.3.11.18 - Inter-RAT Cell Change Order from UTRAN to GPRS/ MIMO (Failure: with PCI Restrictions and S-CPICH Power Offset)	F	9.5.0	9.6.0	R5-113649
RP-53	R5-113650	3011	-	Addition of a new test case 8.3.11.16 - Inter-RAT Cell Change Order from UTRAN to GPRS/ MIMO (Success: with PCI Restrictions and S-CPICH Power Offset)	F	9.5.0	9.6.0	R5-113650
RP-53	R5-113651	3012	-	Corrections to RRC testcase 8.4.1.5	F	9.5.0	9.6.0	R5-113651
RP-53	R5-113736	3013	-	Addition of new test case on Attach for emergency bearer services / Rejected / No suitable cells in location area / Emergency call using the CS domain for GPRS	F	9.5.0	9.6.0	R5-113736
RP-53	R5-113737	3014	-	Addition of new test case on Emergency call in non-allowed CSG cell	F	9.5.0	9.6.0	R5-113737
RP-53	R5-113747	3015	-	New RRC test case for activation/deactivation of DB-DC-HSDPA and 16QAM	F	9.5.0	9.6.0	R5-113747
RP-53	R5-113748	3016	-	New RRC test case for activation/deactivation of DB-DC-HSDPA and 64QAM	F	9.5.0	9.6.0	R5-113748
RP-53	R5-113774	3017	-	Corrections to A-GNSS Mobile Terminated Tests	F	9.5.0	9.6.0	R5-113774
RP-53	R5-113775	3018	-	Corrections to GNSS default data sets	F	9.5.0	9.6.0	R5-113775
RP-53	R5-113778	3019	-	Addition of new TC 8.3.12.11 for Inter-frequency inbound handover to UMTS non-CSG cell	F	9.5.0	9.6.0	R5-113778
RP-53	R5-113779	3020	-	Corrections to TC 8.3.12.1 Inter-frequency inbound handover to member UMTS CSG cell	F	9.5.0	9.6.0	R5-113779
RP-53	R5-113780	3021	-	Corrections to TC 8.3.12.3 Inter-frequency inbound handover to CSG cell for non-member UE	F	9.5.0	9.6.0	R5-113780
RP-53	R5-113781	3022	-	Addition of new test case for Intra-frequency inbound handover to UMTS open cell	F	9.5.0	9.6.0	R5-113781
RP-53	R5-113786	3023	-	Correction to GCF WI-068 RRC test case 8.2.2.57	F	9.5.0	9.6.0	R5-113786
RP-53	R5-113787	3024	-	New CELL_FACH test case for implicit release with E-DCH transmission continuation back off value set to '0'	F	9.5.0	9.6.0	R5-113787
RP-53	R5-113788	3025	-	Addition of test points for radio bearer test cases for the combination of Dual-Cell and MIMO	F	9.5.0	9.6.0	R5-113788
RP-53	R5-113789	3026	-	Corrections to MiMo RRC testcases	F	9.5.0	9.6.0	R5-113789

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
RP-53	R5-113797	3027	-	Addition of a new test case 8.2.2.70 - Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH with PCI Restrictions and S-CPICH Power Offset IEs: Success (64QAM +MIMO)	F	9.5.0	9.6.0	R5-113797
RP-53	R5-113798	3028	-	Addition of a new test case 8.2.2.71 - Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH with PCI Restrictions and S-CPICH Power Offset IEs: Success (16QAM +MIMO)	F	9.5.0	9.6.0	R5-113798
RP-54	R5-115175	3029	-	Removal of test case 8.1.1.15, 8.1.1.16, 8.1.1.17 and 8.1.1.18	F	9.6.0	9.7.0	R5-115175
RP-54	R5-115217	3030	-	Correction to GCF WI-010 MAC test case 7.1.1.8	F	9.6.0	9.7.0	R5-115217
RP-54	R5-115218	3031	-	Correction to GCF WI-010 GMM test case 12.4.1.4c2	F	9.6.0	9.7.0	R5-115218
RP-54	R5-115280	3032	-	Correction Specific Message Content in SIB1 in test case 8.4.1.18 and 8.4.1.19	F	9.6.0	9.7.0	R5-115280
RP-54	R5-115281	3033	-	Correction value of 'Time to trigger' and 'Pending time after trigger' in SIB11 for LCR TDD in test case 8.4.1.17	F	9.6.0	9.7.0	R5-115281
RP-54	R5-115282	3034	-	Deletion the multi carriers for LCR TDD in test case 8.4.1.1a and 8.4.1.2a	F	9.6.0	9.7.0	R5-115282
RP-54	R5-115283	3035	-	Correction Cell parameters ID for LCR TDD in test case 8.2.6.19	F	9.6.0	9.7.0	R5-115283
RP-54	R5-115284	3036	-	Correction UL TFCS for LCR TDD in test case 8.2.1.29	F	9.6.0	9.7.0	R5-115284
RP-54	R5-115287	3037	-	Correction the Qrxlevmin value for LCR TDD in test case 8.1.2.11	F	9.6.0	9.7.0	R5-115287
RP-54	R5-115288	3038	-	Addition of new mac test cases for LCR TDD enhanced CELL_FACH	F	9.6.0	9.7.0	R5-115288
RP-54	R5-115293	3039	-	Correction the UL Transport channel identity in test case 8.2.3.35	F	9.6.0	9.7.0	R5-115293
RP-54	R5-115304	3040	-	Correction to GCF WI-068 RRC test case 8.2.2.57	F	9.6.0	9.7.0	R5-115304
RP-54	R5-115318	3041	-	Correction to enhanced FACH uplink test case 7.1.8.7	F	9.6.0	9.7.0	R5-115318
RP-54	R5-115368	3042	-	Addition of clause title 13.4	F	9.6.0	9.7.0	R5-115368
RP-54	R5-115415	3043	-	Corrections to DC-HSDPA RRC test cases.	F	9.6.0	9.7.0	R5-115415
RP-54	R5-115498	3044	-	Corrections to NISPC test cases 11.2.1a and 11.2.1b	F	9.6.0	9.7.0	R5-115498
RP-54	R5-115499	3045	-	Corrections to NISPC test case 11.3.2a	F	9.6.0	9.7.0	R5-115499
RP-54	R5-115541	3046	-	Correction to DB-DC-HSDPA test case 8.2.2.74	F	9.6.0	9.7.0	R5-115541
RP-54	R5-115542	3047	-	Correction to DB-DC-HSDPA test case 8.2.2.75	F	9.6.0	9.7.0	R5-115542
RP-54	R5-115594	3048	-	Correction to EUL CELL_FACH test case 7.1.8.6a	F	9.6.0	9.7.0	R5-115594
RP-54	R5-115595	3049	-	Correction to test cases 6.2.1.1, 6.2.1.6 and 6.2.1.10	F	9.6.0	9.7.0	R5-115595
RP-54	R5-115596	3050	-	Adding band XXII (3500MHz) to 34.123-1	F	9.6.0	9.7.0	R5-115596
RP-54	R5-115598	3051	-	Correction to GCF WI-010 NAS test case 12.4.1.4d1	F	9.6.0	9.7.0	R5-115598
RP-54	R5-115599	3052	-	Correction to GCF WI-127 RRC test case 8.1.1.13	F	9.6.0	9.7.0	R5-115599
RP-54	R5-115600	3053	-	New eCall Test Case 13.3.1.10 - eCall Inactivity State after T3243 expires	F	9.6.0	9.7.0	R5-115600
RP-54	R5-115602	3054	-	Correction to GCF WI-010 test case 8.3.2.11	F	9.6.0	9.7.0	R5-115602
RP-54	R5-115606	3055	-	Correction to GCF WI-010 MAC test cases 7.1.1.2, 7.1.1.3, 7.1.1.4, 7.1.1.5	F	9.6.0	9.7.0	R5-115606
RP-54	R5-115607	3056	-	Correction to GCF WI-010 NAS test case 12.4.1.4d procedure 2	F	9.6.0	9.7.0	R5-115607
RP-54	R5-115608	3057	-	New Radio Bearer Reconfiguration test case for DC-HSUPA and UL:QPSK DL:16QAM	F	9.6.0	9.7.0	R5-115608
RP-54	R5-115609	3058	-	New Radio Bearer Reconfiguration test case for DC-HSUPA and UL:QPSK DL:64QAM	F	9.6.0	9.7.0	R5-115609
RP-54	R5-115610	3059	-	Addition of new DC-HSUPA testcase: MAC-i/is multiplexing for Dual-Cell HSUPA	F	9.6.0	9.7.0	R5-115610

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
RP-54	R5-115611	3060	-	Deactivation and activation of secondary uplink frequency using HS-SCCH orders	F	9.6.0	9.7.0	R5-115611
RP-54	R5-115612	3061	-	Active Set Update in Soft Handover: Radio Link addition/removal on the secondary E-DCH active set	F	9.6.0	9.7.0	R5-115612
RP-54	R5-115616	3062	-	Correction the MEASUREMENT REPORT sending time in test case 8.4.1.29	F	9.6.0	9.7.0	R5-115616
RP-54	R5-115728	3064	-	Removal of CSG cells from the related SIB11 for manual CSG ID selection	F	9.6.0	9.7.0	R5-115728
RP-54	R5-115730	3065	-	Addition of new TC: Membership checking for handover to the CSG cell	F	9.6.0	9.7.0	R5-115730
RP-54	R5-115731	3066	-	Addition of new TC: Suitable Cell checking for reselection to the CSG cell	F	9.6.0	9.7.0	R5-115731
RP-54	R5-115732	3067	-	Addition of new TC: Intra-frequency inbound handover to UMTS CSG cell without specifying PSCs for SI Acquisition	F	9.6.0	9.7.0	R5-115732
RP-54	R5-115733	3068	-	Addition of new TC:Intra-frequency inbound handover to UMTS CSG cell	F	9.6.0	9.7.0	R5-115733
RP-54	R5-115737	3069	-	Addition a new RRC test case in 34.123-1 to test enhanced TS0 for LCR TDD.	F	9.6.0	9.7.0	R5-115737
RP-54	R5-115738	3070	-	Addition new MAC test cases to test data transmission in TS0 in 34.123-1 for LCR TDD	F	9.6.0	9.7.0	R5-115738
RP-54	R5-115739	3071	-	Corrections to NISPC test cases 11.1.5.1 and 11.1.5.2	F	9.6.0	9.7.0	R5-115739
RP-54	R5-115740	3072	-	Corrections to NISPC test case 11.9.1	F	9.6.0	9.7.0	R5-115740
RP-54	R5-115741	3073	-	Clarification of IPv6 related signalling in 11.1.5.2	F	9.6.0	9.7.0	R5-115741
RP-54	R5-115742	3074	-	Clarification of IPv6 related signalling in 11.1.5.1	F	9.6.0	9.7.0	R5-115742
RP-54	R5-115743	3075	-	Clarification of IPv6 related signalling in 11.2.1a	F	9.6.0	9.7.0	R5-115743
RP-54	R5-115744	3076	-	Clarification of IPv6 related signalling in 11.2.1b	F	9.6.0	9.7.0	R5-115744
RP-54	R5-115745	3077	-	Clarification of IPv6 related signalling in 11.3.2a	F	9.6.0	9.7.0	R5-115745
RP-54	R5-115746	3078	-	Clarification of IPv6 related signalling in 11.9.1	F	9.6.0	9.7.0	R5-115746
RP-54	R5-115749	3079	-	Correction to the RRC test case 8.2.2.61	F	9.6.0	9.7.0	R5-115749
RP-54	R5-115897	3063	-	Correction to DC+MIMO radio bearer test cases	F	9.6.0	9.7.0	R5-115897
RP-55	RP-120183	3080	-	Correction to eCall Test Cases	F	9.7.0	9.8.0	R5-120142
RP-55	RP-120174	3081	-	Correction to Test Case 8.2.2.71	F	9.7.0	9.8.0	R5-120143
RP-55	RP-120172	3082	-	Deleting the measurement report in step 1 for LCR TDD in test case 8.1.3.9	F	9.7.0	9.8.0	R5-120154
RP-55	RP-120183	3083	-	Correction to ETWS RRC testcase 8.1.1.13	F	9.7.0	9.8.0	R5-120177
RP-55	RP-120183	3085	-	Correction to Enhanced FACH uplink testcase 7.1.8.1	F	9.7.0	9.8.0	R5-120182
RP-55	RP-120174	3086	-	Addition of a new test case 8.2.2.72 - Radio Bearer Reconfiguration for S-CPICH based MIMO with DPCH in STTD: (16QAM +MIMO)	F	9.7.0	9.8.0	R5-120302
RP-55	RP-120184	3087	-	Removal of LCS test procedures from 34.123-1	F	9.7.0	9.8.0	R5-120366
RP-55	RP-120192	3088	-	New TC 13.4.7 IMS Emergency CT1 aspects UMTS	F	9.7.0	9.8.0	R5-120377
RP-55	RP-120171	3089	-	Correction of references to 34.108 in 34.123-1 section 12	F	9.7.0	9.8.0	R5-120380
RP-55	RP-120172	3090	-	TDD default configuration correction in test case 8.1.2.15	F	9.7.0	9.8.0	R5-120492
RP-55	RP-120183	3091	-	Correction to EUL CELL_FACH test case 7.1.8.6a	F	9.7.0	9.8.0	R5-120498
RP-55	RP-120184	3092	-	Correction to generic radio bearer test procedure 14.1.3.5a for the combination of Dual-Cell with MIMO	F	9.7.0	9.8.0	R5-120500
RP-55	RP-120171	3093	-	Correction to UTRA GMM TC 12.8	F	9.7.0	9.8.0	R5-120504
RP-55	RP-120184	3094	-	Correction to radio bearer test cases for the combination of Dual-Cell with MIMO (14.6.6x)	F	9.7.0	9.8.0	R5-120508

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
RP-55	RP-120194	3095	-	New DC-HSUPA radio bearer test case 14.7.3b	F	9.7.0	9.8.0	R5-120545
RP-55	RP-120194	3096	-	New DC-HSUPA radio bearer test case 14.7.3c	F	9.7.0	9.8.0	R5-120546
RP-55	RP-120174	3097	-	Correction to RRC DC HSDPA testcase 8.3.4.15a	F	9.7.0	9.8.0	R5-120603
RP-55	RP-120183	3098	-	Correction to PPAC RRC testcase 8.1.2.26	F	9.7.0	9.8.0	R5-120606
RP-55	RP-120174	3099	-	Addition of a new Test Case 8.3.11.17 - Inter-RAT Cell Change Order from UTRAN to GPRS/MIMO for S-CPICH based MIMO with DPCH in STTD (Failure:physical channel failure)	F	9.7.0	9.8.0	R5-120607
RP-55	RP-120174	3100	-	Corrections to Rel-7 testcase 8.4.1.50	F	9.7.0	9.8.0	R5-120608
RP-55	RP-120183	3101	-	Correction to RRC DC HSDPA testcase 8.3.4.16	F	9.7.0	9.8.0	R5-120609
RP-55	RP-120183	3102	-	Correction to RRC DC HSDPA testcase 8.3.4.16a	F	9.7.0	9.8.0	R5-120610
RP-55	RP-120183	3103	-	Correction to MAC test case 7.1.8.2	F	9.7.0	9.8.0	R5-120611
RP-55	RP-120192	3104	-	New TC 13.4.6 IMS Emergency CT1 aspects UMTS	F	9.7.0	9.8.0	R5-120688
RP-55	RP-120192	3105	-	New TC 13.4.8 IMS Emergency CT1 aspects UMTS	F	9.7.0	9.8.0	R5-120689
RP-55	RP-120183	3106	-	Correction of ETWS TC	F	9.7.0	9.8.0	R5-120773
RP-55	RP-120183	3084	-	Correction to ETWS RRC testcase 8.1.1.14	F	9.7.0	9.8.0	R5-120914
-	-	-	-	Moved to v10.0.0 with no change as a consequence of the move of 34.123-2 to Rel-10.	-	9.8.0	10.0.0	-
RP-56	RP-120649	3108	-	Correction to DB-DC-HSDPA RRC test case 8.2.2.75	F	10.0.0	10.1.0	R5-121102
RP-56	RP-120656	3109	-	Part 1: Marking DC_HSUPA test cases 7.1.9.3 and 7.1.9.4 as void	F	10.0.0	10.1.0	R5-121259
RP-56	RP-120656	3110	-	New DC-HSUPA RRC test case 8.2.2.78	F	10.0.0	10.1.0	R5-121260
RP-56	RP-120656	3111	-	Correction to DC-HSUPA RRC test case 8.2.2.76	F	10.0.0	10.1.0	R5-121261
RP-56	RP-120656	3112	-	Correction to DC-HSUPA RRC test case 8.2.2.77	F	10.0.0	10.1.0	R5-121262
RP-56	RP-120656	3113	-	Correction to DC-HSUPA RRC test case 8.3.4.20	F	10.0.0	10.1.0	R5-121263
RP-56	RP-120656	3114	-	New generic radio bearer test procedure for DC-HSUPA radio bearer combinations	F	10.0.0	10.1.0	R5-121264
RP-56	RP-120656	3115	-	Correction to DC-HSUPA RB test case 14.7.3b	F	10.0.0	10.1.0	R5-121265
RP-56	RP-120656	3116	-	Correction to DC-HSUPA RB test case 14.7.3c	F	10.0.0	10.1.0	R5-121266
RP-56	RP-120663	3117	-	New UTRAN ANR test case 8.7.1.1	F	10.0.0	10.1.0	R5-121317
RP-56	RP-120639	3118	-	Correction to Invalid configuration for UL 16QAM in TC 14.7.1a	F	10.0.0	10.1.0	R5-121382
RP-56	RP-120648	3119	-	Correction of TC 8.1.1.13, 8.1.1.14 and 8.1.1.19 for ETWS test cases	F	10.0.0	10.1.0	R5-121406
RP-56	RP-120655	3120	-	Adding new test case 13.4.4 Emergency bearer services over IMS / NORMAL-SERVICE / Authentication not accepted by the UE and Timer 3318 expires	F	10.0.0	10.1.0	R5-121500
RP-56	RP-120655	3121	-	Adding new test case 13.4.5 Authentication not accepted by the UE / Synch failure / Authentication not accepted by the UE and Timer 3320 expires	F	10.0.0	10.1.0	R5-121501
RP-56	RP-120639	3122	-	Correction to TFRC test points in Table 14.1.3.4b.2.3	F	10.0.0	10.1.0	R5-121596
RP-56	RP-120635	3123	-	Correction to Rel-99 RRC testcase 8.3.1.9	F	10.0.0	10.1.0	R5-121603
RP-56	RP-120648	3124	-	Correction to MAC-i/is test case 7.2.3.37	F	10.0.0	10.1.0	R5-121690
RP-56	RP-120648	3125	-	Correction to MAC-i/is test case 7.1.7.2	F	10.0.0	10.1.0	R5-121692
RP-56	RP-120648	3126	-	Editorial Corrections to eCall Test Cases	F	10.0.0	10.1.0	R5-121719
RP-56	RP-120639	3127	-	Correction to eCall test case 13.3.1.6 and 13.3.1.10	F	10.0.0	10.1.0	R5-121720

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
RP-56	RP-120648	3128	-	Correction to ETWS TC 8.1.1.13.	F	10.0.0	10.1.0	R5-121721
RP-56	RP-120639	3129	-	Addition of new testcase 8.3.4.x : Active Set Update: MIMO Activation by Serving cell changes with and without PCI Restrictions and S-CPICH Power Offset (16QAM + MIMO)	F	10.0.0	10.1.0	R5-121722
RP-56	RP-120638	3130	-	Correction to Rel-6 RRC testcase 8.3.1.41	F	10.0.0	10.1.0	R5-121723
RP-56	RP-120648	3131	-	Correction to Rel-8 MAC testcase 7.1.8.7	F	10.0.0	10.1.0	R5-121724
RP-56	RP-120648	3132	-	Correction to Rel-8 MAC testcase 7.1.8.3	F	10.0.0	10.1.0	R5-121725
RP-56	RP-120648	3133	-	Addition of a new test case 8.1.9c	F	10.0.0	10.1.0	R5-121726
RP-56	RP-120635	3134	-	Correction to pc_Acquiring_Inter-F_SI & pc_Acquiring_Intra-F_SI	F	10.0.0	10.1.0	R5-121731
RP-56	RP-120656	3135	-	Correction to DC-HSUPA MAC test case 7.1.9.1	F	10.0.0	10.1.0	R5-121815
RP-56	RP-120656	3136	-	Correction to DC-HSUPA MAC test case 7.1.9.5	F	10.0.0	10.1.0	R5-121816
RP-56	RP-120656	3137	-	New DC-HSUPA MAC test case 7.1.9.2	F	10.0.0	10.1.0	R5-121817
RP-56	RP-120664	3138	-	Introduction of new Test Case 8.2.2.79	F	10.0.0	10.1.0	R5-121821
RP-56	RP-120663	3139	-	New UTRAN ANR test case 8.7.1.2	F	10.0.0	10.1.0	R5-121824
RP-56	RP-120663	3140	-	New UTRAN ANR test case 8.7.1.3	F	10.0.0	10.1.0	R5-121825
RP-56	RP-120636	3141	-	Change the value of Qhyst1s in test case 6.1.2.2	F	10.0.0	10.1.0	R5-121872
RP-56	RP-120636	3142	-	Correction the configuration of cell update confirm in test case 8.2.2.4 for LCR TDD	F	10.0.0	10.1.0	R5-121873
RP-56	RP-120636	3143	-	Delete the GPRS cell in SIB 11/12 of test step e in test case 8.3.9.3 for LCR TDD	F	10.0.0	10.1.0	R5-121874
RP-56	RP-120637	3144	-	Modify the title of TC8.2.1.27b,8.2.2.36a,8.2.3.31a with addition of (TDD only)	F	10.0.0	10.1.0	R5-121875
RP-56	RP-120637	3145	-	Modify the expected sequence of TC8.2.3.30a	F	10.0.0	10.1.0	R5-121876
RP-56	RP-120637	3146	-	Modify the reference TC of TC8.2.2.36c	F	10.0.0	10.1.0	R5-121877
RP-56	RP-120648	3147	-	Addition of new test case for Cell reselection based on SIB-19 based absolute priority	F	10.0.0	10.1.0	R5-121880
RP-56	RP-120648	3148	-	Addition of new test case: 8.3.1.x- Cell Update: Inter Frequency cell reselection in CELL_FACH based on absolute priority	F	10.0.0	10.1.0	R5-121882
RP-56	RP-120635	3149	-	Correction to Test Case 8.4.1.5 - Measurement Control and Report: Intra-frequency measurement for transition from CELL_DCH to CELL_FACH state (FDD)	F	10.0.0	10.1.0	R5-121884
RP-56	RP-120636	3150	-	Delete "The UE is automatically in automatic mode after switch on" from Related ICS/IXIT statement in TC 9.4.2.2	F	10.0.0	10.1.0	R5-121886
RP-56	RP-120648	3151	-	Correction to ETWS RRC testcase 8.1.1.19	F	10.0.0	10.1.0	R5-121887
RP-56	RP-120648	3152	-	Addition of new testcase 6.2.2.x : Cell reselection based on absolute priorities in SIB19: UTRAN to GSM	F	10.0.0	10.1.0	R5-122017
RP-57	RP-121089	3153	-	Correction to GCF WI-10 RRC test case 8.1.10.1	F	10.1.0	10.2.0	R5-123133
RP-57	RP-121090	3154	-	Correction the message direction in test case 8.3.1.3a for LCR TDD.	F	10.1.0	10.2.0	R5-123190
RP-57	RP-121090	3155	-	Change the power level in test case 8.4.1.7a for LCR TDD.	F	10.1.0	10.2.0	R5-123191
RP-57	RP-121102	3156	-	Removal of ETWS test case 8.1.1.14	F	10.1.0	10.2.0	R5-123197
RP-57	RP-121102	3157	-	Correction of TC 8.1.1.13 for ETWS test case	F	10.1.0	10.2.0	R5-123427
RP-57	RP-121103	3158	-	Update of test case 13.4.1	F	10.1.0	10.2.0	R5-123455
RP-57	RP-121103	3159	-	Update of test case 13.4.2	F	10.1.0	10.2.0	R5-123456
RP-57	RP-121103	3160	-	Update of test case 13.4.3	F	10.1.0	10.2.0	R5-123457

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd-Level
RP-57	RP-121103	3161	-	Update of test case 13.4.4	F	10.1.0	10.2.0	R5-123458
RP-57	RP-121103	3162	-	Update of test case 13.4.5	F	10.1.0	10.2.0	R5-123459
RP-57	RP-121114	3166	-	Update of TC 13.4.6 (IMS Emergency CT1 aspects UMTS)	F	10.1.0	10.2.0	R5-123527
RP-57	RP-121114	3167	-	Update of TC 13.4.8 (IMS Emergency CT1 aspects UMTS)	F	10.1.0	10.2.0	R5-123529
RP-57	RP-121114	3168	-	Correction to P-GSM, E-GSM and R-GSM support handling in test case 8.1.5.7	F	10.1.0	10.2.0	R5-123568
RP-57	RP-121103	3169	-	Addition of UTRA FDD test frequencies for idle mode test cases and Operating Band XXV	F	10.1.0	10.2.0	R5-123597
RP-57	RP-121103	3170	-	Correction to CSG test case 6.3.3.1	F	10.1.0	10.2.0	R5-123604
RP-57	RP-121089	3171	-	Correction to TS 34.123-1 TC 7.1.6.2.6 "MAC-es/s correct handling of relative grants"	F	10.1.0	10.2.0	R5-123610
RP-57	RP-121111	3172	-	Addition of new RRC testcase 8.3.4.22 with discontinous reception and transmission for DC-HSDPA	F	10.1.0	10.2.0	R5-123611
RP-57	RP-121102	3173	-	Addition of new RRC test case 8.3.1.53 for Absolute priority based cell reselection failure	F	10.1.0	10.2.0	R5-123612
RP-57	RP-121092	3174	-	Correction to TS 34.123-1 TC 7.1.6.2.11 "MAC-es/e correct handling of absolute and relative grants in discontinuous downlink reception operation"	F	10.1.0	10.2.0	R5-123613
RP-57	RP-121102	3175	-	Update of UTRA test case 12.9.7b Service Request / rejected / No Suitable Cells In Location Area	F	10.1.0	10.2.0	R5-123614
RP-57	RP-121102	3176	-	Correction to Idle mode check procedure	F	10.1.0	10.2.0	R5-123615
RP-57	RP-121092	3177	-	Correction to Rel-7 CPC testcase 8.2.2.53	F	10.1.0	10.2.0	R5-123616
RP-57	RP-121102	3178	-	Correction to Rel-8 MAC-I/Is testcase 7.1.7.3	F	10.1.0	10.2.0	R5-123617
RP-57	RP-121089	3179	-	Clarification for test case 8.1.9c	F	10.1.0	10.2.0	R5-123618
RP-57	RP-121093	3180	-	Addition of a new test case: 8.1.9d	F	10.1.0	10.2.0	R5-123619
RP-57	RP-121102	3181	-	Addition of a new test case: 8.1.9e	F	10.1.0	10.2.0	R5-123620
RP-57	RP-121102	3182	-	Update to test case 8.1.5.7	F	10.1.0	10.2.0	R5-123621
RP-57	RP-121102	3183	-	Addition of new RRC test case 8.3.1.54 for Absolute priority based cell reselection when more than one cell meets the criterion.	F	10.1.0	10.2.0	R5-123622
RP-57	RP-121102	3199	-	Correction of TC 8.1.1.19 for ETWS test case	F	10.1.0	10.2.0	R5-123741
RP-57	RP-121089	3200	-	Introduction of new Test Case 8.2.2.80	F	10.1.0	10.2.0	R5-123747
RP-57	RP-121102	3201	-	Introduction of new Test Case 8.2.2.83	F	10.1.0	10.2.0	R5-123748
RP-57	RP-121114	3202	-	Correction to LCR TDD TC8.3.1.3a	F	10.1.0	10.2.0	R5-123771
RP-57	RP-121114	3163	-	New UTRAN ANR test case 8.7.1.4a (TDD)	F	10.2.0	10.2.1	R5-123501
RP-57	RP-121114	3164	-	New UTRAN ANR test case 8.7.1.5	F	10.2.0	10.2.1	R5-123502
RP-57	RP-121114	3165	-	New UTRAN ANR test case 8.7.1.5a (TDD)	F	10.2.0	10.2.1	R5-123503
RP-57	RP-121114	3184	-	Correction to UTRAN ANR test case 8.7.1.1	F	10.2.0	10.2.1	R5-123691
RP-57	RP-121114	3185	-	Correction to UTRAN ANR test case 8.7.1.2	F	10.2.0	10.2.1	R5-123692
RP-57	RP-121114	3186	-	Correction to UTRAN ANR test case 8.7.1.3	F	10.2.0	10.2.1	R5-123693
RP-57	RP-121112	3187	-	New UTRAN ANR test case 8.7.1.4	F	10.2.0	10.2.1	R5-123694
RP-57	RP-121112	3188	-	New UTRAN ANR test case 8.7.1.1a (TDD)	F	10.2.0	10.2.1	R5-123695
RP-57	RP-121112	3189	-	New UTRAN ANR test case 8.7.1.2a (TDD)	F	10.2.0	10.2.1	R5-123696
RP-57	RP-121112	3190	-	New UTRAN ANR test case 8.7.1.3a (TDD)	F	10.2.0	10.2.1	R5-123697
RP-57	RP-121112	3191	-	Addition of MDT test case 8.6.2.2	F	10.2.0	10.2.1	R5-123700

Meeting -1st-Level	Doc-1st-Level	CR	Rev	Subject	Cat	Version -Current	Version -New	Doc-2nd-Level
RP-57	RP-121112	3192	-	Addition of MDT test case 8.6.2.3	F	10.2.0	10.2.1	R5-123701
RP-57	RP-121114	3193	-	Addition of MDT test case 8.6.2.4	F	10.2.0	10.2.1	R5-123702
RP-57	RP-121114	3194	-	Addition of MDT test case 8.6.2.5	F	10.2.0	10.2.1	R5-123703
RP-57	RP-121102	3195	-	Addition of MDT test case 8.6.2.6	F	10.2.0	10.2.1	R5-123704
RP-57	RP-121115	3196	-	Addition of MDT test case 8.6.2.7	F	10.2.0	10.2.1	R5-123705
RP-57	RP-121115	3197	-	New UTRAN ANR GERAN Inter-RAT test case 8.7.2.1	F	10.2.0	10.2.1	R5-123726
RP-57	RP-121090	3198	-	New UTRAN ANR GERAN Inter-RAT test case 8.7.2.1a (TDD)	F	10.2.0	10.2.1	R5-123727
RP-57	RP-121089	3199		Refresh ToC and page headers of some parts		10.2.1	10.2.2	R5-123741
RP-57	RP-121115	3200	-	Introduction of new Test Case 8.2.2.80	F	10.1.0	10.2.2	R5-123747
RP-57	RP-121115	3201	-	Introduction of new Test Case 8.2.1.45	F	10.1.0	10.2.2	R5-123748
RP-57	RP-121090	3202	-	Correction to LCR TDD TC8.3.1.3a	F	10.1.0	10.2.2	R5-123771
RP-58	RP-121679	3203	-	Correction to ANR for UTRAN test case 8.7.1.1	F	10.2.2	10.3.0	R5-125192
RP-58	RP-121679	3204	-	Correction to ANR for UTRAN test case 8.7.1.1a	F	10.2.2	10.3.0	R5-125193
RP-58	RP-121679	3205	-	Correction to ANR for UTRAN test case 8.7.1.2	F	10.2.2	10.3.0	R5-125194
RP-58	RP-121679	3206	-	Correction to ANR for UTRAN test case 8.7.1.2a	F	10.2.2	10.3.0	R5-125196
RP-58	RP-121679	3207	-	Correction to ANR for UTRAN test case 8.7.1.3	F	10.2.2	10.3.0	R5-125197
RP-58	RP-121679	3208	-	Correction to ANR for UTRAN test case 8.7.1.3a	F	10.2.2	10.3.0	R5-125198
RP-58	RP-121679	3209	-	Correction to ANR for UTRAN test case 8.7.1.4	F	10.2.2	10.3.0	R5-125199
RP-58	RP-121679	3210	-	Correction to ANR for UTRAN test case 8.7.1.4a	F	10.2.2	10.3.0	R5-125201
RP-58	RP-121679	3211	-	Correction to ANR for UTRAN test case 8.7.1.5	F	10.2.2	10.3.0	R5-125202
RP-58	RP-121679	3212	-	Correction to ANR for UTRAN test case 8.7.1.5a	F	10.2.2	10.3.0	R5-125203
RP-58	RP-121679	3213	-	Correction to ANR for UTRAN IRAT (GERAN) test case 8.7.2.1	F	10.2.2	10.3.0	R5-125205
RP-58	RP-121679	3214	-	Correction to ANR for UTRAN IRAT (GERAN) test case 8.7.2.1a	F	10.2.2	10.3.0	R5-125206
RP-58	RP-121664	3215	-	Addition of new RRC test case 8.1.2.27 to verify UE configures according to default configuration#23 as specified in RRC Connection Setup message.	F	10.2.2	10.3.0	R5-125409
RP-58	RP-121653	3216	-	Correction to measurement test case 8.4.1.45	F	10.2.2	10.3.0	R5-125440
RP-58	RP-121653	3217	-	Addition EPLMN in test step 8b and 28b in test case 12.4.1.4a.	F	10.2.2	10.3.0	R5-125444
RP-58	RP-121654	3219	-	Correction to LCR TDD Test Case 8.2.2.36b	F	10.2.2	10.3.0	R5-125486
RP-58	RP-121676	3220	-	Update of MDT test case 8.6.2.2	F	10.2.2	10.3.0	R5-125516
RP-58	RP-121676	3221	-	Update of MDT test case 8.6.2.3	F	10.2.2	10.3.0	R5-125517
RP-58	RP-121676	3222	-	Update of MDT test case 8.6.2.4	F	10.2.2	10.3.0	R5-125518
RP-58	RP-121676	3223	-	Update of MDT test case 8.6.2.5	F	10.2.2	10.3.0	R5-125519
RP-58	RP-121676	3224	-	Update of MDT test case 8.6.2.6	F	10.2.2	10.3.0	R5-125520
RP-58	RP-121676	3225	-	Update of MDT test case 8.6.2.7	F	10.2.2	10.3.0	R5-125521
RP-58	RP-121664	3226	-	Addition of new RRC test case 8.2.2.84 to verify the default radio configuration for Cell_FACH provided in Radio Bearer Reconfiguration message.	F	10.2.2	10.3.0	R5-125618

Meeting -1st- Level	Doc-1st- Level	CR	Rev	Subject	Cat	Version - Current	Version -New	Doc-2nd- Level
RP-58	RP-121665	3227	-	Correction of Attach type in GMM test case 12.4.1.4c	F	10.2.2	10.3.0	R5-125678
RP-58	RP-121665	3228	-	Update 8.1.5.7 in Rel-10	F	10.2.2	10.3.0	R5-125679
RP-58	RP-121705	3229	-	Correction to type of detach in 9.4.5.3, 12.4.1.4a test cases	F	10.2.2	10.3.0	R5-125680
RP-58	RP-121654	3230	-	Corrections to Test Case 8.2.2.71 and 8.2.2.72	F	10.2.2	10.3.0	R5-125681
RP-58	RP-121705	3231	-	Removal of UTRA TC 6.2.1.10	F	10.2.2	10.3.0	R5-125682
RP-58	RP-121680	3232	-	Update of Test Case 8.2.2.80	F	10.2.2	10.3.0	R5-125689
RP-58	RP-121680	3233	-	Update to Test Case 8.2.2.83	F	10.2.2	10.3.0	R5-125690
RP-58	RP-121680	3234	-	Addition of new testcase 8.2.1.44 for successful Activation of 3C-HSDPA and 4C-HSDPA for different bands.	F	10.2.2	10.3.0	R5-125695
RP-58	RP-121705	3235	-	Correction of UTRA GMM TC 12.4.1.3	F	10.2.2	10.3.0	R5-125746
RP-58	RP-121663	3236	-	Update test cases of Elementary procedures for LTE capable UEs (TCs in section 9 and 12)	F	10.2.2	10.3.0	R5-126069
RP-58	RP-121665	3237	-	Update of GMM test case 12.4.1.4a	F	10.2.2	10.3.0	R5-126032
RP-58	-	-	-	Editorial correction of some page headers to v10.3.1	-	10.3.0	10.3.1	-

History

Document history		
V10.0.0	April 2012	Publication
V10.1.0	August 2012	Publication
V10.2.2	October 2012	Publication
V10.3.1	February 2013	Publication